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August 20, 2008

Mr. Walter Mirrione, Chairman
Easton Board of Appeals
Town of Easton
136 Elm Street
Easton, MA 02356



Re: Environmental Peer Review Services
for The Village at Shovel Shop Square 40B Comprehensive Permit Application

Chairman Mirrione & Board Members,

The below comments are based upon our engineering and environmental review for the proposed Village at Shovel Shop Square 40B Comprehensive Permit Application. Our services are based upon our Agreement dated August 1, 2008. We have focused our review on the engineering, environmental, and site design elements of the proposed project, as well as advising the Board of Appeals (the Board) on recommended mitigation measures, where necessary, to offset any potential adverse impacts to wetlands and other resources, the neighborhood and abutting land uses, public health and safety, and community quality of life issues. The 40B Comprehensive Permit Application attachments that were reviewed include:

- A. Preliminary Plan Set – May 7, 2007 (10 Sheets total).
- B. Project Proposal Report for Major Groundwater Discharge Permit dated June 30, 2007.
- C. ASTM Phase I Environmental Site Assessment, Shovel Shop Square 26, 28 & 34 Main Street, 12 Oliver Street, Easton, MA 02356 dated January 8, 2007.

For convenience in review, we have categorized our comments.

Site Plan Issues

1. The plans indicate a portion of Building D, Community Buildings and pool lie below the 100-year flood elevation. The zoning enforcement officer should be consulted to determine if Massachusetts State Building Code and National Flood Insurance Program would allow the intended uses for these buildings, given the finish floors of these buildings appear to be below the 100-year flood elevation.
2. The proposed project does not have a sufficient number of parking spaces to serve the intended use. The applicant is proposing 182 dwelling units and 40,000 s.f. of office space. Under the Town of Easton Bylaws such a development requires 630 parking spaces. According to the applicant's Project Proposal Report for a DEP Major Groundwater Permit, dated July 30, 2007, the applicant has proposed a total of 370 spaces, approximately 330 surface spaces and 40 garage spaces. This reflects a deficiency of 260 spaces, or approximately 41%. The applicant should provide ample parking both to accommodate the proposed residential and office uses of the site and ensure that vehicular movement to, from, and within the project site does not create a safety hazard to the public. If sufficient parking is not provided, applicant should justify why this is the case and how the applicant intends to assure the safe flow of vehicles and pedestrians into, through and out of the site. Insufficient parking will result in excessive queues into and out of the project site, as well as excessive trips to, from and within the project site for residents, tenants, employees, and visitors attempting to find a parking space or circulate through the complex. These excessive maneuvers and congestion will increase the risk of vehicular accidents within the project site,



as well as in the adjacent public roadways, and creates a potential safety concern for pedestrians walking in and adjacent to the site.

3. The proposed site plan shows that the parking areas are heavily distributed towards the northern third of the project site, while approximately 50 percent of the buildings are located in the middle and southern thirds of the site. As such, there is a concern that there may be insufficient nearby parking to serve the southern-most office building, as well as Building A and Building D. This lack of parking in proximity to the user buildings will force users of the facility to walk long distances from the northern portion of the site to the southern portion. The lack of walkways within the individual parking lots and between the north and south sides of the site, coupled with the building orientation, will force pedestrians to walk within the travel aisles and/or across site entrance drives, further compounding this problem and creating public safety concerns. The applicant should review/revise the site plan to provide a more equal distribution of parking spaces, provide additional parking spaces (particularly in this location) as noted above, and provide additional walkways to ensure pedestrian safe access throughout the site.
4. The applicant should develop a traffic management plan to address potential user conflicts for access to parking spaces. The plan should address which spaces will be dedicated to the residences and their visitors and which spaces will be allocated to the office employees and their patrons. If any commercial/retail uses are contemplated onsite at a future time, this should also be addressed in the plan. The plan should address who will be responsible for enforcing parking restrictions within the project site and also describe the signage that will be employed throughout the site to inform users of these traffic and parking requirements and restrictions.
5. The applicant is proposing 9-foot by 18-foot parking spaces. The Town of Easton Bylaws requires parking spaces to be at least 200 square feet excluding travel aisles (i.e. 10' x 20'). The applicant's parking spaces are not of the required size, both for safety and ease of access. Therefore, the applicant should revise the parking spaces or seek a variance for relief from this requirement from the Zoning Board of Appeals.
6. The Town of Easton Zoning Bylaws require open air (parking) spaces in Districts B and I to be at least 10 feet from any sidewalk or street line. In addition, the Town of Easton Site Plan Guidelines requires that parking shall not to be located any closer than 15 feet from a front, side or rear property line. The parking spaces in front of Building C, along Main Street, appear to be located closer than 10 feet from the property line. Additionally, the applicant has proposed parking spaces closer than 15 feet from the property line along Main Street and property of the MBTA. The applicant should revise the parking spaces or seek a variance for relief from this requirement from the Zoning Board of Appeals.
7. The applicant is proposing to use an existing curb cut along Main Street to access the parking areas adjacent to Building D. This curb cut is approximately 100 feet from another proposed curb cut and is skewed at an angle to Main Street. Woodard & Curran (W&C) suggests the applicant review the possibility of relocating this curb cut further to the south to increase the separation from the adjacent curb cut, as well as eliminating or reducing the intersection angle with Main Street.
8. The applicant should provide an Emergency Access Plan to demonstrate that Town of Easton emergency apparatus can safely travel throughout the project site. The applicant should meet with the Easton Fire Chief to review this plan and obtain Fire Department approval for the proposed site layout and roadway access plan. In particular, the accessibility between the Office Building and Building A appears to be problematic. There is approximately a 270 ft.



long by 40 ft. wide area between these two adjacent buildings and the access from the southern end of this area is blocked by a proposed handicap accessible ramp, and access from the northern end is blocked by parking spaces.

9. The applicant has shown no provisions for trash collection/disposal. The location of all dumpsters should be shown on the plan. Additionally, appropriate screening and fencing for dumpster enclosures should be provided. The dumpster should be placed to allow maneuvering to the dumpsters by rubbish removal vehicles.
10. The applicant, represented by Beals and Thomas Inc., was granted an Order of Resource Area Delineation (ORAD) by the Easton Conservation Commission confirming the wetland resource areas on the site. The Project Proposal Report for Major Groundwater Discharge Permit indicates on Page 2 that the Easton Conservation Commission confirmed the boundaries of the on-site wetland resource area including an area of Isolated Land Subject to Flooding. However it is our understanding from the Order issued by the Easton Conservation Commission that the wetland resource area identified on Page 2 in the report as Isolated Vegetated Wetland was confirmed in the ORAD as Bordering Vegetated Wetland (BVW). This BVW was depicted in the final revised plan submitted to the Commission prior to issuance of the ORAD.

Stormwater Issues

11. The project's site approval letter from the Massachusetts Housing Finance Agency dated April 29, 2008 indicates "the developer shall provide evidence that there is an acceptable plan to provide water and sanitary sewer service to the units permitted on the site, and shall incorporate "Low Impact Development (LID)" techniques into the stormwater management and site plan design. The applicant has not submitted such evidence and it appears little or no consideration has been given to incorporating LID techniques into the site design of stormwater management system.
12. The application does not contain sufficient information for W&C to appropriately assess the project's compliance with the new Massachusetts Stormwater Management Policy (MASWMP) enacted as of January 2008, Town of Easton guidelines, or commonly accepted engineering design practices. The applicant has submitted a preliminary grading and drainage plan. The plan depicts general storm water piping arrangement, location of roof drainage infiltration devices and location of water quality inlets. The plans do not, however, provide sufficient detail such as pipe sizes, slopes, rim elevations, or details of the infiltration systems necessary to evaluate, even in a preliminary fashion, the adequacy of the design and stormwater management features of the project. Furthermore, the application did not include stormwater management runoff calculations, the Massachusetts Stormwater Management Form, an Operations and Maintenance Plan, and pipe design calculations. This information will be required to assess the project's compliance with the applicable rules and regulations, as well as the potential impacts to adjacent properties and should be required by the Town as part of subsequent plan submittals by the applicant and review by the Town.
13. The property lies within a designated Zone II of a public water supply. As such, the stormwater management systems for the project should be designed in accordance with the requirements of such facilities being located in Critical Areas per MASWMP. This requirement is an important and necessary condition of the project review and should be required by the Town as part of subsequent plan submittals by the applicant.
14. It is unclear if the proposed project will result in a net increase or decrease in impervious surface area. The applicant is proposing to convert building area into parking areas and is



proposing smaller parking space sizes than the Town of Easton bylaws require. Parking areas, typically, contribute a higher pollutant load to stormwater runoff than do roof tops. Although, the MASWMP requires redevelopment sites to meet the standards to the "maximum extent practicable", the applicant should meet all the standards since the proposed work involves a change in land use with the potential of generating runoff with a higher concentration of pollutants. Adherence to these standards will be important to the protection of the public water supply and adjacent wetland resources areas.

15. The applicant has not provided an analysis of the impacts to the 100-year floodplain. The plans depict a "Compensatory Flood Storage Area"; however, the application has not provided the appropriate level of analysis to demonstrate the project has met the performance standards for working within the Bordering Lands Subject to Flooding (BLSF) in accordance with the Massachusetts Wetlands Protection Act. Loss of storage volume in the floodplain may have an adverse impact on adjacent and downgradient properties and structures resulting in a potential public health and safety risk.
16. The applicant should submit a Snow Management and Removal Plan. Due to the proposed project density, the site has limited area to store snow as shown on the plans. The applicant should submit a plan demonstrating how snow removal will be managed such that it does not adversely affect vehicular and pedestrian safety onsite, the stormwater management system, adjacent downgradient properties, and adjacent wetland resource areas.
17. The applicant shows stormwater infiltration trenches within less than 20 feet of the building foundations. The MASWMP requires a minimum of 20 feet between leaching trenches and building foundations. The leaching systems should be relocated to meet these minimum siting criteria.
18. The MASWMP requires at least two (2) soil borings be taken for each leaching trench. Trenches over 100 feet in length should include at least one additional boring located for each 50 foot increment. The borings should be taken at the actual location of the proposed infiltration trench so that any localized soil conditions are detected. The applicant has not provided such information to demonstrate the trenches are located or sized properly and will function as designed and in a safe manner.

Grading Issues

19. The applicant is proposing to construct retaining walls immediately adjacent to the property line at several locations. A detail of these walls should be provided demonstrating that they can be constructed without impacting the adjacent property and structures. The heights of these structures should also be shown, as well as whether any walls require safety barriers due to their height.
20. The applicant is proposing to make grading cuts in the existing ground above the stone box culvert under Main Street to construct a parking lot. The plans do not indicate the elevation or size of the existing culvert. An analysis should be conducted to confirm that there is sufficient cover over the existing culvert to allow the intended grading cut to occur. The analysis should also evaluate the structural capacity of the culvert to carry the loads under the proposed condition.
21. The applicant has not indicated the finish floor elevations of the buildings or the locations of access/egress. Therefore, W&C was unable to determine if the preliminary grading plan was prepared in conformance with Americans with Disabilities Act (ADA) requirements and



generally accepted engineering practices. Applicant should add this detail to its plans and resubmit to the Town for review.

Wastewater Subsurface Disposal Issues:

The 40B application included a Project Proposal Report for Major Groundwater Discharge Permit dated July 30, 2007 which discusses the expected hydrogeology for the site. It is our understanding from Mr. Frank Mezzacappa of the MADEP Southeastern Regional Office that correspondence subsequent to the July 30, 2007 Project Proposal Report has been sent to the MADEP however, that correspondence was not included in the 40B Application and the Town of Easton does not have the information of file to our knowledge. The comments below are based upon the information included in the Project Proposal Report for Major Groundwater Discharge Permit dated July 30, 2007 which was part of the 40B Application. Some of these comments may have been addressed however that subsequent information has not been submitted.

22. Available Town water meter records indicate that the existing buildings on the Site used an average of approximately 3,500 gallons per day (gpd) of drinking water in 2006. Consequently, about the same volume of wastewater is assumed to have been discharge into the existing septic systems located on the site. The proposed development will generate and dispose of an estimated volume of 36,990 gpd of wastewater, which represents a tenfold increase of wastewater compared to existing conditions. The applicant should provide additional information plus sufficient groundwater modeling to demonstrate that the site can accommodate this significant increase in groundwater loading to the site and aquifer. While the applicant has made application for a Groundwater Discharge Permit from the MADEP, these issues and potential adverse impacts are of sufficient concern to warrant the Town reviewing the applicant's design basis and preliminary plans for proposed wastewater discharge and infiltration beds as part of the local project review.
23. Appendix A to the Project Proposal Report for Major Groundwater Discharge Permit dated July 30, 2007 was incomplete and is missing boring log data. Boring log data should be re-submitted for review for NRGB-4 and NRGB-5. Four boring logs appear to be missing for NRG-16 through NRG-19; boring logs should be submitted for these locations, as well. (It may be easier to simply resubmit a new copy of the entire Appendix A).
24. The site plans that show subsurface data points (i.e.: test pits, borings and monitoring wells) are not clear in showing which subsurface data points are existing and which are proposed. Additionally, borings for which monitoring wells were installed are not distinguished with separate symbols on the plan, and some monitoring well symbols are labeled "MW", but it is not clear if these are existing or proposed. The plans should be revised to include a legend and to show subsurface data symbols clearly to distinguish which data points are existing, proposed, and which borings include monitoring wells.
25. Figure F-5 appears to show a retaining wall structure near the proposed soil absorption systems (SAS-1, SAS-2), but the structure is not labeled as such on the figure. The figure should be revised to clearly label the presence of proposed retaining walls near the proposed SAS.
26. Eleven (11) unofficial test pits were excavated at the site and four (4) unofficial perc tests were performed. The test pit data should be resubmitted using additional sections from the DEP Form 11 for soil evaluations, particular with provision of unofficial data in parts A, C, D, and E from Form 11 to facilitate review and interpretation of test pit and perc data collected for the site.



27. A water table contour map that shows the mounded water table under design flow conditions should be shown on figure F-5. It appears that SAS-1 and SAS-2 will be designed to each have the capacity to dispose of 100% of the flow, with each having 100% reserve area between the primary trenches within each area. This mode of wastewater disposal operation should be clarified. A separate mounded water table map reflective of the combination of SAS to be used and the stormwater infiltration system should be prepared and overlaid on figure F-5.
28. Mounding calculation input and output data should be submitted for review. The applicant should verify that mounding calculations are based on a starting water table elevation equal to the estimated seasonal high water table elevation, based on unofficial test pit observations.
29. Mounding calculations were indicated to use hydraulic conductivity values based on grain size distribution. Several monitoring wells were indicated to be installed. We recommend that the applicant have slug tests performed on suitable existing monitoring wells to corroborate the values of soil hydraulic conductivity indicated from grain size distribution and revise estimates of mounding based on the most representative values of conductivity indicated from the slug test and grain size distribution data.
30. The description of the conceptual design of the SAS indicated that SASs may need to be raised (mounded) to create the 4-foot unsaturated zone between the mounded estimated seasonal high water table and the base of the effective leaching area, and consequently require a retaining wall due to site grading constraints near buildings. The MADEP regulations require that a retaining wall constructed near a SAS function primarily to support unsaturated fill, but not to create a hydraulic barrier boundary effect to effluent flow radiating away from the SAS and redirecting it in unintended directions that could impact existing or downgradient structures or properties. We recommend that the applicant submit clarification on the proposed mounded SAS and retaining wall system as follows:
 - a. A typical cross-section across each SAS, its closest retaining wall and the adjacent building should be prepared and submitted for review. The cross-section should present, using the best existing data, the relationship between the base of SAS, elevation of mounded seasonal high water table, existing ambient water table elevation, setback and base of proposed retaining wall, and building foundation.
 - b. The existing water table should not be mounded within 10 feet of the closest building foundation to mitigate any impact to building foundation stability or integrity under wastewater disposal loading conditions.
31. The site is located within a MADEP approved Zone II or public water supply, and upgradient of the pertinent municipal public supply wells. These wells are the primary source of drinking water for the Town of Easton. MADEP guidelines for discharge of treated wastewater within a Zone II require more stringent treatment effluent standards if the travel time from the SAS to a public supply well is less than 2 years. It is likely that a portion of the recharge to these Easton wells is derived as induced infiltration from Queset Brook, which is typical for glacial sand & gravel aquifers near streams in New England. We recommend the applicant estimate the travel time from the SAS to the nearest Easton municipal well by taking into account the pathway of groundwater travel through the site to discharge as baseflow into Queset Brook, and then re-enter the aquifer downstream as induced infiltration to recharge the most upgradient Easton municipal well.
32. Abutting lots with active existing septic systems adjoin the Shovel Shop site. The applicant should demonstrate that the proposed discharge of 36,990 gpd on site will not raise the water



table (no mounding effects) at the property line to prevent impacting existing septic systems on abutting lots.

33. The proposed SAS are located near the existing railroad tracks that are proposed by the state to be re-activated as part of the metropolitan Boston commuter rail system. The applicant should demonstrate that the proposed discharge of wastewater on site will not raise the water table at the property line, thus potentially impacting the stability of the railroad bed.
34. The Beals & Thomas report indicates that private drinking wells are located on abutting lots. The applicant should confirm the existence of private drinking wells and, if confirmed, the applicant should estimate the travel time to these private wells and whether these wells are located within the travel path of wastewater effluent emanating from the Shovel Shop development. If private wells are located within the path of travel of wastewater from the Shovel Shop site, the applicant should demonstrate there will be no impact to private well water quality by showing that the travel time is 2 years or greater from the SAS to the private wells.

Water & Wastewater Treatment Issues

35. The 40B application does not contain sufficient information for W&C to appropriately assess the project's proposed wastewater treatment system. The 40B application included a Project Proposal Report for Major Groundwater Discharge Permit dated July 30, 2007 which generally discusses a portion of the expected treatment components (in Section 4.2) but does not contemplate pre-treatment, chemical feed, disinfection, or other relevant components of a permittable wastewater treatment system. It is our understanding that correspondence subsequent to the July 30, 2007 Project Proposal Report exists which was not submitted as part of the 40B application. We are aware of the following correspondence:
 - Letter dated April 7, 2008 from the Massachusetts DEP to Easton Shovel Shop LLC titled "Easton - Ground Water Discharge Permit - Shovel Shop Square; Transmittal No W163317; Technical Deficiency" listing 9 items for which additional information is required.
 - Letter dated April 29, 2008 letter from Beals & Thomas to the MADEP that presents Beal's response to MADEP's April 7, 2008 comments and requirements. The Beal's letter included an April 24, 2008 letter from Siegmund and Associates Inc. specifically regarding the proposed wastewater treatment facility technology.
 - Letter dated April 24, 2008 letter from Siegmund and Associates Inc. providing further detail and treatment effluent results for three (3) installations outside the State of Massachusetts.

W&C had previously reviewed this additional information not included as part of the 40B Application, yet on file with the Town of Easton, and concludes that the treatment technology proposed for the Shovel Square project has not demonstrated that it can consistently meet the expected discharge permit requirements for Total Nitrogen, Biochemical Oxygen Demand, or Total Suspended Solids removal. The applicant must provide a wastewater treatment technology with higher levels of removal and more consistent treatment compliance projections than the system proposed.

36. The Utilities Plan gives no data on fire flow or residual pressure available at the Site for fire protection and sprinkler systems. Given the proposed project density, the applicant must demonstrate to the Code Compliant Officer and Easton Fire Department that Massachusetts State Building Code and NFPA requirements and guidelines are being achieved.



37. The Project Proposal Report for Major Groundwater Discharge Permit discusses expected effluent discharge limits for BOD, Total Nitrogen, and TSS. Given the location within a Zone II to a municipal well, and other recent groundwater discharge permits issued by the State for similar treatment systems, the expected effluent limits for this project would be lower for TKN, Phosphorus, fecal coliform, and turbidity, and BOD than the report indicates. Applicant should review this aspect of its conceptual wastewater design and confirm the MADEP requirements for effluent discharge.

Phase I Initial Site Investigation Report Issues

It is our understanding that correspondence subsequent to the January 8, 2007 ASTM Phase I Environmental Site Assessment exists which was not submitted as part of the 40B Application, yet is on file with the Town of Easton. W&C had previously reviewed a report titled "Phase I Initial Site Investigation (ISI) for the MCP Disposal Site at 28 Main Street, North Easton, MA (RTN 4-19778) dated May 16, 2007. Our review comments based upon both the January 8, 2007 and May 16, 2007 reports are as follows:

38. Two areas with elevated EPH concentrations in soil were not addressed during the soil gas study detailed in the report. The assessment performed to date does not confirm the elimination of any possible indoor air human health risks from the EPH compounds. The applicant should address this potential public health issue and demonstrate a safe environment within the project's proposed residence and office uses.
39. The residual (post-excavation) soil contamination at the Site must be managed by the Applicant as soils are being removed from the site for construction of the SAS, utility infrastructure, or other earth work activities. Applicant should describe how it will manage soils onsite and, in particular, how it will manage soils that may be subject to the Massachusetts Contingency Plan (MCP) regulations. All MCP-regulated soils and materials will require the supervision of a Licensed Site Professional (LSP).

W&C submits this letter as record of comments for discussion at the August 20, 2008 Board of Appeals meeting. We are available to discuss comments with the Board members following review of the letter. We appreciate this opportunity to continue our support of the Town of Easton in its review of the proposals for Shovel Shop Square and we are available for any questions and comments.

Sincerely,

WOODARD & CURRAN INC.

A handwritten signature in cursive script that reads "Joseph D. Shea".

Joseph D. Shea, P.E.
Vice President

JDS/

cc: Kenneth Carlson, P.E., Woodard & Curran
Daniel Garson, AICP, Woodard & Curran
David A. White, Jr., P.E., Woodard & Curran