



October 10, 2023

Mr. Gregory Rondeau, Chairman
Franklin Planning Board
355 East Central Street
Franklin, MA 02038

**Re: Warehouse/Industrial Development
100 Financial Park
Site Plan Application**

Dear Mr. Rondeau:

BETA Group, Inc. is pleased to continue our engineering peer review services for the proposed project entitled "**Warehouse / Industrial Development**" located at 100 Financial Park in Franklin, Massachusetts. This letter is provided to outline findings, comments, and recommendations.

BASIS OF REVIEW

The following documents were received by BETA and formed the basis of the review:

- BETA Letter dated September 14, 2023, with redline comments identified as **Highpoint Engineering, Inc. Response to Comments #4-10/05/2023**
- Letter from Highpoint Engineering to Gregory Rondeau, Chairman, Franklin Planning Board, dated October 05, 2023 **RE: 100/200 Financial Way Redevelopment Peer Review Response to Comments**. Signed by Douglas J. Hartnett, P.E.
- Plans (46 sheets) entitled: **Warehouse Industrial Development Site Development Plans 100/200 Financial Park Franklin Massachusetts**, dated May 11, 2023, revised October 05, 2023 prepared by Highpoint Engineering, Inc.
- **Stormwater Management Analysis** dated March 11, 2023, revised October 05, 2023 prepared by Highpoint Engineering, Inc.

Review by BETA will include the above items along with the following, as applicable:

- **Zoning Chapter 185 From the Code of the Town of Franklin**, current through July 2021
- **Zoning Map of the Town of Franklin, Massachusetts**, attested to October 7, 2020
- **Stormwater Management Chapter 153 From the Code of the Town of Franklin**, Adopted May 2, 2007
- **Subdivision Regulations Chapter 300 From the Code of the Town of Franklin**, current through March 8, 2021
- **Wetlands Protection Chapter 181 From the Code of the Town of Franklin**, dated August 20, 1997
- **Town of Franklin Best Development Practices Guidebook**, dated September 2016

INTRODUCTION

The project site includes two parcels, Lots 312-020-000 and 312-020-001, with a total area of 51.045 acres, located at 100 Financial Park in the Town of Franklin (the "Site"). The Site and all the surrounding lots are located within the Industrial zoning district. The Site is located within a Water Resource District.

The existing Site is the location of a 1-story office building with a footprint area of 183,306± sq. ft. and a 2-story warehouse building with a footprint area of 57,570± sq. ft. Paved parking areas are located to the north and south of the buildings. Access to the Site is provided within Financial Park, a private roadway which connects to Washington Street to the east. The northernmost and westernmost portions of the Site are generally woodlands with flagged wetland resources areas present. A wetland resource area is also present to the north of the existing office building.

Topography at the Site generally slopes to the north and west towards the wetland resource areas. The Site is partially located within a Zone II wellhead protection area. Portions of the Site to the north and west are within a FEMA-mapped 100-year flood zone (Zone AE). The Site is not located within an NHESP-mapped estimated habitat of rare or endangered species, or any other critical area. NRCS soil maps indicate the presence of Merrimac fine sandy loam, Merrimac-Urban land, Hinckley loamy sand, and Udorthents, sandy, all with a Hydrologic Soil Group (HSG) rating of A (high infiltration potential).

The project proposes to construct two new warehouse buildings with footprint areas of 224,300± sq. ft and 70,500 ± sq. ft. The existing office building will be demolished, and the existing warehouse building will be retained. The existing parking layout will be replaced with new areas of paved parking proposed and existing areas either retained, removed, or reconfigured. A new loading area with heavy duty pavement is proposed in the central area of the Site between the two new buildings. Additional proposed site features include retaining walls, sidewalks, repairs to Financial Park and driveways, and new water, electric, telecommunication, sewer, and gas utilities. Stormwater management is proposed via new closed drainage systems which will convey stormwater runoff to several new subsurface infiltration systems and rain gardens.

FINDINGS, COMMENTS, AND RECOMMENDATIONS

To assist with the review, the response to comments from Highpoint Engineering, Inc. to the 3rd round of BETA comments are highlighted in yellow (**HEI3: ...**) and the response by BETA will be **BETA4**. Those comments that were addressed in prior reviews and require no further consideration by the Planning Board will be removed.

ZONING

The Site is located within the industrial (I) Zoning District. The proposed use is a warehouse which is permitted within this district.

SCHEDULE OF LOT, AREA, FRONTAGE, YARD, AND HEIGHT REQUIREMENTS (§185 ATTACHMENT 9)

The Site meets the requirements for lot area, depth, frontage, width, yard widths, building height, and impervious area coverage.

PARKING, LOADING AND DRIVEWAY REQUIREMENTS (§185-21)

The project proposes to retain the existing "Financial Park" private roadway, which connects to Washington Street to the east and Grove St to the west. Several driveways are proposed which will

connect to the Financial Park ring road and provide access to various parking areas. Proposed driveways are 24' in width.

Three warehouse buildings are proposed with approximate floor areas of 220,000 ± Sq. ft., 65,000 ± Sq. Ft., and 65,000 ± Sq. Ft. Required parking for warehouses is calculated as 1 space per 1,000 Sq. Ft., resulting in required parking quantities of 220, 65, and 65 spaces respectively. Provided parking is approximately 191 spaces for Building 1, 69 spaces for Building 2, and 24 spaces for Building 3.

The Applicant has requested a waiver from the need to provide the required parking on the grounds that actual demand is significantly lower than that required by the regulations.

Accessible parking spaces are required in accordance with the Americans with Disabilities Act (ADA) and Massachusetts Architectural Access Board (MAAB). Required/Provided accessible parking is as follows:

	Required	Required (Van)	Provided	Provided (Van)
Building 1	7	2	8	4
Building 2	3	1	3	2
Building 3	1	1	0	0

P1. BETA defers to the Town regarding approval of the requested waiver.

HEI RESPONSE: *Acknowledged.*

P2. The Parking Summary on Sheet C100 does not include the parking requirements for the proposed office space in Buildings 1 or 2. Sheet C300 indicates that there is 12,000 square feet of office proposed in Building 1 and another 6,000 square feet proposed in Building 2. Revise the parking summary table appropriately.

HEI RESPONSE: *The drawing sheet has been revised to include separate off street parking demand requirements by use. The revised parking demand for the Project is 413 spaces, with the request waiver to allow 216 spaces to be constructed.*

BETA: The Parking Summary on Sheet C-100 has been modified as requested. Total provided as shown on sheets C-300 & C-301 will be 256 spaces which will require a waiver for 157 spaces. It is important to note that in accordance with §185-21.(4)

(4) The number of spaces may be reduced below that determined under §185-21B by the Planning Board upon determination that a lesser provision would be adequate for all parking because of special circumstances “

The applicant should provide an explanation of the special circumstances at the site that will allow the Planning Board to make the determination needed to grant the reduction.

HEI2: *The Applicant requests the parking waiver as current warehouse market leasing trends within the region indicate that actual parking demand is less than what the offsite parking ratios defined in the Bylaws require. Constructing more parking than regional leasing trends require results in unnecessary impervious cover and the associated stormwater mitigation. A banked parking layout plan demonstrating locations for additional surface parking, if required, will be provided to the Planning Board under separate cover as requested by the Board at the last public hearing.*

BETA3: *The Banked Parking Plan was submitted on August 25th, and it shows an additional 132 spaces. 96 spaces are contained inside the limits of the proposed pavement in areas currently designated as trailer parking areas. The remaining 36 spaces would require additional pavement. That would bring the total on site to 392 spaces which would be 20 spaces below the 413 required in accordance with zoning. BETA agrees that additional unneeded spaces will increase the impervious cover on the parcel unnecessarily. Since the pavement area would provide an additional 96 spaces, BETA recommends that the “regional leasing trends” be presented to the Board for their consideration with the 56-space shortfall.*

HEI3: *Acknowledged. Highpoint defers to the Planning Board regarding this recommendation.*

BETA4: *BETA defers this issue to the Board.*

INDUSTRIAL DISTRICT PERFORMANCE CONTROLS (§185-22)

The project is located within an Industrial District and therefore must conform to these requirements.

1. Provide data quantifying anticipated sound, noise, vibrations, odor, and flashing to determine conformity with these requirements (§185-22.A).

HEI RESPONSE: *The proposed use is allowed by right within the Industrial District. A tenant has not been identified for either of the proposed buildings. When a tenant is identified, the Applicant will consult with the tenant regarding the requirements §185-22 and their obligation to demonstrate compliance with §185-22 during design of the tenant improvements and building permit application/review. Enforcement of §185-22.A will be at the discretion of the Zoning Enforcement Officer (ZEO).*

BETA: BETA recommends that a condition of approval be added to cover this issue when a tenant is chosen.

HEI2: *Highpoint defers to the Planning Board regarding this recommendation.*

BETA2: *BETA Defers to the Planning Board on this issue.*

HEI3: *No response required.*

FLOODPLAIN DISTRICT (§185-24)

A FEMA-mapped 100-year floodzone (Zone AE) is located along the northern and western limits of the Site (Approx. elevation 241.4'). No work is proposed within this area and all proposed grading is above this elevation.

SIDEWALKS (§185-28) AND CURBING (§185-29)

No sidewalks are proposed along Financial Park under this project. Several pedestrian walkways are proposed throughout the Site, generally along parking areas with connections to building entrances.

Proposed curbing includes precast concrete curb, sloped granite curb, vertical granite curb, and cape cod berm along the limits of new parking areas.

SITE PLAN AND DESIGN REVIEW (§185-31)

The project has been submitted for Site Plan Review and is required to conform to the requirements of this section. The submitted plan set has been brought into compliance with the requirements of the bylaws.

LANDSCAPING AND SCREENING (§185-35)

The project proposes outdoor parking for 10 or more cars and loading and service areas which must be screened in accordance with this section. Abutting residential districts are located across Washington Street to the East. Existing vegetation along the western side of Washington Street will be retained to provide required screening.

Proposed landscaping includes tree, shrub, and grass plantings proposed within landscaping islands, around the parking lot perimeter, and along Financial Park. Grassed areas throughout the Site will be seeded with native seed mix.

- LA1. Provide required tree and shrub plantings for bioretention basin in accordance with V2C2 Page 27 of the MA Stormwater Handbook. Good practice is to include at least one tree or shrub per 50 square feet of bioretention area, and at least 3 species each of herbaceous perennials and shrubs. Acceptable plant species are identified in the handbook.

HEI RESPONSE: *Tree and shrub planting details for the bioretention basins / rain gardens in accordance with the Handbook will be included in the final construction document Plans and submitted for record prior to the Pre-Construction Meeting.*

BETA: BETA recommends that a plant list with numbers and species be provided with a condition that the final planting scheme be provided prior to the pre-construction meeting.

HEI2: *The landscape plans have been revised to include a plant species schedule. A final planting scheme will be prepared upon completion of Project construction documents and presented to BETA at the pre-construction meeting for determination of substantial conformance with the approved design.*

BETA2: *BETA agrees with the condition that final planting scheme shall be presented prior to pre-construction meeting.*

HEI3: Acknowledged.

UTILITIES

Proposed utility include domestic water, water for fire protection, sanitary sewer, underground electric, gas, and telecommunications. Each utility will connect to an existing service within the Financial Park development. Existing utilities will generally be retained for Building 3.

WATER RESOURCES DISTRICT (§185-40)

The Site is located within the Town of Franklin Water Resources District and a Zone II Wellhead Protection Area. The project does not include any use that would be prohibited in this district.

- W1. Confirm that the warehouse uses will not include any storage of toxic or hazardous materials (§185-40.D.1(a)).

HEI RESPONSE: *The proposed use is allowed by right within the Industrial District and no prohibitions for warehouse use are defined in the Water Resource District regulations. A tenant has not been identified for either of the proposed buildings. When a tenant is identified, the Applicant will consult with the tenant regarding the requirements of the Water Resources District, §185-40.D.1(a), and the Tenant's obligation to demonstrate compliance with §185-40.D.1(a) during design of the tenant improvements and building permit application/review. Enforcement of §185-40.D.1(a) will be at the discretion of the Zoning Enforcement Officer (ZEO).*

BETA: *BETA recommends that a condition of approval be added to cover this issue.*

HEI2: *Acknowledged.*

BETA2: *BETA defers to the Planning Board on this issue.*

HEI3: *No response required.*

STORMWATER MANAGEMENT

The stormwater management design proposes two rain gardens and seven subsurface infiltration systems to capture, store, and infiltrate stormwater. Conveyance to these BMPs will be achieved via new closed drainage systems consisting of catch basins, manholes, water quality units, and roof leaders. Portions of the existing closed drainage system in the southern area of the Site will also be retained. Stormwater BMPs are proposed to connect to each other in series; overflow from these systems will ultimately discharge to the L-series wetlands in the northern portion of the Site through an existing culvert.

This modification to the site design has been primarily in response to the stormwater comments received in the 3rd review. The outlet configuration for the proposed infiltration structures were modified as required to meet the storage and treatment requirements of the bylaws. These changes included.

1. The outlets from SWM 2 were raised slightly to increase the static storage.
2. The outlet configuration from the 2 Rain Gardens was modified to separate the 2 discharge pipes and connect directly with the manholes which discharge to the Fire Pond.
3. Isolator rows were provided for SWM 3 & 4 to replace the proprietary separators originally proposed. These will provide the pretreatment required for the infiltration measures.
4. The inlet and outlet configuration to SWM 3 & 4 were changed to a manifold system rather than a single inlet point.
5. WQU 6 was removed from the treatment train down gradient of the Infiltration SCMs.
6. The pipe from DMH 3 – DMH 24 – DMH 30 – DMH 7 was increased from 36" to 48" in diameter.

In response to these changes, BETA has the following comments:

- ***Provide construction details for***
 - ***ICS 1 & 2 which control flows into SWM 3 & 4, including inverts and control devices.***

- **Outlets from SWM 3 & 4 including inverts and manifold design.**
- **At SWM 6, since there are 4 outlets and only three rows of chambers, provide a construction detail for the outlet configuration or add a 4th row.**
- **BETA recommends that the designer review the manufacturer's design recommendations for the isolator row. The filter fabric layer between the isolator row and the main chamber field is not included in the detail.**

Previously outstanding comments with responses, and comments regarding conditions to be addressed by the Board are as follows.

SW4. BETA observed that the western detention basin was filled with water and overgrown with vegetation, suggesting it may not function as originally designed. BETA defers to the Town whether restoration and maintenance of this basin should be required under this application.

HEI RESPONSE: *The western detention basin serves stormwater discharges from multiple parcels within the Financial Way campus. The basin is operated and managed under a Reciprocal Easement Agreement (REA) that provides for rights and responsibilities of maintenance between the three parties identified within the REA including the BFCCPS, 300 Financial Way, and the Project site. The Applicant will coordinate with the other entities listed in the REA regarding required cleaning and maintenance of the western detention basin in accordance with obligations summarized in the REA.*

BETA: *BETA will defer this issue to the Town of Franklin DPW to be addressed at the time of the stormwater permit application. As noted, it is identified as routine maintenance in the Stormwater Management O & M Plan.*

HEI2: *Acknowledged.*

BETA2: *No response required.*

STORMWATER MANAGEMENT REGULATIONS (CHAPTER 153)

The project proposes to disturb land in excess of one acre within the Town of Franklin. It is therefore subject to the Stormwater Management Regulations. The project is also required to comply with the Town of Franklin Best Development Practices Guidebook (BDPG). Compliance with these regulations is outlined below and throughout the following sections.

SW5. Indicate any existing or proposed easements for the conveyance of stormwater across property lines. The proposed stormwater management system is dependent on conveying stormwater from Lot 5B to Lot 5A which must be maintained in perpetuity (§153-15.A(11) & §300-11.A(6)).

HEI RESPONSE: *Stormwater management for the campus is managed under a Reciprocal Easement Agreement, and rights to generate, manage, and discharge stormwater across parcels is summarized in the REA. The REA allows for a mutual easement for the natural runoff of surface water between lot owners, but no drainage using a stormwater management apparatus may be used to drain on another lot without prior written consent of the lot owner.*

BETA: *BETA recommends that the REA be submitted to the Planning Board and incorporated into the submission to document compliance with this section of the bylaw.*

HEI2: *Highpoint defers to the Planning Board regarding this recommendation.*

BETA2: *BETA defers to the Planning Board on this issue.*

HEI3: *No response required.*

SUBDIVISION REGULATIONS - STORMWATER MANAGEMENT REGULATIONS (§300-11)

Additional requirements for stormwater management are outlined in §300-11 of the Town of Franklin Subdivision Regulations.

SW6. Revise proposed drainage pipe to be reinforced concrete or request waiver (§300-11.B(2.a)).

HEI RESPONSE: *Drainage pipe is specified as Reinforced Concrete Pipe (RCP) throughout the Project site, except for the header/roof drain leader collector pipe and drain-pipe manifolds and inlet/outlet pipes associated with the HDPE subsurface detention/infiltration system. The Applicant requests a waiver of the specified RCP pipe material and allow HDPE pipe for the roof drain collector due to the multiple entrance locations, and the subsurface HDPE stormwater chamber system to allow for use of standard pipes and fittings.*

BETA: *The roof leaders in this section all connect to manholes, thus the header reference is incorrect. Since this pipe will be under the pavement with less than 2' of cover, BETA recommends that this section be converted to RCP also.*

HEI2: The roof leader layout has been revised in consultation with the Design-Build contractor to apply roof leader locations in coordination with anticipated roof drain collection points. Roof drain leaders exiting the building are proposed to be HDPE pipe with wye connections to a single HDPE roof drain header pipe that connects to the subsurface infiltration system. Where the subsurface infiltration system is located along the buildings, direct connection of the roof leaders to the infiltration system is proposed.

Use of similar HDPE pipe materials and fittings for the roof drain collection system allows for a more standard design and avoids pipe couplings to join dissimilar pipe materials, which could result in premature pipe joint failure.

The header pipe diameters have been adjusted to account for the varying pipe capacity requirements for the roof drain leaders. A minimum of 2' of cover is now provided for all roof leader and header pipes.

Highpoint notes that both HDPE corrugated, and RCP pipes are designed to withstand AASHTO H-20, H-25, and/or HL-93 loads under minimum cover requirements. ADS, a popular manufacturer of corrugated HDPE pipe, issued a Technical Note, TN 2.01 "Minimum and Maximum Burial Depth for Corrugated HDPE Pipe", which includes a table providing the minimum cover depths required for corrugated HDPE pipe to withstand AASHTO H-20, H-25, and/or HL-93 loads. Additionally, the Plastics Pipe Institute states on their website that properly installed HDPE corrugated pipe can withstand AASHTO HS-25 loads with a minimum 1 ft cover for pipes up to 48-inch diameter.

In conclusion, the choice of material between HDPE and RCP would therefore not make a functional difference for supporting vehicle loading when installed with the recommended minimum cover. A waiver request for the use of three HDPE collector pipes is included in this submission.

BETA2: *BETA notes that the issue with the HDPE pipe is that the performance of the material is dependent upon the quality of the backfill process. RCP is not. BETA will defer this issue to the Board.*

HEI3: Acknowledged

BETA4: No further comments.

MASSDEP REPORTABLE RELEASES

The MassDEP Waste Site / Reportable Release database identified the Stie as the location of a reportable release under Release Tracking Number (RTN) 2-4017015. Available documentation indicates that the release originated from the discovery of Methyl Tert-butyl Ether (MTBE) in groundwater circa 2001. Response actions included the installation of monitoring wells to sample contaminant levels. Sampling conducted circa 2003 did not detect MTBE concentration above reportable limits. A Response Action Outcome (RAO) Statement was submitted to MassDEP supporting a condition of "No Significant Risk." The RTN has since been closed.

MASSDEP STORMWATER STANDARDS

The project is subject to the Massachusetts Stormwater Standards as outlined by MassDEP. Compliance with these standards is outlined below:

NO UNTREATED STORMWATER (STANDARD NUMBER 1): *No new stormwater conveyances (e.g., outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth. The project proposes to connect new closed drainage systems to existing outfalls located within wetland resource areas. Existing splashpads are located at each outfall for erosion control.*

SW9. Verify condition of existing outfalls at DB, J, and L-series wetlands. BETA could not locate the existing outfalls associated with the north "detention pond" in the field nor their respective splashpads. Confirm that inverts for these outfalls is above the typical water elevation for these ponds.

HEI RESPONSE: *Existing Splashpad #1 and #2, as referenced on the Grading and Drainage Plan should be labeled as existing pipe inverts. Pipe inverts and associated splashpads are set below the average water elevation per the original design by CE Maguire, Inc. in October of 1980. HEI is proposing to reuse all existing outfalls of the existing drainage discharging to the North Pond.*

BETA: *The condition where the outfalls are submerged is not ideal. However, these outfalls as noted have been in place since 1980. The O & M Plan specifically notes the maintenance requirements for these 2 outfalls. Based upon this continued maintenance, BETA agrees with the designer that these outfalls can be maintained and used in conjunction with the new stormwater management system. This will minimize the disturbance in the area and the potential environmental issues associated with the removal and replacement of the outfalls.*

The existing conditions plans note that these 2 outfalls are steel conduit. However, the grading and drainage plans indicate that they are RCP. Resolve the material and if they are steel report on their condition.

HEI2: *Based on Hancock Associates additional site visit on August 9, 2023, the two (2) existing outfall pipes are steel conduit. Both outfalls were submerged at the time of the site visit and the condition of the pipes was undetermined. The Applicant will coordinate with the site contractor to determine the condition of these outfalls prior to beginning of construction and will report to BETA on their condition.*

BETA2: *BETA recommends that a condition of approval be added that notes that these outfalls should be inspected prior to the start of construction and a determination made if they should be replaced.*

HEI3: Acknowledged

BETA4: No further comments.

POST-DEVELOPMENT PEAK DISCHARGE RATES (STANDARD NUMBER 2): *Stormwater management systems must be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. The project proposes changes to site hydrology and ground cover which will impact stormwater flow to the analyzed design points. Stormwater runoff will be mitigated via capture, storage, and infiltration within nine new stormwater BMPs.*

Calculations indicate a net increase in peak discharge rate for the 2-, 10-, and 25-year storm events for POA A and the 2-year storm event for POA C. These design points represent the wetlands located to the west of the Site for which no new BMPs are proposed. The stormwater mitigation narrative notes that POA A is a previously constructed detention basin sized for a larger inflow capacity.

Calculations indicate a new decrease in peak discharge rate for all other storm events and points of analysis.

SW17. Review pipe sizing calculation for DMH-16 to WQU-4 and DMH-7 to Splashpad-1. The peak flow is greater than the design flow.

HEI RESPONSE: *The pipe capacity analysis has been revised for the stormwater collection system at the discharge locations to the North Pond. The pipe segments connecting DMH-24, DMH-30, DMH-7, and invert/splashpad #1; and the pipe segment DMH-9 to invert/splashpad #2 operate under surcharge conditions similar to existing conditions. We note that the proposed surcharge condition occurs in less pipe length than what is assumed exists today based upon the original drainage system design, resulting in an improvement in surcharge condition.*

Based upon the pipe capacity analysis, the surcharge condition does not backwater into any water quality inlet devices, the subsurface infiltration facilities, rain gardens, nor catch basin inlets. Refer to the revised pipe capacity analysis included in the revised Stormwater Report.

BETA: BETA agrees that the condition from DMH-9 to the splashpad #2 is identical to existing conditions and the surcharge impact will not extend upgradient of DMH-9. However, at splashpad #1 the surcharge impacts extend further upgradient than existing and should be reviewed. BETA recommends that the water surface elevations for the design storm from the basin upgradient to DMH-24 be determined to ensure that the surcharge does not impact any of the infiltration structures that are tied into this discharge point.

HEI2: Highpoint has conducted a pipe capacity analysis utilizing Civil 3D's "Storm and Sanitary Analysis (SSA)" engineering software and HydroCAD for the modeling of the North Pond to assess drainage system surcharge. A fixed tailwater elevation (El.=245.71) is assigned to the inlet pipe to the North Pond, which represents the peak flood elevation in the North Pond for the 25-yr storm event. The SSA model was run to verify which pipe segments operate under surcharge conditions when assigning the peak pond flood elevation as a fixed tailwater elevation for the duration of the storm.

The Pipe Capacity Analysis identifies three pipe segments up to DMH-24 that operate under surcharge conditions during the design storm. The remaining upstream pipe segments and infiltration facilities operate in free-flow conditions during the design storm event. See Appendix B in the Stormwater Report for Pipe Capacity Analysis and operations.

We note that the Hydrology Model assumes the static surface water level in the North Pond is at the outlet weir elevation/grate (El.=243.95). The North Pond is used for irrigation and supplemental fire protection and was originally designed with a working water level between El. 240.2± and El. 244.0±, which fluctuates based upon demand.

BETA2: The analysis for the 36" culvert from DMH 3- DMH 24 is missing from the table. The analysis provided looks only at the barrel capacity of the culvert and does not consider the tailwater elevation. Based upon the inverts, with the pond level at Elevation 244.0, the still water level will reach back to WQU 6. To insure that it will not impact beyond WQU 6, perform the hydraulic analysis necessary to determine water surface elevations in each of the structures from DMH 30-WQU 6.

HEI3: The 36" RCP pipe in question has been replaced by a 48" RCP pipe and added to the Pipe Sizing Spreadsheet found in Appendix B of the Revised Stormwater Report. The pipe sizing analysis using Civil 3D's "Storm and Sanitary Analysis (SSA)" was conducted having a fixed tailwater condition of EL. 245.71 set at the North Detention Pond equal to the pond's 25-year storm highwater elevation. As listed in the Pipe Sizing Spreadsheet, the surcharged pipes extend two pipe lengths from the pond upstream to DMH-30. Having analyzed the pipes with this fixed tailwater elevation of 245.71, eliminates the need to examine the pipe network based on the resting water elevation of the North Detention Pond.

BETA4: There is no indication in the output that confirms the design assumption associated with the starting pond depth. In addition, the peak flow rates identified do not increase from upstream to downstream. Specifically, from the table

<i>Pipe run</i>	<i>Dia.</i>	<i>Peak flow</i>
<i>DMH 8-DMH 13</i>	<i>36"</i>	<i>40.46 cfs</i>
<i>DMH 13 – DMH 3</i>	<i>36"</i>	<i>10.63 cfs</i>

BETA recommends that the designer review this analysis and correct the issues.

RECHARGE TO GROUNDWATER (STANDARD NUMBER 3): *Loss of annual recharge to groundwater should be minimized through the use of infiltration measures to maximum extent practicable.* NRCS soil maps indicate the soils at the site are Merrimac-Urban Land, Udorthents, sandy, Hinckley loamy sand, and Merrimac fine sandy loam, all rated in Hydrologic Soil Group (HSG) A (high infiltration potential).

A Geotechnical Report prepared by McArdle Gannon Associates, Inc., has been included in the submission. Geotechnical analysis included eight test pits conducted throughout the Site. Underlying soil in the area of proposed infiltration was generally identified as Sand or Sandy Loam and groundwater was identified between 4.6' to 9' below grade.

The project design has been revised and now proposes two rain gardens and four subsurface infiltration systems to provide groundwater recharge. The project is anticipated to provide a recharge volume in excess of what is required. Calculations have been provided indicating that all BMPs will drawdown within 72 hours.

SW18. Review model for Rain Gardens 1 and 2:

- a. Revise top elevation for "Custom Stage Data" model to match rain garden schedule.

HEI RESPONSE: *The rain garden schedule has been revised to match the HydroCad model.*

- b. Revise bottom elevation for "Subsoil" portion of the model to match rain garden schedule. Revise to utilize a consistent Voids % for all elevations.

HEI RESPONSE: *The bottom elevation of the subsoil has been revised to match both the HydroCAD model and the rain garden schedule. The varying void ratios shown below the rain garden bottom elevation account for the different soil materials. The first 3-inches is mulch having a void ratio of 25%, then 3-feet of 'engineered planting soil' with a void ratio of 25%, then 2.75-feet of gravel with a void ratio of 40%.*

- c. Provide min. 3-inch freeboard above ponding elevation for rain gardens, in accordance with MA Stormwater Handbook V2C2 Page 27.

HEI RESPONSE: *The two (2) rain garden designs are revised to provide 3-inches of freeboard from the 100-year ponding elevation to the top of the rain gardens. Both rain gardens are designed with a top of berm elevation of 250.50. Rain garden #1 has a 100-year peak elevation of 250.21, which provides 0.29' of separation and rain garden #2 has a 100-year peak elevation of 250.19 providing 0.31' of separation.*

- d. Review peak elevation for rain gardens, which are above top of pond elevations.

HEI RESPONSE: *The two (2) rain gardens are redesigned to prevent the 100-year storm peak elevation from exceeding the top of rain garden berm elevation of 250.50.*

- e. Provide spot grades and labels for contours around proposed rain gardens to clarify intended berm height.

HEI RESPONSE: *Spot grades and contour labels have been added to the Plans.*

BETA: *The redesign of the rain gardens has eliminated most of the issues associated with the drawings. However, there are issues with the HYDRO-CAD model for these 2 structures, which include.*

- 1) *The storage volume calculations are incorrect. The bottom layer of aggregate is 2.75' thick not 1.5'.*
- 2) *The void ratio for the 3/4" aggregate should be limited to 35%. A 40% void ratio is fine for 1-1/2" aggregate. In addition, the void ratio for the media soil should be limited to 15%.*
- 3) *The surface area in the model is overstated. The infiltration rate should be applied to the bottom area of the aggregate, which should not be greater than the area of the 150.5 contour. BETA recommends that you develop a constant flow rate rather than use a constant velocity.*
- 4) *The surface areas associated with the different layers in the storage volume calculations does not match the actual conditions. BETA recommends that the designer review the program and use another method to develop the overall storage volume.*

HEI2: *Highpoint has reviewed the rain garden models and revised the necessary items noted in items 1-4 above. The rain garden detail has been revised to specify 3/4" to 1-1/2" stone. The infiltration rate applicable surface area is limited to the footprint of the bottom area of the rain garden. The Rawl's Rate of 2.41 in/hr has been applied to both rain gardens. See the Stormwater Report.*

BETA: *The redesign of the rain gardens has eliminated most of the issues associated with the drawings. However, there are issues with the HYDRO-CAD model for these 2 structures, which include.*

1. *The area drains as shown on the drawings (Sheet C-601) are not consistent with the calculations. They are shown as round beehive grates and modeled as 15" square grates.*
2. *The infiltration rate from the Hydro-CAD analysis is still variable and should be constant as noted in the 2nd review.*
3. *The construction detail on sheet C-601 of the set indicates that the discharge is to the subsurface infiltration system. However, the discharge for both rain gardens are combined into a single 18" outlet.*

BETA recommends that.

1. *The exfiltration rate should be converted to a constant flow rate rather than a constant velocity.*
2. *The outlet configuration for each rain garden should be modified to a single outlet point. For RG 1 it should be located at the far south end of the garden and discharge into SWM-4. For RG 2 it should be located at the middle of the garden near the island and discharge into WQU 6.*

3. *Modify the construction detail on sheet C-601 to match the drainage analysis.*

Modifying the Rain Garden outlet configuration will eliminate the maintenance issues associated with a lengthy discharge pipe set flat and the issues with potential damage to the risers during routine maintenance of the vegetation in the garden. In addition, although not related to the Rain Gardens, WQU 6 is not needed to meet the treatment requirements of either the standards or the bylaw. In addition, based upon the flow rate and volume through this unit, it is questionable how effective the treatment will be.

HEI3:

1. The rain garden model has been corrected to reflect 15-inch diameter area drain grates to match the 15" beehive grates shown on sheet C601.

2. The infiltration rates for both rain gardens proposed on site have been revised to constant flow rates rather than constant velocity. Refer to the Rain Garden Sizing sheet included in Appendix B of the Revised Stormwater Report for the velocity to flow rate conversion calculations.

3. The Rain Garden Section detail on Sheet C601 has been corrected.

1. See HEI3 response #2 above.

2. The outlet configuration for each of the rain gardens has been revised. RG discharges to DMH-8 and RG #2 discharges to DMH-13. This eliminates the potential maintenance issues associated with a lengthy discharge pipe as noted in BETA's comment.

3. See HEI3 response #3 above.

BETA4: Comments and recommendations have been addressed. No further comments.

- SW24. Conduct test pits in the area of Rain Garden #1, SWM-1, SWM-2, SWM-4, and SWM-7.

HEI RESPONSE: *As explained at the first Planning Board hearing, the current tenant's lease requirements limited the locations that test pits could be excavated and witnessed due to sensitivity with their operations. The Applicant agrees that additional test pits should be witnessed within these areas prior to construction to verify soil and groundwater conditions. The test pit logs will be reviewed with the Peer Reviewer to demonstrate compliance with the design requirements and assumptions prior to construction.*

BETA: *BETA recommends that a condition that additional test pits be conducted at each proposed stormwater infiltration structure in accordance with the standards at the time of construction.*

HEI2: *Highpoint will coordinate excavation and witnessing of additional test pits to verify the stormwater design assumptions at time of construction and review with BETA for design conformance.*

BETA2: *Comment addressed; condition of approval has been accepted.*

TOTAL SUSPENDED SOLIDS (STANDARD NUMBER 4): *For new development, stormwater management systems must be designed to remove 80% (90% per Town Bylaw) of the annual load of Total Suspended Solids (TSS). The project proposes treatment trains generally consisting of deep sump catch basins, water quality units, and subsurface infiltration systems or rain gardens. The project is anticipated to provide TSS removal in excess of what is required.*

The project proposes to provide the 1.0-inch water quality volume via four new infiltration BMPs and 2 exfiltrating rain gardens. However, the provided volume is less than what is required.

As a project which discharges to a critical area (See Standard 6), the project is required to provide 44% pretreatment prior to discharge to all infiltration BMPs. Pretreatment is generally provided via deep sump catch basins and water quality units but has not been achieved for the proposed rain gardens.

SW26. For a new Site, meet one of the following criteria (§153-16.B(1))

- a. Retain the volume of runoff equivalent to, or greater than, 1.0 inch multiplied by the total post-construction impervious surface area on the Site; and/or
- b. Remove 90% of the average annual post-construction load of TSS and 60% of the average annual load of total phosphorus.

HEI RESPONSE: *The revised design meets both listed criteria. Refer to the calculations included in Appendix B of this Revised Stormwater Report.*

BETA: *The calculations indicate that the proposed design will meet the second criteria. However, the storage volume provided is not sufficient to meet the first criteria. The phosphorous reduction analysis must include the entirety of the impervious surfaces on site. See SW31 below*

HEI2: *Highpoint has revised the proposed design to include an additional Contech Cascade CS-6 water quality unit downstream of the infiltration systems sized to treat the remaining 1.0" water quality volume equivalent flow rate. Therefore, the revised design satisfies both listed criteria. See Stormwater Report for revised calculations.*

As for the phosphorus reduction analysis, the total proposed impervious area has been included in the revised calculation included in Appendix C.

BETA2: *It is important to note that the performance of the proposed stormwater measures for conformance with the bylaw is based upon the Massachusetts MS4 permit. All the TSS Removal rates shown are from the Massachusetts stormwater handbook. The addition of WQU 6 will help with the treatment provided by that single treatment train however, because of the amount of untreated runoff from the site currently, meeting the 90% TSS removal requirement is not possible without major improvements around the perimeter road. BETA recommends that the designer modify the storage volume in the proposed infiltration measures to provide the 1" storage volume. Otherwise, document the TSS Removal for each of the discharge points and provide a weighted average for the total site.*

HEI3: *Highpoint has revised the proposed design to provide the required static water quality volume on site via four (4) via subsurface infiltration systems, two (2) rain gardens,*

and two (2) separator (isolator) rows. With this standard achieved, Highpoint has removed WQU-6 from the proposed drainage design while ensuring the 44% pretreatment prior to infiltration requirement has been met. Refer to the Water Quality Volume calculations in Appendix B and the Water Quality Volume Exhibit included in with the figures, both found in the Revised Stormwater Report.

BETA4: The static volume provided is 78,134 cu. ft. The required volume to meet the bylaw is 77,009 cu. ft. The proposed stormwater system will meet the requirements of the bylaw for new development. No further comments.

SW27. Revise calculations for required water quality volume to include all impervious areas, including roofs. Per V1C1 Page 9 of the MA Stormwater Handbook, the required water quality volume includes the total impervious area of the Site.

HEI RESPONSE: The design is revised to account for the required water quality volume (WQV) for all impervious areas, including roofs. The required WQV for ground surface runoff is calculated by converting the required water quality volume to an equivalent water quality flow rate (Q). The Q value and catchment plans were provided to the vendor, Contech, to assist with design of the four (4) water quality units proposed throughout the site. In addition, two (2) rain gardens proposed provide the required WQV for ground surface discharges. For the building roofs, four (4) subsurface infiltration systems provide the required WQV. See the revised Stormwater Report.

BETA: The Water Quality Volume calculations for the 4 proposed subsurface infiltration structures have not been provided. In addition, based upon the TSS calculations provided, the design is dependent upon the proprietary separators to meet the overall treatment. In accordance with Volume 1 Chapter 1 of the handbook and as discussed at our meeting, these proprietary separators cannot be used as the terminal treatment process in a critical area unless they are the only option available to meet the Maximum Extent Possible definition for redevelopment. As discussed at the meeting, BETA considers the use of proprietary separators acceptable at POA-C and for CB Nos. 2,5,11,12 & 18 at the northwest corner of the development which flow to WQU-1, specifically because there are no other options based upon the constraints imposed by the adjacent wetland resource areas. However, for the remainder of the site, the infiltration structures must be designed in accordance with the handbook to provide the TSS Removal rate which includes the pretreatment and the storage volume. In addition, the TSS Removal rate calculations should be corrected to

- 1) The pretreatment percentage is not part of the total provided and should not be included.
- 2) The pretreatment TSS Removal rate should have its own calculation sheet.
- 3) Catch basins with a tributary watershed with greater than 0.25 acre of impervious surfaces are not entitled to a 25% TSS Removal credit. (See Volume 2, Chapter 2, page 4)

HEI RESPONSE #2: Highpoint has revised the Stormwater Report to include the following:

1. The TSS removal calculations are revised to eliminate the inclusion of additional pre-treatment BMP's upstream of the terminal BMP. In the case of the infiltration BMP's, the TSS removal rate is assumed to be 80% at the

terminal BMP with the water quality unit serving as pre-treatment.

BETA2: *As noted earlier, the proprietary separators will qualify as pretreatment for the subsurface infiltration systems only for new construction but will satisfy the “maximum extent possible” redevelopment definition for those areas where there are no other treatment options.*

HEI3: Noted.

2. *Separate pretreatment TSS Removal Rate calculation sheets are provided to demonstrate 44% TSS removal is achieved prior to infiltration/recharge by adding the water quality units prior to recharge.*

BETA2: *The treatment trains need additional labels to understand where they apply.*

HEI3: Additional notes have been added to each of the TSS Removal Rate calculation sheets to provide clarification for each of their uses.

BETA4: Comment has been addressed. No further comments.

3. *A review of Volume 2, Chapter 2, Page 4 | Design Considerations state that tributary watershed areas should not exceed 10,000 sf of impervious area. Highpoint did not find language that specifically states the 25% TSS removal credit is not allowed if this tributary watershed area is exceeded. Given the size of the shared truck court and other areas of the site it is not practical to add a significant number of additional catch basins, especially within the truck court. The Applicant requests that BETA consider allowing more frequent inspections and monitoring of the catch basins to evaluate sediment loading, and if warranted establish a more frequent cleaning schedule if documented sediment loading warrants. This will be memorialized in a revised Long-Term Operation and Maintenance Plan upon agreement with BETA.*

BETA2: *the design has added a proprietary separator in line after the catch basins, thus, the point is moot, and the separator will provide the pretreatment necessary for the infiltration system.*

HEI3: Noted.

BETA2: *In addition to the above, BETA has added the following.*

- *Like the Rain Garden calculations, the Water Quality Volume calculation for each individual infiltration system should be provided separately. SWM 6 does not provide the 1” Water Quality Volume required to meet the standards.*
- *As stated earlier, the proprietary separators cannot be used exclusively to meet the treatment requirements for discharges to a critical area. In the absence of the STEP and TARP program, BETA has normally allowed a TSS removal rate of 44% for proprietary separators which is sufficient to meet the pretreatment requirements for an infiltration SCM.*

HEI3: *Highpoint has revised the proposed drainage design to provide the required 1" water quality volume on site. Refer to the Water Quality Volume calculations in Appendix B and the Water Quality Volume Exhibit in the Figures section of the Revised Stormwater Report.*

BETA4: *Comment addressed.*

HIGHER POTENTIAL POLLUTANT LOADS (STANDARD NUMBER 5): *Stormwater discharges from Land Uses with Higher Potential Pollutant Loads (LUHPPLs) require the use of specific stormwater management BMPs. The project includes a parking lot with a high-intensity use (1,000 vehicle trips per day or more) which is considered a LUHPPL. The project is required to conform to this section. Deep sump catch basins, proprietary separators, rain gardens, and subsurface structures are considered recommended BMPs for LUHPPLs. A Spill Prevention, Containment, and Countermeasure Plan has been included with the Stormwater Report.*

CRITICAL AREAS (STANDARD NUMBER 6): *Stormwater discharges to critical areas must utilize certain stormwater management BMPs approved for critical areas. The project includes stormwater discharges to a Zone II Wellhead protection area which is a critical area. Deep sump catch basins, proprietary separators, rain gardens, and subsurface structures are considered recommended BMPs for this type of critical area. The project has been designed to provide 44% pretreatment and the 1.0-inch water quality volume, except as noted under the Standard 4 section above. The report page 12 incorrectly notes that the site is not in a critical area, however, the site has been designed appropriately to meet this standard.*

REDEVELOPMENT (STANDARD NUMBER 7): *Redevelopment of previously developed sites must meet the Stormwater Management Standards to the maximum extent practicable. The project will result in an increase in impervious surfaces on site thus it will not meet the definition of a redevelopment. However, it is a combination of redevelopment and new development – The applicant has considered the site as new development and has not reviewed the development under redevelopment criteria.*

EROSION AND SEDIMENT CONTROLS (STANDARD NUMBER 8): *Erosion and sediment controls must be implemented to prevent impacts during construction or land disturbance activities. As the project proposes to disturb greater than one acre of land, it will be required to file a Notice of Intent with EPA and develop a Stormwater Pollution Prevention Plan (SWPPP). Erosion control measures are depicted on the plans include straw wattle, inlet protection, and stabilized construction entrance. A Construction-Period Operation and Maintenance Plan is included in the Stormwater Report including waste disposal, dust monitoring, spill prevention, and monitoring.*

OPERATIONS/MAINTENANCE PLAN (STANDARD NUMBER 9): *A Long-Term Operation and Maintenance Plan shall be developed and implemented to ensure that stormwater management systems function as designed. A Stormwater Operation and Maintenance Manual was provided with the Stormwater Management Report.*

SW47. Indicate how future property owners will be notified of the presence of the stormwater management system and the need for maintenance.

HEI RESPONSE: *The Applicant will include a summary of the existing stormwater management components and locations identified on a BMP location map in future tenant lease documents. The lease documents will refer to the future property owners and tenants being required to execute and manage the Operation and Maintenance Plan.*

BETA: *BETA will defer this issue to the Board, however we recommend that this be included as a condition of approval*

Mr. Gregory Rondeau, Chairman

October 10, 2023

Page 19 of 19

HEI2: *Highpoint defers to the Planning Board regarding this recommendation.*

BETA2: *No further comments.*

ILLICIT DISCHARGES (STANDARD NUMBER 10): *All illicit discharges to the stormwater management system are prohibited. An Illicit Discharge Compliance Statement has not been provided.*

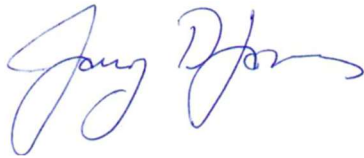
WETLANDS PROTECTION

The Project proposes work within Areas Subject to Protection and Jurisdiction of the Franklin Conservation Commission, including the 100-foot Buffer Zones to a vegetated wetland. The Applicant has submitted an NOI to the Town of Franklin Conservation Commission and must obtain an Order of Conditions to complete the proposed work.

If we can be of any further assistance regarding this matter, please contact us at our office.

Very truly yours,

BETA Group, Inc.

A handwritten signature in blue ink, appearing to read "Gary D. James".

Gary D. James, P.E.
Senior Project Engineer

cc: Amy Love, Town Planner



October 18, 2023

Mr. Gregory Rondeau, Chairman
Franklin Planning Board
355 East Central Street
Franklin, MA 02038

Re: Warehouse/Industrial Development
100 Financial Park
Site Plan Application – Traffic Peer Review

Dear Mr. Rondeau:

BETA Group, Inc. (BETA) has received the Response to Comments letter dated September 20, 2023 and Alternate Concept Plans dated October 9, 2023 for traffic-related items for the proposed project entitled “Warehouse / Industrial Development” located at 100 Financial Park in response to BETA’s review comments dated June 1, 2023, June 22, 2023, August 8, 2023, and September 14, 2023. This letter provides BETA’s comprehensive findings, comments and recommendations.

BASIS OF REVIEW

The following documents were received by BETA and formed the basis of the review:

- Plans (45 sheets) entitled: Warehouse Industrial Development Site Development Plans 100/200 Financial Park Franklin Massachusetts, dated May 11, 2023, prepared by Highpoint.
- Traffic Impact and Access Study (TIA), dated April 2023, prepared by MDM Transportation Consultants, Inc. (MDM).
- Response to Comments – Peer Review of Traffic Memorandum, 100/200 Financial Park, dated June 7, 2023, prepared by MDM Transportation Consultants, Inc.
- Response to Comments – Peer Review of Traffic Memorandum, 100/200 Financial Park, dated July 17, 2023, prepared by MDM Transportation Consultants, Inc.
- Response to Comments – Peer Review of Traffic Memorandum, 100/200 Financial Park, dated September 8, 2023, prepared by MDM Transportation Consultants, Inc.
- Response to Comments – Peer Review of Traffic Memorandum, 100/200 Financial Park, dated September 20, 2023, prepared by MDM Transportation Consultants, Inc.
- Alternate Washington Street/King Street Intersection Concept Plans, 100/200 Financial Park, dated October 9, 2023, prepared by MDM Transportation Consultants, Inc.

INTRODUCTION

The project site includes two parcels, located at 100 Financial Park in the Town of Franklin (the “Site”). The Site and all the surrounding lots are located within the Industrial zoning district.

The existing Site is the location of a 1-story office building with a footprint area of 180,000± sq. ft. and a 2-story warehouse building with a footprint area of 57,570± sq. ft. Paved parking areas are located to the north and south of the buildings. Access to the Site is provided within Financial Park, a private roadway which connects to Washington Street from the west.

The project proposes to construct two new warehouse buildings with 300,000± sq. ft of warehouse space. The existing 180,500± sq. ft office building will be demolished, and the existing warehouse building will be retained. The existing parking layout will be replaced with new areas of paved parking proposed and existing areas either retained, removed, or reconfigured. A new loading area with heavy duty pavement is proposed in the central area of the Site between the two new buildings.

COMPILED REVIEW LETTER KEY

BETA has provided review comments to the Board dated June 1, 2023, June 22, 2023, August 8, 2023, and September 14, 2023 (original comments in standard text), MDM Transportation Consultants, Inc. (MDM) provided responses (responses in italic text), and BETA's most recent response comments are provided (status in standard bold text). The comments related to the latest concept plans are provided in the last section. All other comments shown in standard text are original or subsequent comments for this review.

FINDINGS, COMMENTS, AND RECOMMENDATIONS

The study area includes the following intersections in the vicinity of the site:

- Washington Street at King Street (signalized)
- Washington Street at Union Street and Arlington Street (unsignalized)
- Washington Street at Financial Park Drive (unsignalized)

The study area was found to be adequate, and the study methodology follows MassDOT Transportation Impact Assessment (TIA) guidelines.

Manual turning movement counts (TMCs) were collected on Thursday, January 26, 2023, from 7:00 AM to 9:30 AM and 2:00 PM to 6:00 PM. These time periods were chosen because they are representative of the combination of peak generator times of Franklin Park Campus and adjacent roadways. BETA concurs with the traffic data collection time periods.

Traffic volume data were also collected via a 24-hour automatic traffic recorder (ATR) count on Thursday, January 26, 2023 on Washington Street, just south of Financial Park Drive.

Data indicates the weekday AM peak period occurs from 7:30 – 8:30 AM and the PM peak period occurs from 2:45 – 3:45 PM which coincides with the Benjamin Franklin Classical Charter peak periods.

The TIA states that the existing campus is fully leased. The TIA states that baseline trip generation data was collected via ATR in January 2023 and was provided graphically and in table form (Table 2) for each existing site. The backup data is broken down by hour in the Appendix.

The peak hour and total daily volumes provided in the TIA differ from the backup data provided in the Appendix.

- T1. The peak hour and total daily volumes provided in the TIA differ slightly from the backup data provided in the Appendix. Please clarify the difference in volumes in addition to the difference in truck trips between the existing site and the proposed site.

MDM: The peak hour and daily trip generation volumes shown in Table 2 of the TIA include trips using the gated Grove Street driveway. Buses associated with the Benjamin Franklin School and a limited number of Marsh & McLennan employees are permitted to use the gated driveway. The backup trip calculations provided included only trips associated with the main driveway. Under future conditions buses will still be permitted to use the gated Grove Street driveway, however,

the proposed warehouse trips will be required to use the Washington Street driveway. The backup calculation sheets for the gated Grove Street driveway are provided in the Attachments.

The truck trips associated with the existing Site uses are based on traffic count data collected in January 2023 while the truck trips associated with the proposed Site are based on the more conservative average ITE truck trip rates for a Warehouse use (LUC 150).

BETA2: The information has been provided. No further comment.

Historical permanent count station data from I-495 and Route 1 were reviewed to determine the need for seasonal adjustment. Traffic volumes in January were found to be below average-month conditions, therefore, the volumes were increased by the average of the two stations which is 10 percent to provide baseline existing volume data.

Crash data were obtained from the MassDOT database for the most recent three-year period from 2020 to 2022. The highest crash rate, quantified as crashes per million entering vehicles, was found to be 0.25 Million Entering Vehicles (MEV) which is lower than both the statewide and District 3 average crash rates for unsignalized and signalized intersections.

- T2. Crash data for the years 2020-2022 from the MassDOT database were summarized in the TIA for the three study area intersections. At this time, our understanding is that MassDOT has not "accepted" their crash data later than the year 2020 and crash data may be lower than normal due to the COVID-19 impacts on travel during 2020. Consideration should be given to providing crash data for the study area intersections for the years 2018-2019.

MDM: The safety analysis has been expanded to include crash data for the years 2018-2022. The updated crash data from 2018 and 2019 is consistent with the 2020-2022 data, indicating no significant crash history at the study locations. No further review of crash analysis is required based on the crash history at the study locations. The expanded crash data for the study intersections is provided in the Attachments.

BETA2: The information has been provided. No further comment.

- T3. Provide updated crash data worksheets with the correct intersection streets.

MDM: Revised crash data worksheets are provided in the Attachments.

BETA2: The information has been provided. No further comment.

Background development-related traffic growth that may increase traffic within the study area was identified. The 160 Grove Street, 200 Grove Street, 585 King Street, 00-712 Union Street and 275 Washington Street development projects were identified as new developments. The projected trips for these projects were directly applied to the future volumes. It is our understanding that the 200 (206) Grove Street FedEx facility was operational during the data collection period, however, the trips added to the study area were minimal. BETA finds this overall approach acceptable.

MassDOT permanent count station data indicated an overall average traffic growth rate of 0.4 percent. No-Build traffic volumes were determined by applying a 1 percent per year growth rate over a seven-year period to 2030 to account for traffic growth. This growth rate is consistent with studies prepared for recent developments in Franklin.

The project-generated traffic volumes were determined by utilizing trip-generation statistics published by the Institute of Transportation Engineers (ITE) for Land Use Code (LUC) 150 Warehousing. The land use is

appropriate. The project site is estimated to generate a total of 514 new trips on an average weekday with 51 (39 entering, 12 exiting) during the weekday morning peak hour, and 69 (19 entering, 50 exiting) during the weekday afternoon peak hour. Of these trips, the estimated number of trucks generated during the morning peak are six (11% of trips) and 18 (26% of trips) during the afternoon peak. Approximately 180 truck trips are anticipated daily.

T4. Provide the trip generation backup data for reference.

MDM: For reference, the backup ITE trip generation data is provided in the Attachments.

BETA2: It appears that only the proposed truck trip generation ITE data was provided. Please provide the backup data for the vehicle trips as summarized in your report.

MDM2: Backup ITE trip generation data sheets for both trucks and vehicle trips as summarized in the traffic study are provided in the Attachments.

BETA3: The information has been provided. No further comment.

T5. Clarify the size of trucks the site will be generating.

MDM: The majority of the trucks are expected to be 53-foot trailers consistent with the existing trucks used by Imperial Dade and Champagne Logistics. The largest anticipated trucks generated by the Site will be equivalent to an articulated WB-67 truck (Sleeper cab tractor with 53-foot trailer).

BETA2: Comment addressed. As observed and previously noted, at both the intersection of Washington Street and Financial Parkway and the intersection of Washington Street and King Street, larger trucks have difficulty turning right out of Financial Parkway and left from Washington Street onto King Street. Any increase in large truck traffic may impact traffic safety.

MDM2: As summarized under Response 15 and Response 16, Proponent sponsored improvements at the Financial Park Drive intersection with Washington Street and the Washington Street intersection with King Street will facilitate truck operations for truck traffic at both locations compared to existing conditions.

BETA3: See responses to comments 15 and 16.

T6. Although the TIA states that access to and from the site will not be permitted via the gated Grove Street driveway on the western side of the site based on preliminary discussions, we recommend that the existing number of vehicles accessing and egressing the Grove Street driveway be provided for reference. MDM: Detailed traffic count data by vehicle type for the Financial Park Drive near Grove Street is provided in the Attachments. The data indicates that approximately 20 daily passenger vehicle trips (10 entering and 10 exiting) through the gate, 45 daily school buses trips (22 entering and 23 exiting), and no articulated trucks used the gated driveway. BETA: Information has been provided. Verify that additional vehicles from the proposed warehouse will not utilize the gated driveway.

MDM: Under future conditions buses will still be permitted to use the gated driveway; however, all other vehicles including the proposed warehouse trips will be required to use the Washington Street driveway.

BETA2: The information has been provided. No further comment.

A trip generation comparison was provided between the ITE-based site trips for the proposed developments and the existing 300,000 sf warehouse (Imperial Dade). The empirical data revealed that

the weekday morning (4:00 AM) and afternoon peaks (1:00 PM) are earlier than the peak hours used for the analysis which coincides with the peak periods for Financial Park and Washington Street. The TIA also included a comparison between the proposed warehouse use and the "by-right" office use which would generate approximately 200 additional trips during the morning peak hour, 95 during the afternoon peak hour, and 1,442 more on a daily basis. This information is noted.

- T7. Journey to Work data and existing travel patterns were used to determine the distribution of trips. Please provide the Journey to Work backup data for reference.

MDM: The trip distribution for the proposed warehouse was based on existing travel patterns only, the use of Journey to Work data was a typographical error. Trip distribution calculations were provided in the TIA and are provided in the Attachments for reference.

BETA2: Comment addressed. No further comment.

Traffic operations analysis was performed with Synchro software based on the Highway Capacity Manual 6th Edition methodologies.

- T8. Synchro backup traffic data sheets for the Baseline (Existing), No-Build, and Build morning and afternoon peak periods are missing in the Appendix for the Financial Parkway and Washington Street intersection and the Washington Street and Union Avenue intersection. Provide backup data sheets for review and reference.

MDM: The Synchro backup traffic data sheets for the Baseline, No-Build, and Build weekday morning and weekday evening peak periods are provided in the Attachments.

BETA2: Backup Synchro data for the Baseline Existing and No-Build conditions are still missing for the Financial Parkway and Washington Street intersection and the Washington Street and Union Avenue intersection.

MDM2: Backup Synchro data for the for the Baseline, No-Build and Build for the study intersections are provided in the Attachments.

BETA3: The information has been provided. Please elaborate on the discrepancies between the Synchro/HCM analysis results and the Table 6 and 7 summary tables. For instance, how the Washington Street northbound approach to Union Street was determined to operate at LOS C during the morning peak. The analysis results show differing LOS C and LOS F for that movement during the 2023 morning peak.

MDM3: The Washington Street at Union Street intersection is a four-legged intersection that operates as a three-way stop with the eastbound approach being a free movement. Highway capacity analysis requires either an all-way stop or two-way stop on four-legged intersections to provide analysis. To most accurately provide analysis the intersection was modeled as an all-way stop and as a two-way stop with the all-way stop analysis used for the northbound, southbound and westbound approach and the two-way stop analysis used for the eastbound approach which does not have a STOP sign. No further analysis is required.

BETA4: BETA understands that two different analyses were included due to the intersection configuration. Please elaborate on how the results provided in the LOS tables were determined when varying LOS output was generated.

Capacity analysis results show that all intersections currently operate and would operate during the Build condition at acceptable Level of Service (LOS), with most movements operating at LOS C or better during

the weekday morning and afternoon peak hours. The Washington Street southbound left turn movement onto King Street operates at a LOS D under existing conditions but would operate at a LOS C during the morning peak and maintain LOS D during the afternoon peak during the 2030 Build condition.

T9. Journey to Work data and existing travel patterns were used to determine the distribution of trips. Please provide the Journey to Work backup data for reference.

MDM: See Response to Comment 7.

BETA2: Comment addressed. No further comment.

T10. The truck percentage was not increased for the Build condition analysis. Please clarify if reflecting the increase in truck trips would degrade the traffic operations at the King Street at Washington Street intersection.

MDM: Site trailer trucks traffic leaving Financial Park Drive will continue to be directed to King Street. Therefore, all of the tractor trailer truck activity associated with the proposed warehouse use will utilize the Washington Street at King Street intersection. For analysis purposes it was assumed that the proposed trucks would follow existing truck patterns at the intersection.

Table R1 provides a comparison between existing and proposed heavy vehicles percentages for each movement at the intersection. Supplemental capacity analysis was conducted for 2030 Build conditions with the revised heavy vehicle percentages for the Washington Street at King Street intersection. The results of the intersection capacity analyses are compared to the 2030 Build condition presented in the TIA and summarized in Table R2.

**TABLE R1
HEAVY VEHICLE SUMMARY – WASHINGTON STREET AT KING STREET**

Intersection Movement	Existing Heavy Vehicle Percentage ¹		Build Condition Heavy Vehicle Percentage ²	
	Weekday Morning Peak Hour	Weekday Evening Peak Hour	Weekday Morning Peak Hour	Weekday Evening Peak Hour
	<i>Washington Street at King Street</i>			
Eastbound Left	1.3%	4.0%	1.0%	4.4%
Eastbound Through	3.5%	3.1%	2.9%	2.5%
Westbound Through	3.8%	3.6%	2.9%	3.0%
Westbound Right	5.3%	17.9%	6.2%	28.9%
Southbound Left	11.3%	6.4%	14.8%	10.4%
Southbound Right	1.8%	1.1%	1.5%	1.2%

**TABLE R2
INTERSECTION CAPACITY ANALYSIS RESULTS
WASHINGTON STREET AT KING STREET**

Time Period	Approach	2030 Build (From TIA)				2030 Build (Revised Truck %)			
		v/c ¹	Delay ²	LOS ³	95 th Q	v/c	Delay	LOS	95 th Q
<i>Weekday Morning Peak Hour</i>	EB Washington St Left	0.52	9	A	109	0.52	9	A	111
	EB Washington St Through	0.52	6	A	224	0.53	6	A	234
	WB King St Through/Right	0.80	27	C	364	0.79	27	C	366
	SB Washington Street Left	0.25	35	C	68	0.27	35	C	68
	<u>SB Washington Street Right</u>	<u>0.20</u>	<u><5</u>	<u>A</u>	<u>34</u>	<u>0.20</u>	<u>4</u>	<u>A</u>	<u>34</u>
	OVERALL	0.80	14	B	n/a⁴	0.79	14	B	n/a
<i>Weekday Evening Peak Hour</i>	EB Washington St Left	0.44	10	A	68	0.45	10	A	72
	EB Washington St Through	0.41	6	A	156	0.41	6	A	155
	WB King St Through/Right	0.89	33	C	552	0.89	34	C	552
	SB Washington Street Left	0.55	45	D	146	0.58	47	D	148
	<u>SB Washington Street Right</u>	<u>0.37</u>	<u>8</u>	<u>A</u>	<u>91</u>	<u>0.37</u>	<u>8</u>	<u>A</u>	<u>91</u>
	OVERALL	0.89	21	C	n/a	0.89	21	C	n/a

¹Volume-to-capacity ratio

²Average control delay per vehicle (in seconds)

³Level of service

⁴n/a = not applicable

As summarized in Table R1 and R2, re-calculation of the heavy vehicles increases at the signalized intersection of Washington Street at King Street under Build conditions results in no material

changes in intersection operations compared to Build conditions as summarized in the April 2023 TIAS. Therefore, the findings and conclusions of the TIAS remain valid.

BETA2: Comment addressed. No further comment.

Queue analysis indicates that the 95th percentile queue during the afternoon peak hour for the Washington Street southbound left turn lane extends beyond the 100-foot storage length by up to 50 feet.

The off-site mitigation consisted of the developer working with the Town of Franklin to “diagnose and repair” the vehicle detection system issues at the King Street and Washington Street intersection. BETA agrees with this mitigation.

FIELD VISIT & OBSERVATIONS

BETA conducted field site visits on Thursday, June 8, 2023, during the morning and afternoon peak periods to review existing traffic operations.

Tractor Trailers were observed to have a challenging time turning left into and out of Financial Park due to the tight geometry and must slow down entering the driveway which causes traffic to back up as they are trying to take the left.



Figure 1: Truck turning right out of Financial Park

Trucks turning left from Washington Street onto King Street were observed taking up both Washington Street lanes to make the turn which queues up vehicles or getting stuck within the intersection and then backing up in order to renegotiate the movement (shown Figure 2 photo).

BETA’s understanding is that residents on Ivy Lane experience trucks on their street related to the Financial Park Drive development. Although BETA did not observe this type of activity during the field observations, we kept this feedback in mind during observations. During our field observations we noticed that the Financial Park Drive development is not clearly defined with signs on Washington Street approaching the driveway in both the northbound and southbound directions. It is possible trucks miss the entrance to Financial Park due to not being able to see the sign, so they turn around on Ivy Lane. In addition, exiting Financial Park Drive there is a “Trucks Right Turn Only” sign (shown in the Figure photo). This could also impact Ivy Lane such that trucks may turn right from the driveway and then turn around on Ivy Lane to travel northbound.



Figure 2: Truck stuck in the intersection while taking a left turn from Washington Street onto King Street.

T11. Consideration should be given to installing signage for Franklin Park approaching the driveway on Washington Street in both directions.

MDM: To enhance driver awareness and visibility of the Financial Park Drive intersection with Washington Street, the Proponent will install an enhanced monument sign at the Financial Park Drive intersection with Washington Street. The Proponent will also install advanced signage on the Washington Street approaches to Financial Park Drive if desirable by the Town.

BETA2: Information has been provided. Signage will be provided if the Board decides to install additional signing.

MDM2: The proponent will continue to work with the Town relative to additional signage. No further response required.

BETA3: BETA defers to the preference of the Board.

T12. Consideration should be given to providing a sign near Ivy Lane to deter truck traffic.

MDM: A review of the turning movement count data for the Financial Park Drive intersection with Washington Street indicated zero (0) articulated trucks entering the Site from the north (right-in) and zero (0) articulated trucks exiting the Site to the north (left-out) on Washington Street.

MDM collected supplemental video based automatic traffic recorder (ATR) counts along Ivy Lane and Washington Street between Financial Park Drive and Ivy Lane over two weekdays (Wednesday, June 28, 2023, and Thursday, June 29, 2023) between the core truck traffic hours (4:00 AM to 6:00 PM) for the existing warehouse uses Imperial Dade and Champagne Logistics. The supplemental data identified zero (0) articulated trucks using Ivy Lane. Likewise, the video data identified zero (0) trucks pulling over along the shoulder of Washington Street near Ivy Lane during this period. That said, the Proponent has been proactive and has spoken to the existing warehouse user’s management and operations staff regarding the feedback received from the Town and that no trucks should be parking and/or idling along Washington Street. MDM notes that the facilities do not have gatehouses and there are ample staging opportunities on-site if required. If desired by the Town, the Proponent will install no parking signage along Washington Street between Financial Park Drive and Ivy Lane.

BETA2: Information has been provided. Signage will be provided if the Board decides to install signing.

MDM2: The proponent will continue to work with the Town. No further response required.

BETA3: BETA defers to the preference of the Board.

ADDITIONAL COMMENTS

T13. Recommend providing recent speed data for Washington Street near Financial Park Drive.

MDM: Vehicle speeds were obtained for Washington Street using radar recorder devices. The regulatory travel speed along Washington Street is 40 mph. Speed data for the northbound travel direction was obtained along Washington Street just south of Ivy Lane and speed data for the southbound travel direction was obtained along Washington Street to the north of Financial Park Drive. Table R3 presents a summary of the travel speed data collected for Washington Street adjacent to Financial Park Drive. Detailed speed data is provided in the Attachments.



Figure 3: Financial Park Drive approach to Washington Street

TABLE R3
SPEED STUDY RESULTS – Washington Street

Travel Direction	Posted Speed Limit ¹	Travel Speed	
		Mean ²	85 th Percentile ³
Northbound	40	35	39
Southbound	40	37	42

¹Regulatory speed limit in mph

²Arithmetic mean in mph

³The speed at or below which 85 percent of the vehicles are traveling in mph

As summarized in Table 2, the mean (average) travel speed on Washington Street was observed to be 35 mph for the northbound direction and 37 mph in the southbound direction; the 85th

percentile travel speed was observed to be 39 mph in the northbound direction and 42 mph in the southbound direction consistent with the posted speed limit. The speed data are appropriate for use in the sight line evaluations provided under Response 14.

BETA2: Information provided. No further comment.

T14. Recommend providing sight distance analysis for Financial Park Drive at Washington Street.

MDM: An evaluation of sight lines was conducted at the Financial Park Drive intersection with Washington Street to ensure that minimum recommended sight lines are available to safely exit onto Washington Street. The evaluation documents existing sight lines for vehicles as they relate to Washington Street with comparison to recommended guidelines for the regulatory speed limit.

SSD was estimated in the field using AASHTO standards for driver's eye (3.5 feet) and object height equivalent to the taillight height of a passenger car (2.0 feet) for the northbound and southbound Washington Street approaches to financial Park Drive. Table R4 presents a summary of the available SSD as they relate to Financial Park Drive and AASHTO's recommended SSD.

**TABLE R4
STOPPING SIGHT DISTANCE SUMMARY
WASHINGTON STREET APPROACHES TO FINANCIAL PARK DRIVE**

Approach/ Travel Direction	Available SSD	AASHTO Recommended ¹	
		Regulatory Speed Limit ²	Observed 85 th Percentile Speed ³
Northbound	>400 Feet	305 Feet	290 Feet
Southbound	>400 Feet	305 Feet	340 Feet

¹Recommended sight distance based on AASHTO, A Policy on Geometric Design of Highways and Streets. Based on driver height of eye of 3.5 feet to object height of 2.0 feet and adjustments for roadway grade.

²Regulatory Speed Limit is 40 mph NB and SB.

³85th Percentile travel speed is 39 mph NB and 42 mph SB.

As summarized in Table R4, analysis results indicate that the available sight lines exceed AASHTO's recommended SSD criteria for the northbound and southbound travel directions along Washington Street based on the regulatory (posted) and observed travel speeds.

Available ISD was estimated in the field using AASHTO standards for driver's eye (3.5 feet), object height (3.5 feet) and decision point (between 8 feet and 14.5 feet from the edge of the travel way) for the northbound and southbound directions along Washington Street. Additionally, ISD calculations using the time gap adjustment for trucks were estimated for the northbound and southbound directions along Washington Street. Table R5 presents a summary of the available ISD for the departure from the Financial Park Drive and AASHTO's minimum recommended ISD.

**TABLE R5
INTERSECTION SIGHT DISTANCE SUMMARY
FINANCIAL PARK DRIVE DEPARTURES TO WASHINGTON STREET**

Approach/ Travel Direction	Available ISD	AASHTO Minimum ¹	AASHTO Ideal ¹
		Observed 85 th Percentile Speed ³	Regulatory Speed Limit ²
<i>Passenger Vehicle</i>			
Looking North	>700 Feet	340 Feet	385 Feet
Looking South	>700 Feet	290 Feet	445 Feet
<i>Articulated Truck⁴</i>			
Looking North	>700 Feet	340 Feet	680 Feet ⁵
Looking South	>700 Feet	290 Feet	680 Feet

¹Recommended sight distance based on AASHTO, A Policy on Geometric Design of Highways and Streets. Based on driver height of eye of 3.5 feet to object height of 2.0 feet. Minimum value as noted represents SSD per AASHTO guidance.

²Regulatory Speed Limit is 40 mph NB and SB.

³85th Percentile travel speed is 39 mph NB and 42 mph SB.

⁴Heavy Vehicle ISD per AASHTO guidance is based on a driver height of eye at 7.6 instead of 3.5 feet for passenger vehicles.

⁵680 feet is the calculated ideal ISD when looking South, however it is recommended to be used for both directions since heavy vehicles often must utilize both lanes of the roadway in order to complete a right-turn movement from Financial Park.

The results of the ISD analysis presented in Table R5 indicate that the available sight lines looking from Financial Park Drive onto Washington Street will exceed the recommended sight line requirements from AASHTO for both passenger vehicles and heavy vehicles. The resulting ISD plan and profile for the passenger vehicles is shown in Exhibit 1 and the ISD plan and profile for articulated trucks is shown in Exhibit 2.

BETA2: Information provided. No further comment.

- T15. Tractor Trailers were observed to have a challenging time turning left into and out of Financial Park due to the tight geometry and must slow down entering the driveway which causes traffic to back up as they are trying to take the left.

MDM: The Applicant is developing proposed modifications to the Financial Park Drive approach to Washington Street. These modifications will be submitted under separate cover and are expected to include driveway widening and realignment to facilitate truck entrance and exit movements.

BETA2: BETA has not been provided with the above-mentioned concept plan and turning movement plan for review.

MDM2: The concept plan for the proposed improvements at the Financial Park Drive approach to Washington Street is shown in Exhibit 1. The proposed improvements include driveway widening and realignment in addition to the reconstruction of the driveway to better accommodate existing and future truck usage. AutoTurn for the proposed concept plan is provided in the Attachments for delivery/loading design vehicles (WB-62).

BETA3: For Exhibit 1, please label the existing and proposed edge of pavement, and clarify if the gored areas are just pavement markings or sloped/raised areas.

MDM3: The existing and proposed edge of pavement and curb lines are labeled on the latest Site Plan set prepared by Highpoint Engineering. As shown in Exhibit 1, the intention of the design is to provide painted gore areas and not sloped or raised areas. Due to its long, irregular shape, a raised area could impact drainage, impact rideability by trucks and be difficult to maintain by the Town and site maintenance contractors, especially during snow events.

It should be noted that a Stop sign is located in advance of the area in question, as such, no further speed control measures appear to be necessary at the exit driveway.

BETA4: Please show the proposed stop sign location and widths of the egress lane and the gore area. A mountable or more distinct separation between the gored section and egress lane would be ideal to ensure that standard vehicles do not use the area as a second egress lane. BETA suggests installing a flush scored pavement area where the gore extension to the median is shown.

- T16. Trucks turning left from Washington Street onto King Street were observed taking up both Washington Street lanes to make the turn which queues up vehicles or getting stuck within the intersection and then backing up in order to renegotiate the movement."

MDM: Subject to all necessary permits and approvals, the Proponent is committed to continuing to work with the Town of Franklin to provide improvements at the signalized Washington Street intersection with King Street. The existing right-of-way at the intersection limits additional

widening without encroachment onto private land which is not under the control of the Proponent. To enhance operations for large articulated trucks, proposed improvements by the Proponent include replacing the existing median island on the southbound approach with a scored concrete island and pavement markings. A conceptual improvement plan for the King Street at Washington Street intersection is shown in Exhibit 3 and associated AutoTurn® movement is provided in the Attachments. These modifications are expected to facilitate truck movements from Washington Street to King Street.

BETA2: Please provide truck movements for all turning movements at the intersection of Washington Street and King Street. BETA would not recommend the removal of the raised island at the intersection. The removal of the island could contribute to an increase in safety issues including vehicle crossover at the intersection. Consider taking another look at other geometric improvements that do not require the removal of the median.

MDM2: AutoTurn movements for a WB-62 design vehicle are provided in the Attachments for the Washington Street at King Street intersection with existing geometry and traffic controls. Note that as summarized in AASHTO under design vehicles, "...In many cases, operators of WB-67 and larger vehicles pull the rear axles of the vehicle forward to maintain a kingpin-to-rear-axle distance of 41 feet, which makes the truck more maneuverable and is required by law in many jurisdictions. Were this practice is prevalent, the WB-62 may be used as the design for turning maneuvers... ". Field observations at the intersection over multiple days indicate that a WB-62 is the appropriate design vehicle for the intersection given the observed turning maneuvers and forward wheel positions on 53-foot trailers at the intersection. AutoTurn movements for a WB-62 design vehicle are provided in the Attachments for the Washington Street at King Street intersection with existing geometry and traffic controls.

BETA3: The largest truck anticipated to be accessing the site was stated to be a WB-67 and trucks have been observed either being unable to make the left turn from Washington Street to King Street or significantly encroaching the adjacent lane in the process of turning. The AutoTurn provided using a WB-62 shows the truck encroaching the adjacent lane when navigating the left turn from Washington Street, which is the same condition as exists today. Please provide a turning movement graphic, which would show an improvement in today's conditions, that shows a truck not encroaching the adjacent lane.

It appears that a land acquisition or easement will be needed to shift the sidewalk along the northeast corner of the intersection. Has consideration been given to widening the roadway to the north and shifting the center median to better accommodate the left turning trucks?

For Exhibit 2, please clarify if the intention is to provide a scored concrete truck apron as noted on the plans or a stamped concrete apron as shown on the graphic. Please label the existing and proposed edge of pavement, signs, and back of sidewalk for clarity.

MDM3: Given the benefits of modifying the existing median island to better accommodate truck turns at the Washington Street/King Street intersection, verse the impacts to private property not under the applicant's control, the Applicant will work with the Town of Franklin to reconstruct the median island as shown in Exhibit 2. See an expanded discussion of each comment below:

(a) Preliminary discussions with the Proponent indicate that trucks at Site will primarily utilize 53-foot trailers. Based on a review of AASHTO's design vehicles, MDM indicated that a tractor trailer with a 53-foot trailer is generally consistent with a WB-67 design vehicle; however, field observations indicate the rear-axles of the trailers are pulled forward to maintain a kingpin-to-

rear-axle distance of 41 feet, which makes the truck more maneuverable and is required by law in many local jurisdictions. Per AASHTO and field review, the WB-62 is the appropriate design vehicle for the existing uses in the area and proposed Site.

The AutoTurn® graphics for the existing roadway layout and island for the Washington Street left turn onto King Street using the WB-62 design vehicle are included in the Attachments. As shown the WB-62 movement onto King Street would require the removal or relocation of the raised median island for it to stay fully within the left turn lane. Based on the review, MDM initially recommended that the raised median island be removed and replaced with a flush scored concrete island.

Given the length of the WB-62 design vehicle, it is less critical to remain in the left turn lane on Washington Street turning left onto King Street; in most cases the truck is expected to partially encroach into the right turn lane until the maneuver is made. To account for the field observation that a truck turning left onto King Street from Washington Street occasionally tracks over the median island, MDM provided an alternative (Exhibit 2) that would retain the raised median island with modification to provide mountable stamped concrete aprons on both ends of the island. Exhibit 2 can be fully constructed within the available right of way and will provide greater room for truck driver error and address the occasional tracking over the median curbing.

(b) As shown in Exhibit 3, in order to eliminate any encroachment into the adjacent right turn lane on Washington Street, a large easement or property taking would be required on the eastern side of Washington Street to shift the median island and widen the roadway. The AutoTurn® graphics for the Washington Street left-turn onto King Street and King Street right-turn onto Washington Street using the WB-62 design vehicle are included in the Attachments.

(c) MDM agrees that land acquisition or easement through private property not under the control of the proponent or the Town will be needed for any shift in the sidewalk along either side of the roadway or expansion of the intersection beyond the enhance median proposed in Exhibit 2. Consideration has been given to widening the roadway to the north and shifting the center median to better accommodate the left turning trucks. Field observations, available survey, and previous design work at the intersection indicates that widening on the Washington Street approach to the intersection on the western side is not feasible based on grading issues, retaining walls, existing utility structures, and limited available right-of-way. Again, these more extensive alternatives would require land acquisition or easement through private property not under the control of the proponent or the Town.

(d) For the previously provided Exhibit 2, the intention is to provide mountable end treatments with stamped concrete surface as shown in the graphic. That said, the island surface treatment is flexible based on the desires of the Town's Engineering Department. The proposed pavement markings, mountable and raised island features are labeled on Exhibit 2. The existing edge of pavement and back of sidewalk are proposed to be retained.

BETA4: The proposed mountable median end sections and relocation of the median signs shown in Exhibit 2 would provide limited benefit for trucks taking the left turn from Washington Street onto King Street and encroachment into the adjacent lane would continue. Exhibit 3 shows the adjustment needed to the east side of Washington Street to eliminate truck encroachment on the Washington Street right turn lane. This option would require an easement or property taking of the corner property to construct but would address many of the safety concerns at the intersection.

ALTERNATE WASHINGTON STREET/KING STREET INTERSECTION CONCEPT PLAN COMMENTS

As requested by the Board at the Planning Board meeting on September 25, 2023, the proponent was asked to evaluate the ability to achieve the requested safety and operational improvements within the available right-of-way on the northwest corner of the intersection and to determine the extent of additional impacts required to accommodate the improvements, if not feasible within the right-of-way.

In response, the original proposed intersection plan (Plan 1) was provided in addition to three new concepts (Plans 2 through 4). Plan 1 shows work limited to within the existing right-of-way and Plans 2-4 show impacts to the abutting 553 Washington Street property that vary from a grading easement to required land acquisition. Plan 4 is the only concept which would provide sufficient roadway width to allow the right turn lane to be lengthened beyond the #553 driveway and alleviate the "pinch point." Alleviating the "pinch point" would allow vehicles to access the right turn lane when there is a truck waiting in the left turn lane. Plan 4 would also provide sufficient space for trucks to safely and efficiently perform a left turn from Washington Street without encroaching the adjacent lane or center median. This concept would also eliminate the need for a mountable center median, which several of the Planning Board members have expressed is undesirable to them.

MDM is recommending the implementation of Plan 1. As previously stated, the Plan 1 concept does not address the safety and operational concerns related to the intersection and provides minimal benefit.

If we can be of any further assistance regarding this matter, please contact us at our office.

Very truly yours,
BETA Group, Inc.



Jaklyn Centracchio, PE, PTOE
Project Manager/Senior Traffic Engineer

cc: Amy Love, Town Planner
Job No: 10519.05

Town of Franklin

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DEPARTMENT OF PLANNING AND COMMUNITY DEVELOPMENT

DATE: October 19, 2023
TO: Franklin Planning Board
FROM: Department of Planning and Community Development
RE: 100-200 Financial Way
Site Plan Modification

The DPCD has reviewed the above referenced Site Plan Modification application for the Monday, October 23, 2023 Planning Board meeting and offers the following commentary:

General:

1. The site is located at 100-200 Financial Way, and located in the Industrial Zoning District.
2. The proposed project includes the construction of a 220,000 sq/ft warehouse and a 65,000 sq/ft warehouse.
3. Letters include BETA and MDM response for traffic.

Comments:

1. The Planning Board requested that the applicant upgrade the vehicle detection system at Washington and King Street.
2. The Planning Board requested looking at removing the sidewalk in front of 553 Washington Street.
3. Several options have been submitted by the Applicant, but the Applicant has indicated only Plan 1 would be able to be implemented.



September 14, 2023

Highpoint Engineering, Inc.
Response to Comments #4 – 10-05-2023

Mr. Gregory Rondeau, Chairman
Franklin Planning Board
355 East Central Street
Franklin, MA 02038

**Re: Warehouse/Industrial Development
100 Financial Park
Site Plan Application**

Dear Mr. Rondeau:

BETA Group, Inc. is pleased to continue our engineering peer review services for the proposed project entitled “**Warehouse / Industrial Development**” located at 100 Financial Park in Franklin, Massachusetts. This letter is provided to outline findings, comments, and recommendations.

BASIS OF REVIEW

The following documents were received by BETA and formed the basis of the review:

- BETA Letter dated May 25,2023, with redline comments identified as **Highpoint Engineering, Inc. Response to Comments #3-08/15/2023**
- Letter from Highpoint Engineering to Gregory Rondeau, Chairman, Franklin Planning Board, dated July 17,2023 **RE: 100/200 Financial Way Redevelopment Peer Review Response to Comments.** Signed by Douglas Hartnett, P.E.
- **Form R: Subdivision Waiver Request**, by Highpoint Engineering, Inc. dated August 15,2023 and signed by Douglas Hartnett.
- Exhibit entitled “**Banked Parking Plan**”, prepared by Highpoint Engineering, Inc., dated 05/11/2023, revised 08-25-2023.
- Exhibit entitled “**Snow Storage Plan**” prepared by Highpoint, dated 08/25/2023.
- Updated Form R – Franklin Planning Board Subdivision Waiver Request completed by Highpoint, dated 08/25/2023.
- Draft Approval Not Required Plan entitled “**ANR Plan of Land in Franklin, MA**” prepared by Hancock Associates.
- Plans (46 sheets) entitled: **Warehouse Industrial Development Site Development Plans 100/200 Financial Park Franklin Massachusetts**, dated May 11, 2023, revised August 14,2023 prepared by Highpoint.
- **Stormwater Management Analysis** dated March 11, 2023, revised August 14,2023 prepared by Highpoint.
- **Stormwater Operations & Maintenance Budget**,

Review by BETA will include the above items along with the following, as applicable:

- **Zoning Chapter 185 From the Code of the Town of Franklin**, current through July 2021

- **Zoning Map of the Town of Franklin, Massachusetts**, attested to October 7, 2020
- **Stormwater Management Chapter 153 From the Code of the Town of Franklin**, Adopted May 2, 2007
- **Subdivision Regulations Chapter 300 From the Code of the Town of Franklin**, current through March 8, 2021
- **Wetlands Protection Chapter 181 From the Code of the Town of Franklin**, dated August 20, 1997
- **Town of Franklin Best Development Practices Guidebook**, dated September 2016

INTRODUCTION

The project site includes two parcels, Lots 312-020-000 and 312-020-001, with a total area of 51.045 acres, located at 100 Financial Park in the Town of Franklin (the "Site"). The Site and all the surrounding lots are located within the Industrial zoning district. The Site is located within a Water Resource District.

The existing Site is the location of a 1-story office building with a footprint area of 183,306± sq. ft. and a 2-story warehouse building with a footprint area of 57,570± sq. ft. Paved parking areas are located to the north and south of the buildings. Access to the Site is provided within Financial Park, a private roadway which connects to Washington Street to the east. The northernmost and westernmost portions of the Site are generally woodlands with flagged wetland resources areas present. A wetland resource area is also present to the north of the existing office building.

Topography at the Site generally slopes to the north and west towards the wetland resource areas. The Site is partially located within a Zone II wellhead protection area. Portions of the Site to the north and west are within a FEMA-mapped 100-year flood zone (Zone AE). The Site is not located within an NHESP-mapped estimated habitat of rare or endangered species, or any other critical area. NRCS soil maps indicate the presence of Merrimac fine sandy loam, Merrimac-Urban land, Hinckley loamy sand, and Udorthents, sandy, all with a Hydrologic Soil Group (HSG) rating of A (high infiltration potential).

The project proposes to construct two new warehouse buildings with footprints areas of 224,300± sq. ft and 70,500 ± sq. ft. The existing office building will be demolished, and the existing warehouse building will be retained. The existing parking layout will be replaced with new areas of paved parking proposed and existing areas either retained, removed, or reconfigured. A new loading area with heavy duty pavement is proposed in the central area of the Site between the two new buildings. Additional proposed site features include retaining walls, sidewalks, repairs to Financial Park and driveways, and new water, electric, telecommunication, sewer, and gas utilities. Stormwater management is proposed via new closed drainage systems which will convey stormwater runoff to several new subsurface infiltration systems and rain gardens.

FIELD VISIT

BETA conducted a site visit on 5/26/2023 to review existing site features. BETA observed that Site conditions are generally consistent with the plans. Findings associated with site observations are as noted throughout this report.

FINDINGS, COMMENTS, AND RECOMMENDATIONS

To assist with the review, the response to comments from Highpoint Engineering, Inc. to the 2nd round of BETA comments are highlighted in yellow (**HEI2: ...**) and the response by BETA will be **BETA2**. Those comments that were addressed in prior reviews and require no further consideration by the Planning Board will be removed.

ZONING

The Site is located within the industrial (I) Zoning District. The proposed use is a warehouse which is permitted within this district.

SCHEDULE OF LOT, AREA, FRONTAGE, YARD, AND HEIGHT REQUIREMENTS (§185 ATTACHMENT 9)

The Site meets the requirements for lot area, depth, frontage, width, yard widths, building height, and impervious area coverage.

PARKING, LOADING AND DRIVEWAY REQUIREMENTS (§185-21)

The project proposes to retain the existing “Financial Park” private roadway, which connects to Washington Street to the east and Grove St to the west. Several driveways are proposed which will connect to the Financial Park ring road and provide access to various parking areas. Proposed driveways are 24’ in width.

Three warehouse buildings are proposed with approximate floor areas of 220,000 ± Sq. ft., 65,000 ± Sq. Ft., and 65,000 ± Sq. Ft. Required parking for warehouses is calculated as 1 space per 1,000 Sq. Ft., resulting in required parking quantities of 220, 65, and 65 spaces respectively. Provided parking is approximately 191 spaces for Building 1, 69 spaces for Building 2, and 24 spaces for Building 3.

The Applicant has requested a waiver from the need to provide the required parking on the grounds that actual demand is significantly lower than that required by the regulations.

Accessible parking spaces are required in accordance with the Americans with Disabilities Act (ADA) and Massachusetts Architectural Access Board (MAAB). Required/Provided accessible parking is as follows:

	Required	Required (Van)	Provided	Provided (Van)
Building 1	7	2	8	4
Building 2	3	1	3	2
Building 3	1	1	0	0

P1. BETA defers to the Town regarding approval of the requested waiver.

HEI RESPONSE: *Acknowledged.*

P2. The Parking Summary on Sheet C100 does not include the parking requirements for the proposed office space in Buildings 1 or 2. Sheet C300 indicates that there is 12,000 square feet of office proposed in Building 1 and another 6,000 square feet proposed in Building 2. Revise the parking summary table appropriately.

HEI RESPONSE: *The drawing sheet has been revised to include separate off street parking demand requirements by use. The revised parking demand for the Project is 413 spaces, with the request waiver to allow 216 spaces to be constructed.*

BETA: The Parking Summary on Sheet C-100 has been modified as requested. Total provided as shown on sheets C-300 & C-301 will be 256 spaces which will require a waiver for 157 spaces. It is important to note that in accordance with §185-21.(4)

(4) The number of spaces may be reduced below that determined under §185-21B by the Planning Board upon determination that a lesser provision would be adequate for all parking because of special circumstances “

The applicant should provide an explanation of the special circumstances at the site that will allow the Planning Board to make the determination needed to grant the reduction.

HEI2: *The Applicant requests the parking waiver as current warehouse market leasing trends within the region indicate that actual parking demand is less than what the offsite parking ratios defined in the Bylaws require. Constructing more parking than regional leasing trends require results in unnecessary impervious cover and the associated stormwater mitigation. A banked parking layout plan demonstrating locations for additional surface parking, if required, will be provided to the Planning Board under separate cover as requested by the Board at the last public hearing.*

BETA3: *The Banked Parking Plan was submitted on August 25th and it shows an additional 132 spaces. 96 spaces are contained inside the limits of the proposed pavement in areas currently designated as trailer parking areas. The remaining 36 spaces would require additional pavement. That would bring the total on site to 392 spaces which would be 20 spaces below the 413 required in accordance with zoning. BETA agrees that additional unneeded spaces will increase the impervious cover on the parcel unnecessarily. Since the pavement area would provide an additional 96 spaces, BETA recommends that the “regional leasing trends” be presented to the Board for their consideration with the 56-space shortfall.*

HEI3: *Acknowledged. Highpoint defers to the Planning Board regarding this recommendation.*

INDUSTRIAL DISTRICT PERFORMANCE CONTROLS (§185-22)

The project is located within an Industrial District and therefore must conform to these requirements.

11. Provide data quantifying anticipated sound, noise, vibrations, odor, and flashing to determine conformity with these requirements (§185-22.A).

HEI RESPONSE: *The proposed use is allowed by right within the Industrial District. A tenant has not been identified for either of the proposed buildings. When a tenant is identified, the Applicant will consult with the tenant regarding the requirements §185-22 and their obligation to demonstrate compliance with §185-22 during design of the tenant improvements and building permit application/review. Enforcement of §185-22.A will be at the discretion of the Zoning Enforcement Officer (ZEO).*

BETA: BETA recommends that a condition of approval be added to cover this issue when a tenant is chosen.

HEI2: *Highpoint defers to the Planning Board regarding this recommendation.*

BETA2: *BETA Defers to the Planning Board on this issue.*

HEI3: *No response required.*

FLOODPLAIN DISTRICT (§185-24)

A FEMA-mapped 100-year floodzone (Zone AE) is located along the northern and western limits of the Site (Approx. elevation 241.4'). No work is proposed within this area and all proposed grading is above this elevation.

SIDEWALKS (§185-28) AND CURBING (§185-29)

No sidewalks are proposed along Financial Park under this project. Several pedestrian walkways are proposed throughout the Site, generally along parking areas with connections to building entrances.

Proposed curbing includes precast concrete curb, sloped granite curb, vertical granite curb, and cape cod berm along the limits of new parking areas.

C1. Provide detail for precast concrete curb and cape cod berm.

HEI RESPONSE: *Curb layout and materials specification is revised to include only vertical granite curb, precast concrete curb, or monolithic concrete curb/sidewalk in accordance with the Planning Board's requirements.*

BETA: Detail for vertical concrete curbing has not been provided. Comment remains.

HEI2: *A detail for vertical concrete curbing has been provided.*

BETA2: *Detail provided, no further comments.*

SITE PLAN AND DESIGN REVIEW (§185-31)

The project has been submitted for Site Plan Review and is required to conform to the requirements of this section. The submitted plan set has been brought into compliance with the requirements of the bylaws.

LANDSCAPING AND SCREENING (§185-35)

The project proposes outdoor parking for 10 or more cars and loading and service areas which must be screened in accordance with this section. Abutting residential districts are located across Washington Street to the East. Existing vegetation along the western side of Washington Street will be retained to provide required screening.

Proposed landscaping includes tree, shrub, and grass plantings proposed within landscaping islands, around the parking lot perimeter, and along Financial Park. Grassed areas throughout the Site will be seeded with native seed mix.

LA1. Provide required tree and shrub plantings for bioretention basin in accordance with V2C2 Page 27 of the MA Stormwater Handbook. Good practice is to include at least one tree or shrub per 50 square feet of bioretention area, and at least 3 species each of herbaceous perennials and shrubs. Acceptable plant species are identified in the handbook.

HEI RESPONSE: *Tree and shrub planting details for the bioretention basins / rain gardens in accordance with the Handbook will be included in the final construction document Plans and submitted for record prior to the Pre-Construction Meeting.*

BETA: BETA recommends that a plant list with numbers and species be provided with a condition that the final planting scheme be provided prior to the pre-construction meeting.

HEI2: *The landscape plans have been revised to include a plant species schedule. A final planting scheme will be prepared upon completion of Project construction documents and presented to BETA at the pre-construction meeting for determination of substantial conformance with the approved design.*

BETA2: *BETA agrees with the condition that final planting scheme shall be presented prior to pre-construction meeting.*

HEI3: *Acknowledged.*

UTILITIES

Proposed utility include domestic water, water for fire protection, sanitary sewer, underground electric, gas, and telecommunications. Each utility will connect to an existing service within the Financial Park development. Existing utilities will generally be retained for Building 3.

WATER RESOURCES DISTRICT (§185-40)

The Site is located within the Town of Franklin Water Resources District and a Zone II Wellhead Protection Area. The project does not include any use that would be prohibited in this district.

W1. Confirm that the warehouse uses will not include any storage of toxic or hazardous materials (§185-40.D.1(a)).

HEI RESPONSE: *The proposed use is allowed by right within the Industrial District and no prohibitions for warehouse use are defined in the Water Resource District regulations. A tenant has not been identified for either of the proposed buildings. When a tenant is identified, the Applicant will consult with the tenant regarding the requirements of the Water Resources District, §185-40.D.1(a), and the Tenant's obligation to demonstrate compliance with §185-40.D.1(a) during design of the tenant improvements and building permit application/review. Enforcement of §185-40.D.1(a) will be at the discretion of the Zoning Enforcement Officer (ZEO).*

BETA: *BETA recommends that a condition of approval be added to cover this issue.*

HEI2: *Acknowledged.*

BETA2: *BETA defers to the Planning Board on this issue.*

HEI3: *No response required.*

STORMWATER MANAGEMENT

The stormwater management design proposes two rain gardens and seven subsurface infiltration systems to capture, store, and infiltrate stormwater. Conveyance to these BMPs will be achieved via new closed drainage systems consisting of catch basins, manholes, water quality units, and roof leaders. Portions of the existing closed drainage system in the southern area of the Site will also be retained. Stormwater BMPs are proposed to connect to each other in series; overflow from these systems will ultimately discharge to the L-series wetlands in the northern portion of the Site through an existing culvert.

SW4. BETA observed that the western detention basin was filled with water and overgrown with vegetation, suggesting it may not function as originally designed. BETA defers to the Town whether restoration and maintenance of this basin should be required under this application.

HEI RESPONSE: *The western detention basin serves stormwater discharges from multiple parcels within the Financial Way campus. The basin is operated and managed under a Reciprocal Easement Agreement (REA) that provides for rights and responsibilities of maintenance between the three parties identified within the REA including the BFCCPS, 300 Financial Way, and the Project site. The Applicant will coordinate with the other entities listed in the REA regarding required cleaning and maintenance of the western detention basin in accordance with obligations summarized in the REA.*

BETA: *BETA will defer this issue to the Town of Franklin DPW to be addressed at the time of the stormwater permit application. As noted, it is identified as routine maintenance in the Stormwater Management O & M Plan.*

HEI2: Acknowledged.

BETA2: No response required.

STORMWATER MANAGEMENT REGULATIONS (CHAPTER 153)

The project proposes to disturb land in excess of one acre within the Town of Franklin. It is therefore subject to the Stormwater Management Regulations. The project is also required to comply with the Town of Franklin Best Development Practices Guidebook (BDPG). Compliance with these regulations is outlined below and throughout the following sections.

SW5. Indicate any existing or proposed easements for the conveyance of stormwater across property lines. The proposed stormwater management system is dependent on conveying stormwater from Lot 5B to Lot 5A which must be maintained in perpetuity (§153-15.A(11) & §300-11.A(6)).

HEI RESPONSE: *Stormwater management for the campus is managed under a Reciprocal Easement Agreement, and rights to generate, manage, and discharge stormwater across parcels is summarized in the REA. The REA allows for a mutual easement for the natural runoff of surface water between lot owners, but no drainage using a stormwater management apparatus may be used to drain on another lot without prior written consent of the lot owner.*

BETA: *BETA recommends that the REA be submitted to the Planning Board and incorporated into the submission to document compliance with this section of the bylaw.*

HEI2: Highpoint defers to the Planning Board regarding this recommendation.

BETA2: BETA defers to the Planning Board on this issue.

HEI3: No response required.

SUBDIVISION REGULATIONS - STORMWATER MANAGEMENT REGULATIONS (§300-11)

Additional requirements for stormwater management are outlined in §300-11 of the Town of Franklin Subdivision Regulations.

SW6. Revise proposed drainage pipe to be reinforced concrete or request waiver (§300-11.B(2.a)).

HEI RESPONSE: *Drainage pipe is specified as Reinforced Concrete Pipe (RCP) throughout the Project site, except for the header/roof drain leader collector pipe and drain-pipe manifolds and inlet/outlet pipes associated with the HDPE subsurface detention/infiltration system. The Applicant requests a waiver of the specified RCP pipe material and allow HDPE pipe for the roof drain collector due to the multiple entrance locations, and the subsurface HDPE stormwater chamber system to allow for use of standard pipes and fittings.*

BETA: *The roof leaders in this section all connect to manholes, thus the header reference is incorrect. Since this pipe will be under the pavement with less than 2' of cover, BETA recommends that this section be converted to RCP also.*

HEI2: The roof leader layout has been revised in consultation with the Design-Build contractor to apply roof leader locations in coordination with anticipated roof drain collection points. Roof drain leaders exiting the building are proposed to be HDPE pipe with wye connections to a single HDPE roof drain header pipe that connects to the subsurface infiltration system. Where the subsurface infiltration system is located along the buildings, direct connection of the roof leaders to the infiltration system is proposed.

Use of similar HDPE pipe materials and fittings for the roof drain collection system allows for a more standard design and avoids pipe couplings to join dissimilar pipe materials, which could result in premature pipe joint failure.

The header pipe diameters have been adjusted to account for the varying pipe capacity requirements for the roof drain leaders. A minimum of 2' of cover is now provided for all roof leader and header pipes.

Highpoint notes that both HDPE corrugated, and RCP pipes are designed to withstand AASHTO H-20, H-25, and/or HL-93 loads under minimum cover requirements. ADS, a popular manufacturer of corrugated HDPE pipe, issued a Technical Note, TN 2.01 "Minimum and Maximum Burial Depth for Corrugated HDPE Pipe", which includes a table providing the minimum cover depths required for corrugated HDPE pipe to withstand AASHTO H-20, H-25, and/or HL-93 loads. Additionally, the Plastics Pipe Institute states on their website that properly installed HDPE corrugated pipe can withstand AASHTO HS-25 loads with a minimum 1 ft cover for pipes up to 48-inch diameter.

In conclusion, the choice of material between HDPE and RCP would therefore not make a functional difference for supporting vehicle loading when installed with the recommended minimum cover. A waiver request for the use of three HDPE collector pipes is included in this submission.

BETA2: *BETA notes that the issue with the HDPE pipe is that the performance of the material is dependent upon the quality of the backfill process. RCP is not. BETA will defer this issue to the Board.*

HEI3: Acknowledged.

MASSDEP REPORTABLE RELEASES

The MassDEP Waste Site / Reportable Release database identified the Stie as the location of a reportable release under Release Tracking Number (RTN) 2-4017015. Available documentation indicates that the release originated from the discovery of Methyl Tert-butyl Ether (MTBE) in groundwater circa 2001. Response actions included the installation of monitoring wells to sample contaminant levels. Sampling conducted circa 2003 did not detect MTBE concentration above reportable limits. A Response Action Outcome (RAO) Statement was submitted to MassDEP supporting a condition of “No Significant Risk.” The RTN has since been closed.

MASSDEP STORMWATER STANDARDS

The project is subject to the Massachusetts Stormwater Standards as outlined by MassDEP. Compliance with these standards is outlined below:

NO UNTREATED STORMWATER (STANDARD NUMBER 1): *No new stormwater conveyances (e.g., outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.* The project proposes to connect new closed drainage systems to existing outfalls located within wetland resource areas. Existing splashpads are located at each outfall for erosion control.

SW9. Verify condition of existing outfalls at DB, J, and L-series wetlands. BETA could not locate the existing outfalls associated with the north “detention pond” in the field nor their respective splashpads. Confirm that inverts for these outfalls is above the typical water elevation for these ponds.

HEI RESPONSE: *Existing Splashpad #1 and #2, as referenced on the Grading and Drainage Plan should be labeled as existing pipe inverts. Pipe inverts and associated splashpads are set below the average water elevation per the original design by CE Maguire, Inc. in October of 1980. HEI is proposing to reuse all existing outfalls of the existing drainage discharging to the North Pond.*

BETA: *The condition where the outfalls are submerged is not ideal. However, these outfalls as noted have been in place since 1980. The O & M Plan specifically notes the maintenance requirements for these 2 outfalls. Based upon this continued maintenance, BETA agrees with the designer that these outfalls can be maintained and used in conjunction with the new stormwater management system. This will minimize the disturbance in the area and the potential environmental issues associated with the removal and replacement of the outfalls.*

The existing conditions plans note that these 2 outfalls are steel conduit. However, the grading and drainage plans indicate that they are RCP. Resolve the material and if they are steel report on their condition.

HEI2: *Based on Hancock Associates additional site visit on August 9, 2023, the two (2) existing outfall pipes are steel conduit. Both outfalls were submerged at the time of the site visit and the condition of the pipes was undetermined. The Applicant will coordinate with the site contractor to determine the condition of these outfalls prior to beginning of construction and will report to BETA on their condition.*

BETA2: *BETA recommends that a condition of approval be added that notes that these outfalls should be inspected prior to the start of construction and a determination made if they should be replaced.*

HEI3: *Acknowledged.*

SW10. BETA recommends relocating existing splashpads 1 and 2 to outside of the L-series wetland boundaries.

HEI RESPONSE: *The Project design proposes to retain and utilize the existing discharge pipes and associated splashpads to the North Pond in their current location. This is proposed to avoid disturbance of the bordering vegetated wetland and pond in the interest of environmental resource area protection.*

BETA: *See response above.*

HEI2: *See HEI's response to SW9.*

BETA2: *See response above.*

SW11. Provide sizing calculations for existing splash pads to remain to confirm they are adequately sized to convey anticipated stormwater runoff.

HEI RESPONSE: *The Project design proposes to retain and utilize the existing pipe inverts and splashpads.*

BETA: *See SW 9 above.*

HEI2: *See HEI's response to SW9.*

BETA2: *See response to SW9.*

POST-DEVELOPMENT PEAK DISCHARGE RATES (STANDARD NUMBER 2): *Stormwater management systems must be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. The project proposes changes to site hydrology and ground cover which will impact stormwater flow to the analyzed design points. Stormwater runoff will be mitigated via capture, storage, and infiltration within nine new stormwater BMPs.*

Calculations indicate a net increase in peak discharge rate for the 2-, 10-, and 25-year storm events for POA A and the 2-year storm event for POA C. These design points represent the wetlands located to the west of the Site for which no new BMPs are proposed. The stormwater mitigation narrative notes that POA A is a previously constructed detention basin sized for a larger inflow capacity.

Calculations indicate a net decrease in peak discharge rate for all other storm events and points of analysis.

SW14. Review existing watershed plans:

- a. Adjust southern boundary of Watershed EX-D. An existing catch basin is located along the eastern wall of 200 Financial Park which conveys stormwater runoff to EX-D, but has not been included in the watershed.

HEI RESPONSE: Watershed EX-D has been revised to include the existing catch basin located along the eastern wall of 200 Financial Park.

BETA: Comment addressed.

- b. Model areas of dense tree vegetation as “woodlands,” rather than grass.

HEI RESPONSE: The hydrology has been revised to account for the dense tree land use areas within EX-D and EX-E and are modeled as woodlands.

BETA: The woodlands have been added; however, they have been assumed to be a poor condition. BETA recommends that the CN value for this use be 32 which assumes a fair condition. In addition, a portion of this woodland area will remain in proposed watershed area D7 but has not been accounted for in the proposed conditions analysis.

HEI2: Highpoint has revised the HydroCAD model to include woodlands in both the pre-development and post-development models. However, based upon a review of TR-55, a CN value of 36 is assigned to a land use of “woodland in fair condition”. The hydrology model has been revised accordingly.

BETA2: Comment addressed.

- SW17. Review pipe sizing calculation for DMH-16 to WQU-4 and DMH-7 to Splashpad-1. The peak flow is greater than the design flow.

HEI RESPONSE: The pipe capacity analysis has been revised for the stormwater collection system at the discharge locations to the North Pond. The pipe segments connecting DMH-24, DMH-30, DMH-7, and invert/splashpad #1; and the pipe segment DMH-9 to invert/splashpad #2 operate under surcharge conditions similar to existing conditions. We note that the proposed surcharge condition occurs in less pipe length than what is assumed exists today based upon the original drainage system design, resulting in an improvement in surcharge condition.

Based upon the pipe capacity analysis, the surcharge condition does not backwater into any water quality inlet devices, the subsurface infiltration facilities, rain gardens, nor catch basin inlets. Refer to the revised pipe capacity analysis included in the revised Stormwater Report.

BETA: BETA agrees that the condition from DMH-9 to the splashpad #2 is identical to existing conditions and the surcharge impact will not extend upgradient of DMH-9. However, at splashpad #1 the surcharge impacts extend further upgradient than existing and should be reviewed. BETA recommends that the water surface elevations for the design storm from the basin upgradient to DMH-24 be determined to ensure that the surcharge does not impact any of the infiltration structures that are tied into this discharge point.

HEI2: Highpoint has conducted a pipe capacity analysis utilizing Civil 3D's “Storm and Sanitary Analysis (SSA)” engineering software and HydroCAD for the modeling

of the North Pond to assess drainage system surcharge. A fixed tailwater elevation (El.=245.71) is assigned to the inlet pipe to the North Pond, which represents the peak flood elevation in the North Pond for the 25-yr storm event. The SSA model was run to verify which pipe segments operate under surcharge conditions when assigning the peak pond flood elevation as a fixed tailwater elevation for the duration of the storm.

The Pipe Capacity Analysis identifies three pipe segments up to DMH-24 that operate under surcharge conditions during the design storm. The remaining upstream pipe segments and infiltration facilities operate in free-flow conditions during the design storm event. See Appendix B in the Stormwater Report for Pipe Capacity Analysis and operations.

We note that the Hydrology Model assumes the static surface water level in the North Pond is at the outlet weir elevation/grate (El.=243.95). The North Pond is used for irrigation and supplemental fire protection and was originally designed with a working water level between El. 240.2± and El. 244.0±, which fluctuates based upon demand.

BETA2: The analysis for the 36" culvert from DMH 3- DMH 24 is missing from the table. The analysis provided looks only at the barrel capacity of the culvert and does not consider the tailwater elevation. Based upon the inverts, with the pond level at Elevation 244.0, the still water level will reach back to WQU 6. To insure that it will not impact beyond WQU 6, perform the hydraulic analysis necessary to determine water surface elevations in each of the structures from DMH 30-WQU 6.

HEI3: The 36" RCP pipe in question has been replaced by a 48" RCP pipe and added to the Pipe Sizing Spreadsheet found in Appendix B of the Revised Stormwater Report.

The pipe sizing analysis using Civil 3D's "Storm and Sanitary Analysis (SSA)" was conducted having a fixed tailwater condition of EL. 245.71 set at the North Detention Pond equal to the pond's 25-year storm highwater elevation. As listed in the Pipe Sizing Spreadsheet, the surcharged pipes extend two pipe lengths from the pond upstream to DMH-30. Having analyzed the pipes with this fixed tailwater elevation of 245.71, eliminates the need to examine the pipe network based on the resting water elevation of the North Detention Pond.

RECHARGE TO GROUNDWATER (STANDARD NUMBER 3): *Loss of annual recharge to groundwater should be minimized through the use of infiltration measures to maximum extent practicable. NRCS soil maps indicate the soils at the site are Merrimac-Urban Land, Udorthents, sandy, Hinckley loamy sand, and Merrimac fine sandy loam, all rated in Hydrologic Soil Group (HSG) A (high infiltration potential).*

A Geotechnical Report prepared by McArdle Gannon Associates, Inc., has been included in the submission. Geotechnical analysis included eight test pits conducted throughout the Site. Underlying soil in the area of proposed infiltration was generally identified as Sand or Sandy Loam and groundwater was identified between 4.6' to 9' below grade.

The project design has been revised and now proposes two rain gardens and four subsurface infiltration systems to provide groundwater recharge. The project is anticipated to provide a recharge volume in excess of what is required. Calculations have been provided indicating that all BMPs will drawdown within 72 hours.

SW18. Review model for Rain Gardens 1 and 2:

- a. Revise top elevation for “Custom Stage Data” model to match rain garden schedule.

HEI RESPONSE: *The rain garden schedule has been revised to match the HydroCad model.*

- b. Revise bottom elevation for “Subsoil” portion of the model to match rain garden schedule. Revise to utilize a consistent Voids % for all elevations.

HEI RESPONSE: *The bottom elevation of the subsoil has been revised to match both the HydroCAD model and the rain garden schedule. The varying void ratios shown below the rain garden bottom elevation account for the different soil materials. The first 3-inches is mulch having a void ratio of 25%, then 3-feet of ‘engineered planting soil’ with a void ratio of 25%, then 2.75-feet of gravel with a void ratio of 40%.*

- c. Provide min. 3-inch freeboard above ponding elevation for rain gardens, in accordance with MA Stormwater Handbook V2C2 Page 27.

HEI RESPONSE: *The two (2) rain garden designs are revised to provide 3-inches of freeboard from the 100-year ponding elevation to the top of the rain gardens. Both rain gardens are designed with a top of berm elevation of 250.50. Rain garden #1 has a 100-year peak elevation of 250.21, which provides 0.29’ of separation and rain garden #2 has a 100-year peak elevation of 250.19 providing 0.31’ of separation.*

- d. Review peak elevation for rain gardens, which are above top of pond elevations.

HEI RESPONSE: *The two (2) rain gardens are redesigned to prevent the 100-year storm peak elevation from exceeding the top of rain garden berm elevation of 250.50.*

- e. Provide spot grades and labels for contours around proposed rain gardens to clarify intended berm height.

HEI RESPONSE: *Spot grades and contour labels have been added to the Plans.*

BETA: *The redesign of the rain gardens has eliminated most of the issues associated with the drawings. However, there are issues with the HYDRO-CAD model for these 2 structures, which include.*

- 1) *The storage volume calculations are incorrect. The bottom layer of aggregate is 2.75’ thick not 1.5’.*
- 2) *The void ratio for the 3/4” aggregate should be limited to 35%. A 40% void ratio is fine for 1-1/2” aggregate. In addition, the void ratio for the media soil should be limited to 15%.*
- 3) *The surface area in the model is overstated. The infiltration rate should be applied to the bottom area of the aggregate, which should not be greater than the area of the 150.5 contour. BETA recommends that you develop a constant flow rate rather than use a constant velocity.*

- 4) *The surface areas associated with the different layers in the storage volume calculations does not match the actual conditions. BETA recommends that the designer review the program and use another method to develop the overall storage volume.*

HEI2: Highpoint has reviewed the rain garden models and revised the necessary items noted in items 1-4 above. The rain garden detail has been revised to specify ¾" to 1-1/2" stone. The infiltration rate applicable surface area is limited to the footprint of the bottom area of the rain garden. The Rawl's Rate of 2.41 in/hr has been applied to both rain gardens. See the Stormwater Report.

BETA: The redesign of the rain gardens has eliminated most of the issues associated with the drawings. However, there are issues with the HYDRO-CAD model for these 2 structures, which include.

1. *The area drains as shown on the drawings (Sheet C-601) are not consistent with the calculations. They are shown as round beehive grates and modeled as 15" square grates.*
2. *The infiltration rate from the Hydro-CAD analysis is still variable and should be constant as noted in the 2nd review.*
3. *The construction detail on sheet C-601 of the set indicates that the discharge is to the subsurface infiltration system. However, the discharge for both rain gardens are combined into a single 18" outlet.*

BETA recommends that.

1. *The exfiltration rate should be converted to a constant flow rate rather than a constant velocity.*
2. *The outlet configuration for each rain garden should be modified to a single outlet point. For RG 1 it should be located at the far south end of the garden and discharge into SWM-4. For RG 2 it should be located at the middle of the garden near the island and discharge into WQU 6.*
3. *Modify the construction detail on sheet C-601 to match the drainage analysis.*

Modifying the Rain Garden outlet configuration will eliminate the maintenance issues associated with a lengthy discharge pipe set flat and the issues with potential damage to the risers during routine maintenance of the vegetation in the garden. In addition, although not related to the Rain Gardens, WQU 6 is not needed to meet the treatment requirements of either the standards or the bylaw. In addition, based upon the flow rate and volume through this unit, it is questionable how effective the treatment will be.

HEI3:

1. *The rain garden model has been corrected to reflect 15-inch diameter area drain grates to match the 15" beehive grates shown on sheet C601.*

2. The infiltration rates for both rain gardens proposed on site have been revised to constant flow rates rather than constant velocity. Refer to the Rain Garden Sizing sheet included in Appendix B of the Revised Stormwater Report for the velocity to flow rate conversion calculations.

3. The Rain Garden Section detail on Sheet C601 has been corrected.

1. See HEI3 response #2 above.

2. The outlet configuration for each of the rain gardens has been revised. RG #1 discharges to DMH-8 and RG #2 discharges to DMH-13. This eliminates the potential maintenance issues associated with a lengthy discharge pipe as noted in BETA's comment.

3. See HEI3 response #3 above.

SW24. Conduct test pits in the area of Rain Garden #1, SWM-1, SWM-2, SWM-4, and SWM-7.

HEI RESPONSE: As explained at the first Planning Board hearing, the current tenant's lease requirements limited the locations that test pits could be excavated and witnessed due to sensitivity with their operations. The Applicant agrees that additional test pits should be witnessed within these areas prior to construction to verify soil and groundwater conditions. The test pit logs will be reviewed with the Peer Reviewer to demonstrate compliance with the design requirements and assumptions prior to construction.

BETA: BETA recommends that a condition that additional test pits be conducted at each proposed stormwater infiltration structure in accordance with the standards at the time of construction.

HEI2: Highpoint will coordinate excavation and witnessing of additional test pits to verify the stormwater design assumptions at time of construction and review with BETA for design conformance.

BETA2: Comment addressed; condition of approval has been accepted.

SW25. Review separation to groundwater for the following:

a. SWM-1 & 7: The groundwater elevation in nearby TP-1 is 250.38' ±, which is well above the system bottom of 243.5'.

HEI RESPONSE: SWM 1 & SWM 7 have been removed from the design.

BETA: No further comment

b. SWM-2: The groundwater elevation in nearby TP-1 is 250.38' ±, which is above the system bottom elevation of 250.0'.

HEI RESPONSE: HEI has revised the proposed drainage design and reduced the number of subsurface stormwater systems. Refer to the Subsurface Infiltration System Schedule on Sheets C400 and C401 which shows the relative ESHGW elevations with respect to the system design elevations. An exhibit entitled "Estimated Groundwater Map" is included in the Figures portion of the revised Stormwater Report to demonstrate how ESHGW is

established based upon monitor well readings. A Frimpter GW correction factor of 1.3' is applied in addition to the ESHGW values measured in the field.

BETA: *BETA agrees that the methodology used to determine ESHGW is acceptable to establish the design elevations of the proposed infiltration structures. The map showing the monitoring well locations should be included with the report including adjusted groundwater contours across the site.*

HEI2: *The Estimated Groundwater Map is included in the revised Stormwater Report in the list of figures. The Frimpter correction factor has been assigned to the ESHGW elevations depicted on the revised Grading and Drainage Plan. See note at bottom for subsurface infiltration system schedule Sheets C400 & C401.*

BETA2: *Comment addressed.*

- c. SWM-3: The groundwater elevation in nearby TP-1 is 250.38' ±, which is above the system bottom elevation of 244.0'.

HEI RESPONSE: *Refer to HEI's response to SW25(b).*

BETA: *See SW25b above.*

- d. SWM-4: The groundwater elevation in nearby TP-1 is 250.38' ±, which is above the system bottom elevation of 243.0'.

HEI RESPONSE: *Refer to HEI's response to SW25(b).*

BETA: *See SW25b above.*

- e. *Inspection ports should be provided at all the subsurface infiltration structures. Including a construction detail. Based on the size of the chambers, BETA recommends that an observation manhole be provided at the inlet to view the inside of the chamber row for maintenance access.*

HEI2: *Inspection ports have been added to the plans in accordance with BETA's recommendations. A construction detail has been added to the detail sheet.*

BETA2: *Comment addressed.*

TOTAL SUSPENDED SOLIDS (STANDARD NUMBER 4): *For new development, stormwater management systems must be designed to remove 80% (90% per Town Bylaw) of the annual load of Total Suspended Solids (TSS). The project proposes treatment trains generally consisting of deep sump catch basins, water quality units, and subsurface infiltration systems or rain gardens. The project is anticipated to provide TSS removal in excess of what is required.*

The project proposes to provide the 1.0-inch water quality volume via four new infiltration BMPs and 2 exfiltrating rain gardens. However, the provided volume is less than what is required.

As a project which discharges to a critical area (See Standard 6), the project is required to provide 44% pretreatment prior to discharge to all infiltration BMPs. Pretreatment is generally provided via deep sump catch basins and water quality units but has not been achieved for the proposed rain gardens.

SW26. For a new Site, meet one of the following criteria (§153-16.B(1))

- a. Retain the volume of runoff equivalent to, or greater than, 1.0 inch multiplied by the total post-construction impervious surface area on the Site; and/or
- b. Remove 90% of the average annual post-construction load of TSS and 60% of the average annual load of total phosphorus.

HEI RESPONSE: *The revised design meets both listed criteria. Refer to the calculations included in Appendix B of this Revised Stormwater Report.*

BETA: *The calculations indicate that the proposed design will meet the second criteria. However, the storage volume provided is not sufficient to meet the first criteria. The phosphorous reduction analysis must include the entirety of the impervious surfaces on site. See SW31 below*

HEI2: *Highpoint has revised the proposed design to include an additional Contech Cascade CS-6 water quality unit downstream of the infiltration systems sized to treat the remaining 1.0" water quality volume equivalent flow rate. Therefore, the revised design satisfies both listed criteria. See Stormwater Report for revised calculations.*

As for the phosphorus reduction analysis, the total proposed impervious area has been included in the revised calculation included in Appendix C.

BETA2: *It is important to note that the performance of the proposed stormwater measures for conformance with the bylaw is based upon the Massachusetts MS4 permit. All the TSS Removal rates shown are from the Massachusetts stormwater handbook. The addition of WQU 6 will help with the treatment provided by that single treatment train however, because of the amount of untreated runoff from the site currently, meeting the 90% TSS removal requirement is not possible without major improvements around the perimeter road. BETA recommends that the designer modify the storage volume in the proposed infiltration measures to provide the 1" storage volume. Otherwise, document the TSS Removal for each of the discharge points and provide a weighted average for the total site.*

HEI3: *Highpoint has revised the proposed design to provide the required static water quality volume on site via four (4) via subsurface infiltration systems, two (2) rain gardens, and two (2) separator (isolator) rows. With this standard achieved, Highpoint has removed WQU-6 from the proposed drainage design while ensuring the 44% pretreatment prior to infiltration requirement has been met. Refer to the Water Quality Volume calculations in Appendix B and the Water Quality Volume Exhibit included in with the figures, both found in the Revised Stormwater Report.*

Revise calculations for required water quality volume to include all impervious areas, including roofs. Per V1C1 Page 9 of the MA Stormwater Handbook, the required water quality volume includes the total impervious area of the Site.

HEI RESPONSE: *The design is revised to account for the required water quality volume (WQV) for all impervious areas, including roofs. The required WQV for ground surface runoff is calculated by*

converting the required water quality volume to an equivalent water quality flow rate (Q). The Q value and catchment plans were provided to the vendor, Contech, to assist with design of the four (4) water quality units proposed throughout the site. In addition, two (2) rain gardens proposed provide the required WQV for ground surface discharges. For the building roofs, four (4) subsurface infiltration systems provide the required WQV. See the revised Stormwater Report.

BETA: The Water Quality Volume calculations for the 4 proposed subsurface infiltration structures have not been provided. In addition, based upon the TSS calculations provided, the design is dependent upon the proprietary separators to meet the overall treatment. In accordance with Volume 1 Chapter 1 of the handbook and as discussed at our meeting, these proprietary separators cannot be used as the terminal treatment process in a critical area unless they are the only option available to meet the Maximum Extent Possible definition for redevelopment. As discussed at the meeting, BETA considers the use of proprietary separators acceptable at POA-C and for CB Nos. 2,5,11,12 & 18 at the northwest corner of the development which flow to WQU-1, specifically because there are no other options based upon the constraints imposed by the adjacent wetland resource areas. However, for the remainder of the site, the infiltration structures must be designed in accordance with the handbook to provide the TSS Removal rate which includes the pretreatment and the storage volume. In addition, the TSS Removal rate calculations should be corrected to

- 1) The pretreatment percentage is not part of the total provided and should not be included.
- 2) The pretreatment TSS Removal rate should have its own calculation sheet.
- 3) Catch basins with a tributary watershed with greater than 0.25 acre of impervious surfaces are not entitled to a 25% TSS Removal credit. (See Volume 2, Chapter 2, page 4)

HEI RESPONSE #2: Highpoint has revised the Stormwater Report to include the following:

1. **The TSS removal calculations are revised to eliminate the inclusion of additional pre-treatment BMP's upstream of the terminal BMP. In the case of the infiltration BMP's, the TSS removal rate is assumed to be 80% at the terminal BMP with the water quality unit serving as pre-treatment.**

BETA2: As noted earlier, the proprietary separators will qualify as pretreatment for the subsurface infiltration systems only for new construction but will satisfy the "maximum extent possible" redevelopment definition for those areas where there are no other treatment options.

HEI3: Noted.

2. **Separate pretreatment TSS Removal Rate calculation sheets are provided to demonstrate 44% TSS removal is achieved prior to infiltration/recharge by adding the water quality units prior to recharge.**

BETA2: The treatment trains need additional labels to understand where they apply

HEI3: Additional notes have been added to each of the TSS Removal Rate calculation sheets to provide clarification for each of their uses.

- 3. A review of Volume 2, Chapter 2, Page 4 | Design Considerations state that tributary watershed areas should not exceed 10,000 sf of impervious area. Highpoint did not find language that specifically states the 25% TSS removal credit is not allowed if this tributary watershed area is exceeded. Given the size of the shared truck court and other areas of the site it is not practical to add a significant number of additional catch basins, especially within the truck court. The Applicant requests that BETA consider allowing more frequent inspections and monitoring of the catch basins to evaluate sediment loading, and if warranted establish a more frequent cleaning schedule if documented sediment loading warrants. This will be memorialized in a revised Long-Term Operation and Maintenance Plan upon agreement with BETA.**

BETA2: The design has added a proprietary separator in line after the catch basins, thus, the point is moot, and the separator will provide the pretreatment necessary for the infiltration system.

HEI3: Noted.

BETA2: In addition to the above, BETA has added the following.

- **Like the Rain Garden calculations, the Water Quality Volume calculation for each individual infiltration system should be provided separately. SWM 6 does not provide the 1" Water Quality Volume required to meet the standards.**
- **As stated earlier, the proprietary separators cannot be used exclusively to meet the treatment requirements for discharges to a critical area. In the absence of the STEP and TARP program, BETA has normally allowed a TSS removal rate of 44% for proprietary separators which is sufficient to meet the pretreatment requirements for an infiltration SCM.**

HEI3: Highpoint has revised the proposed drainage design to provide the required 1" water quality volume on site. Refer to the Water Quality Volume calculations in Appendix B and the Water Quality Volume Exhibit in the Figures section of the Revised Stormwater Report.

SW31. Revise stormwater management system to remove at least 60% of nitrogen loading from post-development stormwater (BDPG Pg. 8)

HEI RESPONSE: A nitrogen loading reduction analysis is summarized in the exhibit entitled, "Downstream Receiving Waterbody Impairment Analysis" located in Appendix C of the revised Stormwater Report.

BETA: Based upon the Zoning Summary on sheet C100, the total impervious surface area on the combined 2 lots is approximately 1.1 million square feet. The phosphorous loading analysis is based upon a total impervious surface area of 869,885 sq. ft. The applicant should explain the difference between the two totals and calculate the phosphorous removal accordingly.

HEI2: Noted. Highpoint has reviewed and corrected the differences in areas. The total impervious area used for phosphorous loading is 924,105 SF. The impervious coverage percentages in the Zoning Summary are based on impervious areas of 642,357 SF for Lot 5A and 271,314 SF for Lot 5B. The sum of the impervious areas for Lot 5A and 5B is 913,671 SF, which is less than the total impervious area used for phosphorous loading because the Financial Park cul-de-sac area is not included in the Zoning Summary. The Financial Park cul-de-sac is a right-of-way excluded from the area calculations for Lots 5A and 5B.

The Zoning Compliance Table has been revised to reflect the adjusted impervious cover and upland areas based upon wetland flag re visions requested by BETA.

BETA2: Comment addressed

SW32. Identify discharge points in each of the TSS Removal charts.

HEI RESPONSE: Discharge points are added to the TSS Removal Charts located in Appendix B of the revised Stormwater Report. Highpoint conducted an informal review of the BETA peer review report with Gary James. Mr. James suggested that the Applicant provides additional water quality improvements for the existing watershed discharging into the J-Series Wetlands (POA C – Wetlands -WEST). This is requested to improve existing stormwater discharges from the access road where feasible to meet the Maximum Extent Practicable standard for the redevelopment portion of the Project site.

The proposed drainage design is revised to replace the existing catch basin which receives surface runoff from the ring road and discharges directly to the J-Series Wetlands with a Contech CDS2105-4-C Water Quality Unit with a catch basin grate. Highpoint intends to conduct a follow-up site visit to verify the existing catch basin receives adequate runoff to warrant a water quality unit at this location.

BETA: As noted by the surveyor, this catch basin is not being cleaned and was full of sand. It is in the middle of the intersection and there are 2 catch basins located at each corner of the intersection. With minor grade changes, this basin could easily be eliminated, and the runoff collected by the adjacent basins, which is the current pattern. BETA will reserve comment until the designer decides on a course of action regarding this structure.

HEI2: The referenced catch basin was observed by Highpoint during a rain event on August 15, 2023, to assess function. No sediment buildup was observed, and the catch basin appeared to collect flows from a significant length of the east side of the ring road. Highpoint did observe the other referenced drainage structures on the curb radii and visually confirmed their elevations and the adjacent pavement appears higher than the gutter line of the ring road.

The 300 Financial Park drainage collection system, which includes the two catch basins and trench drain on the intersection curb radii, was designed independent of the ring road drainage system and the referenced catch basin. Adding flow to this system from the referenced catch basin is not recommended.

Highpoint therefore recommends continuing with the original BETA recommendation; replace the catch basin with a Contech CDS 2015-4-C water quality inlet/grate and connect to the existing drainpipe that discharges to the west wetland. This will provide improved water quality discharge in accordance with the Maximum Extent Practicable standard in the Stormwater Regulations.

BETA2: Comment addressed, no further comments.

HIGHER POTENTIAL POLLUTANT LOADS (STANDARD NUMBER 5): *Stormwater discharges from Land Uses with Higher Potential Pollutant Loads (LUHPPLs) require the use of specific stormwater management BMPs. The project includes a parking lot with a high-intensity use (1,000 vehicle trips per day or more) which is considered a LUHPPL. The project is required to conform to this section. Deep sump catch basins, proprietary separators, rain gardens, and subsurface structures are considered recommended BMPs for LUHPPLs. A Spill Prevention, Containment, and Countermeasure Plan has been included with the Stormwater Report.*

CRITICAL AREAS (STANDARD NUMBER 6): *Stormwater discharges to critical areas must utilize certain stormwater management BMPs approved for critical areas. The project includes stormwater discharges to a Zone II Wellhead protection area which is a critical area. Deep sump catch basins, proprietary separators, rain gardens, and subsurface structures are considered recommended BMPs for this type of critical area. The project has been designed to provide 44% pretreatment and the 1.0-inch water quality volume, except as noted under the Standard 4 section above.*

REDEVELOPMENT (STANDARD NUMBER 7): *Redevelopment of previously developed sites must meet the Stormwater Management Standards to the maximum extent practicable. The project will result in an increase in impervious surfaces on site thus it will not meet the definition of a redevelopment. However, it is a combination of redevelopment and new development – The applicant has considered the site as new development and has not reviewed the development under redevelopment criteria.*

EROSION AND SEDIMENT CONTROLS (STANDARD NUMBER 8): *Erosion and sediment controls must be implemented to prevent impacts during construction or land disturbance activities. As the project proposes to disturb greater than one acre of land, it will be required to file a Notice of Intent with EPA and develop a Stormwater Pollution Prevention Plan (SWPPP). Erosion control measures are depicted on the plans include straw wattle, inlet protection, and stabilized construction entrance. A Construction-Period Operation and Maintenance Plan is included in the Stormwater Report including waste disposal, dust monitoring, spill prevention, and monitoring.*

SW42. Provide means of protecting proposed stormwater BMPs from construction-period sediment.

HEI RESPONSE: *Stormwater BMP's will be protected with standard catch basin inlet silt sack protection, compost-filled filter socks around perimeter of rain garden areas, and diversion swales directing runoff to temporary sediment basins prior to discharge. Final construction phase erosion control management sequencing and device locations will be coordinated with the General Contractor and included in the CSP for review prior to construction.*

BETA: *Erosion control measures are identified on the demolition plans for this phase. The site disturbance will be greater than 1.0 acre and therefore will require an NOI Filing with the EPA, which will also be reviewed by the DPW in conjunction with the stormwater permit. BETA will defer this issue to the DPW for the later phases of construction.*

HEI2: Acknowledged. An NOI will be filed under the EPA – NPDES program in accordance with the time requirements to ensure full coverage prior commencement of construction activities. A SWPPP will be prepared by the Engineer and provided to the site contractor prior to excavation activities commence.

BETA2: No further comments

OPERATIONS/MAINTENANCE PLAN (STANDARD NUMBER 9): A Long-Term Operation and Maintenance Plan shall be developed and implemented to ensure that stormwater management systems function as designed. A Stormwater Operation and Maintenance Manual was provided with the Stormwater Management Report.

SW47. Indicate how future property owners will be notified of the presence of the stormwater management system and the need for maintenance.

HEI RESPONSE: The Applicant will include a summary of the existing stormwater management components and locations identified on a BMP location map in future tenant lease documents. The lease documents will refer to the future property owners and tenants being required to execute and manage the Operation and Maintenance Plan.

BETA: BETA will defer this issue to the Board, however we recommend that this be included as a condition of approval

HEI2: Highpoint defers to the Planning Board regarding this recommendation.

BETA2: No further comments.

SW48. Provide estimated operations and maintenance budget.

HEI RESPONSE: A summary of the BMP inspection requirements and related budgets is being prepared by the Applicant and will be submitted to the Peer Reviewer under separate cover for review.

BETA: Comments pending receipt of information.

HEI2: The estimated operations and maintenance budget has been provided as an attachment.

BETA2: No further comments

SW49. Include operation and maintenance measures for EX WQI-22, 24, and 25.

HEI RESPONSE: The operation and maintenance measures for EX WQI-22, EX WQI-24, and EX WQI-25 are included in the Long-Term O&M Plan for 300 Financial Way.

BETA: These measures flow to the fire pond onto the site and should be maintained by the owners/applicant of 100 Financial Way. It is important that each owner understand their operations and maintenance responsibility on site. BETA will defer this issue to the DPW to be addressed in the stormwater permit. Based upon the condition of the catch basin at WQU-5 (Filled with sand) as reported by the surveyor overall maintenance of the existing stormwater features is suspect.

HEI2: The Applicant has been made aware of the surveyor's note regarding sediment accumulation in the catch basin structure and BETA's concerns for routine maintenance of existing BMP's. An inspection of the noted catch basin was made on August 15, 2023, and there was no observed sediment buildup. The Applicant will continue to work with the DPW and Town Engineer regarding existing drainage system maintenance and ongoing compliance with the Town's Stormwater Regulations and Bylaws.

BETA2: No further comments

ILLICIT DISCHARGES (STANDARD NUMBER 10): All illicit discharges to the stormwater management system are prohibited. An Illicit Discharge Compliance Statement has not been provided.

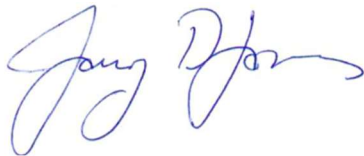
WETLANDS PROTECTION

The Project proposes work within Areas Subject to Protection and Jurisdiction of the Franklin Conservation Commission, including the 100-foot Buffer Zones to a vegetated wetland. The Applicant has submitted an NOI to the Town of Franklin Conservation Commission and must obtain an Order of Conditions to complete the proposed work.

If we can be of any further assistance regarding this matter, please contact us at our office.

Very truly yours,

BETA Group, Inc.



Gary D. James, P.E.
Senior Project Engineer

cc: Amy Love, Town Planner