

September 28, 2020

VIA EMAIL

Mr. Adam Turner
Martha's Vineyard Commission
PO Box 1447
Oak Bluffs, MA 02557

Re: Martha's Vineyard Regional High School – Athletic Field Improvements
Horsley Witten Group - Peer Review, dated August 13, 2020.

Dear Mr. Turner.

On August 26, 2020 we received correspondence from the MVC's peer review agent, Horsley Witten Group (HWG), dated August 13, 2020, regarding the MVRHS's Application for an amended DRI, as referenced above. I have coordinated our reply with the MVRPS and project team. The following is a listing of HWG's questions and our collective responses.

1. The proposed stormwater management plan generally meets state stormwater standards; however, there are several deficiencies in the drainage report and missed opportunities for innovation (e.g. nitrogen reduction, water reuse, and education). The Stormwater Report (dated January 22, 2020) provides a brief description of the proposed stormwater management approach; summarizes compliance with each of the state stormwater standards; and contains existing and proposed drainage area maps, soils information, peak flow calculations using Hydraflow, and an operations and maintenance plan. Based on our review of the report and the site plans, we have several comments:

- A. The proposed stormwater management system provides no nitrogen load reduction benefit. The site sits on the border between Lagoon Pond Watershed and Sengekontacket Pond Watershed, which have nitrogen impairments and reduction targets. Current and proposed stormwater management at the site relies completely on infiltration via leaching catch basins (existing parking lot) and infiltration chambers (proposed track and field). Without some form of pretreatment, these practices provide no nitrogen removal. Nitrogen removal can be better achieved through vegetative filters (bioretention, tree filters, grassed swales, etc.) and practices that are designed with continuously saturated conditions, such as a wet swale. New landscaped areas being proposed in the reconfigured parking lot and around the buildings, entrance, and walkways may provide opportunities for treatment of runoff prior to infiltration.

Response: (Marchionda Associates, LP.) As noted in the information provided in the response to the review comment #5 (pg. 16), the introduction of a synthetic turf would result in an annual 263.96 lbs. nitrogen load reduction. To further improve nitrogen reduction the three proposed drywells have also been changed to vegetated "bioretention" cells.

- B. Despite the abundance of groundwater, MVC's island plan promotes limiting water consumption where possible (Island Plan Strategy W1-5). Rainwater harvesting and water reuse are not part of the proposed stormwater management system. Given the proposed



irrigation demands for landscaping and the remaining natural grass fields at the school, it may be worth considering options for collecting and storing runoff for non-potable reuse (e.g., convert a section of the recharge chambers into storage tanks, or use cisterns to collect rooftop runoff from the proposed fieldhouse and press box).

Response: Thank you for your suggestion. We will review rainwater harvesting opportunities with our team and the staff at MVRHS and report back at the public hearing.

- C. Students in the area are already involved in various projects to fight climate change, including initiatives to reduce plastic bottle and straw use, and may also be interested in measures to improve water quality. A highly visible surface practice or rainwater harvesting system could become an educational resource for environmental science classes and an educational opportunity for members of the public attending sports events. Students could take ownership of their campus through volunteer maintenance of the plants and the monitoring of practice performance and runoff volume reduction.

Response: Thank you for your suggestion. We will review environmental education opportunities with our team and the staff at MVRHS and report back at the public hearing.

- D. The test pit logs indicated soils and depth to groundwater are suitable for infiltration as proposed by the applicant, and we concur that drainage controls are likely to function as described. There is missing, incorrect, or inconsistent information presented in the Stormwater Report, however, that the Applicant may want to correct for the public record:

- i. Recharge. The applicant has not provided the recharge calculations to satisfy MA Stormwater Management Standard # 3, although we believe the intent of this standard has been met. Other than the location and label shown on Grading and Drainage plan sheet L-2, there is little information provided on the design of the infiltration trench with two Cultech recharge chambers (330XLHD). The applicant should show chamber dimensions, distribution piping, and access ports/observation wells on the layout plan. The applicant should also provide a detail showing surface cover material and depth, bedding material, geotextile fabric (if any), depth of chambers, etc. The applicant should confirm what the bottom elevation of 81.2 shown on plan sheet refers to (i.e. bottom of chamber or stone bedding). In addition, the Applicant should provide sizing calculations for the infiltration chambers.

Response: (Marchionda Associates, LP.) Additional construction details have been included in the plan set on Sheet L3.2. Calculations showing the static storage volumes provided by Infiltration BMP's to the meet the recharge requirements have been added to the revised Stormwater Report.

- ii. Erosion Control. Some erosion control measures are shown on the Site Preparation Plan (SP-1) and details on sheet SP-2. The plan includes locations for inlet protection and silt socks but does not show the location of the construction entrance, tree protection, dewatering area, or erosion control blankets that are



shown on the detail sheet. Stockpiling and staging areas are not shown. No erosion control plan is provided for the soccer field renovation. There is no identification of specific trees that are to be removed, although there is a note about clearing and grubbing within the limit of work.

Response:

1. Construction Vehicle Entrance: *The location of the construction vehicle entrance is shown on sheet SP-1 and is just north of the existing snack hut.*

2. Tree Protection Detail & Tree Removal: *The grading plan was adjusted to reduce the impact to existing vegetation and balance cut/fill volumes. The only trees being removed are the four (4) existing trees in the parking lot landscape islands which are being adjusted to accommodate a new bus drop-off. New trees have been included in the new islands, as shown on sheet L-3 Landscape Plan. We have added a limit of tree protection along the edge of grading to the existing vegetative buffer separating the new 400m track from Edgartown Vineyard Haven Roadway. Please refer to the updated sheet SP-1 for additional detail, attached.*

3. Dewatering and Erosion Control Blanket Details: *These details are included in case they are needed throughout construction. Given the sandy soils, depth of groundwater and gentle grades they may not be required, but we would prefer to keep them as typical details should they be needed at any point during the construction process.*

4. Stockpiling & Staging Areas: *Throughout construction we anticipate that all stockpiling and staging will occur within the limit of the new 400m running track and grandstand, as shown on SP-1. We have added notes clarifying the staging and stockpiling limits to the updated plan. As the project nears completion the staging of new athletic surfacing materials may be stored temporarily within the limits of the renovated parking area for short periods of time.*

5. Erosion Control at Field #2 (Natural Grass Field): *We have added notes that require erosion control at the limit of work for Field #2. Please refer to the updated sheet L-13, attached.*

- iii. Discharges in groundwater/wellhead protection areas. The applicant incorrectly states that the project does not create a discharge within a Zone II area. The proposed recharge chambers are the discharge point, which is allowable per Standard 6.

Response: (Marchionda Associates, LP.) The Stormwater Report has been corrected as noted.

- iv. Long-term O&M. The applicant has not included maintenance of the infiltration chambers as part of the Operations and Maintenance Plan in Appendix 4 of the



stormwater report. To meet Standard 9, the applicant should address chamber maintenance and show the location of clean outs and observation ports in the plan set. In addition, there is no estimated annual maintenance budget for stormwater practices.

Response: (Marchionda Associates, LP.) The infiltration chamber system has been added to project's Operation and Maintenance (O & M) Plan. The O & M Plan has been updated to include an approximate budget for maintenance of the storm water BMP's. The revised construction details for the chambers system includes information on the proposed clean outs and observation ports.

- v. Peak Discharge. The Applicant likely meets Standard 2, however there are some technical issues with the Hydraflow calculations.
- a. The post-development watershed (proposed drainage area) map does not match the Grading and Drainage plan (sheet L-2) provided. Elevations appear to be off >1 ft and the parking lot reconfiguration is not shown. The applicant has stated that the hydrologic calculations are current, however elevations in Hydraflow summaries also do not match elevations in the Grading and Drainage plan. No revised mapping or modeling information was provided that allow us to verify that the modeling has been updated. The Applicant should provide an up-to-date drainage map and Hydraflow calculations.

Response: (Marchionda Associates, LP.) The hydrologic calculations have been updated to match the latest project site plans. The revised report and sub catchment plan also reflect the changes.

- b. The drainage calculations do not include information about the natural grass soccer field. Even though this part of the project does not ultimately change existing grass surfacing, it does involve changing existing grades, the addition of underdrains, and changes to study points/discharge locations. In addition, there is no information provided on the existing "basin" where the soccer field underdrains will discharge, for example, so we are unable to evaluate system capacity or verify the assertion that the proposed conditions would be identical to current conditions.

Response: We have updated the plans to better mimic the existing condition in the proposed design of the natural grass field. We have removed the underdrains and eliminated the change to "study points/discharge locations" by eliminating the overflow pipe to the existing basin. Please refer to updated sheet L-13 Field #2 Grading & Drainage Plan, attached.

The proposed improvements to the natural grass field are now limited to re-establishing the mid-field crown, improving the topsoil composition and adding infiltration trenches at the edges of the field. With the underlying soil conditions being as well drained as they are, we feel we can rely upon infiltration in the



subgrade, as is the case presently. In light of those revisions, we respectfully request a waiver from preparing a full drainage study related to the improvements on Field #2 (Natural Grass).

- c. The project description states that approximately 79,500 sf (approximately 1.82 acres) of new impervious area will be built. Curve number calculations state that the new impervious area will be 4.26 acres. An expanded narrative clarifying which surfaces are considered impervious could help explain conservative modeling and recharge requirements.

Response: (Marchionda Associates, LP.) The stormwater report narrative has been updated with the total impervious coverage area that is depicted on the latest project plans. In an effort to model the field's drainage system in the most conservative method, the field turf area (2.42 acres) was considered as impervious and draining directly to the subsurface system through the panel drains. Not credit was taken for the interaction (infiltration) of stormwater between the gravel subbase and the natural subgrade.

- d. The Time of Concentration calculation for drainage area P-2 includes a Manning's n-value of 0.4 for the sheet flow, which is the value for light underbrush. According to the post development watershed map, drainage area P-2 does not contain any forested or underbrush areas. Applicant should revise this calculation to reflect the site conditions in that area. Additionally, the Time of Concentration calculation for drainage area P-3 (the field), has a sheet flow of 90 ft through forest and underbrush. Over 75% of P-3 is impervious area with immediate access to field drains or catch basins, so HW recommends a shorter time of concentration in this area.

Response: (Marchionda Associates, LP.) As recommended, the time of concentrations for Sub catchments P-2 and P-3 have been revised. These changes are reflected in the revised Stormwater report.

- e. The applicant should confirm outflows from hydrographs #7 and #6 are correctly accounted for in Hydrograph #8 (i.e., the curves could be overlapping and difficult to see or it is not correctly modeling inflow).

Response: (Marchionda Associates, LP.) We can confirm that in the original Stormwater Report Hydrograph #8 (Flow to Chambers) was the combined flow of the Hydrograph #6 (Sub catchment P-4) and Hydrograph #7 (Field Outflow). In the revised report the original Hydrograph #8 is now referred to as Hydrograph #9 and Hydrographs #6 and #7 are now Hydrographs #6 and #8 respectively.

- f. The Pond Report for Pond 2 (chamber system) shows a total discharge of 0 cfs between stages 1.85 ft and 2.4 ft (approx.). The applicant should explain how this is possible.



Response: (Marchionda Associates, LP.) The zero-discharge issue has been corrected in the revised Stormwater Report.

- g. The applicant used an exfiltration rate of 8.24 in/hr for both Pond 1 and 2. While we do not believe this will make a significant difference, the standard exfiltration rate for sand is 8.27 in/hr. For Pond 1 (the field), infiltrating stormwater must pass through the turf system and filter fabric, making an exfiltration rate of 8.24 in/hr unlikely.

Response: (Marchionda Associates, LP.) The exfiltration rate for sand has been corrected to 8.27 in/hr in the revised Stormwater Report. As stated in response to Comment 1.D.v.b., the field turf surface was considered as impervious in the modelling with direct conveyance to the field's drainage system. It is our understanding that Field Turf porosity is typically around 20 in/hr and would drain rapidly to the subbase and panel drains.

- E. The system is designed to back up into the field under higher rainfall. Due to inconsistencies between Hydraflow and the grading & drainage plan, we cannot confirm the estimated levels of ponding. Can the applicant confirm that there will be no issues with floating of the pine infill product? In addition, the applicant should confirm that the synthetic field drainage is sufficient to prevent freezing in the winter.

Response:

1. Brock Fill Infill Material: *The following response was provided by Mr. Tom Murphy, Ph.D. Senior Materials Engineer - Brock USA, LLC*

Regarding the floating/buoyancy: Once BrockFILL is fully saturated with water, it is denser than water and will sink (there may be a few small pieces of bark that are lower-density than the wood itself and may float, but this is a tiny percentage of the material). Saturation happens quickly, since BrockFILL readily absorbs water and has a small particle size. We have done experiments to demonstrate the rapid water uptake and to compare the floating behavior to rubber. Even rubber, which itself is denser than water, will float due to air bubbles trapped on the surface of the particles. BrockFILL will be better in terms of floating/migration than most other alternative infills (cork, for instance) and likely better, or at least not any worse, than other common infills like rubber. The anecdotal reports from BrockFILL field owners after storms have all said that floating/migration has not been an issue, and we have done 70+ BrockFILL fields to date.

2. Freezing Conditions: *The drainage capacity of the synthetic turf system (Turf, Infill & Pad) and the dynamic stone used in the 12" subbase is typically in excess of 20" per hour. Although the proposed organic infill, BrockFILL, may freeze during extremely cold conditions, similar to a natural grass system, the benefit of a free draining subbase and the thaw condition provided by natural sunlight will help keep the field in playable condition throughout the year.*



2. Insufficient data exists to definitively conclude that there are/are not impacts to human health or the environmental from the Greenfields MX Elite Woven Synthetic Turf Carpet, Brock YSR Shock Pad and Brock BrockFill Organic Infill. A more detailed report of our review of the readily available analytical information is attached. Based on our review, we recommend:

- A.1 In addition to the testing and evaluation proposed by Cooperstown Environmental, Total Oxidizable Precursor Assay (TOP) and Total extractable organofluorine (TEO) analysis should be conducted.

Response: We have engaged Cooperstown Environmental, a licensed and registered LSP firm in the Commonwealth of Massachusetts, to identify a scope of services to accurately and correctly test the synthetic turf, resilient underlayment (shock pad), and organic infill for the impact to human health via exposure to the turf system from inhalation, ingestion, and direct (dermal) contact as well as for the potential impact on groundwater quality from the turf. The proposed scope of work includes the following product tests:

SCOPE OF SERVICES

Task 1 – Develop Acceptance Testing Protocols and Guideline Values

We propose to develop acceptance testing protocols and guideline values for the impact to human health via exposure to the turf system from inhalation, ingestion, and direct (dermal) contact as well as for the potential impact on groundwater quality from the turf. Guideline values for human exposure will be developed with reference to standards issued by the United States Environmental Protection Agency (EPA), the Massachusetts Department of Environmental Protection (DEP), the Massachusetts Contingency Plan (MCP), or other recognized standards. The acceptance testing protocols, and guideline values will be developed for total and leachable metals (MCP 14 metals and hexavalent chromium), total and leachable polycyclic aromatic hydrocarbons (PAHs), and total and leachable PFAS.

Task 2 – Laboratory Testing of Synthetic Turf Components

We will oversee laboratory testing of the three components of the turf system (carpet, shock pad, and infill). Specifically, we will request the manufacturers direct-ship virgin product samples to Alpha Analytical Laboratory (Alpha) of Westborough, MA using chain-of-custody protocols as follows

Greenfields MX Elite Woven Synthetic Turf Carpet (1 square foot)

Brock YSR Shock Pad (1 square foot)

Brock BrockFill Organic Infill (1 kilogram)

Under contract to Cooperstown, we will request that Alpha analyze each sample as follows:



1. Total MCP 14 metals and hexavalent chromium using EPA Methods 6020B, 7471B, and 7196A.
2. Leachable MCP 14 metals and hexavalent chromium using EPA Methods 1311, 6020B, 7471B, and 7196A.
3. Total PAHs using EPA Method 8270D-SIM (where possible, dependent on whether the sample can be dissolved by the extraction process);
4. Leachable PAHs using EPA Methods 1311 and 8270D;
5. Total PFAS (24 compounds) by EPA Method 537M (where possible, dependent on whether the sample can be dissolved by the extraction process); and Leachable PFAS (24 compounds) by EPA Methods 1312 and 537M.

The laboratory analyses will be requested for a standard turnaround time of 10 business days, however, because PFAS analyses are sometimes delayed due to high demand at the lab, this time is not guaranteed.

Task 3 – Baseline Testing of Soil and Groundwater

Baseline testing of current conditions at the field site including both soil and groundwater quality would be useful for identifying existing levels of potential contaminants in soil and groundwater so that future risks to human health and groundwater quality may be assessed and measured over time in order to quantify impacts of the turf. This testing should be completed prior to construction. Following standard MassDEP sampling protocols, we will collect four surficial (0-1 foot depth) grab soil samples from the area where the field will be installed and analyze each sample for:

1. Total MCP 14 metals and hexavalent chromium using EPA Methods 6020B, 7471B, and 7196A;
2. Total PAHs using EPA Method 8270D-SIM; and
3. Total PFAS (24 compounds) by EPA Method 537M.

As a cost-saving measure, we could collect the four grab samples and composite them into one laboratory sample. We will utilize the existing monitoring well at the site and collect a sample of groundwater using low flow sampling protocols and analyze the sample for:

4. Dissolved MCP 14 metals and hexavalent chromium using EPA Methods 6020B, 7471B, and
5. 7196A; Total PAHs using EPA Method 8270D-SIM; and Nitrates using EPA Method 353.2.



6. *All samples would be analyzed by Alpha using standard turnaround time of 1-2 weeks.*

Task 4 – Risk Characterization

Cooperstown will compare the laboratory analytical results for the product samples and soil and groundwater samples to the risk-based guideline values developed in Task 1 to assess the potential risks under both current and proposed conditions to human health and the groundwater resource.

Task 5 – Report

Cooperstown will produce a summary report describing the work conducted, the analytical data, the results of the risk characterization, and recommended next steps, if any.

Huntress Associates and MVRPS take the issues of human health and environmental protection very seriously. We, like you, want to ensure that the materials meet widely recognized environmental testing standards before including them in the project specifications.

The scope of work proposed by Cooperstown Environmental LLC was based on the standards found in California Proposition 65 and the EPA 537 testing protocols, both of which are significantly more stringent than the standards required by the Massachusetts DEP.

The Total Oxidizable Precursor Assay (TOP) and Total Extractable Organofluorine (TEO) analysis (also known as Total Organofluorines or TOF), as requested by HWG, are not presently used by Massachusetts DEP, California Prop 65, or EPA 537 in determining the presence of PFAS or other chemicals as outlined above. It is for this reason that we object to including those tests in the scope of work for this project.

- A.2 It is possible that wood infill could also be a source of nitrogen. Depending on the total volume of infill expected to be used, testing BrockFill for soluble nitrogen may be informative.

Response: The following response was provided by Mr. Tom Murphy, Ph.D. Senior Materials Engineer - Brock USA, LLC

“The only nitrogen-related concerns I’ve ever come across were related to what would happen when disposing of BrockFILL. Wood chips themselves don’t contain much nitrogen, so the microorganisms that decompose wood will temporarily scavenge nitrogen from the soil (since the wood doesn’t have enough nitrogen) as they break down the wood, giving it back to the soil after those organisms die off. Questions like this are often asked about using wood as mulch or in compost piles, but the concern is never that the wood will add nitrogen to the soil – it is the opposite (at least in the short term). I have never heard any concerns about wood chips themselves being a significant nitrogen source, so we have not done any testing for this.



- A.3 The applicant is proposing to include product testing as part of the construction contract. Earlier testing results may be more useful to the school and permitting authorities.

Response: We have no objection to earlier product testing as outlined in the testing scope provided by Cooperstown Environmental, dated May 22, 2020, and as otherwise outlined in our response above.

- B. If the project is approved, we recommend adding a condition to the approval requiring the owner to conduct effluent monitoring within the field's subsurface drainage system (in the inlet structures to the infiltration chamber, for example). In this case, a monitoring plan should be developed that includes locations and designs for sample collection and analysis.

Response: We have no objection to effluent monitoring within the field's subsurface drainage system. We have added a 2' sump to the Drain Manholes (DMH #5 & DMH #6) to serve as collection points for the subsurface system. Refer to the updated Detail #5, sheet L-8 for additional detail.

- C. Crumb rubber is often the source of microplastic contamination from synthetic fields reported in the literature and that product is not being proposed. Some information was found estimating microplastic generation from the deterioration of synthetic carpets, but not necessarily the specific Greenfields product being proposed. Additional testing of the carpet product would be needed to evaluate fraying and rate of deterioration. Arguably, older installations exposed to longer periods of UV and stress would be more prone to deterioration than newer installations. There is emerging evidence that microplastics have been found in bedrock aquifers suggesting mobility in groundwater. There is emerging evidence that microplastics have been found in bedrock aquifers suggesting mobility in groundwater. Consideration should be given to filtering alternatives to trap inevitable microplastics and minimize dispersal of particulates into the environment. The applicant could consider the addition of a filter insert (i.e., 0.45 micron filter cartridge) in the track channel drain at the edge of the field or at other key junctions in the drainage system to capture loose particles from runoff and, to some degree, wind. Plastic fragments collected in the filters could be removed during annual maintenance and properly disposed.

Response: We have reviewed the proposed 400m track trench drain detail provided by HWG's 8/13 letter and have no objection to the use of Sportfix®Clean drainage system and channel filter as manufactured by Hauraton for use on the MVRHS 400m Track project. We agree that the 0.45-micron filter sock at the edge of the track surface will provide a benefit to the project. The project specifications will be amended to include the above referenced product as the pre-approved trench drain system.

3. The maintenance practices recommended by the manufacturer for the synthetic field are more extensive than the maintenance program proposed in the Huntress Q&A dated April 3, 2020. Neither maintenance plan includes specific disinfection procedures to prevent COVID-19. In the Q&A dated April 3, 2020, the applicant's maintenance plan for the synthetic turf field includes weekly inspections and monthly brushing/grooming and disinfecting. However, the



manufacturer’s guidance provided in the master plan indicate that even with low use, the synthetic field requires weekly infill refill and releveling with total surface brushing every two weeks (at a minimum). It is conceivable that during heavy use periods, field inspection and maintenance may be required more frequently. The applicant should:

- A. Confirm the frequency of maintenance activities and ensure the budget estimates are consistent with those activities. The applicant has provided a 10 and a 20-year Estimate of Probable Long-Term Costs for the synthetic field (included in Master Plan, page 85), which includes estimated maintenance costs of \$7,454.28 per year. The annual budget assumes 36 hours of field grooming and sweeping; 16 hours of topdressing and leveling infill; and lump sum costs for seam repair, Gmax testing and Deep Tine Cleaning two times/yr.

Response: The following are the estimated costs for maintaining a competition synthetic turf athletic field for high school sports, similar to the proposed Stadium Field, at MVRHS.

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.

The above costs represent an annual field grooming cycle from March through November (9 months) during which time the field is groomed and swept on average every 2-3 weeks, depending on use. The costs also include 16 hours annually for topdressing and leveling low spots that can occur at the goal areas. This effort is typically done by hand and takes one individual approximately 15-20 minutes to complete.

- B. Ensure that the maintenance budget includes not only routine maintenance, but also line items for comprehensive (annual) and special maintenance (field markings, stain removal, spills, vehicle protection), as well as maintenance of the drainage infrastructure.

Response: The maintenance budget outlined above includes routine maintenance. In conversations with the MVRHS athletic and facilities staff we would expect all sports lining to be permanently inlaid, and not require annual maintenance. Stain removal, spills and vehicle protection are not regularly occurring tasks, and would be covered during the training program provided by the synthetic turf manufacturer. Those items would typically be handled on an as-needed basis by in-house staff and are included in the 2.25 hours allocated to field grooming and sweeping.

- C. Provide a more detailed disinfection plan to account for COVID19 and other viruses. A review of industry-based disinfection guidelines suggests spraying a disinfectant (products based on manufacturers recommendations) on the field after each use. The disinfection plan should include proposed products (such as mPerial), equipment needed, and



application frequency in order to better evaluate the cost implications and any potential for groundwater contamination from active ingredients.

Response: Recommended disinfectant plans for youth sports, school and recreational facilities should follow the recommended guidelines established by the Center for Disease Control (CDC). According to the CDC website “There is little evidence that large-scale use (e.g., spraying or fogging rooms or surfaces) of disinfectants will prevent...infections more effectively than a more targeted approach of cleaning frequently-touched surfaces.”¹ The CDC goes further by also recommending that schools “prioritize outdoor, as opposed to indoor, practice and play as much as possible.”²

Additionally, the chemical product mPerial, as recommended by HWG, is a concentrated and highly dilutable detergent, disinfectant and sanitizer specifically formulated for use on hard, common, non-porous surfaces. Although this chemical product is effective at containing infection and eliminating multiple viruses, it also raises concerns regarding groundwater contamination and unknown long-term impacts to the Lagoon Pond and Sengekontacket Pond Watersheds.

HAI is encouraging our clients to continue to follow the recommendations of the CDC for disinfecting all school facilities, including athletic fields, running tracks, tennis courts and playgrounds. Specifically, the CDC recommends schools and youth sports organizations consider implementing several strategies to maintain healthy operations, as outlined below.

- **Cleaning and Disinfection**
 - *Clean and disinfect frequently touched surfaces on the field, court, or play surface (e.g., drinking fountains) at least daily, or between uses as much as possible. Use of shared objects and equipment (e.g., balls, bats, gymnastics equipment) should be limited, or cleaned between use by each individual if possible.*
- **Shared Objects**
 - *Discourage sharing of items that are difficult to clean, sanitize, or disinfect. Do not let players share towels, clothing, or other items they use to wipe their faces or hands.*
 - *Make sure there are adequate supplies of shared items to minimize sharing of equipment to the extent possible (e.g., protective gear, balls, bats, water bottles); otherwise, limit use of supplies and equipment to one group of players at a time and clean and disinfect between use.*
 - *Keep each player’s belongings separated from others’ and in individually labeled containers, bags, or areas.*
- **Modified Layouts and Social (Physical) Distancing**

¹ <https://www.cdc.gov/mrsa/community/environment/athletic-facilities.html>

² <https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/youth-sports.html#environments>



- *Identify adult staff members or volunteers to help maintain social distancing among youth, coaches, umpires/referees, and spectators (if state and local directives allow for spectators).*
- *Space players at least 6 feet apart on the field while participating in the sport (e.g., during warmup, skill building activities, simulation drills)*
- *Discourage unnecessary physical contact, such as high fives, handshakes, fist bumps, or hugs.*
- *Prioritize outdoor, as opposed to indoor, practice and play as much as possible.*
- *Create distance between players when explaining drills or the rules of the game.*
- *If keeping physical distance is difficult with players in competition or group practice, consider relying on individual skill work and drills.*
- **Physical Barriers and Guides**
 - *Provide physical guides, such as signs and tape on floors or playing fields, to make sure that coaches and players remain at least 6 feet apart.*
- **Communal Spaces**
 - *Close shared spaces such as locker rooms, if possible; otherwise, stagger use and clean and disinfect between use.*
 - *Limit the number of players sitting in confined player seating areas (e.g., players benches) by allowing players to spread out into spectator areas if more space is available (e.g., if spectators are not allowed).*

The above information is a sample of the facility recommendations provided by the CDC. Additional information may be found at:

<https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/youth-sports.html#environments>

- D. Confirm that the proposed maintenance plan and long-term cost estimate are sufficient to maintain a safe, quality field and can be implemented within the school's annual facility's budget.

Response: In my professional opinion, the proposed maintenance plan and long-term estimates are sufficient to maintain a safe, high quality field. The reduced costs associated with maintaining a synthetic turf field make the plan attainable within the school's existing annual field facility budget.

- E. The maintenance budget for Phase I should include estimates for maintaining the natural grass soccer field and underdrain.

Response: The following are the estimated costs for maintaining a competition natural grass athletic field for high school sports, similar to the proposed Field #2, at MVRHS.



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 @ 3.0#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.

4. There is currently no facility that can provide a practical alternative for end-of-life recycling. While the Greenfields promotional materials claim that the USA MX Elite Woven synthetic turf carpet is fully recyclable, the applicant has not demonstrated the practicality of recycling the materials that are proposed at MVRHS. Objective 4 of the Master Plan is to “Draft a specification that requires end-of-life recycling, including chain of custody certification for all products” (page 16), but only presents a single option for recycling facility to be operated by ReMatch Turf Recycling in Pennsylvania. HW was unable to confirm that this facility will be open in the next few years or confirm the availability of any other such accessible recycling plant. This does not preclude the opening of a facility in the next 7-10 years, which is the likely life span, depending on several factors. If there are other options for recycling or reuse, the applicant should provide alternative plans or more evidence of successful synthetic field recycling in the area.

Response: My office has previously provided documentation to the MVC regarding the projects requirements for recycling and outlining Greenfields USA and Tencate’s ability to reclaim and recycle the synthetic turf proposed at Martha’s Vineyard High School. Please refer to the following attached documents regarding discussions, commitments and specifications for end-of-life reclamation and recycling available to this project.

- 1. Letter to Adam Turner from Joe Fields, President of Tencate Grass Americas (dba Greenfields USA), dated and sent February 4, 2020.*
- 2. Tencate Press Release dated July 14, 2020 confirming that the construction of their synthetic turf recycling facility is complete, and the machines are running.*
- 3. Email to Alex Elvin, MVC General Planner, dated 7/16/20 with attachments of both the 2/4/20 letter from Joe field and the 7/14/20 press release referenced above.*
- 4. Section 32 18 23.29 Synthetic Field Sports Surfacing specification dated July 30, 2020 and prepared by Huntress Associates, Inc. This document was previously provided to the MVC and HWG on July 27, 2020 with regard to questions raised in their initial review process. Please refer specifically to paragraph 1.06A(1)m for requirements related to the*



turf product lifetime recycle/reuse program and requirements that all materials must be able to be cradle-to-cradle certified and demonstrate 100% closed loop recyclability.

5. *Finally, please refer to Section 4 of the above referenced synthetic turf specification which outline the end-of-life requirements of the selected turf manufacturer. I have copied the information below for your convenience:*

PART 4 – REMOVAL & RECYCLING

4.01 GENERAL

- A. *The Synthetic Turf System Vendor shall be responsible to remove, reclaim and recycle the synthetic turf system at the end of its useful life at no additional cost to the owner. The Synthetic Turf System Vendor shall provide a signed affidavit at the time of bid that, at the end of the synthetic turf system’s useful life, 100% of the turf product will be removed, reclaimed and recycled as outlined below.*
- B. *The Synthetic Turf System Vendor must provide documentation outlining their product lifetime recycle / reuse program. All material must be able to be cradle-to-cradle certified and demonstrate 100% closed loop recyclability, **recycling for energy not acceptable.***
- C. *Prior to final acceptance of the synthetic turf field, the Synthetic Turf System Vendor shall set up an Escrow-Secured Guarantee by placing \$50,000 into an Escrow Account at an FDIC insured institution, the account to be held jointly by the Owner and the Synthetic Turf Manufacturer-Installer. All funds in the account shall be released by the Owner to the Manufacturer-Installer (at the recommendation of the Architect) upon the successful recycling of the turf at the end of its useful life, per the provisions outlined herein. Should the Manufacturer be unable for any reason to recycle the turf field as per the provisions of the specifications, the Owner shall be entitled to the funds, including interest, for the purpose or recycling the turf properly by other means and other parties.*
- D. *All removal and recycling operations shall be performed by personnel fully familiar with the materials and their application, under the full-time direction and supervision of a qualified technical supervisor employed by the Vendor of the Infilled Synthetic Turf System. Installation supervisors shall have a minimum of 3 years of experience.*
- E. *The removal, reclamation and recycling process shall include the following:*
1. *No less than 95% of infill is extracted from synthetic turf.*
 2. *Synthetic turf is cut, rolled tightly and secured.*
 3. *Synthetic turf rolls are steel banded and stacked into containers.*
 4. *Synthetic Turf Vendor will maintain chain-of-custody, including the following information:*



- a. *Project Name and site location.*
- b. *Serial number of all containers.*
- c. *Synthetic Turf System Vendor will be responsible for the cost to transport all containers to and from the project site, as well as freight to the selected synthetic turf recycling facility.*
- d. *Synthetic Turf System Vendor shall provide to the Owner documentation pertaining to the date all containers arrive and depart from site, Date of arrival at turf recycling facility, and Date of final processing into post-consumer products.*
- e. *Issuance of Certificate of Compliance Once synthetic turf has been received and processed, a Certificate of Compliance will be issued with reference to job name, site location, date turf products left the site, serial number of container, date received at plant and date processed into post-consumer products. Synthetic Turf System Vendor will be responsible for confirming 100% of the synthetic turf was recycled into post-consumer products.*

5. The proposed fertilization plan for the renovated soccer field (and other natural turf fields) will likely result in an increase in nutrients applied to the grass fields but meets criteria of the local regulations. The Applicant has provided a fertilization program for the natural grass fields that recommends an application of nitrogen at a rate of 2.84 lbs per 1000 square feet. Oak Bluffs regulations limit nitrogen application to 3 lbs per 1000 square feet per year. The applicant could provide a nitrogen budget comparing current vs. proposed nitrogen load applications on the site in order to claim some nitrogen reduction benefit by the conversion of one natural field to synthetic turf. Current fertilization efforts at MVRHS, however, are likely less than the proposed application rate and frequency.

Response: As stated in our July 27, 2020 response to HWG, we reviewed the existing fertilization schedule with Mike Taus, Facilities Director at MVRHS, as we drafted our recommended turf maintenance guidelines. Mr. Taus verified that MVRHS was in compliance with the Oak Bluffs Board of Health Regulations for application of fertilizer (SECTION 21.0) and confirmed that cumulative applications of Fertilizer did not exceed 3.0 pounds of nitrogen per 1000 square feet of Turf per year.

Based on the question raised above, we confirmed with Mr. Taus on August 28, 2020 that the existing Field #2, the Bus Lot Field, presently receives approximately 3 lbs of nitrogen per 1000 square feet annually, as allowed in the MVC/OB fertilizer Regulations. The continued application of 3 lbs of nitrogen per 1000 sf on the renovated natural grass field will not result in an overall increase in nutrients applied to the site. MVRHS presently uses Sports Turf Specialties, Inc out of Wrentham, Massachusetts to apply fertilizer and nutrients to the high school campus. We have



confirmed with STS that their equipment is calibrated to account for the limits imposed by the MVC/OB Fertilizer Regulations.

As also suggested by HWG, we have prepared an analysis to better understand both the anticipated nutrient load and the irrigation demand when comparing a natural grass and synthetic turf surface of the same size at MVRHS. As shown in the table below, the introduction of a synthetic turf surface within the 400m track infield would result in the reduction of 1036.72 lbs of fertilizer, 263.96 lbs of nitrogen and save approximately 1.18 million gallons of water annually. The calculations below mirror the maintenance requirements proposed in our annual Turf Maintenance Program submitted under separate cover and are compliant with the MVC/OB Fertilization Regulations.

MVRHS - Athletic Field Fertilization Rates & Water Usage					
MVRHS - Athletic Field	Field Size (sf)	N-P-K	N Rate	Total Lbs Nitrogen	Total Lbs Fertilizer
Multi-purpose Synthetic Turf Field (One Field)	105,252	n/a	n/a	0	0
Fertilizer Rates (If Natural Grass)*					
	Field Size (sf)	N-P-K**	N Rate	Total Lbs Nitrogen	Total Lbs Fertilizer
Early Spring (April 15 - June 1)	105,252	30-0-4	0.75 lbs/1000sf	78.94	263.13
Late Spring (May 15 - June 15)	105,252	28-0-3	0.50 lbs/1000sf	53.04	189.45
Late Summer (August 25 - September 20)	105,252	20-0-8	0.75 lbs/1000sf	78.94	394.69
Fall (October 15 - November 15)	105,252	28-0-6	0.50 lbs/1000sf	53.04	189.45
Annual Total			2.5 lbs/1000sf	263.96	1036.72
* Conforms to the MVC/OB Fertilizer Regulations					
** N-P-K value could change based upon actual soil test results. Refer to annual maintenance plan for details.					
Water Usage Analysis (If Natural Grass)***					
	Field Size (sf)	H2O/week	H2O gal/sf	H2O gal/week	H2O gal/year
Multi-purpose Synthetic Turf Field (One Field)	105,252	1.0 inch	0.623	65,572	1,180,295.93
*** Assumes 18 weeks of watering					

6. Additional information is needed to confirm that noise and lighting meeting the environmental performance standards of the Town of Oak Bluffs Zoning By-Laws.

- A. We were unable to find information on the expected noise levels associated with the new field. Presumably, by installing a new track and synthetic field, the existing track and field adjacent to the residential area on the western part of the property will be used less frequently (or abandoned) and noise will decrease at that location. However, because the applicant has not provided specific information about the additional noise levels associated with the new field sound system, larger grandstand, etc. we are unable to confirm this is the case. A sound system layout plan is provided on sheet L-8 of the plan set.

Response: According to Mark McCarthy, MVRHS Athletic Director, the present varsity game field adjacent to Edgartown-Vineyard Haven Road has a sound system that is currently used for both game and practice events. No noise complaints have been made regarding use of the existing sound system. The new proposed sound system will be similar in amperage, and include pairs of speakers that can be individually controlled to



allow the operator to reduce volume or shut down pairs of speakers to help control the sound levels in any given direction, at any time. The system is also equipped with pre-set limit on volume controls. These volume limits can be set by the MVRPS staff and cannot be overridden in the field without staff permission.

HWG is also correct that moving the 400m track to be adjacent to Edgartown-Vineyard Haven Road will reduce noise impact to the most sensitive residential abutters in the adjacent Deer Run neighborhoods.

- B. Replacing the existing field lighting system with a more efficient system will provide some energy conservation benefit, but a comparison of current and proposed electrical use was not provided. The applicant should provide additional information on the lighting design, including lighting control system. While outdoor sports lighting is counter to some of the principles of dark sky friendly lighting, the International Dark Sky Association (IDA) has created a Community Friendly Sports Lighting Program with guidelines for minimizing impact, and the applicant states the lighting plan is in compliance with these guidelines. HW recommends the applicant apply for certification from the IDA to ensure compliance throughout the design and construction process. The certification consists of two phases, a review of plans (costing \$1,000) and a field verification once construction is complete (costing \$3,000).

Response:

- 1. **Cost of Ownership:** Attached you will find the cost of ownership evaluation prepared by Musco Sports Lighting. This analysis is specific to the energy consumption for the existing sports lighting at the MVRHS game field and shows an anticipated savings of \$119,760 over the specified 25-year warranty period. The conversion to LED sports lighting at MVRHS also has the added benefit of reducing CO2 emissions by 98 tons over the same period. That is the equivalent of taking 21 cars off the road for one year.*
- 2. **Lighting Design & Lighting Control System.** Please refer to the attached lighting design and lighting control system information provided by Musco Sports Lighting.*
- 3. **IDA Community Friendly Sports Lighting Program.** As you are aware, the proposed sports lighting system is being designed and manufactured by Musco Sports Lighting. Musco has reviewed the plans, details and specifications and certified to the MVRPS that the system is compliant with IDA Community Friendly Sports Lighting Standards. Although we are confident in Musco's certification that the IDA standards have been met, the MVRPS is willing to formally submit the system to IDA, and incur the additional \$4,000.00 expense, if requested by the MVC or OBPB to do so.*

- C. Also, the lighting plan shown on page 24 of the Q&A between Huntress and HW shows lumens extending beyond the track perimeter and limit of work. The applicant should confirm that the increased lumens anticipated at the boundary with the Edgartown-Vineyard Haven Road will not have any adverse effects on traffic or pedestrians.



Response: The plan referenced above is the Zero Grid Photometric Analysis prepared by Musco Sports Lighting, dated July 23, 2020. This plan shows the anticipated “worst case” limits of foot-candle readings on the ground plane but does not take into account vertical elements that would exist above the ground plane, such as vegetation or buildings. The readings shown to project into Edgartown-Vineyard haven road in a worst-case scenario range from 0.1 to 0.4 foot-candles. These readings would not have adverse effect on vehicles or pedestrians and would likely be much lower given the significant vegetative buffer that exists between the proposed field and the property line.

7. The proposed short-term wastewater management is feasible, but not an ideal or sustainable long-term solution. The applicant is proposing 21 new toilets generating a total of 83,211 gallons/year to replace 5 permanent and 3 portable toilets that are currently on site. The Oak Bluffs Wastewater Treatment Facility does not have capacity to handle the flow at this time, the applicant proposes to store sewage in a 18,000 gallon tight tank that will be pumped on average every 30 days for 9 months of the year and hauled to the Edgartown Wastewater Treatment Facility. The applicant provided calculations for an annual wastewater flow and the tight tank design, which would be used until capacity is available at the Oak Bluffs Wastewater Treatment Plant. The annual wastewater calculation showed the flow for the Fall and Spring events and the average flow per month to the tight tank, which indicated that the tight tank may need to be pumped more frequent in the Fall than the Spring. While this information may be sufficient for the current stage of the application, the applicant will ultimately need to provide an average daily flow in gallons per day for the future sewer connection to Oak Bluffs sewer system. Additional comments (comments provide by F.P Lee, PE) about the tight tank design include:

Response: Due to the cost of effluent pumping the applicant has elected not to construct the building until such time as it can be serviced by an approved wastewater connection. We would respectfully request that the MVC continue to review the building as part of this application and include a condition in any DRI approval that requires a connection to the municipal system, or other such system as approved by the Oak Bluffs Board of Health, prior to issuance of a building permit.

Further, we have confirmed with Mike Ciancio, Oak Bluffs Plumbing Inspector, that no additional plumbing review will be required if the proposed seating capacity does not exceed the existing seating at the present varsity game field. Spectators will continue to use the existing facilities in the High School and two (2) additional port-potties, as they do today. The size of the proposed grandstand will be reduced to match the existing seats at the current field. We will be resubmitting the grandstand plans and details at a future date, under separate cover.

- A. Applicant has not provided calculations for daily peak wastewater flow during the spring and fall seasons, nor the calculation for frequency of pumping during those seasons. The average monthly flow (9,245 gallons/month) includes the winter months, when usage would likely be much lower. Therefore, pumping every 30 days is not reasonable for the busier seasons of fall and spring. Applicant should provide those materials for further review. *Response: Please refer to our response to item #7, above.*



- B. Applicant has not provided information on the party responsible for tight tank operation. *Response: Please refer to our response to item #7, above.*
- C. The discharge pipe should be at least 3-inch in diameter to handle any solid passing through. *Response: Please refer to our response to item #7, above.*
- D. The discharge pipe inside the pump chamber (or wetwell) and vault should be ductile iron pipe and fittings. If this setup is for a short period of time, schedule 80 PVC is acceptable. *Response: Please refer to our response to item #7, above.*
- E. A valve vault should be provided to isolate each pump. No operator will enter to pump chamber (or wetwell) to make any valve adjustment. *Response: Please refer to our response to item #7, above.*
- F. The wetwell and tight tank are classified as Class 1 Division 1. *Response: Please refer to our response to item #7, above.*
- G. The float switches in wetwell and tight tank should be connected to junction boxes aboveground with proper electrical seal on all conduits from wetwell and tight tank. There is a seal wye showed on the pump chamber. *Response: Please refer to our response to item #7, above.*

8. Even though proposed landscaping is not integrated with stormwater management, it does showcase native species and offers an opportunity for replanting of species that may be cleared from the site in the future. The landscape plan includes new plantings around the perimeter of the new track, landscaped areas at the entrance to the field and track, and trees in the new islands within the parking lot. Several comments are provided below and on attached annotated PDF (comments from Brian Laverriere):

- A. It appears that the cluster of trees proposed along the southern edge of the field are in close proximity to the proposed recharge chambers. The applicant should confirm that sufficient distance from the infiltration trench/recharge chambers is maintained.

Response: We have updated the plant list to include the suggestions noted above. Please refer to updated sheet L-3 Landscape Plan, attached.

- B. Consider planting additional tree and shrub species that are likely to be cleared from the site during future phases of the master plan.

Response: The applicant is not proposing any work beyond that shown on the record plans entitled "Athletic Field Improvements – Phase One" by Huntress Associates, Inc, dated January 22, 2020 and revised May 18, 2020. Should work in that area be considered in the future we would expect to comply with the regulations and procedures in place at that time.

- C. Consider planting more vegetation to create a better buffer between the site and the



Edgartown-Vineyard Haven Road.

Response: We have updated the plant list to include the suggestions noted above. Please refer to updated sheet L-3 Landscape Plan, attached.

- D. Maples are used in several locations, including adjacent to the entrance area and in the islands within the parking lot. Maples have a relatively shallow root system and when planted next to paved areas may cause heaving over time. Nyssa, Liquidambar or Bur Oak may be a good substitute.

Response: We have updated the plant list to include the suggestions noted above. Please refer to updated sheet L-3 Landscape Plan, attached.

- E. One of the grasses proposed is Miscanthus, which has invasive tendencies. HW recommends using Muhlenbergia instead, which is native. In addition to Miscanthus, the applicant proposed three other non-native grasses. HW recommends the applicant replace these grasses with native species. These plantings are also very public and are an opportunity to expose students and visitors alike to native species.

Response: We have updated the plant list to include the suggestions noted above. Please refer to updated sheet L-3 Landscape Plan, attached.

- F. Provide an estimated budget for landscape maintenance.

Response: The estimated budget for maintaining the landscape planting areas shown on sheet L-3, details #2, #3 & #4 would range from \$6500-\$7500 in total, annually. As these are highly visible locations the MVRHS should consider engaging the business community in adopting the care of these spaces in exchange for small and simple signage acknowledging the contribution. We have found other clients to have considerable success using this model on high visibility locations.

9. Several options in the master plan require clearing of mature forest in the southeast corner of the site, which is within BioMap 2 Core Habitat. This area was identified in 2008 as priority habitat by NHESP but was subsequently excluded during the 2017 update when the area was aligned with the property boundary. The southwest corner of the athletic field complex is now part of the Core Habitat for species of conservation concern (Figure 1). If this area is to be considered for clearing, we recommend the applicant conduct a more thorough inventory of the species present and the number of trees that will be removed. It is unclear if development of this portion of the site will conflict with open space requirements for the property as a whole, or if mitigation could be offered. This area is part of the forested corridor connecting critical habitats on the north and south side of the road. Further clearing will add to fragmentation issues, habitat loss, and increased invasive species.

Response: The area shown on Figure 1 in the HWG peer review letter dated 8/13 and identified as BioMap2 Core Habitat is outside the limit of work associated with this application. The applicant is not proposing any work beyond that shown on the record plans entitled "Athletic Field



Improvements – Phase One” by Huntress Associates, Inc, dated January 22, 2020 and revised May 18, 2020. Should work in that area be considered in the future we would expect to comply with the regulations and procedures in place at that time.

Thank you for your time and consideration. Please let me know if you have any questions or require any additional information to complete your review.

Sincerely,
Huntress Associates, Inc.

Christian C. Huntress
President

Cc: Alex Elvin, General Planner, MVC
Anne Kitchell – Horsley Witten Group
Matthew D'Andrea – MVRPS Superintendent
Richard Smith – MVRPS Asst. Superintendent
Kimberly Kirk – Chair, MVRHS School Committee
Joseph Sullivan – Daedalus Projects, Inc.
Oak Bluffs Planning Board

Att: 1. Updated Plan Set: Athletic Field Improvements – Phase One (Rev 9.23.20)
2. Updated Stormwater Report – Revised 9/16/20
3. Letter to Adam Turner from Joe Fields dated February 4, 2020.
4. Tencate Press Release dated July 14, 2020.
5. Email to Alex Elvin, MVC General Planner, dated 7/16/20
6. Musco Sports Lighting – Cost of Ownership
7. Musco Sports Lighting – Lighting Design & Control

4 February 2020

Mr. Adam Turner, Director
Martha's Vineyard Commission
PO Box 1447
Oak Bluffs, MA 02557

Dear Mr. Turner,

I am writing to highlight Tencate Grass's commitment to recycling synthetic turf and to also explain why our newest product, Ironturf™ by Greenfields, can be considered a cradle-to-cradle recyclable product.

First, in May 2019 Tencate Grass announced our participation in a joint venture agreement with GBN, a leading European recycling company, to build a facility dedicated to completely recycling used synthetic turf from all sources. Construction of this facility began at the port of Amsterdam in the Netherlands last summer. Being located at the port enables us to receive turf from virtually any location in the world. This facility has the capacity to recycle 1,000 athletic fields per year and will be fully operational in April, 2020. Our recycling process will be monitored and certified by Kiwa, a third-party leader in that field in Europe.

For perspective, a typical 85,000 sq ft athletic field and the accompanying infill materials can be shipped to Amsterdam quite easily. So, we will have the capability to completely recycle any synthetic turf, from any source, anywhere in the world, this spring.

This is a link to a video that describes the recycling process: <https://youtu.be/rEmkXYLL0xg>

Second, we are very excited about the product that has been specified for your project, Ironturf™, by Greenfields. Our woven Ironturf™ is unique in that it is not only recyclable, as is other synthetic turf, but it affords us the opportunity to achieve a cradle-to-cradle certification where other turf products cannot reach this standard. Stated simply, our woven Ironturf™ is made of components that are all part of the polyolefin family and can therefore be re-pelletized and put back into the exact same production stream to create the fibers for new synthetic turf fields.

The Ironturf™ woven product is unique because it is mechanically bound together (think of a Persian rug), while all other turf products are tufted through a polyester backing material and then coated with polyurethane (think of a bathmat) creating a chemical bond. Since the woven Ironturf™ does not rely on a coating for its structural integrity, it requires no polyurethane coating and contains no polyester backing so the woven product, when recycled, produces a homogenous resin that can be used in making fibers for new synthetic turf fields. At present, only our woven turf can meet the demands of cradle to cradle certification. While tufted turf may be recycled and converted into resin pellets that can then be used in other

products (like plastic lumber, plastic injection molded pallets, etc.), the recycled resin from traditional tufted turf cannot be used in homogeneous products like the fibers used in producing new synthetic turf. To be clear, we have not yet achieved that cradle-to-cradle certification because none of our woven fields are close to end of life and we have not yet had the need to recycle one, but our aim is to achieve that certification.

Separately, not only does the woven product have the chemical makeup to achieve cradle-to-cradle recyclability certification, it is demonstrably stronger and is more durable than standard tufted synthetic turf (again the construction is the key and the aforementioned analogy between the Persian Rug and bathmat is applicable).

We can guarantee that ANY synthetic turf field that is installed at Martha's Vineyard can be recycled through our process at our new joint venture plant in the Netherlands and we are willing to provide chain-of-custody documentation at the time of removal. Furthermore, we are in the planning stages for a similar recycling facility in the US and we are confident that our US-based recycling facility will be on-line within the next 24 months.

Please feel free to contact me with any questions.

Best Regards,

Joe Fields
President, Tencate Grass Americas
dba Greenfields
Mobile: +1 (770)710 8982

Cc: Chris Huntress

July 14, 2020

Sports company Rotterdam sees its own artificial turf rolls roll through the process of GBN AGR!

In July 2019, CSC Sport renovated various synthetic turf pitches for Sportbedrijf Rotterdam.

The old artificial grass fields that were released were then transported to the (emergency) storage location of GBN Artificial Grass Recycling. Sports company Rotterdam then "followed" the mats to ensure that their artificial grass was stored in a licensed location and then recycled. Sportbedrijf Rotterdam also had an important requirement in the specifications; the artificial grass had to be fully recycled within 1 year after being rolled up.

It is now July 2020. A year later. The construction of the GBN AGR synthetic turf recycling factory is finished and the machines are running. Time to invite Sportbedrijf Rotterdam again!

Because each synthetic turf field is given a separate waste flow number / batch number at GBN AGR, it is also possible to trace the rolls one year after collection. This allowed Sportbedrijf Rotterdam to see for themselves how their own artificial grass was recycled.

Ed van der Burg, Sportbedrijf Rotterdam: *"As Sportbedrijf Rotterdam, we would like 100% certainty that our depreciated synthetic turf mats are processed in a responsible manner. We have set ourselves the obligation to follow the recycling process, so that we were sure that the artificial grass would not, for example, still be in intermediate storage after a year. Fortunately, we have seen that the artificial grass at GBN AGR is all neatly recycled!"*

GBN AGR stands for transparent recycling and therefore warmly invited Sportbedrijf Rotterdam to show the entire process. Sports company Rotterdam, thank you for your confidence and have fun with the new synthetic turf pitches!



(From left to right: Wilko Zuidema (Technisch Bureau Zuidema), Ed van der Burg (Sports company Rotterdam), Eric van Roekel (GBN AGR), André Ceelen (CSC Sport), Don Lauritsen (GBN AGR))

Share this article:



From: [Chris Huntress](#)
To: [Alex Elvin](#); [Lucy Morrison](#)
Cc: [Smith Richie](#); [Kimberly Kirk](#)
Subject: FW: MVRHS staff report questions
Date: Thursday, July 16, 2020 9:24:00 AM

Alex, Below is the reply from Greenfields with regard to your question about the recycling facility in the Netherlands and US. As you will see, they have attached a press release dated 7/14/20 that confirms the Netherlands facility is up and running. They have also started that there plans for a US facility are still on track. Let me know if you have any further questions.

Thanks

Chris
Christian C. Huntress, RLA
President

HUNTRESS *Sports*

17 Tewksbury Street
Andover, MA 01810
c: 978.758.6290
p. 978.470.8882
f. 978.470.8890

www.huntressassociates.com
www.sportsfieldaerials.com

From: Curran, Mark <m.curran@greenfieldsusa.com>
Sent: Thursday, July 16, 2020 9:09 AM
To: Chris Huntress <chris@huntressassociates.com>
Subject: RE: MVRHS staff report questions

Chris,

The link below is a press release from 7/14/2020 announcing the opening of the GBN facility in the Netherlands. It is in Dutch. I have attached a screen shot provided by Erica which translates the first page. GBN is our partner in this undertaking.

I have asked a friend in Amsterdam if she could translate the entire link for me.

Regarding the plant here in the USA, plans are still on track. There is no clear date as of today. I wouldn't want to mislead anyone by saying otherwise. COVID 19 has changed immediate priorities. However, TenCate is committed to the recycling of turf here in the US.

<http://tcgrwebgrfieu.azurewebsites.net/>

Thanks, Mark

Mark Curran
Northeast Sales, Business Development
304 Naples RD
Harrison, ME. 04040
m.curran@greenfieldsusa.com
Cell: 978-761-5340



From: Chris Huntress <chris@huntressassociates.com>
Sent: Wednesday, July 15, 2020 6:42 PM
To: Curran, Mark <m.curran@greenfieldsusa.com>
Subject: RE: MVRHS staff report questions

***** INFORMATION: This is an external mail originating outside the TenCate Grass mail system.**

Mark, two things...First, please ignore any email you got from me today concerning an RFP. My email was hacked and the note is spam. Sorry.

Second, please let me know if you hear back from Joe or can provide an update on the recycling facilities mentioned in his February letter, attached.

Thanks

Chris

Christian C. Huntress, RLA
President

HUNTRESS *Sports*

17 Tewksbury Street
Andover, MA 01810
c: 978.758.6290
p: 978.470.8882
f: 978.470.8890

www.huntressassociates.com
www.sportsfieldaerials.com

From: Curran, Mark <m.curran@greenfieldsusa.com>
Sent: Tuesday, July 14, 2020 8:52 PM
To: Chris Huntress <chris@huntressassociates.com>
Subject: RE: MVRHS staff report questions

Just sent to Joe, want to get this right.

From: Chris Huntress <chris@huntressassociates.com>
Sent: Tuesday, July 14, 2020 8:42 PM
To: Curran, Mark <m.curran@greenfieldsusa.com>
Subject: FW: MVRHS staff report questions

***** INFORMATION: This is an external mail originating outside the TenCate Grass mail system.**

Mark, I hope all is well...and I have another question for you regarding the Vineyard Project. Can you please refer to question #2 below and let me know if you, or someone at Greenfields/Tencate, could answer those. They are referring to the recycling facilities mentioned in Joe Field original letter to Adam Turner.

Thanks, and have a great night.

Chris
Christian C. Huntress, RLA
President

HUNTRESS Sports

17 Tewksbury Street
Andover, MA 01810
c: 978.758.6290
p. 978.470.8882
f. 978.470.8890

www.huntressassociates.com
www.sportsfieldaerials.com

From: Alex Elvin <elvin@mvcommission.org>
Sent: Tuesday, July 14, 2020 6:44 PM
To: Chris Huntress <chris@huntressassociates.com>; rsmith@mvyps.org
Subject: MVRHS staff report questions

Hi Chris,

We are finishing up the Athletic Fields DRI staff report, and I had couple quick questions.

1 - Can you send a version of L5 from the Athletic Fields Master Plan that shows the current phase 1 for Option B?

2 - Has the recycling facility in the Netherlands already been built, and is the one in Georgia still on track?

Thanks,

Alex

Alex Elvin
General Planner
Martha's Vineyard Commission
The Olde Stone Building
33 New York Avenue
Oak Bluffs, MA 02557
(413) 884-3289

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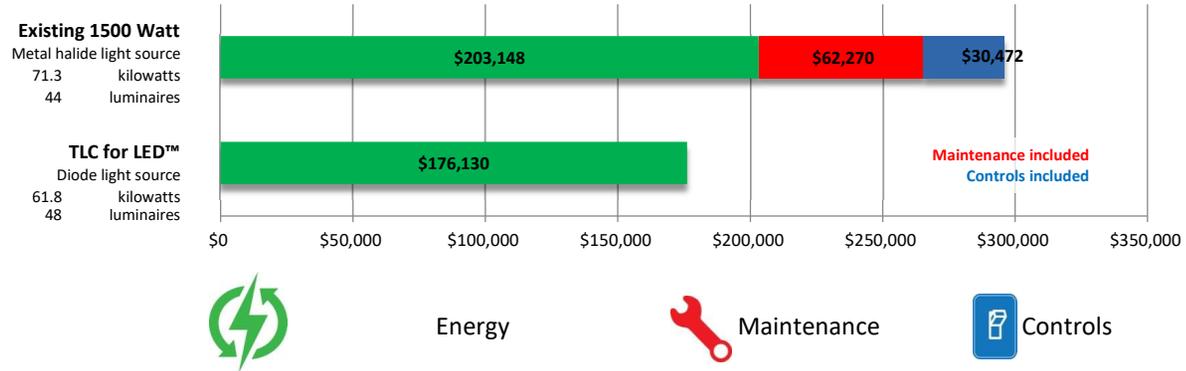
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25-Year Cost of Ownership Comparison

Martha's Vineyard McCarthy Field

Prepared For:
Chris Huntress



How is this possible? Musco's 40 years of developing systems, light control, and application expertise puts more available lumens per watt on the field. Our services team provides all on/off operation, monitoring, and maintenance.

For your budget . . . for the environment

Musco LED

25-Year Ownership Savings

\$119,760

CO2 reduction

98 tons**

** Equivalent to taking 21 cars off the road for one year

Assumptions

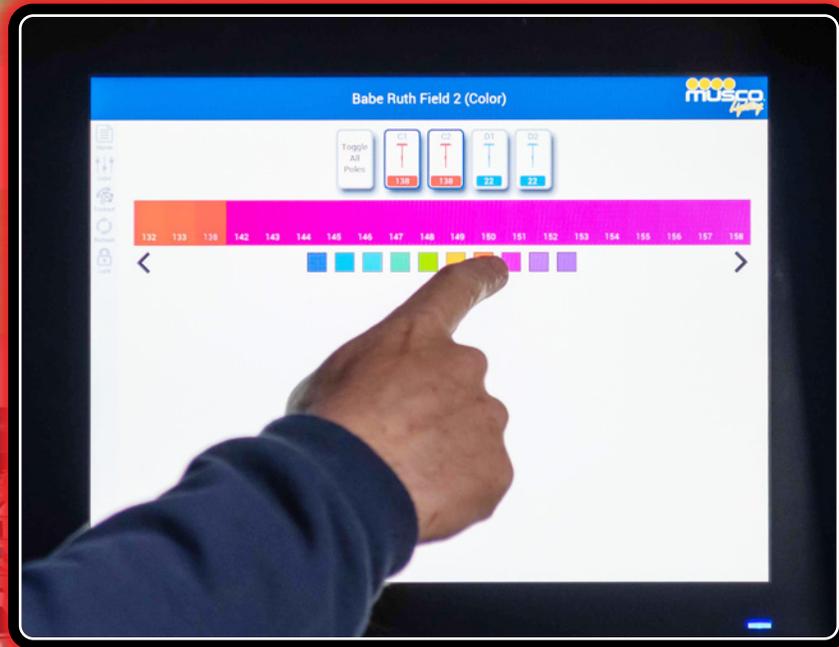
Annual operating hours	600
Energy:	
Energy cost per kilowatt hour	\$0.19
Demand charge per kilowatt hour	\$0.00
Maintenance:	
Group relamp - cost per luminaire	\$266
Spot maintenance over 25 years	\$3,750
Controls:	
Labor - turning lights on & off	\$0.00
Lights on extra time without controls	15%

Musco Control Solutions

24/7/365 monitoring and support

Control-Link® control and monitoring system

Show-Light™ entertainment package



Making Facility Management Easy Since 1999

The most innovative solutions are developed in response to real-world problems. In 1999 Musco introduced Control-Link® as a first-of-its-kind light management system to help customers who were getting calls from neighbors at 2 a.m. about lights left on, to help cut energy costs, and save staff time.

Since that first introduction, Musco has installed thousands of control systems from fully automated unmanned recreational sites to complex theatrical solutions for many of the largest stadiums in the world.

Anytime, Anywhere ... Control-Link management tools allow you to access and manage your lights instantly, from anywhere via a cellular internet connection.

A Real, Live Voice ... Control-Link Central™ team will monitor, schedule, and help manage your lights 24/7/365, and a real live voice will be on the other end of the phone when you call.

Factory Wired, Programmed, and Tested ... our unique system approach streamlines installation and assures that your controls, from basic on/off to professional level light shows, will be ready to work on day one.



5.8 million

schedules managed and monitored by our Control-Link Central™ Team last year



360,000

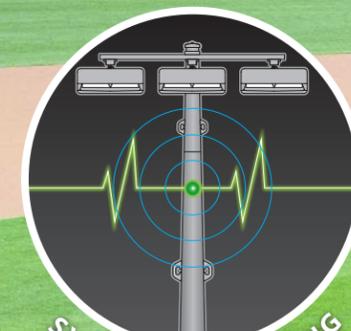
calls fielded to assist customers last year



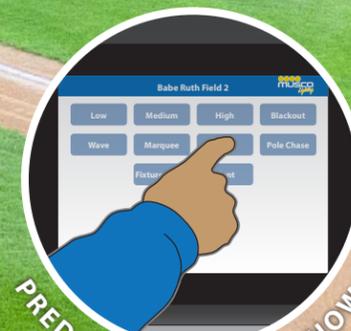
REMOTE ON/OFF SCHEDULING



DIMMING



SYSTEM MONITORING



PREDESIGNED LIGHT SHOWS



COLOR ACCENT OPTION



CUSTOM LIGHT SHOWS

How can controls enhance your facility?

- Remote on/off scheduling** for easy control from anywhere
- Dimming (3 levels)** saves energy for practice and other activities
- System monitoring** alerts Musco of any issues

- Predesigned light shows** add excitement to events
- Color accent option** to highlight poles and other structures

- Custom-choreographed light shows** precisely timed to music

Control-Link

Show-Light™

Show-Light+™

Flexible Control, Solid Management

Your Control-Link® control and monitoring system offers efficient, cost-effective tools that are both cutting-edge and simple to use.

Musco will have your back 24/7/365 to ensure your lights are only on when needed, keeping neighbors and taxpayers happy. Because more than anything, it's about your peace of mind.

The Control-Link system provides comprehensive scheduling assistance, system monitoring, secure password-protected access, automated equipment controls, and valuable usage data.

Flexible and Reliable . . . remote scheduling and controls mean no more staffing headaches, tracking multiple sets of keys, or late-night hours being on-site to turn your lights off.

24/7/365 Monitoring . . . our Team will monitor your system's performance at the luminaire level, so if an issue arises we'll likely know about it before you do.

Better for Your Budget . . . automated operation of your lights, as well as three levels of dimming that come standard, will reduce energy consumption and cut staffing costs.

Data You Can Use . . . we'll help create usage reports and analytics for your facilities from the extensive data we store, which will help improve operational efficiencies and future planning.



Enter schedules up to 10 years in advance.

MUSCO Control-Link Control System

Owner: Mahaska Comm. Rec Foundation
 Facility: Lacey Park Ballfields
 Field: All Fields

Energy Used kWh: 519 (YTD Jul 2019)
 Service Visits: 0
 Schedules: 171 (1,333)
 Phone Calls to CLC: 16 (90)
 Web Logins: 2 (13)

FIELD	Lamp Outages	Controls	Switch Position Auto/Manual	Lamp Life	Relamps Completed	Musco Warranty Program	Warranty Start Date	Estimated Warranty Expiry Date
SB BB Field 2-LED*	0	Auto	Auto	545 hrs used	0 of 1	Constant 25	03/29/2017	03/29/2042
SB BB Field 3-LSG	0	Auto	Auto	1895 used	3104 remain	0 of 1	Constant 25	05/04/2008
SB BB Field 4-LSG	0	Auto	Auto	1945 used	3255 remain	0 of 1	Constant 25	05/04/2008
SB BB Field 5-LSG	0	Auto	Auto	1905 used	3195 remain	0 of 1	Constant 25	05/04/2008

Dashboard tracking allows you to see the operation and service status of your fields.

Musco Control-Link Usage Report (Auto Only)
 By Facility, Field
 Usage Type of Light Usage
 June, 2019

Summary by Facility		Total Auto Hours Usage	Total Hours Saved from Early Offs
Facility			
Cowley		112:50	17:08
Dunbar		64:53	29:46
Garland Parklet		49:48	0:00
Herschel Field		256:47	26:05
Total:		484:18	72:59

Summary by Facility, Field			
Facility	Field	Total Auto Hours Usage	Total Hours Saved from Early Offs
Cowley	Baseball	63:04	17:08
Cowley	Basketball	49:46	0:00

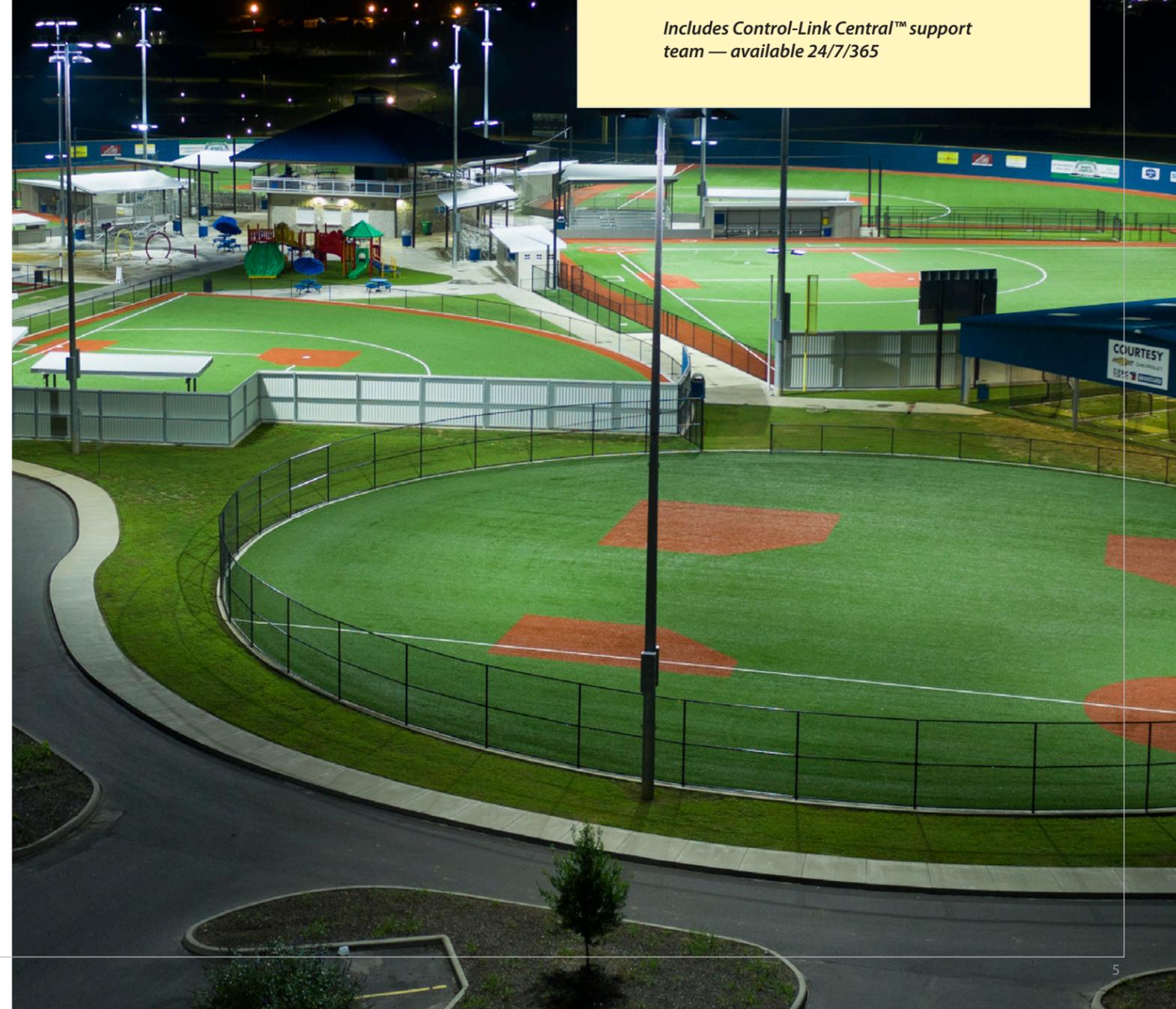
Control-Link Central database stores usage data by field and user group.

Control-Link. Control and Monitoring System

- ✓ **Remote on/off scheduling** for easy control from anywhere
- ✓ **Dimming (3 levels)** saves energy for practice and other activities
- ✓ **System monitoring** alerts Musco of any issues

Includes Musco's management tools — user securities, usage tracking, facility status dashboard, and reports

Includes Control-Link Central™ support team — available 24/7/365



"In the past, a light could've gone out and our guys wouldn't see it for two to three weeks or until a whole pole went dark. Now if one light goes out we get an e-mail notice immediately from Musco's Control-Link Central!"

– Chuck Vones, Parks and Recreation Director
 Pembroke Pines, Florida

Big Time Light Shows at Hometown Fields

Our Show-Light™ entertainment package provides a cost-effective way for you to bring professional light shows to your facility. From pre-game introductions, to halftime shows, to celebrating big plays and big wins, this special effects lighting will energize players and fans and take your game atmosphere to a new level.

Special effects light shows aren't just for the pros anymore.

Musco's Show-Light technology utilizes instant on/off and the advanced control capabilities of LED, is easy to use, and delivers both predesigned and customized light shows.

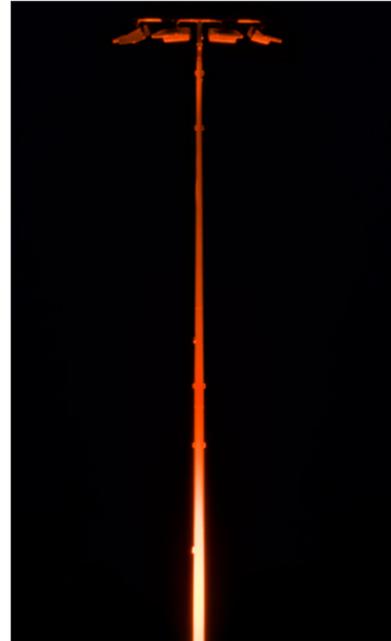
Set the Scene . . . you'll get preprogrammed light shows that will set the scene and excite players and fans through the entire game night experience.

Plenty of Options . . . you can choose from Musco's library of light shows or work with our design engineers to create customized shows and scenes.

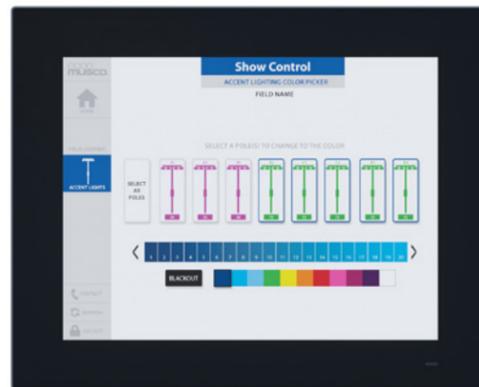
As Easy as a Touchscreen . . . you'll be provided an industrial grade 15-inch smart device with touchscreen to start and stop shows, select dimming levels, and adjust optional accent colors.

Reliable and Versatile . . . your light shows will be stored on site and backed up at Control-Link Central™ data center.

Color Changing Technology Option . . . by adding optional color changing luminaires you can enhance shows with pops of color, color wash, or accent lighting.



Optional color accent lighting highlights poles or other structures.



With optional color changing luminaires you can choose from over 100 color options to show your team color, highlight special events, or enhance light shows.



Show-Light™ Entertainment Package

- ✓ **Remote on/off scheduling** for easy control from anywhere
- ✓ **Dimming (3 levels)** saves energy for practice and other activities
- ✓ **System monitoring** alerts Musco of any issues
- ✓ **Predesigned light shows** add excitement to events
- ✓ **Color accent option** to highlight poles and other structures

Includes industrial grade touchscreen tablet for easy control

Includes Control-Link Central™ support team — available 24/7/365



"The people Musco has answering the phones and adjusting the schedule are the most friendly and accommodating of any phone service I have ever called. They are always extremely friendly and professional, the service could not be better."

– Mark Buggins, Head Baseball Coach (retired)
Sitka High School

Take Your Light Shows to the Next Level

With our Show-Light+™ entertainment package, you'll tap into advanced customization capabilities and more complex light shows that incorporate music along with the special effects lighting. The Show-Light+ system is easy to use and will provide an even more memorable game night experience.

Light and sound shows that mirror what's seen at the biggest and best professional stadiums.

The equipment you'll be supplied with, and the light shows it will deliver, are exactly the same as what we provide our NFL, MLB, NBA, and NHL customers.

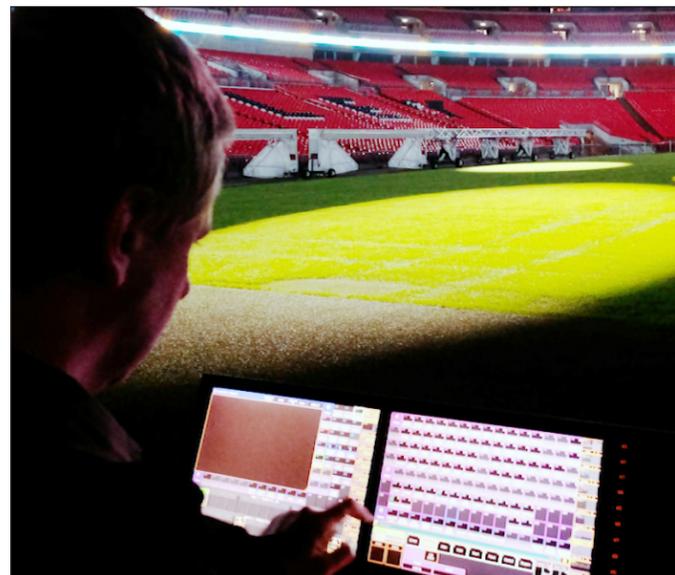
Light and Sound . . . in addition to the preprogrammed light shows from the base Show-Light package, you'll get three shows with lights synchronized to your music for an amazing visual and audio experience.

Easy to Use . . . for each light show Musco's design engineers will align lighting cues with audio files played through an on-site server, you just start and stop the shows with an easy-to-use touchscreen device.

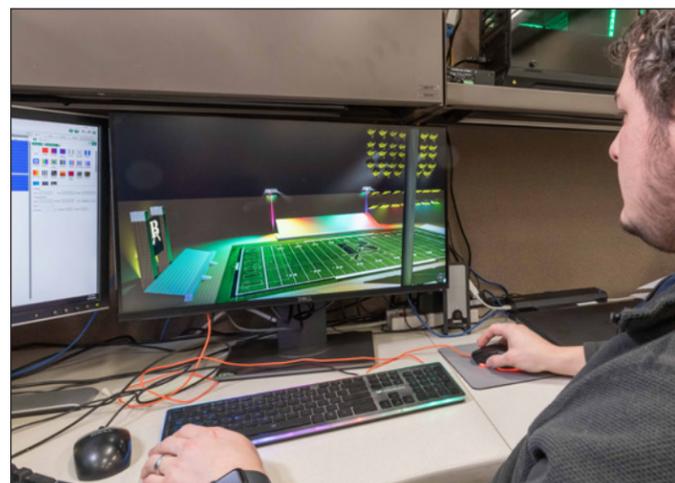
Streamlined Solution . . . if you already have a DMX system, Show-Light+ equipment will act as a fully integrated extension of that system.



Musco's field lighting shows can interface with your separate controller for other show features, such as pyrotechnics.



Light shows are operated via an easy-to-use touchscreen.



Musco's light show programming specialists will custom time shows to your music.

"The fan reaction has been great. I look for the lights to be as much of an entertainment vehicle as I do fireworks — seventh inning stretch, when we hit a home run, when we win the game. Everybody loves it, particularly when we make the lights flash and dance to the music."

– Sam Bernabe, President & General Manager
Iowa Cubs

Show-Light+™ Entertainment Package

- ✓ **Remote on/off scheduling** for easy control from anywhere
- ✓ **Dimming (3 levels)** saves energy for practice and other activities
- ✓ **System monitoring** alerts Musco of any issues
- ✓ **Predesigned light shows** add excitement to events
- ✓ **Color accent option** to highlight poles and other structures
- ✓ **Custom-choreographed light shows** precisely timed to music

Includes DMX controller and cue server

Includes Control-Link Central™ support team — available 24/7/365



Innovative, Streamlined Communications Managed by Our Team 24/7/365

Each component of the Control-Link® system is designed, factory-built and tested for seamless operation and integration with your lighting system.

Proven Technology, Innovated . . . Musco's advanced powerline communication technology provides robust control and monitoring for the system.

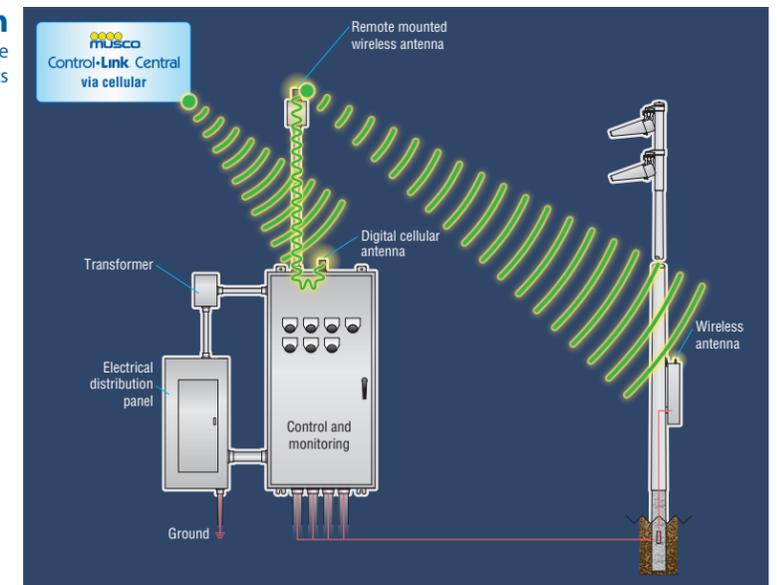
Reliable Installation and Operation . . . no added communication cable installation costs. Lights may be scheduled remotely or operated manually on site with a key switch.

Safety Features . . . electricity is only on when the system is in use, with built-in fusing and surge protection.

Monitoring and Support . . . our Control-Link Central™ Team monitors your system 24/7/365 to ensure schedules execute and to provide assistance.

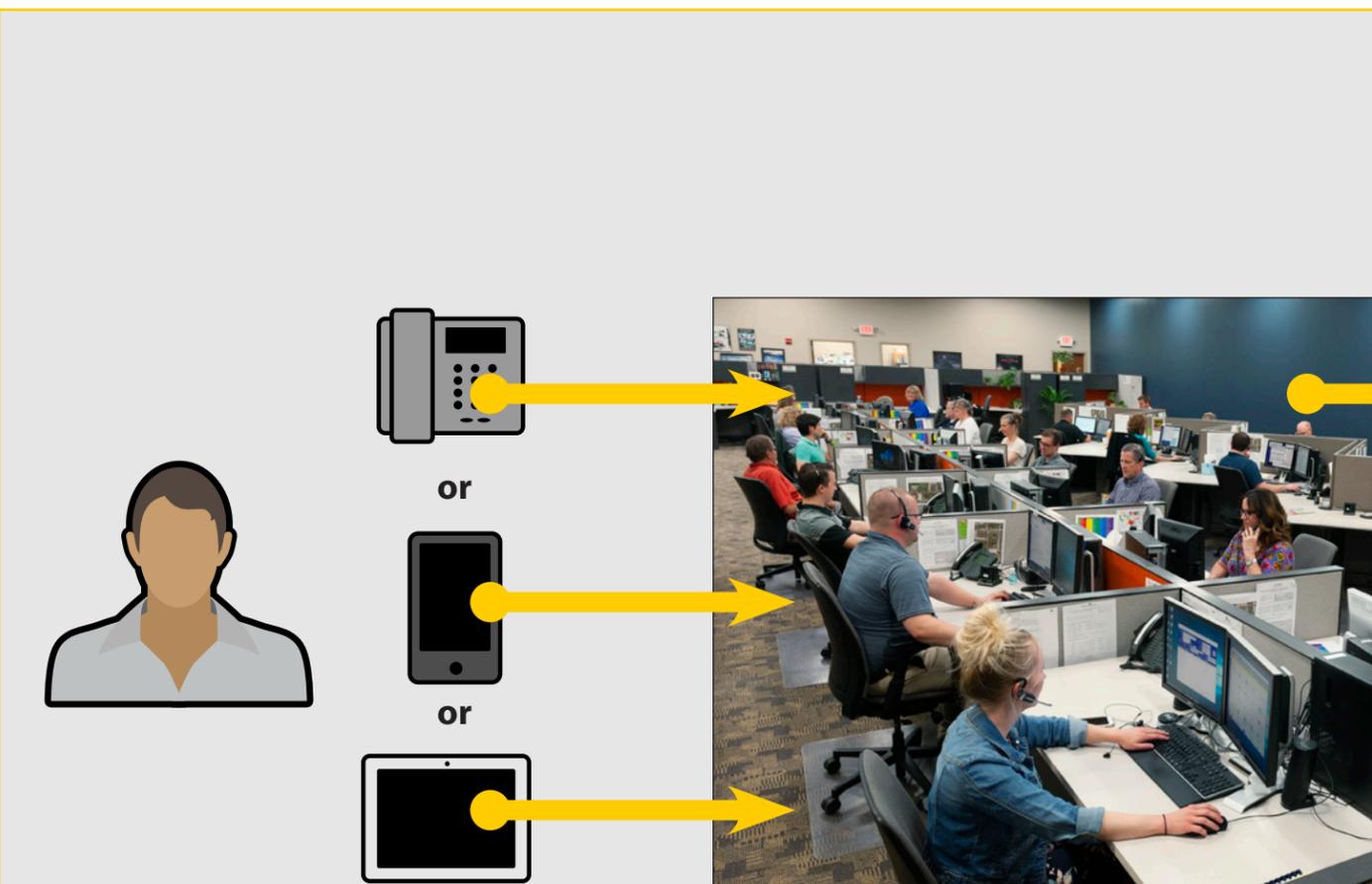
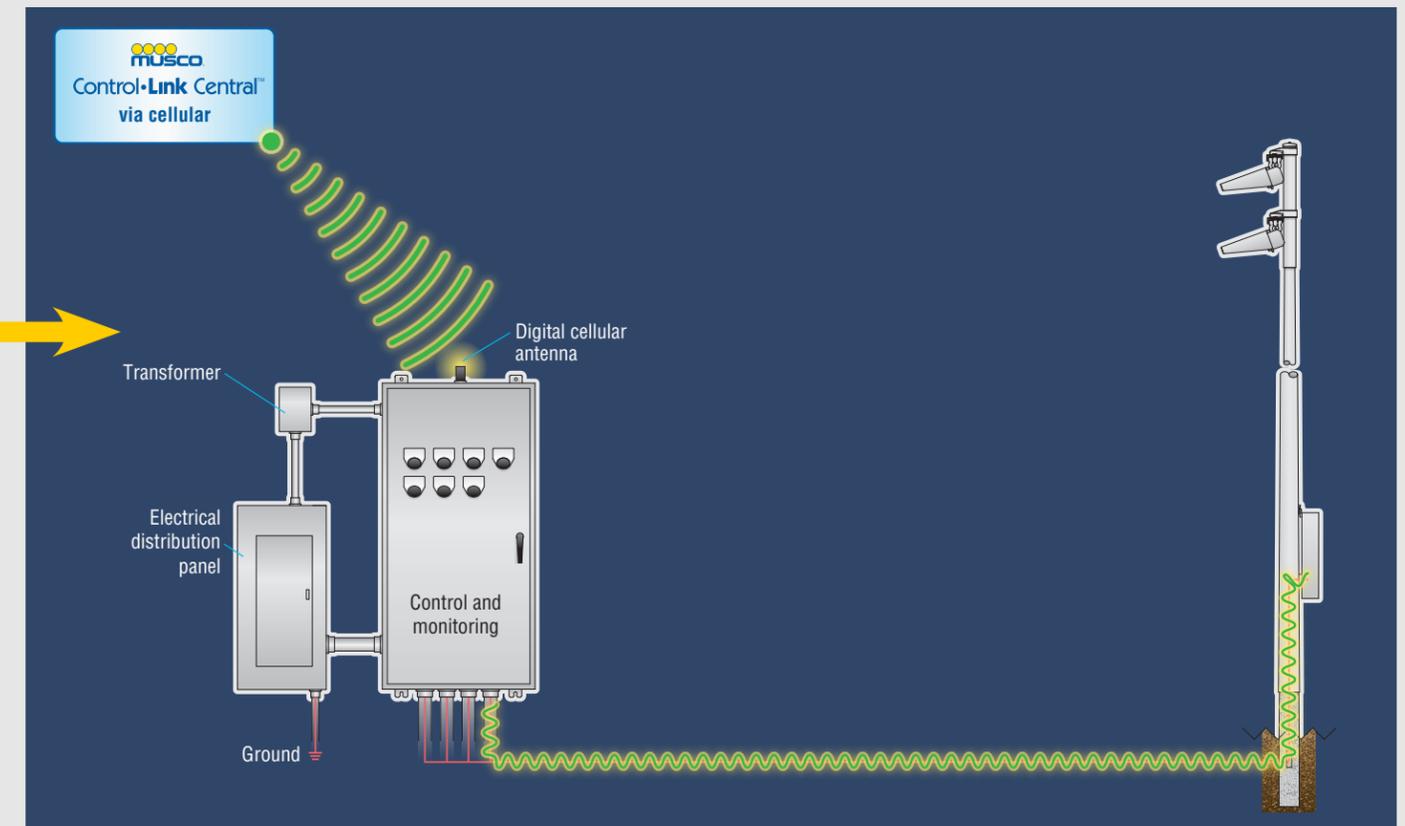
Wireless Communication

An optional wireless mesh network is available depending on your project requirements



Powerline Communication System™

Uses supply wiring for control commands and monitoring feedback



1) Enter schedules at your convenience

Based on security levels, users schedule field lighting and other equipment such as door locks, concession stands, and security lights from any location via website, smartphone app, or phone call.

2) Control-Link Central™ data center routes schedules, with 24/7/365 team member monitoring support

Schedules are received, routed to your site, and backed up at the Control-Link Central data center, where our staff provides scheduling support and verification, and monitors your lighting system operation.

3) Schedules are stored on-site

Schedules are transmitted to your facility via cellular technology and stored in the on-site equipment controller.

4) Equipment is controlled automatically with on-site show controls

Lights are operated per your schedules via Musco's Powerline Communication System technology. You can control optional Show-Light™ features with the on-site tablet.

5) Continuous monitoring

Entire system is monitored during operation and the Control-Link Central team is notified of any issues.



**Unequaled performance . . .
for your budget, for the environment.**



We Make It Happen[®]

www.musco.com
e-mail: lighting@musco.com