WEST WINDSOR TOWNSHIP

DEPARTMENT OF COMMUNITY DEVELOPMENT
DIVISION OF ENGINEERING

MEMORANDUM

TO: West Windsor Township Planning Board

FROM: Francis A. Guzik, PE, CME
Director of Community Development/Township Engineer

DATE: March 31, 2021

SUBJECT: **Trustees of Princeton University**
Preliminary/Final Major Site Plan – "Lake Campus South"
Block 3, Lot 1.0113
US Route 1, Washington Road, Eden Way (vacated) and Lower Harrison Street
PB 20-12

Documents Received/Reviewed:

The following documents have been submitted for review:

A. Set of plans entitled "Princeton University Lake Campus Site Development – West Windsor Township Major Site Plan Application – Lake Campus South – Lot 1.0113, Block 3 – West Windsor Township, Mercer County, NJ", consisting of four (4) volumes (numbered 1A, 1B, 2A & 2B), all dated March 15, 2021 with previous revision dates of October 12, 2020 and February 3, 2021, with:

- Volumes 1A and 1B comprising the Site Civil portion (Christopher Longo, PE – Firm unspecified);
- Volume 2A comprising the Landscaping plans (James Corner, LLA – James Corner Field Operations) and;
- Volume 2B comprising the Stormwater Management plans (Sandra A. Brock, PE – Nitsch Engineering, Inc.)

None of the volumes bears the title block of any firm, but all identify the following schedule of design team member firms:

- Master Plan Architect – Skidmore, Owings & Merrill, Architects, P.A.
- Open Space Design and Landscape Architects – James Corner Field Operations
- Integrated Site/Civil Engineers and Traffic – Vanasse Hangen Brustlin, Inc.
- Athletic Fields – Sasaki Architects, Landscaping Architects and Professional Engineers, PC
- Traffic, Transportation, Parking and Planning Advisory – BFJ Planning.

- Stormwater Design – Nitsch Engineering, Inc.
- Electrical, Site Utilities, Site-wide Security, IT and Low Voltage – Burns and McDonnell Engineering Company, Inc.
- Plumbing, Fire Protection, Gas and Reclaimed Water – AKF Group
- District Scale Sustainability and Site Lighting – Atelier Ten
- Wayfinding and Signage – Applied Wayfinding
- Site Accessibility Consulting and Peer Review – Code Consultants, Inc.
- Cost Estimation – AECOM
- Surveyors and Civil Consulting - Van Note Harvey Associates, Inc.
- Construction Manager – P. Agnes
- Historic Preservation Consultants – Mills + Schnoering Architects; and
- Attorney – Faegre Drinker Biddle & Reath, LLP

B. Set of plans entitled "Tiger CUB – Central Utility Building – Princeton University - West Windsor Township Major Site Plan Application – Lake Campus South – Vol. 3 - Lot 1.0113, Block 3 – West Windsor Township, Mercer County, NJ", prepared by Zimmer Gunsul Frasca Architects LLC (Timothy Williams, RA), consisting of eight (8) sheets, dated March 15, 2021 with previous revision dates of October 12, 2020 and February 3, 2021;

C. Set of plans entitled "Princeton University Lake Campus Parking Garage - West Windsor Township Major Site Plan Application – Lake Campus South – Vol. 4 - Lot 1.0113, Block 3 – West Windsor Township, Mercer County, NJ", prepared by Timothy Haahs & Associates, Inc. (Todd J. Helmer, PE), consisting of twenty (27) sheets, dated March 15, 2021 with previous revision dates of October 12, 2020 and February 3, 2021;

D. Set of plans entitled "Softball Stadium – Princeton University - West Windsor Township Major Site Plan Application – Lake Campus South – Vol. 5 - Lot 1.0113, Block 3 – West Windsor Township, Mercer County, NJ", prepared by Sasaki (Zachary P. Chrisco, PE & Vinicius Gorgati, RA), consisting of twelve (12) sheets, dated March 15, 2021 with previous revision dates of October 12, 2020 and February 3, 2021;

E. Report entitled "Environmental Information Statement – Lake Campus Site South Development – Princeton University, West Windsor Township, Mercer County, New Jersey", prepared by VHB Engineering, Surveying, Landscape Architecture, and Geology P.C., and dated October 2020;

F. Report entitled "West Windsor Township Major Site Plan Application – Lake Campus South – Stormwater Report" prepared by Nitsch Engineering (Sandra A. Brock, PE) dated October 12, 2020, revised through March 15, 2021;

G. Document entitled "Stormwater Operations and Maintenance Plan – Princeton University Lake Campus South, West Windsor, NJ" prepared by Nitsch Engineering (Sandra A. Brock, PE) dated February 3, 2020, revised through March 15, 2021;

H. Letter of Interpretation: Extension issued by NJDEP for Block 3, Lot 3 dated May 23, 2017 and referenced file No. 1113-10-0010.2 FWW170001;

I. Letter of Interpretation: Line Verification issued by NJDEP for Block 2, Lots 2, 3 and 6-11 and Block 3, Lots 1, 2, 3.01, 4, and 11-13 dated January 24, 2018 and referenced file No. 1113-02-0003.2 FWW170001;

J. Letter from BFJ Planning to KyuJung Whang, Vice President of Facilities for Princeton University referenced "Traffic Impacts of the Initial Projects within the Near Term Phase of the Princeton University Lake Campus GDP" dated October 5, 2020

K. Photo report entitled "Trustees of Princeton University – Lake Campus South: Existing Conditions Photos – Township of West Windsor, New Jersey", undated.

L. 11" x 17" color architectural renderings, consisting of twenty (20) pages, depicting the Parking Garage, TIGER CUB Building and Softball Stadium, dated March 15, 2021

M. Development Application package, including;

- Cover letter;
- Completed Development Application form;
- Rider to same;
- Completed Site Plan Checklist;
- Green Development Checklist; and
- Environmental Impact Statement Worksheet (included in Submission Item E);

Narrative:

The subject property is a 127.3-acre portion of a previous 207.031-acre tract consisting of Block 3, Lots 1.0113 and 1.012, which were created by way of minor subdivision under Planning Board Application No. PB18-03. The overall site is bounded on the west by the Delaware & Raritan Canal, on the south by Washington Road (Mercer County Route 571), on the east by US Route 1 and on the north by Lower Harrison Street (Mercer County Route 629). The property is owned by the Trustees of Princeton University and is located primarily within the E (Education) district, with some smaller portions in the R-2 residential zoning district.

The existing property consisted of athletic fields and a "lightning shelter" building, two private roadways (Tiger Lane and Nursery Drive), greenhouses, and a single-family residence with a garage and other outbuildings. Within the tract is the "exception" which is Block 3, Lot 15; the historic cemetery owned by Penns Neck Cemetery Association. The property is encumbered by a variety of environmental constraints including wetlands, flood hazard areas, DRCC stream corridor conservation easements, and Township Greenbelt. In addition to the environmental encumbrances, there is a 50'-wide sanitary sewer easement that parallels the Canal on the westerly portion of the property and a 20'-wide sanitary sewer easement in the southeasterly portion of the property.

The subject property is bisected by a ridgeline that generally runs along the existing pathway from Washington Road past the cemetery parcel up to Lower Harrison Street. The westerly portion of the property is located within the Duck Pond Run HUC 14 subwatershed with the easterly portion within the Millstone River (Route 1 to Cranbury Brook) HUC 14 subwatershed. The westerly portion is also part of the larger Stony Brook HUC 11 watershed and the easterly portion is part of the larger Millstone River (Above Carnegie Lake) HUC 11 watershed. The property is located within the Stony Brook Regional Sewerage Authority (SBRSA) River Road Sewer Treatment Plant sewer service area. Domestic water supply will be provided by New Jersey American Water. The previous overall tract is located within the Delaware and Raritan Canal Commission (DRCC) Review Zones A & B. Lot 1.012 is the portion within Review Zone A and Lot 1.0113 is entirely contained within Review Zone B.

Following the subdivision process, the applicant came before the Board for the approval of a 20-year General Development Plan (GDP), which was approved by the Board early in 2020 under application number PB18-09. This current application is the initial site plan approval sought for a portion of Lot 1.0113 under that GDP. A concurrent site plan for Lot 1.012, identified as "Lake Campus North", has also been submitted to the Township for Major Site Plan approval, but is not part of this report.

The proposed development associated with "Lake Campus South" is as follows:

- 5-story parking garage adjacent to Washington Road at its intersection with existing Tiger Lane, which is proposed to be removed;
- A Central Utility Building (CUB) to the east of the proposed parking garage that will be the hub of the campus's geothermal energy system. This facility will connect to two 40'-high Thermal Energy Storage (TES) tanks adjacent to the CUB building and to 156 geo-exchange wells that are to be drilled beneath the softball stadium's playing surface. Appurtenant electrical equipment such as transformers and a generator will also be installed adjacent to the CUB building;
- A softball stadium with six 70' high light stanchions and spectator seating; and
- Flexible recreation fields to consist of natural turf grass and be utilized for different athletic activities. The fields will not be artificially lit.

In addition to the four primary development components of this application, appurtenant improvements are proposed, such as lighting, landscaping, vehicular and pedestrian access, underground utilities such as sanitary sewer, potable water, electric, telecommunications, and chilled water and hot water distribution lines (supply and return) as part of the thermal transfer system.

Finally, a complex and ambitious stormwater management design is proposed consisting of linear roadside bioretention swales, infiltration basins adjacent to the parking garage and CUB buildings and Meadow Extended Detention and Infiltration Basins east of the softball stadium. Other components are a 21-stall porous pavement parking module and a "Storm Trap" underground detention vault system.

I have reviewed the documentation submitted and offer the following comments for the Planning Board's consideration.

1.0 Site Plan

1.01 The following checklist waivers have been requested:

Section 200-13 (Preliminary Site Plan Approval)

- Checklist item #9 requires all wetlands areas be depicted with surveyor's metes and bounds for the outbound areas. This applicant has requested a checklist waiver from this requirement. I have no objection to the Board granting a temporary waiver from this requirement and deferring it to a condition of approval.

Section 200-14 (Final Site Plan Approval)

- The applicant has requested checklist waivers from Final Site Plan checklist items 200-14.C.1.a), C.1.b)(1) & C.1.b)(5). As these items all relate to the situation where the applicant pursues Preliminary and Final approvals separately, I have no objection to the granting of these waivers as Preliminary and Final approvals are being sought concurrently.

2.0 Access and Circulation

2.01 The 5-story parking deck is proposed in two phases, with the initial Phase 1 construction to provide 612 spaces, broken down as follows:

- 555 standard 9x18 spaces
- 13 standard ADA spaces
- 4 van-accessible ADA spaces
- 40 electric vehicle spaces

In addition to the automobile spaces, the applicant is also providing 7 motorcycle parking spaces in the parking deck, which are not included in the parking count.

Additional parking is provided by way of a 21-stall porous pavement parking module to the west of the northerly terminus of Innovation Way in an area identified as GSH (Graduate Student Housing?) Lot A.

The parking demand for the Lake Campus South development has been identified as 68 spaces, due solely to the seating at the softball stadium. The applicant should provide testimony to the Board why no parking is required for the CUB building. In any event, there is obviously ample parking to support the Lake Campus South development. In the future, as build-out progresses and additional parking is needed, Phase 2 of the parking deck will consist of a 5-story addition to the existing deck resulting in an ultimate parking supply of 937 spaces for the parking deck.

2.02 Ordinance Section 200-27.D(2) requires one loading area for up to 10,000 square feet of building floor area for places of public assembly and another for floor area of 10,001 to 100,000 square feet. I defer to the Board Attorney and/or Planner to determine if the stadium would qualify, what the loading requirements would be and if the paved area near the proposed batting cages would comply.

2.03 Section 200-29.I.(3) requires that two-way driveways are to be 24-feet in width. Also, Ordinance Section 200-29.N(3) requires that bicycle access should be combined with motor vehicle access where possible. Two-way driveways are to be 30-feet wide to provide for bicycle access. Innovation Way is proposed to provide two-way vehicular traffic as well as two-way bicycle traffic, but is proposed to be 22 feet in width. The applicant is requesting design waivers from these Ordinance sections and has provided testimony during TRC about the success of similar designs on and around the Princeton campus. Similar testimony to the Board's satisfaction regarding the adequacy of the proposed designs is required.

3.0 Stormwater Management

3.01 The project meets the definition of a major development, which is defined as any development with disturbance of one acre or more. This project was also deemed "complete" prior to the recent adoption of the new Green Infrastructure (GI) Township Stormwater Control Ordinance (SCO), so this project is being reviewed under the requirements of the old SCO. The project will result in over one-quarter acre of new impervious surfaces, so all aspects of the Township SCO must be met, including water quality. Due to its proximity to the D&R Canal, it must also meet their enhanced water quality standards of 95% TSS reductions, to be determined by the D&RCC.

Notwithstanding the above, the applicant has endeavored to utilize GI strategies wherever possible and has presented a well thought out, complex design that is likely the image of things to come in SWM design. The distinction for this project is that if there are any elements that do not strictly conform to the GI aspects of the current SCO, they are not required to seek variances for the deviations, as applications deemed complete after the date of adoption will be.

3.02 I have reviewed the applicant's Stormwater Management design and offer the following:

a. The design meets the Township ordinance standards for quantity control of reducing the 2-, 10- and 100-year storms to 50%, 75% and 80% of their pre-development counterparts. The design exceeds requirements as proposed flow rates are greatly below what are allowable, as follows:

- 2-year design storm – 2.79 cubic feet per second (cfs) where 4.60 cfs is allowable
- 10-year design storm – 4.30 cfs where 23.01 cfs is allowable
- 100-year design storm – 37.43 cfs where 80.90 cfs is allowable

b. The water quality design is in compliance with the Township standard of 80% TSS reductions.

c. The design is in compliance with the Township's groundwater recharge requirements.

3.03 Code section § 200-109A requires that stormwater control improvements shall be completely installed and stabilized, except for final landscaping, prior to issuance of any building permit for the development. The sequence of construction currently on the SESC plans does not address stormwater BMP construction at all and must be revised to comply. The sequence should also reflect how and when the various BMPs are to be phased in their construction and protected to preserve the soils at the levels proposed for infiltration.

3.04 The applicant is proposing several small "Meadow Infiltration Basin" BMPs at the lowest point of their stormwater management treatment train just prior to discharge. These BMPs are a hybrid of the design standards for an Infiltration Basin BMP and for a Bioretention Basin with Infiltration BMP. I do not believe that the deviation (a 6" sand layer between the bioretention medium and the subsoils) will make a difference in the BMPs functionality, but all BMPs are required to conform to the design standards in the NJ Stormwater BMP Manual and this design technically does not. However, this application is subject to D&RCC review and approval, which will be conducted by NJDEP stormwater reviewers. Since this application will be subject to that agency's approval, I have no objections.

In addition to the technical deviation noted above, there are a few remaining practical considerations to be incorporated into the designs of these basins that have been discussed with Nitsch Engineering. The changes have been agreed to, but have not yet been incorporated into the latest plans. Should the Board act favorably on the application, the review of these by this office will occur via the general condition under Comment 6.02 later in this report.

3.05 Ordinance Section 200-101.A requires a maintenance plan for stormwater management measures. The maintenance plan submitted has been reviewed and found to be very well done. This document is suitable for recording with the County Clerk as a "preconstruction" document. Additional information will need to be incorporated into it "post-construction", such as as-built plans and post-construction permeability testing, and those supplemental items recorded with the County Clerk at that time.

4.0 Utilities

4.01 Due to the connection of three buildings to the proposed sanitary sewer system, this project qualifies as a sewer extension and an NJDEP TWA application will be required for this application, even though the expected flows will generally be minimal. The applicant will need to request and receive sewer allocation from the Township Council for this project through the Township Engineer's office following any approval by the Board.

4.02 The proposed sewer connection in Harrison Street is to an existing sewer manhole to the north (at #62 Harrison Street) that was constructed with a 12" diameter stub in anticipation of servicing this tract of land. The line then runs through the manhole and discharges into the 36" sewer interceptor manhole that runs along the north side of the road. It is preferred the applicant attempt to make use of this existing line so as to minimize disruptions to Harrison Street, but should first investigate its condition and that of

the two existing system manholes. Coordination of all video assessments and inspections is to be done with the Township Engineer's office.

4.03 It appears from C-404-2 that a corrective sewer easement to the Township is required near Fisher Place. The easement should be spaced a minimum of 7.5 feet off the centerline of the constructed sanitary sewer line.

4.04 Potable water for this project will be provided by New Jersey American Water. Repairs to the public roadways requires as a result of major infrastructure improvements off-tract or along the site frontages, will required to be included in the project performance guarantee estimates.

5.0 Lighting

5.01 Light intensity calculations have been provided in tabular format per the requirements of Ordinance Section 200-31K. The calculations provided demonstrate the following deviations from same:

a. Intersections (200-31K.(2))

i. Innovation Way and Tiger Lane – 1.2 footcandles (fc) where 3.0 fc is required;

ii. Innovation Way and Spine Road – 1.7 fc where 3.0 fc is required;

iii. Washington Road and Innovation Way – 1.7 fc where 3.0 fc is required; and

iv. Washington Road and Tiger Lane – 1.2 fc where 3.0 fc is required.

b. Parking areas (200-31K(1) - non-residential and (4) – residential)

i. Graduate Student Housing Lot A – 0.9 fc where 0.6 fc is required; and

ii. TIGER CUB lot – 0.7 fc where 0.5 fc is required;

The applicant is seeking design waivers from the Township standards and proposes use of standards provided by Illuminating Engineering Society of North America (IESNA), a recognized national lighting authority. It is noted that one IESNA standard being used for intersection lighting levels is based on intersection of two local roads; whereas Washington Road is a 2-lane major collector roadway. Therefore, increased average lighting levels at the Washington Road intersections appear to be warranted. The applicant must provide testimony to the Board's satisfaction on the design waivers sought.

6.0 General

6.01 Metes and bounds descriptions for any proposed (and corrective) easements and dedications, with closure calculations for same, are to be submitted for review and approval of this office. The forms of any easement and dedication shall be reviewed and approved by the Board Attorney. This should be made a condition of any Board action on this application.

6.02 All construction details, including final design of the stormwater management BMPs and their amenities, are subject to the review and approval of the Township Engineer. This should be made a condition of any Board action on this application.

6.03 The applicant is required to submit an Engineer's construction cost estimate for review. The Applicant will be required to post performance guarantees and inspection fees for the site improvements and frontage improvements in accordance with the MLUL and the Township Ordinance. Separate estimates for those items subject to performance guarantees, versus the overall site work, should be provided. This should be made a condition of any Board action on this application.

6.04 As per Ordinance section 200-81.1 the applicant will be required to provide, via both hard copy and in electronic format, approved site plans being submitted for signature and as-built surveys upon project completion should this project be approved and constructed. Electronic copies of the Stormwater Management Report and Maintenance Manual are also requested upon approval of same. This should be made a condition of any Board action on this application.

6.05 Other outside agency approvals will also be required. The following approvals are anticipated at this time and should be made conditions of approval:

- Mercer County Planning Board
- Mercer County Soil Conservation District
- Delaware and Raritan Canal Commission.
- NJDEP – Treatment Works Approval

This completes the review of the referenced site plan documents. Other comments may be offered based on the responses to the above issues.

FG:IH
cc: Applicant (christopherdegrezia@faegredrinker.com)

Van Cleef
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Neil I. Van Cleef, P.E., L.S. & P.P.
Robert J. Clerico, P.E., P.P., CME, CPWM
Samuel D. Costanzo, P.E. & P.P.
Cynthia V. Norfleet, COO
Mark A. Bahnick, P.E.
Lawrence M. Diffley, P.E., PTOE
Michael K. Ford, P.E., P.P.
Jeffrey W. Munzing, P.E.
Stanley J. Schrek, P.E., A.I.A., P.P., CME, LEED AP
Herbert J. Seeburger, Jr., P.E., CME, CPWM

MEMORANDUM

TO: Planning Board
West Windsor Township

FROM: Christopher B. Jepson, P.E.
Environmental Consultant

DATE: March 31, 2021

SUBJECT: Trustees of Princeton University – Lake Campus South (PB 20-12)
Preliminary/Final Major Site Plan
Block 3, Lot 1.0113
VCEA Project No. 20-24-WW

As West Windsor Township's environmental consultant, Van Cleef Engineering Associates (VCEA), has reviewed the most recent submittal of site plans and accompanying information and visited the site for the above referenced application for a preliminary/final major site plan and offers the following comments for the Board's consideration:

I. Overview

The applicant is seeking a review of the recently submitted material for construction of the Lake Campus South complex that has a proposed 5-tier parking garage, expanded athletic field capability and a geo-thermal system that will provide sustainable energy for that section of the campus among other amenities such as robust landscaping, bike and pedestrian friendly design and a robust green design. The project location is along the north side of Washington Road, east and west of the existing intersection at Tiger Lane and is approximately 35 acres in size. This site is located in the Planned Educational Development District Zone (PEDD) district where this type of development is sanctioned.

II. Comments/Recommendations on Pertinent Issues

A. Wetlands

Wetlands are present on the subject site and are located along the eastern property boundary and somewhat parallel to Route 1. They are not extensive and also include the wooded area that coincides with what appears to be an intermittent stream with very low flow when it does flow. A small pond is located in this area and has a designation of state open waters. Wetlands demarcation are clearly shown in the plans. The applicant has submitted NJDEP approved LOIs for the project. There will be no disturbance to the wetlands in this application.

B. Greenbelt

There is a section of proposed Greenbelt located generally in the northwestern portion of the site and is associated with the existing forested area along the D&R Canal. There is no development proposed for this area in this application. The Greenbelt line has been clearly shown on these plans. The forest in that area is a mature deciduous forest with maple, oak, ash and sweetgum as predominant species with other species present as well. There are no conifers in that area. The applicant intends to dedicate a conservation easement over the Township's proposed Greenbelt within the overall GDP site in accordance with the goals of the Greenbelt program.

A tree removal plan set was submitted and details the trees to be removed. There are a few trees that could be saved with minor redesigns however that is unlikely. I tried to find the 48-inch diameter red oak (1666) slated for removal on sheet L-116.00 and was unable to locate it. That tree, if in good condition, could be a landscape feature. With all the new plantings - some very large shade-producing trees might be better than saplings and waiting for those saplings to grow.

C. Water Quality

This project site generally drains to the D&R Canal or the Millstone River. A DRCC permit is required since more than 1 acre of impervious surfaces is proposed. There is preliminary storm water management proposed for this project with a series of localized green infrastructure practices dispersed throughout the project site. The stormwater runoff not infiltrated by these structures will flow to a new stormwater conveyance infrastructure north of the proposed softball stadium. The stormwater then sheet flows towards the existing wetlands system west of Nursery Drive. Please go into some further detail regarding the stormwater management system.

D. Environmentally Sensitive Areas

The proposed project site is underlain by the Stockton Sandstone geological formation. Stockton Sandstone is an important geological formation in providing potentially good aquifer recharge. There are sloping areas on the site and less than

Van Cleef ENGINEERING ASSOCIATES, LLC

1% are over 10%. There are some flood hazard areas located on this project site and are associated with the intermittent stream and associated wetlands located on the eastern edge of the project site. This site has a low to moderate erosion hazard. This project is compliant with FAR and MIC requirements. During the site visit in the late fall numerous bird species were seen including vultures, crows, cardinals, sparrows, and blue jays among others. Deer signs were observed in some areas with a group of 10 seen on the wooded edge near the pond.

E. Historic Resources

This site is partially located in both the Lake Carnegie Historic District and the D&R Canal Historic District. It is also adjacent to the Washington Road Elm Allee which is a 0.7 mile portion of Washington Road planted with a row of Princeton Elm Trees that were developed by the Princeton Nurseries in 1920.

The applicant has indicated that a known Native American archeological site is in the area (36ME60). Past investigations showed some inconsistencies and the applicant has indicated that a Phase 1 archeological survey is being currently conducted for the Lake Campus site development by the Ottery Group.

Other historical sites – past and present – include the demolished Garrett Schenck House that was constructed in the late 1730s near the intersection of Washington Road and Route 1. The Penns Neck Cemetery is a state listed and NRHP-eligible resource. The Lake Carnegie Historic District and the D&R Canal Historic District are also on the National Register of Historic Places.

F. Other Environmental Concerns/Comments

The applicant has completed and submitted the West Windsor Township Green Development Practices Checklist for this phase of the project. The applicant shows many green development techniques that will be utilized in the design and construction of this project. A whole site Life Cycle Assessment will be conducted to determine the total embodied carbon impact and reduction from the baseline for the site. The Township would like a copy of that report when it is available. Construction waste management diversion is another high point. Princeton University has a 95% goal (minimum) for diversion which is excellent.

Solar power is already on the Princeton campus and is contained in an existing micro-grid and will be enhanced by making PV arrays on the garage and CUB buildings and will be ready to go. One caveat there – they also state "if constructed". Please go into some further detail on this potential construction.

The proposed geothermal system (CUB) is outstanding and will be the largest system in West Windsor Township. There will also be 40 electric vehicle charging stations constructed. An item that continues to be missing from the Green Development Checklist is the addition of permeable pavers to the project.

III. ITEMS PROVIDED FOR REVIEW

- Cover Letter and Rider (4 sheets), prepared by Faegre Drinker Biddle & Reath LLP, dated October 13, 2020.
- Development Application, Agreement to Pay for Review, Taxpayer ID information, Site Plan Checklist and existing conditions photographs.
- GDP Development Tracking Chart
- NJDEP Wetlands LOI Extension (Block 3 Lot 3) dated May 23, 2017.
- Cover Letter NJDEP Wetlands LOI Approval, prepared by Van Note-Harvey Associates, dated February 9, 2018.
- NJDEP Wetlands LOI Line Verification (Blocks 2,3 and 6-11Lots 3; 1, 2, 3.01, 4 and 11-13) dated January 24, 2018.
- Wetlands Plan (Block 3, Lot 3) 1 sheet, prepared by Van Note-Harvey Associates, dated September 10, 2012.
- Wetlands Plans (Block 2 &3 Lots1,2,3,3.01, 4, 6, 7, 8,9, 19,11,12 and 13) 2 sheets, prepared by Van Note Harvey Associates dated July 28, 2017.
- Wetland Plan (Block 11602 Lot 2 and Block 3 Lot 16) 1 sheet, prepared by Van Note Harvey Associates dated November 15, 2017.
- Traffic Impacts Letter (7 pages), prepared by BFJ Planning, dated October 5, 2020.
- Site Plans-Vol1A (29 sheets), prepared by SOM Architects, dated October 12, 2020 and revised March 15, 2021.
- Site Plans –Vol1B (30 sheets), prepared by SOM Architects, dated October 12, 2020 and revised March 15, 2021.
- Site Plans- Vol 2A (29 sheets), prepared by SOM Architects, dated October 12, 2020 and revised March 15, 2021.
- Site Plans – Vol 2B (20 sheets), prepared by SOM Architects, dated October 12, 2020 and revised March 15, 2021.
- Tiger Cub Central Utility Building Plans (9 sheets), prepared by Integral Consulting Engineering, dated October 12, 2020 and revised March 15, 2021.
- Parking Garage Plans (27 sheets), prepared by Timothy Haahs & Associates, dated October 12, 2020 and revised March 15, 2021.
- Softball Stadium Plans (13 sheets), prepared by Sasaki Associates, dated October 12, 2020 and revised March 15, 2021.
- Environmental Impact Statement Worksheet, prepared by VHB Engineering P.C., dated October 2020.

- Environmental Constraints Map, prepared by Skidmore, Owings & Merrill Architects, PA, undated.
- Green Development Practices Checklist, prepared by Shanta Tucker, dated March 15,2021.
- Existing Conditions photos.
- Lake Campus South Renderings (20 sheets), dated March 15, 2021.

If you should have any questions or concerns regarding these comments please contact me at this office.

cc: Applicant
S. Surtees, WWT CD
D. Novac, Burgis Associates
D. Dobromilsky, Landscape Architect
Planning Board Members
Gerald Muller Esq., Gerald Muller Law
J. L'Amoreaux, Traffic Consultant
F. Guzik, Township Engineer

ARORA and ASSOCIATES, P.C.
Consulting Engineers
Princeton Pike Corporate Center
1200 Lenox Drive, Suite 200, Lawrenceville, NJ 08648
(609) 844-1111 • Fax (609) 844-9799

SURINDER S. ARORA, PE
President

MEMORANDUM

DATE: March 31, 2021

TO: West Windsor Township Planning Board

FROM: Jeffrey A. L'Amoreaux, P.E.
Traffic Consultant

SUBJECT: Preliminary and Final Major Site Plan Approval
Trustees of Princeton University
Lake Campus South
PB20-12
Block 3, Lot 1.0113
West Windsor Township, Mercer County, New Jersey

We are in receipt of the following electronic information for review pertaining to the submission of an application for preliminary and final major site plan approval for the referenced planned educational development:

- March 16, 2021 cover letter from Christopher H. DeGrezia, Esq., accompanying the submission
- Development Application executed October 8, 2020
- West Windsor Township Site Plan Checklist, undated
- Traffic Impact Analysis prepared by BFJ Planning, dated October 5, 2020
- West Windsor Township Green Development Practices Checklist, executed March 15, 2021
- Environmental Information Statement, prepared by VHB, for the application, dated October 2020
- May 23, 2017 letter from Tina Wolff of NJDEP to KyuJung Whang of Princeton University
- February 28, 2017 email from Patrick Ryan or NJDEP to Marci Barrows of Van Note - Harvey Associates, P.C.
- September 10, 2012 (latest revision) titled "Plan Showing Freshwater Wetlands & State Open Water" prepared by Van Note - Harvey Associates, P.C.
- February 9, 2018 letter from John C. Ryder, P.E., of Van Nate- Harvey Associates, P.C. to Matthew Woodmansee of Princeton University
- One set of seven (7) Existing Conditions Photographs, undated
- Stormwater Operations and Maintenance Plan, prepared by Nitsch Engineering, revised March 15, 2021
- Stormwater Report prepared by Nitsch Engineering, revised March 15, 2021
- One (1) electronic copy of revised set of the West Windsor Township Major Site Plan Application - Lake Campus South, dated October 12, 2020, with a revised date of March 15, 2021 consisting of:

    a. Civil Plans: Volumes 1A and 1B
    b. Landscape Plans: Volume 2A
    c. Stormwater Plans: Volume 2B

d. Architectural Plans: Tiger Cub
e. Architectural Plans: Parking Garage
f. Architectural Plans: Softball Stadium

- One set of Color Renderings of the Lake Campus South Parking Garage, Tiger-CUB, and Softball Stadium dated March 15, 2021
- One (1) copy of the Response to Comments by Arora and Associates, P.C., originally dated February 23, 2021, annotated by the applicant
- Responses to Comments of the Township Engineer, Fire Marshal, Township Landscape Architect and Township Planner

This development consists of the initial construction of infrastructure including new roadways, new below-grade electric, fiber IT, water, sanitary sewer, and thermal utilities that will serve the growing campus. This application calls for the construction of three buildings namely:

- The first phase of the Lake Campus Garage - 612 parking spaces in a 5-tier and 2-bay configuration, with an expandability of an additional 325 spaces.
- The TIGER-CUB, a single-story structure that will house the geo-exchange utility equipment to support the University's shift towards more sustainable production of energy.
- A new Softball Stadium for the Princeton University's women softball team. This stadium will replace the current, temporary facility located in the East Campus in Princeton. The new stadium includes a turf field, hitting facilities, restrooms, and bleacher seating for 300 spectators.

Access to these facilities site is proposed through two (2) unsignalized intersections along Washington Road. The first intersection to the north would be formed by the reconfiguration and upgrade (gravel surface to paved road) of the existing Tiger Lane to intersect Washington Road from the east forming a T-type unsignalized intersection with STOP-SIGN control on the Tiger Lane approach. To the south, a new 22-feet wide roadway (Innovation Way) is proposed for construction directly across from the driveway that currently serves 300 Washington Road Service Center to form a four-legged unsignalized intersection with stop controls on the Innovation Way and Service Center approaches.

We have completed a review of the above-referenced documentation, and offer the following comments to the applicant's response to our initial review comments in the same order of the initial comments:

Traffic Impact Study

We note that the cardinal directions referenced in this memorandum follow the same scheme ('Princeton Directions') indicated in the traffic impact statement, where Washington Road is assumed to extend in a general north-south direction. The applicant's traffic engineer, BFJ Planning, has prepared a suitable Traffic Impact Study and through dialogue with our office, has demonstrated that off-site traffic impact has been calculated in accordance with engineering standards. The applicant has done the appropriate research and background to make this application tenable in the context of the General Development Plan. Finally, we note that the trip generation, distribution, capacity analyses and conclusions are sound,

and over the course of the past months since the applicant has first come forward, they have been forthcoming with answers to questions posed by the Township staff and consultants.

Site Plan

In the site plans, the applicant has effectively entertained and provided roadway signing and pavement marking plans in accordance with Federal standards. The circulation of emergency vehicles has been reviewed by this office and the comments of the Fire Marshal shall be adhered to in the event of a conflict. The applicant is proposed to place advisory Dashed Bike Lanes throughout this portion of the site in accordance with the publication "*FHWA Dashed Bike Lane Experimentation Guidance*". This marking scenario is currently in place near the Graduate College in Princeton. The plan shows shared use paths which are part of the overall site plan.

We look forward to the testimony of the applicant on April 7, 2021.

CC:	Lisa Komjati	Chris Jepson, PE
	Sam Surtees	Gerry Muller, Esq
	Dan Dobromilsky, LLA, PP, CTE	Francis Guzik, PE
	Lt. Tim Lynch	Joseph Burgis, PP, AICP
	David Novak, PP, AICP	Christopher DeGrezia, Esq

West Windsor Township
Fire & Emergency Services

Memorandum

DATE: April 1, 2021

TO: West Windsor Technical Review Committee

FROM: Chief Timothy M. Lynch

REGARDING: PB 20-12, Trustees of Princeton University – Lake Campus South 3rd review

OVERVIEW

The proposed application is for a 35-acre portion of the site for Princeton University's Lake Campus South. The proposed improvements include the TIGER CUB (Thermally -Integrated Geo-Exchange Resource Central Utility Building), a parking garage, a softball facility, and recreational fields.

ACCESS

- Applicant has provided drawings showing apparatus turning capabilities throughout the site. The proposed roadways will require fire apparatus to overhang unpaved portions of the site. This does not represent a significant issue as long as roadway edges remain undeveloped and without landscaping that would interfere.
- Due to the limited access, No Parking Fire Lanes shall be created by the applicant along all curb areas to restrict curbside parking from the entire site.
    - Signage on roadway entrances to the site that state "Parking in designated spaces only – by order of the fire marshal" is acceptable.
- Applicant should provide information regarding emergency vehicle access to the parking garage including overall height restrictions exist as well as turning radius requirements for internal navigation through the garage.
    - Applicant states that emergency vehicle access will be limited to external access only. The size of this garage will slow any emergency response on foot in the event of a fire emergency within the structure, making the need to comply with water supply requirements listed below imperative.
- Emergency vehicle access to the parking garage is currently limited to 50% of the perimeter. The Township fire prevention ordinance requires buildings over three stories that are not equipped with full automatic fire sprinklers to be provided with emergency vehicle access to the entire perimeter. Applicant would need to apply for a waiver to the fire prevention ordinance to limit the emergency vehicle access to the parking garage. The purpose of this emergency vehicle access ordinance is to allow the fire department

the ability to evacuate people from a structure in the event of a fire. With buildings over three stories the fire departments ground ladders do not have sufficient length to reach all the potential evacuation points for occupants of the structure. By providing emergency vehicle access as defined in the ordinance the fire department can position apparatus with aerial devices (ladder trucks) that can reach the exterior of the building and evacuate occupants. With the nature of a parking garage being for limited occupancy that is transient (people walking to-and-from their vehicles) the chances that a person would trapped in the building in the event of a fire are much lower. Also, with the sides of the structure being open, the opportunity for smoke and fire to build to dangerous levels before occupants could exit the structure are further limited. For all of those reasons, if the applicant were to request a waiver to the emergency vehicle access portion of the fire prevention ordinance for the proposed parking garage, our office would not oppose such a waiver.

WATER SUPPLY FOR FIRE PROTECTION

- The proposed fire hydrant locations identified on the site water plan appear in compliance with the Township standard for hydrant locations, and appear to be adequate and appropriately located for fire protection water supply in this area.
- Fire department standpipes should be provided throughout the parking garage at an interval no greater than 100'.

MISCELLANEOUS

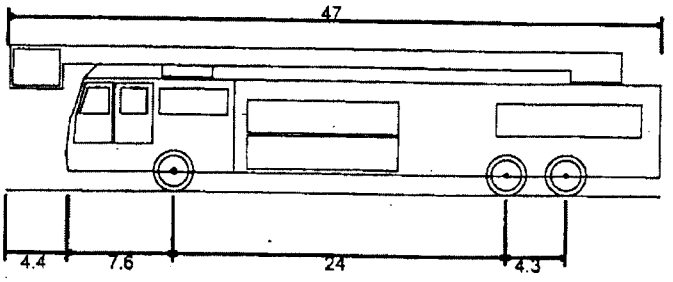
- All previous comments have been addressed by the applicant to our satisfaction.

West Windsor Township
Fire & Emergency Services

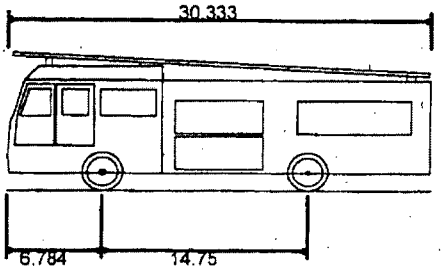
Phone 609-799-8735 Fax 609-799-8926

Fire Apparatus Dimensions for Turning Radii

The illustrations below of West Windsor Township fire apparatus may be used for determining the needed turning radii required for access to proposed applications for land development.



AERIAL 100' LADDER	
Overall Length	47.000ft
Overall Width	8.333ft
Overall Body Height	10.000ft
Min Body Ground Clearance	1.393ft
Track Width	8.333ft
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	36.250ft



PUMPER	
Overall Length	30.333ft
Overall Width	8.333ft
Overall Body Height	10.000ft
Min Body Ground Clearance	1.393ft
Track Width	8.333ft
Lock-to-lock time	6.00s
Max Wheel Angle	45.00°

Honor ~ Integrity ~ Loyalty

WEST WINDSOR TOWNSHIP

DEPARTMENT OF COMMUNITY DEVELOPMENT
DIVISION OF ENGINEERING

MEMORANDUM

Date: April 1, 2021

To: West Windsor Township Planning Board

From: Dan Dobromilsky, LLA, PP, LTE
Landscape Architect

Subject: **PRINCETON UNIVERSITY – Lake Campus South – PB 20-12**
Softball Stadium – TIGER-CUB – Parking Garage
Landscape Architectural Plan Review
Block 3, Lot 1.0113 Route One, Washington Road, Lower Harrison

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The submitted plans have been analyzed the following questions and comments are offered for consideration as this application is reviewed:

1. This project will not impact the Township Greenbelt, which occurs along the D&R canal in this area. Although 177 existing trees will be removed, the planting of 370 new trees, and many new plantings at the shrub and groundcover level, will mitigate the tree and habitat loss. This project will ultimately enhance the tree and landscape resources of the community.
2. The proposed landscape architectural design addresses and exceeds the standards and guidelines offered by Township codes. The planting design, site furnishings, and the creation of new outdoor spaces will greatly enhance this new campus for residents and visitors. The diversity of plant species and landscape types that will be developed will enrich the function and environment of the new campus.
3. The green design and sustainability initiatives of the University with this project will also present a desirable contribution and model for more environmentally progressive land development in the community.

Upon request, additional comments may be offered based upon testimony at the public hearing or any submission of updated or modified documents.

cc: Applicant

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WEBSITE: WWW.WESTWINDSORNJ.ORG E-MAIL: WWT@WESTWINDSORTWP.COM

BURGIS
ASSOCIATES, INC.

COMMUNITY PLANNING
LAND DEVELOPMENT AND DESIGN
LANDSCAPE ARCHITECTURE

Principals:
Joseph H. Burgis PP, AICP
Edward Snieckus, Jr. PP, LLA, ASLA
David Novak PP, AICP

MEMORANDUM

To: West Windsor Planning Board
West Windsor Division of Land Use
From: David Novak PP, AICP
Subject: Trustees of Princeton University – Lake Campus South
Preliminary and Final Site Plan
Block 3 Lot 1.0113
Washington Road
Date: March 31, 2021
BA#: 3688.21
WWT#: PB 20-12

Introduction

The applicant, the Trustees of Princeton University, has submitted an application seeking preliminary and final site plan review for the development of Princeton University's Lake Campus South. The site, which is identified by municipal tax records as Block 3 Lot 1.0113, is located along Washington Road in the E Educational District.

In addition to the application form and application checklists, the following has been submitted for review:

1. Preliminary and Final Major Site Plan Volume 1A, consisting of twenty-nine (29) sheets, dated October 12, 2020 (last revised March 15, 2021).
2. Preliminary and Final Major Site Plan Volume 1B, consisting of thirty (30) sheets, dated October 12, 2020 (last revised March 15, 2021).
3. Preliminary and Final Major Site Plan Volume 2A, consisting of twenty-one (21) sheets, dated October 12, 2020 (last revised March 15, 2021).
4. Preliminary and Final Major Site Plan Volume 2B, consisting of twenty (20) sheets, dated October 12, 2020 (last revised March 15, 2021).
5. Tiger Club – Central Utility Building, consisting of eight (8) sheets, dated October 12, 2020 (last revised March 15, 2021).
6. Parking Garage Plan, consisting of twenty-seven (27) sheets, dated March 15, 2021.
7. Softball Stadium, consisting of thirteen (13) sheets, dated March 15, 2021.
8. Lake Campus South Renderings, dated March 15, 2021.
9. Lot Consolidation Plan, prepared by Van Note- Harvey Associates, Inc., dated July 26, 2019.
10. EIS, prepared by VHB Engineering, Surveying, Landscape Architecture, and Geology, dated October 2020.
11. Plan Showing Freshwater Wetlands and State Open Water, prepared by Van Note-Harvey Associates, Inc., dated November 8, 2017.
12. Plan Showing Freshwater Wetlands and State Open Water, prepared by Van Note-Harvey Associates, Inc., dated August 15, 2012 (last revised September 10, 2012).
13. Plan Showing Freshwater Wetlands/State Open Water, prepared by Van Note-Harvey Associates, Inc., dated June 12, 2017.

Property Description

The subject site is located in the northerly portion of the Township, at the northerly corner of the intersection of US Route 1 and Washington Road. The site has an area of approximately 127.3 acres and is irregularly shaped. It fronts along: Washington Road for approximately 2,650 feet; US Route 1 for approximately 2,450 feet; and Harrison Street for approximately 350 feet.

The site is largely characterized by cultivated farm fields as well as some athletic fields. Tiger Lane, which is a private roadway, extends through the northerly portion of the site. An existing utility station, as well as an expanded utility station presently under construction, are located within the southerly portion of the site near US Route 1. A cemetery is located within the central portion of the site; however, this cemetery is located on a separate lot which is not included in this application.

Surrounding land uses consist of: Princeton University-owned lands and Lake Carnegie to the north; residential uses to the northeast; a car rental establishment and gas station to the east; a PSE&G substation and the SRI International campus to the southeast; an abandoned gas station, an existing gas station, a house of worship, commercial building, and residential dwellings to the south; and Princeton University-owned lands to the west. See the map at the end of this memorandum for an overview of the subject site and its surrounding environs.

Proposed Improvements

The applicant proposes to begin development of a thirty-five (35) acre portion of the site for Princeton University's Lake Campus South. This project area will be located within the northerly portion of Lot 1.0113. The following is summarized:

- TIGER CUB

  The TIGER CUB ("Thermally-Integrated Geo-exchange Resource Central Utility Building") is proposed to be located near the southwesterly corner of the project area. As indicated by the applicant's submission materials, the building is designed to support the University's shift toward more sustainable energy production. It is a component of Princeton's net zero carbon goal.

  The first floor of the interior of the building will contain geo-exchange equipment, as well as an electrical room, control room, IT room, active network hub, storage room, boiler room, and a water treatment lab. A mezzanine level will contain hybrid coolers and condenser units. The building will connect to two (2) Thermal Energy Storage Tanks (TES), electrical transformers, and a generator, all of which will be located to the north of the building. An equipment yard will also be located to the north of the building.

The façade of the building will predominantly consist of architectural pre-clast panels, glass curtainwall system, plate aluminum wall panel, standing seam metal panel, brick veneer, and a unitized terra cotta screen wall.

- Parking Garage

A parking garage is proposed to the north of the aforementioned proposed TIGER CUB. It is proposed to be developed in two (2) phases. Phase 1 will consist of a five (5) tier garage containing six hundred and twelve (612) parking spaces. Phase 2 will also consist of five (5) tiers and will increase the total number of spaces to nine hundred and thirty-seven (937) spaces. The applicant has indicated that the Phase 2 portion of the garage will be banked until needed.

The façade of the garage will predominantly consist of precast spandrel, a glass curtain wall system, and a fabric wall.

- Softball Stadium

A softball stadium is proposed within the easterly portion of the project area. The stadium will consist of a synthetic field, the outfield of which will be surrounded by a six (6) foot tall chain link fence with a windscreen and top rail pad. The stadium will also include a spectator seating area, bullpen, batting cages, dugouts, restrooms, a storage room, and press box. Six (6) seventy-foot tall light fixtures will surround the field.

- Recreation Fields

Flexible recreation fields are proposed to the east of the aforementioned softball stadium. They will consist of a grass area. No field lighting is proposed.

- Additional Improvements

Vehicular access into the project area will be primarily provided by two (2) primary roads: Innovation Way which will be located to the south of the TIGER CUB, and Tiger Lane which will be located to the north of the parking garage. A twelve-foot wide shared-use path, which will be flanked by reinforced turf for emergency vehicle access, is also proposed to run along Washington Road. Asphalt sidewalks and a mown grass path are proposed within the interior of the site. A row of twenty-one (21) parking spaces and a trash corral will be located within the northerly extent of the project area. The parking spaces will be partially constructed with pervious pavers. A basin is to be located to the east of the proposed TIGER CUB.

Master Plan

As per the Township's 2020 Land Use Plan, the subject site is located in the Education (E-1) land use category which is located along Washington Road and Alexander Road. The 2020 Plan notes that the lands within this category are owned by Princeton University. It is the intent of this land use category and corresponding district to encourage the development of a comprehensive educational campus which may include a combination of educational, research, collaboration, office and other customary uses and facilities of a modern educational/research university. The 2020 Plan also encouraged the expansion of the land use category and corresponding district to encapsulate additional properties along Eden Way and Harrison Street.

Zoning

The site is presently located in the E Education District, wherein planned educational developments are permitted. The following table provides the bulk standards of the E District.

Table 1: E District Standards

Regulations	Required	Existing	Proposed	[1]Cumulative	GDP	Code
Mix of Uses	Required	Proposed	Proposed	Proposed	Proposed	200-221A.(3)(a)
Min. Lot Area (ac)	100	127.3	127.3	127.3	201.2	200-221A.(3)(b)
Min. Tract Frontage (ft)	400	2,637.0	2,637.0	2,637.0	3,500	200-221A.(3)(c)
Max. Bulk and Density						200-221A.(3)(d)
FAR: One-Story Buildings	0.25	0.0003	0.005	0.005	N/A	200-221A.(3)(d)[1]
FAR: Multistory Buildings	0.35	0.0000	0.000	0.000	N/A	200-221A.(3)(d)[1]
FAR: Weighted	0.25	0.0003	0.005	0.005	0.15	200-221A.(3)(d)[1]
Max. Improvement Coverage (%)	50	1.7	8.6	8.6	18.3	200-221A.(3)(e)
Max. Building Height (st/ft)	6/70	1/21.0	5/49.1	5/49.1	6/70	200-221A.(3)(f)
Building Arrangement (ft)						200-221A.(3)(g)
Perimeter Setback	100	N/A	N/A	N/A	N/A	200-221A.(3)(g)[1]
Perimeter Buffer	50	N/A	N/A	N/A	N/A	200-221A.(3)(g)[1]
Internal Access Road Setback	25	314	25	25	25	200-221A.(3)(g)[2]
Local/Collector/Arterial Road Setback	50	470	103	103	95	200-221A.(3)(g)[2]
Arterial Road to 4-Story Buildings	300	N/A	2,047	2,047	340	200-221A.(3)(g)[3]
Common Open Space	20	99.9	82.7	82.7	57.8%	200-221.A.(3)(h)

[1] *Inclusive of Lake Campus South and North*

Planning Review

We offer the following comments on the proposed development:

1. Previously Approved General Development Plan (GDP)

   The applicant previously received GDP approval in early 2020 for the development of the proposed Lake Campus. As part of that GDP, the applicant received approval for the following:

   a. *Residential Use*. A maximum of five hundred (500) units of housing for post-doctorate and/or graduate students.

   b. *Nonresidential Use*. A maximum of 985,000 square feet of nonresidential uses, which was to consist of:

      i. Education, administrative, collaboration, and research facilities;
      ii. Athletic facilities and campus recreation;
      iii. Support/maintenance/utilities facilities, and;
      iv. Campus retail, service, and amenities.

   In consideration of the above, the following is noted:

   c. *Comparison with the previously approved GDP*. It appears as though the proposed Lake Campus South development largely coincides with what was envisioned during the GDP process. The applicant should confirm this through testimony. It is recommended that the applicant provide an overlay exhibit to compare the proposed development with the GDP.

   d. *GDP Tracking Chart*. The applicant has provided a GDP tracking chart on Sheet C-201. This chart, which is summarized below, compares the proposed nonresidential square footages and residential units by campus phase to what was approved in the GDP.

Figure 1: Nonresidential Square Footage

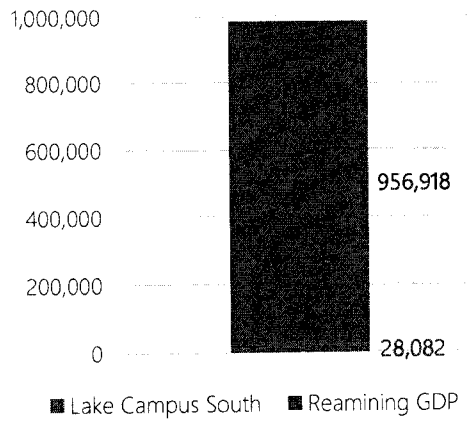
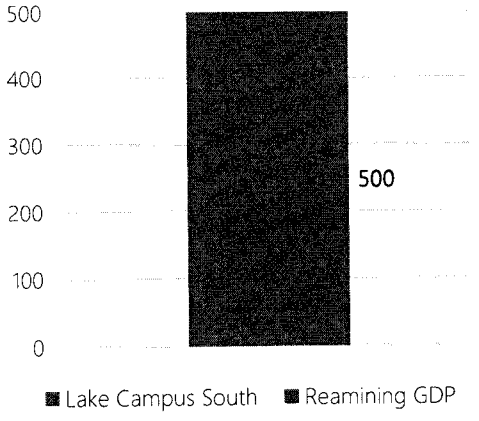


Figure 2: Residential Units



2. TIGER CUB

The following is noted regarding the proposed TIGER CUB:

a. *Equipment Yard*. The applicant has indicated that the proposed equipment yard will house transformers, switchgear, a CUB generator, and backflow preventer. Furthermore, the applicant has indicated that the equipment yard will be screened by an articulated precast wall on its westerly side, as well as fencing along its remaining three sides for additional security.

b. *Unified Design*. Based upon the renderings provided thus far, it appears as though the façade materials of the building and the storage area wall will be largely complementary to one another, as well as to the proposed parking garage.

c. *Typical Number of Employees*. The applicant has indicated that this facility will essentially be unoccupied. A maintenance crew will visit the facility on a daily, as-needed basis. Further, maintenance vehicle will use the yard area adjacent to the CUB for parking. The applicant has also indicated that as the Lake Campus develops over time and equipment in the building expands, they expect that one employee could be present seasonally. It will not be open to the general public.

3. Parking Garage Area

The following is noted regarding the proposed garage.

a. *ADA Accessibility*. For parking facilities containing 500 to 1,000 parking spaces, the ADA requires that two percent (2%) of the total number of parking spaces be reserved as accessible. Of those, a minimum of 1/6 are to be reserved as van accessible.

Thus, for Phase 1, thirteen (13) ADA spaces are required, including three (3) van spaces. The applicant has proposed seventeen (17) ADA spaces including four (4) van spaces. Upon the completion of Phase 2, nineteen (19) ADA spaces will be required including four (4) van spaces, whereas the applicant has proposed twenty-one (21) ADA spaces including four (4) van spaces. We find this satisfactory.

b. *Electrical Vehicle Stations*. The applicant has proposed a total of forty-two (42) electric vehicular charging stations for Phase 1 and 2, which will be located on the first and fourth floors. The applicant has indicated that these will be universal charging stations, and thus will be open to any type of personal vehicle.

c. *Motorcycle Parking and Carpool Parking*. Seven (7) motorcycle spaces are proposed in the garage. Upon the completion of Phase 2, nineteen (19) carpool spaces are proposed. The applicant has indicated that these carpool spaces will be reserved for personally owned vehicles utilized by more than a single driver.

d. *Construction of Phase 2*. The applicant had previously indicated the following regarding the construction of Phase 2 of the parking garage:

   i. The applicant has noted that it is preparing fully engineered drawings for the garage, so that it may be built as expeditiously as possible.

   ii. It is estimated that on weekdays between 9:30 am and 4:30 pm when there are no significant athletic spectator events occurring, the first phase of the garage will have sufficient capacity for the GSH and the athletic facility employees, and that athletic events may bring the parking demand closer to parking capacity.

   iii. Princeton University indicates it will regularly monitor the weekday occupancies of the parking structure and surface spaces on the Lake Campus. The applicant also notes that should the average of the peak occupancies observed over two consecutive months exceed ninety-five percent (95%) of the spaces, the University shall proceed with the construction of the banked bay of the parking garage.

   iv. Similarly, the applicant notes that it will also regularly monitor parking for large-attendance athletic events on the site, either during weekday evening hours or on weekends. Should the average of the peak occupancies observed during large spectator events over two consecutive months exceed ninety-five percent (95%) of the spaces, Princeton shall proceed with the construction of the banked bay of the parking garage.

   We defer to the Township's traffic consultant regarding this matter.

e. *Proposed Screening*. Our prior memorandum requested that the applicant discuss the proposed screening of the garage. The applicant has subsequently provided a rendering of the screening. We recommend that photographs of similar screening product also be provided.

4. Softball Stadium

The following is noted regarding the proposed softball stadium:

a. *Lighting Height*. The applicant has proposed six (6) seventy-foot tall light fixtures for the proposed softball stadium. As part of its previously approved GDP, the applicant had received approval for four (4) light poles with heights of eighty (80) feet as well as two (2) light poles with heights of seventy (70) feet for this feature. Variance relief had been granted for the four (4) poles with heights of eighty (80) feet.

b. *Lighting Location*. In addition to the above, it appears as though the proposed placement of the lighting fixtures are in close proximity to what was previously envisioned in the GDP. This should be confirmed.

c. *Location of Available Parking*. The road adjacent to the softball stadium will permit visitor drop-off fronting the building. The main parking area for this phase will be at the garage, which the applicant previously indicated is approximately a three (3) to four (4) minute walk from the stadium. In the future, the applicant has noted that two (2) ADA spaces will be located at each of the small parking lots near the Racquet Center, which is part of the Lake Campus North development. Finally, the applicant noted that Princeton's Transportation and Parking Office will provide special arrangements for any students or visitors who require it, which is presently conducted at other events.

5. Bicycle Parking and Circulation

The following is noted regarding bicycle parking and circulation.

a. *Proposed Number of Bicycle Parking Spaces*. The applicant has proposed twenty (20) bicycle parking spaces for the Lake Campus South. These bicycle racks are to be located near the proposed parking garage and the proposed softball stadium.

b. *Type of Bicycle Parking*. The applicant has proposed bollards for the bicycle parking, and has indicated that these bollards have loops which allow for two lock points.

c. *Bicycle Lanes*. Portions of Ideation Way and Spine Road are marked for bicycle lanes. The applicant should clarify whether these bicycle lanes will be marked continuously along those roadways.

6. Bus Shelter

The applicant has proposed a bus shelter and "Tiger Transit Pull-Off" area to the north of the proposed garage. The applicant has noted that the design of this shelter is still in development, and can be provided to the Township when completed

7. Waiver Relief

The applicant may require waiver relief from the following items. Additional waivers may be identified by the Township's other professionals:

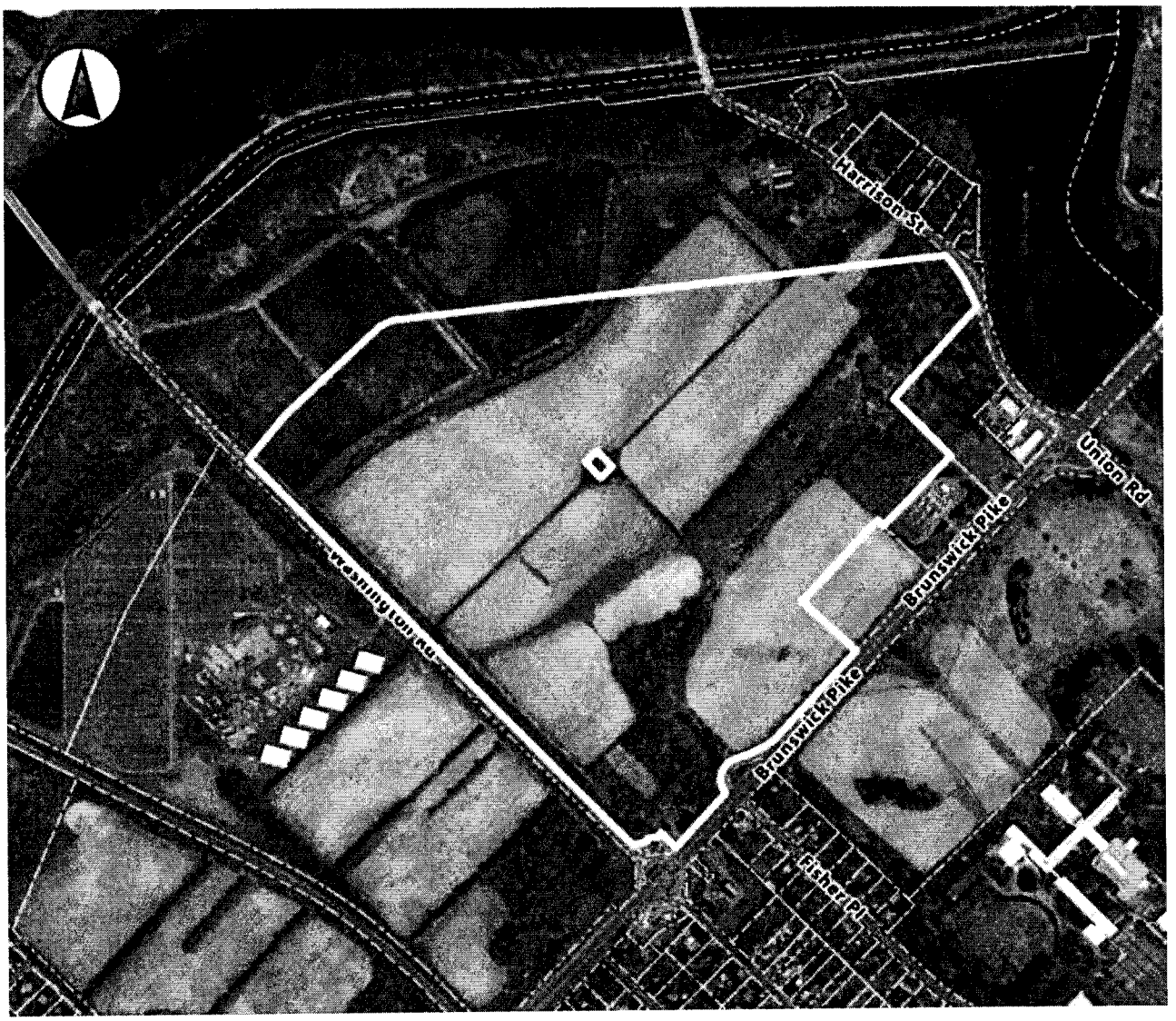
a. *Use of Pervious Surfaces*. Waiver relief is required from Section 200-36.1 which establishes that pervious surfaces shall be utilized for all other paved areas except for drives and parking areas, including sidewalks, trails, courtyards, and other site amenities. The applicant has proposed asphalt sidewalks in the interior of the site.

b. *Roadway Width*. Waiver relief is required from Section 200-29I.(3) which requires that two-way driveways are to be twenty-four (24) feet in width, whereas Innovation Way is proposed to be twenty-two (22) feet wide. Waiver relief may also be required from Section 200-29N.(3) which requires a roadway width of thirty (30) feet when bicycle access is combined with motor vehicle access.

c. *Loading*. Waiver relief is required from Section 200-27D.(2) which requires one (1) loading area for up to 10,000 square feet of building floor area for places of public assembly and another for floor area of 10,001 to 100,000 square feet.

d. *Lighting*. Waiver relief is requested from Section 200-31K for illumination levels at intersections.

Map 1: Subject Site (scale: 1" = 800')



W:\PUBLIC\Pb-3600series\Pb-3688.21\3688.21 Trustees of Princeton University - Lake Campus South (PB 20-12) - Review 01.docx

Cc: S. Surtees, WWT CD
Lisa Komjati, WWT CD
Fran Guzik, WWT Engineer
Dan Dobromilsky, WWT Landscape Architect
Ian Hill, Consultant Engineer