



Registered Land Surveyors
& Civil Engineers

15 February 2023
Response to peer review comments dated January 6, 2023 with regard to Civil
Engineering.

Zoning Board of Appeals
Scituate Town Hall
Town of Scituate
600 Chief Justice Cushing Highway
Scituate, MA 02066

RE: Response to comments for The Cottages of Old Oaken Bucket Road
A Comprehensive Permit development
279-281 Old Oaken Bucket Rd.
Scituate, MA

Members of the Board,

We hereby submit these responses to comments provided by Merrill Engineering and Land Surveying in a letter to the Board dated January 6, 2023 regarding the plans of the proposed Comprehensive Permit development entitled The Cottages of Old Oaken Bucket Road located at 279-281 Old Oaken Bucket Rd. Scituate, MA

Regarding Comment provided in italics, we provide our response in bold.

The Cover Page and Existing Conditions Plan should include the most recent deed information for #281 Old Oaken Bucket Rd, Deed Bk 56372, Pg 143 with the deed information provided for #279 Old Oaken Bucket Rd.

Revised information provided.

Please provide an updated Landscape Plan.

A revised landscaped plan will be provided under separate cover.

It is difficult to tell which retaining walls are proposed with fencing. Please indicate the retaining walls that will have fencing. The Building Code indicates that fencing is required for grade drops greater than 30 inches. Also, it is our understanding that all retaining walls over 4 feet high shall require a structural design and a separate building permit. We recommend additional detail be

provided for the retaining wall conditions where it is being proposed very close to or connecting to the dwelling units.

Additional Fencing has been provided to the plans. Walls have been located off the corners of dwellings to provide space for rainwater leaders to all corners.

One roof leader is shown from the unit to the designated roof infiltration system. A typical roof leader configuration around a dwelling unit should be provided to ensure all downspouts can be collected and discharged as designed.

Roof leaders from all 24 units have been revised in alignment and a sample dwelling detail has been provided to provide guidance for installing the leaders. The contractor will have some latitude how to connect each dwelling unit to its individual drainage system where it is provided.

It is indicated that the large island area where the septic leaching system is proposed can be used for recreational purposes, although no uses have been indicated.

The area is labeled on the Cover Sheet for recreation. The reserve septic area is labeled as Open Space as well.

The plans indicate that the site will require approximately 28,599 CY of fill. The Excavation Quantity Plan indicates some cells to have fill when no work or almost no work is proposed, it may need to be updated. Construction traffic should be addressed.

The Construction Quantities Sheet has been revised to reflect current grading and calculations for truck traffic have also been provided.

It is not clear what the sidewalk conditions are near the driveways for Buildings 10 through 14. Is a sidewalk being proposed on Old Oaken Bucket Road in front of Buildings 1 and 2?

No sidewalk is proposed for Buildings 10 through 14 and Buildings 1 and 2. Instead the applicant has elected to provide 14 ft wide driveways for these areas complete with areas for resident vehicles to turn around and exit the development.

It is assumed that the #281 driveway curb cut be closed.

A note requesting closing of the existing curb cut has been added to the plans.

Please label curbing on the driveway for Buildings 1 through 4.

A note labeling the curbing has been added to the plans.

The existing water and gas mains within Old Oaken Bucket Road have been shown on the plans. It is indicated that an existing water connection is already provided but not shown on the plans. It seems three hydrants are proposed at the end of the Road A and along Road B but are not labeled. The hydrant on Road A is located over 800 ft from Old Oaken Bucket Road and would recommend an additional hydrant along Road A. This would ensure all dwellings were located within 500 feet of a hydrant. We defer to the Fire Department to confirm if the hydrant locations are acceptable.

The hydrants have been relocated to comply with the 500 ft maximum separation requirement throughout the development. The Town's water contractor provided an 8 inch water connection for the development on the right side of the existing gravel driveway from the new water main that the Town provided to Old Oaken Bucket Rd.

within the last year or two. The connection was extended beyond the Old Oaken Bucket Rd. edge of pavement.

Please provide the vehicle template with dimensions for clarification. The turning movement is also shown as overhanging into the sidewalk and leaving the site rather than entering.

The template for the Scituate Ladder 1 truck has been referenced on the plans and is provided as an attachment to the letter.

Please provide the leaching field limits on the Erosion Control Plan to ensure this area is protected from heavy equipment. Can the siltation barrier behind the infiltration system 3 be pulled in? There doesn't seem to be any proposed work in this location. It is recommended that the siltation barrier be extended along the easterly property line between the intermittent stream and the project.

Notes have been added to the plans to direct the contractor to keep heavy equipment off the leaching areas of the septic systems. We prefer to leave the extra space behind infiltration system 3 to allow the contractor more space to construct infiltration system 3.

Please correct the Hydrant detail to reference the Town of Scituate.

We have replaced the hydrant detail with the attached actual local hydrant detail from the town.

We defer to the Board of Health to the adequacy of the soil testing within the proposed leaching fields.

Agreed

A tabulation of proposed buildings by type, size (number of bedrooms, floor area) and ground coverage, and a summary showing the percentage of the tract to be occupied by buildings, by parking and other paved vehicular areas, and by open areas. A tabulation of proposed buildings by type, size (number of bedrooms, floor area) is contained within the preliminary Architecture Package. We recommend building, pavement and other impervious area, and open space coverage calculations be provided.

We have provided the information on the Cover Sheet. Additional information to be provided by the architect.

Where a condominium or apartment complex is proposed, a plan conforming to all details required under Scituate By-laws for application for special permits for multifamily development

We have requested a waiver from this regulation on an updated waiver list.

Where wetlands, buffer zones or other resource areas are defined under the Scituate Wetland Protection By-law are on the subject property, a plan and memorandum containing all details that would otherwise be required by the Scituate Conservation Commission;

We have requested a waiver from this regulation on an updated waiver list.

Please review septic system details as there are still conflicting elevations between details and section. There are several test pits located within the systems with higher groundwater elevations than what is shown in the bed profile.

We have revised the elevations based on the groundwater elevations found during soil evaluation within the leaching area boundaries.

A note indicating the wetland alteration area is provided but no other detail on the crossing or mitigation is provided.

Design plans and details of the wetland alteration will be forwarded to the local Conservation Commission for their review during the Notice of Intent process.

It is very difficult to see the retaining walls along the system and not labeling to indicate materials, height etc. It looks to be about 4 ft high directly next to the roadway. There may be potential for the wall being hit, can a shoulder along the road be provided.

We recommend that the Board of Health review the septic system information provided and comment to the Board on the proposed system.

We have added wall elevations and fencing on the Road A side of the leaching areas. We further protect these walls by proposing granite curb along that stretch of roadway.

Watershed Plans for both the Existing and Post-Development Conditions were provided. We recommend that the Post-Development Watershed Plan be revised to extend existing topography for the #269 - #275 Old Oaken Bucket offsite area which will be flowing onto the project site and consequently into the proposed stormwater system.

The new topography has been added by survey and the water shed plans have been altered to reflect that in the revised drainage calculations.

One leader is shown on the plans from the building to the roof infiltration chamber. A detail of the downspout connection is provided. A typical house roof leader layout should be provided to ensure that the roof leader system can be fully connected to the chamber systems as designed.

Roof leaders from all 24 units have been revised in alignment and a sample dwelling detail has been provided to provide guidance for installing the leaders. The contractor will have some latitude how to connect each dwelling unit to its individual drainage system where it is provided.

Capacity calculations have been provided within the HydroCad model. Since there is no way for the stormwater runoff to reach the subsurface chamber system other than through the closed drainage system, it should be designed for the 100-yr storm event. There is surcharge in several pipe runs during the 100-yr storm event that should be reviewed to confirm no flooding within the roadway will occur.

All surcharge conditions were reviewed for 100 yr storm and the maximum water elevations show that they will be below catch basin rim elevations so no flooding situations are anticipated on finish grades.

Please review the Roof Drain Chamber Layout Detail and Table. There are elevation and dimensional conflicts. Please verify all chamber system sizing as the plans and drainage analysis conflict for several systems.

The Roof Drain Chamber Layout Detail and Table has been revised.

Please adjust the roof chamber system for Building 18 as it looks to be too close to the building.

The roof chamber system for Building 18 has been revised and relocated.

The drawdown calculations are provided for just the recharge volume only. Since the systems have no outlet other than the overflow at the downspout, the drawdown calculations should consider the entire storage volume. This would apply to the larger roadway systems with no overflow outlet and the two systems with outlets then the drawdown should consider the volume of storage below the outlet elevation.

We have revised the drawdown calculations to address these concerns.

Mounding analysis is required when the separation from the bottom of an infiltration system to ESHGW is less than four (4) feet and the basin is used to attenuate peak discharges from the 10 year or higher 24 hour storm. This analysis has been provided but we recommend it be updated with any revisions to the infiltration systems as necessary. The system sizing is still conflicting between the plans, details and drainage analysis.

The mounding calculations have been revised.

Details have been provided but we did not find sizing calculations for the two infiltration chamber system outlets.

We have provided outlet calculations based on sample calculations from State of Connecticut regulations.

The following comments are for the HydroCad analysis:

- Please review the post construction overall area as it seems it may be overestimated. The existing conditions and proposed conditions watersheds should be somewhat similar with a small increase due to additional runoff at the entrance being added to the post construction watershed.*

The watershed areas have been revised based on a number of factors including the removal of the 1 ft grass strip.

Reach 158R: DMH3 to Hydro2 – Please review for surcharge in system

Reach 168R: DCB8 to DMH 4 – Please review for surcharge in system

Reach 173R: 173R: CB6 to Hydro 4 – Please review for surcharge in system.

All surcharge conditions were reviewed for 100 yr storm and the maximum water elevations show that they will be below catch basin rim elevations so no flooding situations are anticipated on finish grades.

Reach 174R: Hydro4 to Chambers 2 – pipe length should be corrected.

Length corrected.

Reach 182R: Hydro3 to Chambers 4 – Inlet invert should be corrected.

Inlet invert corrected.

Several of the roof chamber systems look to have 11 chambers and some have 6 and the stone envelope dimensions don't seem to match the chamber dimensions. Check the invert elevations for Unit 4, they do not match the detail table.

The Roof Drain Chamber Layout Detail and Table has been revised.

Pond 116P: CB 2 – The outlet size should be 12"

Pond 149P: CB 3 – The outlet size should be 12"

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Outlet inverts corrected.

Pond 171P: Chambers Unit 1 – The stone envelope dimensions don't match the chamber dimensions.

Pond 175P: Chambers Unit 2 – The stone envelope dimensions don't match the chamber dimensions.

Pond 190P: Chambers Unit 4 – The stone envelope dimensions don't match the chamber dimensions.

Pond 193P: Chambers Unit 3 – The stone envelope dimensions don't match the chamber dimensions and the numbers of chambers doesn't match the plan.

Pond 222P: Unit 14 – Review for surcharge in system, may be addressed once field dimensions are addressed

Pond 230P: Unit 15 – Same as Unit 14

Stone envelope dimensions have been checked and revised.

Please provide justification for the use of HSG C soil type rather than HSG B which seems consistent with the onsite soil testing and soil mapping.

The calculations are now showing ground coverages associated with a B soil.

The 1.02 in/hr Rawls Rate is correct for Sandy Loam, HSG B. The groundwater recharge calculations utilize HSG C capacity of 0.25". This should be adjusted back to HSG B capacity of 0.35". As noted, the stormwater facilities are designed to mitigate the 100-year storm, therefore the systems should be able to meet the required groundwater recharge.

The recharge calculations have been revised utilizing 0.35".

TSS calculation worksheets have been provided for each treatment train. We would recommend the TSS removal rate for the First Defense Units (Hydro Unit) to be 50% per NJCAT evaluation and assessment of testing on the unit. This still would result in a 93% TSS removal rate and would meet the standard.

The TSS calculations have been revised utilizing 50%.

A Filtermitt siltation barrier is proposed. The Filtermitt title under Structural Practices should be corrected.

The Filtermitt title under Structural Practices has been corrected.

The Construction Phase Pollution Prevention and Erosion and Sedimentation Plan should provide information for stabilized construction entrance, temporary sediment basins, and diversion swales as well as address spill prevention and containment. Reference to individual private lots should be removed. All BMPs should be listed in on the Inspection Checklist.

The plan and details have had information regarding stabilized construction entrance, temporary sediment basins, and diversion swales added to them. The BMP checklist addresses inspections for completed drainage appurtenances. The Construction Phase Pollution Prevention and Erosion and Sedimentation Plan addresses inspections of erosion control measures during construction.

We also recommend detailed construction sequencing be provided and that the location of the construction entrance, stockpile areas and temporary sedimentation basins be included. Calculations should be submitted for sizing of the basins and details of the sedimentation basins be provided including the proposed grading as well as the type of outlet control structures.

Erosion controls and construction staging has been provided on the plans. Further detail of erosion and sedimentation control methods to be used during construction should be provided. This can be addressed with the submittal of the SWPPP prior to construction. Spill prevention and procedures are also outlined in the Construction Phase Pollution Prevention and Erosion and Sedimentation Plan.

An EPA Notice of Intent and Stormwater Pollution Prevention Plan (SWPPP) will be required since the project proposes more than 1 acre of disturbance. If this project is approved and if acceptable to the Board of Appeals the submittal of this additional information could be made a Condition of Approval.

Agreed

Please include the Manufacturers Operation and Maintenance Guides for both the Chamber units and the First Defense structures. A checklist and a BMP location plan should be included.

We have provided the documentation as an attachment to the drainage report.

In order to meet this standard, an "Illicit Discharge Compliance Statement" meeting the requirements specified in the Stormwater Management Regulations has been submitted. This statement requires a signature.

The applicant will provide a signed statement to the board upon permit approval.

Could a driveway turnaround be provided for Unit 1?

Turnaround provided.

It seems some building foundations will intercept groundwater. Please indicate how this will be addressed.

Tuff-N-Dry" foundation waterproofing system will be used on foundations that intercept groundwater.

Please provide a few proposed spot grades over the larger chamber systems to ensure minimum cover is provided.

Additional spot grades have been provided.

Please provide rim and invert information for First Defense Units (Hydro 1 and 2)

Rim and invert information for First Defense Units (Hydro 1 and 2) provided.

The closed drainage systems have very shallow cover of approximately 1.3 ft. Please confirm minimum cover for ADS pipe.

A note has been added to the plans that any drainage pipe with less than 15 inches of cover shall be Reinforced Concrete, Class V (5) pipe.

On the Road A profile, please review the inverts for DMH 4, the outlet looks to be too high. Please add the 12" lateral invert for CB 9.

The requested revisions have been completed.

Please review the Infiltration Chamber system 4 outlet. It seems to be lower than the surrounding grading.

The grading around the outlet has been revised.

Please provide the pipe information for DMH6 to Hydro 3 on profile plan.

The pipe information for DMH6 to Hydro 3 has been provided on the profile plan.

Please verify Chamber Field dimensions on plans and in the HydroCad analysis.

The Chamber Field dimensions have been checked on the plans and in the HydroCad analysis.

If you have any questions, please contact us.

Very Truly Yours,

Anthony Esposito
Anthony A. Esposito
South Shore Survey Consultants Inc.



Scituate Fire Ladder 1

SAE Turning Radius Calculations for Order No. 138901				
Wheelbase:	230"	Front Bumper Size:	10"	
Body Width:	100"	Front Bumper Extension:	24"	
Front Axle Kingpin Center:	68.83"	Front Wheel Type:	STEEL	
Front Axle Track:	82.57"	Rear Wheel Type:	STEEL	
Front Axle Tire Width:	14.9"	Tire Brand:	MICHELIN	
Dimension Over Rear Tires:	96.674"			
Body Front Overhang:	96"			
Inside Cramp Angle	S. A. E. Turning Radius	Tire Curb Clearance	Bumper Swing Clearance	Minimum Inside Radius
35	38.8'	39.5'	43.8'	26.2'
36	38'	38.6'	43.1'	25.2'
37	37.2'	37.8'	42.3'	24.3'
38	36.4'	37'	41.6'	23.4'
39	35.7'	36.3'	41'	22.5'
40	35'	35.6'	40.4'	21.7'
41	34.3'	34.9'	39.8'	20.9'
42	33.7'	34.3'	39.2'	20.1'
43	33.1'	33.7'	38.7'	19.4'
44	32.5'	33.2'	38.2'	18.7'
45	32'	32.6'	37.7'	18'
Nominal Cramp Angles:				
Leaf spring suspension: up to and including 425/65R22.5 tires			45 degrees	
Leaf spring suspension: 445/65R22.5 tires			38 degrees	
Independent Front Suspension (IFS): up to and including 425/65R22.5 tires			44 degrees	
Independent Front Suspension (IFS): 445/65R22.5 tires			42 degrees	
Front Drive Axle: up to and including 425/65R22.5 tires			35 degrees	
<p>This turning radius report reflects how the vehicle was ordered and entered into the E-One Production system. Any changes done off-line may slightly alter the turning radius of the vehicle and the data in this report.</p>				



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HP 100 LADDER



SPECIFICATIONS

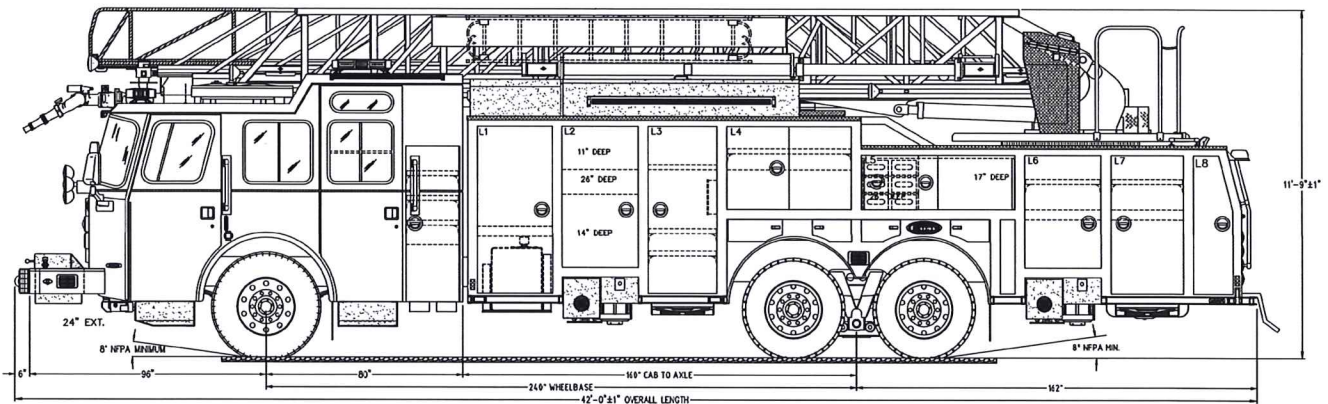
READY FOR THE FIGHT.

The HP 100's short wheelbase and tight turning radius make for easy maneuvering in traffic. While the criss-cross, underslung jacks contribute to a low center of gravity, they also deploy in an industry leading time of less than 40 seconds with only a 12' spread. Ample storage compartments allow quick access to all gear. With a 500-gallon water tank, this first responder is ready to fight the moment it arrives on scene. As for aerial safety, the HP 100 has a structural safety factor of 2.5 to 1, exceeding NFPA requirements.

The HP 100's body is available in a traditional center hosebed or the sought after SideStacker. We also offer a truck company body option, with no pump or tank, which makes the HP 100 a valuable asset to any department.

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- Medium, long and extended length 4-door cabs available
- Optional split-raised roof
- Integral torque box chassis
- 230"-240" wheelbase
- Up to 600 HP Engine
- Standard safety features such as roll cage cab, CrewGuard & ABS brakes
- Optional safety features such as airbags & G4 (electronic stability control)

AERIAL

- 100' extruded aluminum ladder with 2.5 to 1 structural safety factor
- 550 lb tip load (500 lbs. firefighters & 50 lbs equipment) wet or dry
- Criss-cross, underslung jack spread of only 12'
- 11'9"+/- 1" overall height with truck company; 11'10" with pump/tank
- 3" lower overall height available with CII aerial cab
- Pinnable waterway
- Options include Aerial Information System (AIS), 2.5" valve at tip, ladder brackets, axe and pike pole brackets

BODY

- Body available in aluminum or stainless steel
- Available in center hosebed and SideStacker configurations
- Sidestacker body features full-depth compartments
- Truck company body available (no pump or tank)

FIRE PACKAGE

- Hale® or Waterous® pumps up to 2000 GPM
- 500 gallon water tank
- Stainless steel discharge manifold
- Optional foam systems, direct injection, CAFS and around the pump (ATP)
- Customizable discharges and preconnects to meet departments needs

ELECTRICAL

- Multiplex electrical system with color display provides increased feature capability and improved diagnostics
- Whelen® optical and audible warning packages standard, others optional
- Options include LED scene lights, LED ladder climbing lights and 6-20 kW hydraulic generators