ENVIRONMENTAL IMPACT STATEMENT

PROPOSED SYNTHETIC TURF FIELD

"LIVINGSTON HIGH SCHOOL"

30 Robert H. Harp Drive, Livingston, NJ 07039
Block: 4400, Lot: 1

May 13, 2022

Prepared for:

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ACER Project Number: 20220558

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INTRODUCTION

In accordance with Chapter 130 of the Code of the Township of Livingston (Environmental Protection Ordinance of the Township of Livingston), Acer Associates, LLC (ACER) has prepared the following Environmental Impact Statement (EIS) to address the impact from the proposed construction of a synthetic turf field.

The subject property is located 30 Robert H. Harp Drive in the Township of Livingston, Essex County, New Jersey. The tax parcel is recorded on the Essex County Tax Map as Block: 4400, Lot: 1. The parcel is currently zoned as R-4 within the Residential District and contains a total area of 19.7 acres. The subject property is currently owned by the Board of Education.

The project will consist of converting the existing grass/clay athletic field located at Livingston High School to a synthetic turf field. The Livingston High School property is bordered to the north by Littell People's Park, to the south by Madonna Drive, to the east by Wahler Road and Robert H. Harp Drive, and to the west by wooded land and a drainage basin. The subject property consists of the Livingston High School, asphalt parking areas, a track and synthetic turf football field, and the existing grass/clay athletic field to be re-developed.

END OF SECTION

A PROJECT DESCRIPTION

A minimum of 1.25 feet of the existing field will be excavated for the installation of new underground utilities, stone, and synthetic turf. Existing baseball/softball clay infields, bases, pitcher's mounds, and backstops, including all poles, footings, rails, fabric, and wind screens will be removed. Chain link fences along the northwest and southwest portions of the field will be removed, including all poles, footings, cross rails, and fabric. All metal benches located behind these chain link fences will also be removed. Chain link fencing along the southeast portion of the field will be removed as needed in preparation of the new gate and concrete sidewalk. A keystone block retaining wall located at the southernmost portion of the project site will be removed, and the earth behind the wall will be temporarily supported as needed throughout construction. Existing discus and shotput concrete bases, nets, poles, and pole footings will be removed. An existing woodchip path travelling offsite from the southwestern portion of the site into the wooded area bordering the western boundary of the subject property will have woodchips removed as needed to install a new concrete pad for dugouts. Bleachers at the northern portion of the site will be removed and returned to their owner. Portions of existing concrete curb and asphalt will be removed as needed to extend the existing asphalt drive from the Littell People's Park asphalt parking lot located to the northeast of the site to the new athletic field. An existing sign will be relocated as needed to accommodate the new asphalt road. Details regarding the demolition of the existing athletic field can be seen on page SP-1.1 of the January 18, 2022 site plans prepared by Gianforcaro Architects, Engineers, Planners (site plans) provided in Appendix 1.

A minimum of 8 inches of base stone and a minimum of 2 inches of top stone will be laser graded throughout the proposed athletic field to accommodate the new synthetic turf. Concrete curbing will be installed around the perimeter of the field. Where indicated on page SP-2.1 of the site plans, concrete retaining wall will be installed in lieu of concrete curb. Sportsfield Specialties basezone field wall padding will be installed on sections of the retaining wall. The proposed field will be enclosed with chain link fence varying between 4 feet and 8 feet high. Washed gravel will be installed 4 inches thick in areas between the concrete retaining wall and chain link fencing. Four (4) concrete pads will be installed along the field for the purpose of mounting four (4) Sportsfield Specialties Gameshade dugouts. Sportsfield Specialties pole to pole netting system with integrated wall pad backstop will be installed behind the proposed baseball and softball diamonds. New baseball and softball bases, home plates, pitcher's mounds, and bullpen pitcher's mounds will be installed. One (1) shot put concrete pad and one (1) discus concrete pad with discus cage and backup net system will be installed at the southeast corner of the proposed field. A Sportsfield Specialties ground sleeve overhead batting tunnel will be installed over the proposed bullpen. Foul poles with concrete sonotube footings will be installed along the eastern side of the proposed field. A concrete pad will be installed at the southernmost point of the project area for the purpose

of mounting a new transformer and electrical panels. One (1) Daktronics scoreboard will be installed on the western side of the proposed field and one (1) will be installed on the eastern side with all associated structure, foundations, wiring, and conduit. Sportsfield Specialties pole to pole tension netting system will be installed along the eastern side of the proposed field. Concrete sidewalks, concrete stairs, retaining walls, and handrails will be installed at the southeastern portion of the project site to allow access from the existing synthetic turf football field to the proposed field. An asphalt drive flanked on one side with a proposed concrete sidewalk will be installed to connect the existing Littell People's Park asphalt parking lot to the proposed field. The concrete sidewalk will span the entire northern edge of the proposed field. All disturbed areas adjacent to the field will be restored after construction activities. All rocks larger than ¾ inch diameter will be removed, the areas will be regraded, and grass seed and hay will be installed. The proposed construction plan can be viewed on page SP-2.1 of the site plans. Additionally, nine (9) new light poles with foundations, conduit, wiring, pull boxes, light fixtures, electrical panels, transformer control panels, and circuit breakers will be installed throughout the site. The electrical plan can be viewed on page SP-2.4 of the site plans.

12 inch diameter perforated N-12 piping will be installed throughout the proposed field below the proposed 8 inches of base stone at 20 foot intervals. The piping will drain to proposed N-12 orifices which will drain to an existing 27 inch storm drain pipe running beneath the existing athletic field, to the man-made basin to the northwest of the project site. All existing storm drainage piping is to be protected throughout construction, and any damaged piping will be replaced. The proposed drainage plan can be viewed on page SP-2.3 of the site plans.

The synthetic turf will consist of FieldTurf Classic HD. The fiber is slit-film, the infill is 3-layered, and the backing is Finger-Unit/SureLock. The slit-film fibers, the top layer of the artificial turf field, are fibrillated to form a net-like appearance making it tougher and more absorbent to kicks, slides, and tackles. The fibers are primarily made from polyethylene. The 3-layer infill, the middle layer of the artificial turf, will contain a base layer of sand, a middle layer of sand and rubber, and a top layer of larger pieces of rubber. The infill will consist of a minimum of 3 pounds of sand and 3 pounds of rubber per square foot. The Finger-Unit/SureLock backing, the base layer of the artificial turf, will consist of a fabric backing with polyurethane coating applied only on the rows where fibers are tufted. This leaves a large area of the backing porous for efficient drainage.

B INVENTORY OF ENVIRONMENTAL CONDITIONS

B-1 PHYSICAL CHARACTERISTICS

B-1.1 Air Quality

The nearest air monitoring station to the Township of Livingston is the Newark Firehouse located in Newark, NJ. This station monitors particulate matter, carbon monoxide, sulfur dioxide, nitrogen dioxide, and ozone, and provides ratings based on the national Air Quality Index. Review of available online records indicate the concentrations of the previously mentioned pollutants on average are good. A good rating means air quality is considered satisfactory, and air pollution poses little or no risk. Throughout 2021 to May of 2022, particulate matter was reported as moderate on four days and unhealthy for sensitive groups on two days. Throughout the same date range ozone, nitrogen dioxide, sulfur dioxide, and carbon monoxide were reported as good. The proposed construction area currently has no source of air emissions. Summary tables of the Newark Firehouse air monitoring results have been provided in Appendix 3.

B-1.2 Hydrology

Slough Brook is located within the wooded area to the west of the subject property. Wetland areas have also been delineated within this wooded area and can be seen on page SP-1.1 of the site plans. A copy of the NJDEP Letter of Interpretation (LOI), the official determination of the wetland boundary, resource value, and transition area, has been provided in Appendix 4. A man-made drainage basin is located adjacent to the northwest of the subject site.

B-1.3 Geology

According to the United States Geological Survey, Bedrock Geologic Map of New Jersey, the project area is situated within an area underlain by the Towaco Formation, Geologic Symbol – Jt. This formation consists of reddish-brown to brownish-purple, fine to medium grained micaceous sandstone, siltstone and silty mudstone in upward-fining sequences one (1) to three (3) meters thick. Distributed throughout the formation are eight (8) or more sequences of gray to greenish- or brownish-gray, fine-grained sandstone, siltstone and calcareous siltstone and black, microlaminated calcareous siltstone and mudstone containing diagnostic pollen, fish and dinosaur tracks. A geology map has been provided in Appendix 5.

B-1.4 Soils

Soils are evaluated in accordance with the USDA guidance document Field Indicators of Hydric Soils in the U.S. According to the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Soil Survey Geographic (SSURGO) Database, the project site is predominantly underlain by the Udorthents, Boonton

substratum (UdbonB) soil component. A small area at the southwestern portion of the subject site is underlain by the Boonton loam, extremely stony (BogBc) soil component and a small area at the northeastern corner of the site is underlain by the Urban land, Boonton substratum (URBONB) soil component. A copy of the NRCS SSURGO soil map has been included in Appendix 6.

The Udorthents, Boonton (UdbonB) substratum component slopes are 0 to 8 percent. This component is on leveled land, ground moraines. The parent material consists of loamy material transported by human activity. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 3 percent. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria. The Boonton soil is a minor component.

The Boonton loam, extremely stony (BogBc) component slopes are 0 to 8 percent. This component is on ground moraines on till plains. The parent material consists of coarse-loamy basal till derived from basalt. Depth to a root restrictive layer, fragipan, is 20 to 36 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is moderate. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 85 percent. Below this thin organic horizon the organic matter content is about 3 percent. This component is in the F144AY037MA Moist Dense Till Uplands ecological site. Nonirrigated land capability classification is 7s. This soil does not meet hydric criteria.

The Urban land, Boonton substratum (URBONB) soil component is a miscellaneous area.

B-1.5 Topography and Slope

The U.S.G.S. provides topographical map coverage for this property in the Caldwell, New Jersey 7.5 Minute Quadrangle. A review of the topographical map revealed the subject site sloped gently to the west from 281 feet above sea level to 279 feet above sea level. The topography in the area was relatively flat. A copy of the USGS topographic map has been provided in Appendix 7. Existing topographic contours can be seen shown in 1-foot intervals on page SP-1.1 of the site plans.

B-1.6 Drainage

Stormwater catch basin inlets are located throughout the subject property and underground storm drainage piping runs directly from these inlets, underneath the existing athletic field, to the man-made drainage basin located adjacent to the northwest of the subject site.

B-1.7 Vegetation

The existing athletic field consists of maintained turf grass and lawn weeds, common dandelion, white clover, etc. The forested wetland area to the west of the project area consists of a majority hydrophytic vegetation including white oak, pin oak, red maple, white ash, hickory, gray birch, and dogwoods.

B-2 WILDLIFE

B-2.1 Fish and Aquatic Organisms

The project site consists of a maintained grass/clay athletic field and so is not suitable habitat for any fish or aquatic organisms. A review of New Jersey's Landscape Project indicated that the project area is located within the Piedmont Plains area. The man-made drainage basin to the northwest of the project site is considered Rank 2 habitat due to the presence of Great Blue Heron, a species with a conservation status of special concern within New Jersey. Additionally, duck species were observed utilizing the drainage basin during ACER's April 29, 2022 site visit. A copy of the NJ Landscape Project map has been included in Appendix 8.

B-2.2 Wild Animals

The project site consists of a maintained grass/clay athletic field with frequent human activity and, therefore does not contain suitable habitat for wild animals. A majority of the wooded area to the west of the subject site was identified on New Jersey's Landscape Project as Rank 1 habitat, meaning the area meets habitat-specific suitability requirements for endangered, threatened, or special concern wildlife species, but no such species have been observed. Rank 2 habitat was identified along Slough Brook due to the presence of Great Blue Heron and wetlands. A copy of the NJ Landscape Project map has been included in Appendix 8.

B-3 MAN-MADE CONDITIONS AND STRUCTURES

B-3.1 Sanitary and Storm Sewer Systems

Stormwater catch basin inlets are located throughout the subject property and underground storm drainage piping runs directly from these inlets, underneath the existing athletic field, to the man-made drainage basin located adjacent to the northwest of the subject site. The proposed project area has no sanitary sewer systems.

B-3.2 Noise Characteristics and Levels

The project site is located within a suburban area encompassed by mixed use areas. The major source of noise is traffic along Wahler Road located adjacent to the eastern property boundary and Madonna Drive located adjacent to the southern property boundary. Typically, heavy street traffic will generate noise levels between 70 to 85 decibels. Humans will begin to experience ear pain at approximately 130 decibels.

B-3.3 Traffic Volume

Review of online traffic data lists no available data for the streets bordering the subject property indicating there is low traffic along these streets. During ACER's April 29, 2022 site visit low traffic was observed along the streets bordering the subject property.

B-3.4 Land Use

The subject property is currently zoned as R-4 within the Residential District of the Township of Livingston. The project site is currently and proposed to be utilized as an athletic field associated with Livingston High School.

B-3.5 Aesthetics

The project site consists of a maintained turf grass/clay athletic field with limited aesthetic claim.

B-4 COMMUNITY CHARACTER

B-4.1 History

Livingston Junior High School was opened in September of 1949, and by 1954 had developed further to include seventh through tenth grade classrooms. Based on ACER's review of available historic aerial photography, the land containing the high school had previously been farmland. The athletic field proposed to be re-developed consisted of wooded and cleared land and in 1931, fully cleared land in 1954, and by 1966 a baseball diamond was visible in its present-day location on the field. ACER also conducted a review of the NJDEP Historic Preservation Office (HPO) Cultural Resources Geographic Information System (CRGIS) Online Map Viewer (LUCY) for sites that are listed and/or eligible to be listed on the National Register of Historic Places. The project area is not located on a historic property, within a historic district, or within a sensitive archaeological area. The nearest historic site is the Theophilus Ward/Thomas Force House and Condit Family Cook House (NJ HPO ID#1095) located over 2,000 feet to the southeast of the project area. A copy of the NJ LUCY map has been included in Appendix 10.

B-4.2 Demography

According to the 2020 Unites States Census, the total population of the Township of Livingston is 31,330. This denotes an increase from the total population of 29,366 from the 2010 United States Census.

B-4.3 Culture

The project site consists of a maintained grass/clay athletic field with little to no cultural value.

B-4.4 Recreation and Wildlife Refuges

Littell People's Park, including a pool, playground, and tennis court, is a recreational park located adjacent directly to the north of the project site. There are no wildlife refuges in the vicinity of the proposed activities. There are no plans to create spaces for recreational purposes or wildlife refuges.

B-5 Air and Water Quality

The subject property is located within the Upper Passaic, Whippany, and Rockaway watershed area, and the Slough Brook sub-watershed area. The waterbodies nearest to the proposed scope of work are Slough Brook, located within the wooded area to the west of the project area, and a man-made drainage basin located adjacent to the northwest. Surface waters are either classified as FW1, meaning they are not subject to man-made wastewater discharges, or FW2 which includes all other freshwater areas unless in the Pinelands. FW2 waters also have additional classification based on their ability to support trout. Slough Brook has a surface water quality classification of FW2-NT (nontrout). The subject property is located within the Buried Valley sole-source aquifer. The Township of Livingston is located within the New Jersey/New York/Connecticut Air Quality Control Region.

C ASSESSMENT OF IMPACT TO ENVIRONMENTAL CONDITIONS

C-1 PHYSICAL CHARACTERISTICS

C-1.1 Air Quality

Dust will be generated temporarily throughout the construction phase of this project. Once construction is completed the site will have no source of air emissions. Dust control measures will be employed to limit the amount of particulate matter in the air throughout construction. All federal, state, and local requirements for the control of fugitive dust emissions will be adhered to during construction activities. Details regarding the dust control measures can be seen on page SP-5.1 of the site plans.

C-1.2 Hydrology

The proposed synthetic turf field will be constructed with 12 inch diameter perforated N-12 piping at the bottom of the field. These pipes will drain to proposed N-12 orifices which will drain to an existing 27 inch storm drain pipe running beneath the existing field. This existing storm drain pipe leads to the man-made basin located to the northwest of the proposed project site. Additionally, the entire field is proposed to be enclosed with concrete curbing/retaining walls which will assist in keeping stormwater on the field to drain, and prevent surface runoff to the adjacent wetlands. Prior to beginning construction, silt fencing will be installed around the perimeter of the construction area. The site will also be graded such that all stormwater runoff is diverted to soil erosion and sediment control facilities. All soil erosion and sediment control practices will be installed in accordance with the New Jersey standards for soil erosion and sediment control and will be in place prior to any major soil disturbance, or in their proper sequence, and will be maintained until permanent protection is established. Therefore, no impacts to hydrology, including the existing wetlands located adjacent to the project site or Slough Brook located in the wooded area to the west of the site, are expected. The soil erosion plan, approved by the Essex County Soil Conservation District, can be viewed on page SP-5.1 of the site plans.

C-1.3 Geology

Approximately, 1.25 feet of the existing field will be excavated for the installation of the synthetic turf. Due to the shallow ground disturbance required for this project, and since the area is previously disturbed from the construction of the existing athletic field, no impacts to geology are expected.

C-1.4 Soils

Approximately, 1.25 feet of the existing field will be excavated for the installation of the synthetic turf. Throughout construction, all soil erosion and sediment control practices will be installed in accordance with the New Jersey standards for soil erosion and sediment

control and will be in place prior to any major soil disturbance, or in their proper sequence, and will be maintained until permanent protection is established. The soils to be disturbed at the project site are located on a wide, level, previously disturbed area currently supporting maintained grass turf. The soils are not supporting any environmentally sensitive flora or fauna. Therefore, no impacts to soil are expected. The soil erosion plan can be viewed on page SP-5.1 of the site plans.

C-1.5 Topography and Slope

The proposed athletic field will be graded such that the existing contours will remain. The site will slope gently to the west from about 281 feet above sea level to 279 feet above sea level. Proposed contours are shown in 1-foot intervals on the grading plan on page SP-3.1 of the site plans.

C-1.6 Drainage

Stormwater catch basin inlets are located throughout the subject property and underground storm drainage pipes run directly from these inlets, underneath the existing athletic field, to the man-made drainage basin located adjacent to the northwest of the subject site. The proposed synthetic turf field will be constructed with 12 inch diameter perforated N-12 piping at the bottom of the field. These pipes will drain to proposed N-12 orifices which will drain to the existing 27 inch storm drain pipe running beneath the existing field. This existing storm drain pipe will drain stormwater to the man-made basin located to the northwest of the proposed project site. Therefore, no impacts as a result of drainage are expected.

C-1.7 Vegetation

Permanent vegetation will be established on exposed areas within 10 days after final grading. Throughout construction, any disturbed areas that will be left exposed for more than 30 days and not subject to construction traffic will receive temporary seeding. All trees outside the disturbance limit indicated on the site plans or trees within the disturbance area which are designated to remain after construction will be protected with tree protection devices. Details regarding vegetation can be viewed on page SP-5.1 of the site plans.

C-2 WILDLIFE

C-2.1 Fish and Aquatic Organisms

The project site consists of a maintained grass/clay athletic field and so is not suitable habitat for any fish or aquatic organism. Stormwater will be drained to the existing man-made basin to the northwest of the site which is designed to collect stormwater/runoff; therefore, no impacts to fish or aquatic organisms are expected.

C-2.2 Wild Animals

The existing project site consists of a maintained grass/clay athletic field with frequent human activity and does not contain suitable habitat for wild animals. Therefore, no impacts to wild animals are expected as a result of switching the grass/clay field to a synthetic turf field.

C-3 MAN-MADE CONDITIONS AND STRUCTURES

C-3.1 Sanitary and Storm Sewer Systems

Stormwater catch basin inlets are located throughout the subject property and underground storm drainage pipes run directly from these inlets, underneath the existing athletic field, to the man-made drainage basin located adjacent to the northwest of the subject site. The proposed synthetic turf field will be constructed with 12 inch diameter perforated N-12 piping at the bottom of the field. These pipes will drain to proposed N-12 orifices which will drain to the existing 27 inch storm drain pipe running beneath the existing field. This existing storm drain pipe will drain stormwater to the man-made basin located to the northwest of the proposed project site. Stormwater going to the drainage basin protects potential receptors (wetlands/Slough Brook) from runoff of Polycyclic aromatic hydrocarbons (PAHs).

C-3.2 Noise Characteristics and Levels

Increases in noise levels will be limited to the construction phase of the project. The OSHA permissible exposure limit (PEL) for noise is 90 decibels for an 8-hour time weighted average. Construction workers operating or nearby loud equipment will wear hearing protection as needed. Students and residents off-site but still nearby the construction area will notice an increase in noise; however, the noise levels will not be harmful or painful and hearing protection will not be required.

C-3.3 Traffic Volume

Increases in traffic levels will be limited to the construction phase of the project.

C-3.4 Land Use

The project site is currently and proposed to be utilized as an athletic field associated with Livingston High School. Therefore, the land use will not change as a result of this project.

C-3.5 Aesthetics

The existing project site consists of a maintained turf grass/clay athletic field with limited aesthetic claim. Different colored turf will be used for the proposed synthetic turf field to distinguish the different sporting activities that will take place on the field. A rendering of what the field will look like can be seen on page SP-4.8 of the site plans.

C-4 COMMUNITY CHARACTER

C-4.1 History

The existing maintained grass/clay athletic field is not significant to the history of Livingston High School, and is proposed to be brought in line with the existing track and synthetic turf football field located adjacent to the southeast of the project site. The project area is also not located on a historic property, within a historic district, or within a sensitive archaeological area. The nearest historic site is the Theophilus Ward/Thomas Force House and Condit Family Cook House (NJ HPO ID#1095) located over 2,000 feet to the southeast of the project area. Therefore, there will be no impacts to any historic sites.

C-4.2 Demography

No significant impact to the demography of the Township of Livingston is expected as a result of this project. The project will not require the displacement of any residents of the Township of Livingston.

C-4.3 Culture

The project site consists of a maintained grass/clay athletic field with little to no cultural value. Review of the NJDEP HPO CRGIS Online Map Viewer (LUCY) indicated the project area is not located on a historic property, within a historic district, or within a sensitive archaeological area. Therefore, no impacts to culture are expected as a result of this project.

C-4.4 Recreation and Wildlife Refuges

The asphalt parking lot associated with Littell People's Park will receive minor alterations to add access from the lot to the proposed athletic field. Since the impacts to Littell People's Park is limited to the parking lot, there will be no impacts to recreation as result of this project. There are no wildlife refuges in the vicinity of the proposed activities. Therefore, there will be no impacts to wildlife refuges as a result of this project.

C-5 Air and Water Quality

The proposed synthetic turf field will be constructed with 12 inch diameter perforated N-12 piping at the bottom of the field. These pipes will drain to proposed N-12 orifices which will drain to the existing 27 inch storm drain pipe running beneath the existing field. This existing storm drain pipe will drain stormwater to the man-made basin located to the northwest of the proposed project site. Therefore, no impacts to water quality, including the existing wetlands located adjacent to the project site or Slough Brook located in the wooded area to the west of the site, are expected. Dust control measures will be taken to limit the amount of particulate matter in the air throughout construction. Details regarding the drainage plan and dust control measures can be seen on pages SP-2.3 and SP-5.1 respectively. Review of

available literature regarding synthetic turf fields indicates they are a low-risk for inhalation of Volatile Organic Compounds (VOCs). Air samples taken at these fields tend to be comparable to background samples taken upwind from the fields. A list of pertinent reports/studies regarding potential impacts to air and water quality can be viewed in Section I.

D. LICENSES, PERMITS, OR OTHER APPROVALS

Approval is being sought by the New Jersey Department of Education, Essex County Soil Conservation District, and the NJDEP. A NJDEP wetlands letter of interpretation has already been received, verifying the location of the wetlands adjacent to the project site. A General Permit 6A: Transition areas adjacent to non-tributary wetlands, is also being sought to address the proposed transition area disturbance. Copies of the letter of interpretation and correspondence with the project engineer have been included in Appendix 4.

E. ASSESSMENT OF UNAVOIDABLE IMPACTS

Dust will be generated throughout the construction phase of the project. To limit this, dust control measures will also be implemented to limit the amount of dust in the air. An increase in noise and traffic will also occur throughout construction. The project will require 19,414 square feet of wetland transition area disturbance. Runoff that occurs as a result of this project will be directed to the existing man-made basin located to the northwest of the project area. The runoff from synthetic turf fields is known to contain PAHs which are the same contaminants found in asphalt runoff. One of the functions of stormwater basins, like the one located to the northwest of the project site, is to capture these types of contaminants to prevent them from being transported to environmental receptors and/or groundwater. Impacts to Littell People's Park will be limited to just the park's asphalt parking lot. This project will not require the displacement of people or businesses.

F. MINIMIZATION OF ENVIRONMENTAL IMPACTS

This project was designed so that potential impacts to environmental resources and concerns are minimized. Soil erosion and sediment control measures will be implemented during construction via a Soil Erosion Plan. This will help minimize the potential impacts to environmental receptors (wetlands and Slough Brook) located within the wooded area adjacent to the project area. The project site will also be graded to maintain the existing topography/slope. Dust control measures will also be implemented to limit the amount of particulate matter in the air throughout construction. Other concerns like noise and potential impacts to traffic are minimized by being limited to just the construction phase of the project. Stormwater runoff generated as a result of this project will be directed to the existing man-made basin located to the northwest of the project site. 19,414 square feet of wetland transition area is proposed as part of this project. To address this, General Permit 6A: Transition areas adjacent to non-tributary wetlands is being sought from the NJDEP. This permit allows up to one-half acre of transition area disturbance provided the associated freshwater wetlands are not part of a surface water tributary system discharging into an inland lake or pond, a river, or stream.

G. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

19,414 square feet of wetland transition area is proposed as a result of this project. To address this, General Permit 6A: Transition areas adjacent to non-tributary wetlands is being sought from the NJDEP. This permit allows up to one-half acre of transition area disturbance provided the associated freshwater wetlands are not part of a surface water tributary system discharging into an inland lake or pond, or a river or stream.

END OF SECTION

H. PROJECT ALTERNATIVES

Based on conversations with the project engineers, Gianforcaro Architects, Engineers & Planners, regarding the decision to use FieldTurf synthetic field systems, no other turf proposals were received for this project and use of this turf system has been successful in the past. All potential impacts to environmental conditions are either minimized or avoided in the original project design. Therefore, no other development alternatives to the design were explored to mitigate potential impacts. A potential no-action alternative would prevent the temporary increase in noise and dust generated throughout construction and avoid transition area disturbance and potential disturbance to wetlands. The topography of the project site would remain the same regardless of whether or not the project occurs. Due to the extensive drainage that is to be incorporated into the proposed field, the existing field is likely to be less effective at draining stormwater than the proposed synthetic field.

END OF SECTION

I. PERTINENT PUBLISHED INFORMATION

Below is a list of reports and studies ACER reviewed which are relevant to artificial turf and their potential contaminants/health risks.

- Artificial Turf Study Leachate and Stormwater Characteristics, dated July 2010 and prepared by the Connecticut Department of Environmental Protection
- Research Protocol Collections Related to Synthetic Turf Fields with Crumb Rubber Infill, dated August 5, 2016 and prepared by U.S. Environmental Protection Agency and the Centers for Disease Control and Prevention/Agency for Toxic Substances and Disease Registry
- Safety Study of Artificial Turf Containing Crumb Rubber Infill Made From Recycled Tires: Measurements of Chemicals and Particulates in the Air, Bacteria in the Turf, and Skin Abrasions Caused by Contact with the Surface, dated October 2010 and prepared by California Department of Resources Recycling and Recovery
- Environmental and Health Impacts of Artificial Turf: A Review, dated January 27, 2014 and prepared by Environmental Science & Technology

J. SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

Kasey Lechner
Environmental Scientist

J. Scott Horn, P.G., CHMM
President

K QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS

J. SCOTT HORN, P.G., CHMM
President

EXPERIENCE:

J. Scott Horn is a Principal/Vice President in charge of operations at Acer Associates, LLC. As Executive Vice President and Chief Operating Officer, Mr. Horn is responsible for client relations and quality assurance of all the company's projects. He has experience in environmental engineering, cultural resource evaluation, geotechnical and industrial hygiene disciplines spanning over 20 years. He is licensed as a Professional Geologist in the States of Pennsylvania, Delaware and Tennessee; a Certified Hazardous Materials Manager (CHMM) accredited by the Institute of Hazardous Materials Management and is a Certified Microbial Consultant (CMC) accredited by the American Indoor Air Quality Council (AIAQC). His areas of expertise include:

- Environmental Site Assessments
- Soil and groundwater quality studies
- Aquifer testing
- Remedial design
- NPDES and NJPDES permitting
- Spill Prevention Control and Countermeasure (SPCC) Plans
- DPCC\DCR Plans
- Wetland delineation and permitting
- CAFRA, Stream Encroachment and Waterfront Development Permitting
- Habitat Assessments for Threatened and Endangered Species
- Environmental Impact Assessments
- Cultural Resource Surveys
- Asbestos and lead consulting
- Indoor Air Quality (IAQ) investigations
- Mold Investigation and remediation

Superfund experience includes project management and technical direction of environmental investigation projects at the B.R.O.S. Lagoon Site in Bridgeport, New Jersey and the Diamond State Salvage Site in Wilmington, Delaware.

PROJECT REFERENCES:

Cingular Wireless, DE, MD, NJ, and PA

Mr. Horn has served as the Project Manager for Phase I and II ESAs, Asbestos and Lead Surveys , NEPA assessments, Section 106 Compliance, wetland delineation/permitting endangered species abitat assessments and archaeological surveys for Cingular Wireless. These projects have spanned seven (7) years and have included over 500 projects on communication tower sites throughout New Jersey, Pennsylvania, Delaware and Maryland. Mr. Horn's responsibilities

consist of project management and quality control/quality assurance for all projects. Mr. Horn serves as the primary technical advisor for all environmental investigations.

T-Mobile USA, Inc., DE, MD, NJ, and PA

Mr. Horn serves as the corporate liaison and quality assurance director for Phase I and II ESAs, NEPA assessments, Section 106 Compliance, wetland delineation/permitting, endangered species surveys, geotechnical investigations, construction inspection and materials testing projects for T-Mobile. These projects have spanned over nine (9) years and have included over 600 projects on communication tower sites. Mr. Horn's responsibilities consist of project management and quality control/quality assurance.

Casino Reinvestment Development Authority, Atlantic City, NJ

Mr. Horn is the firm's project executive for all work performed for the CRDA. Projects have included literally hundreds of Asbestos and Lead Based Paint Surveys, Specifications and Monitoring, ESAs, Soil and Groundwater Investigations, UST removal, and oversight projects.

Bechtel

Mr. Horn is the project executive for a term contract to provide environmental and cultural resource consulting services, Phase I and II ESAs, NEPA assessments, wetland delineation/permitting, endangered species habitat assessments, archaeological surveys, and Section 106 Compliance projects for telecommunications sites located throughout New Jersey, Pennsylvania and Delaware. As the senior environmental professional for this client, Mr. Horn has conducted over 25 wetland determinations/delineations and conducted or managed over 10 Phase I endangered species habitat assessments throughout, PA, NJ and DE. Endangered species investigated include Bog Turtle, Barred Owl, Red Shouldered Hawk, Cooper's Hawk, Peregrine Falcon, Timber Rattlesnake, Indiana Bat and Eastern Box Turtle.

Bach Associates, PC

Mr. Horn has conducted wetland determinations, wetland delineations, environmental site assessments (ESAs), environmental impact assessments (EIAs) and geotechnical investigations, for planned development sites throughout southern New Jersey and southeastern Pennsylvania.

New England Motor Freight, Lehighton, PA

Mr. Horn conducted wetland delineation and oversaw the restoration of damaged wetlands at this major trucking terminal. Mr. Horn was responsible for interacting with the Army Corps of Engineers to establish requirements for site restoration and delineation of wetlands on the remainder of the property. While the restoration was under way, inspections were conducted to ensure the correct elevations and planting protocols were being implemented by the contractor.

S.W. Electronics & Manufacturing, Inc., Cherry Hill, NJ

Mr. Horn oversaw the site investigation, which consisted of delineating trichloroethylene (TCE) and 1,1,1-trichloroethane (TCA) concentrations in the soil and groundwater. Mr. Horn worked closely with the NJDEP in order for the client to obtain closure at the site within a reasonable budget. The major aspects of the investigation included analysis of the project area's geologic formations, a review of environmental databases to identify potential sources of chlorinated solvents, on-site screening of samples using a PID and gas chromatograph, groundwater flow direction analysis, and aquifer testing to determine hydraulic conductivity.

United States Army Corp of Engineers, B.R.O.S. Lagoon Superfund Site

Mr. Horn was the Project Manager and Corporate Health and Safety Officer (CHSO) during the subsurface investigation at the B.R.O.S. Lagoon Superfund Site in Bridgeport, New Jersey. The project involved the preparation of the Site Health and Emergency Response Plan (SHERP), in addition to serving as the Site Health and Safety Officer (SHSO) for the planned activities at the site. In addition, Mr. Horn was responsible for providing all health and safety supplies required for all personnel working at or visiting the site.

Newark Housing Authority, Remediation of the Former Hill Manor Site, Newark, NJ

Mr. Horn was the project manager for the remediation of 8,500 tons of petroleum-bearing soil at this site. On a daily basis, the project required coordinating activities with the remediation contractor, overseeing the excavation of contaminated soil, and updating the client on the project's status and estimated budget. The project also involved the collection of soil and groundwater samples and interpretation of analytical data in accordance with NJDEP regulations. Employees of ACER were also responsible for oversight of backfilling and restoration activities at the site. ACER prepared a final remedial action report for the project which was submitted to, and approved by, the New Jersey Department of Environmental Protection (NJDEP).

EDUCATION AND CERTIFICATIONS:

B.S. Geology, 1983 University of Delaware, Newark, DE
Professional Geologist, P.G., Pennsylvania
Professional Geologist, P.G., Delaware
Professional Geologist, P.G., Tennessee
Certified Microbial Consultant (CMC)
Certified Hazardous Materials Manager (CHMM)
UST Subsurface Investigator, Installation, Closure, New Jersey DEP
New Jersey, Asbestos Safety Technician, Certification #0031
New Jersey Lead Abatement Inspector/Risk Assessor
Delaware, Asbestos Project Monitor
Pennsylvania, Asbestos Inspector/Management Planner
AHERA Asbestos Inspector/Management Planner/Project Designer

CONTINUED EDUCATION:

Wetland Construction Design, Rutgers University, 2005
Threatened and Endangered Species in New Jersey, Rutgers University, 2005
Wetland Vegetation, Winter Identification, Rutgers University, 2004
Mold and IAQ Sampling Workshop, EMSL Analytical, Inc., 2003
Understanding Mold Contamination In The Indoor Environmental, Wynn L White, 2002
Wetland Delineation, Certificate Series, Rutgers University, 2002
A Review of Geology for the Practicing Geologist, 2001 & 2002
Lead Abatement Inspector/Risk Assessor, UMDNJ, 2001
Brownsfields Redevelopment, Rutgers University, 2000
Applied Soil Science for Remediation of Contaminated Soil, Rutgers University, 1999
Risk Based Soil Screening Guidance, Rutgers University, 1998
Practical Applications in Hydrogeology, Rutgers University, 1997
Underground Storage Tank Remediation, 1992
Environmental Audits, Government Institutes, Washington DC, 1991
40 Hour HAZWOPER training, University of Medicine and Dentistry, 1991
Sampling and Evaluation of Airborne Asbestos Dust, (NIOSH 582), 1986
Supervision of Asbestos Abatement Contracts, Georgia Institute of Tech., 1984

PROFESSIONAL AFFILIATIONS:

American Conference of Governmental Industrial Hygienists (ACGIH)
American Industrial Hygiene Association (AIHA)
Institute of Hazardous Materials Management (IHMM)
American Indoor Air Quality Council (AIAQC)
Society for Architectural Historians
National Trust for Historic Preservation
Historic Society of Pennsylvania
Camden County Historic Society
Preservation New Jersey

L APPENDICES

APPENDIX I

SITE PLANS

1012 Industrial Drive, West Berlin, New Jersey 08091
Tel. (856) 809-1202 Fax. (856) 809-1203

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ARCHITECTS,
ENGINEERS,
PLANNERS

555 EAST MAIN ST.
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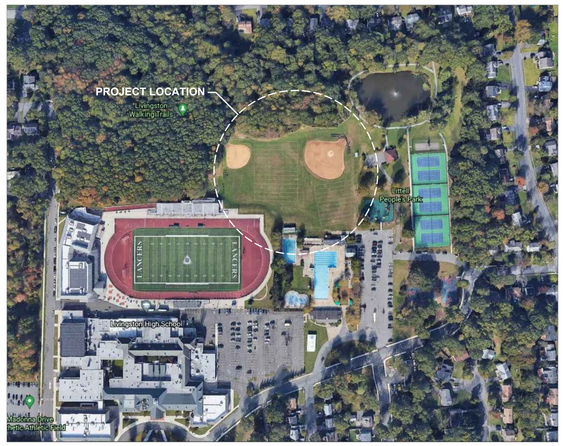
· ARCHITECTURAL
· CIVIL
· STRUCTURAL
· CONSTRUCTION
· ENVIRONMENTAL
· MECHANICAL
· FORENSIC

NEW SYNTHETIC TURF FIELD
at the
LIVINGSTON HIGH SCHOOL
30 Robert H. Harp Dr.
Livingston, NJ 07039
for the
Livingston Board of Education
Essex County, NJ



PROJECT LOCATION AREA MAP

GENERAL NOTES:

1. CONTRACTOR SHALL NOTIFY ARCHITECT OF ANY DISCREPENCIES FOUND IN THE DRAWINGS OR SPECIFICATIONS PRIOR TO PRECEEDING WITH CONSTRUCTION. CONTRACTOR SHALL BEAR RESPONSIBILITY FOR VERIFYING COMPLIANCE OF THE SHOP DRAWINGS WITH THE PLANS PRIOR TO ORDERING MATERIALS OR BEGINNING FABRICATION.

2. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE CODES OR STATUTES WITH REGARD TO THE CONSTRUCTION OF THIS PROJECT, WHITHER SPECIFICALLY REFFERRED BY CONTRACT DOCUMENTS OR NOT.

3. CONTRACTOR SHALL VERIFY AND COORDINATE SPECIFIC REQUIREMENTS FOR OWNER- PROVIDED AND/OR INSTALLED EQUIPMENT. IF APPLICABLE.

4. GENERAL CONTRACTOR IS RESPONSIBLE FOR MAINTAINING A CURRENT SET OF CONSTRUCTION DOCUMENTS (INCLUDING ANY WRITTEN ADDENDA CONSTRUCTION BULLETINS, SUPPLEMENTAL INSTRUCTIONS, ETC.) ON SITE DURING CONSTRUCTION. THE CONTRACTOR SHALL INDICATE ON THESE DOCUMENTS ALL APPROVED CHANGES PER SPECIFICATIONS.

5. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL WORK INCLUDED IN THE CONTRACTED DOCUMENTS. ALL CORRESPONDANCE TO AND FROM SUBCONTRACTORS SHALL BE ROUTED THROUGH THE GENERAL CONTRACTOR.

6. ADJACENT WORK, INCLUDED UNDER OTHER CONSTRUCTION CONTRACTS, WHICH IS DAMAGED DURING EXECUTION OF THIS CONTRACT WORK, SHALL BE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO REPAIR PRIOR TO FINAL ACCEPTANCE OF THE WORK.

7. GENERAL CONTRACTOR TO PROVIDE ALL GOVERNMENT - REQUIRE SIGNAGE NECESSARY FOR CERTIFICATE OF OCCUPANCY (FIRE LANE SIGNAGE, "DO NOT BLOCK DOOR" ETC.).

8. THE GENERAL CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS AND DIMENSIONS PRIOR TO COMMENCING ANY WORK.

9. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL THE SECURITY AND SAFETY OF THE SITE AS REQUIRED IN THE CONTRACT DOCUMENTS. THIS SHALL INCLUDE ALL TEMPORARY FENCING, BARRICADES, ETC. REQUIRED TO SECURE THE SITE.

10. ALL FIRE RATED CONSTRUCTION SHALL CONFORM WITH U.L. TESTED STANDARDS AND/OR LOCAL REQUIREMENTS.

11. THE PROJECT DOCUMENTS PROVIDE THAT NO ASBESTOS PRODUCTS, PCB'S OR OTHER SUBSTANCE DEEMED TOXIC OR HAZARDOUS UNDER APPLICABLE FEDERAL, OR STATE LAWS, RULES, REGUALTIONS OR ORDINANCE, ARE TO BE CONTAINED OR INCORPORATED IN THE PROJECT WORK. FURTHER, ALL CONTRACTOR, SUBCONTRACTORS, MANUFACTURERS AND SUPPLIERS WHOSE EQUIPMENT, MATERIALS AND PRODUCTS ARE INCORPORATED IN THE WORK SHALL PROVIDE A CERTIFICATION ACCEPTABLE TO OWNER WARRANTING THAT THEIR EQUIPMENT, MATERIALS RO PRODUCTS ARE FREE FROM ASBESTOS, ASBESTOS PRODUCTS, PCB'S OR OTHER SUBSTANCE DEEMED HAZARDOUS BY APPLICABLE FEDERAL OR STATE LAWS, RULES, REGULATIONS, OR ORDINANCES. REFER TO TENANT CRITERIA HANDBOOK.

12. GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL WORK DESCRIBED IN CONTRACT DOCUMENTS. SUBCONTRACTORS SHALL REVIEW ALL DOCUMENTS, AS THERE IS NO LIMIT ON WHERE DESCRIPTION OF WORK IS INCLUDED. NO CHANGE ORDERS WILL BE CONSIDERED FOR FAILURE TO REVIEW ALL CONTRACT DOCUMENTS. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR DISTRIBUTION OF A COMPLETE SET OF DOCUMENTS TO ALL TRADES UNDER HISHER JURISDICTION.

13. NO WORK DEFECTIVE IN WORKMANSHIP OR QUALITY OR DEFICIENT IN ANY REQUIREMENTS OF THE CONTRACT DOCUMENTS WILL BED ACCEPTABLE DESPITE THE ARCHITECT'S / OWNER'S FAILURE TO DISCOVER OR POINT OUT DEFECTS OR DEFICIENCIES DURING CONSTRUCTION. DEFECTIVE WORK REVEALED OR DISCOVERED WITHIN THE TIME REQUIRED IN THE GUARANTEE SHALL BE REPLACED BY WORK CONFORMING TO THE INTENT OF THE CONTRACT. NO PAYMENT, EITHER PARTIAL OR FINAL, SHALL BE CONSTRUED AS AN ACCEPTANCE OF DEFECTIVE WORK OF IMPROPER MATERIALS.

14. CONTRACTORS SHALL NOT SCALE DRAWINGS. ALL PERTINANT DIMENSIONS SHALL BE PROVIDED. IF DISCREPENCIES OCCUR THE CONTRACTOR MUST CONTACT ARCHITECT FOR CLARIFICATION BEFORE PROCEEDING.

15. CONTRACTOR WILL SUPPLY FULLY ENGINEERED SPRINKLER DRAWINGS PRIOR TO MODIFICATION OF SPRINKLER SYSTEM TO ACCOMODATE NEW SUSPENDED CEILING SYSTEM WHERE APPLICABLE.

16. GENERAL CONTRACTOR TO PROVIDE TEMPORARY SERVICES & UTILITIES AS REQUIRED FOR THE COMPLETION OF THE PROJECT.

17. GENERAL CONTRACTOR TO REMOVE DEBRIS GENERATED BY THE CONSTRUCTION FROM THE SITE DAILY.

18. EACH CONTRACTOR SHALL CONSULT WITH THE RESPECTIVE MUNICIPLE FIRE DEPARTMENT AUTHORITIES HAVING JURISDICTION RELATIVE TO REQUIREMENTS FOR FIRE EXTIGUISHER PROTECTION IN THE BUILDING AND PROVIDE AS REQUIRED.

19. ALL WORK TO BE IN ACCORDANCE WITH THE RULES AND REGULATION OF THE LANDLORD OR OWNER.

20. ALL WORK TO BE IN ACCORDANCE WITH THE RULES AND REGULATION OF LOCAL GOVERNING BUILDING DEPARTMENT AND FIRE MARSHALL'S OFFICE.

21. ALL WORK TO CONFORM WITH LOCAL, STATE, AND NATIONAL CODES.

22. ALL WORK TO BE IN ACCORDANCE WITH ANY GOVERNMENTAL AUTHORITY HAVING JURISDICTION OVER THE PROJECT.

CODE DATA:

NJUCC: NEW JERSEY UNIFORM CONSTRUCTION CODE
INTERNATIONAL BUILDING CODE
2018 NJ ED.

REHABILITATION CODE: RENOVATION
NJAC 5:23-6

USE GROUP: E

TYPE OF CONST.: 2A

LIST OF ADOPTED CODES UNDER THE NEW JERSEY STATE UNIFORM CONSTRUCTION CODE (U.C.C.):

INTERNATIONAL BUILDING CODE
-NEW JERSEY EDITION 2018
INTERNATIONAL MECHANICAL CODE 2018
ASHRAE90.1-2016
THE NATIONAL ELECTRICAL CODE 2017
THE NATIONAL STANDARD PLUMBING CODE 2018
NJ REHAB CODE 5:23-6.5

ANY WORK WHICH DEVIATES FROM SUCH STANDARDS SHALL BE RECTIFIED TO THE SATISFACTION OF THE GOVERNING AUTHORITY. THE REQUIREMENTS OF GEVERNING AUTHORITIES SHALL SUPERSEDE THE DRAWINGS AND SPECIFICATIONS IN ALL CASES. THE ARCHITECT SHALL BE NOTIFIED BY WRITTEN CHANGE ORDER BEFORE SUCH WORK IS STARTED.
NON-FAMILIARITY WITH GOVERNING RULES AND REGULATIONS SHALL NOT BE CAUSE FOR AN EXTRA CHARGE IN THE EVENT THAT WORK MUST BE REPLACED FOR NONCOMPLIANCE.

DRAWING INDEX:

MATTHEW GIANFORCARO,PE
PROFESSIONAL ENGINEER
N.J. LIC. NO. 56295

ANTHONY GIANFORCARO,AIA,PE
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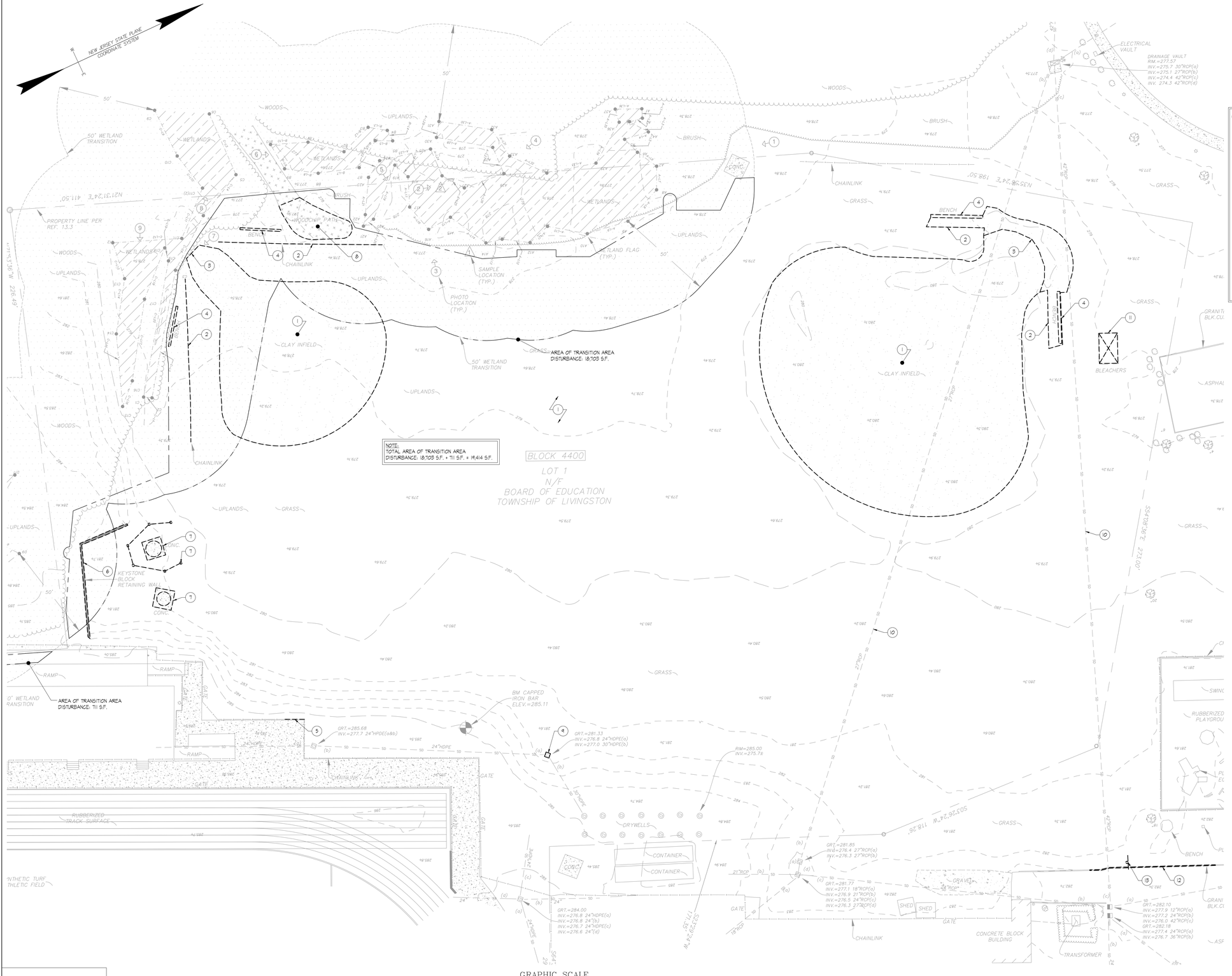
PROFESSIONAL ENGINEER
N.J. LIC. NO. 39006
PA. LIC. NO. 43077

GEORGE F. GIANFORCARO,PE,PP
PROFESSIONAL ENGINEER
N.J. LIC. NO. 18288
PA. LIC. NO. 17377
N.Y. LIC. NO. 52202
PROFESSIONAL PLANNER
N.J. LIC. NO. 3501

SUPERINTENDENT OF SCHOOLS _____ DATE _____

BOARD OF EDUCATION PRESIDENT _____ DATE _____



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

1 DEMOLITION PLAN
1" = 20'-0"

(##) DEMOLITION NOTES:

1. EXCAVATE A MINIMUM OF 12 1/4" OVER ENTIRE FIELD IN PREPARATION OF NEW UNDERGROUND UTILITIES, STONE AND SYNTHETIC TURF. REMOVE CLAY INFIELDS, BASEBALL AND SOFTBALL BASES, AND PITCHERS MOUNDS. SEE SP-201 FOR DIMENSIONS OF THE NEW SYNTHETIC TURF FIELD.
2. REMOVE CHAINLINK FENCES IN THEIR ENTIRETY, INCLUDING POLES, FOOTINGS, CROSS RAILS, AND FABRIC.
3. REMOVE BASEBALL AND SOFTBALL BACKSTOPS IN THEIR ENTIRETY INCLUDING BUT NOT LIMITED TO ALL POLES, FOOTINGS, RAILS, FABRIC, AND WIND SCREENS.
4. REMOVE EXISTING BENCHES IN THEIR ENTIRETY.
5. REMOVE PORTION OF CHAINLINK FENCE AS REQUIRED IN PREPARATION OF NEW GATE AND CONCRETE SIDEWALK.
6. REMOVE EXISTING KEYSTONE BLOCK RETAINING WALL. TEMPORARILY SUPPORT EARTH BEHIND THE WALL AS REQUIRED THROUGHOUT THE DURATION OF CONSTRUCTION OF THE NEW FIELD.
7. REMOVE EXISTING DISCUS AND SHOTPUT CONCRETE BASES, NETS, POLES, AND POLE FOOTINGS.
8. REMOVE WOOD CHIPS AS REQUIRED TO INSTALL NEW DUGOUT PAD.
9. THE EXISTING CATCH BASIN INLET MUST BE REMOVED AND REPLACED OR ADJUSTED AS REQUIRED TO EXTEND THE BASIN TO THE NEW GRATE HEIGHT. SEE SP-2.3 FOR FURTHER DETAILS.
10. PROTECT ALL UNDERGROUND STORM DRAINAGE PIPING AS REQUIRED THROUGHOUT THE DURATION OF CONSTRUCTION. ALL DAMAGED UNDERGROUND PIPING MUST BE PROPERLY REPLACED.
11. REMOVE BLEACHERS. RETURN TO OWNER.
12. REMOVE PORTION OF EXISTING CURB AS REQUIRED TO INSTALL NEW ASPHALT ROAD SHOWN ON SP-2.1. SAW CUT EXISTING ASPHALT AS REQUIRED TO KEY IN NEW ASPHALT.
13. REMOVE AND RELOCATE SIGN TO ACCOMMODATE NEW ASPHALT ROAD.

ALL SURVEY DATA TAKEN FROM:

VS LAND DATA
VS HEADQUARTERS:
800 River Rd, PO Box 186
Phillipsburg, NJ 08865
P 888.876.4435
F 800.220.8224
www.vslandata.com
NJ Certificate Of Authorization
#24GA28173500

John J. Harlon
Professional Land Surveyor
New Jersey License No. 37584
Pennsylvania License No. SU060784

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PA. LIC. NO. 17377
N.Y. LIC. NO. 52202
PROFESSIONAL PLANNER
N.J. LIC. NO. 3501

SYNTHETIC TURF FIELD AND FIELD LIGHTING

AT THE LIVINGSTON HIGH SCHOOL

30 ROBERT H HARP DR
LIVINGSTON, NJ 07039

BLOCK: 4400
LOT: 1

STATE PLAN:
XX-XXXX-XXX-XX-XXXX

FOR THE LIVINGSTON BOARD OF EDUCATION

11 FOXCROFT DR
LIVINGSTON, NJ 07039

ESSEX COUNTY NEW JERSEY

DEMOLITION PLAN

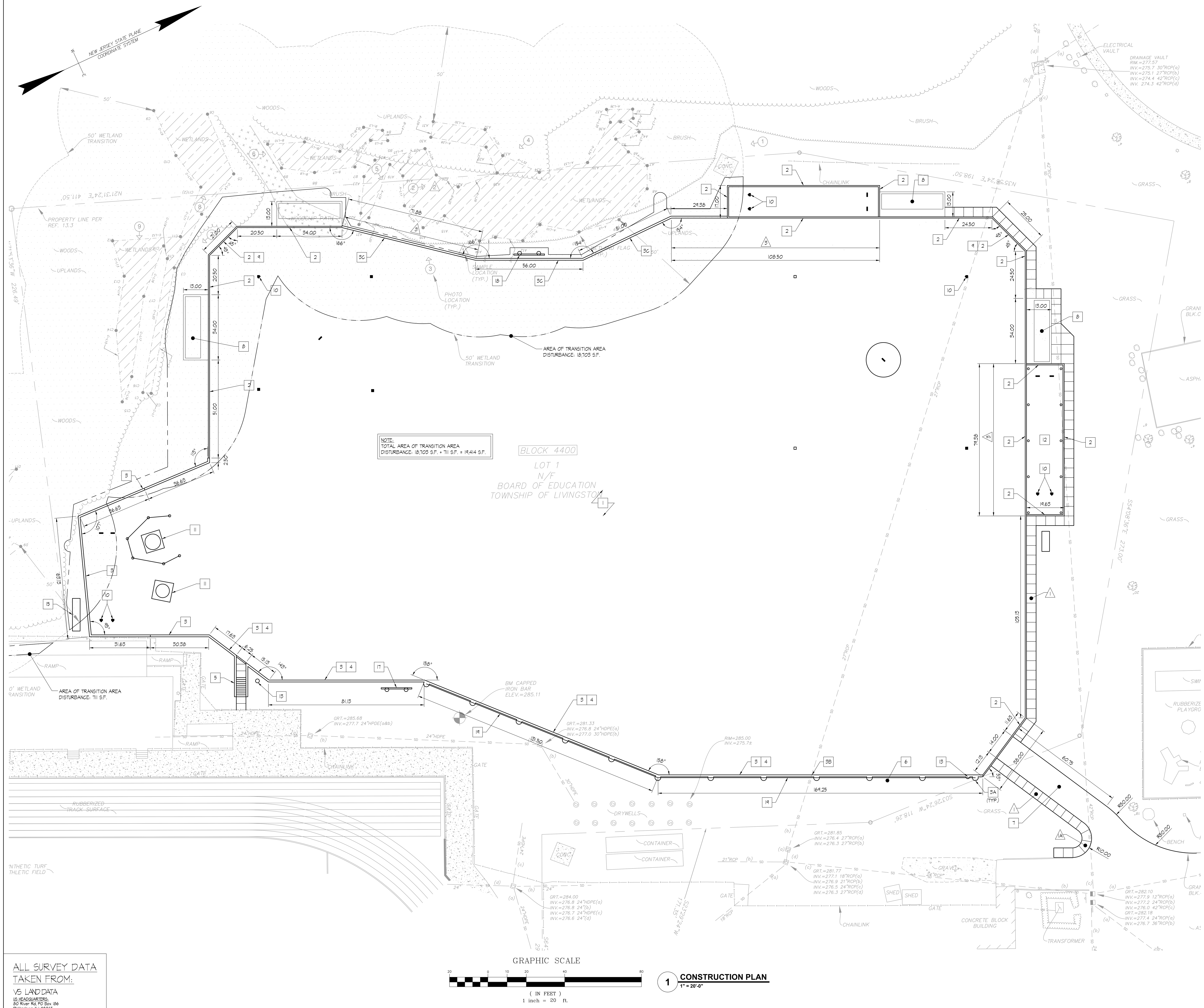
SCALE: AS NOTED

DATE	DRAWN
12/15/21	MGG
	CHECKED AG

FILE: HSTurfFieldR23

REVISION 1/18/22

SP-1.1



1 CONSTRUCTION PLAN
1" = 20'-0"

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US HEADQUARTERS:
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P 888.676.4435
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www.vslanddata.com
NJ Certificate Of Authorization #24GA28113500
John J. Hanlon
Professional Land Surveyor
New Jersey License No. 37589
Pennsylvania License No. SU060784

BASE BID CONSTRUCTION NOTES:

1. INSTALL NEW MIN. 8" BASE STONE, AND MIN. 2" TOP STONE. TOP STONE SHALL BE PROPERLY LASER GRADED TO ACCOMMODATE NEW SYNTHETIC TURF. INSTALL ALL UNDERGROUND UTILITIES AS PER SP-2.3, SP-2.4 AND DETAILS ON SP-4.1 AND SP-4.2.
2. INSTALL CONCRETE CURB AROUND PERIMETER OF FIELD. INSTALL CURB AS PER DETAILS ON SP-4.1.
3. WHERE INDICATED, INSTALL CONCRETE RETAINING WALL IN LIEU OF CONCRETE CURB. STEP TOP OF WALL WHERE REQUIRED TO MEET TOP OF WALL ELEVATIONS. INSTALL AS PER DETAILS ON SP-4.1.

3A. AT ALL TENSION NETTING POLE FOUNDATIONS, AND FOUL POLE FOUNDATION, INSTALL AS PER DETAIL SHOWN ON SP-4.1.

3B. WHERE THE EXISTING UNDERGROUND 27" DIA. RCP PIPE INTERSECTS THE NEW RETAINING WALL, HAUNCH THE NEW WALL AND FOOTING MIN. 1'-0" BETWEEN PIPE INV. AND TOP OF FOOTING.

3C. WHERE INDICATED, INSTALL KEYSTONE STANDARD-STRAIGHT SPLIT SERIES I GRAVITY RETAINING WALL. INSTALL CAP STONE ALONG FULL LENGTH OF WALL. INSTALL CONCRETE CURB FOR THE SYNTHETIC TURF FIELD DIRECTLY BEHIND THE NEW WALL. THE TOP OF WALL SHALL BE FLUSH WITH THE TOP OF THE CONCRETE CURB.

4. INSTALL SPORTSFIELD SPECIALTIES BASEZONE FIELD WALL PADDING MODEL BFWPZ44DG 4'W x 4'L x 3.75"D WITH Z-CLIP WALL MOUNT ON ALL INDICATED SECTIONS OF RETAINING WALL. INSTALL ALL PADDING FLUSH WITH THE TOP OF THE WALL. IN TWO (2) LOCATIONS, PADDING SHALL BE PAINTED YELLOW 4" THICK IN LINE WITH FOUL POLES, FULL HEIGHT OF PADDING. PADDING SHALL INCLUDE "LIVINGSTON LANCERS" (ONE (1) LETTER PER PAD) IN ONE (1) LOCATION.
5. INSTALL CONCRETE SIDEWALKS, CONCRETE STAIRS, RETAINING WALLS AND HANDRAILS AS PER DETAILS ON SP-4.1.
6. INSTALL WASHED GRAVEL, 4" THICK IN AREA BETWEEN RETAINING WALL AND CHAINLINK FENCE (SHOWN ON SP-2.2).
7. INSTALL NEW ASPHALT DRIVEWAY WHERE SHOWN AS PER ASPHALT SECTION DETAIL ON SP-4.1. KEY NEW ASPHALT INTO EXISTING ASPHALT.
8. INSTALL NEW CONCRETE PADS (PER DETAIL) AND NEW DUGOUTS. ALL FOUR (4) DUGOUTS SHALL BE SPORTSFIELD SPECIALTIES GD8X32 GAMESHADE DUGOUT. FOR ALL FOUR (4) DUGOUTS, CONTRACTOR SHALL PROVIDE AND INSTALL THREE (3) SPORTSFIELD SPECIALTIES SINGLE TIER SEMI-PERMANENT POLYBOARD BENCH WITH BACKREST MODEL PTBBRSP8.
9. INSTALL SPORTSFIELD SPECIALTIES POLE TO POLE TENSION NETTING SYSTEM WITH INTEGRATED WALL PAD BACKSTOP, MODEL NO. TNPPUCWPB AT TWO (2) LOCATIONS: SOFTBALL AND BASEBALL. BOTH SYSTEMS SHALL HAVE 4'-0" HIGH PADDED WALLS, WITH CUSTOM LOGO. THE SOFTBALL BACKSTOP SHALL BE THREE-SEGMENT, FOUR (4) POLES, 21'x21'x21', WITH 25' HIGH NETTING. THE BASEBALL BACKSTOP SHALL BE THREE-SEGMENT, FOUR (4) POLES, 25'x25'x25', WITH 30' HIGH NETTING. CONTRACTOR SHALL INSTALL ALL NECESSARY FOOTING AS PER MANUFACTURER'S SPECIFICATIONS. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS SIGNED AND SEALED BY A NJ LICENSED ENGINEER. COLOR OF WALL PADS SHALL BE CHOSEN BY OWNER.
10. INSTALL BASEBALL AND SOFTBALL BASES, HOME PLATES, BASEBALL PITCHERS MOUND, AND BASEBALL BULLPEN PITCHERS MOUNDS AS PER MANUFACTURER'S SPECIFICATIONS. PITCHER'S MOUND SHALL BE SPORTSFIELD SPECIALTIES PPBIT BROWN INFILL TURF PORTA-PITCH PORTABLE BASEBALL PITCHER'S MOUND (TO INCLUDE INFILL). BULL PEN PITCHER'S MOUNDS (x4) SHALL BE SPORTSFIELD SPECIALTIES PPBPBIT PORTA-PITCH PITCHER'S BULL PEN MOUND. ALL BASES AND HOME PLATES SHALL BE SPORTSFIELD SPECIALTIES SHAFIT SCHUTT/HOLLYWOOD ANCHORED SYSTEM. EACH OF THE TWO (2) BULLPEN AREAS SHALL RECEIVE TWO (2) BULLPEN PITCHERS MOUNDS AND TWO (2) HOME PLATES. CONTRACTOR SHALL ALSO PROVIDE AND INSTALL TWO (2) SOFTBALL PITCHING RUBBERS AND TWO (2) HOME PLATES FOR THE SOFTBALL BULLPEN AREA, ADJACENT TO THE TRACK EVENTS BASES. ALL NEW BASES AND PITCHERS MOUNDS SHALL BE INSTALLED AS PER NFHS STANDARDS.
11. INSTALL ONE (1) SHOT PUT CONCRETE PAD AND ONE (1) DISCUS CONCRETE PAD WITH DISCUS CAGE AND BACKUP NET SYSTEM. DISCUS CAGE SHALL BE SPORTSFIELD SPECIALTIES DCHS HIGH SCHOOL DISCUS CAGE WITH BACKUP NET SYSTEM. CONCRETE PADS AND NET SYSTEM SHALL MEET ALL NFHS REQUIREMENTS AND SHALL BE INSTALLED AS PER DETAILS ON SP-4.2.
12. INSTALL SPORTSFIELD SPECIALTIES GROUND SLEEVE OVERHEAD BATTING TUNNEL, MODEL BTOBS.
13. INSTALL NEW FOUL POLE AND CONCRETE SONOTUBE FOOTING (2'-0" DIAMETER, 5'-0" DEEP). FOUL POLESSHALL BE SPORTSFIELD SPECIALTIES FPW630 FOUL POLE SYSTEM, 30' H, WITH WING.
14. INSTALL NEW CHAINLINK FENCING, INCLUDING ALL POLES, FABRIC, TOP RAILS, MID RAILS, AND BOTTOM RAILS AS PER SHEET SP-2.2.
15. INSTALL 4'-0" x 10'-0" CONCRETE PAD (PER DETAIL) FOR NEW ELECTRICAL PANELS AND TRANSFORMER.
16. INSTALL MUSCO FIELD LIGHTS INCLUDING NINE (9) NEW LIGHT POLES, POLE FOUNDATIONS, ALL CONDUIT, WIRING, PULL BOXES, LIGHT FIXTURES, ELECTRICAL PANELS, TRANSFORMER CONTROL PANEL AND CIRCUIT BREAKERS AS PER SHEET SP-2.4 INSTALL ALL LIGHTS, SWITCHES, RECEPTACLES AND ASSOCIATED WIRING, CONDUIT, JUNCTION BOXES AND CIRCUIT BREAKERS FOR DUGOUTS AND BULLPENS AS PER SHEET SP-2.4.
17. INSTALL DAKTRONICS SCOREBOARD BA-2030 WITH ALL ASSOCIATED STRUCTURE, FOUNDATIONS, WIRING AND CONDUIT TO NEW PANEL 'FLV'. INSTALL SCOREBOARD 10'-0" ABOVE GRADE. SCOREBOARD AND LED COLORS TO BE CHOSEN BY OWNER. CONTRACTOR SHALL PROVIDE WIRELESS CONTROLLER FOR SCOREBOARD.
18. INSTALL DAKTRONICS SCOREBOARD MS-2002 WITH ALL ASSOCIATED STRUCTURE, FOUNDATIONS, WIRING AND CONDUIT TO NEW PANEL 'FLV'. INSTALL SCOREBOARD 10'-0" ABOVE GRADE. SCOREBOARD AND LED COLORS TO BE CHOSEN BY OWNER. CONTRACTOR SHALL PROVIDE WIRELESS CONTROLLER FOR SCOREBOARD.
19. INSTALL SPORTSFIELD SPECIALTIES POLE TO POLE TENSION NETTING SYSTEM, STRAIGHT LINE, MODEL TNPPUC, 30' HIGH, APPROX. 300 L.F. INSTALL ALL NECESSARY FOOTING AS PER MANUFACTURER'S SPECIFICATIONS. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS SIGNED AND SEALED BY A NJ LICENSED ENGINEER. NETTING SHALL BE TIED DOWN TO NEW RETAINING WALL WITH CONCRETE EYE BOLT EXPANSION ANCHORS EVERY 8'-0" O.C.
20. RESTORE ALL DISTURBED AREAS ADJACENT TO THE NEW FIELD. REMOVE ALL ROCKS LARGER THAN 3/4" DIA., REGRADE, INSTALL GRASS SEED AND HAY.

1 ALTERNATE #1 CONSTRUCTION NOTES:

1. INSTALL 5'-0" WIDE CONCRETE SIDEWALK WHERE SHOWN. INSTALL CONTROL JOINTS EVERY 10'-0" O.C., SCORE CONCRETE EVERY 5'-0" O.C. INSTALL AS PER DETAIL ON SP-4.2.

1A. INSTALL HANDICAP CURB RAMP WHERE SHOWN IN NEW CONCRETE SIDEWALK.

2 ALTERNATE #2 CONSTRUCTION NOTES:

1. SEE FENCING PLAN, SHEET SP-2.2. INSTALL 8'-0" HIGH CHAINLINK FENCE IN LIEU OF ALL 4'-0" HIGH CHAINLINK FENCE SHOWN. GATES 2, AND 4 SHALL BE 8'-0" HIGH.

3 ALTERNATE #3 CONSTRUCTION NOTES:

1. INSTALL SPORTSFIELD SPECIALTIES BSS420 STORMGUARD PROFESSIONALLY PRE-ENGINEERED BREAKAWAY BALL SAFETY SYSTEM NETTING WITH GROUND SLEEVE INSERTS, 20FT HIGH WHERE SHOWN . (THREE (3) LOCATIONS, APPROX. 75 L.F., 100 L.F., AND 80 L.F.)

NOTE:
- ALL CURB AND WALL DIMENSIONS ARE SHOWN FROM THE INSIDE EDGE OF THE NEW CURB/WALL.

NOTE:
- FOR ALL PRODUCTS LISTED: CONTRACTOR SHALL PROVIDE SPECIFIED PRODUCT OR APPROVED EQUAL.

NOT IN CONTRACT:
- **THE SYNTHETIC TURF SYSTEM SHALL NOT BE INCLUDED IN THIS CONTRACT.**

GIANFORCARO ARCHITECTS ENGINEERS & PLANNERS

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CHESTER, N.J. 07930
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FAX: (908) 879-8505

- ARCHITECTURAL
- CIVIL
- STRUCTURAL
- CONSTRUCTION
- ENVIRONMENTAL
- MECHANICAL
- FORENSIC

MATTHEW G. GIANFORCARO,PE
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N.J. LIC. NO. 56295

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N.J. LIC. NO. 3501

SYNTHETIC TURF FIELD AND FIELD LIGHTING AT THE LIVINGSTON HIGH SCHOOL

30 ROBERT H HARP DR LIVINGSTON, NJ 07039

BLOCK: 4400 LOT: 1

STATE PLAN: XX-XXXX-XXX-XX-XXXX

FOR THE LIVINGSTON BOARD OF EDUCATION

11 FOXCROFT DR LIVINGSTON, NJ 07039

ESSEX COUNTY NEW JERSEY

CONSTRUCTION PLAN

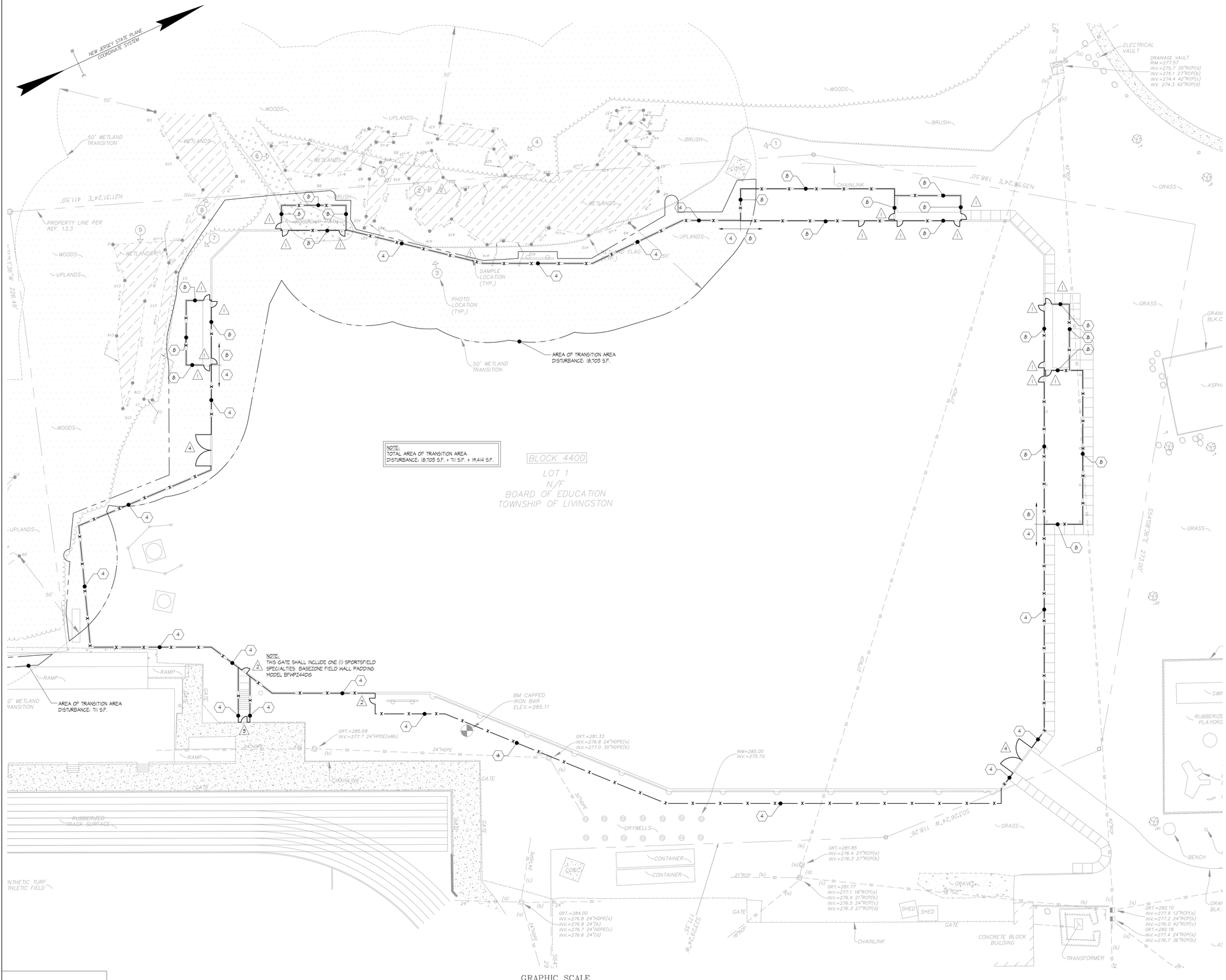
SCALE: AS NOTED

DATE	DRAWN / CHECKED
12/15/21	DRAWN MGG
	CHECKED AG

FILE HSTurfFieldR23

REVISION 1/18/22

SP-2.1



BASE BID FENCE LEGEND

4	4'-0" HIGH CHAINLINK FENCE
B	6'-0" HIGH CHAINLINK FENCE
1	3'-0" WIDE SINGLE GATE, 6'-0" HIGH
2	3'-0" WIDE SINGLE GATE, 4'-0" HIGH
B	3'-0" WIDE SINGLE GATE, 6'-0" HIGH
4	16'-0" WIDE DOUBLE GATE, 4'-0" HIGH W/ WHEEL SUPPORTS

NOTE:
- ALL NEW CHAINLINK FENCING FABRIC SHALL BE MIN. 9 GAUGE, POWDER COATED ALUMINUM, PAINTED BLACK. ALL NEW FENCING SHALL INCLUDE MIN. 2" DIAMTER POSTS, TOP RAIL, MID RAIL, AND BOTTOM RAIL, ALL PAINTED BLACK. ALL NEW 4'-0" HIGH FENCING SHALL INCLUDE TOP RAIL COVER.
- ALTERNATE #1: ALL 4'-0" HIGH FENCE BECOMES 6'-0" HIGH. GATES 2, AND 4 BECOME 6'-0" HIGH.

ALL SURVEY DATA TAKEN FROM:

VS LAND DATA
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80 River Rd, PO Box 186
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F 800.220.8624
www.vslanddata.com
NJ Certificate Of Authorization #24GA28175500

John J. Harlon
Professional Land Surveyor
New Jersey License No. 37584
Pennsylvania License No. SU067184

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

1 FENCING PLAN
1" = 20'-0"

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SYNTHETIC TURF FIELD AND FIELD LIGHTING

AT THE LIVINGSTON HIGH SCHOOL

30 ROBERT H HARP DR
LIVINGSTON, NJ 07039

BLOCK: 4400
LOT: 1

STATE PLAN:
XX-XXXX-XXX-XX-XXXX

FOR THE LIVINGSTON BOARD OF EDUCATION

11 FOXCROFT DR
LIVINGSTON, NJ 07039

ESSEX COUNTY
NEW JERSEY

FENCING PLAN

SCALE: AS NOTED

DATE	DRAWN
12/15/21	MGG
	CHECKED AG
FILE: HSTurfFieldR23	
REVISION: 1/18/22	SP-2.2

NEW JERSEY STATE PLANE COORDINATE SYSTEM

PROPERTY LINE PER REF. 13.3

LOT 2
N/F
TOWNSHIP OF LIVINGSTON

BLOCK 4400
LOT 1
N/F
BOARD OF EDUCATION
TOWNSHIP OF LIVINGSTON

50' WETLAND TRANSITION

AREA OF TRANSITION AREA DISTURBANCE: 18,103 S.F.

AREA OF TRANSITION AREA DISTURBANCE: 424 S.F.

NOTE:
TOTAL AREA OF TRANSITION AREA DISTURBANCE: 18,703 S.F. + 424 S.F. = 19,127 S.F.

47 L.F. 12" DIA PERFORATED N-12 PIPE (SLOPE: 0.25%)
71 L.F. 12" DIA PERFORATED N-12 PIPE (SLOPE: 0.25%)
59 L.F. 12" DIA PERFORATED N-12 PIPE (SLOPE: 0.25%)
51 L.F. 12" DIA PERFORATED N-12 PIPE (SLOPE: 0.25%)
164 L.F. 12" DIA PERFORATED N-12 PIPE (SLOPE: 0.25%)
21 L.F. 12" DIA PERFORATED N-12 PIPE (SLOPE: 1.25%)
40 L.F. 12" DIA PERFORATED N-12 PIPE (SLOPE: 1.25%)
54 L.F. 12" DIA PERFORATED N-12 PIPE (SLOPE: 0.25%)
81 L.F. 12" DIA PERFORATED N-12 PIPE (SLOPE: 0.25%)
152 L.F. 12" DIA PERFORATED N-12 PIPE (SLOPE: 0.25%)
74 L.F. 12" DIA PERFORATED N-12 PIPE (SLOPE: 0.25%)
83 L.F. 12" DIA PERFORATED N-12 PIPE (SLOPE: 0.25%)
118 L.F. 12" DIA PERFORATED N-12 PIPE (SLOPE: 1.44%)
9 L.F. 12" DIA PERFORATED N-12 PIPE (SLOPE: 1.44%)

ACO 4000 TRENCH DRAIN (TYP.)

ACO SPORT SYSTEM 4000 TRENCH DRAIN ALONG FULL LENGTH OF FIELD (APPROX. 485 L.F.)

START/STOP NEW TRENCH DRAIN ON BOTH SIDES OF EXISTING 21" PIPE

MH #2
RIM: 278.17
INV. (a) 275.35 (ORIFICE DETAIL SP-4.2)
INV. (b) 275.35
INV. (c) 275.35 (ORIFICE DETAIL SP-4.2)
INV. (d) 275.35

MH #1
RIM: 278.84
(ORIFICE DETAIL SP-4.2) INV. (a) 276.29
INV. (b) 276.29
(ORIFICE DETAIL SP-4.2) INV. (c) 276.29
INV. (d) 276.29

CB #1 (RAISED)
GRT. 283.80
INV. (a) 276.8
INV. (b) 277.0

DRAINAGE VAULT
RIM=277.57
INV.=275.7 30"RCP
INV.=275.1 27"RCP
INV.=274.4 42"RCP
INV. 274.3 42"RCP

ELECTRICAL VAULT

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

1 DRAINAGE PLAN
1" = 20'-0"

ALL SURVEY DATA TAKEN FROM:

VS LAND DATA
VS HEADQUARTERS:
80 River Rd, PO Box 186
Phillipsburg, NJ 08865
P 888.876.4435
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NJ Certificate Of Authorization
#24GA28113500

John J. Horion
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Pennsylvania License No. SU066784

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N.J. LIC. NO. 3501

SYNTHETIC TURF FIELD AND FIELD LIGHTING

AT THE LIVINGSTON HIGH SCHOOL

30 ROBERT H HARP DR
LIVINGSTON, NJ 07039

BLOCK: 4400
LOT: 1

STATE PLAN:
XX-XXXX-XXX-XX-XXXX

FOR THE LIVINGSTON BOARD OF EDUCATION

11 FOXCROFT DR
LIVINGSTON, NJ 07039

ESSEX COUNTY
NEW JERSEY

DRAINAGE PLAN

SCALE: AS NOTED

DATE	DRAWN
12/15/21	MGG
	CHECKED
	AG

FILE: HSTurfFieldR23

REVISION: 1/18/22

SP-2.3

NEW JERSEY STATE PLANE COORDINATE SYSTEM

ELECTRICAL LEGEND

- WEATHER PROTECTED SINGLE POLE TOGGLE SWITCH- C.L. 48" A.F.F.
- CONDUIT RUN EXPOSED
- UNDERGROUND PVC CONDUIT
- WEATHER PROTECTED, GROUND FAULT CIRCUIT INTERRUPTER 110v. DUPLEX OUTLET 18" A.F.F., MOUNTED ON UNISTRUT
- HOLOPHANE EVT4 LED 8000LM PCL MD 120V GZ10 50K BO CRI WLF GMB
- QUAZITE BOX HAND HOLE - QUANTITY AND LOCATIONS SHOWN ON SP-2.4 ARE SCHEMATIC, CONTRACTOR SHALL PROVIDE AND INSTALL AS REQUIRED FOR ALL NEW UNDERGROUND CONDUITS
- FIELD LIGHT POLE
- (PANEL-CKT)

ALL SURVEY DATA TAKEN FROM:

VS LAND DATA
VS HEADQUARTERS:
80 River Rd, PO Box 186
Philipsburg, NJ 08865
P 888.876.4455
F 800.220.8224
www.vslanddata.com
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Professional Land Surveyor
New Jersey License No. 37584
Pennsylvania License No. SU060784

NOTE:
TOTAL AREA OF TRANSITION AREA DISTURBANCE: 18,703 S.F. + 711 S.F. = 19,414 S.F.

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

1 ELECTRICAL PLAN
1" = 20'-0"

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N.J. LIC. NO. 3501

SYNTHETIC TURF FIELD AND FIELD LIGHTING

AT THE LIVINGSTON HIGH SCHOOL

30 ROBERT H HARP DR
LIVINGSTON, NJ 07039

BLOCK: 4400
LOT: 1

STATE PLAN:
XX-XXXX-XXX-XX-XXXX

FOR THE LIVINGSTON BOARD OF EDUCATION

11 FOXCROFT DR
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ESSEX COUNTY
NEW JERSEY

ELECTRICAL PLAN

SCALE: AS NOTED

DATE	DRAWN
12/15/21	MGG
	CHECKED AG

FILE: HSTurfFieldR23

REVISION: 1/18/22

SP-2.4

NEW JERSEY STATE PLANE COORDINATE SYSTEM

AREA OF TRANSITION AREA DISTURBANCE: 18,705 S.F.

NOTE:
TOTAL AREA OF TRANSITION AREA DISTURBANCE: 18,705 S.F. + 711 S.F. = 19,416 S.F.

AREA OF TRANSITION AREA DISTURBANCE: 711 S.F.

BACKFILL BEHIND WALL IN THIS LOCATION SO FINISHED GRADE BEHIND WALL IS AT SAME ELEVATION AS TOP OF WALL

LOT 2
N/F
TOWNSHIP OF LIVINGSTON

BLOCK 4400
LOT 1
N/F
BOARD OF EDUCATION
TOWNSHIP OF LIVINGSTON

ALL SURVEY DATA TAKEN FROM:

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P. 888.874.4435
F. 800.220.8214
www.vslandata.com
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Professional Land Surveyor
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Pennsylvania License No. SU060784

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

1 GRADING PLAN
1" = 20'-0"

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SYNTHETIC TURF FIELD AND FIELD LIGHTING

AT THE LIVINGSTON HIGH SCHOOL

30 ROBERT H HARP DR
LIVINGSTON, NJ 07039

BLOCK: 4400
LOT: 1

STATE PLAN:
XX-XXXX-XXX-XX-XXXX

FOR THE LIVINGSTON BOARD OF EDUCATION

11 FOXCROFT DR
LIVINGSTON, NJ 07039

ESSEX COUNTY
NEW JERSEY

GRADING PLAN

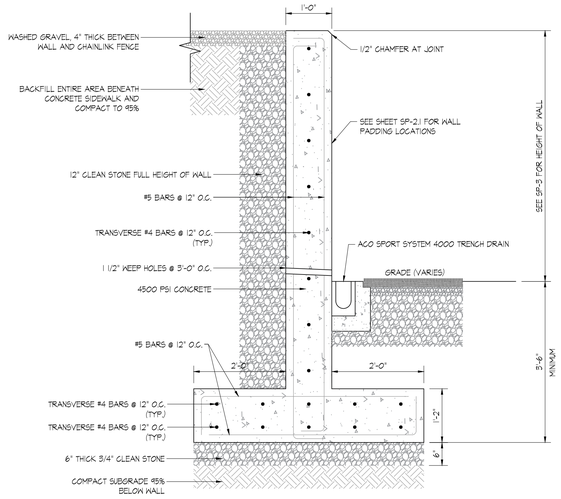
SCALE: AS NOTED

DATE	DRAWN
12/15/21	MGG
	CHECKED
	AG

FILE: HSTurfFieldR23

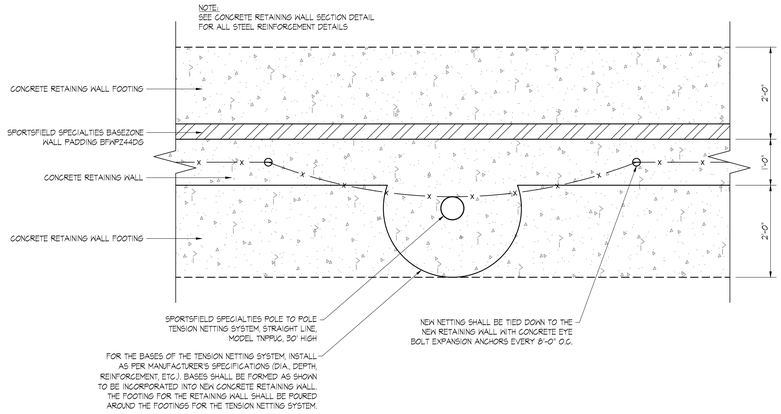
REVISION: 1/18/22

SP-3.1



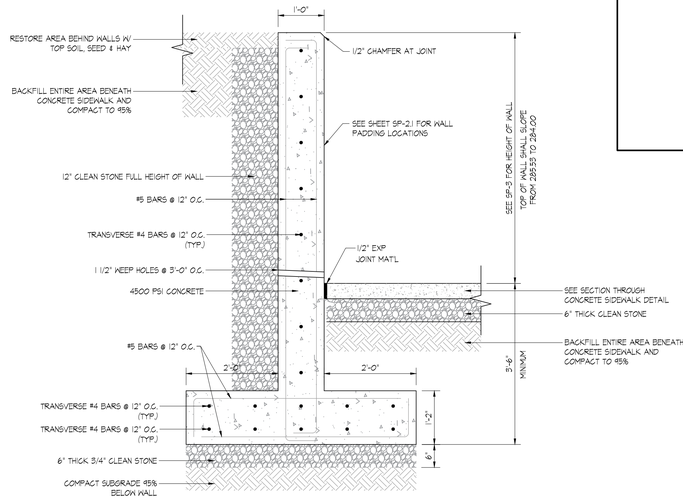
CONCRETE RETAINING WALL SECTION

SCALE: 3/4" = 1'-0"



CONCRETE RETAINING @ POLE FOUNDATION DETAIL

SCALE: 3/4" = 1'-0"



CONCRETE RETAINING WALL @ STAIR SECTION

SCALE: 3/4" = 1'-0"

CONCRETE STAIR DETAIL

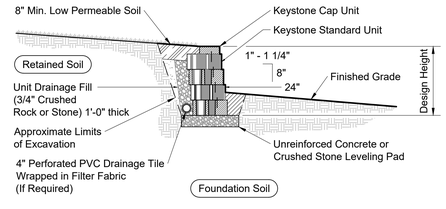
SCALE: 3/4" = 1'-0"

Base Leveling Pad Notes:

1. The leveling pad is to be constructed of crushed stone or 2,000 psi± unreinforced concrete
2. The base foundation is to be approved by the site geotechnical engineer prior to placement of the leveling pad.

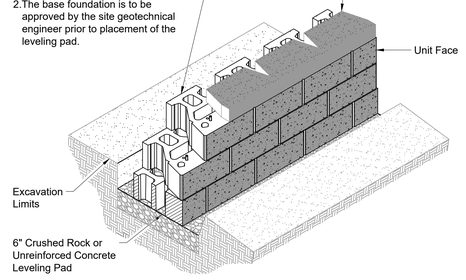
Standard Unit	
Width:	18"
*Depth:	18"
Height:	8"
*Weight:	108 lbs

Cap Unit	
Width:	18"
*Depth:	10 1/2"
Height:	4"
*Weight:	50 lbs



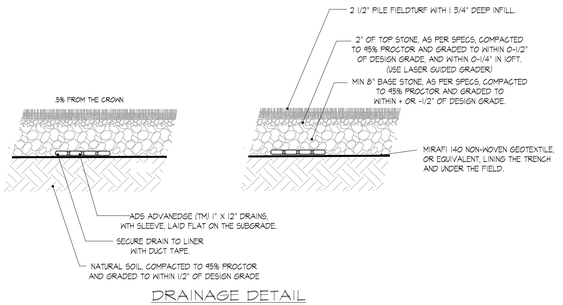
TYPICAL BLOCK RETAINING WALL SECTION

NOT TO SCALE



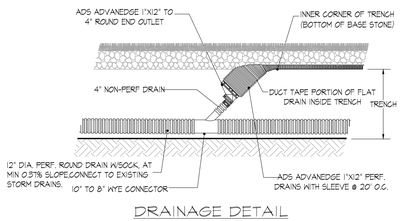
TYPICAL BLOCK RETAINING WALL ISOMETRIC SECTION

NOT TO SCALE



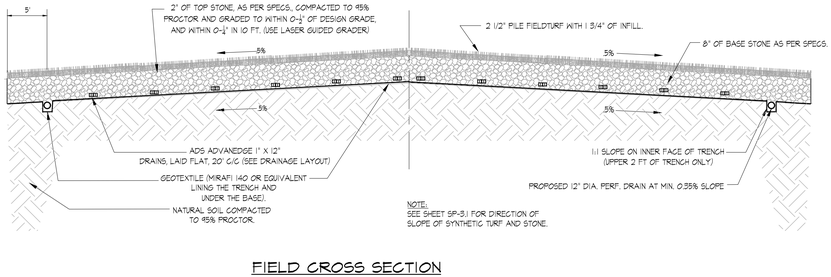
DRAINAGE DETAIL

NOT TO SCALE



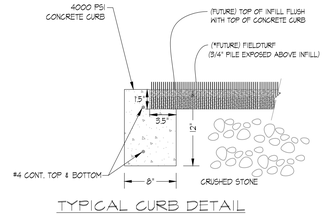
DRAINAGE DETAIL

NOT TO SCALE



FIELD CROSS SECTION

NOT TO SCALE



TYPICAL CURB DETAIL

NOT TO SCALE

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SYNTHETIC TURF FIELD AND FIELD LIGHTING

AT THE LIVINGSTON HIGH SCHOOL

30 ROBERT H HARP DR
LIVINGSTON, NJ 07039

BLOCK: 4400
LOT: 1

STATE PLAN:
XX-XXXX-XXX-XX-XXXX

FOR THE LIVINGSTON BOARD OF EDUCATION

11 FOXCROFT DR
LIVINGSTON, NJ 07039

ESSEX COUNTY
NEW JERSEY

DETAILS

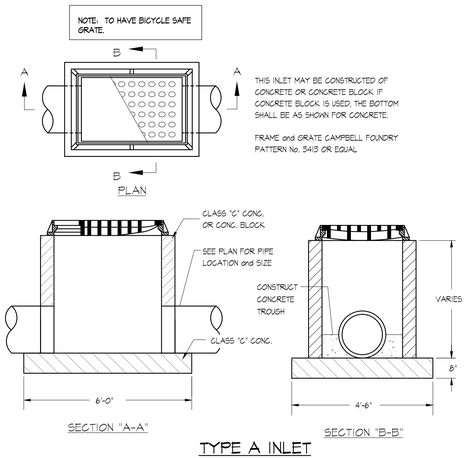
SCALE: AS NOTED

DATE	DRAWN
12/15/21	MGG
	CHECKED
	AG

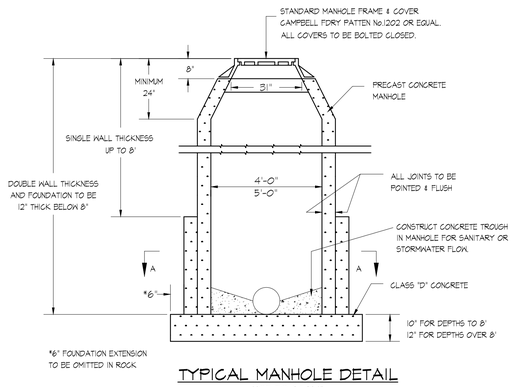
FILE: HSTurfFieldR23

REVISION: 1/18/22

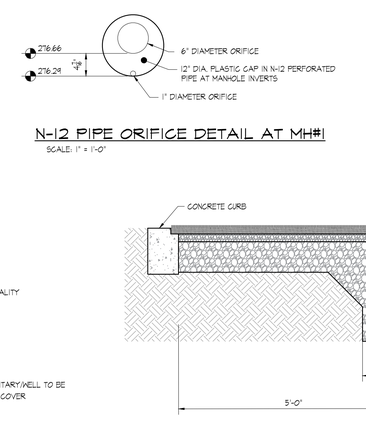
SP-4.1



TYPE A INLET
NOT TO SCALE



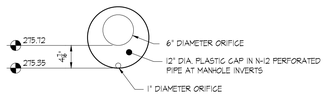
TYPICAL MANHOLE DETAIL
NOT TO SCALE



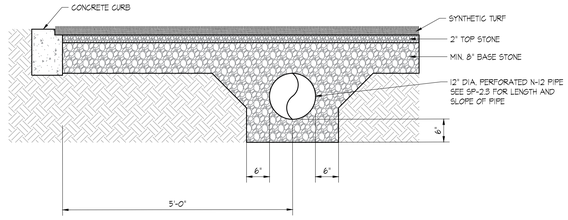
STORM SANITARY/WELL MANHOLE COVER

COVER/GRATE DETAILS
NOT TO SCALE

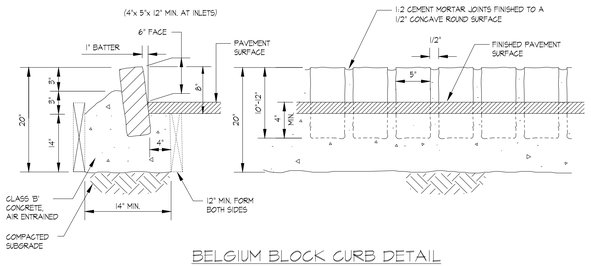
N-12 PIPE ORIFICE DETAIL AT MH#1
SCALE: 1" = 1'-0"



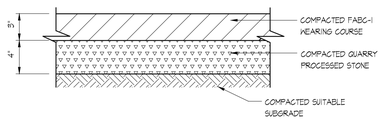
N-12 PIPE ORIFICE DETAIL AT MH#2
SCALE: 1" = 1'-0"



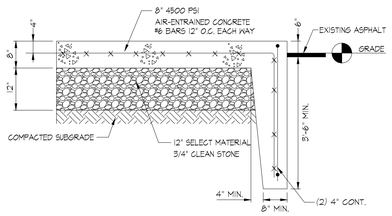
TYPICAL SECTION THROUGH PERFORATED PIPE
SCALE: 3/4" = 1'-0"



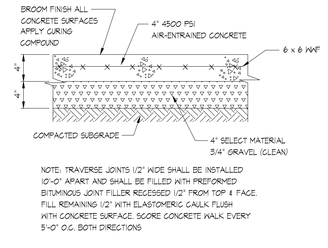
BELGIUM BLOCK CURB DETAIL
N.T.S.



TYPICAL ASPHALT WALKWAY SECTION
NOT TO SCALE

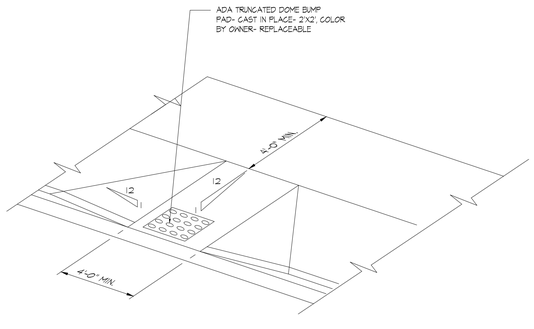


CONCRETE PAD DETAIL FOR DUGOUTS & ELECTRICAL PANELS
NOT TO SCALE



NOTE: TRAVERSE JOINTS 1/2" WIDE SHALL BE INSTALLED 10'-0" APART AND SHALL BE FILLED WITH PREFORMED BITUMINOUS JOINT FILLER RECESSED 1/2" FROM TOP & FACE. FILL REMAINING 1/2" WITH ELASTOMERIC CAULK FLUSH WITH CONCRETE SURFACE. SCORE CONCRETE WALK EVERY 5'-0" O.C. BOTH DIRECTIONS

SECTION THROUGH CONCRETE SIDEWALK
NOT TO SCALE

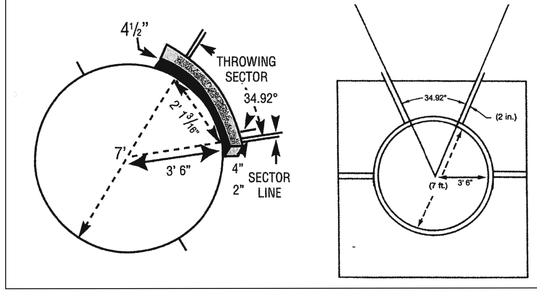


PROPOSED HANDICAP CURB RAMP
NOT TO SCALE

SHOT PUT — A 34.92-degree sector shall be marked on the ground. The putting circles shall have an inside diameter of 7 feet (2.134 m). The circumference shall be marked with a metal, wood or plastic band which shall not rise more than ¾ inch (1.9 cm) above the level of the circle; or, if the circle has a surface of asphalt, concrete, wood or other hard material, a painted line 2 inches (5 cm) wide may be substituted for the band. A concrete surface with a 1/64 inch (1 mm) roughness is recommended.

A stopboard, constructed of concrete, fiberglass, metal, wood or other hard-surfaced material in the shape of an arc, so that the inner edge coincides with the inner edge of the circle, shall be firmly fixed in this position. It shall be 4 feet (1.22 meters) in length along the inside surface, 4 inches (10 cm) in height and 4½ inches (11.4 cm) in width. The inside edge of the line or band is the limit of the putting circle.

Radial lines 2 inches (5 cm) wide shall extend from the center of the circle to form an area into which legal puts must be made. The inside edges of these lines shall mark the sector and the lines shall be placed equidistant from the ends of the stopboard.

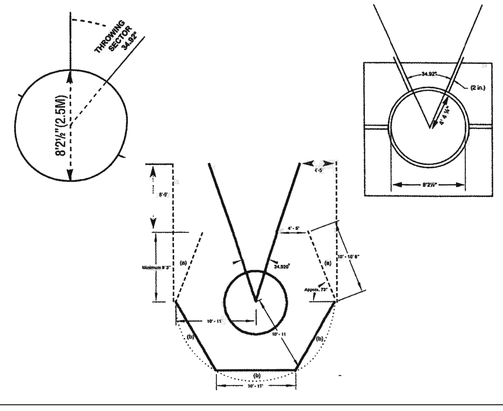


SHOT PUT CONCRETE PAD DETAIL

DISCUS — The throwing circle shall be 8 feet, 2½ inches (2.50 meters) in diameter. The circumference shall be marked with a metal, wood or plastic band which shall not rise more than ¾ inch (1.9 centimeters) above the level of the circle or if the circle has a surface of asphalt, concrete, wood or other hard material, a painted line 2 inches (5 centimeters) wide may substitute for the band. The inside edge of the line or band is the limit of the throwing circle.

Projecting lines, 2 inches (5 centimeters) wide and 8 inches (20 centimeters) long, lying on the diameter extended and outside the circumference shall be used to designate the back half of the throwing circle.

A 34.92-degree sector shall be marked on the ground and drawn from the center of the throwing circle. From the center of the circle, mark one sector line. To establish the other sector line, use the point of intersection of the first sector line and the inside edge of the throwing circle and strike an arc with a radius of 2 feet, 59/16 inches (75.07 cm), so that it intersects the circle. From the center of the discus circle and through this point, construct the second sector line.



DISCUS CONCRETE PAD DETAIL

GIANFORCARO ARCHITECTS ENGINEERS & PLANNERS

555 EAST MAIN ST.
CHESTER, N.J. 07930
PHONE: (908) 879-6001
FAX: (908) 879-8505

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- STRUCTURAL
- CONSTRUCTION
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N.Y. LIC. NO. 52202
PROFESSIONAL PLANNER
N.J. LIC. NO. 3501

SYNTHETIC TURF FIELD AND FIELD LIGHTING

AT THE LIVINGSTON HIGH SCHOOL

30 ROBERT H HARP DR
LIVINGSTON, NJ 07039

BLOCK: 4400
LOT: 1

STATE PLAN:
XX-XXXX-XXX-XX-XXXX

FOR THE LIVINGSTON BOARD OF EDUCATION

11 FOXCROFT DR
LIVINGSTON, NJ 07039

ESSEX COUNTY NEW JERSEY

DETAILS

SCALE: AS NOTED

DATE	DRAWN
12/15/21	MGG
	CHECKED AG

FILE: HSTurfFieldR23

REVISION: 1/18/22

SP-4.2

Livingston HS Multipurpose Field
Livingston, NJ

Lighting System

Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Circuit
A1	70'	70'	2	TLC-LED-1200	2.34 kW	A
		70'	1	TLC-LED-900	0.89 kW	A
		16'	1	TLC-BT-575	0.58 kW	A
A2	70'	70'	2	TLC-LED-1200	2.34 kW	B
		70'	4	TLC-LED-1500	5.72 kW	B
		16'	1	TLC-BT-575	0.58 kW	B
A3	70'	70'	4	TLC-LED-1200	4.68 kW	B
		16'	1	TLC-BT-575	0.58 kW	B
A4	70'	70'	3	TLC-LED-1200	3.51 kW	C
		16'	1	TLC-BT-575	0.58 kW	C
B1	80'	80'	3	TLC-LED-900	2.67 kW	A
		16'	1	TLC-BT-575	0.58 kW	A
B2	70'	70'	9	TLC-LED-1500	12.87 kW	B
		16'	2	TLC-BT-575	1.15 kW	B
B4	80'	80'	1	TLC-LED-1200	1.17 kW	B
		80'	10	TLC-LED-1500	14.30 kW	B
		16'	2	TLC-BT-575	1.15 kW	B
C1	80'	80'	1	TLC-LED-1200	1.17 kW	B
		80'	9	TLC-LED-1500	12.87 kW	B
		16'	2	TLC-BT-575	1.15 kW	B
T1	60'	60'	2	TLC-LED-1200	2.34 kW	D
		60'	3	TLC-LED-1500	4.29 kW	D
9			65		77.49 kW	

Circuit	Description	Load	Fixture Qty
A	Baseball	7.05 kW	8
B	Multipurpose / Outfield	59.72 kW	48
C	Softball Infield	4.09 kW	4
D	Throwing Area	6.63 kW	5

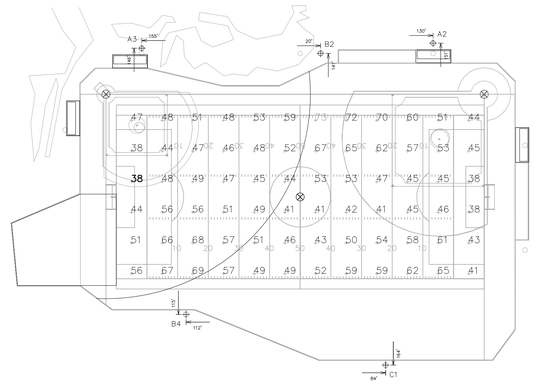
Type	Source	Wattage	Lumens	L80	L80	L70	Quantity
TLC-LED-1500	LED 5700K - 75 CRI	1430W	160,000	>120,000	>120,000	>120,000	35
TLC-LED-900	LED 5700K - 75 CRI	890W	89,600	>120,000	>120,000	>120,000	4
TLC-LED-1200	LED 5700K - 75 CRI	1170W	136,000	>120,000	>120,000	>120,000	15
TLC-BT-575	LED 5700K - 75 CRI	575W	52,000	>120,000	>120,000	>120,000	11

Light Level Summary

Grid Name	Calculation Metric	Illumination					Circuits	Fixture Qty
		Ave	Min	Max	Max/Min	Ave/Min		
150' Spill	Horizontal	0.04	0	0.28	483.02		A,B,C,D	65
150' Spill	Max Candela (by Fixture)	2395	112	6951	62.09	21.40	A,B,C,D	65
150' Spill	Max Vertical Illuminance Metric	0.11	0	0.48	224.78		A,B,C,D	65
Baseball (Infield)	Horizontal Illuminance	58.3	45	70	1.53	1.30	A,B,C	60
Baseball (Outfield)	Horizontal Illuminance	53.2	32	76	2.39	1.66	A,B,C	60
Blanket Grid	Horizontal	15.5	0	106	0.00		A,B,C,D	65
Football	Horizontal Illuminance	51.9	38	73	1.94	1.37	B	48
Soccer	Horizontal Illuminance	51.9	38	73	1.94	1.37	B	48
Softball (Infield)	Horizontal Illuminance	59.7	48	75	1.57	1.24	A,B,C	60
Softball (Outfield)	Horizontal Illuminance	54.3	31	74	2.36	1.75	A,B,C	60
Throwing Area	Horizontal	51.7	22	79	3.54	2.35	D	5

ENGINEERED DESIGN By: Matt Sullivan - File #215348C - 09-Dec-21

Pole QTY	Pole LOCATION	Pole SIZE	Pole GRADE ELEVATION	Luminaires MOUNTING HEIGHT	Luminaires LUMINAIRE TYPE	Luminaires QTY ALL	Luminaires THIS GRID	Luminaires OTHER GRIDS
1	A2	70'	-.06'	69.94'	TLC-LED-1500	4	4	0
				15.44'	TLC-BT-575	1	1	0
				69.94'	TLC-LED-1200	2	2	0
1	A3	70'	0'	15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	4	4	0
1	B2	70'	-.06'	15.44'	TLC-BT-575	2	2	0
				69.94'	TLC-LED-1500	9	9	0
1	B4	80'	0'	80'	TLC-LED-1200	1	1	0
				15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	10	10	0
1	C1	80'	-.06'	79.94'	TLC-LED-1200	1	1	0
				15.44'	TLC-BT-575	2	2	0
				79.94'	TLC-LED-1500	9	9	0
5						48	48	0



Livingston HS Multipurpose Field
Livingston, NJ

Name: Football
Size: 360' x 160'
Spacing: 30.0' x 30.0'
Height: 3.0' above grade

Entire Grid	
Guaranteed Average:	**50**
Scan Average:	51.91
Maximum:	73
Minimum:	38
Avg / Min:	1.38
Guaranteed Max / Min:	**2**
Max / Min:	1.94
UG (adjacent pts):	1.58
CU:	0.51
No. of Points:	72
Applied Circuits:	B
No. of Luminaires:	**48**
Total Load:	59.72 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

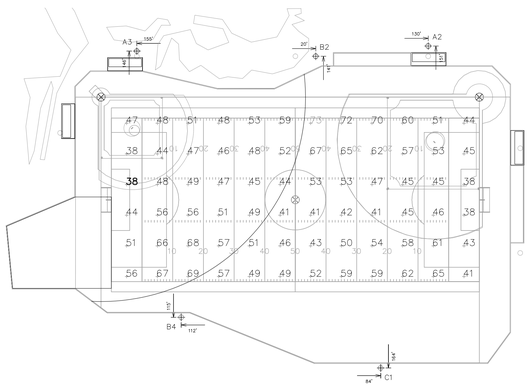
Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Pole locations ✦ dimensions are relative to 0,0 reference point(s) ⊗

ENGINEERED DESIGN By: Matt Sullivan - File #215348C - 09-Dec-21

Pole QTY	Pole LOCATION	Pole SIZE	Pole GRADE ELEVATION	Luminaires MOUNTING HEIGHT	Luminaires LUMINAIRE TYPE	Luminaires QTY ALL	Luminaires THIS GRID	Luminaires OTHER GRIDS
1	A2	70'	0'	15.44'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	2	2	0
1	A3	70'	0'	15.52'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	4	4	0
1	B2	70'	0'	15.46'	TLC-BT-575	2	2	0
				70'	TLC-LED-1500	9	9	0
1	B4	80'	0'	80'	TLC-LED-1200	1	1	0
				15.52'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	10	10	0
1	C1	80'	0'	80'	TLC-LED-1200	1	1	0
				15.46'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	9	9	0
5						48	48	0



Livingston HS Multipurpose Field
Livingston, NJ

Name: Soccer
Size: 360' x 180'
Spacing: 30.0' x 30.0'
Height: 3.0' above grade

Entire Grid	
Guaranteed Average:	**50**
Scan Average:	51.91
Maximum:	73
Minimum:	38
Avg / Min:	1.38
Guaranteed Max / Min:	**2**
Max / Min:	1.94
UG (adjacent pts):	1.58
CU:	0.51
No. of Points:	72
Applied Circuits:	B
No. of Luminaires:	**48**
Total Load:	59.72 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

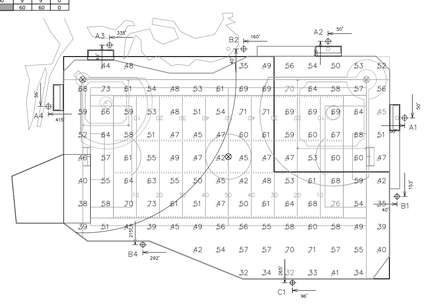
Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Pole locations ✦ dimensions are relative to 0,0 reference point(s) ⊗

ENGINEERED DESIGN By: Matt Sullivan - File #215348C - 09-Dec-21

Pole QTY	Pole LOCATION	Pole SIZE	Pole GRADE ELEVATION	Luminaires MOUNTING HEIGHT	Luminaires LUMINAIRE TYPE	Luminaires QTY ALL	Luminaires THIS GRID	Luminaires OTHER GRIDS
1	A1	70'	-	70'	TLC-LED-1200	2	2	0
				15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-900	3	3	0
1	A2	70'	-	70'	TLC-LED-1500	4	4	0
				15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	2	2	0
1	A3	70'	.00'	15.56'	TLC-BT-575	1	1	0
				70.06'	TLC-LED-1200	4	4	0
1	A4	70'	.00'	15.56'	TLC-BT-575	1	1	0
				70.06'	TLC-LED-1200	3	3	0
1	B1	80'	-	15.5'	TLC-BT-575	1	1	0
				80'	TLC-LED-900	3	3	0
1	B2	70'	-	15.5'	TLC-BT-575	2	2	0
				70'	TLC-LED-1500	9	9	0
1	B4	80'	.00'	80.06'	TLC-LED-1200	1	1	0
				15.56'	TLC-BT-575	2	2	0
				80.06'	TLC-LED-1500	10	10	0
1	C1	80'	-	80'	TLC-LED-1200	1	1	0
				15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	9	9	0
8						60	60	0



Livingston HS Multipurpose Field
Livingston, NJ

Name: Baseball
Size: Irregular 260' / 327' / 395'
Spacing: 30.0' x 30.0'
Height: 3.0' above grade

	Infield	Outfield
Guaranteed Average:	**50**	**50**
Scan Average:	58.30	53.15
Maximum:	70	76
Minimum:	45	32
Avg / Min:	1.29	1.68
Guaranteed Max / Min:	**2**	**2.5**
Max / Min:	1.53	2.39
UG (adjacent pts):	1.41	2.20
CU:	0.77	
No. of Points:	25	97
Applied Circuits:	A, B, C	
No. of Luminaires:	**60**	
Total Load:	70.86 kW	

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Pole locations ✦ dimensions are relative to 0,0 reference point(s) ⊗

ENGINEERED DESIGN By: Matt Sullivan - File #215348C - 09-Dec-21

GIANFORCARO ARCHITECTS ENGINEERS & PLANNERS
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N.Y. LIC. NO. 52202
PROFESSIONAL PLANNER
N.J. LIC. NO. 3501

SYNTHETIC TURF FIELD AND FIELD LIGHTING

AT THE LIVINGSTON HIGH SCHOOL

30 ROBERT H HARP DR
LIVINGSTON, NJ 07039

BLOCK: 4400
LOT: 1

STATE PLAN:
XX-XXXX-XXX-XX-XXXX

FOR THE LIVINGSTON BOARD OF EDUCATION

11 FOXCROFT DR
LIVINGSTON, NJ 07039

ESSEX COUNTY
NEW JERSEY

FIELD LIGHTING DETAILS

SCALE: AS NOTED

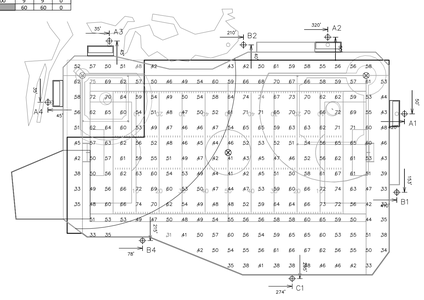
DATE	DRAWN
12/15/21	MGG
	CHECKED
	AG

FILE: HSTurfFieldR23

REVISION: 1/18/22

SP-4.3

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS DRWG	OTHER DRWGS
1	A1	70'	-.06'	69.94'	TLC-LED-1200	2	2	0
				15.44'	TLC-BT-575	1	1	0
				69.94'	TLC-LED-900	1	1	0
1	A2	70'	-.06'	69.94'	TLC-LED-1500	4	4	0
				15.44'	TLC-BT-575	1	1	0
				69.94'	TLC-LED-1200	2	2	0
1	A3	70'	-	15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	4	4	0
1	A4	70'	-	15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	3	3	0
1	B1	80'	-.06'	15.44'	TLC-BT-575	1	1	0
				79.94'	TLC-LED-900	3	3	0
1	B2	70'	-.06'	15.44'	TLC-BT-575	2	2	0
				69.94'	TLC-LED-1500	9	9	0
1	B4	80'	-	80'	TLC-LED-1200	1	1	0
				15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	10	10	0
1	C1	80'	-.06'	79.94'	TLC-LED-1200	1	1	0
				15.44'	TLC-BT-575	2	2	0
				79.94'	TLC-LED-1500	9	9	0
1	T1	60'	-	60'	TLC-LED-1200	2	2	0
				60'	TLC-LED-1500	3	3	0
9						65	65	0



Livingston HS Multipurpose Field

Livingston, NJ

Name: Softball
Size: Irregular 400' / 368' / 206'
Spacing: 20.0' x 20.0'
Height: 3.0' above grade

	Infield	Outfield
Guaranteed Average:	**50**	**30**
Scan Average:	59.69	54.27
Maximum:	75	74
Minimum:	48	31
Avg / Min:	1.25	1.72
Guaranteed Max / Min:	**2**	**2.5**
Max / Min:	1.57	2.36
UG (adjacent pts):	1.38	1.75
CU:	0.75	
No. of Points:	25	240

Applied Circuits: A, B, C
No. of Luminaires: 60
Total Load: 70.86 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

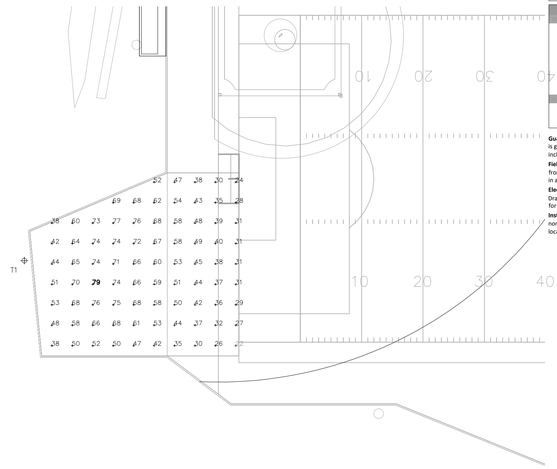
Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

ENGINEERED DESIGN By: Matt Sullivan · File #215348C · 09-Dec-21

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS DRWG	OTHER DRWGS
1	T1	60'	-	60'	TLC-LED-1500	2	2	0
				60'	TLC-LED-1500	3	3	0
1						5	5	0



Livingston HS Multipurpose Field

Livingston, NJ

Name: Throwing Area
Spacing: 10.0' x 10.0'
Height: 3.0' above grade

	Entire Grid
Scan Average:	**33.66**
Maximum:	79
Minimum:	22
Avg / Min:	2.33
Max / Min:	**3.54**
UG (adjacent pts):	1.56
CU:	0.58
No. of Points:	82
Applied Circuits:	D
No. of Luminaires:	**5**
Total Load:	6.63 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

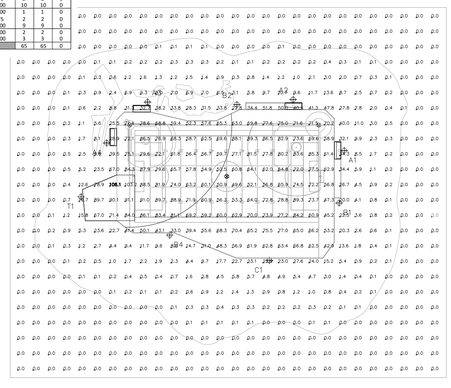
Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

ENGINEERED DESIGN By: Matt Sullivan · File #215348C · 09-Dec-21

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS DRWG	OTHER DRWGS
1	A1	70'	-.06'	69.94'	TLC-LED-1200	2	2	0
				15.44'	TLC-BT-575	1	1	0
				69.94'	TLC-LED-900	1	1	0
1	A2	70'	-.06'	69.94'	TLC-LED-1500	4	4	0
				15.44'	TLC-BT-575	1	1	0
				69.94'	TLC-LED-1200	2	2	0
1	A3	70'	0'	15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	4	4	0
1	A4	70'	0'	15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	3	3	0
1	B1	80'	-.06'	15.44'	TLC-BT-575	1	1	0
				79.94'	TLC-LED-900	3	3	0
1	B2	70'	-.06'	15.44'	TLC-BT-575	2	2	0
				69.94'	TLC-LED-1500	9	9	0
1	B4	80'	0'	80'	TLC-LED-1200	1	1	0
				15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	10	10	0
1	C1	80'	-.06'	79.94'	TLC-LED-1200	1	1	0
				15.44'	TLC-BT-575	2	2	0
				79.94'	TLC-LED-1500	9	9	0
1	T1	60'	-	60'	TLC-LED-1200	2	2	0
				60'	TLC-LED-1500	3	3	0
9						65	65	0



Livingston HS Multipurpose Field

Livingston, NJ

Name: Blanket Grid
Spacing: 30.0' x 30.0'
Height: 3.0' above grade

	Entire Grid
Scan Average:	**15.51**
Maximum:	106
Minimum:	0
Avg / Min:	-
Max / Min:	**-**
UG (adjacent pts):	59.14
CU:	0.92
No. of Points:	672
Applied Circuits:	A, B, C, D
No. of Luminaires:	**65**
Total Load:	77.48 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

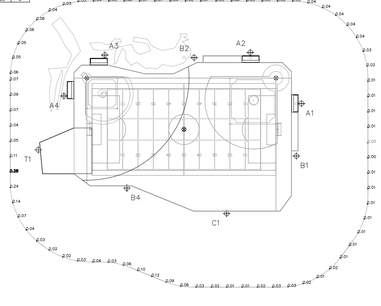
Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

ENGINEERED DESIGN By: Matt Sullivan · File #215348C · 09-Dec-21

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS DRWG	OTHER DRWGS
1	A1	70'	-.06'	69.94'	TLC-LED-1200	2	2	0
				15.44'	TLC-BT-575	1	1	0
				69.94'	TLC-LED-900	1	1	0
1	A2	70'	-.06'	69.94'	TLC-LED-1500	4	4	0
				15.44'	TLC-BT-575	1	1	0
				69.94'	TLC-LED-1200	2	2	0
1	A3	70'	0'	15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	4	4	0
1	A4	70'	0'	15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	3	3	0
1	B1	80'	-.06'	15.44'	TLC-BT-575	1	1	0
				79.94'	TLC-LED-900	3	3	0
1	B2	70'	-.06'	15.44'	TLC-BT-575	2	2	0
				69.94'	TLC-LED-1500	9	9	0
1	B4	80'	0'	80'	TLC-LED-1200	1	1	0
				15.5'	TLC-BT-575	2	2	0
				80'	TLC-LED-1500	10	10	0
1	C1	80'	-.06'	79.94'	TLC-LED-1200	1	1	0
				15.44'	TLC-BT-575	2	2	0
				79.94'	TLC-LED-1500	9	9	0
1	T1	60'	-	60'	TLC-LED-1200	2	2	0
				60'	TLC-LED-1500	3	3	0
9						65	65	0



Livingston HS Multipurpose Field

Livingston, NJ

Name: 150' Spill
Spacing: 30.0'
Height: 3.0' above grade

	Entire Grid
Scan Average:	0.0447
Maximum:	0.28
Minimum:	0.00
No. of Points:	74
Applied Circuits:	A, B, C, D
No. of Luminaires:	**65**
Total Load:	77.48 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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GIANFORCARO ARCHITECTS ENGINEERS & PLANNERS

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CHESTER, N.J. 07930
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PA. LIC. NO. 17377
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PROFESSIONAL PLANNER
N.J. LIC. NO. 3501

SYNTHETIC TURF FIELD AND FIELD LIGHTING

AT THE LIVINGSTON HIGH SCHOOL

30 ROBERT H HARP DR
LIVINGSTON, NJ 07039

BLOCK: 4400
LOT: 1

STATE PLAN:
XX-XXXX-XXX-XX-XXXX

FOR THE LIVINGSTON BOARD OF EDUCATION

11 FOXCROFT DR
LIVINGSTON, NJ 07039

ESSEX COUNTY
NEW JERSEY

FIELD LIGHTING DETAILS

SCALE: AS NOTED

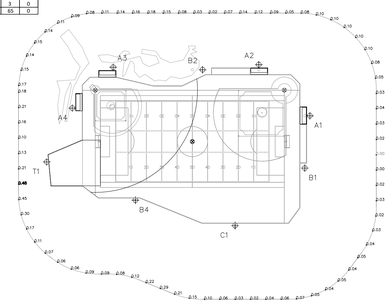
DATE	DRAWN
12/15/21	MGG
	CHECKED
	AG

FILE
HSTurfFieldR23

REVISION
1/18/22

SP-4.4

Pole				Luminaires			
QTY	LOCATION	AIM	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	TAB 3PC
1	A1	70°	-.06'	69.94'	TLC-LED-1200	1	1
				15.44'	TLC-BT-575	1	1
				69.94'	TLC-LED-900	1	1
1	A2	70°	-.06'	69.94'	TLC-LED-1500	4	4
				15.44'	TLC-BT-575	1	1
				69.94'	TLC-LED-1200	2	2
1	A3	70°	0'	15.5'	TLC-BT-575	1	1
				70'	TLC-LED-1200	4	4
1	A4	70°	0'	15.5'	TLC-BT-575	1	1
				70'	TLC-LED-1200	3	3
1	B1	80°	-.06'	15.44'	TLC-BT-575	1	1
				79.94'	TLC-LED-900	3	3
1	B2	70°	-.06'	15.44'	TLC-BT-575	2	2
				69.94'	TLC-LED-1500	9	9
1	B4	80°	0'	80'	TLC-LED-1200	1	1
				15.5'	TLC-BT-575	2	2
				80'	TLC-LED-1500	10	10
1	C1	80°	-.06'	79.94'	TLC-LED-1200	1	1
				15.44'	TLC-BT-575	2	2
				79.94'	TLC-LED-1500	9	9
1	T1	60°	-	60'	TLC-LED-1200	2	2
				60'	TLC-LED-1500	3	3
9						65	65



Livingston HS Multipurpose Field

Livingston, NJ

Name: 150' Spill
Spacing: 30.0'
Height: 3.0' above grade

Entire Grid
Scan Average: 0.1067
Maximum: 0.48
Minimum: 0.00
No. of Points: 74

Applied Circuits: A, B, C, D
No. of Luminaires: 65
Total Load: 77.48 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Pole location(s) ✦ dimensions are relative to 0,0 reference point(s) ⊗

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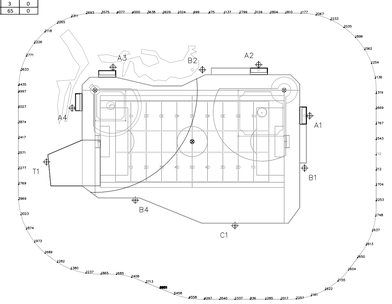
Pole				Luminaires			
QTY	LOCATION	AIM	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	TAB 3PC
1	A1	70°	-.06'	69.94'	TLC-LED-1200	1	1
				15.44'	TLC-BT-575	1	1
				69.94'	TLC-LED-900	1	1
1	A2	70°	-.06'	69.94'	TLC-LED-1500	4	4
				15.44'	TLC-BT-575	1	1
				69.94'	TLC-LED-1200	2	2
1	A3	70°	0'	15.5'	TLC-BT-575	1	1
				70'	TLC-LED-1200	4	4
1	A4	70°	0'	15.5'	TLC-BT-575	1	1
				70'	TLC-LED-1200	3	3
1	B1	80°	-.06'	15.44'	TLC-BT-575	1	1
				79.94'	TLC-LED-900	3	3
1	B2	70°	-.06'	15.44'	TLC-BT-575	2	2
				69.94'	TLC-LED-1500	9	9
1	B4	80°	0'	80'	TLC-LED-1200	1	1
				15.5'	TLC-BT-575	2	2
				80'	TLC-LED-1500	10	10
1	C1	80°	-.06'	79.94'	TLC-LED-1200	1	1
				15.44'	TLC-BT-575	2	2
				79.94'	TLC-LED-1500	9	9
1	T1	60°	-	60'	TLC-LED-1200	2	2
				60'	TLC-LED-1500	3	3
9						65	65



Livingston HS Multipurpose Field

Livingston, NJ

Name: 150' Spill
Spacing: 30.0'
Height: 3.0' above grade

Entire Grid
Scan Average: 2395.1980
Maximum: 6951.00
Minimum: 111.95
No. of Points: 74

Applied Circuits: A, B, C, D
No. of Luminaires: 65
Total Load: 77.48 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Pole location(s) ✦ dimensions are relative to 0,0 reference point(s) ⊗

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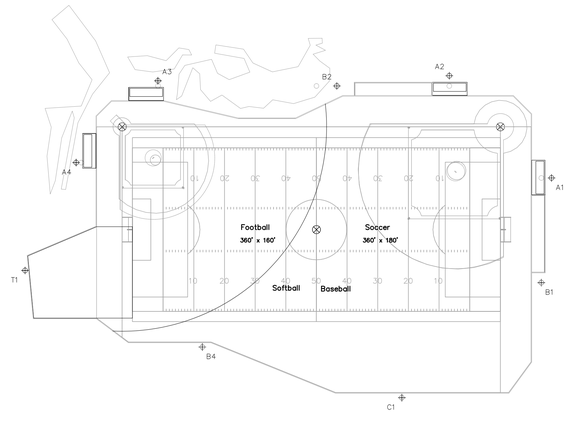

Livingston HS Multipurpose Field

Livingston, NJ

INCLUDES:
- Baseball
- Football
- Soccer
- Softball

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Pole				Luminaires		
QTY	LOCATION	AIM	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE
1	A1	70°	-	70'	TLC-LED-1200	2
				15.5'	TLC-BT-575	1
				70'	TLC-LED-900	1
1	A2	70°	-	70'	TLC-LED-1500	4
				15.5'	TLC-BT-575	1
				70'	TLC-LED-1200	2
1	A3	70°	-	15.5'	TLC-BT-575	1
				70'	TLC-LED-1200	4
1	A4	70°	-	15.5'	TLC-BT-575	1
				70'	TLC-LED-1200	3
1	B1	80°	-	15.5'	TLC-BT-575	1
				80'	TLC-LED-900	3
1	B2	70°	-	15.5'	TLC-BT-575	2
				70'	TLC-LED-1500	9
1	B4	80°	-	80'	TLC-LED-1200	1
				15.5'	TLC-BT-575	2
				80'	TLC-LED-1500	10
1	C1	80°	-	80'	TLC-LED-1200	1
				15.5'	TLC-BT-575	2
				80'	TLC-LED-1500	9
1	T1	60°	-	60'	TLC-LED-1200	2
				60'	TLC-LED-1500	3
9						65

Ballast Specifications (.96 min power factor)	Line Amperage Per Luminaire (two drive)						
Single Phase Voltage	208 (A)	220 (A)	240 (A)	277 (A)	347 (A)	380 (A)	480 (A)
TLC-LED-1500	8.5	8.1	7.4	6.4	5.1	4.7	3.7
TLC-LED-900	5.3	5.0	4.6	4.0	3.2	2.9	2.3
TLC-LED-1200	7.0	6.6	6.1	5.2	4.2	4.0	3.0
TLC-BT-575	3.4	3.2	2.9	2.5	2.0	1.8	1.5

Pole location(s) ✦ dimensions are relative to 0,0 reference point(s) ⊗

ENGINEERED DESIGN By: Matt Sullivan · File #215348C · 09-Dec-21

GIANFORCARO ARCHITECTS ENGINEERS & PLANNERS

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PA. LIC. NO. 17377
N.Y. LIC. NO. 52202
PROFESSIONAL PLANNER
N.J. LIC. NO. 3501

SYNTHETIC TURF FIELD AND FIELD LIGHTING

AT THE LIVINGSTON HIGH SCHOOL

30 ROBERT H HARP DR
LIVINGSTON, NJ 07039

BLOCK: 4400
LOT: 1

STATE PLAN:
XX-XXXX-XXX-XX-XXXX

FOR THE LIVINGSTON BOARD OF EDUCATION

11 FOXCROFT DR
LIVINGSTON, NJ 07039

ESSEX COUNTY
NEW JERSEY

FIELD LIGHTING DETAILS

SCALE: AS NOTED

DATE	DRAWN
12/15/21	MGG
	CHECKED AG

FILE: HSTurfFieldR23

REVISION: 1/18/22

SP-4.5

<UTF-8>

Control System Summary

Project Information

Project Specific Notes:

Project #:	215348
Project Name:	Livingston High School Multipurpose Field
Date:	12/09/21
Project Engineer:	Matt Sullivan
Sales Representative:	Bob Zoeller
Control System Type:	Control-Link™ Control and Monitoring System
Communication Type:	PowerLine-ST
Scan:	215348C
Document ID:	215348P1V3-1209160931
Distribution Panel Location or ID:	Multipurpose
Total # of Distribution Panel Locations for Project:	1
Design Voltage/Hertz/Phase:	480/60/3
Control Voltage:	120

Equipment Listing

DESCRIPTION	APPROXIMATE SIZE
1.Control and Monitoring Cabinet	24 X 72

	QTY	SIZE (AMPS)
Total Contactors:	9	30 AMP
Total Off/On/Auto Switches:	4	

Materials Checklist

Contractor/Customer Supplied:

- ❑ A dedicated control circuit must be supplied per distribution panel location
  - — If the control voltage is NOT available, a control transformer is required
- ❑ Electrical distribution panel to provide overcurrent protection for circuits
  - — HID rated or D-curve circuit breaker sized per full load amps on Circuit Summary by Zone Chart
- ❑ Wiring
  - — See chart on page 2 for wiring requirements
  - — Equipment grounding conductor and splices must be insulated (per circuit)
  - — Lightning ground protection (per pole), if not Musco supplied
- ❑ Electrical conduit wireway system
  - — Entrance hubs rated NEMA 4, must be die-cast zinc, PVC, or copper-free die-cast aluminum
- ❑ Mounting hardware for cabinets
- ❑ Breaker lock-on device to prevent unauthorized power interruption to control power and powerline connection (if present)
- ❑ Anti-corrosion compound to apply to ends of wire, if necessary

Call Control-Link Central™ operations center at 877/347-3319 to schedule activation of the control system upon completion of the installation.

Note: Activation may take up to 1 1/2 hours.

IMPORTANT NOTES

1. Please confirm that the design voltage listed above is accurate for this facility. Design voltage/phase is defined as the voltage/phase being connected and utilized at each lighting pole's electrical components enclosure disconnect. Inaccurate design voltage/phase can result in additional costs and delays. Contact your Musco sales representative to confirm this item.
2. In a 3 phase design, all 3 phases are to be run to each pole. When a 3 phase design is used Musco's single phase luminaires come pre-wired to utilize all 3 phases across the entire facility.
3. One contactor is required for each pole. When a pole has multiple circuits, one contactor is required for each circuit. All contactors are 100% rated for the published continuous load. All contactors are 3 pole.
4. If the lighting system will be fed from more than one distribution location, additional equipment may be required. Contact your Musco sales representative.
5. A single control circuit must be supplied per control system.
6. Size overcurrent devices using the full load amps column of the Circuit Summary By Zone chart- Minimum power factor is 0.9.

NOTE: Refer to Installation Instructions for more details on equipment information and the installation requirements.

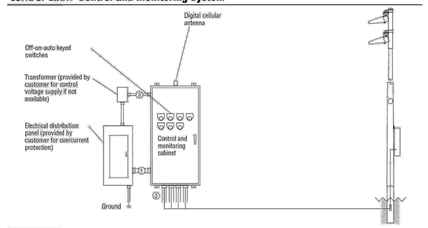
Form: T-9000-1

T-215210348P1V3-1209160931.pdf

Control System Summary

Livingston High School Multipurpose Field / 215348 - 215348C
Multipurpose - Page 2 of 4

Control-Link® Control and Monitoring System



Conduit ID	Description	# of Wires	Wire (AWG)	Conduit (in)	Max. Wire Length (Ft)	MUSCO Supplied	Notes
1	Line power to contactors, and equipment grounding conductor	*A	*B	*C	N/A	No	A-E
2.	Load power to lighting circuits, and equipment grounding conductor	*A	*B	*C	N/A	No	A-E
3	Control power (dedicated, 20A)	3	12	*C	N/A	No	C,E

*Notes:
A. See voltage and phasing per the notes on cover page.
B. Calculate per load and voltage drop.
C. All conduit diameters should be per code unless otherwise specified to allow for connector size.
D. Equipment grounding conductor and any splices must be insulated.
E. Refer to control and monitoring system installation instructions for more details on equipment information and the installation requirements.

IMPORTANT: Control wires (3) must be in separate conduit from line and load power wires (1, 2).

R60-100-00_0

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Control System Summary

Livingston High School Multipurpose Field / 215348 - 215348C
Multipurpose - Page 3 of 4

SWITCHING SCHEDULE

Field/Zone Description	Zones
Baseball	**1,2,3**
-Baseball Infield	1
-Outfield / Multipurpose	2
-Softball Infield	3
Softball	**1,2,3**
-Baseball Infield	1
-Outfield / Multipurpose	2
-Softball Infield	3
Football	**2**
Soccer	**2**
Throwing Area	**4**

CONTROL POWER CONSUMPTION	
120V Single Phase	
VA loading of Musco Supplied Equipment	INRUSH: 2778.0
	SEALED: 309.8

CIRCUIT SUMMARY BY ZONE

POLE	CIRCUIT DESCRIPTION	# OF FIXTURES	# OF DRIVERS	*FULL LOAD AMPS	CONTACTOR SIZE (AMPS)	CONTACTOR ID	ZONE
A1	Baseball Infield	4	4	**6.5**	30	C1	1
B1	Baseball Infield	4	4	**5.2**	30	C2	1
A2	Outfield / Multipurpose	7	7	**13.5**	30	C3	2
A3	Outfield / Multipurpose	5	5	**9.1**	30	C4	2
B2	Outfield / Multipurpose	11	11	**21.7**	30	C5	2
B4	Outfield / Multipurpose	13	13	**26.3**	30	C6	2
C1	Outfield / Multipurpose	12	12	**23.7**	30	C7	2
A4	Softball Infield	4	4	**6.5**	30	C8	3
T1	Throwing Area	5	5	**11.7**	30	C9	4

*Full Load Amps based on amps per driver.

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Control System Summary

Livingston High School Multipurpose Field / 215348 - 215348C
Multipurpose - Page 4 of 4

PANEL SUMMARY

CABINET #	CONTROL MODULE LOCATION	CONTACTOR ID	CIRCUIT DESCRIPTION	FULL LOAD AMPS	DISTRIBUTION PANEL ID (BY OTHERS)	CIRCUIT BREAKER POSITION (BY OTHERS)
1	1	C1	Pole A1	6.50		
1	1	C2	Pole B1	5.22		
1	1	C3	Pole A2	13.49		
1	1	C4	Pole A3	9.13		
1	1	C5	Pole B2	21.74		
1	1	C6	Pole B4	26.31		
1	1	C7	Pole C1	23.69		
1	1	C8	Pole A4	6.50		
1	1	C9	Pole T1	11.66		

ZONE SCHEDULE

ZONE	SELECTOR SWITCH	ZONE DESCRIPTION	CIRCUIT DESCRIPTION	
			POLE ID	CONTACTOR ID
Zone 1	1	Baseball Infield	A1	C1
			B1	C2
Zone 2	2	Outfield / Multipurpose	A2	C3
			A3	C4
			B2	C5
			B4	C6
			C1	C7
Zone 3	3	Softball Infield	A4	C8
Zone 4	4	Throwing Area	T1	C9

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FAX: (908) 879-8505

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SYNTHETIC TURF FIELD AND FIELD LIGHTING

AT THE LIVINGSTON HIGH SCHOOL

30 ROBERT H HARP DR
LIVINGSTON, NJ 07039

BLOCK: 4400
LOT: 1

STATE PLAN:
XX-XXXX-XXX-XX-XXXX

FOR THE LIVINGSTON BOARD OF EDUCATION

11 FOXCROFT DR
LIVINGSTON, NJ 07039

ESSEX COUNTY
NEW JERSEY

FIELD LIGHTING DETAILS

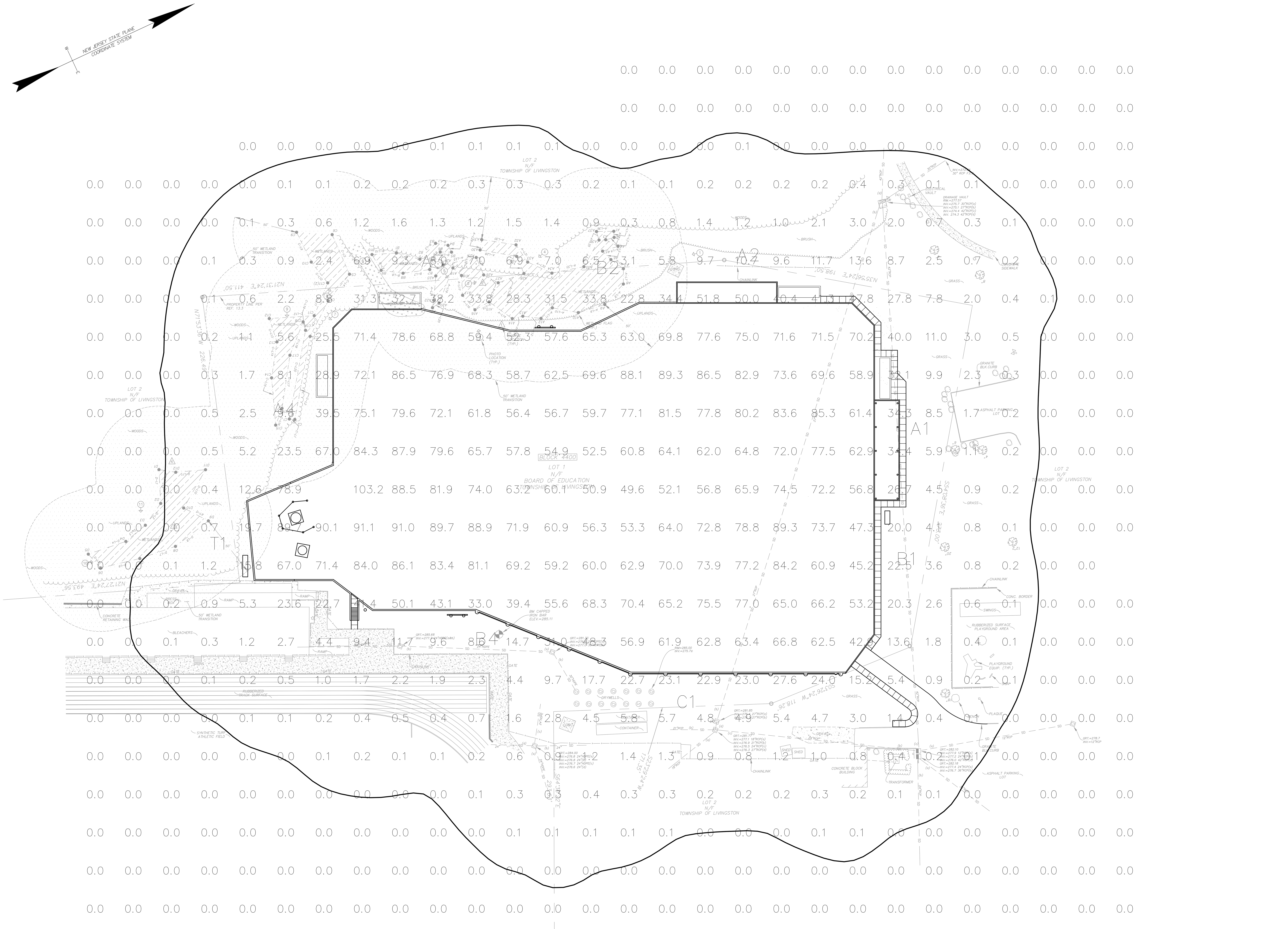
SCALE: AS NOTED

DATE	DRAWN
12/15/21	MGG
	CHECKED
	AG

FILE: HSTurfFieldR23

REVISION: 1/18/22

SP-4.6



														0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
														0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
				0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.4	0.3	0.1	0.1	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.1	0.3	0.6	1.2	1.6	1.3	1.2	1.5	1.4	0.9	0.3	0.8	1.4	1.2	1.0	2.1	3.0	2.0	0.7	0.3	0.1	0.0	0.0	0.0
0.0	0.0	0.0	0.1	0.3	0.9	2.4	6.9	9.3	8.0	7.0	6.9	7.0	6.5	3.1	5.8	9.7	10.7	9.6	11.7	13.6	8.7	2.5	0.7	0.2	0.0	0.0	0.0
0.0	0.0	0.0	0.1	0.6	2.2	8.8	31.3	32.7	38.2	33.8	28.3	31.5	33.8	22.8	34.4	51.8	50.0	40.4	41.3	47.8	27.8	7.8	2.0	0.4	0.1	0.0	0.0
0.0	0.0	0.0	0.2	1.1	5.6	25.5	71.4	78.6	68.8	59.4	52.3	57.6	65.3	63.0	69.8	77.6	75.0	71.6	71.5	70.2	40.0	11.0	3.0	0.5	0.0	0.0	0.0
0.0	0.0	0.0	0.3	1.7	8.1	28.9	72.1	86.5	76.9	68.3	58.7	62.5	69.6	88.1	89.3	86.5	82.9	73.6	69.6	58.9	32.1	9.9	2.3	0.3	0.0	0.0	0.0
0.0	0.0	0.0	0.5	2.5	9.6	39.5	75.1	79.6	72.1	61.8	56.4	56.7	59.7	77.1	81.5	77.8	80.2	83.6	85.3	61.4	34.3	8.5	1.7	0.2	0.0	0.0	0.0
0.0	0.0	0.0	0.5	5.2	23.5	67.0	84.3	87.9	79.6	65.7	57.8	54.9	52.5	60.8	64.1	62.0	64.8	72.0	77.5	62.9	34.4	5.9	1.1	0.2	0.0	0.0	0.0
0.0	0.0	0.0	0.4	12.6	78.9		103.2	88.5	81.9	74.0	63.2	60.1	50.9	49.6	52.1	56.8	65.9	74.5	72.2	56.8	26.7	4.5	0.9	0.2	0.0	0.0	0.0
0.0	0.0	0.0	0.7	19.7	89.7	90.1	91.1	91.0	89.7	88.9	71.9	60.9	56.3	53.3	64.0	72.8	78.8	89.3	73.7	47.3	20.0	4.1	0.8	0.1	0.0	0.0	0.0
0.0	0.0	0.1	1.2	15.8	67.0	71.4	84.0	86.1	83.4	81.1	69.2	59.2	60.0	62.9	70.0	73.9	77.2	84.2	60.9	45.2	22.5	3.6	0.8	0.2	0.0	0.0	
0.0	0.0	0.2	0.9	5.3	23.6	22.7	41.4	50.1	43.1	33.0	39.4	55.6	68.3	70.4	65.2	75.5	77.0	65.0	66.2	53.2	20.3	2.6	0.6	0.1	0.0	0.0	0.0
0.0	0.0	0.1	0.3	1.2	2.7	4.4	9.4	11.7	9.6	8.6	14.7	31.0	48.3	56.9	61.9	62.8	63.4	66.8	62.5	42.9	13.6	1.8	0.4	0.1	0.0	0.0	0.0
0.0	0.0	0.0	0.1	0.2	0.5	1.0	1.7	2.2	1.9	2.3	4.4	9.7	17.7	22.7	23.1	22.9	23.0	27.6	24.0	15.2	5.4	0.9	0.2	0.1	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.4	0.5	0.4	0.7	1.6	2.8	4.5	5.8	5.7	4.8	4.9	5.4	4.7	3.0	1.4	0.4	0.1	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.2	0.6	0.9	1.2	1.4	1.3	0.9	0.8	1.2	1.0	0.8	0.4	0.2	0.1	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.4	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0
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0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

1 FIELD LIGHTING GRID
1" = 30'-0"

ALL SURVEY DATA TAKEN FROM:

VS LAND DATA
US HEADQUARTERS:
80 River Rd, PO Box 186
Phillipsburg, NJ 08865
P 888.676.4435
F 800.220.6214
www.vslanddata.com
NJ Certificate Of Authorization #24GA28113500
John J. Hanlon
Professional Land Surveyor
New Jersey License No. 37589
Pennsylvania License No. SU060784

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SYNTHETIC TURF FIELD AND FIELD LIGHTING AT THE LIVINGSTON HIGH SCHOOL

30 ROBERT H HARP DR
LIVINGSTON, NJ 07039

BLOCK: 4400
LOT: 1

STATE PLAN:
XX-XXXX-XXX-XX-XXXX

FOR THE LIVINGSTON BOARD OF EDUCATION

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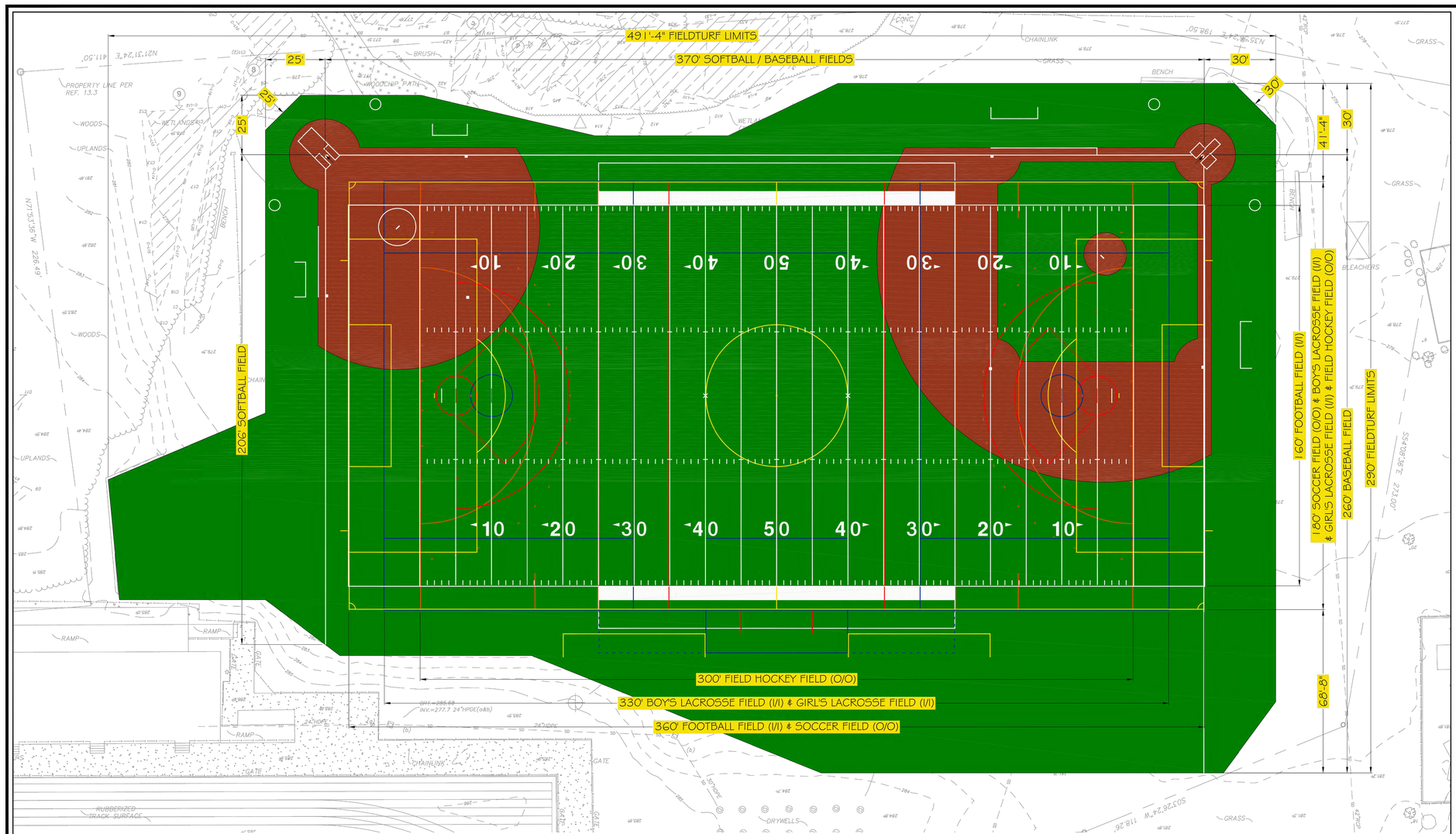
ESSEX COUNTY NEW JERSEY

FIELD LIGHTING GRID

SCALE: AS NOTED

DATE 12/15/21
DRAWN MGG
CHECKED AG
FILE HSTurfFieldR23
REVISION 1/18/22

SP-4.7



APPROVED BY:	
SIGNATURE:	
PRINTED NAME:	
TITLE:	
DATE:	

SPORT COLORS:

- BASEBALL — COMPLETE COLOR NAME: WHITE — PANTONE COLOR NUMBER: WHITE
- SOFTBALL — COMPLETE COLOR NAME: WHITE — PANTONE COLOR NUMBER: WHITE
- FOOTBALL — COMPLETE COLOR NAME: WHITE — PANTONE COLOR NUMBER: WHITE
- SOCCER — COMPLETE COLOR NAME: CANARY YELLOW — PANTONE COLOR NUMBER: 136C
- BOY'S LACROSSE — COMPLETE COLOR NAME: REFLEX BLUE — PANTONE COLOR NUMBER: RFXC
- GIRL'S LACROSSE — COMPLETE COLOR NAME: RED — PANTONE COLOR NUMBER: 185C
- FIELD HOCKEY — COMPLETE COLOR NAME: ORANGE — PANTONE COLOR NUMBER: 166C

LEGEND:

- FIELD GREEN FIELDTURF 95,399 sq.ft.
- RUST FIELDTURF 19,467 sq.ft.

TOTAL FIELDTURF 114,866 sq.ft.

FIELD LAYOUT NOTES (sports are in order of dominance):

1. BASEBALL MARKINGS ARE 4" WHITE NFHS STANDARDS.
2. SOFTBALL MARKINGS ARE 4" WHITE NFHS STANDARDS.
3. FOOTBALL MARKINGS ARE 4" WHITE NFHS STANDARDS.
4. SOCCER MARKINGS ARE 4" CANARY YELLOW NFHS STANDARDS.
5. BOY'S LACROSSE MARKINGS ARE 4" REFLEX BLUE NFHS STANDARDS.
6. GIRL'S LACROSSE MARKINGS ARE 4" RED NFHS STANDARDS.
7. FIELD HOCKEY MARKINGS ARE 4" ORANGE NFHS STANDARDS.

FIELD DOMINANCY IS ONLY WITHIN THE FOOTBALL FIELD OF PLAY.
ALL DIMENSIONS TO BE VERIFIED BEFORE ANY CONSTRUCTION BEGINS.

NFHS STANDARDS

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

1 **SYNTHETIC TURF RENDERING**
1" = 20'-0"

DRAWN BY:	M. H.
CHECKED BY:	J. B.
SCALE:	1"=40'
TOTAL FIELD AREA:	114,866 sq.ft.
PERIMETER:	1,450 ln.ft.

FieldTurf
A Tarkett Sports Company

LIVINGSTON HIGH SCHOOL MULTIPURPOSE FIELD ESSEX COUNTY, NJ

DATE: OCTOBER 11, 2021 | ISSUE: PRESENTATION | SHEET: X/X FIELD LAYOUT

Scale is only accurate when this drawing is printed on 11" X 17" paper.

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SYNTHETIC TURF FIELD AND FIELD LIGHTING

AT THE LIVINGSTON HIGH SCHOOL

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BLOCK: 4400
LOT: 1

STATE PLAN:
XX-XXXX-XXX-XX-XXXX

FOR THE LIVINGSTON BOARD OF EDUCATION

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LIVINGSTON, NJ 07039

ESSEX COUNTY
NEW JERSEY

SYNTHETIC TURF RENDERING

SCALE: AS NOTED

DATE: 12/15/21	DRAWN: MGG
	CHECKED: AG
FILE: HSTurfFieldR23	
REVISION: 1/18/22	SP-4.8

SOIL EROSION AND SEDIMENT CONTROL NOTES

1. ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE INSTALLED IN ACCORDANCE WITH THE NEW JERSEY STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL, AND WILL BE IN PLACE PRIOR TO ANY MAJOR SOIL DISTURBANCE, OR IN THEIR PROPER SEQUENCE AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED

2. ANY DISTRUBED AREA THAT WILL BE LEFT EXPOSED FOR MORE THAN THIRTY (30) DAYS AND NOT SUBJECT TO CONSTRUCTION TRAFFIC SHALL IMMEDIATELY RECEIVE A TEMPORARY SEEDING. IF THE SEASON PROHIBITS TEMPORARY SEEDING, THE DISTURBED AREA WILL BE MULCHED WITH SALT HAY OR EQUIVALENT AND BOUND IN ACCORDANCE WITH THE NEW JERSEY STANDARDS, (I.E. PEG AND TWINE, MULCH NETTING, OR LIQUID MULCH BINDER).

3. PERMANENT VEGETATION IS TO BE ESTABLISHED ON EXPOSED AREAS WITHIN TEN (10) DAYS AFTER FINAL GRADING. MULCH IS TO BE USED FOR PROTECTION UNTIL VEGETATION IS ESTABLISHED.

4. IMMEDIATELY FOLLOWING INITIAL DISTURBANCE OR ROUGH GRADING ALL CRITICAL AREAS (STEEP SLOPES, SANDY SOILS, WET CONDITIONS) SUBJECT TO EROSION WILL RECEIVE A TEMPORARY SEEDING IN ACCORDANCE WITH NOTE 21 BELOW.

5. TEMPORARY BERMS ARE TO BE INSTALLED ON ALL CLEARED ROADWAYS AND EASEMENT AREAS. SEE THE DIVERSION DETAIL.

6. PERMANENT SEEDING AND STABILIZATION TO BE IN ACCORDANCE WITH THE STANDARDS FOR PERMANENT VEGETATIVE COVER. SPECIFIED RATES AND LOCATIONS SHALL BE AS ON APPROVED SOIL EROSION AND SEDIMENT CONTROL PLAN.

7. THE SITE SHALL AT ALL TIMES BE GRADED AND MAINTAINED SUCH THAT ALL STORM WATER RUNOFF IS DIVERTED TO SOIL EROSION AND SEDIMENT CONTROL FACILITIES.

8. ALL SEDIMENTATION STRUCTURES (SILT FENCE, INLET FILTERS, AND SEDIMENT BASINS) WILL BE INSPECTED AND MAINTAINED REGULARLY.

9. STOCKPILES SHALL NOT BE LOCATED WITHIN 50' OF A FLOODPLAIN, SLOPE, DRAINAGE FACILITY, OR ROADWAY. ALL STOCKPILE BASES SHALL HAVE A SILT FENCE PROPERLY ENTRENCHED AT THE TOE OF SLOPE.

10. A STABILIZED CONSTRUCTION ACCESS WILL BE INSTALLED, WHENEVER AN EARTHEN ROAD INTERSECTS WITH A PAVED ROAD. SEE THE STABILIZED CONSTRUCTION ACCESS DETAIL AND CHART FOR DIMENSIONS.

11. ALL NEW ROADWAYS WILL BE TREATED WITH A SUITABLE SUBBASE UPON ESTABLISHMENT OF FINAL GRADE ELEVATIONS.

12. PAVED ROADWAYS MUST BE KEPT CLEAN AT ALL TIMES.

13. BEFORE DISCHARGE POINTS BECOME OPERATIONAL, ALL STORM DRAINAGE OUTLETS WILL BE STABILIZED AS REQUIRED.

14. ALL DEWATERING OPERATIONS MUST DISCHARGE DIRECTLY INTO A SEDIMENT FILTER AREA. THE FILTER SHOULD BE COMPOSED OF A FABRIC OR APPROVED MATERIAL. SEE THE DEWATERING DETAIL.

15. ALL SEDIMENTATION BASINS WILL BE CLEANED WHEN THE CAPACITY HAS BEEN REDUCED BY 50%. A CLEAN OUT ELEVATION WILL BE INDENTIFIED ON THE PLAN AND A MARKER INSTALLED ON THE SITE.

16. DURING AND AFTER CONSTRUCTION, THE APPLICANT WILL BE RESPONSIBLE FOR THE MAINTENANCE AND UPKEEP OF THE DRAINAGE STRUCTURES, VEGETATIVE COVER, AND ANY OTHER MEASURES DEEMED APPROPRIATE BY THE DISTRICT. SAID RESPONSIBILITY WILL PRECLUDE WHEN COMPLETED WORK IS APPROVED BY THE CONSERVATION DISTRICT.

17. ALL TREES OUTSIDE THE DISTURBANCE LIMIT INDICATED ON THE SUBJECT PLAN OR THOSE TREES WITHIN THE DISTURBANCE AREA WHICH ARE DESIGNATED TO REMAIN AFTER CONSTRUCTION ARE TO BE PROTECTED WITH TREE PROTECTION DEVICES. SEE THE TREE PROTECTION DETAIL.

18. THE SOIL CONSERVATION DISTRICT MAY REQUEST ADDITIONAL MEASURES TO MINIMIZE ON OR OFF SITE EROSION PROBLEMS DURING CONSTRUCTION.

19. THE SOIL CONSERVATION DISTRICT MUST BE NOTIFIED, IN WRITING, AT LEAST 72 HOURS PRIOR TO ANY LAND DISTURBANCE.

20. TOPSOIL STOCKPILE PROTECTION
   - A) APPLY GROUND LIMESTONE AT A RATE OF 90 LBS/1000 S.F.
   - B) APPLY FERTILIZER (10-20-10) AT A RATE OF 11 LBS/1000 S.F.
   - C) APPLY PERENNIAL RYEGRASS AT A RATE OF 1 LB/1000 S.F. AND ANNUAL RYEGRASS AT A RATE OF 1 LB/1000 S.F.
   - D) MULCH STOCKPILE WITH STRAW OR HAY AT A RATE OF 90 LBS/1000 S.F.
   - E) APPLY A LIQUID MULCH BINDER OR TACK TO STRAW OR HAY MULCH.
   - F) PROPERLY ENTRENCH A SILT FENCE AT THE BOTTOM OF THE STOCKPILE.

21. TEMPORARY STABILIZATION SPECIFICATIONS
   - A) APPLY GROUND LIMESTONE AT A RATE OF 90 LBS/1000 S.F.
   - B) APPLY FERTILIZER (10-20-10) AT A RATE OF 11 LBS/1000 S.F.
   - C) APPLY PERENNIAL RYEGRASS AT A RATE OF 1 LB/1000 S.F. AND ANNUAL RYEGRASS AT A RATE OF 1 LB/1000 S.F.
   - D) MULCH STOCKPILE WITH STRAW OR HAY AT A RATE OF 90 LBS/1000 S.F.
   - E) APPLY A LIQUID MULCH BINDER OR TACK TO STRAW OR HAY MULCH.

22. PERMANENT STABILIZATION SPECIFICATIONS
   - A) APPLY TOPSOIL TO A DEPTH OF 5"(UNSETTLED).
   - B) APPLY GROUND LIMESTONE AT A RATE OF 90 LBS/1000 S.F. AND WORK 4" INTO SOIL.
   - C) APPLY FERTILIZER (10-20-10) AT A RATE OF 11 LBS/1000 S.F.
   - D) APPLY HARD FESCUE SEED AT 2.1 LBS/1000 S.F. AND CREEPING RED FESCUE SEED AT 0.7 LBS/1000 S.F. AND PERENNIAL RYEGRASS SEED AT 0.25 LBS/1000 S.F.
   - E) MULCH STOCKPILE WITH STRAW OR HAY AT A RATE OF 90 LBS/1000 S.F.
   - F) APPLY A LIQUID MULCH BINDER OR TACK TO STRAW OR HAY MULCH.

NOTE: 72 HOURS PRIOR TO ANY SOIL DISTURBANCE, NOTICE OF SUCH IN WRITING SHALL BE GIVEN TO THE COUNTY SOIL CONSERVATION DISTRICT AND A PRE-CONSTRUCTION MEETING HELD

DUST CONTROL NOTES

THE FOLLOWING METHODS SHOULD BE CONSIDERED FOR CONTROLLING DUST:

MULCHES - SEE STANDARD FOR STABILIZATION WITH MULCHES ONLY (PG. 5-1)

VEGETATIVE COVER - SEE STANDARD FOR TEMPORARY VEGETATIVE COVER (PG. 7-1), PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION (PG. 4-1), AND PERMANENT STABILIZATION WITH SOD (PG. 6-1)

SPRAY-ON ADHESIVES - ON MINERAL SOILS (NOT EFFECTIVE ON MUCK SOILS). KEEP TRAFFIC OFF THESE AREAS.

TABLE (6-1): DUST CONTROL MATERIALS

MATERIAL	WATER DILUTION	TYPE OF NOZZLE	APPLY GALLONS/ACRE
ANIONIC ASPHALT EMULSIONS	7:1	COARSE SPRAY	1200
LATEX EMULSION	12.5:1	FINE SPRAY	235
ROSIN IN WATER	4:1	FINE SPRAY	300
POLYACRYLAMIDE (PAM)-SPRAY ON POLYACRYLAMIDE (PAM)-DRY SPRAY	APPLY ACCORDING TO MANUFACTURER'S INSTRUCTIONS. MAY ALSO BE USED AS AN ADDITIVE TO SEDIMENT BASINS TO FLOCCULATE AND PRECIPITATE SUSPENDED COLLOIDS. SEE SEDIMENT BASIN STANDARD (PG. 26-1)		
AGIDULATED SOY BEAN SOAP STICK	NONE	COARSE SPRAY	1200

TILLAGE - TO ROUGHEN SURFACE AND BRING CLODS TO THE SURFACE. THIS IS A TEMPORARY EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE SOIL BLOWING STARTS. BEGIN PLOWING ON WINDWARD SIDE OF SITE. CHISEL-TYPE PLOWS SPACED ABOUT 12 INCHES APART, AND SPRING-TOOTHED HARROWS ARE EXAMPLES OF EQUIPMENT WHICH MAY PRODUCE THE DESIRED EFFECT.

SPRINKLING - SITE IS SPRINKLED UNTIL THE SURFACE IS WET.

BARRIERS - SOLID BOARD FENCES, SNOW FENCES, BURLAP FENCES, CRATE WALLS, BALES OF HAY, AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CURRENTS AND SOIL BLOWING.

CALCIUM CHLORIDE - SHALL BE IN THE FORM OF LOOSE, DRY GRANULATES OF FLAKES FINE ENOUGH TO FEED THROUGH COMMONLY USED SPREADERS AT A RATE THAT WILL KEEP SURFACE MOIST BUT NOT CAUSE POLLUTION OR PLANT DAMAGE. IF USED ON STEEPER SLOPES, THEN USE OTHER PRACTICES TO PREVENT WASHING INTO STREAMS OR ACCUMULATION AROUND PLANTS.

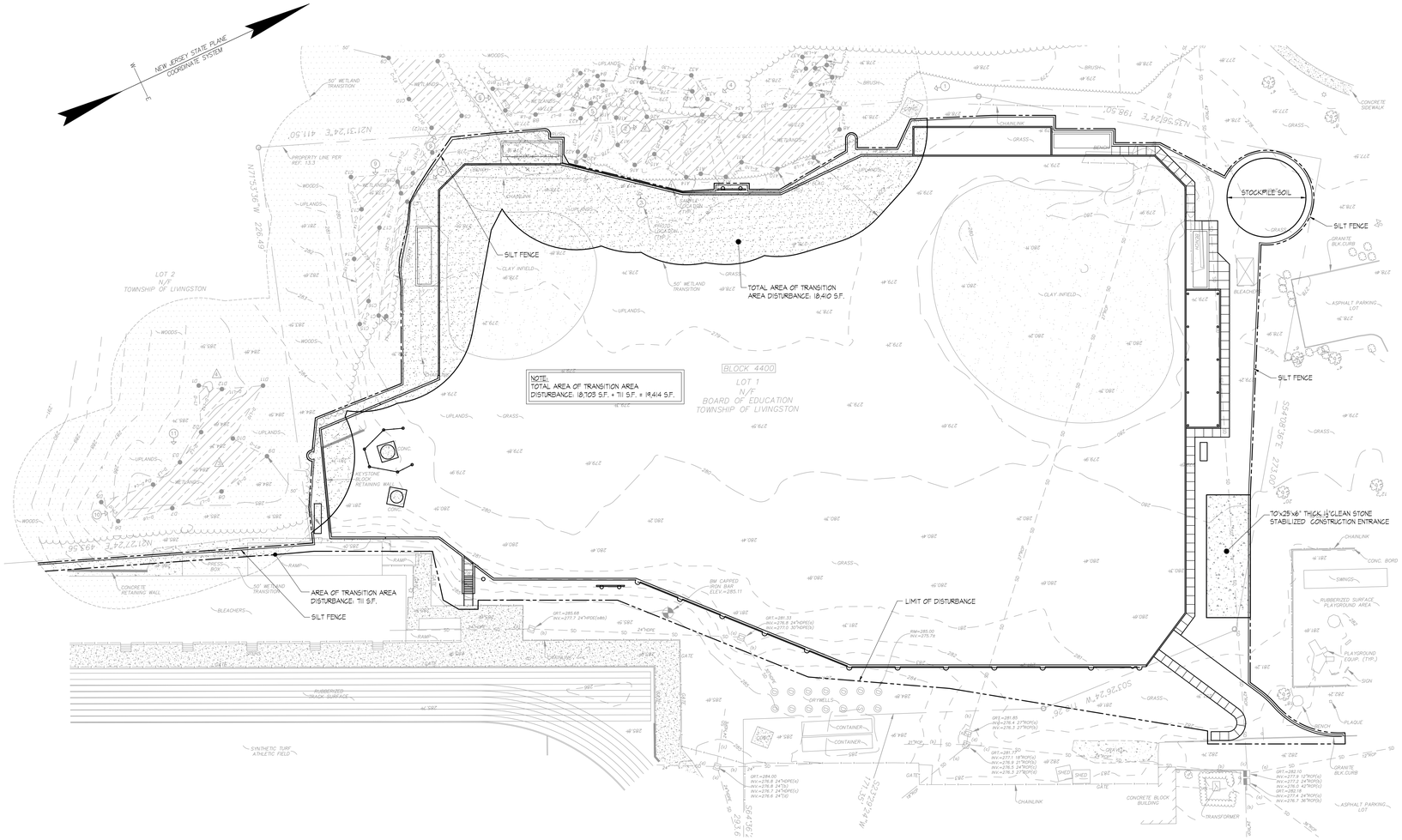
STONE - COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL.

ALL SURVEY DATA TAKEN FROM:

VS LAND DATA

VS HEADQUARTERS:
80 River Rd, PO Box 186
Phillipsburg, NJ 08865
P. 888.876.4435
F. 800.220.8214
www.vslanddata.com
NJ Certificate Of Authorization #24GA28113500

John J. Hanlon
Professional Land Surveyor
New Jersey License No. 37589
Pennsylvania License No. SU060784



GRAPHIC SCALE

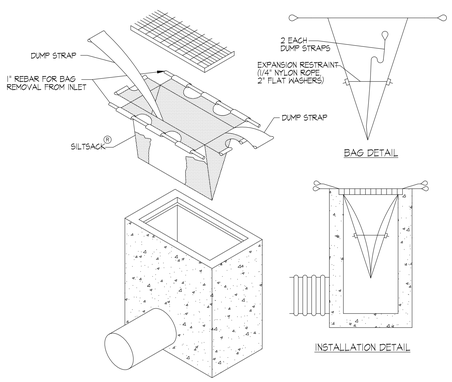
30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

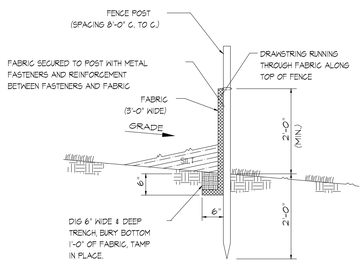
1 SOIL EROSION PLAN
1" = 30'-0"

SEQUENCE OF CONSTRUCTION

	DESCRIPTION	TIME FRAMES IN DAYS
1	INSTALL HAYBALES/FABRIC FILTER FENCES, AND WHEEL CLEANING APRON	2
2	STRIP AND STOCKPILE TOPSOIL, SEED WITH TEMPORARY SEEDING	3
3	INSTALL TEMPORARY SOIL EROSION MEASURES (I.E. SILT FENCE, INLET CONTROLS, ETC.)	3
4	ROUGH GRADING AND STORM SEWER INSTALLATION	14
5	TURF/FIELD EVENT INSTALLATION	120
6	FINAL GRADING	10
7	SLOPE STABILIZATION - PERMANENT SEEDING	5
8	REMOVAL OF ALL TEMPORARY SE & SC MEASURES	3



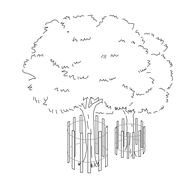
DETAIL OF INLET SEDIMENT CONTROL DEVICE



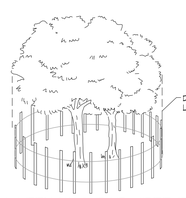
SILT FENCE DETAIL

REQUIREMENTS FOR SILT FENCE:

1. FENCE POSTS SHALL BE SPACED 8 FEET CENTER-TO-CENTER OR CLOSER. THEY SHALL EXTEND AT LEAST 2 FEET INTO THE GROUND AND EXTEND AT LEAST 2 FEET ABOVE GROUND (SEE DETAIL). POST SHALL BE CONSTRUCTED OF HARDWOOD WITH A MINIMUM DIAMETER THICKNESS OF 1 1/2 INCHES.
2. A METAL FENCE WITH 6 INCHES OR SMALLER OPENINGS AND AT LEAST 2 FEET HIGH MAY BE UTILIZED, FASTENED TO THE FENCE POSTS, TO PROVIDE REINFORCEMENT AND SUPPORT TO THE GEOTEXTILE FABRIC WHERE SPACE FOR OTHER PRACTICES IS LIMITED AND HEAVY SEDIMENT LOADING IS EXPECTED.
3. A GEOTEXTILE FABRIC RECOMMENDED FOR SUCH USE BY THE MANUFACTURER, SHALL BE BURIED AT LEAST 6 INCHES DEEP IN THE GROUND. THE FABRIC SHALL EXTEND AT LEAST 2 FEET ABOVE THE GROUND. THE FABRIC MUST BE SECURELY FASTENED TO THE POSTS USING A SYSTEM CONSISTING OF METAL FASTENERS (NAILS OR STAPLES) AND A HIGH STRENGTH REINFORCEMENT MATERIAL (NYLON WEBBING, GROMMETS, WASHERS, ETC.) PLACED BETWEEN THE FASTENERS AND THE GEOTEXTILE FABRIC. THE FASTENING SYSTEM SHALL RESIST TEARING AWAY FROM THE POST. THE FABRIC SHALL INCORPORATE A DRAWSTRING IN THE TOP PORTION OF THE FENCE FOR ADDED STRENGTH.



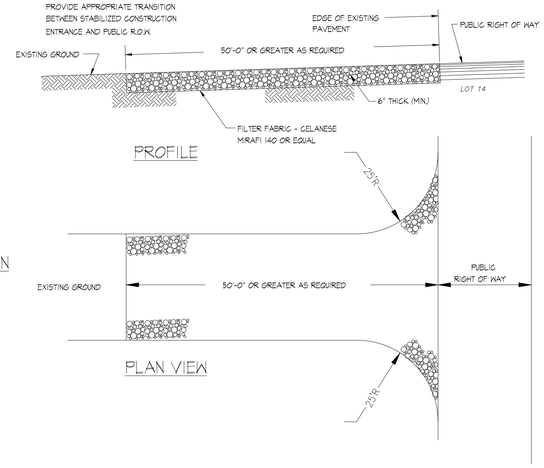
INCORRECT FENCING FOR TREE PROTECTION



CORRECT FENCING FOR TREE PROTECTION

NOTE:
CRUSHED STONE BLANKET SHALL BE MAINTAINED IN GOOD CONDITION UNTIL THE UNPAVED ROADWAY IS STABILIZED

PROVIDE APPROPRIATE TRANSITION BETWEEN STABILIZED CONSTRUCTION ENTRANCE AND PUBLIC R.O.W.



LENGTHS OF CONSTRUCTION EXITS ON SLOPING ROADBEDS

PERCENT SLOPE	LENGTH OF STONE REQUIRED	
OF ROADWAY	COARSE GRAINED SOILS	FINE GRAINED SOILS
0 TO 2%	50 FT.	100 FT.
2 TO 5%	100 FT.	200 FT.
>5%	ENTIRE SURFACE STABILIZED WITH FABC BASE COURSE	

STABIIZED CONSTRUCTION ENTRANCE
N.T.S.

GIANFORCARO ARCHITECTS ENGINEERS & PLANNERS

555 EAST MAIN ST.
CHESTER, N.J. 07930
PHONE: (908) 879-6001
FAX: (908) 879-8505

- ARCHITECTURAL
- CIVIL
- STRUCTURAL
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- FORENSIC

MATTHEW G. GIANFORCARO,PE
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N.J. LIC. NO. 39006

GEORGE F. GIANFORCARO,PE,PP
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PA. LIC. NO. 17377
N.Y. LIC. NO. 52202
PROFESSIONAL PLANNER
N.J. LIC. NO. 3501

SYNTHETIC TURF FIELD AND FIELD LIGHTING

AT THE LIVINGSTON HIGH SCHOOL

30 ROBERT H HARP DR LIVINGSTON, NJ 07039

BLOCK: 4400
LOT: 1

STATE PLAN:
XX-XXXX-XXX-XX-XXXX

FOR THE LIVINGSTON BOARD OF EDUCATION

11 FOXCROFT DR LIVINGSTON, NJ 07039

ESSEX COUNTY NEW JERSEY

SOIL EROSION PLAN

SCALE: AS NOTED

DATE	DRAWN
12/15/21	MGG
	CHECKED AG

FILE: HSTurfFieldR23

REVISION: 1/18/22

SP-5.1

PROPOSED PANEL SCHEDULE 'FHV'

PANELBOARD 'FHV' — 277/480 V. 3ø 4W., 200 AMP.
SURFACE MOUNTED — PANEL TYPE: NEMA 3R — 30,000 AMP. A.I.C.

CIRCUIT DESCRIPTION	C.B. SIZE	3P–200 A.T. M.C.B	C.B. SIZE	CIRCUIT DESCRIPTION
FIELD LIGHTS POLE A1	30	1, 3, 5 — 2P — 2, 4, 6	30	FIELD LIGHTS POLE A2
FIELD LIGHTS POLE B1	30	7, 9, 11 — 2P — 8, 10, 12	30	FIELD LIGHTS POLE A3
FIELD LIGHTS POLE B2	30	13, 15, 17 — 2P — 14, 16, 18	30	FIELD LIGHTS POLE C1
FIELD LIGHTS POLE B4	30	19, 21, 23 — 2P — 20, 22, 24	30	FIELD LIGHTS POLE A4
D.S./XFMR 'T1' & PANEL 'FLVA'	40	25, 27, 29 — 2P — 26, 28, 30	30	FIELD LIGHTS POLE T1
SPACE	–		40	D.S./XFMR 'T2' & PANEL 'FLVB'
			–	SPACE

SOLID NEUTRAL — SN — EGB — EQPT. GRD. BAR

PROPOSED PANEL SCHEDULE 'FLVA'

PANELBOARD 'FLVA' — 120/240 V. 1ø 3W., 100 AMP.
SURFACE MOUNTED — PANEL TYPE: NEMA 3R — 22,000 AMP. A.I.C.

CIRCUIT DESCRIPTION	C.B. SIZE	2P–100 A.T. M.C.B	C.B. SIZE	CIRCUIT DESCRIPTION
BASEBALL/SOFTBALL SCOREBOARD	20	1, 2	20	1ST BASE DUGOUT LIGHTS (SB)
3RD BASE DUGOUT LIGHTS (SB)	20	3, 4	20	1ST BASE DUGOUT RECPT. (SB)
3RD BASE DUGOUT RECEPT. (SB)	20	5, 6	20	MULTI SPORT SCOREBOARD
CONTROL POWER FOR "MUSCO" PANEL	20	7, 8	20	SPARE
SPACE	–	9, 10	20	SPARE
		11, 12	20	SPARE
		13, 14	–	SPACE
		15, 16		

SOLID NEUTRAL — SN — EGB — EQPT. GRD. BAR

PROPOSED PANEL SCHEDULE 'FLVB'

PANELBOARD 'FLVB' — 120/240 V. 1ø 3W., 100 AMP.
SURFACE MOUNTED — PANEL TYPE: NEMA 3R — 22,000 AMP. A.I.C.

CIRCUIT DESCRIPTION	C.B. SIZE	2P–100 A.T. M.C.B	C.B. SIZE	CIRCUIT DESCRIPTION
3RD BASE DUGOUT RECEPT. (BB)	20	1, 2	20	1ST BASE DUGOUT RECEPT. (BB)
3RD BASE DUGOUT LIGHTS (BB)	20	3, 4	20	1ST BASE DUGOUT LIGHTS (BB)
SPACE	–	5, 6	20	MULTI SPORT SCOREBOARD
		7, 8	20	SPARE
		9, 10	20	SPARE
		11, 12	20	SPARE
		13, 14	–	SPACE
		15, 16		

SOLID NEUTRAL — SN — EGB — EQPT. GRD. BAR

GENERAL ELECTRICAL NOTES

THE LOCATION OF EQUIPMENT, FEEDERS, ETC. AS GIVEN ON THE DRAWINGS, IS APPROXIMATELY CORRECT BUT IT SHALL BE UNDERSTOOD THAT THEY ARE SUBJECT TO SUCH MODIFICATION AS MAY BE FOUND NECESSARY OR DESIRABLE AT THE TIME OF INSTALLATION IN ORDER TO MEET STRUCTURAL REQUIREMENTS. SUCH CHANGES SHALL BE MADE WITHOUT EXTRA CHARGE.

ANY ITEM OF LABOR OR EQUIPMENT NOT SPECIFIED IN DETAIL BY THE SPECIFICATIONS OR INDICATED ON THE DRAWINGS BUT WHICH IS INCIDENTAL TO OR NECESSARY FOR THE COMPLETE INSTALLATION AND PROPER OPERATION OF THE SEVERAL BRANCHES OF THE WORK DESCRIBED HEREIN OR REASONABLY IMPLIED SHALL BE FURNISHED AS IF CALLED FOR IN DETAIL.

ALL WORK SHALL BE IN STRICT CONFORMANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE.

THIS CONTRACTOR SHALL OBTAIN AND PAY ALL FEES FOR PERMITS AND APPROVALS FROM AUTHORITIES HAVING JURISDICTION.

THIS CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND LABOR FOR ONE YEAR FROM THE FINAL ACCEPTANCE DATE OF THE OWNER.

THIS CONTRACTOR SHALL LOCATE W.P. SWITCHES +3'-10" A.F.F., W.P. RECEPTACLES (GFI) +1'-6" A.F.F. AND W.P. PANELS 6'-6" TO TOP BREAKER.

FEEDERS AND BRANCH CIRCUITS SHALL BE INSTALLED AS FOLLOWS:
- A.) EXPOSED (OUTDOORS): IMC (INTERMEDIATE METAL CONDUIT)
- B.) BURIED IN EARTH: PVC (SCH. 80); IMC
- C.) EXPOSED (OUTDOORS): FLEXIBLE LIQUID TYPE

QUAZITE BOX - HANDHOLE - SIZES AS INDICATED ON THE DRAWING.

WIRE SHALL BE "THWN", "THHN", #10 GAUGE COPPER, MINIMUM SIZE.

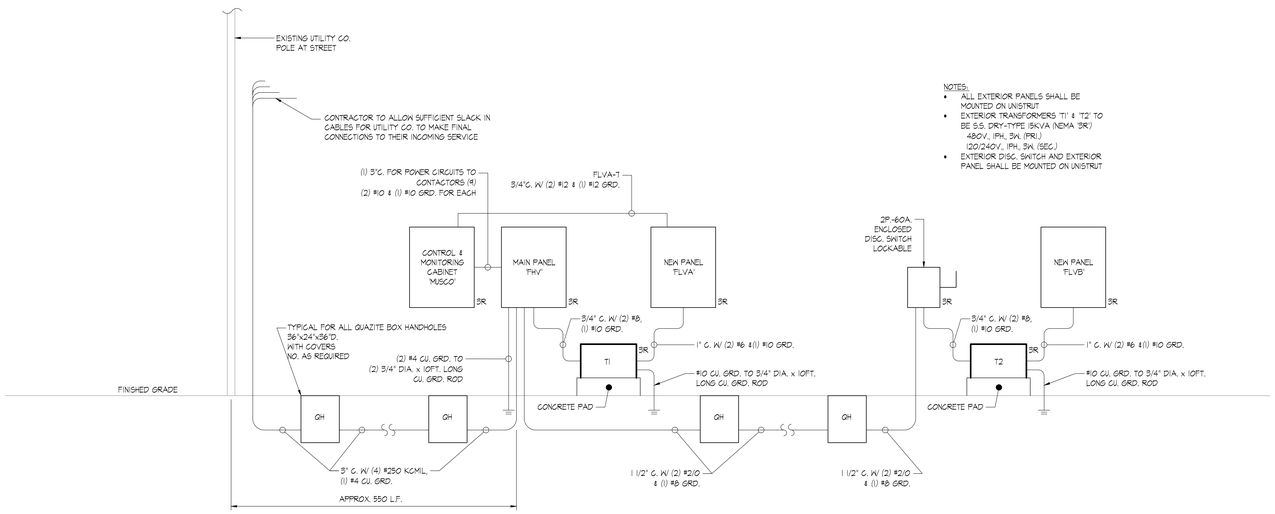
PANELS SHALL BE SQUARE D, OR EQUAL BY GENERAL ELECTRIC OR SIEMENS. PROVIDE TYPE-WRITTEN DIRECTORY.
PANELS, TRANSFORMERS, CONTACTOR CABINET, SHALL BE RATED FOR NEMA '3R'.

SAFETY SWITCHES SHALL BE HEAVY DUTY NEMA '3R', SQUARE D OR EQUAL BY GENERAL ELECTRIC, OR SIEMENS.

W.P. COVERS FOR DUPLEX RECEPTACLES AND SWITCHES.

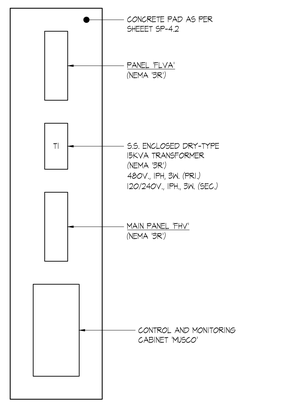
GROUNDING SHALL CONFORM TO THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE.

ALL ELECTRICAL COMPONENTS AND SYSTEMS AND THEIR ATTACHMENTS SHALL BE INSTALLED FOR SEISMIC FORCES. REFER TO INTERNATIONAL BUILDING CODE LATEST NJ EDITION.



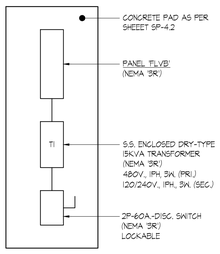
ELECTRICAL RISER DIAGRAM

NOT TO SCALE



ELECTRICAL SERVICE DETAIL 'A'

SCALE: N.T.S.



ELECTRICAL SERVICE DETAIL 'B'

SCALE: N.T.S.

GIANFORCARO ARCHITECTS ENGINEERS & PLANNERS

555 EAST MAIN ST.
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PHONE: (908) 879–6001
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LOT: 1

STATE PLAN:
XX–XXXX–XXX–XX–XXXX

FOR THE LIVINGSTON BOARD OF EDUCATION

11 FOXCROFT DR
LIVINGSTON, NJ 07039

ESSEX COUNTY NEW JERSEY

ELECTRICAL DETAILS

SCALE: AS NOTED

DATE	DRAWN
12/15/21	MGG
	CHECKED AG

FILE: HSTurfFieldR23

REVISION 1/18/22

E–1.1

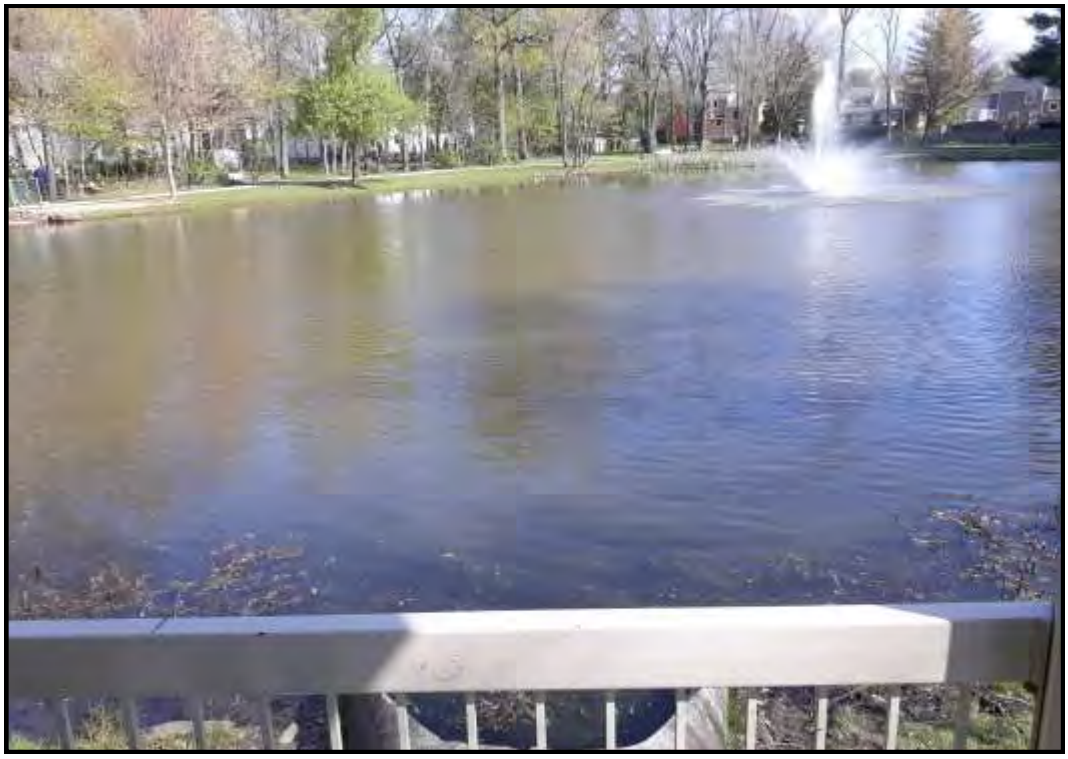
APPENDIX 2

SITE PHOTOS

1012 Industrial Drive, West Berlin, New Jersey 08091
Tel. (856) 809-1202 Fax. (856) 809-1203

Photograph 1: View of the existing athletic field.

Photograph 2: View of the existing athletic field.



Photograph 3: View of the man-made basin located to the northwest of the project site.

Photograph 4: View of the existing storm drain running beneath the athletic field to the man-made basin.

Photograph 5: View of the wooded area containing wetlands located adjacent to the west of the project site.

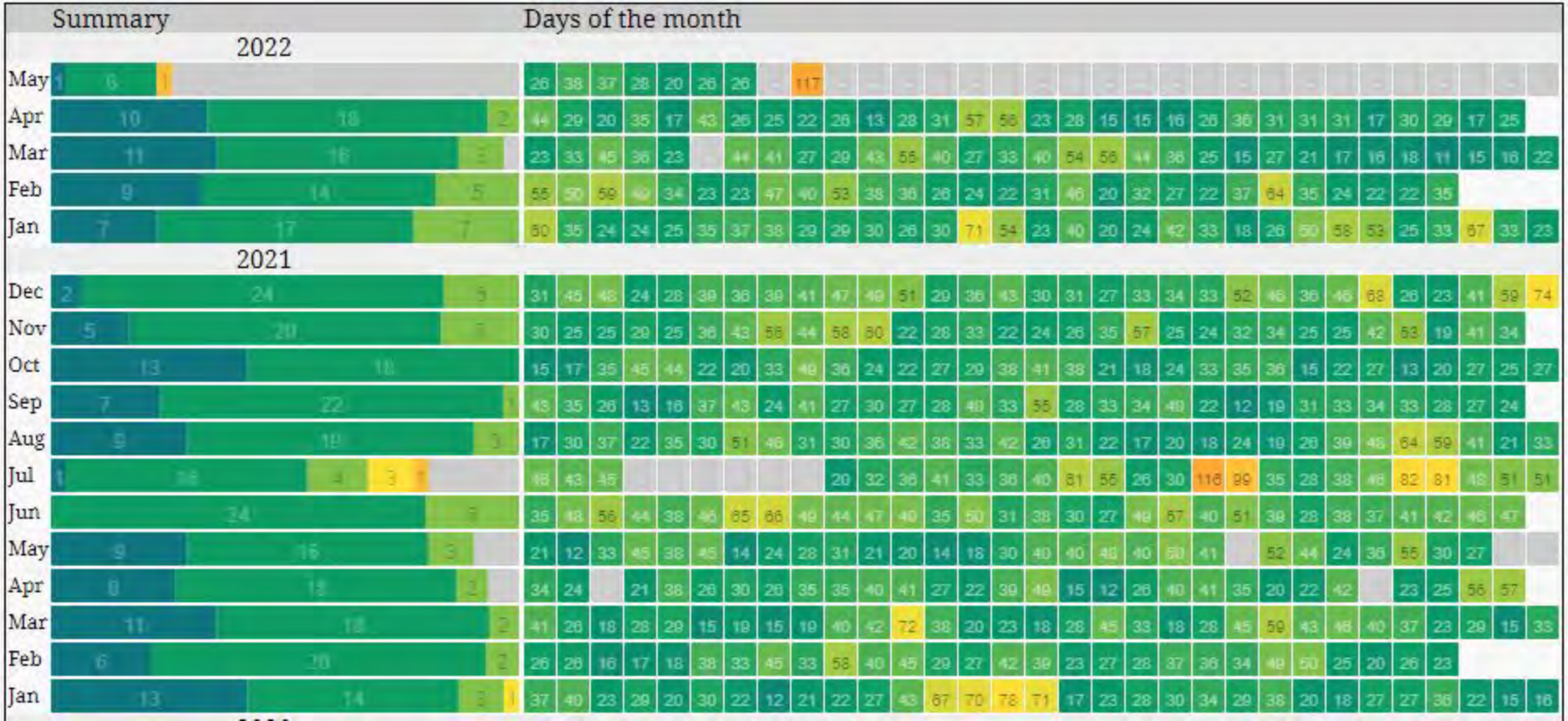
Photograph 6: View of Littell People's Park located to the north of the subject site.

APPENDIX 3

NEWARK FIREHOUSE AIR MONITORING RESULTS

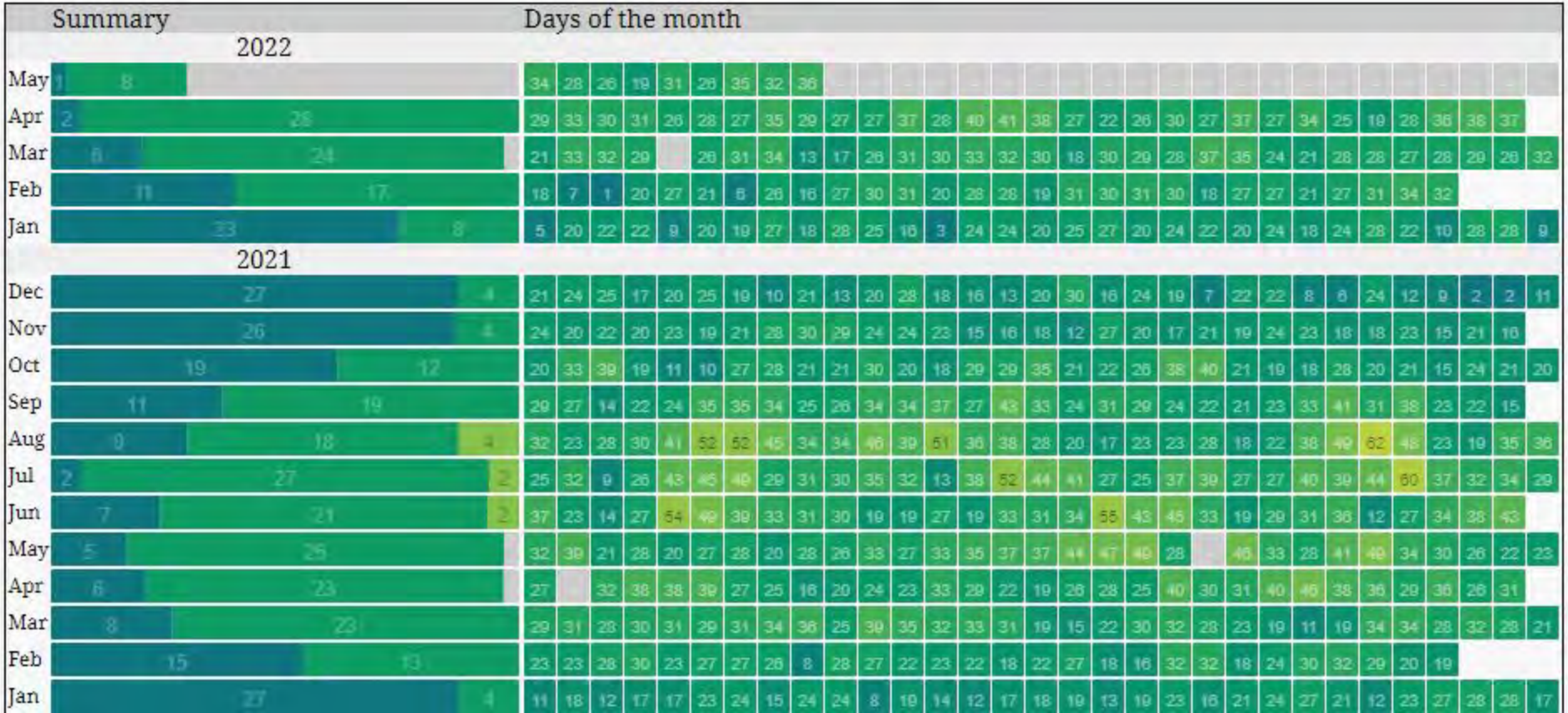
Daily Data

$PM_{2.5}$	O_3	NO_2	SO_2	CO



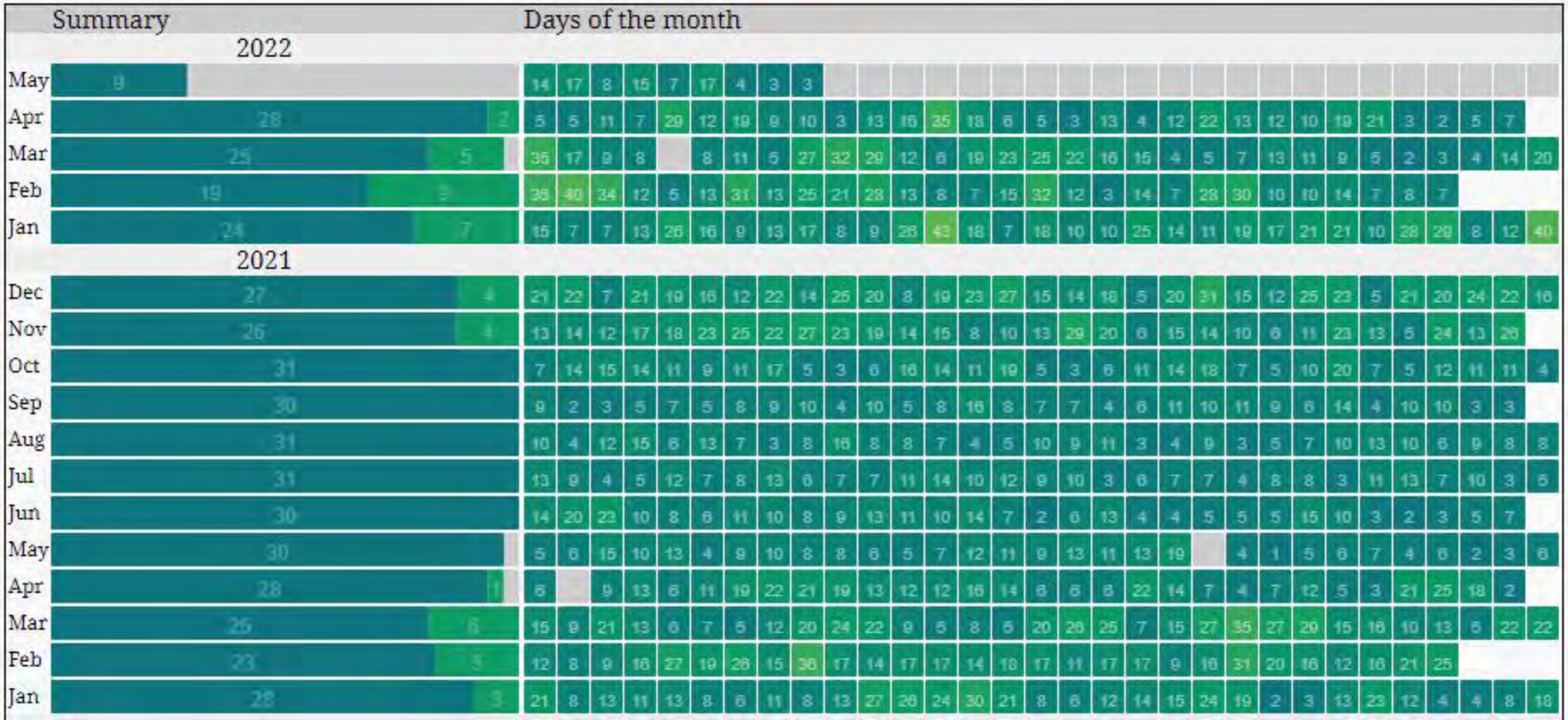
Daily Data

PM2.5 | O3 | NO2 | SO2 | CO



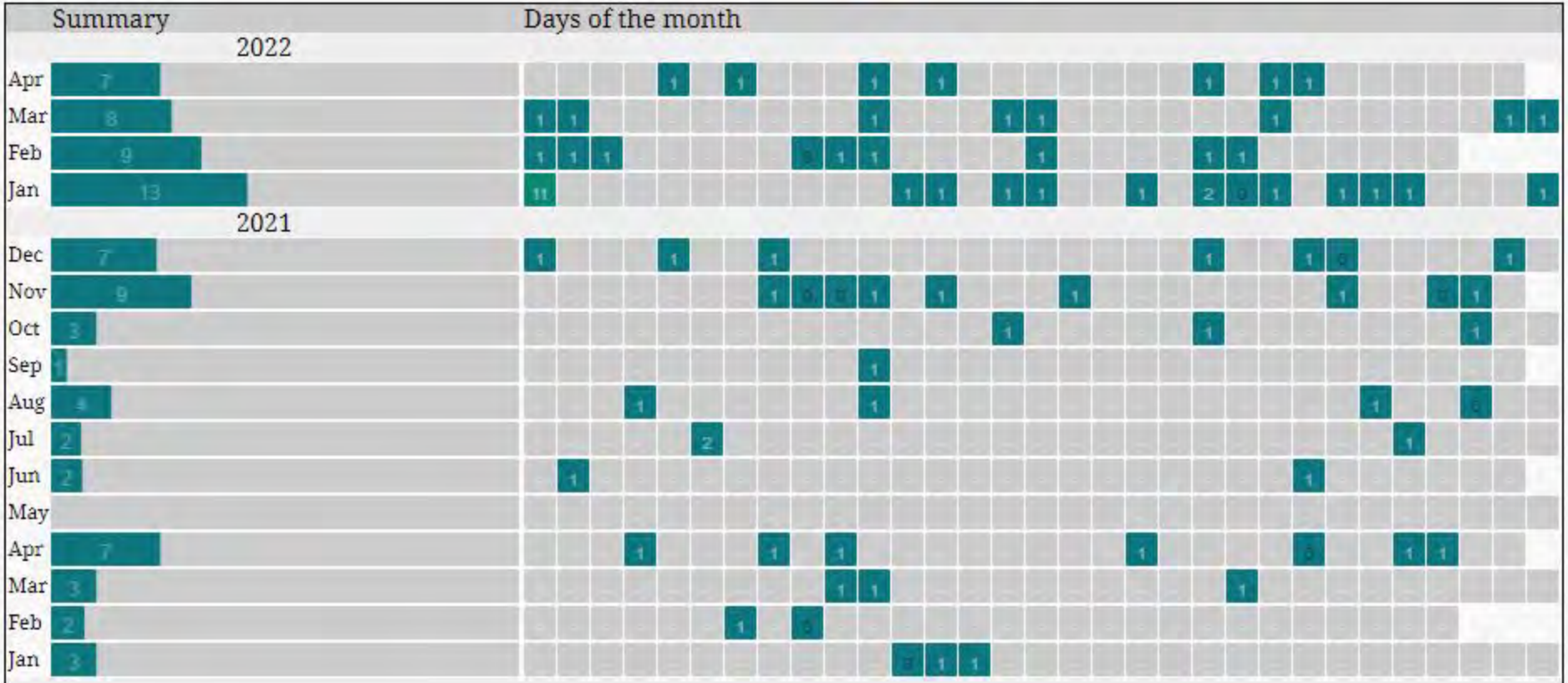
Daily Data

$PM_{2.5}$	O_3	NO_2	SO_2	CO



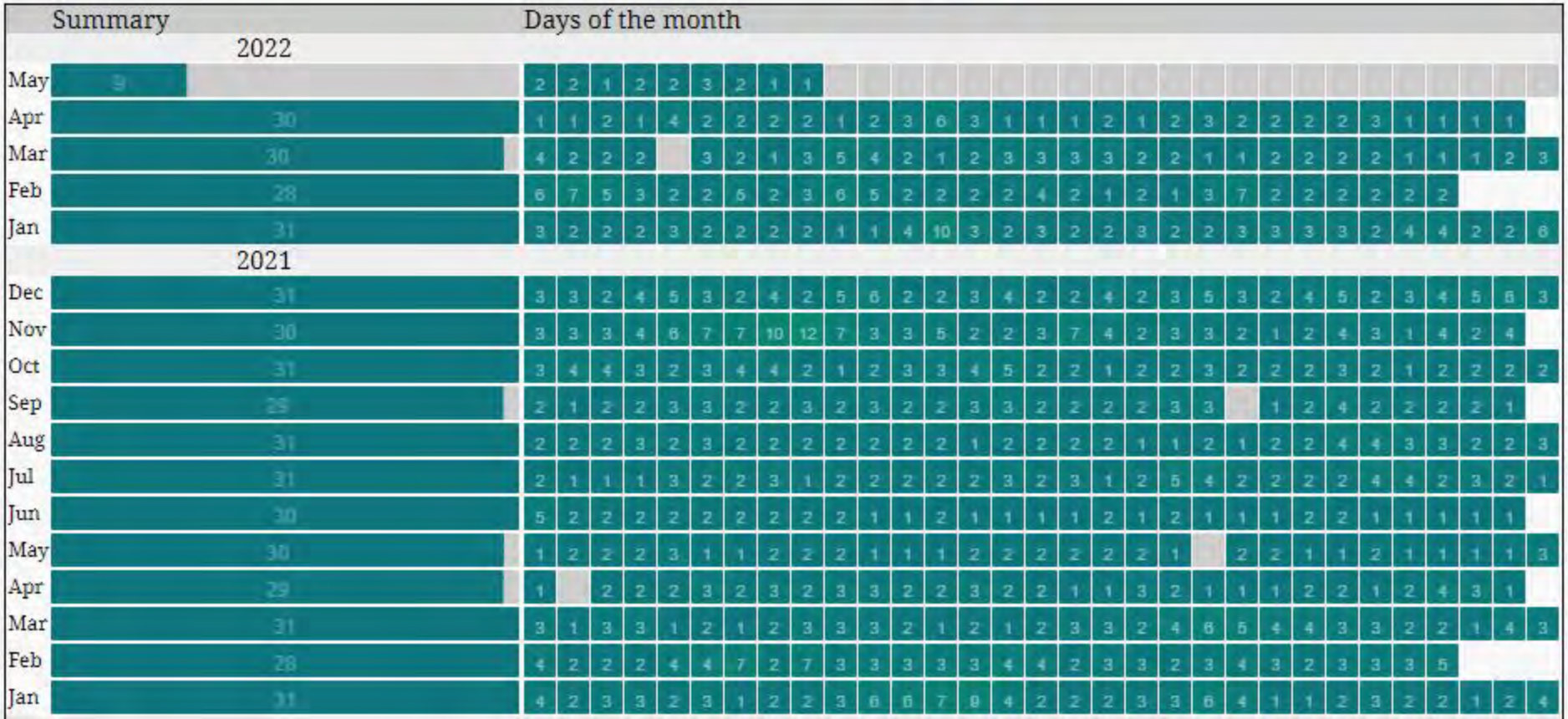
Daily Data

$PM_{2.5}$	O_3	NO_2	SO_2	CO



Daily Data

$PM_{2.5}$	O_3	NO_2	SO_2	CO



APPENDIX 4

NJDEP LETTER OF INTERPRETATION/ ENGINEERING CORRESPONDENCE

1012 Industrial Drive, West Berlin, New Jersey 08091
Tel. (856) 809-1202 Fax. (856) 809-1203

State of New Jersey

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION

Division of Land Resource Protection
Mail Code 501-02A
P.O. Box 420
Trenton, New Jersey 08625-0420
www.nj.gov/dep/landuse

SHAWN M. LATOURETTE
Commissioner

February 4, 2022

Livingston Board of Education
Steven Robinson
11 Foxcroft Drive
Livingston, NJ 07039

RE: Freshwater Wetlands Letter of Interpretation: Line Verification
DLRP File No.: 0710-06-0005.1
Activity Number: LLI210001
RSP Service ID# 1244131
Applicant: Livingston Board of Education
Block(s) and Lot(s): [4400, 1]
Livingston Township, Essex County

Dear Mr. Robinson:

This letter is in response to your request for a Freshwater Wetlands Letter of Interpretation to have Division of Land Resource Protection (Division) staff verify the boundary of the freshwater wetlands and/or State open waters on the referenced property.

In accordance with agreements between the State of New Jersey Department of Environmental Protection, the U.S. Army Corps of Engineers Philadelphia and New York Districts, and the U.S. Environmental Protection Agency, the Division is the lead agency for establishing the extent of State and Federally regulated wetlands and waters. The USEPA and/or USACOE retain the right to reevaluate and modify the jurisdictional determination at any time should the information prove to be incomplete or inaccurate.

Based upon the information submitted, and upon a site inspection conducted by Division staff on October 8, 2021, the Division has determined that the wetlands and waters boundary line(s) as shown on the plan map entitled: **"EXISTING CONDITIONS PLAN – 30 ROBERT H. HARP DRIVE BLOCK 4400 LOT 1 TOWNSHIP OF LIVINGSTON ESSEX COUNTY NEW JERSEY 07039**", consisting of one (1) sheet, dated May 10, 2021, last revised January 10, 2022, and prepared by John J. Hanlon, P.L.S. of VS Land Data, is accurate as shown.

The freshwater wetlands and waters boundary line(s), as determined in this letter, must be shown on any future site development plans. The line(s) should be labeled with the above file number and the following note:

"Freshwater Wetlands/Waters Boundary Line as verified by NJDEP"

Wetlands Resource Value Classification ("RVC")

In addition, the Division has determined that the resource value and the standard transition area or buffer required adjacent to the delineated wetlands are as follows:

Intermediate: All wetlands shown on plan referenced above. [50 foot wetland buffer]

All of the wetlands shown on the referenced plan, delineated by boundary lines "A", "B", "C", and "D" are considered isolated. RVC may affect requirements for wetland and/or transition area permitting. This classification may affect the requirements for an Individual Wetlands Permit (see N.J.A.C. 7:7A-7), the types of Statewide General Permits available for the property (see N.J.A.C. 7:7A-4) and any modification available through a transition area waiver (see N.J.A.C. 7:7A-6). Please refer to the Freshwater Wetlands Protection Act (N.J.S.A. 13:9B-1 et seq.) and implementing rules for additional information.

Wetlands resource value classification is based on the best information available to the Department. The classification is subject to reevaluation at any time if additional or updated information is made available, including, but not limited to, information supplied by the applicant.

General Information

Pursuant to the Freshwater Wetlands Protection Act Rules, you are entitled to rely upon this jurisdictional determination for a period of five years from the date of this letter unless it is determined that the letter is based on inaccurate or incomplete information. Should additional information be disclosed or discovered, the Division reserves the right to void the original letter of interpretation and issue a revised letter of interpretation.

Regulated activities proposed within a wetland, wetland transition area or water area, as defined by N.J.A.C. 7:7A-2.2 and 2.6 of the Freshwater Wetlands Protection Act rules, require a permit from this office unless specifically exempted at N.J.A.C. 7:7A-2.8. The approved plan and supporting jurisdictional limit information are now part of the Division's public records.

Please be advised, surface water features onsite may possess flood hazard areas and/or riparian zones. Development within these areas may be subject to the Flood Hazard Area Control Act rules at N.J.A.C. 7:13. The Division can verify the extent of flood hazard areas and/or riparian zones through a flood hazard area verification under the application procedures set forth at N.J.A.C. 7:13-5.1.

This letter in no way legalizes any fill which may have been placed, or other regulated activities which may have occurred on-site. This determination of jurisdiction extent or presence does not make a finding that wetlands or water areas are "isolated" or part of a surface water tributary system unless specifically called out in this letter as such. Furthermore, obtaining this determination does not affect your responsibility to obtain any local, State, or Federal permits which may be required.

Recording

Within 90 calendar days of the date of this letter, the applicant shall submit the following information to the clerk of each county in which the site is located, and shall send proof to the Division that this information is recorded on the deed of each lot referenced in the letter of interpretation:

1. The Department file number for the letter of interpretation;

2. The approval and expiration date of the letter of interpretation;

3. A metes and bounds description of the wetland boundary approved under the letter of interpretation;

4. The width and location of any transition area approved under the letter of interpretation; and

5. The following statement: "The State of New Jersey has determined that all or a portion of this lot lies in a freshwater wetland and/or transition area. Certain activities in wetlands and transition areas are regulated by the New Jersey Department of Environmental Protection and some activities may be prohibited on this site or may first require a freshwater wetland permit. Contact the Division of Land Resource Protection at (609) 777-0454 or http://www.nj.gov/dep/landuse for more information prior to any construction onsite."

Failure to have this information recorded in the deed of each lot and/or to submit proof of recording to the Division constitutes a violation of the Freshwater Wetlands Protection Act rules and may result in suspension or termination of the letter of interpretation and/or subject the applicant to enforcement action pursuant to N.J.A.C. 7:7A-22.

Appeal Process

In accordance with N.J.A.C. 7:7A-1.7, any person who is aggrieved by this decision may request a hearing within 30 days of the date the decision is published in the DEP Bulletin by writing to: New Jersey Department of Environmental Protection, Office of Legal Affairs, Attention: Adjudicatory Hearing Requests, P.O. Box 402, Trenton, NJ 08625-0402. This request must include a completed copy of the Administrative Hearing Request Checklist found at www.state.nj.us/dep/landuse/forms. Hearing requests received after 30 days of publication notice may be denied. The DEP Bulletin is available on the Department's website at www.nj.gov/dep/bulletin. In addition to your hearing request, you may file a request with the Office of Dispute Resolution to engage in alternative dispute resolution. Please see the website www.nj.gov/dep/odr for more information on this process.

Please contact Chivon Kisic of our staff by e-mail at chivon.kisic@dep.nj.gov or (609) 777-0454 should you have any questions regarding this letter. Be sure to indicate the Department's file number in all communication.

Sincerely,

Patrick W. Ryan, Supervisor
Division of Land Resource Protection

c: Municipal Clerk
Municipal Construction Official
Agent (original)

Wetland Line Tables

WETLANDS LINE "A" TABLE		
LINE #	DIRECTION	LENGTH
A–L1	S67°44'34"E	4.82'
A–L2	S08°55'26"W	6.70'
A–L3	N53°51'41"E	10.78'
A–L4	S08°16'37"W	12.74'
A–L5	N70°52'38"E	9.34'
A–L6	N61°37'56"E	12.15'
A–L7	S64°14'52"E	12.08'
A–L8	S22°06'46"E	21.76'
A–L9	S08°35'16"W	21.80'
A–L10	S36°03'56"W	20.70'
A–L11	S17°16'59"E	12.23'
A–L12	S32°35'14"W	14.40'
A–L13	S12°36'49"W	8.51'
A–L14	S61°26'41"W	22.43'
A–L15	S03°26'39"E	12.76'
A–L16	S75°13'25"W	15.02'
A–L17	N67°31'46"W	15.55'
A–L18	S66°53'11"W	9.00'
A–L19	S42°53'41"E	29.78'
A–L20	S09°03'13"E	6.26'

WETLANDS LINE "A" TABLE		
LINE #	DIRECTION	LENGTH
A–L21	N59°29'24"W	19.17'
A–L22	N30°41'27"W	10.29'
A–L23	N12°43'16"E	26.76'
A–L24	S87°32'59"E	14.90'
A–L25	N54°02'14"E	13.00'
A–L26	N05°42'52"E	21.51'
A–L27	N87°22'25"W	14.56'
A–L28	S35°40'20"W	29.24'
A–L29	N55°42'51"W	8.25'
A–L30	N34°21'50"E	27.33'
A–L31	N81°29'36"E	16.37'
A–L33	N14°08'12"E	25.68'
A–L34	N34°50'38"W	24.08'
A–L35	N81°15'24"W	7.00'
A–L36	N24°54'24"E	13.63'

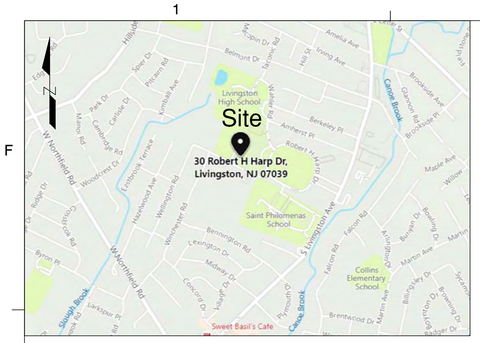
WETLANDS LINE "B" TABLE		
LINE #	DIRECTION	LENGTH
B–L1	S40°29'15"W	19.07'
B–L2	S19°45'18"E	17.59'
B–L3	S34°46'24"W	9.94'
B–L4	S88°23'40"W	6.02'
B–L5	N26°08'24"E	8.90'
B–L6	N33°37'01"W	16.05'
B–L7	N17°45'26"E	21.19'
B–L8	N33°09'14"E	17.39'
B–L9	N85°30'40"E	14.36'
B–L10	S21°59'41"W	19.23'

WETLANDS LINE "C" TABLE		
LINE #	DIRECTION	LENGTH
C–L9	N89°18'29"E	26.12'
C–L10	N77°20'27"E	20.91'
C–L11	S42°01'51"E	27.88'
C–L12	S21°57'37"W	35.41'
C–L13	S82°36'44"E	19.35'
C–L14	S55°54'34"E	28.60'
C–L15	S69°20'19"E	37.30'
C–L16	N43°39'55"W	14.05'
C–L17	N55°55'08"W	42.29'
C–L18	N42°51'56"W	28.23'
C–L19	S80°25'01"E	6.92'
C–L20	S54°03'31"E	70.89'
C–L1	N30°51'16"E	4.32'
C–L2	N53°58'30"W	66.45'
C–L3	N37°22'26"W	31.37'
C–L4	N25°51'42"W	26.83'
C–L5	N88°03'57"W	33.99'

WETLANDS LINE "D" TABLE		
LINE #	DIRECTION	LENGTH
D–L1	S67°18'59"E	26.61'
D–L2	S29°17'54"E	20.99'
D–L3	S14°05'23"E	19.93'
D–L4	S06°52'35"W	31.19'
D–L5	N74°00'12"E	14.55'
D–L6	N12°02'46"E	31.73'
D–L7	N06°48'02"E	29.64'
D–L8	N12°11'29"W	32.77'
D–L9	S53°02'36"W	21.92'
D–L10	N34°40'30"W	34.69'
D–L11	S20°47'21"W	23.50'
D–L12	S34°22'20"W	13.36'

Location Map

(Not to Scale)



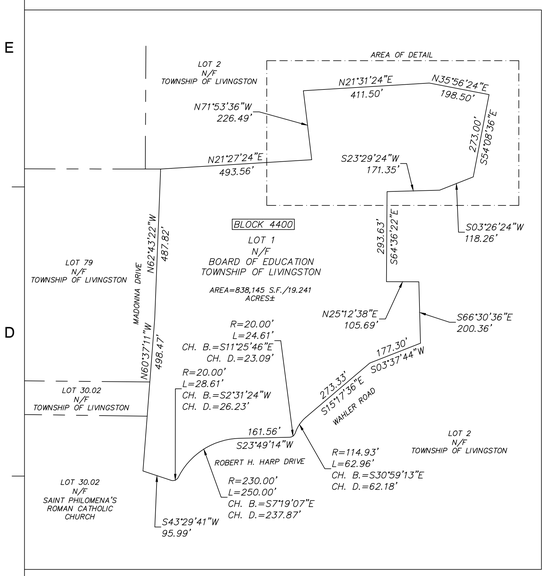
Google Image

Wetland	Acreage Total	Acreage Total Lot 1 Only
Wetland A	4,925 s.f. 0.113 acres±	3,617 s.f. 0.083 acres±
Wetland B	692 s.f. 0.113 acres±	n/a
Wetland C*	2,576 s.f. 0.059 acres±*	1,587 s.f. 0.036 acres±
Wetland D	2,644 s.f. 0.061 acres±	n/a
50' Transition	n/a	35,004 s.f. 0.804 acres±

*Note: Wetland C is open–ended off–site

Property Plot

(1" = 200')



Notes

1. Subject to the findings of a current title search and boundary survey.
2. This drawing is not intended to delineate or define property boundaries.
3. Not all physical features of the subject property are shown. This plan is designed to reflect a specified area of detail only and not to be used for purposes other than originally intended.
4. Property lines shown hereon are based on reference 13.3 below.
5. Based on field work performed 04-30-2021.
6. Wetlands delineated by JM Sorge inc. and located by VS Land Data on 04-30-2021. Wetlands shown are preliminary; subject to approval by the New Jersey Department of Environmental Protection.
7. According to the Flood Insurance Rate Map this property is located in an area designated as Zone X - "Areas determined to be outside the 0.2% annual chance floodplain", per map number 34013C0087G, community of the Township of Livingston, Essex County, New Jersey. Effective date: June 04, 2007, revised April 03, 2020.
8. This plan is not intended to delineate or define underground utilities. The user is cautioned to contact New Jersey One Call for utility markouts at 1-800-272-1000.
9. Coordinate system: NJ State Plane.
10. Control: Established with global positioning systems utilizing Real Time Kinematic navigation (RTK). Referencing CORS_ID NJI2.
11. Horizontal datum: NAD83.
12. Vertical datum: NAVD88.
13. References:
    - 13.1. Tax map sheets 44.01 & 44.02.
    - 13.2. Plan entitled "Boundary Survey of Livingston High School and Municipal Complex Block 4400, Lots 1, 2 & 79". As prepared by Maser Consulting P.A., dated January 05, 2006.
    - 13.3. Plan entitled " Minor Subdivision Plat Lot Line Adjustment of Livingston High School Block 4400, Lot 1 Township of Livingston Essex County New Jersey" As prepared by Maser Consulting P.A., dated July 05, 2006.

Survey Certification

Certified to:
-Livingston Board of Education.
-Gianforcaro Architects - Enginneers & Planners.

I certify that, to the best of my knowledge and belief, this plan is based on a field survey made in April 2021, under my direct supervision, in accordance with the rules and regulations promulgated by the NJ State Board of Professional Engineers & Land Surveyors. The information shown hereon correctly represents the conditions found as of the date of the field survey, except such improvements or easements, if any, below the surface and not visible.

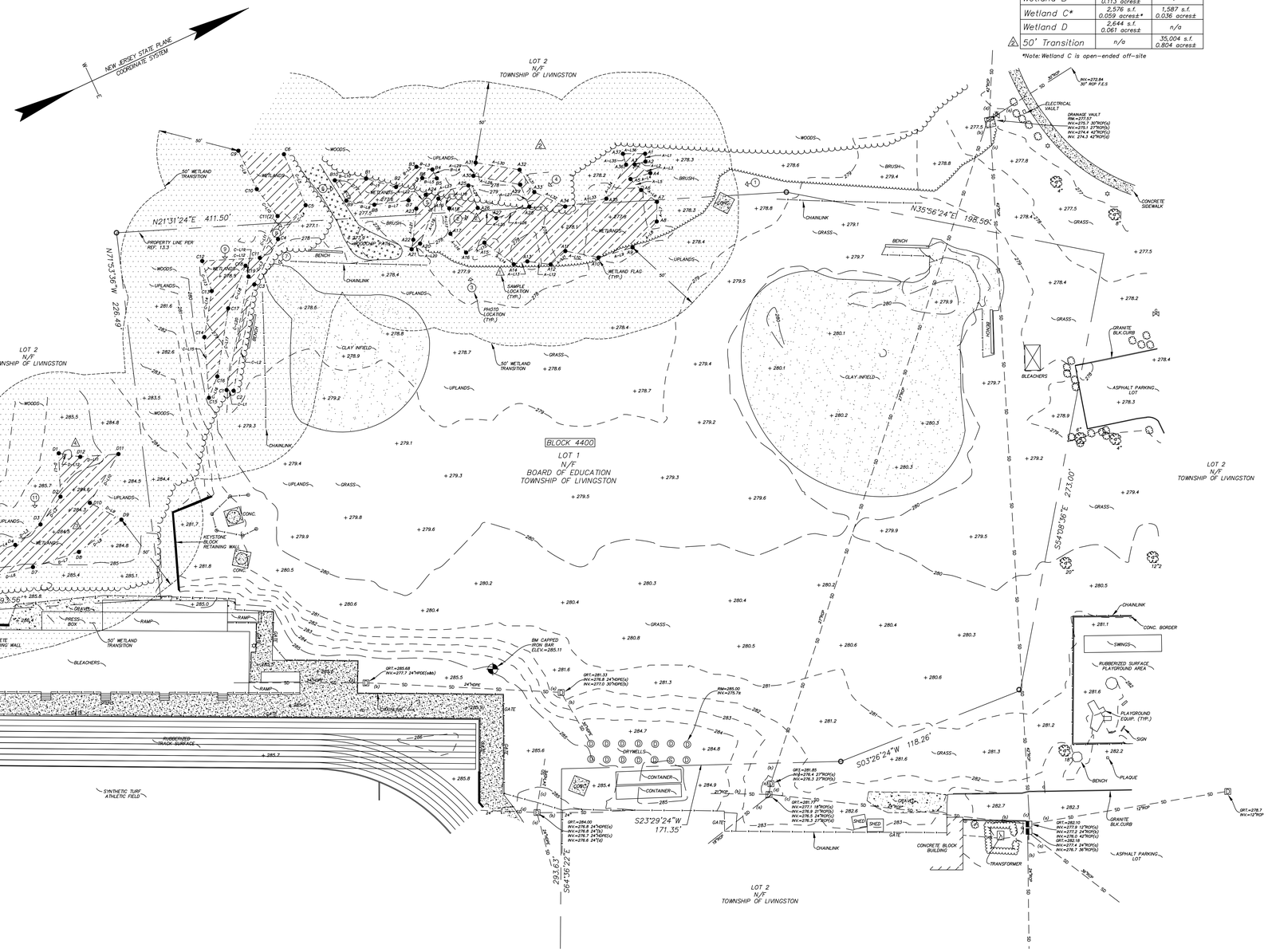
Legend

Communication Line	COMM	Manhole Telephone	
Contour	100	Manhole Unknown	
Edge Of Pavement		Manhole Water	
Fence	X X X	Monument	
Guardrail		Monitor Well	
Property Line		Parking Meter	
Overhead Utility	OHU	Photograph Location And Direction Of View	
Storm Drain	SD	Sampling Station Location	
Sanitary Sewer	SS	Sign	
Underground Electric	UGE	Test Pit / Soil Boring	
Underground Gas	UGG	Tree Evergreen Drip Line	
Underground Water	UGW	Tree Deciduous Drip Line	
Wood Line		Utility Pole	
Benchmark		Water Meter	
Bush		Water Valve	
Bollard		Well	
Catch Basin		Wetland Flag & Number	A1
Cleanout			
Deciduous Tree			
Drain Inlet			
Evergreen Tree			
Gas Meter			
Gas Valve			
Guy Wire			
Hydrant			
Iron Pipe or Bar			
Light Post			
Mailbox			
Manhole Drainage			
Manhole Electric			
Manhole Sanitary			

Graphic Scale

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.



811 Know what's below. Call before you dig.

LIVINGSTON HIGH SCHOOL

30 ROBERT H. HARP DRIVE
BLOCK 4400
LOT 1
TOWNSHIP OF LIVINGSTON
ESSEX COUNTY
NEW JERSEY
07039

VS LAND DATA

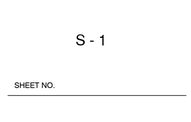
PO Box 186
Phillipsburg, NJ 08865
P 888.676.4435
F 800.220.6214
www.vslanddata.com
NJ Certificate Of Authorization #24GA28113500

SCALE

AS SHOWN

REVISIONS		
1	05-21-2021	ADDED WETLAND TABLES
2	01-10-2022	REVISE WETLANDS ADD TRANSITION AREAS
3	02-04-2022	ADD SIGNATURE BOX

SEAL



DRAWN BY KJC
APPROVED BY JJH
CHECKED BY JJH
DATE 05-10-2021

TITLE

EXISTING CONDITIONS PLAN

VS PROJECT NO. 21049

S - 1

SHEET NO.

Kasey Lechner

From: Anthony Gianforcaro <anthony@gianforcaroaep.com>
Sent: Thursday, May 5, 2022 7:18 PM
To: Kasey Lechner; Marianne Risley
Cc: Matthew Gianforcaro
Subject: RE: Environmental Impact Assessment - Livingston Board of Education

Kasey,

We did not receive any other turf proposals. We have used this turf system in the past and have been very successful. I do not suggest that we introduce another turf manufacturer as they do not have the track record that FieldTurf provides.

We will be required to obtain NJ Dept. of Education approval, which we are in the process of receiving. We will also be required to get Essex County Soil Conservation District approval. The only other approval that is required is the approval from the NJDEP which is pending at this point.

Please let me know if you need anything else from us.

Thank you.

Anthony Gianforcaro, AIA, PE
Gianforcaro Architects, Engineers & Planners
555 East Main Street
Chester, New Jersey 07930
908-879-6001 (office)
908-510-6450 (cell)
908-879-8505 (fax)

From: Kasey Lechner <kaseylechner@acerassociates.com>
Sent: Thursday, May 5, 2022 1:35 PM
To: Anthony Gianforcaro <anthony@gianforcaroaep.com>; Marianne Risley <mrisl@arh-us.com>
Cc: Matthew Gianforcaro <matthew@gianforcaroaep.com>
Subject: RE: Environmental Impact Assessment - Livingston Board of Education

Good Afternoon,

I have a couple more questions regarding this project. Were any alternatives to the synthetic turf field proposed?

Could you provide a list of any other licenses, permits, or approvals required by municipal, county or state law that are being sought for this project and their status?

Thank you,
Kasey Lechner

Tel. (856)-809-1202
Fax. (856)-809-1203

From: Anthony Gianforcaro <anthony@gianforcaroaep.com>
Sent: Monday, May 2, 2022 3:30 PM
To: Marianne Risley <mrisl@arh-us.com>
Cc: Kasey Lechner <kaseylechner@acerassociates.com>; Matthew Gianforcaro <matthew@gianforcaroaep.com>
Subject: RE: Environmental Impact Assessment - Livingston Board of Education

Marianne and Kasey,

We will be specifying the FieldTurf Classic HD 2". The Fiber is Slit-Film, the Infill is 3-Layered and the Backing is Finger-Unit/SureLock.

Also, attached is the approved LOI. We are currently in the process of getting a GP6A from the NJDEP.

Please let me know if you need anything else.

Thank you.

Anthony Gianforcaro, AIA, PE
Gianforcaro Architects, Engineers & Planners
555 East Main Street
Chester, New Jersey 07930
908-879-6001 (office)
908-510-6450 (cell)
908-879-8505 (fax)

From: Marianne Risley <mrisl@arh-us.com>
Sent: Monday, May 2, 2022 11:17 AM
To: Anthony Gianforcaro <anthony@gianforcaroaep.com>
Cc: Kasey Lechner <kaseylechner@acerassociates.com>
Subject: FW: Environmental Impact Assessment - Livingston Board of Education

Anthony

can you provide some information as requested below to my subconsultant regarding the Livingston project.

Marianne

Marianne G. Risley, Associate/Environmental Services
ARH Associates, Inc.
215 Bellevue Ave.
PO Box 579
Hammonton, NJ 08037

(609)-561-0482 Ext. 3231 (office)
609-864-4099 (cell)

From: Kasey Lechner <kaseylechner@acerassociates.com>
Sent: Monday, May 2, 2022 9:33 AM
To: Marianne Risley <mrisl@arh-us.com>
Subject: Environmental Impact Assessment - Livingston Board of Education

Good Morning,

I'm working on the Environmental Impact Assessment for the Livingston turf project and would like to request information on a few things. I need to know what specific turf type will be used for the field. I see on the site plans that the material will be ordered from FieldTurf, but I'm not sure specifically what will be used. I see on their website that they have multiple products listed for turf. Any manufacturing details you could send regarding the turf they plan on using would be helpful.

Additionally, the site plans propose wetland transition area disturbance. Please send any permits or documents related to the wetlands on site. Also, do you know when they plan to begin construction activities or if there is a construction schedule in place yet?

Thank you,
Kasey Lechner

ACER ASSOCIATES, LLC

Tel. (856)-809-1202
Fax. (856)-809-1203

APPENDIX 5

GEOLOGY MAP

1012 Industrial Drive, West Berlin, New Jersey 08091
Tel. (856) 809-1202 Fax. (856) 809-1203

N

☆ **SITE LOCATION**

GEOLOGY MAP

The ArcGIS Online services in this group layer present satellite imagery and aerial imagery for the world.

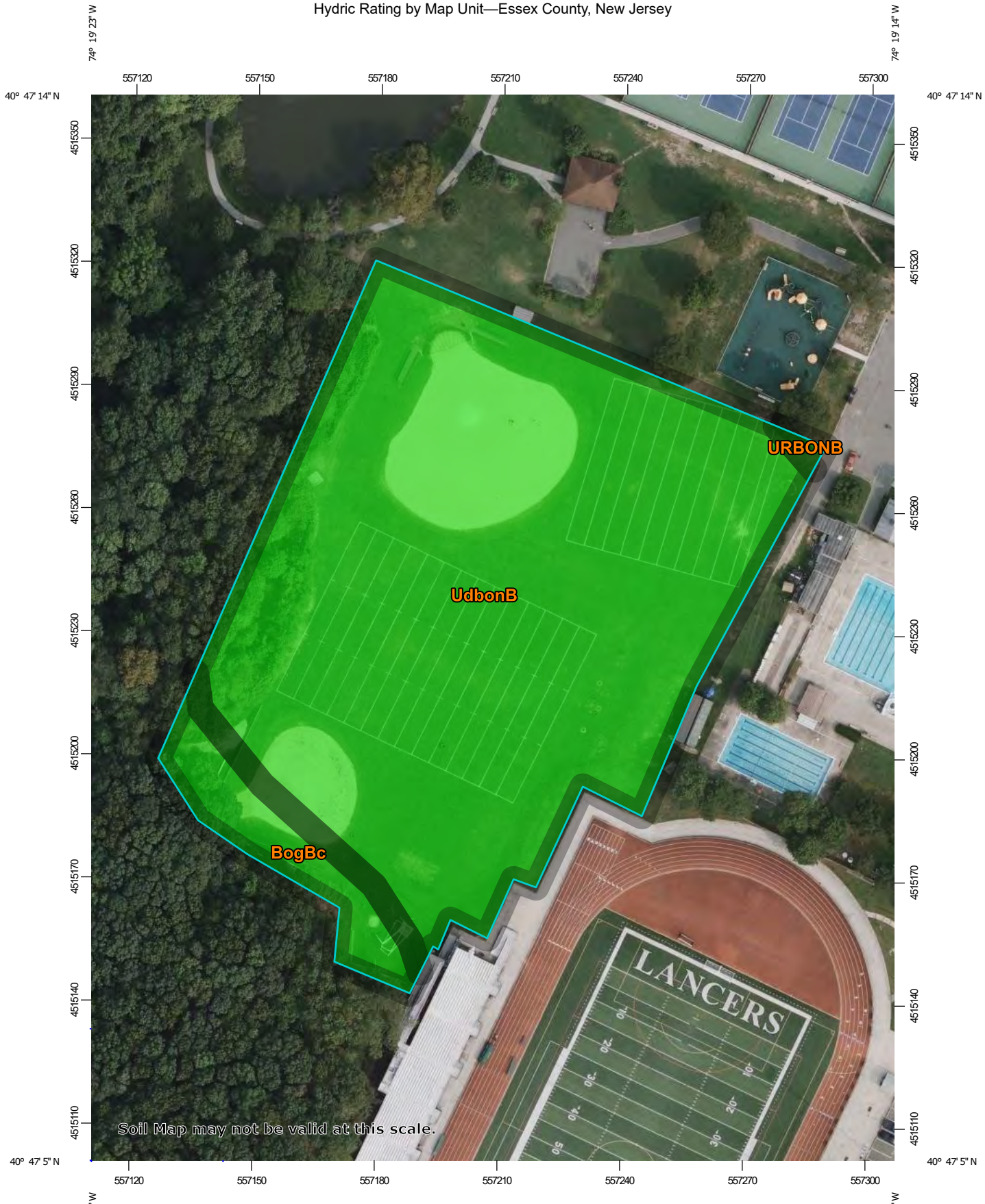
ACER ASSOCIATES, LLC

1012 INDUSTRIAL DRIVE
WEST BERLIN, NEW JERSEY 08091
Tel (856) 809-1202 / Fax (856) 809-1203

APPENDIX 6

NRCS SOILS MAP

1012 Industrial Drive, West Berlin, New Jersey 08091
Tel. (856) 809-1202 Fax. (856) 809-1203



Map Scale: 1:1,270 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 15 30 60 90

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Lines

- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Soil Rating Points

- Hydric (100%)
- Hydric (66 to 99%)
- Hydric (33 to 65%)
- Hydric (1 to 32%)
- Not Hydric (0%)
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Essex County, New Jersey
Survey Area Data: Version 17, Aug 30, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 9, 2020—Oct 15, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydric Rating by Map Unit

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BogBc	Boonton loam, 0 to 8 percent slopes, extremely stony	0	0.3	7.7%
UdbonB	Udorthents, Boonton substratum, 0 to 8 percent slopes	0	3.7	92.0%
URBONB	Urban land, Boonton substratum, 0 to 8 percent slopes	0	0.0	0.3%
Totals for Area of Interest			**4.0**	**100.0%**

Description

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Rating Options

Aggregation Method: Percent Present

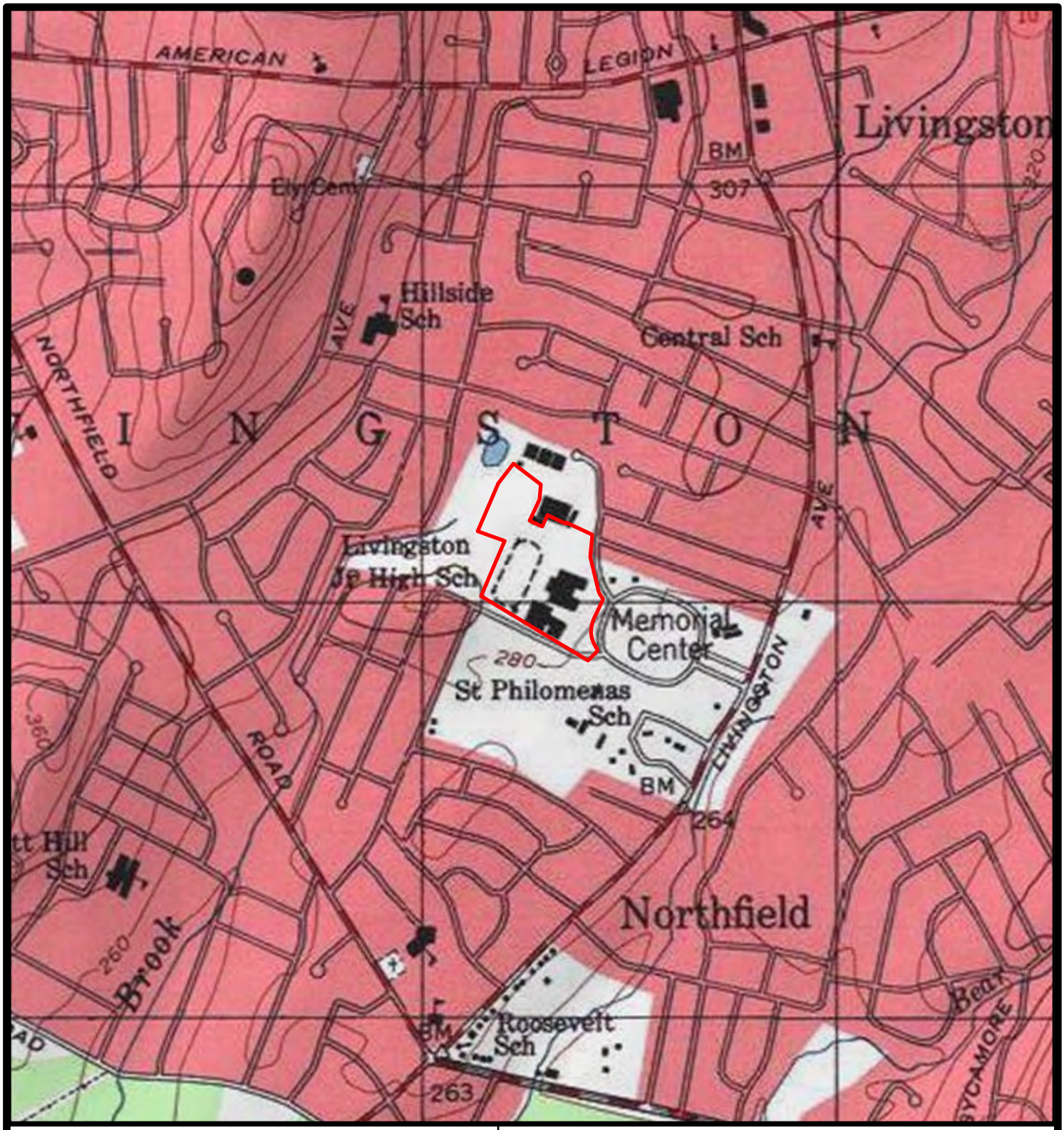
Component Percent Cutoff: None Specified

Tie-break Rule: Lower

APPENDIX 7

USGS TOPOGRAPHY MAP

1012 Industrial Drive, West Berlin, New Jersey 08091
Tel. (856) 809-1202 Fax. (856) 809-1203



N

☆ **SITE LOCATION**

USGS TOPOGRAPHIC MAP
Caldwell Quadrangle

"USGS Topographic Map," US_Topo_Maps [ArcGIS Map Service]. Redlands, CA: Environmental Systems Research Institute, Inc. Using: ArcView GIS [GIS Software]. Version 9.3.1. Redlands, CA: Environmental Systems Research Institute, Inc., 1999-2009.

ACER ASSOCIATES, LLC
1012 INDUSTRIAL DRIVE
WEST BERLIN, NEW JERSEY 08091
Tel (856) 809-1202 / Fax (856) 809-1203

APPENDIX 8

LANDSCAPE PROJECT MAP

1012 Industrial Drive, West Berlin, New Jersey 08091
Tel. (856) 809-1202 Fax. (856) 809-1203

NJ Landscape Project

5/9/2022, 11:52:19 AM

Piedmont Plains - Species Based Habitat - Landscape Project 3.3

Rank 1 - Habitat specific requirements

Rank 2 - Special Concern

1:4,514

0 0.03 0.06 0.11 mi

0 0.04 0.09 0.18 km

APPENDIX 9

TAX MAP/SITE LOCATION MAP

N

☆ **SITE LOCATION**

TAX PARCEL MAP

The ArcGIS Online services in this group layer present satellite imagery and aerial imagery for the world.

ACER ASSOCIATES, LLC

1012 INDUSTRIAL DRIVE
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SITE LOCATION

SITE LOCATION MAP

The ArcGIS Online services in this group layer present satellite imagery and aerial imagery for the world.

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APPENDIX 10

NJ LUCY MAP

1012 Industrial Drive, West Berlin, New Jersey 08091
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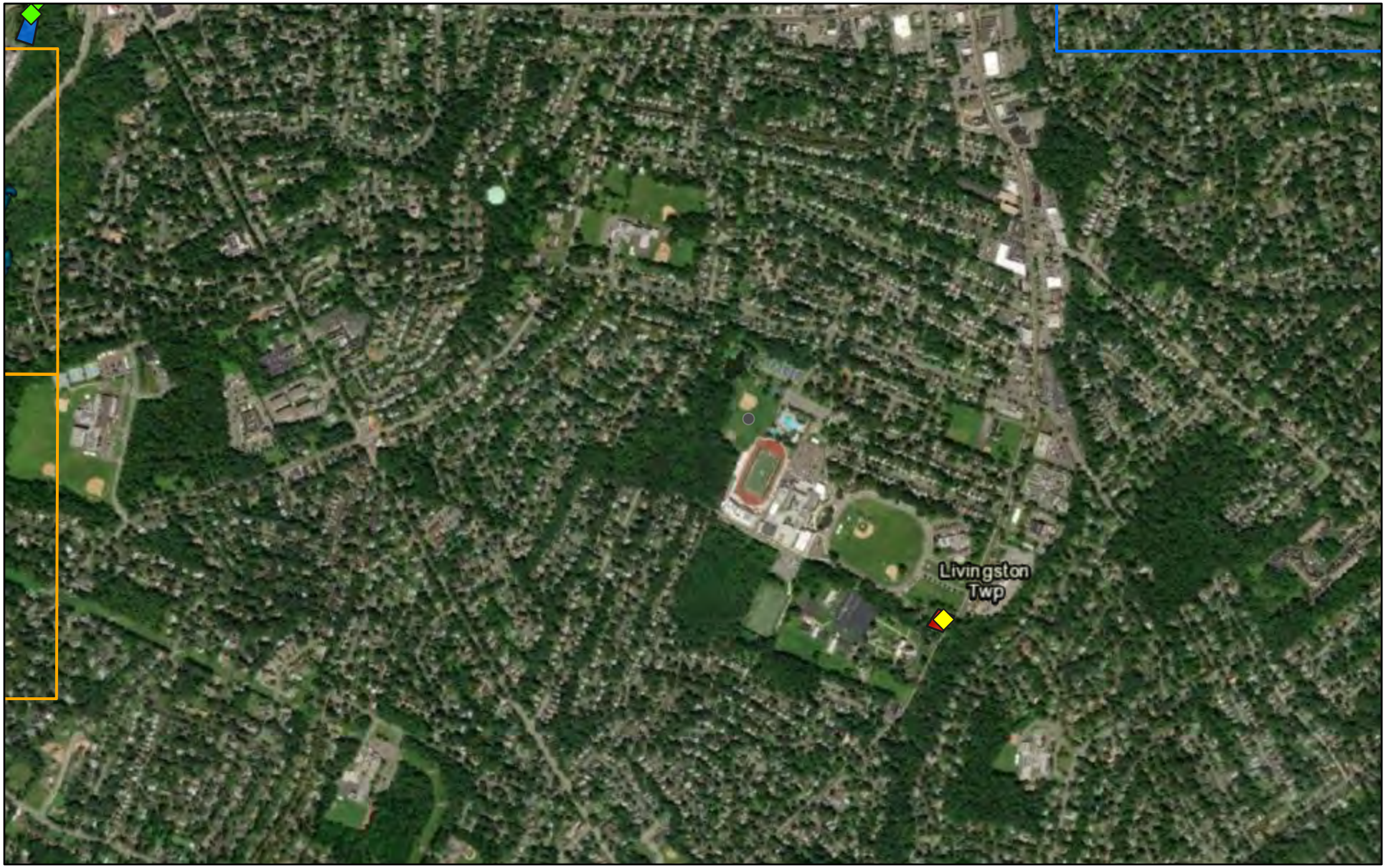
NJ Historic Properties Map



5/9/2022, 11:01:48 AM

1:18,056

0 0.1 0.2 0.4 mi

0 0.17 0.35 0.7 km

NJ Historic Property Features
- Contributing
- Non Contributing

NJ Historic Properties
- Listed INDV
- Identified INDV

NJ Archaeological Grid
- NR Eligible
- Identified

New Jersey Municipalities - Municipalities

Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community, Source: Esri, Maxar, Earthstar Geographics, and the GIS User

NJ DEP, Historic Preservation Office

New Jersey Office of Information Technology (NJOIT), Office of Geographic Information Systems | NJDEP | NJ Office of Information Technolgy, Office of GIS (NJOGIS);