

January 22, 2019

Mr. Joe Sullivan
Daedalus Projects, Inc.
One Fanuel Hall Marketplace, South Market Building
Floor 3, Suite 4195
Boston, MA 02109

Re: Martha's Vineyard Regional High School – Athletic Field Master Plan

Dear Mr. Sullivan;

I have reviewed the follow-up questions provided by the MVRHS Facilities Sub-committee. The following is full detail of the questions asked and our response.

Follow-up Questions

- 1. Please expand your thoughts on Gmax ratings and what MVRHS could expect from the proposed synthetic turf system. Also, provide an educated guess on the Gmax rating of our current natural grass fields.**

***Response:** Gmax ratings are a measure of the firmness of the athletic field. This test can, and often is, performed on both natural and synthetic turf fields. The test results are measured on a scale of 0 – 200, with a reading of 200 being similar to a concrete surface. ASTM is reviewing a testing procedure that would identify any Gmax result above 165 to be unsafe for play at any level.*

A very well-maintained natural grass field can be expected to test between 90-110, which is often the case for NCAA Division 1 or FIFA Certified Soccer Fields which are limited to game use only. The system we are recommending for the synthetic turf fields at MVRHS would allow a Gmax range from 90 to 125, with a guarantee that the field would not exceed 125 during the eight (8) year warranty period.

We have not been authorized to have Gmax tests performed on the natural grass fields at MVRHS. Given our experience on similar natural grass fields, I would estimate they are in excess of 165. We recommend that MVRHS have Gmax tests performed on all their existing natural grass fields.

- 2. How long should a natural grass field grow in before use is allowed.**

***Response:** We typically recommend two (2) growing seasons on a field grown from seed to allow for adequate root growth prior to the first use. This typically results in a one (1) year delay before use of field. A sodded field can often be used within 4-6 weeks of completion.*

- 3. Include Huntress' recommendation assuming we would not allow youth/adult programs to use our fields.**



Response: The total existing use on your existing five (5) fields is 1400 events per year. The current youth and adult use totals 450 events per year. If you remove the current youth and adult use and allow only the 950 events associated with the High School sports teams, your use hours per field would be approximately 475 hours. Although this use is lower than the 680 hours recommended by STMA guidelines, it still represents a significant annual use per field. Over the last 25 year of my experience I have not seen a client reduce activity and use on their fields as implied above. I would be concerned that should the MVRHS decide today to remove the youth and adult programs that the decision would be reconsidered in the future and the use would likely return. Given the history of use and maintenance on your High School fields, our recommendations made in the December 18, 2018 report remain unchanged.

4. Explain the assumption of 2.5 Hours/Event in the Usage #'s and why it is accurate/appropriate in our case.

Response: The Sports Turf Managers Association (STMA), recommends that a natural grass athletic field can support a maximum range of 680 to 820 hours of use per year depending on the location and soil conditions of the field in question. Additionally, STMA studies show that average event hours range from 2.76 to 3.25 hours per athletic event. These events include practices, games and special events. For the purpose of this study we use a conservative number of 2.5 hours per event. Actual time of events may vary.

5. Add an analysis of the life-cycle costs of Natural vs Synthetic Grass so we can understand the long-term costs of each (both capital costs & maintenance costs)

Response: See attached Probable Long-Term Costs for both Natural Grass and Synthetic Turf.

6. Add comparison to other relevant projects. Specifically - Nantucket has a synthetic turf field.

Response: I am not familiar with the turf field on Nantucket, and I am not sure what comparison is being requested. I would be happy to discuss this in person with the committee at our meeting on January 23rd.

7. Include information on types and quantities of Fertilizer, Weed Control, and Disease/Pest Control chemicals recommended for Natural Turf maintenance.

Response: We have provided a draft Annual Turf Maintenance Program as part of our December 18, 2018 report. I have attached it here for your records. For specific fertilizer, pesticide and weed control recommendations, including rate and frequency of application, we would have to complete detailed soil testing on your fields. Soil testing requirements are also included in the attached draft Annual Turf Maintenance Program.

8. Amount of H2O recommended for Natural Turf field maintenance.

Response: A standard multi-use athletic field of 360' x 200' requires between 1" to 2" of water per week from May through October. The amount of water is directly related to the type of soil



and drainage system installed in the field. The result is approximately 500,000 gallons of water per year per field. Varying soil conditions may increase the amount of water needed.

9. Specificity on recommended Synthetic Turf and Infill materials

Response: *A specific recommendation was made in our December 18, 2018 report and includes the following manufacturers and products. Please refer to our 12/18/18 report for product information, maintenance recommendations, specifications and MSDS data sheets.*

- 1. Synthetic Turf Products:**
 - a. *Greenfields Woven Turf System – MX Elite*
 - b. *ACT Global Woven Turf System – Extreme Turf WX50*
- 2. Synthetic Turf Underlayment**
 - a. *Brock USA – Power Base YSR Resilient Pad*
- 3. Synthetic Turf infill Material**
 - a. *Brock USA – Brockfill (Organic Infill)*

10. Any additional information on timing/phasing for moving our football field/constructing a track, along with moving the affected softball/other fields, and improvements to current track area/football practice field.

Response: *Depending on the time of year the project breaks ground, you could expect between 6-9 months for construction of all phase one improvements.*

Please feel free to call with any further questions or concerns.

Sincerely;
Huntress Associates, Inc.

Christian C. Huntress
President

Att:

ESTIMATE OF PROBABLE LONG TERM COSTS

Project: Martha's Vineyard Regional High School - Athletic Field Master Plan

Date: February 02, 2019

Project Manager: CCH

Client: Martha's Vineyard Regional High School

By: Huntress Associates, Inc.

Plan Title: **NATURAL GRASS FIELD - 20 YEAR COST ANALYSIS**

17 Tewksbury Street
Andover, MA 01810

ITEM	QUANTITY	UNIT	UNIT COST	TOTAL
NATURAL GRASS FIELD - 20 YEAR COSTS ANALYSIS (Years 1-10)				
NATURAL GRASS FIELD - INSTALLATION				
Natural Grass Field - Subbase & Drainage Construction	98,500	sf	\$1.20	\$118,200.00
Natural Grass Field - Irrigation	98,500	sf	\$0.35	\$34,475.00
Natural Grass Field - Topsoil Installation	3,648	cy	\$24.00	\$87,552.00
Natural Grass Field - Soil Amendments	98,500	sf	\$0.16	\$15,760.00
Natural Grass Field - Slice Seed, Hydroseed & Fertilize	98,500	sf	\$0.19	\$18,715.00
Subtotal				\$ 274,702.00
MAINTENANCE				
Natural Grass Field Maintenance	10	Years	\$25,084.00	\$ 250,840.00
Subtotal				\$ 250,840.00
TOTAL				\$ 525,542.00
FIELD COST PER HOUR				
Field cost by annual use hours (years 1-10)	425	10	4,250	\$ 123.66

ITEM	QUANTITY	UNIT	UNIT COST	TOTAL
NATURAL GRASS FIELD - 20 YEAR COSTS ANALYSIS (years 11-20)				
NATURAL GRASS FIELD - RENOVATION				
Natural Grass Field - 10 Year Renovation	1	allow	\$150,000.00	\$150,000.00
Subtotal				\$ 150,000.00
MAINTENANCE				
Natural Grass Field Maintenance	10	Years	\$ 25,084.00	\$ 250,840.00
Subtotal				\$ 250,840.00
TOTAL				\$ 400,840.00
FIELD COST PER HOUR				
Field cost by annual use hours (years 11-20)	425	10	4,250	\$ 94.32

* Based upon existing use in 2018

* Based upon 2019 costs

ITEM	Hours	Cost/hour	Product Cost	TOTAL
NATURAL GRASS FIELD - ESTIMATED ANNUAL MAINTENANCE COSTS				
Mowing & Trimming (28 cuttings @ 2.25 hours ea)	63	\$42.39	\$0.00	\$2,670.57
Aeration, 5 times per year	40	\$42.39	\$0.00	\$1,695.60
Fertilizer @ 4.9#s N / Year	12	\$42.39	\$2,295.00	\$2,803.68
Soil Amendments	3	\$42.39	\$551.04	\$678.21
Herbicide Applications	3	\$42.39	\$45.32	\$172.49
Pre-emergent	3	\$42.39	\$158.65	\$285.82
Weed Control - spot spray	3	\$42.39	\$40.00	\$167.17
Game Day Prep - Soccer (1.5 hours x 6 games)	9	\$42.39	\$500.00	\$881.51
Game Day Prep - Football (2.5 hours x 6 games)	15	\$42.39	\$750.00	\$1,385.85
Weekly Practice Prep - All Sports (6.0 hours x 28 weeks)	168	\$42.39	\$500.00	\$7,621.52
Overseeding	30	\$42.39	\$1,710.00	\$2,981.70
Insecticide Applications	8	\$42.39	\$623.10	\$962.22
Irrigation (Operation & Repair)	8	\$42.39	\$1,500.00	\$1,839.12
Verti-drain Decompaction	8	\$42.39	\$600.00	\$939.12
TOTAL	373	\$42.39	\$9,273.11	\$25,084.58

* Based upon actual employee cost/hour provided by MVRHS.

ESTIMATE OF PROBABLE LONG TERM COSTS

Project: Martha's Vineyard Regional High School - Athletic Field Master Plan

Date: February 02, 2019

Project Manager: CCH

Client: Martha's Vineyard Regional High School

By: Huntress Associates, Inc.

Plan Title: **SYNTHETIC TURF FIELD - 20 YEAR COST ANALYSIS**

17 Tewksbury Street
Andover, MA 01810

ITEM	QUANTITY	UNIT	UNIT COST	TOTAL
SYNTHETIC TURF FIELD - 20 YEAR COSTS ANALYSIS (Years 1-10)				
SYNTHETIC TURF FIELD - MATERIALS				
Synthetic Turf - Subbase & Drainage Construction	98,500	sf	\$ 3.50	\$ 344,750.00
Synthetic Turf - Provide & Install New Multi-Purpose Synthetic Turf	98,500	sf	\$ 4.50	\$ 443,250.00
Synthetic Turf - Resilient Underlayment	98,500	sf	\$ 1.50	\$ 147,750.00
Synthetic Turf - Alternative Infill	98,500	sf	\$ 0.50	\$ 49,250.00
Subtotal				\$ 985,000.00
MAINTENANCE				
Synthetic Turf Field Maintenance	10	Years	\$ 7,454.28	\$ 74,542.80
Subtotal				\$ 74,542.80
TOTAL				\$ 1,059,542.80
FIELD COST PER HOUR				
Field cost by annual use hours (years 1-10)	1,375	10	13,750	\$ 77.06

ITEM	QUANTITY	UNIT	UNIT COST	TOTAL
SYNTHETIC TURF FIELD - 20 YEAR COSTS ANALYSIS (years 11-20)				
SYNTHETIC TURF FIELD - MATERIALS				
Synthetic Turf - Remove & Dispose of Existing Synthetic Turf	98,500	sf	\$ 0.50	\$ 49,250.00
Synthetic Turf - Provide & Install New Multi-Purpose Synthetic Turf	98,500	sf	\$ 4.50	\$ 443,250.00
Synthetic Turf - Alternative Infill	98,500	sf	\$ 0.50	\$ 49,250.00
Subtotal				\$ 541,750.00
MAINTENANCE				
Synthetic Turf Field Maintenance	10	Years	\$ 7,454.28	\$ 74,542.80
Subtotal				\$ 74,542.80
TOTAL				\$ 616,292.80
FIELD COST PER HOUR				
Field cost by annual use hours (years 11-20)	1,375	10	13,750	\$ 44.82

* Based upon existing use in 2018

* Based upon 2019 costs

ITEM	Hours	Cost/hour	Product Cost	TOTAL
SYNTHETIC TURF FIELD - ESTIMATED ANNUAL MAINTENANCE COSTS				
Field Grooming & Sweeping (16 time @ 2.25 hours ea)	36	\$42.39	\$0.00	\$1,526.04
Topdressing and leveling Infill	16	\$42.39	\$1,000.00	\$1,678.24
Seam repair and warranty issues (no charge for the first eight years)	-	\$0.00	\$500.00	\$500.00
Gmax Impact Testing (one time annually)	-	\$0.00	\$1,250.00	\$1,250.00
Deep Tine Cleaning (two times annually)	-	\$0.00	\$2,500.00	\$2,500.00
TOTAL	52	\$42.39	\$5,250.00	\$7,454.28

* Based upon actual employee cost/hour provided by MVRHS.