Chessia Consulting Services LLC

May 14, 2019

Ms. Mary Savage-Dunham
Community Planning Director
Town of Hingham
210 Central Street
Hingham, MA 02043

RE: Supplemental Engineering Review
103-105 North Street and 11 Bank Ave
Commercial & Residential Development

Dear Ms. Savage-Dunham:

In response to your request, Chessia Consulting Services, LLC has reviewed the site plan submittal for the above referenced project for compliance with the requirements of the Zoning Bylaw (ZBL) for projects submitted under an Application for Site Plan Approval in Association with Application for a Building Permit. An Application for a Special Permit A3 for parking determination has also been submitted. I also reviewed the submittal relative to general engineering design standards, DEP Stormwater Management Regulations/drainage design and parking and circulation as applicable. I visited the site with Mary Savage-Dunham on September 19, 2018 to review existing conditions. I also drove through on May 14, 2019 to check runoff patterns in a rain event. The data reviewed included the following information:

- Plans entitled "Site Plan Set 103 & 10 North Street and 11 Bank Avenue Hingham, MA 02043" dated 4-15-19, prepared by Cavanaro Consulting consisting of 5 sheets. (I note that a new set has been issued but this letter references prior submissions for consistency as it is an evolved plan from the initial submission.) (Plans)
- "Landscape Plan 103-105 North St. Hingham MA" prepared by Sean Papich dated April 26, 2019.
- Architectural Plans "11 Bank Ave-Hingham MA" prepared by Strekalovsky Architecture, Inc. dated various dates, including a photogrammetric plan stamped received by the Hingham Planning Board on March 11, 2019. *(only a plan of the Ground Floor was resubmitted. This sheet is dated April 1, 2019)*
- Report entitled "Stormwater Report to Accompany Site Plan Review Application Submitted to Town of Hingham Planning Board Proposed New Development and Redevelopment for Residential and Commercial Uses 103 & 10 North Street and 11 Bank Avenue Hingham, MA 02043" undated internal data has a date of April 15, 2019. (Report)

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- Applications including "Application for Site Plan Approval in Association with Application for Special Permit A2", "Application for Special Permit A3", "Application for Zoning Hearing" and "Supporting Statements-Requested Findings Form 2D Special Permit A2 Site Plan Review". (Application). All are dated 4-25-19.

The site is located on the north side of North Street west of the intersection with South Street. Bank Avenue forms the westerly boundary and the rear parcel obtains frontage on Bank Avenue. There are several existing buildings, including an existing apartment building with 9 units according to the Application materials, two garages one with a one bedroom apartment above the garage and the other is listed as a retail leather shop of 1,116 square feet, and a shed. Access to the site includes a driveway on the east side of the site off of North Street an access off of both North Street and Bank Avenue on the west side of the site and two additional access points to gravel parking areas on the rear parcel off of Bank Avenue.

Based on MassGIS mapping there are no wetlands proximate to the site and field observations also confirm that there are no wetlands near the locus. The locus is not in a FEMA flood hazard area, NHESP habitat, Zone II for public water supply wells or ACEC. As runoff into North Street discharges to Hingham Bay, which is identified as a shellfish growing area, it should be considered located in a critical area under DEP Stormwater Regulations.

Topographically the site has a high point roughly at the existing property line between 103-105 North Street and 11 Bank Avenue on the easterly side of the site. There is a divide approximately 25 feet north of the existing property line with runoff on the north side flowing to an existing low area in the northeast corner and runoff on the south side flowing toward North Street. Based on the topography and site observations some runoff flows into the side from the easterly abutters and a small part of the rear of the property flows to the west toward Bank Avenue. There is an existing catch basin located in the paved parking area on 103-105 North Street. This appears to be a leaching catch basin as no pipes are indicated on the plans and site observations are consistent with a leaching catch basin. I note there was no water in the catch basin at the time of my site visit, which follow a day with heavy rain.

Based on the Report and published data, soils appear to be loamy sand to the rear with more permeable sands and gravels toward North Street with rock outcrops mixed with the soils. Seasonal groundwater elevations are reportedly well below grade, based on the Natural Resource Conservation Service (NRCS) website. Part of the site is listed as "Urban Area" and soils along North Street are not classified but reportedly are outwash materials which are typically sands. Logs for four on site tests were included on Sheet 3 of 4 and indicate sand in all but one test pit.

It is my understanding that an ANR plan has been filed to create a lot fronting on North Street consisting of Parcel A, Lot1 and Lot as indicated on the site plans and a rear lot without accessible frontage Parcel B in the north. It is proposed to retain the existing

apartment building. The existing "Leather Shop", shed and under the current plan, the existing garage are all proposed to be razed. The plans do not list the footprint size of the new building to be constructed. The new building would have 8 one bedroom apartment units and 1,750 square feet of retail space together with 8 underground parking spaces.

GENERAL PLAN REVIEW:
The project has been withdrawn and refiled to address quorum issues associated with new members of the Planning Board. As the project is actually a revision of prior submittals, I have edited my prior review with Current comments are in **bold type** following prior comments in *italic type* which follow my initial comment.

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

Summary of Main Concerns:

- Grading should be clarified in some locations, in particular at the southeast corner of the site. .
  Generally addressed; the elevation 37 contour is incomplete on the west side of the proposed building.
  Satisfied.
- The existing driveways are steep and portions of the parking lot do not meet required grades.
  Parking lot grades meet requirements, the driveways are steep. I recommend that that Vanasse and Associates comment on the driveway access/egress.
  No further comment.
- Drainage design, there are some issues to be addressed in relative to compliance with the Standards, treatment of stormwater in particular:
  There are a few issues that should be addressed or conditioned.
  TBD
- Landscape Design, no data on proposed planting has been provided. Some existing trees will need to be removed to implement the work.
  A Landscape Plan has been provided.
- *I recommend a separate Layout and Materials Plan be provided with building setbacks, locations of various curbs, berms, radii, parking, etc. The plans would be clarified with a separate Layout Plan.*
  Satisfied.

I have described my comments with reference to the specific section of the submittal requirements. My comments are 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. I note that an Application for a Special Permit A3 for a parking determination is included in the submittal.

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 submittal includes a "Locus Plan" on the Cover Sheet. The Locus plan is listed as "NTS" or not to scale. The Applicant is J.S. Barry Development LLC. The property limits are indicated on the plans with descriptive data (metes and bounds). Topography has been indicated for the locus and some area to the east and west and part of North Street. There appear to be other structures within 100 feet of the locus that should be indicated on the plans. Some additional topography may be required to the east and potentially to the north to identify the limits of offsite runoff onto the locus.
   The Applicant has been changed to REB, LLC. It appears that other structures are within 100 feet of the site. The submittal includes MassGIS maps that indicate other buildings, this may be sufficient for the Board. No additional topography has been added. As previously noted, off site areas that flow onto the property should be included as they affect flood heights in proposed structures.
   Generally addressed, refer to other comments under Section h.
   b. The plans are drawn to scale. Building plans, etc. have also been provided, that include renderings, floor plans, and elevations. I note that it is unclear how some of the bedrooms would be accessed as doorways appear to have not been indicated for some of the rooms, a total of 15 bedrooms are proposed in the new building. There were no plans provided for the existing building. The Board may request data on the existing units to confirm parking requirements.
   The revised building plans have 8 units with a total of 8 bedrooms in the new building. The Board may request additional data on the existing buildings.
   No further comment, Architectural Plans have not been resubmitted, it appears that the building has not changed.
   c. A Traffic Impact Study has been submitted and is being reviewed by Vanasse and Associates, Inc. The existing site has various parking areas; however none of the parking spaces are currently striped. I recommend that an estimate of existing parking based on observed use be provided on the plans. It is proposed to expand the existing pavement and parking area and shared access between the proposed lots. A total of 23 exterior and 18 garage spaces are proposed for the site. I note that the property may be in common ownership ultimately but if there are separate parcels easements for access and utility purposes will be required as either parcel could be sold. The existing

access points are steep near North Street. The easterly access has over 10% grades and the westerly access at Bank Avenue has 13% grades. It is proposed to reduce the slope on the east side, no changes to grades on Bank Avenue or the portion within the site are proposed near the west side access/egress. The locus does benefit from existing on-street parking. I note that the plan only extends to the painted traffic lane in North Street; I recommend that both sides of North Street and associated access drives and parking be identified on the plans even if on the opposite side of the street. Crosswalks and accessible ramps, etc. should also be located and labeled.

It is my understanding that traffic issues are under review. As the proposal is to combine the lots under one ownership easements for access, etc. would not be required. An easement to drain to the rear (northern Parcel B) may be required for the low area in the back as outflow discharges to this area. Other issues regarding grades and information on the opposite side of North Street have not been addressed.

The outlet has been eliminated and the intent is for the system to control the 100 year storm without outflow to the surface.

d. The Application does not request any relief from zoning requirements. The site is in the Business A zoning district, which has no side or rear setback requirements. The site is also in the Downtown Hingham Overlay District. The apartment use is permitted subject to the applied for A2 Special Permit. The Applicant is proposing a new building that would be reviewed under Section III-G as listed below:

6. Commercial/Residential Building Special Permit

b. Eligibility Requirements:

ii - The proposed retail use is a permitted use in the underlying district, refer also to comments under 7. Off Street Parking below.

No further comment the concept is the same.

c. Additional requirements:

i. The commercial use is on the ground floor as required, dwelling units are on the upper floors as also required.

ii. The Architectural Plans should list the square footage of the units to demonstrate that the units are a minimum of 750 square feet for the one bedroom units. No units with over 2 bedrooms are proposed. I note that one unit has a loft that could potentially be considered an additional bedroom; I defer this issue to the Board.

Satisfied, the smallest unit is 962 square feet.

iii. A dumpster area is proposed, there is no description of trash disposal, the number of dumpsters, etc. The dumpster area is on the lot proposed for the new building; it is unclear if this is for both lots and for the retail space as well as the residences. The means of servicing the dumpsters should be presented to the Board. Insufficient data on trash removal has been provided.

Not addressed, no additional data has been provided.

The dumpster has been removed from the plans; it is unclear how trash will be addressed on the premises.

7. Off-Street Parking

Refer also to Section V-A Off Street Parking Requirements for applicable design standards.

a. Parking Requirements for Commercial/Residential Buildings:

i. It is proposed to provide 1 space for each one bedroom unit and 2 spaces for each two bedroom unit as required. The new building provides 18 spaces in the garage where 15 would be required. The existing building reportedly has 9 one bedroom units and would require 9 spaces. There are 13 spaces located on or mostly on this parcel. I note that access to the spaces would be on the proposed abutting lot for 8 of these spaces. There are also 10 outside spaces on the rear lot for a total of 41 spaces 8 of which would be for the retail use. Two of the retail spaces are on the abutting lot. Spaces are specifically labeled on the plans and the Table on Sheet 1 of 4 lists the following:

Existing Building	9 spaces
Proposed Retail	8 spaces*
Proposed Residential	24 spaces

*A reduction of 25% under V-A 2.

The revised design proposes the following:

Existing Building	*9 spaces*
Existing garage/apartment	*1 garage space***
Proposed Retail	*7 spaces**
Proposed Residential	*8 spaces under new building*

**A reduction of 25% under V-A 2.*

***access to the existing garage has not been provided on the plans*

The revised design proposes the following:

Existing Building	**14 spaces**
Proposed Retail	**7 spaces***
Proposed Residential	**8 spaces under new building in garage**

***A reduction of 25% under V-A 2.**

The plans now provide 5 extra residential spaces.

It is unclear why the reduction is used for the retail and 9 extra spaces are proposed for the new residential although some of the spaces are on the lot associated with the existing building. I recommend the table be clarified and

spaces labeled to describe the associated use including to which building the spaces are assigned.

I recommend that the plans specify which exterior spaces are for residents and which are for retail. The plans should indicate how the existing garage will be accessed.

Satisfied, the spaces are labeled relative to use, the existing garage is now proposed to be razed.

ii. An A3 parking determination has been requested.

iii. Spaces are on the same parcel or on a contiguous parcel. As noted easements etc. may be required if the proposed parcels are created by ANR plan as it appears is proposed.

No longer applicable.

iv. Not applicable, the existing site included on-site parking.

v. Proposed parking does not front on a public way the design complies with requirements.

vi. Not applicable the lot does not have frontage on two opposing public ways.

vii. The submittal does not request a waiver from residential parking requirements and would comply.

Access to the existing garage should be indicated on the plans.

No longer applicable, the garage is to be removed.

b. Off-Street Parking for Certain Non-Residential Uses.

This section would not apply for a retail use. If the use is proposed to change to an office or financial institution a new permit should be required.

No further comment required.

c. Special Permit A3 for Waivers from Off-Street Parking Requirements:

I defer issues in this Section to the Board and Traffic Consultant.

No further comment.

e. Minimal data on utilities has been provided. I recommend that the plans include data on both existing and proposed utilities both in the adjacent roadways and within the site. Existing utilities should be located by survey and record plan data as available. Sanitary and storm sewer grates, manholes, etc. should be indicated on the plans with rim, invert and pipe diameter and material together with direction of flow. Data on where utilities are located and how proposed utilities will be connected together with data on the adequacy of the utilities to provide service to the proposed uses should be indicated on the plans.

Not addressed, proposed utilities are very close together and would be difficult to access and maintain without impacting other services.

Partially addressed, the plans now provide sufficient space between utilities. The proposed gas and telephone/cable conduits are only partially indicated on the plans.

No data on landscaping has been provided. Landscaping Plans and details should be included as required.

A Landscaping Plan has been provided.

A dumpster area is indicated on the plans but no data on the specifics for refuse storage and disposal has been provided. I note that the dumpster area is not enclosed by fencing or screening.

Partially addressed, the Landscape Plan indicates an enclosure but no specifics on the materials.

The dumpster has been eliminated; it is unclear how trash will be addressed.

f. The submittal includes a grading plan and stormwater runoff analysis. A Traffic Impact Study has been provided and is under review by others. Refer to comments under Stormwater Management Regulations below for drainage design. The grading indicated on the "Proposed Conditions Plan" should include existing contours through the site together with existing pavement, buildings, etc. in a screened format. The plans eliminate existing contours within areas of proposed contours such that it is not feasible to assess the amount of cut or fill, or to compare proposed to existing slopes. The plans should clearly indicate the limit of work proposed relative to clearing and grading. Based on site observations, permission to work on neighboring property to the east of the site will be required. It appears that it is proposed to clear most of the northern part of the Bank Ave parcel, which does not appear to be necessary for the project. It also appears that a section of existing gravel parking would remain but it is not clear the purpose of this parking area. New or modified retaining walls are proposed near North Street. The plans should include details for these walls. In some areas side slopes exceed stable grades. The existing site was observed to have excessively steep slopes currently subject to erosion. The proposed design should address these deficiencies.

Plans have been clarified relative to existing and proposed grades. The limit of work is clearer than on the prior plans. No details for proposed retaining walls have been provided. Gentler grades are proposed on the east side of the site where there is currently an excessively steep slope.

No further information has been provided regarding retaining walls. The Board could condition the project to require detailed structural drawings prior to construction. If the drawings change the site plans further review may be required.

g. This item requires information to assess the impact of the development on soil, water supply, ways and services. The plans appear to have an excess of cut (soil removal) to implement the project. The submittal should address soil removal and if an earth removal permit will be required. The project proposes a new sewer connection; it is unclear where the existing sewer connections are located and these should be indicated on the plans. I recommend that the

DPW comment on the proposed sewer connection. Sewage flow has not been estimated in the submittal. A new gas line and two water lines (domestic and fire protection) are also proposed. These utilities should be indicated in their entirety, only a small segment of these proposed pipes are indicated on the plans. Test pit data for four test locations has been provided; published data and soil logs indicate highly permeable soils at most locations. Groundwater is reported as well below existing grades. This is likely the case given field observations relative to grades surrounding the site. No seepage was observed on the steep slopes around the property.

Above comments regarding utility services remain. In addition, the proposed design has utility services very close together, which complicates access for maintenance in the future. It is unclear if utility purveyors have commented on the plans.

The plans appear to have an excess of cut (soil removal) to implement the project. The submittal should address soil removal and if an earth removal permit will be required. The project proposes a new sewer connection; it is unclear where the existing sewer connections are located and these should be indicated on the plans. I recommend that the DPW comment on the proposed sewer connection. Sewage flow has not been estimated in the submittal. Proposed utilities have been designed with more separation and would come up both driveways to provide more space. As noted only partial data has been provided for the gas and telephone/cable ducts.

h. The regulations require compliance with DEP Stormwater Management Regulations as discussed below:

STORMWATER MANAGEMENT POLICY/EROSION AND SEDIMENT CONTROL:

The DEP Stormwater Management Regulations consist of ten standards. The standards were reviewed using the Massachusetts Stormwater Handbook Documenting Compliance (MSHDC) together with other sections of the Handbook as appropriate. 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. This project would be considered a redevelopment only for the portion of the site currently covered with impervious surfaces and for other parts full compliance is required. It is my understanding that the existing gravel parking lots would not be considered impervious by DEP.

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.

There are no new outlets indicated. The project proposes to infiltrate runoff from the roof of the new building and part of the existing building roof and parking area between buildings. The remainder of the existing building and access drives would discharge to North Street.
The drainage concept has not changed.

There are overflow outlets proposed for the subsurface systems, one in the grass area above a retaining wall near North Street for the subsurface system proposed under the parking area and the other in the rear to the south of the existing depression at the northeast corner of the lot. The data should include sizing for outlet protection. The overflow at the southwest corner would ultimately flow over the retaining wall and would have discharge in the 10 year and greater storm. I recommend an alternative to this overflow be considered.
The revised design eliminates the overflow above the retaining wall. The rear system would overflow to the depression in the north; the central system would be contained within the parking area based on the calculations.
All of the subsurface systems are designed to hold the 100 year storm.

It is also proposed to let a portion of the roof of the existing building flow over the front grass area to North Street. Based on my site visit these outlets currently have some erosion associated with their discharge. Although this is an existing condition, there is proposed work to create an accessible walkway and some roof discharge points would flow over the walkway and wall. A means to improve these discharge points relative to erosion and potential icing conditions should be considered.
Not addressed.
Not addressed, the Board may want to consider a condition to have the Applicant install some stabilization features at existing roof downspouts.

Insufficient data to demonstrate compliance with this standard has been provided. More data on the proposed outlet protection and roof discharge locations should be submitted to the Board.
I recommend that the above comments be addressed on the plans.
I recommend that existing roof drains to the front have a means to control erosion at the outlets added.

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.

General:

It is proposed to install infiltration systems to control both peak rates of runoff and total runoff volume.

Existing Conditions:

Runoff on the site generally flows north and south roughly divided near the center of the site. The northern part flows to a depression partially off the locus in the northeast corner. The center west area drains to an existing leaching catch basin and the remainder flows to North Street. The divides indicated do not address any flow into the site from adjacent upgradient areas. Offsite areas should be included, in particular where they would flow into a proposed on-site stormwater BMP. A small portion of the northern part of the property would flow towards Bank Avenue not directly to the low area.
Not addressed, the plans should also include spot grades to clarify the divide to the leaching catch basin. Based on the plans this area would likely pond in the parking lot for additional storage volume prior to overflowing. The surface ponding area should be included in the calculations. The calculations indicate that runoff would overflow in all modeled storms.
Partially addressed, storage above the catch basin rim has been added to the model. There are no spot grades to confirm the drainage divide. There are also errors in the model as the model only allows infiltration at the bottom then excludes the bottom area from accepting infiltration. These issues overestimate runoff in the existing case. Since the flow to North Street under proposed conditions would be reduced significantly in the storms modeled, correcting this issue would not result in an increase in the post construction flow over the existing condition flow. Even if the catch basin captured all of the flow without discharge there would be less runoff to North Street in all storms modeled.

Soils, based on the NRCS mapping are Hydrologic Soil Group (HSG) B in the north and HSG A in the south. On-site testing indicates mostly HSG A soils with one test having tight sandy loam more indicative of HSG C soils at the edge of the proposed building. The Report assumes the site to be all HSG A soils, which is reasonable based on mapping and testing.
No further comment required.

The time of concentration in subarea S1 (north side) is underestimated but this is unlikely to have an impact as in this case runoff would be contained in the low area and the total volume of runoff is the controlling factor for flooding in contained depressions not rate of runoff.
No further comment.

If the total runoff volume is met or reduced it would not be required to map the tributary to the existing low area. If there is an increase in runoff proposed the low area should be modeled as a pond to assess flood height and associated impacts.

The proposed design would reduce the volume to the depression, no further comment required.

Proposed Conditions:

Overall drainage area issues as noted under Existing Conditions would also apply for the proposed conditions. It is not required to control off site flow but over flow elevations, etc. may be changed by adding in all tributary areas.
Comment remains; it appears that the area to the north of the existing garage would also flow into the proposed systems as well as the offsite area. The subarea plan should be adjusted.
Satisfied, this area has been added to the model.

The revised plans indicate much of the rear of the existing building roof flowing to the front. It does not appear feasible for this condition to occur. It is likely that the rear of the existing building will flow to the central infiltration system. Adding this flow may result in the system overflowing in a 100 year storm but would likely further reduce peak runoff to North Street.

Subsurface infiltration systems should route outflow through the final culvert as that would be the most restrictive in some cases, the means of connecting the various pipes in the subsurface systems should be detailed on the plans.
The roof system on the north side of the building has two 4 inch pipes as an overflow. The outlet invert is listed as EL 35 and the detail indicates two perforated 4 inch pipes laid level within the system with solid pipes to the outlet. These pipes should be modeled as two culverts; the calculations model them as two orifices.
The revised model would contain the 100 year storm, there is no overflow pipe proposed. The system would likely bypass the gutters and downspouts in a larger storm event unless there is a requirement to size gutters downspouts and pipes for the 100 year storm. I recommend that the Board consider this as a condition if the project is approved.

The central system does not have a specified outlet. The flood elevation is above the top of the storage area in the chamber system in the 10 and 100 year storms. The calculations include an additional storage area between EL 19 and 22.7 but it is unclear how this was determined. There would be some storage in the Stormceptor unit but it would have much less storage than used in the model.
Satisfied.

Subsurface systems should use bottom area for rate control not wetted area, based on email data provided by Tom Maguire of DEP. This factor overestimates the infiltration in the systems.
Satisfied.

Additional testing should be performed as only one test is at the actual location of a proposed system. I recommend that testing be witnessed by an agent of the Town. It is proposed to utilize infiltration in all storms modeled. It appears that there is adequate groundwater separation for the subsurface systems based on the tests, but it is unclear if the leaching catch basin would provide adequate separation. I note that four feet of separation or a groundwater mounding analysis is required for systems that utilize infiltration for peak rate control.
Recommendation remains.
Recommendation remains. If approved there should be a condition requiring testing prior to construction.

The plans should include design of gutters, downspouts and roof drain piping for the new building, and any modifications associated with the existing building.
The plans are schematically laid out relative to gutters and downspouts. Full design data should be provided. It does not appear to be feasible to drain all of the new building to the north, as the south side is lower and the invert elevations of the subsurface system are above the grade at the south side of the building. The proposed building has a pitched roof and will require exterior gutters and downspouts sized for a 100 year storm to convey the flows to the north. Most of the south side would overflow to the catch basin. The westerly part of the roof would over flow to North Street.
I recommend that a full design of the roof drainage system including gutter capacity, etc. be required if the project is approved.

It is not clear that this Standard has been met by the design. Some additional information is required to demonstrate compliance with this standard.
Additional information is required to demonstrate compliance with this standard.
As noted, there are some issues with the calculations. As a significant decrease in runoff is proposed, it is likely that the Standard would be met with the issues corrected or otherwise addressed. The Board could consider a condition that the issues listed above be addressed in a final set of documents.

Standard 3 – Recharge to Groundwater

The design would result in an increase in impervious area. The difference in impervious area over the existing conditions should be infiltrated in accordance with the standard.

It is proposed to infiltrate in excess of that required under this standard such that there would be less total runoff volume than currently exists.

As noted under Standard 2 more site specific soil testing should be performed. Soils appear to be highly suitable for infiltration based on testing that has been performed, with the exception of one area. Published data also indicates that suitable soils are likely present on the site. There appears to be adequate groundwater separation but site specific testing to document compliance with groundwater separation should be performed.
Comment remains relative to soil testing. I note that the both subsurface system could impact the basements of the existing and proposed buildings. It is unclear if there is a basement in the existing building. Typically systems should be a minimum of 20 feet from a basement, in particular if the basement elevation is lower than the system. It should be clarified if the existing building has a basement and the elevation of the slab if there is a basement.
Comment remains relative to soil testing. All subsurface systems are at least 20 feet away from building foundations.

This Standard would likely be met; however, soil testing is required to demonstrate that the submittal complies with this requirement. In addition, design considerations as identified under Standards 2 and 4 should be addressed.
To comply with this standard soil testing at the location of the proposed systems is required. I also recommend determining if the subsurface system should be located further from the existing building if it has a basement.
To comply with this standard soil testing at the location of the proposed systems is required. The Board could consider this a condition at the Applicant's risk, if the project is approved.

Standard 4 – 80% TSS Removal

This standard requires that runoff be treated to remove 80% of total suspended solids (TSS) prior to discharge. Since it is assumed that portions of the site lie in highly permeable soils pretreatment prior to infiltration of 44% TSS removal is required. The site would be a partial redevelopment and new impervious areas are subject to full compliance with the Standards and existing impervious areas are required to have some improvement.

In areas where full compliance is not proposed, it should be demonstrated that it is not feasible to comply with the Regulations. Roof runoff is considered clean provided the roof is not a metal roof with specific coatings. As the site has highly permeable soils 44% pretreatment is required prior to an infiltration system.
Comment remains, the calculations assume that all of the new impervious paved area would be treated, but not all of the new pavement is captured in the infiltration system.
Based on additional data provided and further review of the regulations, it is required to treat only the increase in impervious area on a net basis for the site. The impervious area treated should include roof areas

although roofs do not require pretreatment if directly discharged to an infiltration system or other treatment BMP. The calculations should be revised to include the roofs for the total water quality volume. The net increase in impervious area is 9,467 square feet. It is likely that the water quality volume would be treated as the new roof flows to infiltration systems, but the calculations should be revised. One of the proposed systems would not meet the 44% pretreatment. Although the area may be viewed as a portion of the redevelopment, it needs to be demonstrated why the requirement is not practicable. As a new catch basin, it appears that an oil grit separator or an alternative to the catch basin could be utilized to meet the Standard.

I recommend that the plans clarify where new pavement is located relative to discharge to the proposed Best Management Practices (BMP's). The plans should leave the existing conditions limit of paving underlying the proposed in a screened fashion to allow this comparison. New impervious areas require full compliance with the Standards.
The plans have clarified treated versus untreated surfaces. It should be demonstrated that the untreated areas of new pavement comply with either a de minimums condition or additional treatment may be required. I recommend a plan that shades proposed impervious areas where there is currently none in the sections that are not captured and treated.
This issue has been clarified.

The following BMP's are proposed:

- Catch basins – One catch basin is proposed in the parking area near the existing building and it would comply with DEP requirements for credit of 25%.
  It is now proposed to have one Stormceptor 450 catch basin. The design should include the DEP Water Quality Volume to flow rate conversion calculations. It is likely that the unit is sized properly as the tributary area is not large. Based on my review of available documentation I recommend that a Stormceptor unit, properly sized, be credited with 30% TSS removal. Refer to DEP Regulatory Review of Non-Rated Treatment Practices dated April 2013. The submittal credits this unit with 80% TSS removal.
  The revised plans have two catch basins that meet the tributary area requirements.
- Leaching Catch Basin – A leaching catch basin does not provide removal credit unless there is pretreatment prior to the catch basin. There is no pretreatment in this case. With appropriate pretreatment the infiltration system would receive 80% TSS removal.
  No longer proposed.
- Infiltration Chambers – Two sets of infiltration chambers are proposed. One treats roof runoff only and would not require

treatment. The other receives both roof runoff and runoff from the parking area. Only 25% pretreatment is provided for the parking lot system and additional treatment should be provided. Subject to adequate pretreatment the system would receive 80% TSS removal credit.
Additional treatment in the parking lot is required to meet 44% pretreatment for that infiltration system.
To meet this Standard, it needs to be demonstrated that it is not practicable to add additional treatment in subcatchment 4 where it is proposed to discharge from a catch basin to the subsurface system without further TSS removal.
The northerly roof system is sized to treat the WQV of the roof although as noted it is unclear how all of the roof would flow to the rear.
The central parking lot system would also treat the WQV.
Satisfied.

- *The TSS form includes street sweeping as a removal credit. As this is difficult to confirm it is discretionary for the Board to accept. I recommend that the system meet requirements without including street sweeping credits.*
No longer included.

Refer also to comments on the design of these systems under Standard 2.
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Refer also to comments on the design of these systems under Standard 2.

It does not appear that this standard would be met.
Additional data for pretreatment and untreated areas is required. It should also be demonstrated that it is not feasible to capture more of the parking lot in the proposed system as it is required to improve existing conditions to the extent practicable.
The revised design captures and treats in excess of that treated in the existing case. As noted, some revisions to the calculations should be performed and documentation of why additional treatment cannot be achieved in subcatchment 4.

Standard 5 – Higher Potential Pollutant Loads

The project is not considered a source of higher pollutant loads, this Standard is not applicable.

Standard 6 – Protection of Critical Areas

The site is located in a critical area as the discharge would be to the North Street stormwater system, which flow to a shellfish growing areas. The calculations should include treatment for 1" of runoff.

Satisfied.

Standard 7 – Redevelopment Projects

The site could be considered a partial redevelopment project. The existing building and pavement area that is not proposed to be altered would not be subject to the Standards although some improvement is required if feasible. For areas with existing impervious coverage it is necessary to demonstrate that it is not feasible to comply with the regulations. Areas with new impervious over previously unpaved areas require full compliance. It is proposed to slightly reduce the total area of impervious discharging to North Street but there would be an overall increase in impervious area. There are portions of the proposed widened access that are not currently impervious and are subject to the Standards.
Refer to other comments; there are areas of new pavement with no treatment. It is unclear that more of the parking lot could not be collected and treated.
Generally addressed, refer to specific comments under other Standards.

Standard 8 – Erosion/Sediment Control

This Standard requires development of plans and narrative data to control erosion and sedimentation resulting from the removal of vegetation, etc. as a result of construction. In this case the work area may be less than the one acre of disturbance threshold and an EPA NPDES Permit and SWPPP may not be required.

Minimal data has been provided. There is some descriptive data in the Stormwater Report, but no plans or details. Data as required in the DEP Handbook should be provided with the Application.
Comment remains, I recommend a separate Erosion and Sediment Control Plan be developed.
A more detailed description has been provided in the Report in the Construction Period Stormwater Operation and Maintenance Plan and Construction Sequencing (Construction O&M) section. I recommend a separate Erosion and Sediment Control Plan sheet(s) be developed to describe the data in the Construction Phase O&M. This could be a condition if the project is approved.

This Standard requires the following data. I reference the Stormwater Report Checklist. Some of this information could be provided prior to construction:

- **Narrative – There is Construction Sequencing section in the Construction O&M that describes general construction phases, procedures, etc.**
- **Construction Period Operation and Maintenance Plan – the Construction O&M has been provided.**

- **Names of Persons or Entity Responsible for Plan Compliance – Satisfied in the Construction O&M.**
- **Construction Period Pollution Prevention Measures – Some data is provided but in narrative form, as noted a detailed plan or plans should be included to identify locations for proposed features discussed in the narrative data. It may be required to install silt sacks in off-site catch basins if acceptable to the DPW.**
- **Erosion and Sediment Control Drawings – Not provided.**
- **Detail Drawings and specifications for erosion control BMPs, including sizing calculations. – The only details are for a tracking pad that is shorter than required and silt fence. No sizing calculations are provided but there are no measures proposed that would have sizing calculations. If a temporary stormwater basin is proposed it should be sized appropriately. It is unclear how construction phase runoff will be controlled.**
- **Vegetation Planning – Typically planting periods for successful growth should be included. The Landscape plan does not include planting details or planting periods.**
- **Site Development Plan – This requirement would be satisfied with the Plans.**
- **Construction Sequencing Plan – There is a construction sequence in the Report. It is generally desirable to list the sequence on the separate Erosion and Sediment Control Plan.**
- **Sequencing of Erosion and Sediment Controls – The Construction O&M specifies that the sediment and erosion controls be installed first.**
- **Operation and Maintenance of Erosion and Sediment Controls – The submittal includes requirements for maintenance and repair of erosion and sediment controls in the Construction O&M.**
- **Inspection Schedule – A schedule for inspection of various erosion and sediment controls is included for the silt fence and tracking pad.**
- **Maintenance Schedule - A schedule for maintenance of the erosion and sediment controls is included in the Construction O&M.**
- **Inspection and Maintenance Log Form – A construction phase log form was not included with the submittal.**

Additional data is required under this Standard.
Additional data is required under this Standard.
Additional data is required under this Standard. This could be a condition if the project is approved.

Standard 9 – Operation and Maintenance Plan

An Operation and Maintenance Plan (O&M) was provided in the Report. For all projects a comprehensive O&M is required for the entire site, including areas not proposed to be altered.

I recommend that the O&M be revised to be consistent with DEP requirements for the BMP's proposed. A plan identifying the location of all on-site BMP's should be provided.

The plans should identify snow storage areas.
Not addressed.
The O&M describes snow storage as in lawn areas. This data should be on a plan that is provided in the O&M together with the location of other BMPs. This could be a condition if the project is approved.

The proposed catch basin should be added to the O&M.
No longer applicable, the Stormceptor unit is included.
Catch basins are now proposed and included in the O&M. Maintenance complies with requirements.

I recommend that the subsurface system that collects runoff from the pavement have an isolator row.
Recommendation remains.

I recommend roof drain gutters be cleaned twice a year once in the fall after leaf drop and again in the spring after snow melt.
Recommendation remains.

Additional data is required to comply with this Standard.
Additional data is required to comply with this Standard.
I recommend that the Board consider a condition that a separate O&M be provided prior to occupancy with a plan, copies of manufacturer's maintenance requirements, etc. as discussed above.

Standard 10 Illicit Discharge

There is a general statement regarding illicit discharge connections and a form to be signed. For a previously developed site and a site with an underground garage more data should be provided. An inspection of the existing building to identify all discharges with an associated plan should be provided. The plans should address floor drainage for the garage area. I refer to the requirements in the DEP Stormwater Handbook Volume 1. A signed statement from the Owner is required.
The illicit discharge statement should be signed prior to approval. As noted above an inspection by a qualified professional of existing buildings to remain should be performed as part of this inspection. It is unclear what is proposed for garage drainage.

Comment remains, the Applicant should review condition in the DEP Stormwater Handbook Volume 1.

i. The plans do not indicate any existing or proposed lighting. If lighting is proposed a photogrammetric plan should be provided.
The Architectural set includes a photogrammetric plan. Lighting fixture details should be included in the submittal. The Site Plans should indicate the location of proposed lights. There is minor spillover in a few locations.
Not addressed.

j. It is unclear if the Board requires or requests and other materials not identified above regarding the project.

The Board should review the comments and determine if all of the information required under Section 6. Review Standards and Approval have been addressed by the Applicant prior to arriving at a decision.

Section V-A Off Street Parking Requirements

1. The site is currently used as apartments and a small leather shop. On-site parking is currently provided but the spaces are not marked. An A3 Special Permit is requested.
An A3 Special Permit is still requested.
2. Off-Street parking requirements for the number of spaces is covered in Section 4. d. above, which references the Downtown Hingham Overlay District requirements.
Refer to above data under the Downtown Hingham Overlay section.
3. Parking Dimension Requirements:
The proposed parking spaces are 20 feet long with a curb stop/overhand of approximately 3 feet. A portion of the overhang on the exterior residential spaces is blocked by a sign post. The actual available length for the residential spaces is 18 feet, the commercial spaces do not have signs and would be 20 feet long. Garage spaces also do not have signs and would meet length requirements. The spaces comply with width requirements as all are proposed to be 9 feet in width.
Exterior spaces meet required dimensions.
Aisle widths vary, exterior parking has either a 24 or 25 foot wide aisle, which complies with the requirements. The garage proposes a 20 foot aisle, which does not comply with width requirements.
The aisle width in the garage is less than the required width of 24 feet, 22.5 feet is proposed. I also note that the northerly spaces would be difficult to exit without backing out of the garage.
Satisfied, the dimensions meet requirements and a turn out area has been added.
4. The plan is drawn at 1"=20' as required. The plans are stamped as required.
    a. Details of proposed curb, sidewalks, curb stops, etc. should be provided. A detail for cape cod berm is on the detail sheet but the

proposed location is not indicated on the plans. Sign details, lighting and landscaping data has not been provided. Additional data is required to document the design.

Partially addressed, there are pavement and cape cod berm details and a landscape plan has been provided. Additional construction details for curb, sidewalks, curb stops, etc. should be provided. Some signs are indicated on the plans, a stop sign at the easterly exit and do not enter signs at the westerly entrance. No details for the signs have been provided. As noted, more detail and locations for proposed site lighting should be on the site plans.

Comment remains, the Board could include a condition to provide a final set of plans with all required details

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b. The required building location, lot lines, etc. have been indicated. A zoning table is provided on the Cover Sheet.

c. A Landscaping Plan has not been provided, there is no landscaping proposed.

A Landscaping Plan has been provided.

5. Design standards

a. This section addresses general safety and access convenience. This aspect of the project has been reviewed by Vanasse and Associates.

b. It is not proposed to change the existing access drive locations although both access drives will be widened and some regrading is proposed. I recommend that the plans indicate available clear sight lines at the proposed intersections. It is unclear how the new wider area at Bank Avenue will be coordinated with existing Bank Avenue traffic. Bank Avenue has a 12 foot right of way with paving extending onto private property at North Street. How this area will be managed to avoid conflicts with traffic should be addressed. This aspect has also been reviewed by Vanasse and Associates. The proposed drives are steep (6.8% at the east side and 11.4% at Bank Avenue) with minimal leveling area. I recommend that this condition be considered in review of the project.

The easterly drive would be reconstructed closer to the existing apartment building and further from the lot line. The westerly driveway would remain. As noted previously, proposed driveways are steep with minimal leveling area. I recommend that the plans indicate available clear sight lines at the proposed intersections.

It is my understanding that these issues are being addressed by the Traffic Consultant and Fire Department.

c. No loading spaces have been identified on the plan. An unenclosed dumpster area is identified on the plans. This aspect of site operation should be discussed.

Comment remains; the dumpster is indicated as enclosed on the landscape plan.

The dumpster has been eliminated, it is unclear how trash or loading will be addressed.

d. No loading or service doors are included with this submittal. It is unclear how moving truck deliveries for apartment residents or deliveries to the retail use will be accomplished. This aspect should be addressed in the submittal data.
   Comment remains.
   It is my understanding that these issues are being addressed by the Traffic Consultant and Fire Department.
e. The parking layout generally complies with the requirements relative to backing and maneuvering. I recommend parking islands at the northeast and northwest corner spaces on the proposed existing building lot be considered. These spaces are unprotected at drive corners and there is an excess of required spaces.
   It appears difficult to back out of the most northeasterly garage space. Other issues have been addressed.
   Satisfied.
f. No spaces overhang a property line, sidewalk, fire lane or are within 4 feet of a structure. The design complies with this requirement.
g. I recommend that the plans clarify the location of proposed curbing and berms. It is unclear that the plan complies with this requirement.
   Comment remains.
   Partially addressed, the location of the bituminous berm is indicated. It is unclear if a curb is proposed at walkways and it also appears that no berm is proposed at the exit aisle or parking spaces 7 through 11. Additional data is required to demonstrate compliance.
h. The plans do not indicate any light fixtures. The submittal should address any proposed lighting.
   As noted, I recommend that the site plans include light fixture locations and details.
   It is unclear if any light poles are proposed, the above recommendation remains relative to the location of lighting being added to the Layout and Parking Plan.
i. The plan does not specify that white pavement markings are required for parking spaces.
   Not addressed.
   Not addressed, this could be a condition if the plans area approved.
j. There are no handicap spaces proposed and the retail use has fewer than 15 spaces and would not be subject to 521 CMR, therefore no handicap spaces are required.
k. The plan should indicate proposed snow storage areas.
   Not addressed.
   Not addressed, refer to comment under Standard 9 in Section 4 h.

l. Portions of the proposed parking lot area do not comply with grade requirements as grades exceed 4%. Refer to comments under Section 4. h. regarding stormwater design.
Satisfied.

m. The exterior parking lot would have 23 spaces and be subject to this requirement for landscaping. No plantings are proposed. The submittal does not comply with this requirement.
The revised plans have 16 exterior spaces and two trees are required. Two trees are proposed proximate to the parking areas. The Board should review this aspect of the plans as the Bylaw also requires additional understory plantings in parking areas.
The revised plan has 21 exterior spaces and would require 3 trees. Trees are required to be 3" caliper. The plans do not appear to meet this requirement. Some existing trees are proposed to remain. I recommend that the Landscape Plan specifically identify trees that are intended to meet this requirement.

Section V-B Signs
The plans do not address signage although the plans indicate that the existing sign is to be replaced.
Partially addressed, a stop sign and two do not enter signs have been added.
The proposed sign for the business has not been addressed.

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