Supplemental Narrative

Prepared for

Shineharmony Holdings, Inc.
At
Former "Zion Bible College"
Barrington, Rhode Island

October 22, 2015

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SECTION I – INTRODUCTION

InSite Engineering hereby submits this supplemental narrative on behalf of the applicant, Shineharmony Holdings, Inc. It is intended to provide additional information requested by the Town of Barrington Technical Review Committee. This document accompanies the Master Plan Applications, Project Narrative and the plans titled "Site Plan Development - Master Plan - for Continuing Care Retirement Community, former Zion Bible School, 33 Middle Highway, Barrington RI".

SECTION II – PRE AND POST DEVELOPMENT IMPERVIOUS AREAS

The Site (Assessor's Plat 14, Lots 2, 4, 13, 341, 342 and 343) contains 1,610,635+/- s.f. (approximately 36.98 acres) in Barrington and approximately 2.15 acres in East Providence.

The total existing impervious area on site is 7.6 acres. The building roof areas comprise of 2.7 acres. Roadways, walkways, paved recreation areas and parking lots make-up the remaining 4.9 acres of impervious areas.

Construction of the main access drive, rehabilitating existing driveways south of Belton Court, construction of a new access driveway off Middle Highway for the "over 55" cottages, walkways and construction of Parking Lots will consist of 5.5 acres of impervious area. Construction of the congregate building, manor houses, cottages, International Training Center, and repurposing of the farm house and Belton Court will comprise of 4.7 acres of impervious areas.
The total proposed impervious area will be 10.2 acres.

Stormwater runoff from impervious areas will be managed in accordance with the Town of Barrington and Rhode Island Department of Environmental Management. The following section outlines various types of Best Management Practices to be considered for the site.

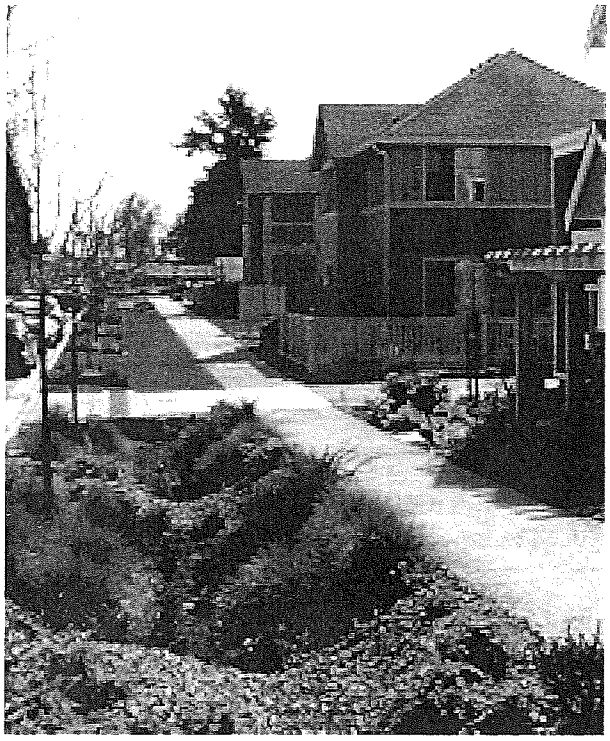
SECTION III – STORMWATER BEST MANAGEMENT PRACTICES –LOW IMPACT DEVELOPMENT

The stormwater will be managed in accordance with Low Impact Development (LID) Standards employing various types of Best Management Practices (BMP's) for the pavement and roof drainage. Integrating LID reduces runoff and simulates the predevelopment hydrology. Site design allows for the storage, infiltration, and evaporation as close as possible to the point where precipitation reaches the ground. By managing stormwater in smaller areas located throughout the development site rather than being conveyed to and managed in one or more large facility helps to reduce off-site runoff and ensure adequate groundwater recharge.

Discharge from uncontrolled flows will maintain pre-development runoff rates. There will be no increase in runoff to the surrounding lots or adjacent roadways. No flooding impacts are anticipated resulting from the LID drainage system. There will be no negative impacts to the wetlands on-site as a result from this drainage system.

DRY AND WET SWALES

Dry and Wet swales are vegetated open channel systems designed to capture and treat the Water Quality Volume within cells. The cells are formed by check dams constructed of stone, timber or concrete. Swales can be designed to fit into many types of landscapes in an aesthetically pleasing manner. Swales can balance needs for groundwater recharge and treatment during small storms while providing conveyance during large storms.

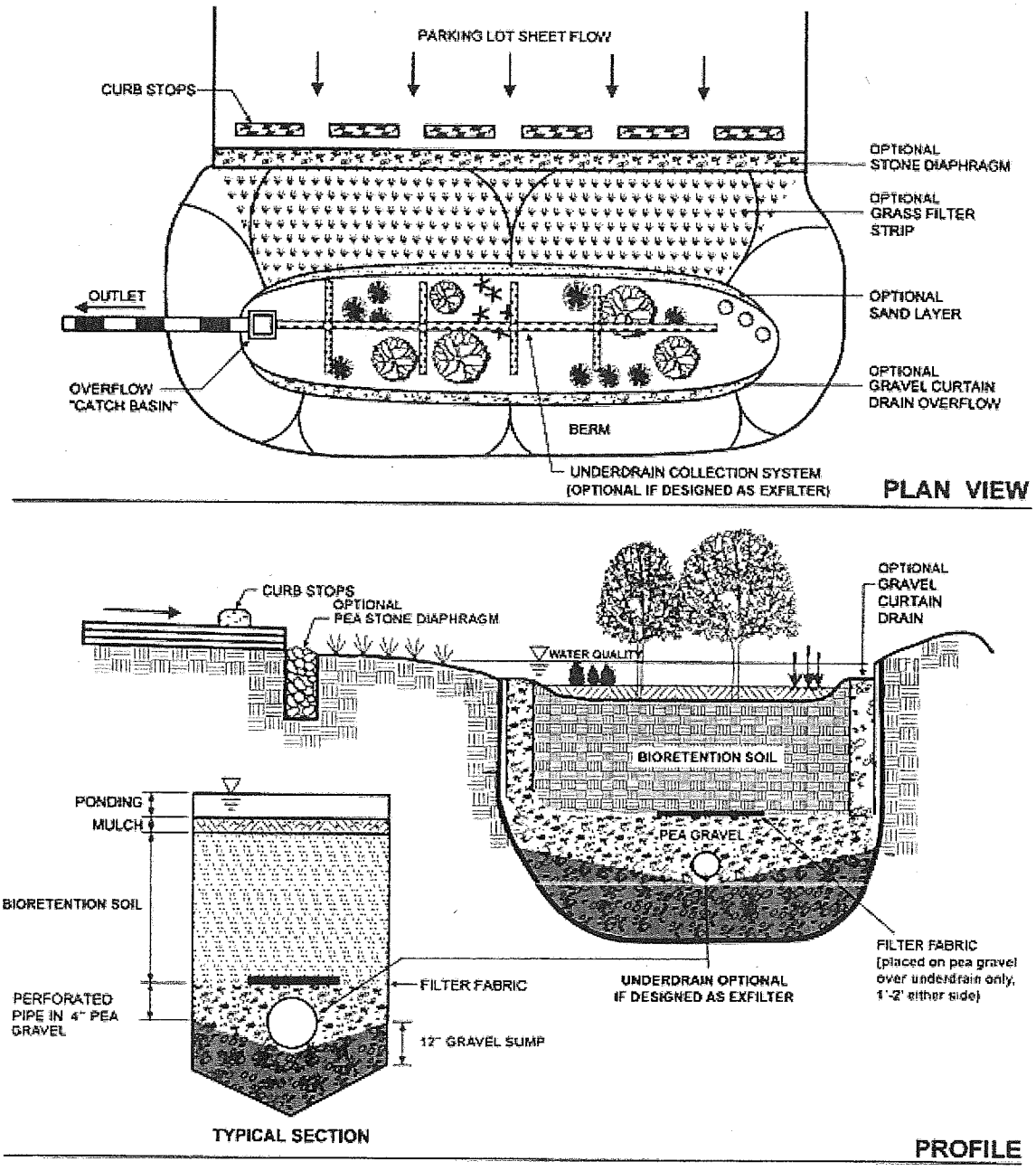


BIORETENTION and RAINGARDENS

Bioretention stormwater management practices ,often referred to as Bioretention basins and rain gardens, are vegetated depressions or basins that use surface storage, vegetation, planting soil, outlet controls, and other components to treat, detain, and retain stormwater runoff. Both types reduce stormwater volume and pollution by filtering runoff through a vegetated soil medium that promotes evapotranspiration. Bioretention can remove stormwater via infiltration into the surrounding soils and attenuate runoff with flow-regulating underdrains.

(Rain Garden at N.Kingston RI Town Hall)

(Bioretention Basin)

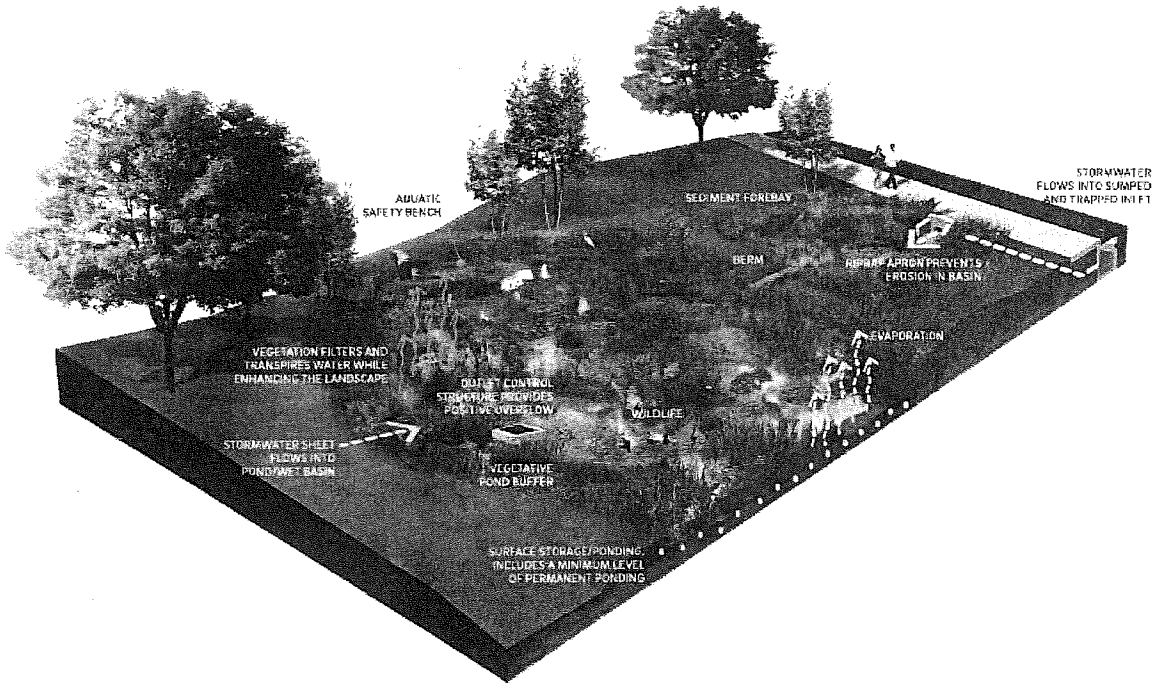


(Adapted from MDE, 2000)

(Bioretention basin)

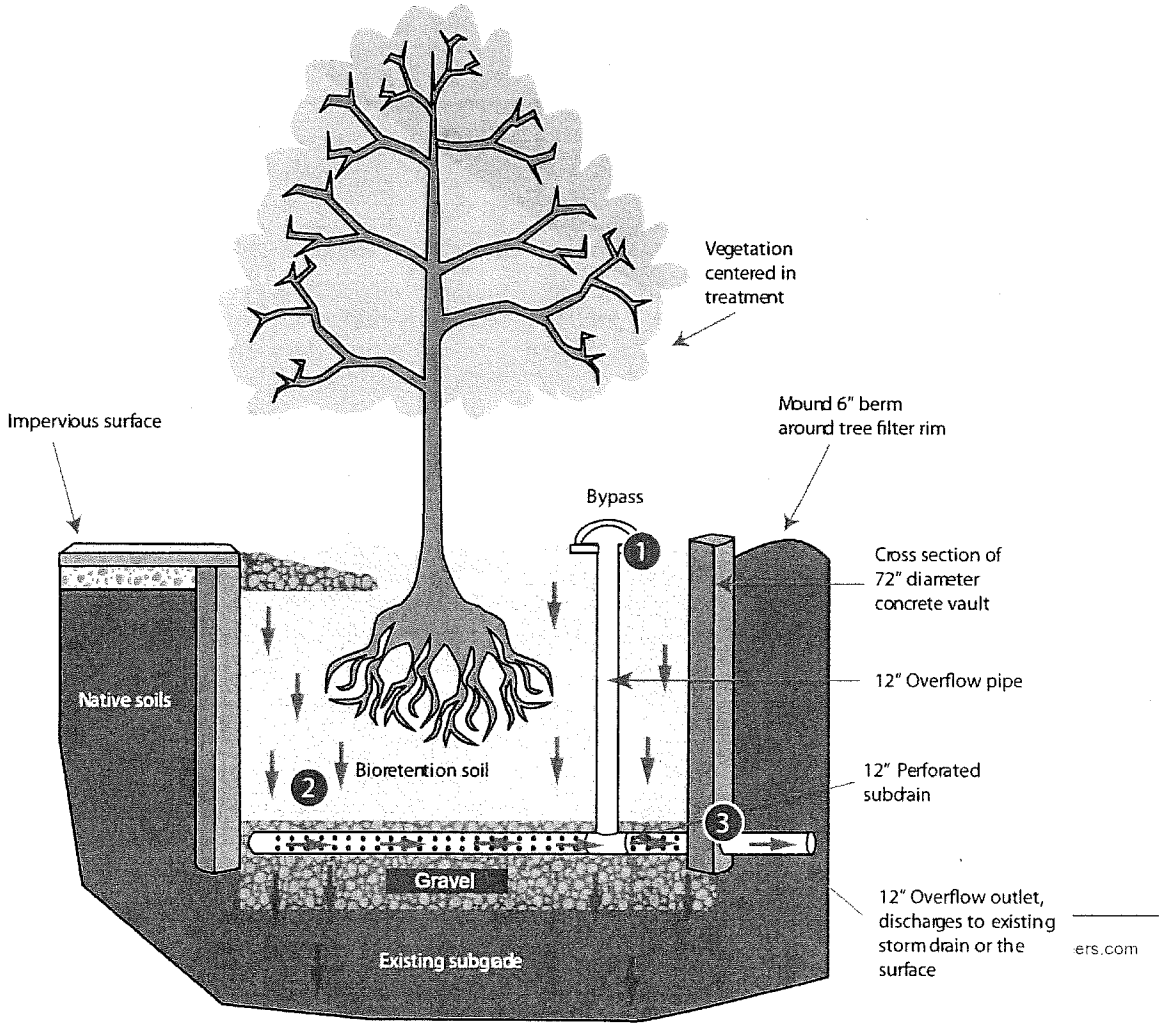
VEGETATED TREATMENT SYSTEM

Wet vegetated treatment systems typically are designed with a permanent pool equal to the Water Quality volume. Treatment is provided by settling of sediments and then by plant/ soil treatments. Some constructed wetlands may also serve as a habitat for native and migratory wildlife.



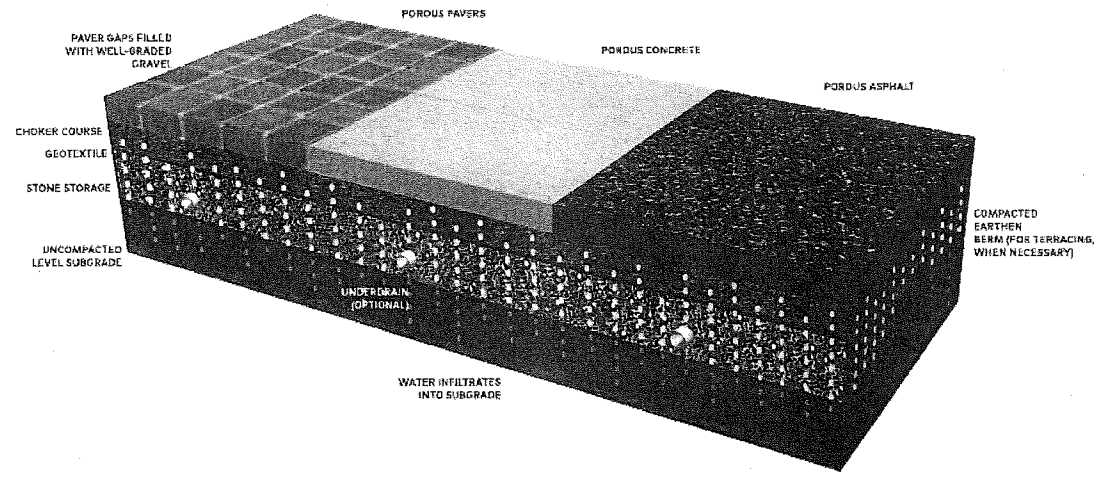
TREE WELL

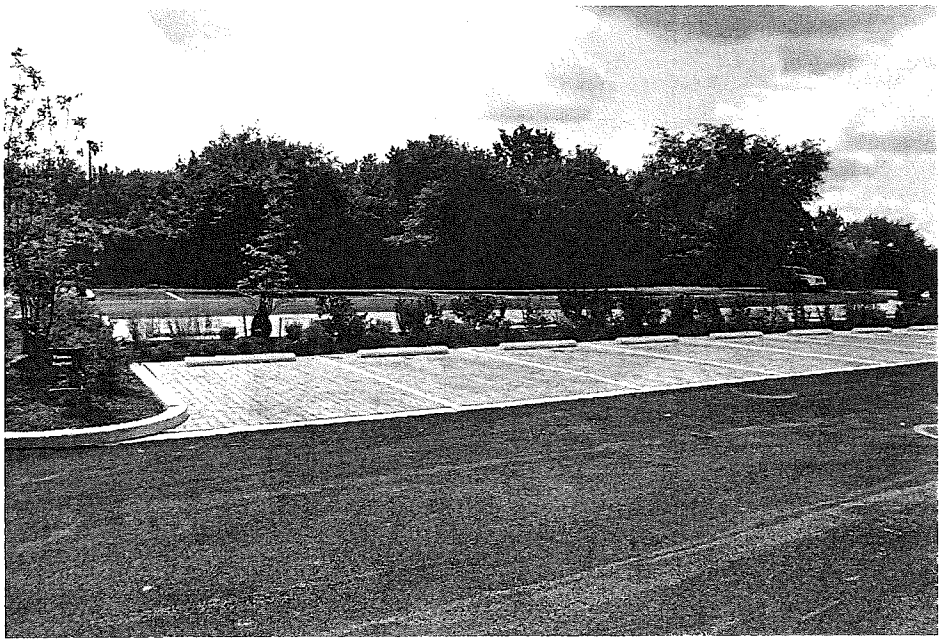
Stormwater tree wells are an alternative form of Bioretention designed to maximize the growth and health of mature trees. Mature trees serve multiple purposes: the canopy intercepts precipitation, the roots increase infiltration, and the tree as a whole absorbs and releases water into the atmosphere through transpiration. Stormwater tree wells differ from traditional tree wells in regards to the type and amount of soil available for tree growth and their ability to directly accept stormwater.



ALTERNATIVE PERVIOUS SURFACES

Alternative pervious surfaces include, but are not limited to porous asphalt, porous concrete, permeable pavers, reinforced turf, and artificial, or synthetic, turf. Interlocking pavers have openings filled with stone to create a porous surface. For all of these pavement types, stormwater flows through the porous surface during a rain event, then drains into the subbase beneath the pavement, where it is stored until it infiltrates into the soil.

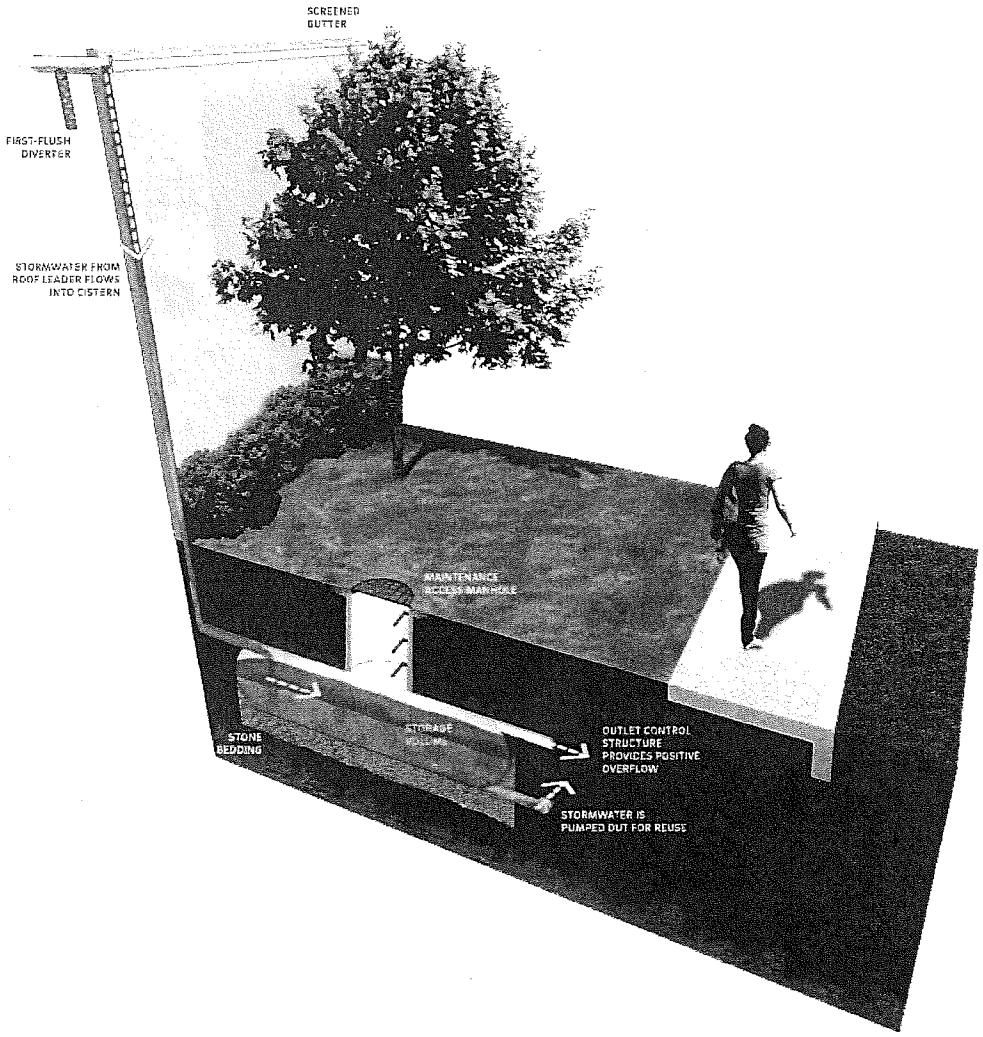




(example of porous pavers)

RAINWATER HARVESTING - CISTERN

Cisterns are storage tanks, located either above or below ground, that hold rainwater for beneficial reuse. Rainwater may be collected from rooftops or other impervious surfaces and conveyed to cisterns for storage. Stored water may drain by gravity or be pumped to its ultimate end use. This process, often referred to as rainwater harvesting, may include the use of captured water as permitted by local regulations for landscape irrigation.



SECTION IV – UTILITY PLAN

The Town of Barrington and City of East Providence were consulted regarding the sewer connection. The existing 8" sewer line traverses through the middle of the site, continuing through Lions Gate to County Road and ultimately connecting to the E. Providence sewer main.

The available sewer capacity in both Barrington and E.Providence systems exceed the demands of the Continuing Care Community. The existing 8" main is more than adequate in size.

A future meeting is scheduled with the Mr. Kamowski of United Water in East Providence and Mr. Piccerelli, Superintendent of Barrington Public Works to discuss the best connection for this site.
A schematic Utility Plan has been prepared and is attached.

SECTION V – OVERALL SITE PLAN

The Overall Site Plan (sheet C3 of 12) has been revised to include additional walking paths to interconnect open spaces. A copy of the plan is attached herein.

SECTION VI – TRAFFIC

A Trip Generation Summary for the site has been prepared by BETA Engineering and is attached.

SECTION VII – LANDSCAPING

Birchwood Design Group has provided site photographs of the existing landscaping along Middle Highway. The photographs indicate a proposed approach to areas of tree trimming and maintenance.

BDG has also prepared a Replanting style guide of shrubs and trees along Middle Highway and a style guide of Planting along the Northern Border. The photographs and Style guides are attached.

Trip Generation Summary

Summary;

	Description	Enter	Exit	Total
AM Peak Hour				
ITE Land Use Code 230	Condominium/Townhouse	3	13	16
ITE Land Use Code 252	Senior Adult Housing-Attached	9	15	24
ITE Land Use Code 254	Assisted Living	7	4	11
Special Use	Student Training Center	21	20	41
Total AM Peak		**40**	**52**	**92**
PM Peak Hour				
ITE Land Use Code 230	Condominium/Townhouse	12	6	18
ITE Land Use Code 252	Senior Adult Housing-Attached	18	12	30
ITE Land Use Code 254	Assisted Living	8	10	18
Special Use	Student Training Center	20	21	41
Total PM Peak		**58**	**49**	**107**

Calculations;

ITE Land Use Code 230 – Residential Condominium/Townhouse (35 Units)

Independent Variable (X) = Number of Units X = 35*

AM Peak *Directional Distribution 17% Entering, 83% Exiting*

T = 0.44 (X)	Enter: 3
T = 0.44 (35)	Exit: 13
T = 16	Total 16

PM Peak *Directional Distribution 67% Entering, 33% Exiting*

T = 0.52 (X)	Enter: 12
T = 0.52 (35)	Exit: 6
T = 18	Total 18

***Assumptions;**

- Age Restricted +55 condominium/townhouse units.

ITE Land Use Code 252 – Senior Adult Housing - Attached (185 Units)

Independent Variable (X) = Number of Units X = 185*

AM Peak *Directional Distribution 36% Entering, 64% Exiting*

T = 0.13 (X)	Enter: 9
T = 0.13 (185)	Exit: 15
T = 24	Total 24

PM Peak *Directional Distribution 60% Entering, 40% Exiting*

T = 0.16 (X)	Enter: 18
T = 0.16 (185)	Exit: 12
T = 30	Total 30

***Assumptions;**

- Independent Living - 24 units in two new apartment buildings.
- Independent Living - 21 units in renovated Belton Court.
- Independent Living - 140 units in new main building.

ITE Land Use Code 254 – Assisted Living (74 Units/78 Beds)

Independent Variable (X) = Number of Beds X = 78*

AM Peak *Directional Distribution 65% Entering, 35% Exiting*

T = 0.14 (X)	Enter: 7
T = 0.14 (78)	Exit: 4
T = 11	Total 11

PM Peak *Directional Distribution 44% Entering, 56% Exiting*

T = 0.22 (X)	Enter: 8
T = 0.22 (78)	Exit: 10
T = 18	Total 18

***Assumptions;**

- Assisted Living - 54 bedrooms in 50 units in new main building.
- Memory Care - 24 bedrooms in 24 units in new main building.