

Chessia Consulting Services LLC



January 19, 2021

Planning Board
Town of Hingham
210 Central Street
Hingham, MA 02043

RE: Site Plan Review
60 Research Road

Dear Members of the Board:

In response to your request, Chessia Consulting Services, LLC has reviewed the above referenced project for compliance with the applicable sections of the Hingham Zoning By-Law revised through June 2020, for site plan review, DEP Stormwater Management Regulations and for general conformance with engineering standards for design. The data reviewed included the following information:

Plans entitled:

- “Site Development Plans Proposed Warehouse Facility for Gill Research Drive, LLC60 Research Road and 73 Abington Street, Hingham, MA 02043 Assessors Map 207 Lot 16 Part of Map 213 Lot 30 Map 211 Lot 1” dated 10-19-2020 revised 1-4-2021 prepared by Crocker Design Group. (Plans)
- “McCusker-Gill 60 Research Road, Hingham, MA. Warehouse Building Schematic Design Set” dated October 16, 2020 prepared by Dennis J. Swart Architecture PC. *Not resubmitted*

Supporting Materials:

- “Stormwater Management Report for Warehouse Building 60 Research Road/73 Abington Street Hingham, MA” dated October 19, 2020, revised January 4, 2021 prepared by Crocker Design Group. (Report)
- “Notice of Intent 60 Research Road/73 Abington Street Hingham, MA” dated October 19, 2020 prepared by Crocker Design Group. (NOI) *not resubmitted*
- Memorandum regarding traffic assessment prepared by McMahon dated October 19, 2020. *not resubmitted*
- Application package including applications for a Zoning Hearing, Site Plan approval, Special Permit A3 for parking and supplemental support materials. *not resubmitted*

- Response letters all dated January 4, 2021 and prepared by Crocker Design Group regarding comments by:
 - Chessia Consulting Services, LLC
 - Hingham Police Department
 - Hingham Fire Department
 - Vanasse & Associates, Inc.

I have also reviewed various file data on the site provided by Mary Savage-Dunham. Material provided included plans, building permits, decisions on prior filings, etc.

The site is located in South Shore Park on the southerly side of the corner of Industrial Park Road and Research Road and extends to Abington Street. It is proposed to expand the existing site by adding additional property including 73 Abington Street and part of the South Shore Park land to the south of the parcel. The existing site at 60 Research Road is currently developed with an existing building with a footprint of 49,790 sf according to the plans. I note that the hydrology calculations have a footprint of 50,791. The plans list that the site contains 155 existing parking spaces.

There are wetlands on the locus associated with a drainage ditch that parallels Research Road on the south. There are also wetlands to the east on adjacent land, to the south on the new parcel and extending into 73 Abington Street. The buffer zone from these wetlands also extends into the property. A review of file data for 73 Abington Street indicates that there was a portion of the buffer zone from wetlands on the opposite side of Abington Street that did impact the site.

Based on a review of MassGIS on-line data the site does include a small area within the FEMA flood zone. The FEMA flood zone is associated with the stream to the east of the parcels. The locus is not in a NHESP habitat area nor are any certified or potential vernal pools identified on the locus or within 100 feet of the site. The locus is identified as partially in the Zone A of a Surface Water Supply associated with a perennial stream (Old Swamp River) offsite to the east and flowing under Abington Street. The Old Swamp River is also considered a cold water fishery, which has certain requirements that may apply although the site is some distance from the river it does discharge to it ultimately. A drainage ditch as indicated on MassGIS mapping is identified as an intermittent stream tributary to Weymouth's surface water supply and expands the Zone A as indicated on the plans submitted. Based on other data provided by the Applicant's Engineer and confirmed by the Conservation Commission there is no ditch in the location indicated on MassGIS and the Zone A has been overestimated on the site. The locus is in the Industrial Park District and the South Hingham Development Overlay District.

It is proposed to construct a single story 30,500 square foot warehouse facility with associated parking, including truck/trailer parking and utility services.

I visited the site on November 15, 2020 to observe existing conditions.

The Application includes a request for a Special Permit A-3.

Current comments are in *italic type* following my initial comments.

GENERAL PLAN REVIEW:

The following issues are considered the most significant for the Board to consider in review of the project:

- It appears that there has been work performed on site, including paving, etc. that was not on the plans that were provided associated with prior permits. The submittal should identify the limit of approved, permitted work on site as the basis for assessment of existing paving, etc.
Not directly addressed, but the work that may not have been permitted has not been considered as existing for stormwater purposes.
- There is apparently an unpermitted non-functioning drainage system within what also appears to be unpermitted paving on the site. This should be further described in the submittal.
The system has been investigated and is identified as failed and undersized. As noted above this does not impact the current stormwater design as it was not considered as an existing condition.
- The plans should indicate existing conditions in a screened format on the proposed plans. It is not feasible to identify where pavement has been added, existing drainage facilities are not all indicated, etc.
Not addressed, but not relevant based on the analysis.
- The existing site does not appear to provide any trailer parking and as a result there are trailers parked where they can be fit throughout the site including at the entrance and in vehicle parking spaces. There are also raw and finished materials stored outside on the site primarily to the rear of the abutting lot lines of #70 and #80 Research Road.
No further comment required.
- Snow storage should be indicated on the plans. I recommend that snow storage areas for stockpiling after larger storms, be located outside of the Zone A and wetlands buffer zones.
Satisfied.

I have described my comments with reference to the specific section of the submittal requirements as identified below:

Section I-I Site Plan Review:

1. Purpose:
No comment required.
2. Procedures:

It is assumed that the appropriate information has been submitted to initiate the review process. The Board should review the project relative to the specific subsections of this section.

3. Pre-Application Submittal.

It is unknown if a pre-application submittal has been submitted or commented on by the Board.

4. Submittal Requirements:

- a. The Cover Sheet of the plan includes both an Aerial Map at 1"=150' scale and a USGS Map at a scale of 1"=1,000 feet. These would typically be sufficient data for a locus plan. The plan set include Existing Conditions plans consisting of three sheets. This plan indicates property dimensions including metes and bounds together with topographic data as required. The Existing Conditions Plans and the Application for Zoning Hearing lists three owners for the parcels, although the Cover Sheet lists only Gill Research Drive LLC as the Owner/Applicant. The Application for Special Permit A-3 only lists two owners. This issue should be clarified. The plans indicate several easements including a drainage easement along Research Road, multiple easements at the entrance to the site from Research Road for future roadways, the existing driveway and temporary purposes. There is a driveway easement in the southeast corner of the 60 Research Road parcel and a sewer easement on the west side of the 60 Research Road parcel. It appears that all structures within 100 feet of the property line are indicated on the Aerial Map.

The response indicates that there are three parcels under different ownership but are in the process of being acquired by McCusker Gill. The Cover sheet no longer lists the owners. Ownership is indicated on various plans within the set.

- b. The submittal includes a reduced set of Building Plans for the proposed warehouse. It is unclear if the Board will require any plans for the existing building.

I defer this issue to the Board.

- c. The plan indicates traffic circulation arrows on the Layout Plan. It is my understanding that the Board has retained Vanasse & Associates to review traffic issues. There are 7 new loading spaces proposed for the new warehouse building. It is unclear if existing spaces associated with the existing building are to remain, how many there are and where they are all located. Some data is on the Existing Conditions Plans but existing loading bays are not indicated. Proposed loading spaces are dimensioned as required. A cross section of the proposed pavement is included in the plan set.

The revised plans indicate redesign of the existing parking lot including some adjustment to the limit of pavement, sealcoating and restriping. Based on the plans the available compliant number of parking spaces has been reduced to 157 where 161 are required (the actual value is 160.01 rounded up to 161 on the plans). A parking waiver to provide 157 spaces has been requested under

the A3 Special Permit. There remain 7 proposed loading spaces, there are 3 existing loading spaces identified in the northeast corner of the building. There are also ramps and what appeared to be a loading area in the southwest corner of the existing building that will also remain. All but the southwest loading area has been dimensioned.

- d. A Zoning Data table and a breakdown for parking have been provided on Sheet C-2. The facility is an allowed use in the Industrial Park district. Dimensional setbacks and lot coverage all appear to comply with the requirements. I note that although the site is in the South Hingham Development Overlay District, the submittal does not request an increase in intensity, or height over what is allowed in the underlining district.
No further comment required.
- e. Data on utilities, lighting, landscaping, refuse storage and removal has been partially provided. The plans indicate existing and proposed water service, the existing and proposed sewer force main and manholes, gas service (partially) and partial electric/cable utilities. Drainage improvements are also proposed and existing catch basins appear to be indicated. It does not appear that the entire stormwater system has been indicated on the plans as there is not a Grading and Drainage Plan that encompasses the entire site. There are various drainage systems including a recently approved rain garden at the entrance off Research Road and what appear to be two existing systems that outlet either in or near the Zone A of a surface water supply to the east side of the site. Landscaping is proposed and a Landscape Plan has been provided. The Landscape Plan also only indicates the portion of the lot proposed for the new building. The plans indicate proposed planting locations. In some cases, the size and type are indicated but not in all locations and some areas are listed as “or similar” or have no specificity. The plans include a dumpster pad in the northeast corner of the proposed development area.
The grading and drainage plans encompass the entire site. The recently constructed rain garden should be indicated.
The Landscape Plan now includes an inset to encompass the entire site. More data has been provided, but not all numbers, materials, sizes of plants, etc. have been provided. I recommend that a Landscape Architect develop a more detailed plan with size and material specifications.
- f. The submittal includes a grading plan and stormwater runoff analysis for the proposed work. Traffic analysis has been provided and is under review by Vanasse & Associates. Refer to comments under Stormwater Management Regulations below for drainage design. The grading plan indicates that a dam would be created by proposed grading along the northerly part of the proposed development area. An easement to store water on the abutting property or a redesign to convey this runoff into or through the site would be required. Abutting septic systems should be indicated on the plans to confirm required setbacks have been met. I note that there appear to be septic systems at #70 and #80 Research Road near the property line. As a site tributary to a surface water supply there are requirements for setbacks from drains to septic systems

in both Title 5 and the Hingham Supplementary Rules and Regulations for the Disposal of Sanitary Sewage that should be indicated on the plans to demonstrate compliance. I was not able to find the required estimated earthwork volumes in the submittal. This data should be provided.

The revised grading plan adds an inlet and a swale to direct off site runoff into the collection system. A proposed easement is indicated on #80 Research Road. Prior to final approvals documents regarding this easement should be provided to the Town.

Septic systems have been compiled from record data and there appears to be an issue with the setback to the swale, if this is considered an open drainage channel. I recommend that the plans indicate the provided setbacks to existing septic systems. It is unclear if the Board of Health considers the wetlands where discharges are located to be a tributary to the Old Swamp River. These discharges are not proposed to flow into the drainage that discharges within the Zone A.

The Response indicates that there would be a net import of 15,000 to 20,000 yards of material. It is unclear if the calculations have been included on the plans or in the Report.

- g. This item requires information to assess the impact of the development on soil, water supply, ways and services. The property is currently connected to the MWRA sewer system through a connection in the Town of Weymouth. As noted there appear to be septic systems on abutting lots, #70 & #80 Research Road in particular. The site is tributary to a surface water supply for the Town of Weymouth, which requires greater setbacks and specific treatment requirements. Water would be provided by the Weir River Water System. It is unclear if the Board will require calculations for the proposed water use at the facility. I defer traffic issues to Vanasse & Associates. Soils are reported as shallow to groundwater and are reported as either sandy loam or loamy sand where tested. I note that samples were also tested by a testing company for sieve analysis, which had some different classifications than some of the data reported on the logs. Groundwater has been estimated as 2 feet below grade at the approximate elevation of the underlying glacial till according to the data provided. I note that the plans indicate that there is an existing stormwater system at the proposed building location that reportedly was flooded at the time of the survey (July 2020). Data on this system should be provided based on record data if available. It is likely that an application was filed with the Town to perform this work at some point. The reason for the system to be flooded in the summer during typically low groundwater periods should be determined. It is particularly important to understand the system performance as the proposed plan includes what appear to be a similar system to the system that appears to have failed. I noted some catch basins appeared to be holding water from 1-2 feet below surface grades, but it was unclear if this was the normal sump level or they were backed up with water due to downstream conditions.

The Response indicates that the existing subsurface system is not functioning due to a combination of being undersized, in the seasonal high water table and not having an outlet. The Response does not discuss if this system was previously permitted, or if any record plans are available. It would be useful to have data on the depth of the concrete chambers, as the system was observed to be failed in the summer during a drought period.

It is proposed to install a tight tank for floor drainage in the new warehouse building. Since the site is connected to sanitary sewer, it is typically not allowed to install a holding tank. Refer to 314 CMR 18.05. In any case the design does not comply with 314 CMR 18.05.

Satisfied.

- h. The regulations require compliance with DEP Stormwater Management Regulations.

STORMWATER MANAGEMENT REGULATIONS/EROSION AND SEDIMENT CONTROL:

The DEP Stormwater Management Regulations consist of ten standards. This section of the correspondence lists the standards and identifies whether the submittal complies, does not comply or if additional information is required to demonstrate compliance. The following standards were reviewed using the Massachusetts Stormwater Handbook Documenting Compliance (MSHDC) together with other sections of the Handbook as appropriate. The project is a partial redevelopment, and relief from strict compliance is allowed for portions of the existing developed site to remain. As a partial redevelopment it is required to have an improvement over existing conditions. I note that the site is partially in the Zone A to a surface water supply would be considered as discharging to a Critical Area under the Regulations. Specific BMP's should be utilized in this sensitive area.

Subsequent to my initial review, I received copies of previous approvals and partial plan data from Mary Savage-Dunham. No data permitting some of the existing parking or drainage system were found. It should be clarified what is approved, I note that some of the paving was reported as previously permitted to be grass and has been changed in the analysis.

Standard 1 – Untreated Stormwater

This standard requires that the project not result in point sources of untreated runoff and that runoff not result in erosion or sedimentation. Existing systems are not required to be replaced, but some improvement over existing conditions is required for a redevelopment.

There would be no **new** untreated runoff from the site. A treatment system is proposed for the area to be altered.

This still appears to be the case. As noted the plans do not clearly identify the limit of previously approved impervious area based on data I received.

Some existing areas sheet flow off of the pavement with no treatment, other existing impervious areas have catch basins, and it is unclear if the sumps are four feet deep but given the age of the buildings it is unlikely they have four foot sumps. I observed some hoods/tees in catch basins, it is unclear if all catch basins have these devices.

It is proposed to replace three existing catch basins with proprietary treatment units. Two to the east of the existing building and one in the southeast corner.

I recommend that the plans identify the location and condition of all existing systems. There are some improvements proposed for the storm sewers that discharge at the southeast corner of the existing parking area. Other systems have not been assessed.

A plan has been provided. I note that there is a discrepancy in the description of the proposed improvements to the two existing catch basins on the east side. The plan lists a proprietary treatment unit manhole with two new catch basins, which would have greater treatment and likely minimal cost differential to the proposed two proprietary treatment unit inlets and a standard manhole.

Proposed outlets have been sized in the Report and a detail provided. The plan detail does not actually specify the dimensions and the calculations should have a detail coding the various parameters. The data may be acceptable if it is clearly presented in the Report and on the plans.

Satisfied.

This standard could be met by the design, but additional clarification is required.

This Standard would be met.

Standard 2 – Post Development Peak Discharge Rates

This Standard requires that the peak rate of discharge does not exceed pre-development conditions and that the design would not result in off-site flooding during the 100 year storm. System designs should comply with the DEP Handbook for stormwater management systems.

I did not previously identify this issue, but rainfalls are not correct and are lower than predicted for the Hingham area.

New increases in impervious area need to comply with this Standard. It is not required to reduce runoff rates from existing impervious areas.

The proposed increase in pipe size for the replacement catch basins on the east side may increase the rate of flow though the pipes in this area as the

smaller pipes could be acting to detain runoff. The design should address this issue.

The design has a significant increase in the runoff rate directly to the wetlands on the south side of the site. Although the calculations indicate a decrease at the river this smaller wetland system could be altered by the increased flow to it.

The calculations should use the same “dt” (time step) for both pre and post conditions. This impacts the reported peak rates. A smaller dt results in more accurate determination of the peak rate of runoff. A larger dt was used in the existing case than the proposed case, which makes the proposed peak larger and may be conservative but it should be corrected to be equal for areas that have not been altered.

Satisfied.

The plans should properly identify offsite areas that would flow into the site. Although it is not required to control this runoff it is required to assess the impact on proposed systems and to allow this existing flow to be conveyed through the site. The design also appears to create ponding areas along the northerly property line by #70 and #80 Research Road by creating a higher grade that would prevent runoff from flowing into the site as currently occurs.

Satisfied.

The eastern side of E-2 and P-2U appears to be arbitrary and not based on contours. The rest of the area is analyzed to the wetland buffer zone but this portion is an arbitrary rectangular area.

Satisfied.

The plan ignores the existing subsurface system at the location of the proposed building. This could be a conservative assumption but without prior design data and an understanding of why the system does not appear to be functioning this is not clear. If the system is an infiltration system, depending on the design it could have lower runoff. In addition, the volume of runoff recharged could also change under Standard 3 if this system is a recharge system.

Reportedly the existing system is undersized and likely in the water table and does not function. It should also be determined if this system was ever permitted as records for this system were not found by Mary Savage-Dunham and the data provided did not indicate much of the pavement to the west of the storage shed. In any case for runoff assessment, it is not unreasonable to assume woods as that was the prior condition.

The proposed design should include dimensions for the outlet structures. It appears that the UG 2 outlet has one two stage outlet weir not two separate

weirs as modeled. The outlet structures are double counted as “retain it” units available for storage during the storms, this would not be the case. In addition, the outlets in the parking lot should have a sealed hatch not an inlet grate as designed.

The revised design and calculations address this issue.

Exfiltration is overestimated only the bottom area should be counted not the “wetted area” as used in the calculations according to DEP.

Satisfied.

Additional data is required to demonstrate that this Standard has been met.

The Board and Conservation Commission will need to address the increase in rate to the southerly wetland system. In addition, the appropriate rainfall values should be used in the analysis.

Standard 3 – Recharge to Groundwater

The design would result in an increase in impervious area. For this Standard the increase in impervious area over the existing conditions should be infiltrated in accordance with the standard. As a partial redevelopment, existing impervious areas do not have to be recharged but it is desirable, if feasible, to increase the amount of recharge for redevelopment projects.

The design would increase the impervious area by 78,270 square feet according to the Report. It is not feasible to check this as there is not a plan that shows the new impervious as compared to the existing impervious area. In addition, there likely is an infiltration system that although reportedly not currently working could potentially be repaired. The volume of approved recharge in this system should be determined if any. It is unclear if the existing impervious area includes previous installation of impervious areas without permits. As a tributary area to a surface water supply, recharge is important to maintain base flow in the perennial stream.

Based on the revised calculations it appears that the potentially unpermitted paved area is assumed to be pervious for recharge purposes. This is a reasonable assumption in this case essentially this area is ignored as part of this submission. The resultant area of new impervious surface would be 113,865 square feet according to the Report. It is proposed to recharge 88,900 square feet of this new area. There is no additional recharge for the existing impervious area.

It is proposed to retain the runoff from part of the project area in a subsurface infiltration system. This system captures a portion of the impervious area including the building roof. The easterly side of the project area is either directed to a subsurface detention system or to the existing storm sewer network.

This aspect of the design has not changed.

Calculations for capture adjustment and time to drain have been provided but as noted these cannot be fully checked based on the plans provided. The volume recharged appears to be based on the static method and the available storage volume would be 11,850 cubic feet according to the Report. The volume of runoff from the tributary area would be 8,111 cubic feet based on 1" of direct runoff from the impervious area.

Although the DEP Checklist states that the "Dynamic Method" was used the data provided is consistent with the "Static Method". The static method is more conservative, and sufficient volume is held in the system to meet this requirement. The storage in the system below the outlet is 9,233 cubic feet based on the actual outlet elevation. The Report lists 9,370 cubic feet. The calculations estimate the required recharge based on an adjustment for the entire site area, only the increase is actually required to be recharged, of 5,612 cubic feet. Drawdown time would meet requirements. Refer also to comments under Standard 4.

As noted several catch basins in both the rear and front of the site appear to be holding in excess of the normal amount of water in their sumps. Since these systems could be infiltration systems and it appears that similar system types are proposed the reason for their failure should be determined so that future systems are not similarly impacted.

This systems have either been eliminated by construction, or are proposed to be replaced. The existing infiltration system and associated paving is not considered as impervious in this submittal.

Additional data is required to demonstrate that this Standard has been met.

This Standard would be met.

Standard 4 – 80% TSS Removal

This standard requires that runoff be treated to remove 80% of total suspended solids (TSS) prior to discharge. As a partial redevelopment, only the increased area has to be treated to 80% and the remainder should be improved to the maximum extent practicable. As the site is both a LUHPPPL and in a Critical Area, certain other requirements apply as covered under Standards 5 and 6.

I recommend that TSS calculations include all of the site. Although it is not required to meet the TSS in existing areas it is required to improve conditions. I also recommend that a breakdown of what is on site and the treatment level of existing and proposed systems be provided. Where no improvement is proposed for an existing area, a description of why it is not feasible be provided.

The following describes the proposed treatment as listed in the Report:

UG 1 system:

- Catch basins – Catch basins are proposed for collection of runoff but they are not credited with any removal. Based on data in the Report all but one catch basin tributary to this system would receive the TSS removal credit and some minor relocation of one catch basin could likely address this issue. DEP only credits TSS removal for catch basins with $\frac{1}{4}$ acre or less impervious area tributary. Only catch basin F2 would not meet this requirement. Not all of the flow would be collected in a catch basin, some would be collected in a proprietary unit then discharge to the underground system.

Catch basins are included in the TSS calculations for the two new systems associated with the Warehouse. All of the catch basins have less than $\frac{1}{4}$ acre of total area tributary.

- Proprietary Units – Two different CDS units are proposed for this system. One of the units, a CDS 2015, is proposed as a catch basin inlet but the detail and data on the website for Contech (the manufacturer) does not indicate an inlet grate and appears to require an inlet pipe to create the flow regime to remove sediment. The other unit is a CDS 2020. The TSS calculations credit these units with 56% TSS removal. The unit proposed only provides pretreatment and 56% overestimates the removal in my opinion. I recommend that the Board allow a credit of 30% for on-line swirl type separators as proposed consistent with other projects in Town.

Proprietary units are no longer proposed in this system.

- Oil/Grit Separator – Oil/Grit Separators have been added to the design where previously there were proprietary units. The Report includes sizing data which complies with requirements. These units are designed consistent with the requirements and would receive TSS removal credit (25%) as a pretreatment device.

- Detention Chambers – The submittal credits the subsurface detention system with 80% TSS removal. This has not been fully documented and as a proprietary system is only credited with a removal rate acceptable to the Board. In addition, there are other requirements for these systems in LUHPPL's and Critical Areas. A detention system, as proposed would not provide any TSS removal according to the DEP Handbook.

These units are now proposed as either Cultech or ADS Stormtech units depending on the section of the Report and Plans reviewed. It appears that these would be the ADS Stormtech units as most descriptions are consistent with these units. I recommend that the details be clarified. Some data has been provided and a properly designed isolator row system has been approved at a LUHPPL site

(Whiting Street Gas Station) in Hingham for TSS removal of 80%. The data should provide all of the required documentation and sizing data for the specific units proposed. At this location a system approved by TARP is required as the site is also a LUHPPL.

This system would not meet requirements for TSS removal based on the data provided.

More data on the proposed system is required.

UG 2 system:

- Catch basins – Catch basins are proposed for collection of some of the runoff but they are not credited with any removal. Based on data in the Report all catch basins could receive the TSS removal credit. DEP only credits TSS removal for catch basins with ¼ acre or less impervious area tributary. Not all of the flow would be collected in a catch basin, some would be collected in proprietary units then discharge to the underground system.

Catch basins are included in the TSS calculations for the two new systems associated with the Warehouse.

- Proprietary Units – Two different CDS unit types are proposed for this system. Two of the units, CDS 2015 model, are proposed as a catch basin inlet but the detail and data on the website for Contech (the manufacturer) does not indicate an inlet grate and requires an inlet pipe to create the flow regime to remove sediment. The other unit is a CDS 2025. The TSS calculations credit these units with 56% TSS removal. The unit proposed only provides pretreatment and 56% overestimates the removal in my opinion. I recommend that the Board allow a credit of 30% for on-line swirl type separators as proposed consistent with other projects in Town.

Proprietary units are no longer proposed in this system.

- Oil/Grit Separator – Oil/Grit Separators have been added to the design where previously there were proprietary units. The Report includes sizing data which complies with requirements. These units are designed consistent with the requirements and would receive TSS removal credit (25%) as a pretreatment device.
- Infiltration/Detention Chambers – The submittal credits the infiltration/detention system with 80% TSS removal. This has not been fully documented and as a proprietary system is only credited with a removal rate acceptable to the Board. An infiltration system would typically be credited with 80% TSS removal subject to adequate pretreatment of 44% in this case. Based on the data provided pretreatment does not meet requirements.

These units are now proposed as Cultech units. As treatment is through the soil they are not considered a proprietary system. They are required to infiltrate the WQV. In this case the WQV is 7,408

cubic feet and the infiltrated volume is 9,233 cubic feet and the system would receive TSS credit of 80%.

Existing Systems:

The plans and report should clarify where CDS units are proposed. It appears that CB 3 existing would be replaced by a CDS unit. Different sections of the Report have different descriptions of the two catch basins on the east side of the site. Some sections state that the catch basins will be replaced with deep sump catch basins and a new CDS unit manhole installed others and the plans indicate replacing both catch basins with CDS units and a standard manhole being installed. I recommend that the replacement catch basin and CDS manhole design be used as it will increase treatment.

I note that requirements for proprietary units are discussed under Standards 5 and 6 below and would also apply in this case.

Additional data is required to demonstrate that this Standard has been met. *Additional clarification regarding some aspects of the submittal are required to demonstrate compliance with this Standard.*

Standard 5 – Higher Potential Pollutant Loads

According to the submittal, the project is considered a land use with higher potential pollutant loads (LUHPPL) as a manufacturing site with outside storage.

I have listed the proposed BMP's with their acceptability for use in a LUHPPL.

The following BMP's are proposed:

- Catch basins – Catch basins are acceptable for pretreatment in a LUHPPL if properly designed. As noted under Standard 4 no TSS removal credit has been proposed for catch basins.
These are now used for TSS removal credit.
- Proprietary Units (Swirl Chamber CDS Units) – It is proposed to use four different models of Contech CDS stormwater treatment units. Proprietary devices must be certified through either the STEP process (discontinued by DEP) or the TARP process for use in a LUHPPL. The submittal will need to supply data to demonstrate approval through the TARP or Step process and the system design will need to conform to approval requirements. These systems would only provide pretreatment.
Now proprietary units are only used to upgrade existing systems, refer to comments under other Standards. These would be an improvement

but data on the sizing, etc. per the New Jersey or other TARP member state should be provided.

- *Oil/Grit Separator – Oil/Grit Separators have been added to the design where previously there were proprietary units. These are required for LUHPPLs and meet requirements.*
- *Proprietary Units (Retain it chambers) – It is proposed to use these units for detention in both cases and infiltration in UG 2. Proprietary devices must be certified through either the STEP process (discontinued by DEP) or the TARP process and only the system proposed for infiltration would be acceptable in this case, subject to providing adequate data. The submittal will need to supply data to demonstrate approval through the TARP or Step process and the system design will need to conform to approval requirements of these programs.
No longer proposed.*
- *Proprietary Units (ADS Stormtech) - These units are now proposed as either Cultech or ADS Stormtech units depending on the section of the Report and Plans reviewed. If proposed as the ADS Stormtech units they could be acceptable subject to some additional data. A properly designed isolator row system has been approved at a LUHPPL site (Whiting Street Gas Station) in Hingham for TSS removal of 80%. The data should provide all of the required documentation and sizing data for the specific units proposed.*
- *Cultec chambers are used for the infiltration chambers and would not be considered proprietary as the treatment is through the soil. This system is acceptable in a LUHPPL provided 44% TSS removal in the pretreatment system is provided. In this case the system would comply.*

Existing Systems:

It is proposed to improve conditions by replacing some of the existing catch basins. The plans and report should clarify where CDS units are proposed. Refer to comments above and under other Standards. It is also proposed to install a stone trench along the edge of the existing pavement as currently runoff is uncontrolled off of portions of the pavement on the east side of the side.

LUHPPL should have shut off devices prior to infiltration systems in particular but may need them in general for areas subject to LUHPPL requirements, in this case likely the entire site but potentially only the rear storage areas.

Standard 6 – Protection of Critical Areas

The site is listed as being in a critical area as runoff is tributary to a surface water supply. Part of the site is in a Zone A but the area proposed for new development is not within the Zone A based on supplemental data provided.

The portion of the site that is already developed can have stormwater improvements within the Zone A. New construction projects prohibit BMP's in the Zone A. I note that the location of nearby septic systems could impact the design. It is required to locate stormwater facilities specific distances from leaching areas, etc. In addition, to Title 5 requirements the Town of Hingham also has specific setbacks. Although this project would not require a septic system permit from the Board of Health it should not render abutting properties non-compliant with Town requirements.

I have listed the proposed BMP's with their acceptability for use in a Critical Area.

The following BMP's are proposed:

- Catch basins – Catch basins are acceptable in a Critical Area if properly designed. As noted under Standard 4 no TSS removal credit has been proposed for catch basins.
Some catch basins are now credited with TSS removal.
- Proprietary Units (Swirl Chamber CDS Units) – It is proposed to use four different models of Contech CDS stormwater treatment units. Proprietary devices must be certified through either the STEP process (discontinued by DEP) or the TARP process. The submittal will need to supply data to demonstrate approval through the TARP or Step process and the system design will need to conform to approval requirements of the respective program.
Now only used on existing systems, refer to comments under other Standards. These would be an improvement but data on the sizing, etc. per the New Jersey or other TARP member state should be provided.
- Oil/Grit Separator – Oil/Grit Separators have been added to the design where previously there were proprietary units and are acceptable in Critical Areas.
- Proprietary Units (Retain it chambers) – It is proposed to use these units for detention in both cases and infiltration in UG 2. Proprietary devices must be certified through either the STEP process (discontinued by DEP) or the TARP process and only the system proposed for infiltration would be acceptable in this case. The submittal will need to supply data to demonstrate approval through the TARP or Step process and the system design will need to conform to approval requirements.
No longer proposed.

- *Proprietary Units (ADS Stormtech) - These units are now proposed as either Cultech or ADS Stormtech units depending on the section of the Report and Plans reviewed. If proposed as the ADS Stormtech units they could be acceptable subject to some additional data.*
- *Cultec chambers are used for the infiltration chambers and would not be considered proprietary as the treatment is through the soil. This system is acceptable in a Critical Area provided 44% TSS removal in the pretreatment system is provided. In this case the system would comply.*

Standard 7 – Redevelopment Projects

The project would not be considered a redevelopment; it is proposed to increase the overall impervious area on the parcel. As noted above it is also required to have some improvement over existing conditions in the currently developed part of the site to comply with this standard.

I recommend that an assessment of existing conditions relative to runoff collection and treatment be provided. The permitted impervious area should be determined as part of this effort. Any previously paved but not permitted work should not be considered part of the existing condition. This assessment should also include data on proposed and potential improvement to the existing stormwater system for the portion of the site to remain. Based on my observations some areas have no controls with pavement directly discharging into the Zone A of a surface water supply or to the associated tributary area. *Generally addressed, it is proposed to improve conditions by replacing existing catch basins. It should also be demonstrated that increasing the pipe sizes as proposed at the east side catch basins will not result in erosion at the wetlands.*

Also refer to comments under other Standards.

This Standard would be satisfied if the Board accepts the work as being the maximum practicable improvement.

Standard 8 – Erosion/Sediment Control

This standard requires that the submittal include a plan, as outlined in the Checklist and DEP Handbook, to prevent erosion and sedimentation into wetland resource areas. For this site, as it is over 1 acre in size an EPA SWPPP, would be required.

A Soil Erosion and Sediment Control Plan has been provided. In addition, there is a plan proposing access through 73 Abington Street for construction purposes. This area would also serve as a staging area after completion of the

warehouse building. It is unclear why staging would be necessary after completion of the warehouse.

I recommend a more comprehensive overall Erosion and Sedimentation Plan be provided that includes the entire proposed work area. The Soil Erosion and Sediment Control Plan appears to be somewhat generic as the notes do not necessarily represent the proposed project in some cases. Since a comprehensive SWPPP will be required, I recommend that review of this aspect of the work be deferred to a later phase of the approval process.

Recommendation remains.

I recommend that the plans be carefully reviewed for applicability of certain sections and that references to hay or straw bales be removed from the plans as these are typically not allowed in Hingham.

Additional data should be provided relative to this standard.

I defer this issue until submission of the SWPPP. I recommend that if approved no construction commence until the SWPPP has been reviewed and approved by the Board.

Standard 9 – Operation and Maintenance Plan

A Long Term Pollution Prevention Plan (O & M) was included in the Report.

The O&M should include all BMP's whether existing or proposed. There was an earlier approved O&M for the minor work at the entrance and nearby loading bay that should be referenced for this aspect of the project.

Satisfied.

The O&M does not list all of the BMP's as identified on the plans. As noted above, it is recommended that BMP's consistent with the DEP Handbook for the critical area identified as a surface water supply source be utilized. This may change the O&M.

Satisfied, subject to any clarifications listed under other Standards.

Since there appear to be issues with some of the stormwater components on the site, I recommend that copies of inspection reports be provided to demonstrate compliance with the existing permit for the site that was issued for the work associated with the rain garden.

Based on the available data some of the systems appear to have been constructed without the necessary approvals. The system in the rear storage yard area will be eliminated and has been assumed to not exist in the design calculations.

The following structural BMP's are proposed:

Catch basins – Catch basins should be inspected quarterly and the depth of sediment to require removal specified. The catch basins are required to be cleaned when sediment is observed but this may not be required if there is only a small amount of sediment. If catch basins have shallower sumps, as is likely with older catch basins installed prior to the DEP stormwater requirements a more frequent or lesser depth to clean the basins may be required.

No existing catch basins are proposed to remain after construction.

Subsurface systems – It is proposed to install an infiltration system and a detention system. Although the basic structures for each of these systems is essentially the same, the function is quite different. I recommend that the requirements be listed separately as restoring infiltration is much more involved than just cleaning for detention. The detention only system has a liner to prevent infiltration.

Satisfied, and the O&M included all of the required data for these systems.

Proprietary Units – CDS units are proposed for the site and the manufacturers manual is included. Subject to comments under other Standards this aspect is in compliance with DEP requirements.

No further comment required.

Oil/Grit Separator – The design has added these systems on the westerly side of the site. The O&M is consistent with the DEP Handbook for these units.

I recommend that pipe outlets, outlet structures, the rain garden and any other structural components be included in this section rather than in the non-structural section of the O&M.

Satisfied.

BMP matrix should only have the actual BMP's on site.

Satisfied.

I recommend that the Board consider a condition, should the submittal be approved, that these items be prepared as a standalone document together with a plan indicating the location of various BMP's. A partial plan has been provided but it does not encompass the entire site and does not identify snow storage areas as required.

The plan now encompasses the entire site. Snow storage should not be over catch basins, but the plan is otherwise satisfactory.

Some additional data is required under this Standard.

Subject to the snow storage comment this Standard would be met.

Standard 10 – No Illicit Discharges

A signed statement is included in the Report; however, for a project of this type a more rigorous investigation into where all interior pipes discharge is required. I refer to the DEP Handbook Volume 1 Chapter 1.

Comment remains.

This standard would not be met.

The required investigation should be performed prior to the building permit as the existing building has no proposed renovations.

- i. New lighting is proposed and a photogrammetric plan has been provided. The existing building and parking also has some lighting and these systems should also be indicated on this plan. The Applicant should address this issue. The Board should review the plan.
- j. It is unclear if the Board requires or requests and other materials not identified above regarding the project.

III – E South Hingham Development Overlay District

- 1. Purpose:
The Board should review the project relative to the purpose of the overlay district. Specifically, the project should provide safe and efficient public infrastructure for the area.
- 2. Objectives:
 - a. Encourage development that maintains the economic viability of businesses in the district. The Board should review this aspect of the regulations.
 - b. Encourage development that links no-residential roadways in the Overlay District. The access is on Industrial Park Road and would not require passing in front of any residential lot to access the site.
 - c. Minimize commercial and industrial related traffic impacts on surrounding residential areas. It appears that the project would not have an impact on surrounding residential areas and could be accessed through the existing Industrial Park..
 - d. Support future development that balances the needs of abutting neighborhoods and environmental protection with the long term needs of the community. The Board should review this aspect of the project.
- 3. Applicability:
The site is in the applicable zone and would be subject to this section of the Bylaw.
- 4. Special Permit Authority:
The ZBA is the permitting authority.
- 5. Permitted Uses:
The site is in the Industrial Park District and is an allowed use in the underlying district

6. Sign and Parking Criteria:
Refer to comments in Section V.
7. Intensity:
 - a. The site is not in the Office Park District.
 - b. Industrial Park District.
The site is in the Industrial Park District and appears to comply with coverage, height and floor area ratio requirements. The project is proposed as a manufacturing facility and this may not be applicable. It appears that there would be an office component associated with the manufacturing facility. I note that the parking breakdown lists 17,780 sf general.
8. Traffic, Safety and Infrastructure Improvement Fund:
The project is being reviewed by Vanasse & Associates and defer traffic comments to Vanasse and the Board. The project does not appear to exceed allowable density of the underlying district.
9. Screening:
It does not appear that the site is within 500 feet of a Residential District. The Board should review proposed landscaping.

Section V-A Off Street Parking Requirements

2. The plans identify that the site would be considered a manufacturing/warehouse facility with some general office space. The table on Sheet C-2 is consistent with requirements for parking for the respective uses. The total required spaces would be 161 spaces and there would be reportedly 178 spaces provided on site after project completion. I recommend that the plans provide more dimensions, etc. on existing spaces to remain. It appears that at least one of the spaces to the east of the existing warehouse portion of the building would not meet dimensional requirements for length. It is unclear what is currently permitted for parking on the site but it is likely that they are far in excess of the required. The approved site plan should be compared to the current plan relative to the final approval of the number of existing parking spaces.
The plans have been revised and it is now proposed to restripe all of the existing spaces such that all space comply with dimensional requirements. A request for a Special Permit A3 to reduce the vehicle parking from 161 required to 157.
3. The existing spaces and aisles are not dimensioned. As noted above the approved plan should be compared to the current arrangement. It is unclear if the spaces complied with requirements in affect at the time of construction. Proposed parking spaces and aisles comply with requirements. New loading spaces are 12 feet wide as required and are 55 feet long. There are no proposed overhangs so clear height requirements would be met.
The plans have been revised to make all spaces comply.
4. The plans are drawn at various scales but the main sheets are 1" = 30' with the existing conditions plan at 1"=40'. The data can be reviewed at 1"=30'.

- a. Details of proposed paving, curbing and drainage improvements are included in the plan set, which also includes a photogrammetric plan.
- b. The required building locations, lot lines, etc. have been indicated.
- c. A Landscaping Plan has been provided. The plan does not include a complete description of species and sizes.

Comment remains, typically these plans are prepared by a Landscape Architect and a table of proposed plantings is provided.

5. Design standards

- a. Vanasse & Associates are reviewing circulation issues. The plans include truck turning data for the new area. The proposed parking complies with dimensional requirements. As noted additional data on existing parking should be provided.
- b. The existing curb cut is to remain.
- c. The proposed building modifications appear to result in 7 new loading bays. I recommend that the Parking Analysis on Sheet C-2 include data on existing and proposed loading bays.

Recommendation remains.

- d. There are 7 new loading doors proposed in three different locations for the new building. A truck turning analysis has been provided for two of the proposed locations. The Board may want to have additional turning templates for the one not analyzed and for existing spaces that may be impacted by the project. The Board should review the loading operation data provided. I defer to Vanasse & Associates for review of the specifics of the internal access and circulation for loading bays.
- e. As noted the Board and Vanasse & Associates should review the turning templates and description of the loading operation provided to demonstrate that there would not be any obstruction or hindrance to other traffic. Regular parking spaces appear to comply with this requirement.
- f. The proposed parking spaces on the north side of the building would overhang the sidewalk. Depending on the extent of overhang this may not be met in this location. The depth from the building to the berm gutter is 5 feet. A typical space without overhang is 20 feet based on the Bylaws, which infers a 2 foot overhang, which would not comply with clear width requirements.

Satisfied.

- g. Some of the existing parking does not have a curb or other vehicular stop. It is unclear if this was required at the time of construction.

No further comment required.

- h. New lighting is proposed and, based on the photogrammetric plan, does not indicate impacts off of the property. Some specification data for the lighting is included but not details of the fixtures, poles, etc. are included on the plans. The Board should determine if any information on the existing lighting will be required.

Comment remains, the Board should determine whether data on existing lighting will be required.

- i. No new 4" white parking stripes, as required, are proposed. Based on my site visit existing spaces should be restriped and an assessment of the number of viable compliant spaces included in an analysis by the applicant.

Satisfied.

- j. The number and size of handicap spaces appears to comply with 521 CMR based on 170 proposed spaces 6 accessible spaces would be required and the plans indicate that 6 spaces would be provided. All appear to be van accessible spaces as the width meets requirements for van spaces.

- k. The plans do not indicate any snow storage areas. Snow storage areas should be identified.

Snow storage has been indicated, as noted snow storage should not be over catch basins.

- l. The proposed grading on the plans complies with grade requirements. There appear to be existing areas of parking that would not meet grade requirements.

- m. A Landscape Plan has been provided, but it only addresses the proposed work area. The Board should determine whether a plan of existing landscaping is also required. The overall site would have 170 spaces and require 17 parking lot trees. I recommend that the Landscape Plan call out which specific trees, with species and size listed, are proposed to comply with this section of the Bylaw. The Board should also consider if there are specific plantings that would be required for the trailer storage areas.

I defer review of the Landscape Plan to the Board. The plans are not complete relative to this issue.

- n. Shared parking is not proposed.
- o. Reduced parking is not proposed.

Section V-B Signs

It is unclear if any changes in signage are proposed. The plans include data on proposed handicap signs only.

I appreciate the opportunity to assist the Planning Board on this project and hope that this information is sufficient for your needs. This report is for the Hingham Planning Board and associated Hingham land use agencies only and provides no engineering, planning or other advice that may be relied upon by any party or agency other than the Town of Hingham. I would be pleased to meet with the Board or the design engineer to discuss this project at your convenience. If you have any questions please do not hesitate to contact me.

Very truly yours,

Chessia Consulting Services, LLC

John C. Chessia, P.E.
JCC/jcc