



File Number: PB 1707 SP OSRD
Spalding Hill Estates – 5 St. Augustine Drive

Planning Board
Town of Westford
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Westford, MA 01886
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Decision

PB 1707 SP OSRD
Special Permit for an Open Space Residential Development
Spalding Hill Estates
5 St. Augustine Drive

Applicant:	Connell Real Estate Trust
Property Location:	5 St. Augustine Drive Map 040, Parcel 0017, Lot 0000
Zoning District:	Residence A (RA) Water Resource Protection Overlay District III
Application Submitted:	January 6, 2017
Public Hearing Dates:	December 18, 2017 February 5, 2018 March 19, 2018 April 23, 2018 August 20, 2018 October 22, 2018 March 18, 2019 June 24, 2019 August 5, 2019 October 7, 2019 January 27, 2020 April 6, 2020 May 4, 2020 (hearing closed)
Planning Board Vote:	May 4, 2020
Filed with Town Clerk:	<u>August 26, 2020</u>
*Appeal Period Ends: (20 days after file with Town Clerk)	<u>Sept 15, 2020</u>
*Available for Pick-up:	<u>Sept 16, 2020</u>

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At its regular meeting on **May 4, 2020**, the Planning Board voted to **GRANT WITH CONDITONS** a **Special Permit** under Sections 7.1 and 9.3 of the Town of Westford Zoning Bylaw for a **29-lot Open Space Residential Development** known as Spalding Hill Estates. The Planning Board also approved concurrent Stormwater Management Permit and Definitive Subdivision applications on this date.

BACKGROUND

Concurrent Special Permit, Definitive Subdivision and Stormwater Management Permit applications were submitted to the Planning Board on January 6, 2017 for a proposed 31-lot Open Space Residential Development (OSRD) subdivision. In accordance with Section 6.0 D(1) of the Planning Board Stormwater Management Regulations, the Planning Board (Board) reviewed the Stormwater Management Permit concurrently with the Special Permit and Definitive Subdivision applications.

The subject property (Property) contains approximately 43.6 acres of land that is identified as 5 St. Augustine Drive. The Property lies within the Residence A (RA) Zoning District and Zone III Water Resource Protection Overlay District (WRPOD). The Property is bounded by St. Augustine Drive to the south and west, and lands owned by the Applicant, Liner and the American Legion Post 437 to the north. Although the Property benefits from minimal frontage along the westerly sideline of Dunstable Road, the Property is generally bounded by a series of residential lots (with frontage on Dunstable Road) to the east. Finally, the Property is bounded by residential lots to the south which front along either Groton Road (Route 40) or Oakmont Drive.

Primary access to the subdivision is to be provided through St. Augustine Drive, previously approved by the Planning Board (Board) as a minor street. A portion of St. Augustine Drive is intended to become accepted as a public way, after modification of the roadway between Stations 0+00 and 13+65 has been completed. Until then, the entirety of St. Augustine Drive shall remain as a private way. With the exceptions of proposed Lot 28 (the “Farm” lot) and proposed Lot 29, all the proposed lots within the project obtain their practical access from St. Paul Lane, a proposed minor street. St. James Way is proposed as an emergency access only street between St. Paul Lane and Dunstable Road.

The OSRD Special Permit was considered together with applications for Definitive Subdivision Approval and a Stormwater Management Permit for the OSRD development project.

RECORD OF PROCEEDINGS

- 1. The initial application proposed to subdivide the 43.6-acre Property into a total of thirty-one (31) residential building lots and multiple open space and common land parcels.*
- 2. Pursuant to Section 7.1 of the Town of Westford Zoning Bylaw, the Applicant needs a Special Permit in order to develop the property as an Open Space Residential Development (OSRD).*
- 3. On January 5, 2017, the Applicant submitted applications for a Special Permit for an Open Space Residential Development, a Definitive Subdivision Plan and a Stormwater Management Permit.*
- 4. On December 18, 2017, the Board opened the concurrent public hearings for the Special Permit and Definitive Subdivision and public meeting (collectively referred to hereinafter as “public hearing”) for a Stormwater Management Permit. Next, the Board scheduled a site visit for the benefit of the new Board members who had joined since the initial Preliminary Subdivision applications were filed in 2013 and with the consent of the Applicant, continued the public hearing to January 22, 2018.*
- 5. At their meeting of January 22, 2018, and as requested by the Applicant, the Board continued the public hearing without discussion to February 5, 2018, to allow time for the Applicant to provide information requested by the Board. The Applicant granted an extension of time for the Board to act on the applications.*
- 6. On January 26, 2018, the Board received a revised drainage analysis and plans depicting the most recent wetland delineation and reconfigured lot lines. Information was submitted on*

- behalf of the Applicant that the drainage system was redesigned to support all 31 lots in the development.
7. On January 30, 2018, the Board received comments from the Conservation Commission regarding the updated plan set.
 8. On February 2, 2018, the Board received comments from the Health Department regarding the updated plan set.
 9. On February 5, 2018, the Board resumed the public hearing and the Applicant's engineer provided an overview of changes to the most recent plan set. The Board identified five (5) proposed conventional lots and required that the Applicant's engineer provide additional and more detailed information and conceptual layouts to prove the viability of said lots, particularly with respect to grading and proximity to wetland resource areas. With the consent of the Applicant, the public hearing was continued to February 26, 2018.
 10. On February 13, 2018, the Board received a Technical Review Memorandum from the Town of Westford Engineering Department.
 11. On February 22, 2018, the Board received the Applicant's engineer's response to the Engineering Department's memorandum of February 13, 2018.
 12. On February 26, 2018, and as requested by the Applicant, the Board continued the public hearing without discussion to March 5, 2018. The Applicant granted an extension of time for the Board to act on the applications.
 13. On March 5, 2018, the Board received a revised Technical Review Memorandum from the Town of Westford Engineering Department. Also, on March 5, 2018, and as requested by the Applicant, the Board continued the public hearing without discussion to March 19, 2018 to allow time for the Applicant's engineer to address Engineering Department comments. The Applicant granted an extension of time for the Board to act on the applications.
 14. On March 7, 2018, the Board received the Applicant's engineer's response to the Engineering Department's revised memorandum.
 15. On March 13, 2018, the Board received a Technical Review Memorandum from the Town of Westford Engineering Department.
 16. On March 19, 2018, the Board resumed the public hearing and discussed proposed stormwater management systems and related easements. On a motion made by Hollister and seconded by Wizst, the Board voted 4-1-0 (Green opposed) to determine that Section 218-13 B(6) of the Town of Westford's Subdivision Rules and Regulations does not apply to subsurface systems. On a motion made by Wizst and seconded by Lavelle, the Board voted 3-2-0 (Green and O'Connor opposed) to approve a conventional yield of 31 lots. The Board planned a site visit for April 10, 2018. The Board voted to continue the public hearing to April 23, 2018.
 17. On April 23, 2018, the Board resumed the public hearing and updates were provided on behalf of the Applicant regarding the traffic study, plan revisions, including a secondary emergency access way, expanded no clear zones, and alterations to proposed open and common space. The Board discussed issues raised by their recent site visit, including emergency access gates, potential traffic impacts on St. Augustine Drive, adequacy of drainage systems and the preservation of landscape features. The Board then voted to continue the public hearing to May 21, 2018.
 18. On May 21, 2018, and as requested by the Applicant, the Board voted to continue the public hearing without discussion to June 18, 2018. The Applicant granted the Board an extension of time to act on the applications until August 20, 2018.
 19. On June 18, 2018, and as requested by the Applicant, the Board voted to continue the public hearing without discussion to July 16, 2018.
 20. On July 16, 2018, and as requested by the Applicant, the Board voted to continue the public hearing without discussion to August 20, 2018. The Applicant granted the Board an extension of time to act on the applications until to October 1, 2018.
 21. On August 2, 2018, the Board received a revised plan set from the Applicant.

22. *On August 9, 2018, the Board received technical comments from the Water Department related to the most recent plan set.*
23. *On August 10, 2018, the Board received the Transportation Engineering Peer Review prepared by TEC, Inc.*
24. *On August 17, 2018, the Board received technical comments from the Conservation Commission related to the proposed emergency access road (St. James Way) and the layout of the open space.*
25. *On August 20, 2018, the Board resumed the public hearing and the 31-lot Open Space Residential Development Plan was presented on behalf of the Applicant. The Board discussed long-term maintenance plans for the site's stormwater systems. With consent of the Applicant, the Board voted to continue the public hearing to September 17, 2018.*
26. *On September 17, 2018, and at the request of the Applicant, the Board voted to continue the public hearing without discussion to October 22, 2018. The Applicant granted the Board an extension of time to act on the applications until November 5, 2018.*
27. *On September 26, 2018, the Board received a revised Technical Review Memorandum from the Town of Westford Engineering Department.*
28. *On October 22, 2018, the Board resumed the public hearing to discuss the results of the transportation peer review. With consent of the Applicant, the Board voted to continue the public hearing to November 5, 2018.*
29. *On October 30, 2018, the Board received comments from the Parks and Recreation Department related to the open space proposed.*
30. *On November 5, 2018, and at the request of the Applicant, the Board voted to continue the public hearing without discussion to December 17, 2018. The Applicant granted the Board an extension of time to act on the applications until December 28, 2018.*
31. *On December 17, 2018, and at the request of the Applicant, the Board voted to continue the public hearing without discussion to February 4, 2019. The Applicant granted the Board an extension of time to act on the applications until February 26, 2019.*
32. *On February 4, 2019, and at the request of the Applicant, the Board continued the public hearing without discussion to March 4, 2019. The Applicant granted the Board an extension of time to act on the applications until March 22, 2019.*
33. *On February 8, 2019, the Board received revised plans and supporting information on behalf of the Applicant in response to comments from the Conservation Commission, the Planning Board and the Engineering Department.*
34. *On March 4, 2019, and at the request of the Applicant, the Board voted to continue the public hearing without discussion to March 18, 2019 to allow additional time for the Engineering Department to complete the review of revised materials. The Applicant granted the Board an extension of time to act on the applications until April 1, 2019.*
35. *On March 18, 2019, the Board resumed the public hearing where revised plans were presented on behalf of the Applicant. Said revisions included the addition of a new open space parcel, the diversion of stormwater runoff away from abutters, reconfiguration of the road and lot lines, and alterations to grading. A motion to reconsider the Board's previous vote to approve a conventional yield of 31 lots failed by a vote of 2-2. With consent of the Applicant, the Board voted to continue the public hearing to April 1, 2019. The Applicant granted the Board an extension of time to act on the applications until May 31, 2019.*
36. *On April 1, 2019, and as requested by the Applicant, the Board voted to continue the public hearing without discussion to May 20, 2019. The Applicant granted the Board an extension of time to act on the applications until June 21, 2019.*
37. *On May 2, 2019, the Board received a revised Technical Review Memorandum from the Town of Westford Engineering Department regarding the revised plans and the updated stormwater management report.*

38. *On May 10, 2019, the Board received a revised plan set and supporting information on behalf of the Applicant in response to the most recent Engineering Department memorandum.*
39. *On May 20, 2019, and as requested by the Applicant, the Board voted to continue the public hearing without discussion to June 3, 2019.*
40. *On June 3, 2019, as requested by the Applicant and to avoid fatal quorum issues, the Board voted to continue the public hearing without discussion to June 24, 2019. The Applicant granted the Board an extension of time to act on the applications until July 15, 2019.*
41. *On June 11, 2019, the Board received an updated Technical Review Memorandum from the Town of Westford Engineering Department with respect to the most recently revised plans.*
42. *On June 14, 2019, the Board received a revised plan set and supporting information on behalf of the Applicant regarding the Engineering Department's memorandum.*
43. *On June 24, 2019, the Board resumed the public hearing where the Applicant's engineer presented plan revisions and responded to concerns and comments from the Board and abutters. With the consent of the Applicant, the Board continued the public hearing to July 15, 2019.*
44. *On July 9, 2019, the Board received an updated Technical Review Memorandum from the Town of Westford Engineering Department regarding the most recently revised plan set.*
45. *On July 15, 2019, and as requested by the Applicant, the Board voted to continue the public hearing without discussion to August 5, 2019. The Applicant granted the Board an extension of time to act on the applications until September 30, 2019.*
46. *On July 24, 2019, the Board received revised plans and comments on behalf of the Applicant regarding the recent Engineering Department memorandum.*
47. *On July 25, 2019, the Board received an updated Transportation Engineering Peer Review from TEC, Inc.*
48. *On July 29, 2019, the Board received comments on behalf of the Applicant in response to TEC, Inc.'s Transportation Engineering Peer Review.*
49. *On August 2, 2019, the Board received a further Technical Review Memorandum from the Town of Westford Engineering Department.*
50. *On August 2, 2019, the Board received comments from the Health Department noting that each proposed septic system design would be reviewed for consistency with Title 5 and the Town of Westford Local Regulations.*
51. *On August 5, 2019, the Board resumed the public hearing where the Applicant's engineer presented revisions made to the plan and addressed the Board's comments and concerns. To address some of the concerns by a particular Board member, agreement was reached on behalf of the Applicant to revise plans to reduce the total number of lots by two, to improve access to open space, and to incorporate a meaningful trail system. To address concerns raised by another Board member, agreement was reached on behalf of the Applicant to provide suggested language for ensuring that the Town had the ability to monitor and enforce onsite activities that could result in offsite disturbances or increased stormwater or pollution. With the consent of the Applicant, the Board continued the public hearing to September 9, 2019.*
52. *On August 13, 2019, the Board received revised plans on behalf of the Applicant showing a reduction of two lots and a reconfiguration of lot lines.*
53. *On August 23, 2019, the Board received a letter on behalf of the Applicant addressing feasibility of off-site improvements.*
54. *On September 9, 2019, and as requested by the Applicant, the Board voted to continue the public hearing without discussion to October 7, 2019. The Applicant granted the Board an extension of time to act on the applications until October 30, 2019.*
55. *On September 19, 2019, the Board received preliminary waiver requests from the Westford Subdivision Rules and Regulations prepared on behalf of the Applicant.*
56. *On September 30, 2019, the Board received recommended conditions of approval prepared by the Engineering Department.*

57. *On October 3, 2019, the Board received a response from the Westford Water Department about comments dated August 23, 2019 regarding off-site improvements from the Applicant's engineer.*
58. *On October 7, 2019, the Board resumed the public hearing and revised materials were presented on behalf of the Applicant, including the addition of a trail system and incorporation of the Engineering Department's comments. The Board voted 4-0-1 (Bonenfant abstained) to instruct the Planning Staff to prepare a draft decision approving a 29-lot Open Space Residential Development. With the consent of the Applicant, the Board voted to continue the public hearing to November 18, 2019.*
59. *On November 18, 2019, and at the request of the Applicant and the Planning Department, the Board voted to continue the public hearing to December 2, 2019. The Applicant granted the Board an extension of time to act until January 31, 2020.*
60. *Unfortunately, the December 2, 2019 Planning Board meeting was cancelled due to inclement weather. Conspicuous notices were placed on the doors to Town Hall informing the public that the meeting had been cancelled and that all agenda items from the December 2, 2019 meeting would instead be scheduled for the December 16, 2019 meeting. Additionally, the Planning Board Chair was available at Town Hall at the appointed meeting time to provide additional notice of the cancellation and rescheduling of agenda items to December 16, 2019. No one from the public arrived.*
61. *On December 16, 2019, and at the request of the Applicant and the Planning Department, the Board voted to continue the public hearing without discussion to January 6, 2020.*
62. *On December 17, 2019, on behalf of the Applicant, the Board was provided with an updated list of requested waivers from portions of the Town of Westford Subdivision Rules and Regulations. (Refer to the Waivers section of this decision for more specific information.)*
63. *On December 20, 2019, the Board received updated plans on behalf of the Applicant.*
64. *On January 3, 2020, due to several complex legal issues at play, the Planning Staff reiterated their request to the Applicant to establish an escrow account pursuant to G.L. c.44, §53G to cover the Town's legal costs in connection with the Definitive Subdivision and Special Permit applications. This request was previously denied by the Applicant.*
65. *On January 6, 2020, and at the request of the Applicant and the Planning Staff, the Board voted to continue the public hearing without discussion to January 27, 2020. The Applicant granted the Board an extension of time to act on the applications until February 15, 2020.*
66. *On January 7, 2020, the Applicant agreed that a check would be provided to establish a legal escrow account, subject to affirmative votes by the Board to establish the escrow account and amount.*
67. *On January 27, 2020, the Board received comments from the Conservation Resource Planner regarding the Conservation Commission's preference for relocation of the emergency access road outside of the 100-foot wetland buffer zone.*
68. *At a special meeting on Monday, January 27, 2020, and pursuant to G.L. c.44, §53G, on a motion made by Hollister, seconded by Lavelle, the Board voted 4-0-0 to establish a legal escrow account in the amount of \$5,000.00 to cover the Town's legal costs in connection with review of the Definitive Subdivision and Special Permit draft decision and conditions of approval for the proposed Spalding Hill Estates development. Also, the Board voted 4-0-0 to determine their preference for a 29-lot Open Space Residential Development (OSRD) over a 31-lot Definitive Subdivision Plan. As part of this determination, the Board contemplated reduced setback requirements for Lots 1 to 28, and Lot 29, respectively. The Board considered a draft decision approving the application and with consent of the Applicant, voted to continue the hearing to March 2, 2020 to allow staff time to incorporate comments received to date.*
69. *On January 28, 2020, the Applicant granted the Board an extension of time to act on the applications until March 15, 2020.*

70. On February 27, 2020, a proposed plan for trail parking of three (3) trail parking spaces was provided on behalf of the Applicant.
71. On March 2, 2020, and at the request of the Applicant and Planning Staff, the Board voted to continue the public hearing to March 16, 2020. The Applicant granted the Board an extension of time to act on the applications until April 1, 2020.
72. Unfortunately, the March 16, 2020 Planning Board meeting was cancelled due to the closure of Town Hall because of concerns surrounding the spread of the COVID-19 virus. Conspicuous notices were placed on the doors to Town Hall informing the public that the meeting had been cancelled and that this agenda item would be continued to the Special Planning Board meeting of March 23, 2020. Additionally, the Director of Land Use Management was available at Town Hall at the appointed meeting time to provide additional notice of the cancellation and rescheduling of agenda items. No one from the public arrived.
73. On March 18, 2020, the Applicant granted the Board an extension of time to act on the applications until April 15, 2020.
74. Unfortunately, the March 23, 2020 Special Planning Board meeting was similarly cancelled due to the closure of Town Hall because of concerns surrounding the spread of the COVID-19 virus. Conspicuous notices were placed on the doors to Town Hall informing the public that the meeting had been cancelled and that this agenda item would be continued to the Planning Board meeting of April 6, 2020. Additionally, the Director of Land Use Management was available at Town Hall at the appointed meeting time to provide additional notice of the cancellation and rescheduling of agenda items. No one from the public arrived.
75. On March 30, 2020 a plan showing revised location of the emergency access road was submitted to the Board on behalf of the Applicant.
76. On April 6, 2020, and at the request of the Applicant and Planning Staff, the Board voted to continue the hearing to May 4, 2020 and the Applicant granted the Board an extension of time to act on the applications to May 15, 2020.
77. Throughout the public hearing process, opportunities were given to all those interested to be heard in favor of or opposition to the application. On May 4, 2020, the Board closed the public hearing and voted on the application.
78. At the request of the Planning Staff, the Applicant granted the Board extensions of time to act on the applications until August 26, 2020.
79. Included in the record before the Board are the following:
 - a. Applications for the OSRD Special Permit, Definitive Subdivision Approval, and Stormwater Permit, with accompanying materials;
 - b. Plan set entitled “Definitive Subdivision Open Space Residential Development, Spalding Hill Estates, Westford, Massachusetts” prepared for Connell Real Estate Trust, prepared by Alan Engineering, LLC., with an original plan date of July 20, 2018, and with latest revision date of December 9, 2019, and containing the following plan sheets:

Sheet 1	Title Sheet
Sheet 2	Existing Conditions Index Plan
Sheets 3-6	Existing Conditions Plans
Sheet 7	Definitive Subdivision Index Plan
Sheets 8-10	Definitive Subdivision Plans
Sheet 11	Grading and Drainage Index Plan
Sheets 12-15	Grading and Drainage Plans
Sheets 16-22	Roadway Profiles
Sheet 23	Storm Water Pollution Prevention Plan
Sheets 24-25	Erosion Control Plans
Sheet 26	Landscape Plan
Sheets 27-30	Construction Details

- c. Drainage report entitled “Stormwater Management Report, Spalding Hill Estates, Westford, MA” dated July 20, 2018, with latest revision date of May 10, 2019;
- d. Technical Review Memoranda prepared by the Town of Westford Engineering Department dated February 13, 2018; March 5, 2018; March 13, 2018; September 26, 2018; May 2, 2019; June 11, 2019; July 9, 2019; August 2, 2019; September 30, 2019;
- e. Staff Report dated February 3, 2017;
- f. Correspondence provided by Alan Engineering, LLC dated August 2, 2018; February 8, 2019; December 17, 2019; May 10, 2019; June 14, 2019; July 24, 2019; July 29, 2019; August 23, 2019;
- g. Memoranda from Conservation Resource Planner dated January 30, 2017; January 30, 2018; August 17, 2018; January 27, 2020;
- h. Correspondence from Health Department dated February 2, 2017; February 2, 2018; August 2, 2019;
- i. Correspondence from Water Superintendent dated August 9, 2018; October 3, 2019; November 27, 2019;
- j. Correspondence from TEC, Inc., traffic peer reviewer, dated August 10, 2018; July 25, 2019; July 31, 2019; and
- k. Legal Opinions from Town Counsel (KP Law) dated October 19, 2018; January 22, 2020.

FINDINGS AND DETERMINATIONS

In reviewing the application, the Board made the following findings and determinations:

1. Pursuant to Section 7.1.3 of the Town of Westford Zoning Bylaw, and at its special meeting on Monday, January 27, 2020, on a motion made by Hollister, seconded by O’Connor, the Board voted 4-0-0 to **determine** that the Board’s preference is for the 29-lot Open Space Residential Development, over a 31-lot Conventional Subdivision configuration. In reaching this determination, the Board noted that as compared to a conventional subdivision, the OSRD layout minimizes the total area of land disturbance, decreases the total amount of impervious area, preserves a significant amount of Open Space and Common Space parcels, and provides opportunities for the Board to impose numerous conditions of approval designed to protect the environment and mitigate concerns to abutters.
2. Pursuant to Section 7.1.5 of the Town of Westford Zoning Bylaw, the Board established the following minimum yard setback requirements for the Project:

Minimum Setback Requirements for Proposed Lots 1 through 28:

Front Yard:	20 feet (A reduction of 30 feet)
Side Yard:	15 feet (No adjustment)
Rear Yard:	30 feet (No adjustment)

In reaching the decision to authorize lesser setback requirements for proposed Lots 1 through 28, the Board noted that the provision of substantial areas of Open Space and Common Land came at the expense of reduced lot frontage and lot area requirements. The Board found that by reducing front yard setback requirements, proposed buildings could be sited closer to the street, thereby decreasing development at the rear of the lots and preserving more of the existing vegetated buffer on or adjacent to substantial slopes. The Board found that this encouraged better overall site planning, preserved more natural features, and retained more visual screening between proposed construction and abutting properties and nearby streets. The

Board required a minimum front yard setback of 20 feet to ensure that cars could be parked on the lot without encroaching into street rights-of-way.

Minimum Setback Requirements for Proposed Lot 29:

Front Yard: 20 feet (A reduction of 30 feet)
Side Yard: 15 feet (No adjustment)
Rear Yard: 45 feet (An increase of 15 feet)

In reaching the decision to authorize lesser front yard setback and greater rear yard setback requirements for proposed Lot 29, and in addition to the above findings for proposed Lots 1 through 28, the Board noted the following:

- That a proposed Lot 29 could be created without benefit of a Definitive Subdivision;
- That a proposed Lot 29 could be created without benefit of a Special Permit for an Open Space Residential Development;
- That a proposed Lot 29 derives practical access from St. Augustine Drive;
- That three of the five lot lines on proposed Lot 29 may be considered side lot lines, each being subject to a 15-foot setback, thereby allowing for a more flexible site layout and configuration;
- That a proposed Lot 29 could be created as a frontage lot through an Approval Not Required (ANR) Plan because its lot frontage and access is provided from existing frontage along St. Augustine Drive;
- That while proposed Lot 29 is set apart from most of the Open Space Residential Development, the Board does retain the discretion to authorize different setback requirements as part of the OSRD application;
- That proposed Lot 29 is characterized by substantial slopes, and by authorizing reduced front yard setback requirements, a single-family dwelling could be developed on the lot with significantly less grading and lesser impacts to the environment; and
- That a proposed Lot 29 which can benefit from lesser requirements for lot frontage, lot area and adjusted requirements for front and rear yards is preferable to a lot meeting the conventional requirements.

Open Space Residential Development (OSRD) Findings

(Criteria per §7.1.14 of the Zoning Bylaw)

1. ***That the OSRD will be in harmony with the general purposes of this chapter and the requirements of Chapter 40A of the General Laws and the long-range plan of the town (if any);***

The proposed OSRD shall be in harmony with the general purposes as set forth in Section 7.1.1 of the Zoning Bylaw. The subject property contains 43.6 acres in area, 40.4 of which are upland. Per §7.1.6, the development must provide 10,000 SF of dry common land or 6.7 acres in this development, and for each 25-units or fraction thereof one acre of land suitable for active recreation or 1.2 acres in this development. The proposed development provides 14.9 acres of dry common land (or 37% of all dry land in the subject property), 1.2 acres of which shall be reserved for recreational uses. The Applicant also agreed to a proposal made by Hollister to construct a trail that will provide passive recreational opportunities through wooded, undisturbed portions of common land behind proposed Lots 8 through 21.

A conventional single-family lot in the Residence A zoning district is required to have a minimum

lot area of 40,000 square feet (SF). To encourage more compact development and better overall site plan design, a minimum lot size of 20,000 SF is required in an OSRD. The Applicant proposes an average lot size of 24,390 SF under the current proposal. In this case, the reduced lot sizes in combination with the required common land means that more than 42% of the subject property (18.2 acres) shall be permanently protected open space or common land. By protecting this proportion of the subject property where development would otherwise be allowed under a conventional plan, the scenic and natural amenities on the site are protected while also preserving the function of the adjacent wetlands and woodland habitat. Wooded common land parcels shall surround the property, providing screening and noise buffering to abutting neighborhoods.

The OSRD does not derogate from the purpose or intent of MGL 40A and promotes a long-term goal of the town as outlined in the 2009 Comprehensive Master Plan to “Engage developers in protecting open space and natural resources and in providing recreation opportunities.”

The Board found that, as conditioned, the proposed OSRD satisfies this criterion.

2. **That the OSRD will not have a detrimental impact on the neighborhood;**

The Board reviewed the application with a focus on potential impacts to neighboring properties and adjacent wetlands, waterbodies, wildlife habitat and wooded areas. To ensure that these resource areas are protected throughout construction and in perpetuity, the Board considered the effect of many aspects of the proposed development. The Board noted that detrimental impact might take a variety of forms including increased stormwater runoff, degradation of wetlands and adjacent waterbodies, loss of habitat and natural vegetation, an increase in invasive plant species identified on site, as well as loss of scenic views. In consideration of these potential adverse effects, the Board sought input from multiple Town Departments, and imposed conditions of approval to address the following concerns:

- Requiring that septic systems be pumped not less than once every three (3) years to ensure that septic systems are adequately maintained and continue to function as designed;
- Establishment of “No Clear Zones” over portions of proposed Lots 2 through 6 to ensure that a vegetated buffer remains in place to mitigate concerns about land disturbance in proximity to substantial slopes;
- As compared to the conventional subdivision option, the more compact Open Space Residential Development, in combination with reduced setback requirements as authorized by the Board, will maintain an improved vegetated buffer between the Project and neighboring properties, thereby decreasing the visual impact of the Project;
- Requiring an Invasive Species Management Plan that addresses removal of existing invasive plant species, prevention of further spread and long-term management to ensure that invasive plant species are not relocated or spread during construction and allowed to propagate;
- Installation and maintenance of erosion controls throughout construction will protect adjacent wetlands, open space and neighboring properties;
- As conditioned, the Project will benefit from third-party inspectors acting on behalf of the Town to ensure continued compliance and follow-through with construction requirements and inspection and maintenance of erosion controls;
- As conditioned, and prior to issuance of any building permits, the Applicant shall submit specialized plot plans for review and approval by the Town to verify that the lot design is consistent with the approved subdivision plans used to size the stormwater management system; and

- *As conditioned, and prior to issuance of certificates of occupancy, the Applicant shall submit specialized as-built plans for review and approval by the Town to verify that the as-built lot condition is consistent with the approved subdivision plans used to size the stormwater management system.*

The Board finds that, as conditioned, and as compared to a 31-lot conventional subdivision, the 29-lot OSRD will not have a detrimental effect on the neighborhood.

3. ***That the OSRD will be designed with due consideration for health and safety;***
The OSRD is consistent with the criteria in the Town’s Stormwater Management Regulations, the MassDEP Stormwater Management Handbook and generally acceptable stormwater management design and practices and has been reviewed by the Town’s Engineering Department. The project benefitted from third-party transportation peer review to ensure that the development would be safe for pedestrian and vehicular traffic. As conditioned, a sidewalk will be provided throughout the development to foster safe circulation for pedestrians. The Board finds that, as conditioned, the proposed OSRD meets this criterion.
4. ***That the OSRD is superior to a conventional plan in preserving open space, minimizing environmental disruption, allowing for more efficient provision of services;***
The OSRD reduces the minimum lot size requirement from 40,000 square feet for a conventional subdivision plan to 20,000 square feet for an OSRD, which allows more of the site to be protected as Open Space or Common Land. The Board found that the OSRD, through the reduction of impervious areas and the retention of more vegetated buffer areas within the 29-lot Project, is superior to a 31-lot conventional project because it minimizes land disturbance and stormwater impacts and preserves more of the rural character of the neighborhood. The Board found that the OSRD design minimizes impact to adjacent wetland resource areas while providing passive recreational opportunities to residents through the installation of a trail system. For these reasons, the Board finds that the OSRD, as conditioned, satisfies this criterion.
5. ***That the OSRD allows for greater variety in prices or types of housing;***
The Applicant submitted a Variety of Housing Plan to ensure that the Project offers a variety of housing pricing, housing types, architectural styles, building areas and that at least some of the dwellings will be designed to accommodate single-level living on the first floor. The Board further finds that conditioning the Project to include a variety of maximum allowable gross floor areas would result in a corresponding variety of housing prices. As so conditioned, the Board found that the OSRD satisfies this criterion.
6. ***That the OSRD meets the specific requirements identified above.***
The Board finds that the lots conform to minimum lot size, frontage and setback standards as required under §7.1. The Board finds that the Applicant provides the required open space and common land under an OSRD plan and that the design as proposed is superior to the conventional plan in protecting the environment, preserving land in a natural state, and providing passive and active recreational opportunities to residents.

Additional Special Permit Findings (Criteria from Section 9.3.2 of the Zoning Bylaw)

The Board finds that the Applicant has met all the Special Permit criteria for the Project as set forth in Section 9.3.2 of the Town of Westford Zoning Bylaw.

1. ***Social, economic, or community needs which are served by the proposal;***

The Spalding Hill Estates Project (Project) was designed in accordance with the requirements of the Open Space Residential Development Bylaw. The Project provides for the construction of twenty-nine (29) single-family dwellings with a variety of pricing and housing types. The Project serves to permanently protect approximately 12.44 acres of Open Space and approximately 18.17 acres of Common Land, of which approximately 1.2 acres is set aside for recreational purposes. The proposal also results in the preservation of an existing horse farm which will help to maintain the agricultural and rural character of the neighborhood.

Social: The compact design, generous open space parcels, preserved parcels of common land, and appurtenant roads, sidewalks and trail systems will provide numerous social, recreational and health benefits by encouraging residents to walk and interact with other residents and to appreciate the environment. Common Land Parcel C will provide an attractive location for residents to gather and socialize.

Economic: The reduced lot sizes and compact development allows for a more efficient layout of the subdivision which will substantially lower both construction and long-term maintenance costs. Consequently, the Applicant, lot owners and Town may all realize substantial savings. The Project will also provide short-term construction employment opportunities.

Community: The Project is consistent with the rural and agricultural character and landscape and traffic patterns of the surrounding community. Acres of open space land that have value for wildlife habitat and important views or visual buffers from existing roads will be protected and preserved. The Board found the OSRD design to be an acceptable alternative to the conventional residential design.

For these reasons, the Board finds that, as conditioned, the OSRD will satisfy this criterion.

2. Traffic flow and safety, including parking and loading;

The Project benefitted from third-party transportation peer review services to ensure that concerns relative to traffic flow and safety were adequately addressed. Proposed sidewalks will clearly separate the spaces used by pedestrians and automobiles. The sidewalks will improve safety in the development and make neighborhoods more inviting for residents to walk around and meet neighbors. The Board imposed conditions of approval for the provision and maintenance of emergency access, maintaining sight distance, and cautionary signage to improve traffic flow and safety.

For these reasons, and as conditioned, the Board found that this criterion is satisfied.

3. Adequacy of utilities and other public services;

Public services and underground utilities shall be available to serve the Project and are included in the design plans. Individual house lots shall be serviced by private onsite septic systems. The Board of Health shall review the septic system designs to ensure compliance with local and state requirements for the protection of the public health. The Board found the OSRD design to be an acceptable alternative to the conventional residential design.

For these reasons, and as conditioned, the Board found that this criterion is satisfied.

4. Neighborhood character and social structures;

The Project is compatible with other uses and developments in the surrounding Residence A Zoning District. The Project seeks to maintain and preserve the rural character of the Town of Westford by allowing an alternative residential development option which preserves a large

area of open space and provides for visual buffers from existing roads and residential developments. Open space buffers and “No Clear Zones” between the new house lots and abutting properties are provided. Existing trees, large rocks and stone walls shall be maintained to the extent practicable, except those which must be removed for construction of the infrastructure and dwellings. The relative proximity of residents to each other will enable neighbors to become acquainted and to develop a sense of community. The Board found the OSRD design to be an acceptable alternative to the conventional residential design.

For these reasons, and as conditioned, the Board found that this criterion is satisfied.

5. Impacts on the natural environment;

The Spalding Hill Estates OSRD is superior to a conventional plan in preserving open space, minimizing environmental disruption, and allowing for more efficient provision of services. This less sprawling and more efficient form of development consumes less open land and better conforms to existing topography and natural features than a conventional subdivision development. Setting aside open space minimizes the impact of development on the environment. The Project benefits from concurrent review for a Stormwater Management Permit from the Planning Board. Thus, while the Project will create additional impervious surfaces, the Spalding Hill Estate OSRD stormwater management facilities are designed to mitigate the additional stormwater runoff and to protect the water quality within the adjacent resource areas. In addition, the Project provides buffers of undisturbed natural vegetation to protect wetlands, streams and other adjacent open lands. The Applicant has sited proposed improvements to minimize site disturbance and to maximize separation from wetland resource areas. The Board found the OSRD design to be an acceptable alternative to the conventional residential design. For these reasons, and as conditioned, the Board found that this criterion is satisfied.

6. Potential fiscal impact, including impact on town services, tax base, property values, and employment.

The Spalding Hill Estates OSRD plan permanently preserves approximately 12.46 acres of Open Space and approximately 18.17 acres of Common Land, of which approximately 1.2 acres is set aside for recreational purposes. This compact development reduces the impact to the environment and demand on town services by decreasing the length of roadway by approximately one thousand feet (1000') which would be required for a conventional plan, facilitates the construction and maintenance of housing, roads and utilities, allows for public services in a more economic and efficient manner, and situates the proposed improvements so as to maximize separation from wetland resource areas. The Project will provide new housing by way of 29 additional single-family dwellings, thereby expanding the inventory of housing available in Westford, and add to the tax base through additional property tax revenues. The Project's permanently protected open space, common land and “No Clear Zones” will benefit the residents, the abutters and the larger community by enhancing quality of life and property values for all. Businesses rank the attractiveness and quality of life of a community very high when choosing a location, so these factors may help to attract economic development in Westford, which could increase employment opportunities for Westford residents. The Board found the OSRD design to be an acceptable alternative to the conventional residential design.

For these reasons, and as conditioned, the Board found that this criterion is satisfied.

CONDITIONS OF APPROVAL

Conditions of Approval – Administrative:

To ensure clarity regarding the administration of the Special Permit approval, the Planning Board imposes the following conditions of approval:

1. As used herein, the term "Applicant" shall mean the Applicant, its heirs, successors and assigns. The term "Board" as set forth herein shall mean the Westford Planning Board. The provisions of this approval shall apply to and be binding upon the Applicant, its employees and all successors and assigns in interest or control.
2. In addition to the conditions expressly set forth below, the grant of this Special Permit is subject to the terms and conditions set forth in the Stormwater Management Permit and the Certificate of Definitive Subdivision Approval for Spalding Hill Estates, copies of which are appended to this Decision, whether or not said terms and conditions are explicitly repeated in this Special Permit Decision.
3. Prior to commencing any construction activity, the Applicant shall record in the Middlesex North Registry of Deeds this Special Permit Decision, together with the Stormwater Management Permit, the Certificate of Definitive Subdivision Approval for Spalding Hill Estates and the endorsed Definitive Subdivision Plans, and provide evidence of such recordings to the planning staff and the Building Commissioner.
4. Prior to exercising this Special Permit or any of the related approvals for the Spalding Hill Estates OSRD development project, the Applicant shall secure the Board's Approval for Modification of the St. Augustine Drive Definitive Subdivision in order to make improvements (such as street widening, slope adjustments, installation of a sidewalk, changes to drainage and landscaping, etc.) as requested by the Highway and Engineering Departments to accommodate the changing street classification for a portion of St. Augustine Drive from a Minor Street to a Secondary Street.
5. Pursuant to Section 9.3.6 of the Town of Westford Zoning Bylaw, this Special Permit shall lapse if a substantial use thereof or construction thereunder has not begun, except for good cause, within twenty-four (24) months following the filing of this Special Permit decision with the Town Clerk (plus such time required to pursue or await the determination of an appeal referred to in M.G.L. Chapter 40A Section 17, from the grant thereof). To clarify the Board's expectations, the following shall constitute as exercising substantial use of the Special Permit Approval:
 - a. Recording this Special Permit Decision at the Middlesex North Registry of Deeds; and
 - b. Recording the Board's decision and final endorsed Definitive Subdivision Plans at the Middlesex North Registry of Deeds; and
 - c. Securing Approval for the Modification to the St. Augustine Drive Definitive Subdivision to make improvements (such as street widening, slope adjustments, installation of a sidewalk, changes to drainage and landscaping, etc.) as requested by the Highway and Engineering Departments to accommodate the changing street classification for a portion of St. Augustine Drive from a Minor Street; to a Secondary Street and
 - d. Recording the Board's decision and final endorsed plan Modifying the St. Augustine Drive Definitive Subdivision at the Middlesex North Registry of Deeds; and
 - e. Installation of the proposed water system extension from the intersection of St. Augustine Drive (at approximately STA 7+50) and St. Paul Lane to the intersection of St. Paul Lane (at approximately STA 10+00) and St. James Way (STA 0+00), to the intersection of St. James Way (STA 7+00) and Dunstable Road, and along Dunstable Road to connect to the existing water main near the intersection of Groton and Dunstable Roads.

The above list of actions is not intended to restrict the Board or Building Commissioner from making additional determinations as to what activities shall constitute as exercising substantial use of the Special Permit Approval.

6. *Prior to any conveyance of proposed Lots 1 through 28, the Applicant shall establish a Homeowners' Association and record a Declaration of Covenants and Restrictions, to be reviewed and approved by Town Counsel at the expense of the Applicant, to ensure the following:*
 - a. *That the emergency access roadway identified as St. James Way shall be privately maintained in perpetuity by the OSRD Homeowners' Association, including snow removal, to ensure that emergency vehicles can use said roadway for the intended purpose year-round.*
 - b. *That the emergency access roadway which commences at St. Augustine Drive at approximately STA 13+15, then travels across Lot 28 and Open Space Parcel A (with benefit of a proposed 30-foot wide access and utility easement) to St. Paul Lane at approximately STA 27+12 (between Lots 21 and 22) shall be privately maintained in perpetuity by the OSRD Homeowners' Association, including snow removal, to ensure that emergency vehicles can use said roadway for the intended purpose year-round.*
 - c. *That except for the closed drainage system (i.e. catch basins, drain manholes and drain pipes) located within public rights-of-way, the OSRD Homeowners' Association shall be responsible for the operation, maintenance and reporting requirements for the subdivision's stormwater management system.*
 - d. *That the OSRD Homeowners' Association shall perform annual maintenance (pruning, trimming, mowing, etc.) within the sight distance easement areas along Dunstable Road and keep said areas free from obstructions that would reduce, limit or impede sight lines to ensure that adequate sight distance is maintained for the St. James Way emergency access road.*
 - e. *That the OSRD Homeowners' Association shall own and maintain the Open Space and all other common land and facilities in the OSRD in accordance with this Special Permit.*
7. *Proposed Lot 29, which derives its frontage, practical access and municipal utilities from St. Augustine Drive, shall be included in the St. Augustine Drive Landowners Trust Homeowners' Association and shall be subject to an "Amended and Restated Declaration of Road Covenants and Restrictions" for St. Augustine Drive recorded in Book 27953, Page 199 at the Middlesex North Registry of Deeds, an "Amended and Restated Road Maintenance Agreement" for St. Augustine Drive recorded in Book 27953, page 220 at the Middlesex North Registry of Deeds and an "Amended and Restated Protective Covenants" for St. Augustine Drive recorded in Book 27953, Page 247 at the Middlesex North Registry of Deeds.. The Planning Board neither requires nor expects that said Lot 29 will be included in the OSRD Homeowners' Association. However, the Lot 29 owner shall be required to adhere to the same septic system pumping and drainage inspection requirements as Lots 1 through 28 and shall pay a proportionate cost for said pumping and inspections to the OSRD Homeowners' Association.*
8. *All deeds conveying ownership from the Applicant to Lot Owners shall refer to this Special Permit Decision, the Board's Decision and endorsed Definitive Subdivision Plans, the Stormwater Management Permit, and the Declaration of Covenants and Restrictions. Such deeds shall also make explicit references to restrictions regarding impervious areas, stormwater limitations, and the use of pesticides, herbicides and deicing materials as specified in the Stormwater Management Permit.*
9. *By exercising this Special Permit, the Applicant authorizes the Board or its agent(s) to enter onto and inspect the subject property, during construction, during regular business hours, to ensure compliance with the terms of this Decision, subject to applicable safety requirements. After completion of construction, the Town's inspection officials shall be permitted with prior written notice to enter the common areas of the property for purposes of ensuring compliance*

with the conditions of this Decision and any other applicable permits, regulations, bylaws and statutes.

10. The Applicant is advised to secure all necessary approvals from the Town of Westford Conservation Commission and Board of Health.

Conditions of Approval – St. Augustine Drive:

Whether any portion of St. Augustine Drive is accepted as a public way either prior to, during, or after completion of construction of the Spalding Hill Estates subdivision, to protect the owners of land fronting on St. Augustine Drive, and to ensure that adequate access to the Spalding Hill Estates subdivision is maintained throughout the entire construction process, the Board imposes the following conditions of approval:

11. Planning Board approval of the Spalding Hill Estates Definitive Subdivision application requires that the Applicant make necessary offsite improvements to St. Augustine Drive, the private way which provides primary access to the Spalding Hill estates OSRD project. Although the approved Definitive Subdivision Plan for Spalding Hill Estates depicts proposed improvements to St. Augustine Drive as recommended by the Highway and Engineering Departments (refer to plan sheets 11, 14 and 21 of 30), Modification of the St. Augustine Drive Definitive Subdivision Plan was not included as part of the Spalding Hill Estates Definitive Subdivision application. The proposed improvements to St. Augustine Drive will necessitate Board approval of modifications to the approved St. Augustine Subdivision in accordance with MGL Chapter 41 Section 81W.
12. Prior to issuance of any Building Permits for proposed Lots 1 through 27 at Spalding Hill Estates, the Applicant shall obtain approval of the necessary modifications to St. Augustine Drive and shall complete any improvements required for that portion of St. Augustine Drive which is providing access to or servicing part of the Spalding Hill Estates subdivision. This condition is not intended to prevent securing the completion of required improvements that are not essential for safety purposes (such as street trees, shrubs, etc.) through an escrow or other surety. Neither is this condition intended to prevent construction at proposed Lots 28 and 29 on St. Augustine Drive.
13. Prior to issuance of any Building Permits for proposed Lots 1 through 27 at Spalding Hill Estates, the Applicant shall secure a Street Opening Permit from the Highway Department for that portion of St. Augustine Drive intended to become public (whether public or private at the time of seeking Building Permits). The Applicant shall be required to provide photographic evidence to the satisfaction of the Highway Department to adequately document the condition of St. Augustine Drive prior to construction of the Spalding Hill Estates subdivision. The Applicant shall post a surety to the satisfaction of the Highway Department to guarantee that damage caused to St. Augustine Drive resulting from the construction of the Spalding Hill Estates subdivision shall be repaired.
14. The Highway Department may require the Applicant to secure an updated (or secure a) Street Opening Permit if St. Augustine Drive is accepted as a public way after the initial Street Opening Permit is issued.
15. Prior to issuing any Building Permits for proposed Lots 1 through 27 at Spalding Hill Estates, the Emergency Access Road providing access between St. Augustine Drive and St. Paul Lane (through a 30-foot wide access and utility easement), all appurtenant drainage measures and gates shall be installed to the satisfaction of the Engineering, Fire and Highway Departments.
16. Prior to any construction of improvements to St. Augustine Drive, the Applicant shall provide notification of the work to be conducted and any anticipated road closures or detours to all St. Augustine Drive lot owners. The Applicant shall install any related signage as required by the Highway Superintendent.

17. *During such times as access from Groton Road to St. Augustine Drive is prevented because of the reconstruction of St. Augustine Drive, the owners and residents of St. Augustine Drive and their invitees, shall have temporary access through St. James Way and St. Paul Way, but not at any other times. At the direction of the Highway Superintendent, the Applicant (at their own expense) shall secure police details to ensure adequate safety during any time period that St. Augustine Drive is closed. Unless specifically authorized by the Highway Superintendent, St. Augustine Drive shall only be closed between the hours of 7 a.m. and 5 p.m. Unless specifically authorized by the Highway Superintendent, St. Augustine Drive shall not be closed for portions of more than five (5) days. For purposes of this condition, “closed” shall not be construed to mean closure of only a single lane of traffic.*
18. *Handicap ramps and new curbing have been installed at the existing St. Augustine Drive entrance at Groton Road as part of the Groton and Dunstable Roads intersection improvement project which is currently underway. The Applicant shall be responsible for reconstructing the handicap ramps and modifying the curb radii, if necessary, to match the St. Augustine Drive widening required as part of the Spalding Hill Estates subdivision.*

Conditions of Approval – Variety of Pricing and Housing Types:

In exercising their discretion to grant the Special Permit for an Open Space Residential Development, and to ensure that the project will be consistent with the requirements of Section 7.1.14(5) of the Town of Westford Zoning Bylaw, the Planning Board imposes the following condition of approval:

19. *Dwellings to be constructed at proposed Lots 1 through 27 shall be constructed in substantial conformance with the Variety of Housing Plan attached as Exhibit A to this Decision. This plan ensures that there will be a range in gross floor areas of proposed dwellings which will likely result in a corresponding range of pricing. This plan also provides specific guidance as to how homes with similar footprints may be modified to create some variety in appearance. The purpose of the included Lotting Plan, which depicts those lots with area requirements, is to facilitate review by the Town’s permitting staff to ensure careful tracking and compliance with this condition of approval. The Applicant may make non-substantive changes to the Lotting Plan with the submission of a revised Lotting Plan with an appropriate revision date to the Planning and Building Departments. For purposes of this condition, “non-substantive” shall mean any rearrangement (or swap) of area requirements such that the intention of having a minimum number of dwellings of each area requirement is unaffected. Substantive changes to the Lotting Plan (such as changing the number of lots which are subject to the area requirements or changing the area requirements itself) shall require a majority vote of the Planning Board.*

Conditions of Approval – Water System:

To ensure that adequate municipal water (both water quality and water pressure) will be provided to the development, the Planning Board imposes the following conditions of approval as recommended by the Town of Westford Water Department and as agreed to by the Applicant:

20. *Prior to issuance of any certificates of occupancy for Lots 1 through 27, the Applicant shall secure a Water Service Connection Agreement from the Town of Westford Water Department.*
21. *Prior to issuance of certificates of occupancy for Lots 1, 2, 3, 4, 5, 6, 7, 25, 26 and 27, the Applicant shall provide and install approximately six hundred and twenty (620) feet of 12-inch diameter cement-lined ductile iron water main piping between the intersection of St. James Way and Dunstable Road and the intersection of Dunstable and Groton Roads, including all bends and fittings and connection to the Town’s water main in Dunstable Road.*
22. *Prior to issuance of certificates of occupancy for Lots 1, 2, 3, 4, 5, 6, 7, 25, 26 and 27, the Applicant shall trench and backfill water services to each existing or potential building lot along*

- the length of the new water line on Dunstable Road. The Town of Westford Water Department volunteered to provide and install all service piping, service taps, fittings and curb stops for work either within or to within ten (10) feet of the Dunstable Road right-of-way.*
23. *The Applicant shall not perform any work in connection with the Dunstable Road water system extension and installation of appurtenant water services outside the Dunstable Road right-of-way without written permission from the affected property owners. In any case, such work shall be limited to not more than ten (10) feet beyond the limits of a Town right-of-way.*
 24. *The Applicant shall install fire hydrants in connection with the aforementioned water system extension project at locations along St. Paul Lane, St. James Way and Dunstable Road at locations to be approved by the Fire and Water Departments. The Town of Westford Water Department volunteered to provide fire hydrants, associated tees, valves, piping and fittings located either within or to within ten (10) feet of the Dunstable Road right-of-way.*
 25. *Upon completion of the aforementioned water system extension project in Dunstable Road and prior to issuance of certificates of occupancy for Lots 1, 2, 3, 4, 5, 6, 7, 25, 26 and 27, the Applicant shall restore the Dunstable Road pavement in accordance with the Town of Westford Standards for Street and Sidewalk Excavations. The Applicant shall not be required to pave beyond the limits of the water line and services trenches. The Westford Water Department has agreed to pave the final 1½ inch full width overlay of Dunstable Road as required by the standards.*
 26. *Pursuant to the Massachusetts Wetlands Protection Act (310 CMR 10.00) and the Town of Westford Non-Zoning Wetlands General Bylaw (Chapter 171: Wetlands), the Applicant is advised to submit applications and secure approvals for work as outlined above.*
 27. *Water infrastructure on private property shall remain forever private, and the Town of Westford Water Department shall not have, now or ever, any legal responsibility for its operation, maintenance, repair or replacement.*
 28. *Water mains and hydrants shall be maintained by the owner in accordance with the Rules and Regulations of the Westford Water Department. The Owner shall allow the Water Department access to the Property for emergency maintenance and repair, if necessary, of said mains and hydrants at the rates specified in the Rules and Regulations of the Westford Water Department.*
 29. *The Applicant shall minimize nonessential water use for irrigation purposes. Drought-resistant native grasses and plantings requiring little or no irrigation are highly encouraged.*
 - a. *Any in-ground irrigation systems connected to the municipal water system shall be registered with the Water Department. A fee may be charged for this registration. Registration fees shall be set by the Board of Water Commissioners. The Board of Water Commissioners may require inspection of such irrigation systems.*
 - b. *Any in-ground irrigation systems shall be equipped with a timing device that can be set to make the system conform to the Water Department's nonessential outdoor water use restrictions. During a State of Water Supply Emergency or State of Water Supply Conservation the timing device must be set to conform to the daily and hourly nonessential outdoor water use restrictions. Furthermore, the system shall be equipped with a rain sensor and/or soil moisture-sensor device, to prevent the system from starting automatically when not needed. Proof of this installation shall be provided to the Board of Water Commissioners at the time of registration.*
 - c. *Any in-ground irrigation system shall be plumbed so that a shutoff valve is located outside the building and situated so that it may be shut off and locked out if found to be in violation of the Water Department's nonessential water use restrictions. For the purposes of this section only, Police Officers of the Town and/or Agents of the Board of Water Commissioners may enter upon any property to enforce this section.*
 - d. *All in-ground irrigation systems connected to the municipal water system shall be protected from backflow events by the installation of a backflow prevention device approved by the*

Board of Water Commissioners. Each backflow prevention device shall be registered with the Board of Water Commissioners and must be tested by a Licensed Massachusetts Backflow Inspector in accordance with 10 CMR 22.22 and the Water Department's Cross Connection Control Program.

Conditions of Approval – Environmental Protection:

In exercising their discretion to grant the Special Permit, and to address concerns relative to erosion, stormwater, preservation of groundwater quality and general protection of the environment, the Planning Board imposes the following conditions of approval:

30. *Upon commencement of construction activities, the Applicant shall inspect and ensure that all required erosion control measures (which may vary over time) are in place and in good working order by the end of each work day.*
31. *Erosion control features shall be promptly removed following satisfactory permanent stabilization of the site and with the approval of the Engineering Department or their agent. The Applicant shall remove erosion control features within two (2) weeks if directed by the Engineering Department.*
32. *Only clean fill shall be used for the project. Clean fill shall be free from trash, debris, asphalt, brick, concrete, metal, wood, plant materials, recycled construction materials and other deleterious materials.*
33. *The OSRD Homeowners' Association shall have the septic systems for proposed Lots 1 through 28 pumped not less than once per every three (3) calendar years by a septic hauler licensed by the Town of Westford Board of Health. This requirement shall be incorporated into the required OSRD Homeowners' Association documents. The owner of Lot 29 on St. Augustine Drive shall have their septic system pumped not less than once per every three (3) calendar years by a septic hauler licensed by the Town of Westford Board of Health.*
34. *The application of Phosphorus Containing Fertilizer to Lots 1 through 29 shall be limited in accordance with the restrictions set forth in 330 CMR 31.05. Pursuant to 330 CMR 31.02, Phosphorus Containing Fertilizer is defined as "Fertilizer labeled for use on lawn or non-agricultural turf in which the available phosphorus content is greater than 0.67% by weight, excluding organic compost and natural organic fertilizer." The Phosphorus Containing Fertilizer restriction shall be incorporated into the OSRD Homeowners' Association documents and conspicuously noted in each deed for the individual lots. While the previous condition is applicable to proposed Lot 28 (the "Farm" lot) for lawn or non-agricultural turf areas, any portions of Lot 28 consisting of Agricultural Land shall be subject to the provisions of 330 CMR 31.04. To prevent unnecessary disturbance or encroachments onto adjoining properties during construction, the Applicant shall have the following staked and clearly demarcated in the field by a licensed Professional Land Surveyor where work is proposed to within ten (10) feet of any of the following:
 - a. *The subdivision boundary;*
 - b. *No Clear Zones;*
 - c. *Wetland buffer zones;*
 - d. *The 30-foot Wide Access & Utility Easement between St. Paul Lane and St. Augustine Drive;*
 - e. *Open Space Parcels A & D;*
 - f. *Common Space Parcels B, E, F, G, H, J & M; and*
 - g. *The southerly limits of the Temporary Grading Easement associated with the construction of St. James Way.**

Conditions of Approval – PreConstruction, Construction, Inspection and Notification Requirements:

To ensure an orderly construction process, to establish clear expectations and to foster good communication between the Town, Applicant and affected neighbors throughout the construction process, the Planning Board imposes the following conditions of approval:

35. The Applicant shall use reasonable means to minimize inconvenience to residents in the general area. Exterior construction, other than emergency work or finishing cement, shall not commence on any day before 7:00 a.m. and shall not continue beyond 6:00 p.m.; provided, however, that exterior construction shall not commence on Saturdays before 8:00 a.m. and shall not continue beyond 6:00 p.m. Except for emergency work and/or exceptions approved in advance in writing by the Building Commissioner, there shall be no exterior construction on any Sunday or state or federal legal holiday. Hours of operation shall be enforced by the Police Department. For this condition, construction activities shall include, but not necessarily be limited to: start-up of equipment or machinery, removal of trees; grubbing; clearing; grading; filling; excavating; import or export of earth materials; installation of utilities both on and off the site; demolition of existing structures; removal of stumps and debris; and erection of new structures. Deliveries shall not commence before 5:30 a.m.
36. Prior to commencement of construction including any site work, the Applicant shall provide, and update as necessary, to the Building Commissioner and Town Planner:
 - a. The company affiliation, name, address, email and telephone number including 24-hour contact information of the construction manager who shall have overall responsibility for all construction activities for the project;
 - b. Certification from the Applicant that all required federal, state and local licenses and permits have been obtained;
 - c. Proof that "Dig-Safe" has been notified at least 72 hours prior to the start of any site work (can be provided for each Phase);
 - d. Proof that street signage or other temporary signage is in place to ensure that emergency personnel can locate the site to provide emergency services to protect and secure the site and construction personnel (can be provided for each Phase); and
 - e. Provide at least 48-hour written notice of commencement of construction activities. If construction activities cease for longer than thirty days, the Applicant shall again provide a 48-hour written notice prior to restarting work.
37. Not less than 14 days prior to commencement of construction activities in support of the anticipated modifications to St. Augustine Drive, the Applicant shall provide written notice of proposed construction activities with tentative schedule to all owners and lessees of lots (or portions thereof) which rely on St. Augustine Drive for practical access. The Applicant shall copy the Planning Department on said correspondence. Not less than 14 days prior to commencement of construction activities associated with the emergency access road (identified on the plans as St. James Way), the Applicant shall provide written notice of proposed construction activities with tentative schedule to the owners of lots identified as #48 Dunstable Road and #58 Dunstable Road. The Applicant shall copy the Planning Department on said correspondence.
38. In the event construction activities cease for a period of 30 days or more, any disturbed areas shall be loamed and seeded. The disturbed areas shall be stabilized within the same growing season the work occurs and no later than September 15 to ensure adequate growth within the growing season. Any areas not satisfactorily stabilized by December 1 shall be temporarily stabilized during the winter months using erosion control blankets, jute netting and/or straw mulch.

39. Any proposed retaining wall greater than four (4) feet in height shall be designed and stamped by a structural engineer prior to construction. All retaining wall designs shall be submitted to Building and Engineering Departments for review and approval prior to construction.
40. Throughout the construction process, the Applicant shall be responsible for securing and installing any signage or other temporary traffic controls deemed necessary by the Highway Department.
41. Prior to issuance of certificates of occupancy for Lots 10 through 21, the Applicant shall install the required 20 MPH advisory speed signs at St. Paul Lane.
42. All street signs and posts shall conform to the most recent edition of the Manual on Uniform Traffic Control Devices (MUTCD) and Town of Westford standards.
43. Blasting, if any, shall be performed in accordance with regulations of the Commonwealth of Massachusetts, 527 CMR. 1.00 MA Comprehensive Fire Safety Code and in accordance with any existing written regulations of the Westford Fire Department related to blasting. The Applicant shall not use explosives containing perchlorate. Any blasting activity at the site must conform to the requirements of the Westford Fire Department, the State Fire Marshall's Office and any other appropriate regulatory official. Additionally, the Contractor shall be responsible for seismograph monitoring, notification to neighbors within the immediate work area prior to blasting and posting a fire detail on the site. If blasting is required for site construction, the following steps will be taken to monitor/rectify any potential damage as a result of the blasting:
 - a. Prior to the start of any blasting activities, the Applicant shall provide documented inspections, i.e. videotaping, of any foundations or pools within four hundred (400) feet of any expected blast areas;
 - b. The Applicant shall provide pre and post blasting water quality testing for all residents within 400 feet of any expected blast area in the subject property prior to the start of any blasting. Water quality testing, including Coliform Bacteria, Nitrate/Nitrite, Hardness, pH, Sodium, Chloride, Iron, Manganese, Lead, Copper, Arsenic, Fluoride, Radon, Uranium, Volatile Organic Chemicals (VOCs) and Methyl tertiary butyl ether (MTBE) and a specific capacity/short term pumping test shall be included in this testing;
 - c. The Applicant or their hired contractors, shall notify those residents within 400 feet of any expected blast area, when blasting will begin on the site and will again notify them when all blasting is completed;
 - d. Blasting hours will be limited between 8:00 a.m. to 4:00 p.m., weekdays only, and excluding state and federal legal holidays;
 - e. The Applicant shall rectify those problems that are proven to be as a result of blasting on the subject property, i.e., foundation cracking and deterioration in water quality of abutting properties;
 - f. The use of any perchlorate blasting material is prohibited; and
 - g. Hours of operation pertaining to air hammering or similar practices shall be limited to Weekdays only, between the hours of 8:00 a.m. through 4:00 p.m., and excluding state and federal legal holidays.
44. The locations of all plantings within Parcel C (common land) are subject to review and approval of the Tree Warden.
45. Vegetation along all subdivision roads and at all subdivision intersections shall be consistently maintained to ensure adequate sight lines are maintained. There shall be no walls, fences, or other physical obstructions installed in any location, on public or private property, that obstructs or reduces sight distance below the required minimum.
46. The Applicant shall secure Street Opening Permits for all work within any public rights-of-way. All proposed pavement restoration work shall be in accordance with the Town of Westford Standards for Street and Sidewalk Excavations. The Applicant shall review the location of all

signs, curbing and pavement markings with the Westford Highway Superintendent prior to installation.

47. Prior to construction, a draft maintenance agreement complying with the requirements of the Stormwater Management Regulations including Sections 6.H, 6.K and 12.0 shall be submitted to the Town of Westford Engineering Department for review and approval. The final approved maintenance agreement shall be recorded at the Middlesex North Registry of Deeds prior to the first certificate of occupancy being issued for Lots 1-28. A separate maintenance agreement shall be required for Detention Basin 3B if it is intended for that basin to be owned and maintained by the owner of Lot 28.

Conditions of Approval – St. James Way:

To ensure that the proposed emergency access road (identified on the plans as St. James Way) located between St. Paul Lane and Dunstable Road shall be principally restricted to the intended purpose of providing emergency access, shall be adequately maintained year-round, and that the limited access to said way shall be adequate with respect to sight distance and pedestrian purposes, the Planning Board imposes the following conditions of approval:

48. The emergency access roadway identified as St. James Way on the approved plan is intended to be a PRIVATE way in perpetuity. The OSRD Homeowners' Association shall assume all ownership, responsibility and liability for said roadway, including, but not limited to, street maintenance, snow plowing, repairing and replacement. The Declaration of Covenants and Restrictions, and the OSRD Homeowners' Association documents shall incorporate these requirements.
49. Notwithstanding the previous condition of approval, the OSRD Homeowners' Association shall require the owner of the lot currently identified as #48 Dunstable Road to contribute towards a portion of said costs if practical access to #48 Dunstable Road is provided through St. James Way.
50. Except for the construction of the emergency access road identified as St. James Way, use of the construction entrance(s) from Dunstable Road to the Property is strictly prohibited. In support of the water service extension project on Dunstable Road, and with benefit of Police detail, parking and/or staging of equipment may occur in the St. James Way emergency access road.

Condition of Approval – 30-Foot Wide Access & Utility Easement:

To ensure that the proposed secondary means of emergency access for the Spalding Hill Estates subdivision (identified on the plans as a 30-foot wide access and utility easement) located between St. Augustine Drive and St. Paul Lane will be adequate for the intended purpose, available at an appropriate stage of the development of the subdivision, and maintained year-round, the Planning Board imposes the following condition of approval:

51. The secondary emergency access shown on the approved Definitive Subdivision Plan is intended to be PRIVATE in perpetuity. As such, all responsibility and liability for said secondary emergency access and utilities shall be assumed in perpetuity by the OSRD Homeowners' Association including, but not necessarily limited to, maintenance of emergency access, snow plowing, repairing and replacement of gates, utilities or other features. The Declaration of Restrictions and Covenants and the OSRD Homeowners' Association Documents shall incorporate these requirements.

Conditions of Approval – Legal:

To ensure proper review of required easements and other legal documents in support of the Spalding Hill Estates development, the Planning Board imposes the following conditions of approval:

52. *The Applicant shall provide the following draft documents or information, to be reviewed and approved by Town Counsel on behalf of the Planning Board, and at the expense of the Applicant, prior to execution and recording of said documents:*
- a. *Confirmation that the existing Sight Distance and Drainage Easements over land of #58 Dunstable Road are adequate for proposed purposes in support of the Spalding Hill Estates Open Space Residential Development;*
 - b. *Proposed Sight Distance Easement over land of #48 Dunstable Road;*
 - c. *Proposed Drainage and Temporary Grading Easements over land of #48 Dunstable Road;*
 - d. *Proposed 30-Foot Wide Access & Utility Easement located between St. Augustine Drive and St. Paul Lane;*
 - e. *Proposed Deed for proposed Lot 29 fronting on St. Augustine Drive;*
 - f. *Confirmation that existing easements associated with St. Augustine Drive (such as existing drainage easements, existing access and utility easements, etc.) are either unaffected or adequate for proposed intended purposes. Alternatively, the Applicant shall provide additional easement documents as required;*
 - g. *Proposed 1,266 SF Access & Utility Easement over proposed Lot 28;*
 - h. *Proposed 2,423 SF Access & Utility Easement over proposed Lot 27;*
 - i. *Proposed restrictive language for “No Clear Zone” areas as shown on proposed Lots 2, 3, 4, 5 and 6;*
 - j. *Proposed easements for proposed improvements benefitting the Spalding Hill Estates subdivision over land along St. Augustine Drive identified as Assessor Map 040, Parcel 0017, Lot 0002 and Assessor Map 040, Parcel 0017, Lot 0003;*
 - k. *Proposed language for OSRD Homeowners’ Association;*
 - l. *Proposed trail easement and any rights of either the public or St. Augustine Lot Owners to use the proposed trail system at Spalding Hill Estates;*
 - m. *Proposed deeds for proposed Lots 1 through 28;*
 - n. *Stormwater Maintenance Agreement;*
 - o. *Proposed reconciliation of any overlapping ownership and/or maintenance responsibilities for improvements which benefit either both developments (St. Augustine Drive and Spalding Hill Estates) or which benefit one development over land of the other including, but not necessarily limited to, drainage improvements and related easements, applicability of the Amended and Restated Declaration of Road Covenants and Restrictions for St. Augustine Drive and the financial responsibility with respect to proposed Lots 1 through 28 for maintaining improvements within the St. Augustine Drive subdivision;*
 - p. *Proposed sidewalk easements (or for meandering paths) along Dunstable Road on property owned by the Applicant;*
 - q. *Proposed Conservation Restriction for Open Space Parcels;*
 - r. *Proposed easement for utilities and drainage outside of the 30’ emergency access way on Lot 28;*
 - s. *Proposed Deeds for Parcels A, B, C, D, E, F, G, H, J and M; and*
 - t. *Proposed easements relating to what is currently identified as #48 Dunstable Road and St. James Way including, but not limited to, the following:*
 - a. *If applicable, rights of the #48 Dunstable Road lot owner to use a portion of St. James Way for their principal access;*
 - b. *If applicable, rights of the OSRD Homeowners’ Association and their invitees to use the T-turnaround at the proposed St. James Way entrance to #48 Dunstable Road;*

- c. *If applicable, and to minimize potential future conflicts between the Association and the owner of #48 Dunstable Road, the financial obligations for each party to ensure the continuous long-term maintenance for that portion of St. James Way benefitting #48 Dunstable Road (including snow removal) shall be explicitly set forth in the applicable easement or other documents. The intent is for the owner of #48 Dunstable Road to pay their equitable share for maintaining St. James Way, while taking into account the following:*
 - i. *As currently configured, the Spalding Hill Estates development would not have been possible without the cooperation of the owner of #48 Dunstable Road;*
 - ii. *The owner of #48 Dunstable Road would benefit from having their principal access through St. James Way instead of Dunstable Road;*
 - iii. *St. James Way benefits the OSRD Homeowners' Association by providing emergency secondary access to the St. Paul Lane. For purposes of the OSRD Homeowners' Association, traffic would generally be limited to emergency, snow removal, and maintenance purposes;*
 - iv. *A portion of St. James Way benefits #48 Dunstable Road by providing daily primary access to the lot, and the majority of wear and tear on said portion of St. James Way would be attributed to the owner of #48 Dunstable Road and their invitees.*
 - u. *Proposed Declaration of Covenants and Restrictions for Spalding Hill Estates.*
53. *The Applicant shall bear the cost of legal review of the above-listed draft documents by Town Counsel prior to issuance of any building permits for the OSRD project.*
54. *Contemporaneously with the recording of the Plan, the Applicant shall record the above-listed legal documents (excepting deeds for the individual lots and any access easements relating to the property currently identified as #48 Dunstable Road) as approved by Town Counsel, at the Middlesex North Registry of Deeds and shall provide copies of said recorded documents to the Planning Board within ten (10) days of the recording of the Plan.*

Conditions of Approval – Open Space:

55. *The developer shall include in the deeds to individual lots, beneficial rights in Open Space and shall grant a conservation restriction to the Town of Westford over such land pursuant to G.L. c. 184, ss. 31-33, to ensure that such land shall be kept in an open or natural state and not be built upon for residential use or developed for accessory uses such as parking or roadways. This restriction shall be enforceable by the Town through its Conservation Commission in any proceeding authorized by G.L. c. 184, s. 33. In addition, the OSRD Homeowners' Association shall be responsible for the maintenance of the Open Space. The only clearing allowed in the Open Space parcel shall be for the construction and maintenance of the walking trail shown on the approved plan.*
56. *In order to ensure that the OSRD Homeowners' Association shall properly maintain the land deeded to it under Section 7.1.8, the Applicant shall prepare a Declaration of Covenants and Restrictions, which shall at a minimum provide the requirements detailed in Section 7.1.8(2) of the Zoning Bylaw. A copy of this declaration shall be included in the OSRD Homeowners' Association documents. Receipt of the OSRD Homeowners' Association documents must be acknowledged in writing by each lot owner acceptance of a deed to a lot in the OSRD.*
57. *Building or clearing shall be prohibited on any Open Space or Common Land parcel beyond the limit of clearing as shown on the approved Definitive Subdivision Plans.*
58. *The Open Space shall be owned and maintained in perpetuity by the OSRD Homeowners' Association and its protection ensured through a Conservation Restriction. The Town shall not*

- be responsible for maintenance of the Open Space or Common Land Parcel C.*
59. *Common Land Parcel C shall be maintained as a recreation area in a manner not inconsistent with Section 7.1.6 of the Zoning Bylaw. Provisions regarding ownership, maintenance and care of this parcel shall be included in the Declaration of Covenants and Restrictions.*
 60. *At no time shall Lot Owners or residents be permitted to encroach into or clear Open Space or Common Land parcels. Permanent markers shall be installed at points of change in direction and at intervals of fifty (50) feet along rear lot lines that abut Open Space and Common Land parcels delineating the boundary and stating that encroachment and/or clearing is prohibited and be shown on individual plot plans for each lot and the endorsed plan set. Markers may be placed on existing trees if the tree location coincides with above requirements. Markers shall be installed prior to issuance of certificate of occupancy for each lot.*
 61. *The Applicant shall demonstrate in the field that the proposed trail will be a practical path, in consideration of slopes, drainage BMPs and lot lines. Such demonstration must be made during a site view held with Applicant's engineer and town staff prior to issuance of the first certificate of occupancy.*
 62. *Prior to issuance of the last certificate of occupancy, the trail shall be established on the ground by clearing of trees, brush and other obstacles, and by installation of trail markers and signage. Ongoing maintenance of the trail shall be the responsibility of the OSRD Homeowners' Association.*
 63. *The Applicant shall provide an easement allowing use of the trail by the general public, and allowing access to the trail through St. Paul Lane and St. James Way.*
 64. *Lots 2, 3, 4, 5 & 6 shall be subject to a Restrictive Covenant which limits activities in the No Clear Zone on each lot. The covenant shall at a minimum, prohibit clearing, building and encroachment into the No Clear Zone shown on the approved plan set. Clearing of trees for protection of health and safety shall be permitted only after notification with documentation provided to the Town Planner.*

Conditions of Approval – Major Violations:

65. *Any incident attributed to the Project resulting in significant and visible alterations to either offsite properties or wetland resource areas (whether on or offsite) shall be construed as a major violation. The Applicant shall report all such incidents to the Conservation, Engineering and Planning Departments and take corrective actions as soon as possible to address the alterations. Failure by the Applicant to correct a major violation within seven (7) calendar days shall be grounds for the Building Commissioner to issue a Stop Work Order for all work not related to addressing the major violation. Failure by the Applicant to address a major violation within twenty-one (21) days, or the recurrence of a major violation, or the occurrence of a second major violation shall be grounds for the Building Commissioner, in addition to the issuance of Stop Work Orders, to delay issuance of (and the Planning Department to withhold sign-off on) any further building permits or certificates of occupancy for Lots 1 through 27 until such time as the Building Commissioner is of the opinion that all major violations have been satisfactorily addressed or until such time as there is a minimum of one (1) week without a reportable incident. The Board retains jurisdiction to review and address requests or complaints regarding this condition at a public meeting.*

Advisory Condition School Bus Pick-ups and Drop-offs:

66. *As currently required by Town of Westford School Department Policy, the Applicant is informed that school buses shall pick-up and drop-off children at the intersection of Groton Road and St.*

Augustine Drive, rather than traveling into and through the St. Augustine Drive and Spalding Hill Estates subdivisions. Furthermore, the School Department strongly encourages the Applicant to designate and provide a safe place for children awaiting pick-up, with an appropriate sidewalk system connecting the Project to the entrance of St. Augustine Drive at Groton Road.

PLANNING BOARD VOTE

Special Permit for the Spalding Hill Estates Open Space Residential Development

PB 1707 SP OSRD

*On May 4, 2020, on a motion made by O'Connor, seconded by Lavelle, the Board voted **4-0-0** to **GRANT**, with the foregoing Conditions this **Special Permit for the 29-lot Spalding Hill estates Open Space Residential Development, pursuant to Sections 7.1 and 9.3 of the Town of Westford Zoning Bylaw.***

Special Permit – PB 1707 SP OSRD

*Planning Board members voting to **APPROVE**:*

*Darrin Wizst, Chair
Kate Hollister, Vice Chair
Gary Lavelle
Dylan O'Connor*

Any appeals of this Decision shall be made pursuant to Massachusetts General Laws, Chapter 40A, Section 17, and a copy of the appeal shall be filed with the Town Clerk's office within twenty (20) days after the date of filing this decision in the office of the Town Clerk.

NOT VALID FOR RECORDING UNTIL CERTIFIED BY TOWN CLERK

I hereby certify that this is a true copy of the decision rendered by the Planning Board and filed in the office of the Town Clerk on _____, _____; I further certify that twenty (20) days have elapsed after the within decision was filed in the office of the Town Clerk for the Town of Westford, and that no appeal has been filed, or that if such appeal has been filed, that it has been dismissed or denied.

Date:

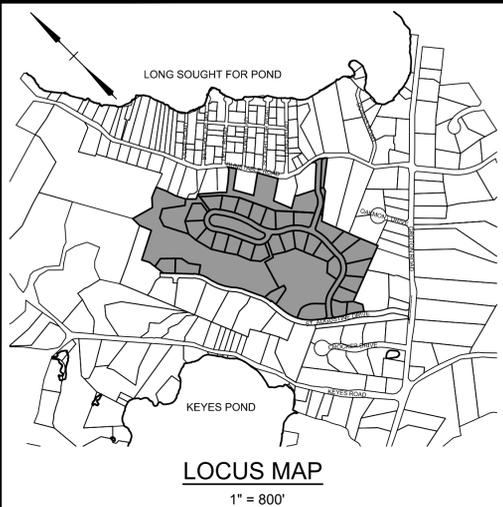
Attest:

Patricia L. Dubey, Town Clerk

cc: *Applicant
Abutters to within 300 feet
Planning Boards of Acton, Carlisle, Chelmsford, Groton, Littleton and Tyngsborough
Building Commissioner
Conservation Resource Planner
Deputy Fire Chief
Deputy Police Chief
Director of Environmental Services
Director of Public Works
Fire Prevention Officer
Health Director
Highway Superintendent
Principal Assessor
Superintendent of Schools
Town Engineer*

Definitive Subdivision Open Space Residential Development SPALDING HILL ESTATES Westford, Massachusetts

JULY 20, 2018
REVISED: JANUARY 31, 2019
May 10, 2019
June 14, 2019
December 9, 2019



General Notes

- This subdivision is an Open Space Residential Development permitted under Section 7.1 of the Town of Westford Zoning Bylaws.
- Topography and surficial features were provided electronically by the Westford GIS Department and supplemented with field surveys by Goldsmith, Prest & Ringwall, Inc. (GPR), and ALAN Engineering, L.L.C..
- Wetland boundaries shown were flagged by Oxbow Associates and field located by GPR, and provided electronically to ALAN Engineering, L.L.C.
- The subject property does not lie within a Zone A flood hazard area as delineated on the FEMA Flood Insurance Rate Map, 25017C0227E, effective date June 4, 2010.
- The proposed development is to be served by town water, individual subsurface sewage disposal systems, natural gas and underground electric and telecommunications.
- St. Paul Lane is intended to become a public way. St. James Way is to remain private, owned and maintained by a homeowner's association.
- The Access and Utility Easement through lot 28 is to be maintained by a homeowner's association.

Open Space Development Summary

Zoning District: RA
Design Criteria:
Area: 20,000 s.f.
Frontage: 50' (100' avg.)
Front Yard: 20'
Side Yard: 15'
Rear Yard: 15'
Lot width: 100' at front of building
Minimum Common Land: 10,000 s.f. per lot (non-wetland) = 310,000 s.f. (7.116 Acres)
Dry Common Land suitable for recreation:
1 Acre for each 25 lots = 1.240 Acres

Development Summary:
Total Parcel Area: 43.610 Acres
Total Dry Area: 40.424 Acres
Building lots: 29*
Average Lot Size: 23,489 s.f. **
Average Frontage: 151.66' **

Common Land Summary:
Parcel A (Open Space): 10.070 Acres (7.017 Acres Dry)
Parcel B: 1.450 Acres (All Dry)
Parcel C: (Suitable for Recreation): 1.247 Acres (All Dry)
Parcel D: (Open Space): 2.367 Acres (2.229 Acres Dry)
Parcel E: 0.919 Acres (0.860 Acres Dry)
Parcel G: 0.348 Acres
Parcel H: 0.803 Acres
Parcel J: 0.368 Acres (0.363 Acres Dry)
Parcel K: 0.602 Acres

TOTAL COMMON LAND: 18.174 Acres (14.919 Acres Dry)
TOTAL OPEN SPACE: 12.437 Acres (9.246 Acres Dry)

Total Length of New Roadways: 3,500 ft

*: Lot 28 is a single building lot and will be deed restricted such that it can not be further subdivided to create additional building lots.

**: Lot 28 has been excluded from the average lot area and average frontage calculations.



ALAN Engineering, L.L.C.
110 WINN STREET, SUITE 209
WOBURN, MA 01801
(978) 577-6444
alan.eng@verizon.net



SHEET INDEX

- 1 ----- Title Sheet
- 2 ----- Existing Conditions Index Plan
- 3 - 6 ----- Existing Conditions Plans
- 7 ----- Definitive Subdivision Index Plan
- 8 - 10 ----- Definitive Subdivision Plans
- 11 ----- Grading and Drainage Index Plan
- 12 - 15 ----- Grading and Drainage Plans
- 16 - 22 ----- Roadway Profiles
- 23 ----- Storm Water Pollution Prevention Plan
- 24 - 25 ----- Erosion Control Plans
- 26 ----- Landscape Plan
- 27 - 30 ----- Construction Details

Record Owners & Applicants

Connell Real Estate Trust
P.O. Box 1230
Westford, MA 01886

Plan References

Middlesex North Registry of Deeds
Book 240 Plan 88
Book 235 Plan 51
Book 224 Plan 90

Deed References

Middlesex North Registry of Deeds
Book 19682, Page 258
Book 21730, Page 263
Book 21730, Page 266
Book 21730, Page 267
Book 21730, Page 269
Book 23657, Page 195

Assessor's References

Map 040, Parcel 0017 0000

Waivers Requested

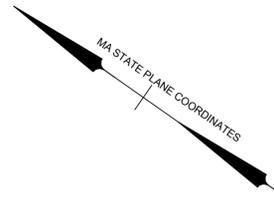
- The following waivers from the Westford Planning Board Subdivision Rules and Regulations have been requested.
- 218-11.B.(17)(d): To not show large trees in excess of 10 inches in diameter within the proposed roadway and necessary side slopes.
 - 218-12.D.(2), 218-13.A.(1), 218-13.F.(1): To construct a sidewalk on only one side of St. Paul Lane and no sidewalks on St. James Way.
 - 218-13.A.(1): To reduce the pavement width on St. James Way from the required 22 feet to 20 feet.
 - 218-13.B.(6): To allow the invert of the pipe discharging into Detention Basin 3A and the Wetland Basin to be set below the 25-year storm elevation.
 - 218-13.B.(6): To allow storm water detention basins within 30 feet of a lot line.
 - 218-13.E.(2): To allow St. James Way be constructed with cape cod berm curbing whereas sloped granite is required.
 - 218-17.E.: To allow the minimum cover of drain pipes to be reduced from 4 feet to 2.0 feet.
 - 218-17.E.: To allow the use of HDPE piping in drainage systems in St. James Way, the emergency access road, and off-road easement, whereas reinforced concrete pipe is required.



LOT 9A
 1,899,661 S.F.
 (43.610 Ac.)

LEGEND

EXISTING CONTOUR	-176-
EXISTING SPOT ELEVATION	x 192.7
WETLAND FLAG	▲
EDGE OF WETLAND	---
50' WETLAND BUFFER	----
75' WETLAND BUFFER	-----
100' WETLAND BUFFER	-----
EXISTING STONEWALL	=====
EXISTING TREELINE	~~~~~
EXISTING GRANITE CURB	=====
EXISTING CAPE COD BERM	=====
EXISTING EDGE OF PAVEMENT	=====
EXISTING HYDRANT	⊕
EXISTING GATE VALVE	⊕
EXISTING WATER SHUT-OFF	⊕
EXISTING WATER MAIN	W-W
EXISTING CATCH BASIN	⊕
EXISTING DRAIN MANHOLE	⊕
EXISTING DRAIN LINE	D-D
EXISTING GAS MAIN	G-G
EXISTING GUARD RAIL	=====
EXISTING RIPRAP	=====
TEST HOLE	⊕



General Notes

- Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
- The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
- The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws.
 OSRD Requirements:
 Minimum Area: 20,000 s.f.
 Minimum Frontage: 50' (100' average)
 Yard Setbacks: Front: 20'
 Side: 15'
 Rear: 15'
- See sheets 21 and 22 for additional utility information within St. Augustine Drive.

PLAN REFERENCES
 M.N.D.R.D. BOOK 240 PLAN 88
 M.N.D.R.D. BOOK 235 PLAN 51
 M.N.D.R.D. BOOK 224 PLAN 90

DEED REFERENCE
 M.N.D.R.D. BOOK 19882 PAGE 258
 M.N.D.R.D. BOOK 21730 PAGE 263
 M.N.D.R.D. BOOK 21730 PAGE 266
 M.N.D.R.D. BOOK 21730 PAGE 267
 M.N.D.R.D. BOOK 21730 PAGE 269
 M.N.D.R.D. BOOK 23657 PAGE 195

RECORD OWNERS
 CONNELL REAL ESTATE TRUST
 P.O. BOX 1230
 WESTFORD, MA 01886

ASSESSORS REFERENCES
 MAP 040, PARCEL 0017 0000

0 100 200 300
 SCALE IN FEET

MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

EXISTING CONDITIONS INDEX PLAN
SPALDING HILL ESTATES
 WESTFORD, MA

ALAN ENGINEERING, L.L.C.
 110 WINN STREET, SUITE 209
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 (978) 577-6444
 alan.eng@verizon.net

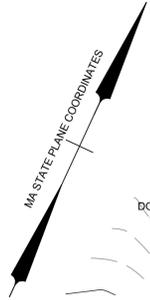
PREPARED FOR:
 CONNELL REAL ESTATE TRUST
 P.O. BOX 1230
 WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	2 of 30
SCALE: 1" = 100'	

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LEGEND

- EXISTING CONTOUR
- EXISTING SPOT ELEVATION
- WETLAND FLAG
- EDGE OF WETLAND
- 50' WETLAND BUFFER
- 75' WETLAND BUFFER
- 100' WETLAND BUFFER
- EXISTING STONEWALL
- EXISTING TREELINE
- EXISTING GRANITE CURB
- EXISTING CAPE COD BERM
- EXISTING EDGE OF PAVEMENT
- EXISTING HYDRANT
- EXISTING GATE VALVE
- EXISTING WATER SHUT-OFF
- EXISTING WATER MAIN
- EXISTING CATCH BASIN
- EXISTING DRAIN MANHOLE
- EXISTING DRAIN LINE
- EXISTING GAS MAIN
- EXISTING GUARD RAIL
- EXISTING RIPRAP
- TEST HOLE



General Notes

1. Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
2. The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
3. The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws. OSRD Requirements:
Minimum Area: 20,000 s.f.
Minimum Frontage: 50' (100' average)
Yard Setbacks: Front: 20'
Side: 15'
Rear: 15'
4. See sheets 21 and 22 for additional utility information within St. Augustine Drive.

PLAN REFERENCES

M.N.D.R.D. BOOK 240 PLAN 88
M.N.D.R.D. BOOK 235 PLAN 51
M.N.D.R.D. BOOK 224 PLAN 90

DEED REFERENCE

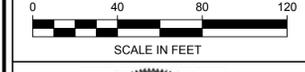
M.N.D.R.D. BOOK 19682 PAGE 258
M.N.D.R.D. BOOK 21730 PAGE 263
M.N.D.R.D. BOOK 21730 PAGE 266
M.N.D.R.D. BOOK 21730 PAGE 267
M.N.D.R.D. BOOK 21730 PAGE 269
M.N.D.R.D. BOOK 23657 PAGE 195

RECORD OWNERS

CONNELL REAL ESTATE TRUST
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WESTFORD, MA 01886

ASSESSORS REFERENCES

MAP 040, PARCEL 0017 0000



MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

**EXISTING
CONDITIONS PLAN
SPALDING HILL
ESTATES
WESTFORD, MA**

**ALAN
ENGINEERING, L.L.C.**
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PREPARED FOR:
CONNELL REAL ESTATE TRUST
P.O. BOX 1230
WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	3 of 30
SCALE: 1" = 40'	

MATCHLINE SEE SHEET 4

MATCHLINE SEE SHEET 6

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LEGEND

- EXISTING CONTOUR
- EXISTING SPOT ELEVATION
- WETLAND FLAG
- EDGE OF WETLAND
- 50' WETLAND BUFFER
- 75' WETLAND BUFFER
- 100' WETLAND BUFFER
- EXISTING STONEWALL
- EXISTING TREELINE
- EXISTING GRANITE CURB
- EXISTING CAPE COD BERM
- EXISTING EDGE OF PAVEMENT
- EXISTING HYDRANT
- EXISTING GATE VALVE
- EXISTING WATER SHUT-OFF
- EXISTING WATER MAIN
- EXISTING CATCH BASIN
- EXISTING DRAIN MANHOLE
- EXISTING DRAIN LINE
- EXISTING GAS MAIN
- EXISTING GUARD RAIL
- EXISTING RIPRAP
- TEST HOLE



ARTHUR J. HEALY
 5 CONNELL DRIVE
 WESTFORD, MA 01886
 071 0005 0000

NIF
 JAMES A. BLAKE &
 LISE R. CONNELL BLAKE
 6 ST. AUGUSTINE DRIVE
 WESTFORD, MA 01886
 040 0017 0006

NIF
 CONNELL REAL ESTATE
 TRUST
 P.O. BOX 1230
 WESTFORD, MA 01886
 041 0050 0000

NIF
 CRAIG M. & STAVROULA
 STOWELL
 4 ST. AUGUSTINE DRIVE
 WESTFORD, MA 01886
 040 0017 0005

General Notes

1. Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
2. The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
3. The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws.
 OSRD Requirements:
 Minimum Area: 20,000 s.f.
 Minimum Frontage: 50' (100' average)
 Front: 20'
 Side: 15'
 Rear: 15'
4. See sheets 21 and 22 for additional utility information within St. Augustine Drive.

PLAN REFERENCES

M.N.D.R.D. BOOK 240 PLAN 88
 M.N.D.R.D. BOOK 235 PLAN 51
 M.N.D.R.D. BOOK 224 PLAN 90

DEED REFERENCE

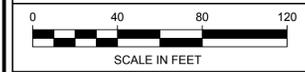
M.N.D.R.D. BOOK 19682 PAGE 258
 M.N.D.R.D. BOOK 21730 PAGE 263
 M.N.D.R.D. BOOK 21730 PAGE 266
 M.N.D.R.D. BOOK 21730 PAGE 267
 M.N.D.R.D. BOOK 21730 PAGE 269
 M.N.D.R.D. BOOK 23657 PAGE 195

RECORD OWNERS

CONNELL REAL ESTATE TRUST
 P.O. BOX 1230
 WESTFORD, MA 01886

ASSESSORS REFERENCES

MAP 040, PARCEL 0017 0000



MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

EXISTING
 CONDITIONS PLAN
 SPALDING HILL
 ESTATES
 WESTFORD, MA

**ALAN
 ENGINEERING, L.L.C.**
 110 WINN STREET, SUITE 209
 WOBURN, MA 01801
 (978) 577-6444
 alan.eng@verizon.net

PREPARED FOR:
 CONNELL REAL ESTATE TRUST
 P.O. BOX 1230
 WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	4 of 30
SCALE: 1" = 40'	



General Notes

- Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
- The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
- The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7-1 of the Westford Zoning Bylaws.
OSRD Requirements:
Minimum Area: 20,000 s.f.
Minimum Frontage: 50' (100' average)
Front: 20'
Side: 15'
Rear: 15'
- See sheets 21 and 22 for additional utility information within St. Augustine Drive.

PLAN REFERENCES

M.N.D.R.D. BOOK 240 PLAN 88
M.N.D.R.D. BOOK 235 PLAN 51
M.N.D.R.D. BOOK 224 PLAN 90

DEED REFERENCE

M.N.D.R.D. BOOK 19682 PAGE 258
M.N.D.R.D. BOOK 21730 PAGE 263
M.N.D.R.D. BOOK 21730 PAGE 266
M.N.D.R.D. BOOK 21730 PAGE 267
M.N.D.R.D. BOOK 21730 PAGE 269
M.N.D.R.D. BOOK 23657 PAGE 195

RECORD OWNERS

CONNELL REAL ESTATE TRUST
P.O. BOX 1230
WESTFORD, MA 01886

ASSESSORS REFERENCES

MAP 040, PARCEL 0017 0000



MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

EXISTING
CONDITIONS PLAN
SPALDING HILL
ESTATES
WESTFORD, MA

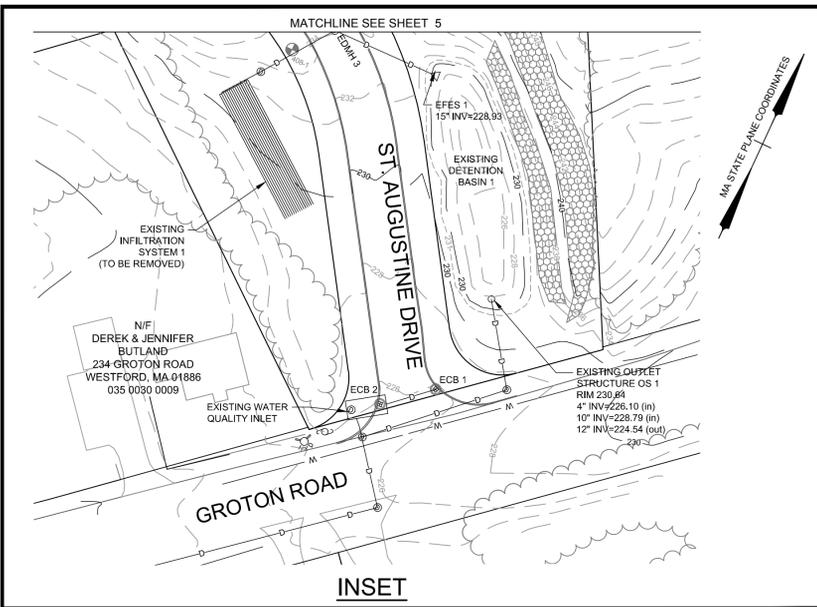
**ALAN
ENGINEERING, L.L.C.**
110 WINN STREET, SUITE 209
WOBURN, MA 01801
(978) 577-6444
alan.eng@verizon.net

PREPARED FOR:
CONNELL REAL ESTATE TRUST
P.O. BOX 1230
WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	5 of 30
SCALE: 1" = 40'	

LEGEND

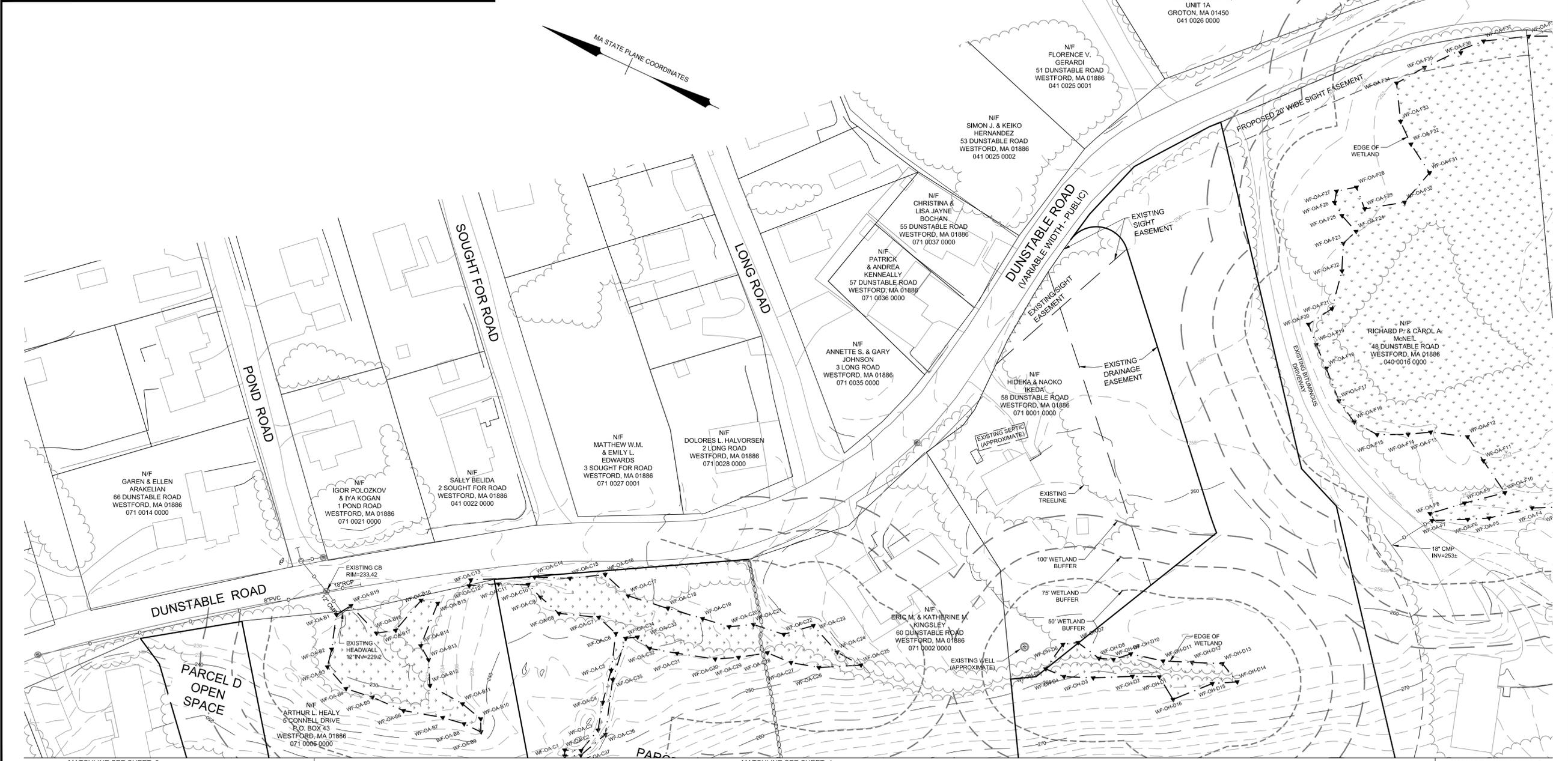
- EXISTING CONTOUR
- EXISTING SPOT ELEVATION
- WETLAND FLAG
- EDGE OF WETLAND
- 50' WETLAND BUFFER
- 75' WETLAND BUFFER
- 100' WETLAND BUFFER
- EXISTING STONEWALL
- EXISTING TREELINE
- EXISTING GRANITE CURB
- EXISTING CAPE COD BERM
- EXISTING EDGE OF PAVEMENT
- EXISTING HYDRANT
- EXISTING GATE VALVE
- EXISTING WATER SHUT-OFF
- EXISTING WATER MAIN
- EXISTING CATCH BASIN
- EXISTING DRAIN MANHOLE
- EXISTING DRAIN LINE
- EXISTING GAS MAIN
- EXISTING GUARD RAIL
- EXISTING RIPRAP
- TEST HOLE



INSET

LEGEND

- EXISTING CONTOUR
- EXISTING SPOT ELEVATION
- WETLAND FLAG
- EDGE OF WETLAND
- 50' WETLAND BUFFER
- 75' WETLAND BUFFER
- 100' WETLAND BUFFER
- EXISTING STONEWALL
- EXISTING TREELINE
- EXISTING GRANITE CURB
- EXISTING CAPE COD BERM
- EXISTING EDGE OF PAVEMENT
- EXISTING HYDRANT
- EXISTING GATE VALVE
- EXISTING WATER SHUT-OFF
- EXISTING WATER MAIN
- EXISTING CATCH BASIN
- EXISTING DRAIN MANHOLE
- EXISTING DRAIN LINE
- EXISTING GAS MAIN
- EXISTING GUARD RAIL
- EXISTING RIPRAP
- TEST HOLE



General Notes

1. Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, L.L.C. electronically.
2. The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
3. The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7-1 of the Westford Zoning Bylaws.
OSRD Requirements:
Minimum Area: 20,000 s.f.
Minimum Frontage: 50' (100' average)
Yard Setbacks: Front: 20'
Side: 15'
Rear: 15'
4. See sheets 21 and 22 for additional utility information within St. Augustine Drive.

PLAN REFERENCES

- M.N.D.R.D. BOOK 240 PLAN 88
- M.N.D.R.D. BOOK 235 PLAN 51
- M.N.D.R.D. BOOK 224 PLAN 90

DEED REFERENCE

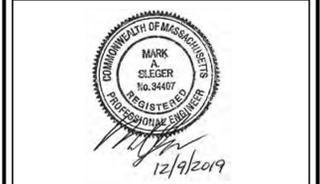
- M.N.D.R.D. BOOK 19682 PAGE 258
- M.N.D.R.D. BOOK 21730 PAGE 263
- M.N.D.R.D. BOOK 21730 PAGE 266
- M.N.D.R.D. BOOK 21730 PAGE 267
- M.N.D.R.D. BOOK 21730 PAGE 269
- M.N.D.R.D. BOOK 23657 PAGE 195

RECORD OWNERS

CONNELL REAL ESTATE TRUST
P.O. BOX 1230
WESTFORD, MA 01886

ASSESSORS REFERENCES

MAP 040, PARCEL 0017 0000



MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

**EXISTING CONDITIONS PLAN
SPALDING HILL ESTATES
WESTFORD, MA**

ALAN ENGINEERING, L.L.C.
110 WINN STREET, SUITE 209
WOBURN, MA 01801
(978) 577-6444
alan.eng@verizon.net

PREPARED FOR:
CONNELL REAL ESTATE TRUST
P.O. BOX 1230
WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	6 of 30
SCALE: 1" = 40'	



WAIVERS REQUESTED

THE FOLLOWING WAIVERS FROM THE WESTFORD PLANNING BOARD SUBDIVISION RULES AND REGULATIONS HAVE BEEN REQUESTED.

218-11.B.(17)(D): TO NOT SHOW LARGE TREES IN EXCESS OF 10 INCHES IN DIAMETER WITHIN THE PROPOSED ROADWAY AND NECESSARY SIDE SLOPES.

218-12.D.(2), 218-13.A.(1), 218-13.F.(1): TO CONSTRUCT A SIDEWALK ON ONLY ONE SIDE OF ST. PAUL LANE AND NO SIDEWALKS ON ST. JAMES WAY.

218-13.A.(1): TO REDUCE THE PAVEMENT WIDTH ON ST. JAMES WAY FROM THE REQUIRED 22 FEET TO 20 FEET.

218-13.B.(6): TO ALLOW THE INVERT OF THE PIPE DISCHARGING INTO DETENTION BASIN 3A AND THE WETLAND BASIN TO BE SET BELOW THE 25-YEAR STORM ELEVATION.

218-13.B.(6): TO ALLOW STORM WATER DETENTION BASINS WITHIN 30 FEET OF A LOT LINE.

218-13.E.(2): TO ALLOW ST. JAMES WAY BE CONSTRUCTED WITH CAPE COD BERM CURBING WHEREAS SLOPED GRANITE IS REQUIRED.

218-17.E.: TO ALLOW THE MINIMUM COVER OF DRAIN PIPES TO BE REDUCED FROM 4 FEET TO 2.0 FEET.

218-17.E.: TO ALLOW THE USE OF HDPE PIPING IN DRAINAGE SYSTEMS IN ST. JAMES WAY, THE EMERGENCY ACCESS ROAD, AND OFF-ROAD EASEMENT, WHEREAS REINFORCED CONCRETE PIPE IS REQUIRED.

General Notes

- Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
- The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
- The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws. OSRD Requirements:
Minimum Area: 20,000 s.f.
Minimum Frontage: 50' (100' average)
Front: 20'
Yard Setbacks: Side: 15'
Rear: 15'
- Parcels F and M are not building lots.
- St. Paul Lane is intended to become a public way. St. James Way is to remain private, owned and maintained by a homeowner's association.
- The Access and Utility Easement through lot 28 is to be maintained by a homeowner's association.
- Lot 28 is a single building lot which will be deed restricted such that it can not be further subdivided to create additional building lots.
- A 20' wide temporary construction easement is to be reserved along the frontage of each lot within the subdivision and shall remain in effect until the street is accepted as a public way by the Town of Westford.
- The boundary between the Open Space and the lots is to be delineated with 4" x 4" wood posts with 2" reveal and a sign describing the boundary. Posts shall be spaced 50' apart.

PLAN REFERENCES

M.N.D.R.D. BOOK 240 PLAN 88
M.N.D.R.D. BOOK 235 PLAN 51
M.N.D.R.D. BOOK 224 PLAN 90

DEED REFERENCE

M.N.D.R.D. BOOK 19882 PAGE 258
M.N.D.R.D. BOOK 21730 PAGE 263
M.N.D.R.D. BOOK 21730 PAGE 266
M.N.D.R.D. BOOK 21730 PAGE 267
M.N.D.R.D. BOOK 21730 PAGE 269
M.N.D.R.D. BOOK 23657 PAGE 195

RECORD OWNERS

CONNELL REAL ESTATE TRUST
P.O. BOX 1230
WESTFORD, MA 01886

ASSESSORS REFERENCES

MAP 040, PARCEL 0017 0000



MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

DEFINITIVE SUBDIVISION INDEX PLAN
SPALDING HILL ESTATES
WESTFORD, MA

ALAN ENGINEERING, L.L.C.
110 WINN STREET, SUITE 209
WOBURN, MA 01801
(978) 577-6444
alan.eng@verizon.net

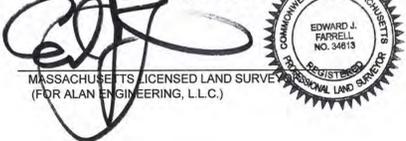
PREPARED FOR:
CONNELL REAL ESTATE TRUST
P.O. BOX 1230
WESTFORD, MA 01886

JOB NO: 1174 DWG NO: 1637

JULY 20, 2018 **7 of 30**

SCALE: 1" = 100'

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS. THIS IS NOT A CERTIFICATION OF TITLE OR OWNERSHIP NOR TO ANY UNRECORDED EASEMENTS.



12-17-19
DATE

TOWN OF WESTFORD
PLANNING BOARD APPROVAL

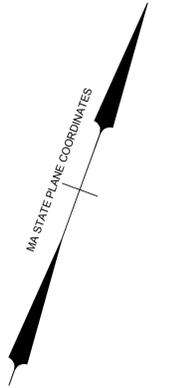
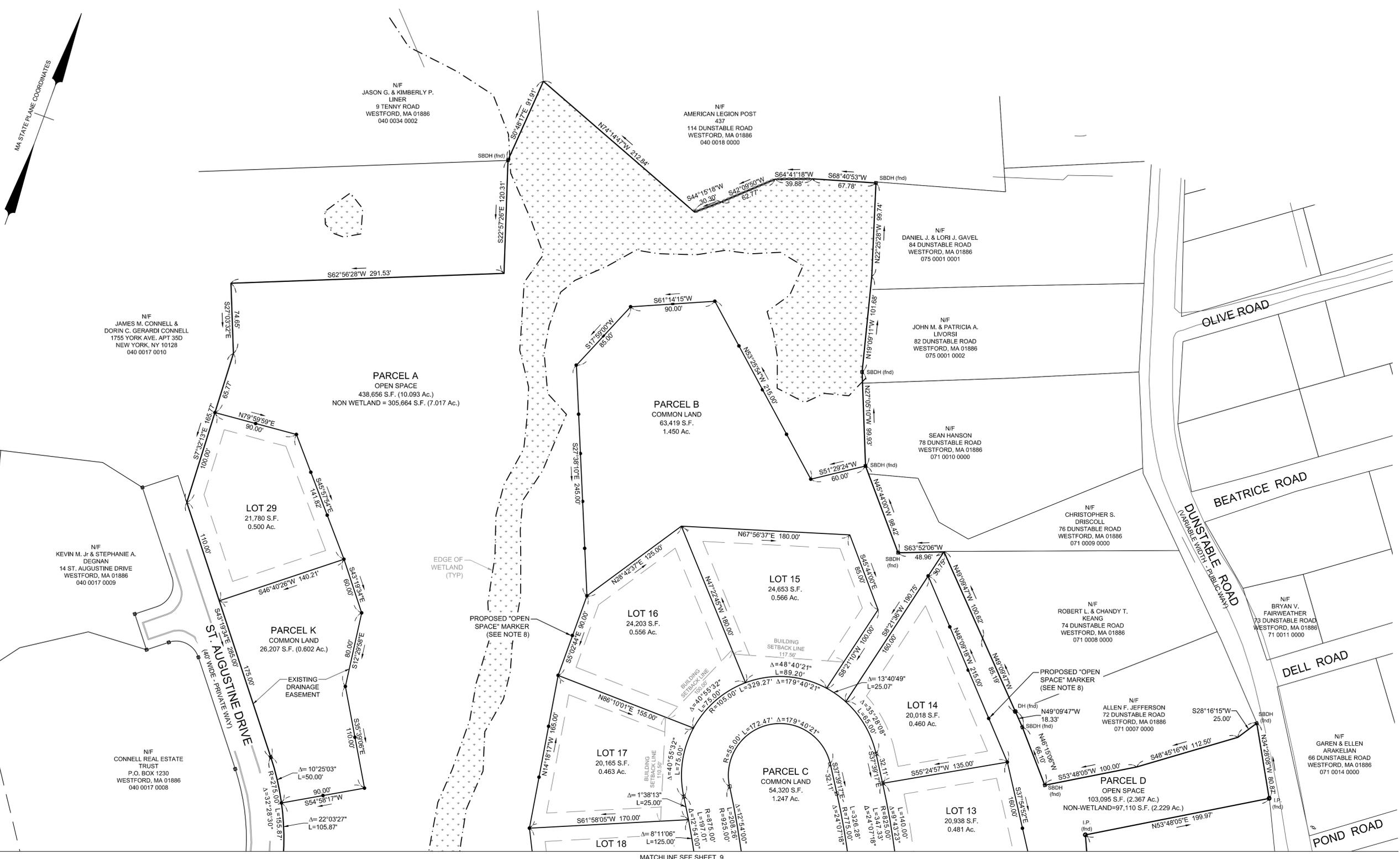
DATE: _____

THIS PLAN IS APPROVED SUBJECT TO A CERTIFICATE OF APPROVAL OF A DEFINITIVE SUBDIVISION PLAN AND A SPECIAL PERMIT FOR AN OPEN SPACE RESIDENTIAL DEVELOPMENT PURSUANT TO SECTION 7.1 OF THE TOWN OF WESTFORD ZONING BYLAWS, BOTH RECORDED HERewith.

THIS PLAN IS APPROVED SUBJECT TO COVENANT CONDITIONS SET FORTH IN A COVENANT EXECUTED BY _____

TO BE RECORDED HERewith. _____, DATED _____, AND _____

I, _____, CLERK OF THE TOWN OF WESTFORD HEREBY CERTIFY THAT NOTICE OF APPROVAL OF THIS PLAN HAS BEEN RECEIVED AND RECORDED WITH THIS OFFICE ON _____ AND THAT NO APPEAL OF SUCH HAS BEEN RECEIVED DURING THE 20 DAYS NEXT.



General Notes

- Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
- The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
- The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws. OSRD Requirements: Minimum Area: 20,000 s.f. Minimum Frontage: 50' (100' average) Yard Setbacks: Front: 20' Side: 15' Rear: 15'
- Parcels F and M are not building lots.
- St. Paul Lane is intended to become a public way. St. James Way is to remain private, owned and maintained by a homeowner's association.
- The Access and Utility Easement through lot 28 is to be maintained by a homeowner's association.
- Lot 28 is a single building lot which will be deed restricted such that it can not be further subdivided to create additional building lots.
- A 20' wide temporary construction easement is to be reserved along the frontage of each lot within the subdivision and shall remain in effect until the street is accepted as a public way by the Town of Westford.
- The boundary between the Open Space and the lots and between the "No Clear Zone" and the lots is to be delineated with 4" x 4" wood posts with 2" reveal and a sign describing the boundary. Posts shall be spaced 50' apart.

PLAN REFERENCES

M.N.D.R.D. BOOK 240 PLAN 88
M.N.D.R.D. BOOK 235 PLAN 51
M.N.D.R.D. BOOK 224 PLAN 90

DEED REFERENCE

M.N.D.R.D. BOOK 19682 PAGE 258
M.N.D.R.D. BOOK 21730 PAGE 263
M.N.D.R.D. BOOK 21730 PAGE 266
M.N.D.R.D. BOOK 21730 PAGE 267
M.N.D.R.D. BOOK 21730 PAGE 269
M.N.D.R.D. BOOK 23657 PAGE 195

RECORD OWNERS

CONNELL REAL ESTATE TRUST
P.O. BOX 1230
WESTFORD, MA 01886

ASSESSORS REFERENCES

MAP 040, PARCEL 0017 0000



MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

**DEFINITIVE SUBDIVISION PLAN OF LAND
SPALDING HILL ESTATES
WESTFORD, MA**

ALAN ENGINEERING, L.L.C.
110 WINN STREET, SUITE 209
WOBURN, MA 01801
(978) 577-6444
alan.eng@verizon.net

PREPARED FOR:
CONNELL REAL ESTATE TRUST
P.O. BOX 1230
WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	8 of 30
SCALE: 1" = 50'	

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS. THIS IS NOT A CERTIFICATION OF TITLE OR OWNERSHIP NOR TO ANY UNRECORDED EASEMENTS.

[Signature]
EDWARD J. PARRELL
NO. 34613
MASSACHUSETTS LICENSED LAND SURVEYOR
(FOR ALAN ENGINEERING, L.L.C.)

12-17-19
DATE

TOWN OF WESTFORD
PLANNING BOARD APPROVAL

DATE: _____

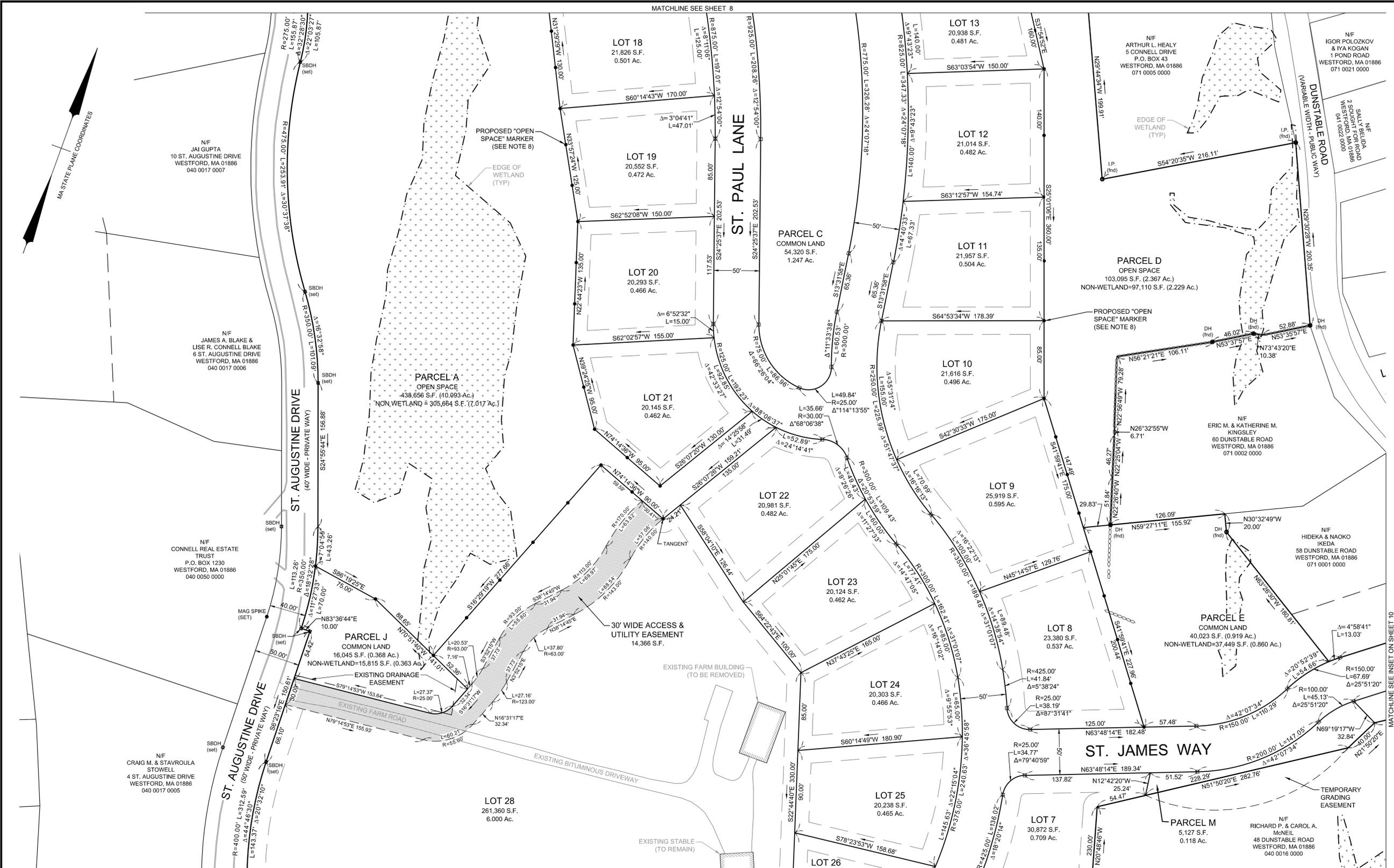
THIS PLAN IS APPROVED SUBJECT TO A CERTIFICATE OF APPROVAL OF A DEFINITIVE SUBDIVISION PLAN AND A SPECIAL PERMIT FOR AN OPEN SPACE RESIDENTIAL DEVELOPMENT PURSUANT TO SECTION 7.1 OF THE TOWN OF WESTFORD ZONING BYLAWS, BOTH RECORDED HERewith.

THIS PLAN IS APPROVED SUBJECT TO COVENANT CONDITIONS SET FORTH IN A COVENANT EXECUTED BY _____, DATED _____, AND TO BE RECORDED HERewith.

I, _____, CLERK OF THE TOWN OF WESTFORD HEREBY CERTIFY THAT NOTICE OF APPROVAL OF THIS PLAN HAS BEEN RECEIVED AND RECORDED WITH THIS OFFICE ON _____ AND THAT NO APPEAL OF SUCH HAS BEEN RECEIVED DURING THE 20 DAYS NEXT.

□ DENOTES STONE BOUND WITH A DRILL HOLE (TO BE SET) STONE BOUNDS ARE TO BE 6 INCHES SQUARE BY 4 FEET LONG WITH A 1/8 INCH DRILL HOLE IN THE TOP CENTER. THE TOP OF THE BOUND IS TO BE SET FLUSH WITH THE FINISHED GRADE.

MATCHLINE SEE SHEET 8



General Notes

- Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
- The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
- The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws.
OSRD Requirements:
Minimum Area: 20,000 s.f.
Minimum Frontage: 50' (100' average)
Yard Setbacks: Front: 20'
Side: 15'
Rear: 15'
- Parcels F and M are not building lots.
- St. Paul Lane is intended to become a public way. St. James Way is to remain private, owned and maintained by a homeowner's association.
- The Access and Utility Easement through lot 28 is to be maintained by a homeowner's association.
- Lot 28 is a single building lot which will be deed restricted such that it can not be further subdivided to create additional building lots.
- A 20' wide temporary construction easement is to be reserved along the frontage of each lot within the subdivision and shall remain in effect until the street is accepted as a public way by the Town of Westford.
- The boundary between the Open Space and the lots and between the "No Clear Zone" and the lots is to be delineated with 4" x 4" wood posts with 2" reveal and a sign describing the boundary. Posts shall be spaced 50' apart.

PLAN REFERENCES

M.N.D.R.D. BOOK 240 PLAN 88
 M.N.D.R.D. BOOK 235 PLAN 51
 M.N.D.R.D. BOOK 224 PLAN 90

DEED REFERENCE

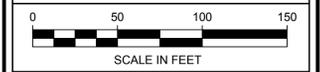
M.N.D.R.D. BOOK 19882 PAGE 258
 M.N.D.R.D. BOOK 21730 PAGE 263
 M.N.D.R.D. BOOK 21730 PAGE 266
 M.N.D.R.D. BOOK 21730 PAGE 267
 M.N.D.R.D. BOOK 21730 PAGE 269
 M.N.D.R.D. BOOK 23657 PAGE 195

RECORD OWNERS

CONNELL REAL ESTATE TRUST
 P.O. BOX 1230
 WESTFORD, MA 01886

ASSESSORS REFERENCES

MAP 040, PARCEL 0017 0000



MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

**DEFINITIVE SUBDIVISION
 PLAN OF LAND
 SPALDING HILL
 ESTATES
 WESTFORD, MA**

**ALAN
 ENGINEERING, L.L.C.**
 110 WINN STREET, SUITE 209
 WOBURN, MA 01801
 (978) 577-6444
 alan.eng@verizon.net

PREPARED FOR:
 CONNELL REAL ESTATE TRUST
 P.O. BOX 1230
 WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	9 of 30
SCALE: 1" = 50'	

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS. THIS IS NOT A CERTIFICATION OF TITLE OR OWNERSHIP NOR TO ANY UNRECORDED EASEMENTS.

[Signature]
 EDWARD J. FARRELL
 NO. 34613
 MASSACHUSETTS LICENSED LAND SURVEYOR
 (FOR ALAN ENGINEERING, L.L.C.)

12-17-19
 DATE

TOWN OF WESTFORD
 PLANNING BOARD APPROVAL

 DATE: _____

THIS PLAN IS APPROVED SUBJECT TO A CERTIFICATE OF APPROVAL OF A DEFINITIVE SUBDIVISION PLAN AND A SPECIAL PERMIT FOR AN OPEN SPACE RESIDENTIAL DEVELOPMENT PURSUANT TO SECTION 7.1 OF THE TOWN OF WESTFORD ZONING BYLAWS, BOTH RECORDED HERewith.

THIS PLAN IS APPROVED SUBJECT TO COVENANT CONDITIONS SET FORTH IN A COVENANT EXECUTED BY _____, DATED _____, AND TO BE RECORDED HERewith.

I, _____, CLERK OF THE TOWN OF WESTFORD HEREBY CERTIFY THAT NOTICE OF APPROVAL OF THIS PLAN HAS BEEN RECEIVED AND RECORDED WITH THIS OFFICE ON _____ AND THAT NO APPEAL OF SUCH HAS BEEN RECEIVED DURING THE 20 DAYS NEXT.

□ DENOTES STONE BOUND WITH A DRILL HOLE (TO BE SET) STONE BOUNDS ARE TO BE 6 INCHES SQUARE BY 4 FEET LONG WITH A 1/2 INCH DRILL HOLE IN THE TOP CENTER. THE TOP OF THE BOUND IS TO BE SET FLUSH WITH THE FINISHED GRADE.

MATCHLINE SEE SHEET 5



General Notes

- Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
- The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
- The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws. OSRD Requirements: Minimum Area: 20,000 s.f. Minimum Frontage: 50' (100' average) Front: 20' Side: 15' Rear: 15'
- Parcels F and M are not building lots.
- St. Paul Lane is intended to become a public way. St. James Way is to remain private, owned and maintained by a homeowner's association.
- The Access and Utility Easement through lot 28 is to be maintained by a homeowner's association.
- Lot 28 is a single building lot which will be deed restricted such that it can not be further subdivided to create additional building lots.
- A 20' wide temporary construction easement is to be reserved along the frontage of each lot within the subdivision and shall remain in effect until the street is accepted as a public way by the Town of Westford.
- The boundary between the Open Space and the lots and between the "No Clear Zone" and the lots is to be delineated with 4" x 4" wood posts with 2" reveal and a sign describing the boundary. Posts shall be spaced 50' apart.

PLAN REFERENCES

M.N.D.R.D. BOOK 240 PLAN 88
 M.N.D.R.D. BOOK 235 PLAN 51
 M.N.D.R.D. BOOK 224 PLAN 90

DEED REFERENCE

M.N.D.R.D. BOOK 19882 PAGE 258
 M.N.D.R.D. BOOK 21730 PAGE 263
 M.N.D.R.D. BOOK 21730 PAGE 266
 M.N.D.R.D. BOOK 21730 PAGE 267
 M.N.D.R.D. BOOK 21730 PAGE 269
 M.N.D.R.D. BOOK 23657 PAGE 195

RECORD OWNERS

CONNELL REAL ESTATE TRUST
 P.O. BOX 1230
 WESTFORD, MA 01886

ASSESSORS REFERENCES

MAP 040, PARCEL 0017 0000

□ DENOTES STONE BOUND WITH A DRILL HOLE (TO BE SET) STONE BOUNDS ARE TO BE 6 INCHES SQUARE BY 4 FEET LONG WITH A 3/8 INCH DRILL HOLE IN THE TOP CENTER. THE TOP OF THE BOUND IS TO BE SET FLUSH WITH THE FINISHED GRADE.



MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

DEFINITIVE SUBDIVISION
 PLAN OF LAND
 SPALDING HILL
 ESTATES
 WESTFORD, MA

ALAN ENGINEERING, L.L.C.
 110 WINN STREET, SUITE 209
 WOBURN, MA 01801
 (978) 577-6444
 alan.eng@verizon.net

PREPARED FOR:
 CONNELL REAL ESTATE TRUST
 P.O. BOX 1230
 WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	10 of 30
SCALE: 1" = 50'	

TOWN OF WESTFORD
 PLANNING BOARD APPROVAL

DATE: _____

I CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS. THIS IS NOT A CERTIFICATION OF TITLE OR OWNERSHIP NOR TO ANY UNRECORDED EASEMENTS.

[Signature]
 EDWARD J. FARRELL
 NO. 34813
 REGISTERED PROFESSIONAL LAND SURVEYOR

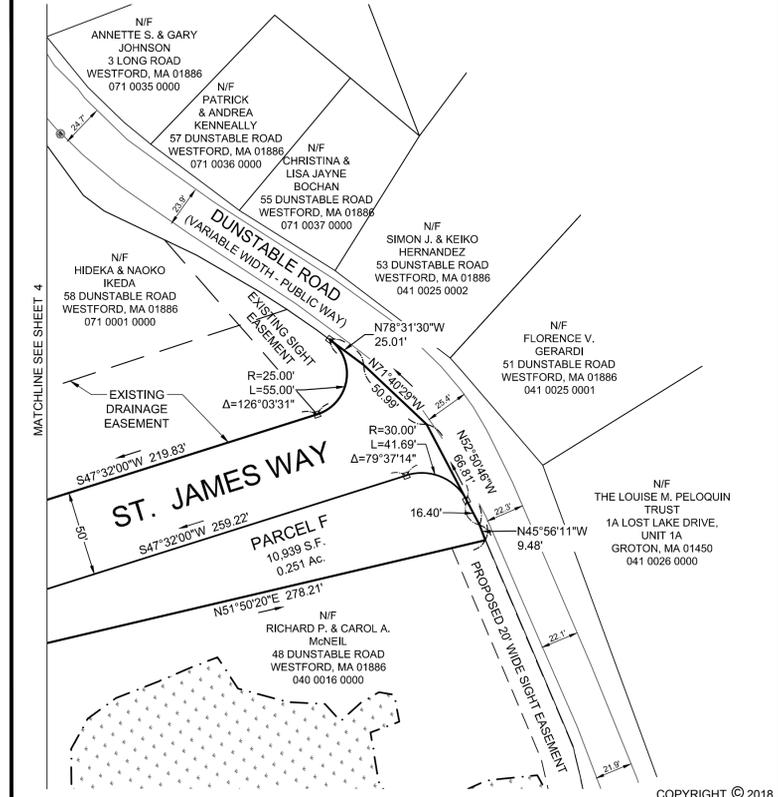
12-17-19
 DATE

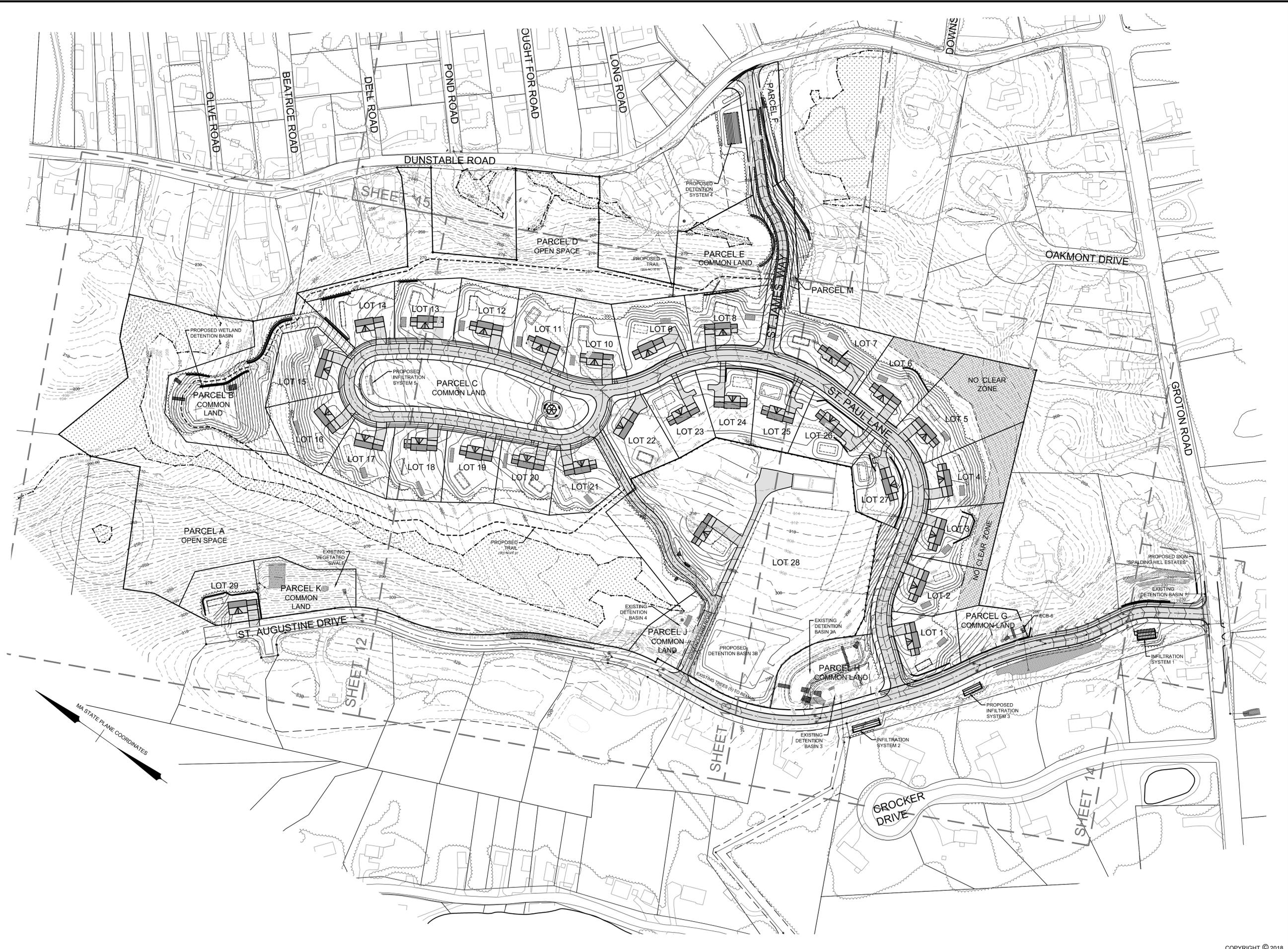
MASSACHUSETTS LICENSED LAND SURVEYOR
 (FOR ALAN ENGINEERING, L.L.C.)

THIS PLAN IS APPROVED SUBJECT TO A CERTIFICATE OF APPROVAL OF A DEFINITIVE SUBDIVISION PLAN AND A SPECIAL PERMIT FOR AN OPEN SPACE RESIDENTIAL DEVELOPMENT PURSUANT TO SECTION 7.1 OF THE TOWN OF WESTFORD ZONING BYLAWS, BOTH RECORDED HERewith.

THIS PLAN IS APPROVED SUBJECT TO COVENANT CONDITIONS SET FORTH IN A COVENANT EXECUTED BY _____, DATED _____, AND TO BE RECORDED HERewith.

I, _____, CLERK OF THE TOWN OF WESTFORD HEREBY CERTIFY THAT NOTICE OF APPROVAL OF THIS PLAN HAS BEEN RECEIVED AND RECORDED WITH THIS OFFICE ON _____ AND THAT NO APPEAL OF SUCH HAS BEEN RECEIVED DURING THE 20 DAYS NEXT.





General Notes

- Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
- The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
- The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws.
OSRD Requirements:
Minimum Area: 20,000 s.f.
Minimum Frontage: 50' (100' average)
Yard Setbacks: Front: 20'
Side: 15'
Rear: 15'
- Parcels F and M are not building lots.
- Houses and lot grading shown is for informational purposes only to show how each lot could be developed. House footprints shown are not intended to represent the actual size, shape and location of the houses that will be constructed.
- Retaining walls shown are for graphical representation only and do not represent a structural design or analysis. Retaining walls over 4 feet in height are to be designed by a structural engineer.
- Detention Basin 3B is to be constructed prior to performing any modifications to Detention Basin 3A. Detention Basin 3B is to detain and treat runoff for the farm (Lot 28) only. It is to be owned and maintained by the owner of Lot 28. The basin is to be graded with shallow side slopes to facilitate grazing.
- The boundary between the Open Space and the lots and along the "No Clear Zone" is to be delineated with 4" x 4" wood posts with 2' reveal and a sign describing the boundary. Posts shall be spaced approximately 50' apart.
- The proposed trail is to be constructed by pruning existing vegetation only and painted tree markings. No disturbance to the existing ground surface is to occur.

PLAN REFERENCES

M.N.D.R.D. BOOK 240 PLAN 88
M.N.D.R.D. BOOK 235 PLAN 51
M.N.D.R.D. BOOK 224 PLAN 90

DEED REFERENCE

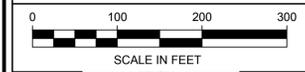
M.N.D.R.D. BOOK 19882 PAGE 258
M.N.D.R.D. BOOK 21730 PAGE 263
M.N.D.R.D. BOOK 21730 PAGE 266
M.N.D.R.D. BOOK 21730 PAGE 267
M.N.D.R.D. BOOK 21730 PAGE 269
M.N.D.R.D. BOOK 23657 PAGE 195

RECORD OWNERS

CONNELL REAL ESTATE TRUST
P.O. BOX 1230
WESTFORD, MA 01886

ASSESSORS REFERENCES

MAP 040, PARCEL 0017 0000



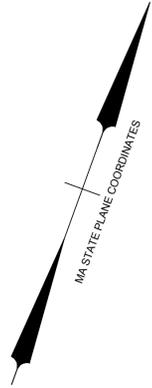
MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

GRADING & DRAINAGE INDEX PLAN
SPALDING HILL ESTATES
WESTFORD, MA

ALAN ENGINEERING, L.L.C.
110 WINN STREET, SUITE 209
WOBURN, MA 01801
(978) 577-6444
alan.eng@verizon.net

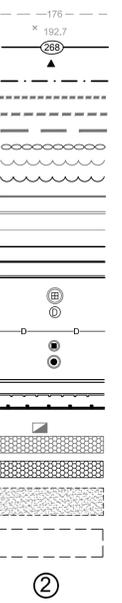
PREPARED FOR:
CONNELL REAL ESTATE TRUST
P.O. BOX 1230
WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	11 of 30
SCALE: 1" = 100'	



LEGEND

- EXISTING CONTOUR
- EXISTING SPOT ELEVATION
- PROPOSED CONTOUR
- WETLAND FLAG
- EDGE OF WETLAND
- 50' WETLAND BUFFER
- 75' WETLAND BUFFER
- 100' WETLAND BUFFER
- EXISTING STONEWALL
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING GRANITE CURB
- EXISTING CAPE COD BERM
- EXISTING EDGE OF PAVEMENT
- PROPOSED GRANITE CURB
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CAPECOD BERM
- EXISTING CATCH BASIN
- EXISTING DRAIN MANHOLE
- PROPOSED CATCH BASIN
- PROPOSED DRAIN MANHOLE
- PROPOSED DRAIN LINE
- EXISTING GUARD RAIL
- PROPOSED GUARD RAIL
- TEST HOLE
- EXISTING RIPRAP
- PROPOSED RIPRAP
- PROPOSED ROOF DRAIN RECHARGE SYSTEM
- PROPOSED SEPTIC SYSTEM LEACH FIELD LOCATION
- PROPOSED HOUSE NUMBER



General Notes

1. Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
2. The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
3. The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws. OSRD Requirements:
Minimum Area: 20,000 s.f.
Minimum Frontage: 50' (100' average)
Yard Setbacks: Front: 20'
Side: 15'
Rear: 15'
4. Parcels F and M are not building lots.
5. Houses and lot grading shown is for informational purposes only to show how each lot could be developed. House footprints shown are not intended to represent the actual size, shape and location of the houses that will be constructed.
6. Retaining walls shown are for graphical representation only and do not represent a structural design or analysis. Retaining walls over 4 feet in height are to be designed by a structural engineer.
7. Detention Basin 3B is to be constructed prior to performing any modifications to Detention Basin 3A. Detention Basin 3B is to detain and treat runoff for the farm (Lot 28) only. It is to be owned and maintained by the owner of Lot 28. The basin is to be graded with shallow side slopes to facilitate grazing.
8. The boundary between the Open Space and the lots and along the "No Clear Zone" is to be delineated with 4" x 4" wood posts with 2' reveal and a sign describing the boundary. Posts shall be spaced approximately 50' apart.
9. The proposed trail is to be constructed by pruning existing vegetation only and painted tree markings. No disturbance to the existing ground surface is to occur.

PLAN REFERENCES

- M.N.D.R.D. BOOK 240 PLAN 88
- M.N.D.R.D. BOOK 235 PLAN 51
- M.N.D.R.D. BOOK 224 PLAN 90

DEED REFERENCE

- M.N.D.R.D. BOOK 19682 PAGE 258
- M.N.D.R.D. BOOK 21730 PAGE 263
- M.N.D.R.D. BOOK 21730 PAGE 266
- M.N.D.R.D. BOOK 21730 PAGE 267
- M.N.D.R.D. BOOK 21730 PAGE 269
- M.N.D.R.D. BOOK 23657 PAGE 195

RECORD OWNERS

CONNELL REAL ESTATE TRUST
P.O. BOX 1230
WESTFORD, MA 01886

ASSESSORS REFERENCES

MAP 040, PARCEL 0017 0000



MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

**GRADING AND DRAINAGE PLAN
SPALDING HILL ESTATES
WESTFORD, MA**

ALAN ENGINEERING, L.L.C.
110 WINN STREET, SUITE 209
WOBURN, MA 01801
(978) 577-6444
alan.eng@verizon.net

PREPARED FOR:
CONNELL REAL ESTATE TRUST
P.O. BOX 1230
WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	12 of 30
SCALE: 1" = 40'	



MATCHLINE SEE SHEET 13

MATCHLINE SEE SHEET 15

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MATCHLINE SEE SHEET 12

LEGEND

- EXISTING CONTOUR
- EXISTING SPOT ELEVATION
- PROPOSED CONTOUR
- WETLAND FLAG
- EDGE OF WETLAND
- 50' WETLAND BUFFER
- 75' WETLAND BUFFER
- 100' WETLAND BUFFER
- EXISTING STONEWALL
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING GRANITE CURB
- EXISTING CAPE COD BERM
- EXISTING EDGE OF PAVEMENT
- PROPOSED EDGE OF PAVEMENT
- PROPOSED GRANITE CURB
- PROPOSED CAPECOD BERM
- EXISTING CATCH BASIN
- EXISTING DRAIN MANHOLE
- EXISTING DRAIN LINE
- PROPOSED CATCH BASIN
- PROPOSED DRAIN MANHOLE
- PROPOSED DRAIN LINE
- EXISTING GUARD RAIL
- PROPOSED GUARD RAIL
- TEST HOLE
- EXISTING RIPRAP
- PROPOSED RIPRAP
- PROPOSED ROOF DRAIN
- RECHARGE SYSTEM
- PROPOSED SEPTIC SYSTEM
- LEACH FIELD LOCATION
- PROPOSED HOUSE NUMBER

②

N/F
JAMES A. BLAKE &
LISE R. CONNELL BLAKE
TRUST
6 ST. AUGUSTINE DRIVE
WESTFORD, MA 01886
040 0017 0005

N/F
CONNELL REAL ESTATE
TRUST
P.O. BOX 1230
WESTFORD, MA 01886
040 0050 0000

N/F
CRAIG M. & STAVROULA
STOWELL
4 ST. AUGUSTINE DRIVE
WESTFORD, MA 01886
040 0017 0005



MATCHLINE SEE SHEET 14

N/F
ARTHUR L. HEALY
5 CONNELL DRIVE
P.O. BOX 43
WESTFORD, MA 01886
071 0005 0000

PROPOSED TRAIL
(SEE NOTE 9)

OPEN SPACE
MARKER
(TYPICAL)
SEE NOTE 8

PARCEL D
OPEN SPACE

- General Notes**
1. Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
 2. The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
 3. The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws. OSRD Requirements:
Minimum Area: 20,000 s.f.
Minimum Frontage: 50' (100' average)
Yard Setbacks: Front: 20'
Side: 15'
Rear: 15'
 4. Parcels F and M are not building lots.
 5. Houses and lot grading shown is for informational purposes only to show how each lot could be developed. House footprints shown are not intended to represent the actual size, shape and location of the houses that will be constructed.
 6. Retaining walls shown are for graphical representation only and do not represent a structural design or analysis. Retaining walls over 4 feet in height are to be designed by a structural engineer.
 7. Detention Basin 3B is to be constructed prior to performing any modifications to Detention Basin 3A. Detention Basin 3B is to detain and treat runoff for the farm (Lot 28) only. It is to be owned and maintained by the owner of Lot 28. The basin is to be graded with shallow side slopes to facilitate grazing.
 8. The boundary between the Open Space and the lots and along the "No Clear Zone" is to be delineated with 4" x 4" wood posts with 2" reveal and a sign describing the boundary. Posts shall be spaced approximately 50' apart.
 9. The proposed trail is to be constructed by pruning existing vegetation only and painted tree markings. No disturbance to the existing ground surface is to occur.

- PLAN REFERENCES**
- M.N.D.R.D. BOOK 240 PLAN 88
 - M.N.D.R.D. BOOK 235 PLAN 51
 - M.N.D.R.D. BOOK 224 PLAN 90

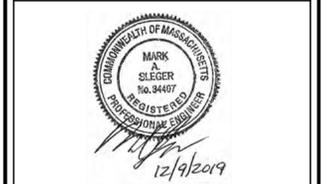
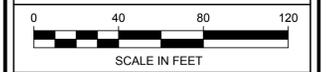
- DEED REFERENCE**
- M.N.D.R.D. BOOK 19682 PAGE 258
 - M.N.D.R.D. BOOK 21730 PAGE 263
 - M.N.D.R.D. BOOK 21730 PAGE 266
 - M.N.D.R.D. BOOK 21730 PAGE 267
 - M.N.D.R.D. BOOK 21730 PAGE 269
 - M.N.D.R.D. BOOK 23657 PAGE 195

RECORD OWNERS

CONNELL REAL ESTATE TRUST
P.O. BOX 1230
WESTFORD, MA 01886

ASSESSORS REFERENCES

MAP 040, PARCEL 0017 0000



MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

**GRADING AND DRAINAGE PLAN
SPALDING HILL
ESTATES
WESTFORD, MA**

**ALAN
ENGINEERING, L.L.C.**
110 WINN STREET, SUITE 209
WOBURN, MA 01801
(978) 577-6444
alan.eng@verizon.net

PREPARED FOR:
CONNELL REAL ESTATE TRUST
P.O. BOX 1230
WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	13 of 30
SCALE: 1" = 40'	

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LEGEND

- EXISTING CONTOUR
- EXISTING SPOT ELEVATION
- PROPOSED CONTOUR
- WETLAND FLAG
- EDGE OF WETLAND
- 50' WETLAND BUFFER
- 75' WETLAND BUFFER
- 100' WETLAND BUFFER
- EXISTING STONEWALL
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING GRANITE CURB
- EXISTING CAPE COD BERM
- EXISTING EDGE OF PAVEMENT
- PROPOSED EDGE OF PAVEMENT
- PROPOSED GRANITE CURB
- PROPOSED CAPECOD BERM
- EXISTING CATCH BASIN
- EXISTING DRAIN MANHOLE
- EXISTING DRAIN LINE
- PROPOSED CATCH BASIN
- PROPOSED DRAIN MANHOLE
- PROPOSED DRAIN LINE
- EXISTING GUARD RAIL
- PROPOSED GUARD RAIL
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- EXISTING RIPRAP
- PROPOSED RIPRAP
- PROPOSED ROOF DRAIN RECHARGE SYSTEM
- PROPOSED SEPTIC SYSTEM
- LEACH FIELD LOCATION
- PROPOSED HOUSE NUMBER

General Notes

1. Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
2. The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
3. The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws. OSRD Requirements:
Minimum Area: 20,000 s.f.
Minimum Frontage: 50' (100' average)
Front: 20'
Side: 15'
Rear: 15'
4. Parcels F and M are not building lots.
5. Houses and lot grading shown is for informational purposes only to show how each lot could be developed. House footprints shown are not intended to represent the actual size, shape and location of the houses that will be constructed.
6. Retaining walls shown are for graphical representation only and do not represent a structural design or analysis. Retaining walls over 4 feet in height are to be designed by a structural engineer.
7. Detention Basin 3B is to be constructed prior to performing any modifications to Detention Basin 3A. Detention Basin 3B is to detain and treat runoff for the farm (Lot 28) only. It is to be owned and maintained by the owner of Lot 28. The basin is to be graded with shallow side slopes to facilitate grazing.
8. The boundary between the Open Space and the lots and along the "No Clear Zone" is to be delineated with 4" x 4" wood posts with 2' reveal and a sign describing the boundary. Posts shall be spaced approximately 50' apart. The proposed trail is to be constructed by pruning existing vegetation only and painted tree markings. No disturbance to the existing ground surface is to occur.

PLAN REFERENCES

- M.N.D.R.D. BOOK 240 PLAN 88
- M.N.D.R.D. BOOK 235 PLAN 51
- M.N.D.R.D. BOOK 224 PLAN 90

DEED REFERENCE

- M.N.D.R.D. BOOK 19682 PAGE 258
- M.N.D.R.D. BOOK 21730 PAGE 263
- M.N.D.R.D. BOOK 21730 PAGE 266
- M.N.D.R.D. BOOK 21730 PAGE 267
- M.N.D.R.D. BOOK 21730 PAGE 269
- M.N.D.R.D. BOOK 23657 PAGE 195

RECORD OWNERS

CONNELL REAL ESTATE TRUST
P.O. BOX 1230
WESTFORD, MA 01886

ASSESSORS REFERENCES

MAP 040, PARCEL 0017 0000



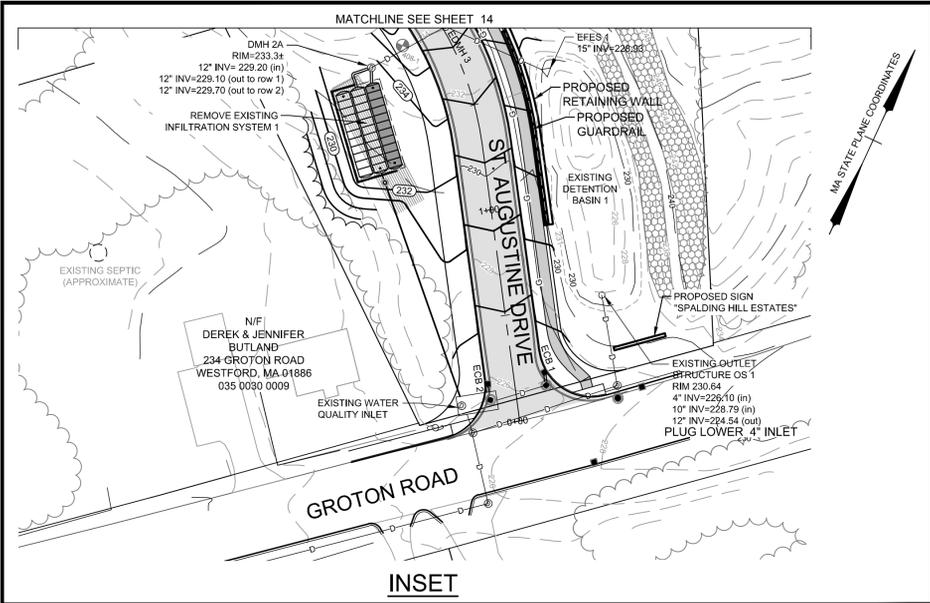
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MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

GRADING AND DRAINAGE PLAN
SPALDING HILL ESTATES
WESTFORD, MA

ALAN ENGINEERING, L.L.C.
110 WINN STREET, SUITE 209
WOBURN, MA 01801
(978) 577-6444
alan.eng@verizon.net

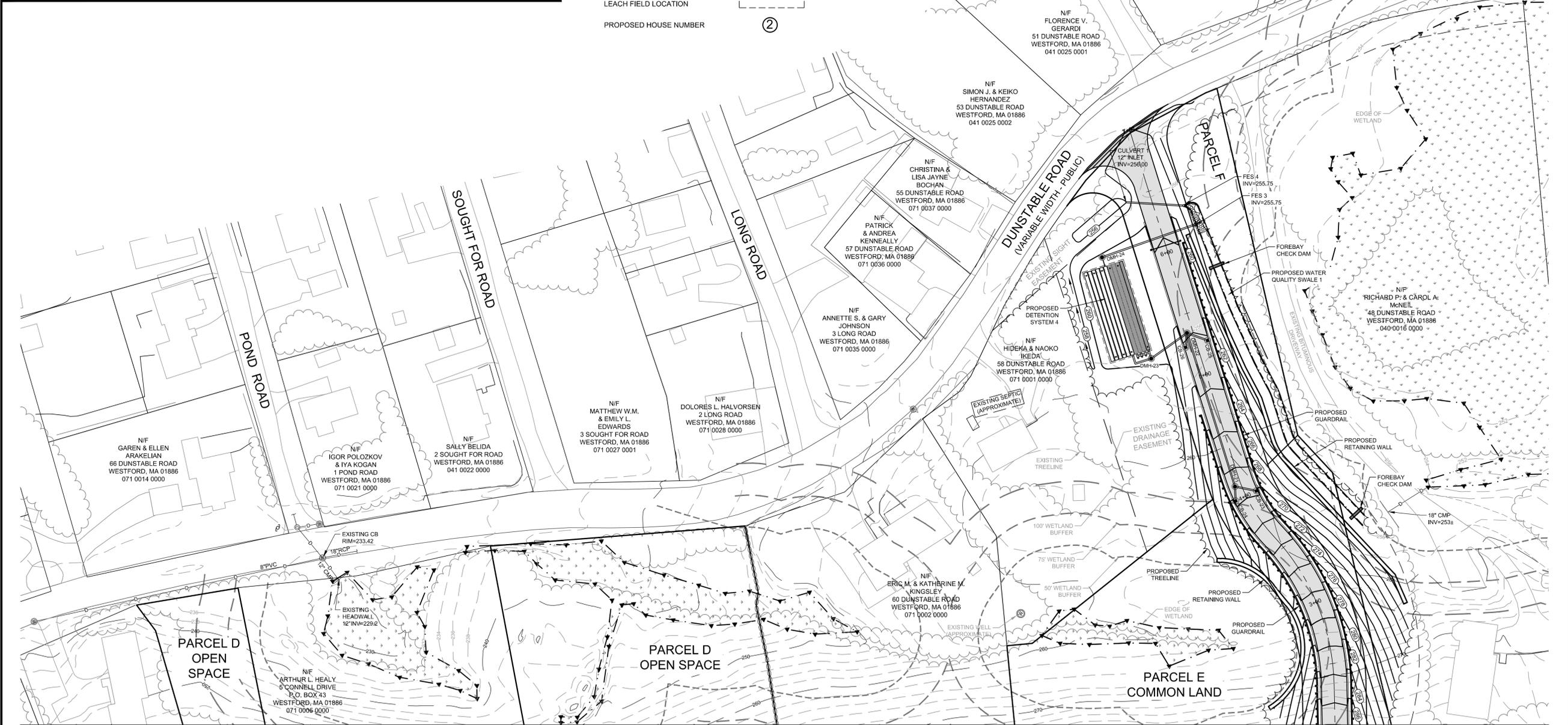
PREPARED FOR:
CONNELL REAL ESTATE TRUST
P.O. BOX 1230
WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	14 of 30
SCALE: 1" = 40'	



LEGEND

EXISTING CONTOUR	---
EXISTING SPOT ELEVATION	176
PROPOSED CONTOUR	268
WETLAND FLAG	▲
EDGE OF WETLAND	---
50' WETLAND BUFFER	---
75' WETLAND BUFFER	---
100' WETLAND BUFFER	---
EXISTING STONEWALL	---
EXISTING TREELINE	---
PROPOSED TREELINE	---
EXISTING GRANITE CURB	---
EXISTING CAPE COD BERM	---
EXISTING EDGE OF PAVEMENT	---
PROPOSED GRANITE CURB	---
PROPOSED CAPECOD BERM	---
EXISTING CATCH BASIN	⊕
EXISTING DRAIN MANHOLE	⊕
EXISTING DRAIN LINE	---
PROPOSED CATCH BASIN	⊕
PROPOSED DRAIN MANHOLE	⊕
PROPOSED DRAIN LINE	---
EXISTING GUARD RAIL	---
PROPOSED GUARD RAIL	---
TEST HOLE	⊕
EXISTING RIPRAP	⊕
PROPOSED RIPRAP	⊕
PROPOSED ROOF DRAIN RECHARGE SYSTEM	⊕
PROPOSED SEPTIC SYSTEM LEACH FIELD LOCATION	⊕
PROPOSED HOUSE NUMBER	②



General Notes

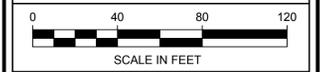
- Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
- The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
- The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws.
OSRD Requirements:
Minimum Area: 20,000 s.f.
Minimum Frontage: 50' (100' average)
Yard Setbacks: Front: 20'
Side: 15'
Rear: 15'
- Parcels F and M are not building lots.
- Houses and lot grading shown is for informational purposes only to show the intended design of the development. House footprints shown are not intended to represent the actual size, shape and location of the houses that will be constructed.
- Retaining walls shown are for graphical representation only and do not represent a structural design or analysis. Retaining walls over 4 feet in height are to be designed by a structural engineer.
- Detention Basin 3B is to be constructed prior to performing any modifications to Detention Basin 3A. Detention Basin 3B is to detain and treat runoff for the farm (Lot 28) only. It is to be owned and maintained by the owner of Lot 28. The basin is to be graded with shallow side slopes to facilitate grazing.
- The boundary between the Open Space and the lots and along the "No Clear Zone" is to be delineated with 4" x 4" wood posts with 2' reveal and a sign describing the boundary. Posts shall be spaced approximately 50' apart.
- The proposed trail is to be constructed by pruning existing vegetation only and painted tree markings. No disturbance to the existing ground surface is to occur.

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M.N.D.R.D. BOOK 235 PLAN 51
M.N.D.R.D. BOOK 224 PLAN 90

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M.N.D.R.D. BOOK 21730 PAGE 263
M.N.D.R.D. BOOK 21730 PAGE 266
M.N.D.R.D. BOOK 21730 PAGE 267
M.N.D.R.D. BOOK 21730 PAGE 269
M.N.D.R.D. BOOK 23657 PAGE 195

RECORD OWNERS
CONNELL REAL ESTATE TRUST
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ASSESSORS REFERENCES
MAP 040, PARCEL 0017 0000



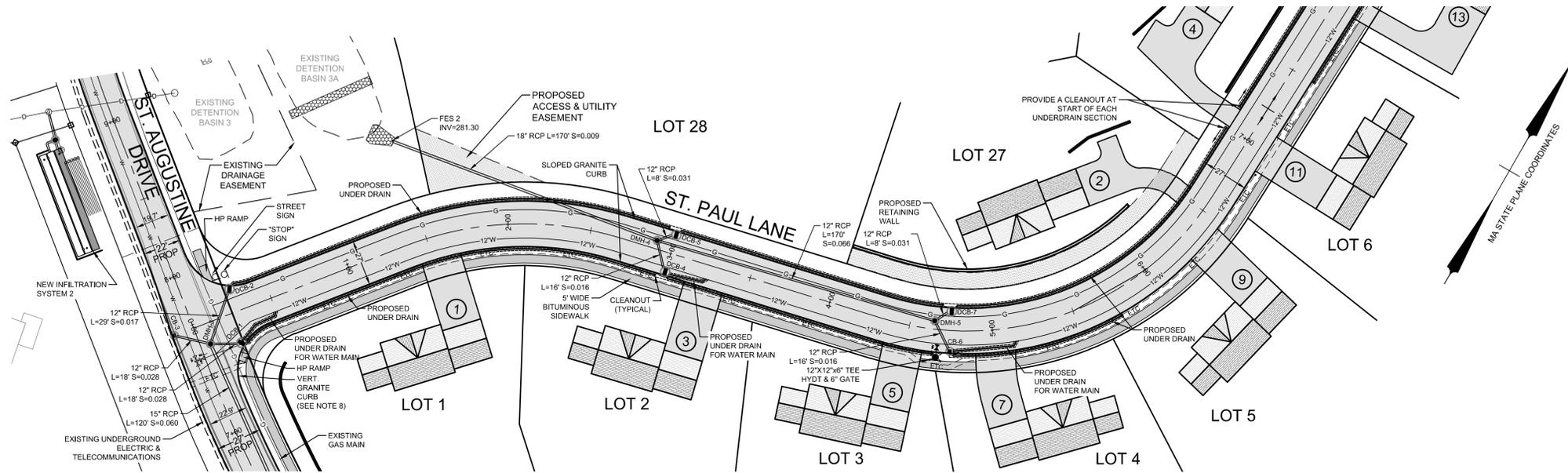
MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

GRADING AND DRAINAGE PLAN
SPALDING HILL ESTATES
WESTFORD, MA

ALAN ENGINEERING, L.L.C.
110 WINN STREET, SUITE 209
WOBURN, MA 01801
(978) 577-6444
alan.eng@verizon.net

PREPARED FOR:
CONNELL REAL ESTATE TRUST
P.O. BOX 1230
WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	15 of 30
SCALE: 1" = 40'	



PLAN VIEW
SCALE: 1" = 40'

LEGEND

- EXISTING GRANITE CURB
- EXISTING CAPE COD BERM
- EXISTING EDGE OF PAVEMENT
- PROPOSED GRANITE CURB
- PROPOSED CAPECOD BERM
- EXISTING CATCH BASIN
- EXISTING DRAIN LINE
- PROPOSED DRAIN LINE
- PROPOSED DRAIN MANHOLE
- PROPOSED CATCH BASIN
- EXISTING WATER MAIN
- EXISTING HYDRANT
- EXISTING GATE VALVE
- PROPOSED WATER MAIN
- PROPOSED HYDRANT
- PROPOSED GATE VALVE
- PROPOSED U/G CONDUITS
- PROPOSED GAS MAIN
- EXISTING GUARD RAIL
- PROPOSED GUARD RAIL
- PROPOSED HOUSE NUMBER

General Notes

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2. The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
3. The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws.
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Rear: 15'
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7. Vertical granite curbing is to be provided at all intersection roundings except as otherwise noted. Transition sections are to be provided to between sloped and vertical curbing.

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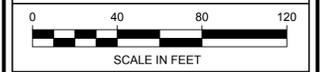
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RECORD OWNERS

CONNELL REAL ESTATE TRUST
P.O. BOX 1230
WESTFORD, MA 01886

ASSESSORS REFERENCES

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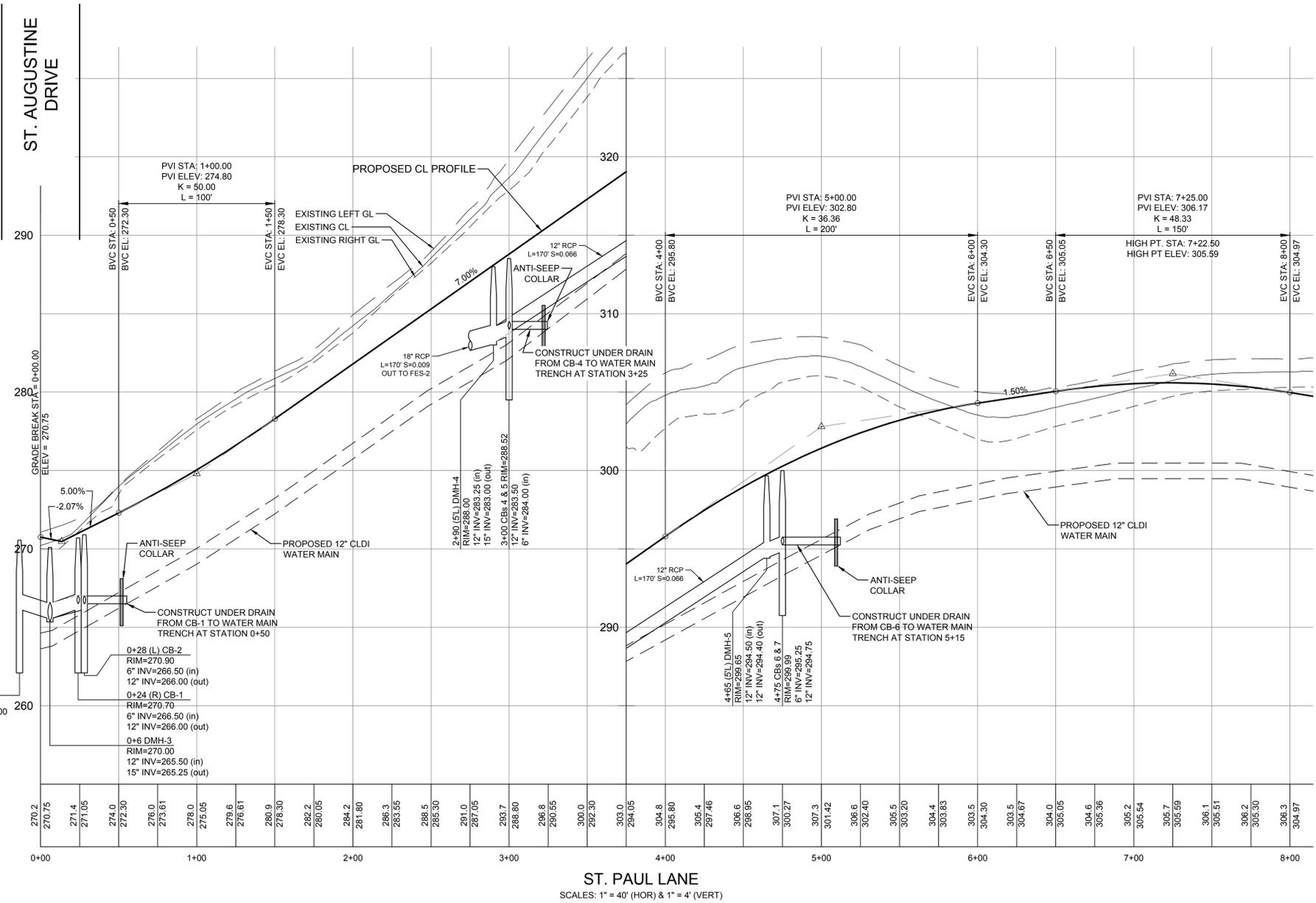
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WESTFORD, MA

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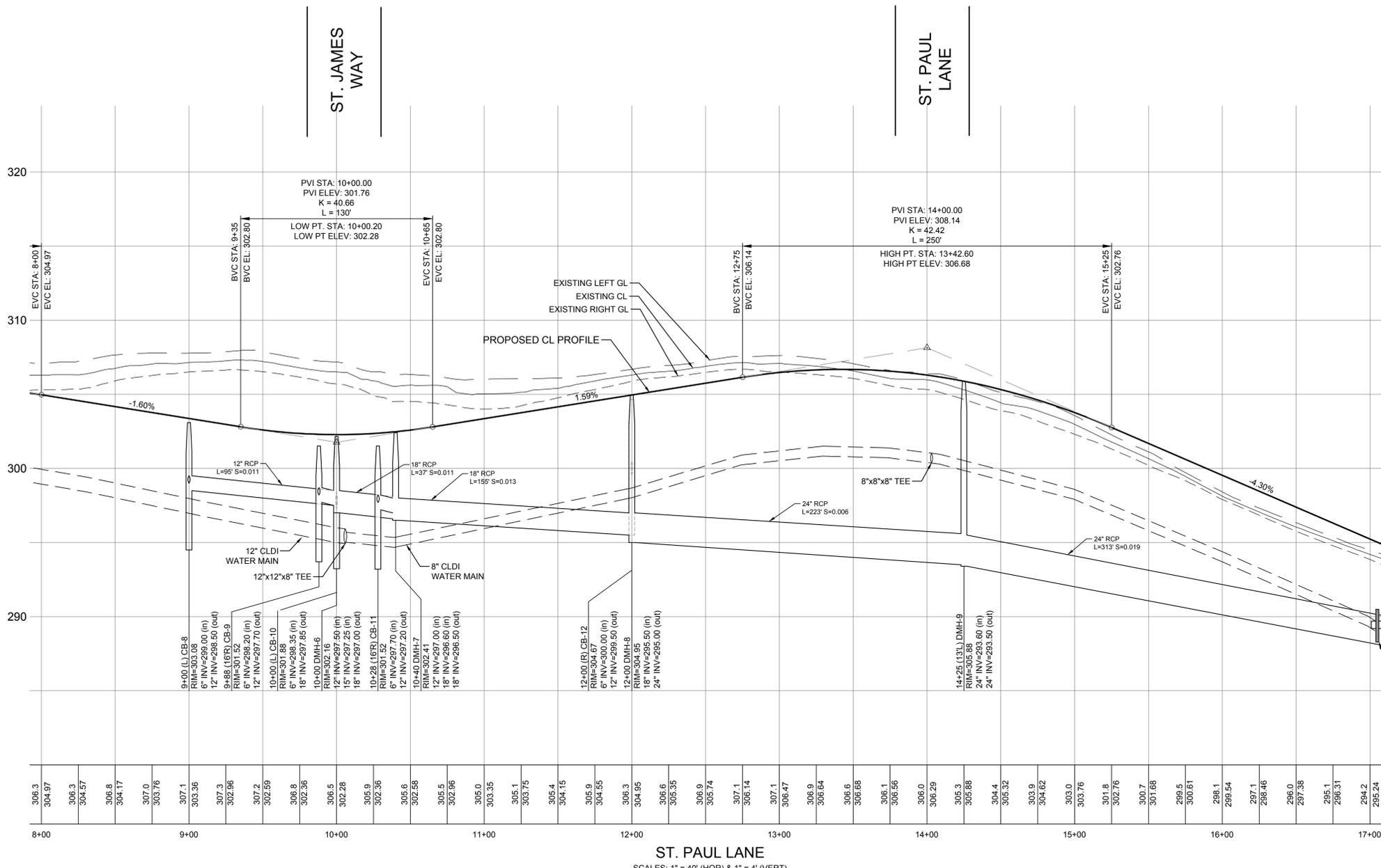
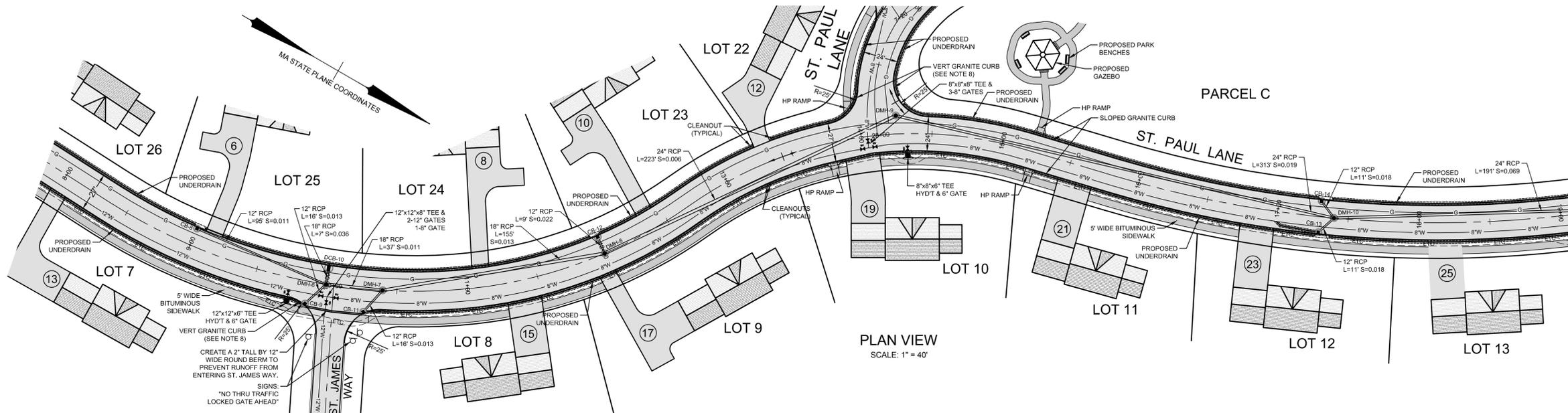
JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	16 of 30
SCALE: 1" = 40'	



DRAINAGE PIPING SCHEDULE

BEGIN STRUCTURE	BEGIN INVERT	END INVERT	END STRUCTURE	PIPE LENGTH	PIPE SLOPE	PIPE SIZE	PIPE TYPE
CB 1	266.00	265.50	DMH 3	18'	0.028	12"	RCP
CB 2	266.00	265.50	DMH 3	29'	0.017	12"	RCP
CB 3	266.00	265.50	DMH 3	18'	0.028	12"	RCP
DMH 3	265.25	258.00	DMH 2	120'	0.060	15"	RCP
DMH 2	258.00	257.25	DMH 1	33'	0.023	15"	RCP
DMH 1	257.00	256.70	DMH 2A	33'	0.009	12"	RCP
DMH 2A	256.60	256.50	INF 3	5'	0.020	12"	N-12
DMH 1	257.15	255.00	FES 1	119'	0.018	15"	N-12
CB 4	283.50	283.25	DMH 4	16'	0.016	12"	RCP
CB 5	283.50	283.25	DMH 4	8'	0.031	12"	RCP
DMH 4	282.75	281.30	FES 2	170'	0.009	18"	RCP
CB 6	294.75	294.50	DMH 5	16'	0.016	12"	RCP
CB 7	294.75	294.50	DMH 5	8'	0.031	12"	RCP
DMH 5	294.40	283.25	DMH 4	170'	0.066	12"	RCP
CB 8	288.50	287.50	DMH 6	95'	0.011	12"	RCP
CB 9	288.20	288.00	DMH 6	16'	0.013	12"	RCP
CB 10	297.60	297.35	DMH 6	7'	0.036	18"	RCP
DMH 6	297.00	296.60	DMH 7	37'	0.011	18"	RCP
CB 11	297.20	297.00	DMH 7	16'	0.013	12"	RCP
DMH 7	296.50	294.50	DMH 8	155'	0.013	18"	RCP
CB 12	299.50	299.30	DMH 8	9'	0.022	12"	RCP
DMH 8	295.00	293.60	DMH 9	223'	0.006	24"	RCP
DMH 9	293.50	287.50	DMH 10	313'	0.019	24"	RCP
CB 13	288.70	288.50	DMH 10	11'	0.018	12"	RCP
CB 14	288.70	288.50	DMH 10	11'	0.018	12"	RCP
DMH 10	287.40	274.30	DMH 11	191'	0.069	24"	RCP
CB 15	275.50	275.30	DMH 11	11'	0.018	12"	RCP
CB 16	275.50	275.50	DMH 11	11'	0.018	12"	RCP
DMH 11	274.50	273.50	DMH 13	67'	0.010	24"	RCP
DMH 12	274.10	274.00	DMH 13	5'	0.020	18"	N-12
DMH 13	273.60	273.50	INF 5	5'	0.020	12"	N-12
DMH 13	269.00	267.50	DMH 14	41'	0.037	24"	N-12
CB 17	268.20	267.90	DMH 15	9'	0.033	12"	RCP
CB 18	268.20	267.90	DMH 15	17'	0.018	12"	RCP
DMH 15	267.80	266.50	DMH 14	87'	0.015	12"	RCP
DMH 14	265.50	255.00	DMH 16	123'	0.085	24"	N-12
DMH 16	249.50	241.50	DMH 17	91'	0.088	24"	N-12
DMH 17	237.00	228.50	DMH 18	121'	0.070	24"	N-12
DMH 18	221.50	218.50	FES 5	60'	0.050	24"	N-12
OS 1	214.74	214.50	FES 6	29'	0.009	18"	N-12
DMH 19	275.50	274.20	DMH 12	134'	0.010	18"	RCP
CB 19	276.20	276.00	DMH 19	13'	0.015	12"	RCP
CB 20	276.20	276.00	DMH 19	8'	0.025	12"	RCP
DMH 20	288.70	276.00	DMH 19	211'	0.060	12"	RCP
CB 21	289.00	288.80	DMH 20	14'	0.014	12"	RCP
CB 22	289.00	288.80	DMH 20	9'	0.022	12"	RCP
HDWL 1	296.00	295.50	FES 7	40'	0.013	12"	N-12
CB 23	265.25	265.00	DMH 21	13'	0.019	12"	N-12
CB 24	265.25	265.00	DMH 21	7'	0.036	12"	N-12
DMH 21	262.00	258.80	DMH 22	122'	0.026	12"	N-12
CB 25	259.00	258.80	DMH 22	13'	0.015	12"	N-12
CB 26	259.00	258.80	DMH 22	7'	0.029	12"	N-12
DMH 22	258.70	258.40	DMH 23	30'	0.010	12"	N-12
DMH 23	258.30	258.20	DET 4	5'	0.020	12"	N-12
DMH 24	257.00	255.75	FES 3	75'	0.017	12"	N-12
CULV 2	256.00	255.75	FES 4	48'	0.005	12"	N-12
YD-1	288.00	286.00	OUTLET	73'	0.027	4"	PVC
OS-3A	278.30	278.00	FES 8	15'	0.020	12"	N-12
INF-1	230.00	223.00	ECB-2	111'	0.063	3"	PVC

N-12: ADS-N12 CORRUGATED HDPE PIPE WITH SMOOTH INTERIOR
RCP: REINFORCED CONCRETE PIPE
PVC: SCH-40 PVC



LEGEND

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- EXISTING CAPE COD BERM
- EXISTING EDGE OF PAVEMENT
- PROPOSED EDGE OF PAVEMENT
- PROPOSED GRANITE CURB
- PROPOSED CAPECOD BERM
- EXISTING CATCH BASIN
- EXISTING DRAIN MANHOLE
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OSRD Requirements:
Minimum Area: 20,000 s.f.
Front: 20'
Yard Setbacks: Side: 15'
Rear: 15'
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 - M.N.D.R.D. BOOK 235 PLAN 51
 - M.N.D.R.D. BOOK 224 PLAN 90
- DEED REFERENCE**
- M.N.D.R.D. BOOK 19682 PAGE 258
 - M.N.D.R.D. BOOK 21730 PAGE 263
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- RECORD OWNERS**
- CONNELL REAL ESTATE TRUST
P.O. BOX 1230
WESTFORD, MA 01886
- ASSESSORS REFERENCES**
- MAP 040, PARCEL 0017 0000
- SCALE IN FEET

Professional Engineer Seal: MARK A. SLEGER, No. 94407, REGISTERED PROFESSIONAL ENGINEER, 12/9/2019

MAS	LOT REDUCTION	DATE
MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

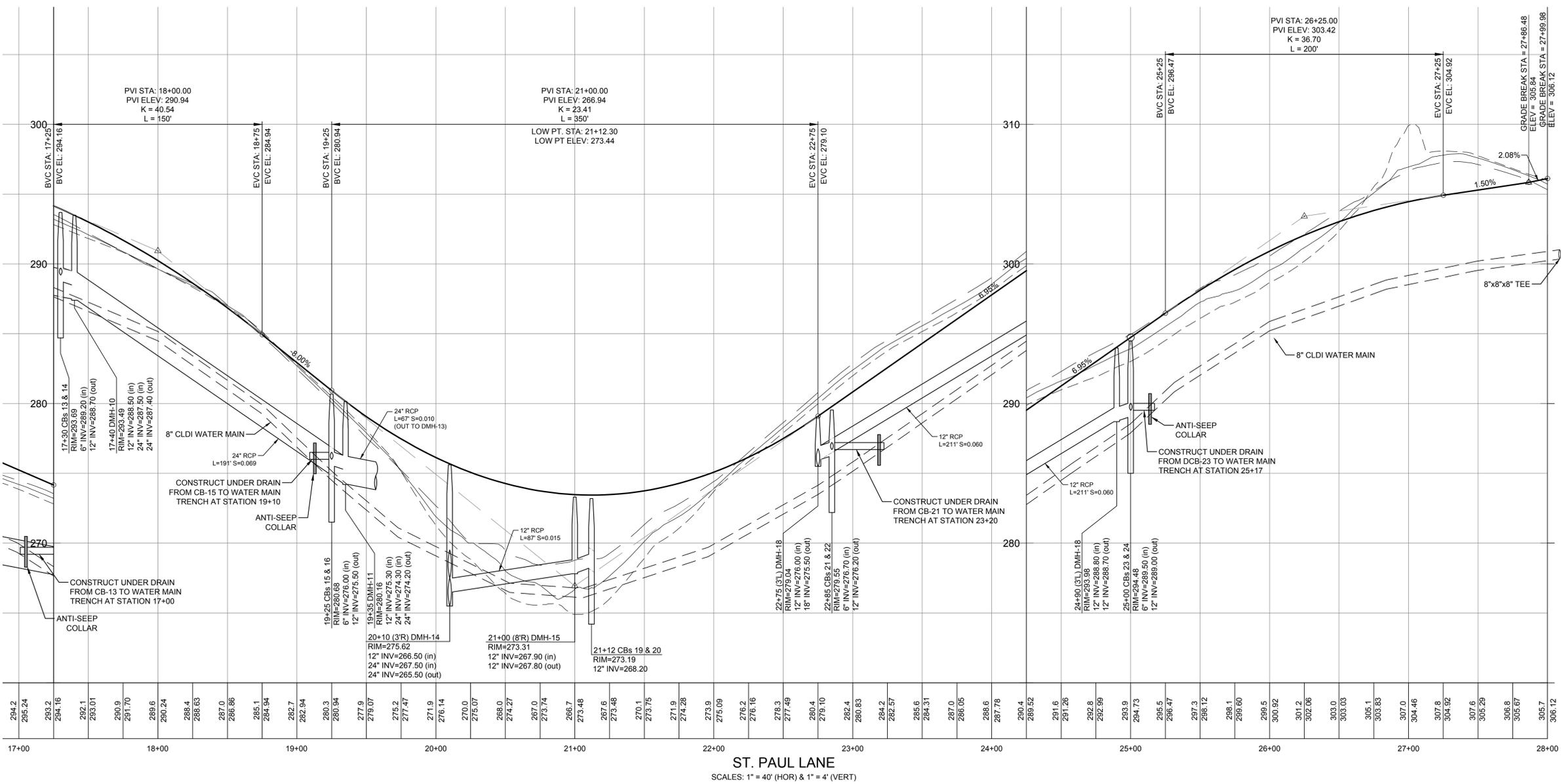
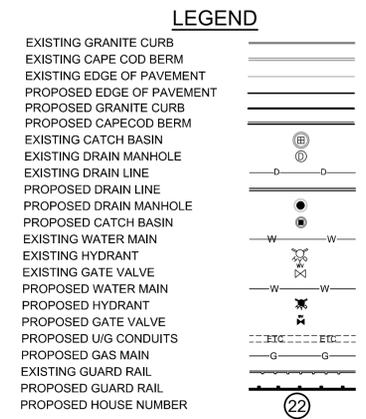
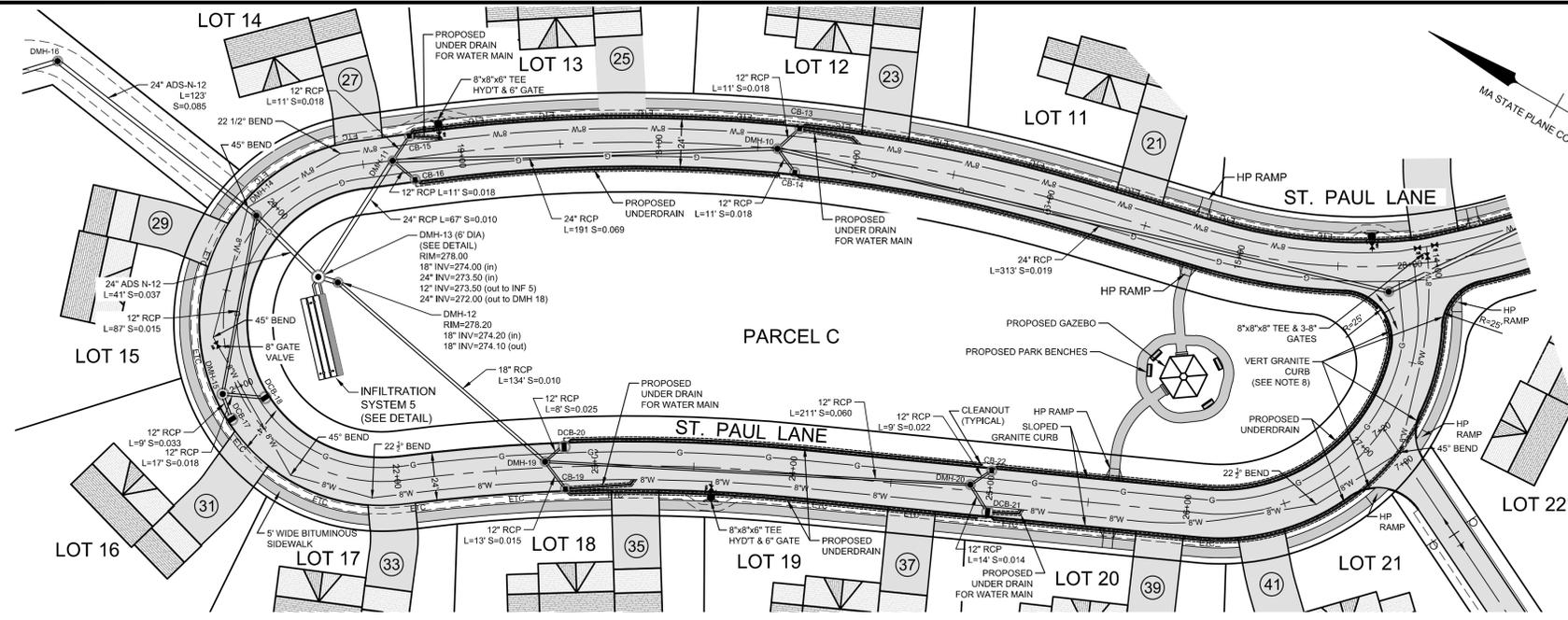
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P.O. BOX 1230
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JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	17 of 30
SCALES: 1"=40'	

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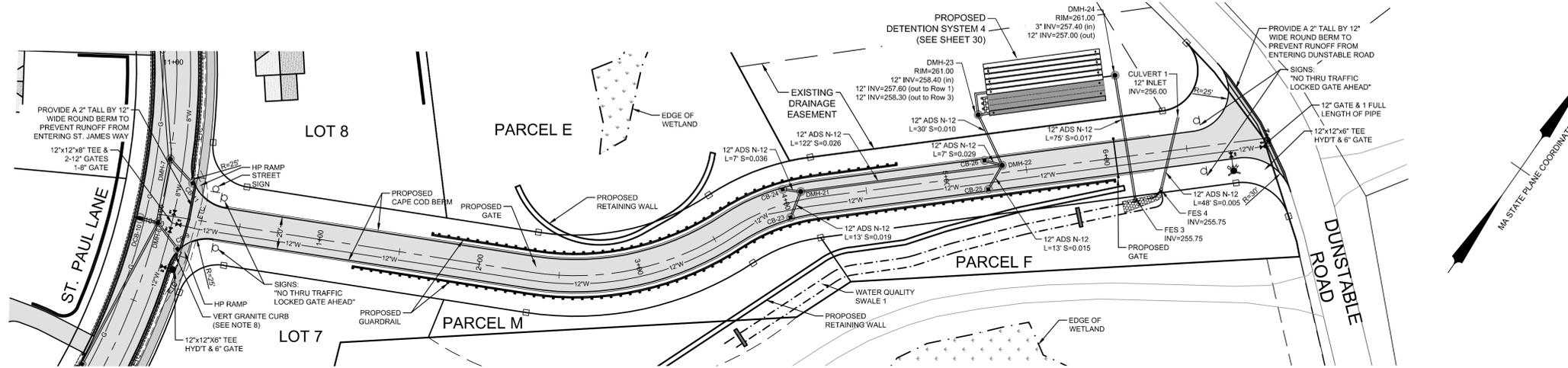
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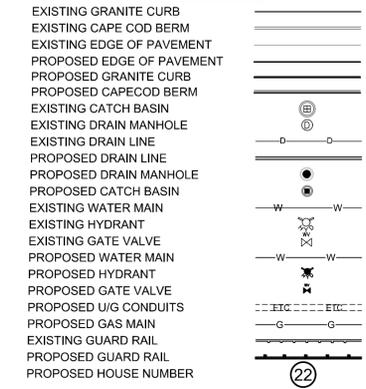
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JOB NO: 1174 DWG NO: 1637
JULY 20, 2018 18 of 30
SCALE: 1" = 40'



LEGEND



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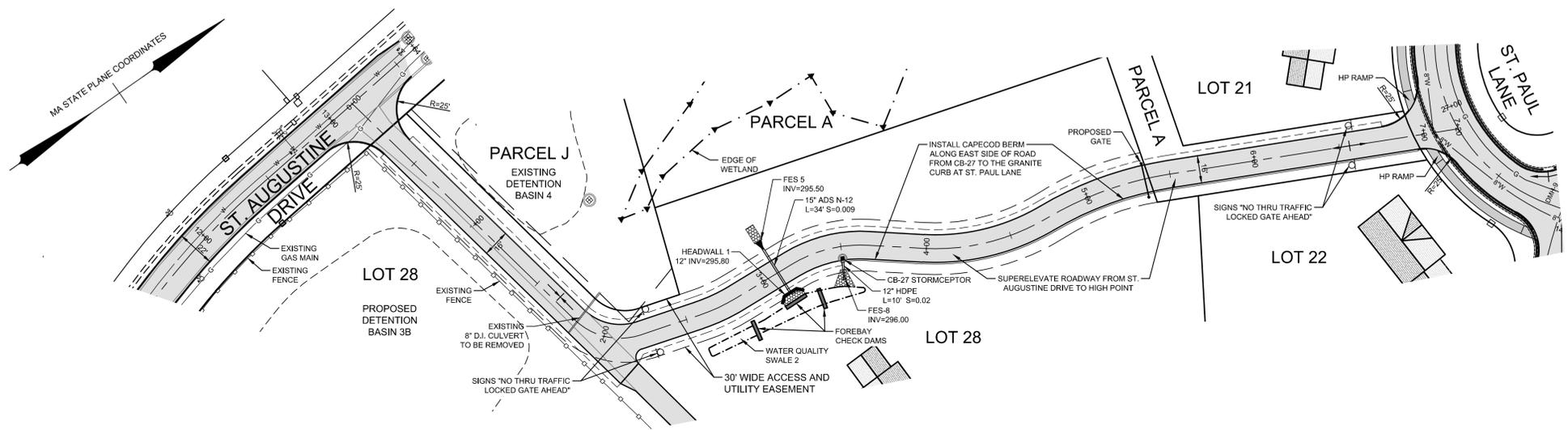
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JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	19 of 30
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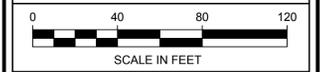
PLAN VIEW
SCALE: 1" = 40'

LEGEND

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EXISTING EDGE OF PAVEMENT	
PROPOSED GRANITE CURB	
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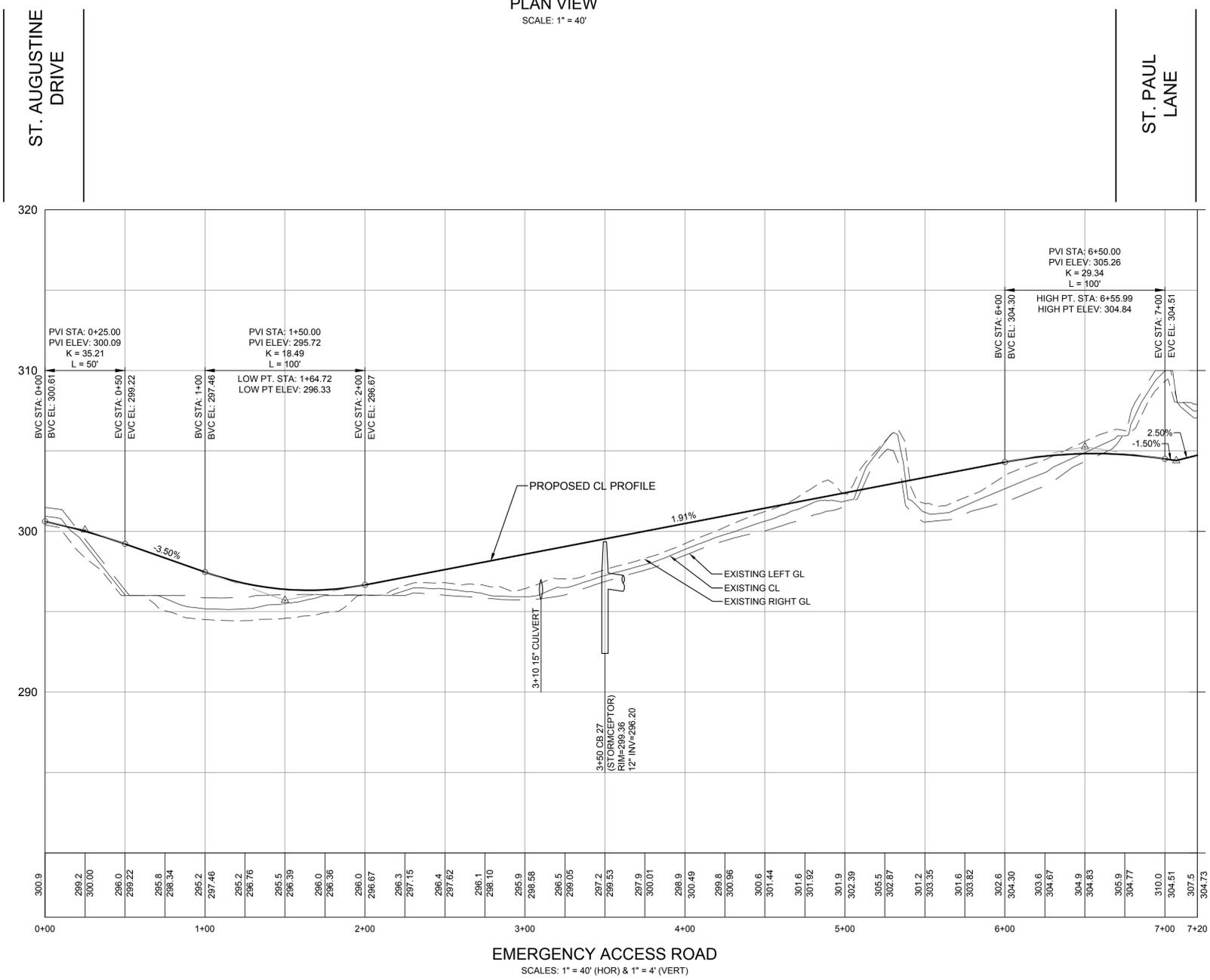
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MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

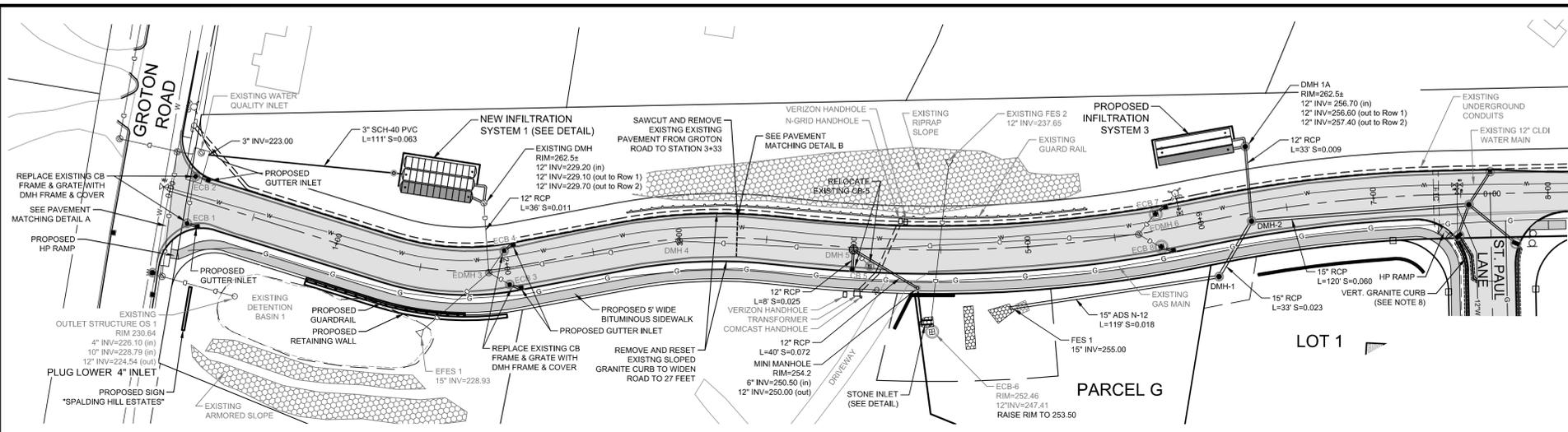
PLAN & PROFILE
EMERGENCY ACCESS ROAD
SPALDING HILL
ESTATES
WESTFORD, MA

**ALAN
ENGINEERING, L.L.C.**
110 WINN STREET, SUITE 209
WOBURN, MA 01801
(978) 577-6444
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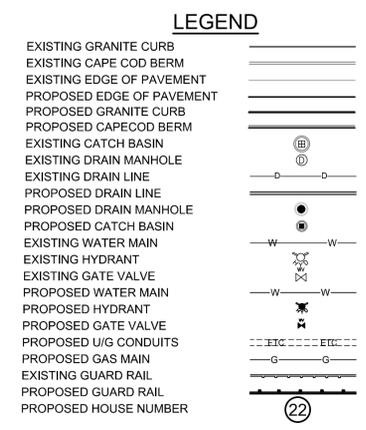
PREPARED FOR:
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WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	20 of 30
SCALE: 1" = 40'	



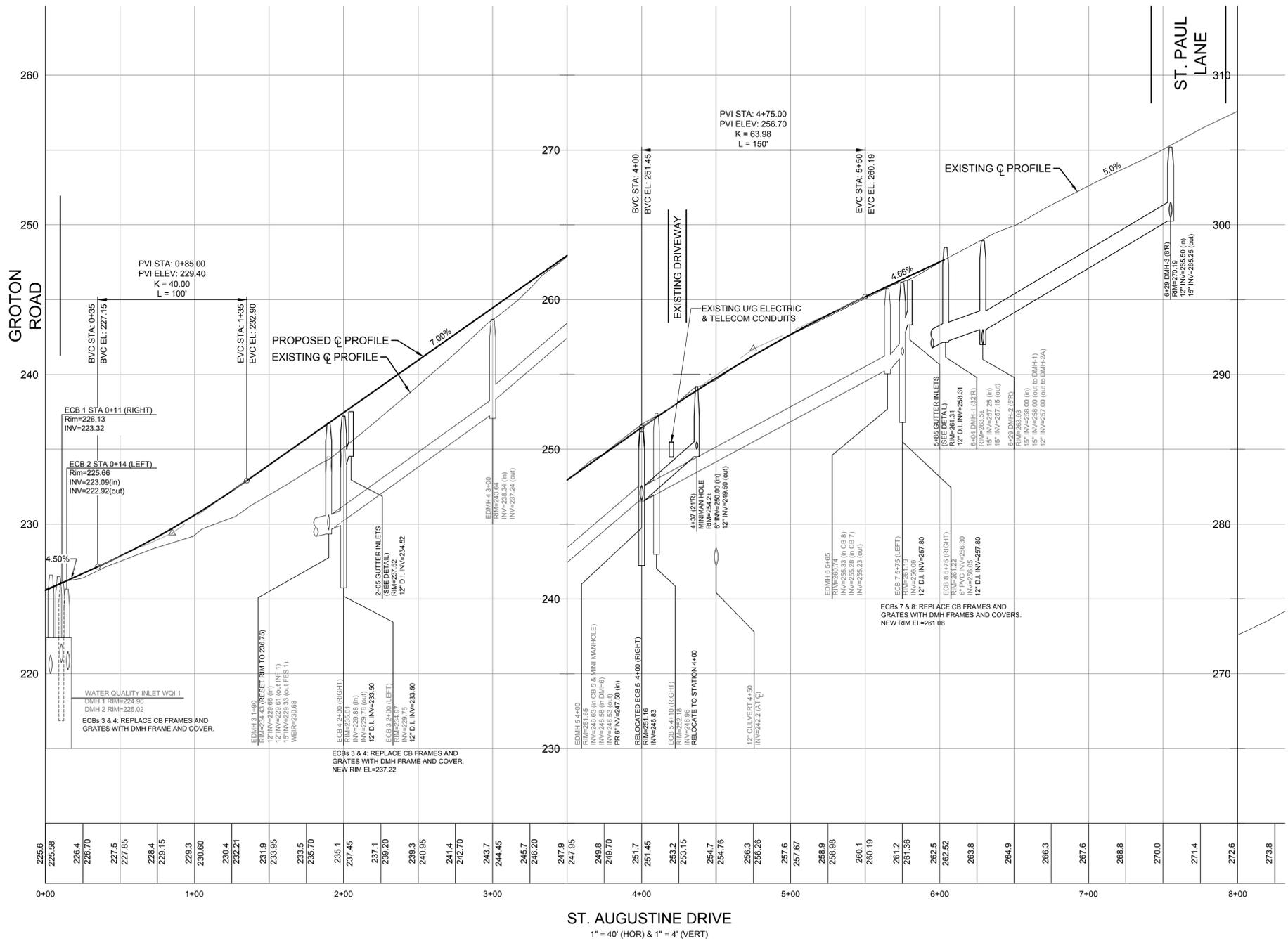


PLAN VIEW
SCALE: 1" = 40'



General Notes

- Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
- The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
- The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws.
OSRD Requirements:
Minimum Area: 20,000 s.f.
Minimum Frontage: 50' (100' average)
Yard Setbacks: Front: 20'
Side: 15'
Rear: 15'
- Parcels F and M are not building lots.
- Houses and lot grading is shown for informational purposes only to show how each lot could be developed. House footprints shown are not intended to represent the actual size, shape and location of the houses that will be constructed.
- Retaining walls are shown for graphical representation only and do not represent a structural design or analysis. Retaining walls over 4 feet in height are to be designed by a structural engineer and will require a building permit. No retaining walls are to be constructed within the right of way for St. Augustine Drive or St. Paul Lane.
- Vertical granite curbing is to be provided at all intersection roundings except as otherwise noted. Transition sections are to be provided to between sloped and vertical curbing.



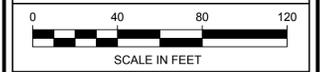
ST. AUGUSTINE DRIVE
1" = 40' (HOR) & 1" = 4' (VERT)

PLAN REFERENCES
M.N.D.R.D. BOOK 240 PLAN 88
M.N.D.R.D. BOOK 235 PLAN 51
M.N.D.R.D. BOOK 224 PLAN 90

DEED REFERENCE
M.N.D.R.D. BOOK 19682 PAGE 258
M.N.D.R.D. BOOK 21730 PAGE 263
M.N.D.R.D. BOOK 21730 PAGE 266
M.N.D.R.D. BOOK 21730 PAGE 267
M.N.D.R.D. BOOK 21730 PAGE 269
M.N.D.R.D. BOOK 23657 PAGE 195

RECORD OWNERS
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WESTFORD, MA 01866

ASSESSORS REFERENCES
MAP 040, PARCEL 0017 0000



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ST. AUGUSTINE CONSTRUCTION NOTES

- ST. AUGUSTINE DRIVE IS TO BE WIDENED FROM 22 FEET TO 27 FEET FROM GROTON ROAD TO THE CENTERLINE OF ST. PAUL LANE; AND FROM 20 FEET TO 22 FEET FROM THE CENTERLINE OF ST. PAUL LANE TO THE EMERGENCY ACCESS ROAD.

- FROM GROTON ROAD TO ST. PAUL LANE**
- SAW CUT AND REMOVE EXISTING PAVEMENT FROM GROTON ROAD TO STATION 3+33
 - REMOVE EXISTING GRANITE CURB
 - REMOVE EXISTING LOAM FROM PROPOSED SIDEWALK AND GRASS STRIP AREA ON EAST SIDE OF ST. AUGUSTINE DRIVE FROM GROTON ROAD TO ST. PAUL LANE
 - PLACE NEW GRAVEL BASE TO RAISE GRADE TO CONFORM TO NEW PROFILE
 - INSTALL GUTTER INLETS AND REPLACE EXISTING CATCH BASIN GRATES WITH MANHOLE FRAMES AND RIMS
 - INSTALL NEW 2 1/2" BINDER COURSE FROM GROTON ROAD TO STATION 3+33. USE PAVEMENT MATCHING DETAIL A AT GROTON ROAD AND PAVEMENT MATCHING DETAIL B AT STATION 3+33.
 - REINSTALL GRANITE CURBING
 - CONSTRUCT SIDEWALK

- FROM ST. PAUL LANE TO EMERGENCY ACCESS ROAD AT STATION 13+50±**
- REMOVE CAPE COD BERM
 - ADJUST CATCH BASIN FRAMES AND GRATES TO WIDEN ROADWAY TO 22 FEET.
 - INSTALL NEW SLOPED GRANITE CURB. GRANITE CURB INLETS AND TRANSITION SECTIONS ARE TO BE PROVIDED AT CATCH BASINS ECB-9 AND ECB-10

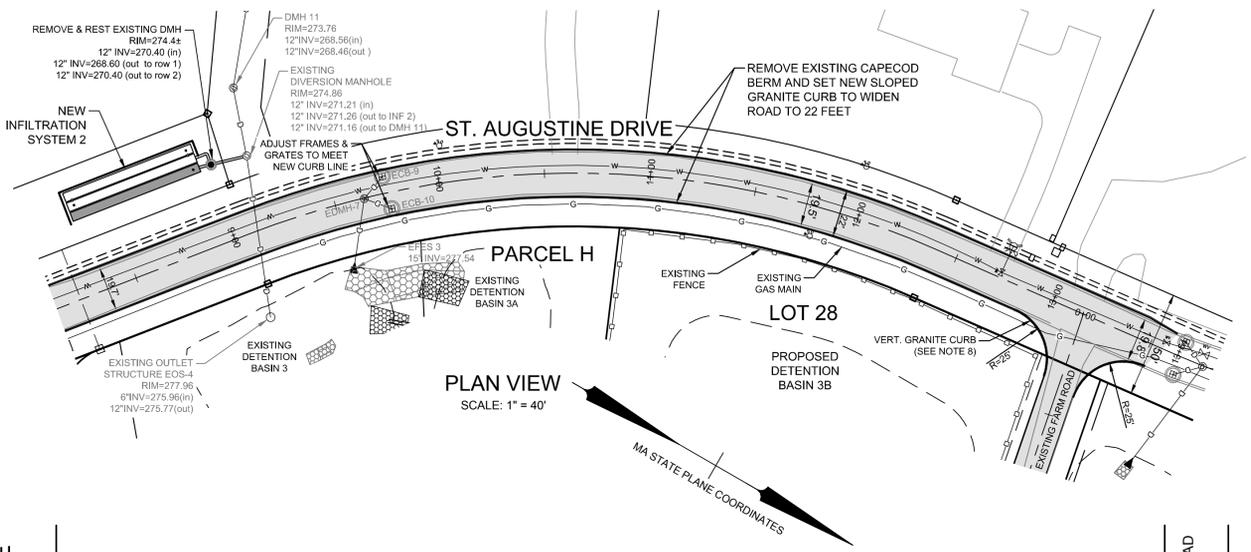
- FROM GROTON ROAD TO EMERGENCY ACCESS ROAD AT STATION 13+50±**
- AFTER THE ROADWAY IS WIDENED AND THE BINDER COURSE HAS BEEN IN PLACE FOR 1 WINTER SEASON INSTALL A NEW 1 1/2" WEARING COURSE FROM GROTON ROAD TO THE EMERGENCY ACCESS ROAD AT STATION 13+50±

PLAN & PROFILE
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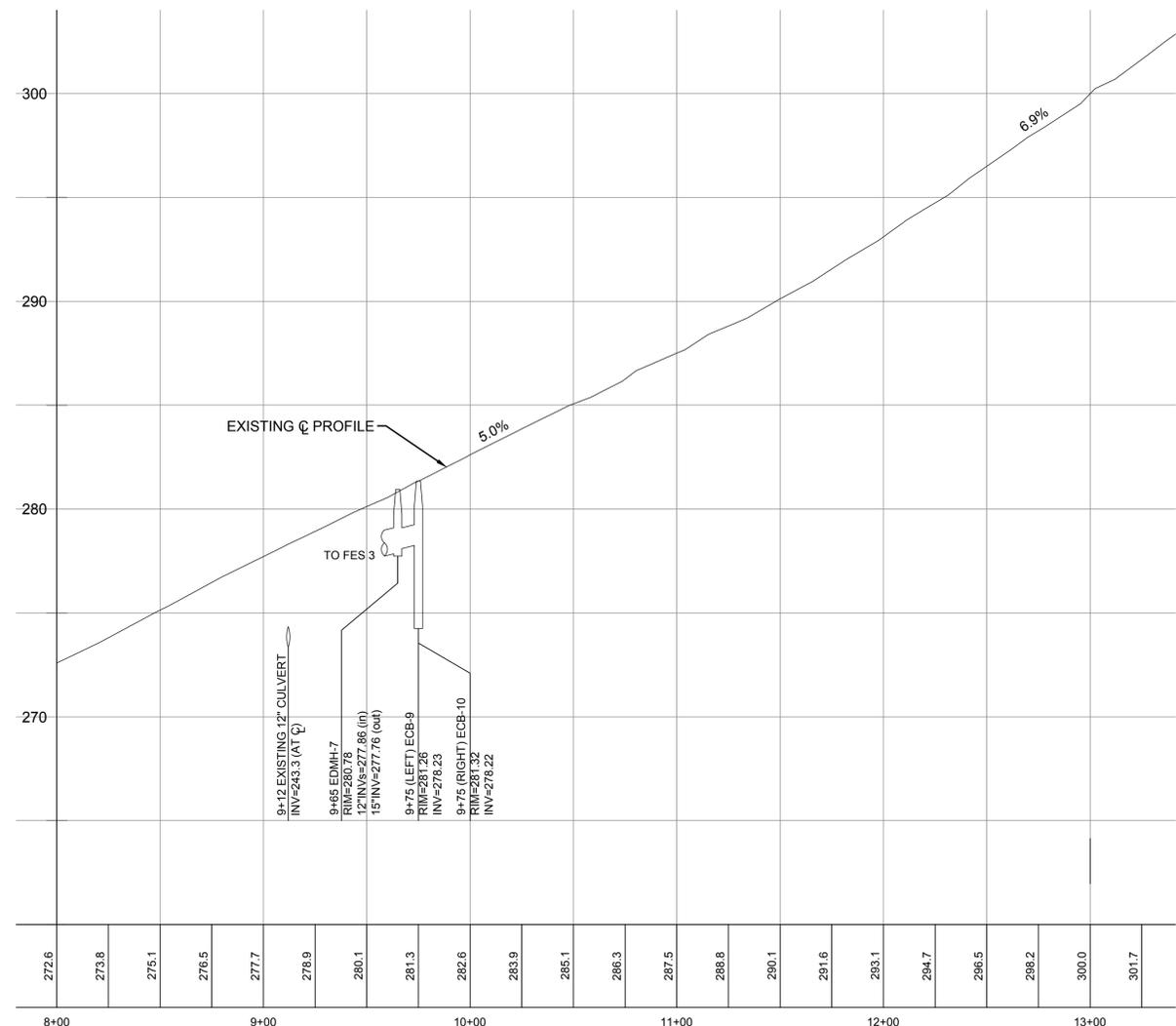
JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	21 of 30
SCALES: 1"=40'	



PLAN VIEW
SCALE: 1" = 40'

ST. PAUL LANE

EMERGENCY ACCESS ROAD
(EXISTING FARM ROAD)

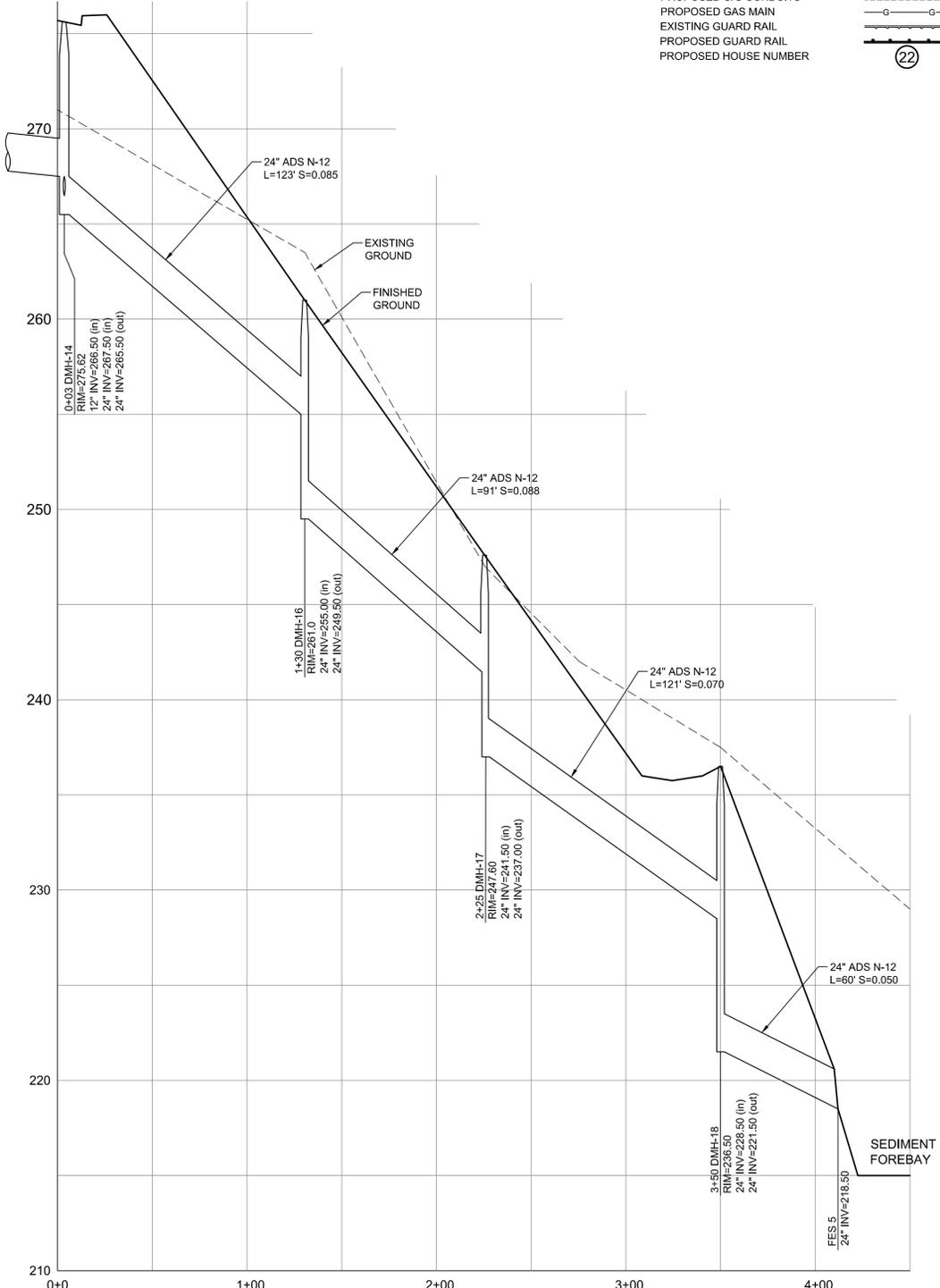


ST. AUGUSTINE DRIVE
1" = 40' (HOR) & 1" = 4' (VERT)

LEGEND

- EXISTING GRANITE CURB
- EXISTING CAPE COD BERM
- EXISTING EDGE OF PAVEMENT
- PROPOSED GRANITE CURB
- PROPOSED CAPE COD BERM
- EXISTING CATCH BASIN
- EXISTING DRAIN MANHOLE
- PROPOSED DRAIN LINE
- PROPOSED DRAIN MANHOLE
- PROPOSED CATCH BASIN
- EXISTING WATER MAIN
- EXISTING HYDRANT
- EXISTING GATE VALVE
- PROPOSED WATER MAIN
- PROPOSED HYDRANT
- PROPOSED GATE VALVE
- PROPOSED UG CONDUITS
- PROPOSED GAS MAIN
- EXISTING GUARD RAIL
- PROPOSED GUARD RAIL
- PROPOSED HOUSE NUMBER

ST. PAUL LANE



DRAIN PROFILE AT WETLAND BASIN
1" = 40' (HOR) & 1" = 4' (VERT)

General Notes

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DEED REFERENCE
M.N.D.R.D. BOOK 19682 PAGE 258
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M.N.D.R.D. BOOK 21730 PAGE 267
M.N.D.R.D. BOOK 21730 PAGE 269
M.N.D.R.D. BOOK 23657 PAGE 195

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ASSESSORS REFERENCES
MAP 040, PARCEL 0017 0000

0 40 80 120
SCALE IN FEET

SEAL: MARK SLEGER, REGISTERED PROFESSIONAL ENGINEER, 12/9/2019

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PLAN & PROFILE
ST. AUGUSTINE DRIVE
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JOB NO: 1174	DWG NO: 1637
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SCALES: 1"=40'	

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GENERAL

THIS STORM WATER POLLUTION PREVENTION PLAN HAS BEEN PREPARED FOR COMPLIANCE WITH THE EPA 2017 CONSTRUCTION GENERAL PERMIT.

THE CONTRACTOR SHALL SUBMIT A STORM WATER NOTICE OF INTENT TO THE EPA AT LEAST 14 DAYS PRIOR TO ANY GROUND DISTURBING ACTIVITIES TO OBTAIN COVERAGE UNDER THE CONSTRUCTION GENERAL PERMIT.

CONSTRUCTION ACTIVITIES PERFORMED AT THIS SITE ARE SUBJECT TO A STORM WATER PERMIT ISSUED BY THE WESTFORD PLANNING BOARD AND AN ORDER OF CONDITIONS ISSUED BY THE WESTFORD CONSERVATION COMMISSION.

SITE DESCRIPTION

THE PROJECT SITE IS A 43.61 ACRE PARCEL OF LAND LOCATED BETWEEN ST. AUGUSTINE DRIVE AND DUNSTABLE ROAD. LONG SOUGHT FOR POND LIES APPROXIMATELY 1,000 FEET TO THE NORTHEAST OF THE SITE AND KEYES POND LIES APPROXIMATELY 650 FEET TO THE SOUTHWEST OF THE SITE. THE SITE HAS FRONTAGE ON ST. AUGUSTINE DRIVE AND DUNSTABLE ROAD.

APPROXIMATELY 10 ACRES OF THE SITE IS USED AS A FARM, A PORTION OF WHICH IS UNDISTURBED WOODLAND. THE FARM WAS FORMERLY USED TO RAISE PIGS AND BOARD HORSES, BUT NOW ONLY BOARDS HORSES. A TOTAL OF 35.81 ACRES OF LAND IS UNDISTURBED WOODLAND. THE SITE CONTAINS A HORSE STABLE AND A FARM BUILDING FORMERLY USED TO HOUSE THE PIGS. ACCESS TO THE FARM IS FROM ST. AUGUSTINE DRIVE.

STORM RUNOFF FROM THE SITE FLOWS OFF THE SITE IN ALL DIRECTIONS WITH ULTIMATE DISCHARGES INTO KEYES POND TO THE WEST. LONG SOUGHT FOR POND TO THE EAST, A LARGE WETLAND ASSOCIATED WITH SPALDING BROOK TO THE NORTH, AND TO THE SOUTHWEST ACROSS GROTON ROAD TO A WETLAND ASSOCIATED WITH KEYES BROOK. THE EXISTING SITE HAS A RUNOFF CURVE NUMBER OF 70.

THE PROPOSED DEVELOPMENT IS A 29-LOT OPEN SPACE RESIDENTIAL DEVELOPMENT. THE DEVELOPMENT WILL HAVE ITS PRIMARY ACCESS OFF ST. AUGUSTINE DRIVE AND A SECOND "EMERGENCY ACCESS" OFF DUNSTABLE ROAD. IN TOTAL, THE PROJECT WILL CREATE 3,500 FEET OF NEW ROADWAY. THE FARM LOT WILL CONTAIN A NEW SINGLE FAMILY HOME AND WILL CONTINUE TO OPERATE AS A FARM. ALONG WITH THE 29 BUILDING LOTS, APPROXIMATELY 17.6 ACRES OF THE SITE WILL BE DESIGNATED AS COMMON LAND, OF WHICH APPROXIMATELY 12.5 ACRES WILL BE PRESERVED AS OPEN SPACE. THE PROPOSED DEVELOPMENT WILL HAVE A RUNOFF CURVE NUMBER OF 74.

OWNERSHIP OF THE STORM WATER MANAGEMENT SYSTEM

DURING CONSTRUCTION ALL NEW DRAINAGE SYSTEM COMPONENTS ARE TO BE OWNED AND MAINTAINED BY THE DEVELOPER. UPON COMPLETION OF THE PROJECT, AND THE TOWN'S ACCEPTANCE OF ST. PAUL LANE AS A PUBLIC WAY, ALL DRAIN MANHOLES, CATCH BASINS AND ASSOCIATED PIPING WITHIN THE LAYOUT OF ST. PAUL LANE WILL BE OWNED AND MAINTAINED BY THE TOWN OF WESTFORD. ALL OTHER DRAINAGE SYSTEM COMPONENTS, INCLUDING THOSE WITHIN ST. JAMES WAY, WILL BE OWNED AND MAINTAINED BY A HOMEOWNERS' ASSOCIATION.

EROSION AND SEDIMENT CONTROL

THE OWNER/DEVELOPER AND THE SITE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROLLING EROSION AND SEDIMENT DURING THE CONSTRUCTION PROCESS AND UNTIL THE SITE HAS STABILIZED. A QUALIFIED PROFESSIONAL SHALL BE APPOINTED TO OVERSEE AND MONITOR THE STORM WATER MANAGEMENT PROVISIONS OF THE SITE DEVELOPMENT TO ENSURE COMPLIANCE WITH THE EPA CONSTRUCTION GENERAL PERMIT.

IN ORDER TO MINIMIZE EROSION AND SEDIMENT RUNOFF FROM THE SITE, THE FOLLOWING PRINCIPLES SHALL BE EMPLOYED:

- MAINTAIN EXISTING VEGETATION WHEREVER POSSIBLE;
- MINIMIZE THE AMOUNT OF SITE DISTURBANCE BY PHASING THE PROJECT WHEN FEASIBLE;
- STABILIZE DISTURBED AREAS AS SOON AS FEASIBLE;
- DIRECT ALL RUNOFF TO STORM WATER CONTROL DEVICES TO ALLOW SEDIMENT REMOVAL;
- MINIMIZE RUNOFF FLOW VELOCITIES IN DRAINAGE CHANNELS;
- PROTECT STORM DRAIN INLETS;

THE FOLLOWING SHALL OCCUR PRIOR TO PERFORMING ANY CONSTRUCTION ACTIVITIES ON THE SITE:

- ALL SILT FENCE AND STRAW WATTLE BARRIERS SHALL BE INSTALLED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DRAWINGS;
- INSTALL A STONE CONSTRUCTION ENTRANCE AT EACH ACCESS POINT TO THE SITE TO PREVENT SEDIMENT FROM BEING TRACKED OFF THE SITE;
- THE OWNER / DEVELOPER AND CONTRACTOR SHALL CONDUCT AN ON-SITE PRE-CONSTRUCTION MEETING TO:
 - REVIEW THIS STORM WATER POLLUTION PREVENTION PLAN;
 - TO DESIGNATE THE PERSON RESPONSIBLE FOR COMPLIANCE WITH THE EPA CONSTRUCTION GENERAL PERMIT;
 - IDENTIFY WETLAND RESOURCE AREAS AND STORM WATER DISCHARGE LOCATIONS;
 - DESIGNATE A MATERIAL AND EQUIPMENT STAGING AREA WHICH SHALL BE AS FAR AWAY AS POSSIBLE FROM ANY WETLAND RESOURCE AREAS;

THE FOLLOWING MINIMUM GUIDELINES SHALL BE COMPLIED WITH:

- ALL DISTURBED AREAS SHALL BE STABILIZED WITHIN 14 DAYS AFTER CONSTRUCTION IN THE SPECIFIC AREA THAT HAS BEEN COMPLETED;
- ANY DISTURBED AREAS THAT WILL REMAIN INACTIVE FOR 14 OR MORE DAYS SHALL BE TEMPORARILY STABILIZED;
- DURING SITE CONSTRUCTION, ALL EROSION CONTROL DEVICES SHALL BE INSPECTED WEEKLY AND BEFORE AND AFTER EACH RAINFALL EVENT CONSISTING OF AT LEAST 1 INCH OF RAIN IN A 24 HOUR PERIOD OR HAVING A PEAK INTENSITY OF AT LEAST 1/2 INCH OF RAIN PER HOUR;
- ALL EROSION CONTROL DEVICES ARE TO BE MAINTAINED IN PROPER WORKING CONDITION AT ALL TIMES;
- ANY ACCUMULATED SEDIMENT SHALL BE REMOVED IMMEDIATELY;

CONSTRUCTION PERIOD POLLUTION PREVENTION PLAN

THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING POLLUTION THROUGHOUT THE CONSTRUCTION PERIOD AND UNTIL THE SITE HAS FULLY STABILIZED.

- ALL EROSION CONTROL MEASURES MUST BE MAINTAINED IN GOOD WORKING ORDER AT ALL TIMES;
- THE STONE CONSTRUCTION ENTRANCES MUST BE INSPECTED DAILY AND MAINTAINED TO PREVENT SEDIMENT FROM BEING TRACKED OFF THE SITE;
- ALL VEHICLES SHALL BE MAINTAINED IN GOOD WORKING ORDER AND INSPECTED DAILY FOR FLUID LEAKS;
- VEHICLE REFUELING SHALL OCCUR AS FAR AS POSSIBLE FROM WETLAND RESOURCE AREAS;
- ADEQUATE ON SITE SANITARY FACILITIES SHALL BE PROVIDED;
- A COMPLETE SET OF PLANS AND PERMITS SHALL BE AVAILABLE ON SITE AT ALL TIMES;
- ALL CONSTRUCTION TRENCHES ARE TO BE BACKFILLED OR COVERED AT THE END OF EACH DAY TO PREVENT RUNOFF FROM BEING DIRECTED AWAY FROM STORM WATER MANAGEMENT FACILITIES;
- STOCKPILED MATERIALS SHALL BE SECURED WITH EITHER A RING OF SILT FENCE OR STRAW WATTLES, OR AN IMPERMEABLE COVER.

CONSTRUCTION DEWATERING

FLOW FROM CONSTRUCTION DEWATERING SHALL BE DIRECTED TOWARD A TEMPORARY SEDIMENT BASIN OR DEWATERING FILTER BAG LOCATED AS FAR AWAY FROM WETLAND RESOURCE AREAS AS IS FEASIBLE. DISCHARGES ENTERING AND EXITING THE TEMPORARY SEDIMENT BASIN SHALL BE DIRECTED INTO A STONE-LINED SWALE OF SUFFICIENT SIZE TO CONTAIN THE FLOW AND WITH A MINIMUM LENGTH OF 25 FEET. THE SWALE SHALL CONTAIN A MINIMUM OF 2 FILTER CHECK DAMS CONSISTING OF 12" FILTREXX SILT SOXX SPACED 10 FEET APART. DISCHARGES OUT OF THE BASIN SHALL BE DIRECTED TOWARD UNDISTURBED AREAS OF THE SITE AS FAR AWAY FROM WETLAND RESOURCES AS FEASIBLE. DEWATERING DISCHARGES SHALL NOT BE DIRECTED TOWARD PERMANENT BMPs OR ANY EXISTING DRAINAGE STRUCTURES.

FINAL STABILIZATION:

ALL DISTURBED AREAS ARE TO BE STABILIZED WITH LOAM AND SEED AS SOON AS POSSIBLE AFTER THEIR COMPLETION.

STABILIZATION PRACTICES SHALL INCLUDE LOAMING AND SEEDING, STRAW MULCHING, HYDRO-SEEDING, GEOTEXTILES OR SOD STABILIZATION AS NEEDED.

A MINIMUM OF 4 INCHES OF TOPSOIL SHALL BE INSTALLED ON ALL DISTURBED AREAS AND SEEDED (OR HYDROSEEDED) IMMEDIATELY.

THE USE OF PESTICIDES AND HERBICIDES IS PROHIBITED WITHIN 100 FEET OF WETLANDS.

TREE AND SHRUB PLANTINGS SHOULD BE INSTALLED IN ACCORDANCE WITH THE SUPPLIERS SPECIFICATIONS AND GOOD LANDSCAPE PRACTICE.

FINAL STABILIZATION OF THE SITE IS DEFINED AS AT LEAST 75 PERCENT COVERAGE ON GRASSSED AREAS, OR PROPERLY MULCHED AND STABILIZED LANDSCAPE AREAS.

CONSTRUCTION SEQUENCE:

THE PROJECT WILL BE CONSTRUCTED IN THREE (3) PHASES AS SHOWN ON THE APPROVED PLANS. PHASE 1 WILL BE TO CONSTRUCT THE TWO ACCESSES INTO THE DEVELOPMENT ALONG WITH THEIR ASSOCIATED STORM WATER MANAGEMENT FEATURES. PHASE 2 WILL BE TO CONSTRUCT ALL UPGRADE IMPROVEMENTS IN ST. AUGUSTINE DRIVE. PHASE 2 MAY NOT BEGIN UNTIL THE ROADWAYS IN PHASE 1 ARE PAVED WITH THE BINDER COURSE OF PAVEMENT. PHASE 3 (SEE SHEET 25) SHALL NOT BEGIN UNTIL ST. AUGUSTINE DRIVE HAS BEEN REPAVED WITH THE BINDER COURSE OF PAVEMENT. THE PHASES OF CONSTRUCTION ARE TO BE DEVELOPED IN A CONTROLLED MANNER USING THE FOLLOWING SEQUENCE OF CONSTRUCTION TO ENSURE THAT EROSION AND SEDIMENT CONTROL MEASURES ARE ESTABLISHED, AND THAT STORM WATER RUNOFF IS MANAGED APPROPRIATELY.

1. INSTALL SILT FENCE AND FILTREXX SILT SOXX, AND DELINEATE LIMITS OF CLEARING AS SHOWN ON THE APPROVED PLANS.
2. CLEAR AND GRUB WORK AREA. NOTE, ONLY WOODED AREAS NECESSARY FOR ROADWAY CONSTRUCTION AND THE CONSTRUCTION OF THE STORM WATER MANAGEMENT FACILITIES ARE TO BE CLEARED.
3. ROUGH GRADE ROADWAYS AND INSTALL TEMPORARY SEDIMENT BASINS AS SHOWN ON THE APPROVED PLANS.
4. INSTALL STORM WATER MANAGEMENT BMPs.
5. INSTALL ROADWAY DRAINAGE SYSTEM, AND UNDERGROUND UTILITIES.
6. CATCH BASINS AND DRAIN MANHOLES WITHIN THE ROADWAY ARE TO BE COVERED WITH FILTER FABRIC AND STEEL PLATES AFTER INSTALLATION AND SHALL REMAIN IN PLACE UNTIL AFTER THE BINDER COURSE IS INSTALLED.
7. PLACE AND COMPACT ROADWAY BASE MATERIAL.
8. INSTALL BINDER COURSE OF PAVEMENT IN ROADWAY AND RAISE CATCH BASINS GRATES TO BINDER GRADE AND INSTALL SILT SACKS IN ALL CATCH BASINS.
9. PLACE FILTREXX SILT SOXX ALONG EDGE OF PAVEMENT TO CONTAIN RUNOFF WITH THE ROADWAY.
10. HOUSE CONSTRUCTION MAY BEGIN AFTER BINDER COURSE IS INSTALLED.
11. AFTER HOUSE CONSTRUCTION IS COMPLETED INSTALL GRANITE CURBING AND CONSTRUCT SIDEWALKS. THIS MAY BE DONE IN SECTIONS AS HOUSES ARE COMPLETED.
12. LOAM AND SEED ALL DISTURBED AREAS.
13. INSTALL THE FINAL WEARING COURSE OF PAVEMENT.

SITE SPECIFIC INSPECTION, OPERATION AND MAINTENANCE:

THE FOLLOWING INSPECTION AND MAINTENANCE SCHEDULE SHALL BE EMPLOYED TO ENSURE THAT THE STORM WATER MANAGEMENT SYSTEMS FUNCTION AS DESIGNED:

- **STORMWATER DISCHARGE LOCATIONS**
ALL DISCHARGE LOCATIONS ARE TO BE INSPECTED MONTHLY AND AFTER ALL STORM EVENTS EXCEEDING 1 INCH OF RAIN IN A 24-HOUR PERIOD OR HAVING A PEAK INTENSITY OF 1/2 OF RAIN PER HOUR. DISCHARGE LOCATIONS ARE TO BE INSPECTED FOR EROSION AND SEDIMENT BUILD-UP, EXCESSIVE VEGETATION, AND DEBRIS ACCUMULATION. EROSION REPAIRS ARE TO BE MADE IMMEDIATELY AND THE AREA IS TO BE RE-STABILIZED. SEDIMENT BUILD-UP SHALL BE REMOVED TO PREVENT IT FROM BEING TRANSPORTED TO OTHER BMPs OR WETLAND RESOURCE AREAS.

- **PAVED ROADWAYS**
DURING CONSTRUCTION ALL PAVED ROADWAYS ARE TO BE SWEPT MONTHLY OR AS NEEDED TO REMOVED SEDIMENT, TRASH, AND FALL FOLIAGE. THIS REQUIREMENT SHALL NOT APPLY WHEN COVERED WITH SNOW OR ICE. FOLLOWING THE COMPLETION OF THE PROJECT ALL PAVED ROADWAYS ARE TO BE SWEPT AT LEAST FOUR (4) TIMES PER YEAR OR AS NECESSARY TO REMOVE SEDIMENT BUILD-UP, TRASH, AND FALL FOLIAGE.

- **DEEP SUMP CATCH BASINS**
SUMPS ARE TO BE INSPECTED 4 TIMES PER YEAR AND AFTER EACH TIME THE ROADWAY IS SWEPT. CATCH BASIN SUMPS ARE TO BE CLEANED WHEN THE SEDIMENT IS WITHIN 24 INCHES OF THE BOTTOM LIP OF THE OIL/TRASH HOOD.

- **STORMCEPTOR CATCH BASINS**
SUMPS ARE TO BE INSPECTED 4 TIMES PER YEAR AND AFTER EACH TIME THE ROADWAY IS SWEPT. SUMPS ARE TO BE VACUUM CLEANED WHEN THE SEDIMENT DEPTH REACHES 8 INCHES.

- **STONE INLETS**
FOR THE FIRST YEAR AFTER CONSTRUCTION, THE STONE INLETS ARE TO BE INSPECTED QUARTERLY DURING OR IMMEDIATELY AFTER A RAINFALL EVENT. THE SYSTEM SHALL BE INSPECTED AT DISCHARGE DRAIN MANHOLES TO CONFIRM THAT THE STORM WATER RUNOFF IS FREE OF SEDIMENT AND THAT THERE IS NO EVIDENCE OF DIMINISHED COLLECTION CAPACITY. THE STONE INLET SHALL BE KEPT FREE OF DEBRIS, YARD WASTE, FALL FOLIAGE AND VEGETATION. FOLLOWING THE FIRST YEAR AFTER CONSTRUCTION THE SYSTEM SHALL BE INSPECTED EACH SPRING AND FALL.

- **SUBSURFACE INFILTRATION / DETENTION SYSTEMS**
DURING CONSTRUCTION AND THROUGH THE FIRST YEAR AFTER CONSTRUCTION IS COMPLETED, THE SUBSURFACE DETENTION SYSTEM IS TO BE INSPECTED QUARTERLY AND AFTER EACH RAINFALL EVENT OF 2.5 INCHES OR MORE TO ENSURE THE SYSTEM DRAINS PROPERLY. INSPECTIONS SHALL BE MADE AT THE INSPECTION PORTS. AFTER THE FIRST YEAR AFTER COMPLETION, THE SYSTEM SHALL BE INSPECTED ANNUALLY, PREFERABLY AFTER A SIGNIFICANT RAINFALL EVENT. THE GROUND SURFACE ABOVE THE SYSTEM IS TO KEPT FREE OF TREE GROWTH TO ENSURE THAT ROOT GROWTH DOESN'T JEOPARDIZE THE SUBSURFACE CHAMBERS.

- **SUBSURFACE SEPARATOR ROWS**
SEPARATOR ROWS ARE TO BE INSPECTED EVERY 6 MONTHS TO MONITOR SEDIMENT ACCUMULATION. THE ROWS SHOULD BE INSPECTED DURING A RAINFALL EVENT TO ENSURE STORM WATER IS BEING CONVEYED TO THE STANDARD ROWS. THE SEPARATOR ROW IS TO BE CLEANED USING A JETVAC PROCESS WHEN SEDIMENT ACCUMULATION EXCEEDS 3 INCHES.

- **WETLAND DETENTION BASIN**
THE WETLAND DETENTION AREA IS TO BE INSPECTED BY A QUALIFIED WETLAND PROFESSIONAL TWICE PER YEAR IN THE GROWING AND NON-GROWING SEASONS FOR THE FIRST 3 YEARS AFTER CONSTRUCTION (AND ONCE PER YEAR THEREAFTER) TO DOCUMENT THE FOLLOWING: TYPE AND DISTRIBUTION OF DOMINANT WETLAND PLANTS IN THE MARSH; PRESENCE AND DISTRIBUTION OF PLANTED WETLAND SPECIES; PRESENCE AND DISTRIBUTION OF INVASIVE WETLAND SPECIES; INDICATIONS THAT OTHER SPECIES ARE REPLACING THE PLANTED WETLAND SPECIES; PERCENTAGE OF STANDING WATER THAT IS UNVEGETATED (EXCLUDING DEEP WATER CELLS); MAXIMUM WATER ELEVATION IN COMPARISON TO DESIGN ELEVATION AND CONDITION OF THE VEGETATION IN THIS AREA; OVERALL STABILITY OF THE BASIN; INTEGRITY OF THE BERM AND INDICATIONS OF EROSION OR SLUMPING. THE FOREBAY IS TO BE CLEANED ONCE PER YEAR OR AS NEEDED TO REMOVE ACCUMULATED SEDIMENT. THE BERM IS TO BE MOWED TWICE PER YEAR AND KEPT FREE OF WOODY VEGETATION.

- **DETENTION BASINS**
DETENTION BASINS ARE TO BE INSPECTED MONTHLY AND DURING SIGNIFICANT RAINFALL EVENTS FOR THE FIRST YEAR AFTER CONSTRUCTION. FOLLOWING THE FIRST YEAR AFTER CONSTRUCTION THE BASIN SHALL BE INSPECTED TWICE PER YEAR. INSPECTIONS SHALL CONFIRM THAT THE BASIN DRAINS WITHIN 72 HOURS AFTER THE END OF A RAINFALL EVENT. THE BASIN SIDE SLOPES SHALL BE INSPECTED FOR SUBSIDENCE. ADDITIONAL SEEDING MAY BE REQUIRED TO ENSURE ADEQUATE VEGETATIVE COVER ON THE BASIN BOTTOM AND SIDE SLOPES. THE BASIN BOTTOM AND INTERIOR SIDE SLOPES ARE TO BE MOWED TWICE PER YEAR. GRASS CLIPPINGS SHALL BE REMOVED FROM THE BASIN AFTER MOWING. TRASH, DEBRIS AND FALL FOLIAGE SHALL BE REMOVED AS NECESSARY.

- **ROOF DRAIN NFILTRATION SYSTEMS**
ROOF DRAIN SYSTEMS ARE TO BE INSPECTED ANNUALLY VIA THE INSPECTION PORTS. INSPECTIONS SHALL OCCUR 72 HOURS AFTER A RAINFALL EVENT TO ENSURE THE SYSTEM HAS COMPLETELY DRAINED. ROOF GUTTERS AND DOWNSPOUTS SHALL BE CLEANED TWICE PER YEAR. DOWNSPOUTS ARE TO BE DISCONNECTED FROM THE SUBSURFACE PIPING PRIOR TO CLEANING TO PREVENT DEBRIS AND LEAF LITTER FROM BEING FLUSHED INTO THE SUBSURFACE CHAMBERS.

- **WATER QUALITY SWALES (WET)**
INSPECT MONTHLY FOR THE FIRST YEAR AFTER CONSTRUCTION THEN TWICE PER YEAR. INSPECT FOR ADEQUATE VEGETATION COVER, EROSION, AND SUBSIDENCE. THE SWALE IS TO BE KEPT FREE OF YARD WASTE, FALL FOLIAGE, TRASH & DEBRIS. SEDIMENT IS TO BE REMOVED AT LEAST ONCE PER YEAR. SWALES ARE TO BE MOWED ONCE PER YEAR AND VEGETATION SHOULD NOT BE CUT SHORTER THAN 3 INCHES.

PLANTING SCHEDULE

LOAM SHALL HAVE A MAINTAINED pH LEVEL OF APPROXIMATELY 6.5 AND SHOULD BE CHECKED PRIOR TO THE APPLICATION OF SEED. LIME SHOULD BE APPLIED AS NECESSARY TO ACHIEVE AND MAINTAIN A PROPER pH LEVEL.

A MINIMUM 4-INCH THICK LOAM LAYER IS REQUIRED IN ALL AREAS TO BE SEEDED. THE LOAM SHALL BE RAKED AND FREE OF CLUMPS, TWIGS, STICKS AND DEBRIS, AND ROCKS GRATER THAN 2 INCHES. THE TOP 2 INCHES OF LOAM SHALL BE RAKED LOOSE TO RECEIVE THE SEED. SEEDING MAY BE APPLIED EITHER BY HAND SPREADING OR MECHANICAL SPREADER, OR BY HYDROSEEDING.

HAND SEEDING

- APPLY SEED UNIFORMLY BY HAND OR BY BROADCAST SPREADER.
- RAKE SEED LIGHTLY INTO THE TOP 1/2 TO 1 INCH OF THE LOAM.
- LIGHTLY ROLL SEEDED AREA, BUT DO NOT COMPACT THE LOAM.
- SEEDING SHALL NOT OCCUR BETWEEN NOVEMBER 15 AND MARCH 1.
- IF SEEDING OCCURS BETWEEN JUNE 30 AND AUGUST 30 STRAW MULCH SHALL BE APPLIED IN ACCORDANCE WITH SUPPLIERS SPECIFICATIONS.
- IF SEEDING OCCURS AFTER OCTOBER 1 THE SEEDING RATE SHALL BE INCREASED BY 50 PERCENT AND THE AREA SHALL BE STRAW MULCHED.
- ALL SEEDED AREAS ARE TO BE ADEQUATELY WATERED TO ENSURE RAPID AND UNIFORM GROWTH.
- ON SLOPES GREATER THAN 3:1 THE LOAM LAYER SHALL BE STABILIZED WITH JUTE NETTING AND THE SEED APPLICATION RATE SHALL BE INCREASED BY 50 PERCENT.
- ALL SLOPES GREATER THAN 3:1 SHALL BE STRAW MULCHED IMMEDIATELY AFTER SEEDING.

HYDROSEEDING

- HYDROSEEDING SHALL BE APPLIED UNIFORMLY.
- HYDROSEEDING SHALL NOT OCCUR BETWEEN NOVEMBER 15 AND MARCH 1.
- IF HYDROSEEDING OCCURS BETWEEN JUNE 30 AND AUGUST 30 STRAW MULCH SHALL BE APPLIED IN ACCORDANCE WITH SUPPLIERS SPECIFICATIONS.
- IF HYDROSEEDING OCCURS AFTER OCTOBER 1 THE SEEDING RATE SHALL BE INCREASED BY 50 PERCENT AND THE AREA SHALL BE STRAW MULCHED.
- ALL HYDROSEEDED AREAS ARE TO BE ADEQUATELY WATERED TO ENSURE RAPID AND UNIFORM GROWTH.
- ON SLOPES GREATER THAN 3:1 THE LOAM LAYER SHALL BE STABILIZED WITH JUTE NETTING. THE SEED APPLICATION RATE SHALL BE INCREASED BY 50 PERCENT, AND A LAYTEX OR FIBER TACKIFIER SHALL BE ADDED TO THE HYDROSEED MIX.
- ALL SLOPES GREATER THAN 3:1 SHALL BE STRAW MULCHED IMMEDIATELY AFTER HYDROSEEDING SEEDING.

RECOMMENDED SEED MIXTURES

NON-LAWN AREAS	LAWN AREAS
40% ANNUAL RYE	20% ANNUAL RYE
30% RED TOP FESCUE	30% KENTUCKY BLUEGRASS
20% WHITE CLOVER	25% UTAH GOLD
5% LADINA CLOVER	25% CANADIAN NORTHSLOPE
5% CROWN VETCH	

GENERAL HOUSEKEEPING PRACTICES

IN ORDER TO MAINTAIN WATER QUALITY IN THE NEARBY WETLAND RESOURCE AREAS, THE FOLLOWING GOOD HOUSEKEEPING PRACTICES SHALL BE OBSERVED:

ABSOLUTELY NO WASTE PRODUCTS SHALL BE DISPOSED OF INTO ANY STORM DRAINS, WETLAND RESOURCE AREAS, SWALES, OR ANY OTHER AREA THAT COULD RESULT IN THE WASTE BEING CONVEYED TO WETLAND RESOURCE AREAS.

ALL CHEMICALS SHALL BE STORED INSIDE THE HOMES IN THE MANUFACTURER'S CONTAINERS AND IN SUCH A MANNER AS TO PREVENT DAMAGE AND SPILLAGE.

ILLICIT DISCHARGES: THE STORM DRAIN SYSTEM DISCHARGES TO NEARBY WETLAND RESOURCES AREAS. IN ORDER TO PRESERVE WATER QUALITY IN THESE AREAS IT IS ESSENTIAL THAT NOTHING IS DISCHARGED TO THE SYSTEM OTHER THAN ORDINARY STORM RUNOFF. THE FOLLOWING ARE STRICTLY PROHIBITED FROM BEING DISCHARGED INTO ANY OF THE COMPONENTS OF THE STORM DRAIN SYSTEM: OIL OR HAZARDOUS MATERIALS, CLEANING AGENTS, USED OR UNUSED CHEMICALS ASSOCIATED WITH THE OPERATION OF THE FACILITY, SANITARY WASTE, YARD WASTE, RUNOFF FROM VEHICLE WASHING, BACKWASH FROM WATER PURIFICATION SYSTEMS, OR ANY OTHER MATERIAL THAT MAY BE HARMFUL TO HUMAN HEALTH OR TO THE ENVIRONMENT.

INSPECTION REQUIREMENTS:

ALL INSPECTIONS SHALL BE PERFORMED BY QUALIFIED PERSONNEL IN ACCORDANCE WITH THE FOLLOWING MINIMUM REQUIREMENTS:

1. DISTURBED AREAS NOT STABILIZED - ONCE EVERY FOURTEEN (14) DAYS.
2. STORM EVENTS - WITHIN 24 HOURS OF THE END OF A STORM EVENT OF 1" IN 24 HOURS OR 0.5" WITHIN 1 HOUR.
3. WINTER (FROZEN CONDITIONS) - INSPECTIONS SHALL BE CONDUCTED AT LEAST ONCE EVERY MONTH.
4. FINAL STABILIZATION - FOLLOWING FINAL STABILIZATION OF THE SITE, A FINAL REPORT CONTAINING THE FOLLOWING INFORMATION SHALL BE PREPARED:
 - NAME AND QUALIFICATIONS OF PERSON PREPARING THE REPORT;
 - INSPECTIONS PERFORMED INCLUDING THE DATE AND PERSON PERFORMING THE INSPECTION;
 - FINDINGS AND RECOMMENDATIONS (IF ANY);
 - REPAIRS TO THE STORM WATER MANAGEMENT SYSTEM INCLUDING THE REASON FOR THE REPAIRS;
 - INSPECTIONS AND MAINTENANCE RECORDS;
 - MODIFICATIONS MADE DURING CONSTRUCTION AND THE REASONS FOR MAKING THEM;

RETENTION OF RECORDS:

THE OWNER/DEVELOPER SHALL RETAIN COPIES OF THE STORM WATER POLLUTION PREVENTION PLAN AND ALL SUPPLEMENTAL INFORMATION, AND ALL INSPECTION AND MONITORING REPORTS FOR A PERIOD OF AT LEAST THREE (3) YEARS FROM THE DATE THAT THE SITE IS FINALLY STABILIZED.

A COPY OF THIS STORM WATER POLLUTION PREVENTION PLAN MUST BE KEPT ON-SITE FROM THE DATE OF PROJECT INITIATION TO THE DATE OF FINAL STABILIZATION.

General Notes

PLAN REFERENCES

M.N.D.R.D. BOOK 240 PLAN 88
M.N.D.R.D. BOOK 235 PLAN 51
M.N.D.R.D. BOOK 224 PLAN 90

DEED REFERENCE

M.N.D.R.D. BOOK 19682 PAGE 258
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M.N.D.R.D. BOOK 21730 PAGE 266
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M.N.D.R.D. BOOK 21730 PAGE 269
M.N.D.R.D. BOOK 23657 PAGE 195

RECORD OWNERS

CONNELL REAL ESTATE TRUST
P.O. BOX 1230
WESTFORD, MA 01886

ASSESSORS REFERENCES

MAP 040, PARCEL 0017 0000



MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
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MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

STORM WATER POLLUTION PREVENTION PLAN
SPALDING HILL ESTATES
WESTFORD, MA

ALAN ENGINEERING, L.L.C.
110 WINN STREET, SUITE 209
WOBURN, MA 01801
(978) 577-6444
alan.eng@verizon.net

PREPARED FOR:
CONNELL REAL ESTATE TRUST
P.O. BOX 1230
WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	23 of 30
SCALE: AS SHOWN	

CONSTRUCTION SEQUENCE:

THE PROJECT WILL BE CONSTRUCTED IN THREE (3) PHASES AS SHOWN ON THE APPROVED PLANS. PHASE 1 WILL BE TO CONSTRUCT THE TWO ACCESSES INTO THE DEVELOPMENT ALONG WITH THEIR ASSOCIATED STORM WATER MANAGEMENT FEATURES. PHASE 2 WILL BE TO CONSTRUCT THE UPGRADE IMPROVEMENTS IN ST. AUGUSTINE DRIVE. PHASE 3 MAY NOT BEGIN UNTIL THE ROADWAYS IN PHASE 1 HAVE BEEN PAVED WITH THE BINDER COURSE OF PAVEMENT. PHASE 3 MAY NOT BEGIN UNTIL ST. AUGUSTINE DRIVE HAS BEEN REPAVED WITH THE BINDER COURSE OF PAVEMENT. THE PHASES OF CONSTRUCTION ARE TO BE DEVELOPED IN A CONTROLLED MANNER USING THE FOLLOWING SEQUENCE OF CONSTRUCTION TO ENSURE THAT EROSION AND SEDIMENT CONTROL MEASURES ARE ESTABLISHED, AND THAT STORM WATER RUNOFF IS MANAGED APPROPRIATELY.

1. INSTALL SILT FENCE AND FILTREXX SILT SOXX, AND DELINEATE LIMITS OF CLEARING AS SHOWN ON THE APPROVED PLANS.
2. CLEAR AND GRUB WORK AREA. NOTE, ONLY WOODED AREAS NECESSARY FOR ROADWAY CONSTRUCTION AND THE CONSTRUCTION OF THE STORM WATER MANAGEMENT FACILITIES ARE TO BE CLEARED.
3. ROUGH GRADE ROADWAYS AND INSTALL TEMPORARY SEDIMENT BASINS AS SHOWN ON THE APPROVED PLANS.
4. INSTALL STORM WATER MANAGEMENT BMPs.
5. INSTALL ROADWAY DRAINAGE SYSTEM, AND UNDERGROUND UTILITIES.
6. CATCH BASINS AND DRAIN MANHOLES WITHIN THE ROADWAY ARE TO BE COVERED WITH FILTER FABRIC AND STEEL PLATES AFTER INSTALLATION AND SHALL REMAIN IN PLACE UNTIL AFTER THE BINDER COURSE IS INSTALLED.
7. PLACE AND COMPACT ROADWAY BASE MATERIAL.
8. INSTALL BINDER COURSE OF PAVEMENT IN ROADWAY AND RAISE CATCH BASINS GRATES TO BINDER GRADE AND INSTALL SILT SACKS IN ALL CATCH BASINS.
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12. LOAM AND SEED ALL DISTURBED AREAS.
13. INSTALL THE FINAL WEARING COURSE OF PAVEMENT.

PHASING SEQUENCE:

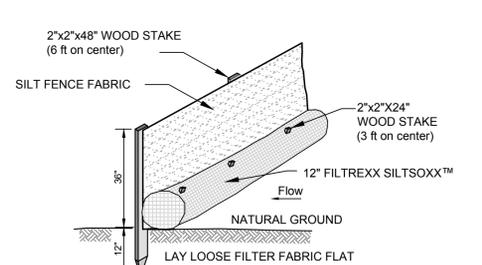
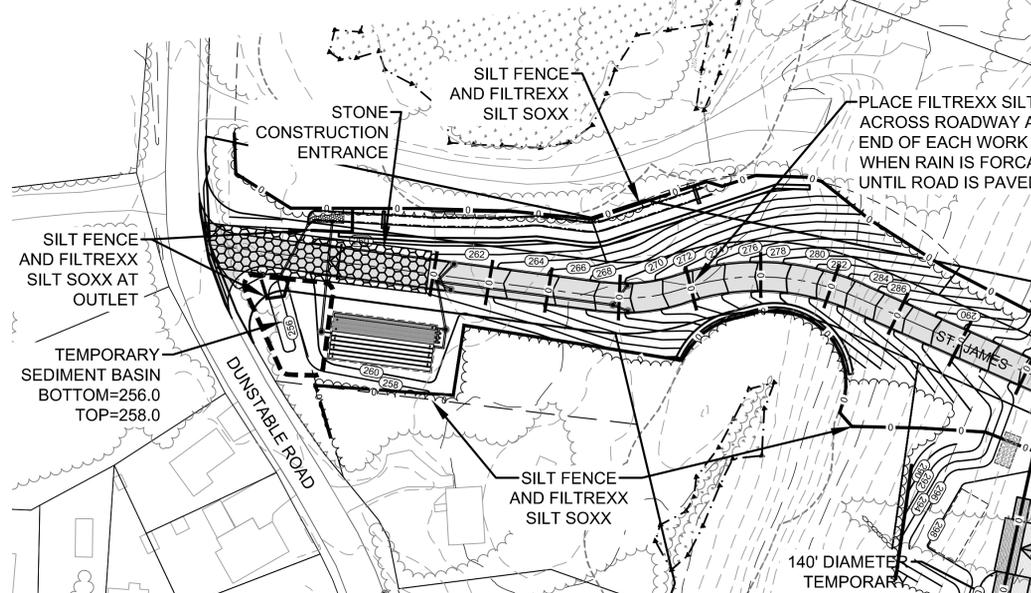
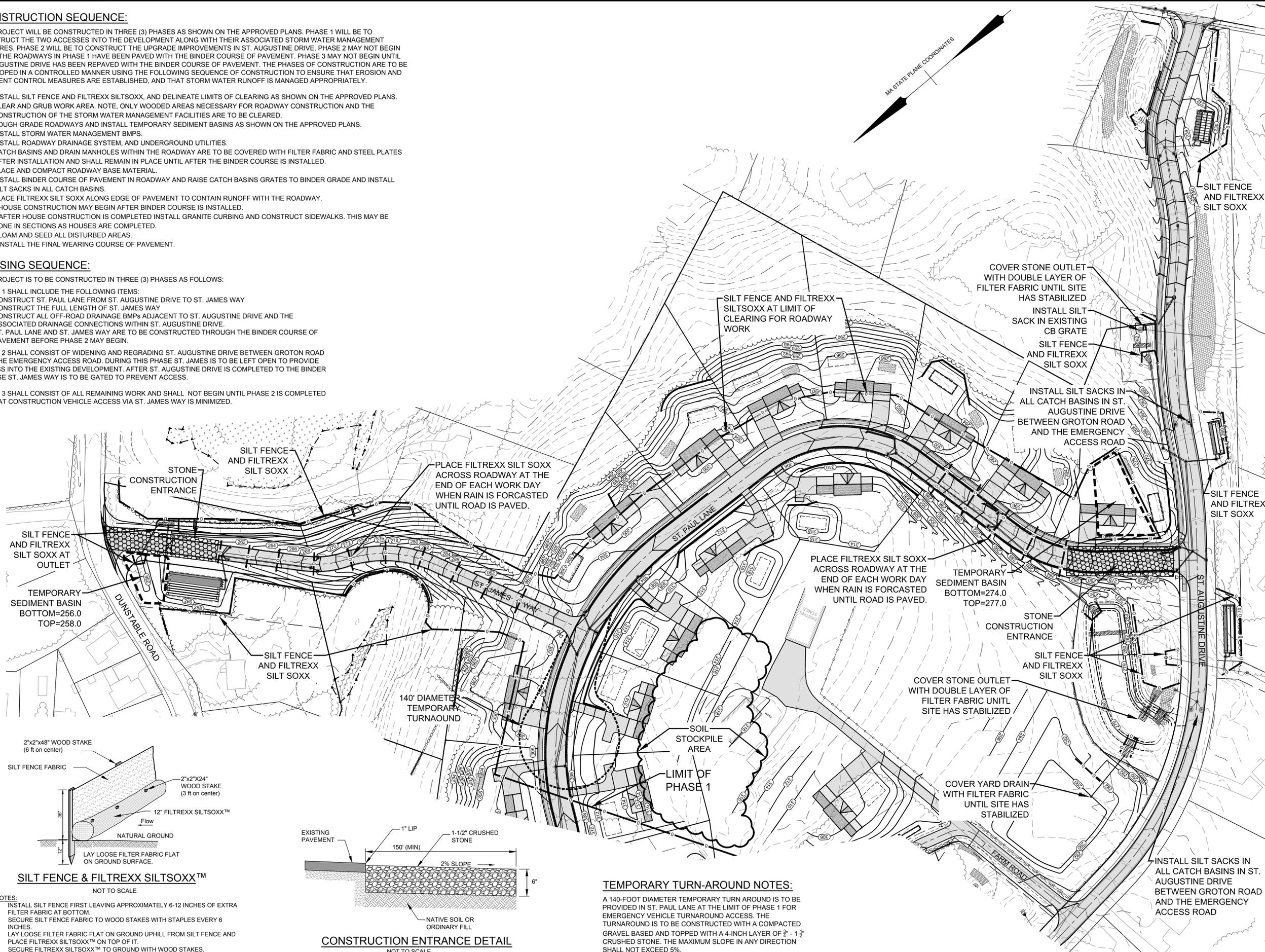
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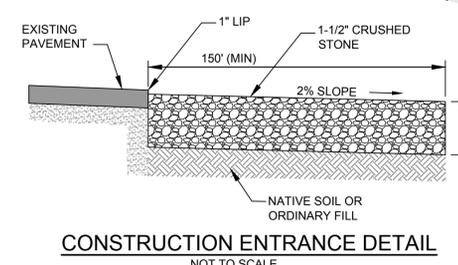
- CONSTRUCT ST. PAUL LANE FROM ST. AUGUSTINE DRIVE TO ST. JAMES WAY
- CONSTRUCT THE FULL LENGTH OF ST. JAMES WAY
- CONSTRUCT ALL OFF-ROAD DRAINAGE BMPs ADJACENT TO ST. AUGUSTINE DRIVE AND THE ASSOCIATED DRAINAGE CONNECTIONS WITHIN ST. AUGUSTINE DRIVE.
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PHASE 2 SHALL CONSIST OF WIDENING AND REGRADING ST. AUGUSTINE DRIVE BETWEEN GROTON ROAD AND THE EMERGENCY ACCESS ROAD. DURING THIS PHASE ST. JAMES IS TO BE LEFT OPEN TO PROVIDE ACCESS INTO THE EXISTING DEVELOPMENT. AFTER ST. AUGUSTINE DRIVE IS COMPLETED TO THE BINDER COURSE ST. JAMES WAY IS TO BE GATED TO PREVENT ACCESS.

PHASE 3 SHALL CONSIST OF ALL REMAINING WORK AND SHALL NOT BEGIN UNTIL PHASE 2 IS COMPLETED SO THAT CONSTRUCTION VEHICLE ACCESS VIA ST. JAMES WAY IS MINIMIZED.



- SILT FENCE & FILTREXX SILT SOXX™**
NOT TO SCALE
- NOTES:
1. INSTALL SILT FENCE FIRST LEAVING APPROXIMATELY 6-12 INCHES OF EXTRA FILTER FABRIC AT BOTTOM.
 2. SECURE SILT FENCE FABRIC TO WOOD STAKES WITH STAPLES EVERY 6 INCHES.
 3. LAY LOOSE FILTER FABRIC FLAT ON GROUND UPHILL FROM SILT FENCE AND PLACE FILTREXX SILT SOXX™ ON TOP OF IT.
 4. SECURE FILTREXX SILT SOXX™ TO GROUND WITH WOOD STAKES.



- TEMPORARY TURN-AROUND NOTES:**
- A 140-FOOT DIAMETER TEMPORARY TURN AROUND IS TO BE PROVIDED IN ST. PAUL LANE AT THE LIMIT OF PHASE 1 FOR EMERGENCY VEHICLE TURNAROUND ACCESS. THE TURNAROUND IS TO BE CONSTRUCTED WITH A COMPACTED GRAVEL BASED AND TOPPED WITH A 4-INCH LAYER OF 3/4" - 1 1/2" CRUSHED STONE. THE MAXIMUM SLOPE IN ANY DIRECTION SHALL NOT EXCEED 5%.

General Notes

1. Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
2. The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
3. The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws.
OSRD Requirements:
Minimum Area: 20,000 s.f.
Minimum Frontage: 50' (100' average)
Yard Setbacks: Front: 20'
Side: 15'
Rear: 15'
4. Parcels F and M are not building lots.
5. St. Paul Lane is intended to become a public way. St. James Way is to remain private, owned and maintained by a homeowner's association.
6. The Access and Utility Easement through lot 28 is to be maintained by a homeowner's association.
7. Lot 28 is a single building lot which will be deed restricted such that it can not be further subdivided to create additional building lots.
8. A 20' wide temporary construction easement is to be reserved along the frontage of each lot within the subdivision and shall remain in effect until the street is accepted as a public way by the Town of Westford.
9. The boundary between the Open Space and the lots is to be delineated with 4" x 4" wood posts with 2" reveal and a sign describing the boundary. Posts shall be spaced 50' apart.

PLAN REFERENCES

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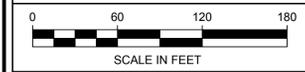
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WESTFORD, MA 01886

ASSESSORS REFERENCES

MAP 040, PARCEL 0017 0000



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MAS	ADD'L EROSION CONTROL	8/6/18
BY	REVISIONS	DATE

**EROSION CONTROL PLAN
PHASES 1 & 2
SPALDING HILL
ESTATES
WESTFORD, MA**

**ALAN
ENGINEERING, L.L.C.**
110 WINN STREET, SUITE 209
WOBURN, MA 01801
(978) 577-6444
alan.eng@verizon.net

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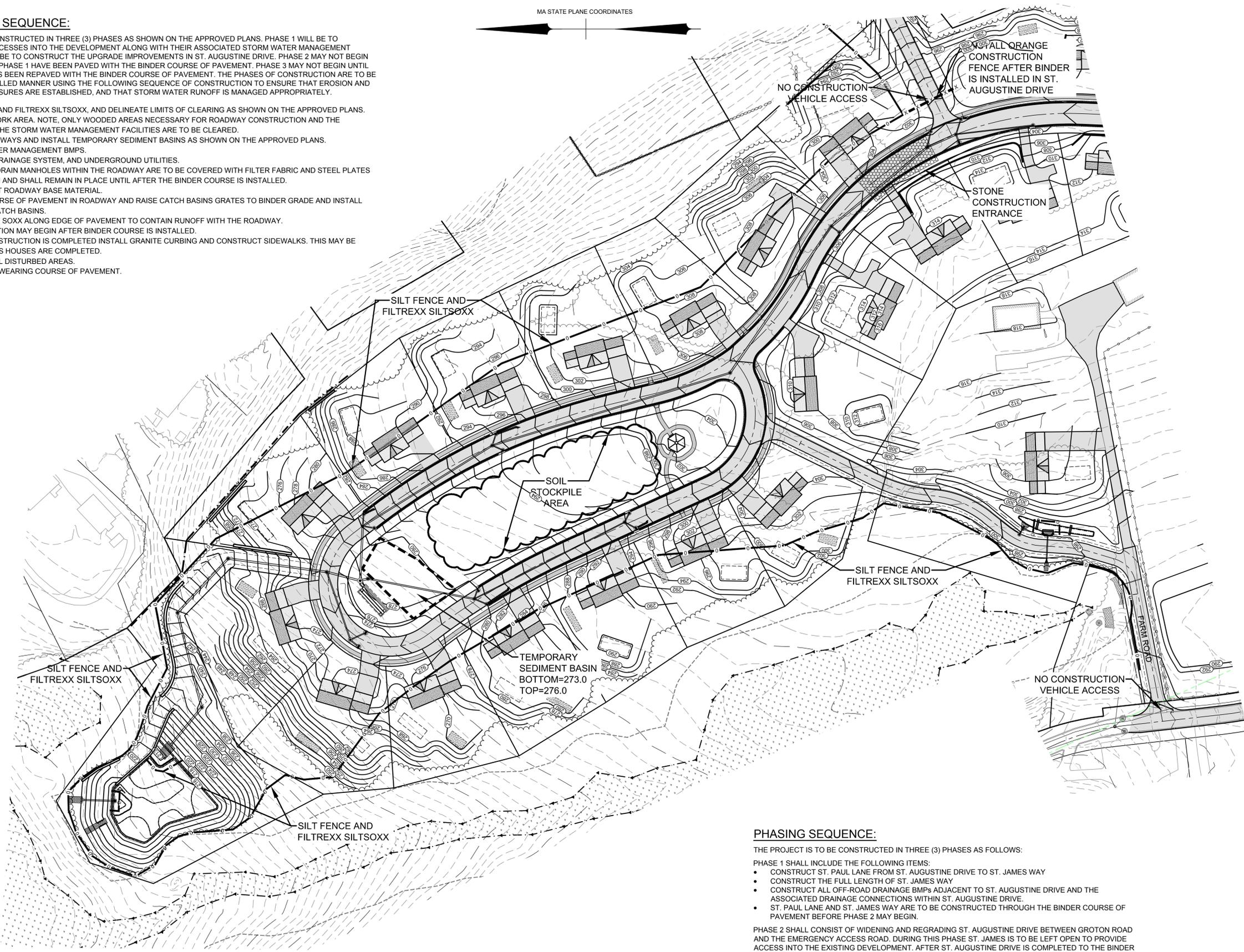
JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	24 of 30
SCALE: 1" = 60'	

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MA STATE PLANE COORDINATES



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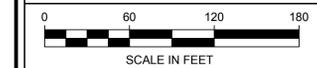
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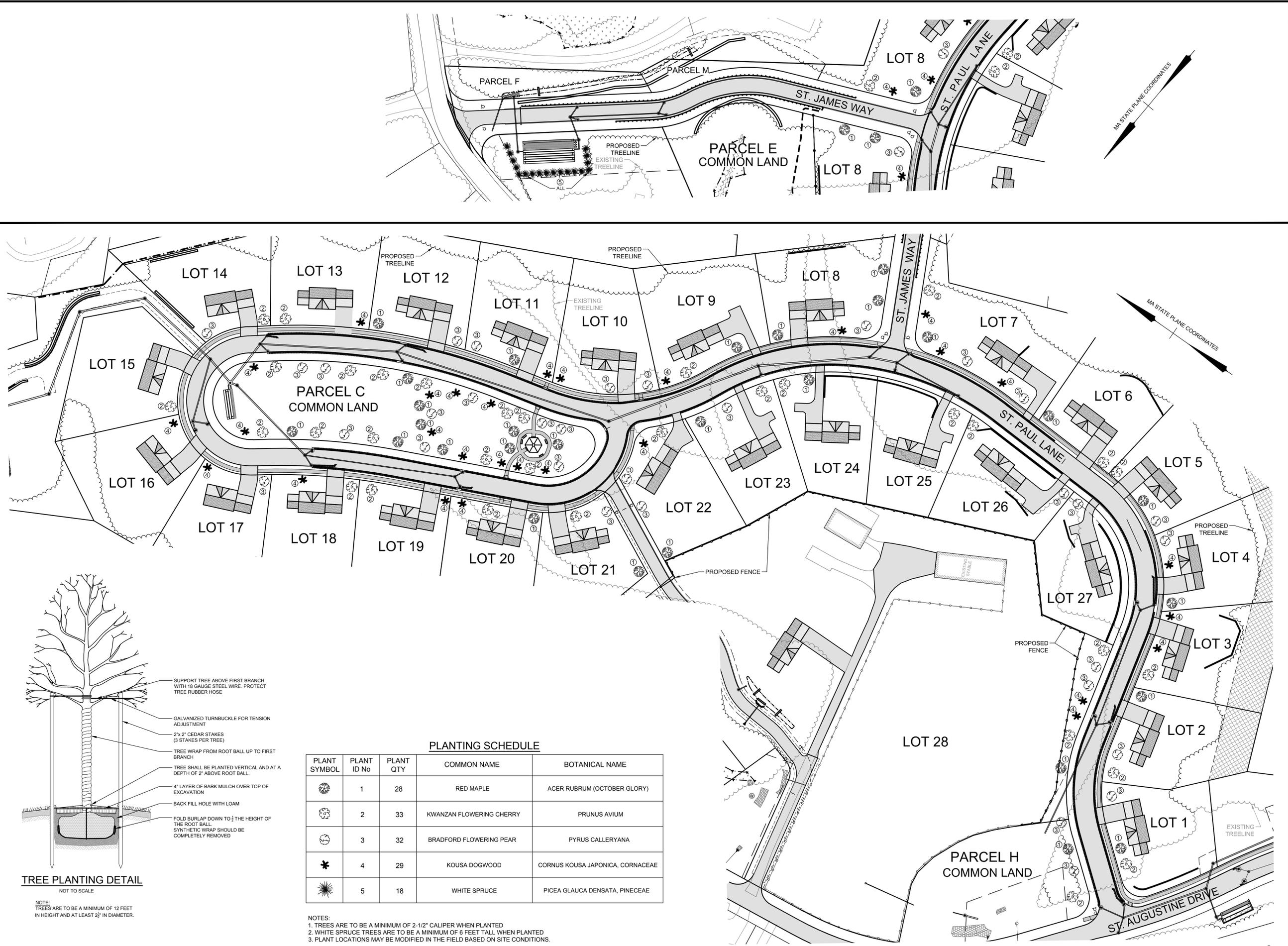
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**EROSION CONTROL PLAN
PHASE 3
SPALDING HILL
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110 WINN STREET, SUITE 209
WOBURN, MA 01801
(978) 577-6444
alan.eng@verizon.net

PREPARED FOR:
CONNELL REAL ESTATE TRUST
P.O. BOX 1230
WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	25 of 30
SCALE: 1" = 60'	



General Notes

- Existing topographic information was obtained from the Westford GIS Department and supplemented with field surveys by ALAN Engineering, L.L.C. and Goldsmith, Prest & Ringwall, Inc. Survey information by Goldsmith, Prest & Ringwall was provided to ALAN Engineering, L.L.C. electronically.
- The wetland boundary was flagged by Oxbow Associates and field located by Goldsmith, Prest & Ringwall, Inc. The surveyed wetland line was provided to ALAN Engineering, L.L.C. electronically.
- The subject property is in a Residence A (RA) zoning district. This subdivision is an Open Space Residential Development (OSRD) prepared in accordance with Section 7.1 of the Westford Zoning Bylaws.
OSRD Requirements:
Minimum Area: 20,000 s.f.
Minimum Frontage: 50' (100' average)
Yard Setbacks: Front: 20'
Side: 15'
Rear: 15'
- Parcels F and M are not building lots.
- St. Paul Lane is intended to become a public way. St. James Way is to remain private, owned and maintained by a homeowner's association.
- The Access and Utility Easement through lot 28 is to be maintained by a homeowner's association.
- Lot 28 is a single building lot which will be deed restricted such that it can not be further subdivided to create additional building lots.
- A 20' wide temporary construction easement is to be reserved along the frontage of each lot within the subdivision and shall remain in effect until the street is accepted as a public way by the Town of Westford.
- The boundary between the Open Space and the lots and between the "No Clear Zone" and the lots is to be delineated with 4" x 4" wood posts with 2" reveal and a sign describing the boundary. Posts shall be spaced 50' apart.

PLAN REFERENCES
M.N.D.R.D. BOOK 240 PLAN 88
M.N.D.R.D. BOOK 235 PLAN 51
M.N.D.R.D. BOOK 224 PLAN 90

DEED REFERENCE
M.N.D.R.D. BOOK 19882 PAGE 258
M.N.D.R.D. BOOK 21730 PAGE 263
M.N.D.R.D. BOOK 21730 PAGE 266
M.N.D.R.D. BOOK 21730 PAGE 267
M.N.D.R.D. BOOK 21730 PAGE 269
M.N.D.R.D. BOOK 23657 PAGE 195

RECORD OWNERS
CONNELL REAL ESTATE TRUST
P.O. BOX 1230
WESTFORD, MA 01886

ASSESSORS REFERENCES
MAP 040, PARCEL 0017 0000

0 60 120 180
SCALE IN FEET

PROFESSIONAL ENGINEER
MARK SLEGER
10-94407
REGISTERED
12/9/2019

MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

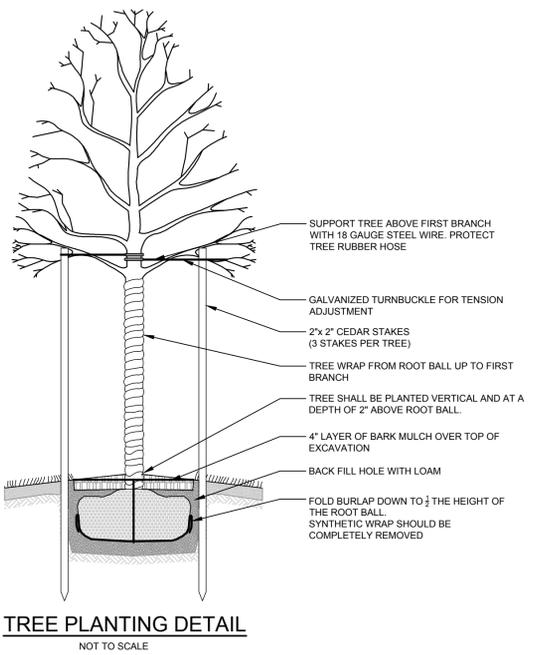
LANDSCAPE PLAN
SPALDING HILL ESTATES
WESTFORD, MA

ALAN ENGINEERING, L.L.C.
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JOB NO: 1174 DWG NO: 1637
JULY 20, 2018 **26 of 30**
SCALE: 1" = 60'

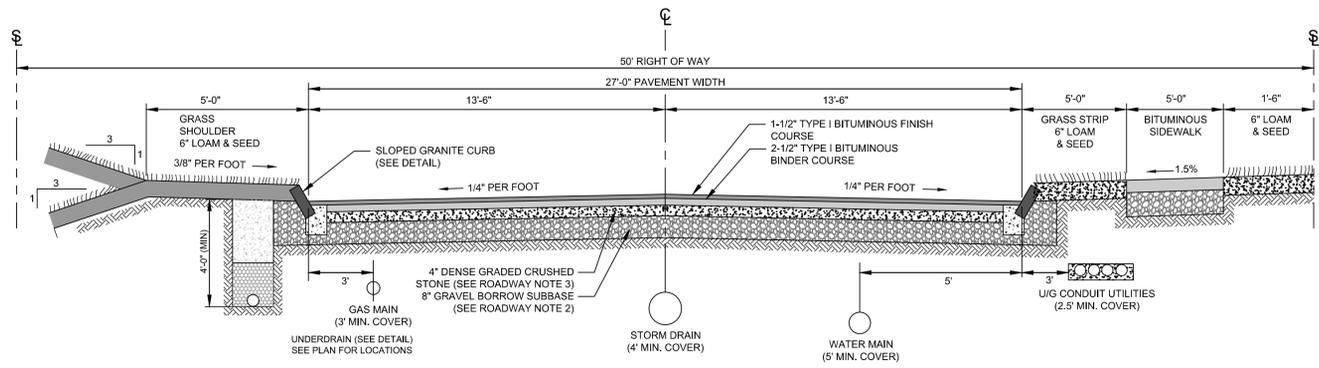
COPYRIGHT © 2018



PLANTING SCHEDULE

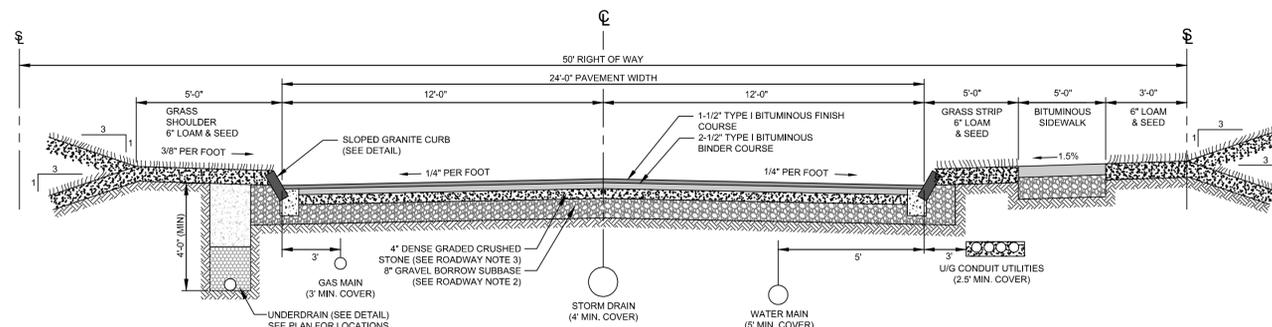
PLANT SYMBOL	PLANT ID No	PLANT QTY	COMMON NAME	BOTANICAL NAME
●	1	28	RED MAPLE	ACER RUBRUM (OCTOBER GLORY)
●	2	33	KWANZAN FLOWERING CHERRY	PRUNUS AVIUM
●	3	32	BRADFORD FLOWERING PEAR	PYRUS CALLERYANA
*	4	29	KOUSA DOGWOOD	CORNUS KOUSA JAPONICA, CORNACEAE
★	5	18	WHITE SPRUCE	PICEA GLAUCA DENSATA, PINACEAE

NOTES:
1. TREES ARE TO BE A MINIMUM OF 2-1/2" CALIPER WHEN PLANTED
2. WHITE SPRUCE TREES ARE TO BE A MINIMUM OF 6 FEET TALL WHEN PLANTED
3. PLANT LOCATIONS MAY BE MODIFIED IN THE FIELD BASED ON SITE CONDITIONS.



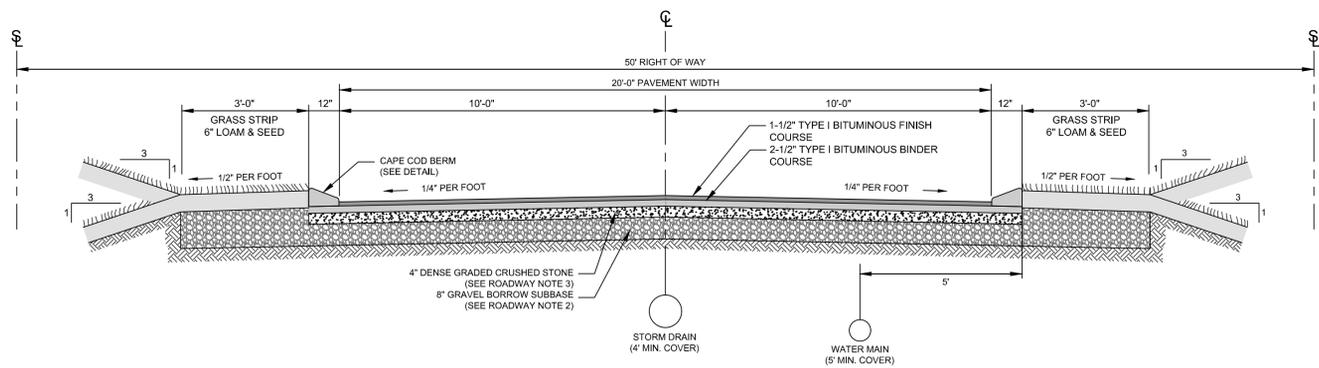
50' STREET CROSS SECTION WITH 27' PAVEMENT WIDTH
NOT TO SCALE

ST. PAUL LANE: STATION 0+0 TO STATION 13+00
ST. AUGUSTINE DRIVE FROM GROTON ROAD TO ST. PAUL LANE



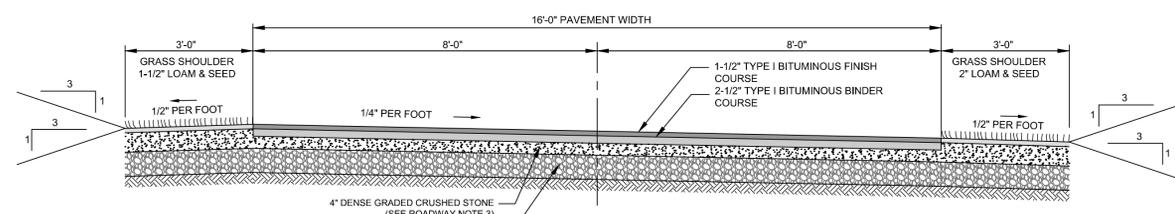
50' STREET CROSS SECTION WITH 24' PAVEMENT WIDTH
NOT TO SCALE

ST. PAUL LANE: STATION 13+00 TO END



50' STREET CROSS SECTION WITH 20' PAVEMENT WIDTH
NOT TO SCALE

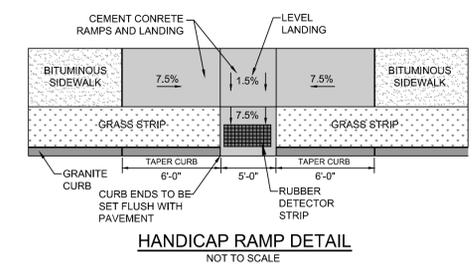
ST. JAMES WAY



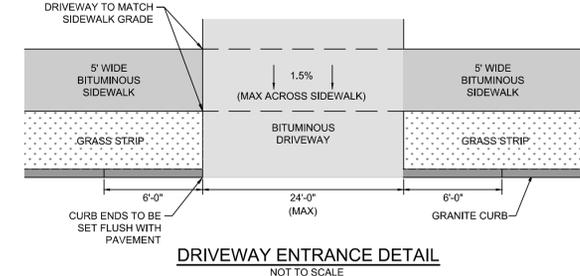
EMERGENCY ACCESS ROAD CROSS SECTION
NOT TO SCALE

ROADWAY NOTES:

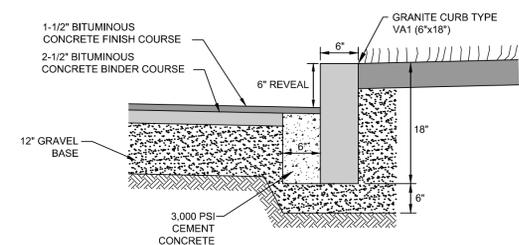
- SOIL TESTING INCLUDING SIEVE ANALYSES, PROCTOR TESTING, AND COMPACTION TESTING SHALL BE PERFORMED EVERY 100 FEET OF PAVED ROADWAY OR AS DIRECTED BY THE TOWN ENGINEER.
- GRAVEL BORROW SUBBASE SHALL CONFORM TO SECTION M1.03.0 TYPE B OF THE LATEST EDITION OF THE MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES. GRAVEL BORROW SUBBASE SHALL BE COMPACTED TO NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY OF THE MATERIAL AS DETERMINED BY THE STANDARD AASHTO TEST DESIGNATION T99 COMPACTION TEST METHOD C AT OPTIMUM MOISTURE CONTENT.
- DENSE GRADED CRUSHED STONE SHALL CONFORM TO SECTION M2.01.7 OF THE LATEST EDITION OF THE MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES. WITH THE APPROVAL OF THE TOWN ENGINEER PROCESSED GRAVEL MEETING SECTION M1.03.1 MAY BE USED AS IN PLACE OF THE DENSE GRADED CRUSHED STONE.



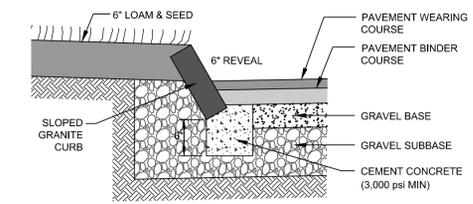
HANDICAP RAMP DETAIL
NOT TO SCALE



DRIVEWAY ENTRANCE DETAIL
NOT TO SCALE

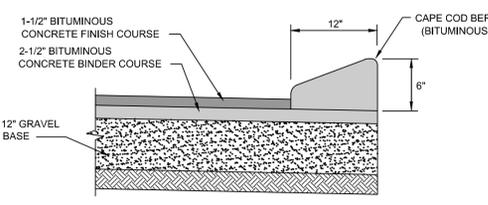


VERTICAL GRANITE CURB DETAIL
NOT TO SCALE

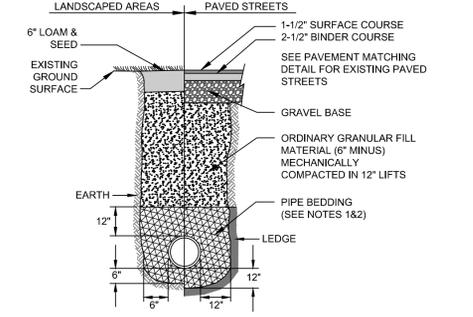


SLOPED GRANITE CURB DETAIL
NOT TO SCALE

- GRANITE CURBING NOTES:
- GRAVEL SUBBASE AND CURB BACKING TO BE PLACED AND COMPACTED PRIOR TO SETTING GRANITE CURB.
 - GRANITE CURBING IS TO TYPE 'SB' WITH THE FOLLOWING MINIMUM DIMENSIONS:
MAX LENGTH = 10' MIN LENGTH = 3' THICKNESS = 6'-8'
 - CEMENT CONCRETE IS TO BE PLACED 1/2" BELOW THE LEVEL OF THE BINDER COURSE TO FORM A LIP.

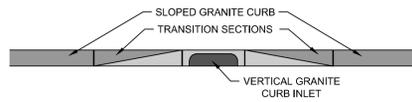


BITUMINOUS CAPE COD BERM
NOT TO SCALE



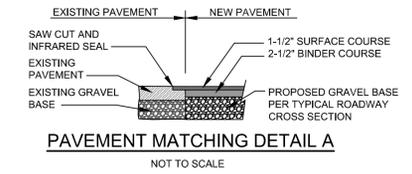
TYPICAL TRENCH SECTION
NOT TO SCALE

- NOTES:
- PIPE BEDDING MATERIAL TO BE AS FOLLOWS:
• FOR OLD WATER MAINS USE SAND
• FOR PVC AND HDPE PIPING USE 3/4" CRUSHED STONE
• FOR RCP USE SUITABLE GRANULAR FILL (2" MINUS)
 - FOR ANTI-SEEP COLLAR SUBSTITUTE BEDDING MATERIAL WITH BENTONITE FOR A DISTANCE OF 24 INCHES ALONG THE TRENCH.

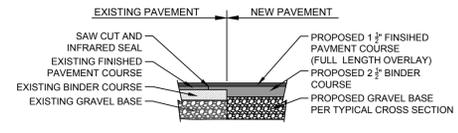


GRANITE CURB INLET DETAIL
NOT TO SCALE

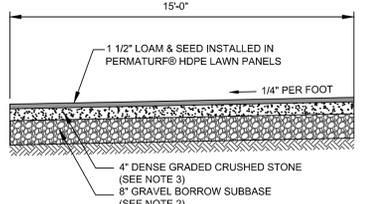
- NOTES:
- GRANITE CURB INLETS ARE TO BE USED AT ALL CATCH BASINS IN ST. PAUL LANE.



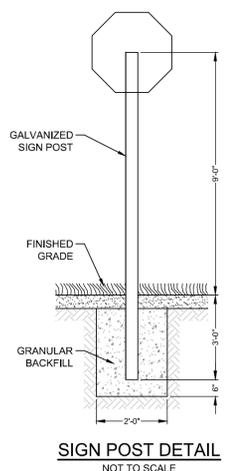
PAVEMENT MATCHING DETAIL A
NOT TO SCALE



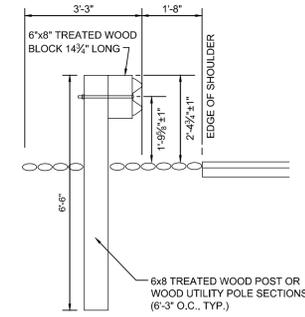
PAVEMENT MATCHING DETAIL B
NOT TO SCALE



STABILIZED TURF ACCESS ROAD CROSS SECTION
NOT TO SCALE



SIGN POST DETAIL
NOT TO SCALE



GUARDRAIL DETAIL
NOT TO SCALE

- NOTES:
- GUARDRAIL TO BE GALVANIZED STEEL W-BEAM HIGHWAY GUARD (MASS HIGHWAY SPEC) WITH TREATED WOOD POSTS OR 12" DIA. UTILITY POLES.
 - WOOD BLOCKS SHALL BE TOE-NAILED INTO THE WOOD POSTS WITH A MINIMUM OF FOUR (4) 12d GALVANIZED NAILS.

General Notes

PLAN REFERENCES
M.N.D.R.D. BOOK 240 PLAN 88
M.N.D.R.D. BOOK 235 PLAN 51
M.N.D.R.D. BOOK 224 PLAN 90

DEED REFERENCE
M.N.D.R.D. BOOK 19682 PAGE 258
M.N.D.R.D. BOOK 21730 PAGE 263
M.N.D.R.D. BOOK 21730 PAGE 266
M.N.D.R.D. BOOK 21730 PAGE 267
M.N.D.R.D. BOOK 21730 PAGE 269
M.N.D.R.D. BOOK 23657 PAGE 195

RECORD OWNERS
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WESTFORD, MA 01886

ASSESSORS REFERENCES
MAP 040, PARCEL 0017 0000



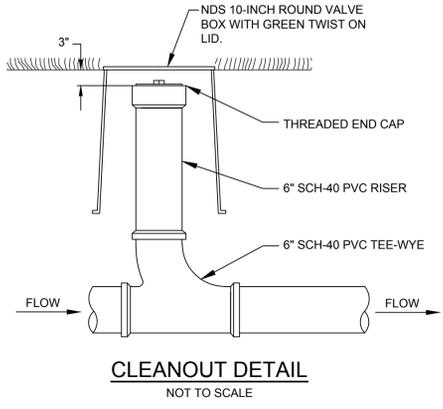
MAS	LOT REDUCTION	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

CONSTRUCTION DETAILS
SPALDING HILL ESTATES
WESTFORD, MA

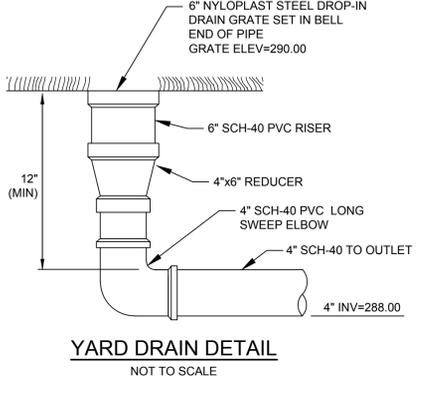
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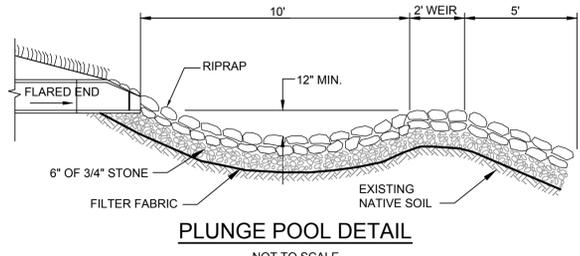
JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	27 of 30
SCALE: AS SHOWN	



CLEANOUT DETAIL
NOT TO SCALE

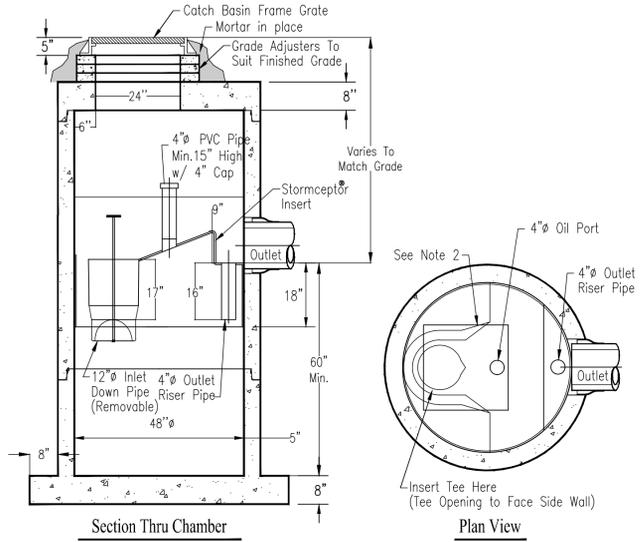


YARD DRAIN DETAIL
NOT TO SCALE



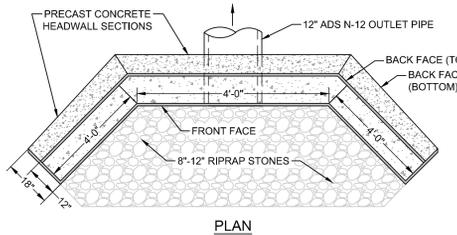
PLUNGE POOL DETAIL
NOT TO SCALE

NOTE:
RIP RAP IS TO BE HARD DURABLE ANGULAR STONES RANGING IN SIZE FROM 8 INCHES TO 12 INCHES.

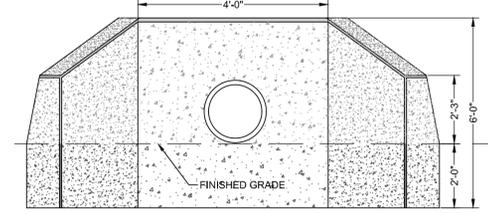


Notes:
1. The Use Of Flexible Connection is Recommended at The Inlet and Outlet Where Applicable.
2. The Cover Should be Positioned Over The Inlet Drop Pipe and The Oil Port.
3. The Stormceptor System is protected by one or more of the following U.S. Patents: #4985148, #5498331, #5725760, #5753115, #5849181, #6068765, #6371690.
4. Contact a Concrete Pipe Division representative for further details not listed on this drawing.

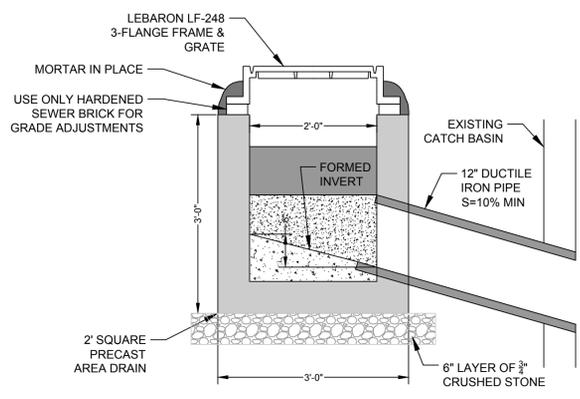
STC 450i Precast Concrete Stormceptor®
(450 U.S. Gallon Capacity)



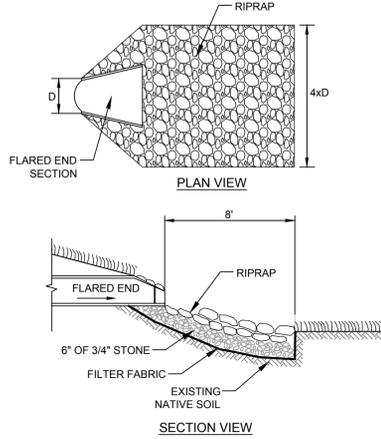
PLAN



PRECAST CONCRETE HEADWALL DETAIL
NOT TO SCALE

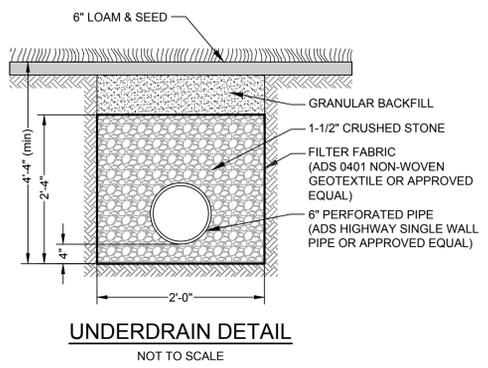


GUTTER INLET DETAIL
NOT TO SCALE

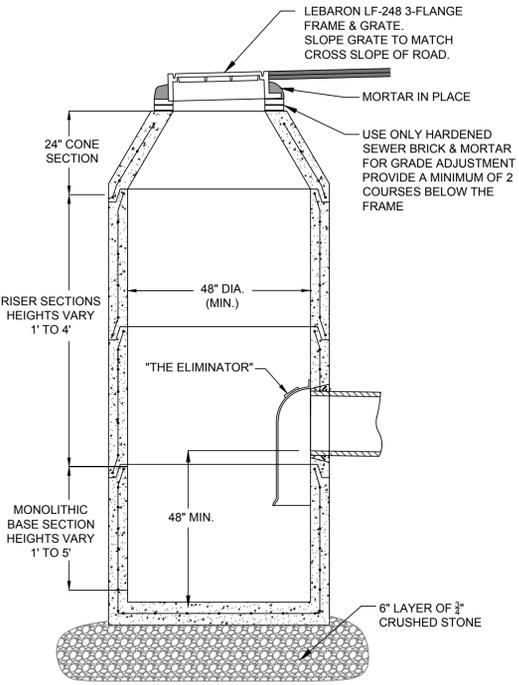


FLARED END SECTION DETAIL
NOT TO SCALE

NOTE:
RIPRAP IS TO BE HARD DURABLE ANGULAR STONES RANGING IN SIZE FROM 8 INCHES TO 12 INCHES

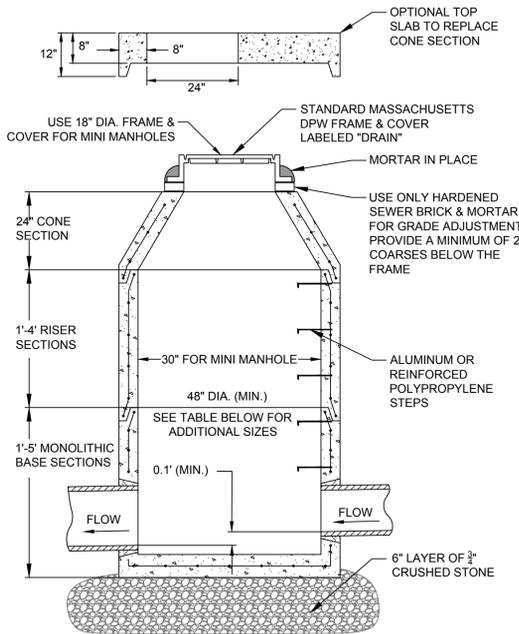


UNDERDRAIN DETAIL
NOT TO SCALE



PRECAST CONCRETE CATCH BASIN
NOT TO SCALE

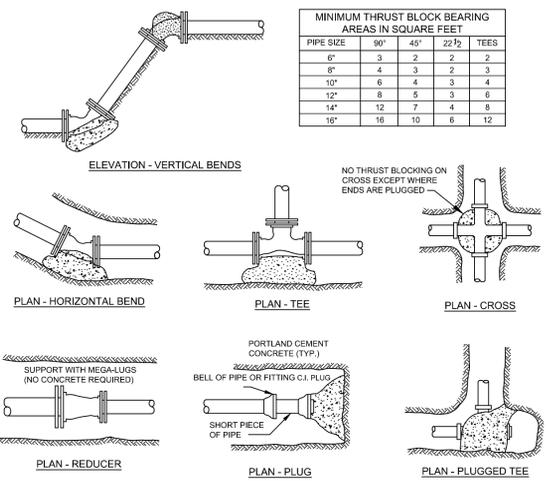
NOTES:
1. WHERE DOUBLE GRATES ARE SPECIFIED THE USE 5'-0" INSIDE DIAMETER CATCH BASIN.
2. DOUBLE GRATES ARE TO BE SET PERPENDICULAR TO THE CURB.
TWIN GRATE LOCATIONS:
CB-1, CB-2, CB-4, CB-5, CB-7, CB-10, CB-17, CB-18, CB-20, CB-21



PRECAST CONCRETE DRAIN MANHOLE
NOT TO SCALE

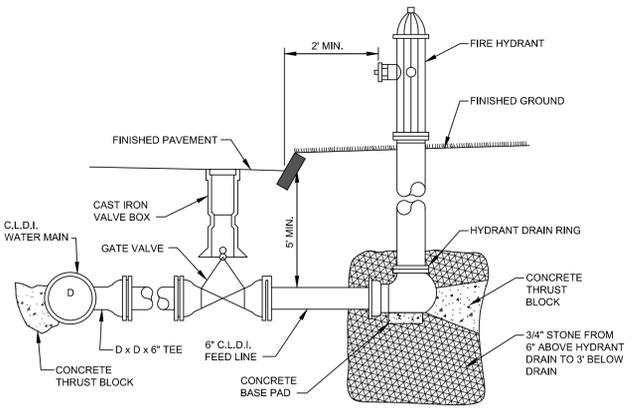
SPECIFIC MANHOLE SIZES

DMH-6	5' DIA
DMH-13	6' DIA
DMH-15	5' DIA



WATER MAIN DETAILS
NOT TO SCALE

NOTES:
1. ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM TO THE SPECIFICATIONS OF THE LOCAL WATER DEPARTMENT.
2. CONCRETE SHALL BE 3,000 PSI MINIMUM AT 28 DAYS.
3. THRUST BLOCKS SHALL BE PLACED AGAINST UNDISTURBED EARTH.
4. ALL FITTINGS (EXCEPT AS INDICATED) SHALL BE SUPPORTED AND ANCHORED IN CONCRETE AND WITH "MEGALUG JOINT RESTRAINTS" OR APPROVED EQUAL.
5. FOR FIRE HYDRANT THRUSTING SEE HYDRANT CONNECTION DETAIL.
6. POURED CONCRETE SHALL BE KEPT 6" CLEAR OF MECHANICAL JOINTS TO ALLOW FOR FUTURE REPAIR OR REMOVAL.
7. RETAINER GLANDS REQUIRED ON ALL BENDS.
8. ALL MECHANICAL JOINT GLANDS SHALL BE WEDGE-ACTION LOCKING RESTRAINT TYPE.
9. BELL ENDS OF PUSH-ON PIPE WITHIN 30 FEET OF THE TERMINATION OF THE WATER MAIN OR EITHER SIDE OF A 90-DEGREE BEND SHALL BE MECHANICALLY RESTRAINED. (FIELD-LOC GASKETS, RODS AND RESTRAINT CLAMPS OF SET SCREW PLUG).
10. BRONZE CONDUCTIVITY WEDGES (2) SHALL BE INSTALLED AT EACH BELL JOINT.
11. THE TAPPING SLEEVE SHALL BE ALL STAINLESS STEEL WRAP-AROUND TYPE.



HYDRANT CONNECTION DETAIL
NOT TO SCALE

General Notes

PLAN REFERENCES
M.N.D.R.D. BOOK 240 PLAN 88
M.N.D.R.D. BOOK 235 PLAN 51
M.N.D.R.D. BOOK 224 PLAN 90

DEED REFERENCE
M.N.D.R.D. BOOK 19682 PAGE 258
M.N.D.R.D. BOOK 21730 PAGE 263
M.N.D.R.D. BOOK 21730 PAGE 266
M.N.D.R.D. BOOK 21730 PAGE 267
M.N.D.R.D. BOOK 21730 PAGE 269
M.N.D.R.D. BOOK 23657 PAGE 195

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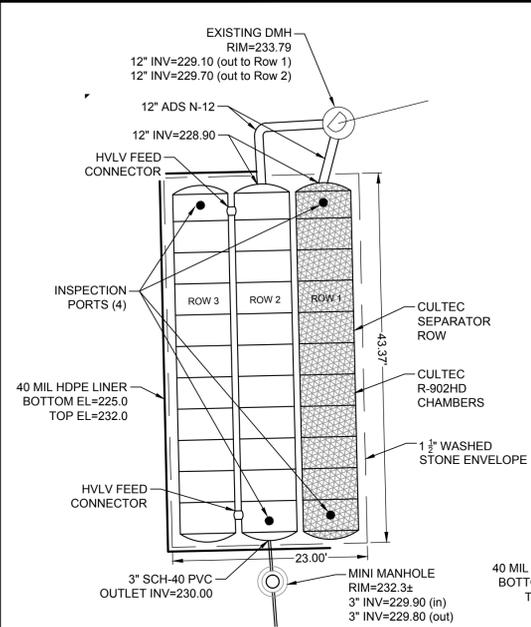
MAS	LOT REDUCTION	12/9/2019
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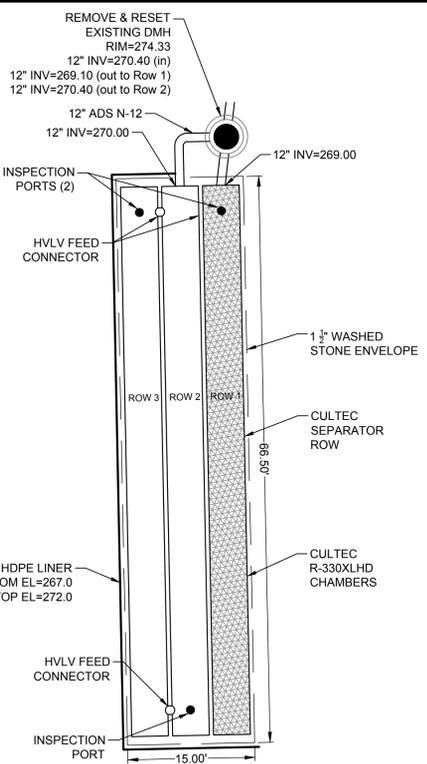
JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	28 of 30
SCALE: AS SHOWN	



INFILTRATION SYSTEM 1

SCALE: 1" = 10'

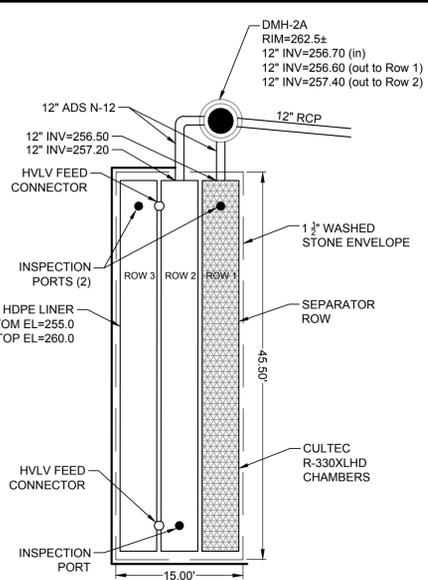
NOTE: FILTER FABRIC IS NOT REQUIRED WHERE THE HDPE LINER IS SHOWN.



INFILTRATION SYSTEM 2

SCALE: 1" = 10'

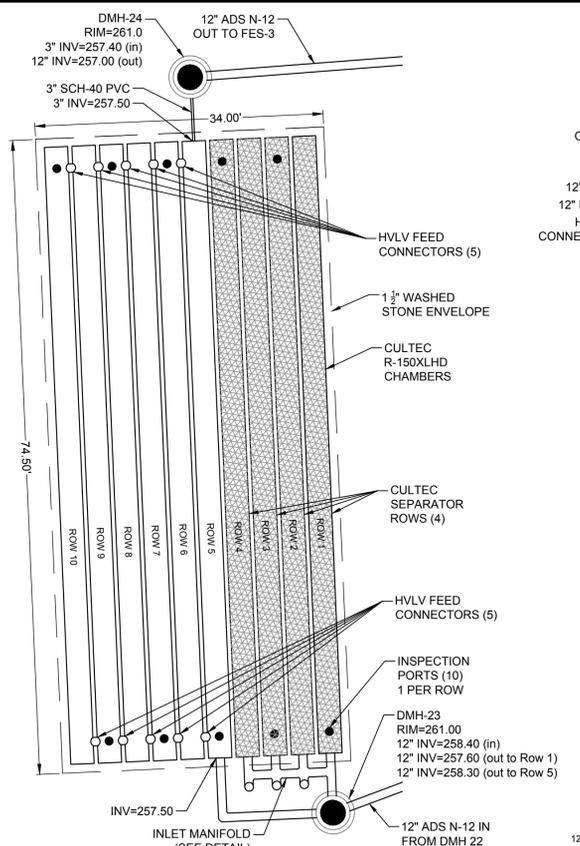
NOTE: FILTER FABRIC IS NOT REQUIRED WHERE THE HDPE LINER IS SHOWN.



INFILTRATION SYSTEM 3

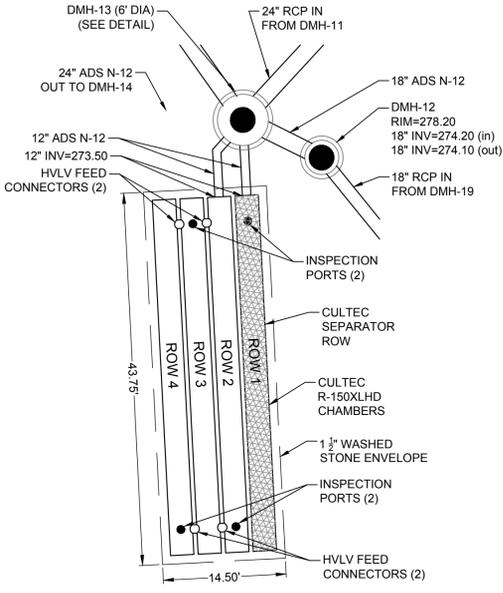
SCALE: 1" = 10'

NOTE: FILTER FABRIC IS NOT REQUIRED WHERE THE HDPE LINER IS SHOWN.



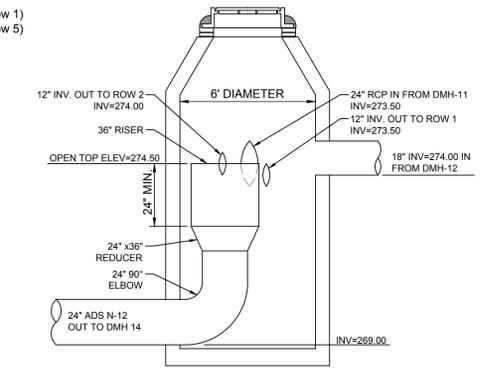
DETENTION SYSTEM 4

SCALE: 1" = 10'



INFILTRATION SYSTEM 5

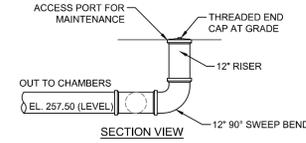
SCALE: 1" = 10'



DMH 13 DETAIL

NOT TO SCALE

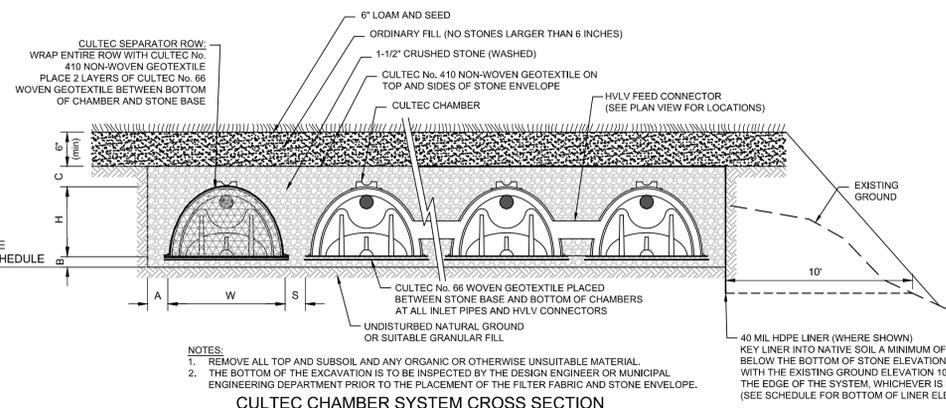
24" RISER AND ELBOW MAY BE EITHER ADS N-12, SCH-40 PVC, OR SDR-35 PVC PIPING



12" INLET MAINFOLD DETAIL

NOT TO SCALE

MANIFOLD MAY BE CONSTRUCTED WITH EITHER SCH-40 PVC, ADS N-12, OR SDR-35 PIPING



NOTES:

- REMOVE ALL TOP AND SUBSOIL AND ANY ORGANIC OR OTHERWISE UNSUITABLE MATERIAL.
- THE BOTTOM OF THE EXCAVATION IS TO BE INSPECTED BY THE DESIGN ENGINEER OR MUNICIPAL ENGINEERING DEPARTMENT PRIOR TO THE PLACEMENT OF THE FILTER FABRIC AND STONE ENVELOPE.

CULTEC CHAMBER SYSTEM CROSS SECTION

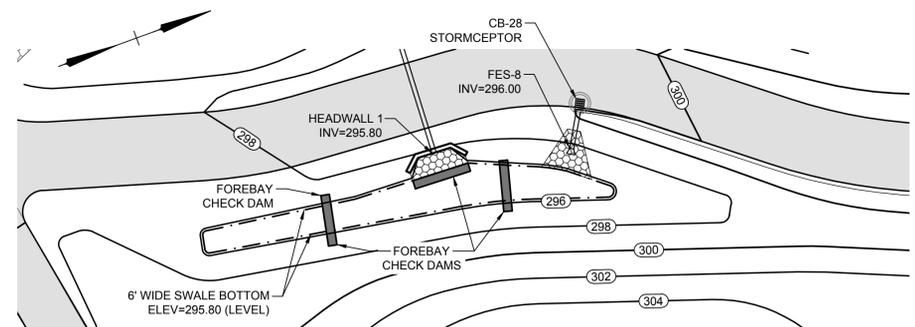
NOT TO SCALE

CULTEC SYSTEM SEPARATOR ROW:

- THE CHAMBERS OF THE SEPARATOR ROW SHALL WRAPPED ON THE TOP AND SIDES WITH CULTEC No. 410 NON-WOVEN GEOTEXTILE.
- A DOUBLE LAYER OF CULTEC No. 66 WOVEN GEOTEXTILE SHALL BE PLACED BETWEEN THE BOTTOM OF THE SEPARATOR ROW CHAMBERS AND THE STONE BASE.

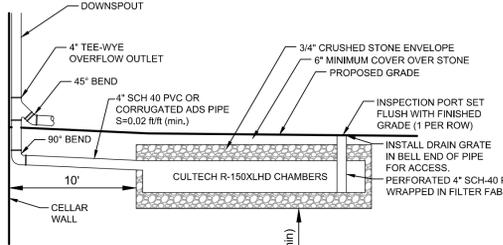
CULTEC CHAMBER SYSTEM SCHEDULE

SYSTEM No.	CULTEC MODEL	H	W	A	B	S	C	No. CHAMBERS	No. ROWS	UNITS PER ROW	SYSTEM LENGTH	SYSTEM WIDTH	BOTTOM OF STONE EL.	TOP OF STONE EL.	BOTTOM OF HDPE LINER
1	R-902 HD	48"	78"	12"	9"	9"	12"	33	3	11	43'-5"	23'-0"	226.0	231.8	223.0
2	R-330XLHD	30"	52"	6"	6"	6"	6"	27	3	9	66'-6"	15'-0"	268.0	271.5	265.0
3	R-330XLHD	30"	52"	6"	6"	6"	6"	18	3	6	45'-6"	15'-0"	256.0	259.5	253.0
4	R-150XLHD	18"	33"	12"	6"	6"	6"	72	10	7	74'-6"	34'-0"	257.0	259.5	N/A
5	R-150XLHD	18"	33"	12"	6"	6"	6"	16	4	4	43'-9"	14'-9"	273.0	275.5	N/A



WATER QUALITY SWALE 2

SCALE: 1" = 20'



ROOF DRAIN DETAIL

NOT TO SCALE

ROOF DRAIN SYSTEM SCHEDULE

SYSTEM STYLE	No. CHAMBERS	ROWS	CHAMBERS PER ROW	STONE LENGTH	STONE WIDTH
A	6	2	3	33'-6"	8'-0"
B	6	3	2	23'-3"	11'-3"

NOTES:

- CHAMBERS SHALL BE SPACED 6" APART
- THE STONE ENVELOPE SHALL EXTEND TO 6" ABOVE THE TOP OF THE CHAMBER AND TO 6" BELOW THE BOTTOM OF THE CHAMBER. THE STONE ENVELOPE SHALL ALSO EXTEND OUTWARD 12" FROM THE SIDES AND ENDS OF THE CHAMBERS.
- ROOF DRAIN SYSTEMS ARE DESIGNED TO RECEIVE A MAXIMUM OF 2,036 SQUARE FEET OF ROOF AREA. LARGER ROOF AREAS MAY REQUIRE ADDITIONAL CHAMBERS.
- INFILTRATION SYSTEMS SHALL BE A MINIMUM OF 10 FEET FROM LOT LINES.

General Notes

PLAN REFERENCES
M.N.D.R.D. BOOK 240 PLAN 88
M.N.D.R.D. BOOK 235 PLAN 51
M.N.D.R.D. BOOK 224 PLAN 90

DEED REFERENCE
M.N.D.R.D. BOOK 19682 PAGE 258
M.N.D.R.D. BOOK 21730 PAGE 263
M.N.D.R.D. BOOK 21730 PAGE 266
M.N.D.R.D. BOOK 21730 PAGE 267
M.N.D.R.D. BOOK 21730 PAGE 269
M.N.D.R.D. BOOK 23657 PAGE 195

RECORD OWNERS
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ASSESSORS REFERENCES
MAP 040, PARCEL 0017 0000

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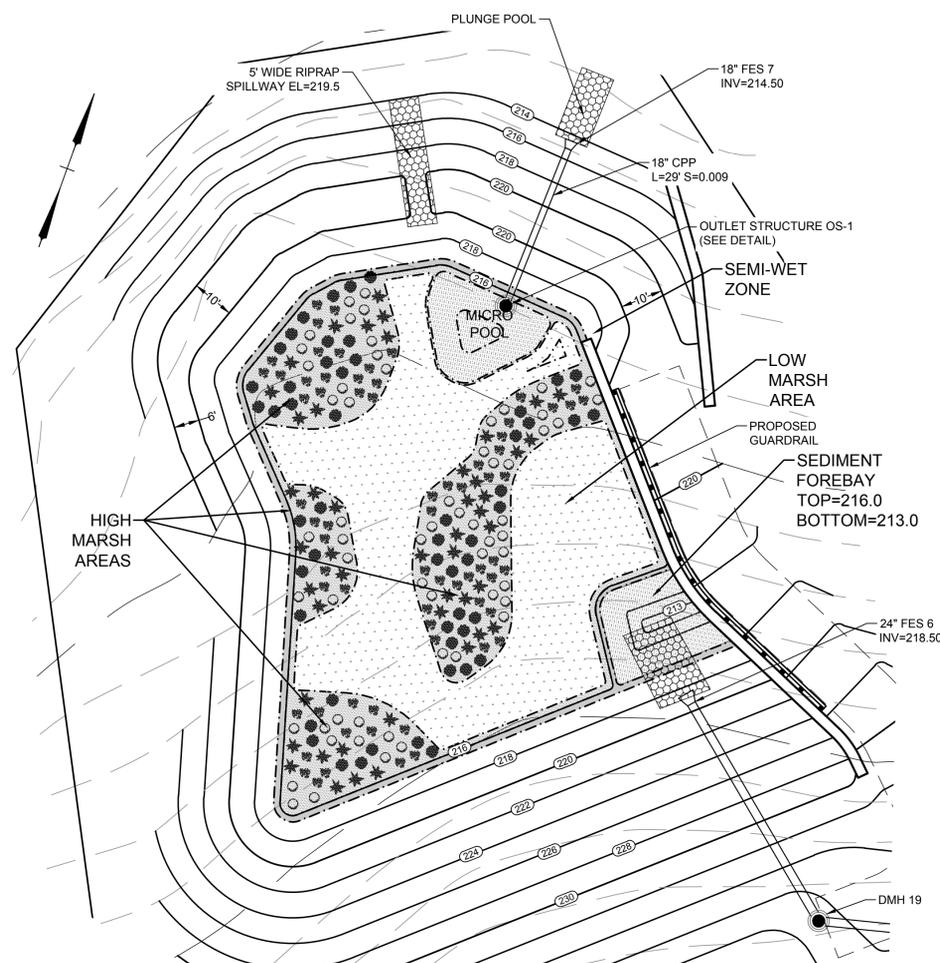
MAS	LOT REDUCTION	DATE
MAS	TOWN ENG. COMMENTS	12/9/2019
MAS	TOWN ENG. COMMENTS	6/14/2019
MAS	TOWN ENG. COMMENTS	5/10/2019
MAS	TOWN ENG. COMMENTS	1/31/2019
BY	REVISIONS	DATE

CONSTRUCTION DETAILS
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PREPARED FOR:
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WESTFORD, MA 01886

JOB NO: 1174	DWG NO: 1637
JULY 20, 2018	29 of 30
SCALE: AS SHOWN	



WETLAND DETENTION BASIN DETAIL
SCALE: 1" = 20'

PLANTING SCHEDULE

PLANT SYMBOL	PLANT QTY	COMMON NAME	BOTANICAL NAME
	68	AMERICAN WITCH HAZEL	HAMAMELIS VIRGINIANA
	36	WINTERBERRY	ILEX VERTICILATA
	53	CREEPING JUNIPER	JUNIPERUS HORIZONTALIS
	60	LOW BUSH BLUEBERRY	VACCINIUM ANGUSTIFOLIUM

- NOTES:
 1. LINE BOTTOM AND SID SLOPES OF FOREBAY AND MICRO POOL WITH 6" CLAY AND 6" LOAM
 2. BOTTOM OF HIGH AND LOW MARSH AREAS IS TO BE A 12" LAYER OF LOAM AND PEAT
 3. LOW AND HIGH MARSH AREAS ARE TO BE SEED WITH A NEW ENGLAND WETLAND SEED MIX
 4. BASIN CONSTRUCTION TO BE SUPERVISED BY A WETLAND SPECIALIST
 5. PLANT SPECIES AND QUANTITIES MAY VARY BASED ON SITE CONDITIONS AND THE RECOMMENDATIONS OF THE WETLAND SPECIALIST

WETLAND BASIN SIZING CALCULATIONS (POCKET WETLAND)

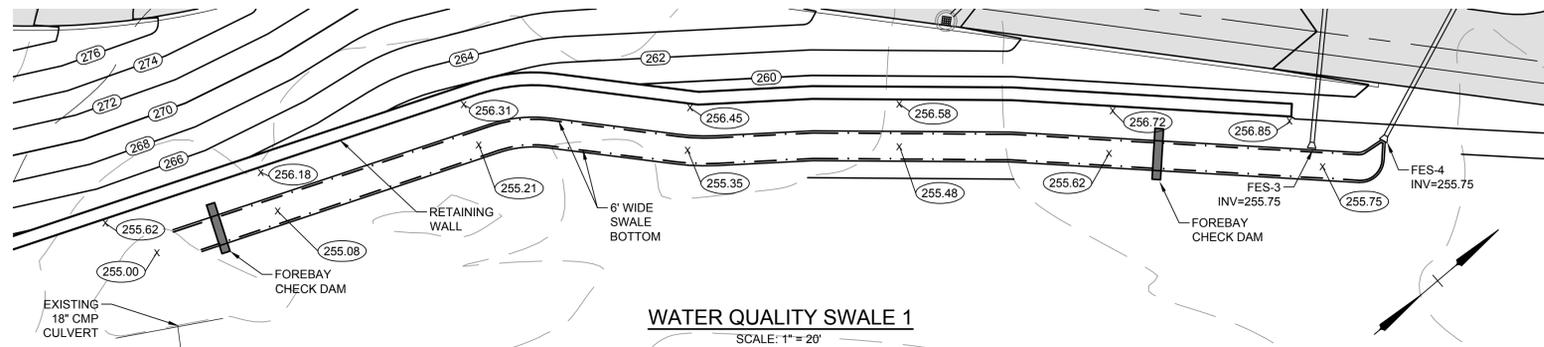
WATERSHED AREA	WETLAND BASIN AREA	WATERSHED / BASIN RATIO	FOREBAY		MICRO POOL		LOW MARSH		HIGH MARSH		SEMI-WET ZONE		
			AREA	Basin %	AREA	Basin %	AREA	Basin %	AREA	Basin %	AREA	Basin %	
DESIGN	7.30 Ac.	9,650 S.F. (0.22 Ac.)	0.03	485 S.F.	5.0%	483 S.F.	5.1%	4,330 S.F.	44.9%	3,840 S.F.	39.8%	517 S.F.	5.4%
DEP CRITERIA	≥ 1 to 10 Ac.	≥ 3,180 (0.07 Ac.)	≥ 0.01	482 S.F.	5.0%	482 S.F.	5.0%	4,344 S.F.	45.0%	3,860 S.F.	40.0%	482 S.F.	5.0%

WETLAND BASIN WATER QUALITY CALCULATIONS (POCKET WETLAND)

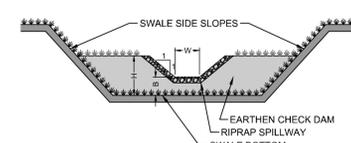
	WATER QUALITY VOLUME (WQV)		FOREBAY		MICRO POOL		LOW MARSH		HIGH MARSH	
	VOLUME	% WQV	VOLUME	% WQV	VOLUME	% WQV	VOLUME	% WQV	VOLUME	% WQV
DESIGN	3,427 CU-FT	734 CU-FT	21%	694 CU-FT	20%	3,511 CU-FT	102%	3,245 S.F.	95%	
DEP CRITERIA		343 CU-FT	10%	343 CU-FT	10%	1,865 CU-FT	55%	3,860 S.F.	25%	

BASIN ELEVATIONS

WETLAND ZONE	ELEVATION
NORMAL POOL	216.0
FOREBAY	213.0 - 216.0
MICRO POOL	213.0 - 215.5
LOW MARSH	214.5 - 215.5
HIGH MARSH	215.5 - 216.0
SEMI-WET ZONE	216.0 - 216.5



WATER QUALITY SWALE 1
SCALE: 1" = 20'

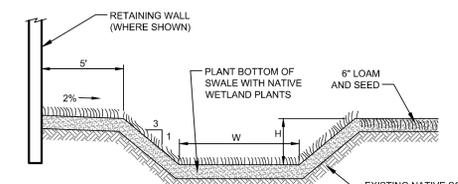


FOREBAY CHECK DAM DETAIL
NOT TO SCALE

- CONSTRUCTION NOTES:
 1. EARTHEN CHECK DAM TO HAVE 6" LOAM & SEED.
 2. RIPRAP STONES ARE TO BE 4"-6" HARD DURABLE ANGULAR STONES.

CHECK DAM DIMENSION SCHEDULE

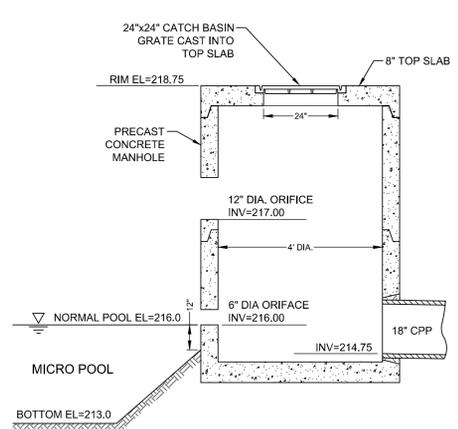
SWALE ID	WIDTH (W)	HEIGHT (H)
SWALE 1	6"	6"
SWALE 2	6"	6"



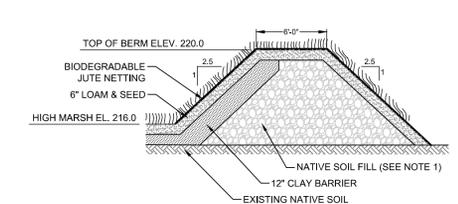
WATER QUALITY SWALE DETAIL (WET)
NOT TO SCALE

SWALE DIMENSION SCHEDULE

SWALE ID	WIDTH (W)	HEIGHT (H)
SWALE 1	6"	12"
SWALE 2	6"	12"

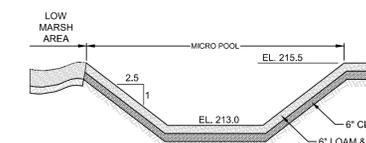


WETLAND BASIN OUTLET STRUCTURE (OS 1)
NOT TO SCALE



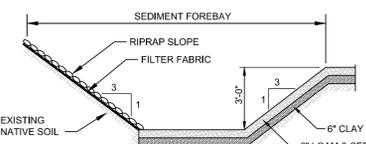
WETLAND BASIN BERM CROSS SECTION
NOT TO SCALE

- NOTES:
 1. REMOVE ALL TOP AND SUBSOIL FROM BENEATH BERM AREA. USE NATIVE SOIL SAND FROM OTHER AREAS OF THE SITE TO ACHIEVE FINAL BOTTOM GRADE.
 2. BERM IS TO BE CONSTRUCTED WITH NATIVE SOIL WITH NO STONES LARGER THAN 2 INCHES. FILL IS TO BE COMPACTED IN 6-INCH LIFTS TO 95% MAXIMUM DRY DENSITY.



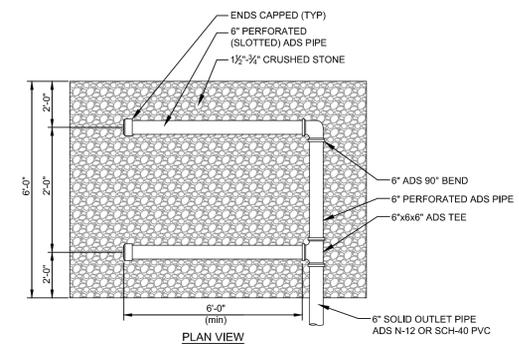
MICRO POOL DETAIL
NOT TO SCALE

- BASIN CONSTRUCTION NOTES:
 1. REMOVE ALL TOP AND SUBSOIL FROM BOTTOM AND SIDEWALLS. IF FILL MATERIAL IS NEEDED TO ACHIEVE SUB-GRADE ELEVATION USE NATIVE SOIL FROM OTHER ON-SITE EXCAVATIONS.
 2. LOAM AND SEED BOTTOM AND SIDEWALLS WITH LOAM REMOVED FROM OTHER ON-SITE EXCAVATIONS.
 3. SEED WITH NATIVE WETLAND SEED MIX.



SEDIMENT FOREBAY DETAIL
NOT TO SCALE

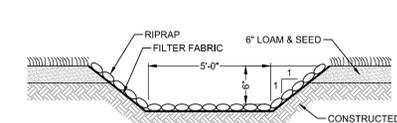
- BASIN CONSTRUCTION NOTES:
 1. REMOVE ALL TOP AND SUBSOIL FROM FOREBAY BOTTOM AND SIDEWALLS. IF FILL MATERIAL IS NEEDED TO ACHIEVE SUBGRADE ELEVATION USE NATIVE SOIL FROM OTHER ON-SITE EXCAVATIONS.
 2. LOAM AND SEED FOREBAY BOTTOM AND SIDEWALLS WITH LOAM REMOVED FROM OTHER ON-SITE EXCAVATIONS.
 3. SEED FOREBAY WITH NATIVE WETLAND SEED MIX.



STONE INLET DETAIL
NOT TO SCALE

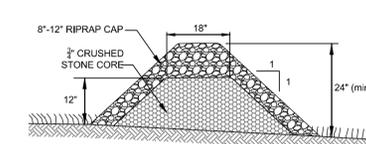
ELEVATION SCHEDULE

LOCATION	PIPE SIZE	ELEVATION
DROP INLET ECB-6	6"	252.00
DET BASIN 3A	4"	279.00



RIPRAP SPILLWAY DETAIL
NOT TO SCALE

- RIP RAP IS TO BE HARD DURABLE ANGULAR STONES RANGING IN SIZE FROM 8 INCHES TO 12 INCHES.



RIPRAP BERM DETAIL
NOT TO SCALE

- RIP RAP IS TO BE HARD DURABLE ANGULAR STONES RANGING IN SIZE FROM 8 INCHES TO 12 INCHES.

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