

Rev. 12/17/07  
 Scale: 1" = 100'

W:\Patterson Crossing\CAD\patxing visual assessmt.dwg: View7

Figure Q-2: Line of Sight Profile from Brentwood Road to NYS Route 311 - View 7

Patterson Crossing Retail Center  
 Towns of Patterson & Kent, Putnam County, New York  
 Prepared by: Tim Miller Associates, Inc.





# Memorandum

To: Planning Board  
Town of Kent

Attn: Arthur Singer  
Chairman

From: Michael W. Soyka, P.E.

Subject: January 2008 Agenda  
Agenda Item No. 1

Date: January 10, 2008

Project: Patterson Crossing Retail Center  
TM #22.-2-48

The following material was reviewed:

- Conformance of the Proposed Action with the Town of Kent Code dated December 20, 2007
- Sheets 1 through 19 of plans prepared by Insite Engineering, Surveying & Landscape Architecture, P.C. dated 8-31-05, last revised on 12-20-07, less sheets 5, 6, 8, 9, 12, 13 and 15

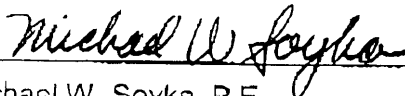
The FEIS was not available for review. My memorandum of September 8, 2006 with comments on the DEIS remains unanswered. The following comments on the documents referenced above are offered for consideration by the Board:

1. Refer to the "Proposed Action with the Town of Kent":
  - a. Page 4:
    - i. See the discussion under subparagraph "2)". Reference is made to "Appendix M in the DEIS." This appendix is the Wastewater Report. There are no buildings shown.
    - ii. See the discussion under subparagraph "3)". Existing property lines and structures extend 100 feet past the property line of the parcel under consideration versus the required 200 feet. Topography extends 100 feet past the property line and is greater than the required 50 feet. The road topography extends more than the required 200 feet east of the property line, but only 100 feet to the west of the property line.
    - iii. See the discussion under subparagraph "4)". Identify the type of business that would be expected to occupy the 1,700 square foot commercial space proposed for the Town of Kent.
    - iv. See the discussion under subparagraph "5)". the references to DEIS figures should read 4.6-4 and 4.3-2, not 3.2-4 and 3.1-2, respectively.
    - v. See the discussion under subparagraph "8)". What are the proposed fire protection features for this project?
    - vi. See the discussion under subparagraph "9)". Building H is so isolated from the rest of the site that it will have to be a destination establishment in and of itself. On-site foot traffic to or from this store is highly unlikely and is discouraged by the site layout.

- b. Page 5:
  - i. See the discussion under subparagraph "11)". Reference is made to "Chapter 4.5 of the FEIS". The FEIS was not available for review.
  - ii. See the discussion under subparagraph "12)". Defer to Neil Wilson for comments on the design of all signs.
- c. Page 6:
  - i. See the discussion under subparagraph "14)". Reference is made to the drawing entitled Lighting Plan L-1. Said drawing was not submitted for review.
  - ii. See the discussion under subparagraph "16)". The applicant proposes to supply the details of the waste enclosure at the time of final site plan submission.
  - iii. See the discussion under subparagraph "16)". There are no power distribution or transmission lines shown on the drawings, nor are any identified in the Legend.
  - iv. See the discussion under subparagraph "17)". As stated above, Electric and telephone utilities do not appear on the drawings. Additionally, all stormwater piping shown on the plans is stated as being 15 inches in diameter, unless otherwise shown. No other size is shown on the plans even though the outlet from a stormwater management practice is usually larger than 15 inches in diameter.
  - v. See the discussion under subparagraph "18)". The parking lot profile for Retail Building H is not shown.
  - vi. See the discussion under subparagraph "19)". Adequate provisions for the handling of stormwater runoff have not been demonstrated. The stormwater management practices within the Town of Kent have been revised from the original plan as shown in the DEIS. A revised Stormwater Pollution Prevention Plan has not been submitted for review.
- d. Page 10:
  - i. Refer to the second paragraph that addresses the fence and plantings between the commercial zone and the residential zone. The fence and plantings do not extend along the full property line.
  - ii. The statement is made that the fence will be installed at a density of 4 pounds per square foot or greater (FEIS 4.9-14). The FEIS was not available for review, however it appears that the applicant will provide not only a visual barrier, but also a sound barrier, as well.
  - iii. See the discussion under subparagraph "2)". The last line refers to Figure 4.13-5B. Provide the name of the document where this can be found.
- e. Page 14:
  - i. See the discussion above subparagraph "2)". Submit the revised SWPPP for review.

As a general comment, there are numerous references made to the FEIS as part of the supporting documentation for comments pertaining to compliance with the Town of Kent approval of site plans process. The FEIS should be made available to confirm the conclusions reached by the applicant.

2. Refer to the drawings:
  - a. EX-1:
    - i. The boring logs indicate that refusal occurred at a shallower depth than shown on the drawing for the following borings: 24-22'/45'; 25-37'/45'; 26-21'/40'; 27-27'/35'; 28-6'-6"/20'; 30-5'-6"/20'; and 31-13'/15'.
  - b. SP-2.1:
    - i. The visual/sound barrier and plantings do not extend for the full length of the property line between the commercial and residential zones.
    - ii. The reservation area does not extend for the full length of the property line between the commercial and residential zones.
    - iii. Sign 11 shows opposite the entrance drive but does not appear on the Sign Table.
  - c. SP-3.1:
    - i. Provide a profile for the access road to stormwater basin 3.4.
    - ii. Provide a profile for the access road to stormwater basin 3.1.
    - iii. Refer to stormwater basin 3.2: Show the riprap emergency overflow at the overflow point, not the top of the berm. The emergency overflow, as shown, will cause the overflow to flow onto Route 311 and across the entrance road to the retail center. Demonstrate that this is acceptable the NYSDOT.
    - iv. Provide the size of the outlet pipes from each stormwater basin.
  - d. SP-4.1
    - i. The description for work area 16 references the "...proposed Lake Carmel Stormwater Improvement Area." Demonstrate that the Town Board of the Town of Kent has agreed to form this improvement area.
  - e. D-1:
    - i. Provide a detail of the proposed visual/sound barrier between the commercial and residential zones.
  - f. D-2:
    - i. Generic swales are not acceptable. Swales should be individually designed for the conditions specific to the swale such as volume of flow and slope.
  - g. D-4:
    - i. Provide the outlet diameters for each stormwater basin shown.
    - ii. Provide a section through each stormwater basin showing the elevation for Water Quality, Channel Protection, Overbank Flood and Extreme Storm.



Michael W. Soyka, P.E.

cc: 04-261-118



# LRC PLANNING SERVICES, LLC

LAND USE/REAL ESTATE/ENVIRONMENTAL CONSULTING

8 MOREHOUSE ROAD  
POUGHKEEPSIE, NEW YORK 12603-4010  
TELE: 845-452-3822  
FAX: 845-452-3346

## MEMORANDUM

TO: Town of Kent Planning Board  
From: Neil A. Wilson, AICP  
Date: January 10, 2008  
Re: Patterson Crossing - Site Plan Approval

With reference to the above matter, we have reviewed the application materials submitted by letter dated December 20, 2007 and offer the following for the Board's consideration:

### SEQRA

1. This application is the subject of an Environmental Impact Statement for which the Town of Patterson Planning Board is the Lead Agency. A Final EIS has not yet been accepted by the Lead Agency and no Findings Statement has been issued. The Town of Kent Planning Board cannot take any action on this application until the Lead Agency has completed its SEQRA review. Once the Lead Agency has completed its SEQRA review, and we have been provided copies of the Final EIS and the Findings Statement, the Town of Kent Planning Board will need to assess the responses provided in the Final EIS, and any amendments to the site plan, in order to issue its own Findings Statement.

### Site Plan

1. The applicant should be advised that a new application form is available on the Town website. A completed application form should be provided.
2. Sheet L-1, "Lighting Plan" is missing from the plan set. Pursuant to §77-60(N)(4) illumination at all property lines shall not exceed 0.2 footcandles.
3. Building elevations need to be provided. This would include exterior colors and materials for the proposed building and wall mounted signage.
4. Details (i.e. colors, materials, etc.) of the freestanding sign at the site entrance have not been provided. The signage schedule on Sheet SP-1, "Overall Site Plan", indicates that a variance for the size of the freestanding sign will be required.
5. A cross section analysis of the proposed improvements in relation to nearby habitable structures (if any), and to motorists on Route 311 and Route 84 should be prepared to allow the Planning Board to analyze the potential visual impact of the structure on residents, and to develop appropriate mitigation.
6. The location of the wetland boundary must be verified by the Town Wetland Inspector.
7. A note must be placed on the site plan stating that there shall be no exterior display of goods for sale except as shown on the approved site plan and that no vehicles shall be parked and offered for sale on the site.

8. The site plan must be submitted to the Putnam County Planning Department for recommendation pursuant to GML §239-m.
9. We will await receipt of the Final EIS and Findings Statement before providing any further comments on the environmental review and the site plan.

Reid



January 9, 2008

To: Planning Board

From: Bruce Barber  
Environmental Consultant

Re: **Patterson Crossing Application**  
NYS Route 311  
Map 22 Block 2 Lot 48

Dear Chairman Singer and Members of the Planning Board:

As per your request, I have reviewed the following documents relative to the above referenced project:

- Plans entitled: "Patterson Crossing Retail Center", prepared by Insite Engineering, 19 Sheets originally dated 8/31/05 most recent revision date 12/20/07: VM-1, EX-1, SP-1, SP-2.1, SP-2.2, SP-2.3, SP-3.1, SP-3.2, SP-3.3, SP-4.1, SP-4.2, SP-4.3, SP-4.4, PR-1, L-1, D-1, D-2, D-3, D-4.

Please note that I am aware that there have been prior submissions including the scoping document, DEIS, SWPPP and FEIS. I have not reviewed these documents and I have not conducted a site inspection of the subject property.

**Summary of Project:**

The applicant is proposing to construct a commercial retail center consisting of 382,560 square feet of retail space and 1,750 parking spaces to be situated on 90.42+/- acres on the southerly side of Route 311. The parcel is located within the towns of Patterson and Kent (16.4 acres). The applicant proposes to construct on-site water (well), waste water (septic) and stormwater systems on the property.

**Natural Resources:**

As per the above referenced plans, the on-site wetlands were flagged by Tim Miller Associates on May 10, 2005 and are depicted on the northwestern section of the site. In

addition, a jurisdictional NYCDEP watercourse has been flagged at the northern area of the property and there is a segment of the Middle Branch of the Croton River located in the northwestern most area of the site. All wetlands and watercourses are located within the Town of Kent parcel; none are depicted on the Town of Patterson parcel. The Kent parcel is located in the NYCDEP Middle Branch reservoir basin. This is a TMDL phosphorous restricted basin. The remainder of the property is located in the Eastern Branch Reservoir basin also a TMDL phosphorous restricted basin. The plans, propose disturbance to the NYCDEP watercourse buffer.

The site is tributary to Lake Carmel which is a 303(d) listed water body.

A map which depicts existing topography and highlights all slopes over 10% has not been provided. There is a substantial amount of cut and fill noted within the Town of Kent area that is required to construct the access road and stormwater basins. .

It would appear that soil borings were not conducted in the area of proposed stormwater basin 3.4 and it is unclear if soil borings were conducted in appropriate areas of proposed stormwater basins 3.1 and 3.2 in the Town of Kent or at any of the proposed stormwater basins in the Town of Patterson. Soil information is also not depicted in the area of the proposed septic systems.

Information regarding additional natural resource components such as geology, wildlife, etc. is assumed to be found in other documents.

#### **Comments:**


1. The wetland boundaries have not been verified to insure that the delineation comports with the requirements found in the Town of Kent Wetlands Ordinance. The location of any off-site wetlands within 200' of the subject property should be depicted and any wetland buffer reflected on the subject site should be shown. Has the ACOE certified the wetland delineation and made a jurisdictional determination?
2. The stream segment classification and any 303d listed impairment should be provided.
3. The location of the well and septic systems on the adjoining properties are not shown.
4. Soil information for the property located in Patterson is not provided.
5. The proposed septic system located in the Town of Patterson is in close proximity to a significant number of single family residences. Has an analysis been conducted to determine potential impacts to the potable water supply to the adjoining residents in the Town of Kent?
6. Water usage is described as approximately 15,675 gallons per day. Has an analysis been conducted to determine possible long-term effects to the water supply of properties in the surrounding area?

7. There is question not only to the stormwater quantity and typical stormwater quality issues (TSS, BOD, TP, TN) but to other potential pollutant loadings that may originate from the proposed development (e.g. pesticide storage in the proposed garden center, grease from restaurants, petroleum from parking lot run off, thermal from impervious areas etc.) under current zoning for potential tenants. Has this been considered in containment design and the design of the stormwater system (and future maintenance requirements)? What methods have been considered to protect adjoining properties and downstream elements from a catastrophic spill? Have NYSDEC heightened stormwater requirements been considered?
8. The existing vegetation should be shown in the plans This is necessary to develop pre-construction run-off curve numbers.
9. There is no analysis of the wetland buffer impacts and proposed mitigation. Stormwater discharge to the indicated intermittent watercourse has not been analyzed for erosion potential.
10. The project directly abuts a densely developed residential community in which residents depend on the continued adequate supply of clean potable water from individual wells. In addition, the project is located within a TMDL phosphorus restricted basin and therefore potentially impacts the drinking water supply to residents of the City of New York. The area is also tributary to a 303(d) listed impaired water body (Lake Carmel) which is an important recreational resource to area residents. Other than proposed 25' and 50' wide reservation areas, the plans do not contain adequate information to determine if all impacts have been fully identified, assessed as unavoidable and adequately mitigated.
11. It is assumed that environmental review of other aspects of this proposed project (e.g. traffic, fiscal, recreational, noise/air pollution, lighting, market feasibility/needs analysis, etc.) is being conducted by others.

**Recommendations:**

1. It is recommended that the Planning Board provide authorization so that I may conduct a site inspection and be furnished with and review all prior relevant documents pertaining to this project. Additional comments will be generated upon completion of the site inspection and receipt of this information. .

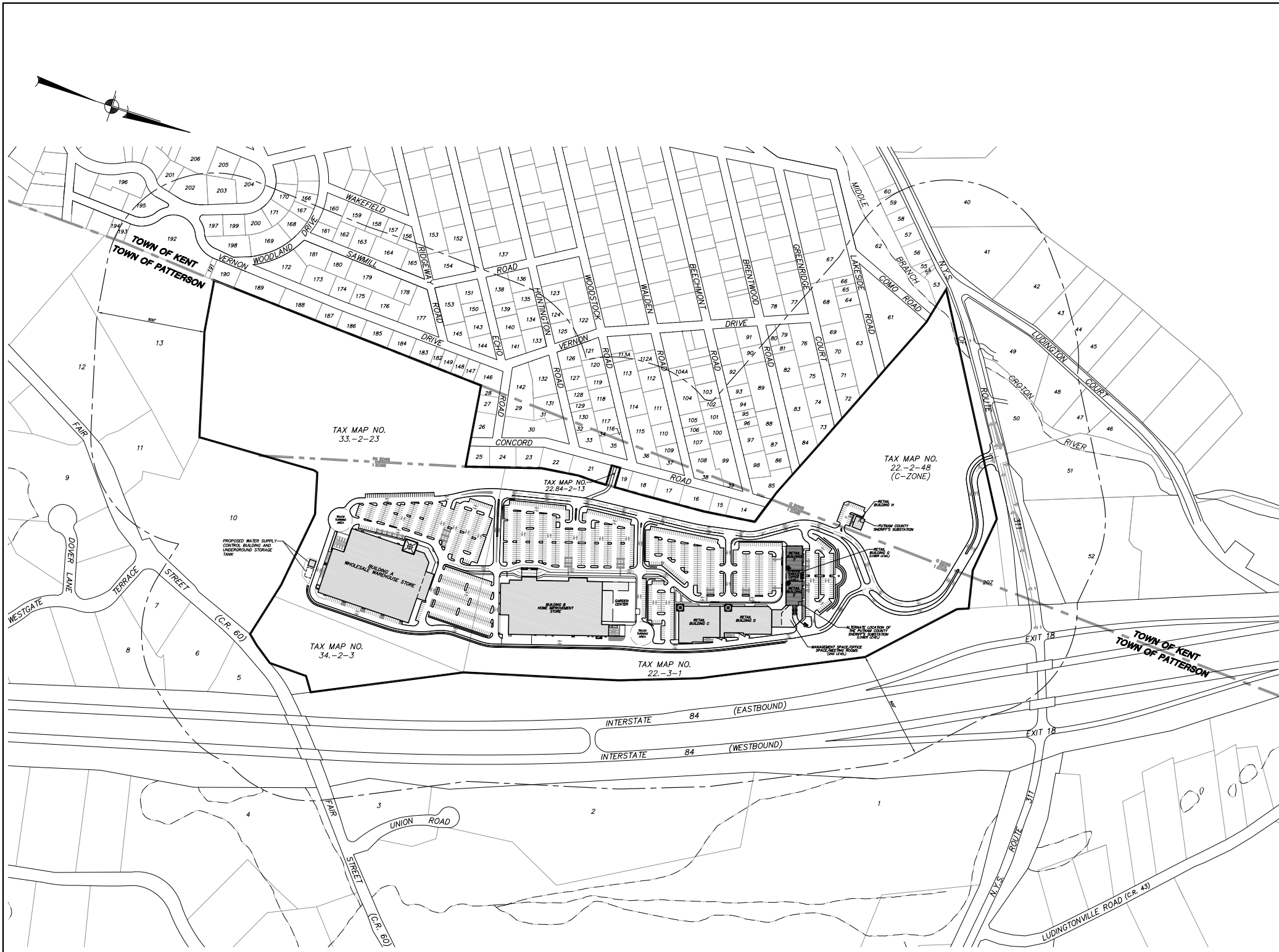
Sincerely,



Bruce Barber, PWS, CPESC, Cert. Ecologist  
Environmental Consultant

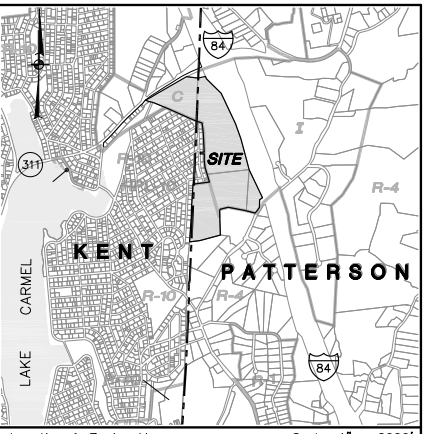
1770 CENTRAL STREET YORKTOWN HEIGHTS, NY 10598  
Telephone: 914.962.7733 Fax: 914.962.0330





**500' ADJOINERS:**

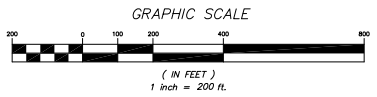
- 1. N/F RYDER
- 2. N/F PETRELLO
- 3. N/F P.B. SHAW, LLC
- 4. N/F K.B. NURSERY, INC.
- 5. N/F CLYNN
- 6. N/F VALINE
- 7. N/F KOLESAR
- 8. N/F PINTO
- 9. N/F MC CAFFREY
- 10. N/F KRIGER
- 11. N/F VENTURE
- 12. N/F TIPA
- 13. N/F FINEST
- 14. N/F CAFERO
- 15. N/F OSORUIM
- 16. N/F BERGLUND
- 17. N/F MULVHILL
- 18. N/F MULVHILL
- 19. N/F LIPPUS
- 20. N/F ROSCO
- 21. N/F CHARBONNEAU
- 22. N/F HITNER
- 23. N/F ENLER
- 24. N/F ENLER
- 25. N/F POPOVICS
- 26. N/F HILL
- 27. N/F FERRY
- 28. N/F FERRIS
- 29. N/F VASQUEZ
- 30. N/F SWIG
- 31. N/F DE CUFTA
- 32. N/F WEBBER
- 33. N/F BOGUSKI
- 34. N/F CONNORS
- 35. N/F BOGUSKI
- 36. N/F ARNOLD
- 37. N/F SETH
- 38. N/F O'LEARY
- 39. N/F DELDUCA
- 40. N/F POZZA-PERNA
- 41. N/F CPD PROPERTIES, INC.
- 42. N/F SCHAEFER
- 43. N/F SARU
- 44. N/F DIBENEDETTO
- 45. N/F MURPHY
- 46. N/F LUDINGTON
- 47. N/F KHORRAM
- 48. N/F SULLIVAN
- 49. N/F WEBBOK
- 50. N/F DOTLE
- 51. N/F SAMPLO
- 52. N/F SAMPLO
- 53. N/F ZAPCLO
- 54. N/F TIGNOLA
- 55. N/F SCHMIDT
- 56. N/F AMENDOLAGINE
- 57. N/F LAMOR
- 58. N/F RICHARD
- 59. N/F BLOOMBERG
- 60. N/F BLOOMBERG
- 61. N/F TOWN OF KENT
- 62. N/F TOWN OF KENT
- 63. N/F TOWN OF KENT
- 64. N/F FARINA
- 65. N/F FARINA
- 66. N/F BUCC
- 67. N/F TORRES
- 68. N/F FARINA
- 69. N/F LUCENT
- 70. N/F REPKO
- 71. N/F MAC DUGALL
- 72. N/F FARMISANO
- 73. N/F KELLY
- 74. N/F LORICCOLO
- 75. N/F SCALPI
- 76. N/F LARRACCHIA
- 77. N/F SILVER
- 78. N/F PREZZOSI
- 79. N/F NESTER
- 80. N/F NESTER
- 81. N/F NESTER
- 82. N/F NESTER
- 83. N/F BENNETT
- 84. N/F SNOZK
- 85. N/F MISICKA
- 86. N/F SARRACCO
- 87. N/F SARRACCO
- 88. N/F PERLOWSKI
- 89. N/F FINNERAN
- 90. N/F COOKIN
- 91. N/F MORRIS
- 92. N/F COCHIO
- 93. N/F SCARFONE
- 94. N/F DIMONEXAS
- 95. N/F SULLIVAN
- 96. N/F SULLIVAN
- 97. N/F SULLIVAN
- 98. N/F RUSINO
- 99. N/F DELDUCA
- 100. N/F MHALICH
- 101. N/F JONES
- 102. N/F AFANADOR
- 103. N/F KANDOS
- 104. N/F CASTNER
- 105. N/F KURON
- 106. N/F KURON
- 107. N/F MHALICH
- 108. N/F O'LEARY
- 109. N/F SETH
- 110. N/F DEPALO
- 111. N/F TESORO
- 112. N/F HALLON
- 113. N/F HALLON
- 114. N/F DIMITRESCU
- 115. N/F ARNOLD
- 116. N/F BOGUSKI
- 117. N/F CONNORS
- 118. N/F GORMAN
- 119. N/F DIPIREGGIO
- 120. N/F TROCOCI
- 121. N/F TROCOCI
- 122. N/F BRODSKY
- 123. N/F PARADISE
- 124. N/F SCHWARZ
- 125. N/F BAKAJA
- 126. N/F GENOVESE
- 127. N/F MACLEOD
- 128. N/F DUNN
- 129. N/F KELLY
- 130. N/F WEINBERG
- 131. N/F DECUFFA
- 132. N/F FERNBERN
- 133. N/F GARCIA
- 134. N/F GRAVEN
- 135. N/F FRANK
- 136. N/F KANUK
- 137. N/F BRANDER
- 138. N/F GREENE ACRES PROPERTIES
- 139. N/F TOWNSEND
- 140. N/F BRANDT
- 141. N/F FEEDER
- 142. N/F VASQUEZ
- 143. N/F LYONS
- 144. N/F SOMME
- 145. N/F KEARNS
- 146. N/F FERRIS
- 147. N/F BOULETOS
- 148. N/F COLELLA
- 149. N/F PALMERI
- 150. N/F LIBETTI
- 151. N/F LIBETTI
- 152. N/F MORRISON
- 153. N/F HERREID
- 154. N/F MURPHY
- 155. N/F TURTORO
- 156. N/F ORELLANA
- 157. N/F ARJEST
- 158. N/F VON HAGEN
- 159. N/F GARBALDI
- 160. N/F GAIOTTO
- 161. N/F FEELEY
- 162. N/F FEELEY
- 163. N/F CALLEN
- 164. N/F KELLY
- 165. N/F FAZIND
- 166. N/F DOUGLAS
- 167. N/F ZION
- 168. N/F JAMN
- 169. N/F MACELHINNEY
- 170. N/F DELLARPA
- 171. N/F DE MARCHO
- 172. N/F HESSION
- 173. N/F PEREZ
- 174. N/F JASPER
- 175. N/F WARKEN
- 176. N/F DONCHIE
- 177. N/F MEDINA
- 178. N/F DONCHIE
- 179. N/F TOMPKINS
- 180. N/F ESEN
- 181. N/F BIER
- 182. N/F PALMERI
- 183. N/F OZBAK
- 184. N/F O'MALLEY
- 185. N/F SPRINGER
- 186. N/F DELLARBOUE
- 187. N/F JENNINGS
- 188. N/F MILLER
- 189. N/F OZZIDIC
- 190. N/F CAMERON
- 191. N/F FLHST
- 192. N/F CURTAN
- 193. N/F TOWN OF KENT
- 194. N/F TOWN OF KENT
- 195. N/F CHRIST
- 196. N/F MARVEL
- 197. N/F EDAN
- 198. N/F SALVATORE
- 199. N/F MUMNELLY
- 200. N/F ZEMAN
- 201. N/F BAPA
- 202. N/F CAMMANN
- 203. N/F COLASUONNO
- 204. N/F ARMISTO
- 205. N/F SALERNO
- 206. N/F DOMINGO
- 207. N/F STATE OF NEW YORK



Location & Zoning Map Scale: 1" = 2000'

**Applicant:**  
Patterson Crossing Realty Co., LLC  
1699 Route 6, Suite 1  
Carmel, NY 10512

**Site Data:**  
Tax Map No.: 22-3-1, 22-84-2-13, 33-2-23 & 34-2-3 (Patterson)  
22-2-48 (Kent)  
Zone: I - Industrial, R-4 Residential (Patterson)  
C - Commercial (Kent)  
Total Acreage: 90.5 AC ±



SITE PLAN DRAWING LIST		
DRAWING NO.	DRAWING NAME	SHEET NO.
VM-1K	VICINITY MAP	1
EX-1K	EXISTING CONDITIONS PLAN	2
SP-1K	OVERALL SITE PLAN	3
SP-2K	LAYOUT & LANDSCAPE PLAN	4
SP-3K	GRADING & UTILITIES PLAN	5
SP-4.1K	OVERALL PHASING PLAN	6
SP-4.2K	SEDIMENT & EROSION CONTROL PLAN	7
PR-1K	PROFILES	8
L-1K	LIGHTING PLAN	9
D-1K	SITE DETAILS	10
D-2K	SITE DETAILS	11
D-3K	SITE DETAILS	12
D-4K	SITE DETAILS	13

**INSITE**  
ENGINEERING, SURVEYING &  
LANDSCAPE ARCHITECTURE, P.C.  
3 Corbett Place  
Carmel, NY 10512  
(845) 225-8690  
(845) 225-8717 fax  
www.insite-ny.com

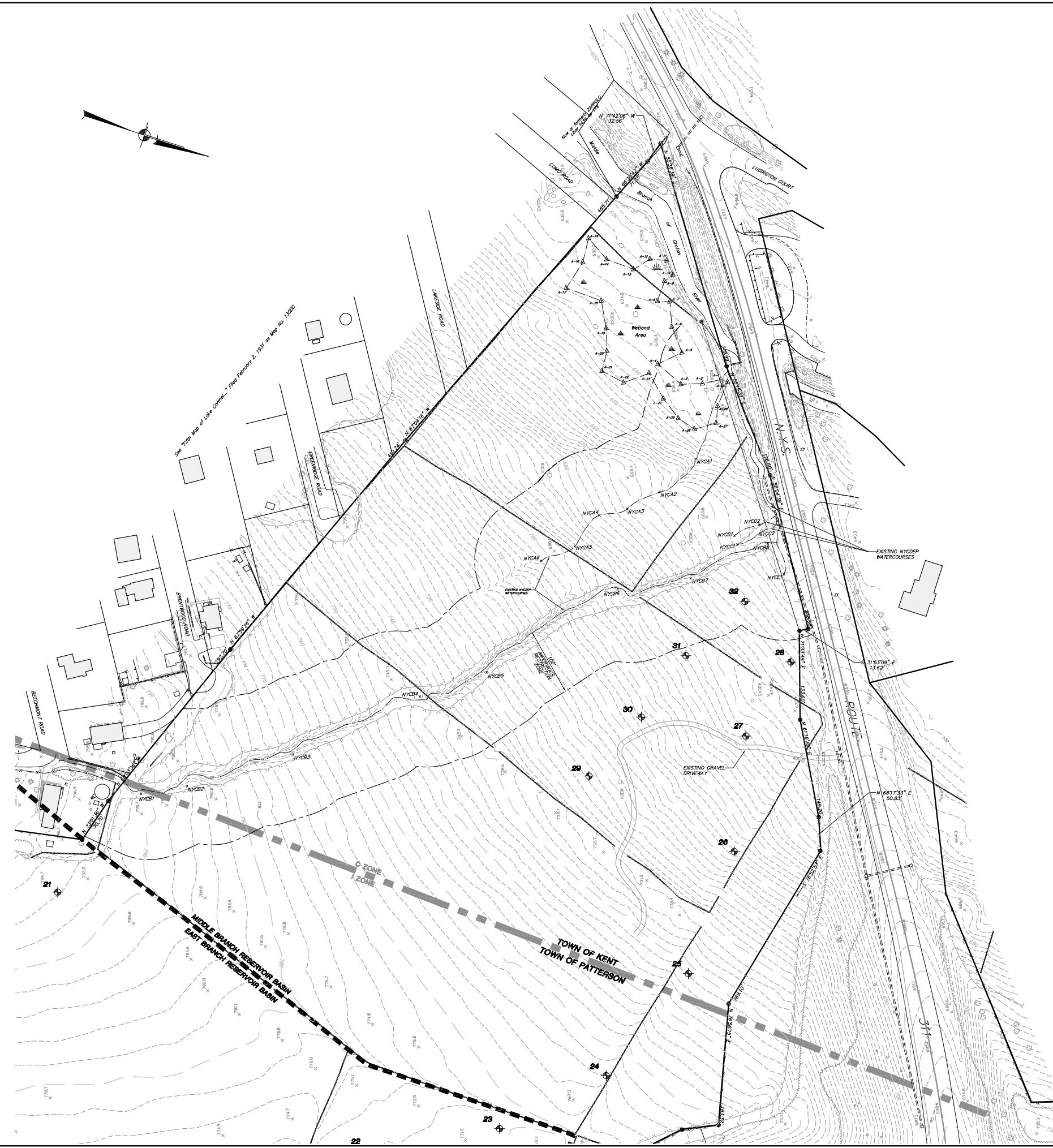
PROJECT: **PATTERSON CROSSING RETAIL CENTER**  
N.Y.S. ROUTE 311, TOWNS OF PATTERSON & KENT, PUTNAM COUNTY, NEW YORK

DRAWING: **VICINITY MAP**

PROJECT NO.	01124.100	PROJECT MANAGER	J.J.C.	DRAWING NO.		SHEET	1
DATE	2-29-08	DRAWN BY	R.C.S.				
SCALE	AS SHOWN	CHECKED BY	P.A.K.				

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.





**LEGEND**

	Existing Property Line
	Existing Stone Wall
	Existing Vegetation Line
	Existing Vegetation
	Existing Tree Line
	Existing Dirt Trail
	Existing Wetland Area
	Existing Wetland Limit
	Existing Watercourse
	Existing NYCDEP Watercourse Flag
	Wetland and Watercourse Buffer
	Existing Fences
	Existing Building
	Existing Utility Pole
	Boring Location

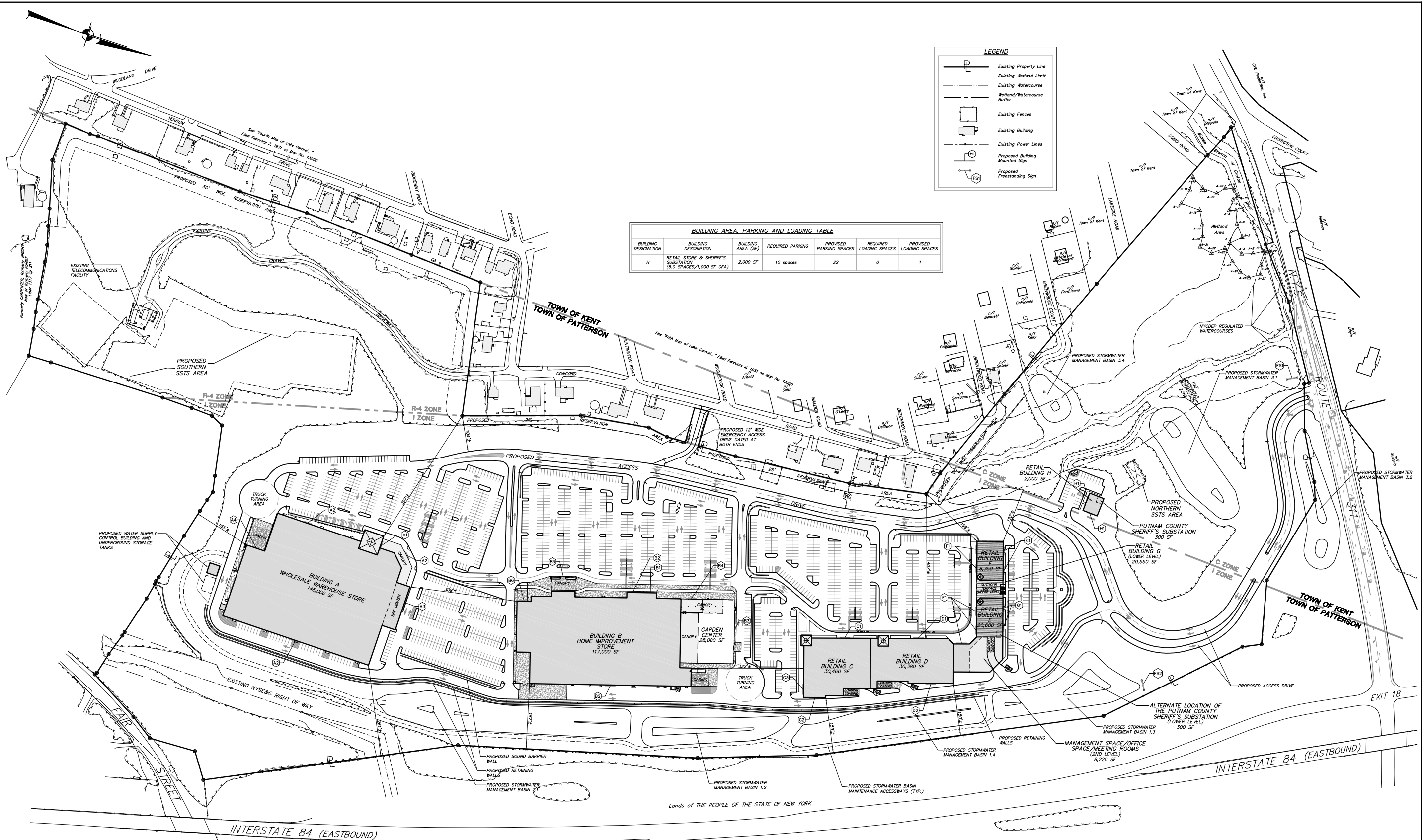
- General Notes:**
1. Property boundary shown hereon based on survey by Insite Engineering, Surveying and Landscape Architecture, P.C.
  2. Existing conditions and topography shown hereon taken from survey entitled "Topographic Map of Property prepared for Hudson Valley Realty Corporation" prepared by Bodey & Watson Surveying and Engineering, P.C. dated May 14, 2001.
  3. The wetland flagging shown hereon was field delineated by Tim Miller Associates, Inc. on January 10, 2008, and survey located by Insite Engineering, Surveying and Landscape Architecture, P.C. on January 28, 2008.
  4. D.E.P. Watercourses shown hereon were delineated in the field by the N.Y.C.D.E.P. and survey located by Bodey & Watson Surveying and Engineering, P.C.
  5. For boring results, see boring logs provided in DEIS prepared by Tim Miller Associates, Inc.
  6. Structure locations beyond the limits of topography are based on aerial photography.

NO.	DATE	REVISION	BY
 <b>INSITE</b> ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.			
PROJECT: <b>PATTERSON CROSSING RETAIL CENTER</b>			
N.Y.S. ROUTE 311, TOWNS OF PATTERSON & KENT, PUTNAM COUNTY, NEW YORK			
DRAWING: <b>EXISTING CONDITIONS PLAN</b>			
PROJECT NO.	01124.100	PROJECT MANAGER	J.J.C.
DATE	2-29-08	DRAWN BY	R.C.S.
SCALE	1" = 60'	CHECKED BY	P.A.K.
DRAWING NO.	SHEET		2
EX-1K			13

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.

2. UTILIZATION OF ANY INFORMATION HEREON IS AT THE USER'S SOLE RISK. INSITE ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C. IS NOT RESPONSIBLE FOR ANY SUCH USE.



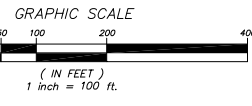


**BUILDING AREA, PARKING AND LOADING TABLE**

BUILDING DESIGNATION	BUILDING DESCRIPTION	BUILDING AREA (SF)	REQUIRED PARKING	PROVIDED PARKING SPACES	REQUIRED LOADING SPACES	PROVIDED LOADING SPACES
H	RETAIL STORE & SHERIFF'S SUBSTATION (3.0 SPACES/1,000 SF GFA)	2,000 SF	10 spaces	22	0	1

**LEGEND**

- Existing Property Line
- Existing Wetland Limit
- Existing Watercourse
- Wetland/Watercourse Buffer
- Existing Fences
- Existing Building
- Existing Power Lines
- Proposed Building Mounted Sign
- Proposed Freestanding Sign



**SIGNAGE TABLE**

Designation	Type	Text	Size (Height X Width)	Area
FS1	Free Standing (Town of Kent)	Patterson Crossing	16' X 20' (Each Side)	320 S.F. (Each Side)
		Home Improvement Store		
		Wholesale Warehouse		
		Building G Store		
H1	Building Mounted	Retail Store	See Building Elevations	60 S.F.

*Note: FS 1 and Building Mounted Signs A through G are all located in the Town of Patterson.*

**General Notes:**

- Property boundary shown hereon based on survey by Insite Engineering, Surveying and Landscape Architecture, P.C.
- Existing conditions and topography shown hereon taken from survey entitled "Topographic Map of Property prepared for Hudson Valley Realty Corporation" prepared by Bodey & Watson Surveying and Engineering, P.C. dated May 14, 2001.
- The wetland flagging shown hereon was field delineated by Tim Miller Associates, Inc. on January 10, 2008, and survey located by Insite Engineering, Surveying and Landscape Architecture, P.C. on January 26, 2008.
- D.E.P. Watercourses shown hereon were delineated in the field by the N.Y.C.D.E.P. and survey located by Bodey & Watson Surveying and Engineering, P.C.

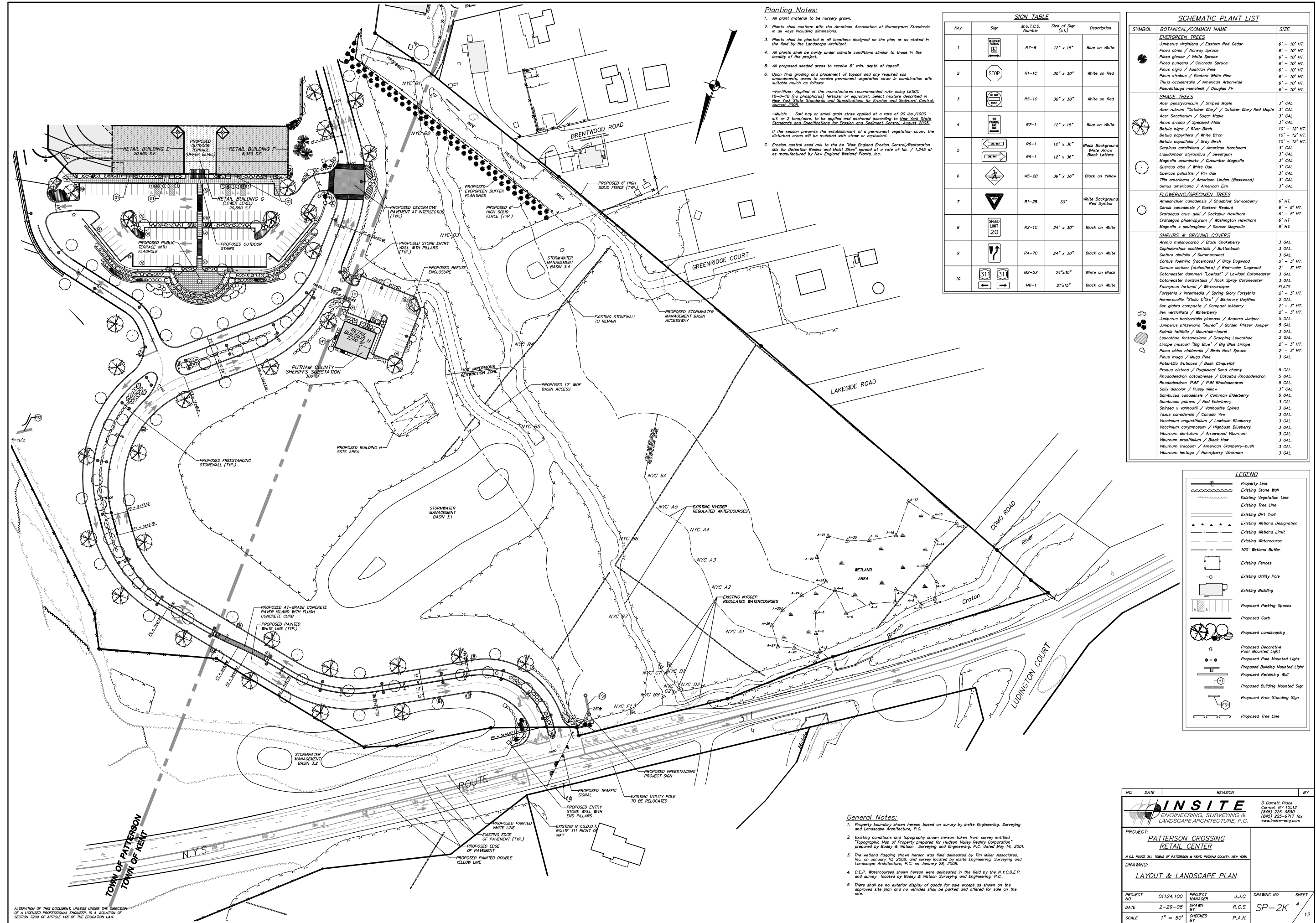
**Parking & Loading Notes:**

- Required parking for retail uses in the Town of Kent is based on 1 parking space for each 200 square foot of building area.
- The Town of Kent requires one (1) loading space at the first 5,000 SF of building area and an additional loading space at each 20,000 SF interval for retail uses.
- Building H is located in the Town of Kent. All other buildings are located in the Town of Patterson.

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NO.	DATE	REVISION	BY
PROJECT: <b>PATTERSON CROSSING RETAIL CENTER</b> N.Y.S. ROUTE 311, TOWN OF PATTERSON & KENT, PUTNAM COUNTY, NEW YORK DRAWING: <b>OVERALL SITE PLAN</b>			
PROJECT NO.	01124.100	PROJECT MANAGER	J.J.C.
DATE	2-29-08	DRAWN BY	R.C.S.
SCALE	1" = 100'	CHECKED BY	P.A.K.
DRAWING NO.	DRAWING NO.		SHEET
	SP-1K		3
			13





**Planting Notes:**

- All plant material to be nursery grown.
- Plants shall conform with the American Association of Nurserymen Standards in all ways including dimensions.
- Plants shall be planted in all locations designed on the plan or as staked in the field by the Landscape Architect.
- All plants shall be hardy under climate conditions similar to those in the locality of the project.
- All proposed seeded areas to receive 6" min. depth of topsoil.
- Upon final grading and placement of topsoil and any required soil amendments, areas to receive permanent vegetation cover in combination with suitable mulch as follows:
  - Fertilizer: Applied at the manufacturers recommended rate using LESCO 18-0-18 (no phosphorus) fertilizer or equivalent. Select mixture described in New York State Standards and Specifications for Erosion and Sediment Control, August 2008.
  - Mulch: Salt hay or small grain straw applied at a rate of 90 lbs./1000 s.f. or 2 tons/acre, to be applied and anchored according to New York State Standards and Specifications for Erosion and Sediment Control, August 2008.
- Erosion control seed mix to be "New England Erosion Control/Restoration Mix for Defoliation Stains and Moist Sites" sown at a rate of 1lb. / 1,245 sq ft as manufactured by New England Wetland Plants, Inc.

SIGN TABLE				
Key	Sign	M.U.T.C.D. Number	Size of Sign (s.f.)	Description
1		R7-8	12" x 18"	Blue on White
2		R1-1C	30" x 30"	White on Red
3		R5-1C	30" x 30"	White on Red
4		R7-1	12" x 18"	Blue on White
5		R6-1	12" x 36"	Black Background
6		R6-1	12" x 36"	Black Background
7		R1-2B	30"	White Background
8		R2-1C	24" x 30"	Black on White
9		R4-7C	24" x 30"	Black on White
10		M2-2X	24"x30"	White on Black
		M6-1	21"x15"	Black on White

SCHEMATIC PLANT LIST			
SYMBOL	BOTANICAL/COMMON NAME	SIZE	
	<b>EVERGREEN TREES</b>		
	<i>Juniperus virginiana</i> / Eastern Red Cedar	6" - 10" HT.	
	<i>Picea abies</i> / Norway Spruce	6" - 10" HT.	
	<i>Picea glauca</i> / White Spruce	6" - 10" HT.	
	<i>Picea pungens</i> / Colorado Spruce	6" - 10" HT.	
	<i>Pinus nigra</i> / Austrian Pine	6" - 10" HT.	
	<i>Pinus strobus</i> / Eastern White Pine	6" - 10" HT.	
	<i>Thuja occidentalis</i> / American Arborvitae	6" - 10" HT.	
	<i>Penstemon maritimus</i> / Douglas Fir	6" - 10" HT.	
		<b>SHADE TREES</b>	
<i>Acer pennsylvanicum</i> / Striped Maple		3" CAL.	
<i>Acer rubrum</i> "October Glory" / October Glory Red Maple		3" CAL.	
<i>Acer saccharum</i> / Sugar Maple		3" CAL.	
<i>Alnus incana</i> / Speckled Alder		3" CAL.	
<i>Betula nigra</i> / River Birch		10" - 12" HT.	
<i>Betula papyrifera</i> / White Birch		10" - 12" HT.	
<i>Betula populifolia</i> / Gray Birch		10" - 12" HT.	
<i>Carpinus caroliniana</i> / American Hornbeam		3" CAL.	
<i>Liquidambar styraciflua</i> / Sweetgum		3" CAL.	
<i>Magnolia acuminata</i> / Cucumber Magnolia		3" CAL.	
<i>Quercus alba</i> / White Oak		3" CAL.	
<i>Quercus palustris</i> / Pin Oak		3" CAL.	
<i>Tilia americana</i> / American Linden (Basswood)		3" CAL.	
<i>Ulmus americana</i> / American Elm		3" CAL.	
	<b>FLOWERING/SPECIMEN TREES</b>		
	<i>Amelanchier canadensis</i> / Shadbolt Serviceberry	6" HT.	
	<i>Cercis canadensis</i> / Eastern Redbud	6" - 8" HT.	
	<i>Ostrya crum-galli</i> / Cocksaur Hawthorn	3" - 8" HT.	
	<i>Ostrya phoenagrum</i> / Washington Hawthorn	6" HT.	
	<i>Magnolia x soulangiana</i> / Saucer Magnolia	6" HT.	
		<b>SHRUBS &amp; GROUND COVERS</b>	
		<i>Artemisia melanocephala</i> / Black Chokeberry	3 GAL.
		<i>Cephalanthus occidentalis</i> / Buttonbush	3 GAL.
		<i>Clethra alnifolia</i> / Summersweet	3 GAL.
<i>Cornus foemina</i> (racemosa) / Gray Dogwood		2" - 3" HT.	
<i>Cornus sericea</i> (stononifera) / Red-osier Dogwood		2" - 3" HT.	
<i>Cotoneaster dammeri</i> "Lowfast" / Lowfast Cotoneaster		3 GAL.	
<i>Cotoneaster horizontalis</i> / Rock Spray Cotoneaster		3 GAL.	
<i>Cosmos fortunei</i> / Wintercreeper		FLATS	
<i>Forsythia x intermedia</i> / Spring Glory Forsythia		2" - 3" HT.	
<i>Hemerocallis "Stella D'Oro"</i> / Miniature Daylily		2 GAL.	
<i>Ilex glabra compacta</i> / Compact Inkberry		2" - 3" HT.	
<i>Ilex verticillata</i> / Winterberry		2" - 3" HT.	
<i>Juniperus horizontalis plumosa</i> / Andorra Juniper		5 GAL.	
<i>Juniperus pfitzeriana</i> "Aurea" / Golden Pfitzer Juniper		5 GAL.	
<i>Kalmia latifolia</i> / Mountain-laurel		3 GAL.	
<i>Leucothoe fontanesiana</i> / Drooping Leucothoe		2 GAL.	
<i>Liriodendron "Big Blue"</i> / Big Blue Liriodendron		2" - 3" HT.	
<i>Picea abies nidiformis</i> / Birds Nest Spruce		2" - 3" HT.	
<i>Pinus mugo</i> / Mugo Pine		3 GAL.	
<i>Potentilla fruticosa</i> / Bush Cinquefoil		5 GAL.	
<i>Prunus cistena</i> / Purpleleaf Sand cherry		5 GAL.	
<i>Rhododendron catawbiense</i> / Catawba Rhododendron		5 GAL.	
<i>Rhododendron "PJM"</i> / PJM Rhododendron		5 GAL.	
<i>Salix discolor</i> / Pussy Willow		3" CAL.	
<i>Sambucus canadensis</i> / Common Elderberry	5 GAL.		
<i>Sambucus pubens</i> / Red Elderberry	3 GAL.		
<i>Spiraea x vanhouttei</i> / Vanhouttei Spirea	3 GAL.		
<i>Taxus canadensis</i> / Canada Yew	3 GAL.		
<i>Vaccinium angustifolium</i> / Lowbush Blueberry	3 GAL.		
<i>Vaccinium corymbosum</i> / Highbush Blueberry	3 GAL.		
<i>Viburnum dentatum</i> / Arrowwood Viburnum	3 GAL.		
<i>Viburnum parvifolium</i> / Black Haw	3 GAL.		
<i>Viburnum trilobum</i> / American Cranberry-bush	3 GAL.		
<i>Viburnum lentago</i> / Nannyberry Viburnum	3 GAL.		

LEGEND	
	Property Line
	Existing Stone Wall
	Existing Vegetation Line
	Existing Tree Line
	Existing Dirt Trail
	Existing Wetland Designation
	Existing Wetland Limit
	Existing Watercourse
	100' Wetland Buffer
	Existing Fences
	Existing Utility Pole
	Existing Building
	Proposed Parking Spaces
	Proposed Curb
	Proposed Landscaping
	Proposed Decorative Post Mounted Light
	Proposed Pole Mounted Light
	Proposed Building Mounted Light
	Proposed Retaining Wall
	Proposed Building Mounted Sign
	Proposed Free Standing Sign
	Proposed Tree Line

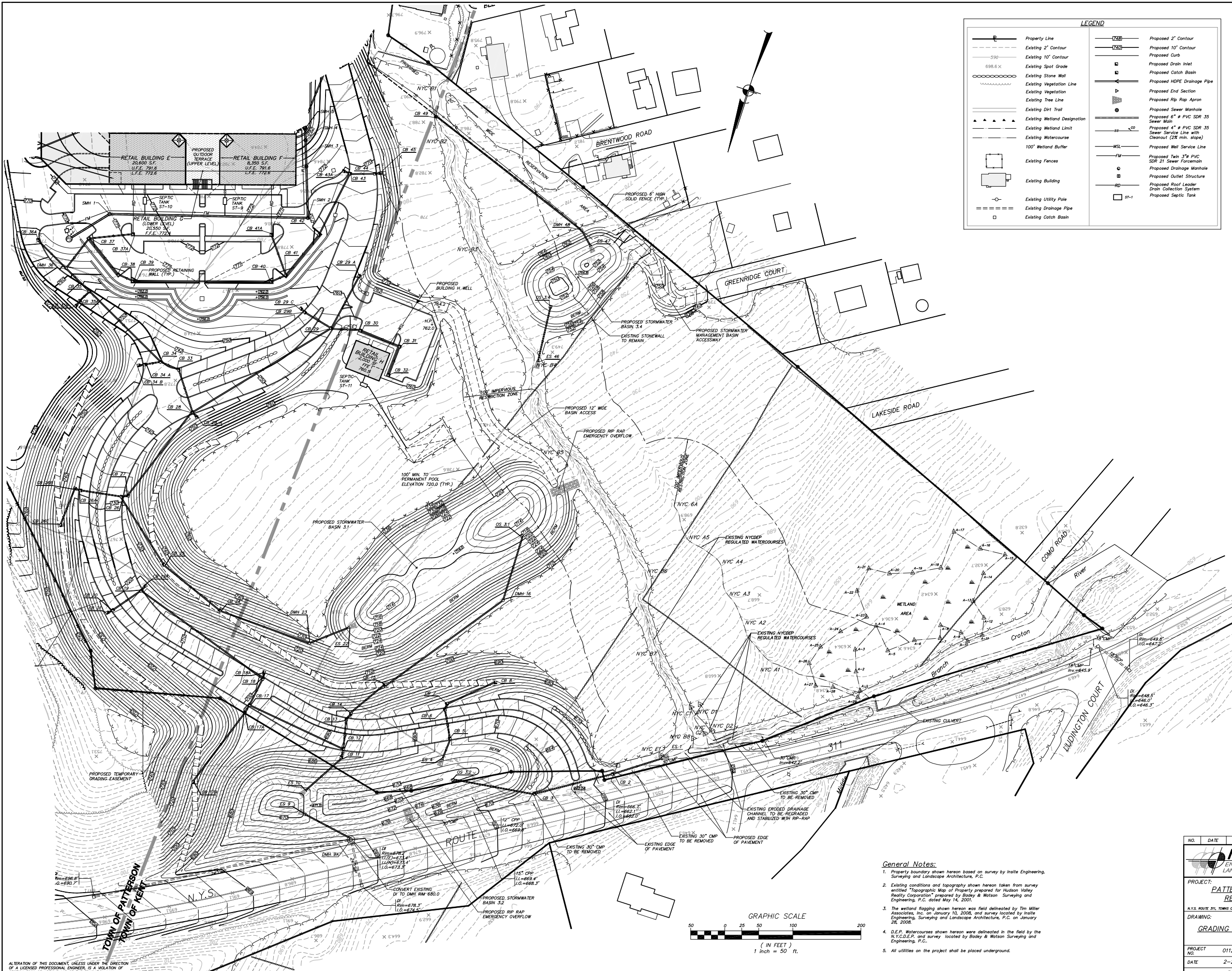
**General Notes:**

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- Existing conditions and topography shown hereon taken from survey entitled "Topographic Map of Property prepared for Hudson Valley Realty Corporation" prepared by Bodey & Watson Surveying and Engineering, P.C. dated May 14, 2001.
- The wetland flooding shown hereon was field delineated by Tim Miller Associates, Inc. on January 15, 2008, and survey located by Insite Engineering, Surveying and Landscape Architecture, P.C. on January 28, 2008.
- D.E.P. Watercourses shown hereon were delineated in the field by the N.Y.C.D.E.P. and survey located by Bodey & Watson Surveying and Engineering, P.C.
- There shall be no exterior display of goods for sale except as shown on the approved site plan and no vehicles shall be parked and offered for sale on the site.

NO.	DATE	REVISION	BY
<b>INSITE</b> ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.			
PROJECT: PATTERSON CROSSING RETAIL CENTER			
N.Y.S. ROUTE 311, TOWN OF PATTERSON & KEEL, PUTNAM COUNTY, NEW YORK			
DRAWING: LAYOUT & LANDSCAPE PLAN			
PROJECT NO.	01124.100	PROJECT MANAGER	J.J.C.
DATE	2-29-08	DRAWN BY	R.C.S.
SCALE	1" = 50'	CHECKED BY	P.A.K.
DRAWING NO.	SP-2K	SHEET	4
			13

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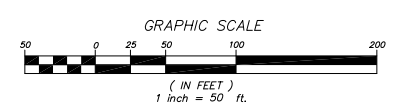
**LEGEND**

	Property Line		Proposed 2' Contour
	Existing 2' Contour		Proposed 10' Contour
	Existing 10' Contour		Proposed Drain Inlet
	Existing Spot Grade		Proposed Catch Basin
	Existing Stone Wall		Proposed HDPE Drainage Pipe
	Existing Vegetation Line		Proposed End Section
	Existing Tree Line		Proposed Rip Rap Apron
	Existing Dirt Trail		Proposed Sewer Manhole
	Existing Wetland Designation		Proposed 6" # PVC SDR 35 Sewer Main
	Existing Wetland Limit		Proposed 4" # PVC SDR 35 Sewer Service Line with Cleanout (2% min. slope)
	Existing Watercourse		Proposed Well Service Line
	100' Wetland Buffer		Proposed Twin 3" # PVC SDR 21 Sewer Forcemain
	Existing Fences		Proposed Drainage Manhole
	Existing Building		Proposed Roof Leader Drain Collection System
	Existing Utility Pole		Proposed Septic Tank
	Existing Drainage Pipe		
	Existing Catch Basin		

**Drainage Table**

STRUCTURE	R/W	INV.	PIPE	LENGTH	SLOPE
CB 49	787.0	784.0	15"	270'	9.18%
DMH 48	785.2	759.2	15"	270'	15.00%
ES 47	-	755.0	-	-	-
OS 3.4	757.0	750.0	15"	85'	1.18%
ES 46	-	749.0	-	-	-
CB 43A	770.0	766.0	12"	10'	8.00%
CB 43	769.0	765.2	12"	10'	8.00%
CB 41A	771.0	767.7	12"	60'	7.17%
CB 41	769.9	763.4	12"	60'	7.17%
CB 37A	771.2	768.9	12"	65'	13.23%
CB 37	770.5	765.1	12"	65'	13.23%
CB 36A	766.6	760.1	12"	60'	1.00%
CB 36	766.6	759.5	12"	60'	1.00%
CB 35B	756.8	752.8	12"	8'	2.50%
CB 35A	755.9	752.6	12"	20'	2.50%
CB 35	756.8	752.1	12"	20'	2.50%
CB 34B	743.5	741.2	12"	8'	6.25%
CB 34A	743.0	739.7	12"	24'	2.98%
CB 34	742.5	739.2	12"	24'	2.98%
CB 45	770.0	766.0	12"	8'	5.75%
CB 44	769.0	765.7	12"	36'	1.58%
CB 43	769.0	765.2	12"	100'	1.00%
CB 42	769.9	764.2	12"	75'	1.07%
CB 41	769.9	763.4	12"	20'	1.68%
CB 40	769.9	763.2	12"	200'	1.00%
CB 39	769.8	761.2	15"	20'	1.00%
CB 38	769.8	761.0	18"	47'	1.45%
CB 37	770.5	760.3	15"	68'	1.03%
DMH 36	766.6	759.5	18"	35'	15.74%
CB 35	756.8	752.1	18"	145'	8.89%
CB 34	742.5	739.2	18"	27'	1.11%
CB 33	743.5	738.9	18"	27'	1.11%
CB 28	744.0	738.2	24"	65'	1.08%
CB 29C	757.3	754.0	12"	8'	3.75%
CB 29B	757.0	751.7	12"	49'	1.58%
CB 29	756.8	753.0	12"	49'	1.58%
CB 29A	762.0	758.5	12"	85'	6.47%
CB 29	756.8	753.0	12"	85'	6.47%
CB 28A	744.2	739.0	12"	8'	10.00%
CB 28	744.0	738.2	12"	8'	10.00%
CB 26C	736.2	733.2	12"	85'	11.37%
CB 26B	731.5	727.0	12"	10'	2.00%
CB 26A	730.1	726.8	12"	60'	1.00%
CB 26	731.0	726.2	12"	60'	1.00%
CB 32	761.0	756.7	12"	43'	1.16%
CB 31	761.2	756.2	12"	62'	1.00%
CB 30	760.2	757.6	12"	44'	10.45%
CB 29	756.8	753.0	12"	237'	6.24%
CB 28	744.0	738.2	24"	185'	7.23%
CB 27	732.0	727.0	24"	10'	8.00%
CB 26	731.0	726.2	24"	105'	1.44%
CB 25	735.7	725.0	24"	118'	1.02%
CB 24	728.0	723.8	24"	140'	1.14%
DMH 23	726.0	722.2	24"	53'	1.51%
ES 22	-	721.4	-	-	-
CB 18A	718.5	715.5	12"	10'	11.00%
CB 18	717.9	714.4	12"	10'	11.00%
CB 18A	700.0	771.0	12"	10'	13.00%
CB 18	699.7	771.0	12"	12'	8.33%
CB 17B	710.0	707.7	12"	126'	8.57%
CB 17A	699.9	696.9	12"	12'	8.33%
CB 17	699.7	695.9	12"	12'	8.33%
CB 21	719.0	716.0	12"	9'	12.22%
CB 20	718.2	714.9	12"	50'	1.00%
CB 19	717.9	714.4	12"	220'	8.95%
CB 18	699.7	696.4	15"	43'	1.16%
CB 17	699.7	695.9	15"	150'	8.73%
CB 12	687.8	682.8	15"	150'	8.73%
OS 1.1	723.0	714.0	24"	103'	10.04%
DMH 16	708.7	703.7	24"	213'	5.16%
CB 15	699.7	692.7	24"	69'	13.38%
CB 14	688.0	684.0	24"	10'	7.00%
CB 13	687.8	683.3	24"	43'	1.16%
CB 12	687.8	682.8	24"	10'	5.00%
CB 11	687.0	682.3	24"	70'	14.71%
ES 10	-	672.0	-	-	-
DMH 9A	680.0	673.3	30"	70'	3.07%
ES 9	-	671.0	-	-	-
CB 8	678.5	673.8	12"	75'	1.06%
CB 7	678.0	673.0	12"	10'	1.00%
CB 6	678.0	673.9	12"	115'	6.81%
CB 5	678.0	672.5	12"	44'	1.14%
ES 4	-	672.0	-	-	-
OS 3.2	675.0	666.0	36"	120'	4.25%
CB 3	666.0	660.9	36"	115'	6.81%
CB 2	658.1	651.2	36"	75'	1.20%
ES 1	-	652.3	-	-	-

- General Notes:**
- Property boundary shown hereon based on survey by Insite Engineering, Surveying and Landscape Architecture, P.C.
  - Existing conditions and topography shown hereon taken from survey entitled "Topographic Map of Property prepared for Hudson Valley Realty Corporation" prepared by Bodey & Watson Surveying and Engineering, P.C. dated May 14, 2001.
  - The wetland flagging shown hereon was field detected by Tim Miller Associates, Inc. on January 10, 2008, and survey located by Insite Engineering, Surveying and Landscape Architecture, P.C. on January 26, 2008.
  - D.E.P. Watercourses shown hereon were delineated in the field by the N.Y.C.D.E.P. and survey located by Bodey & Watson Surveying and Engineering, P.C.
  - All utilities on the project shall be placed underground.



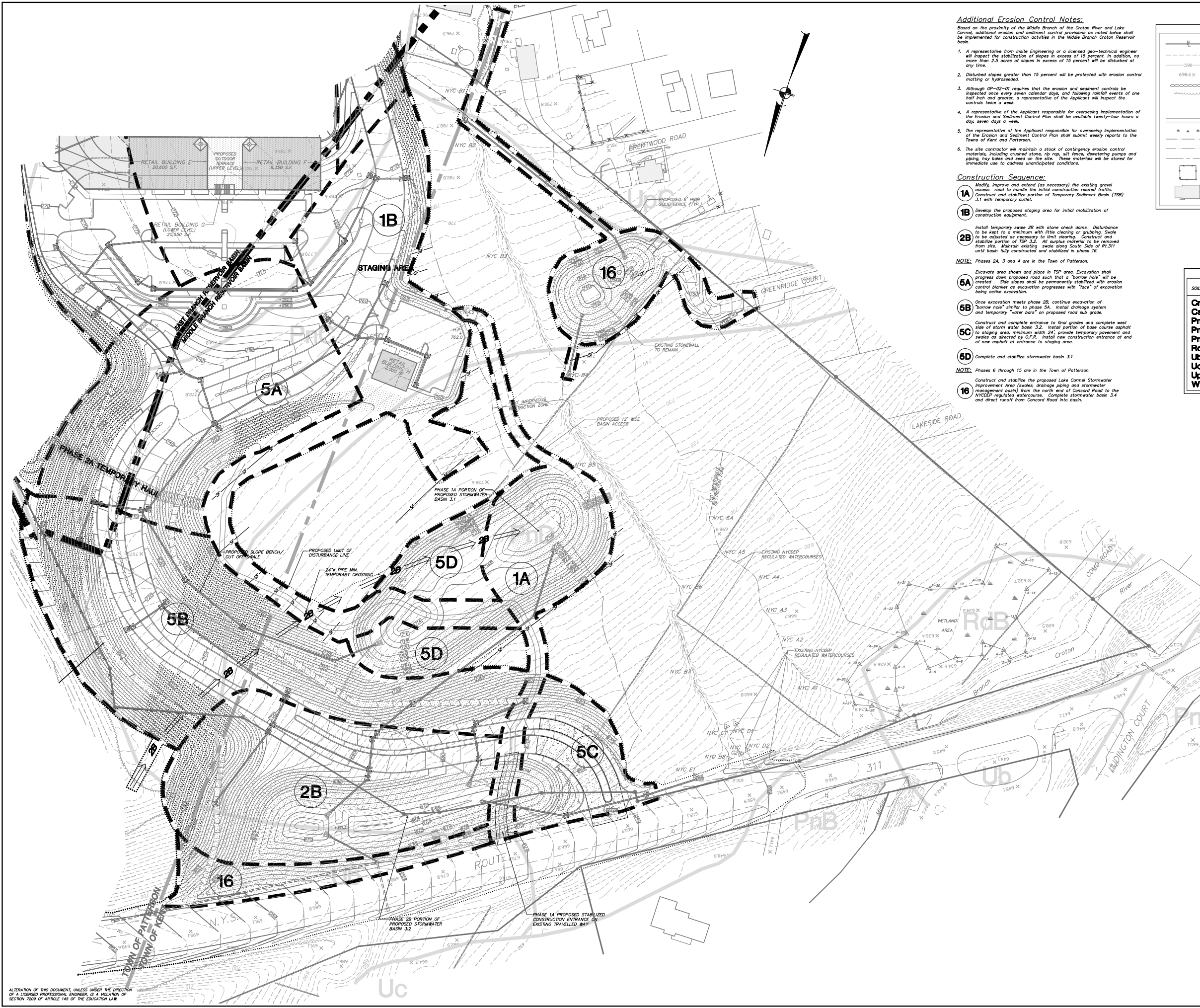
ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.

NO.	DATE	REVISION	BY
 3 Garrett Place Carmel, NY 12512 (845) 225-9690 (845) 225-9717 fax www.insite-eng.com			
PROJECT: <b>PATTERSON CROSSING RETAIL CENTER</b>			
N.Y.S. ROUTE 311, TOWNSHIP OF PATTERSON & KENT, PUTNAM COUNTY, NEW YORK			
DRAWING: <b>GRADING AND UTILITIES PLAN</b>			
PROJECT NO.	01124.100	PROJECT MANAGER	J.J.C.
DATE	2-29-08	DRAWN BY	R.C.S.
SCALE	1" = 50'	CHECKED BY	P.A.K.
DRAWING NO.	SP-3K	SHEET	5
			13









**Additional Erosion Control Notes:**

- Based on the proximity of the Middle Branch of the Croton River and Lake Carmel, additional erosion and sediment control provisions as noted below shall be implemented for construction activities in the Middle Branch Croton Reservoir basin.
1. A representative from Insite Engineering or a licensed geo-technical engineer will inspect the stabilization of slopes in excess of 15 percent. In addition, no more than 2.5 acres of slopes in excess of 15 percent will be disturbed at any time.
  2. Disturbed slopes greater than 15 percent will be protected with erosion control matting or hydrosedec.
  3. Although 02-02-01 requires that the erosion and sediment controls be inspected once every seven calendar days, and following rainfall events of one half inch and greater, a representative of the Applicant will inspect the controls twice a week.
  4. A representative of the Applicant responsible for overseeing implementation of the Erosion and Sediment Control Plan shall be available twenty-four hours a day, seven days a week.
  5. The representative of the Applicant responsible for overseeing implementation of the Erosion and Sediment Control Plan shall submit weekly reports to the Towns of Kent and Patterson.
  6. The site contractor will maintain a stock of contingency erosion control materials, including crushed stone, rip rap, silt fence, dewatering pumps and piping, hay bales and seed on the site. These materials will be stored for immediate use to address unanticipated conditions.

**Construction Sequence:**

- 1A Modify, improve and extend (as necessary) the existing gravel access road to handle the initial construction related traffic. Construct and stabilize portion of Temporary Sediment Basin (TSB) 3.1 with temporary outlet.
  - 1B Develop the proposed staging area for initial mobilization of construction equipment.
  - 2B Install temporary swale 2B with stone check dams. Disturbance to be kept to a minimum with little clearing or grubbing. Swale to be adjusted as necessary to limit clearing. Construct and stabilize portion of TSB 3.2. All surplus material to be removed from site. Maintain existing swale along South Side of RL311 until basin fully constructed and stabilized in phase 16.
- NOTE:** Phases 2A, 3 and 4 are in the Town of Patterson.
- 5A Excavate area shown and place in TSP area. Excavation shall progress down proposed road such that a "borrow hole" will be created. Side slopes shall be permanently stabilized with erosion control blanket as excavation progresses with "face" of excavation being active excavation.
  - 5B Once excavation meets phase 2B, continue excavation of "borrow hole" similar to phase 5A. Install drainage system and temporary "water bars" on proposed road sub grade.
  - 5C Construct and complete entrance to final grades, and complete west side of storm water basin 3.2. Install portion of base course asphalt to staging area, minimum width 24'; provide temporary pavement and swales as directed by D.E.P. Install new construction entrance at end of new asphalt to entrance to staging area.
  - 5D Complete and stabilize stormwater basin 3.1.
- NOTE:** Phases 6 through 15 are in the Town of Patterson.
- 16 Construct and stabilize the proposed Lake Carmel Stormwater Improvement Area (swales, drainage piping and stormwater management basin) from the north end of Concord Road to the NYCDEP regulated watercourse. Complete stormwater basin 3.4 and direct runoff from Concord Road into basin.

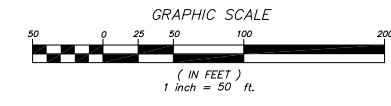
**LEGEND**

	Property Line		Existing Utility Pole
	Existing 2' Contour		Existing Drainage Pipe
	Existing 10' Contour		Existing Catch Basin
	Existing Spot Grade		Existing Well
	Existing Stone Wall		Proposed Curb
	Existing Vegetation Line		Proposed Concrete Sidewalk
	Existing Vegetation		Proposed Catch Basin with Inlet Protection
	Existing Tree Line		Proposed HDPE Drainage Pipe
	Existing Dirt Trail		Proposed End Section
	Existing Wetland Designation		Proposed Rip Rap Apron
	Existing Wetland Limit		Proposed Silt Fence
	Existing Watercourse		Proposed Stabilized Construction Entrance
	100' Wetland Buffer		Proposed Erosion Control Blanket
	Existing Fences		Proposed Limit of Disturbance Line
	Existing Building		

**SOILS LEGEND**

SOILS	DESCRIPTION	HYDROLOGICAL GROUP
GcC	Charlton-Charfield complex, rolling, very rocky	B
CdD	Charfield-Charlton complex, hilly, very rocky	B
PnB	Paxton fine sandy loam, 2% to 8% slopes	C
PnC	Paxton fine sandy loam, 8% to 15% slopes	C
PnD	Paxton fine sandy loam, 15% to 25% slopes	C
RdB	Ridgebury loam, 3% to 8% slopes	C
Uc	Udorthents, smoothed	-
UcC	Udorthents, wet substratum	-
UpC	Urban land-Paxton complex, 8% to 15% slopes	C
WdB	Woodbridge loam, 3% to 8% slopes	C

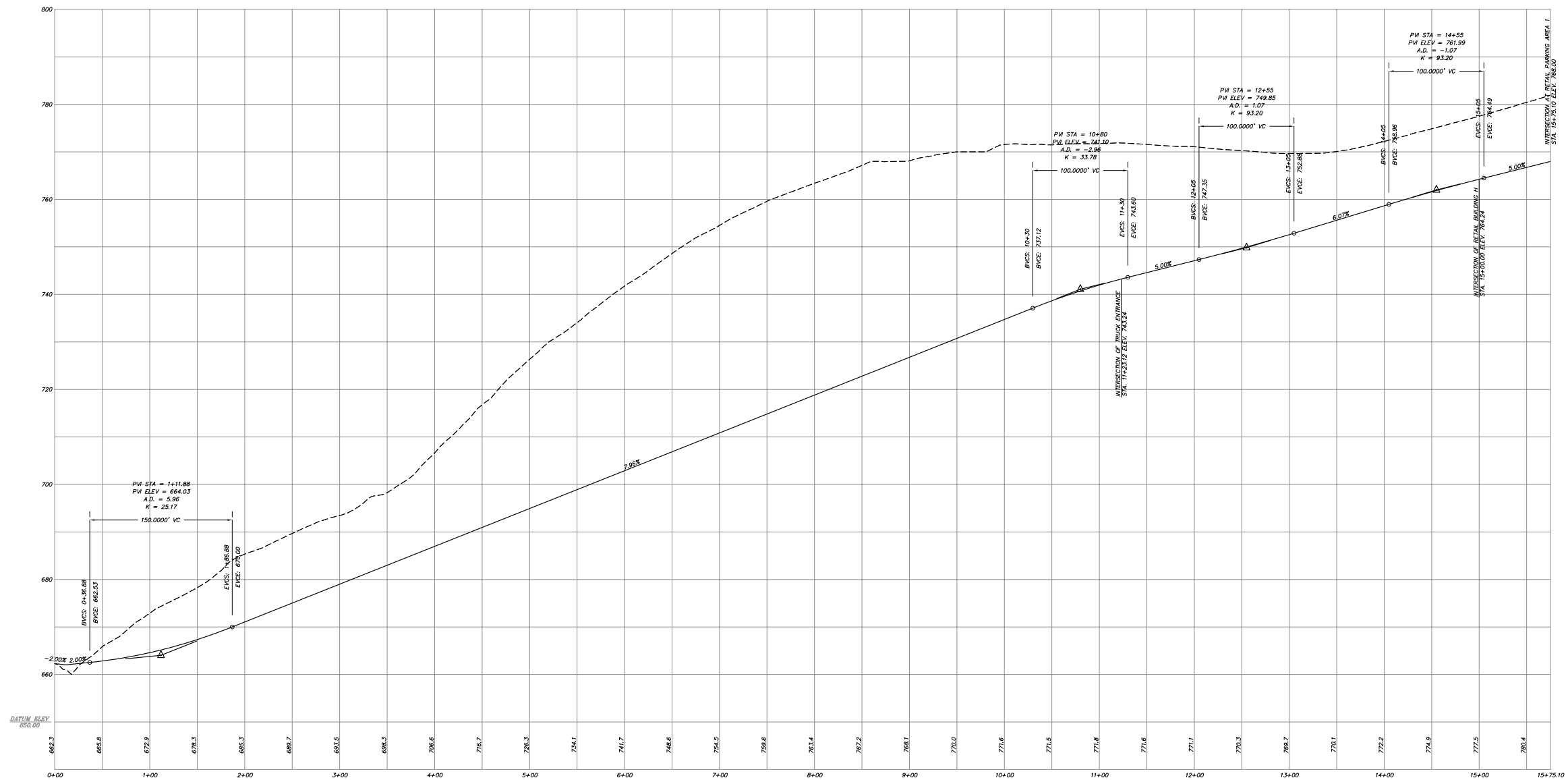
- General Notes:**
1. Property boundary shown hereon based on survey by Insite Engineering, Surveying and Landscape Architecture, P.C.
  2. Existing conditions and topography shown hereon taken from survey entitled "Topographic Map of Property prepared for Hudson Valley Realty Corporation" prepared by Bodey & Watson Surveying and Engineering, P.C. dated May 14, 2001.
  3. The wetland flagging shown hereon was field delineated by Tim Miller Associates, Inc. on January 10, 2008 and survey located by Insite Engineering, Surveying and Landscape Architecture, P.C. on January 28, 2008.
  4. D.E.P. Watercourses shown hereon were delineated in the field by the N.Y.C.D.E.P. and survey located by Bodey & Watson Surveying and Engineering, P.C.



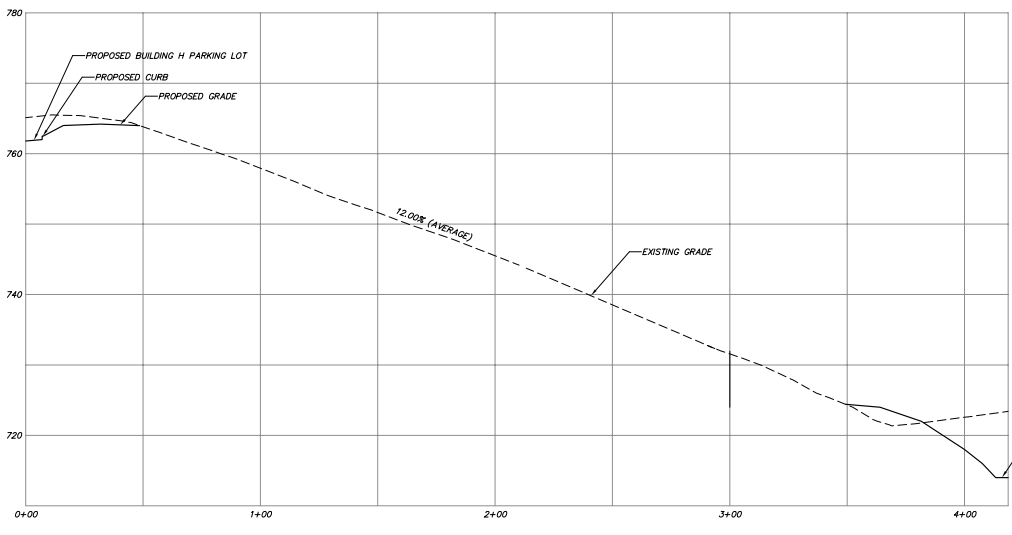
NO.	DATE	REVISION	BY
PROJECT:		3 Corbett Place Carmel, NY 10512 (845) 225-9690 (845) 225-9717 fax www.insite-eng.com	
PATTERSON CROSSING RETAIL CENTER			
N.Y.S. ROUTE 311, TOWNS OF PATTERSON & KENT, PUTNAM COUNTY, NEW YORK			
DRAWING:		PROJECT MANAGER J.J.C. DRAWN BY R.C.S. CHECKED BY P.A.K.	
SEDIMENT & EROSION CONTROL PLAN			
PROJECT NO.	01124.100	DRAWING NO.	
DATE	2-29-08	SHEET	7
SCALE	1" = 50'	CHECKED BY	SP-4.2K
			13

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.

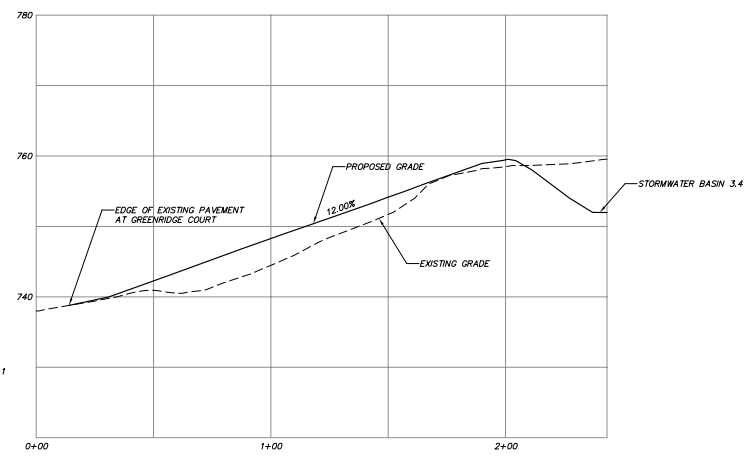




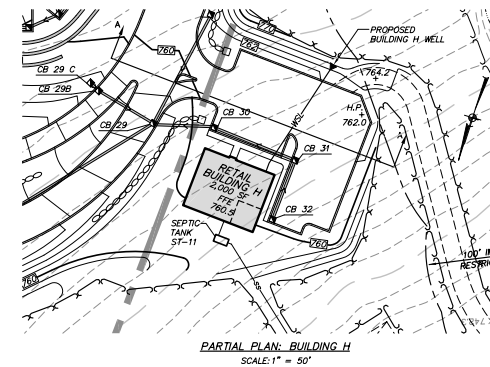
ACCESS DRIVE PROFILE  
SCALE: HORIZ. 1" = 50'  
VERT. 1" = 10'



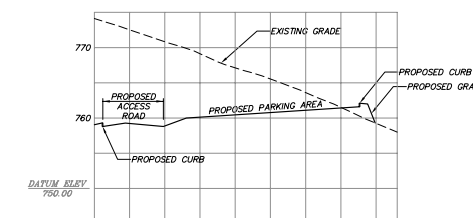
PROFILE STORMWATER BASIN 3.1 ACCESS  
SCALE: HORIZONTAL 1" = 30'  
VERTICAL 1" = 10'



PROFILE STORMWATER BASIN 3.4 ACCESS  
SCALE: HORIZONTAL 1" = 30'  
VERTICAL 1" = 10'



PARTIAL PLAN: BUILDING H  
SCALE: 1" = 50'



BUILDING H PARKING LOT PROFILE  
SECTION A-A  
SCALE: HORIZ. 1" = 50'  
VERT. 1" = 10'

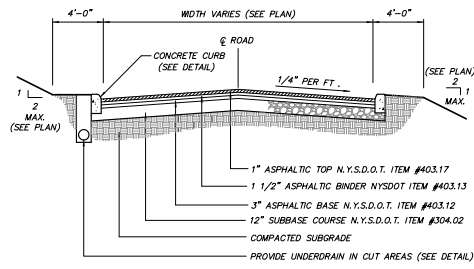
NO.	DATE	REVISION	BY
 <b>INSITE</b> ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.			
PROJECT: <b>PATTERSON CROSSING RETAIL CENTER</b>			
N.Y.S. ROUTE 311, TOWN OF PATTERSON & HENT, PUTNAM COUNTY, NEW YORK			
DRAWING: <b>PROFILES</b>			
PROJECT NO.	01124.100	PROJECT MANAGER	J.J.C.
DATE	2-29-08	DRAWN BY	R.C.S.
SCALE	AS SHOWN	CHECKED BY	P.A.K.
DRAWING NO.		SHEET	8
			13

ALTERNATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.

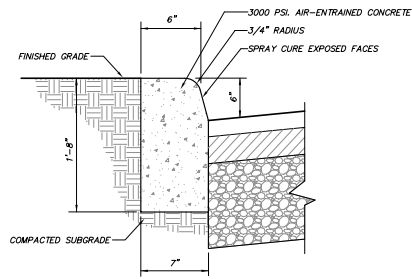




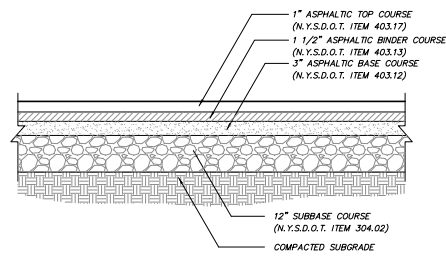




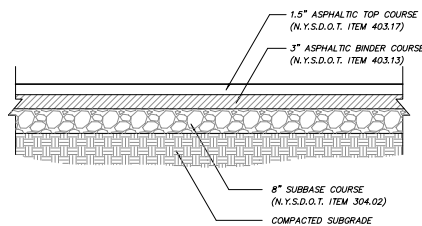
ACCESS ROAD DETAIL  
(N.T.S.)



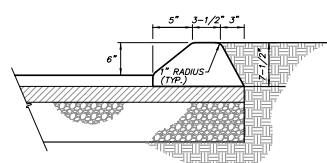
SITE CONCRETE CURB DETAIL  
(N.T.S.)



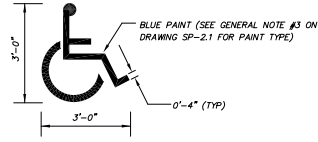
SITE PAVEMENT SECTION DETAIL  
(FOR ALL ACCESS AISLE AREAS)  
(N.T.S.)



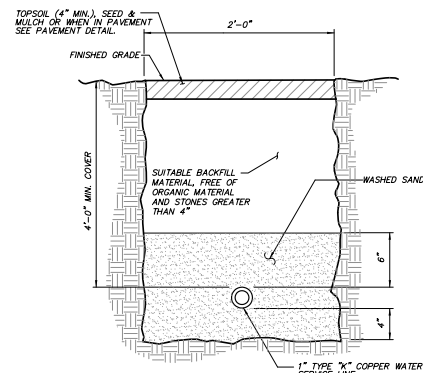
PARKING SPACE PAVEMENT SECTION DETAIL  
(FOR ALL PARKING SPACES)  
(N.T.S.)



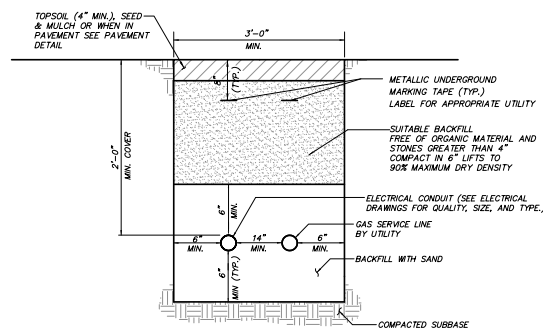
ASPHALT CURB DETAIL  
(N.T.S.)



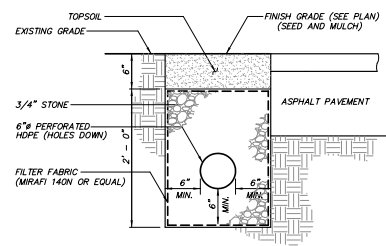
PAINTED HANDICAP SYMBOL DETAIL  
(N.T.S.)



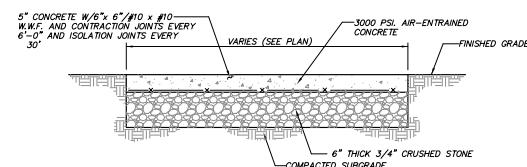
WATER SERVICE LINE TRENCH DETAIL  
(N.T.S.)



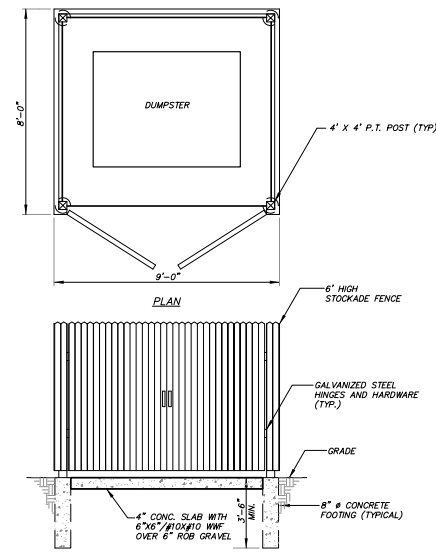
GAS & ELECTRIC TRENCH DETAIL  
(N.T.S.)



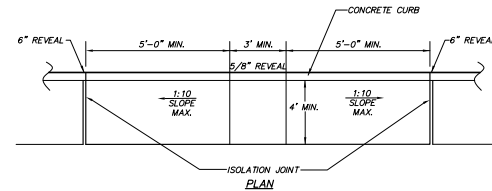
UNDERDRAIN DETAIL  
(N.T.S.)



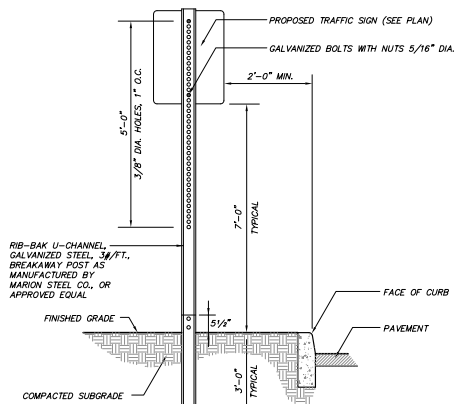
CONCRETE SIDEWALK DETAIL  
(N.T.S.)



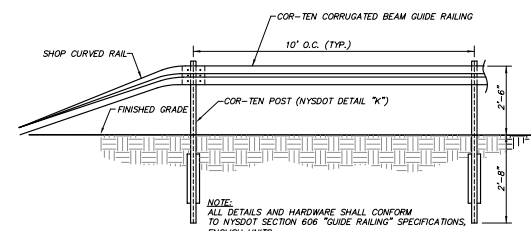
DUMPSTER ENCLOSURE DETAIL  
(N.T.S.)



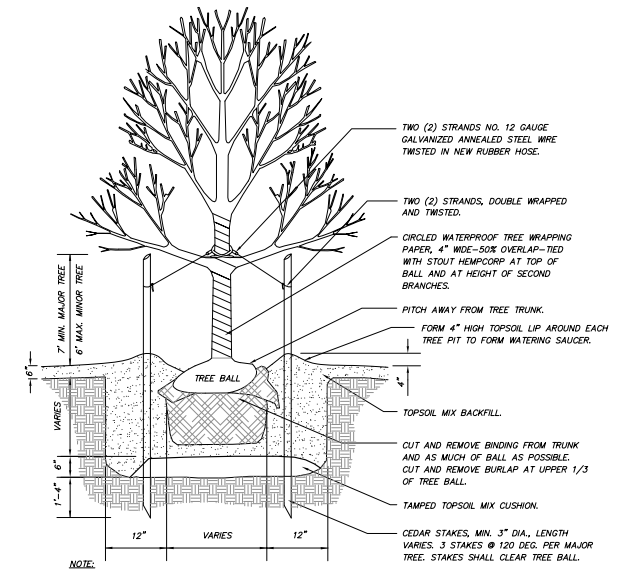
DROP CURB AND RAMP DETAIL  
(N.T.S.)



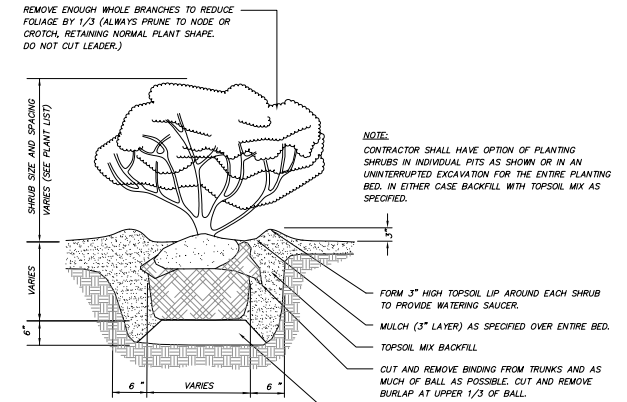
TRAFFIC SIGN DETAIL  
(N.T.S.)



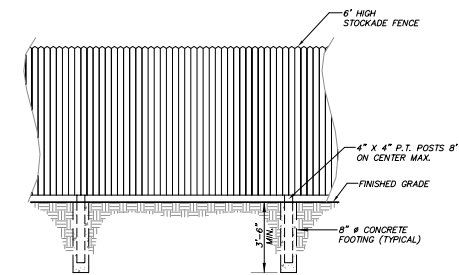
CORRUGATED BEAM GUIDE RAIL DETAIL  
(N.T.S.)



TREE PLANTING DETAIL  
(N.T.S.)



SHRUB PLANTING DETAIL  
(N.T.S.)

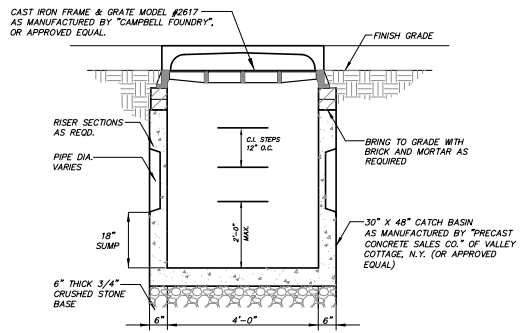


STOCKADE FENCE DETAIL  
(N.T.S.)

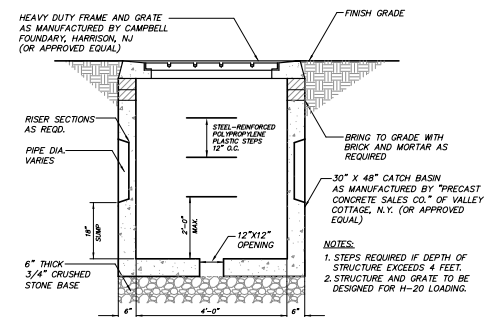
NO.	DATE	REVISION	BY
<b>INSITE</b> ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.			
PROJECT: PATERSON CROSSING RETAIL CENTER			
N.Y.S. ROUTE 311, TOWN OF PATERSON & HENT, PUTNAM COUNTY, NEW YORK			
DRAWING: SITE DETAILS			
PROJECT NO.	01124.100	PROJECT MANAGER	J.J.C.
DATE	2-29-08	DRAWN BY	R.C.S.
SCALE	AS SHOWN	CHECKED BY	P.A.K.
DRAWING NO.			SHEET
D-1K			10
			13

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.

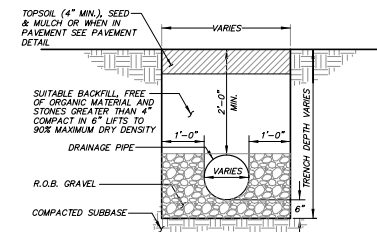




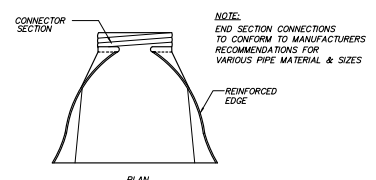
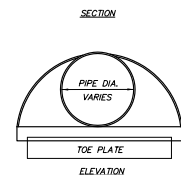
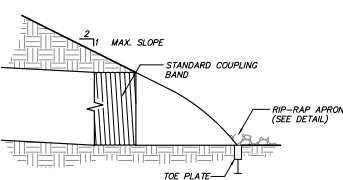
**CATCH BASIN DETAIL**  
(N.T.S.)  
(STRUCTURE AND GRATE TO BE DESIGNED FOR H-20 LOADING)



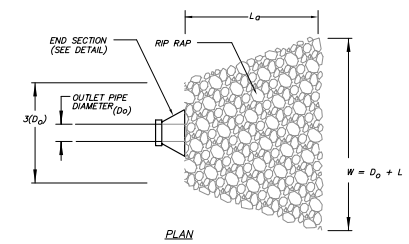
**DRAIN INLET DETAIL**  
(N.T.S.)



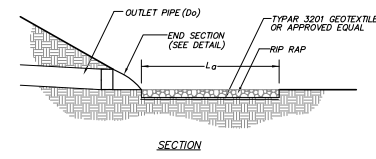
**DRAINAGE LINE TRENCH DETAIL**  
(N.T.S.)



**END SECTION DETAIL**  
(N.T.S.)

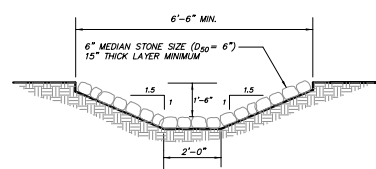


**PLAN**

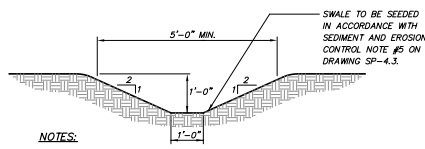


**SECTION**

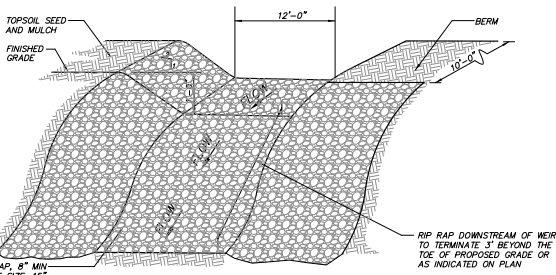
**RIP RAP APRON DETAIL**  
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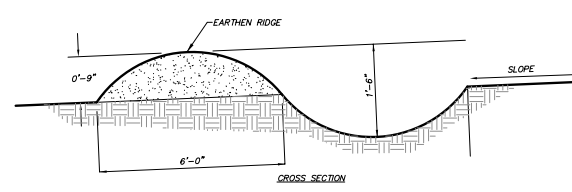
**RIP RAP SWALE DETAIL**  
(N.T.S.)



**GRASS SWALE DETAIL**  
(N.T.S.)



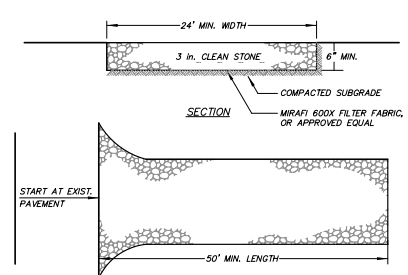
**EMERGENCY OVERFLOW DETAIL**  
(N.T.S.)



**CROSS SECTION**

- NOTES**
- INSTALL THE WATER BAR AS SOON AS THE RIGHT OF WAY IS CLEARED AND GRADED.
  - DISK OR STRIP THE SOIL FROM THE BASE FOR THE CONSTRUCTED RIDGE BEFORE PLACING FILL.
  - TRACK THE RIDGE TO COMPACT IT TO THE DESIGN CROSS SECTION.
  - THE OUTLET SHALL BE LOCATED ON AN UNDISTURBED AREA. FIELD SPACING WILL BE ADJUSTED TO USE THE MOST STABLE OUTLET AREAS. OUTLET PROTECTION WILL BE PROVIDED WHEN NATURAL AREAS ARE NOT AVAILABLE.
  - VEHICLE CROSSING SHALL BE STABILIZED WITH GRAVEL. EXPOSED AREAS SHALL BE IMMEDIATELY SEEDED AND MULCHED.
  - PERIODICALLY INSPECT WATER BARS FOR EROSION DAMAGE AND SEDIMENT CHECK OUTLET AREAS AND MAKE REPAIRS AS NEEDED TO RESTORE OPERATION.

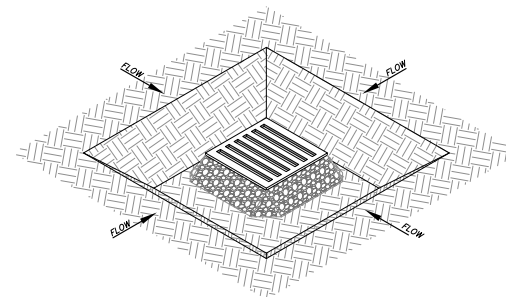
**WATER BAR DETAIL**  
(N.T.S.)



**INSTALLATION NOTES**

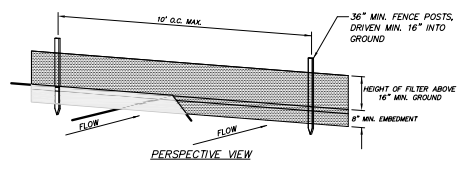
- STONE SIZE - USE 3" STONE
- LENGTH - AS REQUIRED, BUT NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY.)
- THICKNESS - NOT LESS THAN SIX (6) INCHES.
- WIDTH - 10 FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCUR.
- FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE. FILTER CLOTH WILL NOT BE REQUIRED ON A SINGLE FAMILY RESIDENCE LOT.
- SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
- MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT OF WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT OF WAY MUST BE REMOVED IMMEDIATELY.
- WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT OF WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
- PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

**STABILIZED CONSTRUCTION ENTRANCE DETAIL**  
(N.T.S.)

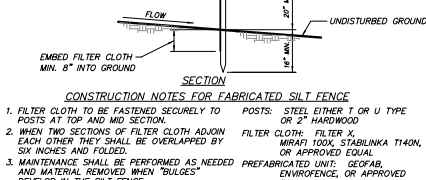


**EXCAVATED DROP INLET PROTECTION DETAIL**  
(N.T.S.)

- CLEAR THE AREA OF ALL DEBRIS THAT WILL HINDER EXCAVATION
- GRADE APPROACH TO THE INLET UNIFORMLY AROUND THE BASIN
- WEEP HOLES SHALL BE PROTECTED BY GRAVEL
- UPON STABILIZATION OF CONTRIBUTING DRAINAGE AREA, SEAL WEEP HOLES, FILL EXCAVATION WITH STABLE SOIL TO FINAL GRADE, COMPACT IT PROPERLY, AND STABILIZE WITH PERMANENT SEEDING.
- MAXIMUM DRAINAGE AREA = 1 ACRE

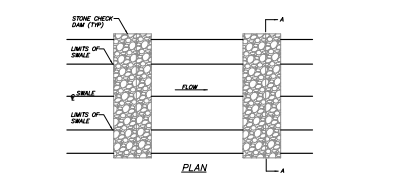


**PERSPECTIVE VIEW**

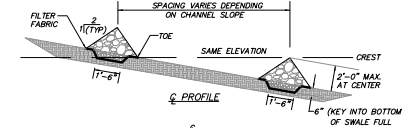


**SILT FENCE DETAIL**  
(N.T.S.)

- CONSTRUCTION NOTES FOR FABRICATED SILT FENCE**
- FILTER CLOTH TO BE FASTENED SECURELY TO POSTS AT TOP AND MID SECTION.
  - WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
  - MAINTENANCE SHALL BE PERFORMED AS NEEDED. PREFABRICATED UNIT: GEOFAB, AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.



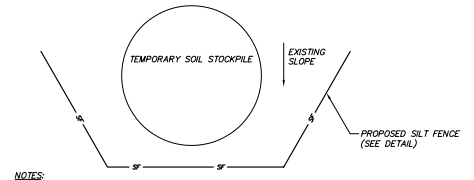
**PLAN**



**SECTION A-A**

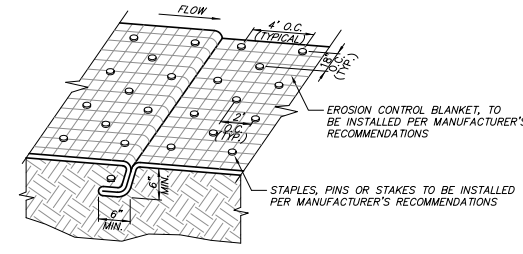
- NOTES:**
- STONE SHALL BE PLACED ON A FILTER FABRIC FOUNDATION. STONE TO BE WELL-GRADED 2" TO 12" DIAMETER.
  - SET SPACING OF CHECK DAMS SO THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.
  - EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
  - PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE LINER AS APPROPRIATE.
  - ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRIES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.

**STONE CHECK DAM DETAIL**  
(N.T.S.)



- NOTES:**
- AREA CHOSEN FOR STOCKPILE LOCATION SHALL BE DRY AND STABLE.
  - MAXIMUM SLOPE OF STOCKPILE SHALL BE 2:1.
  - UPON COMPLETION OF SOIL STOCKPILING, EACH PILE SHALL BE IMMEDIATELY SEEDED WITH K31 PERENNIAL TALL FESCUE.
  - ALL STOCKPILES SHALL BE PROTECTED WITH SILT FENCING INSTALLED ON THE DOWNWARD SLOPE. ADDITIONAL ROWS OF SILT FENCE SHALL BE INSTALLED FOR EACH 25' OF SLOPE LENGTH.

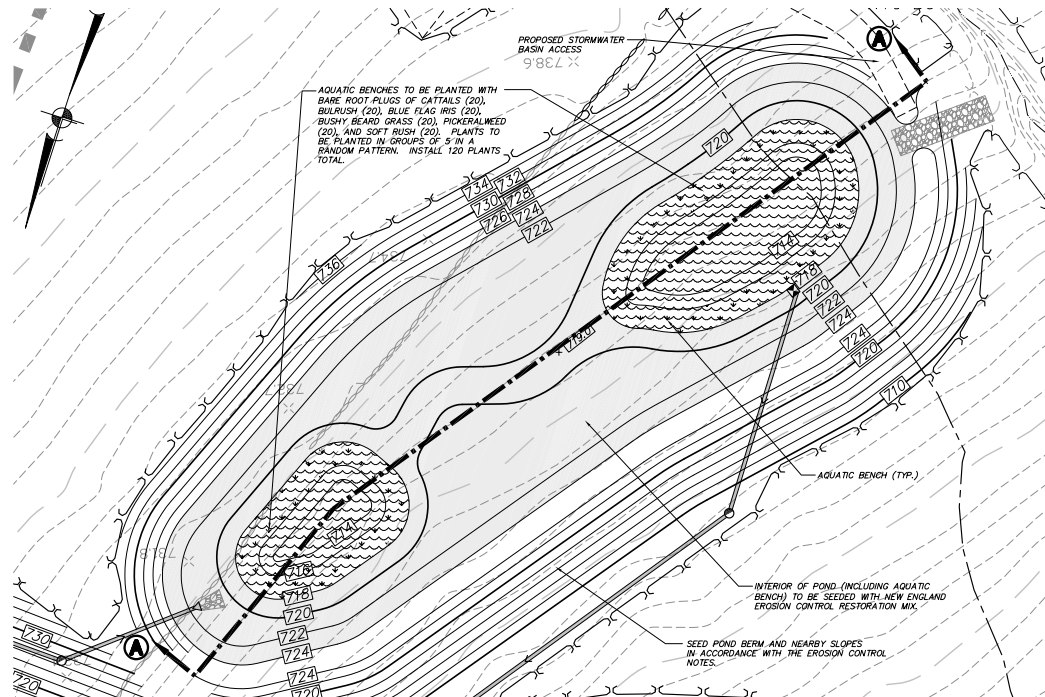
**TEMPORARY SOIL STOCKPILE DETAIL**  
(N.T.S.)



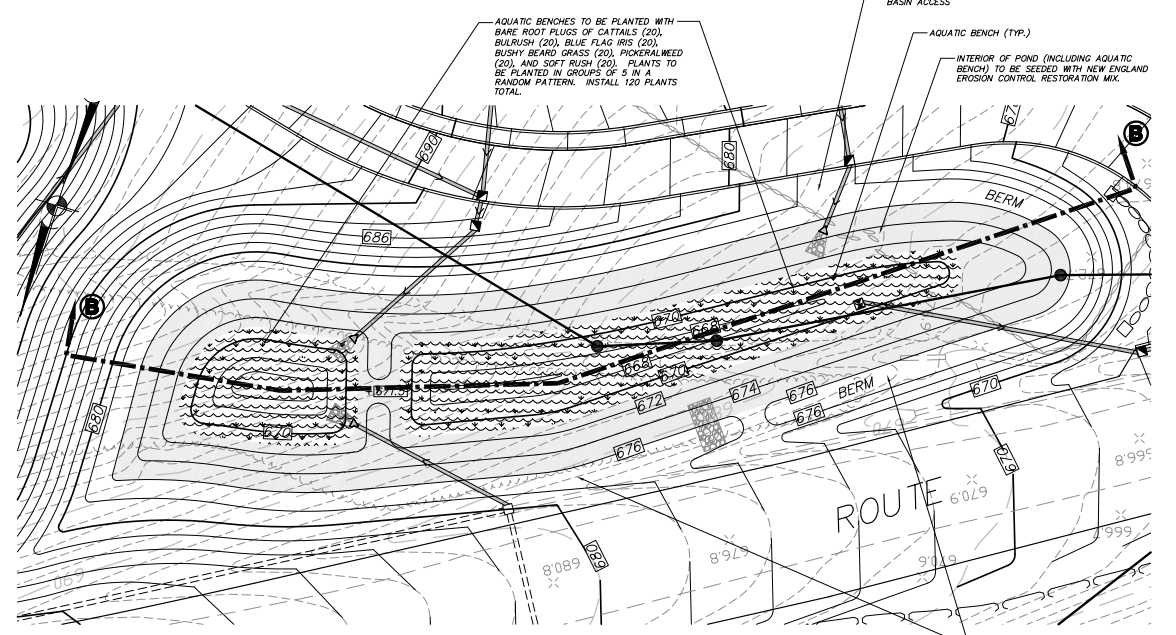
**TYPICAL GEOTEXTILE ANCHORING DETAIL**  
(N.T.S.)

NO.	DATE	REVISION	BY
<b>INSITE</b> ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.			
PROJECT:		PATTERSON CROSSING RETAIL CENTER	
N.Y.S. ROUTE 311, TOWNS OF PATTERSON & HENT, PUTNAM COUNTY, NEW YORK		DRAWING: SITE DETAILS	
PROJECT NO.	01124.100	PROJECT MANAGER	J.J.C.
DATE	2-29-08	DRAWN BY	R.C.S.
SCALE	AS SHOWN	CHECKED BY	P.A.K.
DRAWING NO.		D-2K	
SHEET		11	
TOTAL SHEETS		13	





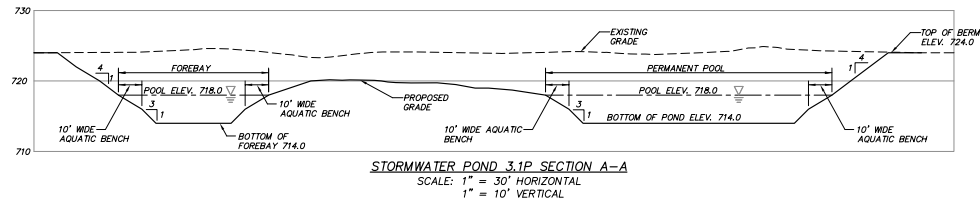
**STORMWATER POND 3.1P ENLARGED PLAN VIEW**  
SCALE: 1" = 30'



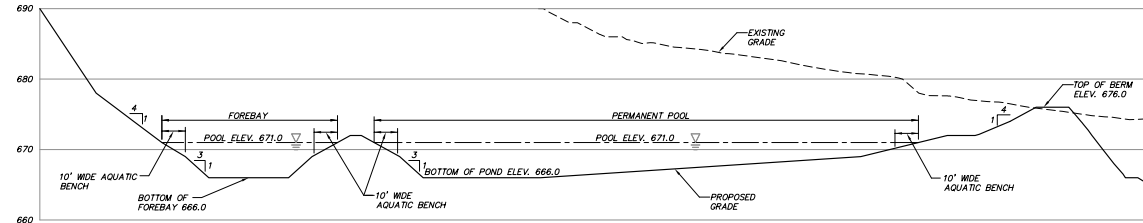
**STORMWATER POND 3.2P ENLARGED PLAN VIEW**  
SCALE: 1" = 30'

- Planting Notes:**
- All plant material to be nursery grown.
  - Plants shall conform with the American Association of Nurserymen Standards in all ways including dimensions.
  - Plants shall be planted in all locations designed on the plan or as staked in the field by the Landscape Architect.
  - All plants shall be hardy under climate conditions similar to those in the locality of the project.
  - All proposed seeded areas to receive 6" min. depth of topsoil.
  - Upon final grading and placement of topsoil and any required soil amendments, areas to receive permanent vegetation cover in combination with suitable mulch as follows:
    - Fertilizer applied at the manufacturer's recommended rate using LESCO 18-0-18 (no phosphorus) fertilizer or equivalent. Select mixture described in New York State Standards and Specifications for Erosion and Sediment Control, August 2005.
    - Mulch: Salt hay or small grain straw applied at a rate of 90 lbs./1000 s.f. or 2 tons/acre, to be applied and anchored according to New York State Standards and Specifications for Erosion and Sediment Control, August 2005.
  - Erosion control seed mix to be the "New England Erosion Control/Restoration Mix for Detention Basins and Moist Sites" spread at a rate of 1lb./1,245 s.f. as manufactured by New England Wetland Plants, Inc.

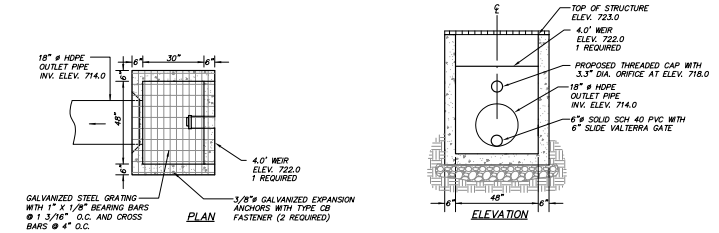
- Stormwater Pond Outlet Notes:**
- The ponds are proposed to be utilized as temporary sediment basins during construction.
  - After the contributing areas to the ponds have been permanently stabilized, the following shall be accomplished:
    - Clean basins and outlet structures and remove 6" perforated vertical riser pipe, crushed stone and filter fabric.
    - Add threaded cap with orifice at discharge end of 6" solid pvc sdr 35 pipes per detail.
    - Replace the perforated pipe and crushed stone, do not replace filter fabric.
    - Establish the final vegetation in the pond in accordance with the enlarged plan view of each of the ponds.
    - For micropond extended detention ponds excavate bottom of temporary sediment basin to permanent stormwater pond bottom.
  - The 6" perforated vertical riser shall be constructed as follows:
    - When initially used as the temporary sediment basin dewatering device the riser shall be wrapped with Typar 3201 geotextile or approved equal and surrounded with 2" crushed stone. The top of the riser shall be set at the same elevation as the weirs as shown in the stormwater basin outlet structure details.
    - When the permanent riser for basin is constructed the riser shall be unwrapped with the top elevation set of specified elevations.



**STORMWATER POND 3.1P SECTION A-A**  
SCALE: 1" = 30' HORIZONTAL  
1" = 10' VERTICAL

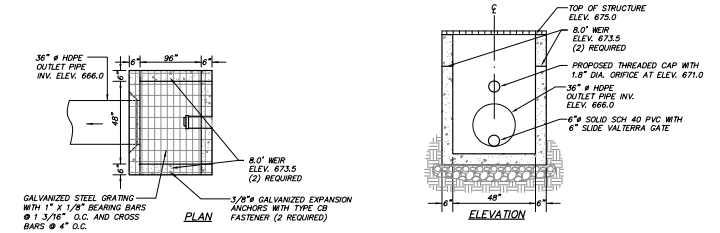


**STORMWATER POND 3.2P SCHEMATIC SECTION B-B**  
SCALE: 1" = 30' HORIZONTAL  
1" = 10' VERTICAL



**PLAN**

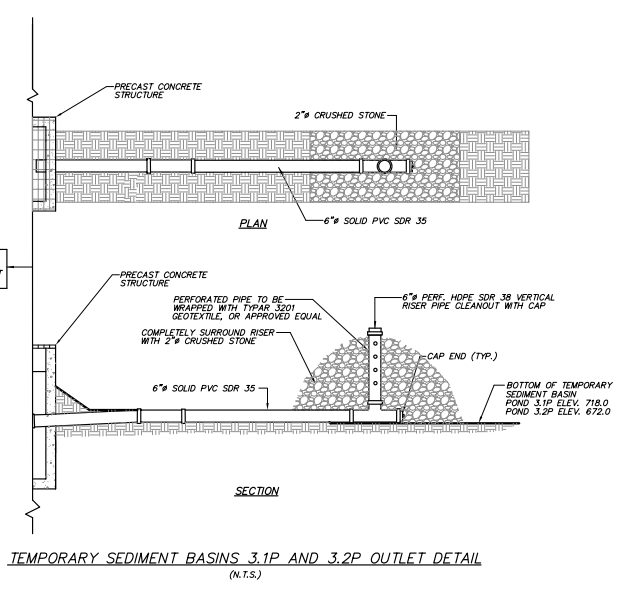
**ELEVATION**



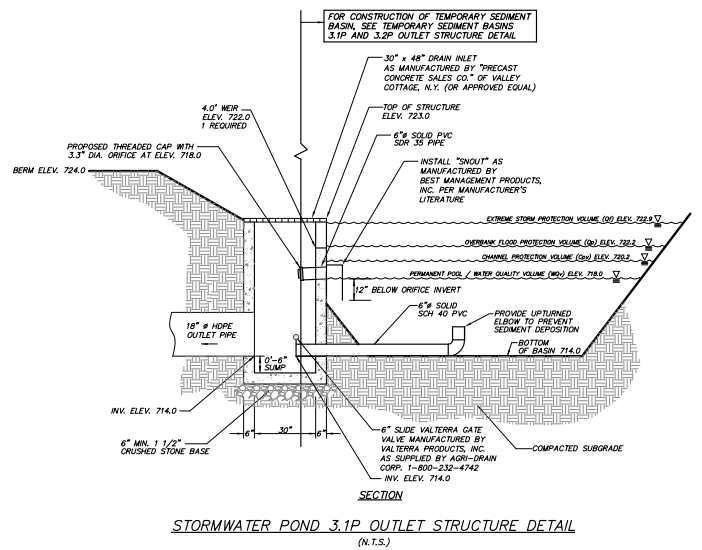
**PLAN**

**ELEVATION**

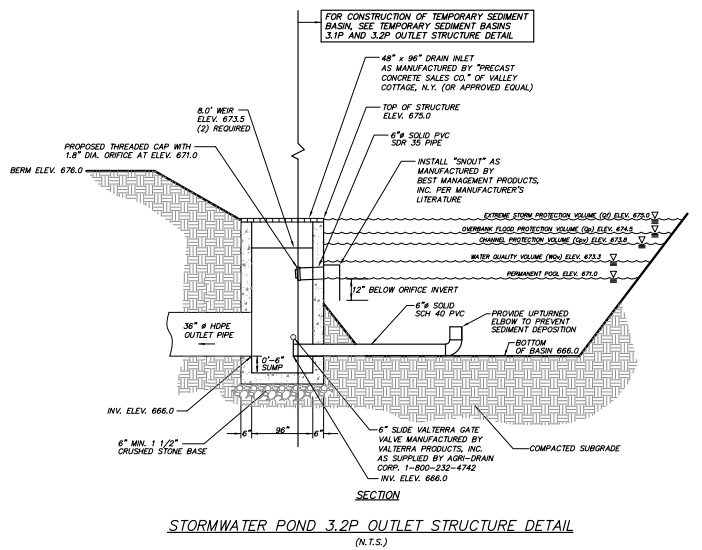
FOR ADDITIONAL BASIN CONSTRUCTION DETAILS, SEE THE PERMANENT STORMWATER POND 3.1P AND 3.2P OUTLET STRUCTURE DETAIL.



**TEMPORARY SEDIMENT BASINS 3.1P AND 3.2P OUTLET DETAIL**  
(N.T.S.)



**STORMWATER POND 3.1P OUTLET STRUCTURE DETAIL**  
(N.T.S.)



**STORMWATER POND 3.2P OUTLET STRUCTURE DETAIL**  
(N.T.S.)

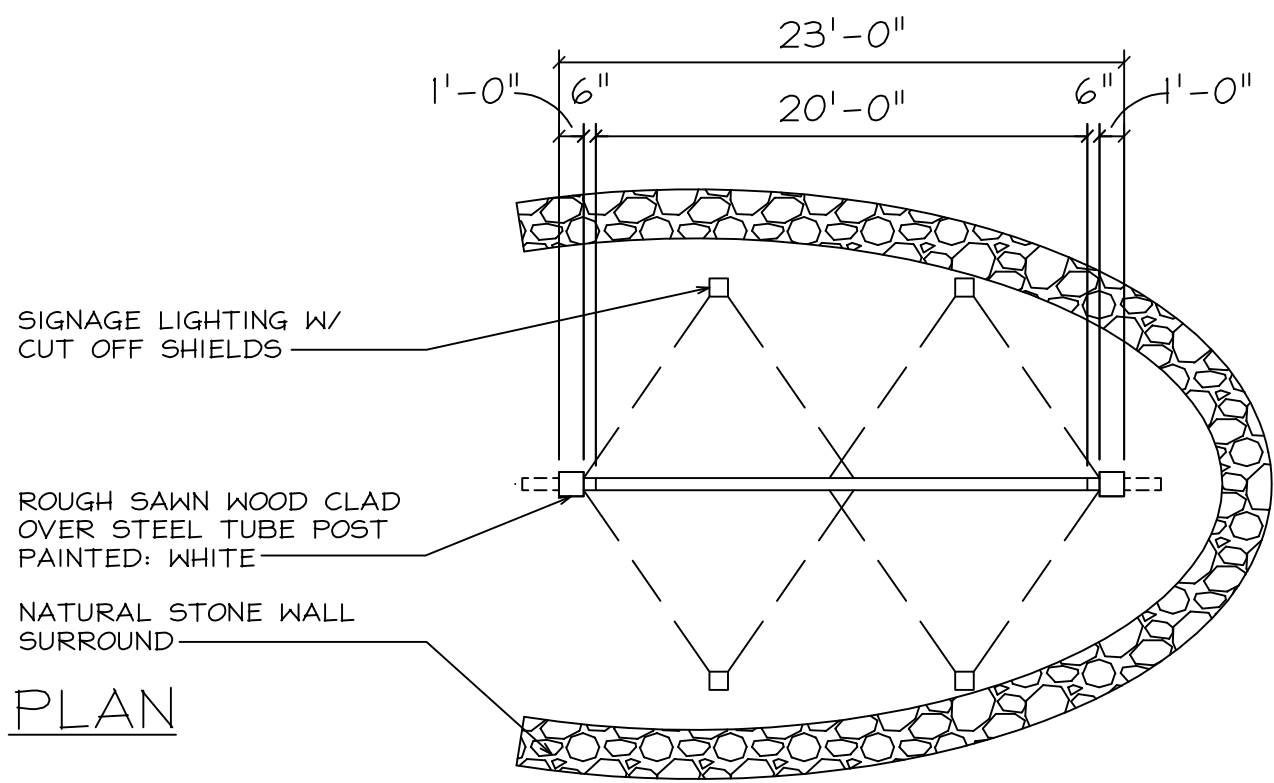
NO.	DATE	REVISION	BY
PROJECT: <b>PATTERSON CROSSING RETAIL CENTER</b> N.Y.S. ROUTE 311, TOWNS OF PATTERSON & HENT, PUTNAM COUNTY, NEW YORK			
DRAWING: <b>SITE DETAILS</b>			
PROJECT NO.	01124.100	PROJECT MANAGER	J.J.C.
DATE	2-29-08	DRAWN BY	Z.M.P.
SCALE	AS SHOWN	CHECKED BY	P.A.K.
DRAWING NO.			SHEET
D-3K			12
			13

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.







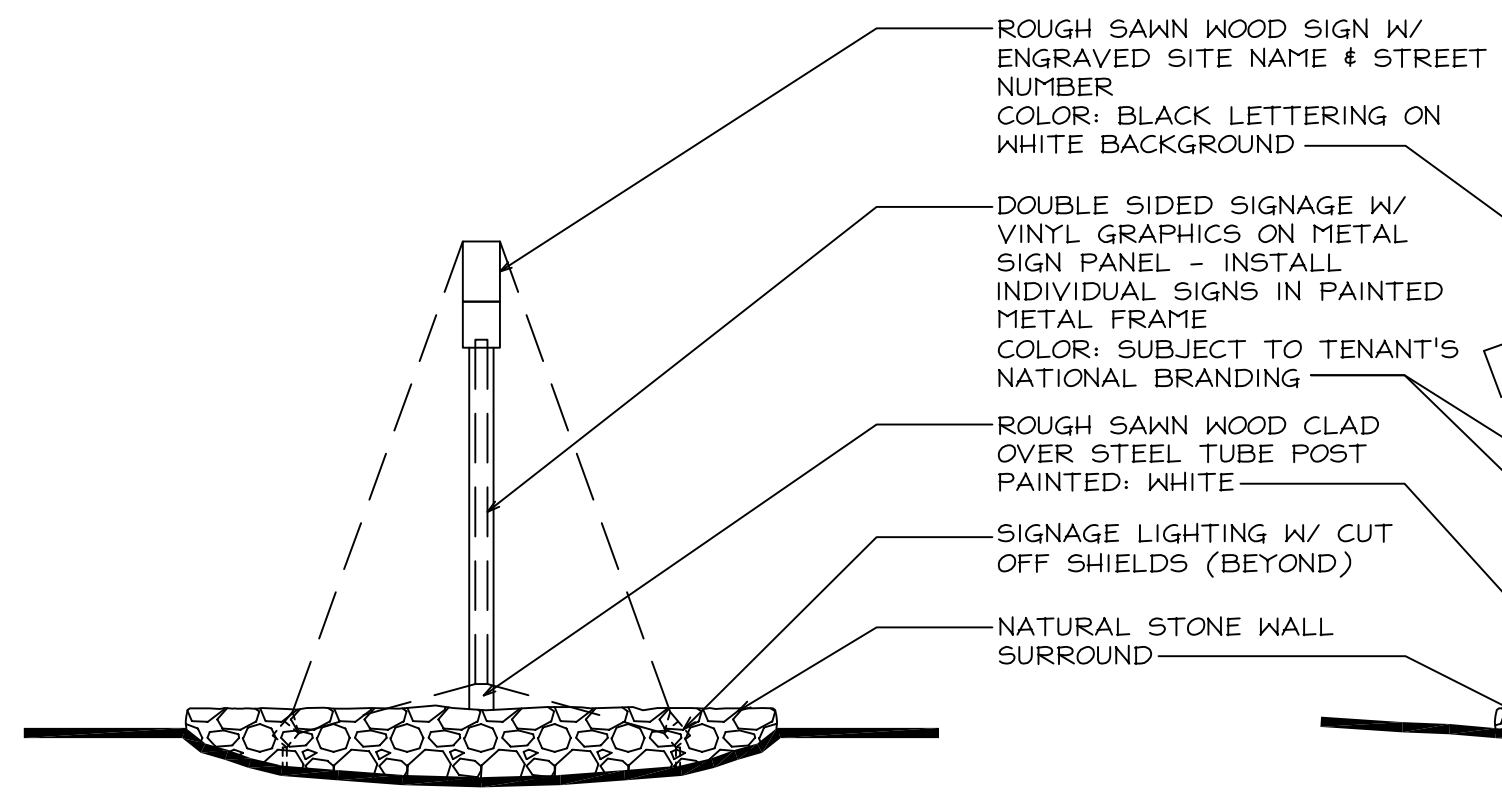


SIGNAGE LIGHTING W/  
CUT OFF SHIELDS

ROUGH SAWN WOOD CLAD  
OVER STEEL TUBE POST  
PAINTED: WHITE

NATURAL STONE WALL  
SURROUND

PLAN



STREET ELEVATION

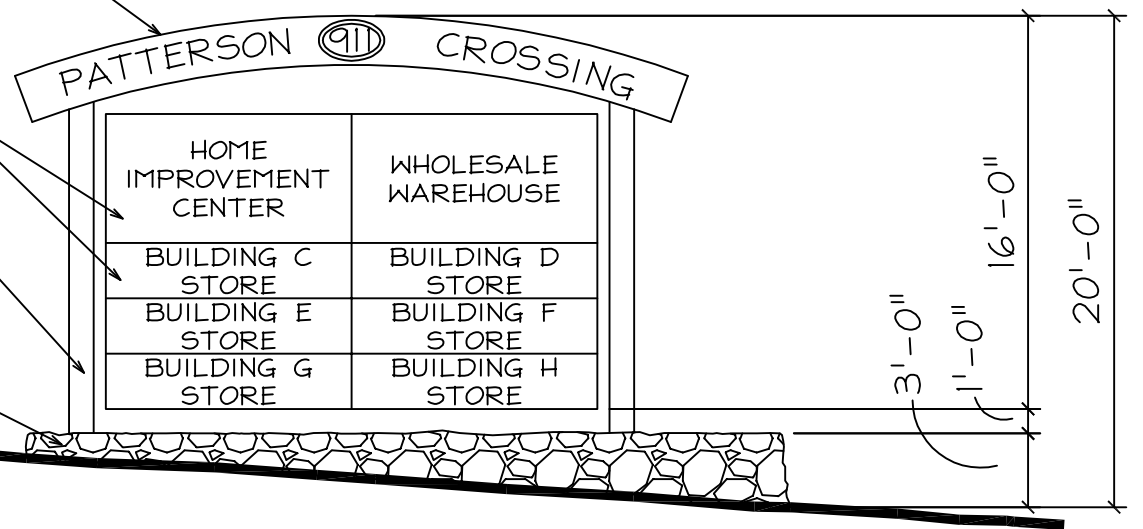
ROUGH SAWN WOOD SIGN W/  
ENGRAVED SITE NAME & STREET  
NUMBER  
COLOR: BLACK LETTERING ON  
WHITE BACKGROUND

DOUBLE SIDED SIGNAGE W/  
VINYL GRAPHICS ON METAL  
SIGN PANEL - INSTALL  
INDIVIDUAL SIGNS IN PAINTED  
METAL FRAME  
COLOR: SUBJECT TO TENANT'S  
NATIONAL BRANDING

ROUGH SAWN WOOD CLAD  
OVER STEEL TUBE POST  
PAINTED: WHITE

SIGNAGE LIGHTING W/ CUT  
OFF SHIELDS (BEYOND)

NATURAL STONE WALL  
SURROUND



FACADE ELEVATION

PATTERSON  CROSSING

HOME IMPROVEMENT CENTER	WHOLESALE WAREHOUSE
BUILDING C STORE	BUILDING D STORE
BUILDING E STORE	BUILDING F STORE
BUILDING G STORE	BUILDING H STORE

3'-0"  
1'-0"  
16'-0"  
20'-0"

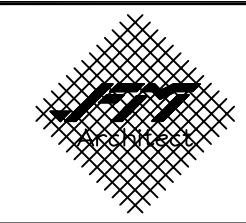
SK-01

PLAN & ELEVATIONS OF  
FREESTANDING SIGN

SCALE: 1/8" = 1'-0"	DRAWN BY: JFM
PROJECT NUMBER: 08-003	DATE: MARCH 12, 2008

PATTERSON CROSSING -  
KENT FREESTANDING SIGN

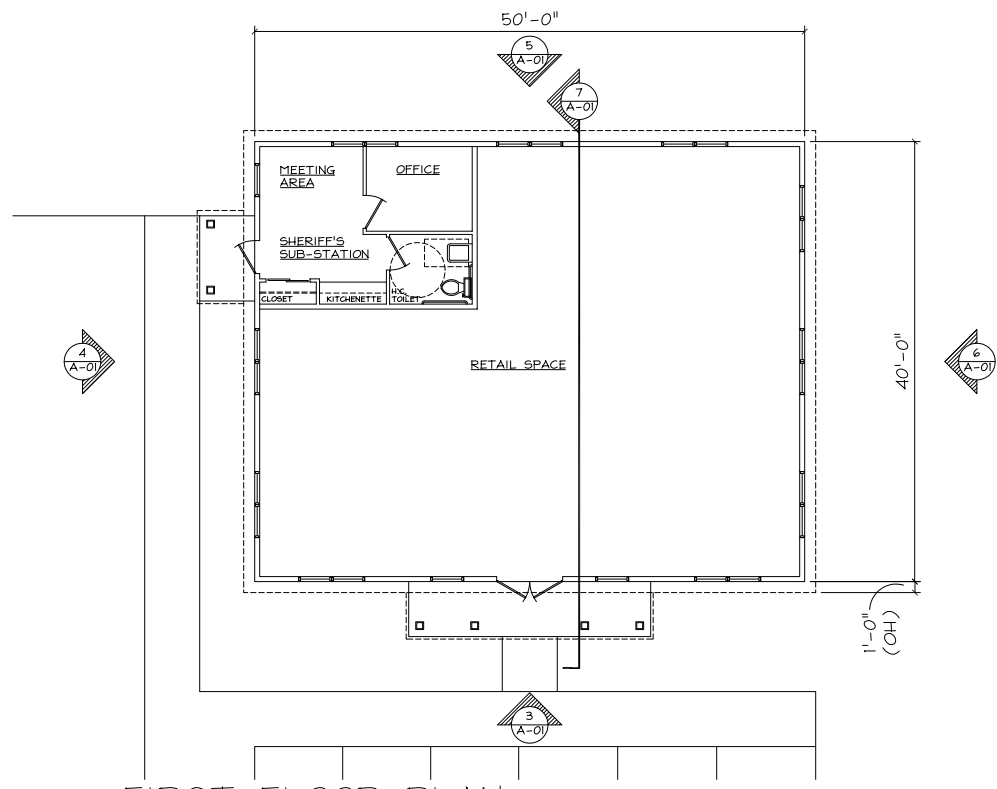
ROUTE 311 - CARMEL, NEW YORK  
(TOWN OF KENT)



J F M A R C H I T E C T

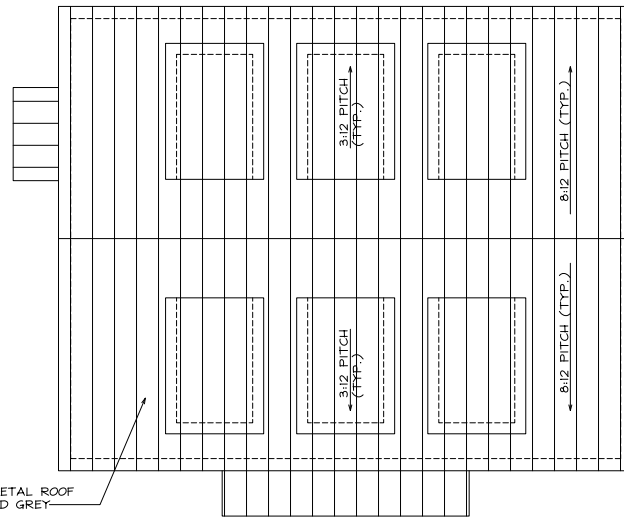
6 Homer Drive Brewster, NY 10509 Tel: 845-259-3801 Fax: 845-259-3802  
www.jfmarchitect.com





1 FIRST FLOOR PLAN

SCALE : 1/8" = 1'-0"



2 ROOF PLAN

SCALE : 1/8" = 1'-0"



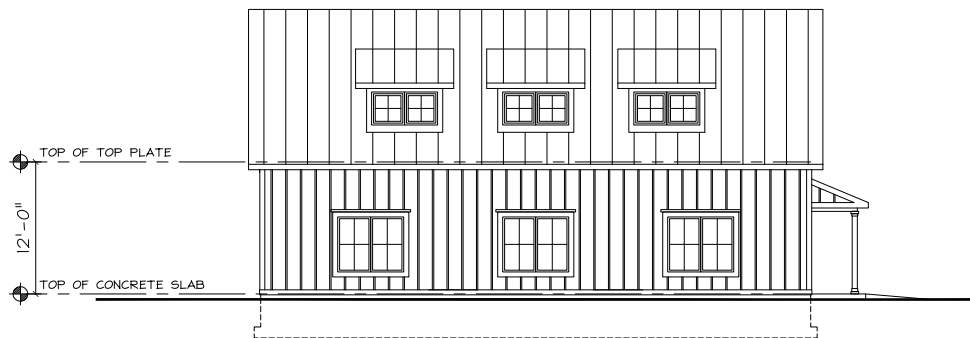
3 SOUTH BUILDING ELEVATION (FACADE)

SCALE : 1/8" = 1'-0"



4 WEST BUILDING ELEVATION

SCALE : 1/8" = 1'-0"



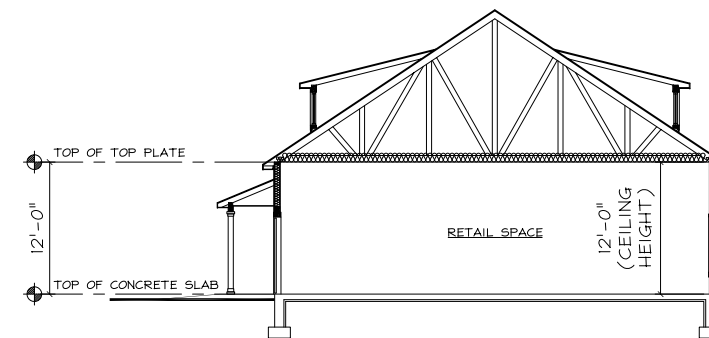
5 NORTH BUILDING ELEVATION

SCALE : 1/8" = 1'-0"



6 EAST BUILDING ELEVATION

SCALE : 1/8" = 1'-0"



7 BUILDING SECTION

SCALE : 1/8" = 1'-0"

DESCRIPTION  
SCHEMATIC DESIGN  
ISSUE TO P.B.

DATE  
3-11-08  
3-12-08

REV.

J F M A R C H I T E C T  
6 Homer Drive Breunster, NY 10509 Tel: 845-259-3801 Fax: 845-259-3802  
www.jfmarcitect.com



PATTERSON CROSSING -  
KENT RETAIL BUILDING  
ROUTE 311  
CARMEL, NEW YORK  
(TOWN OF KENT)

PLANS, BUILDING  
ELEVATIONS &  
BUILDING SECTION  
DATE: FEB. 22, 2008  
PROJECT NUMBER: 08-002

DRAWING NUMBER  
A-01



**Town of Kent Planning Board  
Steep Slope & Erosion Control Permit**

---

Name of Project: Patterson Crossing Retail Center

Description of Proposed Activity:

Proposed access drive, stormwater basins, 2,000 sf building, associated parking  
and landscaping.

Name of Applicant(s): Patterson Crossing Realty Co., Inc.

Address: 1699 Route 6, Suite 1, Carmel, New York 10512

Telephone: (845) 228-1400

Name and Address of Record Owner(s): Same as Above

Tax Map Number of all parcels: 22.-2-48

---

**A) For All Steep Slope and Erosion Control Permit Applications:**

1) Does the project involve any of the following:

- a) Any disturbance involving one (1) or more acres of land? Yes X No
- b) Any disturbance on ground areas having a topographical gradient equal to or greater than fifteen percent (15%) measured by utilizing two (2) foot contours? Yes X No

2) What is the date of the boundary and topographic survey used as the base map for the application?

Topography taken from a survey dated May 14, 2001. Boundary taken from boundary survey by Insite dated December 27, 2007.

3) Total acreage involved in application: 16.4 +/-

4) Total contiguous acreage controlled by applicant/owner: 90.5 +/-

---

1. Shall include lands owned by family members of the applicant, and any corporation(s), partnership(s), limited liability company(ies) or other entities in which the applicant has an interest.

5) Total number of existing structures: 0

6) Type of existing structures: N/A

7) Total square footage of all new construction: 2,000

8) Estimated value of new construction or addition: Undetermined

9) Type of construction or activity proposed: (Check all that apply)

New Construction: Residential  Commercial  Institutional

Expansion: Residential  Commercial  Institutional

10) Zoning District: C-Commercial

11) Does applicant intend to request any information waivers?

No  Yes . If yes, please list all waivers (attach separate pages if necessary):

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12) Are there agricultural and/or forestry exemptions affecting the property?

No  Yes . If yes, please list in detail (attach separate pages if necessary):

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13) Have any area or use variances affecting the property been granted?

No  Yes . If yes, please list in detail (attach separate pages if necessary):

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14) Have any permits affecting the property been issued by any other governmental agency?

No  Yes . If yes, please list in detail (attach separate pages if necessary):

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15) Has any application(s) for any other permit(s) for any activity affecting the property been submitted to any other governmental agency?

No  Yes . If yes, please list in detail (attach separate pages if necessary):

See DEIS for list of required permits.

Name and Address of Professional Engineer: Insite Engineering, Surveying & Landscape Architecture, P.C.

3 Garrett Place, Carmel, New York 10512

Telephone: (845) 225-9690

Name and Address of Licensed Land Surveyor: Insite Engineering, Surveying & Landscape Architecture, P.C.

3 Garrett Place, Carmel, New York 10512

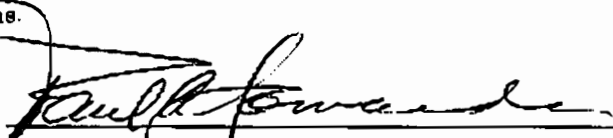
Telephone: (845) 225-9690

Name and Address of Attorney: Dan Hollis, Esq., Shamberg, Marwell, Hocherman Davis & Hollis, P.C.

55 Smith Avenue, Mt. Kisco, New York 10549

Telephone: (914) 666-5600

By His/Her signature the Applicant avows that: 1) He/She has read this application and is familiar with its content; and 2) He/She has read, is familiar with, and understands the requirements of the Town Kent Code provision(s) affecting or regulating the project for which this application is made; and 3) He/She agrees to comply with the requirements of the Town Kent Code provision(s) affecting or regulating the project for which this application is made including any general or special conditions of any permits or approvals granted by any board, agency, or department of the Town of Kent; and 4) He/She has read this statement and understands its meaning and its terms.

Applicant Signature: 

Print Name: Paul A. Camarda

Date: 4/1/08

**Town of Kent Planning Board  
Combined Application Form**

---

APPROVAL REQUESTED FOR: (Check all that apply)

Sketch Plan (subdivision)	_____	Preliminary Subdivision	_____
Final Subdivision	_____	Lot Line Change	_____
Site Plan	<u>  X  </u>	Conditional Use Permit	_____
Freshwater Wetland	_____		

Name of Project: Patterson Crossing Retail Center

Description of Proposed Activity:

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Name of Applicant(s): Patterson Crossing Realty Co, Inc.

Address: 1699 Route 6, Suite 1, Carmel, New York 10512

Telephone: (845) 228-1400

Name and Address of Record Owner(s): Same as Above

Tax Map Number of all parcels: 22.-2-48

**A) For All Applications:**

- 1) Total acreage involved in application: 16.4
- 2) Total contiguous acreage controlled by applicant/owner(s): 90.5
- 3) Total number of existing structures: 0

1. Shall include lands owned by family members of the applicant, and any corporation(s), partnership(s), limited liability company(ies) or other entities in which the applicant has an interest.

4) Type of existing structures: N/A

5) Total square footage of all new construction: 2,000 SF

6) Estimated value of new construction or addition: Undetermined

7) Type of construction or activity proposed: (Check all that apply)

New Construction: Residential  Commercial  Institutional

Expansion: Residential  Commercial  Institutional

Home Occupation:  Change in use:  Other:

8) Zoning District: C-Commercial

9) Does applicant intend to request any information waivers?

No  Yes . If yes, please list all waivers (attach separate pages if necessary):

Location of trees with a diameter of 8 inches dbh or greater

10) Are there agricultural and/or forestry exemptions affecting the property?

No  Yes . If yes, please list in detail (attach separate pages if necessary):

11) Have any area or use variances affecting the property been granted?

No  Yes . If yes, please list in detail (attach separate pages if necessary):

12) Have any permits affecting the property been issued by any other governmental agency?

No  Yes . If yes, please list in detail (attach separate pages if necessary):

13) Has any application(s) for any other permit(s) for any activity affecting the property been submitted to any other governmental agency?

No  Yes . If yes, please list in detail (attach separate pages if necessary):

See DEIS for list of required permits.

14) Does the project involve any of the following:

- a) Any disturbance involving one (1) or more acres of land? Yes X No \_\_\_\_\_
- b) Any disturbance on ground areas having a topographical gradient equal to or greater than fifteen percent (15%) measured by utilizing two (2) foot contours? Yes X No \_\_\_\_\_

15) What is the date of the boundary and topographic survey used as the base map for the application?

Topography taken from a survey dated May 14, 2001. Boundary taken from boundary survey by Insite dated December 27, 2007.

16) Attach a copy of the current deed and any easements affecting the property.

Name and Address of Professional Engineer: Insite Engineering, Surveying & Landscape Architecture, P.C.

3 Garrett Place, Carmel, New York 10512

Telephone: (845) 225-9690

Name and Address of Licensed Land Surveyor: Insite Engineering, Surveying & Landscape Architecture, P.C.

3 Garrett Place, Carmel, New York 10512

Telephone: (845) 225-9690

Name and Address of Attorney: Dan Hollis, Esq., Shamberg, Marwell, Hocherman Davis & Hollis, P.C.

55 Smith Avenue, Mt. Kisco, New York 10549

Telephone: (914) 666-5600

Name and Address of Wetland Consultant: Tim Miller Associates, Inc.

10 North Street, Cold Spring, New York 10516

Telephone: (845) 265-4400

**B) For Subdivision and Lot Line Change Applications Only:**

1) Total number of lots proposed: N/A

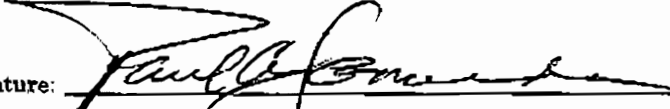
- 2) What is the size of the smallest lot proposed? \_\_\_\_\_
- 3) What is the size of the largest lot proposed? \_\_\_\_\_
- 4) Number of private driveways proposed: \_\_\_\_\_
- 5) Number of common driveways proposed: \_\_\_\_\_
- 6) Maximum number of lots serviced by a common driveway: \_\_\_\_\_
- 7) Number of private roads proposed: \_\_\_\_\_
- 8) Number of lots serviced by a private road: \_\_\_\_\_
- 9) Preliminary Plat includes \_\_\_\_\_ acres and tentatively includes \_\_\_\_\_ future lots. The amount of area shown on this Preliminary Plat proposed to be dedicated for future public use, (exclusive of roads) is \_\_\_\_\_ (define measure: acres/square feet).
- 10) Does subdivider intend to submit a single subdivision plat for filing with County Clerk for all property in the Preliminary Plat? Yes \_\_\_\_\_ No \_\_\_\_\_. If no, state the number of sections to be filed \_\_\_\_\_.

**C) For Freshwater Wetland Permit Applications Only: N/A**

- 1) A map of the site, prepared using a recent boundary and topographic survey of the property showing conditions on the site as of the date of application, shall be submitted.
- 2) The survey map shall show the location of the all federal, state, and local jurisdictional wetland boundaries as delineated by the applicant's consultant, and the location of proposed disturbance to wetlands and wetland buffers. The survey map shall also show the location of all regulated water bodies on the site and within 200 feet of the boundary of the site.
- 3) What is the date of the boundary and topographic survey used as the base map for the application?  
\_\_\_\_\_
- 4) Proposed activity is located in:
  - a) Lake/pond [\_\_\_\_\_] Control area of lake/pond [\_\_\_\_\_]
    - b) Stream/River/Brook [\_\_\_\_\_] Control area of stream/river/brook [\_\_\_\_\_]
    - c) Wetland [\_\_\_\_\_] Control area of wetland [\_\_\_\_\_]
    - d) Not located in wetland/wetland buffer [\_\_\_\_\_]
- 5) Attach a description of the proposed activity in the controlled area including the following: i.e. maintenance, construction of dwelling, addition, driveway, culverts, including size and location.
- 6) Attach a statement of compliance with §30A-8 of the Town Code.

By His/Her signature the Applicant avows that: 1) He/She has read this application and is familiar with its content; and 2) He/She has read, is familiar with, and understands the requirements of the Town Kent Code provision(s) affecting or regulating the project for which this application is made; and 3) He/She agrees to comply with the requirements of the Town Kent Code provision(s) affecting or regulating the project for which this application is made including any general or special conditions of any permits or approvals granted by any

board, agency, or department of the Town of Kent; and 4) He/She has read this statement and understands its meaning and its terms.

Applicant Signature: 

Print Name: Paul A. Edwards

Date: 7/1/08

Appendix R

PUTNAM COUNTY DEPARTMENT  
OF HEALTH SUBMISSION



**LETTER OF TRANSMITTAL**

3 Garrett Place (845) 225-9690  
Carmel, New York 10512 Fax: (845) 225-9717

**TO:** Putnam County Department of Health  
\_\_\_\_\_  
1 Geneva Road  
\_\_\_\_\_  
Brewster, NY 10509  
\_\_\_\_\_  
\_\_\_\_\_

<b>Date:</b> 3-7-08	<b>Job No.</b> 01124.100
<b>Attn:</b> Mike Budzinski P.E.	
<b>Re:</b> SSTS for Patterson Crossing Retail Center	
NYS Route 311, Towns of Patterson and Kent	
Kent: Tax Map No.: 22.-2-48	
Patterson: Tax Map No.: 22.-3-1, 32-2-2, 33-2-23, and 34-2-3	

**WE ARE SENDING YOU**     Enclosed     Under separate cover via \_\_\_\_\_    **The following items:**

Shop Drawings     Prints     Plans     Samples     Specifications  
 Copy of Letter     Change Order     \_\_\_\_\_

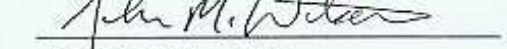
COPIES	DATE	NO.	DESCRIPTION
5	1-11-08	SSTS-1 thru 11	SSTS Design Drawings
1	6-29-05	DD-97	Design Data Sheet
1	_____	PC-97	Application for Approval of Plans for Wastewater Treatment System
1	2-12-08	CA-97	Corporate Affidavit
1	3-7-08	CP-97	Construction Permit for Sewage Treatment System (Southern SSTS)
1	3-7-08	CP-97	Construction Permit for Sewage Treatment System (Northern SSTS)
1	_____	LA-97	Letter of Authorization
1	2-25-08	_____	Wastewater System Report
1	3-7-08	_____	Short EAF
2	3-7-08	WP-97	Well Application
2	2-29-08	_____	Updated Hydrogeology Investigation (Mounding Analysis)
1	_____	_____	Zoeller Automatic Multizone Valve Technical Information
1	_____	_____	ABS "Piranha" grinder pump Technical Information
1	2-13-08	4456607310	\$ 3,420.00 Fee

**THESE ARE TRANSMITTED as checked below:**

For approval     Approved as submitted     Resubmit    \_\_\_\_\_ Copies for approval  
 For your use     Approved as noted     Submit    \_\_\_\_\_ Copies for distribution  
 As requested     Returned for corrections     Return    \_\_\_\_\_ Corrected prints  
 For review and comment     \_\_\_\_\_

**REMARKS:**

**COPY TO:** FRED KOELSCH - CRA  
\_\_\_\_\_  
\_\_\_\_\_

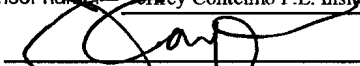
**SIGNED:**   
John M. Watson, P.E.  
Vice President / Sr. Project Manager

IF ENCLOSURES ARE NOT AS NOTED, KINDLY NOTIFY US AT ONCE



**Appendix C**  
**State Environmental Quality Review**  
**SHORT ENVIRONMENTAL ASSESSMENT FORM**  
**For UNLISTED ACTIONS Only**

**PART I - PROJECT INFORMATION (To be completed by Applicant or Project Sponsor)**

1. APPLICANT/SPONSOR Patterson Crossing Realty, LLC	2. PROJECT NAME SSTS for Patterson Crossing Retail Center
3. PROJECT LOCATION: Municipality <u>Town of Patterson and Kent</u> County <u>Putnam</u>	
4. PRECISE LOCATION (Street address and road intersections, prominent landmarks, etc., or provide map) <u>NYS Rt. 311 and Interstate I-84</u>	
5. PROPOSED ACTION IS: <input checked="" type="checkbox"/> New <input type="checkbox"/> Expansion <input type="checkbox"/> Modification/alteration	
6. DESCRIBE PROJECT BRIEFLY: The subject parcel is proposed to be developed as a retail center. The retail center will consist of four (4) buildings with multiple users and associated parking for each. The site will be developed with stormwater management practices, drilled wells, and subsurface sewage treatment systems.	
7. AMOUNT OF LAND AFFECTED: Initially <u>90.5±</u> acres    Ultimately <u>90.5±</u> acres	
8. WILL PROPOSED ACTION COMPLY WITH EXISTING ZONING OR OTHER EXISTING LAND USE RESTRICTIONS? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No    If No, describe briefly	
9. WHAT IS PRESENT LAND USE IN VICINITY OF PROJECT? <input checked="" type="checkbox"/> Residential <input type="checkbox"/> Industrial <input checked="" type="checkbox"/> Commercial <input type="checkbox"/> Agriculture <input checked="" type="checkbox"/> Park/Forest/Open Space <input checked="" type="checkbox"/> Other Describe: <u>The site is adjacent to Interstate I-84 and the Lake Carmel Community</u>	
10. DOES ACTION INVOLVE A PERMIT APPROVAL, OR FUNDING, NOW OR ULTIMATELY FROM ANY OTHER GOVERNMENTAL AGENCY (FEDERAL, STATE OR LOCAL)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No    If Yes, list agency(s) name and permit/approvals: <u>NYCDEP - SPPP and SSTS approvals; NYSDEC - GP-0-08-001; Town of Patterson - Site plan approval and building permit; Town of Kent - Site plan approval, wetland permit, and building permit; Putnam County Department of Health - SSTS and well permits; NYSDOT - Highway work permit</u>	
11. DOES ANY ASPECT OF THE ACTION HAVE A CURRENTLY VALID PERMIT OR APPROVAL? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    If Yes, list agency(s) name and permit/approvals:	
12. AS A RESULT OF PROPOSED ACTION WILL EXISTING PERMIT/APPROVAL REQUIRE MODIFICATION? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
I CERTIFY THAT THE INFORMATION PROVIDED ABOVE IS TRUE TO THE BEST OF MY KNOWLEDGE Applicant/sponsor name: <u>Jeffrey Contelmo P.E. Insite Engineering, Surveying, &amp; Landscape Architecture, P.C.</u> Date: <u>3/7/08</u> Signature:  <u>SEE DEIS &amp; FEIS</u>	

**If the action is in the Coastal Area, and you are a state agency, complete the Coastal Assessment Form before proceeding with this assessment**

**PART II - IMPACT ASSESSMENT (To be completed by Lead Agency)**

A. DOES ACTION EXCEED ANY TYPE I THRESHOLD IN 6 NYCRR, PART 617.4? If yes, coordinate the review process and use the FULL EAF.  
 Yes  No

B. WILL ACTION RECEIVE COORDINATED REVIEW AS PROVIDED FOR UNLISTED ACTIONS IN 6 NYCRR, PART 617.6? If No, a negative declaration may be superseded by another involved agency.  
 Yes  No

C. COULD ACTION RESULT IN **ANY** ADVERSE EFFECTS ASSOCIATED WITH THE FOLLOWING: (Answers may be handwritten, if legible)

C1. Existing air quality, surface or groundwater quality or quantity, noise levels, existing traffic pattern, solid waste production or disposal, potential for erosion, drainage or flooding problems? Explain briefly:

C2. Aesthetic, agricultural, archaeological, historic, or other natural or cultural resources; or community or neighborhood character? Explain briefly:

C3. Vegetation or fauna, fish, shellfish or wildlife species, significant habitats, or threatened or endangered species? Explain briefly:

C4. A community's existing plans or goals as officially adopted, or a change in use or intensity of use of land or other natural resources? Explain briefly:

C5. Growth, subsequent development, or related activities likely to be induced by the proposed action? Explain briefly:

C6. Long term, short term, cumulative, or other effects not identified in C1-C5? Explain briefly:

C7. Other impacts (including changes in use of either quantity or type of energy)? Explain briefly:

D. WILL THE PROJECT HAVE AN IMPACT ON THE ENVIRONMENTAL CHARACTERISTICS THAT CAUSED THE ESTABLISHMENT OF A CRITICAL ENVIRONMENTAL AREA (CEA)?  
 Yes  No If Yes, explain briefly:

E. IS THERE, OR IS THERE LIKELY TO BE, CONTROVERSY RELATED TO POTENTIAL ADVERSE ENVIRONMENTAL IMPACTS?  
 Yes  No If Yes, explain briefly:

**PART III - DETERMINATION OF SIGNIFICANCE (To be completed by Agency)**

**INSTRUCTIONS:** For each adverse effect identified above, determine whether it is substantial, large, important or otherwise significant. Each effect should be assessed in connection with its (a) setting (i.e. urban or rural); (b) probability of occurring; (c) duration; (d) irreversibility; (e) geographic scope; and (f) magnitude. If necessary, add attachments or reference supporting materials. Ensure that explanations contain sufficient detail to show that all relevant adverse impacts have been identified and adequately addressed. If question D of Part II was checked yes, the determination of significance must evaluate the potential impact of the proposed action on the environmental characteristics of the CEA.

Check this box if you have identified one or more potentially large or significant adverse impacts which **MAY** occur. Then proceed directly to the FULL EAF and/or prepare a positive declaration.

Check this box if you have determined, based on the information and analysis above and any supporting documentation, that the proposed action **WILL NOT** result in any significant adverse environmental impacts **AND** provide, on attachments as necessary, the reasons supporting this determination.

Name of Lead Agency	Date
Print or Type Name of Responsible Officer in Lead Agency	Title of Responsible Officer
Signature of Responsible Officer in Lead Agency	Signature of Preparer (If different from responsible officer)

**Reset**

**PUTNAM COUNTY DEPARTMENT OF HEALTH  
DIVISION OF ENVIRONMENTAL HEALTH SERVICES**

**DESIGN DATA SHEET - SUBSURFACE SEWAGE TREATMENT SYSTEM**

Patterson Crossing  
 Owner <sup>do</sup> Hudson Valley Realty Corp. Address 1699 Route 6, Suite 1 Carmel NY 10510  
 Located at (Street) NYS Route 311 Tax Map 22 Block 2 Lot 48  
 (indicate nearest cross street)  
 Municipality Town of Kent Watershed Middle Branch

**SOIL PERCOLATION TEST DATA**

Date of Pre-soaking 6-28-05 Date of Percolation Test 6-29-05

Hole No.	Run No.	Time Start - Stop	Elapse Time (Min.)	Depth to Water From Ground Surface (Inches)		Water Level Drop In Inches	Percolation Rate Min/Inch
				Start	Stop		
PN1	1	1056-1126	30	17	18-25	1-25	24
	2	1127-1157	30	17	18	1	30
	3	1157-1227	30	17	18	1	30
	4						
	5						
PN2	1	1024-1054	30	21	22-5	1-5	20
	2	1054-1124	30	21	22-5	1-5	20
	3	1124-1154	30	21	22-5	1-5	20
	4						
	5						
PN3	1	1020-1050	30	19	20	1	30
	2	10-50-1120	30	19	20	1	30
	3	1120-1150	30	19	20	1	30
	4						
	5						

- NOTES:**
1. Tests to be repeated at same depth until approximately equal percolation rates are obtained at each percolation test hole. (i.e.  $\leq 1$  min for 1-30 min/inch,  $\leq 2$  min for 31-60 min/inch). All data to be submitted for review.
  2. Depth measurements to be made from top of hole.

**TEST PIT DATA**  
**DESCRIPTION OF SOILS ENCOUNTERED IN TEST HOLES**

DEPTH	HOLE NO. <u>D N 1</u>	HOLE NO. <u>D N 2</u>	HOLE NO. <u>D N 3</u>
G.L.			
0.5'	↑ 0"-4" TOPSOIL	↑ 0"-4" TOPSOIL	↑ 0"-4" TOPSOIL
1.0'			
1.5'	4"-40" YELLOW	4"-27"	4"-31" BROWN
2.0'	BROWN MOD.	TAN MOD. COMPACTED	MOD. COMPACTED
2.5'	COMPACTED SANDY	SANDY LOAM	SANDY LOAM
3.0'	LOAM	X	X
3.5'	X	27"-114"+	31"-48" YELLOW BROWN
4.0'		BROWN COMPACTED	MOD COMPACTED FINE SANDY
4.5'	40"-114"+	FINE SANDY	LOAM
5.0'	BROWN COMPACTED	LOAM	
5.5'	FINE SANDY		48"-114"+
6.0'	LOAM.		BROWN COMPACTED
6.5'			FINE SANDY LOAM
7.0'			
7.5'			
8.0'			
8.5'			
9.0'	▽ GW @ 108"	▽ GW @ 108"	
9.5'	∨	∨	∨
10.0'			

Indicate level at which groundwater is encountered 108" (N1) 108" (N2)

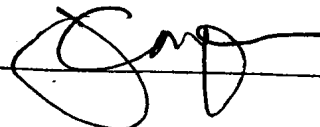
Indicate level at which mottling is observed N/A

Indicate level to which water level rises after being encountered N/A

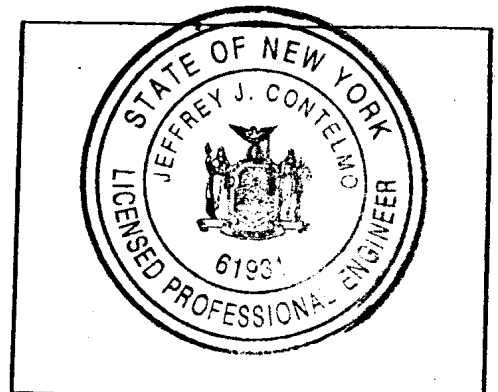
Deep hole observations made by: Joe Pearson (Insite)  
Mike Bodzinski (DCHD)  
Joe Zminsky (NYC DEP) Date 6-29-05

Design Professional Name: Jeffrey Contelmo P.E. Address:

Insite Engineering, Surveying & Landscape Architecture, P.C.  
3 Garrett Place, Camel, NY 10512

Signature: 

Design Professional's Seal



**PUTNAM COUNTY DEPARTMENT OF HEALTH  
DIVISION OF ENVIRONMENTAL HEALTH SERVICES**

**DESIGN DATA SHEET - SUBSURFACE SEWAGE TREATMENT SYSTEM**

PATTERSON CROSSING

Owner <sup>co</sup> Hudson Valley Realty, Corp. Address 1699 Route 6, Suite 1 Camel NY 1051

Located at (Street) NYS Route 311 Tax Map 22 Block 2 Lot 48  
(indicate nearest cross street)

Municipality Town of Kent Watershed Middle Branch

**SOIL PERCOLATION TEST DATA**

Date of Pre-soaking 6-28-05 Date of Percolation Test 6-29-05

Hole No.	Run No.	Time Start - Stop	Elapse Time (Min.)	Depth to Water From Ground Surface (Inches)		Water Level Drop In Inches	Percolation Rate Min/Inch
				Start	Stop		
PN4	1	0915-0945	30	15	17	2	15
	2	0945-1015	30	15	17	2	15
	3	1015-1045	30	15	17	2	15
	4						
	5						
PN5	1	0917-0947	30	15	17.5	2.5	12
	2	0947-1017	30	15	17.5	2.5	12
	3	1017-1047	30	15	17.5	2.5	12
	4						
	5						
PN6	1	1045-1115	30	18	20	2	15
	2	1115-1145	30	18	20	2	15
	3	1145-1215	30	18	20	2	15
	4						
	5						

- NOTES:**
1. Tests to be repeated at same depth until approximately equal percolation rates are obtained at each percolation test hole. (i.e.  $\leq 1$  min for 1-30 min/inch,  $\leq 2$  min for 31-60 min/inch). All data to be submitted for review.
  2. Depth measurements to be made from top of hole.

**TEST PIT DATA**  
**DESCRIPTION OF SOILS ENCOUNTERED IN TEST HOLES**

DEPTH G.L.	HOLE NO. <u>DN4</u>	HOLE NO. <u>DN5</u>	HOLE NO. <u>DN6</u>
0.5'	0'-4" TOPSOIL	0'-6" TOPSOIL	0'-4" TOPSOIL
1.0'			
1.5'	4"-44"	6"-44"	4"-36"
2.0'	ORANGE BROWN	ORANGE BROWN	ORANGE SLIGHTLY
2.5'	MOD COMPACTED FINE	MOD COMPACTED FINE	COMPACTED FINE SANDY
3.0'	SANDY LOAM w/ GRAVEL	SANDY LOAM	LOAM
3.5'			
4.0'	X	X	
4.5'			
5.0'	44"-112"+	44"-106"+	36"-114"+
5.5'	BROWN COMPACTED	BROWN COMPACTED	BROWN COMPACTED
6.0'	FINE SANDY	FINE SANDY	FINE SANDY LOAM
6.5'	LOAM w/ GRAVEL	LOAM	
7.0'			
7.5'			
8.0'			
8.5'			
9.0'			
9.5'	▽ GW @ 108"	▽ GW @ 105"	GW SEEP @ 108"
10.0'			

Indicate level at which groundwater is encountered 108" (N4) 105" (N5) 108" (N6)

Indicate level at which mottling is observed N/A

Indicate level to which water level rises after being encountered N/A

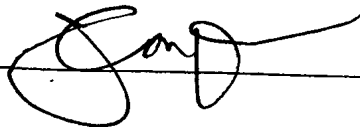
Deep hole observations made by: Zoe Pearson (Insite), Mike Andriuski (PCHD), Joe Zimmsky (NYCDEP) Date 6-29-05

Design Professional Name: Jeffrey Contelmo P.E. Address:

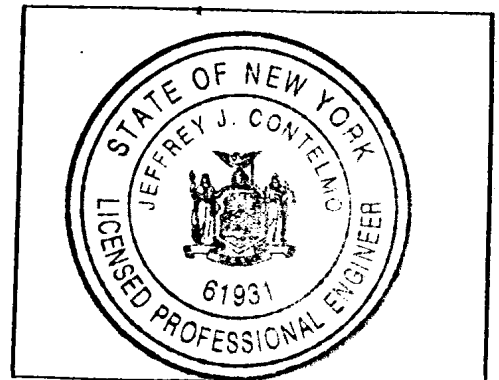
Insite Engineering, Surveying & Landscape Architecture, P.C.

3 Garrett Place, Camel, NY 10512

Signature: \_\_\_\_\_



Design Professional's Seal



**PUTNAM COUNTY DEPARTMENT OF HEALTH  
DIVISION OF ENVIRONMENTAL HEALTH SERVICES**

**DESIGN DATA SHEET - SUBSURFACE SEWAGE TREATMENT SYSTEM**

Owner <sup>do</sup> PATTERSON CROSSING  
Hudson Valley Realty Corp Address 1699 Route 6, Suite 1, Carmel NY  
 Located at (Street) NYS Route 311 Tax Map 22 Block 2 Lot 48  
(indicate nearest cross street)  
 Municipality Town of Kent Watershed Middle Branch

**SOIL PERCOLATION TEST DATA**

Date of Pre-soaking 6-28-05 Date of Percolation Test 6-29-05

Hole No.	Run No.	Time Start - Stop	Elapse Time (Min.)	Depth to Water From Ground Surface (Inches)		Water Level Drop In Inches	Percolation Rate Min/Inch
				Start	Stop		
PN7	1	1011-1041	30	16	18	2	15
	2	1042-1112	30	16	17.5	1.5	20
	3	1112-1142	30	16	17.5	1.5	20
	4						
	5						
PN8	1	1008-1038	30	17	19.5	2.5	12
	2	1038-1108	30	17	19	2	15
	3	1108-1138	30	17	19	2	15
	4						
	5						
PN9	1	0915-0930	15	21	24	3	5
	2	0930-0948	18	21	24	3	6
	3	0948-1006	18	21	24	3	6
	4						
	5						

- NOTES:**
1. Tests to be repeated at same depth until approximately equal percolation rates are obtained at each percolation test hole. (i.e.  $\leq 1$  min for 1-30 min/inch,  $\leq 2$  min for 31-60 min/inch). All data to be submitted for review.
  2. Depth measurements to be made from top of hole.

**TEST PIT DATA**  
**DESCRIPTION OF SOILS ENCOUNTERED IN TEST HOLES**

DEPTH	HOLE NO. <u>DN7</u>	HOLE NO. <u>DN8</u>	HOLE NO. <u>DN9</u>
G.L.			
0.5'	↑ 0"-4" TOPSOIL	↑ 0"-4" TOPSOIL	↑ 0"-12" TOPSOIL
1.0'			
1.5'	4"-40"	4"-40"	12"-40"
2.0'	LIGHT BROWN MOD.	LIGHT BROWN MOD.	ORANGE BROWN MOD.
2.5'	COMPACTED FINE	COMPACTED SANDY	COMPACTED FINE SANDY
3.0'	SANDY LOAM W/GRAVEL	LOAM W/GRAVEL	LOAM W/GRAVEL
3.5'	X	X	↓
4.0'			
4.5'	40"-108"+	40"-120"+	40"-108"+
5.0'	BROWN COMPACTED	BROWN COMPACTED	BROWN COMPACTED
5.5'	FINE SANDY	FINE SANDY	FINE SANDY LOAM
6.0'	LOAM	LOAM W/GRAVEL	W/GRAVEL
6.5'			
7.0'			
7.5'			
8.0'			
8.5'			
9.0'	_____ GW SEEP		
9.5'	~ @ 106"	GW SEEP	~
10.0'		~ @ 116"	

Indicate level at which groundwater is encountered 106" (N7) 116" (N8)

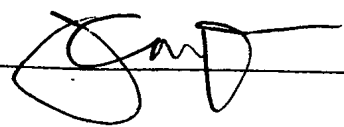
Indicate level at which mottling is observed N/A

Indicate level to which water level rises after being encountered N/A

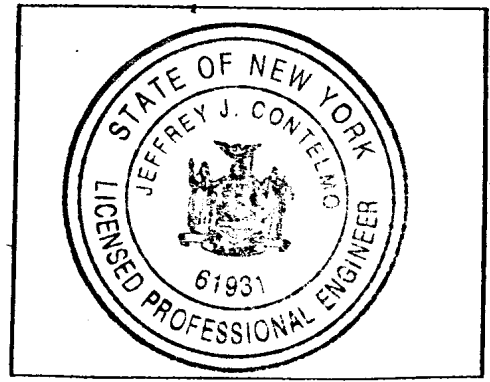
Deep hole observations made by: zac Pearson (insite) Date 6-29-05  
Mike Dardemski (PCHD)  
Joe Zminsky (NYCDEP)

Design Professional Name: Jeffrey Contelmo P.E. Address:

Insite Engineering, Surveying & Landscape Architecture, P.C.  
3 Garrett Place, Carmel, NY 10512

Signature: 

Design Professional's Seal



**PUTNAM COUNTY DEPARTMENT OF HEALTH  
DIVISION OF ENVIRONMENTAL HEALTH SERVICES**

**DESIGN DATA SHEET - SUBSURFACE SEWAGE TREATMENT SYSTEM**

*PATTERSON CROSSING*

Owner <sup>do</sup> Hudson Valley Realty Corp. Address 1699 Route 6, Suite 1, Camel NY 105

Located at (Street) NYS Route 311 Tax Map 22 Block 2 Lot 48  
(indicate nearest cross street)

Municipality Town of Kent Watershed Middle Branch

**SOIL PERCOLATION TEST DATA**

Date of Pre-soaking 6-28-05 Date of Percolation Test 6-29-05

Hole No.	Run No.	Time Start - Stop	Elapse Time (Min.)	Depth to Water From Ground Surface (Inches)		Water Level Drop In Inches	Percolation Rate Min/Inch
				Start	Stop		
PN10	1	0912-0927	15	17	20	3	5
	2	0927-0945	18	17	20	3	6
	3	0945-1003	18	17	20	3	6
	4						
	5						
	1						
	2						
	3						
	4						
	5						
	1						
	2						
	3						
	4						
	5						

- NOTES:**
1. Tests to be repeated at same depth until approximately equal percolation rates are obtained at each percolation test hole. (i.e.  $\leq 1$  min for 1-30 min/inch,  $\leq 2$  min for 31-60 min/inch). All data to be submitted for review.
  2. Depth measurements to be made from top of hole.

**TEST PIT DATA**  
**DESCRIPTION OF SOILS ENCOUNTERED IN TEST HOLES**

DEPTH	HOLE NO. <u>DN10</u>	HOLE NO. _____	HOLE NO. _____
G.L.			
0.5'	↕ 0"-4" TOPSOIL		
1.0'	4"-30" ORANGE		
1.5'	BROWN MOD. COMPACTED		
2.0'	FINE SANDY LOAM <sup>UPRAVEL</sup>		
2.5'	X		
3.0'			
3.5'			
4.0'	30" - 108" +		
4.5'	RED BROWN		
5.0'	COMPACTED FINE		
5.5'	SANDY LOAM		
6.0'			
6.5'			
7.0'			
7.5'			
8.0'			
8.5'			
9.0'			
9.5'			
10.0'			

Indicate level at which groundwater is encountered N/A

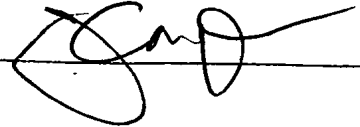
Indicate level at which mottling is observed N/A

Indicate level to which water level rises after being encountered N/A

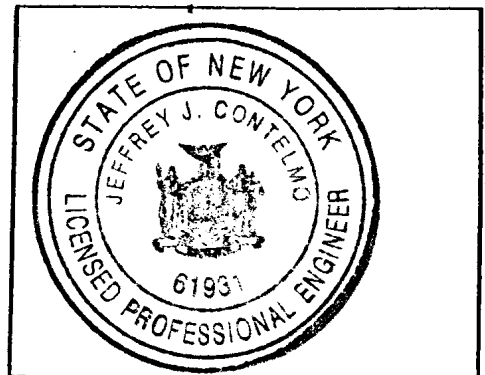
Deep hole observations made by: <sup>Joe Pearson (in site)</sup> Mike Oudemski (PCHD) Date 6-29-05  
Joe Zimmisky (NYCDEP)

Design Professional Name: Jeffrey Contelmo P.E. Address: \_\_\_\_\_

Insite Engineering, Surveying & Landscape Architecture, P.C.  
3 Garrett Place, Carmel, NY 10512

Signature: 

Design Professional Seal



**PUTNAM COUNTY DEPARTMENT OF HEALTH  
DIVISION OF ENVIRONMENTAL HEALTH SERVICES**

**DESIGN DATA SHEET - SUBSURFACE SEWAGE TREATMENT SYSTEM**

Owner <sup>of</sup> PATTERSON CROSSING  
Hudson Valley Realty Corp. Address 1699 Route 6, Suite 2 Carmel NY 105  
 Located at (Street) NYS Route 311 Tax Map 33 Block 2 Lot 23  
 (indicate nearest cross street)  
 Municipality Town of Patterson Watershed East Branch

**SOIL PERCOLATION TEST DATA**

Date of Pre-soaking 6-27-05 Date of Percolation Test 6-28-05

Hole No.	Run No.	Time Start - Stop	Elapse Time (Min.)	Depth to Water From Ground Surface (Inches)		Water Level Drop In Inches	Percolation Rate Min/Inch
				Start	Stop		
PS1	1	1014 - 1043	29	20	23	3	9.7
	2	1044 - 1114	30	20	23	3	10
	3	1115 - 1145	30	20	23	3	10
	4						
	5						
PS2	1	1017 - 1038	21	20	23	3	7
	2	1039 - 1103	24	20	23	3	8
	3	1104 - 1128	24	20	23	3	8
	4						
	5						
PS3	1	1048 - 1118	30	18	19.5	1.5	20
	2	1119 - 1149	30	18	19.5	1.5	20
	3	1150 - 1220	30	18	19.5	1.5	20
	4						
	5						

- NOTES:**
- Tests to be repeated at same depth until approximately equal percolation rates are obtained at each percolation test hole. (i.e.  $\leq 1$  min for 1-30 min/inch,  $\leq 2$  min for 31-60 min/inch). All data to be submitted for review.
  - Depth measurements to be made from top of hole.

**TEST PIT DATA**  
**DESCRIPTION OF SOILS ENCOUNTERED IN TEST HOLES**

DEPTH G.L.	HOLE NO. <u>DS1</u>	HOLE NO. <u>DS2</u>	HOLE NO. <u>DS3</u>
0.5'	0-6" TOPSOIL	0-6" TOPSOIL	0-10" TOPSOIL
1.0'	6-30" LIGHT BROWN		
1.5'	MODERATELY COMPACTED	5"-40"	10"-48"
2.0'	SANDY LOAM w/ GRAVEL	ORANGE BROWN	ORANGE BROWN
2.5'		SLIGHTLY COMPACTED SANDY	MOD. COMPACTED
3.0'		LOAM	SANDY LOAM
3.5'	30"-112"±		
4.0'	BROWN COMPACTED		
4.5'	FINE SANDY LOAM	40"-114"±	
5.0'		BROWN COMPACTED	48"-114"±
5.5'		FINE SANDY	BROWN COMPACTED
6.0'		LOAM	FINE SANDY
6.5'			LOAM
7.0'			
7.5'			
8.0'			
8.5'			
9.0'	▽ GROUNDWATER		
9.5'	~ @ 108"	▽ GROUNDWATER	
10.0'		@ 114"	

Indicate level at which groundwater is encountered 108" (S1) 114" (S2)

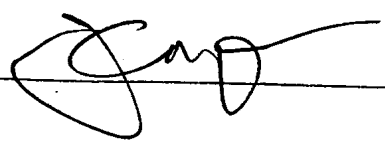
Indicate level at which mottling is observed NA

Indicate level to which water level rises after being encountered NA

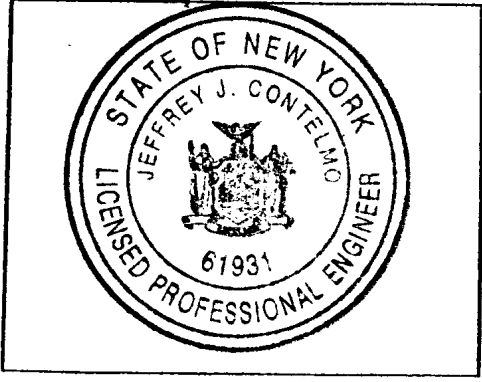
Deep hole observations made by: 2pc Pearson (insite) Jeff Binkley (Geodesy) Jer Parovotti + Gene Reed (PCHD) Date 6-14-05

Design Professional Name: Jeffrey Contelmo P.E. Address:

Insite Engineering, Surveying & Landscape Architecture, P.C.  
3 Garrett Place, Camel, NY 10512

Signature: 

Design Professional's Seal



**PUTNAM COUNTY DEPARTMENT OF HEALTH  
DIVISION OF ENVIRONMENTAL HEALTH SERVICES**

**DESIGN DATA SHEET - SUBSURFACE SEWAGE TREATMENT SYSTEM**

**PATTERSON CROSSING**  
 Owner <sup>40</sup> Hudson Valley Realty Corp Address 1699 Route 6, Suite 1, Carmel NY 105  
 Located at (Street) NYS Route 311 Tax Map 33 Block 2 Lot 23  
 Municipality Town of Patterson (indicate nearest cross street) Watershed East Branch

**SOIL PERCOLATION TEST DATA**

Date of Pre-soaking 6-27-05 Date of Percolation Test 6-28-05

Hole No.	Run No.	Time Start - Stop	Elapse Time (Min.)	Depth to Water From Ground Surface (Inches)		Water Level Drop In Inches	Percolation Rate Min/Inch
				Start	Stop		
PS4	1	1123-1148	25	17	20	3	8.3
	2	1149-1219	30	17	19.5	2.5	12
	3	1220-1250	30	17	19.5	2.5	12
	4						
	5						
PS5	1	1114-1135	21	18	21	3	7
	2	1135-1200	25	18	21	3	8.3
	3	1200-1225	25	18	21	3	8.3
	4						
	5						
PS6	1	1120-1150	30	18	19.5	1.5	20
	2	1150-1220	30	18	19.25	1.25	24
	3	1220-1250	30	18	19.25	1.25	24
	4						
	5						

- NOTES:**
1. Tests to be repeated at same depth until approximately equal percolation rates are obtained at each percolation test hole. (i.e.  $\leq 1$  min for 1-30 min/inch,  $\leq 2$  min for 31-60 min/inch). All data to be submitted for review.
  2. Depth measurements to be made from top of hole.

**TEST PIT DATA**  
**DESCRIPTION OF SOILS ENCOUNTERED IN TEST HOLES**

DEPTH G.L.	HOLE NO. <u>DS4</u>	HOLE NO. <u>DS5</u>	HOLE NO. <u>DS6</u>
0.5'	0-10" TOPSOIL	0-6" TOPSOIL	0-16" TOPSOIL
1.0'			
1.5'	10-22" ORANGE BROWN	6" to 36" LIGHT BROWN	
2.0'	MOD. COMPACTED SANDY LOAM w/ GRAVEL	MOD. COMPACTED SANDY LOAM	16"-38" ORANGE BROWN MOD. COMPACTED SANDY LOAM.
2.5'			
3.0'			
3.5'	22"-100"		
4.0'	OLIVE BROWN	36" - 110" +	
4.5'	COMPACTED FINE SANDY LOAM	BROWN COMPACTED FINE SANDY LOAM	
5.0'			38" - 114" +
5.5'			BROWN COMPACTED FINE SANDY LOAM
6.0'			
6.5'			
7.0'			
7.5'			
8.0'	▽ GW @ 98" +		
8.5'	ROCK @ 100"		
9.0'			
9.5'			▽ GW @ 110"
10.0'			

Indicate level at which groundwater is encountered 98" (S4) 84" (S5) 110" (S6)

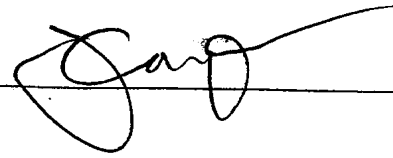
Indicate level at which mottling is observed N/A

Indicate level to which water level rises after being encountered N/A

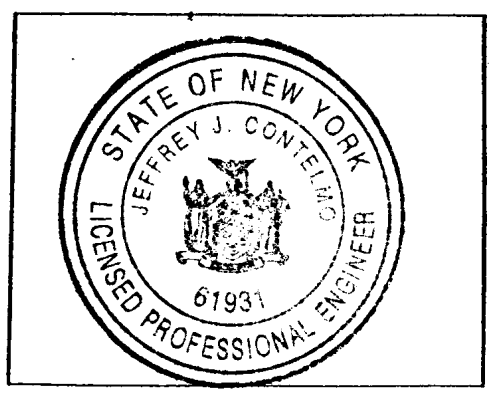
Deep hole observations made by: Lac Pearson (insite) Jeff Buckley (Geodesign) + Gene Reed (PCHD) Date 6-14-05

Design Professional Name: Jeffrey Contelmo P.E. Address:

Insite Engineering, Surveying & Landscape Architecture, P.C.  
3 Garrett Place, Camel, NY 10512

Signature: 

Design Professional Seal



**PUTNAM COUNTY DEPARTMENT OF HEALTH  
DIVISION OF ENVIRONMENTAL HEALTH SERVICES**

**DESIGN DATA SHEET - SUBSURFACE SEWAGE TREATMENT SYSTEM**

*PATTERSON CROSSING*  
 Owner *% Hudson Valley Realty Corp.* Address *1699 Route 6, Suite 1, Carmel NY 11732*  
 Located at (Street) *NYS Route 311* Tax Map *33* Block *2* Lot *23*  
(indicate nearest cross street)  
 Municipality *Town of Patterson* Watershed *East Branch*

**SOIL PERCOLATION TEST DATA**

Date of Pre-soaking *6-27-05* Date of Percolation Test *6-28-05*

Hole No.	Run No.	Time Start - Stop	Elapse Time (Min.)	Depth to Water From Ground Surface (Inches)		Water Level Drop In Inches	Percolation Rate Min/Inch
				Start	Stop		
<i>PS7</i>	1	<i>0932-1002</i>	<i>30</i>	<i>18</i>	<i>20.5</i>	<i>2.5</i>	<i>12</i>
	2	<i>1002-1032</i>	<i>30</i>	<i>18</i>	<i>20</i>	<i>2</i>	<i>15</i>
	3	<i>1032-1102</i>	<i>30</i>	<i>18</i>	<i>20</i>	<i>2</i>	<i>15</i>
	4						
	5						
<i>PS8</i>	1	<i>0935-1005</i>	<i>30</i>	<i>18</i>	<i>21</i>	<i>3</i>	<i>10</i>
	2	<i>1005-1035</i>	<i>30</i>	<i>18</i>	<i>20</i>	<i>2</i>	<i>15</i>
	3	<i>1035-1105</i>	<i>30</i>	<i>18</i>	<i>20</i>	<i>2</i>	<i>15</i>
	4						
	5						
<i>PS9</i>	1	<i>0937-1007</i>	<i>30</i>	<i>18</i>	<i>20.5</i>	<i>2.5</i>	<i>12</i>
	2	<i>1015-1045</i>	<i>30</i>	<i>18</i>	<i>20.5</i>	<i>2.5</i>	<i>12</i>
	3	<i>1046-1116</i>	<i>30</i>	<i>18</i>	<i>20.5</i>	<i>2.5</i>	<i>12</i>
	4						
	5						

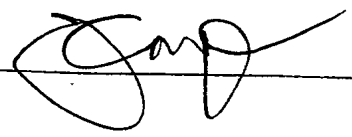
- NOTES:**
1. Tests to be repeated at same depth until approximately equal percolation rates are obtained at each percolation test hole. (i.e.  $\leq 1$  min for 1-30 min/inch,  $\leq 2$  min for 31-60 min/inch). All data to be submitted for review.
  2. Depth measurements to be made from top of hole.

**TEST PIT DATA**  
**DESCRIPTION OF SOILS ENCOUNTERED IN TEST HOLES**

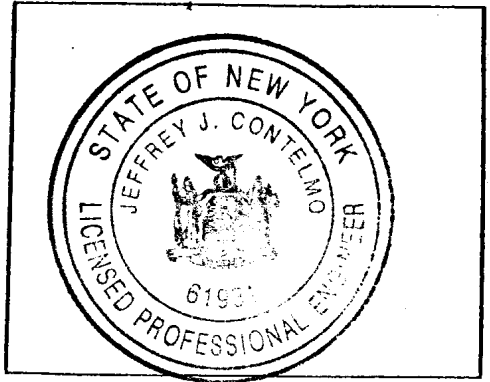
DEPTH	HOLE NO. <u>DS7</u>	HOLE NO. <u>DS8</u>	HOLE NO. <u>DS9</u>
G.L.			
0.5'	↑ 0'-12" TOPSOIL	↑ 0'-4" TOPSOIL	↑ 0'-6" TOPSOIL
1.0'			
1.5'	* 12'-36" LIGHT	4'-42"	6'-54"
2.0'	BROWN MOD COMPACTED	ORANGE BROWN MOD	ORANGE BROWN
2.5'	SANDY LOAM	COMPACTED SANDY LOAM	MOD COMPACTED
3.0'			
3.5'	* 36'-114"+	W/GRAVEL	SANDY LOAM
4.0'			
4.5'	BROWN COMPACTED	42'-114"+	
5.0'	FINE SANDY	BROWN COMPACTED	* 54'-114"+
5.5'	LOAM	FINE SANDY	
6.0'		LOAM	BROWN COMPACTED
6.5'	GW SEEP @ 72"		FINE SANDY
7.0'			LOAM
7.5'			
8.0'			GW SEEP @ 92"
8.5'			
9.0'		GW SEEP	
9.5'		@ 108"	
10.0'	~	~	~

Indicate level at which groundwater is encountered 72" (S7) 108" (S8) 92" (S9)  
 Indicate level at which mottling is observed N/A  
 Indicate level to which water level rises after being encountered N/A  
 Deep hole observations made by: Zac Pearson (Insite), Jeff Buckley (Hoodensin), Gene Reed (PCHO) Date 6-14-05

Design Professional Name: Jeffrey Contelmo P.E. Address:  
Insite Engineering, Surveying & Landscape Architecture, P.C.  
3 Garrett Place, Camel, NY 10512

Signature: 

**Design Professional Seal**



**PUTNAM COUNTY DEPARTMENT OF HEALTH  
DIVISION OF ENVIRONMENTAL HEALTH SERVICES**

**DESIGN DATA SHEET - SUBSURFACE SEWAGE TREATMENT SYSTEM**

*PATTERSON CROSSING*

Owner <sup>c/o</sup> Audron Valley Realty Corp Address 1699 Route 6, Suite 1, Carmel  
 Located at (Street) NYS Route 311 Tax Map 33 Block 2 Lot 27  
(indicate nearest cross street)  
 Municipality Town of Patterson Watershed East Branch

**SOIL PERCOLATION TEST DATA**

Date of Pre-soaking 6-27-05 Date of Percolation Test 6-28-05

Hole No.	Run No.	Time Start - Stop	Elapse Time (Min.)	Depth to Water From Ground Surface (Inches)		Water Level Drop In Inches	Percolation Rate Min/Inch
				Start	Stop		
PS10	1	0942-1012	30	21	23	2	15
	2	1012-1042	30	21	23	2	15
	3	1042-1112	30	21	23	2	15
	4						
	5						
	1						
	2						
	3						
	4						
	5						
	1						
	2						
	3						
	4						
	5						

- NOTES:**
1. Tests to be repeated at same depth until approximately equal percolation rates are obtained at each percolation test hole. (i.e.  $\leq 1$  min for 1-30 min/inch,  $\leq 2$  min for 31-60 min/inch). All data to be submitted for review.
  2. Depth measurements to be made from top of hole.

**TEST PIT DATA**  
**DESCRIPTION OF SOILS ENCOUNTERED IN TEST HOLES**

DEPTH	HOLE NO. <u>DS-10</u>	HOLE NO. _____	HOLE NO. _____
G.L.			
0.5'	↑ 0"-10" TOPSOIL		
1.0'	X		
1.5'			
2.0'	10"-40" LIGHT		
2.5'	BROWN MOD. COMPACTED		
3.0'	SANDY LOAM		
3.5'	↓		
4.0'			
4.5'	40"-120"+		
5.0'	BROWN COMPACTED		
5.5'	FINE SANDY		
6.0'	LOAM		
6.5'			
7.0'			
7.5'			
8.0'			
8.5'			
9.0'			
9.5'	GW SEEP		
10.0'	@ 114"		

Indicate level at which groundwater is encountered 114" (S-10)

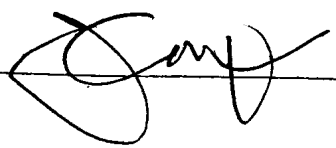
Indicate level at which mottling is observed N/A

Indicate level to which water level rises after being encountered N/A

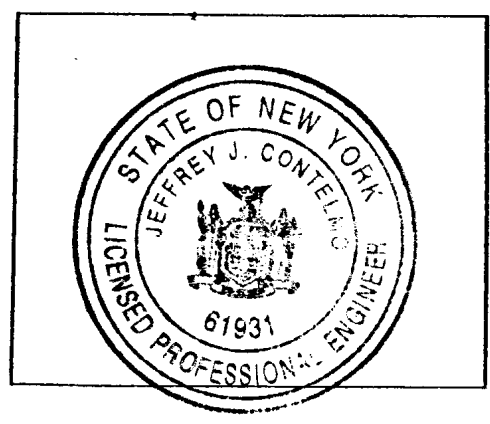
Deep hole observations made by: 2ac Pearson (Insite), Jeff Buckley (Geodesign), Joe Paravutti + Gene Reed (PCHD) Date 6-14-05

Design Professional Name: JEFFREY CONTELMO P.E. Address:

Insite Engineering, Surveying & Landscape Architecture, P.C.  
3 Garrett Place, Carmel, NY 10512

Signature: 

Design Professional Seal



COLUMBIANA COUNTY DEPARTMENT OF HEALTH SERVICES  
DIVISION OF ENVIRONMENTAL HEALTH SERVICES

APPLICATION FOR APPROVAL OF PLANS FOR  
A WASTEWATER TREATMENT SYSTEM

1. Name and address of applicant: Patterson Crossing Realty, LLC  
1699 Route 6, Suite 1  
Carmel, NY 10512
2. Name of Project: SSTS for Patterson Crossing Retail Center 3. Location: T/V: Patterson / Kent
4. Design Professional: Jeffrey J. Contelmo, P.E. 5. Address: Insite Engineering, Surveying & Landscape Architecture, P.C.  
3 Garrett Place  
Carmel NY 10512
6. Drainage Basin: East Branch / Middle Branch Reservoir
7. Type of Project:  
Private/Residential Food Service X Commercial  
Apartments Institutional Mobile Home Park  
Office Building Realty Subdivision Other (specify)
8. Is this project subject to State Environmental Quality Review (SEQR)?..... Yes/No YES  
Type Status (check one)..... Type I X Exempt       
Type II      Unlisted
9. Is a Draft Environmental Impact Statement (DEIS) required?..... Yes/No YES
10. Has DEIS been completed and found acceptable by Lead Agency?..... Yes/No YES
11. Name of Lead Agency Town of Patterson Planning Board
12. Is this project in an area under the control of local planning, zoning, or other officials, ordinances? ..... Yes/No YES
13. If so, have plans been submitted to such authorities? ..... Yes/No YES
14. Has preliminary approval been granted by such authorities? NO Date granted: N/A
15. Type of sewage treatment system discharge .....      surface water X groundwater
16. If surface water discharge, what is the stream class designation? ..... N/A
17. Waters index number (surface) ..... N/A
18. Is project located near a public water supply system? ..... Yes/No NO
19. If yes, name of water supply N/A Distance to water supply > 1 MILE
20. Is project site near a public sewage collection or treatment system? ..... Yes/No NO
21. Name of sewage system N/A Distance to sewage system > 1 MILE
22. Date test holes observed 6-14-05 23. Name of Health Inspector Mike Budzinski P.E.  
South SSTS Area: 11,000 gpd  
North SSTS Area: 400 gpd
24. Project design flow (gallons per day) .....
25. Is State Pollutant Discharge Elimination system (SPDES) Permit required? ... Yes/No YES
26. Has SPDES Application been submitted to local DEC office? ..... Yes/No NO - PENDING SUBMISSION

27. Is any portion of this project located within a designated Central or State Wetlands? NO
28. Wetlands ID number ..... N/A
29. Is Wetlands Permit required? ..... Yes/No YES  
 Has application been made to Town or ~~Local DEC~~ ..... Yes/No NO
30. Does project require a DEC Stream Disturbance Permit? ..... Yes/No NO
31. Is or was project site used for agricultural activity involving application of pesticides to orchards or other crops, solid or hazardous waste disposal, landfilling, sludge application or industrial activity? ..... Yes/No NO
32. Is project located within 1,000 feet of existing or abandoned landfill, hazardous waste site, salt stockpile, landfill, sludge disposal site or any other potentially known source of contamination? ..... Yes/No NO  
 DESCRIBE: \_\_\_\_\_

33. Is there a local master plan on file with the Town or Village? ..... Yes/No N/A
34. Are community water and/or sewer facilities planned to be developed within 15 years in or adjacent to project site? ..... Yes/No N/A
35. Are any sewage treatment areas in excess of 15% slope? ..... Yes/No NO
36. Tax Map ID Number ..... Map \* \_\_\_ Block \* \_\_\_ Lot \* \_\_\_
37. Approved plans are to be returned to ..... Applicant X Design Professional

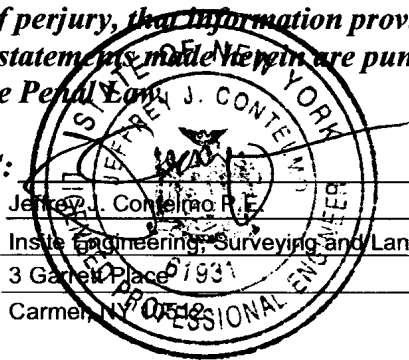
\* Town of Kent Tax Map #22.-2-48, Town of Patterson Tax Map #'s 22.-3-1, 32.-2-2, 33.-2-23, and 34.-2-3

NOTE: All applications for review and approval of a new SSTS to be located within the NYC Watershed shall be sent to the Department, and need not be sent in duplicate to the DEP, although the project may require DEP approval of the SSTS prior to final approval by the Department. Projects within the watershed may also require DEP review and approval of other aspects of a project, such as stormwater plans or the creation of impervious surfaces, and the project applicant should obtain the appropriate forms for such activities from DEP and submit those forms to DEP for review and approval.

If the application is signed by a person other than the applicant shown in Item 1, the application must be accompanied by a Letter of Authorization (Form LA-97). Failure to comply with this provision may be grounds for the rejection of any submission.

*I hereby affirm, under penalty of perjury, that information provided on this form is true to the best of my knowledge and belief. False statements made herein are punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law.*

**SIGNATURES & OFFICIAL TITLES:**



\_\_\_\_\_  
 Jeffrey J. Contelmo, P.E.  
 Insitu Engineering, Surveying and Landscape Architecture, P.C.  
 3 Garret Place  
 Carmel, NY 12149

Mailing Address: .....

**PUTNAM COUNTY DEPARTMENT OF HEALTH  
DIVISION OF ENVIRONMENTAL HEALTH SERVICES**

**AFFIDAVIT - CORPORATE OWNER APPLICATION  
FOR PERMIT APPLICATION SUBMITTED TO PUTNAM COUNTY HEALTH DEPARTMENT**

To: Public Health Director

In the matter of application for: Patterson Crossing Realty, LLC

I, Paul A. Camarda

represent that I am an officer or employee of the corporation and am authorized to act for:

Name of Corporation: Patterson Crossing Realty, LLC

Having offices at: 1699 Route 6, Suite 1, Carmel, N.Y. 10512

Whose Officers Are:

President - Name: PAUL A. CAMARDA

Address: 1699 RT 6, SUITE 1, CARMEL, NY 10512

Vice President - Name: \_\_\_\_\_

Address: \_\_\_\_\_

Secretary - Name: \_\_\_\_\_

Address: \_\_\_\_\_

Treasurer - Name: \_\_\_\_\_

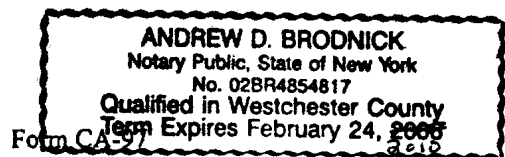
Address: \_\_\_\_\_

and that I am and will be individually responsible for any and all acts of the corporation with respect to the approval requested and all subsequent acts relating thereto.

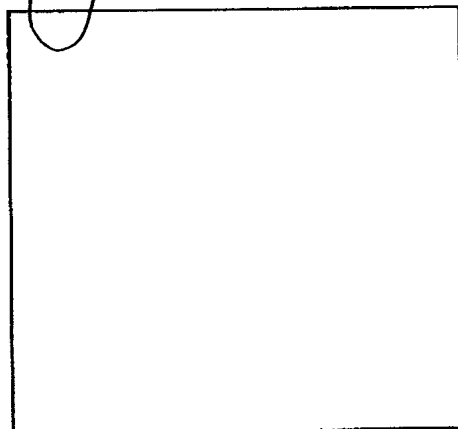
Signed: *Paul A. Camarda*  
Title: President

Sworn to before me this 12<sup>th</sup> day of Feb (month) 2008 (year)

*Andrew D. Brodnick*  
Notary Public



Corporate Seal



**PUTNAM COUNTY DEPARTMENT OF HEALTH  
DIVISION OF ENVIRONMENTAL HEALTH SERVICES**

**CONSTRUCTION PERMIT FOR SEWAGE TREATMENT SYSTEM**

PERMIT # \_\_\_\_\_

Northern SSTS Area

Located at NYS Route 311

Town or Village Kent

Subdivision name N/A Subd. Lot # \_\_\_\_\_

Tax Map 22 Block 2 Lot 48

Date Subdivision Approved \_\_\_\_\_

Renewal \_\_\_\_\_ Revision \_\_\_\_\_

Owner/Applicant Name Patterson Crossing Realty, LLC

Date of Previous Approval N/A

Mailing Address 1699 Route 6, Suite 1, Carmel, New York Zip 10512

Amount of Fee Enclosed \$3,240.00

Building Type Commercial/Retail Lot Area 90.5 AC No. of Bedrooms \_\_\_\_\_ Design Flow GPD 400

**Fill Section Only \_\_\_\_\_ Depth \_\_\_\_\_ Volume \_\_\_\_\_  
PCHD NOTIFICATION IS REQUIRED WHEN FILL IS COMPLETED**

**Separate Sewerage System** to consist of 1,000 gallon septic tank and 290 LF of 2' wide  
absorption trench

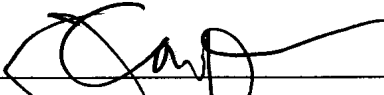
Other Requirements: N/A

To be constructed by To Be Determined Address N/A

**Water Supply:** \_\_\_\_\_ Public Supply From \_\_\_\_\_ Address \_\_\_\_\_

**or:**  Private Supply Drilled by To Be Determined Address N/A

I represent that I am wholly and completely responsible for the design and location of the proposed system(s) and that the separate sewage treatment system described above will be constructed as shown on the approved amendment thereto and in accordance with the standards, rules and regulations of the Putnam County Department of Health, and that on completion thereof a "Certificate of Construction Compliance" satisfactory to the Public Health Director will be submitted to the Department, and a written guarantee will be furnished the owner, his successors, heirs or assigns by the builder, that said builder will place in good operating condition any part of said sewage treatment system during the period of two (2) years immediately following the date of the issuance of the approval of the Certificate of Construction Compliance of the original system or any repairs thereto.

Signed:  \_\_\_\_\_ P.E.  R.A. \_\_\_\_\_ Date 3/7/08

Address Insite Engineering, Surveying & Landscape Architecture, P.C. License # 61931  
3 Garrett Place, Carmel, New York 10512

**APPROVED FOR CONSTRUCTION:** This approval expires two years from the date issued unless construction of the sewage treatment system has been completed and inspected by the PCHD and is revocable for cause or may be amended or modified when considered necessary by the Public Health Director. Any revision or alteration of the approved plan requires a new permit. Approved for discharge of domestic sanitary sewage only.

By: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_

White copy - HD File; Yellow copy - Building Inspector; Pink copy - Owner; Orange copy - Design Professional  
Form CP-97

**PUTNAM COUNTY DEPARTMENT OF HEALTH  
DIVISION OF ENVIRONMENTAL HEALTH SERVICES**

**CONSTRUCTION PERMIT FOR SEWAGE TREATMENT SYSTEM**

PERMIT # \_\_\_\_\_ Southern SSTS Area

Located at NYS Route 311 Town or Village Patterson

Subdivision name N/A Subd. Lot # \_\_\_\_\_ Tax Map 33 Block 2 Lot 23

Date Subdivision Approved \_\_\_\_\_ Renewal \_\_\_\_\_ Revision \_\_\_\_\_

Owner/Applicant Name Patterson Crossing Realty, LLC Date of Previous Approval N/A

Mailing Address 1699 Route 6, Suite 1, Carmel, New York Zip 10512

Amount of Fee Enclosed \$3,240.00

Building Type Commercial/Retail Lot Area 90.5 AC No. of Bedrooms \_\_\_\_\_ Design Flow GPD 11,000

**Fill Section Only \_\_\_\_\_ Depth \_\_\_\_\_ Volume \_\_\_\_\_  
PCHD NOTIFICATION IS REQUIRED WHEN FILL IS COMPLETED**

\* (1) 1,000 gallon, (6) 1,500 gallon, (1) 2,000 gallon, and (2) 3,000 gallon septic tanks.  
**Separate Sewerage System** to consist of \_\_\_\_\_ \* \_\_\_\_\_ gallon septic tank and 9,240 LF of 2' wide \_\_\_\_\_  
absorption trench

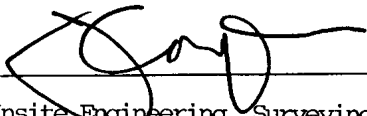
Other Requirements: pump station, valve pit, (2) automatic multizone valves, (10) 14-way distribution boxes, 0' to 2' R.O.B. gravel fill for grading (Section 1A only)

To be constructed by To Be Determined Address N/A

**Water Supply:** \_\_\_\_\_ Public Supply From \_\_\_\_\_ Address \_\_\_\_\_

**or:**  Private Supply Drilled by To Be Determined Address N/A

I represent that I am wholly and completely responsible for the design and location of the proposed system(s) and that the separate sewerage treatment system described above will be constructed as shown on the approved amendment thereto and in accordance with the standards, rules and regulations of the Putnam County Department of Health, and that on completion thereof a "Certificate of Construction Compliance" satisfactory to the Public Health Director will be submitted to the Department, and a written guarantee will be furnished the owner, his successors, heirs or assigns by the builder, that said builder will place in good operating condition any part of said sewage treatment system during the period of two (2) years immediately following the date of the issuance of the approval of the Certificate of Construction Compliance of the original system or any repairs thereto.

Signed:  \_\_\_\_\_ P.E.  R.A. \_\_\_\_\_ Date 3/7/08

Address Insite Engineering, Surveying & Landscape Architecture, p.c. License # 61931  
3 Garrett Place, Carmel, New York 10512

**APPROVED FOR CONSTRUCTION:** This approval expires two years from the date issued unless construction of the sewage treatment system has been completed and inspected by the PCHD and is revocable for cause or may be amended or modified when considered necessary by the Public Health Director. Any revision or alteration of the approved plan requires a new permit. Approved for discharge of domestic sanitary sewage only.

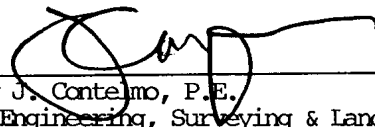
By: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_

**PUTNAM COUNTY DEPARTMENT OF HEALTH  
DIVISION OF ENVIRONMENTAL HEALTH SERVICES**

**APPLICATION TO CONSTRUCT A WATER WELL**

please print or type

**PCHD Permit #** \_\_\_\_\_

<b>Well Location</b> Patterson Crossing Retail Center	<b>Street Address:</b> NYS Route 311	<b>Town/Village:</b> Kent	<b>Tax Map #</b> Map 22 Block 2 Lot(s) 48
<b>Well Owner:</b> Patterson Crossing Realty, LLC	<b>Name:</b> Patterson Crossing Realty, LLC	<b>Address:</b> 1699 Route 6, Suite 1, Carmel, New York 10512	
<b>Phone #:</b> 845-228-1400			
<b>Use of Well:</b> 1-Primary 2-Secondary	<input type="checkbox"/> Residential <input checked="" type="checkbox"/> Business <input type="checkbox"/> Industrial	<input type="checkbox"/> Public Supply <input type="checkbox"/> Farm <input type="checkbox"/> Institutional	<input type="checkbox"/> Air/cond/heat pump <input type="checkbox"/> Test/monitoring <input type="checkbox"/> Standby <input type="checkbox"/> Irrigation <input type="checkbox"/> Other(specify)
<b>Amount of Use</b>	<b>Yield Sought</b> 5 gpm	<b># People Served</b> 20	<b>Est. of Daily usage</b> 400 gal.
<b>Reason for Drilling</b>	<input type="checkbox"/> Replace Existing Supply <input checked="" type="checkbox"/> New Supply (new dwelling)		
<b>Detailed Reason for Drilling</b>	<input type="checkbox"/> Test/Observation <input type="checkbox"/> Additional Supply <input type="checkbox"/> Deepen Existing Well		
<b>Well Type</b>	<input checked="" type="checkbox"/> Drilled <input type="checkbox"/> Driven <input type="checkbox"/> Gravel <input type="checkbox"/> Other		
<b>Is well site subject to flooding?</b> .....			Yes ___ No <input checked="" type="checkbox"/>
<b>Is well located in a realty subdivision?</b> .....			Yes ___ No <input checked="" type="checkbox"/>
<b>Name of subdivision</b> N/A			<b>Lot No.</b> N/A
<b>Water Well Contractor:</b> To be determined		<b>Address:</b> N/A	
<b>Is Public Water Supply available on site?</b> .....			Yes ___ No <input checked="" type="checkbox"/>
<b>Name of Public Water Supply:</b> N/A		<b>Town/Village</b> N/A	
<b>Distance to property from nearest water main:</b> N/A			
<b>Proposed well location &amp; sources of contamination to be provided on separate sheet/plan.</b>			
<b>Date:</b> 3/7/08	<b>Applicant Signature:</b> 		
	Jeffrey J. Contelmo, P.E. Insite Engineering, Surveying & Landscape Architecture, P.C.		

**PERMIT TO CONSTRUCT A WATER WELL**

This permit to construct one water well as set forth above, is granted under provisions of Article 10 of the Putnam County Sanitary Code and Subpart 5-2 of Part 5 of the New York State Sanitary Code and provided that within thirty (30) days of the completion of water well construction, the applicant or their designated representative shall: 1) Pump the well until the water is clear. 2) Disinfect the well in accordance with the requirements of the Putnam County Health Department. 3) Submit a Well Completion Report on a form provided by the Putnam County Health Department. 4) The well driller shall abide by all conditions of the permit. 5) During all well drilling operations the well driller shall take appropriate action to assure that any and all water and waste products from such well drilling operations be contained on this property and in such a manner as not to degrade or otherwise contaminate surface or groundwater.

**APPROVED FOR CONSTRUCTION:** This approval expires two years from the date issued unless construction of the well has been completed and inspected by the PCHD and is revocable for cause or may be amended or modified when considered necessary by the Commissioner of Health. Any revision or alteration of the approved plan requires a new permit. Well to be constructed by a water well driller certified by Putnam County.

Date of Issue \_\_\_\_\_  
Date of Expiration \_\_\_\_\_

Permit Issuing Official: \_\_\_\_\_  
Title: \_\_\_\_\_

**Permit is Non-Transferable**

White copy - HD file; Yellow copy - Building Inspector; Pink copy - Owner; Orange copy - Well driller

**PUTNAM COUNTY DEPARTMENT OF HEALTH  
DIVISION OF ENVIRONMENTAL HEALTH SERVICES**

**LETTER OF AUTHORIZATION**

RE: Property of Patterson Crossing Realty, LLC  
Located at Route 311 and I-87  
TV Patterson & Kent Tax Map # (see attached) Block \_\_\_\_\_ Lot \_\_\_\_\_  
Subdivision of N/A  
Subdivision Lot # N/A Filed Map # N/A Date Filed N/A

Gentlemen:

This letter is to authorize Insite Engineering, Surveying, & Landscape Architecture P.C. (Jeffrey Contelmo a duly licensed Professional Engineer X or Registered Architect XXXX to apply for the required wastewater treatment and/or water supply permit(s) to serve the above-noted property in accordance with the standards, rules or regulations as promulgated by the Public Health Director of the Putnam County Health Department, and to sign all necessary papers on my behalf in connection with this matter and to supervise the construction of said wastewater treatment and/or water supply systems in conformity with the provisions of Article 145 and/or 147 of the Education Law, the Public Health Law, and the Putnam County Sanitary Code.



Countersigned: Jeffrey Contelmo  
P.E., R.A., # 61931  
Mailing Address Insite Engineering, Surveying, & Landscape Architecture, P.C.  
3 Garrett Place, Carmel,

Very truly yours,

Signed: [Signature]  
(Owner of Property)

Mailing Address: 1699 Route 6  
Suite 1, Carmel

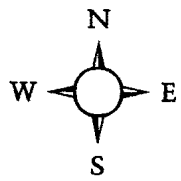
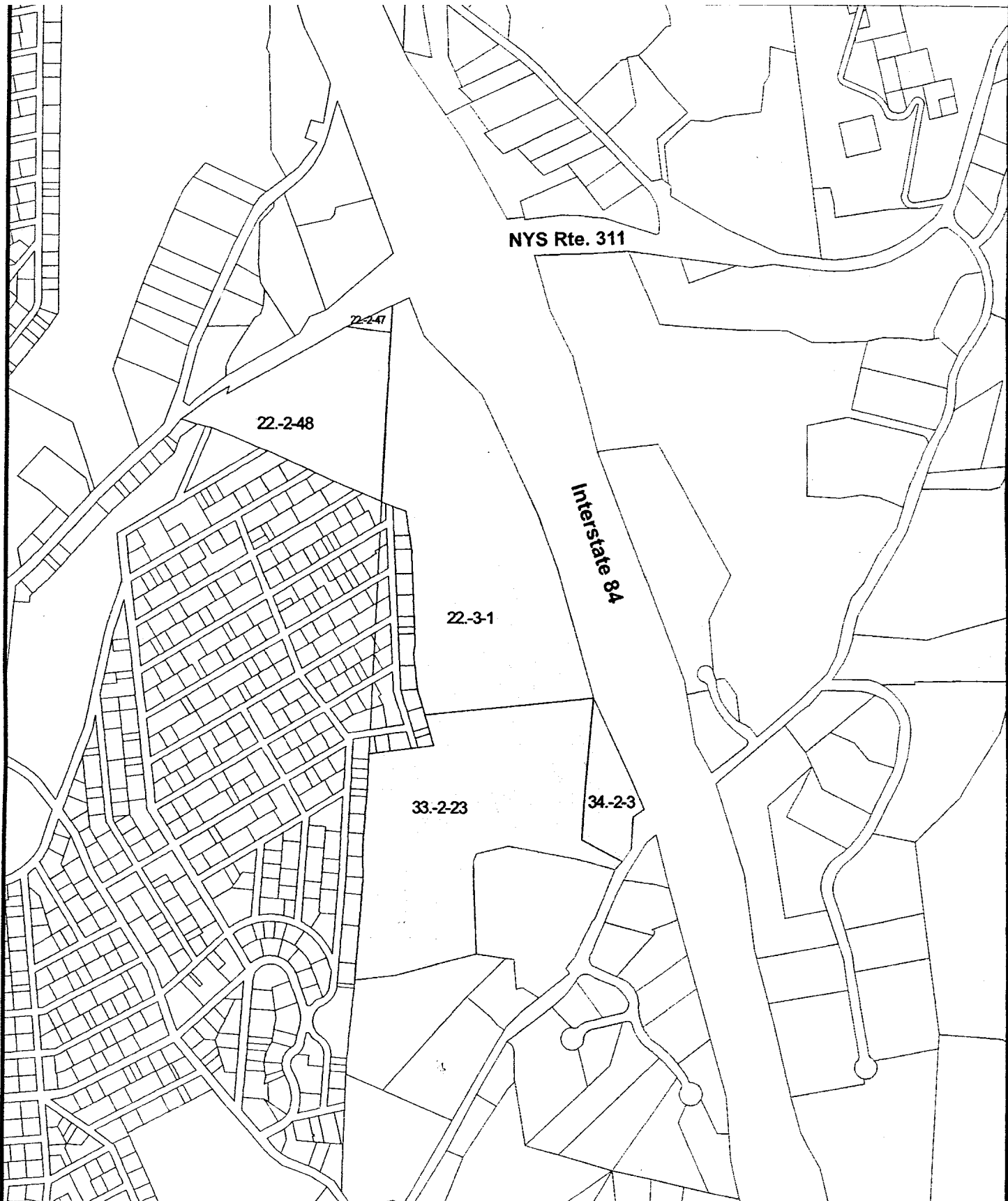
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
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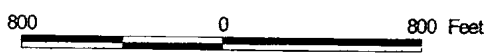
Telephone: (845) 225 - 9690

Telephone: 845-228-1400





-  Subject Property
-  Parcels in Town of Kent
-  Parcels in Town of Patterson



**Figure 2-2: Existing Tax Lots**  
 Patterson Crossing Retail Center  
 Town of Patterson and Town of Kent,  
 Putnam County, New York  
 Source: Putnam County GIS Department, 11/16/04

File 04031 10/02/05  
 JS040311

Tim Miller Associates, Inc., 10 North Street, Cold Spring, New York 10516 (845) 265-4400 Fax (845) 265-4418





## **WASTEWATER SYSTEM REPORT**

**For**

**PATTERSON CROSSING**

**Town of Patterson and Town of Kent, New York**

**February 25, 2008**

Prepared by:

Insite Engineering, Surveying & Landscape Architecture, P.C.

3 Garrett Place

Carmel, New York 10512

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## 1.0 INTRODUCTION

The subject project is located on a 90.5± acre parcel located in both the Town of Patterson and Town of Kent adjacent to Interstate 84 and New York State Route 311. The majority of the property is located in the Town of Patterson. The property is designated as Tax Map Parcel No. 22.-3-1, 32.-2-2, 33.-2-23 and 34.-2-3 in the Town of Patterson and 22.-2-48 in the Town of Kent. The parcel is zoned as I-(Industrial), and R-4-(Residential) in the Town of Patterson and C-(Commercial) in the Town of Kent. The subject parcel consists of woods and brush throughout the majority of the property. The only development on the subject property is the existing telecommunications facility located in the southeast portion of the property. The subject parcel is proposed to be developed as a retail center. The retail center will consist of four (4) buildings with multiple users and associated parking for each. Access to the site will be provided by a proposed access drive off of New York State Route 311. Water will be supplied to the site by drilled wells that will serve as a non-community public water supply for the project. Wastewater will be disposed of with subsurface sewage treatment systems (SSTS's) servicing the entire project. This report is prepared to address the wastewater systems only.

The wastewater systems will be designed in accordance with all applicable codes and regulations, including the Putnam County Department of Health's (PCDOH) *Bulletin CS-31, Program Review and Policies, Sewage Treatment and Water Supply Facilities for Commercial and Multifamily Residential Projects*, the New York State Department of Environmental Conservation's (NYSDEC)'s *1988 Design Standards for Wastewater Treatment Works - Intermediate Sized Sewerage Facilities*, the 2004 *Recommended Standards for Wastewater Facilities* (a.k.a. Ten-State Standards), and the New York City Department of Environmental Protection (NYCDEP).

## 2.0 WASTEWATER DESIGN FLOW

The project is proposed to be comprised of dry retail users with the exception of the wholesale warehouse store, the coffee shop, and a sandwich shop. Water use and wastewater discharge will therefore be primarily associated with restroom usage. The use of water saving plumbing fixtures, as required by the building code, would further limit water usage at the site. Please note that irrigation water will be supplied by a separate system that will collect and store roof runoff for that purpose.

The reference design standards for water and wastewater flows provide general design flows covering a broad range of usage categories. The New York State Department of Environmental Conservation (NYSDEC) publication *Design Standards for Wastewater Treatment Works, 1988* provides two alternatives for establishing design flows: hydraulic loading rates tables or water usage data. In either case a daily design flow rate must be calculated. The daily design flow rate is a conservatively high estimate of daily flow used by the engineer in the design of the water and sewer infrastructure.

In order to establish design flows, it is acceptable to use actual flows multiplied by a factor of safety of 1.5, or design flows based on published hydraulic loading rates. The design flows for the subject project have been calculated based on a combination of typical actual corporate user flow data (multiplied by the factor of safety) and the applicable hydraulic loading rate. It is commonly accepted by both the PCDOH and the NYCDEP to apply a factor of safety of 1.5 to actual flows for use as design flows. Note that the NYSDEC publication "Design Standards for Wastewater Treatment Works, 1988" does not require a factor of safety. For the purposes of this report the project's two SSTS's will be analyzed separately in the following sections.

### 2.1 SOUTHERN SSTS AREA

The following flow analysis provides water consumption data for the groups of uses proposed for the southern SSTS area of the Patterson Crossing project. The data presented herein is based on actual measured water usage within the Tri-State region, which will be utilized to estimate representative wastewater usage for the centralized system serving the main portion of the subject project. This does not include the 2,000 square foot building located in the Town of Kent which will be serviced by its own well and septic system. The intention of this evaluation is to support the wastewater design flows utilized for the subject project wastewater system based on actual water consumption of similar uses, or published unit flow estimates. For the purposes of this evaluation, the main portion of the project will be broken into five distinct components as follows:

1. Wholesale Warehouse.
2. Home Improvement Center.
3. Dry Retail Uses.
4. Coffee Shop and Sandwich Shop.
5. Management Space / Office Space / Meeting Rooms

Insite contacted municipal and private water suppliers to obtain water flow data from similar uses. Each section which follows includes the information that was made available. The user names listed are similar category retailers, and not necessarily future occupants of Patterson Crossing.

### 2.1.1 Wholesale Warehouse

The subject project proposes the development of a 145,000 sf wholesale warehouse. It is recognized that wholesale warehouses are unique retailers that store products in aisles of the store. The product storage utilizes a large portion of floor area. Many items for sale are bulky and use a significant amount of floor area within the building, particularly when compared to more traditional retail uses. Very specific information is available directly from Costco's corporate office that has provided the developer with the following information:

- Anticipated actual daily water usage (and related wastewater usage) 3,700 gallons per day.
- Desired design flow (with factor safety of 1.5) 5,550 gallons per day.

Similar users in the wholesale warehouse category include BJ's, and Sam's. Based on our research we found the following which support the design flow for the Wholesale Warehouse:

Store	Location	Time Period	Avg. Daily Flow (gpd)
BJ's	Wappingers Falls	1/07 to 11/07	1,780
Sam's	Middletown	3/06 to 10/07	3,500

### 2.1.2 Home Improvement Center

A Home Improvement Center is also a unique retailer that warehouses products in aisles of the store. The warehousing utilizes a large portion of the building floor, and many materials offered for sale are bulky items and use up a significant amount of floor area, particularly when compared to more traditional retail uses. The Home Improvement Center contains an exterior garden center that sells live plant materials on a seasonal basis. As part of the normal store operations, these live plant materials are irrigated to maintain plant health. A review of water records indicates that maximum garden center irrigation usually occurs from spring through the fall. In order to estimate wastewater flows, it is necessary to exclude irrigation water usage from total water usage. This can be achieved by summarizing winter water usage which would include little or no irrigation usage. Similar users in the home improvement category include Lowes and Home Depot. Based on our research we found the following:

Store	Location	Time Period	Winter Avg. Daily Flow (gpd)	Full Year Avg. Daily Flow (gpd)
Lowes	Newburgh	7/06 to 9/07	1,333	3,000
Home Depot	Newburgh	7/06 to 9/07	1,039	2,118
Home Depot	Middletown	3/06 to 10/07	1,255	2,861
Home Depot	9 Location in NJ	2001 to 2003	1,403	2,548

Full year water usage averages 2,600 gallons per day, while winter usage (assuming no irrigation usage, and therefore representing true wastewater flows) is approximated at 1,400 gallons per day. Note that there are some Large Dry Retail Stores (such as Kohl's or Gander Mountain as

discussed in section 2.1.3) that could replace the Home Improvement Center user, as long as the water usage is within the flows allocated for the Home Improvement Center, or other changes are made to the tenant mix as long as the users wastewater flow is within the total wastewater flow allocated for the project.

The non-winter average daily flow is approximated at 4,000 gallons per day, which will be used for domestic water flow, a large part of which is used for garden center irrigation and general garden center use. It should be noted that this specific project would include a roof runoff reclamation system, which will capture and store roof top runoff, which will then be used for garden center irrigation.

2.1.3 Dry Retail Uses

Dry Retailers include retail stores of varying sizes that only utilize water for restroom and employee convenience (lunch room, lounge) purposes. These would exclude supermarkets, restaurants, fast food establishments, and other retail establishments that would utilize water for a purpose other than restroom use. Below is a summary of regional water consumption data gathered for a varying sizes of retail establishments:

**Small Dry Retail Stores (less than 10,000 sf)**

Store	Approx. Building Area (sf)	Location	Time Period	Avg. Daily Flow (gpd)	Avg. Daily Flow per Bldg. Area (gpd/sf)
Village Paint	2,300	Carmel	7/07 to 9/07	18	0.0078
Radio Shack	2,300	Carmel	7/07 to 9/07	18	0.0078
Rockaway Bedding	4,500	Carmel	7/07 to 9/07	24	0.0053
Pier 1 Imports	9,500	Middletown	4/06 to 9/07	52	0.0055

**Mean 0.0066 gpd/sf**

**Medium Dry Retail Stores (between 10,000 sf and 40,000 sf)**

Store	Approx. Building Area (sf)	Location	Time Period	Avg. Daily Flow (gpd)	Avg. Daily Flow per Bldg. Area (gpd/sf)
CVS	10,000	Pawling	1/06 to 9/07	84	0.0084
Rite Aid	10,000	Carmel	7/07 to 9/07	303	0.0303
Payhalf	13,000	Wappingers Falls	1/07 to 11/07	17	0.0013
Michael's	25,000	Newburgh	7/06 to 9/07	176	0.0070
AC Moore	26,000	Wappingers Falls	1/07 to 11/07	449	0.0173
AC Moore	30,000	Middletown	4/06 to 9/07	342	0.0114
Linens N Things	32,000	Middletown	4/06 to 9/07	172	0.0054
Bed Bath & Beyond	35,000	Newburgh	1/07 to 9/07	148	0.0042
Toys R Us	38,000	Middletown	4/06 to 9/07	456	0.0120

**Mean 0.0108 gpd/sf**

**Large Dry Retail Stores (greater than 40,000 S.F.)**

Store	Approx. Building Area (sf)	Location	Time Period	Avg. Daily Flow (gpd)	Avg. Daily Flow per Bldg. Area (gpd/sf)
Best Buy	45,000	Middletown	4/06 to 9/07	532	0.0118
Dick's Sporting Goods	45,000	Middletown	4/06 to 9/07	227	0.0050
Kohls	75,000	Middletown	4/06 to 9/07	932	0.0124
Kohls	75,000	Newburgh	10/06 to 9/07	596	0.0079
Gander Mountain	123,000	Middletown	4/06 to 9/07	976	0.0079

**Mean                    0.0090 gpd/sf**

As can be seen from the above data, the lowest water usage for average daily flow per building area is with the small dry retail stores. This is primarily due to the fact that the smaller stores do not have customer bathrooms and have very few employees and low volume of customer usage. The next highest average daily flow per building area is for the large dry retail stores. Although the stores do have customer restrooms, a larger number of employees, and a more vibrant customer base, their water usage is spread over a large building area which lessens the average daily flow per building area. The highest average daily flow per building area lies with the medium dry retail stores. This group of stores typically does include a customer restroom, a moderate number of employees and a vibrant customer base. With the limited building square footage, the average daily flow per building area tends to be slightly higher than the other two categories. The mean for this category, which is the highest of the three categories, is 0.0108 gallons per day per square foot of building area. It is proposed to utilize this highest average daily flow per building area and round it to a value of 0.011 gallons per day per square foot.

2.1.4 Coffee Shop and Sandwich Shop

It is envisioned the project will have one coffee shop and one sandwich shop. It is anticipated that the Coffee Shop use would be similar to that of Dunkin Donuts or Starbucks, and would occupy approximately 2,500 square feet and include seating for approximately 30 customers. This use provides light snacks and beverages and would utilize water and generate wastewater primarily from restroom use and light food preparation.

Based on actual water usages provided by the owner of Dunkin Donut stores located in Putnam and Fairfield Counties, their upper average daily water usage is 650 gpd. The daily water taken off of the premises (i.e. coffee, soft drinks, etc.) ranges from 100 to 300 gpd. Assuming an average of 200 gpd is taken off site, the coffee shop total wastewater usage is 450 gpd.

It is anticipated that the sandwich shop use would be similar to that of Quizno's or Subway, and would occupy approximately 2,000 square feet and include seating for approximately 20 customers. This use provides take-out sandwiches, snacks and beverages that would utilize water and generate wastewater from restroom use and light food preparation. Low water use is achieved by utilizing paper products (no washing of customers dishes), and most of the food is sold as take-out (eaten off site). Based on the size and type of proposed sandwich shop use, the sandwich shop total wastewater usage is estimated at 400 gpd. The total wastewater usage for the coffee shop and sandwich shop is 450 gpd + 400 gpd = 850 gpd.

2.1.5 Management Space / Office Space / Meeting Rooms

It is anticipated that the management office will be staffed by up to six employees at certain times of the year for management, security and maintenance. Based on the NYSDEC’s design flow of 12 gpd/employee, the management office would require a design flow of 72 gallons per day. The meeting rooms are anticipated to have a maximum occupancy of 40 people. Based on a unit design flow of 3 gpd/person, the meeting rooms would require a design flow of 120 gallons per day. It is proposed to utilize a daily design flow of 192 gallons per day for the management space, office space and meeting rooms. Note that this flow is conservative, since the meeting rooms could only be used once a week.

2.1.6 Southern SSTS Area Design Flow Summary

Based on the data collected and summarized above, the following project wastewater design flow is established utilizing actual flow data and a factor of safety of 1.5:

Wholesale Warehouse	3,700 gpd x 1.5 =	5,550 gpd
Home Improvement Center	1,400 gpd x 1.5 =	2,100 gpd
Dry Retail	107,840 sf x 0.011 gpd/sf x 1.5 =	1,779 gpd
Coffee Shop and Sandwich Shop	850 gpd x 1.5 =	1,275 gpd
Management Space / Office Space / Meeting Rooms Allowance =		<u>192 gpd</u>
	Total	10,896 gpd

It is proposed to utilize a project wastewater design flow of 11,000 gallons per day.

Recognizing the fact that the project will be serviced by a subsurface sewage treatment system (SSTS) with an engineered available capacity, the main portion of the project wastewater flows will be limited to the 11,000 gpd design flow. Future retail users must have wastewater flows which fit into the flow projections for the project. In order to assure the project wastewater design flow is not exceeded the applicant would agree to appropriate controls to assure each user’s wastewater flows fit the project’s design flows. One such control would require each specific user present the Town Building Department with a wastewater design flow at the time they apply for their building permit, or with any change in occupancy. This will allow for the monitoring of design flow to assure that all users wastewater generation falls within the system design capacity. It should be noted that actual water and wastewater flow metering/monitoring will be required as part of the water and sewer permitting with the PCDOH, NYCDEP and NYSDEC. This metering/monitoring will provide an assurance that the actual project flows do not exceed the system design capacity.

2.1.7 References

- Home Depot, 9 locations in NJ flow data from report entitled “Water Consumption Study for Home Depot” prepared by Menlo Engineering Associates, Inc. dated June 26, 2003.
- Wappingers Falls flow data provided by Severn Trent Services, Inc. for the Alpine Commons site.
- Carmel flow data provided by Town of Carmel Engineering Department for Carmel Water District #2.
- Pawling flow data provided by Pawling Joint Sewer Commission.
- Middletown flow data provided by Town of Wallkill Water Department.

- Newburgh flow data provided by Town of Newburgh.

## 2.2 NORTHERN SSTS AREA

There is a 2,000 sf building proposed on the northern portion of the site located in the Town of Kent. The building is proposed to be supported by its own well and SSTS. The intended use of this building is currently unknown, although a conservative water usage design flow of 400 gpd has been estimated for the building. If this building were to be constructed as dry retail use the water usage design flows would be minimal and much less than 400 gpd. Due to the ample area to construct the northern SSTS a design flow of 400 gpd has been chosen to allow for flexibility of use in this location.

## 3.0 WASTEWATER COLLECTION SYSTEM

### 3.1 SOUTHERN SSTS AREA

The proposed retail configuration involves four separate buildings on the site. The wastewater collection system will consist of individual 4" diameter PVC SDR 35 sewer service connections for each building. Each sewer service connection will discharge into a precast concrete septic tank for primary treatment, which will flow by gravity through a common effluent sewer main to the effluent pump station. The sewer lines are proposed to be located generally in the proposed roads, parking areas and landscaped islands. Wastewater flow from all of the proposed buildings will be by gravity to the septic tanks and pump station.

The primary treatment area for each building will contain a precast concrete septic tank. The capacity in gallons for each septic tank will be sized to be 1.5 times the design flow for the contributing buildings. The septic tank capacities vary from 1,000 gallons to 3,000 gallons. All of the septic tanks for the main portion of the project will discharge to a common 6" diameter PVC SDR 35 effluent sewer main to a precast concrete duplex pump station. The pump station will be located at the north end of the developed area, and will convey the septic tank effluent through a 3" diameter PVC SDR21 force main to the southern SSTS area. An automatic standby emergency backup generator is proposed for the pump station to provide continuous operation of the wastewater system, even during a power outage.

### 3.2 NORTHERN SSTS AREA

The proposed northern retail configuration includes one stand alone building. The wastewater collection system will consist of an individual 4" diameter PVC SDR 35 sewer service connection for the building. The sewer service connection will discharge into a precast concrete septic tank for primary treatment, which will flow by gravity to the absorption fields.

## 4.0 WASTEWATER PUMPING SYSTEMS

### 4.1 SOUTHERN SSTS AREA

The pump station will include a wet well with duplex submersible grinder pumps, valve pit, and controls. The electrical meter and service panel, breaker panel, pump controls and a transfer switch for auxiliary power, and an automatic standby emergency generator is proposed for the wastewater pump station. These items will be located in the basement level of Building E, adjacent to the pump station. Twin forcemains will deliver the septic tank effluent from the pump station to the southern SSTS area. The southern SSTS area is divided into two large groves of absorption trenches (Groups 1 and 2). Each group will be connected to one of the forcemains. Each group will be divided into 5 equal length sections of absorption trenches (10 sections total).

#### 4.1.1 Pumps

Duplex submersible grinder pumps have been designed to convey the septic tank effluent generated from the proposed retail configuration. The pumps will be housed in an eight-foot diameter, thirteen-foot deep wet well. The submersible pumps will be controlled via a liquid level probe in the wet well that will turn the pumps on or off depending on the water level within the wet well. The pump controller will also alternate the lead/lag designation of the pumps. Additionally, a backup float system will be provided to operate the pumps independent of the probe controls in the event of a probe control system failure.

#### 4.1.2 Pump Design Criteria

Based upon an average design flow rate of 11,000 gallons per day (gpd) and a peaking factor of 4.0, a peak design sewage inflow rate of 46 gallons per minute (gpm) was calculated. Since the proposed project is active only in the day and early evening, a 16-hour day was utilized in the peak flow calculation. Using the 3" diameter force main, a maximum force main length of 3,900 feet, a static head of 137 feet, and losses associated with bends, entrance and exit losses and valves, a total dynamic head (TDH) of 192 feet was calculated at the design flow of 51 gpm using a Hazen-Williams "C" value of 120. These computations are attached.

Based upon a review of pump curves from various manufacturers an ABS Piranha grinder pump, Model M100/2D with a 13.4 horsepower (hp), 460V, 3 phase motor, was selected for the pump station. The selected pump will pump 51 gpm at a TDH of 192 ft with a C value of 120 for the force main. System head curves and the selected pump curve are attached.

#### 4.1.3 Pump Controls

A Submersible Level Control system is proposed for the pump station. This system is composed of a multi-sensored liquid detection probe to control and monitor the operation of the duplex pump station and provide lead-lag automatic alternation and high and low level alarms (Visual and Audible).

The pump control panel shall be equipped with four settings on a submersible level control probe to control the timed doses to be discharged. The water level must be high enough to overcome the "Both Pumps Off" (Bottom) setting in order for the pumps to be permitted to run. When the water level rises high enough to overcome the "Lead Pump Enable" (second) setting, and the time clock is in a pump enable mode, the lead pump will activate. The lead pump shall continue to run for the length of time as programmed on the pump run timer (9 minutes, as discussed in Section 4.1.6), and shall then shut off. The pump controller will alternate the lead pump at the end of each pump cycle. The pumps shall remain off until the time clock enters a new pump enable mode, at which time the lead pump shall activate (as long as the "Lead Pump Enable" setting is still triggered) and will run until the pump run timer finishes timing out. The pump run timer shall continue to operate a full pumping cycle. This process shall repeat until the water level drops below the "Both Pump Off" setting and the pump has timed out. Should either pump fail to run when called for, the pump fail circuit shall remove the failed pump from service and activate the audio/visual alarm. The alarm shall remain latched until manually reset. The control system shall include an alternator override switch to allow for manual selection of the lead pump if necessary, and will be setup such that it will not interfere with the normal timing functions of the system.

The control system shall be equipped with a timer override circuit. If the water level continues to rise enough to overcome the "Lag Pump On" (third) setting, and the override selector switch is on, the pump shall be activated, regardless of the time clock position. The pump will continue to run until deactivated by the override circuit, at which time the pump will shut off and the normal pumping cycle shall resume. If the water level continues to rise enough to overcome the "High Level Alarm" (fourth) setting, the audio/visual alarm shall activate the remain latched until the silence switch is pressed. When the silence switch is pressed, the audible alarm shall be silenced and the top mounted alarm light will remain lit until the water level drops below the "High Level Alarm" setting, at which time the alarm circuit must be manually reset. The pump controls shall provide a time delay of 10 seconds between alternating pump cycles.

#### 4.1.4 Control Room

A room on the lower floor of building E will be used as to house the pump station electrical and control equipment in order to reduce the risk of incidents of vandalism. The room will house

power panels, a transfer switch for auxiliary power, pump control panel, and an autodialer. The room will be provided with a security system and a smoke/heat detector that will notify operating personnel via an autodialer in case of fire or intrusion into the room.

#### 4.1.5 Wet Well

The pump station wet well has been designed a desired dose volume of 452 gallons, which is 75% of the absorption trench pipe volume per SSTS section (924 linear feet of absorption trench per section). In order to provide an equal volume dose every dose cycle, a timed dose volume system is proposed. A typical water level float based control system does not work for the subject project, since the inflow can vary from 0 gpm to 46 gpm on an average day, and fixed floats would not be able to provide on an exact dose volume every dose cycle. A 9 minute pump run time will provide a 459 gallon dose with the 51 gpm pump flow rate. Since the pump flow rate (51 gpm) is greater than the anticipated peak design flow (46 gpm), the lag pump should not be engaged under typical conditions. Also note that if one pump malfunctions, the other pump capacity is greater than the peak daily design flow. See attached sewer pump station design calculations for more detail regarding the pump station sizing.

Guide rails for the lifting and lowering of the proposed submersible grinder pumps will be provided. A portable hoist socket has been provided at the top of the wet well. This socket will be used to support the portable hoist to be provided as part of pump station construction, in order to lift and lower the submersible pumps or trash basket.

#### 4.1.6 Force Mains

The sewer forcemain will consist of two parallel forcemains, which will be used to convey septic tank effluent from the sewer pump station to the southern SSTS area. The forcemains will be 3" diameter, PVC SDR 21 with bell and spigot joints and factory installed gaskets. The fittings and elbows will be glued SCH 80 fittings. The forcemain shall be provided with 3'-6" minimum ground cover. The valve pit will be configured to allow one forcemain to be shut down and have both sewage pumps discharge to the other forcemain for maintenance or repairs. Two forcemain cleanout manholes will be provide along the forcemain route for cleaning and maintenance purposes.

#### 4.1.7 Valve Pit

A precast concrete valve pit will be provided to house gate valves, configured to allow one forcemain to be shut down and have both sewage pumps discharge to the other forcemain for maintenance or repairs. The valve pit will also house discharge pressure gauges on the force main. The valve pit will be provided with a floor drain to the wet well for removal of accumulated water. A gas and water tight check valve will be provided on the drain line.

#### 4.1.8 Check Valves

Check valves will be provided on both pump discharge headers. The proposed check valves will be swing type with a weight and lever. The check valves will have a pressure rating of 150 psi. Due to the small diameter and relatively short length of the force main, surge pressure (the effect of water hammer on the check valves resulting from the backwater in the force main) is estimated to be negligible.

#### 4.1.9 Automatic Multizone Valves

The two (2) Automatic Multizone Valves will each be installed in a manhole. The multizone valve is a pressure based distribution device with one inlet and five outlets. Once a section of absorptions trenches is dosed, the pressure drops in the force main and the multizone valve indexes to another section, awaiting the next dose. Two (2) Zoeller Pump Co. Automatic Multizone Valves, Model #4605, are proposed to distribute the dose to the each of the five absorption trench sections of each group. Manufacturer's literature and specifications are attached to this report.

#### 4.1.10 Distribution Boxes

There are ten (10) 14-way distribution boxes proposed for the SSTS area. The proposed boxes are precast concrete. Each distribution box shall have a 24" cast iron manhole frame and

cover for accessibility. Each distribution box will accept a dose from the automatic multizone valve and distribute the flow to the associated absorption fields of that particular section.

4.2 NORTHERN SSTS AREA

The Northern SSTS area has positive pitch from the building to the proposed absorption trenches; therefore a pumping system is not needed.

5.0 SEPTIC TANKS

5.1 SOUTHERN SSTS AREA

The septic tanks for the SSTS will be located adjacent to each of the proposed retail buildings. The septic tank for each building shall be sized to provide a capacity of 1.5 times the design flow for each of the buildings. Additionally, the Wholesale Retail Store Building A and the Home Improvement Store Building B have multiple raw sewage outlets and multiple septic tanks. The design flow at each of the outlets for Buildings A and B were estimated based on potential user floor and plumbing plans and the calculated design flow as shown in section 2.1.5 of this report. Based on the data collected, the following septic tank sizing for the southern SSTS is shown in the below table:

Building	Design Flow (gpd)	Factor of Safety	Required Septic Tank Size (gallons)	Proposed Septic Tank Size (gallons)	Septic Tank Designation
Wholesale Warehouse Store (Building A Outlet 1)	1,000	1.5	1,500	1,500	ST-1
Wholesale Warehouse Store (Building A Outlet 2)	1,950	1.5	2,925	3,000	ST-2
Wholesale Warehouse Store (Building A Outlet 3)	600	1.5	900	1,000	ST-3
Wholesale Warehouse Store (Building A Outlet 4)	2,000	1.5	3,000	3,000	ST-4
Home Improvement Store (Building B Outlet 1)	1,260	1.5	1,890	2,000	ST-5
Home Improvement Store (Building B Outlet 2)	800	1.5	1,200	1,500	ST-6
Retail Building C	800	1.5	1,200	1,500	ST-7
Retail Building D	850	1.5	1,275	1,500	ST-8
Retail Building F and Retail Building G	850	1.5	1,275	1,500	ST-9
Retail Building E	850	1.5	1,275	1,500	ST-10

Each septic tank will be reinforced concrete, per the details on the project plans. The septic tanks will be provided with inlet tees and access manhole covers. Septic tank effluent filters will be provided on all of the septic tanks. Additionally, it is proposed to provide grease traps prior to the septic tanks of buildings where increases levels of fats, grease, and oils are anticipated. All septic tanks and grease traps shall comply to H-20 loading. All SSTS network piping shall be 4" diameter PVC SDR 35.

5.2 NORTHERN SSTS AREA

The septic tank (ST-11) for the SSTS will be located adjacent proposed building. The septic tank will be sized to be greater than 1.5 times the design flow for the proposed building.

$$1.5 \times 400 \text{ gpd} = 600 \text{ gallons required}$$

Septic Tank ST-11 will be a 1000-gallon septic tank to service the proposed building. All SSTS network piping shall be 4" diameter PVC SDR 35.

## 6.0 SUBSURFACE SEWAGE TREATMENT SYSTEMS

### 6.1 SOUTHERN SSTS AREA

#### 6.1.1 Soil Testing

Soil testing was witnessed by Insite Engineering, Surveying & Landscape Architecture P.C., the Putnam County Department of Health (PCDOH), and the New York City Department of Environmental Conservation (NYCDEP) during the SEQRA process and was determined to be acceptable for a SSTS. Ten (10) test pits were dug to depths greater than 8' – 4" and generally consisted of a mixture of moderately compacted sandy loam and compacted fine sandy loam. No groundwater or bedrock was encountered within the minimum regulatory depths of the test pits. Ten (10) percolation tests were also performed at that time. The rates recorded ranged from 8 to 24 minutes per inch. Based on the recommendations of the mounding analysis for the subject project, up to 2.0' of fill will be required across portions of the SSTS area and adjacent area for grading purposes only in order to provide an acceptable and efficient absorption trench layout.

#### 6.1.2 Absorption Trenches

The absorption fields consist of conventional 2' wide absorption trenches. The trenches will be divided into two groups (Groups 1 and 2) Each group will be divided into five sections (10 sections total). Each section will be alternately dosed. Each section includes a total trench length of 924 linear feet per section. The SSTS will consist of conventional 2' wide absorption trenches spaced 6' on center. The absorption trench design parameters are as follows:

Design Flow =	11,000 gpd
Soil Percolation Rate =	21 to 30 min/in
Application Rate (per percolation rate) =	0.6 gpd
Absorption Trench Width =	2'

Total length of absorption trenches required (L) = 11,000 gpd x 0.6 gpd/sf ÷ 2 sf/lf

L = 9,167 linear feet (lf) of primary absorption trenches required.

The SSTS area is proposed to provide 9,240 lf (2 groups of 5 sections containing 924 lf) of primary absorption trenches (9,240 lf > 9,167 lf) and 100% SSTS expansion area (9,240 lf).

#### 6.1.3 Mounding Analysis

GeoDesign, Inc. has conducted a groundwater mounding analysis and hydrogeology investigation for the subject SSTS, dated August, 2005. This report indicates the project's design flows can be supported by the SSTS area's underlying soils without breakout of leachate above the ground surface or flooding of the leaching trenches. An Updated Hydrogeology Investigation (Mounding Analysis) dated February 27, 2008 was prepared by GeoDesign to further refine the 2005 model with the latest detailed SSTS design. The 2008 Analysis confirms that the conclusions in the August 2005 report are still valid. A copy of the 2008 Analysis is attached.

## 6.2 NORTHERN SSTS AREA

### 6.2.1 Soil Testing

Soil testing was witnessed by Insite Engineering, Surveying & Landscape Architecture P.C., the Putnam County Department of Health (PCDOH), and the New York City Department of Environmental Conservation (NYCDEP) during the SEQRA process and was determined to be acceptable for a SSTS. Ten (10) test pits were dug to depths greater than 8' – 0" and generally consisted of a mixture of moderately compacted sandy loam and compacted fine sandy loam. No groundwater or bedrock was encountered within the minimum regulatory depths of the test pits. Ten (10) percolation tests were also performed at that time. The rates recorded ranged from 6 to 30 minutes per inch. Due to the small size of the SSTS, only two deep test holes and percolation test holes were used for the SSTS design.

### 6.2.2 Absorption Trenches

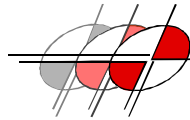
The SSTS will consist of conventional 2' wide absorption trenches spaced 6' on center. The absorption trench design parameters are as follows:

Design Flow =	400 gpd
Soil Percolation Rate =	16 to 20 min/in
Application Rate (per percolation rate) =	0.7 gpd
Absorption Trench Width =	2'

Total length of absorption trenches required (L) =  $400 \text{ gpd} \times 0.7 \text{ gpd/sf} \div 2 \text{ sf/lf}$

L = 286 linear feet (lf) of primary absorption trenches required.

The SSTS area is proposed to provide 290 lf of primary absorption trenches (290 lf > 286 lf) and 100% SSTS expansion area (290 lf).



# INSITE

ENGINEERING, SURVEYING &  
LANDSCAPE ARCHITECTURE, P.C.

Patterson Crossing 2/4/2008

## Design Calculations for the Proposed Sewer Pump Station - 8' Inside Diameter

<b>Average Daily Design Flow:</b>	<b>11,000 gpd</b>	(or 11.4 gpm over a 16 hour day)
<b>Peaking Factor</b>	<b>4.0</b>	
<b>Daily Peak Design Flow</b>	<b>46 gpm</b>	[Average Daily Design flow x Peaking Factor]

### PUMP SYSTEM HEAD

#### Static Head (ft)

Grade at Zone Valve	896.5 ft.
Invert of Zone Valve	892.5 ft.
Grade at Pump Station	768.5 ft.
Rim of Pump Station	769.0 ft.
Influent Sewer Invert	761.8 ft.
High High Alarm	761.5 ft.
High Level Alarm	761.0 ft.
Lag Pump On	760.5 ft.
Lead Pump Enable	760.0 ft.
Both Pumps Off	759.0 ft.
Low Alarm	757.5 ft.
Low Low Alarm	757.0 ft.
Bottom of Wet Well	756.0 ft.
<b>Static Head (ft)</b>	<b>136.5 feet</b>

#### Friction Head

C (Roughness Coefficient)		120	
d (Diameter of Forcemain)		3 inches	
L (Length of Forcemain)		3900 linear feet	
Q (Flow Rate)		51 gpm	
Le (Equivalent Length of valves & bends)		100 feet	
Lt (Total length)		4000 feet	
V (Velocity)		2.3 ft/sec	
HL (Friction head Loss)	41 ft	HL =	$\frac{10.44(L_t)(Q^{1.85})}{(C^{1.85})(d^{4.87})} = .0000438(L_t)(Q^{1.85})$

**Additional Head for Zone Valve** 15.0 feet (per manufacturer's specifications)

<b>Total Dynamic Head</b>	<b>192 feet</b>	(Static Head + Friction Head + Add'l Head for Zone Valve)
<b>Use 2 ABS M100/2D Grinder Pumps</b>	<b>51 gpm each</b>	<b>192 Ft. TDH</b>

### TIMED DOSE VOLUME

Desired Dose Volume (75% of Absorption Trench Pipe Volume per Section)	452 gallons
Desired Dose Volume (75% of Absorption Trench Pipe Volume per Section)	60.4 c.f.
Wet Well Diameter	8.0 ft.
Wet Well Cross Sectional Area	50.3 sq. ft.
Pump Flow Rate	51.0 gpm
Timed Dose Duration	452.0 gallons / 51.0 gpm = 8.9 minutes
	use 9.0 minutes

A 9 minute pump run time will provide a 459 gallon dose to each section of absorption trenches (76% of trench pipe volume). Since the pump flow rate (51 gpm) is greater than the anticipated peak design flow (46 gpm), the lag pump should not be engaged under typical conditions. Also note that if one pump malfunctions, the other pump capacity is greater than the peak daily design flow.

3" Forcemain from pump station to zone valve = 3,550 lf = 174 c.f. = 1,303 gallons
11,000 gpd / 16 hours/day = 688 gallons/hour / 2 pumps = 344 gallons/pump/hour
Average travel time through forcemain = 1,303 gallons / 344 gallons/hour = 3.8 hours
11,000 gpd / 459 gallons/dose = 24.0 doses/day
24.0 doses/day / 2 pumps = 12 doses/pump/day

## Piranha

"S" Series models to 4 horsepower and "M" Series to 16 horsepower grinder pumps

- Superior cutter and non-clog action
- Ball bearing construction for extended life
- Unique Sealminder safety-check system
- Complete packaged pump systems with control panels
- FM approved, explosion proof models available
- Thermal protection for all models
- Cast iron construction
- Air-filled motor
- 1 1/4" & 2" discharge
- Non-toxic environmentally friendly oil in seal chamber
- Four pole version available for low-flow applications
- Models available in single and three phase
- "S" Series is UL approved for electrical safety
- All models are CSA approved for electrical safety

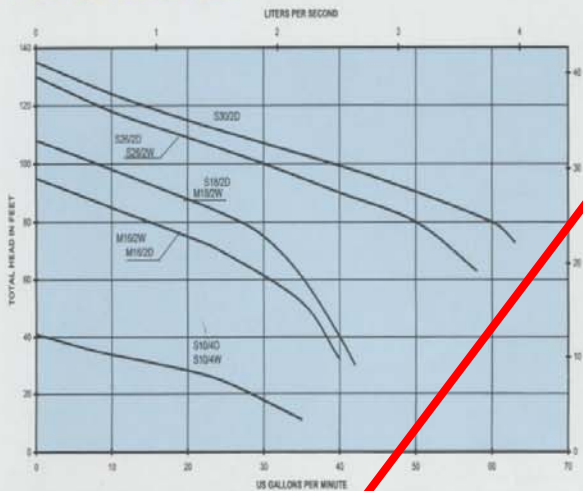




# "S" Series Model



## Performance



Consult an authorized ABS representative when selecting Piranha pumps for low head applications.

## Specifications

Model	S10-4W	S10-4D	S16-2W	S16-2D	S18-2W	S18-2D	S26-2W	S30-2D
Voltage	230	230,460	230	230,460	230	230,460	230	230,460
Full Load Amps	6.3	5.2,2.6 2.1	9.2	6.6,3.3 2.6	10.8	7.2,3.6 2.9	13.7	11.5,5 4.4
Phase	1	3	1	3	1	3	1	3
RPM	1750	1750	3450	3450	3450	3450	3450	3450
HP	1.3	1.3	2.1	2.1	2.4	2.4	3.5	4.0
Standard Cable (ft.)	30	30	30	30	30	30	30	30
Discharge (inches)	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
Height (inches)	14	14	14	14	14	14	14 1/2	14 1/2
Weight (lbs.)	70	70	70	70	71	71	88	88

Specifications are subject to change without notice.

## Accessories

- Standard guide rail assembly
- Ball check guide rail assembly
- Vertical pedestal base
- Horizontal pedestal base
- ABS manufactured control panel — designed to enhance the operation and reliability of the pump

## Sealminder — safety check system

Piranha pumps are equipped with a Sealminder probe in the oil chamber. Should the lower seal leak, allowing water into the oil chamber, the probe activates a warning light or audible alarm. This gives advanced warning allowing for the repair of the pump seal before water enters the motor.



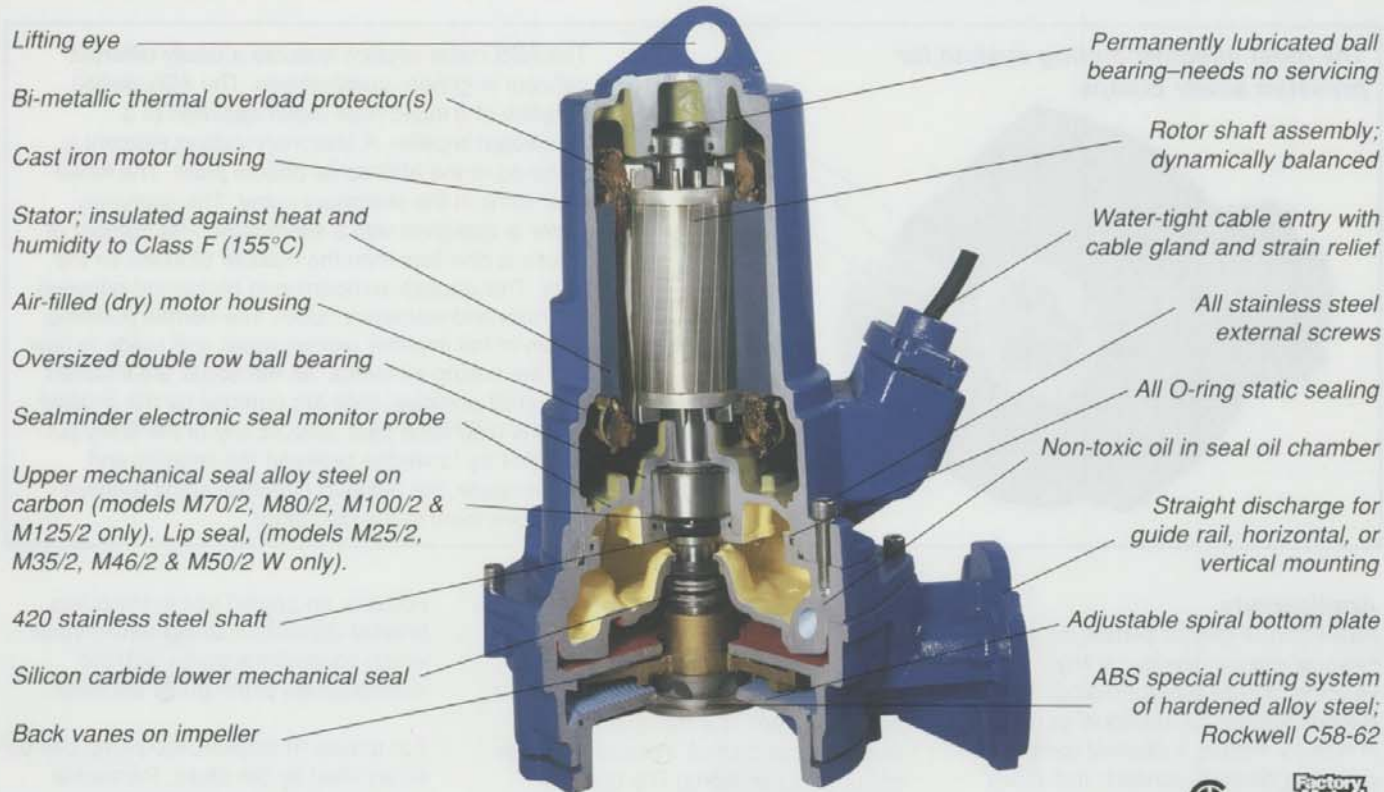
**The Piranha**

The shredding rotor and ring of the Piranha System ensures efficient operation in sewage containing solids, and allows blockage-free pumping. Good reasons for being named after the voracious South American fish.

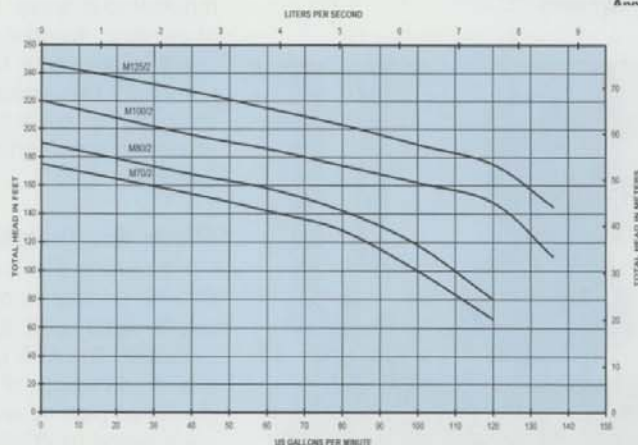
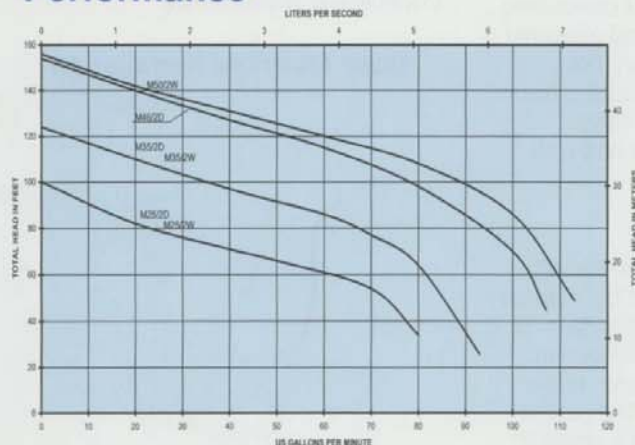


# "M" Series Model

show it well



## Performance



Consult an authorized ABS representative when selecting Piranha pumps for low head applications.

## Specifications

Model	M25/2		M35/2		M46/2	M50/2W	M70/2	M80/2	M100/2	M125/2D
Phase	1	3	1	3	1	1	3	3	3	3
Voltage	230	230	230	230	230	230	230	230	230	230
		460		460	460		460	460	460	460
		575		575	575		575	575	575	575
Full Load Amps	16.6	9.4	24	12.2	15.4	29.3	23.2	26.2	34	42.5
		4.7		6.1	7.7		11.6	13.1	17	21.3
		6.8		4.9	6.2		9.3	10.5	13.6	17
RPM	3450	3450	3450	3450	3450	3450	3450	3450	3450	3450
HP	3.4	3.4	4.7	4.7	6.2	6.7	9.4	10.7	13.4	16
Standard Cable (ft.)	30	30	30	30	30	30	30	30	30	30
Discharge (inches)	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	2	2	2	2
Weight (lbs.)	110	110	117	117	119	146	168	168	170	176

Specifications are subject to change without notice.



# How It Works

## The most effective cutting system for pressure sewer pumps



The ABS cutter system features a totally different concept in grinder pump design. The ABS design consists of a lobed rotor cutter attached to a centrifugal impeller. A stationary cutting element is fastened to the ABS spiral bottom plate. The lobed rotor turns in the stationary cutter. The stationary cutter is designed with a wave form. The number of waves is one less than the number of lobes on the rotor. This causes an opening to be formed between the rotor and stationary cutter. The normal pumping action of the impeller causes water and solids to flow into the cutting elements. As the solids are sheared into small particles, they are pumped by the impeller into the discharge pipe. Should any of the finely cut particles try to wedge between the impeller and bottom plate, the outward threaded spiral grooves will move them to the discharge.

### Applications

ABS Piranha grinder pumps move sewage and wastewater at high velocity through contour piping. Recommended for individual or groups of homes, motels, industrial complexes, shopping centers, schools, and many other applications requiring pressure sewer systems.



### Residential Grinder Pump System

The Piranha S16/2 is available as a completely packaged simplex or duplex system. It is designed for residential and small industrial sewage or sump applications. The pump is recommended for homes in isolated or mountainous areas, and for dewatering of dwellings located in inland protected areas where septic tanks are not permitted. The system includes a basin, chain, pump, cover, check valve, discharge pipe, control box and float switches.

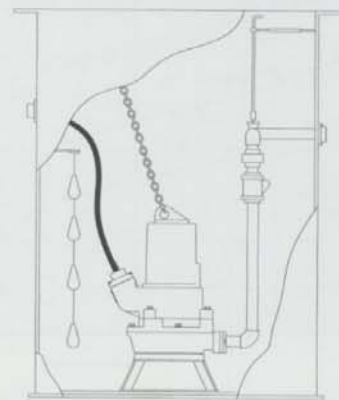
### Guide Rail Installation

For those installations where the ABS Piranha grinder pump must be installed in a deep sump, a guide rail system is available. The ABS guide rail system allows connection of the pump to the discharge pipe by gravity. The pumps are lowered by chain down a single 2" guide rail. As the pump is lowered into

position, an angled slot in the pump bracket contacts a straightening vane which squares the pump with the mating flange of the guide rail base.

For routine inspection, the pump can be easily lifted by the chain. Personnel need not enter the wet well for inspection or maintenance.

### Base Mounted Installation



Distributed by:

ABS reserves the right to alter specifications due to technical developments.

# ABS

COST-EFFECTIVE PUMPING

**Corporate Office:**  
ABS Pumps Inc.  
140 Pond View Drive  
Meriden, CT 06450  
(203) 238-2700  
FAX (203) 238-0738

**Regional Offices:**  
ABS Pumps Inc.  
111 Maritime Drive  
Sanford, FL 32771  
(407) 330-3456  
FAX (407) 330-3404

**Odell's Pump & Motor Service**  
1650 Bell Ave., Ste. 140  
Sacramento, CA 95838  
(916) 925-8508  
FAX (916) 925-3914

**CH&E Pumps**  
3849 N. Palmer Street  
Milwaukee, WI 53212  
(414) 964-3400  
FAX (414) 964-0677

**ABS Pumps Corp.**  
1215 Meyerside Drive  
Unit #7  
Mississauga, Ontario  
Canada L5T 1H3  
(905) 670-4677  
FAX (905) 670-3709

**Agents and distributors**  
ABS has sales and service representation in more than 100 countries the world over.

[www.abspumpsusa.com](http://www.abspumpsusa.com)

ABS is a company in the Cardo Group



Product information presented here reflects conditions at time of publication. Consult factory regarding discrepancies or inconsistencies.

MAIL TO: P.O. BOX 16347 • Louisville, KY 40256-0347  
SHIP TO: 3649 Cane Run Road • Louisville, KY 40211-1961  
(502) 778-2731 • 1 (800) 928-PUMP • FAX (502) 774-3624

visit our web site:  
[www.zoeller.com](http://www.zoeller.com)

## ZOELLER ON-SITE WASTEWATER PRODUCTS

### ZOELLER SEPTIC SYSTEM ACCESSORIES



### Automatic Multizone Valves

The Zoeller 4000 Series distribution valve offers an easy, reliable and economical way to automate multiple zoned residential and small commercial disposal fields. The simplicity of design ensures ease of maintenance and long service life. These patented valves are ideally suited for pump fed applications using reclaimed or dirty water.

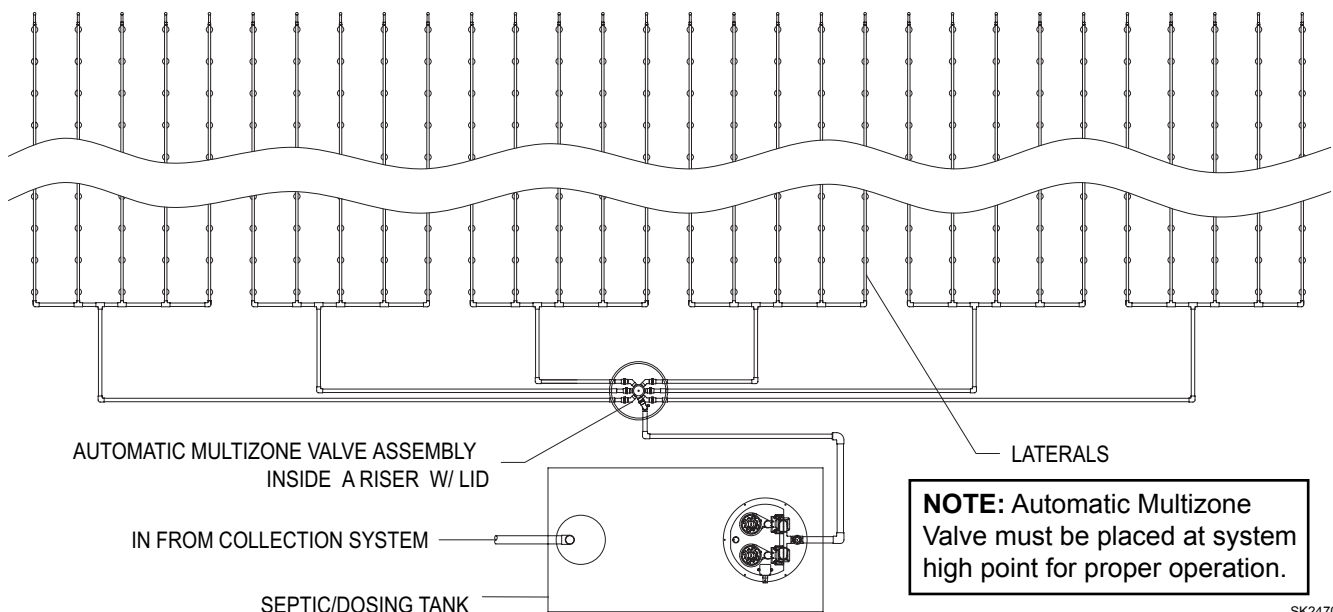


4000 Series

The Zoeller 6000 Series is the foundation of distributing valves. Patented for its ability to manifold multiple zones with only one moving part, this valve offers exceptional reliability and durability under dirty water conditions. With its metal die cast body, the 6000 Series valve is capable of high pressure applications and is recommended for use on pump fed systems.



6000 Series



SK2470



# 4000 & 6000 Automatic Multizone Valves

SPECIFICATIONS	4000 SERIES	6000 SERIES
<b>Flow Range:</b> (Minimum flow of 10 gpm for the 4000 Series and 15 gpm for the 6000 Series must be maintained in order for the valve to index properly.)	4 Outlet Valve: 10 - 50 GPM 6 Outlet Valve: 10 - 40 GPM	4 Outlet Valve: 15 - 150 GPM 6 Outlet Valve: 15 - 150 GPM
<b>Pressure Rating:</b>	2½ - 75 PSI	2½ - 150 PSI
<b>Pressure Loss - 4 Outlet Valve:</b>	Flow (GPM): 10 20 30 40 50 PSI Loss: 2.0 3.0 4.5 6.4 10.0	Flow (GPM): 15 30 60 90 120 150 PSI Loss: 2.0 3.0 5.0 9.0 11.0 13.0
<b>Pressure Loss - 6 Outlet Valve:</b>	Flow (GPM): 10 20 30 40 PSI Loss: 2.5 4.5 7.5 11.5	Flow (GPM): 15 30 60 90 120 150 PSI Loss: 2.0 3.5 6.0 10.0 12.0 14.0
<b>Inlet:</b>	Slip and glue connections to 1¼" PVC pipe	Threaded 1½" NPT Connection.
<b>Outlets:</b>	Slip and glue connections. 4 Outlet Valve: To 1¼" PVC Pipe 6 Outlet Valve: To 1" PVC Pipe	Slip and glue connections to 1½" PVC Pipe.
<b>Construction:</b>	High strength noncorrosive ABS polymer.	Die Cast Metal Housing High strength noncorrosive ABS Polymer Outlets
<b>Dimensions:</b>	Height: 5¾"      Width: 5¾"	Height: 7"      Width: 8"

## 6" Clear PVC Pipe

P/N 170-0074      (4) 1¼" Dia. Pieces For 4400 2-4 Zone.  
P/N 170-0075      (6) 1" Dia. Pieces For 4600 5-6 Zone.

P/N 170-0076      (4) 1½" Dia. Pieces For 6400 2-4 Zone.  
P/N 170-0077      (6) 1½" Dia. Pieces For 6600 5-6 Zone.

## 4000 SERIES:

### 4 Outlet Models

P/N 170-0064      Model 4402 - For 2 Zone operation.  
P/N 170-0065      Model 4403 - For 3 Zone operation.  
P/N 170-0066      Model 4404 - For 4 Zone operation.

### 6 Outlet Models

P/N 170-0067      Model 4605 - For 5 Zone operation.  
P/N 170-0068      Model 4606 - For 6 Zone operation.

## 6000 SERIES:

### 4 Outlet Models

P/N 170-0069      Model 6402 - For 2 Zone operation.  
P/N 170-0070      Model 6403 - For 3 Zone operation.  
P/N 170-0071      Model 6404 - For 4 Zone operation.

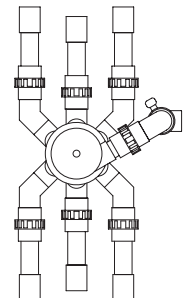
### 6 Outlet Models

P/N 170-0072      Model 6605 - For 5 Zone operation.  
P/N 170-0073      Model 6606 - For 6 Zone operation.

## New Automatic Multizone Valve Assemblies Featuring 6000 Series Automatic Multizone Valves

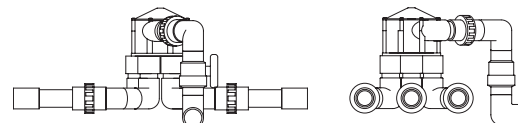
- Easy to install -  
*Slip ends are ready to glue.*
- Easy to maintain -  
*Unions allow for simple removal.  
Shutoff ball valve included.*
- Convenient to test -  
*Clear PVC "Windows" indicate  
current flow path instantly.*
- Compact -  
*Assemblies fit easily in a Zoeller  
30" Deluxe Riser.*

P/N 5053-0001      2 Outlet Multizone Assembly.  
P/N 5053-0002      3 Outlet Multizone Assembly.  
P/N 5053-0003      4 Outlet Multizone Assembly.  
P/N 5053-0004      5 Outlet Multizone Assembly.  
P/N 5053-0005      6 Outlet Multizone Assembly.



6 Outlet Multizone Valve  
Assembly Shown

SK2469

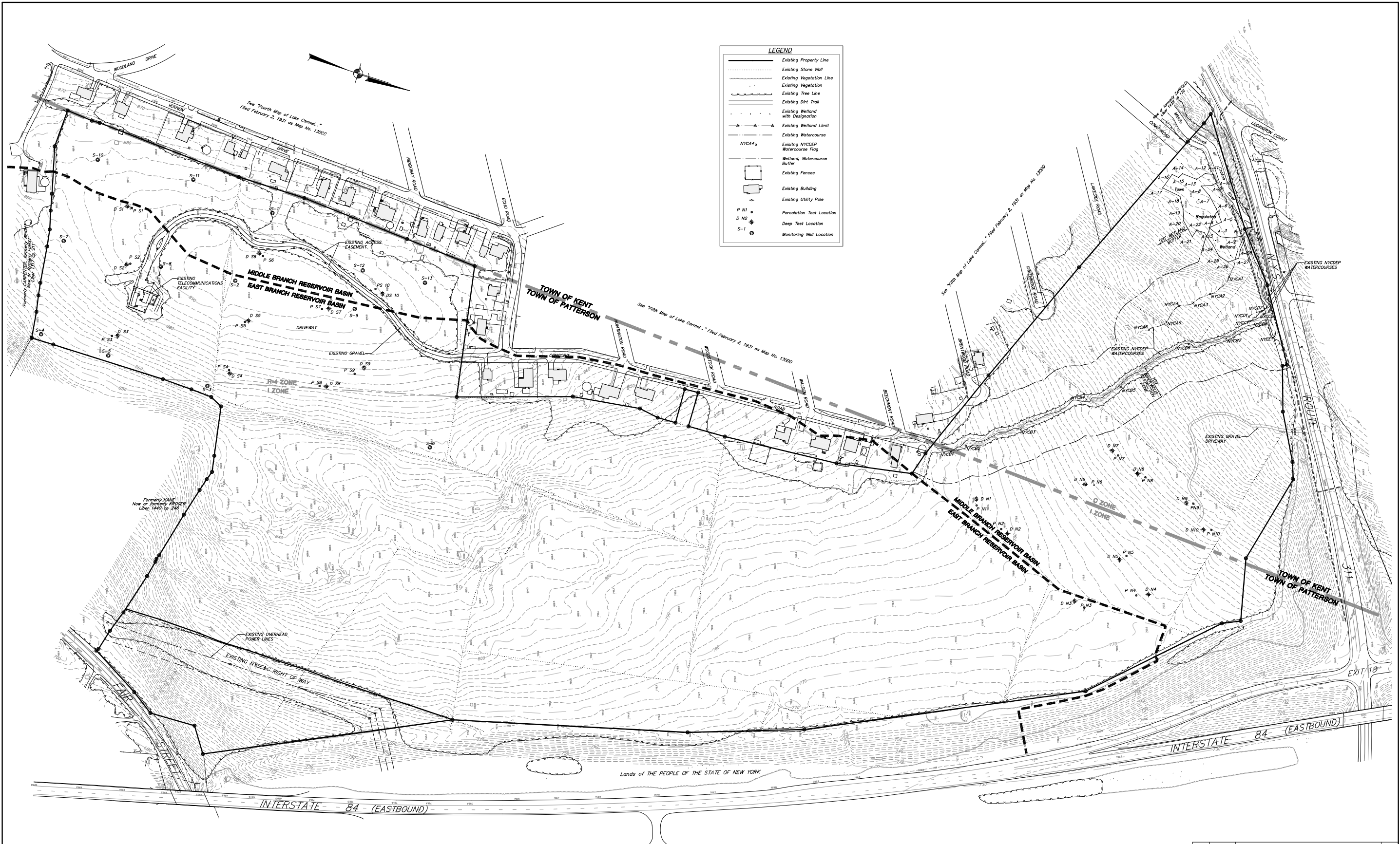


ALL ZOELLER ON-SITE WASTEWATER PRODUCTS MUST BE INSTALLED IN ACCORDANCE WITH LOCAL AND/OR STATE PLUMBING AND/OR HEALTH DEPARTMENT CODES.









**LEGEND**

- Existing Property Line
- - - Existing Stone Wall
- - - Existing Vegetation Line
- - - Existing Vegetation
- - - Existing Tree Line
- - - Existing DRI Trail
- - - Existing Wetland with Designation
- - - Existing Wetland Limit
- - - Existing Watercourse
- NYCA#x Existing NYCEP Watercourse Flag
- Existing NYCEP Watercourse Buffer
- Existing Fences
- Existing Building
- Existing Utility Pole
- P N1 Percolation Test Location
- D N2 Deep Test Location
- S-1 Monitoring Well Location

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.

**General Notes:**

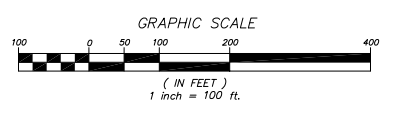
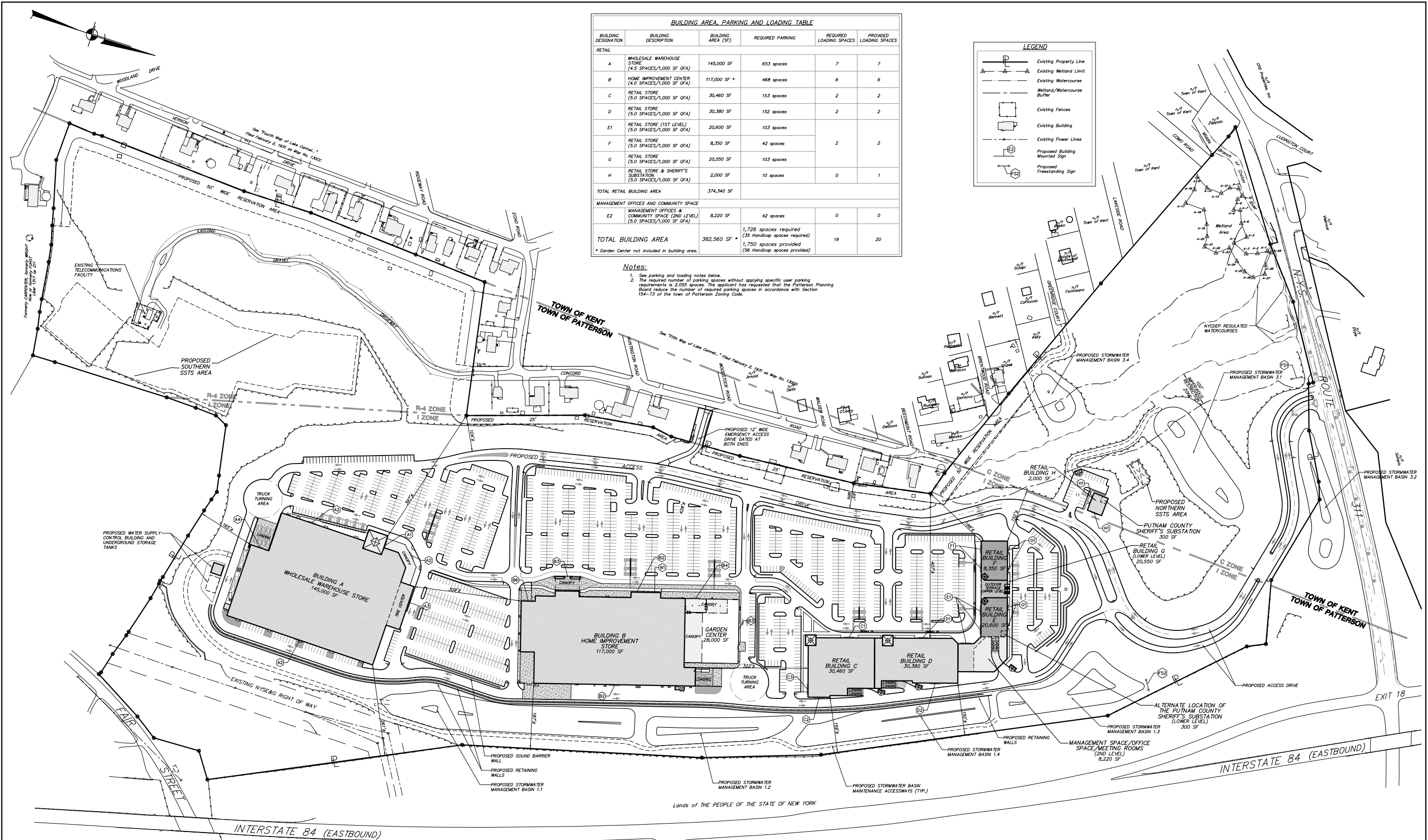
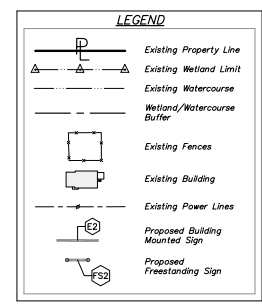
1. Property boundary shown hereon based on survey by Insite Engineering, Surveying and Landscape Architecture, P.C.
2. Existing conditions and topography shown hereon taken from survey entitled "Topographic Map of Property prepared for Hudson Valley Realty Corporation" prepared by Bodey & Watson Surveying and Engineering, P.C. dated May 14, 2001.
3. The wetland flagging shown hereon was field delineated by Tim Miller Associates, Inc. on May 10, 2005, and survey located by Insite Engineering, Surveying and Landscape Architecture, P.C. on June 14, 2005.
4. D.E.P. Watercourses shown hereon were delineated in the field by the N.Y.C.D.E.P. and survey located by Bodey & Watson Surveying and Engineering, P.C.
5. Deep Test Holes witnessed by PCDOH and NYCEP, performed by Insite Engineering, Surveying & Landscape Architecture, and Geodesign on 6-14-05, and by Insite Engineering, Surveying & Landscape Architecture on 6-29-05.
6. Percolation Test Holes witnessed by PCDOH and NYCEP, performed by Insite Engineering, Surveying & Landscape Architecture P.C., and Geodesign on 6-29-05.
7. Monitoring Wells shown hereon were installed as part of Geodesign's Groundwater Mounding Analysis.

NO.	DATE	REVISION	BY
 <b>INSITE</b> ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.			
PROJECT: <b>SSTS FOR PATTERSON CROSSING RETAIL CENTER</b>			
N.Y.S. ROUTE 311, TOWNS OF PATTERSON & KENT, PUTNAM COUNTY, NEW YORK			
DRAWING: <b>EXISTING CONDITIONS PLAN</b>			
PROJECT NO.	01124.100	PROJECT MANAGER	J.J.C.
DATE	1-11-08	DRAWN BY	S.P.G.
SCALE	1"=100'	CHECKED BY	J.M.W.
DRAWING NO.	SSTS-2		SHEET 2
			11



BUILDING AREA, PARKING AND LOADING TABLE					
BUILDING DESIGNATION	BUILDING DESCRIPTION	BUILDING AREA (SF)	REQUIRED PARKING	REQUIRED LOADING SPACES	PROVIDED LOADING SPACES
<b>RETAIL</b>					
A	WHOLESALE WAREHOUSE STORE (4.5 SPACES/1,000 SF GFA)	145,000 SF	653 spaces	7	7
B	HOME IMPROVEMENT CENTER (4.0 SPACES/1,000 SF GFA)	117,000 SF *	468 spaces	6	6
C	RETAIL STORE (5.0 SPACES/1,000 SF GFA)	30,460 SF	153 spaces	2	2
D	RETAIL STORE (5.0 SPACES/1,000 SF GFA)	30,380 SF	152 spaces	2	2
E1	RETAIL STORE (1ST LEVEL) (5.0 SPACES/1,000 SF GFA)	20,600 SF	103 spaces		
F	RETAIL STORE (5.0 SPACES/1,000 SF GFA)	8,350 SF	42 spaces	2	2
G	RETAIL STORE (5.0 SPACES/1,000 SF GFA)	20,550 SF	103 spaces		
H	RETAIL STORE & SHERIFF'S SUBSTATION (5.0 SPACES/1,000 SF GFA)	2,000 SF	10 spaces	0	1
<b>TOTAL RETAIL BUILDING AREA</b>		<b>374,340 SF</b>			
<b>MANAGEMENT OFFICES AND COMMUNITY SPACE</b>					
E2	MANAGEMENT OFFICES & COMMUNITY SPACE (2ND LEVEL) (5.0 SPACES/1,000 SF GFA)	8,220 SF	42 spaces	0	0
<b>TOTAL BUILDING AREA</b>		<b>382,560 SF *</b>	1,726 spaces required (35 Handicap spaces required)	19	20
* Garden Center not included in building area.			1,750 spaces provided (56 Handicap spaces provided)		

**Notes:**  
 1. See parking and loading notes below.  
 2. The required number of parking spaces without applying specific user parking requirements is 2,055 spaces. The applicant has requested that the Patterson Planning Board reduce the number of required parking spaces in accordance with Section 154-73 of the Town of Patterson Zoning Code.



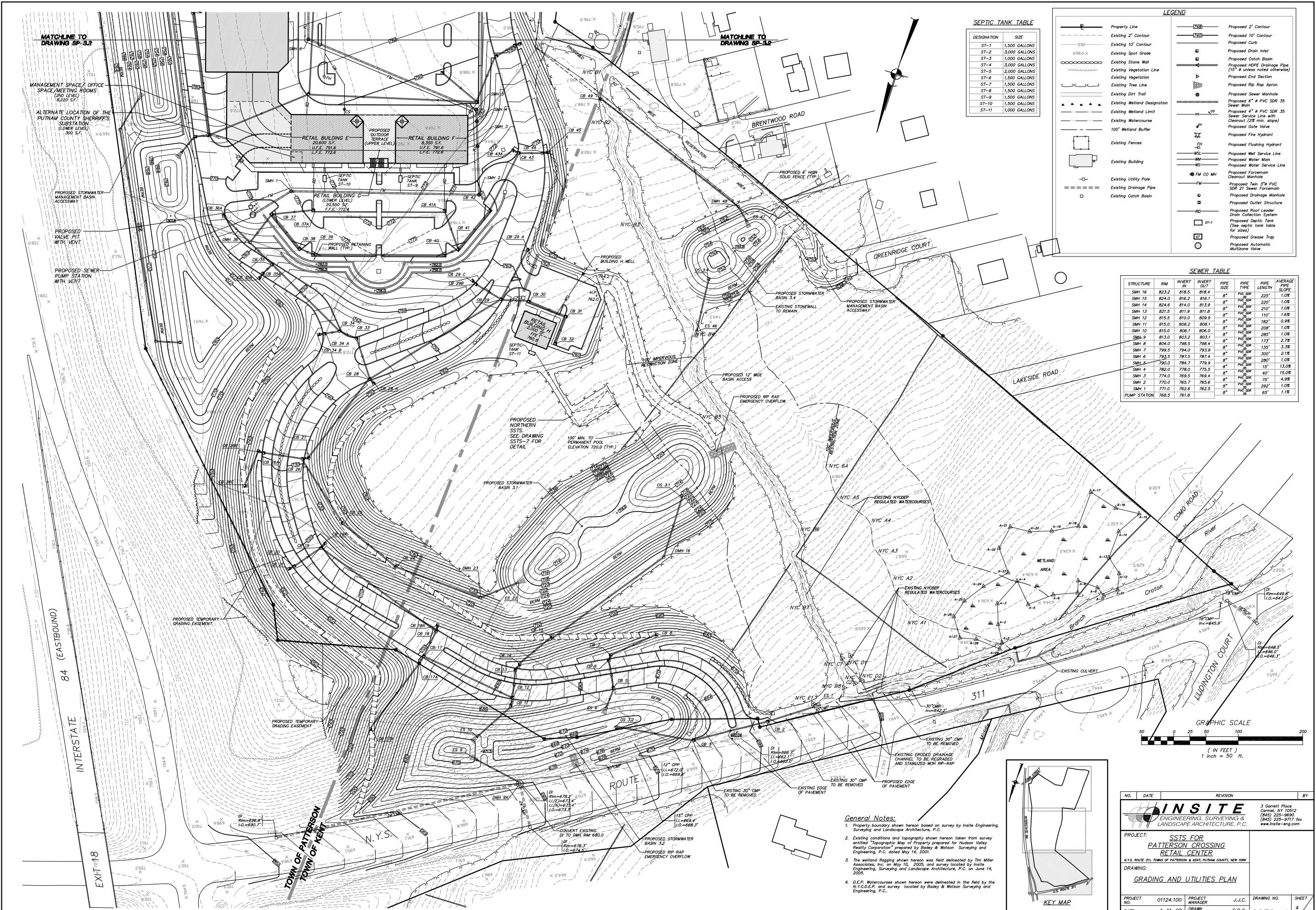
**General Notes:**  
 1. Property boundary shown hereon based on survey by Insite Engineering, Surveying and Landscape Architecture, P.C.  
 2. Existing conditions and topography shown hereon taken from survey entitled "Topographic Map of Property prepared for Hudson Valley Realty Corporation" prepared by Bodey & Watson Surveying and Engineering, P.C. dated May 14, 2001.  
 3. The wetland flagging shown hereon was field delineated by Tim Miller Associates, Inc. on May 10, 2005, and survey located by Insite Engineering, Surveying and Landscape Architecture, P.C. on June 14, 2005.  
 4. D.E.P. Watercourses shown hereon were delineated in the field by the N.Y.C.D.E.P. and survey located by Bodey & Watson Surveying and Engineering, P.C.

**Parking & Loading Notes:**  
 1. Required parking for retail uses in the Town of Kent is based on 1 parking space for each 200 square foot of building area.  
 2. Required parking for retail uses in the Town of Patterson is based on 1 parking space for each 200 square foot of building area, except for the Wholesale Warehouse and the Home Improvement Center which are based on user specific parking requirements.  
 3. Section 154-73 of the Patterson Zoning Code permits the Planning Board to approve the required number of parking and loading spaces for specific uses.  
 4. The Town of Kent requires one (1) loading space at the first 5,000 SF of building area and an additional loading space at each 20,000 SF interval for retail uses.  
 5. The Town of Patterson requires one (1) loading space at the first 3,000 SF of building area and additional spaces at each 8,000 SF interval for retail uses.  
 6. Building H is located in the Town of Kent. All other buildings are located in the Town of Patterson.

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 2209 OF ARTICLE 145 OF THE EDUCATION LAW.

NO.	DATE	REVISION	BY
<b>INSITE</b> ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.			
PROJECT: SSTS FOR PATTERSON CROSSING RETAIL CENTER			
DRAWING: OVERALL SITE PLAN			
PROJECT NO.	01124.100	PROJECT MANAGER	J.J.C.
DATE	1-11-08	DRAWN BY	S.P.G.
SCALE	AS SHOWN	CHECKED BY	J.M.W.
DRAWING NO. SSTS-3			SHEET 3
			11





**SEPTIC TANK TABLE**

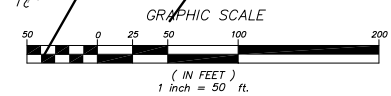
DESIGNATION	SIZE
ST-1	1,500 GALLONS
ST-2	3,000 GALLONS
ST-3	1,000 GALLONS
ST-4	3,000 GALLONS
ST-5	2,000 GALLONS
ST-6	1,500 GALLONS
ST-7	1,500 GALLONS
ST-8	1,500 GALLONS
ST-9	1,500 GALLONS
ST-10	1,500 GALLONS
ST-11	1,000 GALLONS

**LEGEND**

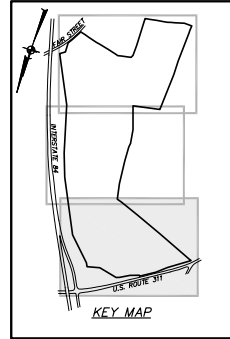
	Property Line		Proposed 2' Contour
	Existing 2' Contour		Proposed 10' Contour
	Existing 10' Contour		Proposed Catch
	Existing Spot Grade		Proposed Hatched Drainage Pipe (15' # unless noted otherwise)
	Existing Stone Wall		Proposed End Section
	Existing Vegetation Line		Proposed Rip Rap Apron
	Existing Vegetation		Proposed Sewer Manhole
	Existing Tree Line		
	Existing Dirt Trail		
	Existing Wetland Designation		
	Existing Wetland Limit		
	Existing Watercourse		
	100' Wetland Buffer		
	Existing Fences		
	Existing Building		
	Existing Utility Pole		
	Existing Drainage Pipe		
	Existing Catch Basin		

**SEWER TABLE**

STRUCTURE	RIM	INVERT	INVERT	PIPE	PIPE	PIPE	AVERAGE
	IN	IN	OUT	SIZE	TYPE	LENGTH	SLOPE
SMH 16	823.2	818.5	818.4	8"	PVC SDR 35	225'	1.0%
SMH 15	824.0	816.2	816.1	8"	PVC SDR 35	220'	1.0%
SMH 14	824.6	814.0	813.9	8"	PVC SDR 35	210'	1.0%
SMH 13	821.5	811.9	811.8	8"	PVC SDR 35	110'	1.6%
SMH 12	815.5	810.0	809.9	8"	PVC SDR 35	182'	0.9%
SMH 11	815.0	808.2	808.1	8"	PVC SDR 35	208'	1.0%
SMH 10	815.0	806.1	806.0	8"	PVC SDR 35	285'	1.0%
SMH 9	813.0	803.2	803.1	8"	PVC SDR 35	173'	2.7%
SMH 8	804.0	798.5	798.4	8"	PVC SDR 35	135'	3.3%
SMH 7	799.5	794.0	793.9	8"	PVC SDR 35	407'	15.0%
SMH 6	783.5	787.5	787.4	8"	PVC SDR 35	300'	2.1%
SMH 5	790.0	784.7	779.9	8"	PVC SDR 35	280'	1.0%
SMH 4	782.0	778.0	775.5	8"	PVC SDR 35	15'	13.0%
SMH 3	774.0	769.5	769.4	8"	PVC SDR 35	407'	15.0%
SMH 2	770.0	765.7	765.6	8"	PVC SDR 35	292'	1.0%
SMH 1	771.0	762.6	762.5	8"	PVC SDR 35	65'	1.1%
PUMP STATION	768.5	761.6		8"	PVC SDR 35		



- General Notes:**
- Property boundary shown hereon based on survey by Insite Engineering, Surveying and Landscape Architecture, P.C.
  - Existing conditions and topography shown hereon taken from survey entitled "Topographic Map of Property prepared for Hudson Valley Realty Corporation" prepared by Bobbly & Watson Surveying and Engineering, P.C. dated May 14, 2001.
  - The wetland flagging shown hereon was field delineated by Tim Miller Associates, Inc. on May 10, 2005, and survey located by Insite Engineering, Surveying and Landscape Architecture, P.C. on June 14, 2005.
  - D.E.P. Watercourses shown hereon were delineated in the field by the N.Y.C.D.E.P. and survey located by Bobbly & Watson Surveying and Engineering, P.C.



NO.	DATE	REVISION	BY
<b>INSITE</b> ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.			
PROJECT: <b>SSTS FOR PATTERSON CROSSING RETAIL CENTER</b>			
N.Y.S. ROUTE 311, TOWN OF PATTERSON & KENT, PUTNAM COUNTY, NEW YORK			
DRAWING: <b>GRADING AND UTILITIES PLAN</b>			
PROJECT NO.	01124.100	PROJECT MANAGER	J.J.C.
DATE	1-11-08	DRAWN BY	S.P.G.
SCALE	AS SHOWN	CHECKED BY	J.M.W.
			DRAWING NO. <b>SSTS-4</b>
			SHEET <b>4</b> OF <b>11</b>

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.



MATCHLINE TO DRAWING SP-3.3

MATCHLINE TO DRAWING SP-3.3

**SEPTIC TANK TABLE**

DESIGNATION	SIZE
ST-1	1,500 GALLONS
ST-2	3,000 GALLONS
ST-3	1,000 GALLONS
ST-4	3,000 GALLONS
ST-5	2,000 GALLONS
ST-6	1,500 GALLONS
ST-7	1,500 GALLONS
ST-8	1,500 GALLONS
ST-9	1,500 GALLONS
ST-10	1,500 GALLONS
ST-11	1,000 GALLONS

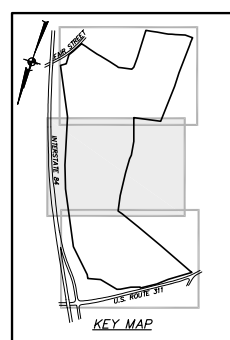
**LEGEND**

	Property Line		Proposed 2' Contour
	Existing 2' Contour		Proposed 10' Contour
	Existing 10' Contour		Proposed Curb
	Existing Spot Grade		Proposed Drain Inlet
	Existing Stone Wall		Proposed Catch Basin
	Existing Vegetation Line		Proposed HDPE Drainage Pipe (15' unless noted otherwise)
	Existing Tree Line		Proposed End Section
	Existing Dirt Trail		Proposed Rip Rap Apron
	Existing Wetland Designation		Proposed Sewer Manhole
	Existing Wetland Limit		Proposed 8" # PVC SDR 35 Sewer Man
	Existing Watercourse		Proposed 4" # PVC SDR 35 Sewer Service Line with Cleanout (2% min. slope)
	100' Wetland Buffer		Proposed Gate Valve
	Existing Fences		Proposed Fire Hydrant
	Existing Building		Proposed Flushing Hydrant
	Existing Utility Pole		Proposed Well Service Line
	Existing Drainage Pipe		Proposed Water Main
	Existing Catch Basin		Proposed Water Service Line
			Proposed Foreman
			Proposed Cleanout Manhole
			Proposed 24" # PVC SDR 21 Sewer Foreman
			Proposed Drainage Manhole
			Proposed Outlet Structure
			Proposed Roof Leader
			Proposed Drain Collection System
			Proposed Septic Tank (See septic tank table for sizes)
			Proposed Grasse Trap
			Proposed Automatic Multizone Valve

**SEWER TABLE**

STRUCTURE	RIM	INVERT	IN	OUT	PIPE SIZE	PIPE TYPE	PIPE LENGTH	AVERAGE PIPE SLOPE
SMH 16	823.2	818.5	818.4		8"	PVC SDR 35	225'	1.0%
SMH 15	824.0	816.2	816.1		8"	PVC SDR 35	220'	1.0%
SMH 14	824.6	814.0	813.9		8"	PVC SDR 35	210'	1.0%
SMH 13	821.5	811.9	811.8		8"	PVC SDR 35	110'	1.6%
SMH 12	815.5	810.0	809.9		8"	PVC SDR 35	182'	0.9%
SMH 11	815.0	806.2	806.1		8"	PVC SDR 35	208'	1.0%
SMH 10	815.0	806.1	806.0		8"	PVC SDR 35	208'	1.0%
SMH 9	813.0	803.2	803.1		8"	PVC SDR 35	285'	1.0%
SMH 8	804.0	798.5	798.4		8"	PVC SDR 35	135'	3.3%
SMH 7	799.5	794.0	793.9		8"	PVC SDR 35	320'	2.1%
SMH 6	793.5	787.5	787.4		8"	PVC SDR 35	280'	1.0%
SMH 5	790.0	784.7	779.9		8"	PVC SDR 35	15'	13.0%
SMH 4	782.0	778.0	775.5		8"	PVC SDR 35	40'	15.0%
SMH 3	774.0	769.5	769.4		8"	PVC SDR 35	75'	4.9%
SMH 2	770.0	765.7	765.6		8"	PVC SDR 35	292'	1.0%
SMH 1	771.0	762.6	762.5		8"	PVC SDR 35	65'	1.1%
PUMP STATION	768.5	761.8			8"	PVC SDR 35		

- General Notes:**
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  - Existing conditions and topography shown hereon taken from survey entitled "Topographic Map of Property prepared for Hudson Valley Realty Corporation" prepared by Bodey & Watson Surveying and Engineering, P.C. dated May 14, 2001.
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NO.	DATE	REVISION	BY
<b>INSITE</b> ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.			
PROJECT: <b>SSTS FOR PATTERSON CROSSING RETAIL CENTER</b>			
N.Y.S. ROUTE 311, TOWNS OF PATTERSON & KENT, PUTNAM COUNTY, NEW YORK			
DRAWING: <b>GRADING AND UTILITIES PLAN</b>			
PROJECT NO.	01124.100	PROJECT MANAGER	J.J.C.
DATE	1-11-08	DRAWN BY	S.P.R.
SCALE	AS SHOWN	CHECKED BY	J.M.W.
DRAWING NO.			SHEET
SSTS-5			5
			11

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.



STRUCTURE	RIM	INVERT	INVERT	PIPE	PIPE	PIPE	AVERAGE
		IN	OUT	TYPE	LENGTH	DIAMETER	PIPE SLOPE
SMH 16	823.2	818.5	818.4	8"	PVC SDR 35	225'	1.0%
SMH 15	824.0	816.2	816.1	8"	PVC SDR 35	220'	1.0%
SMH 14	824.6	814.0	813.9	8"	PVC SDR 35	210'	1.0%
SMH 13	821.5	811.9	811.8	8"	PVC SDR 35	110'	1.6%
SMH 12	815.5	810.0	809.9	8"	PVC SDR 35	182'	0.9%
SMH 11	815.0	808.2	808.1	8"	PVC SDR 35	208'	1.0%
SMH 10	815.0	806.1	806.0	8"	PVC SDR 35	121'	2.7%
SMH 9	813.0	803.2	803.1	8"	PVC SDR 35	135'	3.3%
SMH 8	804.0	798.5	798.4	8"	PVC SDR 35	300'	2.1%
SMH 7	799.5	794.0	793.9	8"	PVC SDR 35	40'	15.0%
SMH 6	793.5	787.4	787.4	8"	PVC SDR 35	75'	4.9%
SMH 5	790.0	784.7	784.9	8"	PVC SDR 35	280'	1.0%
SMH 4	782.0	778.0	775.5	8"	PVC SDR 35	15'	13.0%
SMH 3	774.0	769.5	769.4	8"	PVC SDR 35	75'	4.9%
SMH 2	770.0	765.7	765.6	8"	PVC SDR 35	292'	1.0%
SMH 1	771.0	762.6	762.5	8"	PVC SDR 35	65'	1.7%
PUMP STATION	766.5	761.6					

**General Notes:**

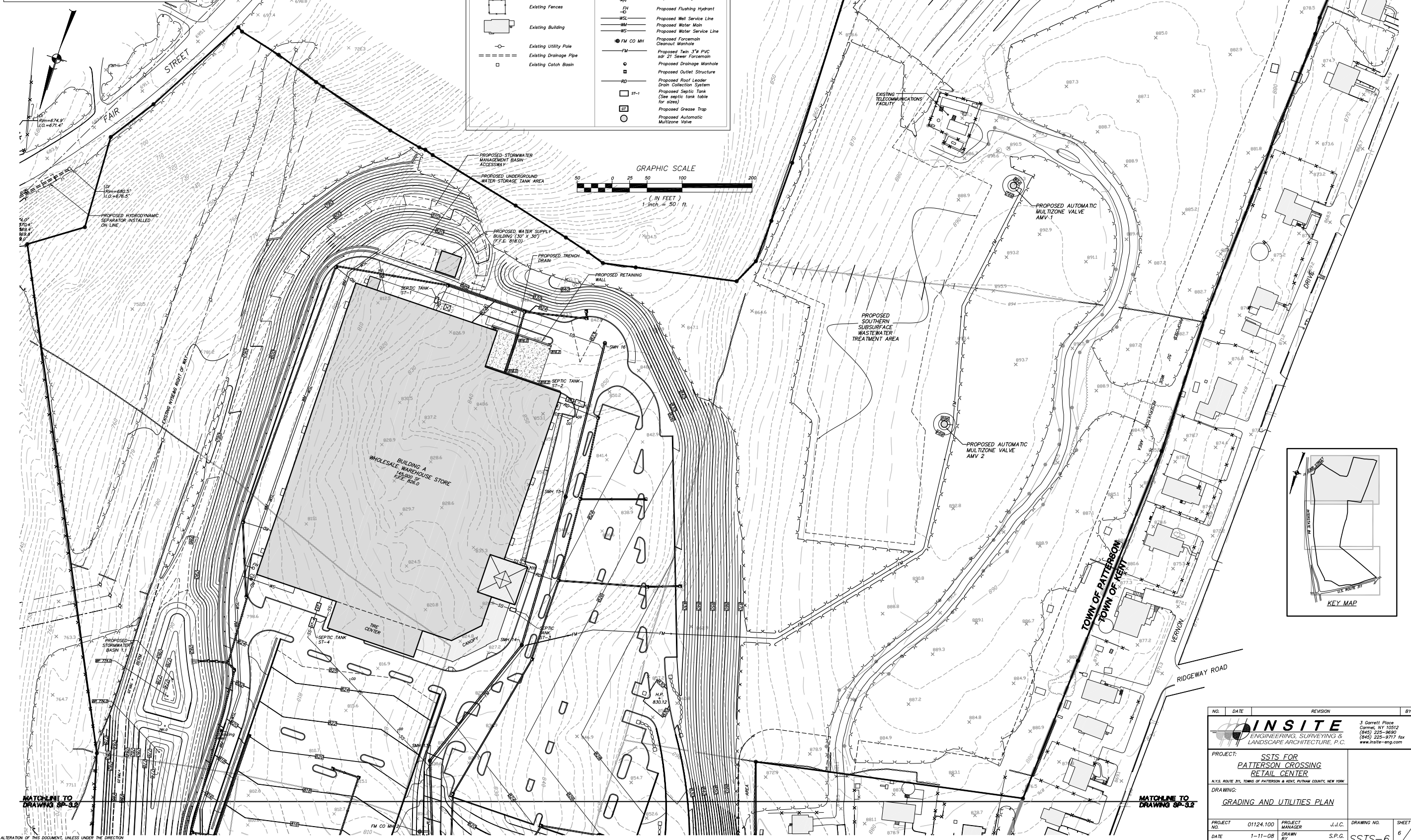
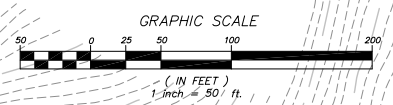
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**SEPTIC TANK TABLE**

DESIGNATION	SIZE
ST-1	1,500 GALLONS
ST-2	3,000 GALLONS
ST-3	3,000 GALLONS
ST-4	3,000 GALLONS
ST-5	2,000 GALLONS
ST-6	1,500 GALLONS
ST-7	1,500 GALLONS
ST-8	1,500 GALLONS
ST-9	1,500 GALLONS
ST-11	1,000 GALLONS

**LEGEND**

	Property Line		Proposed 2' Contour
	Existing 2' Contour		Proposed 10' Contour
	Existing 10' Contour		Proposed Curb
	Existing Spot Grade		Proposed Drain Inlet
	Existing Stone Wall		Proposed Catch Basin
	Existing Vegetation Line		Proposed HDPE Drainage Pipe (15' unless noted otherwise)
	Existing Vegetation		Proposed End Section
	Existing Tree Line		Proposed Rip Rap Apron
	Existing Dirt Trail		Proposed Sewer Manhole
	Existing Wetland Designation		Proposed 6" # PVC SDR 35 Sewer Main
	Existing Wetland Limit		Proposed 4" # PVC SDR 35 Sewer Service Line with Cleanout (2% min. slope)
	Existing Watercourse		Proposed Gate Valve
	100' Wetland Buffer		Proposed Fire Hydrant
	Existing Fences		Proposed Flushing Hydrant
	Existing Building		Proposed Well Service Line
	Existing Utility Pole		Proposed Water Main
	Existing Drainage Pipe		Proposed Water Service Line
	Existing Catch Basin		Proposed Forcemain Cleanout Manhole
			Proposed 12" # PVC sdr 21 Sewer Forcemain
			Proposed Drainage Manhole
			Proposed Outlet Structure
			Proposed Roof Leader Drain Collection System
			Proposed Septic Tank (See septic tank table for sizes)
			Proposed Grease Trap
			Proposed Automatic Multizone Valve



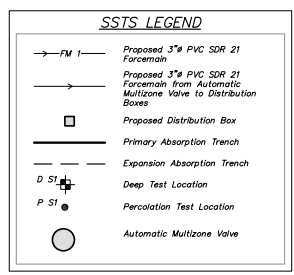
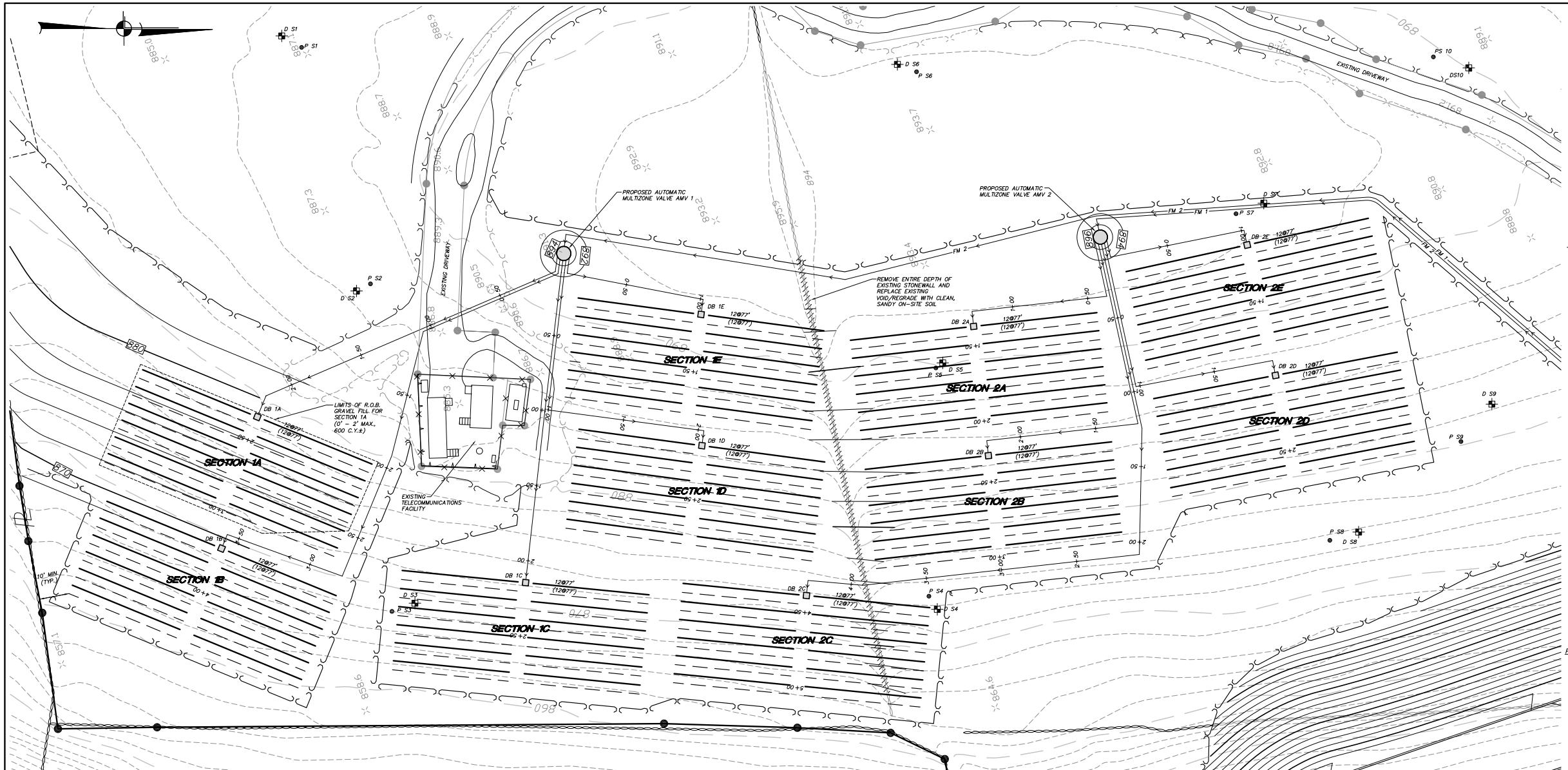
MATCHLINE TO DRAWING SP-32

MATCHLINE TO DRAWING SP-32

ALTERNATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.

NO.	DATE	REVISION	BY
<b>INSITE</b> ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.			
PROJECT: SSTS FOR PATTERSON CROSSING RETAIL CENTER			
N.Y.S. ROUTE 311, TOWN OF PATTERSON & KENT, PUTNAM COUNTY, NEW YORK			
DRAWING: GRADING AND UTILITIES PLAN			
PROJECT NO.	01124.100	PROJECT MANAGER	J.J.C.
DATE	1-11-08	DRAWN BY	S.P.G.
SCALE	AS SHOWN	CHECKED BY	J.M.W.
DRAWING NO.			SHEET
SSTS-6			6
			11





**SOUTH AREA SSTS TEST DATA**

**DEEP TESTS**

NOTE: NO GROUNDWATER, MOTTLING, OR ROCK ENCOUNTERED UNLESS NOTED.

D.S1	0'-6"	TOPSOIL
	6'-30"	LIGHT BROWN MODERATELY COMPACTED SANDY LOAM WITH GRAVEL
	30'-114"	BROWN COMPACTED FINE SANDY LOAM GROUNDWATER
D.S2	0'-6"	TOPSOIL
	6'-40"	ORANGE BROWN SLIGHTLY COMPACTED SANDY LOAM
	40'-114"	BROWN COMPACTED FINE SANDY LOAM GROUNDWATER
D.S3	0'-10"	TOPSOIL
	10'-48"	ORANGE BROWN MODERATELY COMPACTED SANDY LOAM
	48'-114"	BROWN COMPACTED FINE SANDY LOAM GROUNDWATER
D.S4	0'-10"	TOPSOIL
	10'-22"	ORANGE BROWN MODERATELY COMPACTED FINE SANDY LOAM WITH GRAVEL
	22'-100"	OLIVE BROWN COMPACTED FINE SANDY LOAM GROUNDWATER
	98'	ROCK
	100'	ROCK
D.S5	0'-6"	TOPSOIL
	6'-36"	LIGHT BROWN MODERATELY COMPACTED SANDY LOAM
	36'-110"	BROWN COMPACTED FINE SANDY LOAM GROUNDWATER SEEP
D.S6	0'-16"	TOPSOIL
	16'-38"	ORANGE BROWN MODERATELY COMPACTED SANDY LOAM
	38'-114"	BROWN COMPACTED FINE SANDY LOAM GROUNDWATER
D.S7	0'-12"	TOPSOIL
	12'-36"	LIGHT BROWN MODERATELY COMPACTED SANDY LOAM
	36'-114"	BROWN COMPACTED FINE SANDY LOAM GROUNDWATER SEEP
D.S8	0'-4"	TOPSOIL
	4'-42"	ORANGE BROWN MODERATELY COMPACTED FINE SANDY LOAM WITH GRAVEL
	42'-114"	BROWN COMPACTED FINE SANDY LOAM GROUNDWATER SEEP
D.S9	0'-6"	TOPSOIL
	6'-54"	ORANGE BROWN MODERATELY COMPACTED SANDY LOAM
	54'-114"	BROWN COMPACTED FINE SANDY LOAM GROUNDWATER SEEP
D.S10	0'-10"	TOPSOIL
	10'-40"	LIGHT BROWN MODERATELY COMPACTED SANDY LOAM
	40'-100"	BROWN COMPACTED FINE SANDY LOAM GROUNDWATER SEEP

**PERCOLATION TESTS**

P.S1	10 MIN
P.S2	8 MIN
P.S3	20 MIN
P.S4	12 MIN
P.S5	8.3 MIN
P.S6	24 MIN
P.S7	15 MIN
P.S8	15 MIN
P.S9	12 MIN
P.S10	15 MIN

**SOUTH AREA SSTS DESIGN DATA:**

DESIGN FLOW:	11,000 GPD
PERCOLATION RATE:	21 TO 30 MIN/IN
SEPTIC TANKS:	(1) 1,000, (6) 1,500, (1) 2,000 AND (2) 3,000 GALLON PRECAST CONCRETE SEPTIC TANKS
ABSORPTION TRENCHES:	9,187 LF PRIMARY TRENCHES REQUIRED. 9,240 LF PRIMARY TRENCHES PROVIDED.
ADDITIONAL REQUIREMENTS:	0' TO 2' R.O.B. GRAVEL FILL (SECTION 1A ONLY). TWO (2) 5'-OUTLET AUTOMATIC MULTIZONE VALVES PER STATION. REFER TO THE WASTEWATER ENGINEER'S REPORT FOR ADDITIONAL DESIGN INFORMATION.

**SOUTH AREA SSTS PLAN**  
SCALE: 1" = 30'

**NORTH AREA SSTS TEST DATA**

NOTE: NO GROUNDWATER, MOTTLING, OR ROCK ENCOUNTERED UNLESS NOTED.

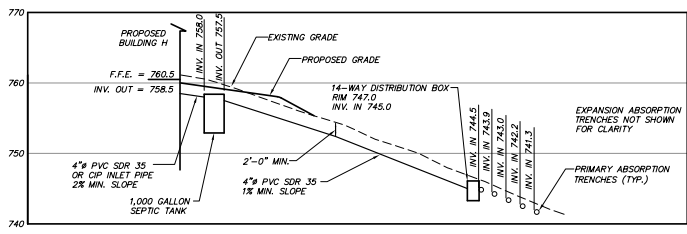
D.N1	0'-4"	TOPSOIL
	4'-40"	YELLOW BROWN MODERATELY COMPACTED SANDY LOAM
	40'-114"	BROWN COMPACTED FINE SANDY LOAM GROUNDWATER
D.N2	0'-4"	TOPSOIL
	4'-27"	TAN MODERATELY COMPACTED FINE SANDY LOAM
	27'-114"	BROWN COMPACTED FINE SANDY LOAM GROUNDWATER
D.N3	0'-4"	TOPSOIL
	4'-31"	BROWN MODERATELY COMPACTED SANDY LOAM
	31'-48"	YELLOW BROWN MODERATELY COMPACTED FINE SANDY LOAM
	48'-114"	BROWN COMPACTED FINE SANDY LOAM GROUNDWATER
D.N4	0'-4"	TOPSOIL
	4'-44"	ORANGE BROWN MODERATELY COMPACTED FINE SANDY LOAM WITH GRAVEL
	44'-112"	BROWN COMPACTED FINE SANDY LOAM WITH GRAVEL GROUNDWATER
D.N5	0'-6"	TOPSOIL
	6'-44"	ORANGE BROWN MODERATELY COMPACTED FINE SANDY LOAM
	44'-106"	BROWN COMPACTED FINE SANDY LOAM GROUNDWATER
D.N6	0'-4"	TOPSOIL
	4'-36"	ORANGE SLIGHTLY COMPACTED FINE SANDY LOAM
	36'-114"	BROWN COMPACTED FINE SANDY LOAM GROUNDWATER SEEP
D.N7	0'-4"	TOPSOIL
	4'-40"	LIGHT BROWN MODERATELY COMPACTED FINE SANDY LOAM
	40'-108"	BROWN COMPACTED FINE SANDY LOAM WITH GRAVEL GROUNDWATER SEEP
D.N8	0'-4"	TOPSOIL
	4'-40"	LIGHT BROWN MODERATELY COMPACTED SANDY LOAM WITH GRAVEL
	40'-120"	BROWN COMPACTED FINE SANDY LOAM WITH GRAVEL GROUNDWATER SEEP
D.N9	0'-12"	TOPSOIL
	12'-40"	ORANGE BROWN MODERATELY COMPACTED FINE SANDY LOAM WITH GRAVEL
	40'-108"	BROWN COMPACTED FINE SANDY LOAM WITH GRAVEL
D.N10	0'-4"	TOPSOIL
	4'-30"	ORANGE BROWN MODERATELY COMPACTED FINE SANDY LOAM WITH GRAVEL
	30'-108"	RED BROWN COMPACTED FINE SANDY LOAM

**PERCOLATION TESTS**

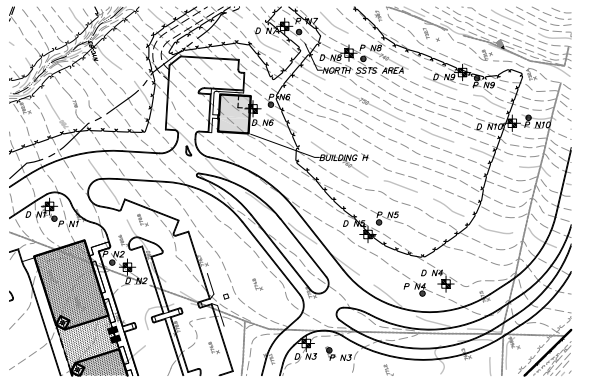
P.N1	30 MIN
P.N2	20 MIN
P.N3	30 MIN
P.N4	15 MIN
P.N5	12 MIN
P.N6	15 MIN
P.N7	15 MIN
P.N8	6 MIN
P.N9	6 MIN
P.N10	6 MIN

**NORTH AREA SSTS DESIGN DATA:**

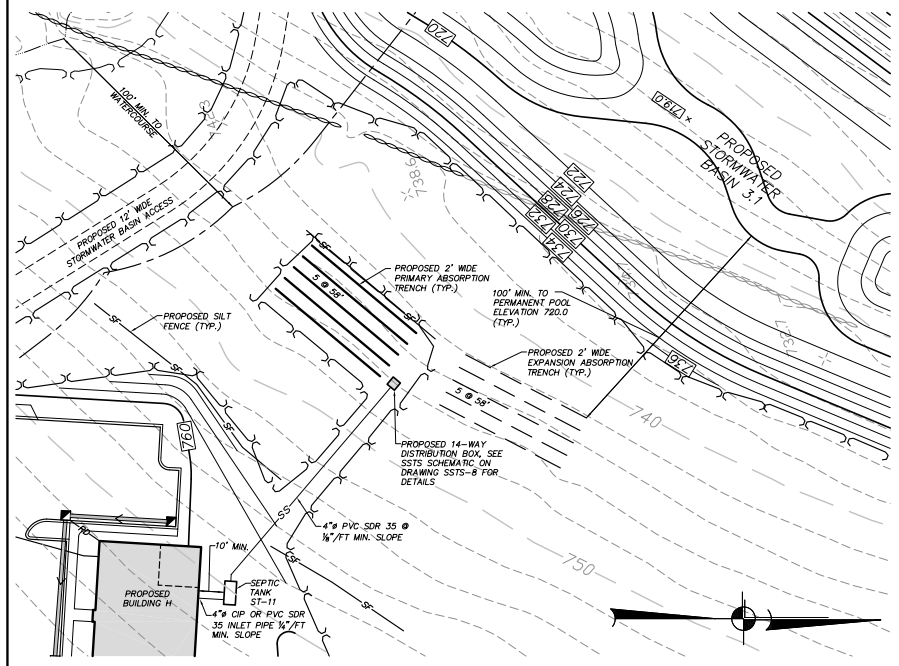
DESIGN FLOW:	400 GPD
PERCOLATION RATE:	16 TO 20 MIN/IN
SEPTIC TANKS:	1,000 GALLON SEPTIC TANK
ABSORPTION TRENCHES:	288 LF PRIMARY TRENCHES REQUIRED. 290 LF PRIMARY TRENCHES PROVIDED.



**NORTH AREA SSTS PROFILE**  
SCALE: HORIZONTAL 1" = 30'  
VERTICAL 1" = 10'



**NORTH AREA SSTS TEST HOLE LOCATIONS**  
SCALE: 1" = 100'

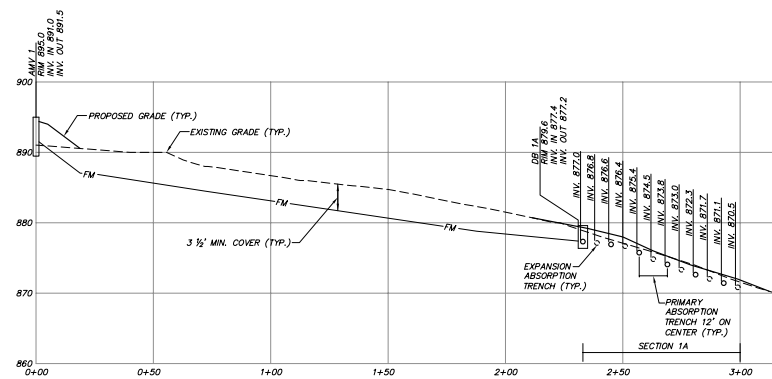


**NORTH AREA SSTS PLAN**  
SCALE: 1" = 30'

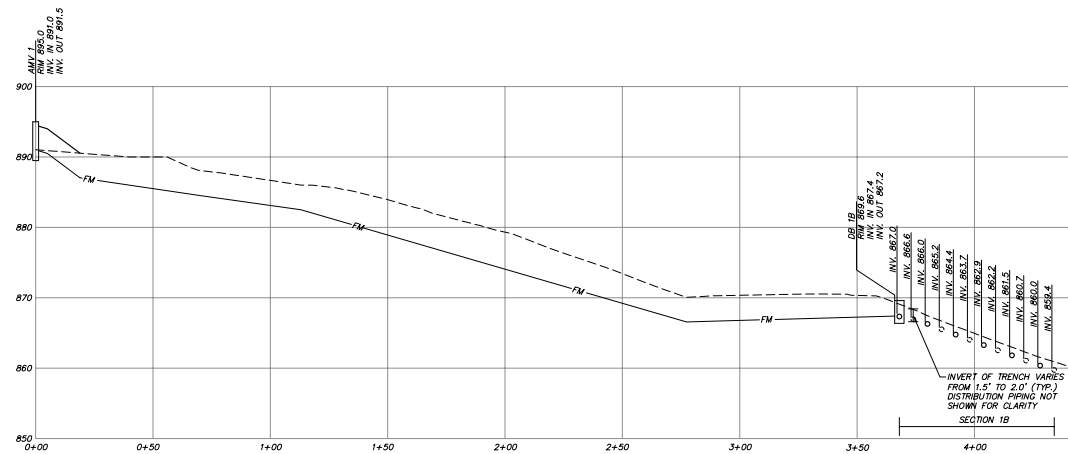
ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.

NO.	DATE	REVISION	BY
<b>INSITE</b> ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.			
PROJECT: SSTS FOR PATTERSON CROSSING RETAIL CENTER			
DRAWING: SSTS PLAN			
PROJECT NO.	01124.100	PROJECT MANAGER	J.J.C.
DATE	1-11-08	DRAWN BY	S.P.G.
SCALE	AS SHOWN	CHECKED BY	J.M.W.
			DRAWING NO. SHEET
			SSTS-7 7/11

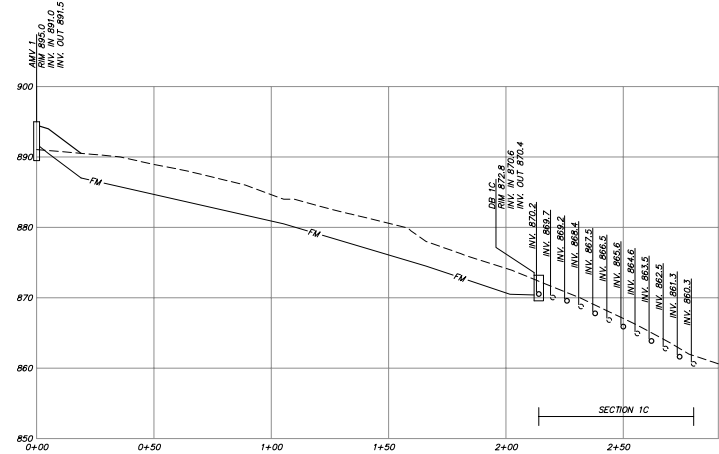




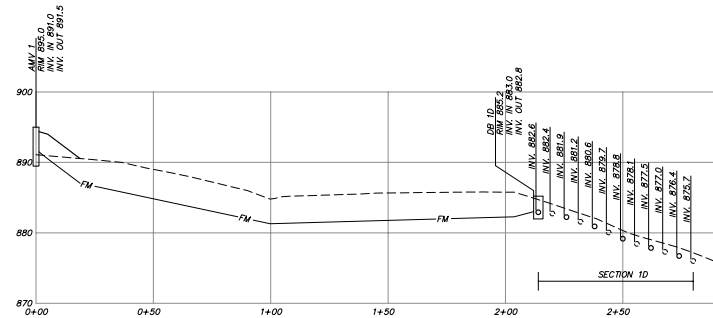
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SCALE: HORIZ. 1"=30'  
VERT. 1"=10'



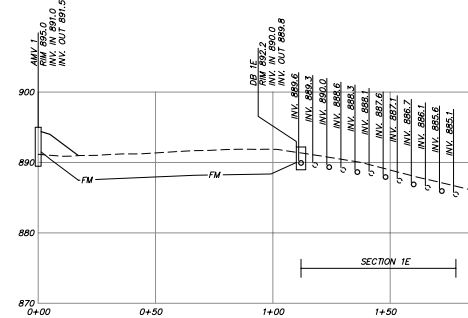
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SCALE: HORIZ. 1"=30'  
VERT. 1"=10'



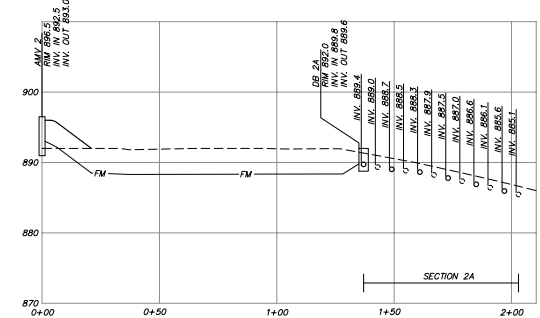
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SCALE: HORIZ. 1"=30'  
VERT. 1"=10'



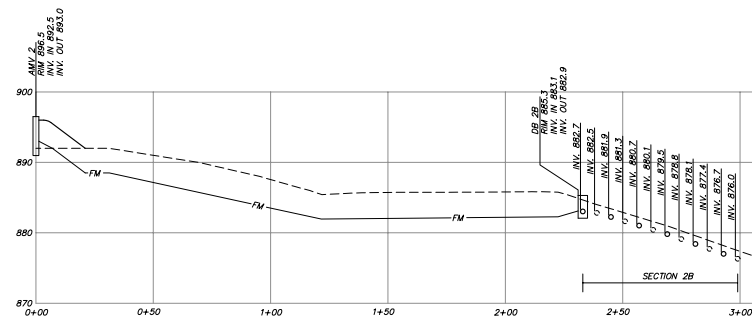
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SCALE: HORIZ. 1"=30'  
VERT. 1"=10'



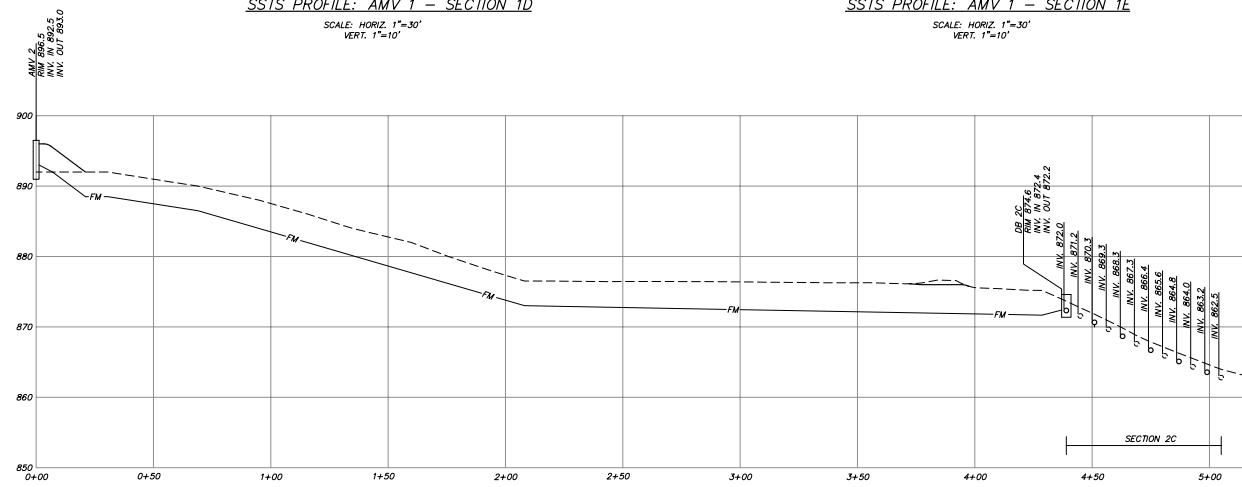
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SCALE: HORIZ. 1"=30'  
VERT. 1"=10'



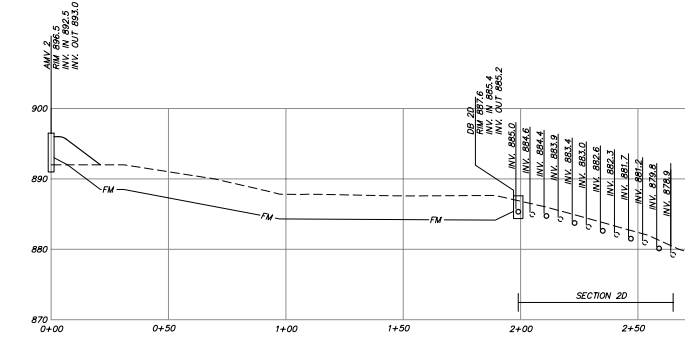
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VERT. 1"=10'



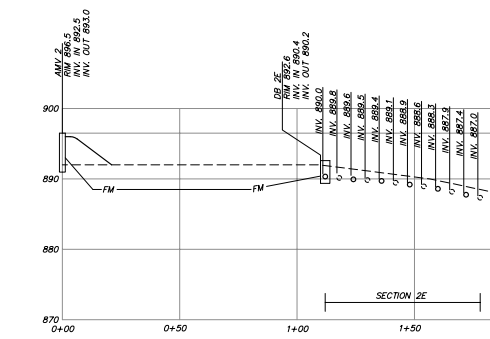
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VERT. 1"=10'



SSTS PROFILE: AMV 2 - SECTION 2C  
SCALE: HORIZ. 1"=30'  
VERT. 1"=10'



SSTS PROFILE: AMV 2 - SECTION 2D  
SCALE: HORIZ. 1"=30'  
VERT. 1"=10'



SSTS PROFILE: AMV 2 - SECTION 2E  
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VERT. 1"=10'

General Notes:

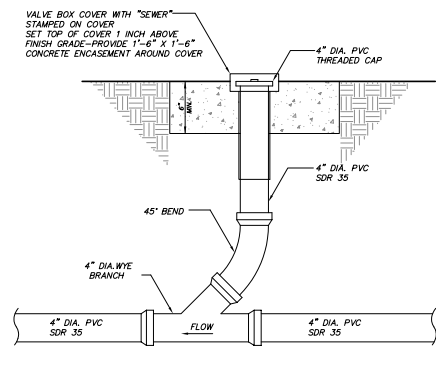
1. THE GRADES WITHIN 5 FEET OF ALL DISTRIBUTION BOXES WILL BE RAISED 0.5 FEET FROM THE SURROUNDING AREA IN ORDER TO MAINTAIN THE RIM ELEVATIONS SHOWN ON THESE DRAWINGS.
2. DISTRIBUTION PIPING IS NOT SHOWN FOR CLARITY ON THE SSTS SECTIONS. REFER TO THE SPECIFIC DISTRIBUTION SCHEMATICS ON DRAWING SP-9 FOR DETAILS.

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.

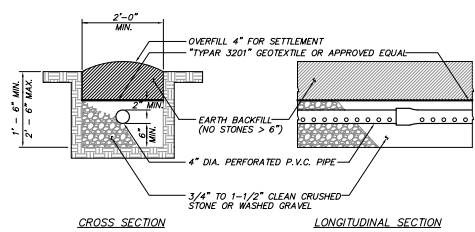
NO.	DATE	REVISION
 ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.		
PROJECT: SSTS FOR PATTERSON CROSSING RETAIL CENTER N.Y.S. ROUTE 311, TOWN OF PATTERSON & KENT, PUTNAM COUNTY, NEW YORK		
DRAWING: SSTS PROFILES		
PROJECT NO.	01124.100	PROJECT MANAGER
DATE	2-1-08	DRAWN BY
SCALE	AS SHOWN	CHECKED BY
PROJECT NO.	J.J.C.	DRAWING NO.
DATE	S.P.G.	SHEET
SCALE	J.M.W.	8
		11

3 Garrett Place  
Carmel, NY 12512  
(845) 225-9630  
(845) 225-9717 fax  
www.insite-ny.com



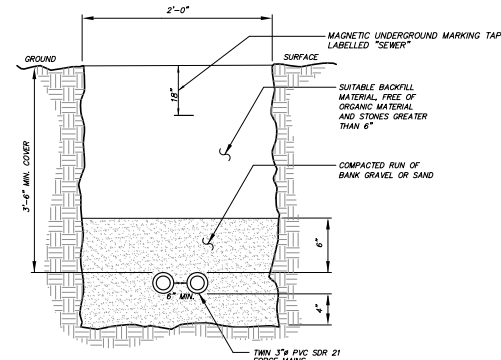


SEWER LINE CLEANOUT DETAIL (N.T.S.)



ABSORPTION TRENCH DETAIL (N.T.S.)

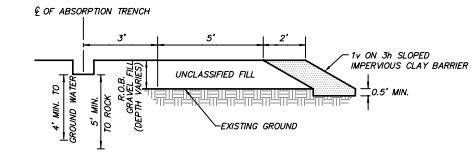
NOTES: 1. PROVIDE 2' OF SOLID PIPE AT THE BEGINNING OF EVERY TRENCH.  
2. PROVIDE END CAPS AT THE END OF EACH ABSORPTION TRENCH.  
3. THE SLOPE OF THE PERFORATED PIPES SHALL BE BETWEEN A MINIMUM OF 1/32" / FT AND A MAXIMUM OF 1/16" / FT, UNLESS THE TRENCHES ARE DISED BY PUMPING OR BY A DOSING TANK. DISED TRENCHES SHALL BE LEVEL.



SEWER FORCE MAIN TRENCH DETAIL (N.T.S.)

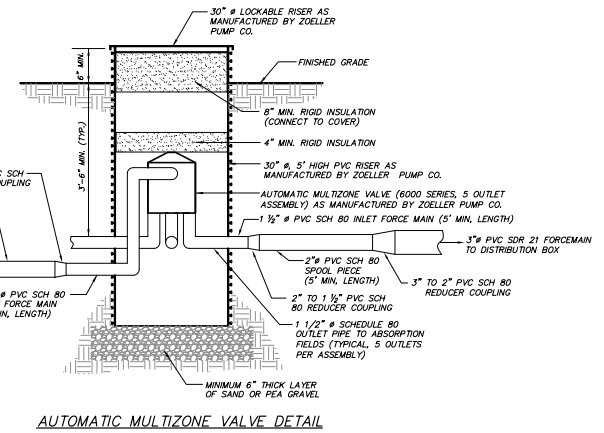
SEWER FORCE MAIN NOTES

- The sewer force main from the sewer pump station to the Automatic Multizone Valves shall be two (2) diameter force mains.
- The force main pipe shall be 3" diameter PVC SDR 21 with bell and spigot joints and factory installed gaskets.
- All fittings shall be Schedule 80 glued fittings. Thrust blocks shall be provided at all bends.
- Provide transition fittings and transition gaskets as needed.
- Provide metallic marking tape labeled "sewer" over the force mains.

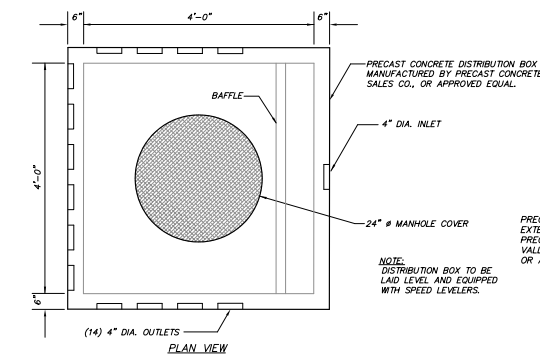


FILL SECTION DETAIL (N.T.S.)

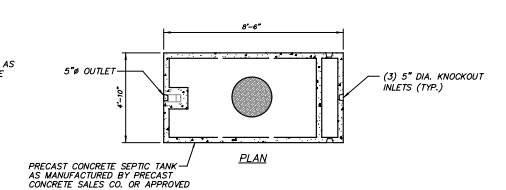
- Fill pad material (gravel) must extend three (3) feet minimum beyond center of trench. After fill pad material, there must be seven (7) feet of additional soil, with the first two (2') feet being impervious soil with a one (1) vertical to three (3) horizontal slope. The toe of the slope shall extend into the virgin soil 6 to 12 inches deep and 24 inches wide. Topsoil shall be applied in accordance with Appendix 75-A, Section 75-A.9 (b-4-iv).
- R.O.B. gravel fill to be compacted in 6" lifts.
- Fill and impervious barrier must be placed and a professional engineer shall certify in writing that all soil conditions are satisfactory to allow installation of the sewage disposal system. Engineering certification shall include but not be limited to inspection of soil materials, dimensions and site location.



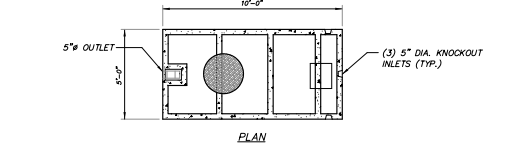
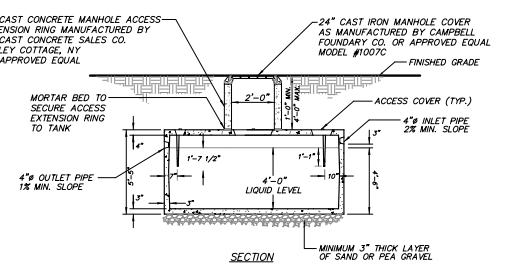
AUTOMATIC MULTIZONE VALVE DETAIL (N.T.S.)



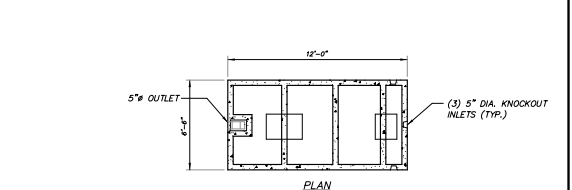
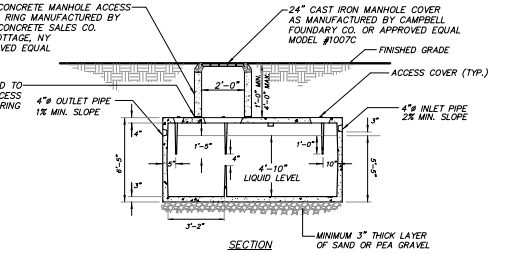
14 WAY DISTRIBUTION BOX DETAIL (N.T.S.)



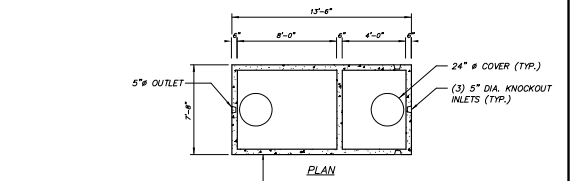
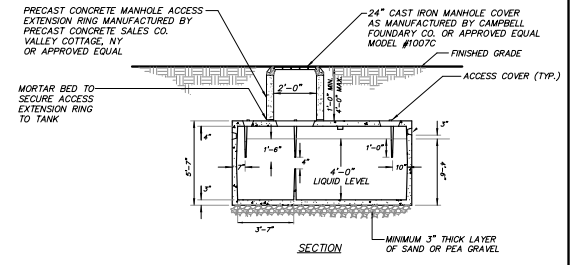
1000 GALLON SEPTIC TANK DETAIL (TO BE H-20 LOADING) (N.T.S.)



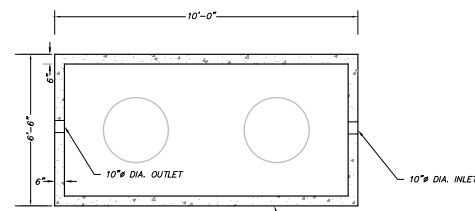
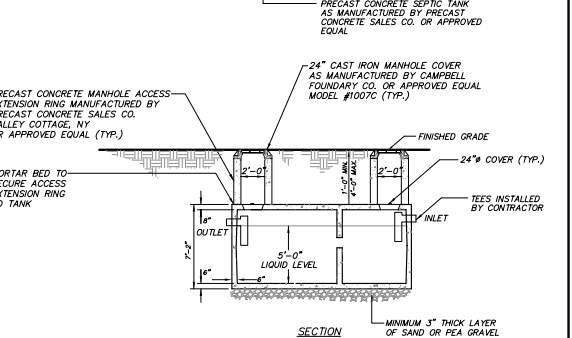
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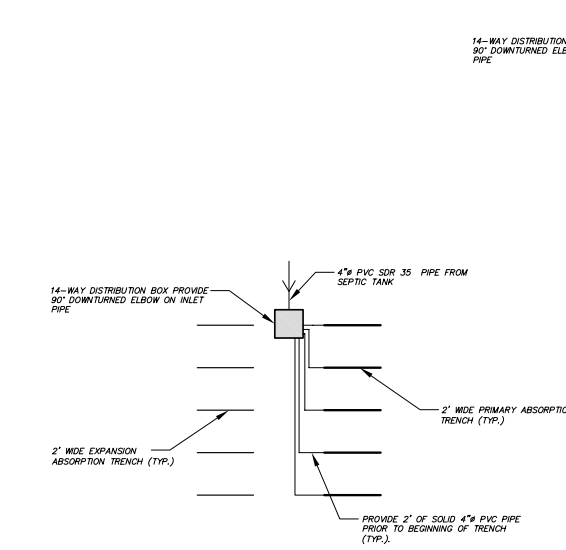
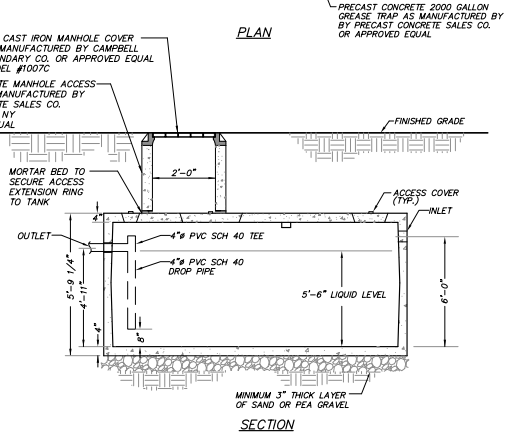
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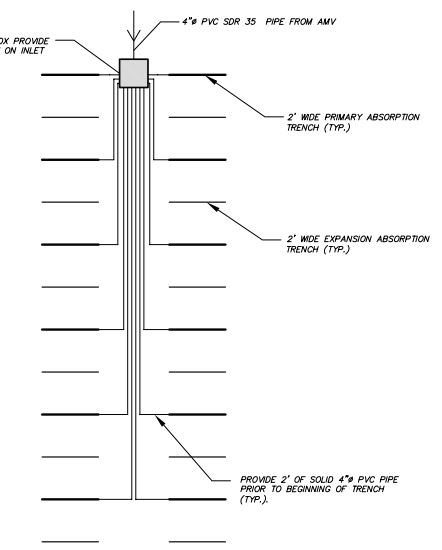
3,000 GALLON SEPTIC TANK DETAIL (TO BE H-20 LOADING) (N.T.S.)



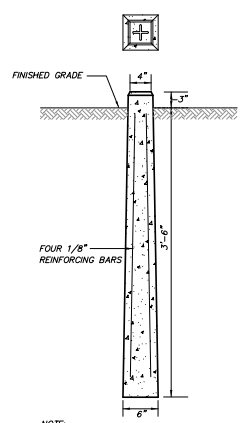
2,000 GALLON GREASE TRAP DETAIL (TO BE H-20 LOADING) (N.T.S.)



SSTS DISTRIBUTION SCHEMATIC NORTH AREA (N.T.S.)



SSTS DISTRIBUTION SCHEMATIC SOUTH AREA (N.T.S.)



CONCRETE MONUMENT DETAIL (N.T.S.)

ALTERATION OF THIS DOCUMENT, UNLESS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, IS A VIOLATION OF SECTION 7209 OF ARTICLE 145 OF THE EDUCATION LAW.

NO.	DATE	REVISION	BY
PROJECT: SSTS FOR PATTERSON CROSSING RETAIL CENTER N.Y.S. ROUTE 311, TOWNS OF PATTERSON & HENT, PUTNAM COUNTY, NEW YORK			
DRAWING: SEWER AND SSTS DETAILS			
PROJECT NO.	01124.100	PROJECT MANAGER	J.J.C.
DATE	1-11-08	DRAWN BY	S.P.R.
SCALE	AS SHOWN	CHECKED BY	J.M.W.
DRAWING NO.			SSTS-9
SHEET			9
			11



**SEWER TESTING PROCEDURES**

**TESTS FOR NON-PRESSURE PIPELINES FOR TRANSPORT OF SEWAGE**  
The leakage shall be determined by exfiltration, infiltration or low pressure air.

- A. Exfiltration Testing**
- Exfiltration tests shall be made by filling a section of pipeline with water and measuring the quantity of leakage.
  - The head of water at the beginning of the test shall be at least 2 feet above the highest pipe within the section being tested.
  - Should groundwater be present within the section being tested, the head of water for the test shall be 2 feet above the hydraulic gradient of the groundwater.
  - Should the requirement of 2 feet of water above the highest pipe subject any joint of the sewer, end of the test section to a differential head of greater than 11.5 feet, another method of testing shall be employed.
- B. Infiltration Testing**
- Infiltration tests will be allowed only when the water table gauges determine the groundwater level to be 2 feet or more above the highest pipe of the section being tested.
  - Infiltration test shall be made by measuring the quantity of water leaking into a section of pipeline.
  - Measurement of the infiltration shall be by means of a calibrated weir constructed at the outlet of the section being tested.
- C. Allowable Leakage for Non-Pressure Pipelines**
- The allowable leakage (exfiltration or infiltration) for non-pressure pipelines shall not exceed the following in gallons per 24 hours per inch of diameter per 1000 feet of pipe:
- | Type of Pipe   | Leakage |
|--|---------|
| Ductile iron - mechanical or push-on joints                            | 100     |
| Polystyrene chloride, thermal plastic or fiberglass with rubber joints | 100     |
| Cast iron soil pipe  | 0       |
- Regardless of the above allowable leakage, any spurring leaks detected shall be permanently stopped.
- D. Low Pressure Air Testing**
- Air testing for acceptance shall not be performed until the backfilling has been completed.
  - Low pressure air tests shall conform to ASTM C 828 or ASTM F1417-92, Section 8.2.2. Time Pressure Drop Method for 0.5 psi drop, except as specified herein and shall not be limited to type or size of pipe.
  - All sections of pipelines shall be cleaned and flushed prior to testing.
  - The air test shall be based on the starting pressure of 3.5 to 4.0 psi gauge. The time allowed for the 0.5 psi drop in pressure, measured in seconds, will be computed based on the size and length of the test section by the Engineer.
  - When groundwater is present, the average test pressure of 3 psig shall be above any back pressure due to the groundwater level.
  - The maximum pressure allowed under any condition in air testing shall be 10 psig. The maximum groundwater level for air testing is 13 feet above the top of the pipe.
  - The equipment required for air testing shall be furnished by the Contractor and shall include the necessary compressor, valves, gauges and plugs to allow for the maintenance of the pressure, release of pressure and a separate test gauge.
  - The test gauge shall be sized to allow for the measuring of the 0.5 psi loss allowed during the test period and shall be on a separate line to the test section.
- E. Deflection Testing**
- Deflection testing shall be performed 30 days after backfilling. The test shall be made by passing a ball or cylinder no less than 95% of the pipe diameter through the pipe. The test shall be performed without mechanical pulling devices.
- F. Manhole Testing**

**SEWER MAIN NOTES**

- All sewer mains & sewer services shown on these plans shall be polyvinyl chloride (PVC) SDR 35.
- Sewers shall be laid at least 10 feet horizontally from any existing or proposed water main. The distance shall be measured edge to edge. In cases where it is not practical to maintain a 10 foot separation, the Design Engineer and Putnam County Department of Health may allow deviation with prior approval on a case-by-case basis, if supported by data from the Design Engineer.
- Sewers crossing water mains shall be laid to provide a minimum vertical distance of 18 inches between the outside of the water main and the either above or below the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to maintain line and grade. The vertical separation also applies to water service connections.
- Sanitary sewer service lines shall be tested in conjunction with the sewer mains to the property line or easement line and in accordance with the latest Putnam County Department of Health Rules & Regulations.
- Testing of the manholes with the pipeline shall not be permitted. Manholes & sanitary sewer lines shall be tested independently of each other.
- The owner/applicant shall be responsible for acquiring supervision of the construction of the sanitary sewer main system by a person or firm qualified to practice professional engineering in the state of New York.
- The owner/applicant shall be responsible for providing three (3) copies of as-built drawings signed and sealed by a licensed and registered New York State Professional Engineer to the Putnam County Department of Health at the completion of the construction.
- The Design Engineer, Putnam County Department of Health, and Town Engineering Department shall be notified forty eight (48) hours before construction is started.
- The sanitary sewer mains shall not be placed into service until a certificate of construction compliance has been submitted to and accepted by the Putnam County Department of Health.
- The Putnam County Department of Health and the New York City Department of Environmental Protection must be notified forty eight (48) hours prior to pressure testing the sewer main improvements.
- Manhole frames & covers to be compball pattern #0070 for 24" opening or approved equal, M.H. covers to be marked "SEWER" and to have six 3/4" hole vents. (use solid covers where necessary.)
- The exterior of all manholes shall be covered with an approved asphalt waterproofing.
- Concrete base slabs shall be air entrained concrete with a minimum design strength of 3,000 psi.
- The contractor shall submit shop drawings of the precast manholes to the Design Engineer for review and acceptance.
- Precast manholes shall have minimum reinforcement of 0.12 sq. in. per lin. ft. for 48" diameter & be designed in accordance with A.S.T.M. C-478 and withstand an H-20 design loading.
- Precast base sections to have the required number of gaskets and openings as shown and specified.
- Precast manhole sections shall employ a watertight gasket arrangement between each section approved by the Design Engineer.
- Openings for pipes shall be precast or machine cast. Gaskets or collars for pipe connections to manholes shall be resilient and watertight and compatible with the type of pipe being used.
- All tanks to be H-20 loading and have access to grade manhole frames and covers.
- Precast manholes under 6'-0" deep shall have a "Flat Top" slab roof.
- Gaskets or collars for pipe connections to manhole shall provide a minimum of 0.1" drop across the manhole.

**SEWER FORCEMAIN TESTING PROCEDURES**

**TESTS ON PRESSURE PIPING FOR TRANSPORT OF SEWAGE**

- A. Hydrostatic Pressure and Leakage Test**
- Test pressure shall be as scheduled or, where no pressure is scheduled, shall be 100 psi.
  - Test pressure shall be held on the piping for a period of at least 30 minutes, unless a longer period is requested by the Engineer.
  - At the completion of the test, the pressure shall be released at the furthest point from the point of application.
  - All exposed piping shall be examined during the test and all leaks, defective material or joints shall be repaired or replaced before retesting the tests.
  - The allowable leakage for forcemain pressure pipelines shall not exceed 0.5 gallons per 1,000 LF of pipe for any 30-minute period.
  - Regardless of the above allowables, any visible leaks shall be permanently stopped.
  - The test medium shall be water.

**SEWER PUMP STATION TESTING PROCEDURES**

- A. The pump system shall be tested once all other sewer components have been tested.**

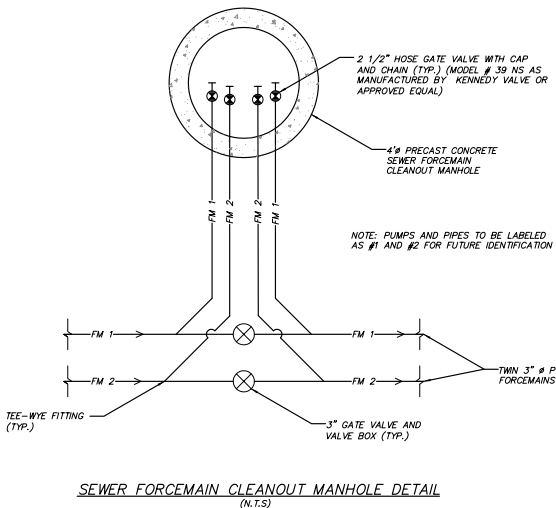
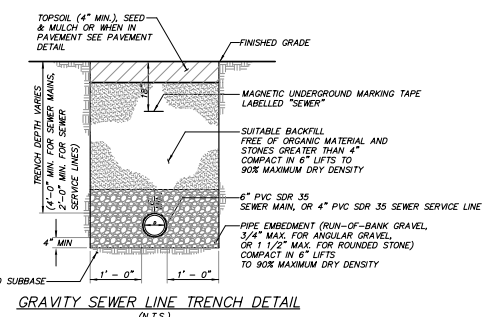
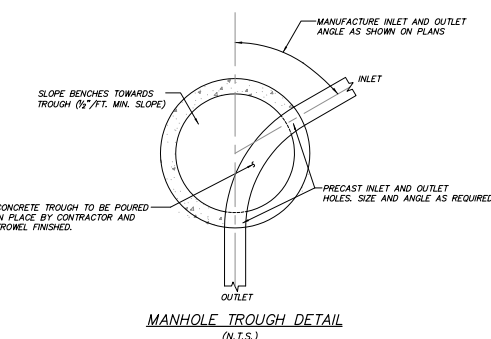
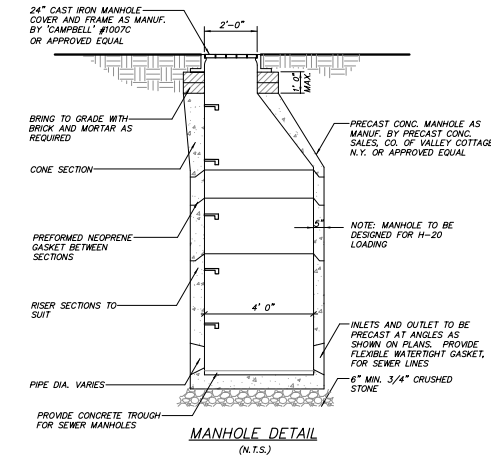
- After the contractor has stated to the engineer that the installation is complete and ready for continuous operation, the contractor shall conduct a running test of the pumps, controls, alarms, and auxiliary power in the presence of the Engineer to demonstrate proper operating condition.
- All equipment and controls will be re-tested, adjusted, modified and/or repaired, and re-tested as often as necessary to meet the specified requirements to the satisfaction of the Engineer.
- The Putnam County Department of Health and the New York City Department of Environmental Protection must be notified forty eight (48) hours prior to pump station testing.

**SSTS CONSTRUCTION NOTES:**

- All trees within 10 feet of the proposed subsurface sewage treatment system (SSTS) shall be removed.
- Upon completion of construction, the engineer and the Putnam County Department of Health shall be notified for inspection of the system. The system shall not be backfilled until it has been inspected by the engineer and the Putnam County Department of Health.
- All erosion control measures shall be installed prior to the start of any construction.
- Construction of SSTS to be in accordance with these plans, any revisions thereto, and the rules and regulations of the permit issuing governmental agency.
- The SSTS design shown hereon does not provide for installation of garbage grinders. Such installation requires additional design and the approval of the Putnam County Department of Health.
- All facilities proposed unless noted otherwise.
- All stonefalls in and within 10 feet of the SSTS area shall be removed to their entire depth and the resulting void replaced with similar or silty soil.
- Out or fill is not permitted in the SSTS area, except if so specified on this plan. The proposed fill is for grading purposes only.
- After backfilling the system, the SSTS area shall be covered with a minimum of 6 inches of top soil, seeded, and mulched.
- No NYSDDEC wetlands, streams, ponds or watercourses within 200' of the proposed SSTS unless noted otherwise.
- This Plan is approved for sewer treatment and/or water supply only, and all other required permits and/or approvals are the responsibility of the permittee.
- No existing wells within 200' of the proposed SSTS unless noted otherwise.
- Contractor must notify the design engineer 72 hours prior to the installation of any portion of the SSTS.
- Distribution and drop boxes to have speed levelers as required.
- The soils in the area of the SSTS are WB8 and PwC according to the USDA-SCS soils mapping.
- All erosion control measures for building(s), well(s) and SSTS(s) are to be installed prior to any construction. The soil erosion and sediment control practices as shown is a minimum. Additional erosion control shall be required as needed and shall be installed in accordance with "New York State Standards and Specifications for Erosion and Sediment Control", latest edition. Areas of exposed earth should be minimized and exposure should be kept to the shortest time practicable. Erosion control measures shall remain in place until all disturbed areas are suitably stabilized.
- The contractor shall contact Dig Safely New York at 811 and any other required utility locators prior to the start of construction.
- The SSTS area shall be staked and roped off so that no trucks, machinery, etc., buildings, backhoes and shovels shown on the approved drawings. Modifications are to have prior Putnam County Health Department approval. Unauthorized modifications made to this drawing after the date of the Putnam County Health Department approval void said approval.
- The Putnam County Health Department approval expires two (2) years from the date on the approval stamp and is required to be renewed on or before the expiration date. The approval is revocable for cause or may be amended or modified when considered necessary by the Department.
- All tanks to be H-20 loading and have access to grade manhole frames and covers.
- Putnam County Health Department approval is based on maximum flow of 11,000 gallons per day for the South area SSTS and 400 GPD for the North area SSTS. An increase in the flow will require prior approval from the Department.
- The SSTS is to receive sanitary waste only. The discharge of industrial wastes, contaminated cooling water, or other deleterious substances into or onto the surface of the ground is prohibited. The Putnam County Health Department reserves the right of inspection of the premises to insure compliance with these requirements.
- Putnam County Health Department shall be promptly notified in the event that any wastes other than strictly domestic sanitary wastes are produced at this facility.
- Occupancy of the building(s) will not be permitted until the Construction Compliance Application has been received and approved by the Putnam County Health Department and forwarded to the building inspector of the respective municipality as part of the Certificate of Occupancy Application.
- If any pre-cast concrete tank is delivered to the site in sections, then it shall be demonstrated to the Department and/or certifying Design Professional that the tank is sealed, watertight and acceptable for use. This shall require, on a minimum, the filling of the tank with water and observing the water level after a 24-hour period to demonstrate if it is in fact sealed, watertight and acceptable for use.
- The conditions noted on the Putnam County Department of Health Letter of Approval are an integral part of this approval and compliance is required.
- The grades within 5 feet of all distribution boxes will be raised 0.5 feet from the surrounding area in order to maintain the rim elevations shown on these drawings.
- Distribution piping is not shown for clarity on the SSTS sections. Refer to the specific distribution schematics on drawing SSTS-9 for detail.
- Install concrete monuments (40 total) for permanent delineation of the Southern SSTS sections. See detail on drawing SSTS-8.
- The contractor shall provide permanent labels or tags for the following Southern SSTS components: sewer pumps (2), forcemains (2), forcemain manholes (2), septic tanks (10), multi-zone valves (2), and distribution boxes (10).
- An emergency backup generator for the sewer pump station will be provided in the basement level of building E.

**SOUTH AREA SSTS R.O.B. GRAVEL FILL NOTES**

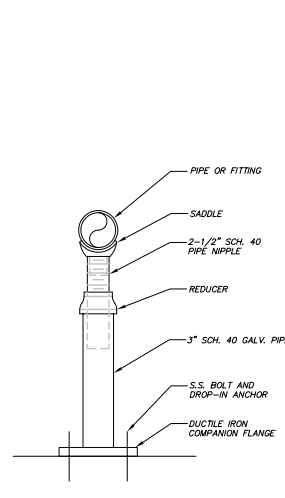
- R.O.B. fill must be stabilized by allowing the R.O.B. fill to settle naturally for a period of at least 6 months and include at least one freeze-thaw cycle, or, fill stabilization may be achieved by mechanical compaction in approximately 6 inch lifts to the approximate density of the undisturbed underlying soil.
- The depth of fill within section 1A of the sewage treatment system area varies from 0 to 2 feet which approximates to 600 +/- cubic yards.
- Site modification activities involving placement of fill to be conducted during relatively dry periods to minimize soil smearing and excessive soil compaction.
- Fill shall be run of bank (R.O.B.) gravel suitable for sewage absorption, be free of fines or other unsuitable material and shall have on in place permeation rate at least equal to or faster than the natural soil after the required stabilization period.
- Fill suitable for sewage absorption should contain no more than 5% and preferably no more than 2% fines by weight. Fines are clay and silt particles that pass a #200 sieve. No more than 10% by weight of the fill material should pass a #10 sieve.
- The impervious fill and clay barrier shall be a dense clay type soil with little or no sewage absorption capacity, impervious barrier to be placed around the entire fill section.



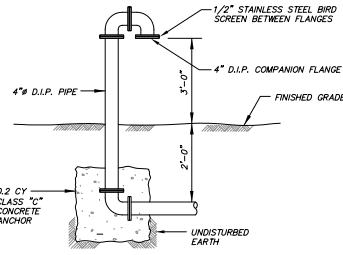
NO.	DATE	REVISION	BY
<b>INSITE</b> ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.			
PROJECT: SSTS FOR PATTERSON RETAIL CENTER		3 Corbett Place Corvett, NY 10812 (845) 225-9690 (845) 225-9777 fax www.insite-eng.com	
N.Y.S. ROUTE 311, TOWN OF PATTERSON & HENT, PUTNAM COUNTY, NEW YORK			
DRAWING: SEWER & SSTS NOTES AND DETAILS			
PROJECT NO.:	01124.100	PROJECT MANAGER:	J.J.C.
DATE:	1-11-08	DRAWN BY:	S.P.G.
SCALE:	AS SHOWN	CHECKED BY:	J.M.W.
DRAWING NO. SSTS-10		SHEET 10	
		11	

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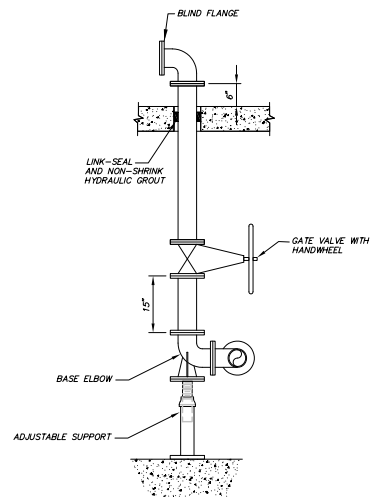




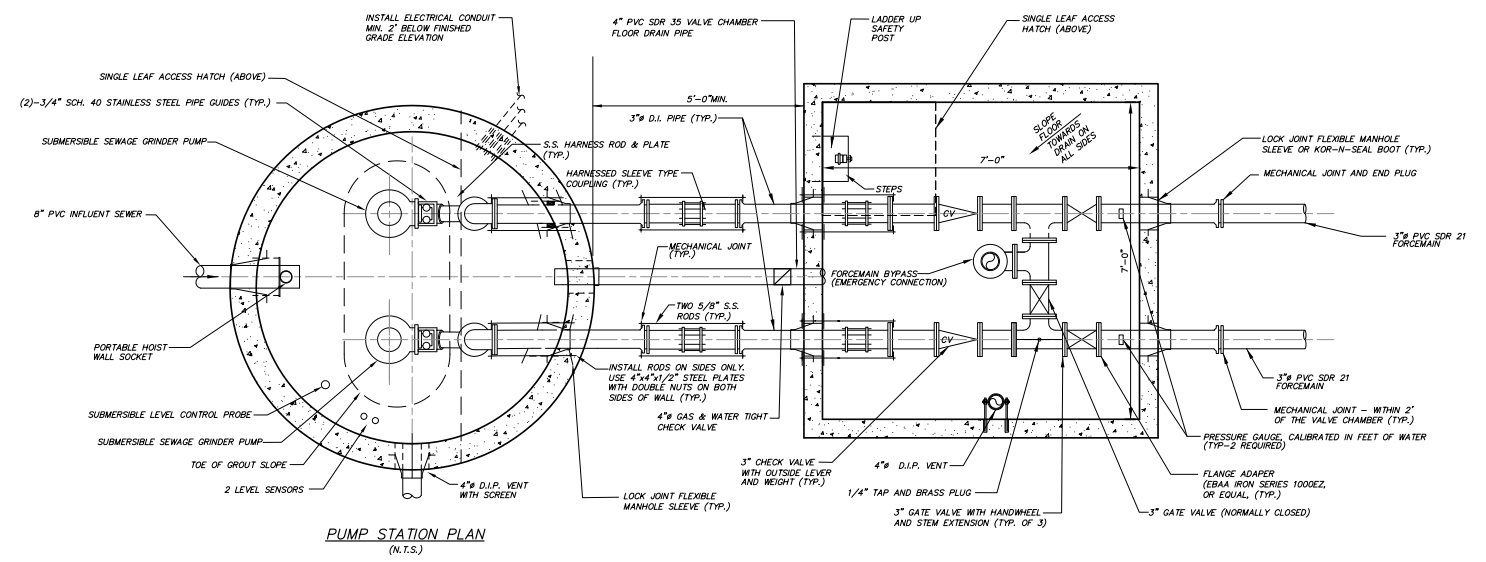
SADDLE DETAIL (N.T.S.)



VENT DETAIL (N.T.S.)



FORCEMAIN BYPASS (EMERGENCY CONNECTION) (N.T.S.)



ALL ELECTRICAL WORK AND MATERIAL TO COMPLY WITH THE NATIONAL ELECTRICAL CODE REQUIREMENTS FOR CLASS 1 GROUP D, DIVISION 1 LOCATIONS.

SEWER PUMP STATION NOTES:

1. THE CONTRACTOR SHALL BACKFILL WITH SELECTED FILL FROM THE BOTTOM OF THE EXCAVATION TO ELEVATION 764.5.
2. STRUCTURES SHALL BE DESIGNED IN ACCORDANCE WITH ASTM C-478 AND TO WITHSTAND 300 P.S.F. LOADING.
3. 4" D.I.P. VENTS SHALL BE INSTALLED UNDERGROUND FROM PUMPING STATION AND VALVE CHAMBER TO LOCATION SHOWN ON SITE PLAN.
4. A THIRD (SPARE) GRINDER PUMP SHALL BE KEPT ON THE SHELF OF THE SEWER CONTROL BUILDING.
5. THE PUMP STATION PRECAST BASE SECTION SHALL HAVE A MINIMUM INSIDE HEIGHT OF 6 FEET.
6. THE PUMP STATION CONTROL PANEL SHALL BE CONNECTED TO AN AUTODIALER, WHICH SHALL NOTIFY THE SEWER SYSTEM OPERATOR OF ANY ALARM CONDITION OR MALFUNCTION.
7. ALL ELECTRICAL WORK SHALL COMPLY WITH THE NEC (NATIONAL ELECTRICAL CODE).
8. THE PUMP AND ALARM SHALL BE CONNECTED TO SEPARATE CIRCUITS.

CONTROL ELEVATION SCHEDULE		
	LEVEL CONTROL PROBE	LEVEL FLOAT SENSOR
HIGH HIGH ALARM	-	761.5
HIGH LEVEL ALARM	761.0	-
LAG PUMP ON	760.5	-
LEAD PUMP ENABLE	760.0	-
BOTH PUMPS OFF	759.0	-
LOW ALARM	757.5	-
LOW LOW ALARM	-	757.0
BOTTOM PIT	756.0	-

PUMP CONTROLS SHALL ALTERNATE BETWEEN LEAD AND LAG PUMPS AND PROVIDE A TIMED DOSE OF 9 MINUTES (452 GALLONS)

PUMP DATA	
PUMP	ABS
MODEL	PIRANHA M100/20
HORSEPOWER	13.4
POWER	480V / 60 Hz / 3 Ph.
PERFORMANCE	51 GPM AT 192 FEET TDH
EXPLOSION PROOF, CLASS 1, DIVISION 1, GROUP D	

PUMP DOSE TIMER CONTROL SEQUENCE OF OPERATION

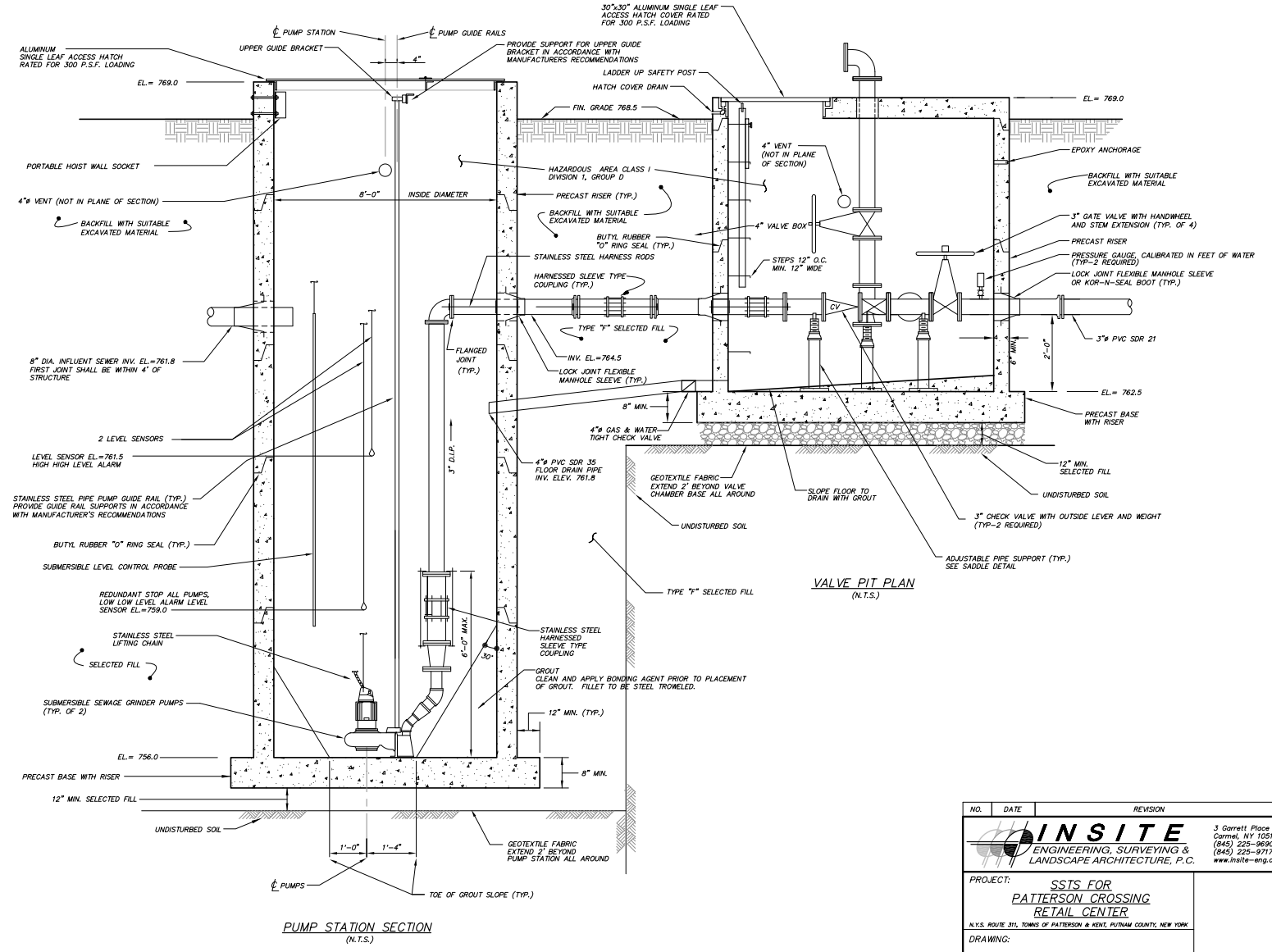
THE PUMP CONTROL PANEL SHALL BE EQUIPPED WITH FOUR SETTINGS ON A SUBMERSIBLE LEVEL CONTROL PROBE TO CONTROL THE TIMED DOSES TO BE DISCHARGED. THE WATER LEVEL MUST BE HIGH ENOUGH TO OVERCOME THE BOTH PUMPS OFF (BOTTOM) SETTING IN ORDER FOR THE PUMPS TO BE PERMITTED TO RUN. WHEN THE WATER LEVEL RISES HIGH ENOUGH TO OVERCOME THE LEAD PUMP ENABLE (SECOND) SETTING, AND THE TIME CLOCK IS IN A PUMP ENABLE MODE, THE LEAD PUMP WILL ACTIVATE. THE LEAD PUMP SHALL CONTINUE TO RUN FOR THE LENGTH OF TIME AS PROGRAMMED ON THE PUMP RUN TIMER (9 MIN.) AND SHALL THEN SHUT OFF. THE PUMP CONTROLLER WILL ALTERNATE THE LEAD PUMP AT THE END OF EACH PUMP CYCLE.

THE PUMPS SHALL REMAIN OFF UNTIL THE TIME CLOCK ENTERS A NEW PUMP ENABLE MODE, AT WHICH TIME THE LEAD PUMP SHALL ACTIVATE (AS LONG AS THE LEAD PUMP ENABLE SETTING IS STILL TRIGGERED) AND WILL RUN UNTIL THE PUMP RUN TIMER FINISHES TIMING OUT. THE PUMP RUN TIMER SHALL CONTINUE TO OPERATE A FULL PUMPING CYCLE. THIS PROCESS SHALL REPEAT UNTIL THE WATER LEVEL DROPS BELOW THE BOTH PUMPS OFF SETTING AND THE PUMP HAS TIMED OUT.

SHOULD EITHER PUMP FAIL TO RUN WHEN CALLED FOR, THE PUMP FAIL CIRCUIT SHALL REMOVE THE FAILED PUMP FROM SERVICE AND ACTIVATE THE AUDIO/VISUAL ALARM. THE ALARM SHALL REMAIN LATCHED UNTIL MANUALLY RESET.

THE CONTROL SYSTEM SHALL INCLUDE AN ALTERNATOR OVERRIDE SWITCH TO ALLOW FOR MANUAL SELECTION OF THE LEAD PUMP IF NECESSARY, AND WILL BE SETUP SUCH THAT IT WILL NOT INTERFERE WITH THE NORMAL TIMING FUNCTIONS OF THE SYSTEM. THE CONTROL SYSTEM SHALL BE EQUIPPED WITH A TIMER OVERRIDE CIRCUIT. IF THE WATER LEVEL CONTINUES TO RISE ENOUGH TO OVERCOME THE LAG PUMP ON (THIRD) SETTING, AND THE OVERRIDE SELECTOR SWITCH IS ON, THE PUMP SHALL BE ACTIVATED, REGARDLESS OF THE TIME CLOCK POSITION. THE PUMP WILL CONTINUE TO RUN UNTIL DEACTIVATED BY THE OVERRIDE CIRCUIT, AT WHICH TIME THE PUMP WILL SHUT OFF AND THE NORMAL PUMPING CYCLE SHALL RESUME.

IF THE WATER LEVEL CONTINUES TO RISE ENOUGH TO OVERCOME THE HIGH LEVEL ALARM (FOURTH) SETTING, THE AUDIO/VISUAL ALARM SHALL ACTIVATE THE REMAIN LATCHED UNTIL THE SILENCE SWITCH IS PRESSED. WHEN THE SILENCE SWITCH IS PRESSED, THE AUDIO ALARM SHALL BE SILENCED AND THE TOP MOUNTED ALARM LIGHT WILL REMAIN LIT UNTIL THE WATER LEVEL DROPS BELOW THE HIGH LEVEL ALARM SETTING. AT WHICH TIME THE ALARM CIRCUIT MUST BE MANUALLY RESET. THE PUMP CONTROLS SHALL PROVIDE A TIME DELAY OF 10 SECONDS BETWEEN ALTERNATING PUMP CYCLES.



PUMP STATION SECTION (N.T.S.)

VALVE PIT PLAN (N.T.S.)

2. 01/24/2008 - 05/15/2011 - 02/27/2012 - 03/15/2012 - 04/15/2012 - 05/15/2012

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NO.	DATE	REVISION	BY
 <b>INSITE</b> ENGINEERING, SURVEYING & LANDSCAPE ARCHITECTURE, P.C.			
PROJECT: <b>SSTS FOR PATTERSON CROSSING RETAIL CENTER</b>			
N.Y.S. ROUTE 311, TOWNS OF PATTERSON & HENT, PUTNAM COUNTY, NEW YORK			
DRAWING: <b>SEWER PUMP STATION DETAILS</b>			
PROJECT NO.	01124.100	PROJECT MANAGER	J.J.C.
DATE	1-11-08	DRAWN BY	S.P.R.
SCALE	AS SHOWN	CHECKED BY	J.M.W.
DRAWING NO.	SSTS-11		SHEET 11



Appendix S

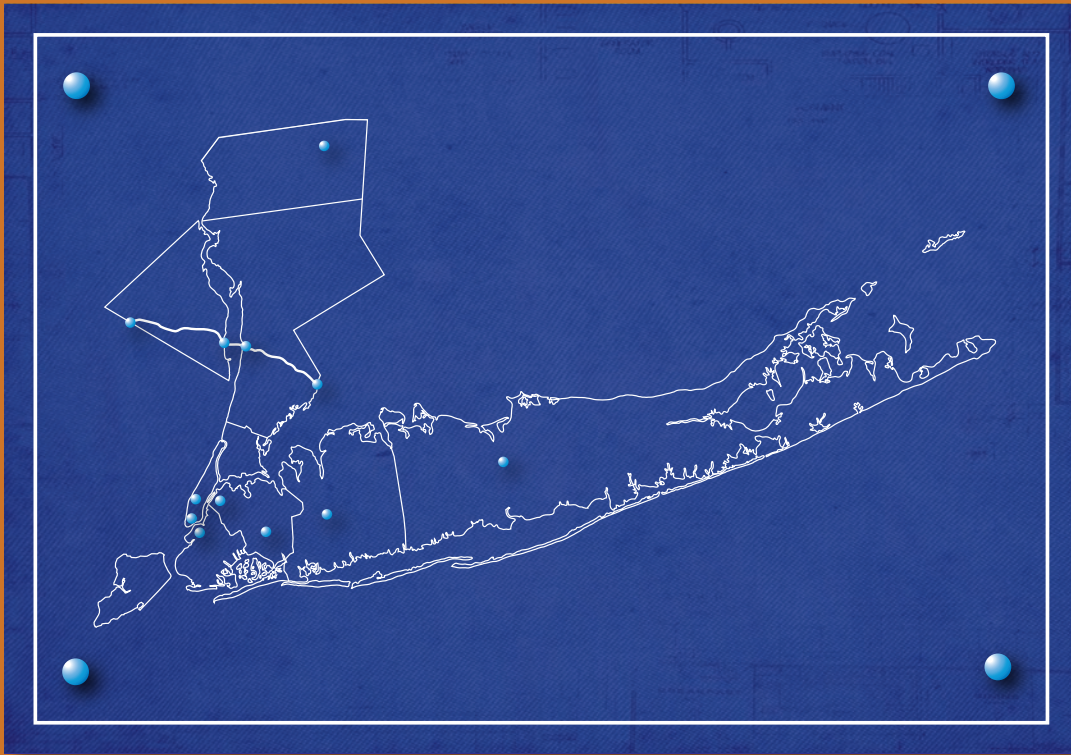
NEW YORK METROPOLITAN  
TRANSPORTATION COUNCIL'S  
ANNUAL REPORT 2008



NEW YORK METROPOLITAN TRANSPORTATION COUNCIL

# Our Vision

## FOR A GROWING REGION

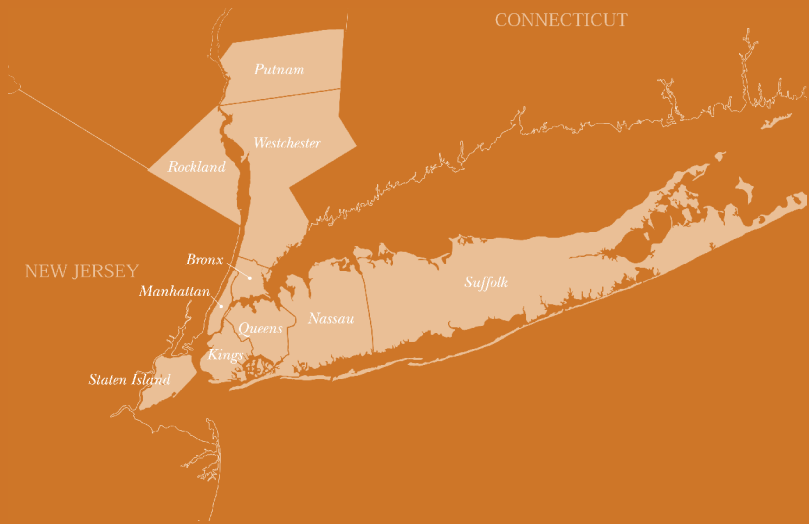


ANNUAL REPORT • MARCH 2008



# About NYMTC

The New York Metropolitan Transportation Council (NYMTC) is an association of governments, transportation providers and environmental agencies that is the metropolitan planning organization for New York City, Long Island and the lower Hudson Valley. NYMTC provides a collaborative planning forum to address transportation-related issues, develops regional plans and makes decisions on the use of federal transportation funds.



The NYMTC region encompasses an area of 2,440 square miles and a population of 11.3 million, approximately 65% of New York State's population. Given that the region is so vast, NYMTC is comprised of three Transportation Coordinating Committees (TCCs), which respond to local needs and recommend sub-regional transportation priorities: New York City TCC, Mid-Hudson South TCC and Nassau/Suffolk TCC.

## NYMTC's Mission

- To serve as the collaborative forum to address transportation-related issues from a regional perspective;
- To facilitate informed decision-making within the Council by providing sound technical analyses;
- To ensure the region is positioned to capture the maximum federal funds available to achieve the goals of the Unified Planning Work Program, Regional Transportation Plan and Transportation Improvement Program; and
- To focus the collective planning activities of all Council members to achieve a shared regional vision.



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NYMTC encourages and provides opportunities for interested stakeholders from the private sector, general public, and local government to become involved in the planning process. Visit our website @ [www.nymtc.org](http://www.nymtc.org) for more information, or write to NYMTC, 199 Water Street, 22nd floor, NY, NY, 10038.



# Message from The Co-Chairs

## Our Vision for a Growing Region



**Andrew J. Spano**  
Westchester County Executive



**Astrid C. Glynn,**  
Commissioner, NYS DOT

In 2007, the Annual Report from the New York Metropolitan Transportation Council (NYMTC) highlighted the challenges that our region faces in accommodating the significant growth in population, jobs and economic activity forecast for the next two to three decades. This Annual Report lays out the vision of NYMTC's Principals to meet that challenge for our growing region.

On a day-to-day basis, the individual Principal members of NYMTC focus primarily on issues that directly affect their agencies and jurisdictions. However, within the NYMTC forum, our scope broadens to incorporate issues that affect the entire metropolitan region. Our members include county executives from Nassau, Suffolk, Putnam, Rockland and Westchester; New York City's commissioner of the Department of Transportation and director of the Department of City Planning; New York State's commissioners of the Departments of Transportation and Environmental Conservation; executive directors

*We come together as NYMTC for various reasons. First and foremost, we have to do so if we wish to bring Federal funding into our region for transportation improvements.*

of the Port Authority of New York and New Jersey, the Metropolitan Transportation Authority, New Jersey Transit, and our sister planning agency, the North Jersey Transportation Planning Authority; the division administrator of the Federal Highway Administration; and the regional administrators of the Federal Transit Administration and the United States Environmental Protection Agency.

Often, NYMTC is thought of primarily as the vehicle for bringing Federal funding for transportation planning into the region. This premise stems from understanding that Federal funding represents about 30% of all monies programmed into our region's current Transportation Improvement Program and that participation in NYMTC's planning process is essential to keep this money flowing into the region. However, since the planning process requires consensus from the Principals, addressing transportation issues through NYMTC requires us to work together for the good of our region and—by extension—for the good of our individual jurisdictions and agencies. Ultimately, NYMTC serves as a vehicle for each of the Principal members to succeed at the endeavors entrusted

to us: improving congestion, mobility, environmental quality, economic vitality and quality of life with the opportunity to shape and secure a spectacular future for our region.

*Our Vision for a Growing Region* is the most recent tangible result of our coming together to consider the issues and challenges of our region. It will by no means be the last. Our vision builds on the trail blazing and substantive efforts of our individual members. These efforts are embodied by innovative undertakings such as *PlaNYC*, New York City's long-range sustainability plan, *New Suburbia*, Nassau County's vision for its major development zone, *Westchester 2025*, a remarkable new interactive resource for information exchange, and the New York State Smart Growth Cabinet initiative. In coming together, our vision adds value to these and other similar efforts of NYMTC's members and creates a whole that is greater than the sum of its parts.

We hope to now incorporate our vision into the regional planning process and to continue to work together to shape our region's future.



**Andrew J. Spano**  
Co-Chair, NYMTC



**Astrid C. Glynn,**  
Co-Chair, NYMTC

# Message from the Executive Director



**Joel P. Ettinger,**  
New York Metropolitan  
Transportation Council

**Vision** is an overused term, especially in the field of planning. Yet despite its increasingly clichéd application to a variety of activities and situations, the term resonates strongly when a course of action needs to be set for a collection of diverse actors to truly work together. Among the definitions of the word *vision* are two which I think are particularly relevant:

- *Unusual competence in discernment or perception; intelligent foresight.*
- *The manner in which one sees or conceives of something.*

These touch on the key points of defining mutual interest: seeing a situation, conceiving of it in a common way, discerning its characteristics and having the foresight to plan for it jointly.

NYMTC is a collection of diverse actors. The Principals of NYMTC represent political jurisdictions both large (very large) and small; enormous agencies of Federal, state and municipal government; and public authorities and corporations providing far reaching services to the public. Their jurisdictions run the gamut from municipal governments to statewide executive agencies to special purpose public authorities to oversight and regulatory agencies. They are both elected officials and appointed officials, accountable to voters, to elected officials, and to various

*The Principals of NYMTC represent political jurisdictions both large (very large) and small; enormous agencies of Federal, state and municipal government; and public authorities and corporations providing far reaching services to the public.*

boards and commissions. Their world views, goals and values vary greatly, as do the demands which are placed upon them and the missions they must achieve. They must focus all of their considerable energies on the tasks at hand for the entities they are charged with leading or face the harsh public judgments of the media and those to whom they are accountable. And, above and beyond all of this, they must find the time and wherewithal to come together for the good of their region.

That last part is the challenge presented to NYMTC's staff. How do we facilitate the collaboration of this diverse and pre-occupied group whose focus is necessarily elsewhere? Let's go back to the definitions; particularly *the manner in which one sees or conceives of something*. That is the area in which we have and can continue to support the efforts of the Principals when they come together as NYMTC; by giving them the

forecasts and the information that they need to be able to see, to visualize the situation facing their region in the future and also to see that they need to work together to fully address that situation. Once that is available to them, they can begin to set aside the differences in their views and goals and needs, and begin to focus on the shared views and goals and needs. They can then begin to think and plan regionally, *with intelligent foresight and unusual competence in perception*.

This Annual Report describes the vision which the Principals have forged, setting aside a lot of individual interests to achieve this common view. It has been an exciting challenge for the staff to work with them to get to this point. But this is not the end. It is really just the starting point for NYMTC and our transportation leaders to guide our region towards a future with a discernable vision.



**Joel P. Ettinger,**  
Executive Director



**Two million more people are expected to live in the NYMTC Region by 2030**



# A Sustainable Vision for a Growing Region



## *Critical Policies and Investments to Sustain Growth*

### **The Region's Challenge**

**T**he Principal members of the New York Metropolitan Transportation Council (NYMTC) are united in our shared goals and common vision for the sustainable future of our ten counties at the heart of the New York metropolitan region.

**We are the county executives of Nassau, Putnam, Rockland, Suffolk and Westchester counties, New York City's Transportation commissioner and director of City Planning, New York State's Transportation commissioner and the executive directors of the Metropolitan Transportation Authority and Port Authority of New York and New Jersey.**

Responding to the potential challenges and opportunities posed by forecasts of significant growth over the next two to three decades, we envision our region's growth focused in ten desired growth areas. We also envision the on-going maintenance of our current, extensive transportation infrastructure, the completion of four foundation projects to which we've already committed for the improvement of the transportation system, and the pursuit of a concept for future transportation investments which would maximize the potential of the areas in which we think future growth is best accommodated.

As we look forward, we recognize that our region is poised for a very significant step in its continuing evolution: significant growth in population, in jobs, and in economic activity.

**A million more people are expected to live in New York City by 2030; two million more when Long Island and the lower Hudson Valley are considered; four million more in the twenty-eight county, three state metropolitan region as a whole.**

Unlike the trends that have marked periods of historical

ture to move people and goods.

The combination of substantial growth and a severely strained transportation system threaten to add significant cost, both in time and money, to moving everything from goods to people while diminishing the quality-of-life throughout the region. This is a challenge to the region and its chief elected and appointed officials: find a way to provide new mobility to serve what can be and should be a vibrant, growing region while limiting the costs of the growth in terms of congestion and environmental impact.

**The good news is that we have a vision that we believe can meet this challenge.**

## **Our Vision for the Region's Growth**

Sustainability planning has taken hold within all of our jurisdictions. The most visible example is PlaNYC, Mayor Bloomberg's long-range sustainability vision for New York City.

We applaud the Mayor's bold step in issuing this vision for the world city at the core of our region, but we recognize that sustainability can only be maximized regionally. So our vision for regional growth builds on the strong foundation that PlaNYC provides with parallel efforts at sustainability from around the region.

Our common vision is of a region where future growth is focused, to the greatest extent possible, in ten desired growth areas which could contain up to 90 million square feet of commercial de-



**Downtown  
Brooklyn, Borough  
Hall and Fulton  
Street Mall area**

growth in our region, there is no watershed advance in transportation technology that is opening new land to development and fueling this anticipated growth in the coming years. The growth we anticipate will likely happen *despite* this apparent plateau in the region's mobility. This growth would draw its energy from the continuing transformation of regional economic activity within the global economy. In the face of this, there are all too obvious limitations in the capacity of our current transportation system and infrastruc-

velopment and 70 thousand residential units. As many as 360,000 new jobs could be accommodated in these growth areas, nearly one-quarter of the total job growth forecasted to 2030 in the ten coun-

- Provide convenient, flexible transportation access within the region; and
- Build the case for obtaining the resources to implement regional investments.

*This vision is our recognition of the need for coordination and cooperation to more effectively advance a regional sustainability agenda.*

ties. Similarly, as many as 210,000 residents could also be housed in these ten areas, just under 10% of the forecasted population growth through 2030.

**Our concept for transportation investments is essential to the viability of these desired growth areas and is the primary mechanism we will use, in conjunction with other policy tools at our disposal and in partnership with local municipal officials, to channel the growth to these areas.**

This vision is our recognition of the need for coordination and cooperation to more effectively advance a regional sustainability agenda. In 2007, the NYMTC Principals announced agreement on five shared goals—our shared values—for the future of the region. They are:

- Improve the regional economy;
- Enhance the regional environment;
- Improve the regional quality of life;

Using these goals as a lens through which to visualize the region's future, we identified the ten desired growth areas in our region. In our view, these are the locations in which future growth makes the most sense in the context of our shared goals. We fully understand that these desired growth areas cannot reach their optimum growth potential without related investments in transportation improvements. Thus, the desired growth areas also form an organizing framework for our transportation investment concept.

We've agreed that the ten desired growth areas crucial to the region's future growth include:

- Five areas in New York City: Hudson Yards and Lower Manhattan in Manhattan; Downtown Brooklyn; and Long Island City and Jamaica in Queens; and
- One area in each of the five suburban counties: Nassau Centre in Nassau County; Hauppauge/Brentwood which includes the Sagtikos Regional Development Zone



in Suffolk County; the Interstate 287 Corridor in both Westchester and Rockland counties; and Route 311 at Interstate 84 in Putnam County.

If we are successful in the endeavor crystallized in our vision, the increase in vehicular trips and transportation congestion that would normally result from the

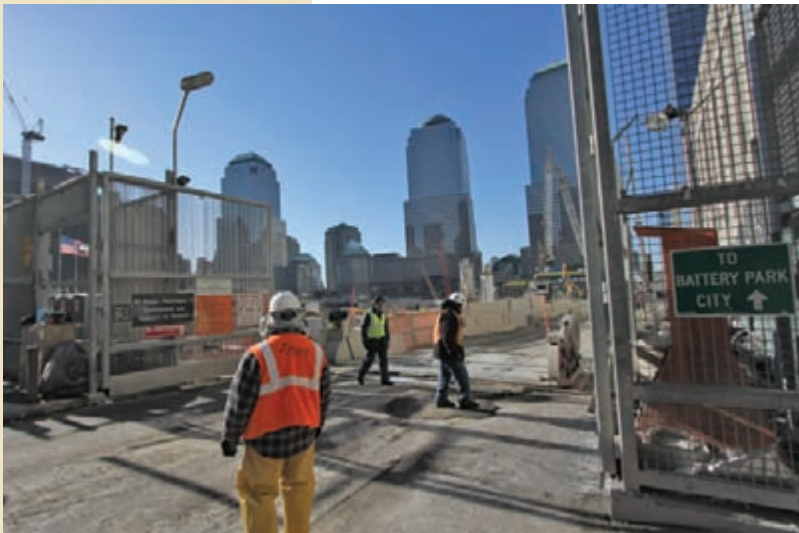
gether as NYMTC. It will require an unprecedented level of regional coordination with local land use policies and decisions. It will require the continued maintenance of our current transportation system. And it will require major transportation investments to improve the transportation system strategically to make possible the level of growth in the ten areas that we've envisioned.

**To meet this challenge, we feel that working together as a region through our shared goals to make transportation investments strategically, combined with a mutual effort to partner with local municipalities and land use agencies to channel growth into areas throughout the region where we think it makes the most sense, is vital to making the growth of our region sustainable.**

Moving toward our vision will require five steps toward cooperative planning and strategic investment.

### **Step 1: Continuing Our Partnership**

Our recent consideration—as the Principals of NYMTC—of the future of our ten counties has yielded a powerful result. We have forged new avenues of communication and cooperation through the NYMTC forum and can now speak with a common voice on the most pressing issues of growth in our region. When we come together in this fashion, the whole represented by our mutual aspirations is much greater than the sum of its individual parts, and much



**Lower Manhattan,  
World Trade Center  
worksite**

forecasted growth in population and jobs will be mitigated through a series of land use decisions and complementary transportation investments that will yield a more sustainable future for our area, one in which the ability of the transportation system to efficiently move people and goods is increased in conjunction with integrated land use policies.

### **Moving Toward Our Vision**

Making our growth vision a reality will not be an easy task. It will require our continued cooperation through the regional responsibilities we share when we come to-

more impactful. It does not supersede what we must do individually; rather it vastly increases the stature of what we choose to do collectively.

**Thus, Step 1 in moving toward our vision is continuing our active collaboration and partnership through our responsibilities as NYMTC's Principals to collectively see our vision through to reality.**

### **Step 2: Reaching Out to New Partners**

Although our continuing partnership is essential, it alone cannot bring our vision for the region's growth to reality on its own. We must reach out to the wider com-

### **Step 3: Maintaining What We Have**

Our region enjoys the advantage of an extensive system of transportation facilities and services. The existing transportation system—although it must be improved—is still critical to the region's future and to our vision for that future. That being the case, we must fully and completely protect the region's investment in its existing system by achieving and maintaining a State-of-Good-Repair for all transportation facilities and equipment in our region. The extensive transportation system already in place is a resource of enormous value to the region and must be main-

*In moving toward our vision is continuing our active collaboration and partnership through our responsibilities as NYMTC's Principals to collectively see our vision through to reality.*

munity of officials who are responsible for the land use decisions that we need to bring the vision into being and to the public whose input will strengthen our proposals and whose support is essential to making the vision a reality.

**Step 2 is enlisting our partners in a collaborative and integrated approach to the region's future growth that is grounded in our vision. Individually and through NYMTC, we have begun forging new partnerships with local planners, working together on sustainable development studies, county-level master planning, and larger scale regional visioning initiatives as embodied by our latest such initiative: Long Island 2035.**

tained as a basis for future improvements.

**Step 3 is therefore setting aside the resources in the long-term to achieve and maintain a State-of-Good-Repair for the existing transportation system.**

### **Step 4: Establishing Our Foundation**

Our vision is also grounded in four major "foundation" transportation improvements which we have already committed to regionally by adopting them into NYMTC's fiscally-constrained Regional Transportation Plan per Federal planning requirements. Three of these projects have moved into the construction phase





and the fourth is in design and environmental analysis under the Federal regulations. They all address future access to and mobility within the core of the region: Manhattan's midtown and downtown central business districts, which also contain two of the ten desired growth areas we envision. These improvements are MTA New York City Transit's full length Second Avenue Subway, MTA Long Island Rail Road access to the east side of Manhattan, the extension of MTA New York City Transit's No. 7 subway line to the west side of Manhattan and New Jersey Transit's Access to the Region's Core project, which will provide two new rail tunnels under the Hudson River to midtown Manhattan.

**Step 4 is our full commitment to the completion of these foundation projects, which are essential to the region's future. We note that the No. 7 subway extension is funded by the City of New York and the Trans-Hudson Express Tunnel can be accomplished using funding from the Federal government, the State of New Jersey and the Port Authority of New York and New Jersey.**

### Step 5: Investing for the Future

As indicated earlier, the growth forecasted for NYMTC's region through 2030 is significant and challenging: a nearly 20% increase in population and jobs over current levels. Accommodating this growth sustainably will not be possible unless a large part of it is channeled into areas where it can

be supported through the existing transportation system, along with strategic improvements. Toward that end, we have identified ten desired growth areas throughout the region in which a significant proportion of the anticipated growth of our region can be supported in a more efficient, sustainable fashion through strategic enhancements and expansions to the existing transportation system.

**Step 5 is our concept for new strategic transportation investments, in addition to the foundation projects, to facilitate the optimal development of the ten desired growth areas. This concept is being developed in close cooperation with our member agencies. It will likely be released for public review later this year.**

### Financing the Vision

The vision we've outlined above is ambitious in its scope and we fully realize that financing this vision over the next two to three decades is an enormous part of the challenge we face. In order to formulate an approach to meeting this challenge, we have forecast the resources we anticipate having available over the next ten years





**The growth forecasted for NYMTC's region through 2030 is significant and challenging: a nearly 20% increase in population and jobs over current levels.**

through the Federal, State and local sources that currently exist under the Federal transportation legislation. We realize that the next Federal transportation bill will be enacted over this period and that some changes are likely to the structure of the Federal program. However, these changes are largely unpredictable, so for the purposes of this exercise, we are operating under the assumption that the basic structure of Federal funding programs will be maintained through 2017, including requirements for local matching of Federal expenditures. Similarly, we are also assuming that the current structure of New York State

transportation funding will be largely maintained over the period in question, although we do not assume the passage of any additional New York State bond acts for the period in question.

We are currently developing our forecast of financial needs for our investment concept. The needs of the concept will be added to those of the foundation projects and to those related to achieving and maintaining a State-of-Good-Repair for our transportation facilities and equipment to create a complete regional financial forecast for the future that will be released for public review later this year.

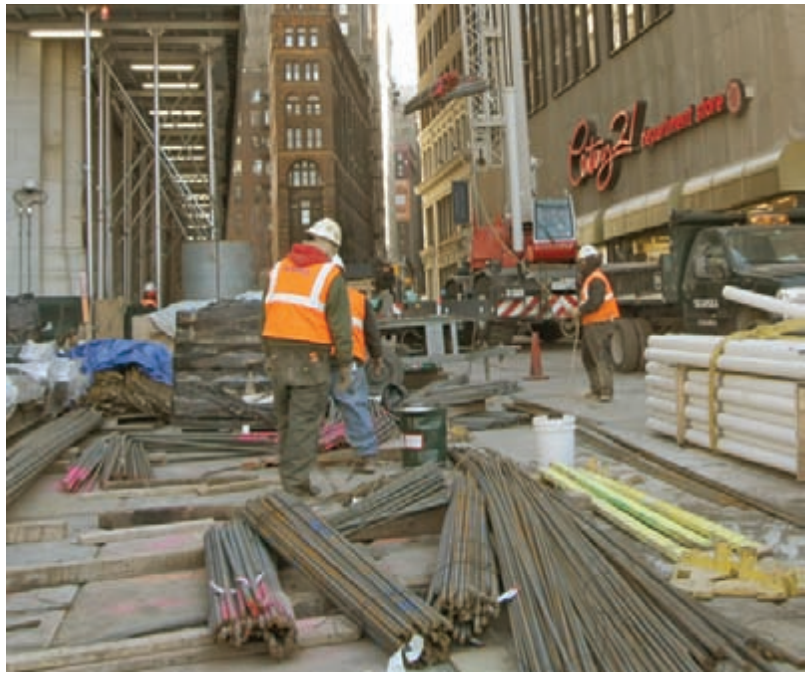




**Maintenance is the underpinning upon which any improvements to the transportation system must be built**



# Maintaining What We Have



The need to achieve and maintain a state-of-good-repair (SOGR) for the region's transit systems, roadways and bridges has been identified by NYMTC's Principals as a critical goal over the next several decades. This SOGR maintenance is the underpinning upon which any improvements to the transportation system must be built. Given that the transportation system in NYMTC's region is vast in its extent and many of its components were built in the first half of the 20<sup>th</sup> Century or earlier, this will be a major effort.

To bring the current transportation system to a state-of-good-repair through 2030 and maintain it, we must refurbish extensive infrastructure. This will include replacing buses and rail cars as they age, refurbishing track in the subway and commuter rail systems, and improving peripheral facilities such as transit stations, line equipment and structures, signals and communications, shops and yards, and power facilities. We must also resurface and reconstruct roadways and bridges, and rehabilitate bridge structures. Our forecasts estimate the amount of equipment that will need to be replaced and facilities that would need to be refurbished through 2030. Using the current conditions of existing transportation equipment and infrastructure as a starting point and assuming specific lifecycles for each of their components, we are able to identify SOGR needs. Three-quarters of the forecasted transportation system components will be needed in New York City with the remaining one-quarter split more or less evenly between lower Hudson Valley and suburban Long Island.

The existing transportation system is a tremendous resource, whose current value is likely measured in the billions of dollars. Despite its age and congestion, the existing system provides a strong foundation on which to build an improved system. The Principals of NYMTC are in agreement that maintaining the viability of this resource and protecting it in the future are the region's first priority.





**Our vision is  
grounded in  
transportation  
investments**



# Establishing Our Foundation



**A**s indicated earlier, our vision is grounded in transportation investments to which we have already committed in our role as NYMTC's Principals:

## **MTA New York City Transit's Second Avenue Subway**

The Second Avenue Subway project will ultimately include a two-track line along Second Avenue from 125th Street to the Financial District in Lower Manhattan. It will also include a connection from Second Avenue through the 63rd Street tunnel to existing tracks for service to West Midtown and Brooklyn. Sixteen new ADA accessible stations will be constructed.

## **MTA Long Island Rail Road Access to the East Side of Manhattan**

The East Side Access project will connect the Long Island Rail Road's Main and Port Washington lines in Queens to a new terminal beneath Grand Central Terminal in Manhattan. The new connection will increase the Long Island Rail Road's capacity into Manhattan, dramatically shorten travel time for Long Island and eastern Queens commuters traveling to the east side of Manhattan, and provide a new commuter rail station in Sunnyside Queens.

## **MTA New York City Transit's No. 7 Subway Extension to the West Side of Manhattan**

The No. 7 Subway project will construct an extension of the existing subway line to serve the Hudson Yards desired growth area on the far west side of midtown Manhattan, in conjunction with the adoption of



The Access to the Region's Core project will construct two single track railroad tunnels under the Hudson River, connecting New Jersey and midtown Manhattan.

zoning map and text amendments to the New York City Zoning Resolution and related land use actions to permit the development of the Hudson Yards as a mixed-use community.

### New Jersey Transit's Access to the Region's Core Project

The Access to the Region's Core project will construct two single track railroad tunnels under the Hudson River, connecting New Jersey and midtown Manhattan. These new tunnels will add transportation capacity to the existing two-track railroad tunnels under the Hudson River, the North River Tunnels, used by Amtrak and New Jersey Transit that are already operating near full capacity.

Our regional commitment to these foundation projects was es-

tablished when, per Federal planning regulations, we adopted them over the past several years into NYMTC's fiscally-constrained Regional Transportation Plan. In doing so, we set the stage within the Federal planning process for moving each of them forward into environmental analysis, design and engineering. Three of these projects have now begun construction and the fourth, Access to the Region's Core, is close to completing its Federal Environmental Review process.

These four key transportation improvements address future access to and mobility within the core of the region: Manhattan's midtown and downtown central business districts, in which are located two of our ten desired growth areas: Hudson Yards on the far west side of midtown Man-

*Our vision is grounded in transportation investments to which we have already committed in our role as NYMTC's Principals.*

The No. 7 Subway project will construct an extension of the existing subway line to serve the Hudson Yards desired growth area on the far west side of midtown Manhattan.

hattan and lower Manhattan. By themselves, these two growth areas can accommodate 40 million square feet of commercial space and nearly 24,000 residential units, which represent nearly 45% of the commercial space and 35% of the residential units of all ten desired growth areas combined.

Given the importance of these foundation transportation projects to our region as a whole and to our vision for the future growth of the region, we remain absolutely committed to securing all necessary funding for these projects and seeing them through to their ultimate completion.

