January 30, 2023

Mr. Christopher Carthy, Chairman
and Members of the Planning Board
Town of North Castle
17 Bedford Road
Armonk, NY 10504

RE: JMC Project 20101
The Summit Club at Armonk
568 & 570 Bedford Road (NY-22)
Town of North Castle, NY

Response to Town Comments Resubmission (Golf Course Special Use Permit)

Dear Chairman Carthy and Members of the Planning Board:

On behalf of the owner and applicant, Summit Club Partners, LLC, we are pleased to submit the following documents for your continued review of the Golf Course Special Use Permit Application for the above referenced project:

1. Granoff Architects Drawings:

Dwg. No.	Title	Rev. #/Date	
Landscape:			
LS C	Cover Sheet	3	01/30/2023
LS 100.0	Overall Site Plan-Phase I	3	01/30/2023
LS 100.1A	Phase I Site Plan-Southern Development	3	01/30/2023
LS 100.1B	Phase I Site Plan-Northern Development	3	01/30/2023
LS 100.1C	Overall Site Plan-Phase I & II	3	01/30/2023
LS 100.2	Site Details	3	01/30/2023
LS 101.0	Amenities Building - Masonry Layout Plan	3	01/30/2023
LS 101.1	Amenities Building - Planting Plan	3	01/30/2023
LS 101.2	Amenities Building - Pool Fencing Layout	3	01/30/2023
LS 101.3	Amenities Building – Details	3	01/30/2023
LS 101.4	Amenities Building - Pool Deck Elevations	3	01/30/2023
LS 102	Main Entry - Planting Plan	3	01/30/2023
LS 103.1	Residential Building - Typical Planting Plan	3	01/30/2023
LS 103.2	Residential Building – Details	3	01/30/2023
LS 104	Detention Basin Planting Plan	3	01/30/2023
LS 105	Maintenance Building - Planting Plan	3	01/30/2023
LS 106	Schematic Cottages - Overall Layout	3	01/30/2023

Photometric Plan:

SL-1A	Photometric Calc Phase I & II	I	05/18/2022
	Photometric Calc Maintenance Building	I	01/26/2023

2. JMC Drawings:

Dwg. No.	Title	Rev. #/Date	
GCSP-4.0A	Overall Site Layout Plan	I	08/03/2020
SUP-1	Golf Course Special Use Permit Overall Site Layout Plan		01/30/2023
SUP-2	Golf Course Special Use Permit Fire Truck Access Plan		01/30/2023

3. "The Summit Club of Armonk: Membership Rules & Regulations", dated 01/01/2021.

4. "Integrated Turfgrass and Pest Management Plan (ITPMP) with Environmental Risk Assessment for the Brynwood Golf and Country Club, North Castle, NY", prepared by A. Martin Petrovic, Ph.D., last revised 10/28/2013.

The revisions depicted on the above noted plans reflect responses to comments outlined in the Town of North Castle Planning Department Memorandum, dated January 11, 2023. For ease of review, we have repeated and enumerated the comments in italic print, followed by our responses:

General Comments

Comment No. 1

The Applicant should submit a site plan and detailed narrative describing the proposed operation of the golf club. The plans and narrative description should depict, if proposed, golf driving ranges, golf practice greens, golf and tennis pro shops, swimming pools, tennis courts, tennis viewing pavilion, comfort stations, half-way houses, other recreational facilities, health, fitness and spa facilities, facilities for the maintenance of the golf course, any employee housing, golf cart storage/repair facilities, any proposed fueling and/or fuel storage facilities, facilities for the storage and mixing of fertilizers and pesticides, restaurants, cafes or other food service facilities and/or any facilities which may provide for outings and catered events.

Response No. 1

Refer to drawing SUP-1 "Golf Course Special Use Permit Overall Site Layout Plan", prepared by JMC, PLLC, dated 01/30/2023. In addition, please refer to the following narrative prepared by The Summit Club at Armonk as it pertains to the described operations of the golf club.

THE SUMMIT CLUB: NARRATIVE OUTLINE:

1. The club will be a private membership club where total membership will be limited to 500 members. All residents will be required to join the club and can choose to be either golf members or sport/social members. Non-resident members will also be admitted up to the membership cap. Notwithstanding the above, public play known as "high end daily fee" will be permitted during the construction period and ending, at the latest, upon issuance of the

final Certificate of Occupancy for the last residential building.

2. Activities of the club will be limited to golf, swimming, tennis, pickleball, basketball, and other indoor activities such as a health club, exercise and fitness training, group classes along with spa services.
3. The golf course was renovated pursuant to the approved Reese Jones plan in 2021 including upgrades to the practice range and practice putting green.
4. Golf carts, which are now electric, will be stored in the existing cart storage building.
5. No comfort stations, half-way houses, viewing pavilions or other permanent structures not identified on the site plan are proposed at this time.
6. The facilities of the club may be used as a day camp for children of members limited to no more than 100 children at any one time.
7. A grill restaurant & pool bar will be built as part of the Amenities Building and shall close at 11pm on Sunday -Thursdays and at 1am on Fridays & Saturdays.
8. Seating capacity of the outdoor restaurant & bar at the Amenities Building shall not exceed 150.
9. Golf outings will be held during the golf season typically Mondays-Wednesdays. The number of outings will be determined by market conditions and golf course capacity.
10. Social events will be held during the season for members & guests typically Fridays-Sundays. The number of social events will be determined by member interest and may vary from year to year.
11. The swimming pool will be built as part of the Amenities Building and used during daylight hours only Lifeguards will be provided in compliance with WCDOH regulations.
12. The restaurant & bar shall be generally operated for members and their guests and shall not be open to the public.
13. 10 guest cottages may be built on the property containing a mix of five (5) 2-bedroom & five (5) 4-bedroom designs for seasonal use by invited guests and guests of members. Said cottages may be leased, licensed or sold as investments to members or third-party investors and will be managed by the club. They will not have full kitchens and cannot be used as permanent residential units.
14. 6 tennis courts and 2 pickleball courts will be constructed on the residential parcel.
15. Locker and changing facilities shall be provided in the Amenities Building for both men & women.
16. Retail sales permitted on the premises shall be limited to that usual to a typical pro shop for the sale of appropriate clothing and sporting goods to members and guests.
17. The new maintenance building as depicted on the site plan will be built to replace the current maintenance building.
18. No employee housing is proposed at this time.
19. A future clubhouse may, or may not, be built in the location shown on the site plan. If built, as Phase 2, it will replace the current temporary facilities and be a two-story structure containing men's and women's locker rooms, spa facilities, pro shop, golf cart parking and storage on the lower level. The upper level will include a kitchen, a bar and restaurant with seating for 200, along with a management office. If it is going to be built, a separate site plan application to the Planning Board will be submitted.
20. The ITPMP has been submitted to Planning and while the club may pursue a Certified Audubon Sanctuary designation, it has not been applied for at this time.

Comment No. 2

In the past, the Applicant indicated that the club may contain lodging rooms/suites and employee housing. If proposed, the site plan should depict the location of the rooms and provide additional detail to the Planning Board.

Response No. 2

Refer to item #13 in above response #1.

Comment No. 3

Pursuant to Section 355-40.1(3) of the Town Code, the Applicant shall demonstrate that a landscape buffer of at least 25 feet in width is proposed along all lot lines adjoining or across the street from properties in residence districts.

Response No. 3

Please refer to plans prepared by Granoff Architects and drawing GCSP-4.0 "Overall Golf Course Layout Plan", prepared by JMC, PLLC (in conjunction with Reese Jones), last revised 08/03/2020.

Comment No. 4

Pursuant to Section 355-40.1(5) of the Town Code, the Applicant should provide the town with organizational documents that describe the organizational structure and operating rules of the club.

Response No. 4

Summit Country Club, LLC owns the golf club pursuant to a Land Lease from Summit Club Partners, LLC, the owner of the golf club parcel. Summit Country Club, LLC has hired Metropolitan Golf Group, based in NJ, to manage the golf club including the hiring of all club employees.
Summit Country Club, LLC is owned 50/50 by the following entities:

- LAT Westchester, LLC – substantially owned by Chris Schiavone who also owns Metropolitan Golf Group
- 568 Bedford Partners – owned by Mr. Mendell and members of his family, along with the Hollo family (FECR) as well as a few associates.

Refer to "The Summit Club at Armonk Membership Rules & Regulations" included in this submission.

Comment No. 5

The Applicant should indicate the proposed maximum total number of members proposed for the golf club.

Response No. 5

The proposed maximum total number of members proposed for the golf club is 500 members.

Comment No. 6

The Applicant shall describe whether any special golf events are proposed to occur at the club. If so, the Applicant should describe the events and the proposed number of events proposed on an annual basis.

Response No. 6

Refer to above response #1.

Comment No. 7

The Applicant shall describe whether any special social events are proposed to occur at the club. If so, the Applicant should describe the events and the proposed number of events proposed on an annual basis.

Response No. 7

Refer to above response #1.

Comment No. 8

The site plan should demonstrate that the club contains adequate off-street parking facilities for the proposed use.

Response No. 8

Refer to drawing SUP-1 "Golf Course Special Use Permit Overall Site Layout Plan", prepared by JMC, PLLC, dated 01/30/2023.

Comment No. 9

The site plan shall depict a proposed refuse/recycling enclosure.

Response No. 9

An existing refuse/recycling enclosure is located along the southern property line adjacent to the temporary club facilities which will be utilized by the proposed amenities building. In the event that a future club house is built, a trash enclosure will be located in a similar location. Refer to drawing SUP-1 "Golf Course Special Use Permit Overall Site Layout Plan", prepared by JMC, PLLC, dated 01/30/2023.

Comment No. 10

The site plan shall depict an adequate, convenient and safe vehicular and pedestrian circulation system

meeting the minimum requirements of the Town Code. The Applicant should demonstrate that all off-street parking areas meet the minimum requirements of the Town Code.

Response No. 10

The site plan depicts a vehicular and pedestrian circulation system and all off-street parking areas meeting the minimum requirements of the Town Code. Refer to drawing SUP-1 "Golf Course Special Use Permit Overall Site Layout Plan", prepared by JMC, PLLC, dated 01/30/2023 and drawing SUP-2 "Golf Course Special Use Permit Fire Truck Access Plan", prepared by JMC, PLLC, dated 01/30/2023.

Comment No. 11

The site plan should depict all proposed site lighting. All lighting shall conform to the minimum requirements of Section 355-45.M of the Town Code.

Response No. 11

The site plans depict all proposed site lighting in accordance with the minimum requirements of Section 355-45.M of the Town Code. Refer to plans prepared by Granoff Architects and Apex Lighting.

Comment No. 12

The Applicant should submit the golf course Integrated Turfgrass and Pest Management Plan (ITPMP) for review as discussed in the adopted Findings Statement.

Response No. 12

Refer to "Integrated Turfgrass and Pest Management Plan (ITPMP) with Environmental Risk Assessment for the Brynwood Golf and Country Club, North Castle, NY", prepared by A. Martin Petrovic, Ph.D., last revised 10/28/2013.

Comment No. 13

The Applicant should submit a golf course landscaping plan for review. The Findings Statement anticipated new evergreen trees and shrubs along the property line adjacent to Coman Hill Elementary School and along Bedford Road to screen the year-round view of the parking lot.

Response No. 13

A golf course landscaping plan has been prepared which depicts screening of the parking lot area from Coman Hill Elementary School (newly installed privacy fence) and Bedford Road (plantings). Refer to plans prepared by Granoff Architects.

Comment No. 14

As discussed in the Findings Statement, the Applicant proposed to remove non-native invasive plants on the site in certain locations and replacing them with non-invasive, native trees, shrubs and herbaceous plant material.

Response No. 14

Refer to drawing GCSP-4.0 "Overall Golf Course Layout Plan", prepared by JMC, PLLC (in conjunction with Reese Jones), last revised 08/03/2020. The plan depicts areas adjacent to the existing ponds that will be planted with fescue by The Summit Club at Armonk.

Comment No. 15

The Findings Statement states that the Applicant will reduce existing maintained lawn areas and replace with native low-maintenance fescues. In addition, vegetated buffers will be proposed adjacent to wetlands where they will not affect play and no mow/naturalized areas will be identified on the plans.

Response No. 15

Refer to drawing GCSP-4.0 "Overall Golf Course Layout Plan", prepared by JMC, PLLC (in conjunction with Reese Jones), last revised 08/03/2020. The plan depicts areas adjacent to the existing ponds that will be planted with fescue by The Summit Club at Armonk.

We trust the attached documents and above responses are sufficient for your review and we respectfully request placement on the February 13th Planning Board agenda at which time we would request that this application be referred back to the Town Board for continued review of the amended Special use Permit associated with the Golf Course. Thank you for your consideration.

If you have any questions or require additional information, please do not hesitate to contact our office at (914) 273-5225.

Sincerely,

JMC Planning Engineering Landscape Architecture & Land Surveying, PLLC

Paul R. Sysak, RLA
Project Manager

cc: Adam R. Kaufman, AICP
John Kellard, PE
Joseph M. Cermele, PE, CFM
Roland Baroni, Esq.
Jeffrey B. Mendell

Mark P. Weingarten, Esq.
Peter J. Wise, Esq.
Rich S. Granoff, AIA, LEED AP
Kenneth S. Andersen, AIA

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General Notes:.

- yellow dashed line is the revised area of disturbance with new proposed golf course improvements.
- new revised golf course work can be completed in 90-120 days, based on normal weather conditions.
- plan is showing harvesting the existing turf from the current chipping green and Hole #10 (those areas are being impacted with the future development and club improvements).

No.	Revision	Date	By
1.	ISSUED FOR FINAL SIGNATURE / BUILDING PERMIT	08/03/2020	JE

Previous Editions Obsolete

APPLICANT/OWNER
BRYNWOOD PARTNERS, LLC
568 BEDFORD ROAD
ARMONK, NY 10504

GOLF COURSE ARCHITECT:
REES JONES, INC.
55 SOUTH PARK STREET
MONTCLAIR, NJ 07042

JMC Planning, Engineering, Landscape Architecture & Land Surveying, PLLC
JMC Site Development Consultants, LLC
John Meyer Consulting, Inc.
120 BEDFORD ROAD • ARMONK, NY 10504
voice 914.273.5225 • fax 914.273.2102
www.jmcpllc.com

JMC

OVERALL SITE LAYOUT PLAN

BRYNWOOD GOLF & COUNTRY CLUB
568 BEDFORD ROAD (NY 22)
TOWN OF NORTH CASTLE, NEW YORK

ANY ALTERATION OF PLANS, SPECIFICATIONS, PLATS AND REPORTS BEARING THE SEAL OF A LICENSED PROFESSIONAL ENGINEER OR LICENSED LAND SURVEYOR IS A VIOLATION OF SECTION 7209 OF THE NEW YORK STATE EDUCATION LAW, EXCEPT AS PROVIDED FOR BY SECTION 7209, SUBSECTION 2.

STATE OF NEW YORK
DAVID P. LOMBARDI
071001
LICENSED PROFESSIONAL ENGINEER
[illegible]

APPROVED BY TOWN OF NORTH CASTLE PLANNING BOARD RESOLUTION, DATED 08/03/2020

______________________ DATE:
CHRISTOPHER CARTHY, CHAIRMAN,
TOWN OF NORTH CASTLE PLANNING BOARD

ENGINEERING DRAWINGS REVIEWED BY TOWN CONSULTING ENGINEER

______________________ DATE: ______________
JOSEPH M. CERMELE, P.E.
KELLARD SESSIONS CONSULTING, P.C.
CONSULTING TOWN ENGINEER

Drawn: JE	Approved: AG
Scale: 1" = 100'	
Date: 03/23/2020	
Project No: 10126	
SIRE AMENDED GOLF COURSE	AERIAL / SITE.LS
Drawing No: GCSP-4.0A	

THE SUMMIT CLUB AT ARMONK

NORTH CASTLE, NY

GENERAL NOTES:

1. CONTACT THE PROJECT LANDSCAPE ARCHITECT AT:
   GRANOFF ARCHITECTS P.C.
   330 RAILROAD AVE
   GREENWICH, CT 06830
   (203) 625-9460

2. THE TERM "CONTRACTOR" SHALL DEFINED AS THE GENERAL CONTRACTOR AND SUB-CONTRACTORS; THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK INCLUDING ALL SUBCONTRACTORS HEREON. ALL DRAWINGS AND NOTES APPLY TO ALL CONTRACTORS AND HIS/HER SUBCONTRACTORS.

3. CONTRACTOR SHALL NOTIFY THE OWNER AND LANDSCAPE ARCHITECT AT LEAST 48 HOURS PRIOR TO ANY ROUTINE FIELD OBSERVATION REQUIRED.

4. CONSTRUCTION SHALL FOLLOW THE CONDITIONS OF THE PLANS AND SPECIFICATIONS. IN ANY CASE OF DISCREPANCY BETWEEN SITE CONDITIONS AND THE DRAWINGS AND THE SPECIFICATIONS OR BETWEEN DRAWINGS AND SPECIFICATIONS NOTIFY THE LANDSCAPE ARCHITECT AS SOON AS THE DISCREPANCY IS APPARENT.

5. VERIFY LOCATIONS, ELEVATIONS AND DIMENSIONS IN FIELD PRIOR TO CONSTRUCTION. NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCY.

6. CONTACT "CALL DIG SAFELY NEW YORK" AT 1-800-962-7962 PRIOR TO ANY SITE WORK ACTIVITY. THE CONTRACTOR SHALL BE AWARE OF ALL SUBSURFACE DRAINAGE AND ALL UTILITIES AS SHOWN ON PLANS AND AS MARKED OUT ON SITE. PROTECT EXPOSED LINES FROM DAMAGE AND DEBRIS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OF ALL DAMAGED UTILITIES DUE TO CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER.

7. THE CONTRACTOR IS RESPONSIBLE FOR SECURING ALL CONSTRUCTION PERMITS AND LICENSES REQUIRED TO COMPLETE THE WORK. ALL BONDS AND INSURANCE WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.

8. IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO INFORM ALL CONTRACTORS, SUBCONTRACTORS, AND EMPLOYEES OF ALL CONDITIONS ASSOCIATED WITH ANY PERMITS ISSUED.

9. CONTRACTOR IS RESPONSIBLE FOR REPAIR OF ALL DAMAGE AND DISTURBANCE WHICH MAY OCCUR AS A RESULT OF HIS WORK.

10. BLEND NEW WORK SMOOTHLY WITH EXISTING GRADES AND MATERIALS TO REMAIN. AVOID SHARP BREAKS IN GRADE; ROUND OVER TOP AND BOTTOMS OF SLOPES.

11. FINAL GRADE IN ALL CASES SHALL SLOPE AWAY FROM THE BUILDING AT A MINIMUM OF 1/4" PER FOOT (2%) AND ALL PAVED AREAS SHALL HAVE A MINIMUM PITCH OF AT LEAST 1/8" PER FOOT (1%).

12. ALL TREES OR VEGETATION TO BE REMOVED OR TRANSPLANTED ARE TAGGED ON SITE WITH FLAGGING TAPE. REFER TO TREE PROTECTION PLANS, NOTES AND DETAILS.

13. THE CONTRACTOR SHALL PROTECT ALL CATCH BASINS WITH FILTER FABRIC OR STAKED HAY BALES AND SHALL EMPLOY ALL OTHER NECESSARY MEANS TO CONTROL AND PREVENT EROSION THROUGHOUT THE CONSTRUCTION PERIOD UNTIL ALL AREAS STABILIZED. THE CONTRACTOR SHALL MINIMIZE THE AMOUNT OF DISTURBED AREA EXPOSED AT ANY ONE TIME AND STABILIZE THE AREA AS SOON AS PRACTICAL. REFER TO EROSION CONTROL DRAWINGS, NOTES AND DETAILS. ALL DRAINAGE STRUCTURES ARE TO BE CLEANED OF ANY ACCUMULATED DEBRIS AT THE END OF PROJECT CONSTRUCTION. SEE TREE PROTECTION & EROSION CONTROL DETAILS SHEET.

14. THE CONTRACTOR SHALL MAINTAIN ACCESS AND EGRESS TO THE SITE AT ALL TIMES DURING CONSTRUCTION. NOTIFY OWNER 24 HOURS IN ADVANCE OF ANY DISRUPTION IN ACCESS. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TRAFFIC CONTROL DEVICES, WARNING SIGNS, BARRICADES, FLASHERS, FLAG MEN, ETC.) IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, USDOT, FHA 1988 PT. VI, TRAFFIC CONTROLS FOR STREETS AND HIGHWAY CONSTRUCTION AND MAINTENANCE OPERATIONS AS MAY BE AMENDED TO DATE, FOR THE MAINTENANCE AND PROTECTION OF BOTH VEHICULAR AND PEDESTRIAN TRAFFIC.

15. TRAFFIC SHALL BE MAINTAINED AT ALL TIMES ON BEDFORD RD. THE STREET SHALL NOT BE CLOSED TO TRAFFIC, NOR SHALL ANY TRAFFIC BE DETOURED TO OTHER STREETS WITHOUT PRIOR WRITTEN APPROVAL OF THE VILLAGE TRAFFIC ENGINEER.

16. WORKING HOURS AND ALL NOISE PRODUCING ACTIVITIES MUST CONFORM TO THE TOWN OF NORTH CASTLE REGULATED WORKING HOURS.

17. REMOVAL AND DISPOSAL OF ALL MATERIALS TO COMPLY WITH ANY AND ALL STATE AND LOCAL CODES AND REGULATIONS.

18. THE CONTRACTOR IS TO RESTORE TO ORIGINAL CONDITION ALL DISTURBED AREAS CAUSED BY THE ACTIVITIES OF THE PROJECT.

19. THE CONTRACTOR IS RESPONSIBLE TO SUPERVISE THE ASSEMBLY OF ALL MATERIALS.

20. THE CONTRACTOR SHALL DETERMINE THE METHODS, MEANS, TECHNIQUES, SEQUENCES AND PROCEDURES OF IMPLEMENTING THE PROJECT.

21. THE CONTRACTOR SHALL COMPLETE ALL WORK REQUIRED TO PRODUCE A COMPLETE JOB IN ACCORDANCE WITH THE BEST APPLICABLE STANDARDS. IT IS INTENDED THAT THE WORK BE EXECUTED IN ACCORDANCE WITH THE BEST CUSTOMARY BUILDING PRACTICES. IF WORK IS REQUIRED IN A MANNER TO MAKE IT IMPOSSIBLE TO PRODUCE FIRST CLASS WORK OR IF ERRORS, CONFLICTS OR DISCREPANCIES APPEAR AMONG THE CONTRACT DOCUMENTS, INFORM THE LANDSCAPE ARCHITECT IMMEDIATELY AND REQUEST INTERPRETATION BEFORE PROCEEDING WITH THE WORK. IF THE CONTRACTOR FAILS TO MAKE SUCH A STATEMENT AND REQUEST, NO EXCUSE WILL THEREAFTER BE ENTERTAINED, NOR ADDITIONAL EXPENSE BE ACCEPTED FOR FAILURE TO CARRY OUT WORK IN A SATISFACTORY MANNER.

22. CONTRACTOR SHALL REFER TO ADDITIONAL NOTES FOUND THROUGHOUT THE CONTRACT DRAWINGS.

OUTDOOR LIGHTING NOTES:

1. ALL LIGHTING WORK SHALL BE DONE IN ACCORDANCE WITH NATIONAL ELECTRIC CODE AND IN ACCORDANCE WITH THE STANDARDS AND REQUIREMENTS OF THE TOWN OF NORTH CASTLE, INCLUDING PERMITS AND REQUIRED INSPECTIONS

2. ALL FIXTURES SHALL BE FULL CUTOFF; SHALL BE COMPLIANT WITH DARK SKY RECOMMENDATIONS; OR FITTED WITH SHROUDS TO SHIELD THE LIGHT SOURCE.

3. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL FIXTURES, OUTLETS AND SWITCHES LISTED AND SHOWN ON PLANS. SIZE AND PROVIDE ALL TRANSFORMERS AND JUNCTION BOXES NECESSARY TO COMPLETE THE WORK, INCLUDING CONDUIT, WIRE, FITTINGS, EXCAVATION, BACKFILL, ETC. REQUIRED TO MAKE A COMPLETE FUNCTIONING SYSTEM. ALL FIXTURES SHALL BE SUPPLIED WITH LAMPS. THE LEAST WATT LAMP SHALL BE SUPPLIED , SUBJECT TO THE OWNERS'S APPROVAL. RE-LAMPING WITH MAXIMUM WATT LAMPS MAY BE REQUIRED.

4. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL CONDUITS NECESSARY FOR A COMPLETE INSTALLATION. THIS INCLUDES SIZING GALVANIZED STEEL AND PVC WITH ALL ASSOCIATED FITTINGS, COUPLINGS AND BUSHINGS. ALL LINE VOLTAGE SHALL BE IN CONDUIT WITH A MINIMUM COVER OF 24 INCHES AND A MINIMUM OF 12 INCHES OF COMPACTED SAND AROUND IT AND AS PER CODE. METALLIC CAUTION TAPE SHALL BE PLACED 6 INCHES BELOW FINISHED GRADE.

5. ALL WIRING AND TRENCHING TO TREE TRUNKS BENEATH TREE CANOPIES TO BE RADIAL TO TREE TRUNK AND APPROVED BY L.A. PRIOR TO GROUND DISTURBANCE. TRENCHING WITHIN THE TREE CANOPY SHALL BE EXCAVATED WITH AN AIR SPADE TOOL TO MINIMIZE ROOT DAMAGE. CARE IS TO BE TAKEN TO PREVENT EXPOSED TREE ROOTS FROM DRYING.

6. FINAL SWITCH LOCATIONS TO BE APPROVED BY OWNER. CONTRACTOR SHALL VERIFY AND COORDINATE NEW SWITCHES WITH EXISTING INTERIOR LIGHTING. DRAWING SHOWS PROPOSED LANDSCAPE LIGHTING AND DOES NOT SHOW EXISTING ARCHITECTURAL LIGHTING

7. FINAL FIXTURE PLACEMENT TO BE APPROVED BY THE LANDSCAPE ARCHITECT & OWNER AFTER NIGHTTIME DEMONSTRATION OF INITIAL PLACEMENT.

8. ALL PATH LIGHTS TO BE LOCATED 12" BACK FROM EDGE OF PAVING UNLESS OTHERWISE DIRECTED BY THE LANDSCAPE ARCHITECT.

9. LOCATIONS OF TRANSFORMERS, JUNCTION BOXES, FIXTURES AND OUTLETS ARE A GRAPHIC REPRESENTATION AND MAY NOT SHOW PRECISE LOCATION. FINAL LOCATIONS TO BE APPROVED BY L.A. PRIOR TO INSTALLATION. ACTUAL WIRING ROUTES ARE NOT SHOWN ON THIS PLAN. WIRING ROUTES INDICATED ARE A GRAPHIC REPRESENTATION OF CONNECTIONS AND GROUPINGS OF LIGHTS FOR SWITCHING. L.A. TO APPROVE WIRING ROUTES PRIOR TO GROUND DISTURBANCE. ALL LINE VOLTAGE RUNS IN CONDUIT MINIMUM 18 INCHES DEEP OR AS PER LOCAL CODE..

10. STAKE MOUNTED UPLIGHTS TO BE MOVABLE WITHIN A SIX (6) FOOT RADIUS OF INSTALLED LOCATION.

11. TRANSFORMERS FOR LOW VOLTAGE LIGHTING AND JUNCTION BOXES NOT SHOWN. CONTRACTOR TO DETERMINE NUMBER REQUIRED AND COORDINATE THEIR LOCATION WITH THE LANDSCAPE ARCHITECT.

12. WIRING SIZES ARE TO BE DETERMINED BY ELECTRICIAN TO INSURE FULLY FUNCTIONAL SYSTEM WITH NO MORE THAN A 5% VOLTAGE DROP FROM EACH TRANSFORMER TO FARTHEST FIXTURE ON LINE FROM THAT TRANSFORMER..

13. ALL WIRE CONNECTIONS TO BE THOROUGHLY SEALED WITH SILICONE SEALANT & WILL BE LOCATED WITHIN FIXTURE STEMS, TREE MOUNTS, OR JUNCTION BOXES WHEREVER POSSIBLE. DIRECT BURIAL OF LOW VOLTAGE CONNECTIONS WILL BE MINIMIZED. DIRECT BURIAL CONNECTIONS FOR LINE VOLTAGE WILL NOT BE PERMITTED.

14. REVIEW EXISTING CONDITIONS AND PROPOSED PLANTING PLANS. ELECTRICIAN TO BE RESPONSIBLE FOR RESTORING ANY SITE OR UTILITY DAMAGE CAUSED BY HIS INSTALLATION WORK.

15. SEE LIGHTING PLAN FOR LIGHT FIXTURE TYPE AND SPECIFICATIONS.

TREE PROTECTION AND EROSION CONTROL NOTES:

1. ALL TREE PROTECTION AND REMOVALS SHALL BE IN ACCORDANCE WITH THE DRAWINGS, DETAILS AND NOTES HEREON. REFER TO TREE PROTECTION DRAWINGS AND DETAILS FOR ADDITIONAL INFORMATION

2. PRIOR TO ANY OTHER WORK, THE CONTRACTOR SHALL STAKE OUT THE LIMITS OF "TREE PROTECTION AREAS" WITHIN THE WORK ZONE AS SHOWN ON THE PLANS FOR APPROVAL BY THE LANDSCAPE ARCHITECT. IF NO TREE/LANDSCAPE PROTECTION AREA LIMITS ARE SPECIFICALLY SHOWN ON THE PLANS AND WORK WILL OCCUR IN OR NEAR TREES OR VEGETATED AREAS, THE LANDSCAPE ARCHITECT WILL DIRECT THE CONTRACTOR. THE INTENT OF THE LIMITS ARE TO PROTECT THE ROOT ZONE OF INDIVIDUAL TREES AND GROUPINGS OF TREES (USING THE "DRIPLINE" - THE VERTICAL PROJECTION TO THE GROUND OF THE TREES' CANOPY - AS A GUIDE), LAWNS AND OTHER VALUABLE VEGETATION TO THE MAXIMUM EXTENT FEASIBLE WHILE ALLOWING THE CONTRACTOR SUFFICIENT ROOM TO OPERATE. THEREFORE, THE CONTRACTOR MUST ASSESS THE ADEQUACY OF THE ALLOWED SPACE FOR ALL CONCEIVABLE ACTIVITIES INCLUDING THE PARKING OF PERSONAL VEHICLES. IT IS UNDERSTOOD THAT WORK MAY NEED TO OCCUR IN THE ROOT ZONE OF TREES. IN SUCH CASES, THE CONTRACTOR MAY PROPOSE ADJUSTMENTS TO THE STAKEOUT OF PROTECTION LIMITS TO SUIT FIELD CONDITIONS AND SUCH OPERATIONS. ANY SUCH ADJUSTMENTS SHALL BE SHOWN ON A PLAN AND/OR APPROVED IN THE FIELD BY THE LANDSCAPE ARCHITECT.

3. THE CONTRACTOR SHALL NOT STOCKPILE MATERIAL, PARK ANY VEHICLE, OR DRIVE ANY VEHICLE WITHIN THE DRIP LINE OF EXISTING TREES. IT IS UNDERSTOOD THAT LOCALIZED STAGING/STORAGE AREAS MAY BE NECESSARY IN ADDITION TO ANY MAIN AREAS SHOWN ON PLANS. THE CONTRACTOR SHALL COORDINATE WITH THE LANDSCAPE ARCHITECT FOR ANY AREAS OUTSIDE TREE/LANDSCAPE PROTECTION FOR AREAS APPROPRIATE FOR STORAGE OF MATERIALS, AND EQUIPMENT AS WELL AS PARKING OF CONTRACTOR'S VEHICLES AND ACCESS ROUTES THROUGH THE ACTIVE WORK ZONE. THESE AREAS MUST BE DEFINED BY APPROPRIATE FENCING AND MUST MEET ALL TREE PROTECTION SPECIFICATIONS.

4. ONCE PROTECTION FENCING IS IN PLACE, THE CONTRACTOR SHALL NOT ENTER OR DAMAGE OR DIMINISH THE LANDSCAPE OR ANY PORTION THERE OF WITHIN THE DEFINED TREE/LANDSCAPE PROTECTION AREAS. AT ALL TIMES DURING THE COURSE OF THE PROJECT, THE CONTRACTOR SHALL AVOID SOIL COMPACTION, POLLUTION, EROSION AND IMPACTS TO EXISTING VEGETATION UNLESS REMOVAL, SELECTIVE THINNING OR CLEARING ARE SPECIFIED IN THE DRAWINGS.

5. WHERE WORK AREAS MUST ENCROACH ON TREE ROOT ZONES , THE CONTRACTOR, IF ORDERED BY LANDSCAPE ARCHITECT OR AS NOTED ON THE PLANS, SHALL FURNISH APPROXIMATELY 12-INCH LAYER OF WOOD CHIPS OR ACCESS MAT WITHIN THE DRIP LINE AREA TO REDUCE SOIL COMPACTION ON UNPAVED AREAS TO MINIMIZE SOIL COMPACTION AND PREVENT CONTAMINATION OF EXISTING SOIL. UNDER NO CIRCUMSTANCES MAY PETROLEUM PRODUCTS, CONCRETE WASH WATER, PAINT, OR OTHER POLLUTANTS BE ALLOWED TO SEEP INTO THE LANDSCAPE.

6. THE LANDSCAPE ARCHITECT MUST BE NOTIFIED WHENEVER TRENCHING OCCURS WITHIN THE DRIPLINE FOR ANY TREE. ALL EXCAVATION WITHIN THE DRIP LINE OF A TREE OR NEAR THE DRIP LINE SHALL BE PERFORMED WITH AN AIR SPADE. THERE WILL BE NO SEPARATE PAYMENT FOR ANY REQUIRED AIR SPADE EXCAVATION. SEE ROOT PRUNING AND TRENCHING DETAILS.

7. NO TREE PRUNING MAY BE PERFORMED EXCEPT BY (OR UNDER THE SUPERVISION OF) A QUALIFIED TREE-CARE PROFESSIONAL APPROVED BY THE LANDSCAPE ARCHITECT.

8. "UNAUTHORIZED" TREE REMOVALS: IF THE CONTRACTOR REMOVES TREES NOT IDENTIFIED ON THE DRAWINGS OR REMOVES TREES NOT APPROVED BY LANDSCAPE ARCHITECT, OR SO SEVERELY DAMAGES TREES AS A RESULT OF CONSTRUCTION ACTIVITY THAT IN THE JUDGMENT OF LANDSCAPE ARCHITECT THEY MUST BE REMOVED, THE CONTRACTOR SHALL PROVIDE REPLACEMENT TREES AT HIS/HER OWN EXPENSE SUCH THAT FOR EACH TREE REMOVED EQUALS ONE SIX INCH CALIPER TREE AS APPROVED BY THE LANDSCAPE ARCHITECT. THE FINAL LOCATION OF REPLACEMENT TREES SHALL BE WITHIN THE PROJECT LIMITS AND WILL BE LOCATED IN THE FIELD BY THE LANDSCAPE ARCHITECT. IF PLANTING WITHIN THE LIMITS IS NOT POSSIBLE THE LANDSCAPE ARCHITECT, OWNER, AND CONTRACTOR SHALL AGREE ON APPROPRIATE MITIGATION. ANY REPLACEMENT TREES PLANTED AS MITIGATION MUST BE WATERED, MAINTAINED AND GUARANTEED PER PLANTING SPECIFICATIONS IN THE DRAWINGS AND AT NO ADDITIONAL COST.

9. LANDSCAPE MAINTENANCE DURING CONSTRUCTION: DURING THE COURSE OF THE PROJECT, THE CONTRACTOR SHALL MAINTAIN THE APPEARANCE OF THE PROJECT SITE BY REMOVING LITTER, DEBRIS AND EXCESS MATERIALS, AS A RESULT OF THE CONSTRUCTION OPERATIONS, FROM THE WORK SITE ON A REGULAR BASIS AND SHALL STORE ALL CONSTRUCTION EQUIPMENT AND CONSTRUCTION MATERIAL IN AN ORGANIZED MANNER THROUGHOUT THE CONSTRUCTION PERIOD.

10. IN CASE OF A TREE REMOVAL, ALL REMNANTS INCLUDING, BUT NOT LIMITED TO, STUMPS, TRUNKS, LIMBS, BRANCHES, AND FOLIAGE SHALL BE DISPOSED OF AS EXPEDITIOUSLY AS POSSIBLE.

11. RESTORATION OF LANDSCAPE: ALL EXCESS MATERIALS AND DEBRIS RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE REMOVED BY THE CONTRACTOR, AS PART OF SITE RESTORATION. ALL SOIL DIMINISHED AND/OR CONTAMINATED WITH EXCESS MATERIAL AND DEBRIS SHALL ALSO BE REMOVED AND REPLACED WITH TOPSOIL ACCEPTABLE TO THE LANDSCAPE ARCHITECT. THE CONTRACTOR, AS DIRECTED BY LANDSCAPE ARCHITECT, SHALL RESTORE A MINIMUM OF 6" OF NEW TOPSOIL ON ALL AREAS WHERE THE TOPSOIL LAYER HAS BEEN DIMINISHED OR LOST DUE TO HIS/HER OPERATIONS. OUTSIDE THE DRIP LINE OF TREES, IF IT IS DETERMINED BY THE LANDSCAPE ARCHITECT THAT THE SOIL HAS BEEN COMPACTED DURING THE COURSE OF THE PROJECT, IT WILL BE UNCOMPACTED AND LOOSENED (BY USE OF AN AIR SPADE WITHIN AND NEAR THE DRIPLINES OF TREES) TO THE DEPTH OF 12 INCHES PRIOR TO FINAL GRADING OR PLANTING. UNDER NO CIRCUMSTANCES MAY HEAVY EQUIPMENT (I.E. PAYLOADERS) BE USED TO ACCOMPLISH SITE RESTORATION WITHIN THE DRIP LINE OF TREES. IN ALL ROOT-SENSITIVE AREAS, WORK MUST BE DONE USING ONLY AN AIR SPADE.

12. ALL UTILITY CONFLICTS WITH PROPOSED TREES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT.

13. CONTRACTOR SHALL REFER TO TO THE DEMOLITION/EROSION CONTROL PLAN FOR MORE INFORMATION

PLANTING NOTES:

1. SEE DEMOLITION AND EROSION CONTROL DRAWING FOR EXISTING PLANTS TO BE STOCKPILED AND MAINTAINED FOR TRANSPLANTING. ADDITIONAL PLANTINGS MAY BE REQUIRED FOR TOP OF WALL BARRIER PLANTING AND WILL BE REQUESTED UPON OWNER'S APPROVAL ADDITIONAL PLANTING PHASES TO BE COMPLETED IN SEPARATE CONTRACT (SPRING SEASON).

2. TOPSOIL FOR PLANTING:
   A. MATERIAL: TOPSOIL SHALL CONSIST OF NATURAL LOAM, FREE FROM SUBSOIL, OBTAINED FROM AN AREA THAT HAS NEVER BEEN PREVIOUSLY STRIPPED. MANUFACTURED OR AMENDED SOILS ARE NOT ACCEPTABLE UNLESS OTHERWISE DIRECTED BY LANDSCAPE ARCHITECT.
   B. QUALITY: TOPSOIL SHALL BE OF UNIFORM QUALITY, FREE FROM HARD CLODS, STIFF CLAY, HARD PLAN, SODS, PARTIALLY DISINTEGRATED STONE, LIME, CEMENT, ASHES, SLAG, CONCRETE, TAR RESIDUES, TARRED PAPER, BOARDS, CHIPS, STICKS, OR ANY OTHER UNDESIRABLE MATERIAL.
   C. NO TOPSOIL SHALL BE DELIVERED, MANIPULATED OR HANDLED IN A FROZEN OR MUDDY CONDITION. THE LANDSCAPE ARCHITECT RESERVES
   THE RIGHT TO REJECT, ON OR AFTER DELIVERY, OF ANY MATERIAL THAT DOES NOT, IN THEIR OPINION, MEET THESE SPECIFICATIONS.:

3. IRRIGATION SYSTEM (SEPARATE PRICE):
   A. THE EXISTING IRRIGATION SYSTEM SHALL BE MODIFIED AND SHALL BE A FULLY OPERATIONAL AND COMPLETE IN-GROUND IRRIGATION SYSTEM, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
   - ALL EXCAVATION, TRENCHING, PUMPS, FILTERS, VALVES, BOXES, TIMERS, CONNECTIONS, WIRING, PIPING, DRIP TUBE, HEADS AND EMITTERS AS NECESSARY.
   B. CONTRACTOR IS REQUIRED TO COORDINATE WORK WITH IRRIGATION CONTRACTOR. CONTRACTOR SHALL PROVIDE SLEEVES AS INDICATED ON THE DRAWINGS OR AS REQUIRED BY THE IRRIGATION INSTALLER

4. NEW SEED (INCLUDING FINE GRADING) WHERE REQUIRED
   A. INSTALLATION OF SEED SHALL INCLUDE FINE GRADING, PREPARATION OF SOIL BED, INCORPORATION OF FERTILIZER AND LIME, PROTECTION (BEFORE AND AFTER INSTALLATION) AND MAINTENANCE UNTIL FINAL ACCEPTANCE
   B. SEED MIX SHALL BE LOW MAINTENANCE, NATIVE, AND DROUGHT TOLERANT MIX WITH ANNUAL RYE. SEED MIX APPROPRIATE FOR TIME OF PLANTING. SEED MIX TO BE APPROVED BY THE LANDSCAPE ARCHITECT. SEEDING RATE SHALL BE AS RECOMMENDED BY THE MANUFACTURER.
   C. FERTILIZER FOR LAWNS: FERTILIZE LAWN AREAS EVENLY USING MECHANICAL METHODS ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND AS DIRECTED. FERTILIZER TO BE "SCOTTS ORGANIC CHOICE LAWN FOOD" BY THE SCOTTS MIRACLE-GRO COMPAN 14111 SCOTTSLAWN ROAD MARYSVILLE, OH 43041, OR AS RECOMMENDED BY THE SOD GROWER, OR APPROVED EQUAL.
   D. ACCEPTANCE (OF SEED): THE LANDSCAPE ARCHITECT SHALL REJECT ANY AREAS OF SEED WHICH IN THEIR OPINION HAS NOT PROPERLY GERMINATED TO FORM AN EVEN AND VIGOROUS GROWING BED. REJECTED SEED BEDS SHALL BE PREPARED AND RE-SEEDED AT NO COST TO THE OWNER. SEED LAWNS SHALL BE READY FOR ACCEPTANCE AFTER A MINIMUM OF A 60 DAY ACTIVE GROWING PERIOD, UNTIL A UNIFORM STAND OF 2 ½ INCHES IS OBTAINED, WITH A MINIMUM OF 95% COVERAGE. UNACCEPTED SEED LAWNS SHALL BE RE-SEEDED AS SPECIFIED.

5. MAINTENANCE OF SEED:

-THE CONTRACTOR SHALL PROPERLY WATER AS OFTEN AS REQUIRED TO MAINTAIN OPTIMUM GROWING CONDITIONS UNTIL FINAL ACCEPTANCE. THE CONTRACTOR SHALL MAINTAIN LAWN AT ONE AND A HALF TO THREE INCHES (1-1/2 TO 3") IN HEIGHT, FOR TWO MOWINGS OR UNTIL ACCEPTANCE. CONTRACTOR SHALL MONITOR IRRIGATION SYSTEM TO ENSURE NEW SOD AND SEED LAWNS RECEIVE PROPER AMOUNTS OF WATER.

-MAINTAIN ALL LAWNS THROUGHOUT AND IMMEDIATELY FOLLOWING PLANTING OPERATIONS UNTIL PROJECT IS CERTIFIED SUBSTANTIALLY COMPLETE.

- MAINTAIN SURFACES AND SUPPLY ADDITIONAL TOPSOIL WHERE NECESSARY, INCLUDING AREAS AFFECTED BY EROSION.
REPLANT DAMAGED LAWN AREAS SHOWING GROWTH FAILURE, DETERIORATION, BARE OR THIN SPOTS AND ERODED AREAS.
.

DRAWING LIST:

LS C	COVER SHEET
LS 100.0	OVERALL SITE PLAN - PHASE I
LS 100.1A	PHASE I SITE PLAN - SOUTHERN DEVELOPMENT
LS 100.1B	PHASE I SITE PLAN - NORTHERN DEVELOPMENT
LS 100.1C	OVERALL SITE PLAN - PHASE I & II
LS 100.2	SITE DETAILS
LS 101.0	AMENITIES BUILDING - MASONRY LAYOUT PLAN
LS 101.1	AMENITIES BUILDING - PLANTING PLAN
LS 101.2	AMENITIES BUILDING - POOL FENCING LAYOUT
LS 101.3	AMENITIES BUILDING - DETAILS
LS 101.4	AMENITIES BUILDING - POOL DECK ELEVATIONS
LS 102	MAIN ENTRY - PLANTING PLAN
LS 103.1	RESIDENTIAL BUILDING - TYPICAL PLANTING PLAN
LS 103.2	RESIDENTIAL BUILDING - DETAILS
LS 104	DETENTION BASIN PLANTING PLAN
LS 105	MAINTENANCE BUILDING - PLANTING PLAN
LS 106	SCHEMATIC COTTAGES - OVERALL LAYOUT

REFER TO GRANOFF ARCHITECTS ARCHITECTURAL PLANS FOR ADDITIONAL BUILDING INFORMATION

REFER TO JMC CIVIL PLANS FOR ADDITIONAL SITE INFORMATION

REFER TO DRAKELEY INDUSTRIES PLANS FOR ADDITIONAL POOL INFORMATION

ABBREVIATIONS:

B.P.	BOTTOM PIER	MANUF.	MANUFACTURER
B.S.	BOTTOM STEP	MAX.	MAXIMUM
B.W.	BOTTOM WALL	MFR.	MANUFACTURER
BL	BASE LINE	MIN.	MINIMUM
BC	BOTTOM OF CURB	MH.	MAN HOLE
BLDG.	BUILDING	NEC.	NECESSARY
CL	CENTER LINE	N.I.C	NOT IN CONTRACT
CMU	CONCRETE MASONRY UNIT	N.T.S	NOT TO SCALE
CONC.	CONCRETE	NO./#	NUMBER
CONT.	CONTINUOUS	OC	ON CENTER
DI	DRAIN INLET	PL	PROPERTY LINE
DIA.	DIAMETER	R	RISER
DN.	DOWN	REQ'D	REQUIRED
EA.	EACH	R.O.W.	RIGHT OF WAY
EJ	EXPANSION JOINT	SPEC.	SPECIFICATION
EL.	ELEVATION	SQ.	SQUARE
ELEV.	ELEVATION	T	TREAD
EQ.	EQUAL	TC	TOP OF CURB
E.W.	EACH WAY	T.P	TOP PIER
EX.JT.	EXPANSION JOINT	T.S.	TOP STAIR
EXP.JT.	EXPANSION JOINT	T.W.	TOP WALL
EX	EXISTING	TBD	TO BE DETERMINED
EXIST.	EXISTING	TYP.	TYPICAL
FL	FLOW LINE	UW	UNDER WATER
FLR.	FLOOR	UG	UNDERGROUND
FLWR	FLOWER	VIF	VERIFY IN FIELD
FTG.	FOOTING	W.L.	WATER LINE
G	GRATE ELEVATION/RIM ELEV.	W/	WITH
H.B.	HOSE BIB	W/O	WITHOUT
JNT.	JOINT	WT	WATERTABLE

REFER TO OTHER DRAWINGS FOR LEGENDS AND KEYS

LOCATION MAP:

LOCAL MAP (N.T.S.)

North

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330 RAILROAD AVENUE
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REVISIONS

#	DATE	REVISION DESCRIPTION	BY:
1	10/24/2022	PLANNING BOARD SUBMISSION	KA
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PHASE
PLANNING BOARD SUBMISSION

PROJECT NAME
SUMMIT CLUB

ARMONK, NY

JOB NO.: ----
DRAWN BY: JS PROJ. MANAGER: KA
DATE: 01/30/2023 SCALE: AS NOTED

DRAWING TITLE
COVER - LANDSCAPE

DRAWING NO.
LC

UNDERSTORY PLANTING PALETTE:

AMELANCHIER ARBOREA | CERCIS CANADENSIS | PICEA GLAUCA

RHODODENDRON MAXIMUM | HYDRANGEA QUERCIFOLIA | VACCINIUM CORYMBOSUM | VIBURNUM DENTATUM

ORNAMENTAL PLANTING PALETTE:

TILIA CORDATA 'GREENSPIRE' | BUXUS VARIOUS SIZES | VIBURNUM OPULUS

SPOROBULUS HETEROLEPIS | CALAMAGROSTIS 'KARL FOERSTER' | LIRIOPE SPICATA

NEPETA 'BLUE WONDER' | SALVIA NEMOROSA 'CARADONNA' | ASTILBE 'VISIONS IN WHITE'

NATURALISTIC PLANTING PALETTE:

AGASTACHE MIXED WITH ECHINACEA MEADOW MIX | LARGE SWATHS OF GRASSES WITH TREES AND SHRUBS | AMSONIA DRIFTS FOR FALL INTEREST COLOR

MASONRY WALL ALONG RT 22

PROPOSED NEW ENGLAND FIELDSTONE WALL STYLE, TERMINATING AT ENTRY ROADWAY IN SLIT STONE PIERS WITH LIGHTS

LAYERING TRANSITIONING FROM MOWED LAWN, TO WOODED AREAS | LARGE SWATHS OF GRASSES, WITH MOWED PATHS

MIXED TALL FESCUE SEED MIX

PROPOSED GOLF CART ONLY ACCESS

PROPOSED POTABLE WATER TREATMENT BUILDING AND TANK

EXISTING BUILDING TO BE REMOVED. PROPOSED MAINTENANCE BUILDING *SEE ARCHITECTURAL DRAWINGS*

PROPOSED SEWAGE TREATMENT PLANT

PROPOSED TOTAL LIMIT OF DISTURBANCE 1,485,047 S.F. / 419.4 AC.) (INCLUDES TRENCHING TO WATER SUPPLY WELLS)

SEE L104 FOR DETENTION BASIN PLANTING PLAN *DETENTION BASIN SIZED BY ENGINEER*

PROPOSED BUILDING

PROPOSED BUILDING

PROPOSED BUILDING

PROPOSED BUILDING

PROPOSED BUILDING

PROPOSED 2.5:1 SLOPE

PROPOSED 2.5:1 SLOPE

RELOCATED 15,000 SF HEALTHY GREEN

PROPOSED POOL PATIO

PHASE I AMENITIES *DESIGN BY GRANOFF ARCHITECTS*

CAST ENTRANCE

TOTAL CARRY OVER PARKING SPACES

TRAILER

GAZEBO

ASPHALT

ASPHALT

ASPHALT

APPROXIMATE EDGE OF ASPHALT

APPROXIMATE LOCATION OF EXISTING WATER MAIN CROSSING (12" C 716 F 83)

STABILIZED SLOPE TALL FESCUE MIX *V.I.F. EXISTING TREES TO REMAIN. INCORPORATE NEW PLANTINGS AROUND REMAINING EXISTING TREES*

CHAMPIONSHIP COURT

TENNIS COURTS & PICKLE BALL COURTS NOT TO BE LIT FOR NIGHT USE

CAST GRANITE

CAST GRANITE

SUMMIT OVAL LAWN

PROPOSED TOTAL LIMIT OF DISTURBANCE 1,485,047 S.F. / 419.4 AC.) (INCLUDES TRENCHING TO WATER SUPPLY WELLS)

PROPOSED 2.5:1 SLOPE OR STEEPER ROCK FACE AS COORDINATED WITH GEOTECHNICAL ENGINEER

GRADE CHANGE NECESSARY FOR ROADWAY, SEE CIVIL TOPO . STABILIZE SLOPE BY CREATING A NATURALISTIC PLANTING AREA SURROUNDING EXISTING TREES TO REMAIN. ORNAMENTAL TALL FESCUE MIXTURE TBD FROM ERNST SEED OR EQUAL.

PROPOSED FESCUE BERMS WITH SHADE TREE MATRIX

EXISTING TENNIS COURTS TO BE REMOVED AND RESTORED WITH TALL FESCUE MIX UP TO NEW NATIVE UNDERSTORY PLANTINGS

APPROXIMATE LINE OF BUFFER EDGE

UNDERSTORY BUFFER PLANTING (TYP.): REMOVE BRAMBLE AND SELECTIVE REMOVAL OF EXISTING TREES BASED ON EXISTING HEALTH/CONDITION OF TREE AND PROPOSED WORK. INFILL PLANTING WITH EVERGREEN TREES/SHRUBS, FLOWERING TREES/SHRUBS FOR VISUAL INTEREST. ACTUAL QUANTITY TO BE VERIFIED IN FIELD PRIOR TO BIDDING.

UNDERSTORY PLANTING PALETTE TO INCLUDE:
AMELANCHIER CANADENSIS
CERCIS CANADENSIS
PICEA GLAUCA
RHODODENDRON MAXIMUM
HYDRANGEA QUERCIFOLIA
VACCINIUM CORYMBOSUM
VIBURNUM DENTATUM

PROPOSED EXTENSION OF FIELDSTONE WALL +/- 15' OFF EDGE OF PAVEMENT, GENTLY CURVING OFF ROADWAY AT ENTRY DRIVE. MAINTAIN LEVEL HEIGHT FOLLOWING CONTOURS. VERIFY LOCATION IN FIELD

ORNAMENTAL ENTRY PLANTING: INSTALL FOUNDATION SHRUB PLANTINGS WITH DECORATIVE ARRAY OF GRASSES, PERENNIALS AND SEASONAL ANNUALS

PROPOSED ENTRY ALLEE OF STATELY TREES PLANTED 25' O.C.

PROPOSED ENTRY WALL TO GENTLY CURVE BACK INTO SITE AND TERMINATE WITH 3X3' ILLUMINATED STONE PIERS

PROPOSED EXTENSION OF FIELDSTONE WALL +\- 15' OFF EDGE OF PAVEMENT, GENTLY CURVING OFF ROADWAY AT ENTRY DRIVE. MAINTAIN LEVEL HEIGHT FOLLOWING CONTOURS. VERIFY LOCATION IN FIELD

UNDERSTORY BUFFER PLANTING (TYP.): REMOVE BRAMBLE AND SELECTIVE REMOVAL OF EXISTING TREES BASED ON EXISTING HEALTH/CONDITION OF TREE AND PROPOSED WORK. INFILL PLANTING WITH EVERGREEN TREES/SHRUBS, FLOWERING TREES/SHRUBS FOR VISUAL INTEREST. ACTUAL QUANTITY TO BE VERIFIED IN FIELD PRIOR TO BIDDING.

UNDERSTORY PLANTING PALETTE TO INCLUDE:
AMELANCHIER CANADENSIS
CERCIS CANADENSIS
PICEA GLAUCA
RHODODENDRON MAXIMUM
HYDRANGEA QUERCIFOLIA
VACCINIUM CORYMBOSUM
VIBURNUM DENTATUM

REVIEW CONDITION OF EXISTING FIELDSTONE WALL, REPAIR AND EXTEND. LOCATE AND MAINTAIN HISTORIC MILE MARKER.

OVERALL SITE PLAN

1" = 50'-0"

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PHASE
PLANNING BOARD SUBMISSION

PROJECT NAME
SUMMIT CLUB

ARMONK, NY

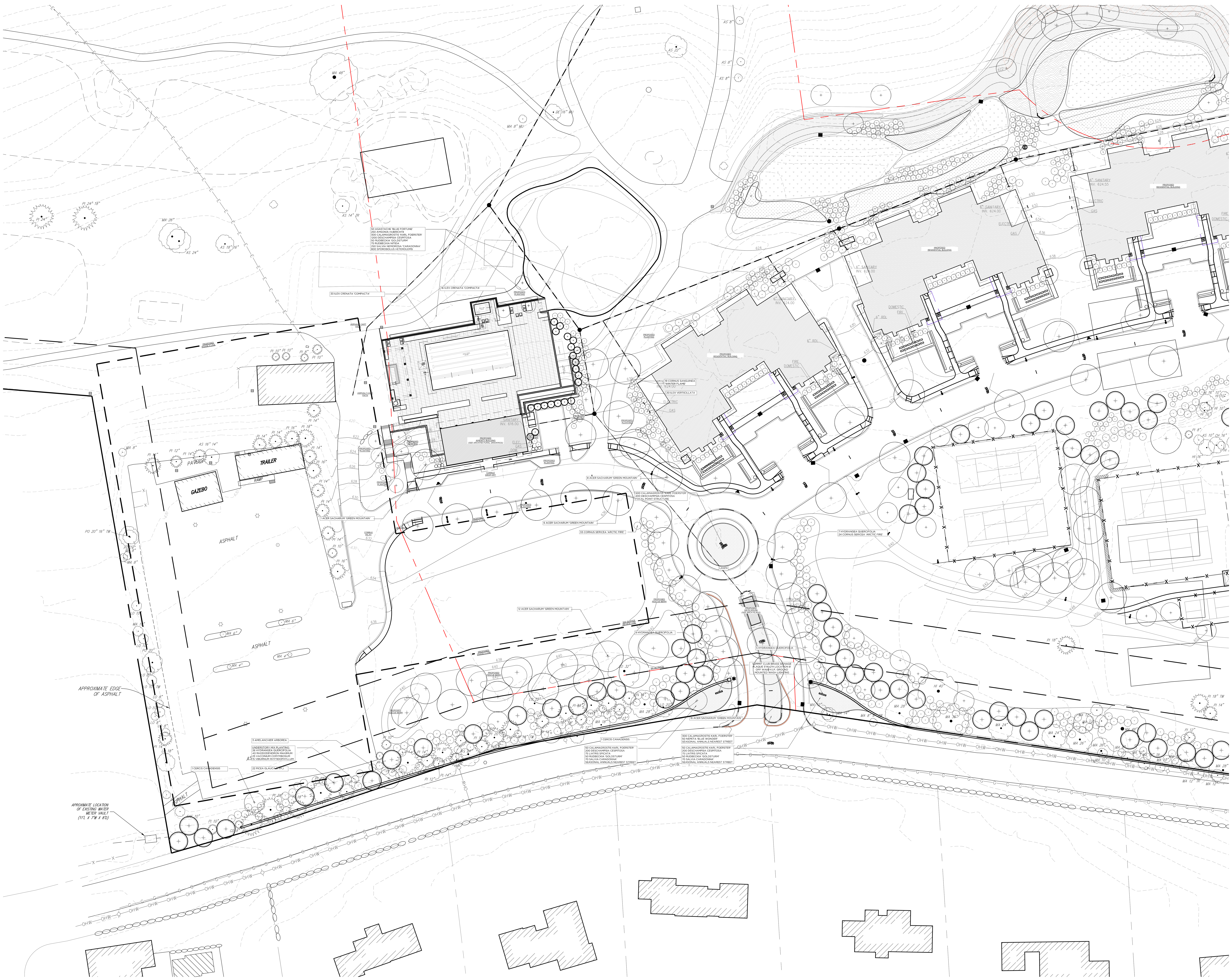
JOB NO.: ----

DRAWN BY: JS | PROJ. MANAGER: KA

DATE: 01/30/2023 | SCALE: AS NOTED

DRAWING TITLE
OVERALL SITE PLAN - PHASE I

DRAWING NO.
LS 100.0



OVERALL SITE PLAN - SOUTHERN DEVELOPMENT

1" = 30'-0"

Jan 30, 2023 Z:\brynwood 2.0\10_construction drawings\02_cd_landscape architecture\SHEET FILES\LS 100.1A OVERALL SITE PLAN - SOUTHERN DEVELOPMENT.dwg

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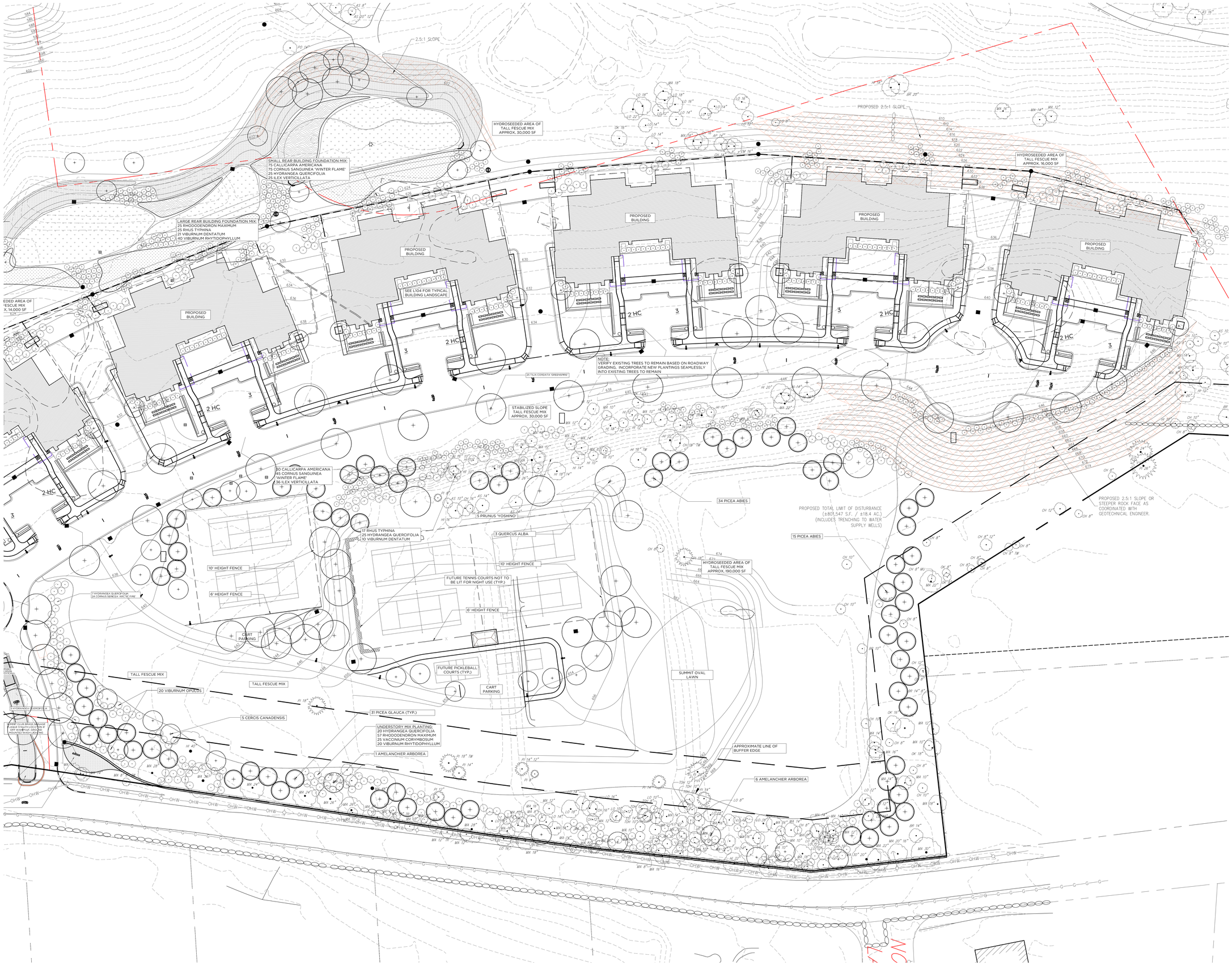
DRAWING TITLE
PHASE I SITE PLAN - SOUTHERN DEVELOPMENT

DRAWING NO.
LS 100.1A



OVERALL SITE PLAN - NORTHERN DEVELOPMENT

1" = 30'-0"

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PHASE

PLANNING BOARD SUBMISSION

PROJECT NAME

SUMMIT CLUB

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DRAWN BY: JS PROJ. MANAGER: KA

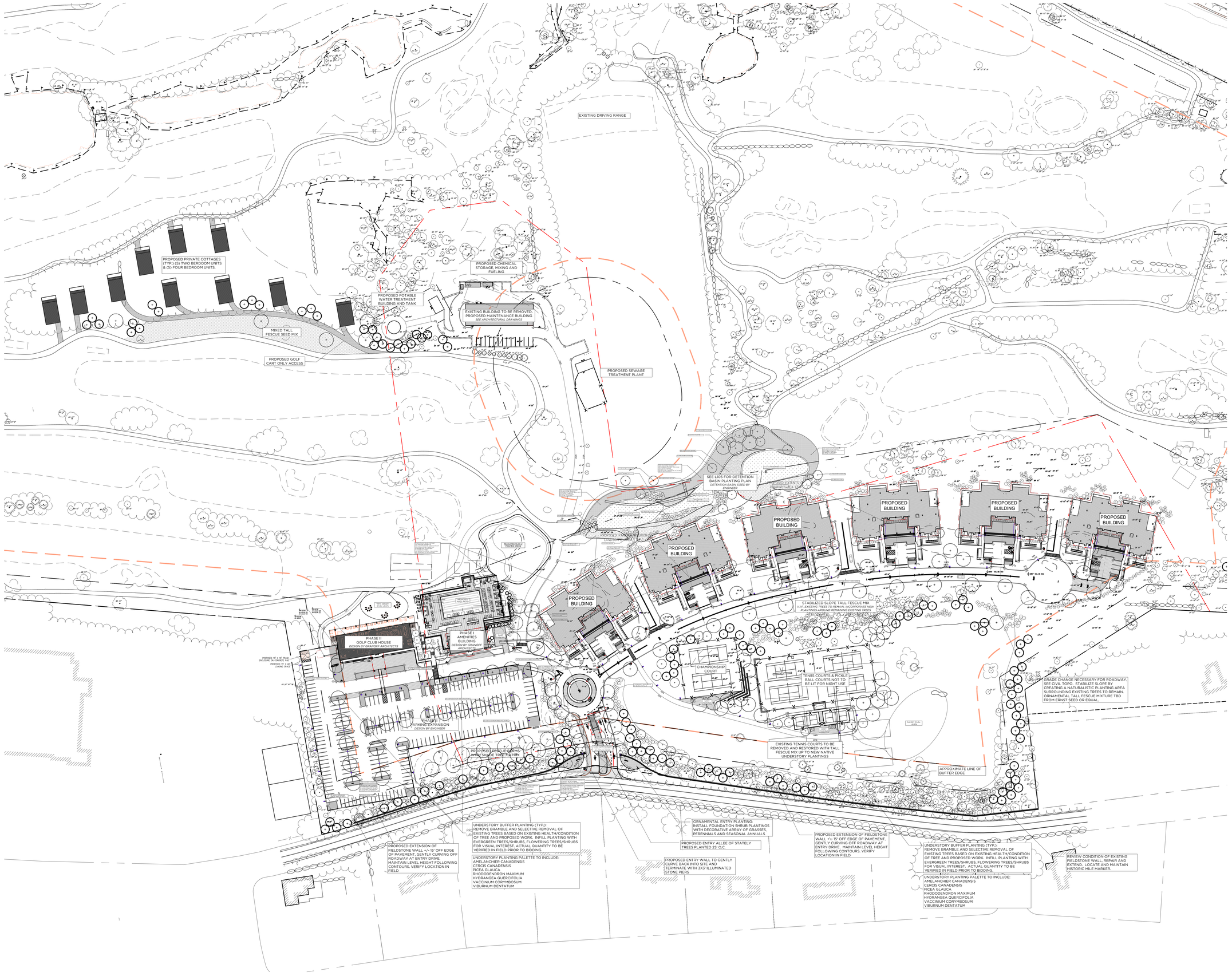
DATE: 01/30/2023 SCALE: AS NOTED

DRAWING TITLE

PHASE I SITE PLAN - NORTHERN DEVELOPMENT

DRAWING NO.

LS 100.1B



OVERALL SITE PLAN

1" = 64'-0"

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PHASE
PLANNING BOARD SUBMISSION

PROJECT NAME
SUMMIT CLUB

ARMONK, NY

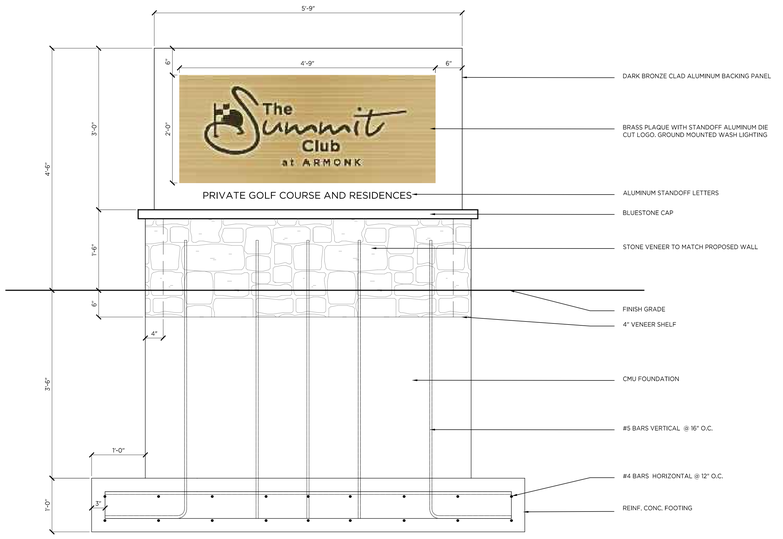
JOB NO.: ----

DRAWN BY: JS PROJ. MANAGER: KA

DATE: 01/30/2023 SCALE: AS NOTED

DRAWING TITLE
OVERALL SITE PLAN - PHASE I & II

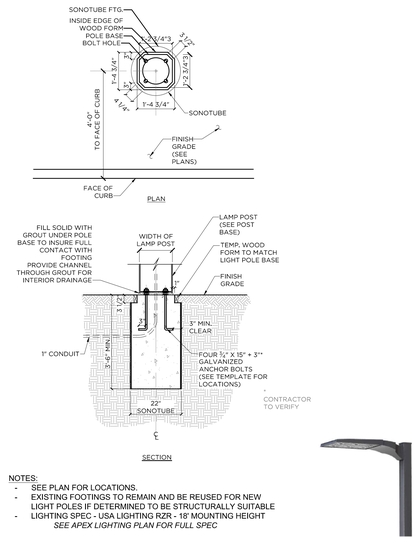
DRAWING NO.
LS 100.1C



NOTES:
- PROVIDE SHOP DRAWINGS FOR APPROVAL
- FINAL LOCATION TO BE DETERMINED IN FIELD

1 ENTRY MONUMENT SIGNAGE

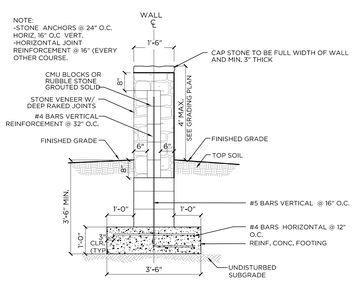
1"=1'-0"



NOTES:
- SEE PLAN FOR LOCATIONS.
- EXISTING FOOTINGS TO REMAIN AND BE REUSED FOR NEW LIGHT POLES IF DETERMINED TO BE STRUCTURALLY SUITABLE
- LIGHTING SPEC - USA LIGHTING RZR - 18' MOUNTING HEIGHT
  SEE APEX LIGHTING PLAN FOR FULL SPEC

4 CONCRETE LIGHT POST FOOTING DETAIL

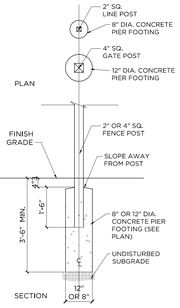
1/2"=1'-0"



2 FREE STANDING STONE WALL W/ CONCRETE FOOTING DETAIL

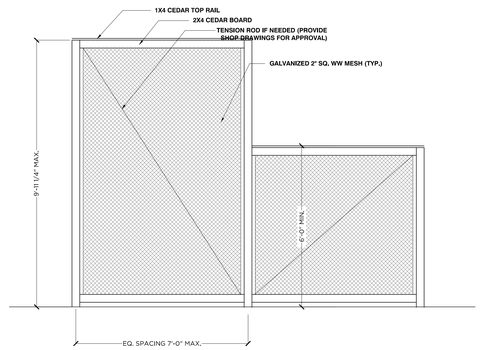
1/2"=1'-0"

STONE VENEER INTENT



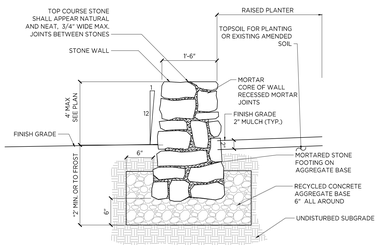
5 TENNIS COURT FENCING POST DETAIL

1/2"=1'-0"



6 TENNIS COURT FENCING PANEL DETAIL

1/2"=1'-0"



MASONRY WALL INTENT - WILL DEPEND ON STONE FOUND FROM SITE EXAVATION

NOTES:

1. STONE TYPE FOR WALL SHALL MATCH EXISTING STONE WALL. ALL EXISTING STONE TO BE RE-USED WHEREVER POSSIBLE.
2. SEE PLANS FOR LOCATION AND HEIGHT OF STONE WALL - HEIGHT MEASURED FROM AT-GRADE TO APPROX. 48 INCHES (SEE PLANS & VERIFY IN FIELD W. LANDSCAPE ARCHITECT)
3. INTERIOR CORE TO BE MORTARED TO THE TOP OF THE WALL, JOINTS SHALL BE RECESSED.
4. EXTERIOR FACE OF WALL TO LOOK DRY-LAID. WALL SHALL HAVE NATURAL RANDOM PATTERN TO MATCH EXISTING WALL.
5. IF FOOTING DEPTH CANNOT BE ACHIEVED, COORDINATE WITH THE LANDSCAPE ARCHITECT.

3 FREE STANDING STONE WALL ALTERNATIVE DETAIL

1"=1'-0"

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203.625.9460
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2	11/02/2022	ARB SUBMISSION	KA
3	01/30/2023	PLANNING BOARD SUBMISSION	KA

PHASE
PLANNING BOARD SUBMISSION

PROJECT NAME
SUMMIT CLUB

ARMONK, NY

JOB NO.: ----
DRAWN BY: JS PROJ. MANAGER: KA
DATE: 01/30/2023 SCALE: AS NOTED

DRAWING TITLE
SITE DETAILS

DRAWING NO.
LS 100.2

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PROPOSED RELOCATED TEE BOX. LOCATION TBD.

PROPOSED RELOCATED TEE BOX. TBD

PROPOSED RELOCATED 15,000 sf PRACTICE GREEN

SPA TUB 10'x15'

ELEVATED LIFEGUARD STAND (TYP.)

POOL DECK DRAIN PIPE COORDINATE WITH CIVIL DRAINAGE DESIGN

PROPOSED DECK SLOT DRAIN

ADULT POOL 45'X82'

ELEVATED LIFEGUARD STAND (TYP.)

ADA LIFT (TYP.)

PROPOSED PORCELAIN ON REINFORCED CONCRETE SLAB POOL DECK, ALL REBAR TO BE PROPERLY GROUNDED AND BONDED

SURGE TANK

POOL EQ. AREA OPTION

PROPOSED BAR

ASPHALT CART PATH

PROPOSED DECK SLOT DRAIN GROUNDED AND BONDED (TYP.)

TW 626.0 +
BW 621.0 +

TW 626.0 +

BW 622.0 +
TW 626.0 +

TW 631.4

BS 620.5 +
TS 622.24 +

BW 620.6 +

BW 627.0 +
TW 633.0 +

TW 633.0

TW 633.0

633.0 +

BS 622.5 +

TS 625.98 +

BS 626.17 +

TS 627.86 +

PROPOSED PLANTING

PROPOSED AMENITY BUILDING
(SEE ARCHITECTURAL DRAWINGS)

PROPOSED PLANTING

PROPOSED PLANTING

ACCESS DRIVE 2

BS 628.02 +

TS 631.5 +

PROPOSED PLANTING

COBBLE DROP OFF

5+00

4+00

N

AMENITIES BUILDING POOL PATIO LAYOUT PLAN

1/8" = 1'-0"

REVISIONS

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PROJECT NAME
SUMMIT CLUB

ARMONK, NY

JOB NO.: ----

DRAWN BY: JS PROJ. MANAGER: KA

DATE: 01/30/2023 SCALE: AS NOTED

DRAWING TITLE
AMENITIES BUILDING - MASONRY LAYOUT PLAN

DRAWING NO.

LS 101.0

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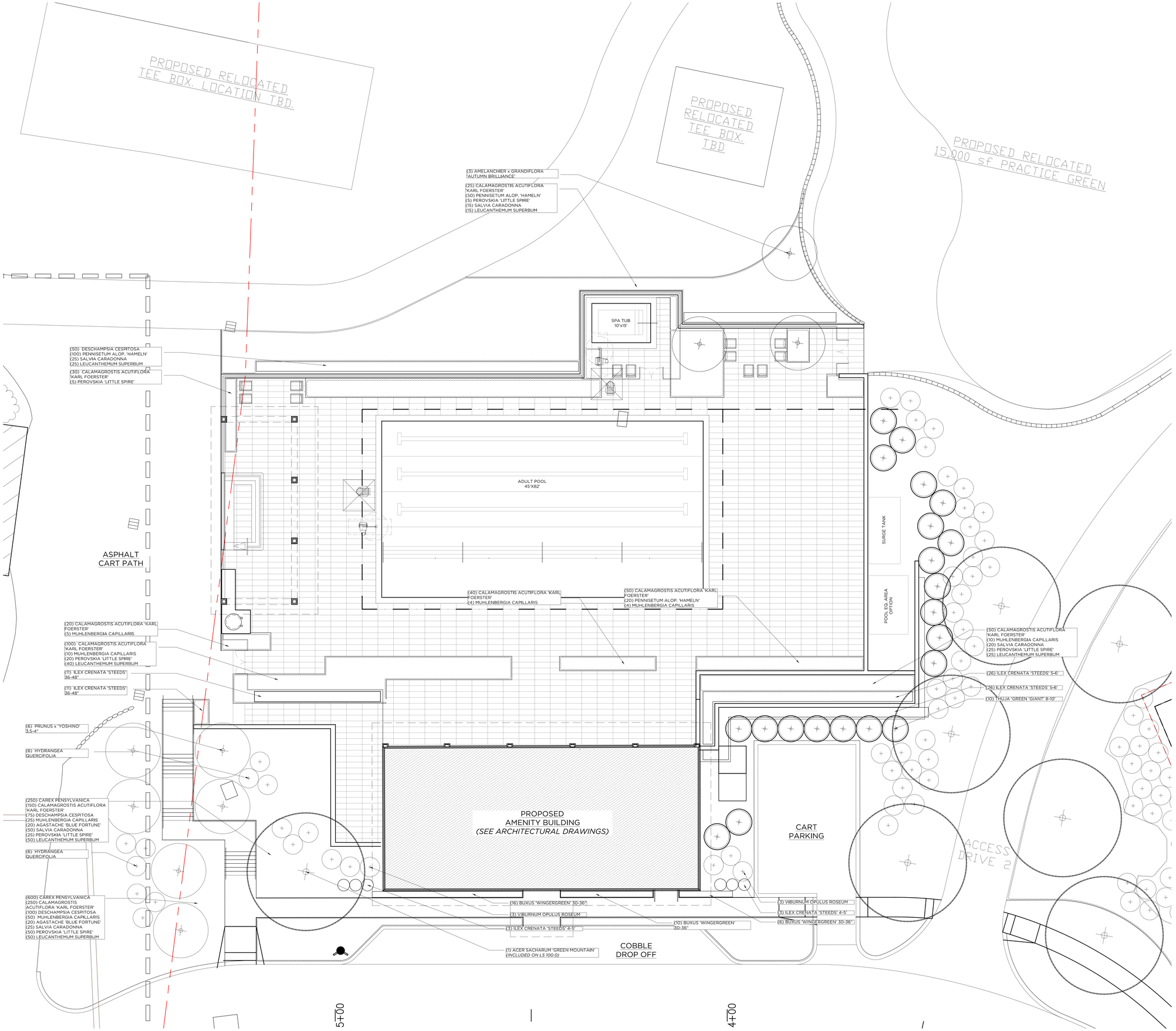

AMENITIES BUILDING PLANTING PLAN

1/8" = 1'-0"

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ARMONK, NY

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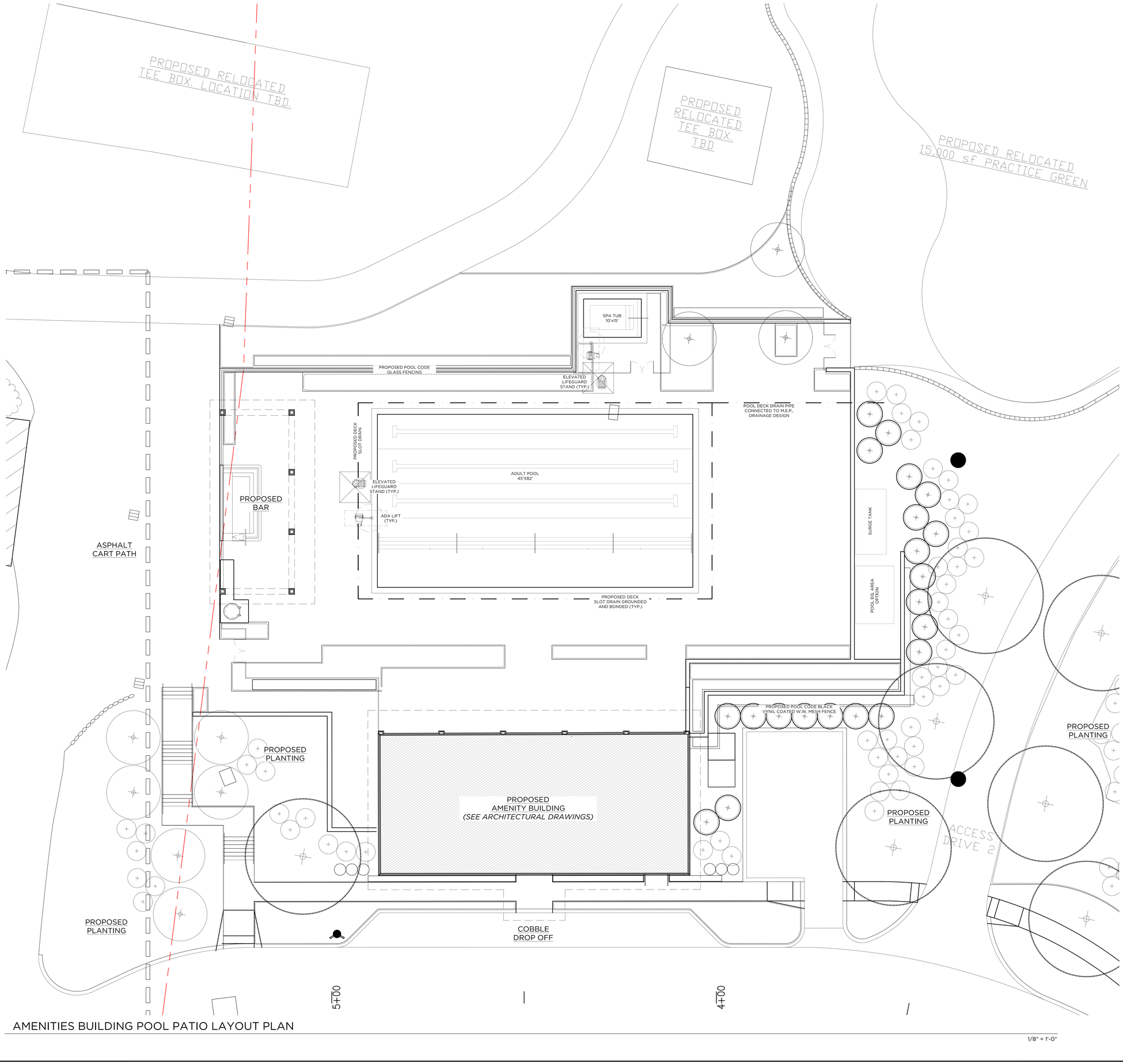
DATE: 01/30/2023 SCALE: AS NOTED

DRAWING TITLE
AMENITIES BUILDING - PLANTING PLAN

DRAWING NO.
LS 101.1



AMENITIES BUILDING POOL PATIO LAYOUT PLAN

1/8" = 1'-0"

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PROJECT NAME

SUMMIT CLUB

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JOB NO.: ----

DRAWN BY: JS PROJ. MANAGER: KA

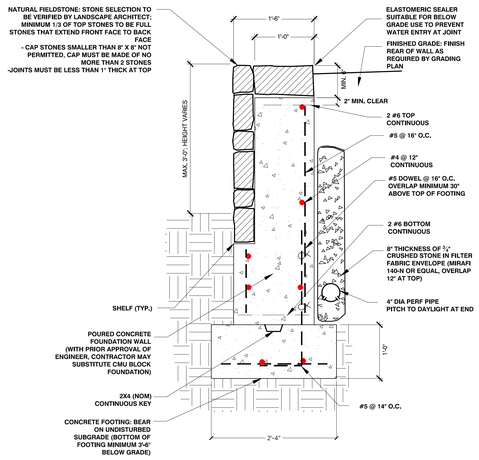
DATE: 01/30/2023 SCALE: AS NOTED

DRAWING TITLE

AMENITIES BUILDING - POOL FENCING PLAN

DRAWING NO.

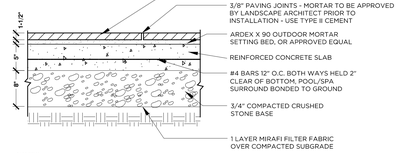
LS 101.2



1 STONE VENEER RETAINING WALL 0' - 3' DETAIL

1"=1'-0"

PORCELAIN TILE
INTENT - COLOR TBD



NOTES:
1. ALL CONCRETE SLABS MUST BE SUPPORTED ON HAUNCHES FROM ADJOINING WALLS AND SWIMMING POOL AND/OR PIERS TO UNDISTURBED DUE TO PRESENCE OF LOOSE FILL ON SITE
2. CONTRACTOR SHALL SUBMIT STONE SAMPLE FOR APPROVAL BY L.A. PRIOR TO INSTALLATION.
3. CONTRACTOR SHALL FURNISH 6' X 6' MOCK-UP OF PAVING ON SAND TO ILLUSTRATE PATTERN FOR APPROVAL BY L.A.
4. REFER TO DRAWINGS FOR LOCATION OF PAVEMENT TYPES.
5. ALL STONE SURFACES TO BE SEALED WITH APPROPRIATE STONE SEALER MANUFACTURED BY PROSOCO AND APPLIED AS PER MANUFACTURERS INSTRUCTIONS.
6. POOL CONTRACTOR SHALL PROVIDE SHOP DRAWINGS BY PE SHOWING INTEGRATION OF POOL REINFORCING AND BONDING.

4 PORCELAIN TILE ON REINFORCED CONCRETE SLAB DETAIL

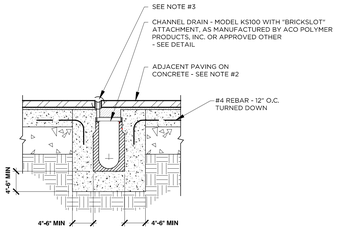
1"=1'-0"

SLAB STEP
INTENT

NOTES:
1. REINFORCING SHOWN IS SCHEMATIC. CONSTRUCT STEP FOUNDATIONS/REINFORCING CONTINUOUS WITH ANY ADJACENT PROPOSED WALL FOUNDATIONS/REINFORCING (NOT SHOWN). SUBMIT PHOTOS OF STONE SLABS PRIOR TO PROCUREMENT
2. ALL STONE SLABS MUST BE APPROVED BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION
3. WITH PRIOR APPROVAL OF STRUCTURAL ENGINEER, CONTRACTOR MAY SUBSTITUTE REINFORCED CONCRETE BLOCK FOUNDATION CONSTRUCTION
5. EXPANSION JOINT:
   -INSTALL POLYETHYLENE FOAM EXP., JOINT FILLER: HARRISTRIP-OFF OR EQUAL
   -SEAL JOINTS TO WITHIN 1/8" OF TOP WITH FLEXIBLE WEATHERPROOF SILICOME SEALANT
   -TOPDRESS SEALANT WITH SILICA SAND COATING, COLOR SHALL MATCH MORTAR JOINTS; SAMPLE SHALL BE APPROVED BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION

8 MONOLITHIC STONE STEPS ON REINFORCED CONCRETE

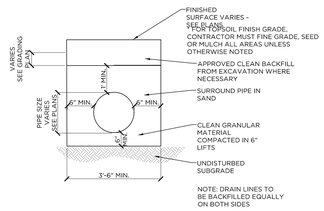
NTS



NOTES:
1. CONCRETE SHALL BE A MINIMUM STRENGTH OF 3000 PSI AND SHALL BE VIBRATED TO ELIMINATE AIR POCKETS.
2. THE PAVER COURSE ADJACENT TO THE CHANNEL EDGE MUST BE FULLY BONDED TO THE CONCRETE SURROUND.
3. THE FINISHED LEVEL OF THE PAVEMENT SURROUND MUST BE APPROX. 1/8" ABOVE THE TOP OF THE CHANNEL EDGE.
4. REFER TO MANUFACTURER'S INSTRUCTIONS AND SPECIFICATIONS FOR FURTHER INSTALLATION DETAILS.
5. REVIEW FINAL PART AND COMPONENT SELECTION WITH LANDSCAPE ARCHITECT PRIOR TO PURCHASE.
6. FINAL PLACEMENT TO BE DETERMINED BY PAVING PATTERN. CONFIRM PLACEMENT WITH LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.

5 POOL PERIMIETER OVERFLOW DRAIN DETAIL

1"=1'-0"



6 TYPICAL DRAINAGE LINE DETAIL

1"=1'-0"

STONE VENEER
INTENT

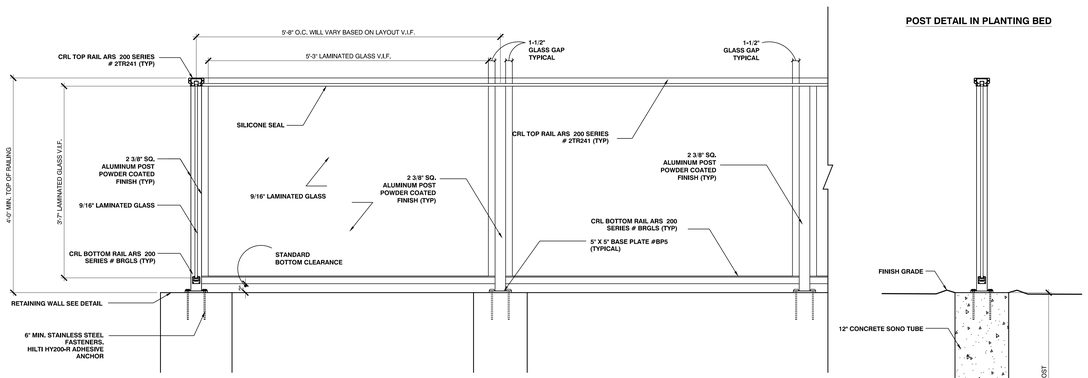
2 STONE VENEER RETAINING WALL 3' - 6' DETAIL

1"=1'-0"

NOTES:
1. ALL CONCRETE WALKWAYS SHALL BE CONSISTENT
2. CONCRETE SHALL HAVE A SPECIFIED MINIMUM COMPRESSIVE STRENGTH OF 3,500 PSI AT 28 DAYS.
3. CONTRACTOR TO ENSURE ALL CURBING AND SIDEWALKS ARE BLENDED SEAMLESSLY INTO EXISTING SURROUNDS. ENSURE NO TRIP HAZARDS.
4. JOINTING TO BE HAND TOOLED EVERY 4'. EVERY 16' PROVIDE 1/2" PREFORMED NON-EXTRUDING EXPANSION JOINT. SET 1/8" BELOW SURFACE OF WALK.
5. BLEND ALL NEW WORK FLUSH INTO EXISTING GRADES.

3 CONCRETE SIDEWALK DETAIL

1"=1'-0"



7 POOL FENCING DETAIL

1"=1'-0"

NOTES:
1. ALL POOL FENCING, GATES AND HARDWARE SHALL BE IN COMPLIANCE WITH POOL CODE FOR COMMERCIAL APPLICATIONS.
2. DETAIL IS BASED ON C.R. LAURENCE FENCING SYSTEM COMPONENTS, SUBMIT SHOP DRAWINGS FOR APPROVAL.
3. PRIOR TO ORDERING GLASS, CONTRACTOR SHALL LAY OUT FENCING LOCATION AND MARK POST LAYOUT FOR APPROVAL BY LANDSCAPE ARCHITECT. POSTS SHOULD BE LAID OUT WITH A TYPICAL DIMENSION, SOME PANELS WILL VARY BASED ON LAYOUT.

POST DETAIL IN PLANTING BED

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PHASE
PLANNING BOARD SUBMISSION

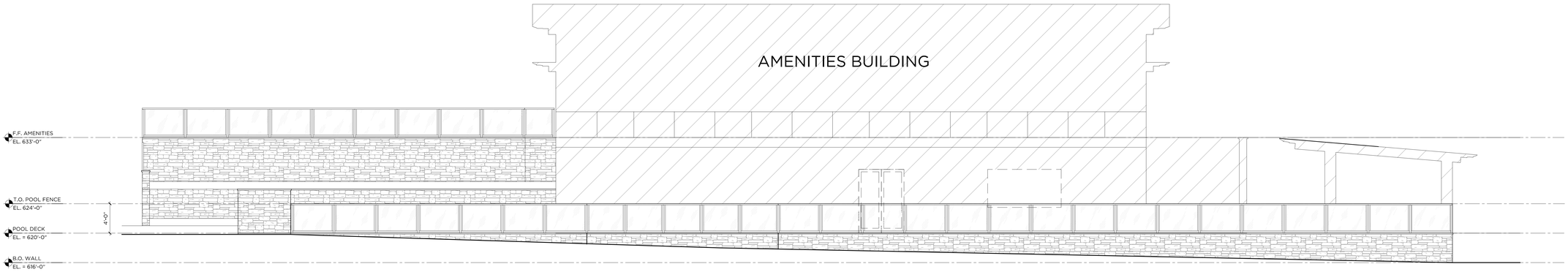
PROJECT NAME
SUMMIT CLUB

ARMONK, NY

JOB NO.: ----
DRAWN BY: JS PROJ. MANAGER: KA
DATE: 01/30/2023 SCALE: AS NOTED

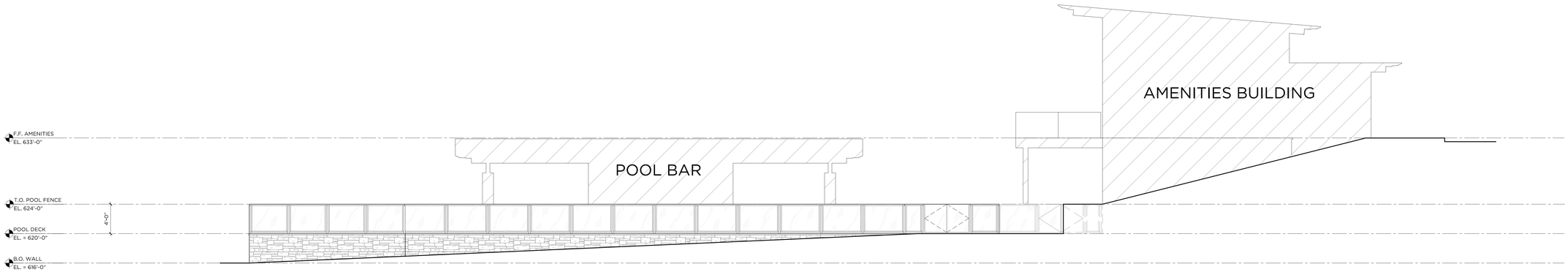
DRAWING TITLE
AMENITIES BUILDING - DETAILS

DRAWING NO.
LS 101.3



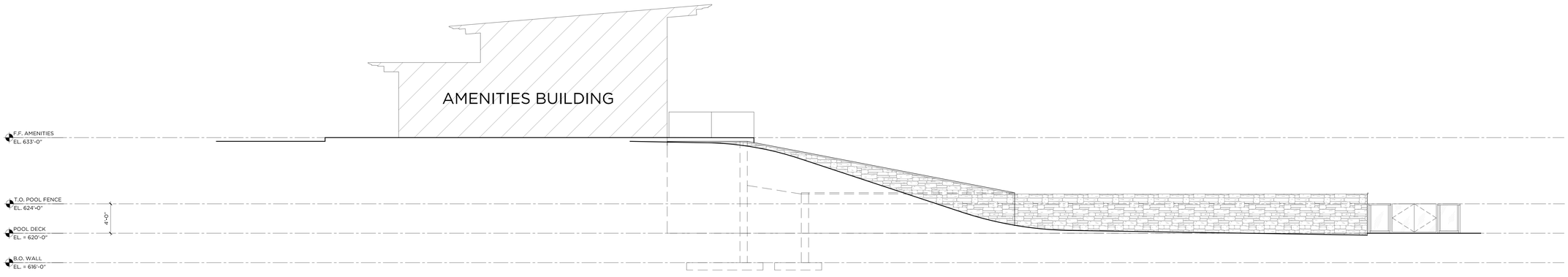
NOTES:
SEE LS 101.4 FOR MORE INFORMATION.

1 WEST ELEVATION - POOL TERRACE
3/16"=1'-0"



NOTES:
SEE LS 101.4 FOR MORE INFORMATION.

2 SOUTH ELEVATION - POOL TERRACE
3/16"=1'-0"



NOTES:
SEE LS 101.4 FOR MORE INFORMATION.

3 NORTH ELEVATION - POOL TERRACE
3/16"=1'-0"

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PHASE
PLANNING BOARD SUBMISSION

PROJECT NAME
SUMMIT CLUB

ARMONK, NY

JOB NO.: ----
DRAWN BY: JS PROJ. MANAGER: KA
DATE: 01/30/2023 SCALE: AS NOTED

DRAWING TITLE
AMENITIES BUILDING - POOL DECK ELEVATIONS

DRAWING NO.
LS 101.4

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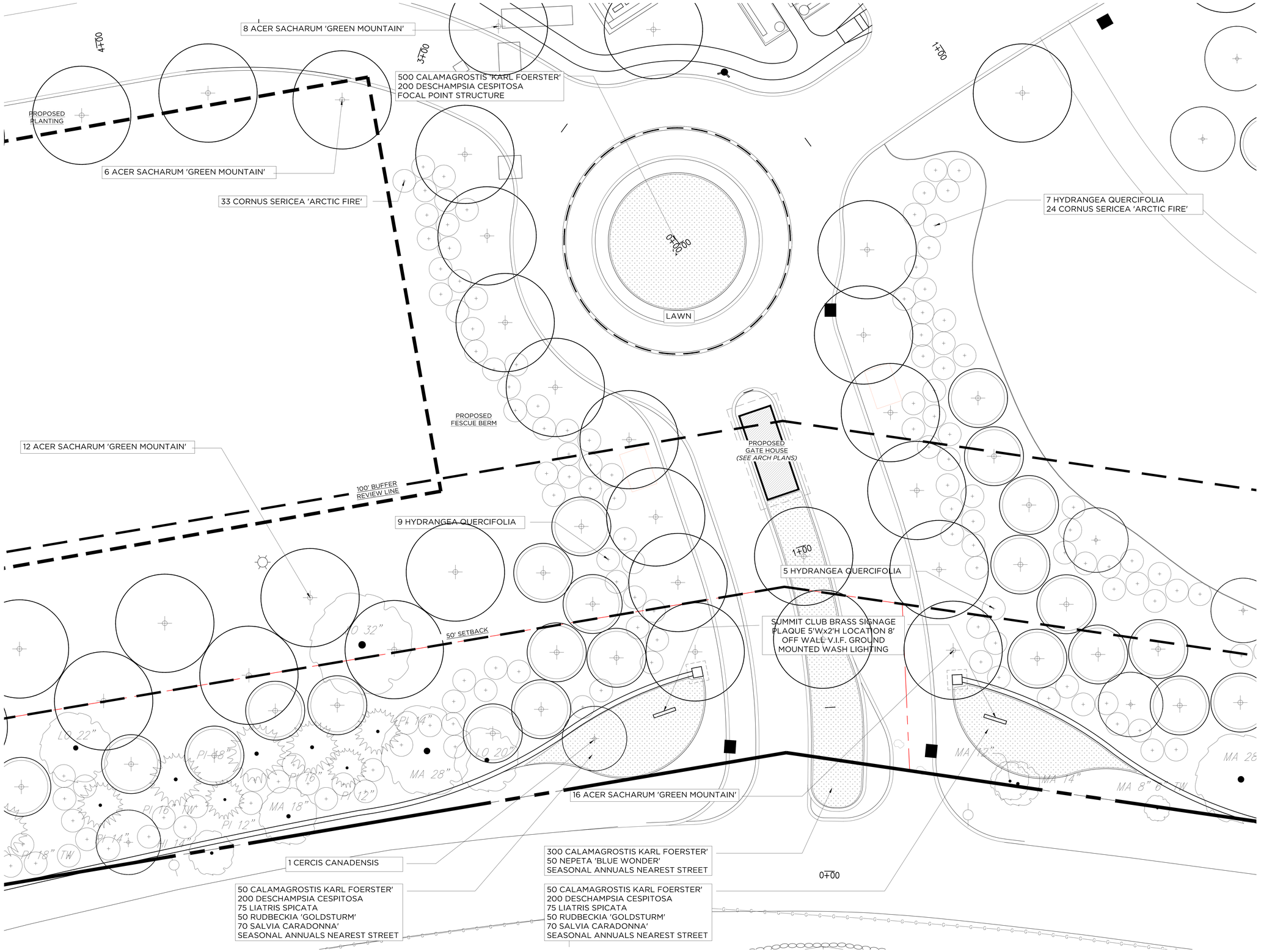

MAIN ENTRY PLANTING PLAN

1" = 10'-0"

REVISIONS

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PLANNING BOARD SUBMISSION

PROJECT NAME
SUMMIT CLUB

ARMONK, NY

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DRAWING TITLE
MAIN ENTRY - PLANTING PLAN

DRAWING NO.
LS 102

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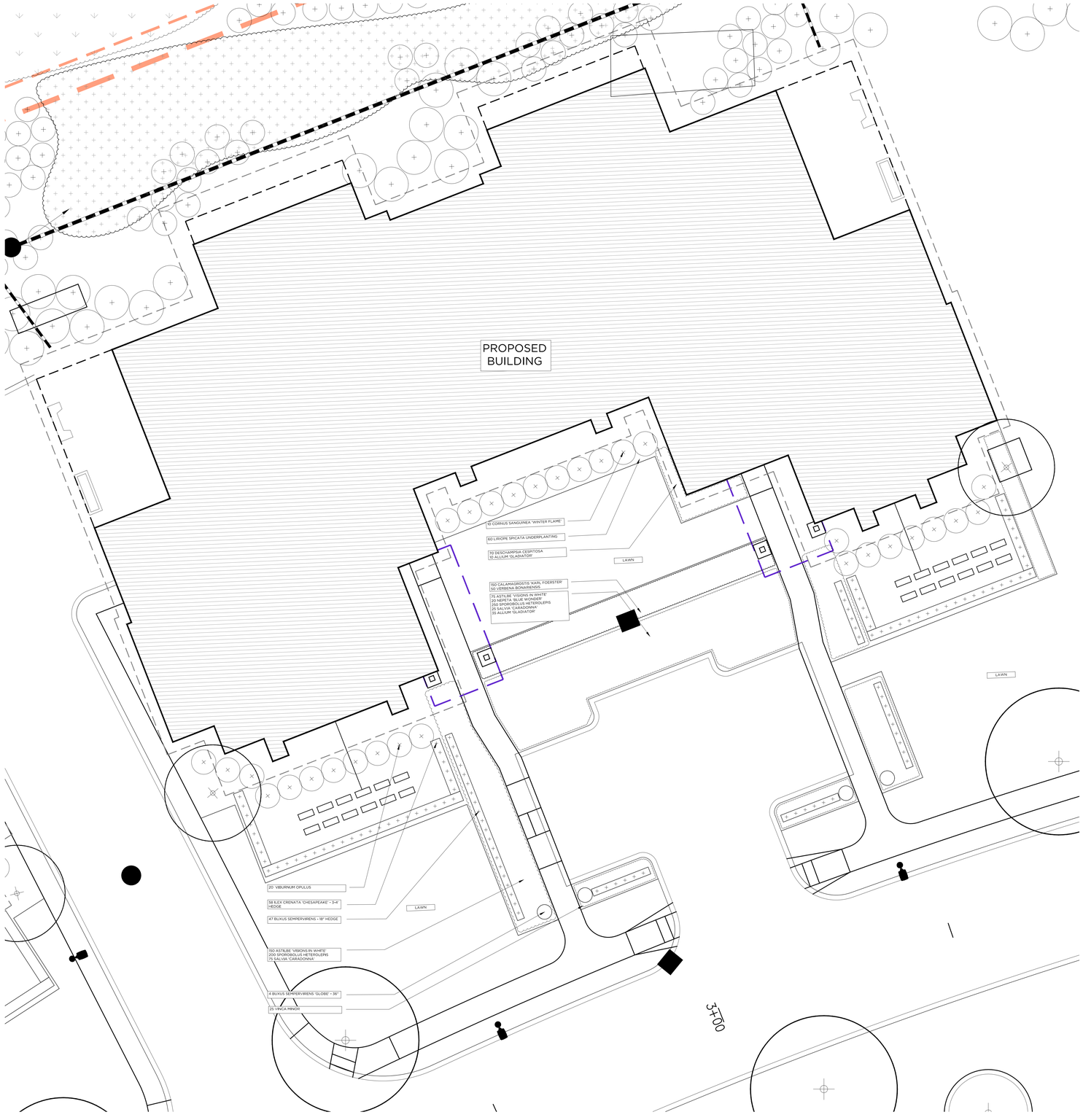

RESIDENTIAL BUILDING TYPICAL PLANTING PLAN

1" = 10'-0"

REVISIONS

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PHASE

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PROJECT NAME

SUMMIT CLUB

ARMONK, NY

JOB NO.: ----

DRAWN BY: JS PROJ. MANAGER: KA

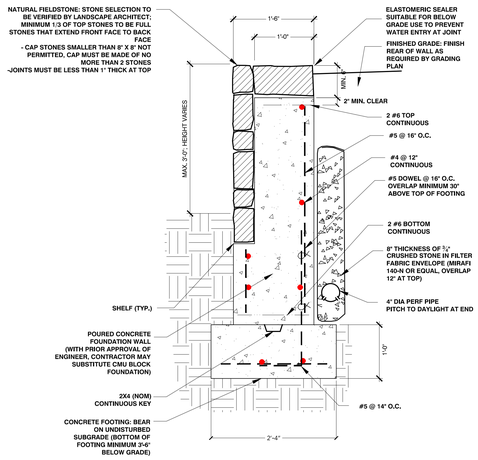
DATE: 01/30/2023 SCALE: AS NOTED

DRAWING TITLE

RESIDENTIAL BUILDING - TYPICAL PLANTING PLAN

DRAWING NO.

LS 103.1



1 STONE VENEER RETAINING WALL 0' - 3' DETAIL

1"=1'-0"

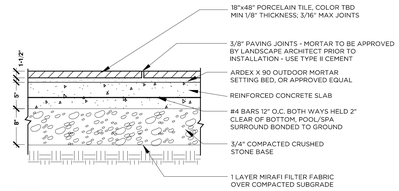
2 STONE VENEER RETAINING WALL 3' - 6' DETAIL

1"=1'-0"

NOTES:
1. ALL CONCRETE WALKWAYS SHALL BE CONSISTENT
2. CONCRETE SHALL HAVE A SPECIFIED MINIMUM COMPRESSIVE STRENGTH OF 3,500 PSI AT 28 DAYS.
3. CONTRACTOR TO ENSURE ALL CURBING AND SIDEWALKS ARE BLENDED SEAMLESSLY INTO EXISTING SURROUNDS. ENSURE NO TRIP HAZARDS.
4. JOINTING TO BE HAND TOOLED EVERY 4'. EVERY 16' PROVIDE 1/2" PREFORMED NON-EXTRUDING EXPANSION JOINT. SET 1/8" BELOW SURFACE OF WALK.
5. BLEND ALL NEW WORK FLUSH INTO EXISTING GRADES.

3 CONCRETE SIDEWALK DETAIL

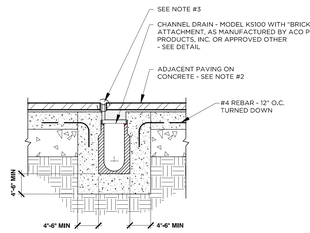
1"=1'-0"



NOTES:
1. ALL CONCRETE SLABS MUST BE SUPPORTED ON HAUNCHES FROM ADJOINING WALLS AND SWIMMING POOL AND/OR PIERS TO UNDISTURBED DUE TO PRESENCE OF LOOSE FILL ON SITE
2. CONTRACTOR SHALL SUBMIT STONE SAMPLE FOR APPROVAL BY L.A. PRIOR TO INSTALLATION.
3. CONTRACTOR SHALL FURNISH 6' X 6' MOCK-UP OF PAVING ON SAND TO ILLUSTRATE PATTERN FOR APPROVAL BY L.A.
4. REFER TO DRAWINGS FOR LOCATION OF PAVEMENT TYPES.
5. ALL STONE SURFACES TO BE SEALED WITH APPROPRIATE STONE SEALER MANUFACTURED BY PROSOCO AND APPLIED AS PER MANUFACTURERS INSTRUCTIONS.

4 PORCELAIN TILE ON REINFORCED CONCRETE SLAB DETAIL

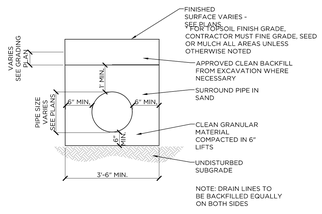
1"=1'-0"



NOTES:
1. CONCRETE SHALL BE A MINIMUM STRENGTH OF 3000 PSI AND SHALL BE VIBRATED TO ELIMINATE AIR POCKETS.
2. THE PAVER COURSE ADJACENT TO THE CHANNEL EDGE MUST BE FULLY BONDED TO THE CONCRETE SURROUND.
3. THE FINISHED LEVEL OF THE PAVEMENT SURROUND MUST BE APPROX. 1/8" ABOVE THE TOP OF THE CHANNEL EDGE.
4. REFER TO MANUFACTURER'S INSTRUCTIONS AND SPECIFICATIONS FOR FURTHER INSTALLATION DETAILS.
5. REVIEW FINAL PART AND COMPONENT SELECTION WITH LANDSCAPE ARCHITECT PRIOR TO PURCHASE.
6. FINAL PLACEMENT TO BE DETERMINED BY PAVING PATTERN. CONFIRM PLACEMENT WITH LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.

5 POOL PERIMIETER OVERFLOW DRAIN DETAIL

1"=1'-0"



6 TYPICAL DRAINAGE LINE DETAIL

1"=1'-0"

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PLANNING BOARD SUBMISSION

PROJECT NAME
SUMMIT CLUB

ARMONK, NY

JOB NO.: ----

DRAWN BY: JS PROJ. MANAGER: KA

DATE: 01/30/2023 SCALE: AS NOTED

DRAWING TITLE
RESIDENTIAL BUILDING - DETAILS

DRAWING NO.
LS 103.2

DETENTION BASIN PLANTING PLAN

1" = 20'-0"

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ARMONK, NY

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DATE: 01/30/2023 SCALE: AS NOTED

DRAWING TITLE

DETENTION BASIN PLANTING PLAN

DRAWING NO.

LS 104

MAINTENANCE BUILDING PLANTING PLAN

1" = 20'-0"

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3	01/30/2023	PLANNING BOARD SUBMISSION	KA

PHASE

PLANNING BOARD SUBMISSION

PROJECT NAME

SUMMIT CLUB

ARMONK, NY

JOB NO.: ----

DRAWN BY: JS PROJ. MANAGER: KA

DATE: 01/30/2023 SCALE: AS NOTED

DRAWING TITLE

MAINTENANCE BUILDING - PLANTING PLAN

DRAWING NO.

LS 105

SCHEMATIC COTTAGES

1" = 30'-0"

GRANOFF ARCHITECTS
330 RAILROAD AVENUE
GREENWICH, CT 06830
203.625.9460
WWW.GRANOFFARCHITECTS.COM

CONSULTANTS

REVISIONS

#	DATE	REVISION DESCRIPTION	BY:
1	10/24/2022	PLANNING BOARD SUBMISSION	KA
2	11/02/2022	ARB SUBMISSION	KA
3	01/30/2023	PLANNING BOARD SUBMISSION	KA

PHASE
PLANNING BOARD SUBMISSION

PROJECT NAME
SUMMIT CLUB

ARMONK, NY

JOB NO.: ----

DRAWN BY: JS PROJ. MANAGER: KA

DATE: 01/30/2023 SCALE: AS NOTED

DRAWING TITLE
SCHEMATIC COTTAGES - OVERALL LAYOUT

DRAWING NO.
LS 106

PHASING NOTES:

1. IN DECEMBER, 2019, IN CONSIDERATION OF THE ADOPTION BY THE TOWN OF THE AMENDMENT, THE APPLICANT RECORDED A DECLARATION PURSUANT TO WHICH THE APPLICANT MAY, SUBJECT TO SITE PLAN APPROVAL, CONSTRUCT ON THE DEVELOPMENT LOT A FIRST PHASE OF THE COMMUNITY ("PHASE 1 "), WHICH MAY CONSIST OF UP TO THIRTY-SIX (36) RESIDENCES, WHICH MAY BE FEE-SIMPLE HOMES AND/OR CONDOMINIUM UNITS WITHOUT LIMITATION REGARDING FORM OF OWNERSHIP OF THE RESIDENCES, AND A SECOND PHASE OF THE COMMUNITY ("PHASE 2"), WHICH MAY CONSIST OF UP TO THIRTY-SEVEN (37) RESIDENCES, WHICH MAY BE FEE-SIMPLE HOMES AND/OR CONDOMINIUM UNITS WITHOUT LIMITATION REGARDING FORM OF OWNERSHIP OF THE RESIDENCES; PROVIDED THAT UNLESS THE AGGREGATE AVERAGE OF THE GROSS SALES PRICES OF THE MARKET-RATE PHASE 1 CONDOMINIUM UNITS IS $700.00 PER SQUARE FOOT OR MORE, THE PHASE 2 CONDOMINIUM RESIDENCES ARE REQUIRED TO BE "55 AND OLDER" AGE-RESTRICTED HOUSING AS PERMITTED UNDER APPLICABLE FEDERAL LAW AND REGULATIONS. THE DECLARATION ALSO REQUIRES PHASE 1 TO INCLUDE FOUR (4) ON-SITE AFFORDABLE UNITS, AND PHASE 2 TO INCLUDE THREE (3) ON-SITE AFFORDABLE UNITS. HOWEVER, THE APPLICANT IS PERMITTED TO AT ANY TIME ELECT TO RELOCATE ALL OR A PORTION OF THE AFFORDABLE UNITS OFF-SITE WITHIN AREAS IN THE ARMONK HAMLET THAT ARE SERVED BY PUBLIC SEWER AND WATER, AND THEREBY REDUCE THE ON-SITE AFFORDABLE UNITS AND SUBSTITUTE MARKET-RATE UNITS THEREFOR ON A ONE-TO-ONE BASIS, PROVIDED THAT IN NO EVENT SHALL THE TOTAL NUMBER OF RESIDENTIAL UNITS ON THE PROPERTY EXCEED SEVENTY-THREE (73).
2. REFER TO DRAWING C-402 FOR SEQUENCE OF CONSTRUCTION.

ZONING COMPLIANCE CHART

SECTION 101.02, BLOCK 1, LOT 28.1 & 28.2 (2/08/7.01A)
ZONES "R-2A" – "ONE FAMILY RESIDENCE DISTRICT (2 ACRES)"
"GCO/FO" – "GOLF COURSE COMMUNITY FLOATING OVERLAY DISTRICT"
PROPOSED USE: GOLF COURSE COMMUNITY
FIRE/AMBULANCE DISTRICT: ARMONK FIRE DEPARTMENT (NORTH CASTLE DISTRICT #2)
WATER DISTRICT: NORTH CASTLE WATER DISTRICT #2
SCHOOL DISTRICT: BYRAM HILLS CENTRAL SCHOOL DISTRICT
SEWER DISTRICT: ON-SITE SEWAGE TREATMENT PLANT (SPGES PERMIT)

DESCRIPTION	REQUIRED / PERMITTED (R-2A)	REQUIRED / PERMITTED (GCO/FO)	EXISTING	PROPOSED / PROVIDED (LOT 1) (9)	PROPOSED / PROVIDED (LOT 2)	PROPOSED / PROVIDED (LOT 3)	PROPOSED / PROVIDED (LOT 4)	PROPOSED / PROVIDED (LOT 5)	PROPOSED / PROVIDED (LOT 6)
LOT AREA (ACRES)	2.0 MIN. (1)	SEE NOTE 1	±156.30 (5)	±127.37 (1)	±28.93	±2.95	±0.25	±1.04	±0.72
LOT STREET FRONTAGE (FEET)	150 MIN. (1)	SEE NOTE 1	1,519.70	1,519.70 (1)	1,519.70 (1)	1,519.70 (1)	1,519.70 (1)	1,519.70 (1)	1,519.70 (1)
LOT WIDTH (FEET)	150 MIN. (1)	SEE NOTE 1	±2,300	±2,300 (1)	±2,300 (1)	±2,300 (1)	±2,300 (1)	±2,300 (1)	±2,300 (1)
LOT DEPTH (FEET)	150 MIN. (1)	SEE NOTE 1	±1,805	±1,805 (1)	±1,805 (1)	±1,805 (1)	±1,805 (1)	±1,805 (1)	±1,805 (1)
PRINCIPAL BUILDING MINIMUM YARDS (FEET)									
FRONT	50 (1)	SEE NOTE 1	±123.1	±313.72 (1)	±252.91 (1)	±817.74 (1)	±1,132.50 (1)	– (1)	– (1)
SIDE	30 (1)	SEE NOTE 1	±287.8	±99.78 (1)	±110.68 (1)	±1,468.17 (1)	±1,888.34 (1)	– (1)	– (1)
REAR	50 (1)	SEE NOTE 1	±1,645.5	±1,755.83 (1)	±874.16 (1)	±1,065.77 (1)	±1,249.79 (1)	– (1)	– (1)
MAXIMUM BUILDING COVERAGE (%)	8 (1)	3.5 (1)	0.72 (6)	0.33 (1)(7)	1.33 (1)(7)	0.01 (1)(7)	0.01 (1)(7)	– (1)(7)	– (1)(7)
MAXIMUM BUILDING HEIGHT (STORIES / FEET)	N/A / 30	3 / 39.5 (2)	3 / ± 39.5	3 / < 39.5	3 / < 39.5	3 / < 39.5	3 / < 39.5	–	–
PARKING SPACES									
STANDARD PARKING SPACES	2 PER DWELLING UNIT	SEE NOTE 3	–	124/166 (8)	168	–	–	–	–
ACCESSIBLE PARKING SPACES	N/A	N/A	–	5/8 (8)	12	–	–	–	–
COMPACT PARKING SPACES	N/A	–	–	–/72 (8)	–	–	–	–	–
TOTAL PARKING SPACES	2 PER DWELLING UNIT	–	180	129/240 (8)	180	–	–	–	–
LOADING SPACES	N/A	SEE NOTE 4	–	1	1	–	–	–	–

NOTES:

1. IN THE GCO/FO DISTRICT, THE LOT, DIMENSIONAL, AND PARKING REQUIREMENTS FOR A GOLF COURSE COMMUNITY IN THIS SECTION SHALL SUPERSEDE THE SCHEDULE OF RESIDENCE DISTRICT REGULATIONS (§ 355-21 OF THIS CHAPTER). LOT SIZE, LOT CONFIGURATION AND OTHER LOT DIMENSIONAL REQUIREMENTS WITHIN A GCO/FO DISTRICT SHALL BE DETERMINED BY THE PLANNING BOARD IN CONJUNCTION WITH SUBDIVISION APPROVAL. LOT SIZE, LOT CONFIGURATION AND OTHER LOT DIMENSIONAL REQUIREMENTS OF LOTS WITHIN A GCO/FO DISTRICT SHALL BE BASED UPON THE PLANNING BOARD'S CONSIDERATION OF THE CHARACTER OF THE NEIGHBORHOOD IN WHICH THE GCO/FO DISTRICT WILL BE LOCATED, THE GCO/FO DISTRICT'S RELATIONSHIP TO ADJOINING DISTRICTS, PROPERTIES AND LAND USES, THE GCO/FO DISTRICT'S TOPOGRAPHY, AND SUCH OTHER FACTORS THE PLANNING BOARD MAY DETERMINE TO BE APPROPRIATE. THE LOTS AND/OR PARCELS THAT TOGETHER COMPRISE A GOLF COURSE COMMUNITY SITE MAY BE OF ANY SIZE, CONFIGURATION AND DIMENSIONS, AND THE GOLF COURSE COMMUNITY SITE SHALL NOT BE SUBJECT TO ANY LOT, DIMENSIONAL, AND PARKING REQUIREMENTS IN THIS SECTION, INCLUDING BUT NOT LIMITED TO MINIMUM DENSITY, MAXIMUM BUILDING COVERAGE, MINIMUM YARD AND REQUIRED OFF-STREET PARKING, SHALL APPLY TO THE LAND AREA IN THE GCO/FO DISTRICT AS A WHOLE, NOTWITHSTANDING THAT THE GOLF COURSE COMMUNITY SITE MAY BE COMPRISED OF MORE THAN ONE LOT AND/OR PARCEL, OR THAT THE SITE MAY FROM TIME TO TIME BE SUBDIVIDED OR RESUBDIVIDED, AND ALL DETERMINATIONS AND CALCULATIONS RELATING TO SUCH REQUIREMENTS SHALL BE MADE WITH REFERENCE TO THE BOUNDARIES OF THE ENTIRE LAND AREA IN THE GCO/FO DISTRICT AND NOT THOUGH SUCH AREA IS A SINGLE LOT (AS DEFINED IN § 355-4 OF THIS CHAPTER), EVEN THOUGH IT IS OR WILL BE COMPRISED OF MORE THAN ONE LOT AND/OR PARCEL.
2. THE MAXIMUM BUILDING HEIGHT SHALL BE THREE STORIES AND 39 1/2 FEET TO THE MEAN LEVEL OF THE PRIMARY ROOF, MEASURED FROM THE LEVEL OF THE FINISHED GRADE AT THE MAIN ENTRY TO THE BUILDING.
3. RESIDENTIAL PARKING CALCULATIONS

   MARKET-RATE DWELLING UNITS REQUIREMENT: "OTHER MULTIFAMILY DWELLING UNITS": 2 FOR EACH DWELLING UNIT, PLUS ½ FOR EACH BEDROOM IN EXCESS OF 2, PLUS 10% VISITOR PARKING.

   65 TOTAL MARKET-RATE DWELLING UNITS: (31) 2-BEDROOM UNITS, (34) 3-BEDROOM UNITS
   65 (DWELLING UNITS) X 2 = 130 PARKING SPACES
   34 (3-BEDROOM UNITS) X .5 = 17 PARKING SPACES
   10% VISITOR PARKING: 147 X 10% = 14.7 (15) PARKING SPACES
   TOTAL REQUIRED PARKING FOR MARKET-RATE UNITS: 162 PARKING SPACES

   AFFH DWELLING UNITS REQUIREMENT: "MIDDLE-INCOME DWELLING UNITS AND AFFH UNITS": 1 FOR EACH DWELLING UNIT, PLUS ½ FOR EACH BEDROOM.

   7 TOTAL AFFH DWELLING UNITS: (5) 2-BEDROOM UNITS, (2) 3-BEDROOM UNITS
   7 (DWELLING UNITS) X 1 = 7 PARKING SPACES
   (2) 3-BEDROOM UNITS X .5 = 1 PARKING SPACES
   TOTAL REQUIRED PARKING FOR AFFH UNITS: 78 PARKING SPACES

   FUTURE GOLF COURSE COTTAGE UNITS REQUIREMENT: "OTHER MULTIFAMILY DWELLING UNITS": 2 FOR EACH DWELLING UNIT, PLUS ½ FOR EACH BEDROOM IN EXCESS OF 2, PLUS 10% VISITOR PARKING.

   10 TOTAL COTTAGE UNITS: (1) 2-BEDROOM UNITS, (9) 4-BEDROOM UNITS
   10 (DWELLING UNITS) X 2 = 20 PARKING SPACES
   9 (4-BEDROOM UNITS) (2) X 2.5 = 5 PARKING SPACES
   10% VISITOR PARKING: 25 X.10 = 2.5 (3) PARKING SPACES
   TOTAL REQUIRED PARKING FOR MARKET-RATE UNITS: 28 PARKING SPACES

GOLF COURSE/CLUB PARKING CALCULATIONS

GOLF COURSE/CLUB REQUIREMENT: "GOLF OR COUNTRY CLUBS": 1 FOR EACH 3 MEMBERS, PLUS 1 FOR EACH 3 SEATS IN THE MEETING AND/OR DINING ROOMS.

500 TOTAL MEMBERSHIPS
500 (MEMBERSHIPS) / 3 = 166.6 (167) PARKING SPACES

AMENITIES BUILDING (PHASE 1):
123 TOTAL SEATS: (68 RESTAURANT SEATS + 55 BAR SEATS)
123 (SEATS) / 3 = 41 PARKING SPACES

FUTURE CLUBHOUSE BUILDING (PHASE 2):
191 TOTAL SEATS: (162 RESTAURANT SEATS + 29 BAR SEATS)
191 (SEATS) / 3 = 63.6 (64) = PARKING SPACES

TOTAL REQUIRED PARKING FOR GOLF COURSE/CLUB: 272 PARKING SPACES

TOTAL REQUIRED PARKING: 210 RESIDENTIAL + 272 GOLF COURSE/CLUB + 477 SPACES
TOTAL PROVIDED PARKING: 180 RESIDENTIAL + 228 GOLF COURSE/CLUB + 10 MAINTENANCE AREA + 65 GOLF CLUB RESIDENT CREDIT (1 SPACE/UNIT) = 486 SPACES

4. FOR WHOLESALE BUSINESS, INDUSTRY, STORAGE, WAREHOUSE AND OTHER COMMERCIAL ESTABLISHMENTS, A MINIMUM OF ONE SPACE FOR EACH ESTABLISHMENT, AND ONE ADDITIONAL SPACE FOR EACH 10,000 SQUARE FEET OF GROSS FLOOR AREA OR MAJOR PORTION THEREOF IN EXCESS OF 4,000 SQUARE FEET OF GROSS FLOOR AREA.
5. CURRENTLY THE GOLF COURSE LOT IS ±135.34 ACRES AND THE RESIDENTIAL LOT IS ±20.96 ACRES.
6. TOTAL EXISTING BUILDING COVERAGE CALCULATED BASED ON ALL EXISTING BUILDINGS ON THE PROPERTY, INCLUDING PREVIOUSLY DEMOLISHED STRUCTURES.
7. BUILDING COVERAGE BREAKDOWN:

   LOT 1: (FUTURE GOLF COURSE PHASE)
   CLUBHOUSE BUILDING: ±8,070.06 S.F.
   COTTAGES: 10 X 1,500.00 S.F.
   TOTAL LOT 1 BUILDING COVERAGE: ±23,070.06 S.F.

   LOT 2:
   RESIDENTIAL AMENITIES BUILDING: ±2,939.39 S.F.
   RESIDENTIAL BUILDINGS: 6 X ±14,401.17 S.F.
   GATE HOUSE: 440 S.F.
   TENNIS PAVILION: ±375 S.F.
   TOTAL LOT 2 BUILDING COVERAGE: ±90,736.41 S.F.

   LOT 3:
   SEWAGE TREATMENT PLANT: ±699.58 S.F.
   TOTAL LOT 3 BUILDING COVERAGE: ±699.58 S.F.

   LOT 4:
   WATER TREATMENT BUILDING: ±640.00 S.F.
   WATER HOLDING TANK: ±571.36 S.F.
   TOTAL LOT 4 BUILDING COVERAGE: ±1,211.36 S.F.

   LOT 5 & LOT 6:
   LOTS 5 & 6 DO NOT CONTAIN ANY BUILDINGS.
8. THE PROPOSED/PROVIDED PARKING COUNT IS BASED ON THE TEMPORARY CLUBHOUSE FACILITIES INSTALLED/CONSTRUCTED IN 2021.
9. ANTICIPATED DEVELOPMENT SCOPE FOR FUTURE GOLF COURSE PHASE.

LEGEND

- EXISTING PROPERTY LINE
- ADJACENT PROPERTY LINE
- EXISTING SETBACK LINE (#LF-63 / #LF-64 / #LF-65)
- EXISTING WETLAND LINE AND DELINEATION
- EXISTING BUILDING LINE
- EXISTING PAVEMENT EDGE
- EXISTING CURB LINE
- EXISTING STONE WALL
- EXISTING GUIDE RAIL
- EXISTING FENCE
- EXISTING TREE AND DESIGNATION (TYP. 12")
- EXISTING TREE LINE
- EXISTING PAINT
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING SIGN
- PROPOSED BUILDING LINE
- PROPOSED BUILDING OVERHANG
- PROPOSED CONCRETE CURB
- PROPOSED SAWCUT LINE
- PROPOSED ACCESSIBLE PARKING SPACES WITH NUMBER OF SPACES INDICATED (REFER TO STRIPING DETAILS) (2H)
- PROPOSED PARKING SPACES WITH NUMBER OF SPACES INDICATED (REFER TO STRIPING DETAILS) (5)
- PROPOSED CONCRETE SIDEWALK
- PROPOSED HEAVY DUTY PAVEMENT
- PROPOSED DECORATIVE PAVERS
- PROPOSED RETAINING WALL (DESIGN BY OTHERS)
- PROPOSED FENCE
- PROPOSED 2'-4" WIDE YELLOW LINES 8"O.C. (Y)
- PROPOSED 12" WIDE WHITE STOP LINE
- PROPOSED ARROW MARKING ON PAVEMENT
- TRAFFIC SIGN LOCATION & DESIGNATION (A)
- PEDESTRIAN CROSSING

NOTES:

1. EXISTING CONDITIONS DEPICTED ON THIS PLAN HAVE BEEN TAKEN FROM SURVEY TITLED, "TOPOGRAPHIC MAP," PREPARED BY JMC, PLLC, LAST REVISED 03/06/2013, SUPPLEMENTED WITH AN UPDATED SURVEY LAST REVISED 01/17/2022. PORTIONS OF EXISTING TOPOGRAPHY HAVE BEEN PROVIDED BY WESTCHESTER COUNTY GIS.

PROPOSED GOLF COURSE COTTAGES (REFER TO PLANS PREPARED BY GRANOFF ARCHITECTS)
LOT 4 ±0.25 ACRES
LOT 3 ±2.95 ACRES
PROPOSED SEWAGE TREATMENT PARCEL SUBDIVISION LINE
200' SETBACK TO DOWNWIND RESIDENCES
EXISTING SUBDIVISION LINE (LOT LINE CHANGE)
PROPOSED SUBDIVISION LINE (LOT LINE CHANGE)
EXISTING SUBDIVISION LINE (LOT LINE CHANGE)
LOT 2 ±28.93 ACRES
LOT 1 ±127.37 ACRES
PROPOSED EXTENTS OF PARKING AREA (TYP.)
PROPOSED PARKING INTERIOR LANDSCAPE AREA (TYP.)
PHASE 1
PHASE 2
PHASE 3
PROPOSED BUILDING NO. 1 – 12 UNITS (REFER TO PLANS PREPARED BY GRANOFF ARCHITECTS) (GARAGE PARKING SPACES: 24 STANDARD & 1 ACCESSIBLE)
PROPOSED BUILDING NO. 2 – 12 UNITS (REFER TO PLANS PREPARED BY GRANOFF ARCHITECTS) (GARAGE PARKING SPACES: 24 STANDARD & 1 ACCESSIBLE)
PROPOSED BUILDING NO. 3 – 12 UNITS (REFER TO PLANS PREPARED BY GRANOFF ARCHITECTS) (GARAGE PARKING SPACES: 24 STANDARD & 1 ACCESSIBLE)
PROPOSED BUILDING NO. 4 – 12 UNITS (REFER TO PLANS PREPARED BY GRANOFF ARCHITECTS) (GARAGE PARKING SPACES: 24 STANDARD & 1 ACCESSIBLE)
PROPOSED BUILDING NO. 5 – 12 UNITS (REFER TO PLANS PREPARED BY GRANOFF ARCHITECTS) (GARAGE PARKING SPACES: 24 STANDARD & 1 ACCESSIBLE)
PROPOSED BUILDING NO. 6 – 12 UNITS (REFER TO PLANS PREPARED BY GRANOFF ARCHITECTS) (GARAGE PARKING SPACES: 24 STANDARD & 1 ACCESSIBLE)
PROPOSED GOLF CLUBHOUSE BUILDING (REFER TO PLANS PREPARED BY GRANOFF ARCHITECTS)
PROPOSED RESIDENTIAL AMENITIES BUILDING (REFER TO PLANS PREPARED BY GRANOFF ARCHITECTS)
PROPOSED ALL WEATHER SPORT TENNIS COURTS (DESIGN BY OTHERS)
PROPOSED HAR-TRU TENNIS COURTS (DESIGN BY OTHERS)
100' SIDE YARD SETBACK
100' FRONT YARD SETBACK
DATA POINT
BEDFORD ROAD (NEW YORK STATE ROUTE 22)

NOT FOR CONSTRUCTION

APPROVED BY TOWN OF NORTH CASTLE PLANNING BOARD RESOLUTION, DATED _____
DATE: _____
CHRISTOPHER CARTHY, CHAIRMAN,
TOWN OF NORTH CASTLE PLANNING BOARD
ENGINEERING DRAWINGS REVIEWED BY TOWN CONSULTING ENGINEER
DATE: _____
JOSEPH M. CERMELE, P.E.
KELLARD SESSIONS CONSULTING, P.C.
CONSULTING TOWN ENGINEER

No.	Revision	Date	By
	Phrased Editors Obsolete		

APPLICANT/OWNER:
SUMMIT CLUB PARTNERS, LLC
568 BEDFORD ROAD (NY-22)
ARMONK, NY 10504

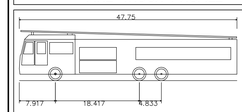
ARCHITECT:
GRANOFF ARCHITECTS
330 RAILROAD AVENUE
GREENWICH, CT 06830

JMC Planning, Engineering, Landscape Architecture & Land Surveying, PLLC
JMC Site Development Consultants, LLC
John Meyer Consulting, Inc.
120 BEDFORD ROAD • ARMONK, NY 10504
voice 914.273.5225 • fax 914.273.2102
www.jmcpllc.com

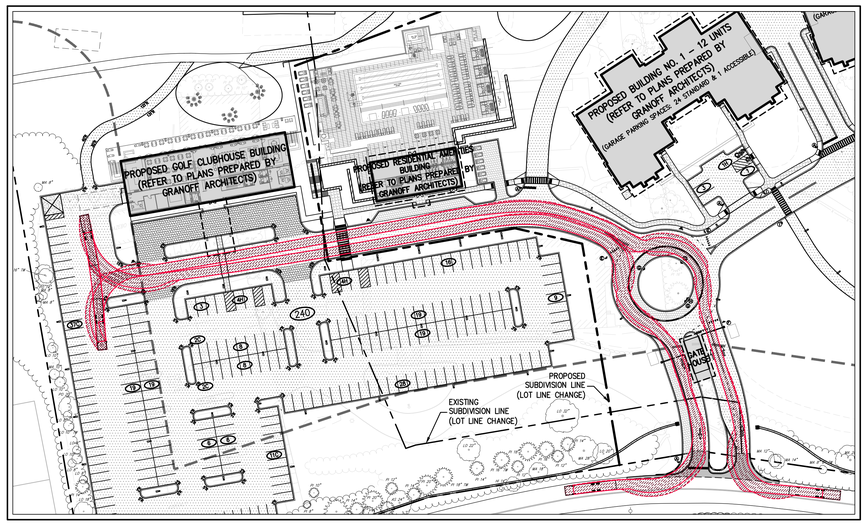
GOLF COURSE SPECIAL USE PERMIT OVERALL SITE LAYOUT PLAN
THE SUMMIT CLUB AT ARMONK
(RESIDENTIAL PHASE)
568 & 570 BEDFORD ROAD (NY-22)
TOWN OF NORTH CASTLE, NEW YORK

Drawn:	NC
Approved:	AG
Scale:	1" = 50'
Date:	01/30/2023
Project No.:	20101
20101-LAYOUT OV-FUTURE	LAY.tsr
Drawing No.:	SUP-1

FIRE TRUCK PROFILE

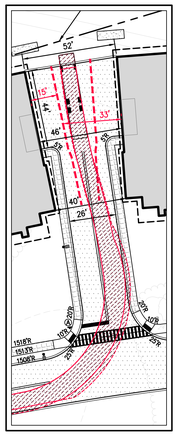


E-ONE HP95 Mid Mount	
Overall Length	47.750ft
Overall Width	8.333ft
Overall Body Height	11.000ft
Min Body Ground Clearance	1.393ft
Track Width	8.333ft
Lock-to-lock time	6.00s
Max Wheel Angle	45.00°



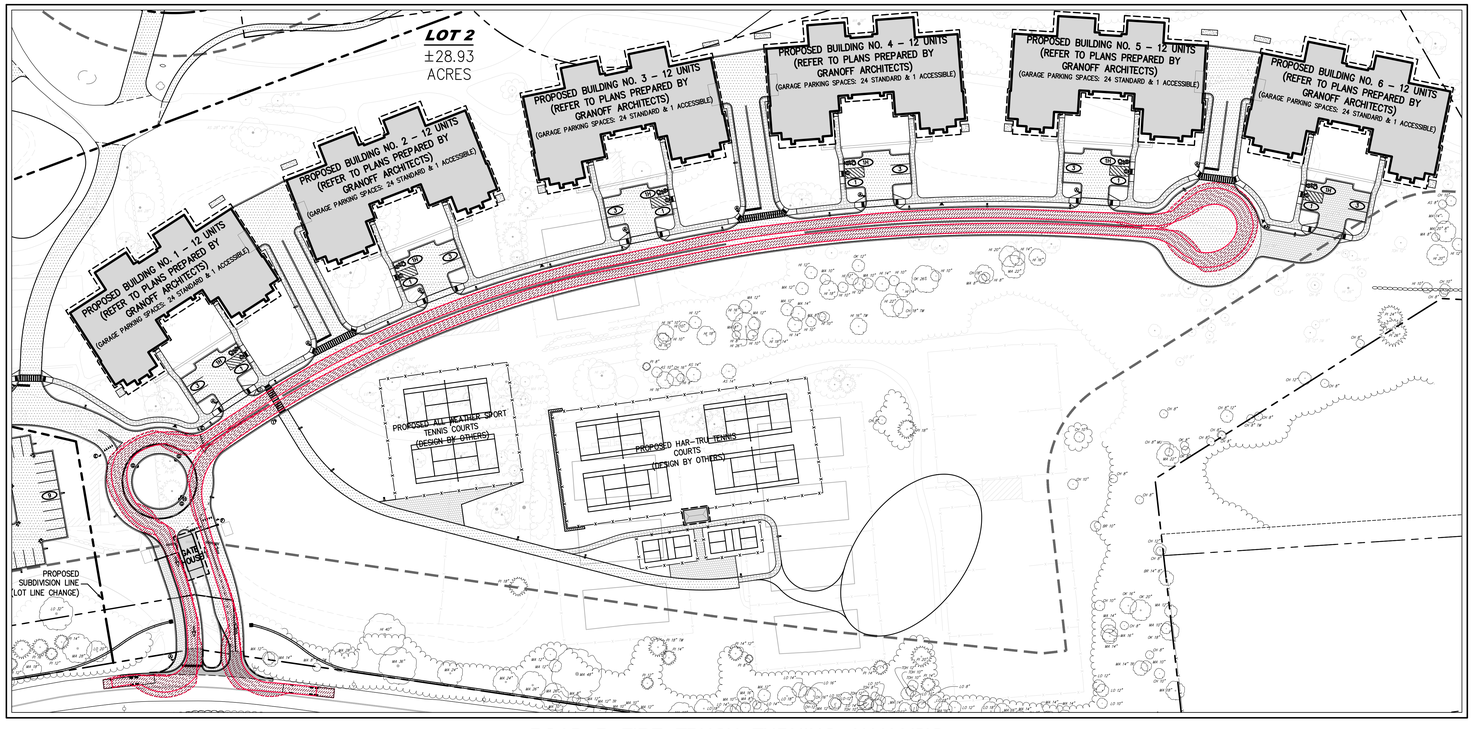
ROAD A FIRE TRUCK TURNING ANALYSIS

SCALE: 1" = 50'



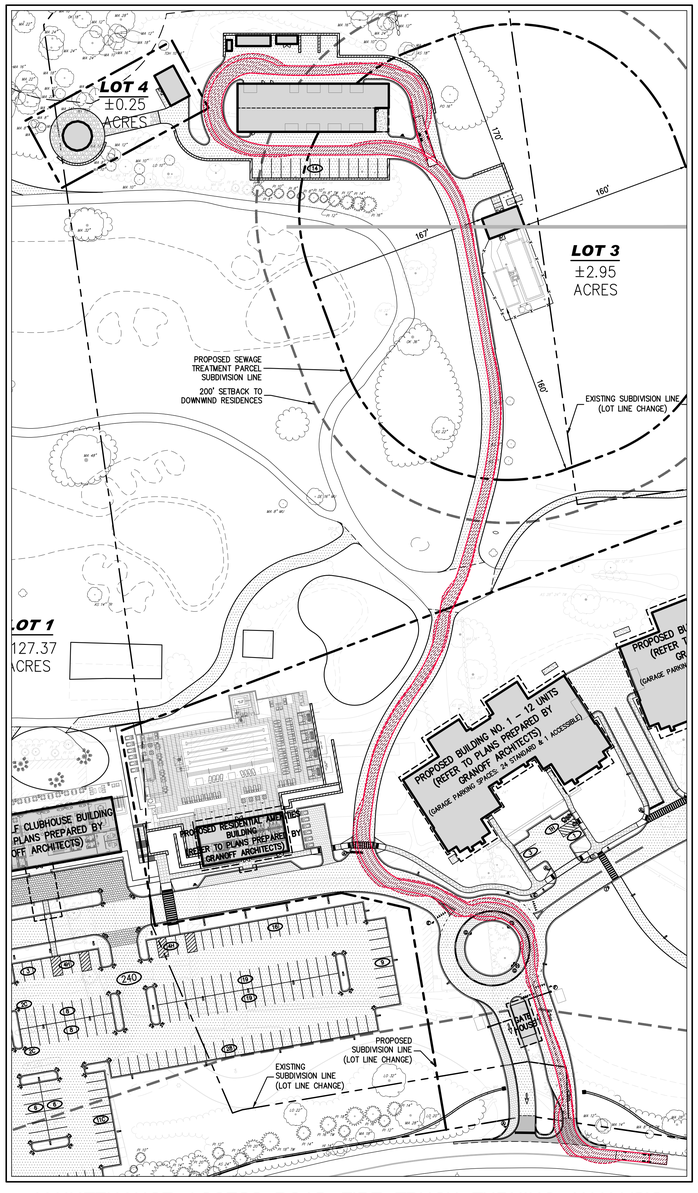
TYPICAL SHARED DRIVEWAY FIRE TRUCK TURNING ANALYSIS

SCALE: 1" = 30'



ROAD B FIRE TRUCK TURNING ANALYSIS

SCALE: 1" = 50'



MAINTENANCE ACCESS ROAD FIRE TRUCK TURNING ANALYSIS

SCALE: 1" = 50'

APPROVED BY TOWN OF NORTH CASTLE PLANNING BOARD RESOLUTION, DATED _____

_____ DATE: _____
CHRISTOPHER CARTHY, CHAIRMAN,
TOWN OF NORTH CASTLE PLANNING BOARD

ENGINEERING DRAWINGS REVIEWED BY TOWN CONSULTING ENGINEER

_____ DATE: _____
JOSEPH M. CERMELE, P.E.
KELLARD SESSIONS CONSULTING, P.C.
CONSULTING TOWN ENGINEER

No.	Revision	Date	By
	Provisal Editions Obsolete		

APPLICANT/OWNER:
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JMC

GOLF COURSE SPECIAL USE PERMIT FIRE TRUCK ACCESS PLAN

THE SUMMIT CLUB AT ARMONK
(RESIDENTIAL PHASE)
568 & 570 BEDFORD ROAD (NY-22)
TOWN OF NORTH CASTLE, NEW YORK

Drawn:	NC
Approved:	AG
Scale:	AS SHOWN
Date:	01/30/2023
Project No:	20101
20101-UPDATE ACCESS-FUTURE LAY.tor	
Drawing No:	SUP-2

JOB NAME: SUMMIT CLUB
APEX LIGHTING SOLUTIONS
REFLECTANCES: N/A
WORKPLANE/CALC PLANE: @ GRADE
MOUNTING HEIGHT: SEE LUMINAIRE SCHEDULE
APPS: LED
SALES: TM

Luminaire Schedule							
Qty	Label	Arrangement	Lumens	Input Watts	LLF	BUG Rating	Description
1	SL2	SINGLE	11518	86.8	0.850	B2-U0-G2	USA RZR-PLED-II-40LED-700MA-WW-VOLT-FINISH MOUNTED TO 18FT POLE @ 18FT AFG TO BOF
7	SL2B	Single	6281	42.7	0.850	B2-U0-G1	USA RZR-PTY-PLED-II-40LED-350mA-WW-VOLT-FINISH MOUNTED TO 12FT POLE WITH OPTICAL HT @ 13.89FT
1	SL3	SINGLE	10880	86.8	0.850	B2-U0-G3	USA RZR-PLED-III-W-40LED-700MA-WW-VOLT-FINISH MOUNTED TO 18FT POLE @ 18FT AFG TO BOF
3	SL4	SINGLE	10595	86.8	0.850	B2-U0-G3	USA RZR-PLED-IV-FT-W-40LED-700MA-WW-VOLT-FINISH MOUNTED TO 18FT POLE @ 18FT AFG TO BOF
21	SL5	SINGLE	11920	86.8	0.850	B4-U0-G2	USA RZR-PLED-VSQ-M-40LED-700MA-WW-VOLT-FINISH MOUNTED TO 18FT POLE @ 18FT AFG TO BOF

Calculation Summary						
Label	Grid Z	Avg	Max	Min	Avg/Min	Max/Min
SITE	0	0.27	5.1	0.0	N.A.	N.A.
PHASE 1		1.48	4.6	0.0	N.A.	N.A.
PATHWAY		2.12	5.1	0.0	N.A.	N.A.

GENERAL DISCLAIMER:
Calculations have been performed according to IES standards and good practice Some differences between measured values and calculated results may occur due to measurement uncertainty, tolerances in luminaire and lamp performance, inaccuracies in mechanism and field conditions such as voltage and temperature variations. Input data used to generate the attached calculations such as room dimensions, reflectances, furniture and architectural elements significantly affect the lighting calculations. If the real environment conditions do not match the input data, differences will occur between measured values and calculated values.

* LLF Determined Using Current Published Lamp Data

NOTE TO REVIEWER:
Total Light Loss Factor (LLF) applied at time of design is determined by applying the Lamp Lumen Depreciation (LLD) from current lamp manufacturer's data, the Luminaire Dirt Depreciation Factor (LDD) from current lighting industry standards, and a Ballast Factor (BF) from current ballast specification sheets. Application of an incorrect Light Loss Factor (LLF) will result in forecasts of performance that will not accurately depict actual results.

For proper comparison of photometric layouts, it is essential that you insist all designers use correct Light Loss Factors.

APEX LIGHTING SOLUTIONS
THE POINT WHERE ALL ASCENDING LINES CONVERGE
20-30 BEAVER ROAD
WETHERSFIELD, CT 06109
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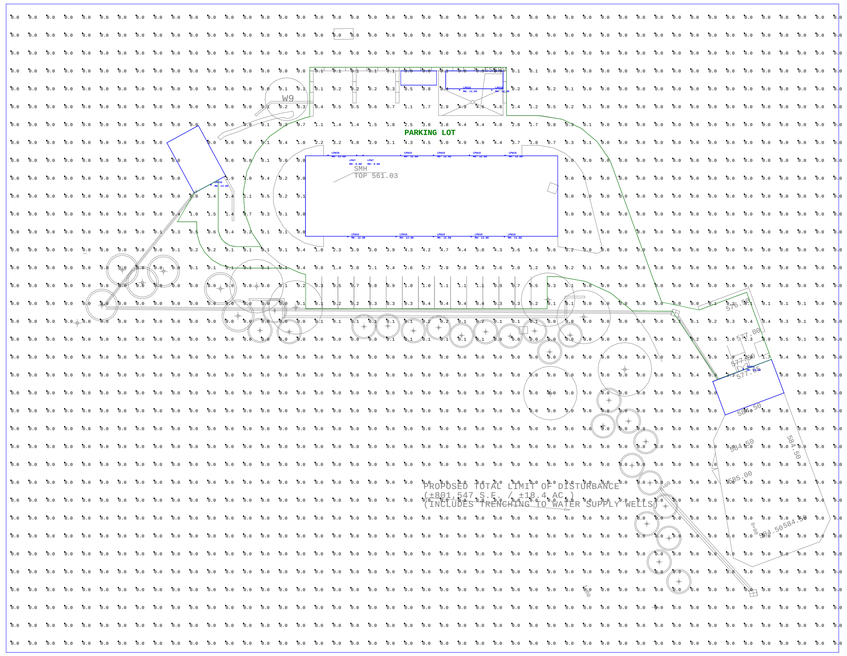
PROJECT TITLE:
SUMMIT CLUB

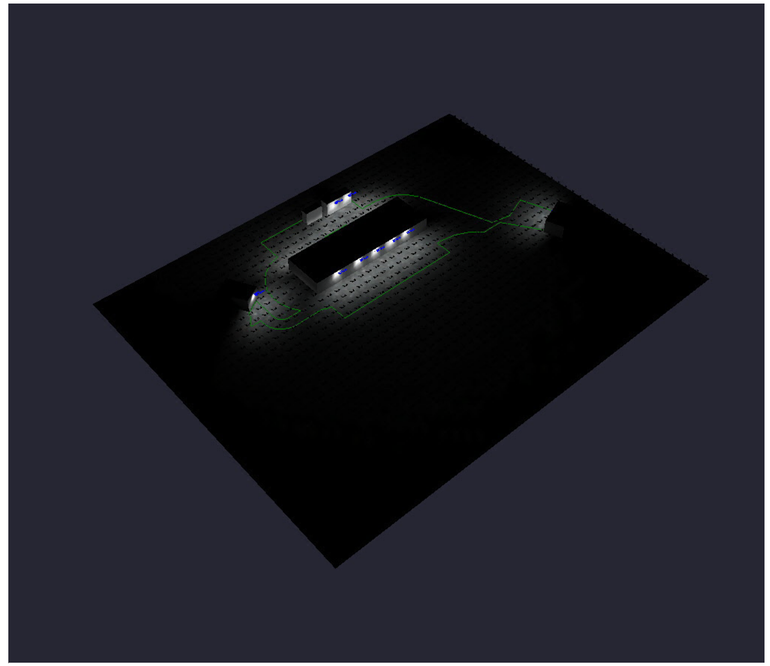
DRAWING TITLE:
EXTERIOR LIGHTING
PHOTOMETRIC CALCULATION

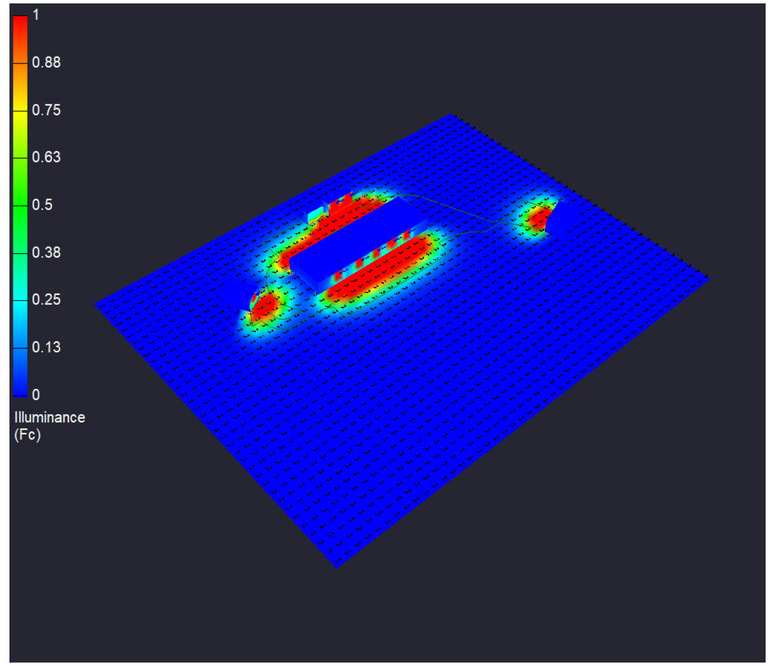
SCALE : 1"=40'-0"
DATE: 5/18/22
DRAWN BY: LED
SHEET:
SL-1

FILE NAME: SL-1 SUMMIT CLUB - SITE 05-17-2022 LED.dwg



Scale: 1 inch= 40 Ft.





LIGHTING DETAILS

Luminaire Schedule								
Symbol	[MANUFAC]	Qty	Label	LLF	Description	Arr. Watts	Arr. Lum. Lumens	Mounting Height
	STONCO	14	LPW16	0.900	LPW-16-20-NW-G3-4-2021	22.3	2632	12
	STONCO / KEENE	2	LPW7	0.900	LPW-7-10-NW-G3-2-8	9.7	1050	8

Calculation Summary								
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min	Grid Z
GROUND_Planar	Illuminance	Fc	0.16	5.0	0.0	N.A.	N.A.	0
PARKING LOT	Illuminance	Fc	1.16	5.0	0.0	N.A.	N.A.	

MOUNTING HEIGHT NEXT TO EACH FIXTURE
CALCS EVERY 10' ON GROUND

Note on this Design:
This report makes no representations in regard to Lighting Design or Specification, rather it attempts to accurately reflect the photometric results of a design, as approved by others.

Note on these Photometric Calculations:
This analysis is a mathematical model and can be only as accurate as is permitted by the third-party software and the IES standards used. All digital CAD data appear to be accurate, however, this apparent accuracy is an artifact of the techniques used to generate it and is in no way intended to imply accuracy in the real world.
There are many factors that will impact the actual performance of Lighting in the constructed space, including: the accuracy of the original source (.ies) files supplied by the manufacturer, input voltage ballast variances, actual finish values in the constructed environment, manufacturing variations in both the source (lamp) and the luminaire, final luminaire placement, obstructions, and installation quality. Further, field measurement itself is subject to errors arising from measuring methods and/or technology selected, and the knowledge/ability of the measuring party.
NB: Reflective Values have a significant effect on light levels, the end-user of the document should confirm these values before accepting the results of any photometric report. The managing contractor/architect/engineer is responsible for ensuring compliance to all relevant lighting ordinance(s) and energy codes required on this project.

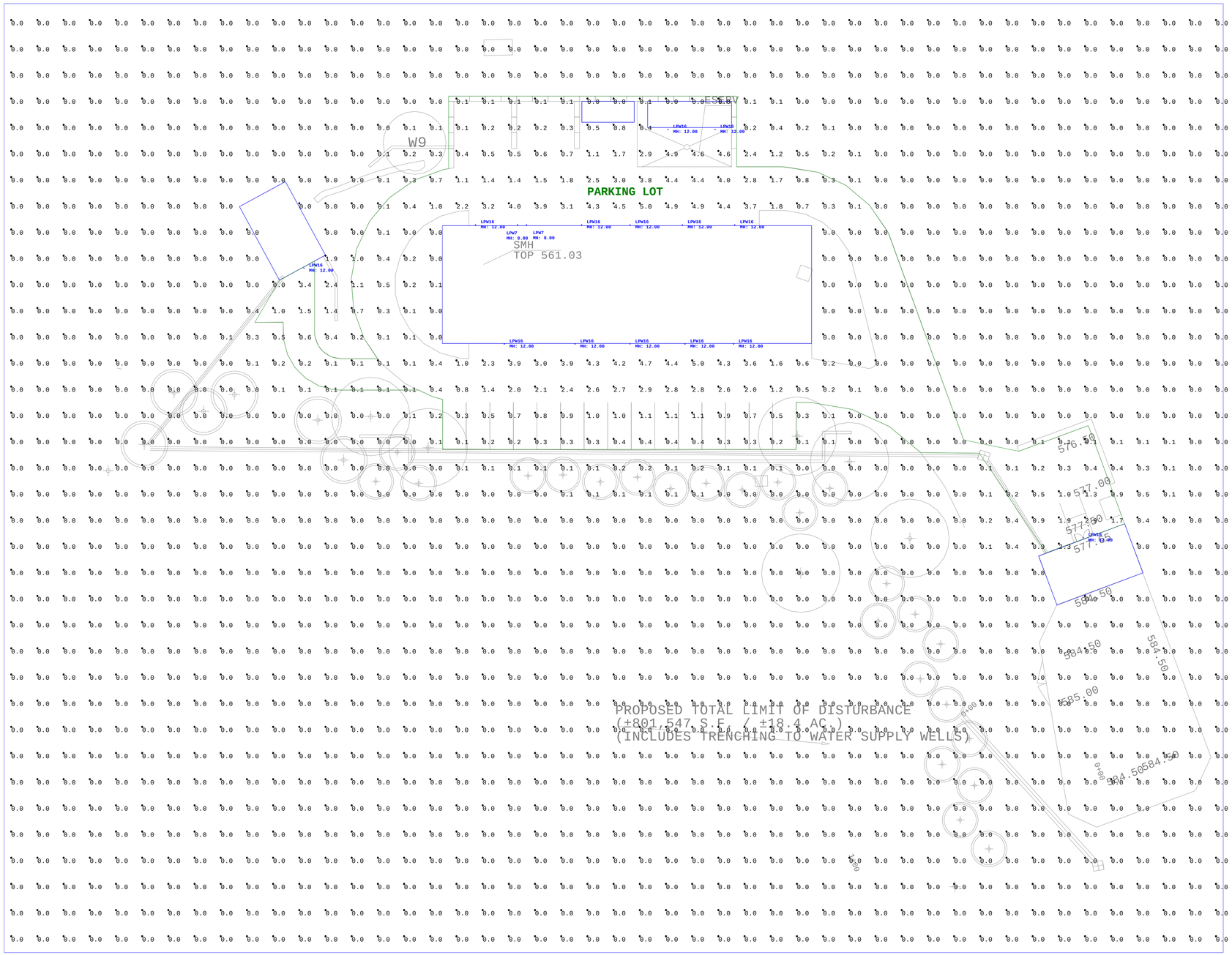
APEX LIGHTING + BUILDING SOLUTIONS

SUMMIT CLUB MAINTENANCE BUILDING

Date:1/26/2023

Drawn By: B.W.

Revision #:



Scale: 1 inch= 20 Ft.

APEX LIGHTING + BUILDING SOLUTIONS

SUMMIT CLUB MAINTENANCE BUILDING

Date:1/26/2023

Drawn By: B.W.

Revision #:

The Summit Club
OF ARMONK

MEMBERSHIP
RULES & REGULATIONS

TABLE OF CONTENTS

Page

I. PURPOSE AND GENERAL CLUB RULES

1.1 Purpose of the Club 1
1.2 Hours of Operation 1
1.3 Conduct 1
1.4 Sexual Harassment 2
1.5 Dress Code 2
1.6 Guest Privileges 3
1.7 Children 3
1.8 Membership Policies 4
1.9 Charging Privileges 4
1.10 Late Fees 4
1.11 Special Events 4
1.12 Non-Club Food and Beverage 4
1.13 Gratuities/Service Charge and Holiday Fund 4
1.14 Alcoholic Beverages 5
1.15 Cellular Phones 5
1.16 Pets 5
1.17 Parking 5
1.18 Prohibited Acts 5
1.19 Member's List 5
1.20 Damage to Club Property by Member or Member's Guest 6
1.21 Member's Liability 6
1.22 Member's Lockers 6
1.23 Club Employees 6
1.24 Complaints & Grievances 6
1.25 Firearms & Fireworks 6
1.26 Smoking 6
1.27 Supervision of Play and Other Activities 6
1.28 Personal Instruction 7
1.29 Cancellation Fee- Member Events 7

II. ADVISORY BOARD

2.1 Activities of the Advisory Board 7

III. INFRACTIONS AND DISCIPLINE

3.1 Infractions 8
3.2 Discipline 8

IV. GOLF COURSE RULES

4.1 Starting Time Procedure 9
4.2 Practice Area 10
4.3 Putting Green 10
4.4 Handicaps 10
4.5 Junior Golfers 10
4.6 Guest Privileges 11
4.7 Local Golf Rules 11
4.8 Pace of Play 11
4.9 Care of Course 12

4.10 Handicap Golfer 13
4.11 Member's Golf Course Etiquette 13

V. RULES FOR OPERATION OF GOLF CARTS
5.1 Responsibility for Damage 13
5.2 Driving and Operation 14
5.3 Reckless Driving 14
5.4 ADA Compliance 14
5.5 Walking Fees 15

VI. SWIMMING POOL RULES
6.1 Hours & Check In 14
6.2 Children 15
6.3 Conduct 15
6.4 Dress 15
6.5 Safety 15

VII. FITNESS
7.1 Hours & Check In 16
7.2 Children & Supervising Adults 16
7.3 Conduct 17
7.4 Safety 17
7.5 Dress 17
7.6 Program 17
7.7 Lockers 17

VIII. TENNIS
8.1 Hours & Check In 16
8.2 Children & Supervising Adults 16
8.3 Conduct 16
8.4 Safety 16
8.5 Dress 18
8.6 Program 18
8.7 Lockers 18

THE SUMMIT CLUB
RULES AND REGULATIONS

These Rules and Regulations ("Rules") are designed to protect the privileges of Members, as defined in the Membership Plan and to promote the enjoyment of the Club by members and their guests. All Members, by signing the Membership Application and agreeing to the Membership Plan have a duty to assist the Club in enforcement of these Rules. These Rules amend, supersede, and replace in their entirety any prior rules and regulations, and may be modified or amended by Summit Country Club LLC at any time.

Article I. Purpose and General Club Rules

1.1 Purpose of the Club

The purposes for which the corporation is formed are for the maintenance of the Club for social enjoyment by providing a place of entertainment and suitable grounds for the playing of golf, games, sports, and pastimes and for the encouragement of same.

1.2 Hours and Days of Operations

The Club's hours and days of operation will be established and published by the Club. The Club reserves the right to modify the hours and days of operations. The Club may close certain facilities from time to time for maintenance, repair and other purposes deemed necessary by the Club.

1.3 Conduct

Members are expected to conduct themselves in a manner that will not in any way interfere with the enjoyment of the Club by other members and their guests. Members are responsible for the conduct and dress code for their families, guests, and children. Disorderly, disruptive, or offensive conduct will be dealt with by the Club with disciplinary action up to and including suspension and or termination of membership privileges. Members are responsible and hereby agreed to abide by these Rules and Regulations, and a Member's conduct shall be deemed to interfere with the enjoyment of the Club by other members upon the occurrence of the following.

(1) Failure to pay to any fees, monthly club fee or other charges, or any installment thereof, on or before the due date.
(2) Resignation or other termination of the membership by which the member or authorized user was entitled to use the club facilities.
(3) Violation of these Rules and Regulations.
(4) Conviction of a felony or of any crime involving moral turpitude, or a determination by the Club that the person was convicted of a felony or such a crime prior to issuance of such person's membership and failed to disclose such conviction prior to approval by the Club; or
(5) Commission of any act which the Club determines to be detrimental to or likely to endanger the welfare, safety, harmony or good reputation of the Club or any member or authorized user.
(6) Verbally berating or admonishing a club employee in a degrading, abusive, rude, or malicious manner.

(7) Sending, forwarding, posting, or replying to derogatory, malicious, rude, slanderous, or abusive emails, social media posts, or texts to or from club members, employees, or guests.

1.4 Sexual Harassment

All members are entitled to utilize the Club amenities and all employees have the right to work in an environment free from Sexual Harassment. Sexual Harassment violates both State and Federal Law and the Club will not tolerate any form of Sexual Harassment in the workplace, whether engaged in by an employee, member of management, member, guest, or one who conducts business with the Club.

1.5 Dress Code

It is the responsibility of all Members to be aware of our standard of dress and to ensure that their guests conform to this dress code. The Clubhouse dress regulations apply to all areas of the Clubhouse including all outdoor areas. For certain special events, special dress regulations may apply, and they will be communicated when the event is advertised. **Management reserves the right at its discretion to disallow service to a Member or their guest if their attire does not adhere to the standards of the dress code policy.**

Dress Code in the Clubhouse for Gentlemen: (subject to change upon the opening of the Clubhouse)

(1) Shirts: Short/long sleeve dress collared shirts, turtlenecks, short/long-sleeve mock turtlenecks for dress or golf or collared golf shirts are acceptable. Dress non-collared shirts, tropical style shirts and banded waist shirts are acceptable attire and do not have to be tucked in. T-shirts and sweatshirts are not permitted.

(2) Pants: Sweatpants or jogging pants are not acceptable attire. Denim should be of a dressy variety, not to be torn, dirty or inappropriate adorned or ragged.

(3) Shorts: Business casual, and dress shorts are acceptable attire. Basketball shorts, tight-fitting cycling shorts, cut-offs, bathing suits or are not acceptable.

(4) Shoes: Only soft spike shoes may be worn on the golf course. Golf shoes are acceptable in the locker rooms, and outdoor areas, but not throughout the clubhouse. Metal-spiked golf shoes of any kind are not permitted. Shoes must be worn at all times.
Men's Dress Code also applies to Junior and Pre-Junior boys.

Dress Code in the Clubhouse for Ladies: (subject to change upon the opening of the Clubhouse)

(1) Tops: T-shirts, halter-tops, tube tops, crop tops and tank tops are not permitted. Appropriate sleeveless tops and halters are acceptable.

(2) Pants: Sweatpants or jogging pants are not acceptable attire. Denim should be of a dressy variety, not to be torn, dirty or inappropriate adorned or ragged. Capri pants are permissible attire.

(3) Shorts, Skirts & Dresses: Dress shorts, skirts and dresses are acceptable attire. Spandex shorts, cut-offs, and bathing suits are not acceptable attire in dining areas.

(4) Shoes: Soft spikes must be worn by all members and guests. Golf sandals are permitted. Golf shoes are acceptable in the locker rooms, 19th Hole and Gazebo areas, but not throughout the Clubhouse. Metal-spiked shoes of any kind are not permitted.
Ladies Dress Code also applies to Junior and Pre-Junior girls.

Dress Code on the Golf Course for Ladies and Gentlemen:

(1) Shoes: All golfers must wear clean appropriate footwear on the golf course and practice areas. Soft spikes must be worn by all Members and guests. Golf shoes are acceptable in the locker rooms, 19th Hole and Gazebo areas, but not throughout the Clubhouse.

(2) Shorts: Walking shorts are permitted, and as a general guideline should be no shorter than (3") three inches from the top of the kneecap. It is recognized, however, that a person's height may make it difficult to meet this standard. In general, the interpretation of proper golf-short attire will be based on the type of shorts sold in golf shops at private country clubs, and will be based on the fashions worn by men and women golf professionals. In no way are cut-offs, bathing suits, jean pants or shorts of any color, jogging attire, or brief attire allowed.

(3) Shirts: Tank tops, bare midriffs, and fishnet tops are not permitted. T-shirts are not permitted at any time.

(4) Hats: Caps or, and hats are to be removed when in the Clubhouse. Caps and visors are acceptable in the locker rooms, 19th Hole and Gazebo areas, but not throughout the Clubhouse.

Men's and ladies' dress codes apply to all junior players as well.

The final judgment of whether an individual does not meet the intent of this code is the responsibility of the General Manager.

Dress Code for the Pool Facility:

(1) Bathing suits are the only garments to be worn in the swimming pool. Cut-offs are not permitted in the pool. Pool attire is not acceptable in any area of the Clubhouse or Patio.

1.6 Guest Privileges

All Members are entitled to limited guest privileges, subject to applicable guest fees. A guest of a member is limited to six (6) times per year, unless approved to play in a tournament or club event by the General Manager or Golf Professional, regardless of the member sponsor. Exceptions may be granted by the Club in its sole discretion. Guests are required to register for all golf play. Guests must be accompanied by a Member unless an unaccompanied guest is approved by the General Manager or Golf Professional. Members are responsible for familiarizing their guests with these Club Rules and Regulations and are responsible for any misconduct or damage to Club property. Guest privileges may be denied or revoked at any time by the Club for reasons the Club feels sufficient. Any member that has been suspended from the Club or is no longer in good standing are not entitled to guest privileges.

1.7 Children

Members are directly responsible for the actions of their children and the children of their guests. Children under the age of twelve (12) must be accompanied by a parent or supervising adult, to include the clubhouse facilities, unless they are attending a specific program designated for Children. Children may not wander or run around the club facilities or engage in disruptive behavior that compromises safety or interferes with the enjoyment of the Club by others. No one under the age of sixteen (16) is permitted in the Men's or Women's locker room unless accompanied by a parent or adult supervisor.
The General Manager may place restrictions on use by member's children in the event of a violation of these rules.

1.8 Membership Policies

The Club may adopt additional policies and will publish and post for Members. Membership have a duty to keep informed of abide by Club policies as published.

1.9 Charging Privileges

The Club shall determine all fees and dues of the Members of the Club and publish annually. Members Annual Dues are payable in advance upon receipt of the October billing and paid prior to March 31st of each year, in no event later than January 31st, Members may be required to present their membership cards for all other services. The Club shall bill these services on a monthly basis and the member shall remit payment by the 5th day of the month. Those accounts paid electronically shall be paid by the 5th day of the following month.

1.10 Late Fees

The Club shall establish the late payment date and any late fees that may be assessed. Any Member who fails to make payment in full within thirty (30) days from the statement date will be delinquent and shall be deprived of the privileges of the Club until such payment is made. If the Member fails to pay the delinquent bill within sixty (60) days, together with all other accounts then owing, he/she may be expelled from the Club.

Any Member giving or endorsing a check to the Club which is not paid upon presentation will be notified of such nonpayment, a penalty of $50.00 will be levied and such Member will be subject to suspension, forthwith, by the Club, without further action, from all Club privileges until the amount of the check and penalty is paid.

Forfeiture, resignation, or expulsion of Membership in the Club shall not prevent the Club from collecting delinquent accounts in any Court of competent jurisdiction. Further, the Club shall be entitled to collect reasonable attorney's fees incurred in connection with any such collection activity. Any Member expelled from the Club for the above reasons may not be reinstated unless all applicable fees are paid to the Club.

1.11 Special Events

The Club shall employ staff to assist members in planning certain private events to be hosted at the Club. The Club may host special and private events, whether member sponsored or sponsored by the Club. The Club may use certain events for non-member events to include private parties, weddings, other special functions, and golf tournaments on days the golf course is closed that will not interfere unreasonably with member access and usage.

1.12 Non-Club Food & Beverage

Members may not bring food and beverage of any kind on to Club premises, nor may any Member remove food and beverages of any kind from Club premises without the approval of the General Manager.

1.13 Gratuities/Service Charge and Holiday Fund

Food and Beverage charges at the Club will be subject to an automatic service charge (not a tip or gratuity), a portion of which may be, at the Club's discretion distributed to the wait staff at the Club. The Club will be a non-tipping club and members and guests are asked not to tip employees for services

provided at the Club. Any exceptions will be announced to the membership. will be distributed to the specific employee as directed by the Member. The Club in the month of October/November may extend an opportunity for members to contribute to a Holiday Fund to show their appreciation for a Club employee's services.

1.14 Alcoholic Beverages

Members may not bring on to Club premises or remove from Club premises alcoholic beverages, unless expressly authorized by the Club in accordance with state law. Any instances of intoxication will be dealt with accordingly by the General Manager. Members are asked not to attempt to leave the Club and operate a motor vehicle in an intoxicated condition. Club staff are authorized to refuse service to any Member they feel is intoxicated or on the verge of becoming intoxicated.

1.15 Cellular Phones

Members are asked to be respectful of other members and their guests, and the use of cell phones or digital phones is permitted with appropriate discretion. Members are asked to keep all cell phones on vibrate while on club premises and the clubhouse facilities. The General Manager reserves the right to ask a Member to turn off his/her cell phone should it interfere with the other Member's enjoyment of the Club.

1.16 Pets

Dogs and other household animals, including emotional support dogs, except for seeing-eye dogs and other legally qualified service animals, and are not permitted onto Club premises (including the golf course) at any time, unless specifically approved by the General Manager.

1.17 Parking

All vehicles must be parked within designated areas in accordance with applicable laws and posted regulations. Members must park in the designated Club's parking areas. The Club shall not be responsible for personal injury, property theft or damage. Any Member Vehicles parked in designated spaces for handicapped or otherwise restricted may be removed at the expense of the Member. Bicycles, motorbikes, all-terrain vehicles, roller blades, and skateboards are not permitted on golf course, practice area, cart paths or clubhouse grounds. The Club may authorize the use of privately owned golf carts for residences and all privately owned carts must be parked in the designated areas.

1.18 Prohibited Activities

The Club has the sole and absolute right and power to prohibit any games, sports, or other activities, which in its sole discretion, it considers harmful to the interests of the general membership and Club. Solicitation of Members, petitions, and commercial advertisements are not permitted to be posted on the club premises unless approved by the General Manager. Any use of the Club's stationary, logo, is strictly prohibited without the express written consent of the General Manager.

1.19 Member's List

Members may not use the member listing for any charitable or commercial purposes or provide a copy to any non-member for any reason whatsoever.

1.20 Damage to Club Property by a Member or Member's Guest

Members are responsible for any damage or abuse to Club property by such member or a member's guest.

1.21 Member's Liability

Members and guests of members who use the Club facilities do so at their own risk and assume sold responsibility for personal injury, personal property and property damage. The Club, its affiliates, officers, employees, and agents are not responsible for personal injury to any person while on Club property, nor for loss or damage to personal property brought onto, used or stored on Club property or on the facilities, whether in the member's locker or elsewhere.

1.22 Member's Lockers

The Club once the Clubhouse is complete will offer lockers for members, inclusive of the Full Golf, Executive, Young Executive, and Corporate Annual Dues. Members agree that the Club is not responsible for any losses, damages or claims which may arise from Member's use of the lockers. Members assume all risk of theft, loss or disappearance of items placed in the lockers and understand the Club may upon reason and notice inspect the member's locker at any time.

1.23 Club Employees

Employees of the Club are to be treated in a professional and courteous manner. A Member shall not reprimand any employee at any time. Members shall report any complaints of service, behavior, or inattention immediately to the General Manager. Members may be asked to state their complaint in writing and the General Manager will take the appropriate disciplinary action.

1.24 Complaints and Grievances

Member's Complaints/Grievances, concerning other Members, shall be directed to the immediate attention of the General Manager. Members may be asked to state their complaint in writing and management will take the appropriate disciplinary action.

1.25 Firearms and Fireworks

Firearm's, Lethal Weapons, and ammunition of any kind are not allowed on Club property. The General Manager shall approval the use of any fireworks in compliance with the laws of the state of New York.

1.26 Smoking

Smoking is not permitted in or adjacent to enclosed areas on the Club property. The General Manager reserves the right to designate certain areas as no-smoking at any time. No-smoking areas include the pro shop, the clubhouse, all pool areas, and other member areas, as well as any other adjoining facilities. The Club may designate areas for cigars and other tobacco use.

1.27 Supervision of Play and Other Activities

Club staff, acting under the supervision of the General Manager, will have the responsibility for supervision and control of all matters relating to play on the course, pool, fitness, tennis (if applicable) and all other member areas. Privileges and access to any club amenities and the golf course may be

refused for any violation of these rules and regulations.
Responsibility for such supervision may be delegated to pros, starters, marshals, lifeguards, or other individuals designated by the General Manager.

1.28 Personal Instruction

Instruction in golf, swimming, fitness, and other services may be offered under the supervision of the General Manager. Members may not authorize anyone other than persons provided or expressly authorized by the Club to train, teach, or give golf instruction, swimming lessons or to provide aerobic, personal, training or material arts instruction, or to provide golf club fitting. Charges will not be assessed if a scheduled lesson is cancelled 24 hours or more in advance.

If a Member cancels a lesson less than 24 hours before it is scheduled or fails to appear for scheduled lesson, the Member may be charged the lesson rate then in effect.

1.29 Cancellation Fee for Member Events

At the Club's sole and absolute direction, a cancellation fee for all reservations not cancelled within forty-eight (48) hours may be assessed for Club sponsored Member events, if the Member does not adhere to the event's cancellation policy as set forth in the specific event advertising and marketing collateral.

Article II. Advisory Board

The Club reserves the right to appoint Members to an Advisory Board to advise the General Manager on items as listed below.

2.1 Activities of the Advisory Board

Upon request by the General Manager, the Advisory Board will advise and counsel the General Manager on items relating to conduct of Club affairs, including but not limited to, the following areas:

(1) Represent the collective best interests of all Club members.
(2) Work with the General Manager whenever possible to help stimulate the matriculation process through involvement and programming.
(3) Work with the General Manager to identify and prioritize annual capital projects and whenever possible/necessary to communicate project status updates.
(4) Enhance the membership experience whenever/wherever possible.
(5) Help identify and communicate emerging market trends to General Manager.
(6) Be available whenever possible to attain membership feedback, ideas, and concerns and to communicate this feedback, ideas, and concerns to the General Manage in a timely fashion.
(7) Work to maximize the process by which information is conveyed to the membership.

The Advisory Board will represent the membership on matters that might affect the harmonious relationship between the membership and management of the Club, complaints, criticisms, suggestions, and other communications concerning such matters of Members will be made in writing to the General Manager. The Advisory Board has no right or power to direct, manage, supervise or control of the management of the Club.

Article III. Infractions and Discipline

3.1 Infractions

Any Member who violates any of the conditions set forth in the Membership Plan or these Rules and Regulations may be subject to a suspension of membership privileges or expulsion from membership.

3.2 Discipline

Any matters (except nonpayment of a Member's account) which may involve suspension of membership privileges or expulsion from the Club may be referred to management pursuant to the procedures set forth in the Membership Plan. The Club's management will review any inappropriate activity by a member. All members shall abide the provisions of the Conduct provisions as set in Article 1. Section 3 above. Club Management determines, in accordance with the procedures set forth below, that any member, member's designee or other authorized user is no longer in good standing, the Club may impose such sanctions as it deems appropriate. Such sanctions may include, but need not be limited to, monetary fines, reprimand, temporary suspension of membership privileges, or expulsion and termination of membership.

Any temporary suspension of membership privileges shall be for such period as the Club deems appropriate. A suspended member, designee or authorized user shall remain fully liable for all monthly club fee, fees and other charges accruing during any period of suspension. The Club's determination that an authorized user is not in good standing shall be cause for suspension or termination of the authorized user's privilege of using the club facilities but shall not affect the privileges of the member or its other authorized users. The Club's determination that a member's designee is not in good standing shall be cause for suspension or termination of the privileges of the designee and the designee's authorized users but shall not affect the privileges of the member. Upon suspension of a membership:

(1) A Member, or Designee whose use privileges are suspended or terminated pursuant to this section shall not be entitled to use the club facilities as the guest of another member or otherwise. A member who has been expelled shall be deemed to have resigned the membership.
(2) The Club shall not suspend or terminate the rights of a member, its designee (if applicable) or any authorized user without (a) prior notice to the member (and member's designee, if applicable) specifying the basis for a belief that the member, its designee or other authorized user is not in good standing and (b) an opportunity for a hearing on the matter.

If the member, its designee or authorized user requests a hearing in writing within 10 days after receipt of such notice, the General Manager shall set a time and date for a hearing and shall provide at least 10 days prior written notice thereof to the member. The hearing shall be held before a committee comprised of such persons as the General Manager may designate, who may, but need not, be members. At such hearing, the member, its designee, or authorized user may make a statement and present any evidence or witnesses supporting the position that such person remains in good standing or should not be sanctioned. The general policy of the club shall be that neither the club nor the charged person shall have counsel present at any such hearing; provided, however, should the charged person desire to have counsel present at the hearing, such person shall notify the General Manager of such

preference at least 24 hours in advance of the hearing, and both the club and the member shall be entitled to have counsel present.

The hearing shall be conducted in accordance with the following:

(1) Only those persons may attend who, in the discretion of the General Manager, are necessary to afford a complete and impartial hearing.
(2) The club's appointee, or representative, if any, may present arguments for sanctions against the charged person. the club's appointee shall name the complainants and witnesses who are to testify regarding the charged person's conduct and in support of the charges.
(3) The charged person shall have an opportunity to be heard orally or in writing, present witnesses, produce any statement or evidence on such person's behalf, confront the witnesses, and refute the claims of complainants.
(4) The club and the charged person each shall be afforded a reasonable opportunity to present relevant matters. The charged person shall have the same amount of time to present matters and confront the witnesses and complainants as the club uses to present the matters it deems relevant; however, neither presentation shall exceed one hour, unless the General Manager, in its sole discretion, determines that more time is necessary to present relevant matters. The amount of time that the committee uses to pose questions to those in attendance shall not be charged against the time allotted to either.

Upon the conclusion of the Hearing, the General Manager shall notify the alleged violator of its determination and the sanction, if any, to be imposed within 10 days following the date of such hearing. In the discretion of the General Manager, membership privileges may be suspended pending the outcome of such hearing. **The General Manager and Club's determination that any person is not in good standing in accordance with this Section will be final.**

Notwithstanding the hearing requirement specified above, the General Manager may immediately suspend the rights and privileges of a member, designee or authorized user when, in its sole discretion, the General Manager determines that such person's conduct, if repeated, would pose a threat to the welfare and safety of the club and its members or that the time period involved in complying with the hearing procedure set forth above would render such hearing procedure ineffective to address or prevent a recurrence of such person's conduct within such time period. In such event, the member, designee, or authorized user involved shall have the right to appeal the suspension. To perfect this right, a written notice of appeal must be received by the Club or its designee. within 10 days after the date of suspension. If such a suspension is appealed, the General Manager and Club or its designee shall comply with the applicable notice and hearing procedures set forth above. If such a suspension is not appealed, the General Manager and Club or its designee shall review the facts surrounding the suspension to determine the length of the suspension or if further disciplinary action is necessary.

Article IV. Golf Course Rules

The Golf Professional or his designated assistants shall have full charge of allowing play on the golf course and shall be the first authority as to interpretation or enforcement of the following rules:

4.1 Starting Time Procedures

Weather permitting, the golf course will be open per the posted schedule. No one shall commence play upon the golf course when the course is closed, or at other times or places on the golf course as deemed necessary by the Golf Course Superintendent. Full Golf Members will receive priority for weekend and holiday tee times over Sports, Regional and National Members

No one shall commence play upon the golf course without registering with the Golf Shop.

During the golf season no more than four (4) players per group are permitted without prior approval from the golf staff.

Tournament matches and Club sponsored events, including Inter-Club matches, shall always have preference over all other matches. All matches must start on #1 unless permission is obtained from the golf staff.

4.2 Practice Areas

All practice shall be confined to areas provided for that purpose. At no time shall practice be permitted on the golf course. This area is maintained by the Club for the enjoyment of the Members. Proper dress and age requirements (practice areas are restricted to golfers approved for use of the golf course) and will be enforced as per the directives of the golf course.

(1) Range balls are available at the practice areas throughout the golf season.

(2) The practice area will operate on a schedule to ensure the retrieval of all range balls prior to dark. Hours of operation will be posted on the practice area and in the Golf Shop.

(3) Inclement or very wet conditions may limit the use of this area. **Range balls may not leave the practice areas for any reason.**

Please observe proper etiquette and turf maintenance on the practice areas.

4.3 Putting Green

A 9-hole putting green, located outside the Golf Shop, is available for the purpose of perfecting the putting stroke.

4.4 Handicaps

An established handicap index is required for participation in any Club event. Maintaining an accurate handicap index is the responsibility of the Member. Members shall pay any applicable fees for participation in the Club's Handicap system. Handicap indexes are computed according to the USGA Handicap system. During the golf season, it is the Members responsibility to ensure all appropriate scores are timely recorded in the Golf Shop, including rounds played on a course elsewhere.

New Members should be informed that if they wish to participate in the tournament program they must have a verified handicap index from their previous club or have played and entered at least five (5) rounds into a Handicap computer, located in the Golf Shop or at another designated Club, approved by the Golf Professional.

The Men's Golf Committee or Golf Professional will assess penalties to those golfers who fail to turn in their scores and additionally will adjust deemed necessary based on tournament scores per the USGA Handicap System. The maximum course handicap allowed for male golfers in all Club-sponsored events is 30 and for female golfers, 40; in mixed events - female 36.

4.5 Junior Golfers

A junior golfer is defined as any son or daughter who is 23 years of age or younger and is a dependent of a Golf Member. Junior golfers are expected to be knowledgeable in the etiquette and rules of golf and to

help maintain the care of the course. Violation in this area could lead to suspension of playing privileges.

4.6 Guest Privileges

Every guest shall be sponsored by a Member who shall be responsible for registering the guest with the Golf Shop prior to play. To avoid embarrassment, it is required that Members register their guests immediately upon arrival at the Club. When the Member does not play with the guest, the Member shall call the Golf Shop and make necessary arrangements.

4.7 Local Golf Rules

All play is governed by the rules of the United States Golf Association (USGA), except as expressly modified by the Club's Local Rules, which are adopted and published by the Club.

(1) All water hazards, out of bounds and ground under repair are marked as follows:

Out of Bounds	White stakes
Regular water hazard	Yellow stakes
Lateral water hazard	Red stakes
Ground under repair	White chalk lines

Please follow USGA procedures when confronted with these areas.

(2) Preservation of the course by defining areas, including turf nurseries and other parts of the course under cultivation, such as flowerbeds, is ground under repair from which play is prohibited. The ball must be lifted, without penalty, and dropped in accordance with the procedure prescribed in USGA rule 25-1b(I) (Casual Water, Ground Under Repair and Certain Damage to Course).

(3) Protection of young trees identified by stakes surrounding and tied either by rope or wire to the young tree. If such tree interferes with a player's stance or the area of his intended swing, the ball must be lifted, without penalty and dropped in accordance with the procedure prescribed in USGA rule 24-2b(I) (Immovable Obstruction).

(4) When winter rules prevail, the ball may be moved one scorecard (8") length no nearer the hole on the fairways of the hole the golfer is playing.

(5) Wild areas are off limits to pull or power cart traffic.

4.8 Pace of Play

Under normal conditions, the time required to complete 18 holes shall not exceed four hours (two hours for 9 holes). When the Superintendent restricts carts to cart paths only, the maximum playing time to complete 18 holes shall be limited to four hours and thirty minutes (two hours and 15 minutes for nine holes).

The rounds played as 18-hole-tournament rounds shall be completed within four hours and thirty minutes (two hours and 15 minutes for nine holes). Time monitoring by Pro Shop personnel will be carried out when the level of play on the course is high during weekends and during the week. Play during tournament rounds will also be timed. The time will be recorded when each group tees off the first hole and when each group finishes the last hole.

The first group to finish in an amount of time which is greater than that specified will be issued a warning. Any subsequent group that finishes more than ten minutes behind the group in front of them, and exceeds the specified time, will also be warned.

Monitoring of playing times will be conducted from Opening Day to Closing Day.

Pro Shop personnel have the right to issue warnings to groups during other times of play if it is evident that their slow play is interfering with the ability of groups behind them to play within the specified time.

Warnings will be in the form of a letter issued by the General Manager or the Golf Professional. After receiving a second warning letter, it will be necessary for the offender to receive instruction from the Golf Professional on how to improve his or her pace of play. The offender will not be permitted to play the course until the instruction is received.

After two warnings, those committing the third infraction will not be permitted to play prior to 3:00 p.m. on any day of the week, or to play in any tournaments (including Tuesday Night League and the Ladies' Nine and Eighteen Hole Leagues) during the penalty period. The length of the penalty period shall be one month.

Since the makeup of foursomes may vary from week to week, the person or persons that have been involved in slow play on all three occasions will lose their playing privileges.

After a player has been disciplined for slow play pursuant to the provisions herein, the penalty for future infractions will be determined by the Professional.

Warning letters issued for slow play shall remain valid for 36 months.

4.9 Care of the Course

Every Member shall always be responsible for protecting and preserving the good condition of the golf course.

(1) Sand Traps: All footprints and holes made by a player in a sand trap shall be carefully leveled as soon as the golfer has played from it.
(2) Divots: Any turf displaced by a player on any part of the golf course shall be replaced and pressed down. While on any tee, if a divot is taken, repair the divot with Tee Mix.
(3) Greens: Any damage to the putting green made by the player or his ball must be repaired before the player leaves the green. Players should ensure that bags, flag sticks, and cigarettes are not dropped where they could injure the putting greens and that they do not damage the hole by standing too close to it or in handling the flag stick. Do not use a putter blade to remove a ball from the hole. The flagstick should be properly replaced before leaving the green.
(4) Litter on the Course: Trash baskets are placed at convenient locations throughout the course and should be used by all players for the disposal of all waste. If you observe litter on the course you are required to pick it up and dispose of it properly.
(5) Carts: The Golf Course Superintendent shall determine when course conditions prohibit the use of golf carts or pull carts (if applicable). Under no exception shall a golf cart be operated within or parked within 30 feet of the putting surface. Golf carts must remain on cart paths at the green and tee complex areas. Markers designate the directional entry to the cart path. Golf carts are prohibited beyond these markers.
    (1) All golf carts must remain on the cart paths on all Par 3 holes.
    (2) Keep all golf carts off moguls and mounds and remain clear of sand traps.
    (3) Every effort should be taken to avoid bare spots, wet or soft spots, or areas under construction.
    (4) When conditions allow, golf carts should scatter throughout the fairway and rough.
    (5) Obey all cart directional signs.
    (6) No more than two riders per golf cart during a round of golf. Only two (2) bags are allowed per golf cart except when a golf cart is fitted to carry four (4) bags.

(7) Members will be charged for any damage they, or their guests, done to a golf cart.
(8) Junior golfers under the age of 16 shall not be permitted to operate a golf cart.

4.10 Handicap Golfers

With the receipt of a copy of a Handicap License Permit to the Golf Professional, a player may be issued a (color) flag, or other forms of identity for their respective golf cart. This flag signifies to the Player Assistant or any other designate of the Golf Professional, that the cart is not subject to the Cart Rules above and may operate no closer than 30 feet of the putting surface.

4.11 Member's Course Etiquette

If such distinctions may be made in any sport, golf is truly a gentleman's game, and failure by any player or spectators to observe the courtesies, which are a part of this game, could seriously affect the pleasure and scores of other players.

The careful observance of these courtesies therefore becomes as much a part of the game as accurate scoring or the observance of any other rules of golf. In part, the rules of golf etiquette are listed for your guidance.

(1) No person should move, talk, or stand close to or directly behind the ball or hole when a player is addressing the ball or making a stroke.
(2) In the interest of all, players should play in turn, without delay, should not loiter between shots, and should leave the putting green immediately after play of a hole has been completed.
(3) Players who are not maintaining the pace of play, and are holding up following players, shall promptly invite them to play through and should not resume their own play until those players are out of range. Twosomes and threesomes have no right of way. The Club may establish pace of play guidelines that all players should follow. It is a group's responsibility to keep up with the group in front. If it loses a clear hole and is delaying the group behind, it should invite the group behind to play through, irrespective of the number of players in that group.
(4) Players should be ready to play as soon as it is their turn to play. When playing on or near the putting green, they should leave their bags or cart in such a position as will enable quick movement off the green and toward the next tee. When the play of the hole has been completed, players should immediately leave the putting green.
(5) Players searching for a ball shall allow other players coming up to pass them without delay; they shall signal to the players following them to pass and shall not continue their play until those players have passed and are out of range. A player is permitted to search for a ball for five (5) minutes before the ball must be declared lost and the match resumed, however, this does not excuse a failure to wave through a following match while the search is in progress.

Article V. Rules for Operating Golf Carts

5.1 Responsibility for Damage

Members are strictly responsible for their guests, their families and their own safe operation of the golf carts so as not to interfere with fellow member's enjoyment of the game, at all times guard against injury to persons or damage to the property, especially the playing surfaces of the golf course. The Club is not responsible for accidents or damage caused by golf carts. Members are responsible for any damage, including misuse, to their assigned golf cart or a golf cart assigned to their guest(s) and damage to any equipment on the golf carts or damage to Club property caused by themselves, their family or their

guest(s) while operating a golf cart.

5.2 Driving and Operation

Operators must have a valid driver's license. By operating a golf cart, the Member agrees that such operation is at his/her own risk. Operating instructions on each golf cart should be read prior to usage. Golf cart operators will use safe driving procedures at all times and will observe and obey signs, stakes and other markers used to guide carts, and will stay on golf cart paths where they are provided, and without exception on Par 3 holes. Children under the age of 16 and anyone without a valid driver's license are not permitted to operate a golf cart at any time. No more than two players and two bags are permitted on any golf cart. Children under the age of six (6) are not permitted to ride on any golf cart.

5.3 Reckless Driving

Reckless driving or violation of golf course rules may result in any forfeiture or suspension of the privileges of golf cart usage and privileges of playing golf on the course itself.

5.4 ADA Compliance

The Club provides golf access to the golf course for golfers with disabilities in compliance with the Americans with Disabilities Act ("ADA") and state law. Any Member who qualifies under the ADA or state law; as a person with a disability, which substantially limits his/her ability to walk (a "disabled golfer") will be given golf cart access to certain areas that may otherwise be restricted or inaccessible. Members are required to provide a Disabled Person Parking Placard, or other reasonable evidence for consideration. In the event the Golf Professional determines that a golfer is not a disabled golfer under this policy, the golfer may appeal such determination to the Club's General Manager. Members must provide proof of disability annually. The Club may issue flags designating disabled golfers, which will allow such members to drive and park golf carts no closer than 10 yards from the collar of greens., unless the Club has authorized the cart to park closer than 10 yards. Notwithstanding the foregoing, in the event the Golf Course Superintendent restricts the golf course or imposes temporary maintenance restrictions, the Club may restrict access for disabled golfers. No carts may be driven into roped areas, staked areas, or environmentally sensitive marked areas.

5.5 Walking Fees

Walking while playing golf may be permitted on the golf course at the Club's discretion and subject to any restrictions imposed by the Club. Applicable fees shall apply

Article VI. Swimming Pool Rules

6.1 Hours and Check In

The pool is open according to the posted schedule and members shall have access to all pool facilities and upon payment of applicable guest fees. The pool is officially closed when posted or advised by the lifeguards (if applicable). The pool will be closed in cases of inclement weather, emergency situations or

under the order of local jurisdictions. During storms, the pool will be closed, and Members are responsible for removing themselves and their guests from the pool area. Lifeguards may or not be on duty, thus Members shall be responsible for ensuring the behavior and supervision of their guests and all children under the age of 18. The Club reserves the right to close the pool for safety checks.

All Members are required to check in at the desk and register their guests. Members that are bringing children of other Members are asked to present both families Membership cards. A specific guest of a Member is limited to six (6) times per year and a member may not bring a specific guest more than two (2) times per month, with the exception of guests approved by management.

6.2 Children

Children who do not swim and all children under the age of 12 years of age must be accompanied by a parent or supervising adult who will always stay and be responsible for them. Children wearing diapers are not allowed in the pool at any time. All children under the age of two (2) years of age or not completely toilet trained are required to wear rubber swim pants.

6.3 Conduct

Conduct at the pool facility must be such as to provide enjoyment for all members and guests. The Manager on Duty and Lifeguards have the authority to enforce all swimming rules and local ordinances. Any Member or guest not abiding by such rules and ordinances may be asked to leave the premises. Running, scuffling, horseplay around the swimming pool or on the deck(s) is prohibited. Members are not allowed to bring in personal food and beverages.

6.4 Dress

Appropriate swim attire is required and may only be worn in the pool areas. Cutoffs are prohibited. Parents or Supervising Adults may wear casual attire with rubber-soled shoes. Cover up attire and footwear must be worn to and from the pool area. Swimmers must shower before entering the pool to remove suntan oils and lotions. Swimmers are required to remove hairpins, clips and cover their head with bathing caps.

6.5 Safety Rules

All Members and their guests must abide by the pool safety rules as set forth in these Rules and Regulations or posted in the pool areas. These rules may include.

(1) Towels belonging to the Club shall remain at the pool. Members should not take the Club towels from the locker rooms to the pool area or any issued towels out of the Pool area.
(2) Lifeguards on duty are there for your protection. Please do not distract them from their primary responsibilities by holding unnecessary conversations with them while they are watching the pool.
(3) Any non-swimming Member or guest (child or adult) must always be accompanied in the water by a strong-swimming adult. Any child using a flotation device of any kind must always also be accompanied in the water by a strong-swimming adult. Non-swimmers or swimmers requiring flotation devices are not permitted past the four feet area of the pool.
(4) Water pistols, water balloons and/or other water-projecting toys are not permitted in the pool area, unless explicitly authorized by the Pool Manager for special games or organized activities. The Pool Manager and/or the Lifeguards will enforce this rule emphatically and reserve the right to collect any items falling under this description until the Member(s) and/or guest(s) leave the

pool area at which time these items will be returned.

(5) Running, shoving, pushing, roughhousing and/or other activities that endanger Members, guests, and/or the Lifeguards are not tolerated. The Club reserve the right to deny use of the pool to any guests or Members that compromises this rule.
(6) Swimmers may not sit or stand on the shoulders of any other swimmer, and "Chicken Fights" are not permitted in the pool at any time.

(7) Diving is not permitted into water less than five feet deep or in any other area that is specifically marked "No Diving".
(8) The wading, or "baby" pool is for toddlers (four years old and under) and/or other non-swimming children only. All children must be accompanied by a responsible adult while using the wading pool.

Article VI. Fitness

7.1 Hours and Check In

All Members must check in at the desk and register guests and pay applicable guest fees before entering the fitness center. Members may only bring the guest six (6) times per calendar year, with such limitations subject to change at the discretion of the Club. Each Member is limited to three (3) guests per day in the Fitness Center.

7.2 Children & Supervisory Adults

Children under thirteen (13) years of age are not allowed in the fitness center. Children between the ages of thirteen (13) and eighteen (18) years of age may not access the fitness center unless their parent or guardian has signed the required consent form, which includes release and indemnification provisions.

The following rules shall apply to all children for use of the fitness facility.

(1) Children between thirteen (13) and (15) may use the fitness center only under the direct supervision of a parent, guardian, or a supervising adult over the age of eighteen (18). Children between the ages of thirteen (13) and fifteen (15) will be required to complete a one-time Junior Certification Class in order to access the fitness center, regardless of supervision.
(2) Children sixteen (16) years of age or older are allowed to use the fitness center without direct supervision.

Parents and guardians know their children better than any Club employee or fitness professional. These minimum ages do not suggest in anyway a child is ready to use the fitness center. Further, any assessment by a personal trainer or fitness professional should be substituted for that of a parent or guardian. Parents and guardians rely on their own judgement when deciding that their child is capable of using any fitness equipment.

USE OF THE FITNESS CENTER AND FITNESS EQUIPMENT IS AT THE USER'S OWN RISK

7.3 Conduct

Correct training techniques must be used on all fitness center equipment. Members are asked to adhere to a forty-five (45) minute time limit on all cardiovascular equipment. Members must report any equipment problems to the check-in desk immediately.

7.4 Safety Rules

All Members and their guests must know and abide by all posted rules and guidelines in the fitness area, including those that are equipment specific. The club may offer from time to time Members and their guests a complimentary fitness center orientation and instruction on the use of the fitness equipment. Members should not use any equipment without first becoming familiar with the operating instructions. Members or guests utilizing equipment improperly may be asked to leave and continuous improper use may result in suspension. **Members understand that using fitness equipment may be hazardous if used improperly or if used by a person with health or medical issues. The Club encourages all members to consult with a medical doctor before engaging in any strenuous exercise.**

7.5 Dress

Appropriate exercise attire is required and may only be worn in the fitness center. Cutoffs and street clothes are prohibited. Shirts must be worn at all times. Warmups or coverups must be worn when entering or leaving the fitness center.

7.6 Programs

The Club from time to time may offer additional programming, such as personal training and group exercise fees at an additional fee.

7.7 Lockers

Lockers are available to rent on either an annual or daily basis. Please contact the check in or the Club's administrative office for reservation and rental of lockers.

Article VIII. Tennis

8.1 Hours and Check In

All Members must check in, register guests, and pay applicable guest fees before entering the tennis courts. Members may only bring the guest six (6) times per calendar year, with such limitations subject to change at the discretion of the Club. Each Member is limited to three (3) guests per day. Permission must be obtained from the Tennis Professional to invite more than three guests in a single day.

Guests are not eligible for Club tournaments without the approval of the Tennis Professional.

A guest court fee per person per day will be charged for guests using the courts.

8.2 Children & Supervisory Adults

Children under thirteen (13) years of age are not allowed on the tennis courts without an accompanying adult.

8.3 Conduct

Members shall conduct themselves and ensure their guests in accordance with the rules of the U.S.T.A.

8.4 Safety Rules

All Members and their guests must know and abide by all posted rules and guidelines on the tennis courts. The club may offer from time to time Members and their guests a complimentary court time.

8.5 Dress

Appropriate tennis attire is required and may only be worn in the tennis area. Tennis players will be required to wear acceptable tennis attire on the courts, based on the type of attire typically sold in tennis pro shops. Clothing such as jean pants, jean shorts and jean skirts, as well as cut-offs, tank shirts and street clothing, are not an acceptable form of attire on the courts at any time.

Shoes designed to be worn on tennis courts are the only acceptable style of footwear.

Tennis sporting attire, including tennis T-shirts, is permitted in the Clubhouse, the patio area, and the pool area.

8.6 Programs

The Club from time to time may offer additional programming, such as lessons and group clinics at an additional fee.

8.7 Lockers

Lockers are available to rent on either an annual or daily basis. Please contact the check in or the Club's administrative office for reservation and rental of lockers.

Integrated Turfgrass and Pest Management Plan (ITPMP) with Environmental Risk Assessment for the Brynwood Golf and Country Club, North Castle, NY

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INTRODUCTION

A properly maintained golf course with established turfgrass cover and mature tree stands provides much-needed green space relief from urban development. The filtering ability of dense, healthy turf and its thatch layer can be utilized to ensure pollutants do not reach groundwater or enter rivers and streams. A golf course can be an attractive and effective transition between agricultural and urban landscapes and provides for the preservation or creation of areas useful to wildlife. When managed in an environmentally conscious manner, golf courses can enhance the quality of life within a neighborhood.

This report is the Integrated Turfgrass Management-Environmental Risk Assessment Plan (ITPMP) for the Brynwood Golf and Country Club. The ITPMP contains a program of fertilizer, pest control options and other maintenance practices to be used on this golf course. This program was designed to serve as the maintenance blueprint for Brynwood Golf and Country Club. The ITPMP relies heavily on environmental friendly practices including the use of: natural organic fertilizers that suppress diseases, pest resistant grasses, biological control material as the first line of defense against pests and careful use of fertilizers and water for irrigation.

In general, golf course superintendents, as a group of professionals, are committed to the preservation of the ecology and the wildlife and share the concern for the preservation of the golf course site's environmental quality. The golf course superintendent, with the use of the Troon Golf Standards and Procedures Manual, will be responsible for implementing this ITPMP program.

As with any new or existing golf course, a fertilizer and pest control program must show flexibility to deal with two very important variables: weather and nature. The initial year(s) or grow-in period that often lasts up to 2 seasons will require higher than normal annual inputs of fertilizers and limited use of pest control materials in order to promote rapid establishment of cover, which reduces soil erosion and minimizes the likelihood of weed infestation.

The basic philosophy of this ITPMP is to produce a healthy pest-resistant golf-playing surface that will have little or no impact on the surrounding environment. Selection and use of fertilizers and pest control materials will be based on producing a healthy plant while not contaminating either surface water (via runoff) or groundwater (via leaching). There is little or no evidence that golf courses have or will contaminate surface or ground water (Baris et al., 2010, Cohen et al., 1990, 1999; Cohen and Durborow, 1994; Petrovic, 1994; Shirk, 1996). There are over 40 golf courses in the NY, NJ and CT region that are using an ITPMP developed by Petrovic, many with surface and ground water quality monitoring. It has been found following these site-specific ITPMP has resulted in protection of surface and ground water quality for contamination from either nutrients or pesticides.

The golf course superintendent of the Brynwood Golf Course will utilize every available method to minimize the risk of contaminating any surface water or ground water. Thus, the purpose of this report is to present a site specific analysis that meets the goals of having a healthy pest-resistant golf playing surface that poses little or no threat to the environment on or surrounding this site. The ITPMP conforms to the principles of sustainable resource management developed by Audubon International for golf courses.

The property is currently working towards becoming a Certified Audubon Cooperative Sanctuary. Audubon provides the tools to thoroughly perform a site assessment of our property and form an environmental plan of action which we can implement to help effect our wildlife habitat and wetland management, reduce our chemical use and create and safer protocol for needed use, become more efficient with our water use, manage the quality of not only our water systems on property but surrounding water systems as well as groundwater, and finally will help us to reach out to our surrounding community to educate and communicate what Brynwood is doing to positively impact the local community. Implementation of new environmental programs and initiatives will help improve our environmental performance and community relations, reduce our environmental and legal liability, have a significant impact on our financial bottom line, and overall will enhance our contribution to the conservation of environmental resources.

The ITPMP also conforms to the best management practices for golf course turf management being developed by Cornell University (Petrovic a co-author).

The report presented here was compiled from the following information: review of IPM plan from Troon Golf, site specific soil properties from VHB and corresponding soil data provided by the USDA- National Resource Conservation Service for these soils, the hydrogeology, groundwater and water supply information from VHB, environmental fate assessment (risk to surface and ground water) of the currently registered pesticides in the state of New York for golf course use by model simulation (WIN PST, pesticide risk assessment models developed by USDA-NRCS), worst case scenario estimates of pesticide concentration in surface and ground water and extensive literature search on the environment fate of fertilizers and pesticides, integrated pest management programs and fertility requirements for golf course turf. This report provides an environmentally sound fertilizer and pest management program to be followed by the golf course management personnel. Any chemical (fertilizer or pesticide) found by this environmental risk assessment to pose a high risk to humans or aquatic wildlife in either surface or groundwater will not be recommended to be used on this golf course. A few pesticides with an intermediate risk to humans or aquatic wildlife may be used on a very small area (greens) under very controlled conditions as a last resort when other control measures are lacking.

For the pests that are likely to invade Brynwood Golf Course, there are several pesticides registered for their control. Taking this into consideration as well as the need to protect surface and groundwater from contamination and to reduce the exposure of humans and wildlife to highly toxic pesticides, pesticides were selected that have a low potential for either leaching or runoff from the soils on this site. The evaluation included determining the

potential of each registered pesticide for contamination of water on a soil-by-soil basis based on soil properties of this site.

In order to preserve and enhance the natural resources, this design and management plan has adopted the principles in the following report.

I. Planning and Policies

The project team is committed to the enhancement of the Brynwood Golf Course by incorporating environmentally responsible golf principles in all aspects of planning and development of this site. The environmentally responsible golf principles include: designing the golf course with care to protect environmentally sensitive areas and to minimize the micro-climatic conditions that favor pests and discourage healthy turf; use low maintenance-pest resistant grasses; follow sound integrated pest management (IPM) practices that use pesticides as a last resort and only pesticides with a low risk to humans and wildlife; careful and precise use of water and fertilizers to provide for healthy-pest resistant turf while minimizing the impact on environment.

II. Alternative Pest Controls

The Brynwood Golf Course will employ IPM techniques to minimize pest problems. This includes:

a) Reliable and accurate pest identification
b) Monitoring pest populations and related damage to ensure treatments will only be applied where and when necessary and when they will be most effective.
c) Establishment of injury levels that can be tolerated before control measures are implemented.
d) Use of combinations of the following treatment methods to control pests in a manner that achieves a high level of effectiveness while minimizing environmental impact.

i) Biological Controls - release of predatory/parasitic insects, conservation of natural enemies.
ii) Cultural Controls - use of resistant cultivars, encouragement of diverse plant communities, optimal management of irrigation, aeration and other management techniques to maximize plant vigor and reduce susceptibility to pests.
iii) Physical Controls – after construction sanitation, pruning, protective weed barriers, etc. will be used to reduce weed problems.
iv) Mechanical Controls - roto-tilling areas repeatedly to kill perennial weeds during renovations, etc.
v) Chemical Controls - use of products that are target specific, have short residual lives and have low environmental impacts.

For each pest anticipated on this golf course, the following is a detailed IPM plan. The basic premise underlying this integrated pest management (IPM) plan is that a healthy plant will be most resistant to pest attacks and will recover much faster than less healthy turf. Therefore, the golf course superintendent will follow the standard accepted maintenance practices like proper mowing (height and frequency); topdressing and cultivation for thatch management and compaction alleviation as examples. What follows is a discussion of practices that more directly affect pest problems and are part of the IPM program.

Each golf course is managed differently based on numerous factors. The following is the recommended management routine that is typical of similar golf courses in the area.

Mowing: Greens and tees will be mowed 6 to 7 times per week during the major growing portion of the year (April-November). Fairways will be mowed 3 to 5 times per week with clippings left in place whenever possible. Roughs will be mowed one to three times per week and clippings left in place.

Clipping Management: Clippings collected from greens, and tees will either be spread in rough areas or be part on the on-site compost-recycling program. Clippings from all other areas will be left in place whenever feasible. If cutworms become a major problem on greens/tees, clippings from greens/tees in June and July will not be place within 100 feet of any green to reduce the population of cutworms.

Cultivation: Several times each year, the greens, tees, fairways and trafficked sections of the roughs will be cultivated to alleviate soil compaction caused from foot traffic from golfers and vehicular traffic. The cultivation methods used will include shallow core cultivation, deep drill and water injection on greens/tees during the summer months if necessary. A soil penetrometer will be used to judge the need for cultivation. Compacted soils are much more prone to runoff and therefore, cultivation is necessary to protect surface water quality.

Topdressing: Topdressing is a practice of adding a small amount of soil (sand) to the surface of the turf so as to reduce the development of thatch while smoothing and firming the putting surface. Greens and tees will be topdressed with the same material used to construct the root zone typically on a bi-weekly interval during most of the active part of the growing season or as needed based on the turfgrass growth rate.

Pest Management Goals and Philosophy

The basic goal and philosophy of this Integrated Pest Management (IPM) program is to produce a healthy, pest resistant golf-playing surface that will have little or no impact on the surrounding environment. Every available pest management practice will be utilized with the goal of using pesticides as a last resort after all other control options have been followed. The sections of the golf course to be renovated provides the opportunity to construct a system that is less prone to stress, which is often the main cause of pest damage or invasion of weedy species. This can be accomplished by: 1) establishing grasses that are

best adapted for the golf courses and are pest resistant, 2) by providing a soil system to minimize the stress caused by the golfer and is well drained and 3) reducing moisture plant stress by having an irrigation system that can provide the necessary amount of water needed by the plant (thus reducing over irrigation which can lead to the potential for ground/surface water contamination or more pest problems). Thus, the purpose of this IPM Program is to summarize the approach that meets the goals of developing a healthy pest resistant golf-playing surface that poses little or no threat to the environment on or surrounding this site. This IPM plan is to be used as a decision making tool by the golf course superintendent.

The components of this IPM plan are: proper grass selection, mapping of the property, developing the site specific pest knowledge base, yearly IPM plan development, using action thresholds, soil, plant tissue and water testing, weather record collection, pest management options (cultural, biological and pesticidal) and yearly evaluation on the effectiveness of program and modification of plan.

Turfgrass Selection: Performance and Pest Resistance Criteria

Even though there are over 7,500 species in the grass family, only a handful of species is used on golf courses. The main reason for such a few species being used is the relatively short cutting height demands of golf course playing conditions. For greens in New York, only two species could be used, creeping bentgrass (*Agrostis palustris*) and velvet bentgrass (*Agrostis canina*). Velvet bentgrass is currently being evaluated and in the future may be a grass to use, but has been experiencing problems of withstanding and recovering from traffic. There are several varieties of creeping bentgrass available. The one best suited for the climate and with good resistance to the major disease problems anticipated at this golf course (Anthracnose, Brown patch and Dollar spot) and reduces annual bluegrass invasion should be used at Brynwood. Varieties of creeping bentgrass to be used on greens will be selected by the Troon Golf Sr. Vice President of Science and Agronomy, the golf course architect and golf course superintendent based on varieties suited best for New York based on Nation Turfgrass Evaluation Program (NTEP) USDA data and from the Cornell University Turfgrass Program.

Options for grasses on tees and fairways/approaches are somewhat broader. Tees can use creeping bentgrass and in a few cases a slightly higher turf like Kentucky bluegrass (*Poa pratenses*). On the golf course at Brynwood, fairways could be either be a mixture of Kentucky bluegrass with perennial ryegrass (*Lolium perenne*) or creeping/colonial bentgrasses with fine fescues. The advantage of perennial ryegrass is that it requires less water, has somewhat less disease problems, is resistant to surface feeding insects (if endophytic varieties are used, which is highly recommended) and does not produce much thatch that can be harmful to turf. Perennial ryegrass, however, is a short lived perennial requiring at least bi-annual over-seeding, is subject to winter kill during prolonged periods of ice cover or hard winters, and has been heavily damaged by a new disease called gray leaf spot. Due to gray leaf spot problems on perennial ryegrass, fairways will be established with blend of several low maintenance bentgrass cultivars with other grasses. Tees will be established with creeping bentgrass. The varieties to be used will be suited best for New

York based on Nation Turfgrass Evaluation Program (NTEP) USDA data and from the Cornell University Turfgrass Program.

Roughs are often established with very low maintenance grasses that are mowed higher than fairways/approaches, are to be irrigated less and require minimal fertilization. This golf course will establish the primary roughs with this in mind using a mixture of fine fescues (red, chewing or hard fescue, all *Festuca*) and low maintenance Kentucky bluegrass. At least two varieties of each species should be used to seed roughs to increase the genetic diversity so as to be ecologically competitive under the ever-changing climatic conditions. The final selection of cultivars will be made at the time of seeding using NTEP data and recommendations from Cornell University Turfgrass Program. Native areas that receive limited mowing and play will be established with fine fescues.

Establishment Methods and Seeding Rates

All fairways and roughs will be seeded and mulched used to enhance germination and reduce the potential for erosion. The elevated areas around the greens and tees maybe stabilized with a lightweight non-woven erosion control blanket or sodded. The playing surface of the greens and tees will be seeded with drop or cyclone-type seeder. Seeding rates are as follows: greens and tees will be seeded with creeping bentgrass at a rate of 1.5 lb. of pure live seed/1000 sq. ft. Fairways and tees will be seeded at a rate of 65 lbs./acre and the rough at a rate of 174 lbs. seed/acre.

A starter fertilizer will be applied just prior to sodding or seeded after final grading is complete (construction). For greens and tees, 1 to 2 lbs. of nitrogen/1000 sq. ft. will be applied prior to seeding and then the first year fertilization program will be followed as found in Tables 5 & 6. On fairways and roughs, a starter fertilizer will be used to supply about 0.5 lbs. of N/1000 sq. ft. and then followed by the nitrogen fertilization program shown in Table 6. The amount of other nutrients (phosphorus, potassium, calcium and magnesium) will be applied prior to seeding or sodding on greens, tees, fairways and roughs based on soil test recommendations so as to provide for rapid establishment, less erosion potential and less chance of phosphorus runoff. Based on the New York State Law and Westchester County Law, phosphorus can be applied to sites being established or renovated.

Based on the pest occurrences of golf courses in New York, Table 1 contains the anticipated pests for Brynwood Golf Course.

Table 1. Anticipated pests on Brynwood Golf and Country based on current pest occurrences.

Occurrence	Greens	Tees	Fairways	Roughs
Frequent	Dollar Spot, Anthracnose Hyperodes,	Dollar Spot, Hyperodes	Dollar Spot, Hyperodes	Dollar Spot, Hyperodes, Crabgrass, Goosegrass, Broadleafs
Occasionally	Brown Patch, Summer patch, Yellow Patch, Pink Snow Mold, Moss/Algae Cutworms, Annual bluegrass	Summer Patch, Brown Patch, Anthracnose Pink Snow Mold, Cutworms, White Grubs, Annual bluegrass	Summer Patch, Anthracnose, Brown Patch, Pink Snow Mold, Cutworms, White Grubs Annual bluegrass	Red Thread, White Grubs, Chinch bugs
Seldom	Pythium, Gray Snow Mold, Leaf Spots, Necrotic Ring Spot, Red Thread, White grubs,	Pythium, Grey Snow Mold, Leaf Spots, Necrotic Ring Spot, Fairy Ring, Red Thread, Crabgrass, Goosegrass, Broadleafs	Pythium, Grey Snow Mold, Leaf Spots, Necrotic Ring Spot, Fairy Ring, Red Thread, Crabgrass, Goosegrass, Broadleafs	Pythium, Grey Snow Mold, Leaf Spots, Necrotic Ring Spot, Fairy Ring,

It is anticipated that these pests will occur during the periods shown in Table 2.

Table 2. Occurrence of anticipated pest on Brynwood Golf Course.

Pest	Month(s) of Pest Occurrence
Diseases	
dollar spot	May-September
brown Patch	July-August
pink snow mold	November-April
red thread	May-October
summer patch	June-August
Insects	
white grubs	July-May
cutworms	May-September
chinch bug	June-September
Hyperodes	April-August
Weeds	
broad leafs	all year
crabgrass	May-October
annual Bluegrass	all year
moss	all year

The scientific names and biological information for each pest are contained in the following section. This list will be updated as site-specific pest knowledge is obtained.

IPM Plan

The IPM plan for Brynwood golf course is broken down by pest management group and contains pest biology information for New York State (Rossi et al., 2013), actions thresholds, cultural control, biological control and pesticide control options to be followed by the golf course staff. All control options will be integrated and implemented with pesticides only being applied as a last resort when other methods have failed and significant pest damage is likely. All pesticide for use on Brynwood golf course have a low potential for both surface and ground water contamination (based on the risk assessment found later in this report) except where noted for reasons of the lack of control with other options.

DISEASE PESTS

Two out of the six pests that are anticipated to occur most often on this golf course are diseases. Fungi cause most diseases that attack turfgrass. The following are descriptions of each of the most prevalent diseases (frequently and occasionally, Table 1) and the "state of the art" IPM practices that will be followed on this golf course:

Dollar Spot (Sclerotinia homoeocarpa)

Dollar Spot is a foliar disease that is favored by temperatures between 61-81° and too low a level of a nitrogen level in the plant tissue. It will likely be the most prevalent disease on this golf course and would occur on this site from June to September. Dollar spot is easily recognizable, slow to develop and to cause damage. Bentgrass used on greens will be the most susceptible of the grasses used. The use of bentgrasses on greens that have a low amount of dollar spot is necessary. Daily scouting should be used to determine the extent of occurrence and range of this disease on the golf course. Natural organic disease suppressive fertilizers like Ringer Compost Plus and Greens Restore have been shown to reduce the incidence of Dollar spot by 45% (Nelson, 1990) and will be used as part of the fertilization program. Tissue testing may be used to help maintain the nitrogen level (>4.5%) in the plant at a level to suppress disease development.

Biofungicides that can be used are (see Table 3 for more details) are *Bacillus licheniformis* strain SB 3086 (EcoGuard Biofungicide) and *Pseudomonas aureofaciens* strain TX-1 (Spot-Less Biofungicide).A mineral oil made from isoparafin (Civitas with Harmonizer) has been shown to reduce dollar spot problems, especially in combination with the fungicide boscalid (low risk pesticide on this site). Damage from this disease even with these cultural and biofungicides controls may exceed the acceptable level on this golf course; thus, fungicide applications are very likely to be needed. Fungicides should be used only when 1) an outbreak in indicator sites has been observed in excess of the threshold (5 spots/sq.yd. for greens/tees and 10 spots/sq.yd. for fairways) and when weather conditions still favor disease development (temperatures 70 to 85 F and humid. The Dollar spot predictor (http://www.nrcc.cornell.edu/grass/) will also be used to determine the risk of a dollar spot outbreak. Fungicides to be used first must be registered for dollar spot control and also have a low or very low risk of surface or groundwater contaminations (Table 7).

Anthracnose (Colletotrichum graminicola)

Symptoms of this disease can be seen in cool, wet weather but the most likely period of turfgrass damage can be seen in warm weather (71-82° F) under drought conditions. Anthracnose is most damaging to annual bluegrass and creeping bentgrass during drought conditions and when the plants are deficient in nitrogen. It is likely that this stress-induced disease may only be a minor pest problem on golf courses, especially if annual bluegrass encroachment is discouraged and stress levels reduced through proper management (i.e. fertilization, irrigation, and the use of compaction resistant/well drained soils on greens/tees).

This disease is most likely to occur during warm summer months of mid-June through August. Scouting should be done if this disease becomes a recurring problem. A threshold has not been established for anthracnose. Biofungicide that can be used is (see Table 3 for more details) are *Bacillus licheniformis* strain SB 3086 (EcoGuard Biofungicide). A mineral oil made from isoparafin (Civitas with Harmonizer) has been shown to reduce anthracnose problems. Fungicides to be used first must be registered for

anthracnose control and also have a low or very low risk of surface or groundwater contaminations (Table 7).

Brown Patch (Rhizoctonia solani and zeae)

This disease occurs under conditions of warm (>85 F) and very humid weather as well as in cool wet weather. It is expected that the warm weather Brown patch will occur in July to September during most years and the cool weather version in April/May and September/October. Conditions that can reduce the severity of this disease are to avoid excessive nitrogen fertilization, to water minimally and provide for good air movement and water drainage. All three of these practices can be followed where possible. The fertilization program will provide optimum level of nutrients for plant growth based on soil tests, grass nutritional requirements. Nitrogen fertilization should be suspended prior to favorable Brown Patch conditions. Part of the fertilization program will also contain disease suppressive, highly composted natural organic fertilizers (i.e. Sustain and Ringer) that have been shown to reduce the incidence of Brown patch by 75% (Nelson, 1990), thus reducing the need for fungicides. Irrigation will be provided to supply only the amount needed to replace the amount used by the plant.

The presence of Brown patch will be confirmed by daily scouting during periods of warm to hot weather is highly recommended and treatments made if the threshold is exceeded (one spot/yd. on greens/tees and two spot/yd. on fairways) and 24-48 hr. weather forecast indicates conditions are favorable for disease development. The pesticide selection is based on the risk assessment where only fungicides with a low potential for both surface and ground water contamination will be used (Table 7). The selection procedure will also involve following a program to reduce the chance of developing a strain of fungi resistant to a specific fungicide or class of fungicide. If more than one fungicide is needed to control Brown patch in the same year, then a different type/class of fungicide would be used next. Classes of fungicides would also be rotated. For every other systemic fungicide application a benzimidazole class fungicide would be used, then followed by one of the dicarboximides fungicides or sterol inhibitors. This rotating of classes/types of fungicides will be followed for all diseases.

Pink Snow Mold (Microdochium nivale)

Pink snow mold is a fungal disease that is favored by temperatures in the range of 32 to 40 F and wet conditions with or without snow cover. It is likely to occur on this site from November to April the following year. Avoiding heavy late fall water- soluble nitrogen application can reduce the severity (no late nitrogen applications will be made). However, fungicides are the only control method available at this time although there is some disease suppression with the natural organic fertilizers to be used on this golf course. Scouting is not practical for this disease with snow cover. During other cool-wet periods without snow cover, scouting should be followed before a treatment is made. If the threshold of one spot/sq.yd. on greens/tees and two spots/sq.yd. on fairways is exceeded and short term weather forecasts are calling for cool-wet weather (32-40 F), then a fungicide application

will be made. Fungicides to be used first must be registered for pink snowmold control and also have a low or very low risk of surface or groundwater contaminations (Table 7).

Summer Patch (Magneporthe spp)

These diseases will most likely be found on this site from June to August. Over fertilization with nitrogen and extremes in water will increase the likelihood of the disease. The damage to the turfgrass plant occurs in April-May, well in advance of the symptoms. Thus, a preventative fungicide program is necessary on sites that have had a history of Summer Patch (azoxystrobin, fenarimol, myclobutanil or triadimefon) and Take-all patch (azoxystrobin or fenarimol) problems. A fungicide application needs to be made in the spring before June. Fungicides to be used first must be registered for Summer patch control and also have a low or very low risk of surface or groundwater contaminations (Table 7).

Table 3. Bio-fungicides.

Common Name	Sample Trade Name(s)[1]	Formulation[2]	Rate Range (per 1,000 sq. ft.)	FRAC Code	EPA Reg. No.
Bacillus licheniformis strain SB 3086	EcoGuard Biofungicide	0.14EC	20 fl. oz.	NC	70127-2
Bacillus subtillis, strain GB 03	Companion Liquid Biological Fungicide		4-6 fl. oz.	F6	71065-3
Bacillus subtilis, strain QST 713	Serenade Garden Lawn Disease Control	1.34 F	5.0 fl. oz.	F6	69592-12
	Rhapsody	1.34F	2.0-10.0 fl. oz.	F6	69592-19
Pseudomonas aureofaciens strain TX-1	Spot-Less Biofungicide	1L	0.73-1.47 fl. oz.	–	75801-1
Polyoxin D Zinc salt	Endorse	2.5W	4 oz.	19	66330-41
Mono and di-potassium salts of phosphorus acid	Vital	54.5EC	3.0-6.0 fl. oz.	33	42519-24
	Magellan	52.6L	4.1-8.2 fl. oz.	33	228-387

[1] Trade names shown are examples of products available and are not meant to be an exhaustive list.
[2] EC = emulsifiable concentrate; F = flowable; L = liquid; W = wettable powder. Rossi et al., 2013)

WEEDS

It is anticipated that, after the first year of establishment of this golf course, weed problems will tend to be minimal. This is a result of sound golf course cultural/pest control practices that will produce a dense-competitive environment against weed encroachment. Thus, the anticipated weeds on this golf course will be limited to annual bluegrass (potentially on all sites of the golf course), moss on greens and broad leaf weeds (limited mostly to fairways and roughs).

Annual Bluegrass

Annual bluegrass (Poa annua spp. Reptans/annua) is a very common weed that invades golf courses. It is well adapted to short mowing, heavily trafficked sites, soils high in pH and phosphorus, and wet soil/poorly drained conditions. Thus, the management program of this golf course is designed to reduce annual bluegrass competitiveness by: 1) keeping soil pH at 6.5 or below, 2) providing for good drainage, 3) irrigating to a minimum, 4) using compaction resistant soils (like the sand used on greens), 5) following a disease/insect management program to maintain a dense turfgrass stand and 6) following a fertilization program that is optimal for the growth of the turfgrasses used here but not too high in phosphorus, which favors annual bluegrass.

Even with all of these measures, annual bluegrass can still invade this golf course. Thus, it is anticipated that some other control measures will be necessary. There are experimental biological control agents for annual bluegrass that may someday be commercially available. Chemical control is limited and generally involves the use of either plant growth suppressants or a traditional herbicide.

Each spring and late August the amount of annual bluegrass for all greens and fairways will be mapped. When the late August mapping indicates more than 1% of the area contains annual bluegrass plants some form of treatment will be necessary to further reduce its spread. The Type II Plant Growth Regulators' (paclobutrazol and flurprimidol, each has a low or very low risk of surface or groundwater contaminations, Table 7).) have been shown to be the most effective in reducing annual bluegrass populations over a period of time. Higher cut creeping bentgrass turf on fairways tends to be a more conducive environment for reducing annual bluegrass compared to putting greens and tees with more chronic and focused surface disruption.

The most effective programs include multiple applications throughout the season that provide a cumulative reduction. Type II Plant Growth Regulators' programs have been shown to reduce fairway populations as much as 70 percent in two years. This type of success is usually achieved when a comprehensive cultural management program of reduced fertility and irrigation plus over seeding programs to favor the more hardy and desirable creeping bentgrass turf are used.

Broadleaf Weeds

Broad leaf weeds (BLW) commonly occur on established golf course fairways and roughs and thus are considered a major pest problem on these sites. Clover is a commonly occurring BLW that is favored by soil pH around 7 and by dry soils. Thus, on this golf course it would be anticipated that clover would be found on the unirrigated areas (roughs) and maybe on fairways. One of the best ways to reduce broadleaf weed problems on golf courses is to produce a dense-competitive turfgrass stand by following the overall turfgrass management program to be used on this golf course: proper fertilization/irrigation practices

and reducing pest damage that opens the turf to invasion by weeds. However, broad leaf weeds may likely still invade this golf course. Weed population and locations will be scouted and mapped at least twice a year (early June and mid-September). Since broadleaf weeds may be confined to a small area, pesticide applications will only be made on areas with weeds present in excess of the threshold; two weed plants per sq.yd. on fairways and five per sq.yd. on roughs, thus reducing the amount of pesticide applied and limiting the treated area. Herbicides to be used first must be registered for broadleaf weed control and also have a low or very low risk of surface or groundwater contaminations (Table 7).

Crabgrass

Crabgrass is an annual grassy weed that invades thin turf. Thus, all the cultural practices to be used on Brynwood golf course will encourage a dense stand of turf and reduce the incidence of crabgrass. Practices such as the fertilizing, irrigation and disease/insect control programs to be used on this golf course will produce a dense turf that restricts light from reaching the soil surface. Crabgrass seeds require light for germination or open soil patches at least 2 inches in diameter. These management practices help significantly; however, when a golfer takes a divot the soil is exposed to light and crabgrass seeds can germinate and invade the turf. Some fine fescue varieties have been shown to resist a crabgrass invasion and will be used in roughs to reduce crabgrass.

There are two herbicidal control programs, preemergence and postemergence. These terms refer to herbicide applications made before or after the crabgrass seeds germinate, respectively. The preemergent herbicides must be applied in advance of the period of germination of crabgrass, usually starting in April. A problem with this approach is that you are not sure whether crabgrass will be present or not. If it is not present, then the application has been wasted.

Postemergent herbicides are few and require careful timing for good control. Mapping the amount and location of young crabgrass plants in early summer will be used to determine if small areas will need treatment. All of the management practices listed in this report (fertilization, irrigation, pest control, mowing, etc.) are designed to product a dense turf that reduces the chances of crabgrass invasion. The fairways and roughs will be scouted at weekly intervals starting in early May and continue until mid-August. Sections of fairways with one or more crabgrass plants per sq. yd. and more the 3 for roughs will be considered for a herbicide treatment. Herbicides to be used first must be registered for crabgrass control and also have a low or very low risk of surface or groundwater contaminations (Table 7).

Moss

Bryum argenteum, silvery thread moss, is a significant pest problem on golf courses throughout the US. Superintendent surveys conducted by Cornell University researchers indicate that close mowing and surface organic matter accumulation are highly correlated with increased moss invasion. This is partially done to close mowing of older greens with less dense grasses than the latest bentgrass cultivars. Controlling moss is

favored by acid soil/water conditions. The sand used on greens will be of an acidic nature (if available) and irrigation water pH will be carefully monitored. Copper hydroxide and a dish detergent (Ultra Dawn), applied at two-week intervals in both spring and fall, have shown to reduce moss levels to an acceptable level. Copper has an intermediate risk on greens and tees, thus if copper is to be used it must be applied very carefully to only a small areas at a time when the weather forecast does not predict heavy rainfall within 48 hours of the anticipated application (to reduce risk to aquatic wildlife). Recently, carfentrazone (a low risk herbicide) has been labeled for selective moss control in bentgrass golf course putting greens. Carfentrazone is a contact herbicide with little or no residual activity that provides selective postemergence control of broadleaf weeds and silvery thread moss (*Bryum argenteum*) in turfgrass.

Renovation

It may be necessary at times to renovate small section of the golf course. Renovation often includes using a non-selective herbicide to remove the existing weed and turf vegetation. The non-selective herbicides glufosinate or glyphosate will be used or the purpose since they had a low risk to both humans and aquatic wildlife on this site.

INSECT PESTS

Insect problems anticipated on this golf course are restricted to just a few insects mostly Hyperodes on greens, tees and fairways, white grubs in tees and fairways and cutworms on greens. There are grasses that contain endophytic fungi that are resistant to certain surface feeding insects like cutworm, sod webworm and chinchbug. The grasses that will be used in the roughs are endophytic, thus are resistant to the surface feeding insects. Creeping bentgrasses (used on greens/tees and fairways) at this time do not contain endophytes and therefore are not resistant to surface feeding insects. Currently there are no turfgrasses resistant to root feeding insects like grubs.

Biological control options are available for most of the insect pests anticipated on this golf course and will be the first line of control. Only after biological control options have been shown to be ineffective will a synthetic insecticide be used.

One of the best practices to follow in an insect control program is to have a systematic sampling/monitoring scheme. It has been found that insect pests of turf like cutworms and white grubs do not uniformly cover the entire golf course. In fact it has been shown that grubs are confined to certain parts of the golf course and even small sections of fairways or roughs. Therefore, it is highly recommended that prior to any insecticide application a sampling protocol be followed and treatment be confined to only the areas where the insects are found.

Hyperodes

The annual bluegrass weevil (ABW) is a burgeoning pest of turfgrass in the northeastern United States. This native beetle is most prevalent and injurious in low-cut, high

maintenance turf such as golf course greens, tees and fairways. The insect was first reported damaging turfgrass in Connecticut as early as 1931. Until the last 20 years or so, damage had been concentrated in the metropolitan New York area. ABW larvae and adults feed primarily on annual bluegrass (Poa annua L.), a major component of many golf course playing surfaces. Annual bluegrass is often considered a weed by golf course superintendents since it is an aggressive invader of newly seeded stands of creeping bentgrass. When annual bluegrass becomes the dominant grass species in fairways and putting greens, however, superintendents resort to managing it, rather than eliminating it. ABW has also been reported to feed on creeping bentgrass and perennial ryegrass. In areas where annual bluegrass is prevalent, high populations of weevils will cause substantial areas of dead turf that affect both the visual and functional quality of golf course turf.

ABW can be challenging to monitor due to its small size. In the spring, mower baskets can be monitored for adults because they are picked up along with clippings. This can be a useful way to stay abreast of when adults are appearing in spring, and, with more careful monitoring, on which areas of the course they are most prevalent. Some areas of the course may always harbor ABW so it is a good idea to monitor consistently those historically affected areas from year to year. Adult ABW reinvade short-mown turf soon after snow melt and soil thaw, from late March to April.

A more site-specific approach to monitor adults is to pour a soapy disclosing solution on the turf. The standard method is to mix 1 fluid ounce lemon-scented dish detergent in 2 gallons water and apply it over to 2-3 square feet of turf. The soap acts as an irritant, forcing adults to emerge from the thatch and ascend to the surface where they can be counted. Shallow soil core sampling or simply digging around at the soil surface/thatch interface will reveal older larvae and pupae. Older larvae look like grains of rice with brown heads; pupae resemble adults but are creamy white until their color darkens before adult emergence. If more detailed information is desired, larvae of all sizes (even stem boring stages) will float to the surface when an infested core is submerged and agitated in a saturated salt solution. This is a good way to confirm that your adult controls were adequate; if too many larvae are found, the application may have been poorly timed to suppress adults and another application against adults of the developing population may be necessary.

Damage thresholds are 30-80 larvae/sq. ft. for the spring generation. Given summer heat stress, thresholds drop to 10-40 larvae/sq. ft. for the summer generation. Nevertheless, field experience indicates that action may have to be taken at thresholds as low as 5-10 larvae/sq. ft. in order to avoid injury and minimize the threat of the subsequent generation.

Traditionally, golf course superintendents have targeted early spring adult populations that represent overwintering insects returning to the short mowed turf. A preventive insecticide application is then made to suppress adult populations before the insects begin to lay eggs. The timing of spring applications can be based on a plant phonological indicator. The most widely used is the period that occurs between Forsythia V. full bloom, and dogwood (Cornus florida L.), full bract. It is better to make the spring application a little late than a little early so aim for the time when Forsythia is in full

bloom and has already acquired many new leaves (i.e. “half gold/half green”). Insecticides to be used first must be registered for ABW control and also have a low or very low risk of surface or groundwater contaminations (Table 7). In an additional risk assessment there were two cases where the maximum acceptable toxicant concentration for fish was slightly exceeded. However, it is unlikely that fish will come in direct contact with the untreated storm water from this site. The two insecticides, bifenthrin and lambda-cyhalothrin, are critical to control one of the most destructive insects, annual bluegrass weevil. It is proposed to allow the Brynwood Country Club to apply under emergency conditions. It has been observed that the rapid death of turfgrass will lead to excessive leaching and runoff of nitrogen and phosphorus, thus the need to prevent damage from annual bluegrass. Bifenthrin and lambda-cyhalothrin will only be applied after all other control options have failed and the population threshold has been exceeded following scouting. The Town of North Castle will be notified when an application is to be made under these set of emergency conditions.

Cutworms

Black cutworms are anticipated to be an infrequent insect problem on this golf course. This insect does not usually overwinter in New York. Adults each spring fly in from the southeastern U.S., usually arriving in late spring-early summer (May-June). The adults lay eggs that hatch in two to three weeks as small larvae, the destructive phase of this insect. A second generation can hatch later in the summer. Cutworm larvae spend three days in the soil, often in old aerifier holes. At dusk they emerge and feed on the foliage of the grass and the damage is confined to a small zone surrounding their daytime home.

It is unlikely that the entire golf course at any one time will contain cutworms in excess of the action threshold. Action thresholds will be discussed in a later section. Therefore, monitoring and sampling of the population is necessary to substantially reduce the amount of the golf course that will need to be treated. Scouting for this insect will involve a two-step process. In May each year, 10 to 20 black light and/or pheromone trays will be placed out on the golf course to attract/collect adult cutworms as they arrive at this golf course. Every other day the number of adult black cutworm adults in each trap will be counted. Two weeks after the adults begin showing up in the traps, the second phase of scouting will commence. This involves placing an irritant solution (soap or pyrethrum) on sections of each green, tee and fairway at bi-weekly intervals through June, July and August. If the number of cutworm larvae exceed one/sq.yd. on greens/tees and five/sq.yd. on fairways, then a control regime will be followed. The smaller the larvae the easier they are to control, so the initial scouting is very important. Also, biocontrols are most effective on small larvae. Another cultural control method is to place greens clippings no closer than 100 feet of any green since mowing collects eggs. Several nights mowing (before 3 am) during the first appearance of cutworm has been shown to reduce the amount of cutworm on greens.

The control for cutworms will first rely on a biocontrol method and if this does not give acceptable control (threshold still above limit after one week), then an insecticide will be used. The bacteria biocontrol available is Bacillus thurgingiensis var. kurstaki (BT). It takes

2 to 7 seven days to kill the cutworm larvae; thus, one week after the application the areas will be sampled with the irritant solution to determine the effectiveness of the biocontrol. Another biological control option is entomopathogenic nematodes which have been shown to have a good chance of success in managing cutworms. Use the nematode species *Steinernema carpocapsae*. If populations of cutworm larvae are still in excess of the threshold, a second application of the two bio-control materials will be made and effectiveness determined one week later. If after two applications of the biocontrol materials the population of cutworm larvae is still above the threshold limit, then a traditional insecticide (registered for cutworm control and also have a low or very low risk of surface or groundwater contaminations, Table 7) will be applied. As with the biocontrols, the effectiveness of the traditional insecticides will be evaluated one week after application before any additional treatment will be made.

White Grubs

There are several species of insects that have a destructive larval stage known as white grubs. These include Japanese beetle, Oriental Beetle, Asiatic Garden Beetle and European Chafer. The most destructive stages of these insects are their grub or larval stage in which the third and largest instar occurs later in the fall.

The population of grubs will be determined as follows before any insecticidal treatment will be made. Each golf hole will be mapped once in late July or early August each year for the extent, location and species of grub using the maps found in the appendix. Sampling consists of a crew of individuals with cup cutters. On fairways and roughs, taking a sample at 20 yd. spacing will follow a grid sampling technique. Greens and tees will be sampled at 20 ft. intervals. The sample involves extracting the turf and top 2-3" of soil and observing the number and species of grubs in each sample. When the threshold is exceeded, then a treatment will be made. Thresholds are: 18 to 36 May beetle grubs/ sq. yd., 21 to 72 European chafer grubs/sq. yd., 96 to 180 Asiatic garden and masked chafer grubs/sq. yd. and 54 to 180 Oriental and Japanese beetle grubs/sq. yd. Treatments are most effective in early August when the grubs are very small. Spot treatments will be made.

The bacteria biocontrol available is Bacillus thurgingiensis var. kurstaki (BT) will be used first to control white grubs when found on sites exceeding the threshold. The effectiveness will be determined by repeated sampling the treated sites one week after application. An application will only be made if the grubs are near the soil surface and the soils are moist. If the biocontrol applications have failed to lower the white grub population below the threshold level, then an insecticide (registered for white grub control and also have a low or very low risk of surface or groundwater contaminations, Table 7) will be applied to the sites still having populations above the threshold level.

As with the biocontrol nematodes, one week after the traditional insecticide application the grub population will again be sampled on the treated sites and only if threshold levels are still exceeded would an additional insecticide application be made.

Other Insect Pests

There is some likelihood that other insects will attack the grasses found on this golf course. These could include Hyperodes weevil, sod webworm and Ataenius beetle grub. There are biocontrol products (BT bacteria) available for sod webworm and Ataenius control and will be used as the first line of defense. If control is unsuccessful and these insects are still causing damage, then an insecticide will be used.

Pest Scouting, Monitoring and Action Thresholds

Scouting is one of the most common disease management practices followed by golf course superintendents. The extent and form of the scouting program varies widely between superintendents. Many superintendents rely on indicator sites or "hot spots" as areas where diseases (or other pests) first occur and use these sites as early warning signs. Many golf courses are now having pest populations mapped during a scouting visit. In this way a more permanent record of pest pressure is recorded and the effectiveness of control options evaluated. The Brynwood Golf Course will follow an aggressive scouting program as outlined in the discussion section for each pest. The scouting forms found at the end of this section will be used by this golf course to monitor pest populations.

Monitoring for pests involves determining the location and number of pests or area affected by pests. Thresholds for pest occurrence have been developed for many golf course pests and will be used to determine if a pesticides application is warranted. Table 4 contains action threshold values for most of the pests that are anticipated to occur on this golf course.

Table 4. Pest action thresholds for the Brynwood Golf Course.

Pest	Greens/tees	Fairways	Roughs
	---------- #/sq.yd ----------		
Diseases			
Dollar spot	5*	10	-
Brown Patch	1	2	-
Pink Snow mold	1	2	-
Anthracnose	------- not determine -------		
Summer patch	UD**	UD	-
Insects			
May beetle grubs	27-36	27-36	27-36
European chafer grubs	21-72	21-72	21-72
Asiatic garden & Mask chafer grubs	96-180	96-180	96-180
Oriental & Japanese beetle grubs	54-180	54-180	54-180
cutworm	1	5	-
Ataenius	270-450	270-450	180
Hyperodes	36	54	72

Weeds

broadleaf's	1	2	5
crabgrass	1	1	3
ann. bluegrass	1	9	-

* #/sq.yd. depending on pest. For diseases of Dollar spot and Brown Patch these are the numbers of spots/patches per sq.yd. For insects and weeds it is the number of each organism per sq. yd. ****** UD=upon detection, in conjunction with weather conditions.

If environmental conditions favor continued pest pressure, the action threshold has been exceeded and other non-pesticidal options have been tried, then a pesticide will be applied. The threshold values may be changed as pest history on this golf course warrants modification (i.e. too much or too little pest damage at a given threshold).

Application Procedures

To protect the adjoining properties from drift of the pesticide spray, all areas to be treated with pesticides, a shrouded sprayer will be used whenever possible to apply pesticides. The shrouded sprayer applies the pesticide spray directly on the turf reducing drift to near zero at wind speeds less than 15 mph. Granular applications will also be used to reduce the potential for any off-site movement of pesticides and fertilizers via spray drift. No applications of pesticides or fertilizer will be made within 48 hours of a predicted heavy rainfall event (except for imminent threat of rapidly developing diseases like Pythium blight and Brown Patch). Only after all other pest management options have been tried will pesticides be applied to areas that exceed thresholds and that the climatic conditions indicated above still favor pest damage so as to minimize the amount of pesticides to be used. Spot treatments will be the rule not the exception.

Anticipated Frequency

Pesticides: It is nearly impossible to develop a pesticide application schedule in advance of the building of a golf course if the principles of IPM are to be followed. The major premise of an IPM program is to use all options in controlling a pest and when it is necessary to apply a pesticide it must be applied at the proper time for optimal control. Only a preventative program could be developed in advance of operating a golf course. Preventative programs are only necessary for a few turfgrass diseases. It would be very likely that an all preventative program would lead to applying fungicides when it was not necessary, increasing the risk of environmental damage and greater likelihood of developing fungi resistant to fungicides. A preventative pesticide program is found at the end of the report.

e. Evaluation of turf management and pest treatment effectiveness to document program successes and determine if changes are necessary.

The as built golf plans will be used to develop a hole by hole GPS map of the golf course to be used to record the location of all pests during scouting and monitoring. As part of a permanent record, the golf course will maintain the pest occurrence maps to be used to develop the site-specific pest knowledge base. This will also be used to evaluate the effectiveness of the current IPM plan and used to modify the plan if necessary.

III. Fertilizer and Pesticide Use and Pesticide Selection based on Risk Assessment

The Brynwood Golf Course will apply fertilizers and pesticides in a very careful manner. The following outlines the practices to be followed:

3.1 Will use only products registered for use in the United States and New York for only their specified and approved function.

3.2 Will store all fertilizer and pesticides in an area conforming to all state and local regulations that include but are not necessarily limited to:

a) a locked area clearly marked to indicate chemical storage;
b) an operating ventilation fan discharging exhaust to the outside clear of windows of other buildings or public areas;
c) a solid floor impermeable to liquid and surrounded by curbing to contain any spilled or leaked material.

Chemical storage facility: Chemical storage facility will be a standalone, pre-fabricated building with air ventilation and circulation systems capable of preventing hazardous gaseous buildup. Building will be climate controlled for both heating and cooling temperature controls. The chemical storage building will also be secured by lock and will be under 24 hour surveillance from closed circuit security system.
Our chemical storage facility will follow all NYSDEC requirements for construction materials to include an impermeable bottom and false bottom containment to hold a minimum 25% volume of stored materials. All electrical systems within storage facility will follow strict coding requirements to include non-sparking procedures for all electrical wiring and components.

Hazardous Material to be generated or stored: - A comprehensive list of fertilizers and pesticides are contained in this report.
- Current gasoline, diesel and heating oil tanks:
    1. 1500 Gallons – Agronomy Gasoline
    2. 500 Gallons – Agronomy Diesel
    3. 500 Gallons – Golf Operations Gasoline
    4. 275 Gallons – Waste Treatment Plant Diesel (generator)
    5. 2000 Gallons – Heating oil Tank at Clubhouse.
    6. 1500 Gallons – Clubhouse Generator Diesel (generator)

7. 1000 Gallons – Irrigation Pump house generator (generator)

- The bulk storage capacities should be maintained at current operable levels throughout the entire project. These will not be available for use for outside contractors, they will be responsible for their own supplies. Bulk petroleum storage tanks are up to code and secured. Going forward it will remain standard operating procedure to perform routine maintenance to insure that these existing, as well as the future, bulk petroleum storage facilities remain up to code.

- All contractors and subcontractors involved in work at the facility will provide their own source of any material labeled or deemed hazardous.

- All chemicals will be stored with the ability to collect any spills. See previous chemical storage facility discussion. All fill stations for chemicals and gasoline will be bermed and with self-contained collection pit to prevent contamination.

- As the project moves forward, any areas of the property that are found to be contaminated will be properly remediated, in line with NYS DEC requirements. Any materials from demolition of old building facilities found to contain hazardous materials will be disposed of by licensed disposal contractor and site will be remediated.

3.3 All mixing and loading of pesticides will be performed in accordance with all state regulations.

3.4 Will dispose of all pesticide containers and pesticide wastes in accordance with provincial regulations.

3.5 All handling and spraying of pesticides to be performed under the strict supervision of trained and licensed pesticide applicators. The golf course superintendent will ensure compliance.

3.6 Pesticides will be applied only when wind conditions ensure a minimum of drift and when there are as few golfers and general public present as possible.

3.7 Protect water quality by maintaining a buffer zone between all water bodies and areas of fertilizer and pesticide application. When pesticides are applied near water, use low-pressure spray nozzles will be used to further reduce chance of drift.

3.8 The golf course will communicate with members of the golfing and non-golfing community the nature of the application. This will be done with posting signs at the clubhouse and the entrance to the golf course indicating the date of

the application, the product to be used and a contact person and phone number. This will be done for applications that are schedule in advance. For emergency application, the areas treated will be flagged. Posting at the clubhouse will also be done for the fertilizer application outlined in Tables 4 and 5.

3.9 Apply only the amount necessary to control the target pest and only apply when pest population warrants treatment, as determined by pest monitoring, and only apply to affected areas. The details are contained in the IPM section above.

3.10 Apply fertilizer only in quantities and types that can be utilized by the plant to minimize leaching and runoff potential. Fertilizer laws for NYS and Westchester County will be followed.

Unlike for pesticide programs, it is possible to develop in advance a comprehensive nitrogen fertilization schedule. For other nutrients like phosphorus, potassium, calcium and magnesium, soil test result information will be used to develop the fertilization program. Factors important in the development of such a program include the site specific soil properties, clipping management, nutrient requirements of grass species/cultivar, irrigation plan, desired level of quality, interaction with pest populations and environmental considerations.

Conditions set for in the NYS and Westchester County Fertilizer Restriction Law are as follows:

1. Prohibits the use of phosphorus-containing lawn (any turf) fertilizer unless:

    (a) establishing a new lawn during the first growing season or

    (b) a soil test shows that the lawn does not have enough phosphorus.

2. Prohibit the application of lawn fertilizer on impervious surfaces (sidewalk, drive way or road) and require pick up of fertilizer applied or spilled onto impervious surfaces.
3. Prohibit the application of lawn fertilizers within 20 feet of any surface water except:

    (a) where there is a continuous vegetative buffer of at least 10 feet; or

    (b) where the fertilizer is applied by a device with a spreader guard, deflector shield or drop spreader at least three feet from surface water

4. Prohibit the application of lawn fertilizer between December 1st and April 1st

5. Prohibit the application of lawn fertilizers within 20 feet of any surface water[1] except:

    (a) where there is a continuous vegetative buffer of at least 10 feet; or

    (b) where the fertilizer is applied by a device with a spreader guard, deflector shield or drop spreader at least three feet from surface water

    this does not apply to sites being established

    this is for all fertilizers not just ones that contain phosphorus

[1] This applies to all fertilizers and not just those containing phosphorus, but does not apply to turf establishment.

To comply with the Westchester County and New York State laws, soil samples will be taken as necessary and tested for plant available nutrients. Such soil test results will be used to determine the amounts of nutrients like phosphorus, calcium, magnesium and potassium that are needed on this site. Soil samples will be sent to Agro-One (see website for details on sampling and sample submission), Ithaca, New York or of an authority of similar expertise which uses recommendations developed at Cornell University or of an authority of similar expertise.

Clippings will be removed from the greens and tees, while clipping will be returned in the fairways and roughs. Clipping management was used in developing the nitrogen application rates shown below. The basic fertilization program is shown in Tables 5 and 6.

Determining Fertilization Applications: Soil testing and visual inspections will be used to determine the need for a fertilization application. A soil testing is used to determine the amount of available nutrients currently found in the soil and the amount of nutrients needed to be applied to provide for healthy plant growth. Soil testing will be used to determine the basic quarterly application rates for phosphorus, potassium, calcium and magnesium. Soil samples will be collected in December on all greens, tees and fairways/approaches until it has been determined that certain sections are similar and fewer samples will be necessary. Soil pH modification will be done to maintain a pH in the range of 5.5 to 6.0, based on the soil testing results. Limestone will be used to raise pH if soil test results indicate the needed and the amount will be based on the soil test recommendation. Limestone applied to turf has been shown to only change pH in the surface few inches of the soil.

Table 5. Recommended fertilization program for the greens/tees at the Brynwood Golf Course.

First year

April	May	June	July	Aug.	Sept.	Oct.-Nov	Total/ Yr. Tot.
---------- lbs/1000 sq.ft.----------							
Fert*	Fert	----Disease suppressive fert-----			Fert	Fert	
0.5	0.25	0.5	0.5	0.5	0.5	1.0	3.75 N
	---------- If Fertigation is used ----------						
	0.25	0.5	0.5	0.5	0.5		2.25 N
						Total N	**6.0 (8.0^)**

Future years

Fert*	Fert	------Disease suppressive fert-----			Fert	Fert	
0.5		0.4	0.4	0.4		0.5	2.2 N
	---------- If Fertigation is used ----------						
	0.25	0.25	0.25	0.25	0.25		1.25
							Total N 3.45

***** Fert= soluble and other slow release nitrogen sources urea, ammonium sulfate, IBDU, methylene urea (Nutralene, Scotts), coated urea (sulfur, resin or polymer coated) and natural organic (Milorganite, Nature Safe, etc). ^ At establishment 2 lbs of N/1,000 sq-ft will be applied as a starter fertilizer. Maximum soluble nitrogen rate for urea and ammonium sulfate is 0.4 lbs N/1000 sq.ft per application to reduce nitrate leaching (Petrovic and Barlow, 2012)

Table 6. Recommended fertilization program for fairways and roughs for the Brynwood Golf Course.

Apr.	May	June	July	Aug.	Sept.	Oct./Nov.	Yearly Total
---------- lbs of Nitrogen/1000 sq.ft.----------							
Fairways, during establishment							
0.75	0.75	0.75	0.75	0.75	1.0	0.75	5.5 Nitrogen
Fairways, following establishment							
	0.5	0.5	0.5		0.5	0.5	2.5 Nitrogen
Roughs, during establishment							
0.5	0.5	0.5		0.5	0.5		2.5 Nitrogen
Roughs, following establishment*							
	0.5				0.5		1.0 Nitrogen

* Roughs will only be fertilized when density drops by 25 %.

The nitrogen application for roughs following establishment consists of clippings being returned to roughs during mowing and from fairways. Sources to be used include any of the following: urea, ammonium sulfate and slow release materials: IBDU, methylene urea (Nutralene, Scotts), natural organic (Sustane, Ringers, Milorganite, Nature Safe) and coated urea's (sulfur, resin and polymer). Fertigation is expected to be about half of the nitrogen applied to fairways. Maximum soluble nitrogen rate for urea and ammonium sulfate is 0.7 lbs N/1000 sq.ft per application to reduce nitrate leaching (Petrovic and Barlow, 2012). In no case will the phosphorus application, associated with the use of natural organic fertilizers, exceed the soil testing recommendation level. Tissue testing will be used on fairways to adjust applications.

Fertigation Program: Apply a small amount of water soluble fertilizer via the irrigation system will be practiced as irrigation water needs to be applied. The irrigation season usually runs from May through October. Tissue testing will be used to determine application amount so as to maintain 3-6 % N in the clippings) in mid-April and ending in late September. Backflow prevention will be used on the irrigation system if fertigation injectors are to be used.

The amounts of nitrogen fertilizer to be applied will likely be reduced by 50 % within the first 10 to 25 years due to the fact that a lesser amount of the fertilizer nitrogen will be retained by soil as soil organic matter. Tissue testing may be used to help judge the

need for fertilization and will be used to reduce the amounts of nitrogen fertilizer applied over time.

This fertilization programs incorporate a balanced approach to fertilization. The amount of each nutrient applied will provide for adequate plant growth, will not over or under stimulate growth at the expense of disease resistance or weed encroachment, will act in a disease suppressive manner by the use of natural organic fertilizer (Sustane or Ringer) and will not lead to either a significant amount of runoff or leaching because there will not be a large pool of water soluble nutrients available at one time. This program will avoid several of the major factors that encourage nitrate leaching. There is no late fall fertilization, use of low rates of highly water soluble sources, careful irrigation and low total amounts of nitrogen applied (Petrovic and Barlow, 2012; Petrovic, 1990; Morton et al., 1988) and the rates of application are low, thus resulting in little soluble nitrogen available for offsite transport. Small amounts of soluble nitrogen fertilizer (0.10 lbs. nitrogen/1000 sq.ft.) may be applied if the turf is off color between scheduled applications. No fertilizers will be applied in advance of inclement weather predictions (48 hr.) to further reduce the likelihood of leaching or runoff.

The fertilizer nutrients of concern from an environmental perspective are nitrogen (as nitrate) and phosphorus (phosphates). Nitrate can cause a reduction in the quality of water in a drinking water source or cause eutrophication of streams, ponds or lakes. Phosphorus is needed in small amounts by turfgrass and is mostly of concern for surface water eutrophication. This fertilization program addresses the need to protect water quality from fertilizers contaminating surface and ground water.

Phosphorus can be a problem in runoff, but in well managed turfgrass situations as described here, phosphorus runoff from turf seldom occurs due to the high amount of water infiltration into the soil and proper management (Easton and Petrovic, 2008; Soldat and Petrovic, 2008). Phosphorus runoff has been a problem in traditional agricultural production when erosion has occurred or the application of phosphorus was in excess of the amount need for plant growth (based on soil tests). Upon established turf erosion is eliminated. On the Brynwood Golf Course, phosphorus (potassium, pH modification and other nutrients other than nitrogen) applications will be based on soil test results to insure that the proper amounts be applied to provide for acceptable plant health and avoiding excesses that can lead to contamination of surface water. Soil testing will be done just prior to establishment to determine the amount of phosphorus to apply at seeding/sodding and once per year thereafter for maintenance applications. All greens, tees, fairways and roughs will be sampled. The natural organic fertilizers that will be used for much of the fertilization program and will supply most of the phosphorus needs. Soil testing done just prior to seeding will give actual amounts needed on each green, tee, fairway and rough.

3.11 The environmental risk assessment is composed of two parts. First, the surface and ground water contamination (runoff and leaching) potential of all pesticides registered for use on golf courses in New York for the soils of this site was evaluated. Second, the pesticides identified to have a high potential risk to humans or aquatic wildlife will not be used on this golf course. Pesticide that had an intermediate risk to humans or aquatic

wildlife may be used only if there no other control options available and only on very limited bases applied under a very strict set of conditions. Pesticides with a low potential for both humans and aquatic wildlife will be used only after all other pest control measures have failed. Pesticides that are safest to humans and wildlife will be used first.

The following is a list of pesticides registered for use in New York and was evaluated for risk to surface and ground water contamination by WINPST.

Fungicides and fungicide combinations: azoxystrobin (USEPA reduced risk pesticide, RR), azoxystrobin + propiconazole, azoxystrobin + difenoconizole, boscalid (RR), chloroneb chlorothalonil, chlorothalonil + propiconazole, chlorothalonil + thiophanate-methyl, chlorothalonil +ASM, copper hydroxide + mancozeb, cyazofamid, etridiazole, fenarimol, fludioxonil, fludioxonil + chlorothalonil + propiconazole, fluopicolide + propamocarb hydrochloride, flutolanil, fosetyl-al, iprodione, mancozeb, metalaxyl (mefenoxam), metconazole, mineral oil, myclobutanil, polyoxin D zinc salt, propamocarb, propiconazole, pyraclostrobin, pyraclostrobin + boscalid, tebuconazole, thiophanate-methyl, thiophanate-methyl + iprodione, triadimefon, trifloxystrobin, trifloxystrobin + triadimefon, vinclozalin.

Biofungicides: *Bacillus licheniformis* strain SB 3086, *Bacillus subtillis*, strain GB 03, *Bacillus subtilis*, strain QST 713, *Pseudomonas aureofaciens* strain TX-1, Polyoxin D Zinc salt, Mono and di-potassium salts of phosphorus acid.

Insecticides: Abamectin, acephate, azadirachtin, *Bacillus thuringiensis*, subsp. *Kurstaki*, *Beauveria bassiana*, bifenthrin, boric acid, carbaryl , chlorantraniliprole, chlorpyrifos, cyfluthrin, lambda-cyhalothrin, deltamethrin, bifenthrin + carbaryl, bifenthrin + imidacloprid, cyfluthrin + imidacloprid, hydramethylnon, imidacloprid, indoxacarb, *Paenibacillus popilliae*, permethrin, spinosad, trichlorfon.

Plant Growth Regulators: Paclobutrizol, ethephon, mefluidide, trinexapac-ethyl, trinexapac-ethyl plus paclobutrazol.

Herbicides: 2,4-D, 2,4-DP + MCPP + dicamba, 2,4-D + 2,4-DP + dicamba, 2,4-D + clopyralid + dicamba, 2,4-D + triclopyr + fluroxypyr, 2,4-D +dicamba + fluroxypyr, 2,4-D + 2,4-DP + fluroxypyr, 2,4-D + sulfentrazone + dicamba +MCPP, 2,4-D + dicamba + penoxsulam, acetic acid, benefin, benefin + trifluralin, benefin + oryzalin, bensulide, bentazon, bispyribac sodium, bromoxynil, carfentrazone-ethyl, carfentrazone +2,4-D + MCPP +dicamba, carfentrazone + MCPA + MCPP + dicamba, clopyralid, clopyralid + 2,4-D +triclopyr, dithiopyr, ethofumesate, fenoxaprop, fluroxypyr + triclopyr, fluazifop-p-butyl, glufosinate, glyphosate, halosulfuron, indaziflam + diquat + glyphosate, iron HEDTA, MCPA + clopyralid + dicamba, MCPA + triclopyr + dicamba, metsulfuron-methyl, mesotrione, oxadiazon, pelargonic acid, pendimethalin, penoxsulam, penoxsulam + dicamba, primisulfuron-methyl, prodiamine, quinclorac-carfentrazone, siduron, triclopyr, triclopyr + 2,4-D, triclopyr + clopyralid, trifluralin.

The assessment of the potential risk to humans (as a drinking water source) and aquatic wildlife (fish) of each registered pesticide on each soil (see appendix) found on the site was performed by using the Windows Pesticide Screening Tool (WIN PST). WIN PST is a

computerized information delivery system developed by the US Department of Agriculture and the National Resource Conservation Service based on the GLEAMS model (Leonard et al. 1987). Refer to the appendix for an explanation of WIN PST and other information related to the pesticides that were evaluated.

A summary of the pesticide fate as determined by the WIN PST analysis for the soils on greens, tees, fairways and roughs is contained in the appendix of this report.

The greens and tees will be built as a sand-based system to provide a compaction resistant/well drained system and create a healthy pest- resistant playing surface. Based on the WIN PST analysis, greens/tees will be built with about 1 % organic matter, by weight. In the appendix the greens/tees soil will be referred to as Windsor soil having the above characteristics. Greens/tees will also have a sub-drainage system in which the drainage water will be diverted to water quality swales and not directly discharged into surface water. Soils on fairways and roughs (Woodbridge, Paxton, Ridgebury, Charlton and Chatfield which are also equivalent to Leichester, Riverhead and Sutton loams) are the existing soils referred to in the appendix of WIN PST results.

The results of the environmental risk assessment of the pesticides by WIN PST screened on the soils of this site, as seen in Table 7. Pesticides with either a high risk to humans or wildlife will not be used on this golf course. Pesticides with an intermediate risk to either humans or wildlife will be only used to spot treat areas only if all other control measures fail of if applied at very low rates including when they are part of a combination product with other pesticides.

Table 7. The potential risk to humans and aquatic wildlife (fish) in surface water (S. water) and groundwater (G. water) from pesticides considered for use on Brynwood Golf Course site, based on WINPST analysis.

	Humans				**Aquatic wildlife**			
	Greens, tees		**Fairways and roughs***		**Greens, tees**		**Fairways, roughs ***	
Pesticides	**G. water**	**S. water**	**G. water**	**S. water**	**G. water**	**S. water**	**G. water**	**S. water**
2,4-D	low	low	low	low	very low	v. low	v. low	v. low
AMS	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Abamectin	low	**interm**	low	**interm.**	**Interm.**	**high**	**Interm.**	**High**
Acephate	low	**interm.**	v. low	v. low	low	**interm**	v. low	v. low
Acetic acid	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Azadirachtin	v. low	v. low	v. low	v. low	**Interm.**	Low	**Interm.**	low
azoxystrobin	v. low	v. low	v. low	low	v. low	v. low	v. low	low
Bacillus licheni-formis SB3086	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Bacillus subtilis GB03	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
B. subtilis QST 713	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
B. thuringiensis – kurstaki	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
benefin	low	low	v. low	**interm.**	low	low	v. low	**interm.**
Bensulide	low	low	v. low	**interm.**	low	low	v. low	**interm.**
bifenthrin	v. low	low	**interm.**	**high**	v. low	low	**interm.**	**High**
Bispyribac-sodium	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Boric acid	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Bosocalid	v. low	v. low	v. low	v. low	low	low	v. low	low
Bromoxynil	v. low	low	v. low	low	v. low	low	v. low	low
carbaryl	v. low	low	v. low	low	v. low	low	v. low	low
cartfentrazone	v. low	v. low	v. low	v. low	v. low	low	v. low	low
Chloroneb	v. low	low	v. low	v. low	v. low	low	v. low	v. low
chlorothalonil	v. low	low	v.low	low	low	**interm.**	low	**interm.**

Chlorpyrifos	**interm.**	Low	**interm.**	Low	**interm.**	**high**	**interm.**	**high**
Clopyralid	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Copper hydroxide	v. low	v. low	v. low	v. low	low	**interm.**	low	**high**
Cyazofamid	v. low	v. low	v. low	v. low	v. low	low	v. low	v. low
Cyfluthrin	v. low	v. low	v. low	v. low	**interm.**	**high**	**interm.**	**high**
deltamethrin	v. low	low	v. low	low	**interm.**	**high**	**interm.**	**high**
dicloprop (2,4-DP)	low	low	low	low	v. low	v. low	v. low	v. low
dicamba	v. low	v. low	v. low	v. low	low	low	low	low
Difenoconazole	low	**interm.**	**interm.**	**High**	**interm.**	**high**	**interm.**	**X. high**
Diquat dibromide	v. low	low	v. low	v. low	v. low	low	v. low	v. low
dithiopyr	**interm.**	low	v. low	**Interm.**	**Interm.**	low	v. low	**Interm.**
Ethephon	v. low	low	v. low	v. low	v. low	v. low	v. low	v. low
ethofumesate	v. low	v. low	v. low	low	low	low	v. low	**interm.**
etridiazole	v. low	low	v. low	low	v. low	low	v. low	low
fenarimol	v. low	v. low	v. low	v. low	v. low	low	v. low	low
fenoxaprop-et	v. low	low	v. low	low	v. low	low	v. low	low
Fluazifop-butyl	v. low	low	v. low	low	v. low	low	v. low	low
Fludioxonil	v. low	v. low	v. low	v. low	v. low	low	v. low	**Interm.**
Fluopicolide	v. low	v. low	v. low	v. low	low	low	v. low	low
Fluroxypyr	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
flutolanil	v. low	v. low	v. low	v. low	low	low	v. low	low
fosetyl-al	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
glufosinate	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
glyphosate	v. low	v. low	v. low	low	v. low	v. low	v. low	low
halosulfuron	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Hydramethylnon	**interm.**	**high**	**interm.**	**high**	low	**interm.**	v. low	**interm.**
imadicloprid	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Indoxacarb	v. low	v. low	v. low	v. low	low	**interm.**	low	**interm.**
iprodione	low	**interm.**	low	**high**	v. low	low	v. low	low
lambda-cyhalothrin	low	**interm.**	low	**interm.**	**interm.**	**High**	**interm.**	**High**
MCPA	low	low	v. low	low	low	low	v. low	low
MCPP (mecoprop)	**interm.**	**high**	low	**interm.**	v. low	v. low	v. low	v. low
mancozeb	low	**interm.**	**interm.**	**high**	low	**interm.**	low	**high**
metalaxyl	v. low	v. low	v. low	low	v. low	low	low	v. low
Mefluidide	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Mesotrione	v. low	low	v. low	low	v. low	v. low	v. low	v. low
Metconazole	v. low	v. low	v. low	v. low	low	low	v. low	low
Metsulfuron-methy	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
phosphorous acid	v. low	v. low	v. low	v. low	**interm.**	low	v. low	low
MSMA	low	low	low	low	v. low	v. low	v. low	low
Myclobutanil	v. low	v. low	v. low	v. low	low	low	v. low	low
oxadiazon	**interm.**	low	**interm.**	low	low	**interm.**	l ow	**interm.**
paclobutrazol	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
pendimethalin	v. low	low	v. low	low	low	**interm.**	Low	**interm.**
Penoxsulam	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Permethrin	v. low	low	v. low	low	**interm.**	**High**	**interm.**	**High**
Primisulfuron-methyl	**interm.**	low	v. low	**Interm.**	v. low	v. low	v. low	v. low
prodiamine	v. low	low	v. low	low	v. low	low	v. low	low
propamocarb	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
propiconazole	**interm.**	**interm.**	Low	**high**	low	low	v. low	low
Pyraclostrobin	v. low	v. low	v. low	v. low	low	**interm.**	Low	**high**
Quinclorac	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Siduron	v. low	v. low	v. low	v. low	low	low	v. low	**interm.**
spinosyn A & D	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Sulfentrazone	low	low	v. low	low	v. low	v. low	v. low	v. low
Tebuconazole	low	low	v. low	**interm.**	low	low	v. low	**interm.**
thiophanate-methyl	v. low	low	v. low	low	low	**interm.**	low	**interm**.
triadimefon	low	low	v. low	**interm.**	low	low	v. low	low
triadimenol	low	low	v. low	**interm.**	V. low	v. low	v. low	v. low
trichlorfon	**high**	**interm.**	Low	**interm.**	**interm.**	low	v. low	low
triclopyr	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
trifloxystrobin	v. low	v. low	v. low	v. low	low	**interm.**	Low	**interm.**
trifluralin	v. low	low	v. low	low	**interm.**	**high**	**interm.**	**High**
Trinexapac-ethyl	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
vinclozalin	**interm.**	**interm.**	Low	**interm.**	low	low	v. low	low

* Includes the worst risk assessment ranking from any of the soils found on this site.

Estimated Concentration of Pesticide in Surface and Ground Water

Brynwood will only be using pesticides with a low to intermediate potential for both surface and ground water contamination and it is highly unlikely that any pesticides would be found in surface or ground water on or off this site. The whole objective and idea surrounding the use of this ITPMP is to prevent problems such as the contamination of groundwater and storm water. All of ITPMP practices, agronomic and environmental, are and will be geared toward making it unlikely that anything will reach ground and surface water. The results from surface and ground water monitoring studies of over 80 golf courses in the U.S. support this conclusion (Baris et al., 2010). However, in some cases small amounts of pesticides were and could be detected. The concentration of pesticides in surface and ground water was estimated assuming that a moderate amount (0.1 % based on pesticide fate studies) of the pesticide applied would enter surface and ground water. Using the application rates of pesticides found in Table 8, along with the estimated values of runoff and ground water recharge, the concentrations were estimated.

Table 9 contains a worst case estimate of pesticide concentration in surface water at the 5 design points that have golf course features of greens, tees or fairways. The assumptions in these estimates are that the greatest amount of contaminate loss occurs in the first ½ inch of runoff (equivalent to a 2 year return frequency event) from an individual pesticide application and standard label rate of pesticides were applied. As expected the estimated concentrations of pesticides in surface water was low and in line with the maximum values observed from actual golf courses (Baris et al., 2010). In two cases the maximum acceptable toxicant concentration for fish was slightly exceeded. However, it is unlikely that fish will come in direct contact with the untreated storm water from this site. The two pesticides, the insecticides bifenthrin and lambda-cyhalothrin shown in the WIN PST analysis to have a high risk to fish on this site, are critical to control one of the most destructive insects, annual bluegrass weevil. It is proposed to allow the Brynwood Country Club to apply under emergency conditions. It has been observed that the rapid death of turfgrass will lead to excessive leaching and runoff of nitrogen and phosphorus, thus the need to prevent damage from annual bluegrass. Bifenthrin and lambda-cyhalothrin will only be applied after all other control options have failed and the population threshold has been exceeded following scouting. The Town of North Castle will be notified when an application is to be made under these set of emergency conditions.

The estimated concentration of pesticides in groundwater in shown in Table 10. These values use the pesticide application rates shown in Table 8 for a yearly total for a given pesticide and the volumes of average ground water recharge equal to 116,702,293 liters (162.45 acres and 7 inches of recharge/yr.) or for a 1 in 30 year drought of 83,358,780 liters (162.45 acres and 5 inches of recharge/yr.). As expected none of the estimated pesticide concentration in groundwater exceeded the water quality standards.

4. Wildlife and Wildlife Habitats

4.1 Native vegetation will be used to provide habitat for indigenous species

whenever possible.

4.2 On the long term, native groundcover or shrubs that may be removed during any construction or renovation projects involving non-golf areas will be replaced with indigenous plant species.

5. Water Use

5.1 The Brynwood Golf Course will irrigate only the areas requiring water and limit the amount applied to the amount actually required by the plant.

The modern computer-controlled irrigation system used on today's golf courses like the proposed Brynwood Golf Course is very flexible to be able to irrigate to the amount needed for adequate plant growth while not over irrigating. Over-irrigation can make many disease problems more severe, can lead to a significantly greater likelihood for either pesticide or nitrate leaching into groundwater and runoff into surface waters (Petrovic, 1990 and 1994) and can waste upwards of 50 % more water than is actually needed.

This golf course will apply water based on an estimate of the amount of water used by the turfgrass plant. This irrigation system will either have a weather station linked to the controller that estimates plant water use and will irrigate accordingly or use evapotranspiration rate data provided by the North East Climate Center, Ithaca, NY. This proper amount of irrigation will be applied to minimize any environmental impact, reduce the potential for pest problems, reduce the waste of water from excess irrigation and produce a healthy pest-resistant grass. Greens, tees and fairways will be irrigated. Water from the on-site pond may be used for irrigation.

ITPMP Use and Reporting Requirements

The golf course superintendent will have the responsibility of implementing the ITPMP and reporting on all phases of the project, from construction to yearly maintenance. Implementation will involve developing an operational manual that utilizes the information found in this report. This will be one of the first tasks of the new superintendent once the person is hired and will be completed in advance of the opening of the golf course and will be reported to the Town. At the point of hiring the golf course superintendent he/she will be responsible for implementation of the ITPMP. Following construction of the golf course, the operational ITPMP will be provided to the Town each year showing how the plan was followed. Town approval will be required prior to any proposed changes.

By February of each year the applicant will provide the Town with report of the previous year's activities that will include the following information:

1. The materials used at establishment (construction); actual grasses (species and variety) used by location and seeding rate (or sod used) and establishment date, fertilizer materials used (rates and dates of application by location including soil

test results), amount of mulch used and location applied, amount of lime if applied to which areas on what date(s). The superintendent will provide the Town this information so as to determine compliance with the ITPMP. After the first year this section will contain information on any over seeding or sodding that was done the previous year.

2. Irrigation Protocol: how amount of irrigation was determined, monthly summary of irrigation amount by location.

3. IPM Program: results from pest scouting showing location and amounts of pests by date, table containing all pest control applications (including cultural, biological and chemical control used) listing date, location, rate of application and material used.

4. Suggested changes to the ITPMP: the applicant may upon review of the history of the site suggest changes to the ITPMP, which may include adoption of new technologies, materials and deletions of materials to be used. Any new pesticide to be considered for use will go through a risk assessment using the currently acceptable method. Within a reasonable time frame of three month, the Town must notify the applicant of their decision on approving modifications to the ITPMP.

EQUIPMENT WASHING

All equipment wash bays will have a trench drain with a sedimentation area to drop out any grass clippings or other debris, as well as a sand/oil separator. All bays will flow through a naturalized grass and vegetative filtration ditch and be discharged into the golf course irrigation lake. Grading will be done to insure all drainage of the entire maintenance yard footprint will be collected and discharged through a naturalized grass and vegetative filtration ditch and be discharged into the golf course irrigation lake as well.

Literature Cited

1. Baris, R.D., Cohen , S, N. LaJan Barnes, J. Lam and Q. Ma. 2010. Quantitative analysis of over 20 years of golf course monitoring studies. Environ. Tox. And Chem. 29(6):1224-1236.

2. Morton, T.G., A.J. Gold and W.M. Sullivan. 1988. Influence of overwatering and fertilization on nitrogen losses from home lawns. J.of Environ. Qual. 17:124-130.

3. Petrovic, A.M. 1990. The fate of nitrogenous fertilizers applied to turfgrass. J. of Environ. Qual. 19:1-14.

4. Nelson, E.B. 1990. The advent of biological controls for turfgrass disease management. Cornell Univ. Turfgrass Times.1(1):1,4.

5. Petrovic, A. M. 1994. Impact of Golf Courses on Groundwater Quality. Proc. 2 nd World Scient. Cong. Golf. St. Andrews, Scotland.

6. Leonard, R.A., W.G. Knisel and D.A.Still. 1987. GLEAMS:Ground Water Loading Effects of Agricultural Management Systems. Trans. ASAE 30:1403-1418.

7. Cohen, S.Z., S. Nicherson, R. Maxey, A. Dupuy and J.A. Senita. 1990. A ground water monitoring study for pesticides and nitrates associated with golf courses on Cape Cod. Ground Wat. Monit. Rev. 10(1):1-24.

8. Cohen , S, A. Svrjcek, T. Durborow and N. LaJan Barnes. 1999. Water quality impacts of golf courses. J. Environ. Qual. 28:798-809.

9. Rossi, F.R., J. Kao-Kniffin, and J. Grant. 2013. The 2013 pest management guidelines for commercial turfgrass. Cornell Coop. Ext., Ithaca, NY.

10. Easton, Z. M. and A.M. Petrovic. 2008. Determining Phosphorus Loading Rates Based on Land Use in an Urban Watershed. *In* M. Nett, M.J. Carroll, B.H. Horgan, and A. M. Petrovic (eds). The Fate of Nutrients and Pesticides in the Urban Environments. Am. Chem. Soc., Symp. Series 997, Oxford Univ. Press.

11. Soldat, D.J. and A.M. Petrovic. 2008. The fate and transport of phosphorus in the turfgrass ecosystems. Crop Sci. 48: 2051-2065.

12. Petrovic, A. M. and J. Barlow. 2012. Influence of Single Nitrogen Application Rates on the Extent of Nitrogen Leaching from Sand-based and Sandy Loam Rootzones. Euro. Turf Society Res. Conf. Extended Abstract.

WIN PST Soil/Pesticide Information and Risk Assessment Results

Brynwood Scouting
Forms

Turf IPM Field Infestation Report

Hole _____ Scout _____ Date _____

Site (turf species)	Mowing Height	Soil Moisture	Weeds Species / No. or %	Diseases Species / No. or %	Remarks	Nematodes Species / No. or %
Green						
Tee						
Fairway						
Rough						
Notes:			1. Goosegrass 2. Crabgrass 3. Broadleaves 4. Nutsedge Yellow 5. Nutsedge Purple 6. *Poa annua* 7. Other	1. Dollar spot 2. Leaf spot 3. *Pythium* blight 4. *Pythium* root rot 5. Fairy ring 6. Brown patch (*R. solani*) 7. Rhizoctonia leaf and sheath blight (*R. zeae*) 8. Algae/moss 9. Other		1. Sting 2. Lance 3. Stubby-root 4. Root-knot 5. Cyst 6. Ring 7. Spiral 8. Sheath 9. Other

Turf IPM Field History Report Form

Hole _____ Scout _____ Date _____

Site	Turf Species	Mowing Schedule	Soil Analysis pH	Soil Analysis P	Soil Analysis K	Soil Drainage	Fertilization (N/1000 sq ft) Spring	Fertilization (N/1000 sq ft) Summer	Fertilization (N/1000 sq ft) Fall	Fertilization (N/1000 sq ft) Winter	Irrigation Schedule
Green											
Tee											
Fairway											
Rough											
Driving range											
Nursery green											
Practice green											

Comments on specific topics such as shade, overseeding blend, nitrogen carrier, topdressing mix, weather, irrigation salinity levels, etc.

Table 8. Preventative pesticide application schedule for Brynwood Golf Club.

Greens

Date	Fungicide	Rate	Insecticide	Rate	Herbicide/PGR	Rate
4/1	Headway	2 oz/m	Talstar	15 oz/A	Primo	7 oz/A
4/15	Tartan	2 oz/m			Primo	6 oz/A
	Daconil Action	2.4 oz/m			Proxy	5 oz/A
5/1	Signature	4 oz/m	Scimitar	12 oz/A	Primo	6 oz/A
	Daconil WeatherStick	3.6 oz/m				
5/15	Instrata	7 oz/m			Primo	7 oz/A
					Proxy	5 oz/A
5/16			Acelepryn	12 oz/A		
6/1	Insignia Intrinsic	.72 oz/m	Conserve	52 oz/A		
	Segway	.9 oz/m				
6/11	Affirm	2.4 lbs/A			Primo	7 oz/A
	Daconil Action	2.4 oz/m				
6/21	Clearys 3336	4 oz/m	Talstar	20 oz/A	Primo	7 oz/A
	Signature	4 oz/m				
7/1	Insignia Intrinsic	.72 oz/m	Provaunt	12 oz/A		
	Banol	2 oz.m				
7/11	Signature	4 oz/m			Primo	7 oz/A
	Headway	3 oz/m				
	Daconil WeatherStick	3.6 oz/m				
7/21	Signature	4 oz/m	Scimitar	12 oz/A	Primo	7 oz/A
	Medallion	2 oz/m				
	Daconil WeatherStick	3.6 oz/m				
8/1	Segway	.9 oz/m	Conserve	52oz/A		
8/3	Signature	4 oz/m			Primo	7 oz/A
	Headway	2 oz/m				
	Daconil WeatherStick	3.6 oz/m				
8/11	Tartan	2 oz/m			Primo	7 oz/A
	Daconil Action	2.4 oz/m				
8/21	Instrata	7 oz/m			Primo	7 oz/A
9/3	Signature	4 oz/m	Talstar	20 oz/A	Primo	7 oz/A
	Daconil WeatherStick	3.6 oz/m				
9/24	Concert II	5 oz/m	.		Primo	7 oz/A

10/15	Tartan	2 oz/m		Primo	7 oz/A
Snow Mold	Instrata	11 oz/m		Primo	7 oz/A

Tees

Date	Fungicide	Rate	Insecticide	Rate	Herb/PGR	Rate
4/15	Curalan	1 oz/m	Scimitar	12 oz/A	Primo	12 oz/A
5/2	Emerald	.18 oz/m			Primo	12 oz/A
	Bayleton FLO	1 oz/m				
mid-late May			Acelepryn	12 oz/A	Dimension	32 oz/A
5/30	Torque	.6 oz/m			Primo	12 oz/A
	Daconil Action	2.4 oz/m				
6/1	Segway	.9 oz/m	Conserve	52 oz/A		
6/13	Instrata	7 oz/m	Talstar	20 oz/A	Primo	12 oz/A
7/1	Banol	2 oz.m	Provaunt	12 oz/A		
7/4	Signature	4 oz/m			Primo	12 oz/A
	Tartan	2 oz/m				
	Daconil Weatherstic	3.6 oz/m				
7/17	Renown	4.5 oz/m	Scimitar	12 oz/A	Primo	12 oz/A
8/1	Segway	.9 oz/m	Conserve	52 oz/A		
7/29	Instrata	7 oz/m			Primo	12 oz/A
8/12	Torque	.6 oz/m	Scimitar	12 oz/m	Primo	12 oz/A
	Daconil Action	2 oz/m				
9/2	Eagle	1.2 oz/m			Primo	12 oz/A
	Daconil Action	2.4 oz/m				
10/3	Tartan	2 oz/m			Primo	12 oz/A
	Daconil Action	2.4 oz/m				
Snow Mold	Torque	.6 oz/m			Primo	12 oz/A
	Daconil Action	2.4 oz/m				

Fairways

Date	Fungicide	Rate	Insecticide	Rate	Herb/PGR	Rate
4/14	Curalan	1 oz/m	Scimitar	12 oz/A	Primo	12 oz/A

5/1	Emerald	.18 oz/m			Primo	12 oz/A
	Bayleton FLO	1 oz/m				
mid-late May			Acelepryn	12 oz/A	Barricade	32 oz/A
5/28	Torque	.6 oz/m			Primo	12 oz/A
	Daconil Action	2 oz/m				
5/29	Torque	.6 oz/m			Primo	12 oz/A
	Daconil Action	2 oz/m				
end May-early June			Provaunt	12 oz/A		
end May-early June	Rough Application for season long grub control		Acelepryn	8 oz/A		
6/11	Renown	3.5 oz/m			Primo	12 oz/A
6/12	Renown	3.5 oz/m			Primo	12 oz/A
7/2	Tartan	2 oz/m			Primo	12 oz/A
	Daconil Action	2 oz/m				
7/3	Tartan	2 oz/m			Primo	12 oz/A
	Daconil Action	2 oz/m				
7/15	Renown	3 oz/m			Primo	12 oz/A
	Medallion	2 oz/m				
7/16	Renown	3 oz/m			Primo	12 oz/A
	Medallion	2 oz/m				
mid July			Provaunt	12 oz/A		
7/30	Torque	0.6 oz/m			Primo	12 oz/A
	Daconil Action	2 oz/m				
7/31	Torque	.6 oz/m			Primo	12 oz/A
	Daconil Action	2 oz/m				
8/13	Tartan	2 oz/m	Scimitar	12 oz/m	Primo	12 oz/A
	Daconil Action	2 oz/m				
8/14	Tartan	2 oz/m	Scimitar	12 oz/m	Primo	12 oz/A
	Daconil Action	2 oz/m				
9/3	Eagle	1.2 oz/m			Primo	12 oz/A
	Curalan	2 oz/m				
10/1	Renown	3 oz/m			Primo	12 oz/A
10/2	Renown	3 oz/m			Primo	12 oz/A
Snow Mold	Torque	0.6 oz/m			Primo	12 oz/A
	Daconil Action	2.4 oz/m				
Snow Mold	Torque	0.6 oz/m			Primo	12 oz/A
	Daconil Action	2.4 oz/m				

Intermediate (added to fairways in risk analysis)

Date	Fungicide	Rate	Insecticide	Rate	Herb/PGR	Rate

4/14	Curalan	1 oz/m	Scimitar	12 oz/A	Primo	12 oz/A
5/28	Torque	.6 oz/m			Primo	12 oz/A
	Daconil Action	2 oz/m				
5/29	Torque	.6 oz/m			Primo	12 oz/A
	Daconil Action	2 oz/m				
mid-late May			Acelepryn	12 oz/A	Barricade	32 oz/A
end may-early june			Provaunt	12 oz/A		
7/2	Tartan	2 oz/m			Primo	12 oz/A
	Daconil Action	2 oz/m				
7/3	Tartan	2 oz/m			Primo	12 oz/A
	Daconil Action	2 oz/m				
end may-early june			Provaunt	12 oz/A		
7/30	Torque	.6 oz/m	Scimitar	12 oz/m	Primo	12 oz/A
	Daconil Action	2 oz/m				
7/31	Torque	.6 oz/m	Scimitar	12 oz/m	Primo	12 oz/A
	Daconil Action	2 oz/m				
10/1	Renown	4 oz/m			Primo	12 oz/A
10/2	Renown	4 oz/m			Primo	12 oz/A
Snow Mold	Torque	.6 oz/m			Primo	12 oz/A
	Daconil Action	2.4 oz/m				
Snow Mold	Torque	.6 oz/m			Primo	12 oz/A
	Daconil Action	2.4 oz/m				

Table 9. Estimated concentration of the preventative pesticide applications to the Brynwood CC in the storm water at the drainage design points.

		Acres treated on same day								
Pesticide	**Design Point**	**Greens**	**Tees**	**Fairways**	**Runoff volume – first 0.5 " (liters)**	**Amt. of Pesticide (ug)**	**Est. Conc. Of Pesticide in runoff (ug/l)**	**Long Term Human Toxicity (ug/L)**	**Maximum Acceptable Toxicant Concentration-fish (ug/l)**	**Highest conc. from golf course monitoring Studies & (ug/l)**
Trifloxystrobin	DP-1A	0.31			836,410	31,694	0.04	350	5.8	
Trifloxystrobin	DP-1A		0.31		836,410	31,694	0.04	350	5.8	
Trifloxystrobin	DP-1A			1.13	836,410	115,020	0.14	350	5.8	
Trifloxystrobin	DP-1B	0.26			591,131	26,582	0.04	350	5.8	
Trifloxystrobin	DP-1B		0.22		591,131	22,492	0.04	350	5.8	
Trifloxystrobin	DP-1B			0.91	591,131	93,550	0.16	350	5.8	
Trifloxystrobin	DP-1C-6	1.74			5,695,285	177,898	0.03	350	5.8	
Trifloxystrobin	DP-1C-6		1.41		5,695,285	169,538	0.03	350	5.8	
Trifloxystrobin	DP-1C-6			10.46	5,695,285	1,068,919	0.19	350	5.8	
Trifloxystrobin	DP-1C-9	0.27			485,426	27,605	0.06	350	5.8	
Trifloxystrobin	DP-1C-9		0.11		485,426	11,246	0.02	350	5.8	

Trifloxystrobin	DP-1C-9			1.22	485,426	124,222	0.26	350	5.8	
Trifloxystrobin	DP-1C-10	0.23			630,643	23,515	0.04	350	5.8	
Trifloxystrobin	DP-1C-10		0.25		630,643	25,560	0.04	350	5.8	
Trifloxystrobin	DP-1C-10			0.07	630,643	6,646	0.01	350	5.8	
Chlorothalonil@	DP-1A	0.31			836,410	739,536	0.88	15	4.4	6.5
Chlorothalonil	DP-1A		0.31		836,410	871,596	1.04	15	4.4	
Chlorothalonil	DP-1A			1.13	836,410	2,824,096	3.38	15	4.4	
Chlorothalonil	DP-1B	0.26			591,131	620,256	1.05	15	4.4	
Chlorothalonil	DP-1B		0.22		591,131	618,552	1.05	15	4.4	
Chlorothalonil	DP-1B			0.92	591,131	2,299,264	3.89	15	4.4	
Chlorothalonil	DP-1C-6	1.74			5,695,285	4,150,944	0.73	15	4.4	
Chlorothalonil	DP-1C-6		1.41		5,695,285	3,964,356	0.70	15	4.4	
Chlorothalonil	DP-1C-6			10.46	5,695,285	19,309,160	3.39	15	4.4	
Chlorothalonil	DP-1C-9	0.27			485,426	644,112	1.33	15	4.4	
Chlorothalonil	DP-1C-9		0.11		485,426	309,276	0.64	15	4.4	
Chlorothalonil	DP-1C-9			1.12	485,426	2,067,520	4.26	15	4.4	
Chlorothalonil	DP-1C-10	0.23			630,643	548,688	0.87	15	4.4	

Chlorothalonil	DP-1C-10		0.25		630,643	702,900	1.11	15	4.4	
Chlorothalonil	DP-1C-10			0.07	630,643	174,944	0.28	15	4.4	
Chlorothalonil#	DP-1A	0.31			836,410	1,258,972	1.51	15	4.4	
Chlorothalonil#	DP-1B	0.26			591,131	1,055,588	1.79	15	4.4	
Chlorothalonil#	DP-1C-6	1.74			5,695,285	7,066,290	1.24	15	4.4	
Chlorothalonil#	DP-1C-9	0.27			485,426	1,096,493	2.26	15	4.4	
Chlorothalonil#	DP-1C-10	0.23			630,643	93,404	0.15	15	4.4	
Fosetyl-al	DP-1A	0.31			836,410	1,232,560	1.47	21,000	14,711	
Fosetyl-al	DP-1A		0.31		836,410	1,232,560	1.47	21,000	14,711	
Fosetyl-al	DP-1B	0.26			591,131	1,033,760	1.75	21,000	14,711	
Fosetyl-al	DP-1B		0.22		591,131	874,721	1.48	21,000	14,711	
Fosetyl-al	DP-1C-6	1.74			5,695,285	6,918,240	1.21	21,000	14,711	
Fosetyl-al	DP-1C-6		1.41		5,695,285	5,606,160	0.98	21,000	14,711	
Fosetyl-al	DP-1C-9	0.27			485,426	1,073,520	2.21	21,000	14,711	
Fosetyl-al	DP-1C-9		0.11		485,426	437,360	0.90	21,000	14,711	
Fosetyl-al	DP-1C-10	0.23			630,643	914,480	1.45	21,000	14,711	
Fosetyl-al	DP-1C-10		0.25		630,643	994,000	1.58	21,000	14,711	

Fludioxinil	DP-1A	0.31			836,410	96,844	0.12	210	33	
Fludioxinil	DP-1B	0.26			591,131	81,224	0.14	210	33	
Fludioxinil	DP-1C-6	1.74			5,695,285	543,576	0.10	210	33	
Fludioxinil	DP-1C-9	0.27			485,426	84,348	0.17	210	33	
Fludioxinil	DP-1C-10	0.23			630,643	71,852	0.11	210	33	
Fludioxinil	DP-1A		0.31		836,410	50,183	0.06	210	33	
Fludioxinil	DP-1B		0.22		591,131	35,614	0.06	210	33	
Fludioxinil	DP-1C-6		1.41		5,695,285	228,251	0.04	210	33	
Fludioxinil	DP-1C-9		0.11		485,426	17,807	0.04	210	33	
Fludioxinil	DP-1C-10		0.25		630,643	40,470	0.06	210	33	
pyraclostrobin	DP-1A	0.31			836,410	63,389	0.08	210	3.9	
pyraclostrobin	DP-1B	0.26			591,131	53,165	0.09	210	3.9	
pyraclostrobin	DP-1C-6	1.74			5,695,285	355,795	0.06	210	3.9	
pyraclostrobin	DP-1C-9	0.27			485,426	55,210	0.11	210	3.9	
pyraclostrobin	DP-1C-10	0.23			630,643	47,030	0.07	210	3.9	
tebuconazole+	DP-1A			1.13	836,410	3,209,200	3.84	21	17	
tebuconazole	DP-1A		0.31		836,410	88,040	0.11	21	17	

tebuconazole	DP-1A			1.13	836,410	320,920	0.38	21	17	
tebuconazole+	DP-1B			0.92	591,131	2,612,800	4.42	21	17	
tebuconazole	DP-1B		0.22		591,131	62,480	0.11	21	17	
tebuconazole	DP-1B			0.92	591,131	261,280	0.44	21	17	
tebuconazole+	DP-1C-6			10.46	5,695,285	29,706,400	5.22	21	17	
tebuconazole	DP-1C-6		1.41		5,695,285	400,440	0.07	21	17	
tebuconazole	DP-1C-6			10.46	5,695,285	2,970,640	0.52	21	17	
tebuconazole+	DP-1C-9			1.22	485,426	3,464,800	7.14	21	17	
tebuconazole	DP-1C-9		0.11		485,426	31,240	0.06	21	17	
tebuconazole	DP-1C-9			1.22	485,426	346,480	0.71	21	17	
tebuconazole+	DP-1C-10			0.07	630,643	198,800	0.32	21	17	
tebuconazole	DP-1C-10		0.25		630,643	71,000	0.11	21	17	
tebuconazole	DP-1C-10			0.07	630,643	19,880	0.03	21	17	
azoxystrobin	DP-1A	0.31			836,410	66,029	0.08	1260	168	5.8
azoxystrobin	DP-1A		0.31		836,410	68,671	0.08			
azoxystrobin	DP-1A			1.13	836,410	221,435	0.26	1260	168	
azoxystrobin	DP-1B	0.26			591,131	55,380	0.09	1260	168	

azoxystrobin	DP-1B		0.22		591,131	48,734	0.08	1260	168	
azoxystrobin	DP-1B			0.92	591,131	180,283	0.30			
azoxystrobin	DP-1C-6	1.74			5,695,285	370,620	0.07	1260	168	
azoxystrobin	DP-1C-6		1.41		5,695,285	312,343	0.05	1260	168	
azoxystrobin	DP-1C-6			10.46	5,695,285	2,049,742	0.36	1260	168	
azoxystrobin	DP-1C-9	0.27			485,426	57,510	0.12	1260	168	
azoxystrobin	DP-1C-9		0.11		485,426	24,367	0.05	1260	168	
azoxystrobin	DP-1C-9			1.22	485,426	239,071	0.49	1260	168	
azoxystrobin	DP-1C-10	0.23			630,643	48,990	0.08	1260	168	
azoxystrobin	DP-1C-10		0.25		630,643	55,380	0.09	1260	168	
azoxystrobin	DP-1C-10			0.07	630,643	13,717	0.02	1260	168	
triadimefon	DP-1A	0.31			836,410	158,474	0.19	28	169	4.7
Triadimefon	DP-1A		0.31		836,410	158,474	0.19	28	169	
Triadimefon	DP-1A			1.13	836,410	577,665	0.69	28	169	
Triadimefon	DP-1B	0.26			591,131	132,914	0.22	28	169	
triadimefon	DP-1B		0.22		591,131	112,466	0.19	28	169	
Triadimefon	DP-1B			0.91	591,131	465,199	0.79	28	169	

Triadimefon	DP-1C-6	1.74			5,695,285	889,502	0.16	28	169	
Triadimefon	DP-1C-6		1.41		5,695,285	720,803	0.13	28	169	
triadimefon	DP-1C-6			10.46	5,695,285	5,347,236	0.94	28	169	
Triadimefon	DP-1C-9	0.27			485,426	138,026	0.28	28	169	
Triadimefon	DP-1C-9		0.11		485,426	56,233	0.12	28	169	
Triadimefon	DP-1C-9			1.22	485,426	623,674	1.28	28	169	
triadimefon	DP-1C-10	0.23			630,643	117,578	0.19	28	169	
Triadimefon	DP-1C-10		0.25		630,643	127,802	0.20	28	169	
Triadimefon	DP-1C-10			0.07	630,643	35,785	0.06	28	169	
Thiophanate-me	DP-1A	0.31			836,410	633,884	0.76	30	2.7	
Thiophanate-me	DP-1B	0.26			591,131	531,644	0.90	30	2.7	
Thiophanate-me	DP-1C-6	1.74			5,695,285	3,557,956	0.62	30	2.7	
Thiophanate-me	DP-1C-9	0.27			485,426	552,092	1.14	30	2.7	
Thiophanate-me	DP-1C-10	0.23			630,643	470,964	0.75	30	2.7	
Indoxacarb	DP-1A	0.31			836,410	31694.4	0.04	140	2.1	
Indoxacarb	DP-1A		0.31		836,410	31,694	0.04	140	2.1	
Indoxacarb	DP-1A			2.21	836,410	225,950	0.27	140	2.1	

Indoxacarb	DP-1B	0.26			591,131	26,582	0.04	140	2.1	
Indoxacarb	DP-1B		0.22		591,131	22,493	0.04	140	2.1	
Indoxacarb	DP-1B			1.81	591,131	185,054	0.31	140	2.1	
Indoxacarb	DP-1C-6	1.74			5,695,285	177,898	0.03	140	2.1	
Indoxacarb	DP-1C-6		1.41		5,695,285	1,441,584	0.25	140	2.1	
Indoxacarb	DP-1C-6			20.91	5,695,285	2,137,838	0.38	140	2.1	
Indoxacarb	DP-1C-9	0.27			485,426	27,605	0.06	140	2.1	
Indoxacarb	DP-1C-9		0.11		485,426	11,246	0.02	140	2.1	
Indoxacarb	DP-1C-9			2.43	485,426	248,443	0.51	140	2.1	
Indoxacarb	DP-1C-10	0.23			630,643	23,507	0.04	140	2.1	
Indoxacarb	DP-1C-10		0.25		630,643	25,560	0.04	140	2.1	
Indoxacarb	DP-1C-10			0.13	630,643	13,291	0.02	140	2.1	
lambda-cyhalothrin^	DP-1A	0.31			836,410	1021264	1.22	7	0.04	
lambda-cyhalothrin	DP-1A		0.31		836,410	1,021,264	1.22	7	0.04	
lambda-cyhalothrin	DP-1A			1.13	836,410	3,722,672	4.45	7	0.04	

lambda-cyhalothrin	DP-1B	0.26			591,131	856,544	1.45	7	0.04	
lambda-cyhalothrin	DP-1B		0.22		591,131	724,768	1.23	7	0.04	
lambda-cyhalothrin	DP-1B			0.92	591,131	3,030,848	5.13	7	0.04	
lambda-cyhalothrin	DP-1C-6	1.74			5,695,285	5,732,256	1.01	7	0.04	
lambda-cyhalothrin	DP-1C-6		1.41		5,695,285	4,645,104	0.82	7	0.04	
lambda-cyhalothrin	DP-1C-6			10.46	5,695,285	34,459,424	6.05	7	0.04	
lambda-cyhalothrin	DP-1C-9	0.27			485,426	889,488	1.83	7	0.04	
lambda-cyhalothrin	DP-1C-9		0.11		485,426	362,384	0.75	7	0.04	
lambda-cyhalothrin	DP-1C-9			1.22	485,426	4,019,168	8.28	7	0.04	
lambda-cyhalothrin	DP-1C-10	0.23			630,643	757,712	1.20	7	0.04	
lambda-cyhalothrin	DP-1C-10		0.25		630,643	823,600	1.31	7	0.04	

lambda-cyhalothrin	DP-1C-10			0.07	630,643	230,608	0.37	7	0.04	
Bifenthrin^	DP-1A	0.31			836,410	140,864	0.17	10	0.06	
bifenthrin	DP-1A		0.31		836,410	140,864	0.17	10	0.06	
bifenthrin	DP-1B	0.26			591,131	118,144	0.20	10	0.06	
bifenthrin	DP-1B		0.22		591,131	99,968	0.17	10	0.06	
bifenthrin	DP-1C-6	1.74			5,695,285	790,656	0.14	10	0.06	
bifenthrin	DP-1C-6		1.41		5,695,285	640,704	0.11	10	0.06	
bifenthrin	DP-1C-9	0.27			485,426	122,688	0.25	10	0.06	
bifenthrin	DP-1C-9		0.11		485,426	49,984	0.10	10	0.06	
bifenthrin	DP-1C-10	0.23			630,643	104,512	0.17	10	0.06	
bifenthrin	DP-1C-10		0.25		630,643	113,600	0.18	10	0.06	
vinclozalin	DP-1A		0.31		836,410	193,688	0.23	8.4	120	0.5
vinclozalin	DP-1A			1.13	836,410	706,024	0.84	8.4	120	
vinclozalin	DP-1B		0.22		591,131	137,456	0.23	8.4	120	
vinclozalin	DP-1B			0.92	591,131	574,816	0.97	8.4	120	
vinclozalin	DP-1C-6		1.41		5,695,285	880,968	0.15	8.4	120	
vinclozalin	DP-1C-6			10.46	5,695,285	6,535,408	1.15	8.4	120	

vinclozalin	DP-1C-9		0.11		485,426	68,728	0.14	8.4	120	
vinclozalin	DP-1C-9			1.22	485,426	762,256	1.57	8.4	120	
vinclozalin	DP-1C-10		0.25		630,643	156,200	0.25	8.4	120	
vinclozalin	DP-1C-10			0.07	630,643	43,736	0.07	8.4	120	
Trinexipac-eth	DP-1A	0.31			836,410	7,043	0.01	221	573	
Trinexipac-eth	DP-1A		0.31		836,410	12,486	0.01	221	573	
Trinexipac-eth	DP-1A			2.25	836,410	90,621	0.11	221	573	
Trinexipac-eth	DP-1B	0.26			591,131	5,907	0.01	221	573	
Trinexipac-eth	DP-1B		0.22		591,131	8,861	0.01	221	573	
Trinexipac-eth	DP-1B			1.83	591,131	73,705	0.12	221	573	
Trinexipac-eth	DP-1C-6	1.74			5,695,285	39,533	0.01	221	573	
Trinexipac-eth	DP-1C-6		1.41		5,695,285	56,789	0.01	221	573	
Trinexipac-eth	DP-1C-6			20.91	5,695,285	842,171	0.15	221	573	
Trinexipac-eth	DP-1C-9	0.27			485,426	6,134	0.01	221	573	
Trinexipac-eth	DP-1C-9		0.11		485,426	4,430	0.01	221	573	
Trinexipac-eth	DP-1C-9			2.43	485,426	97,871	0.20	221	573	
Trinexipac-eth	DP-1C-10	0.23			630,643	5,226	0.01	221	573	

Trinexipac-eth	DP-1C-10		0.25		630,643	10,069	0.02	221	573	
Trinexipac-eth	DP-1C-10			0.13	630,643	5,236	0.01	221	573	
ethephon	DP-1A	0.31			836,410	7,312	0.01	126	2662	
ethephon	DP-1B	0.26			591,131	7,247	0.01	126	2662	
ethephon	DP-1C-6	1.74			5,695,285	48,504	0.01	126	2662	
ethephon	DP-1C-9	0.27			485,426	7,527	0.02	126	2662	
ethephon	DP-1C-10	0.23			630,643	6,411	0.01	126	2662	
prodiamine	DP-1A			2.25	836,410	830,700	0.99	35	17	
prodiamine	DP-1B			1.83	591,131	675,636	1.14	35	17	
prodiamine	DP-1C-6			20.91	5,695,285	7,353,010	1.29	35	17	
prodiamine	DP-1C-9			2.43	485,426	897,156	1.85	35	17	
prodiamine	DP-1C-10			0.13	630,643	47,996	0.08	35	17	
myclobutanil	DP-1A		0.31		836,410	88,040	0.11	175	330	1.6
myclobutanil	DP-1A			1.13	836,410	320,920	0.38	175	330	
myclobutanil	DP-1B		0.22		591,131	62,480	0.11	175	330	
myclobutanil	DP-1B			0.92	591,131	261,280	0.44	175	330	
myclobutanil	DP-1C-6		1.41		5,695,285	400,440	0.07	175	330	

myclobutanil	DP-1C-6			10.46	5,695,285	2,970,640	0.52	175	330	
myclobutanil	DP-1C-9		0.11		485,426	31,240	0.06	175	330	
myclobutanil	DP-1C-9			1.22	485,426	346,480	0.71	175	330	
myclobutanil	DP-1C-10		0.25		630,643	71,000	0.11	175	330	
myclobutanil	DP-1C-10			0.07	630,643	19,880	0.03	175	330	
Propiconazole^	DP-1A	0.31			836,410	1,232,560	1.47	9.1	134	1.1
propiconazole	DP-1A		0.31		836,410	3,976,000	4.75	9.1	134	
propiconazole	DP-1B	0.26			591,131	1,033,760	1.75	9.1	134	
propiconazole	DP-1B		0.22		591,131	874,720	1.48	9.1	134	
propiconazole	DP-1C-6	1.74			5,695,285	6,918,240	1.21	9.1	134	
propiconazole	DP-1C-6		1.41		5,695,285	5,606,160	0.98	9.1	134	
propiconazole	DP-1C-9	0.27			485,426	1,073,520	2.21	9.1	134	
propiconazole	DP-1C-9		0.11		485,426	437,360	0.90	9.1	134	
propiconazole	DP-1C-10	0.23			630,643	914,480	1.45	9.1	134	
propiconazole	DP-1C-10		0.25		630,643	994,000	1.58	9.1	134	
Propiconazole^+	DP-1A	0.31			836,410	1,936,880	2.32	9.1	134	1.1
propiconazole	DP-1B	0.26			591,131	1,624,480	2.75	9.1	134	

propiconazole	DP-1C-6	1.74			5,695,285	10,871,520	1.91	9.1	134	
propiconazole	DP-1C-9	0.27			485,426	1,686,960	3.48	9.1	134	
propiconazole	DP-1C-10	0.23			630,643	1,437,040	2.28	9.1	134	
cyazofamid	DP-1A	0.31			836,410	140,864	0.17	6650	127	
cyazofamid	DP-1A		0.31		836,410	140,864	0.17	6650	127	
cyazofamid	DP-1B	0.26			591,131	118,144	0.20	6650	127	
cyazofamid	DP-1B		0.22		591,131	99,968	0.17	6650	127	
cyazofamid	DP-1C-6	1.74			5,695,285	790,656	0.14	6650	127	
cyazofamid	DP-1C-6		1.41		5,695,285	640,704	0.11	6650	127	
cyazofamid	DP-1C-9	0.27			485,426	122,688	0.25	6650	127	
cyazofamid	DP-1C-9		0.11		485,426	49,984	0.10	6650	127	
cyazofamid	DP-1C-10	0.23			630,643	104,512	0.17	6650	127	
cyazofamid	DP-1C-10		0.25		630,643	113,600	0.18	6650	127	
propamocarb	DP-1A	0.31			836,410	575,253	0.69	700	37500	
propamocarb	DP-1A		0.31		836,410	575,253	0.69	700	37500	
propamocarb	DP-1B	0.26			591,131	482,471	0.82	700	37500	
propamocarb	DP-1B		0.22		591,131	408,244	0.69	700	37500	

propamocarb	DP-1C-6	1.74			5,695,285	3,228,841	0.57	700	37500	
propamocarb	DP-1C-6		1.41		5,695,285	2,616,475	0.46	700	37500	
propamocarb	DP-1C-9	0.27			485,426	501,027	1.03	700	37500	
propamocarb	DP-1C-9		0.11		485,426	204,122	0.42	700	37500	
propamocarb	DP-1C-10	0.23			630,643	426,801	0.68	700	37500	
propamocarb	DP-1C-10		0.25		630,643	463,914	0.74	700	37500	
boscalid	DP-1A		0.31		836,410	48,422	0.06	153	167	
boscalid	DP-1A			2.25	836,410	351,450	0.42	153	167	
boscalid	DP-1B		0.22		591,131	34,364	0.06	153	167	
boscalid	DP-1B			1.81	591,131	282,722	0.48	153	167	
boscalid	DP-1C-6		1.41		5,695,285	220,242	0.04	153	167	
boscalid	DP-1C-6			20.91	5,695,285	3,266,142	0.57	153	167	
boscalid	DP-1C-9		0.11		485,426	17,182	0.04	153	167	
boscalid	DP-1C-9			2.43	485,426	379,566	0.78	153	167	
boscalid	DP-1C-10		0.25		630,643	39,050	0.06	153	167	
boscalid	DP-1C-10			0.13	630,643	20,306	0.03	153	167	
chlorantraniliprole	DP-1A	0.31			836,410	19,369	0.02			

chlorantraniliprole	DP-1A		0.31		836,410	19,369	0.02			
chlorantraniliprole	DP-1A			2.25	836,410	140,580	0.17			
chlorantraniliprole	DP-1B	0.26			591,131	16,245	0.03			
chlorantraniliprole	DP-1B		0.22		591,131	13,746	0.02			
chlorantraniliprole	DP-1B			1.81	591,131	113,089	0.19			
chlorantraniliprole	DP-1C-6	1.74			5,695,285	108,715	0.02			
chlorantraniliprole	DP-1C-6		1.41		5,695,285	88,097	0.02			
chlorantraniliprole	DP-1C-6			20.91	5,695,285	1,306,457	0.23			
chlorantraniliprole	DP-1C-9	0.27			485,426	16,870	0.03			
chlorantraniliprole	DP-1C-9		0.11		485,426	6,873	0.01			
chlorantraniliprole	DP-1C-9			2.43	485,426	151,826	0.31			
chlorantraniliprole	DP-1C-10	0.23			630,643	14,370	0.02			
chlorantraniliprole	DP-1C-10		0.25		630,643	15,620	0.02			
chlorantraniliprole	DP-1C-10			0.13	630,643	8,122	0.01			
spinosad	DP-1A	0.31			836,410	57,226	0.07	188	692	
spinosad	DP-1A		0.31		836,410	57,226	0.07	188	692	
spinosad	DP-1B	0.26			591,131	47,996	0.08	188	692	

spinosad	DP-1B		0.22		591,131	40,612	0.07	188	692	
spinosad	DP-1C-6	1.74			5,695,285	321,204	0.06	188	692	
spinosad	DP-1C-6		1.41		5,695,285	260,286	0.05	188	692	
spinosad	DP-1C-9	0.27			485,426	49,842	0.10	188	692	
spinosad	DP-1C-9		0.11		485,426	20,306	0.04	188	692	
spinosad	DP-1C-10	0.23			630,643	42,458	0.07	188	692	
spinosad	DP-1C-10		0.25		630,643	46,150	0.07	188	692	
dithiopyr	DP-1A		0.31		836,410	70,432	0.08	25	28	0.1
dithiopyr	DP-1B		0.22		591,131	49,984	0.08	25	28	
dithiopyr	DP-1C-6		1.41		5,695,285	320,352	0.06	25	28	
dithiopyr	DP-1C-9		0.11		485,426	24,992	0.05	25	28	
dithiopyr	DP-1C-10		0.25		630,643	56,800	0.09	25	28	
polyoxin D zinc	DP-1A	0.31			836,410	38,202	0.05			
polyoxin D zinc	DP-1B	0.26			591,131	32,041	0.05			
polyoxin D zinc	DP-1C-6	1.74			5,695,285	214,425	0.04			
polyoxin D zinc	DP-1C-9	0.27			485,426	33,273	0.07			
polyoxin D zinc	DP-1C-10	0.23			630,643	28,344	0.04			

@ chlorothalonil applied at a rate 56 oz A.I./a. #chlorothalonil applied at a rate of 143 oz A.I./a on greens only for snow mold control.^ high risk pesticides from WIN PST analysis. + Propiconazole applied at a high rate for snow mold control on greens only. & From Baris, R.D., Cohen , S, N. LaJan Barnes, J. Lam and Q. Ma. 2010. Quantitative analysis of over 20 years of golf course monitoring studies. Environ. Tox. And Chem. 29(6):1224-1236

Table 10. Estimated concentration of the preventative pesticide applications to the Brynwood CC in the ground water at the average annual recharge rate and from a 1 in 30 year drought.

Pesticide	Annual amount of pesticide applied annually that leached (ug)@	Ground water recharge, normal rainfall (L)	Ground water recharge, drought rainfall (L)	Est. yearly aver. conc. of pesticide in ground water (ug/l)	Long Term Human Toxicity (ug/L)	Highest conc. from golf course monitoring Studies # (ug/l)
Trifloxystrobin	6,529,046	116,705,700		0.06	350	
Trifloxystrobin	6,529,046		83,361,214	0.08	350	
Chlorothalonil	422,000,000	116,705,700		3.6	15	3.1
Chlorothalonil	422,000,000		83,361,214	5.1	15	
Fosetyl-al	75,663,280	116,705,700		0.65	21,000	
Fosetyl-al	75,663,280		83,361,214	0.91	21,000	
Fludioxinil	2,385,089	116,705,700		0.02	210	
Fludioxinil	2,385,089		83,361,214	0.03	210	
pyraclostrobin	1,145,088	116,705,700		0.01	210	
pyraclostrobin	1,145,088		83,361,214	0.01	210	
tebuconazole	88,803,960	116,705,700		0.76	21	
tebuconazole	88,803,960		83,361,214	1.07	21	
azoxystrobin	16,876,530	116,705,700		0.14	1260	5
azoxystrobin	16,876,530		83,361,214	0.20	1260	
triadimefon	47,608,340	116,705,700		0.41	28	8.4
Triadimefon	47,608,340		83,361,214	0.57	28	
Thiophanate-me	5,725,440	116,705,700		0.05	30	
Thiophanate-me	5,725,440		83,361,214	0.07	30	
Indoxacarb	5,728,507	116,705,700		0.05	140	
Indoxacarb	5,728,507		83,361,214	0.07	140	

lambda-cyhalothrin^	29,250,978	116,705,700		0.25	7	
lambda-cyhalothrin^	29,250,978		83,361,214	0.35	7	
Bifenthrin^	4,512,192	116,705,700		0.04	10	
Bifenthrin^	4,512,192		83,361,214	0.05	10	
vinclozalin	17,325,704	116,705,700		0.15	8.4	
vinclozalin	17,325,704		83,361,214	0.21	8.4	
chlorantraniliprole	3,407,034	116,705,700		0.03	Ns	
chlorantraniliprole	3,407,034		83,361,214	0.04	Ns	
Trinexipac-eth	13,066,329	116,705,700		0.11	221	
Trinexipac-eth	13,066,329		83,361,214	0.16	221	
ethephon	174,944	116,705,700		0.002	126	
ethephon	174,944		83,361,214	0.002	126	
prodiamine	5,725,440	116,705,700		0.05	35	
prodiamine	5,725,440		83,361,214	0.07	35	
myclobutanil	7,875,320	116,705,700		0.07	175	0.9
myclobutanil	7,875,320		83,361,214	0.09	175	
boscalid	4,331,426	116,705,700		0.04	153	
boscalid	4,331,426		83,361,214	0.05	153	
dithiopyr	50,666	116,705,700		<0.01	25	0.1
dithiopyr	50,666		83,361,214	<0.01	25	
propiconazole	87,949,120	116,705,700		0.75	9.1	1.1
propiconazole	87,949,120		83,361,214	1.06	9.1	
spinosyn	1,857,076	116,705,700		0.02	Ns	
spinosyn	1,857,076		83,361,214	0.02	Ns	
cyazofamid	4571264	116,705,700		0.04	6650	
cyazofamid	4571264		83,361,214	0.05	6650	
polyoxin D	341936	116,705,700		<0.01		
polyoxin D	341936		83,361,214	<0.01		

@ Total amount applied per year with 0.1% leaching from low to intermediate risk pesticide to 1% of high risk pesticides. ^ high risk pesticides from WIN PST analysis. * The values in parentheses are the amount of area that can be treated per year to lower the risk of water contamination to the toxicological limit. # From Baris, R.D., Cohen , S, N. LaJan Barnes, J. Lam and Q. Ma. 2010. Quantitative analysis of over 20 years of golf course monitoring studies. Environ. Tox. And Chem. 29(6):1224-1236. Ns, there is no water quality standard s do to their very low risk to humans and wildlife.