

SHEPHERDS HILL AMENDMENT

SP# 08-22

STAFF REPORT #2

(Please refer to 7/27/22 report for earlier comments)

November 30, 2022

SITE: Shadowbrook Drive; Map 177 Lot 005

ZONING: General (G) & Business (B)

PURPOSE OF PLAN: The purpose of the plan is to show the final phase of Shepherds Hill condominium which consists of 118 residential units, parking, and associated site appurtenances.

PLANS UNDER REVIEW:

Residential Site Plan / Shepherds Hill, Map 177 Lot 5, Shadowbrook Drive, Hudson, New Hampshire, Hillsborough County; prepared by: Keach-Nordstrom Associates, Inc. 10 Commerce Park North, Suite 3B, Bedford, NH 03110; prepared for: Shepherd's Hill Home Owners Association C/O Great North Property Management, 3 Holland Way, Suite 201, Exeter, NH 03833; consisting of 54 sheets including a cover sheet and general notes 1-17 on Sheet 1; dated May 2, 2022; last revised October 6, 2022.

ATTACHMENTS:

- A. Peer Review Comments, prepared by Fuss & O'Neill, received September 9, 2022
- B. Response to Peer Review comments, prepared by Keach-Nordstrom Associates, received October 10, 2022.
- C. Peer Review Comments, prepared by Fuss & O'Neill, received November 1, 2022.
- D. Water System Review, prepared by Weston & Sampson, received November 7, 2022
- E. Waiver Request from §930, Construction Design Details that requires a minimum stormwater drainage pipe slope of 2%.
- F. Drainage Report Updated Sections – provided electronically only

APPLICATION TRACKING:

- May 23, 2022 – Application received.
- July 27, 2022 – Application accepted and continued to August 24, 2022
- August 24, 2022 – Deferred to September 28, 2022
- September 28, 2022 – Deferred to October 26, 2022
- October 26, 2022 – Deferred to November 30, 2022
- November 30, 2022 – hearing scheduled.

COMMENTS & RECOMMENDATIONS:

DEPARTMENT COMMENTS

Since the initial review, additional items are under review and discussion with the Fire Department and Engineering Department.

1. Fire: The Fire Department requested additional information on hydrants and emergency vehicle access.
 - a. Applicant shall provide a hydrant plan with dimensions: site plan hydrant layout is inconsistent and hydrants to be relocated should show the relocation. *Status: The Fire Department has reviewed the water line plan and is satisfied with the hydrant plan.*
 - b. Applicant shall also provide a wheel pattern plan for fire apparatus, and shall provide profile plan clearly showing that there is no issue with fire apparatus truck access/road curve. *Status: Currently under review.*
 - c. As the site is rocky and densely populated, a pre-blasting meeting will be needed to coordinate notification of nearby residents and handling of potential complaints and inquiries.
2. Engineering:
 - a. In response to the Applicant's waiver request for a minimum stormwater drainage pipe slope of 2%, the Engineering Department advises that the Applicant needs to show a minimum water velocity in the stormwater drainage pipe of 2 f/s. This will be a private drainage pipe with a slope of no less than 1%. *Status: Pending.*
 - b. Applicant needs to add the water main to the profile to determine if there are any conflicts. *Status: Pending.*

PEER REVIEW COMMENTS AND APPLICANT'S RESPONSE

The Peer Reviewer, Fuss & O'Neil, provided a second round of comments on September 9, 2022 (**Attachment A**) on the plan set revised July 7, 2022 and the Applicant submitted a response on October 10, 2022 (**Attachment B**). Fuss & O'Neil provided a third round of comments on November 1, 2022 (**Attachment C**) on the plan set revised October 6, 2022.

Peer review notes the following as outstanding issues:

- Sewer Connection: A Sewer Connection Permit has been submitted to NH DES: this is being reviewed and comments are pending. It is also under review by the Town and the City of Nashua. This is subject to the approval of the state and local sewer departments, not the Planning Board.
- The Town's water consultant, Weston & Sampson, performed a hydraulic model to ensure adequacy of domestic and fire protection supply. That review was received on November 7 (**Attachment D**) and concludes that the Hudson water system and Windham

Road High Service System and service the final phase of development under all normal conditions and can provide up to 1,500 gallons per minute of fire flow for three hours while maintaining the required 20 psi in the water system. This issue has been resolved.

- The Applicant has proposed sidewalks along Shadowbrook Drive and Clearview Circle; however, in the recorded plans there are also sidewalks proposed along the streets now known as Gifford Circle and Trinity Circle. This item is subject of further discussion later in this report.

Peer review notes items for Town evaluation or input:

- The current plan sets do not have the owner's signature, or stamps from a soil scientist or wetlands scientist. The Applicant states that these will be provided on the final plan set.
- Peer review suggests the Town review the need for a waiver to show existing landscaping. The Applicant has shown the existing treeline which represents the existing vegetation.
- While private, the proposed streets with a horizontal curve radius of less than 150ft should be reviewed with the Town to ensure they meet standards for safety, emergency access, and snowplow access. The Fire Department reviewed truck turning templates and found them satisfactory.
- The Town should ensure that utility crossings are reviewed at the preconstruction meeting with the contractor and establish minimum spacing parameters. This has been reviewed with the Engineering Department and will require regular inspection by the Town during construction.
- Additional information on the treatment of roadway runoff from Subcatchment 72S to Infiltration Pond #2. The Applicant states that they are waiting from feedback from Alteration of Terrain. Still, the application must meet the Town of Hudson's regulations.
- The Applicant has requested a Waiver (**Attachment E**) from §930, Construction Design Details that requires a minimum stormwater drainage pipe slope of 2%. The Drainage Report with update sections are found in **Attachment F**.

ADDITIONAL COMMENTS

Sidewalks – The original (and presently approved) plan shows sidewalks throughout the development. This amendment (as of October 6, 2022) proposes a reduction in sidewalks, providing segments along portions of Shadowbrook Drive and Clearview Circle and none within Trinity Circle or Gifford Circle. The density and shared outdoor space of the development warrants adequate pedestrian facilities. Staff recommends the Planning Board discuss with the Applicant the following:

1. Lack of sidewalks in Trinity Circle and Gifford Circle
2. The pedestrian connection of the tot lot leads directly to a vehicular way
3. The existing and proposed sidewalk gap on Shadowbrook Drive

Update: Applicant has shown Staff revised sidewalk plans in response to items #1 and #2 that will be presented to the Planning Board at the upcoming meeting. (Nov. 22, 2022)

Unit Typology – The applicant is proposing 118 two-bedroom units within 59 duplex style buildings. A note should be added to the plan stating that these units are all to be two-bedroom units.

Test Pits – Test Pit #16 is located within 399F, a rock outcrop area. However, its soil report results are the same as Test Pit #15, which is located in an Udorthents Fill location. Staff understands the Applicant’s soil scientist has rectified the discrepancy but still needs to be resolved in the final plan set.

Inspection Engineer – The bankruptcy order requires the present or future property owner to pay for the Town of Hudson to engage a suitable construction inspection engineer to verify compliance with the terms and conditions of the approved plan and permits issued by NHDES or other agencies. This requires setting and engineering escrow account in an amount set “after mutual consultations between the present or future property owner and the Town of Hudson by and through the Hudson Planning Board of Planning Department.” Staff recommends the amount be set at \$5 per linear foot of roadway & drainage, \$5 per linear foot of water line, and \$5 per linear foot of sewer line.

DRAFT MOTIONS

CONTINUE the public hearing to a date certain:

I move to continue the site plan application for the Residential Site Plan / Shepherds Hill, Map 177 Lot 5, Shadowbrook Drive, to date certain, _____, 2022.

Motion by: _____ Second: _____ Carried/Failed: _____

GRANT a waiver:

I move to grant a waiver from §930, to require a minimum stormwater drainage pipe slope of 2%, based on the Board’s discussion, the testimony of the Applicant’s representative, and in accordance with the language included in the submitted Waiver Request Form for said waiver.

Motion by: _____ Second: _____ Carried/Failed: _____

APPROVE the site plan application:

I move to approve the site plan entitled: Residential Site Plan / Shepherds Hill, Map 177 Lot 5, Shadowbrook Drive, Hudson, New Hampshire, Hillsborough County; prepared by: Keach-Nordstrom Associates, Inc. 10 Commerce Park North, Suite 3B, Bedford, NH 03110; prepared for: Shepherd’s Hill Home Owners Association C/O Great North Property Management, 3 Holland Way, Suite 201, Exeter, NH 03833; consisting of 54 sheets including a cover sheet and general notes 1-17 on Sheet 1; dated May 2, 2022; last revised October 6, 2022; subject to, and revised per, the following stipulations:

1. All stipulations of approval shall be incorporated into a Development Agreement, which shall be recorded at the HCRD, together with the Plan.
2. Pursuant to Exhibit B of the Order Confirming Debtor's Plan of Reorganization issued by the US Bankruptcy Court on July 21, 2000, Book 6315 Page 1220:
 - a. Per paragraph 6, a sewer capital assessment fee of \$1,550 per unit shall be paid prior to issuance of building permit for any unit.
 - b. Per paragraph 7, an impact fee of \$1,200 per unit shall be paid prior to issuance of a certificate of occupancy for any unit. This impact fee shall be proportionately allocated among school impact fee and traffic CAP fee as it is at time of collection.
 - c. Per paragraph 7, a contribution to Benson Park of \$375 per unit shall be owed issuance of a Certificate of Occupancy.
 - d. Per paragraph 11, the Applicant, or their assigns, shall pay for the cost of a construction inspection engineer at a rate of \$5 per linear foot of roadway & drainage, \$5 per linear foot of water and \$5 per linear foot of sewer.
3. The Applicant, its successors and assigns, shall comply with all of the terms and conditions of the Settlement Agreement between the Town of Hudson and the Shepherds Hill Homeowner's Association, Inc. dated February 24, 2016, and recorded at the Hillsborough County Registry of Deeds at Book 8835, Page 2477.
4. The approval of this Plan supersedes and replaces all prior approvals to the extent any such approvals are inconsistent with this Plan. The purpose of this condition is to clarify that there is only one (1) approved plan for the area of the subject premises commonly referred to as Phases 5, 6, and 7.
5. The Applicant hereby voluntarily relinquishes the right to develop the property pursuant to any previous approvals, including the right to construct any particular number of units. The total number of units shall not exceed 118 for the remaining undeveloped portion of the property. The total number of units for the entire property shall not exceed 392.
6. Prior to the Planning Board endorsement of the Plan, it shall be subject to final administrative review by Town Planner and Town Engineer.
7. Prior to application for a building permit, the Applicant shall schedule a pre-construction meeting with the Town Engineer.
8. Prior to blasting, the Applicant shall schedule a meeting with the Fire Marshal.
9. Construction activities involving the subject lot shall be limited to the hours between 7:00 A.M. and 7:00 P.M. No exterior construction activities shall be allowed on Sundays.
10. Hours of refuse removal shall be exclusive to the hours between 7:00 A.M. and 7:00 P.M., Monday through Friday only.

Motion by: _____ Second: _____ Carried/Failed: _____



September 9, 2022

Mr. Brian Groth
Town Planner
Town of Hudson
12 School Street
Hudson, NH 03051

Re: Town of Hudson Planning Board Review
Shepherd's Hill Site Plan, Shadowbrook Drive
Tax Map 177 Lot 5; Acct. #1350-512
Reference No. 20030249.1980

Dear Mr. Groth:

Fuss & O'Neill (F&O) has reviewed the second submission of the materials received on July 12, 2022, related to the above-referenced project. Authorization to proceed was received on August 25, 2022. A list of items reviewed is enclosed. The scope of our review is based on the Site Plan Review Codes, Stormwater Codes, Driveway Review Codes, Sewer Use Ordinance 77, Zoning Regulations, and criteria outlined in the CLD Consulting Engineers Proposal approved September 16, 2003, revised September 20, 2004, June 4, 2007, September 3, 2008, and October 2015. Our review also includes comparison of the terms and conditions of development agreements and other original approval documents with the proposed design for this portion of the project.

The project consists of the final phases of a residential town home development on a previously developed site, with 118 units to be constructed. Proposed improvements to the site also include the construction of driveways, parking areas, drainage improvements, landscaping, lighting and other associated site improvements. The proposed buildings will be serviced by public water and sewer.

The following items have outstanding issues:

3. Driveway Review Codes (HR 275-8.B. (34)/Chapter 193)

- a. *Former Fuss & O'Neill Comment:* HR 193.10.E. *The applicant has not provided any sight distances on the plans for the proposed circles at their intersections with Shadowbrook Drive.*

Current Fuss & O'Neill Comment: The applicant has stated that the roadway is within the existing development and has low traffic volumes, and has stated that sight distance information will be provided under separate cover. We note that per the requirements set forth in the recorded plans, Note Sheet No.2, Note 46, all intersections should have a minimum of 200 feet of sight distance.

- b. **Former/Current Fuss & O'Neill Comment:** Engineering Technical Guideline & Typical Details (ETGTD) 515.3. The applicant has proposed streets with a horizontal curve radius of less than 150 feet. We note that the proposed roadway is to be private, but the applicant should review the road design with the Town to ensure it meets standards for safety, emergency vehicle access, and snowplow turning/access.

50 Commercial Street
Manchester, NH
03101
t 603.668.8223
800.286.2469
www.fando.com

California
Connecticut
Maine
Massachusetts
New Hampshire
Rhode Island
Vermont



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- c. **Former/Current Fuss & O'Neill Comment:** ETGTD 520.3. The applicant has proposed a crest on Gifford Circle with a K value that's less than the minimum required by the Standard. We note that this vertical curve is at the approach to a stop condition at Shadowbrook Drive, which the Standard says should be evaluated on an individual basis. The applicant should evaluate this proposed grading in conjunction with the exiting Shadowbrook Drive grading which is not shown on the profile.

5. Utility Design/Conflicts

- a. *Former Fuss & O'Neill Comment:* ETGTD Section 701. The applicant should verify that the existing sewer mains that are being connected to have adequate capacity for the additional wastewater volumes from the proposed units.

Current Fuss & O'Neill Comment: The applicant has stated that the appropriate entity has been contacted and once a response is received it will be submitted.

- c. *Former Fuss & O'Neill Comment:* ETGTD Section 801. The applicant should verify with the Town that the existing water main has adequate flow and pressure to meet both domestic and fire suppression requirements for this site.

Current Fuss & O'Neill Comment: The applicant has stated that the appropriate entity has been contacted and once a response is received it will be submitted.

- g. *Former Fuss & O'Neill Comment:* ETGTD Detail W-11. The Town Standard detail requires curb stops where a development is on community property to be located 5' out of pavement or 12' maximum from edge of pavement. Some proposed curb stop locations don't meet these requirements.

Current Fuss & O'Neill Comment: The applicant has added a detail to the plan set but has not revised the curb stop locations on the plan set.

- h. *Former Fuss & O'Neill Comment:* The proposed sewer connection into SMH #15 appears to be less than 10 feet from the existing Clearview Circle water main. We note that the plans show the existing Clearview Circle water and sewer mains less than 10 feet apart between units 36 and 30.

Current Fuss & O'Neill Comment: The applicant has revised the proposed water main location on the plan set. A connection to the existing hydrant should be shown, and the "Extend Existing Water Main" note on sheet 22 should be removed from the plan.

- i. **New Fuss & O'Neill Comment:** On Utility Plan sheet 20 the rim elevation and invert grades for the existing SMH at the corner of Shadowbrook Drive and Canterberry Court appear to be incorrect.

6. Drainage Design/Stormwater Management (HR 275-9.A./Chapter 290)

- j. *Former Fuss & O'Neill Comment:* ETGTD 910.8. The applicant should illustrate any required underdrains within a cut and note the limits upon the plan set and where the underdrains tie into the drainage system.

Current Fuss & O'Neill Comment: The applicant has added underdrains to the Grading and Drainage Plans. We also note that the applicant should illustrate underdrains upon the Roadway Profile Plans as well.

- m. *Former Fuss & O'Neill Comment:* ETGTD 930.4. We note that the proposed stormwater design utilizes pipe slopes of less than the required 2.0%. The applicant should illustrate that the drain line velocities are self-cleaning.



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Current Fuss & O'Neill Comment: The applicant has stated that they will provide a rational pipe sizing chart.

- n. *Former Fuss & O'Neill Comment:* ETGTD 930.10. We note the Town Requirement of curb inlet drainage structures at all vertical sags. CB#3 and CB#30 are designed at a vertical sag. We note that CB #30 is proposed to be located within the adjacent unit's driveway, not against curbing.

Current Fuss & O'Neill Comment: The applicant should consider the need for a double grate catch basin at CB#30. The added grate capacity will reduce the chance of unwanted flooding in larger storms at the low point in the driveway.

9. Landscaping (HR 275-8.C.(7) & 276-11.1.B.(20)) and Lighting (HR 276-11.1.B.(14))

- a. **Former/Current Fuss & O'Neill Comment:** HR 275-8.C.(7). The applicant has not provided landscape calculations to show they meet the Regulation in this section. Trees are shown on the plan set as well as a typical unit landscape.
- e. **Former/Current Fuss & O'Neill Comment:** The applicant has proposed light pole locations that are immediately adjacent to curbing and may be subject to snowplow damage.

11. Other

- e. **New Fuss & O'Neill Comment:** Based on the requirements set forth in the recorded plans, Note Sheet No. 2, Note 25, the main road radius returns are to be a minimum of 15 feet. We note that the curb radius at the corner of Gifford Circle and Shadowbrook Drive near unit 18 is proposed to be a 10-foot radius on both sides.
- f. **New Fuss & O'Neill Comment:** We note that sidewalks were proposed on the original recorded plans but are not proposed on the current plan set.
- g. **New Fuss & O'Neill Comment:** Based on the requirements set forth in the recorded plans, Note Sheet No. 2, Note 45, the applicant should review the grading of the parking areas to be sure they do not exceed 5%. We note that the additional parking spaces at Gifford Circle do not have any spot grades shown, but the adjacent road grade is approximately 5.6%. Also, some driveways such as at Clearview Circle units 1/2 appear to exceed that amount.
- h. **New Fuss & O'Neill Comment:** Based on the requirements set forth in the recorded plans, Note Sheet No. 2, Note 43, dumpster enclosures and concrete pads should be provided. The applicant should provide additional information regarding proposed trash collection practices, i.e. are dumpsters to be provided?; is private trash collection planned?; etc.
- i. **New Fuss & O'Neill Comment:** Based on the requirements set forth in the recorded plans, Note Sheet No. 2, Note 29, finished slopes are to be a minimum of 1 on 2. The applicant should confirm that all proposed grading meets this minimum.



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The following items require Town evaluation or input:

2. Administrative Review Codes (HR 276)

- b. *Former Fuss & O'Neill Comment: HR 276-11.1.B.(6). The owner's signature was not provided on the plans. The applicant did provide a location for the signature.*

Current Fuss & O'Neill Comment: The applicant has stated that the owner's signature will be provided on the final plan set.

- f. *Former Fuss & O'Neill Comment: HR 276-11.1.B.(20). The applicant has not labeled the size or height of the existing buildings or shown existing landscaping on the plan set.*

Current Fuss & O'Neill Comment: The applicant has added the number of stories to the buildings. The applicant has also shown the tree line on the plan set. The Town should review the need for a waiver to show the existing landscaping on the plan set.

4. Traffic

- a. *Former Fuss & O'Neill Comment: HR 275-9.B. The applicant has not provided any traffic information as part of their review package.*

Current Fuss & O'Neill Comment: The applicant has noted that traffic information can be provided if the Town or Board requires it.

5. Utility Design/Conflicts

- d. *Former Fuss & O'Neill Comment: The applicant has proposed a large number of utility crossings on the plan set to serve the units. The applicant has provided 2 crossing details on the plan set but we note that not enough detail was provided to ensure that there are not conflicts with the large number of crossings.*

Current Fuss & O'Neill Comment: The applicant has noted that there will need to be work done in the field to ensure that separation complies with Town standards. The Town should be sure that this item is specifically covered at the preconstruction meeting with the contractor and appropriate minimum spacing parameters are established.

- f. *Former Fuss & O'Neill Comment: The Town and the applicant should review and clarify who will own and maintain the sewer and water lines within the private streets and development.*

Current Fuss & O'Neill Comment: The applicant has stated that the Town will own and maintain the water lines while the applicant will own and maintain the proposed sewer lines.

6. Drainage Design/Stormwater Management (HR 275-9.A./Chapter 290)

- b. *Former Fuss & O'Neill Comment: HR 290-5.A.11. The applicant should provide additional information on the treatment of the roadway runoff from Subcatchment 72S making its way into Infiltration Pond #2 (32P). The write up states use of 1' of separation over ESHWT for stormwater and correlates with the BMP Worksheet. The applicant should provide treatment criteria for the roadway portion prior to infiltration.*

Current Fuss & O'Neill Comment: The applicant has stated that they are waiting for more feedback from Alteration of Terrain. The applicant should keep the Town informed of all communication with NHDES.



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- f. *Former Fuss & O'Neill Comment: HR 290-7.B.13. The applicant should provide the soil scientist stamp upon the final Plan Set.*

Current Fuss & O'Neill Comment: The applicant has stated that the stamp will be added to the final plan set.

- g. *Former Fuss & O'Neill Comment: HR 290-7.B.14. The applicant should provide the wetlands scientist stamp upon the final Plan Set.*

Current Fuss & O'Neill Comment: The applicant has stated that the stamp will be added to the final plan set.

- i. *Former Fuss & O'Neill Comment: HR 290-a.A.10.A. The applicant should keep the Town informed of all communication with NHDES in relation to the required Alteration of Terrain and Wetlands Permits being requested to ensure NHDES comments do not alter drainage design/calculations. We note that additional items will be required for the NHDES AoT Permit, which could potentially affect the stormwater calculations and/or construction of the site. Please provide additional detail on the following items:*

- i. *We note the phasing of the site will be required to meet or request a waiver from the 5-acre disturbed area limit from NHDES Env-1505.03.*
- ii. *We note the phasing of the site will be required to meet or request a waiver from the 1-acre winter disturbed area limit from NHDES Env-1505.06(b)(1).*

Current Fuss & O'Neill Comment: The applicant has stated that all communication with NHDES will be relayed to the Town and that phasing will be included with the Alteration of Terrain permit.

The following items are resolved or have no further Fuss & O'Neill input:

1. Site Plan Review Codes (HR 275)

- a. *Former Fuss & O'Neill Comment: HR 275-6.I. The scope of this review does not include the adequacy of any fire protection provisions for the proposed building. The applicant has proposed to relocate an existing fire hydrant to the eastern Gifford Circle intersection with Shadowbrook Drive. No other new or relocated hydrants are proposed for the site.*
- b. *Former Fuss & O'Neill Comment: HR 275-8.C.(2) and Zoning Ordinance (ZO) 334-15.A. The applicant has provided parking calculations on the plan set. The applicant has noted that 236 parking spaces are required and 254 spaces are provided, including 16 visitor spaces. We note that only 8 visitor spaces are provided on the plans, with 4 at Gifford Circle (Phase V) and 4 at Trinity Circle (Phase VI). No visitor spaces are proposed for Clearview Circle (Phase VII).*

Current Fuss & O'Neill Comment: The applicant has stated they feel the visitor spaces proposed and existing are adequate parking for residents and guests. No further Fuss & O'Neill comment.

- c. *Former Fuss & O'Neill Comment: HR 275-9.C.(11). The applicant has not shown any handicap parking on the plan set.*
- d. *Former Fuss & O'Neill Comment: HR 275-9.F. The applicant did not provide copies of any easements or deeds as part of the package received for review.*



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2. Administrative Review Codes (HR 276)

- a. *Former Fuss & O'Neill Comment: HR 276-7. The applicant did not list any waivers on the plan set nor include any waiver requests in the package received for review.*
Current Fuss & O'Neill Comment: The applicant has confirmed that no waivers are proposed for the site. No further Fuss & O'Neill comment.
- c. *Former Fuss & O'Neill Comment: HR 276-11.1.B.(13). The applicant has not included details for any proposed site signage other than traffic signs.*
Current Fuss & O'Neill Comment: The applicant has confirmed that no other site signage is proposed. No further Fuss & O'Neill comment.
- d. *Former Fuss & O'Neill Comment: HR 276-11.1.B.(15). The applicant has not provided the locations of all buildings within 50 feet of the site.*
Current Fuss & O'Neill Comment: The applicant has added the buildings to the Master Site Plan. No further Fuss & O'Neill comment.
- e. *Former Fuss & O'Neill Comment: HR 276-11.1.B.(16). The applicant has not provided the locations of all driveways and travel ways within 200 feet of the site.*
Current Fuss & O'Neill Comment: The applicant has added the required information to the Master Site Plan. No further Fuss & O'Neill comment.
- g. *Former Fuss & O'Neill Comment: HR 276-11.1.B.(23). The applicant has noted the proposed circumferential highway corridor is just north of the subject site.*
- h. *Former Fuss & O'Neill Comment: HR 276-11.1.B.(24). The applicant has not provided the open space calculations on the plan set.*
Current Fuss & O'Neill Comment: The applicant has added open space calculation to the plan set. We note that the proposed open space of 73% exceeds the minimum of 65% required by the recorded plans, Note Sheet No. 2, Note 13. No further Fuss & O'Neill comment.

3. Driveway Review Codes (HR 275-8.B. (34)/Chapter 193)

- d. *Former Fuss & O'Neill Comment: ETGTD Detail R-1. The applicant has proposed 1 inch of wearing course instead of the 1.5 inches required by the Hudson Standard.*
Current Fuss & O'Neill Comment: The applicant has updated the details to reflect the required pavement width. No further Fuss & O'Neill comment.

5. Utility Design/Conflicts

- b. *Former Fuss & O'Neill Comment: ETGTD Section 720.8.3. The applicant has not provided a cleanout for the proposed sewer service connections at each unit. The applicant should confirm that the onsite sewer main will be private and maintained by the development.*
Current Fuss & O'Neill Comment: The applicant has added cleanout locations to the plan set for each unit. No further Fuss & O'Neill comment.
- e. *Former Fuss & O'Neill Comment: ETGTD Section 825.2.13. The applicant has noted 'Approved Fire Hydrant' on the Hydrant Installation detail but has not noted the proposed hydrant brand or model. Hydrant models approved for use in Hudson are included in the referenced technical specification (US Pipe Metropolitan 250 (M-94), or Mueller Super Centurion A-423).*



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Current Fuss & O'Neill Comment: The applicant has added the hydrant specifics to the detail sheet. No further Fuss & O'Neill comment.

6. Drainage Design/Stormwater Management (HR 275-9.A./Chapter 290)

- a. *Former Fuss & O'Neill Comment: HR 290-5.A.1. & 290-5.A.3. The applicant should provide language in the Drainage Report stating if and how low impact development (LID) strategies for stormwater runoff were evaluated for this project.*

Current Fuss & O'Neill Comment: The applicant has added the required LID information to the Drainage Report. No further Fuss & O'Neill comment.

- c. *Former Fuss & O'Neill Comment: HR 290-6.A.8. We note the requirement of the applicant to coordinate a pre-construction meeting with the Town Engineer.*

Current Fuss & O'Neill Comment: The applicant has added a note to the plan set. No further Fuss & O'Neill comment.

- d. *Former Fuss & O'Neill Comment: HR 290-6.A.9. The applicant should revise Erosion Control and Turf Establishment Notes on Plan Sheet #51 to state the "not to exceed 30 days, and temporary stabilization within 5 days of initial disturbance".*

Current Fuss & O'Neill Comment: The applicant has revised the note on the plan set. No further Fuss & O'Neill comment.

- e. *Former Fuss & O'Neill Comment: HR 290-7.A.6. The applicant should provide information as to how the stormwater system is designed to account for frozen ground conditions of the infiltration trenches as the subsurface system is below the frost line.*

Current Fuss & O'Neill Comment: The applicant has provided the recommended information. No further Fuss & O'Neill comment.

- h. *Former Fuss & O'Neill Comment: HR 290-8.A.4. & 5. We note the requirement of the applicant to coordinate the need for a Bond or Escrow with the Town Engineer.*

Current Fuss & O'Neill Comment: The applicant has noted that they are aware of this requirement. No further Fuss & O'Neill comment.

- k. *Former Fuss & O'Neill Comment: ETGTD 920.2. The applicant should provide a larger more legible version of the Pre- and Post- Routing Diagrams. We are unable to confirm intended design routing when compared with the analysis and watershed plans.*

Current Fuss & O'Neill Comment: The applicant has provided larger diagrams. No further Fuss & O'Neill comment.

- l. *Former Fuss & O'Neill Comment: ETGTD 920.2. The applicant should review the need for a subcatchment boundary between Subcatchments 22S and 45S.*

Current Fuss & O'Neill Comment: The applicant has added the watershed boundary. No further Fuss & O'Neill comment.

- o. *Former Fuss & O'Neill Comment: The applicant has proposed installing catch basin CB#11 in the center of unit #33/34's driveway on Trinity Circle. Proposed grading does not appear to direct much stormwater flow to this structure which doesn't have adjacent curbing.*

Current Fuss & O'Neill Comment: The applicant has provided additional information. No further Fuss & O'Neill comment.

- p. *Former Fuss & O'Neill Comment: The applicant should review the grading in front of units 7 & 8 at*



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Gifford Circle (sheet 16). The grades appear to create puddling at the building garage doors.

Current Fuss & O'Neill Comment: The applicant as revised the grading. No further Fuss & O'Neill comment.

- q. *Former Fuss & O'Neill Comment: The applicant has shown roof drains at units 7 and 8 of Trinity Circle that do not appear to connect to anything. The applicant should clarify the intent for these drains.*

Current Fuss & O'Neill Comment: The applicant has noted that these roof drains outlet to the small swale in the rear of the units. No further Fuss & O'Neill comment.

- r. *Former Fuss & O'Neill Comment: The applicant will be required to comply with all provisions of the Town of Hudson's MS4 permit, including but not limited to annual reporting requirements, construction site stormwater runoff control, and record keeping requirements. The applicant has noted that the project meets the 2019 MS4 requirements.*

- s. *Former Fuss & O'Neill Comment: Please note that this review was carried out in accordance with applicable regulations and standards in place in New Hampshire at this time. Note that conditions at the site, including average weather conditions, patterns and trends, and design storm characteristics, may change in the future. In addition, future changes in federal, state, or local laws, rules, or regulations, or in generally accepted scientific or industry information concerning environmental, atmospheric, and geotechnical conditions and developments may affect the information and conclusions set forth in this review. In no way shall Fuss & O'Neill be liable for any of these changed conditions that may impact the review, regardless of the source of or reason for such changed conditions. Other than as described herein, no other investigation or analysis has been requested by the Client or performed by Fuss & O'Neill in preparing this review.*

7. Zoning (ZO 334)

- a. *Former Fuss & O'Neill Comment: ZO 334-14.A. The applicant has not provided proposed building heights on the plan set. The applicant should consider adding a note that states the buildings will be under 38 feet in height.*

Current Fuss & O'Neill Comment: The applicant has added this note to the plan set. No further Fuss & O'Neill comment.

- b. *Former Fuss & O'Neill Comment: ZO 334-17 & 334-21. The applicant has noted that the subject parcel is located within the Business (B) and General (G) zoning district. The proposed use is not permitted by the Ordinance within the General district. The applicant should note any previously received variances on the plan set.*

Current Fuss & O'Neill Comment: The applicant has added the variance information to the plan set. No further Fuss & O'Neill comment.

- c. *Former Fuss & O'Neill Comment: ZO 334-33. The applicant has not shown any proposed impacts to the wetlands or wetlands setbacks on the plan set.*

Current Fuss & O'Neill Comment: The applicant has confirmed that no impacts are proposed. No further Fuss & O'Neill comment.

- d. *Former Fuss & O'Neill Comment: ZO 334-60. The applicant has not provided any information for any additional proposed signs on site, except for traffic and parking signage.*

Current Fuss & O'Neill Comment: The applicant has confirmed no additional signs are proposed. No further Fuss & O'Neill comment.

- e. *Former Fuss & O'Neill Comment: ZO 334-83 and HR 218-4.E. The applicant has noted that the site is not located within a designated flood hazard area.*



Mr. Brian Groth
September 9, 2022
Page 9 of 10

8. Erosion Control/Wetland Impacts

- a. *Former Fuss & O'Neill Comment: The Town of Hudson should reserve the right to require any additional erosion control measures as needed. The applicant has noted this on the plans.*

9. Landscaping (HR 275-8.C.(7) & 276-11.1.B.(20)) and Lighting (HR 276-11.1.B.(14))

- b. *Former Fuss & O'Neill Comment: HR 276-11.1.B.(14). The applicant has shown lighting fixture locations on the plans with details and photometric information.*
- c. *Former Fuss & O'Neill Comment: HR 276-11.1.B.(14). The applicant should note if the proposed lighting will be on during all nighttime hours, or provide the hours of operation on the plan set.*

Current Fuss & O'Neill Comment: The applicant has added a note stating lighting will be on during all nighttime hours. No further Fuss & O'Neill comment.

- d. *Former Fuss & O'Neill Comment: The applicant should review the proposed tree locations for conflicts with underground utilities. It appears the trees conflict with underground utilities at multiple locations.*

Current Fuss & O'Neill Comment: The applicant has revised some tree locations to remove these conflicts. No further Fuss & O'Neill comment.

10. State and Local Permits (HR 275-9.G.)

- a. *Former Fuss & O'Neill Comment: HR 275-9.G. The applicant should list all the required permits and statuses on the plan set.*

Current Fuss & O'Neill Comment: The applicant has added the list of permits to the plan set. No further Fuss & O'Neill Comment.

- b. *Former Fuss & O'Neill Comment: HR 275-9.G. The applicant noted the need to create a SWPPP for the site and file a Notice of Intent with EPA.*

- c. *Former Fuss & O'Neill Comment: HR 275-9.G. The applicant did not provide copies of any applicable Town, State or Federal approvals or permits in the review package.*

Current Fuss & O'Neill Comment: The applicant has confirmed there are no approvals or permits issued to date. No further Fuss & O'Neill comment.

- d. *Former Fuss & O'Neill Comment: The applicant has shown some areas with significant cuts to be performed. If blasting is required, the applicant is reminded of the requirements in Hudson Regulation 202.*

Current Fuss & O'Neill Comment: The applicant has noted this requirement on the plan set. No further Fuss & O'Neill comment.

- e. *Former Fuss & O'Neill Comment: Additional local and state permitting may be required.*

11. Other

- a. *Former Fuss & O'Neill Comment: ETGTD Section 565.1.1. The applicant is reminded of Town of Hudson requirements for the importing of off-site fill materials for use in constructing this project. It is recommended that these requirements be stated on the plans for the Contractors attention.*

Current Fuss & O'Neill Comment: The applicant has noted this requirement on the plan set. No further Fuss & O'Neill comment.



Mr. Brian Groth
September 9, 2022
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- b. *Former Fuss & O'Neill Comment: We note the Redi-Rock retaining wall detail on the plan set calls for a maximum wall height of seven-foot six inches. Based on the wall elevations shown on the plan for Trinity Circle, the proposed maximum wall heights are much larger than this dimension, exceeding 17 feet in one location. The applicant should include appropriate details in the plans, and provide a retaining wall design prepared by a New Hampshire licensed professional engineer for the Town's review.*

Current Fuss & O'Neill Comment: The applicant has updated the detail and noted the requirement on the plan set. No further Fuss & O'Neill comment.

- c. *Former Fuss & O'Neill Comment: The applicant should review the contour labelling between units 8 and 9 on Gifford Circle. One of the F294 contours appears to be incorrect.*

Current Fuss & O'Neill Comment: The applicant has revised the grading. No further Fuss & O'Neill comment.

- d. *Former Fuss & O'Neill Comment: We note that there are several different spellings of the project title. The cover of the Alteration of Terrain application spells it as 'Sheperds Hill', the Applicant is noted as 'Shepherds Hill, LLC', and the plan set title is 'Shepherd's Hill'.*

Current Fuss & O'Neill Comment: The applicant has revised the documents. No further Fuss & O'Neill comment.

Please feel free to call if you have any questions.

Very truly yours,

Steven W. Reichert, P.E.

SWR:

Enclosure

cc: Town of Hudson Engineering Division – File
Keach- Nordstrom Associates, Inc. - mpeterson@keachnordstrom.com



October 10, 2022

Mr. Brian Groth
 Town Planner
 Town of Hudson
 12 School Street
 Hudson, NH 03051

**Subject: Town of Hudson Planning Board Review
 Shepherd's Hill Site Plan, Shadowbrook Drive
 Tax Map 177 Lot 5; Acct.# 1350-512
 Reference No. 20030249.1980
 KNA Project # 17-0824-1**

Dear Mr. Groth:

Our office is in receipt of Fuss & O'Neill, Inc. review comments for the Town of Hudson dated September 9, 2022 for the project listed above. Based on the comments, we have made the required modifications to the plan set and attached a copy for final review. A response to each comment has been provided below.

3. Driveway Review Codes (HR 275-8.B. (34)/Chapter 193)

- a. *Former Fuss & O'Neill Comment: HR 193.10.E. The applicant has not provided any sight distances on the plans for the proposed circles at their intersections with Shadowbrook Drive. Current Fuss & O'Neill Comment: The applicant has stated that the roadway is within the existing development and has low traffic volumes and has stated that sight distance information will be provided under separate cover. We note that per the requirements set forth in the recorded plans, Note Sheet No.2, Note 46, all intersections should have a minimum of 200 feet of sight distance.*

Sight distance information has been provided, refer to sheets SD1 & SD2.

- a. *Former/Current Fuss & O'Neill Comment: Engineering Technical Guideline & Typical Details (ETGTD) 515.3. The applicant has proposed streets with a horizontal curve radius of less than 150 feet. We note that the proposed roadway is to be private, but the applicant should review the road design with the Town to ensure it meets standards for safety, emergency vehicle access, and snowplow turning/access.*

No comment at this time, the private driveways are consistent with other phases of the development.

- b. *Former/Current Fuss & O'Neill Comment: ETGTD 520.3. The applicant has proposed a crest on Gifford Circle with a K value that's less than the minimum required by the Standard. We note that this vertical curve is at the approach to a stop condition at*

Shadowbrook Drive, which the Standard says should be evaluated on an individual basis. The applicant should evaluate this proposed grading in conjunction with the existing Shadowbrook Drive grading which is not shown on the profile.

The K value of the proposed crest on Gifford Circle has been revised to 40.00, refer to the Roadway Profiles sheet #36.

5. Utility Design/Conflicts

a. Former Fuss & O'Neill Comment: ETGTD Section 701. The applicant should verify that the existing sewer mains that are being connected to have adequate capacity for the additional wastewater volumes from the proposed units. Current Fuss & O'Neill Comment: The applicant has stated that the appropriate entity has been contacted and once a response is received it will be submitted.

No further comment at this time.

c. Former Fuss & O'Neill Comment: ETGTD Section 801. The applicant should verify with the Town that the existing water main has adequate flow and pressure to meet both domestic and fire suppression requirements for this site. Current Fuss & O'Neill Comment: The applicant has stated that the appropriate entity has been contacted and once a response is received it will be submitted.

No further comment at this time.

g. Former Fuss & O'Neill Comment: ETGTD Detail W-11. The Town Standard detail requires curb stops where a development is on community property to be located 5' out of pavement or 12' maximum from edge of pavement. Some proposed curb stop locations don't meet these requirements. Current Fuss & O'Neill Comment: The applicant has added a detail to the plan set but has not revised the curb stop locations on the plan set.

The curb stop locations have been updated accordingly, refer to the Utility Plans on sheets #20-23.

h. Former Fuss & O'Neill Comment: The proposed sewer connection into SMH #15 appears to be less than 10 feet from the existing Clearview Circle water main. We note that the plans show the existing Clearview Circle water and sewer mains less than 10 feet apart between units 36 and 30. Current Fuss & O'Neill Comment: The applicant has revised the proposed water main location on the plan set. A connection to the existing hydrant should be shown, and the "Extend Existing Water Main" note on sheet 22 should be removed from the plan.

The connection to the existing hydrant is shown, refer to Utility Plans sheet #22. The note on sheet #22 has been removed as requested.

i. New Fuss & O'Neill Comment: On Utility Plan sheet 20 the rim elevation and invert grades for the existing SMH at the corner of Shadowbrook Drive and Canterbury Court appear to be incorrect.

The rim elevation and invert grades for the existing SMH have been revised, refer to Utility Plans sheet #20.

6. Drainage Design/Stormwater Management (HR 275-9.A./Chapter 290)

j. Former Fuss & O'Neill Comment: ETGTD 910.8. The applicant should illustrate any required underdrains within a cut and note the limits upon the plan set and where the underdrains tie into the drainage system. Current Fuss & O'Neill Comment: The applicant has added underdrains to the Grading and Drainage Plans. We also note that the applicant should illustrate underdrains upon the Roadway Profile Plans as well.

Underdrains have been added to the profiles, refer to the Roadway Profiles on sheets #37-39.

m. Former Fuss & O'Neill Comment: ETGTD 930.4. We note that the proposed stormwater design utilizes pipe slopes of less than the required 2.0%. The applicant should illustrate that the drain line velocities are self-cleaning. Current Fuss & O'Neill Comment: The applicant has stated that they will provide a rational pipe sizing chart.

The applicant is requesting a waiver from this section of the regulations, which is included in this submittal package.

n. Former Fuss & O'Neill Comment: ETGTD 930.10. We note the Town Requirement of curb inlet drainage structures at all vertical sags. CB#3 and CB#30 are designed at a vertical sag. We note that CB #30 is proposed to be located within the adjacent unit's driveway, not against curbing. Current Fuss & O'Neill Comment: The applicant should consider the need for a double grate catch basin at CB#30. The added grate capacity will reduce the chance of unwanted flooding in larger storms at the low point in the driveway.

The proposed stormwater flows are .95 cfs in the 50 year storm which is less than the required amount needed for a double catch basin in this area, therefore, no double catch basin is being proposed at this time.

9. Landscaping (HR 275-8.C.(7) & 276-11.1.B.(20)) and Lighting (HR 276-11.1.B.(14))

a. Former/Current Fuss & O'Neill Comment: HR 275-8.C.(7). The applicant has not provided landscape calculations to show they meet the Regulation in this section. Trees are shown on the plan set as well as a typical unit landscape.

Landscape calculations have been added to the plans, refer to Landscape Plan sheet #28.

e. Former/Current Fuss & O'Neill Comment: The applicant has proposed light pole locations that are immediately adjacent to curbing and may be subject to snowplow damage.

The proposed light poles have been revised and shifted 2' back from the curb.

11. Other

e. New Fuss & O'Neill Comment: Based on the requirements set forth in the recorded plans, Note Sheet No. 2, Note 25, the main road radius returns are to be a minimum of 15 feet. We note that the curb radius at the corner of Gifford Circle and Shadowbrook Drive near unit 18 is proposed to be a 10-foot radius on both sides.

The proposed radius has been updated, refer to Residential Site Layout Plan sheet #12.

f. New Fuss & O'Neill Comment: We note that sidewalks were proposed on the original recorded plans but are not proposed on the current plan set.

Sidewalks are now proposed, and area has been regraded. The drainage report has been updated accordingly. Refer to Residential Site Layout Plans sheets #12-15 and a copy of the revised drainage report sections is included.

g. New Fuss & O'Neill Comment: Based on the requirements set forth in the recorded plans, Note Sheet No. 2, Note 45, the applicant should review the grading of the parking areas to be sure they do not exceed 5%. We note that the additional parking spaces at Gifford Circle do not have any spot grades shown, but the adjacent road grade is approximately 5.6%. Also, some driveways such as at Clearview Circle units 1/2 appear to exceed that amount.

The parking area has been revised to be 5%, refer to Grading & Drainage Plan sheet #16 and profile on sheet#36.

h. New Fuss & O'Neill Comment: Based on the requirements set forth in the recorded plans, Note Sheet No. 2, Note 43, dumpster enclosures and concrete pads should be provided. The applicant should provide additional information regarding proposed trash collection practices, i.e. are dumpsters are to be provided?; is private trash collection planned?; etc.

Dumpster enclosures have been provided, refer to Residential Site Layout Plans sheets #12-15.

i. New Fuss & O'Neill Comment: Based on the requirements set forth in the recorded plans, Note Sheet No. 2, Note 29, finished slopes are to be a minimum of 1 on 2. The applicant should confirm that all proposed grading meets this minimum.

All slopes onsite are a maximum of 2:1.

I trust the content of this response letter and its attachments has addressed each of the comments, as noted. Should you have further questions or require additional information, please do not hesitate to contact our office.

Respectfully,



Allison Lewis
Project Engineer
Keach-Nordstrom Associates, Inc.



November 1, 2022

Mr. Brian Groth
Town Planner
Town of Hudson
12 School Street
Hudson, NH 03051

Re: Town of Hudson Planning Board Review
Shepherds Hill Site Plan, Shadowbrook Drive
Tax Map 177 Lot 5; Acct. #1350-512
Reference No. 20030249.1980

Dear Mr. Groth:

Fuss & O'Neill (F&O) has reviewed the third submission of the materials received on October 11, 2022, related to the above-referenced project. Authorization to proceed was received on October 24, 2022. A list of items reviewed is enclosed. The scope of our review is based on the Site Plan Review Codes, Stormwater Codes, Driveway Review Codes, Sewer Use Ordinance 77, Zoning Regulations, and criteria outlined in the CLD Consulting Engineers Proposal approved September 16, 2003, revised September 20, 2004, June 4, 2007, September 3, 2008, and October 2015. Our review also includes comparison of the terms and conditions of development agreements and other original approval documents with the proposed design for this portion of the project.

The project consists of the final phases of a residential town home development on a previously developed site, with 118 units to be constructed. Proposed improvements to the site also include the construction of driveways, parking areas, drainage improvements, landscaping, lighting and other associated site improvements. The proposed buildings will be serviced by public water and sewer.

The comments and responses/resolutions below are for the review comments which were considered open/outstanding in our letter dated September 9, 2022. Previous review comments which were addressed and resolved with that letter are not included below.

The following items have outstanding issues:

5. Utility Design/Conflicts

- a. *Former Fuss & O'Neill Comments: ETGTD Section 701. The applicant should verify that the existing sewer mains that are being connected to have adequate capacity for the additional wastewater volumes from the proposed units./* The applicant has stated that the appropriate entity has been contacted and once a response is received it will be submitted.

Current Fuss & O'Neill Comment: The applicant has submitted a Sewer Connection Permit application package to the Town. These documents are being reviewed and comments will be issued separately.

- c. *Former Fuss & O'Neill Comment: ETGTD Section 801. The applicant should verify with the Town that the existing water main has adequate flow and pressure to meet both domestic and fire suppression*

50 Commercial Street
Manchester, NH
03101
t 603.668.8223
800.286.2469
www.fando.com

California
Connecticut
Maine
Massachusetts
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Rhode Island
Vermont



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November 1, 2022
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requirements for this site.

Former/Current Fuss & O'Neill Comment: The applicant has stated that the appropriate entity has been contacted and once a response is received it will be submitted.

11. Other

- f. *Former Fuss & O'Neill Comment: We note that sidewalks were proposed on the original recorded plans but are not proposed on the current plan set.*

Current Fuss & O'Neill Comment: The applicant has added proposed sidewalks along Shadowbrook Drive and Clearview Circle. We note that the recorded plans extended the sidewalks in front of the units as well and would have been along Gifford Circle, formally known as Maitland Court and along Trinity Circle, formally known as Dogwood and Cypress Court.

The following items require Town evaluation or input:

2. Administrative Review Codes (HR 276)

- b. *Former Fuss & O'Neill Comment: HR 276-11.1.B.(6). The owner's signature was not provided on the plans. The applicant did provide a location for the signature.*

Current Fuss & O'Neill Comment: The applicant has stated that the owner's signature will be provided on the final plan set.

- f. *Former Fuss & O'Neill Comment: HR 276-11.1.B.(20). The applicant has not labeled the size or height of the existing buildings or shown existing landscaping on the plan set.*

Current Fuss & O'Neill Comment: The applicant has added the number of stories to the buildings. The applicant has also shown the tree line on the plan set. The Town should review the need for a waiver to show the existing landscaping on the plan set.

3. Driveway Review Codes (HR 275-8.B. (34)/Chapter 193)

- b. **Former/Current Fuss & O'Neill Comment:** Engineering Technical Guideline & Typical Details (ETGTD) 515.3. The applicant has proposed streets with a horizontal curve radius of less than 150 feet. We note that the proposed roadway is to be private, but the applicant should review the road design with the Town to ensure it meets standards for safety, emergency vehicle access, and snowplow turning/access.

4. Traffic

- a. *Former Fuss & O'Neill Comment: HR 275-9.B. The applicant has not provided any traffic information as part of their review package.*

Current Fuss & O'Neill Comment: The applicant has noted that traffic information can be provided if the Town or Board requires it.



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5. Utility Design/Conflicts

- d. *Former Fuss & O'Neill Comment: The applicant has proposed a large number of utility crossings on the plan set to serve the units. The applicant has provided 2 crossing details on the plan set but we note that not enough detail was provided to ensure that there are not conflicts with the large number of crossings.*

Current Fuss & O'Neill Comment: The applicant has noted that there will need to be work done in the field to ensure that separation complies with Town standards. The Town should be sure that this item is specifically covered at the preconstruction meeting with the contractor and appropriate minimum spacing parameters are established.

6. Drainage Design/Stormwater Management (HR 275-9.A./Chapter 290)

- b. *Former Fuss & O'Neill Comment: HR 290-5.A.11. The applicant should provide additional information on the treatment of the roadway runoff from Subcatchment 72S making its way into Infiltration Pond #2 (32P). The write up states use of 1' of separation over ESHWT for stormwater and correlates with the BMP Worksheet. The applicant should provide treatment criteria for the roadway portion prior to infiltration.*

Current Fuss & O'Neill Comment: The applicant has stated that they are waiting for more feedback from Alteration of Terrain. The applicant should keep the Town informed of all communication with NHDES.

- f. *Former Fuss & O'Neill Comment: HR 290-7.B.13. The applicant should provide the soil scientist stamp upon the final Plan Set.*

Current Fuss & O'Neill Comment: The applicant has stated that the stamp will be added to the final plan set.

- g. *Former Fuss & O'Neill Comment: HR 290-7.B.14. The applicant should provide the wetlands scientist stamp upon the final Plan Set.*

Current Fuss & O'Neill Comment: The applicant has stated that the stamp will be added to the final plan set.

- i. *Former Fuss & O'Neill Comment: HR 290-a.A.10.A. The applicant should keep the Town informed of all communication with NHDES in relation to the required Alteration of Terrain and Wetlands Permits being requested to ensure NHDES comments do not alter drainage design/calculations. We note that additional items will be required for the NHDES AoT Permit, which could potentially affect the stormwater calculations and/or construction of the site. Please provide additional detail on the following items:*

i. *We note the phasing of the site will be required to meet or request a waiver from the 5-acre disturbed area limit from NHDES Env-1505.03.*

ii. *We note the phasing of the site will be required to meet or request a waiver from the 1-acre winter disturbed area limit from NHDES Env-1505.06(b)(1).*

Current Fuss & O'Neill Comment: The applicant has stated that all communication with NHDES will be relayed to the Town and that phasing will be included with the Alteration of Terrain permit.

- m. *Former Fuss & O'Neill Comment: ETGTD 930.4. We note that the proposed stormwater design utilizes pipe slopes of less than the required 2.0%. The applicant should illustrate that the drain line velocities are self-cleaning. / The applicant has stated that they will provide a rational pipe sizing chart.*



Mr. Brian Groth
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Current Fuss & O'Neill Comment: The applicant has requested a wavier for the pipe sizing chart.

The following items are resolved or have no further Fuss & O'Neill input:

3. Driveway Review Codes (HR 275-8.B. (34)/Chapter 193)

- a. *Former Fuss & O'Neill Comment:* HR 193.10.E. The applicant has not provided any sight distances on the plans for the proposed circles at their intersections with Shadowbrook Drive. / The applicant has stated that the roadway is within the existing development and has low traffic volumes, and has stated that sight distance information will be provided under separate cover. We note that per the requirements set forth in the recorded plans, Note Sheet No.2, Note 46, all intersections should have a minimum of 200 feet of sight distance.

Current Fuss & O'Neill Comment: The applicant has provided sight distance information for both Gifford Circle and Trinity Circle. No further Fuss & O'Neill comment.

- c. *Former Fuss & O'Neill Comment:* ETGTD 520.3. The applicant has proposed a crest on Gifford Circle with a K value that's less than the minimum required by the Standard. We note that this vertical curve is at the approach to a stop condition at Shadowbrook Drive, which the Standard says should be evaluated on an individual basis. The applicant should evaluate this proposed grading in conjunction with the existing Shadowbrook Drive grading which is not shown on the profile.

Current Fuss & O'Neill Comment: The applicant has revised the roadway design to meet the minimum K value. No further Fuss & O'Neill comment.

5. Utility Design/Conflicts

- f. *Former Fuss & O'Neill Comment:* The Town and the applicant should review and clarify who will own and maintain the sewer and water lines within the private streets and development.

Current Fuss & O'Neill Comment: The applicant has stated that the Town will own and maintain the water lines while the applicant will own and maintain the proposed sewer lines. No further Fuss & O'Neill comment.

- g. *Former Fuss & O'Neill Comment:* ETGTD Detail W-11. The Town Standard detail requires curb stops where a development is on community property to be located 5' out of pavement or 12' maximum from edge of pavement. Some proposed curb stop locations don't meet these requirements. / The applicant has added a detail to the plan set but has not revised the curb stop locations on the plan set.

Current Fuss & O'Neill Comment: The applicant has revised the curb stop locations on the plan set. No further Fuss & O'Neill comment.

- h. *Former Fuss & O'Neill Comment:* The proposed sewer connection into SMH #15 appears to be less than 10 feet from the existing Clearview Circle water main. We note that the plans show the existing Clearview Circle water and sewer mains less than 10 feet apart between units 36 and 30. / The applicant has revised the proposed water main location on the plan set. A connection to the existing hydrant should be shown, and the "Extend Existing Water Main" note on sheet 22 should be removed from the plan.

Current Fuss & O'Neill Comment: The applicant has shown a connection to the existing hydrant and removed the "Extend Existing Water Main" note on sheet. No further Fuss & O'Neill comment.

- i. *Former Fuss & O'Neill Comment:* On Utility Plan sheet 20 the rim elevation and invert grades for the existing SMH at the corner of Shadowbrook Drive and Canterbury Court appear to be incorrect.



Mr. Brian Groth
November 1, 2022
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Current Fuss & O'Neill Comment: The applicant has revised the elevations. No further Fuss & O'Neill comment.

6. Drainage Design/Stormwater Management (HR 275-9.A./Chapter 290)

- j. *Former Fuss & O'Neill Comment: ETGTD 910.8. The applicant should illustrate any required underdrains within a cut and note the limits upon the plan set and where the underdrains tie into the drainage system. /The applicant has added underdrains to the Grading and Drainage Plans. We also note that the applicant should illustrate underdrains upon the Roadway Profile Plans as well.*

Current Fuss & O'Neill Comment: The applicant has added underdrains to the Roadway Profile Plans. No further Fuss & O'Neill comment.

- n. *Former Fuss & O'Neill Comment: ETGTD 930.10. We note the Town Requirement of curb inlet drainage structures at all vertical sags. CB#3 and CB#30 are designed at a vertical sag. We note that CB #30 is proposed to be located within the adjacent unit's driveway, not against curbing. /The applicant should consider the need for a double grate catch basin at CB#30. The added grate capacity will reduce the chance of unwanted flooding in larger storms at the low point in the driveway.*

Current Fuss & O'Neill Comment: The applicant has revised the drainage flows and noted that they do not believe a double grate catch basin at CB#30 is needed. No further Fuss & O'Neill comment.

9. Landscaping (HR 275-8.C.(7) & 276-11.1.B.(20)) and Lighting (HR 276-11.1.B.(14))

- a. *Former Fuss & O'Neill Comment: HR 275-8.C.(7). The applicant has not provided landscape calculations to show they meet the Regulation in this section. Trees are shown on the plan set as well as a typical unit landscape.*

Current Fuss & O'Neill Comment: The applicant has provided calculations showing that the Regulation is met. No further Fuss & O'Neill comment.

- e. *Former Fuss & O'Neill Comment: The applicant has proposed light pole locations that are immediately adjacent to curbing and may be subject to snowplow damage.*

Current Fuss & O'Neill Comment: The applicant has noted that the poles have been moved two feet back from the curb. We recommend that the applicant add this spacing to the light pole base detail for contractor clarification during installation. No further Fuss & O'Neill comment.

11. Other

- e. *Former Fuss & O'Neill Comment: Based on the requirements set forth in the recorded plans, Note Sheet No. 2, Note 25, the main road radius returns are to be a minimum of 15 feet. We note that the curb radius at the corner of Gifford Circle and Shadowbrook Drive near unit 18 is proposed to be a 10-foot radius on both sides.*

Current Fuss & O'Neill Comment: The applicant has revised the curb radius. No further Fuss & O'Neill comment.

- g. *Former Fuss & O'Neill Comment: Based on the requirements set forth in the recorded plans, Note Sheet No. 2, Note 45, the applicant should review the grading of the parking areas to be sure they do not exceed 5%. We note that the additional parking spaces at Gifford Circle do not have any spot grades shown, but the adjacent road grade is approximately 5.6%. Also, some driveways such as at Clearview Circle units*



Mr. Brian Groth
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1/2 appear to exceed that amount.

Current Fuss & O'Neill Comment: The applicant has revised the site grading. No further Fuss & O'Neill comment.

- h. *Former Fuss & O'Neill Comment: Based on the requirements set forth in the recorded plans, Note Sheet No. 2, Note 43, dumpster enclosures and concrete pads should be provided. The applicant should provide additional information regarding proposed trash collection practices, i.e. are dumpsters to be provided?; is private trash collection planned?; etc.*

Current Fuss & O'Neill Comment: The applicant has added dumpster enclosures on the plan set and provided a detail. No further Fuss & O'Neill comment.

- i. *Former Fuss & O'Neill Comment: Based on the requirements set forth in the recorded plans, Note Sheet No. 2, Note 29, finished slopes are to be a minimum of 1 on 2. The applicant should confirm that all proposed grading meets this minimum.*

Current Fuss & O'Neill Comment: The applicant has confirmed the plans meet this requirement.

Please feel free to call if you have any questions.

Very truly yours,

Steven W. Reichert, P.E.

SWR:

Enclosure

cc: Town of Hudson Engineering Division – File
Keach- Nordstrom Associates, Inc. - mpeterson@keachnordstrom.com &
alewis@keachnordsrom.com

MEMORANDUM

TO: Anthony Basso, Keach-Nordstrom Associates, Inc.

FROM: Jeff Provost, P.E., Senior Project Manager
Joshua Rowland, Engineer I

DATE: November 7, 2022

SUBJECT: Final Phase Shepherd's Hill Development Water System Review

This memorandum outlines Weston & Sampson's review of the proposed final phase of the Shepherd's Hill residential development to be located off Shadowbrook Drive near Kimball Hill Road in Hudson, NH. The parcel, referenced on Hudson's Tax Map 177, Lot 5, houses an existing development referred to as Shepherd's Hill. The final phase of the overall project will be to construct the remaining approved townhomes.

The following review was requested by Keach-Nordstrom and Associates, Inc (KNA), on behalf of Shepherd's Hill, LLC. The review utilized the proposed water demands for the expanded development (as provided by the proponent's agent, KNA) and assessed the Hudson water system's ability to provide domestic water service and fire flow to the proposed development.

The Hudson water distribution system hydraulic model was utilized to evaluate the ability of the Hudson water system to serve domestic water and fire supply to the proposed buildings (118 two-bedroom townhomes) for the final phase of the Shepherd's Hill residential development. Site utility information and overall water utility infrastructure were provided by KNA in a utility plan dated May 2, 2022. The utility plan was then used to add the proposed development to the hydraulic model and to assess the ability of the Hudson water system to meet the water supply needs.

REGULATIONS and EVALUATION CRITERIA

New Hampshire Department of Environmental Services (NHDES) regulations and Ten States Standards were used as the basis for our determination. NHDES regulations require that any public water system must provide 35 pounds per square inch (psi) pressure to all homes, under all normal conditions of flow. Normal conditions include peak hour demands, which usually entail the most severe demand condition that occurs during the hottest summer days.

NHDES and Ten States Standards require that any public water system shall provide 20-psi pressure under fire flow situations. System adequacy is evaluated under a fire flow situation occurring during a maximum day domestic demand condition.

FLOW TESTING RESULTS

A flow test was conducted on November 1st, 2022, to observe field conditions in this area of the Hudson distribution system. The hydrant at the northeast end of Clearview Circle (in the Shepherd's Hill Development) and hydrants located at the intersection of Aster Court and Shadowbrook Drive and just south of Monarch Street on Shadowbrook Drive were utilized during our assessment. The Clearview Circle hydrant was opened and flow was measured at this location while the other hydrants described above were utilized for observing water pressure before and after the Clearview Circle hydrant was flowed. Hydrant flow was recorded to be 1,030 gallons per minute (gpm) while pressure loss was observed to be approximately 12-13 psi in the immediate area. The residual pressure was approximately 50 psi during the flow test. This information was then used in the hydraulic model to assist in assessing available fire flow for the development.

SERVICE AREA and MODEL DEVELOPMENT

We used the software package InfoWater by InnoVizyze to model the impact of providing water to the proposed development on Hudson's water distribution system. We currently maintain a hydraulic model of the town's distribution system in this software package, making it possible to add the proposed development demands and model its effects on the town's water system.

The following is a summary of the existing conditions in the model and modifications that were incorporated into the model to simulate the expected site conditions and water supply needs;

- The current sources of water for the Hudson water system are the Weinstein well in Litchfield (both the Dame and Ducharme wells are currently offline and were modeled as offline in the modeling runs), the Merrimack River Station in Litchfield and the Taylor Falls interconnection;
- Approximate location and size of water utility piping on the proposed site was incorporated as shown on the May 4, 2022 KNA site plans;
- Addition of domestic water demand throughout the development as provided by KNA. The maximum day demand was modeled to be 35,400 gallons per day (gpd);
- The proposed development is located in the Windham Road High Service System.

The proponent is currently tied into the Hudson water system via the existing water main in Kimball Hill Road in two locations. At each connection are two pressure reducing valve (PRV) vaults. Normal domestic demand is furnished through (2) 2-inch PRVs while fire flow is furnished through (2) 6-inch PRVs. From the PRV vaults, water is then transmitted via 8-inch water mains throughout the existing Shepherd's Hill development. Additional 8-inch water mains are proposed to connect to the existing 8-inch water mains and furnish domestic supply and fire flow to the proposed final phase of the development.

Upon incorporating all proposed infrastructure in the model, the following water service needs of the proponent were analyzed;

1. Ability of the Hudson water system to meet all domestic water demands at the site at a minimum pressure of 35-psi or greater, under all normal conditions of flow.
2. The amount of water the Hudson water system is capable of providing to all points in the development for fire suppression needs. A minimum pressure of 20-psi or greater shall be maintained within the Hudson water system during a fire event at the proposed site.

Both the domestic and fire demands were analyzed under maximum day demand conditions. Maximum day demand conditions in Hudson are historically 1.76 times the average day demand. Additionally, an

extended period simulation (EPS) was used during the assessment. A diurnal curve pattern of multipliers is maintained in the hydraulic model and utilized to assess conditions under varying demands over a 24-hour time span. It should be noted that peak hour demand is simulated during the EPS modeling effort.

MODELING RESULTS

The model was first utilized to review the ability of the Hudson water system to furnish the estimated domestic demand to the proposed development during all normal conditions of flow. From the hydraulic model analysis, it was determined that the Hudson water system would be capable of meeting the total estimated domestic demand for the site, at a minimum of 35-psi, under all normal conditions of flow.

For fire demand, the hydraulic model was utilized to assess the Hudson water system's ability to provide fire suppression flow to the final phase of the Shepherd's Hill development. From the model analysis it was determined that the Hudson water system would be capable of providing up to 1,500-gpm of fire flow for a three hour duration to the proposed development while maintaining a minimum 20-psi residual pressure within the Hudson service system throughout the fire event.

Please note that the Hudson distribution system's ability to provide fire flow for the Shepherd's Hill development is directly linked to the Windham Road Pump Station's ability to provide flow. If pumps that are normally scheduled to be in operation are offline during a fire event, Shepherd's Hill development would have reduced fire flow availability.

CONCLUSIONS

The model indicated that the Hudson water system and in particular the Windham Road High Service System can service the proposed final phase of the Shepherd's Hill development under all normal conditions of flow. The model also indicated that the Hudson distribution system can furnish up to 1,500 gpm of fire flow to the proposed development for three hours and that pressures remain above the NHDES and Ten State Standards requirement of 20 psi in the Hudson water system throughout the modeled simulation.

If you have any questions, please do not hesitate to call me at (603) 431-3937.

Very truly yours,

WESTON & SAMPSON ENGINEERS, INC.



Jeffrey Provost, PE
Senior Project Manager

P:\NH\Hudson, NH\2221100 Shepherd's Hill\Report\Hudson NH - Shepherd's Hill Developer Review.docx



October 10, 2022

Town of Hudson
 Attn: Planning Board
 12 School Street
 Hudson, NH 03051

**Subject: Waiver Requests – Pipe Slope
 Sheperds Hill Site Plan, Shadowbrook Drive
 Tax Map 177 Lot 5
 KNA Project No. #17-0824-1**

Dear Members of Board:

On behalf of our client, as part of your Board’s review and consideration of the subject application we respectfully request that your Board grant one waiver from the terms and conditions of the Town of Engineering Technical Guidelines and Typical Details. The waiver being requested is as follows;

A waiver is requested from Section 930, Construction Design Details.

The request seeks waiver the requirement for a minimum stormwater drainage pipe slope of 2%.

Pursuant to the provisions of RSA 674:44, III(e) your Board may grant the requested waiver in the event it finds that either: (1) strict conformity would pose an unnecessary hardship to the applicant and the waiver would not be contrary to the spirit and intent of the regulations, or (2) specific circumstances relative to the site plan, or condition of the land in such site plan, indicate the waiver will properly carry out the spirit and intent of the regulations.

In respect to the waiver to eliminate the pipe slope requirements we believe the provisions of the first of these two criteria warrant the granting of the requested waiver for the following reason:

The property is predominantly in fill conditions. These fill conditions create an issue when out-letting stormwater drainage pipes to stormwater ponds. Due to this, pipe slopes of less than 2% had to be utilized to properly outlet and treat stormwater. To design the drainage system so that there is a minimum slope of 2% would reduce the pipe cover in several areas.

The intent of this regulation is to ensure sediment does not build up in the pipes themselves and ensure that there is enough capacity in the pipes. All catch basins proposed on the site are equipped with sumps. These sumps allow sediment to settle out of the water before the water reaches the stormwater ponds. Per the maintenance plan, the catch basins are inspected on a regular basis, and should sediment be found in the sumps the sediment will be removed. When conducting a hydraulic analysis of the pipe networks, pipe capacity was found to not be an issue.

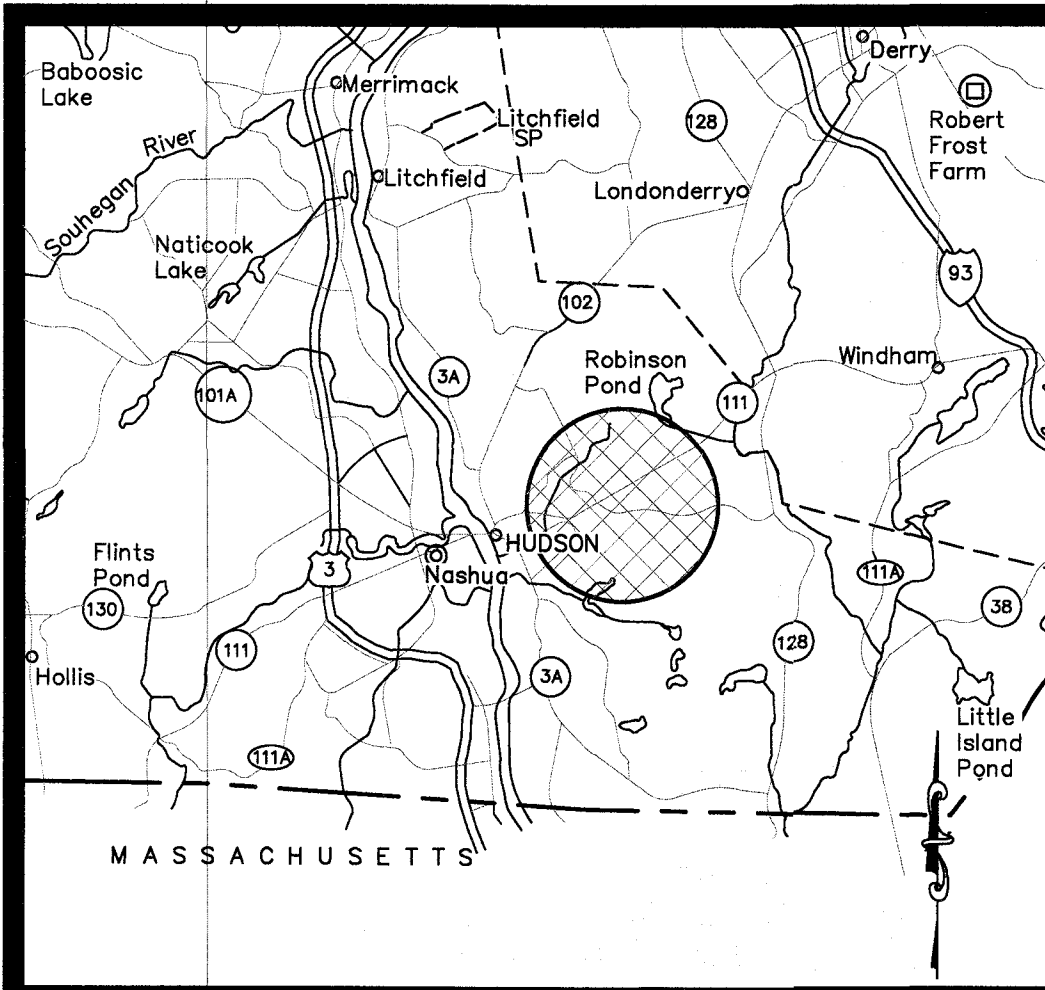
Upon review and consideration of this request, we are confident the Board will agree that the granting of this waiver will best enable the applicant to advance the current proposal for site plan in a manner which fully respects and is consistent with applicable provisions of the engineering regulations of the Town of Hudson.

In the event you should have specific thoughts or questions regarding this request, KNA will be available to discuss or respond to the same at the future public hearing.

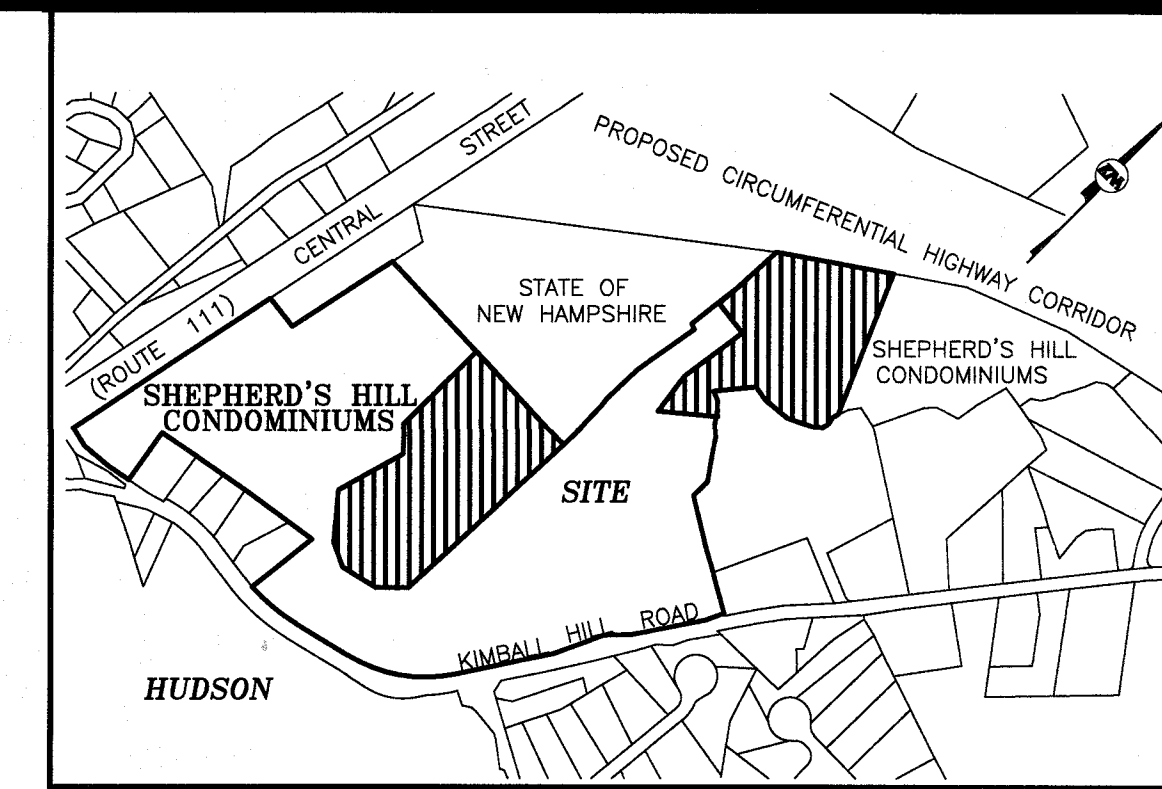
Respectfully Submitted By:



Allison Lewis, EIT
Project Engineer
Keach-Nordstrom Associates, Inc.



VICINITY PLAN
NOT TO SCALE



VICINITY MAP

RESIDENTIAL SITE PLAN SHEPHERD'S HILL

MAP 177; LOT 5 SHADOWBROOK DRIVE HUDSON, NEW HAMPSHIRE

APPLICANT:
SHEPHERD'S HILL DEVELOPMENT, LLC
253 MAIN STREET
NASHUA, NH 03060

OWNER:
SHEPHERD'S HILL HOME OWNERS ASSOCIATION
C/O GREAT NORTHERN PROPERTY MANAGEMENT
3 HOLLAND WAY, SUITE 201
EXETER, NH 03833

PREPARED BY:
KEACH-NORDSTROM ASSOCIATES, INC.
10 COMMERCE PARK NORTH, SUITE 3B
BEDFORD, NEW HAMPSHIRE 03110
(603) 627-2881



KN KEACH-NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

MAY 2, 2022

LAST REVISED: OCTOBER 6, 2022

PROJECT NO. 17-0824-1

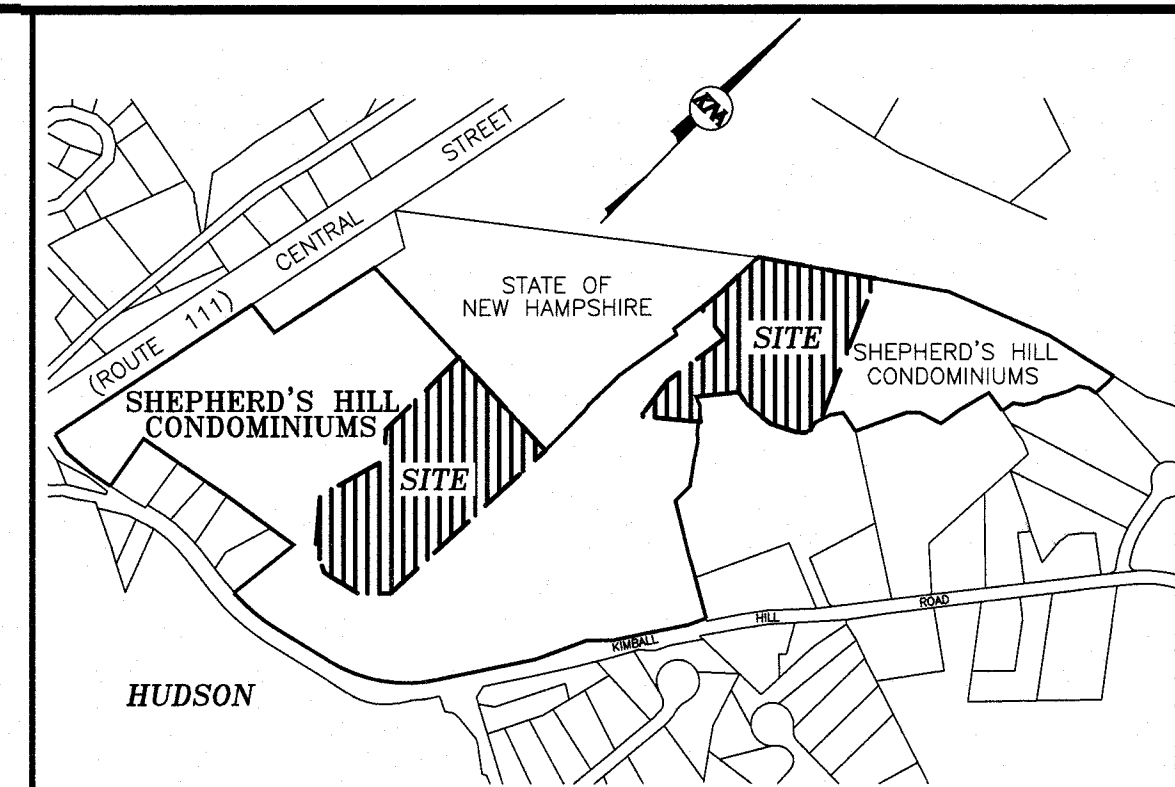
<u>SHEET TITLE</u>	<u>SHEET No.</u>
MASTER SITE PLAN	1-3
EXISTING CONDITIONS PLAN	4-7
REMOVALS/DEMOLITION PLAN	8-11
RESIDENTIAL SITE LAYOUT PLAN	12-15
GRADING AND DRAINAGE PLAN	16-19
UTILITY PLAN	20-23
EROSION CONTROL PLAN	24-27
LANDSCAPE PLAN	28-31
LIGHTING PLAN	32-35
ROADWAY PROFILES	36-39
SEWER PLAN & PROFILE	40
CONSTRUCTION DETAILS	41-51
SIGHT DISTANCE PLAN & PROFILE	SD1-SD2

REFERENCE PLAN

1. SHEPHERD'S HILL CONDOMINIUM, SITE AND FLOOR PLANS FOR LAND UNITS #1, #2 & #3. REMAINING CONVERTIBLE LAND IN ACCORDANCE WITH THE 24TH DECLARATION OF THE SHEPHERD'S HILL CONDOMINIUM. HCRD PLAN #37633.

LEGEND

- ABUTTER LINE
- - - PHASE LINE
- BOUNDARY LINE
- WETLAND
- EDGE OF PAVEMENT
- ZONE LINE
- EXISTING BUILDING LINE



VICINITY MAP
NOT TO SCALE

PHASING NOTES:

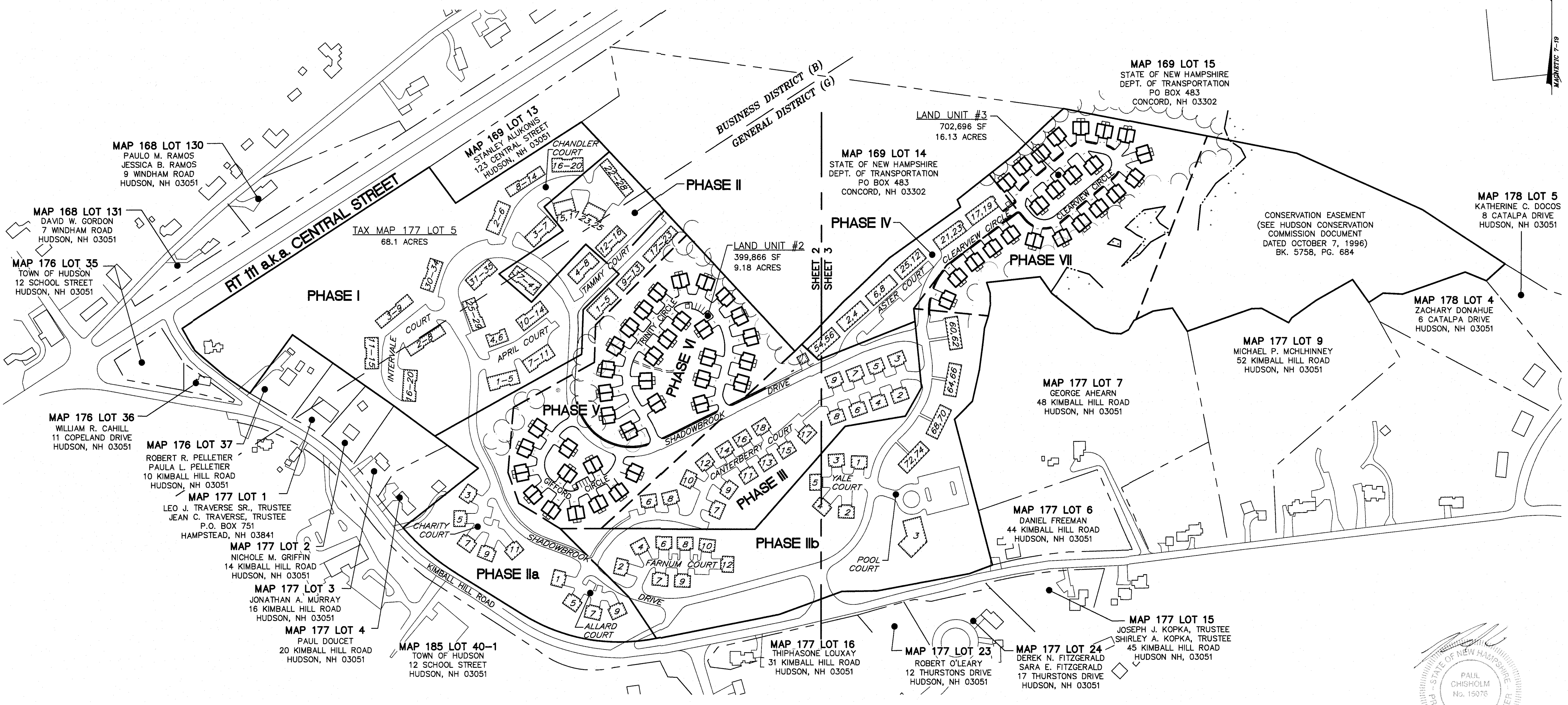
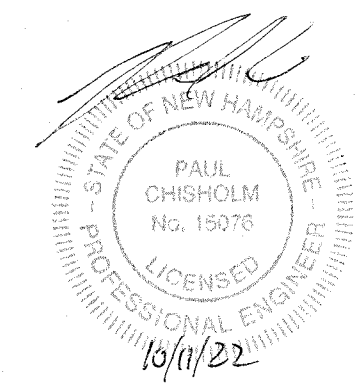
- PHASES I-IV HAVE ALREADY BEEN COMPLETED.
- CONSTRUCTION SHALL BE COMPLETED IN THE FOLLOWING THREE PHASES:
PHASE V - 24 UNITS PHASE VI - 48 UNITS PHASE VII - 46 UNITS
- ALL PHASES MUST BE BELOW 5 ACRES AND STABILIZED BEFORE ADVANCING TO THE SUBSEQUENT PHASE.

NOTES:

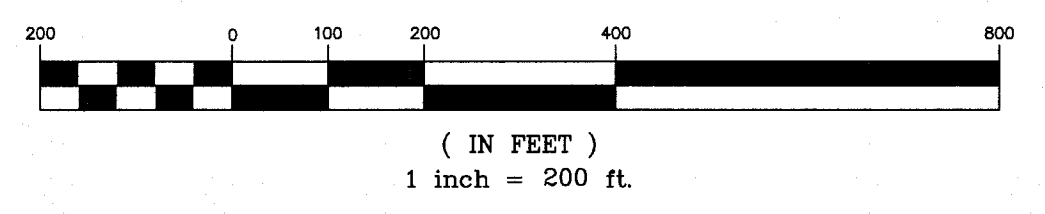
- THE PURPOSE OF THIS PLAN IS TO SHOW THE DEVELOPMENT OF THE REMAINING 118 UNITS IN THE SHEPHERD'S HILL CONDOMINIUM ON ASSESSORS MAP 177 LOT 5, SPECIFICALLY IN LAND UNITS 2 & 3 AS SHOWN HEREON AND NO OTHER REASON.
- AREA OF PARCEL = 68.1 ACRES.
- OWNERS OF RECORD:
SHEPHERD'S HILL HOME OWNERS ASSOCIATION
C/O GREAT NORTHERN PROPERTY MANAGEMENT
3 HOLLAND WAY, SUITE 201
EXETER, NH 03833
DECLARATION OF CONDOMINIUM: HCRD BK. 6846 PG. 0065
24TH AMENDMENT BK. 8530 PG. 1901
SETTLEMENT AGREEMENT: HCRD BK. 8835 PG. 2477
COURT ORDER: HCRD BK. 8837 PG. 2078
- THE SUBJECT PARCEL LIES WITHIN THE GENERAL (G) & BUSINESS (B) ZONING DISTRICT MINIMUM BUILDING SETBACK REQUIREMENTS: GENERAL: 43,560 S.F. BUSINESS: 53,560 S.F.

LOT AREA	150'	150'
FRONT YARD	50 FT	50 FT
SIDE YARD	15 FT	15 FT
REAR YARD	15 FT	15 FT

- BOUNDARY INFORMATION IS BASED ON REFERENCE PLAN.
- NORTH ORIENTATION IS MAGNETIC. HORIZONTAL DATUM IS ASSUMED. VERTICAL DATUM IS NAVD88.
- EXISTING CONDITIONS FOR LAND UNITS 2 & 3 ARE BASED ON AN ACTUAL FIELD SURVEY MADE BY THIS OFFICE IN SEPTEMBER OF 2017.
- EXAMINATION OF THE FLOOD INSURANCE RATE MAP (FIRM) FOR THE TOWN OF HUDSON NEW HAMPSHIRE, HILLSBOROUGH COUNTY, MAP NUMBER 330110051D, PANEL NUMBER 518 OF 701, EFFECTIVE DATE: SEPTEMBER 25, 2009, INDICATES THAT THE SUBJECT PARCEL IS NOT LOCATED WITHIN A FLOOD HAZARD AREA.
- BENCHMARKS SET AS NOTED, BASED ON NAVD88.
- THE LOCATION OF ANY UNDERGROUND UTILITY INFORMATION SHOWN ON THIS PLAN IS APPROXIMATE. KEACH-NORDSTROM ASSOCIATES, INC. MAKES NO CLAIM TO THE ACCURACY OR COMPLETENESS OF UTILITIES SHOWN. PRIOR TO ANY EXCAVATION ON SITE, THE OWNER OR CONTRACTOR SHALL CONTACT DIG SAFE AT 811.
- WETLANDS WERE DELINEATED BY JOSHUA BRIEN, C.W.S.#256 OF KEACH-NORDSTROM ASSOCIATES, INC. IN OCTOBER OF 2020.
- EASEMENTS, RIGHTS AND RESTRICTIONS SHOWN OR IDENTIFIED HEREON ARE THOSE THAT WERE FOUND DURING RESEARCH CONDUCTED AT THE HILLSBOROUGH COUNTY REGISTRY OF DEEDS. ADDITIONAL EASEMENTS, RIGHTS AND RESTRICTIONS MAY EXIST WHICH A TITLE EXAMINATION OF THE PREMISES MAY DETERMINE.
- A VARIANCE WAS PREVIOUSLY GRANTED BY THE HUDSON ZBA ON JULY 11, 1985 TO ALLOW THE CONSTRUCTION OF A MULTIFAMILY RESIDENTIAL USE CONTAINING NO MORE THAN 400 DWELLING UNITS.
- WAIVERS:
-A WAIVER IS BEING REQUESTED FROM SECTION 930.4 OF THE ENGINEERING TECHNICAL GUIDELINES AND TYPICAL DETAILS TO ALLOW STORMWATER PIPE SLOPES OF LESS THAN 2%
-EXISTING OPEN SPACE = 80% (2,361,210 SF)
-PROPOSED OPEN SPACE = 73% (2,141,668 SF)
- REQUIRED PERMITS:
-ALTERATION OF TERRAIN
-SEWER CONNECTION PERMIT



GRAPHIC SCALE



NPDES NOTE

THIS PROJECT DISTURBS IN EXCESS OF 1-ACRE OF LAND. THEREFORE IT WILL BE REQUIRED TO OBTAIN NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT COVERAGE AS ISSUED BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA). THE OWNER/DEVELOPER AND "OPERATOR" (GENERAL CONTRACTOR) SHALL EACH BE REQUIRED TO PREPARE AND SUBMIT A NOTICE OF INTENT (NOI) TO THE EPA PRIOR TO THE START OF CONSTRUCTION AND SHALL BE RESPONSIBLE FOR THE PREPARATION AND IMPLEMENTATION OF A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) MEETING THE REQUIREMENTS OF THE CURRENT CONSTRUCTION GENERAL PERMIT.

UTILITY NOTE

THE UNDERGROUND UTILITIES DEPICTED HEREON HAVE BEEN DRAWN FROM FIELD SURVEY INFORMATION AND OR PLOTTED FROM EXISTING DRAWINGS. KEACH-NORDSTROM ASSOCIATES, INC. MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES DEPICTED COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. FURTHER, KEACH-NORDSTROM ASSOCIATES, INC. DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM THE INFORMATION AVAILABLE. KEACH-NORDSTROM ASSOCIATES, INC. HAS NOT PHYSICALLY LOCATED THE UNDERGROUND PORTIONS OF THE UTILITIES.

PURSUANT TO THE SITE REVIEW REGULATIONS OF THE HUDSON PLANNING BOARD, THE SITE PLAN APPROVAL GRANTED HEREIN EXPIRES TWO YEARS FROM DATE OF APPROVAL

APPROVED BY THE HUDSON, NH PLANNING BOARD
DATE OF MEETING: _____

SIGNATURE DATE: _____

SIGNATURE DATE: _____

SITE PLANS ARE VALID FOR TWO YEARS FROM THE DATE OF PLANNING BOARD MEETING FINAL APPROVAL. FINAL APPROVAL COMMENCES AT THE PLANNING BOARD MEETING DATE AT WHICH THE PLAN RECEIVES FINAL APPROVAL.

OWNER OF MAP 177 LOT 5

SIGNATURE: _____

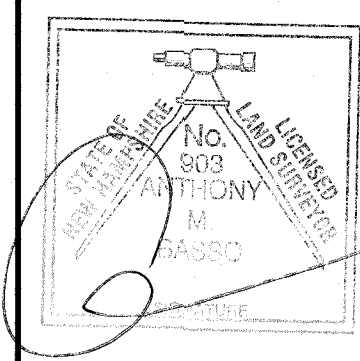
DATE: _____

JOSHUA BRIEN, CERTIFIED WETLAND SCIENTIST #256 OF KEACH-NORDSTROM ASSOCIATES, INC. OF BEDFORD, NH PERFORMED THE DELINEATION OF JURISDICTIONAL WETLANDS IN OCTOBER OF 2020 USING THE TECHNICAL CRITERIA IN THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL (TECHNICAL REPORT Y-87-1, JANUARY 1987).

SURVEYOR'S CERTIFICATION:

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR THOSE UNDER MY DIRECT SUPERVISION. FURTHER, THAT THIS PLAN IS BASED ON AN ACTUAL FIELD SURVEY MADE ON THE GROUND BY THIS OFFICE IN SEPTEMBER OF 2017. SAID SURVEY HAS AN ERROR OF CLOSURE BETTER THAN ONE PART IN TEN THOUSAND (1:10,000).

LICENSED LAND SURVEYOR DATE: 10/1/22



MASTER SITE PLAN
SHEPHERD'S HILL
MAP 177 LOT 5
SHADOWBROOK DRIVE
HUDSON, NEW HAMPSHIRE
HILLSBOROUGH COUNTY

OWNER OF RECORD:
SHEPHERD'S HILL HOME OWNERS ASSOCIATION
C/O GREAT NORTHERN PROPERTY MANAGEMENT
3 HOLLAND WAY, SUITE 201
EXETER, NH 03833

APPLICANT:
SHEPHERD'S HILL, LLC
253 MAIN STREET
NASHUA, NH 03060

KEACH-NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

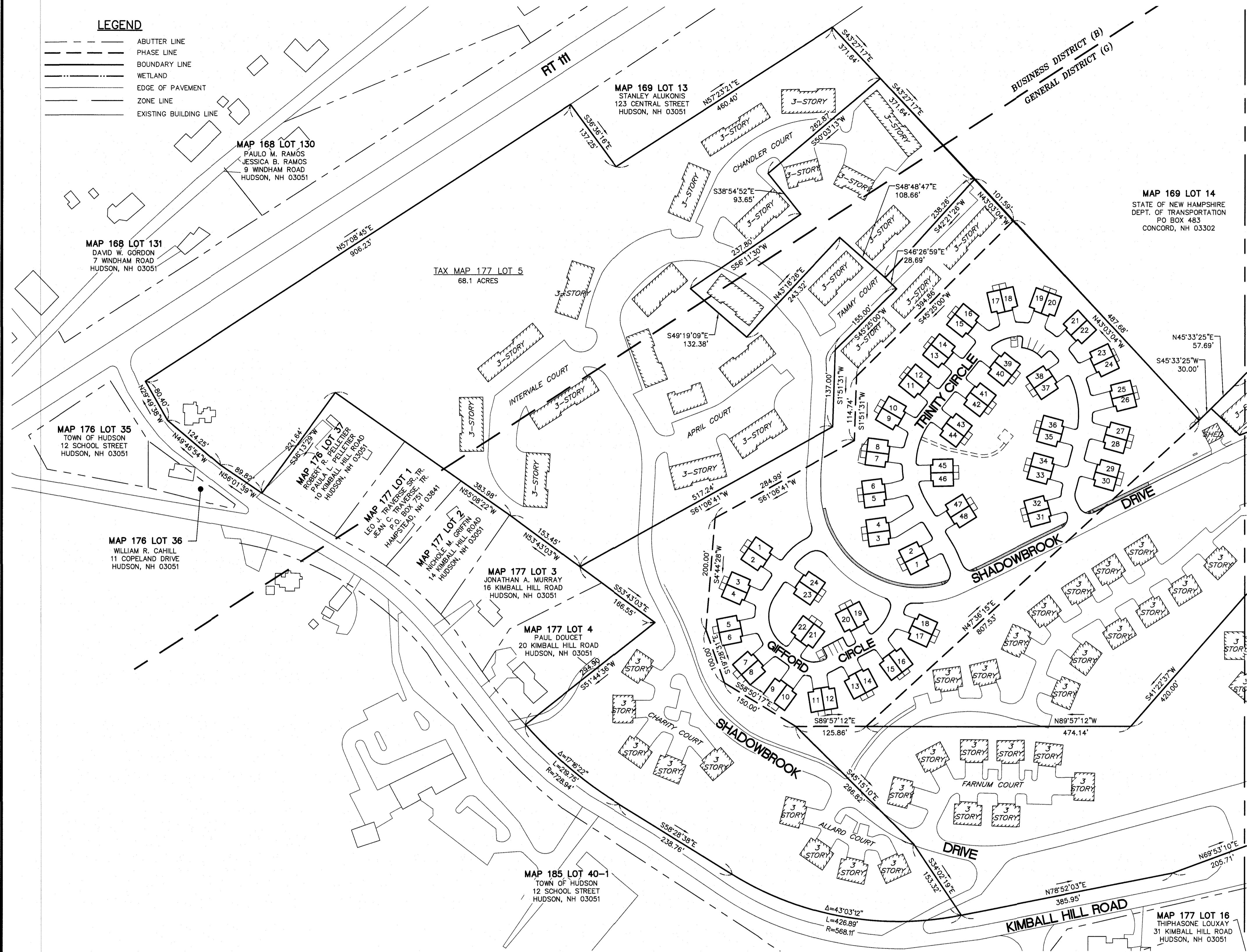
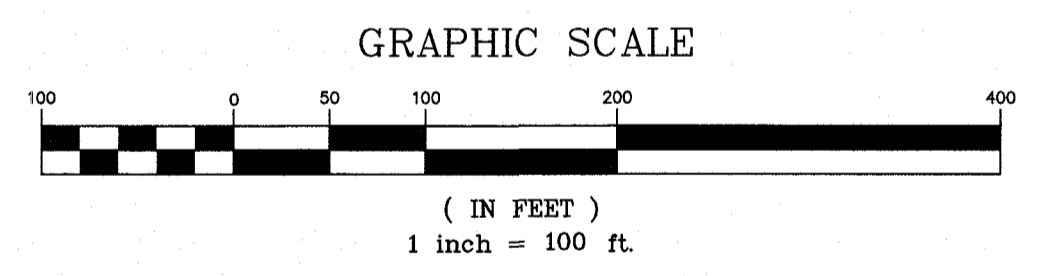
No.	DATE	DESCRIPTION	BY
1	7/7/22	REVISED PER COMMENTS	ACL
2	10/6/22	REVISED PER TOWN COMMENTS	ACL

DATE: MAY 2, 2022 SCALE: 1"=200'
PROJECT NO: 17-0824-1 SHEET 1 OF 51

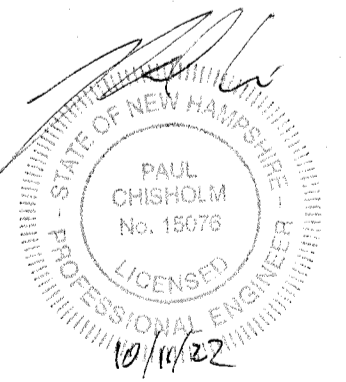
LEGEND

---	ABUTTER LINE
---	PHASE LINE
---	BOUNDARY LINE
---	WETLAND
---	EDGE OF PAVEMENT
---	ZONE LINE
---	EXISTING BUILDING LINE

SEE SHEET 1 FOR NOTES & REFERENCE PLANS



MATCH TO SHEET 3



NPDES NOTE

THIS PROJECT DISTURBS IN EXCESS OF 1-ACRE OF LAND. THEREFORE IT WILL BE REQUIRED TO OBTAIN NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT COVERAGE AS ISSUED BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA). THE OWNER/DEVELOPER AND "OPERATOR" (GENERAL CONTRACTOR) SHALL EACH BE REQUIRED TO PREPARE AND SUBMIT A NOTICE OF INTENT (NOI) TO THE EPA PRIOR TO THE START OF CONSTRUCTION AND SHALL BE RESPONSIBLE FOR THE PREPARATION AND IMPLEMENTATION OF A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) MEETING THE REQUIREMENTS OF THE CURRENT CONSTRUCTION GENERAL PERMIT.

UTILITY NOTE

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MASTER SITE PLAN	
SHEPHERDS HILL	
MAP 177 LOT 5	
SHADOWBROOK DRIVE	
HUDSON, NEW HAMPSHIRE	
HILLSBOROUGH COUNTY	
OWNER OF RECORD:	APPLICANT:
SHEPHERDS HILL HOME OWNERS ASSOCIATION C/O GREAT NORTH PROPERTY MANAGEMENT 3 HOLLAND WAY, SUITE 201 EXETER, NH 03833	SHEPHERDS HILL, LLC 253 MAIN STREET NASHUA, NH 03060

KMA KEACH-NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

PURSUANT TO THE SITE REVIEW REGULATIONS OF THE HUDSON PLANNING BOARD, THE SITE PLAN APPROVAL GRANTED HEREIN EXPIRES TWO YEARS FROM DATE OF APPROVAL	APPROVED BY THE HUDSON, NH PLANNING BOARD
	DATE OF MEETING: _____
	_____ SIGNATURE DATE: _____
SITE PLANS ARE VALID FOR TWO YEARS FROM THE DATE OF PLANNING BOARD MEETING FINAL APPROVAL. FINAL APPROVAL COMMENCES AT THE PLANNING BOARD MEETING DATE AT WHICH THE PLAN RECEIVES FINAL APPROVAL.	

CONTRACTOR'S CERTIFICATION:

JOSHUA BRIEN, CERTIFIED WETLAND SCIENTIST #256 OF KEACH-NORDSTROM ASSOCIATES, INC. OF BEDFORD, NH PERFORMED THE DELINEATION OF JURISDICTIONAL WETLANDS IN OCTOBER OF 2020 USING THE TECHNICAL CRITERIA IN THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL (TECHNICAL REPORT Y-87-1, JANUARY 1987).

SURVEYOR'S CERTIFICATION:

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR THOSE UNDER MY DIRECT SUPERVISION. FURTHER, THAT THIS PLAN IS BASED ON AN ACTUAL FIELD SURVEY MADE ON THE GROUND BY THIS OFFICE IN SEPTEMBER 2017. SAID SURVEY HAS AN ERROR OF CLOSURE BETTER THAN ONE PART IN TEN THOUSAND (1:10,000).

LICENSED LAND SURVEYOR DATE

REVISIONS		
No.	DATE	DESCRIPTION
1	7/7/22	REVISED PER COMMENTS
2	10/6/22	REVISED PER TOWN COMMENTS

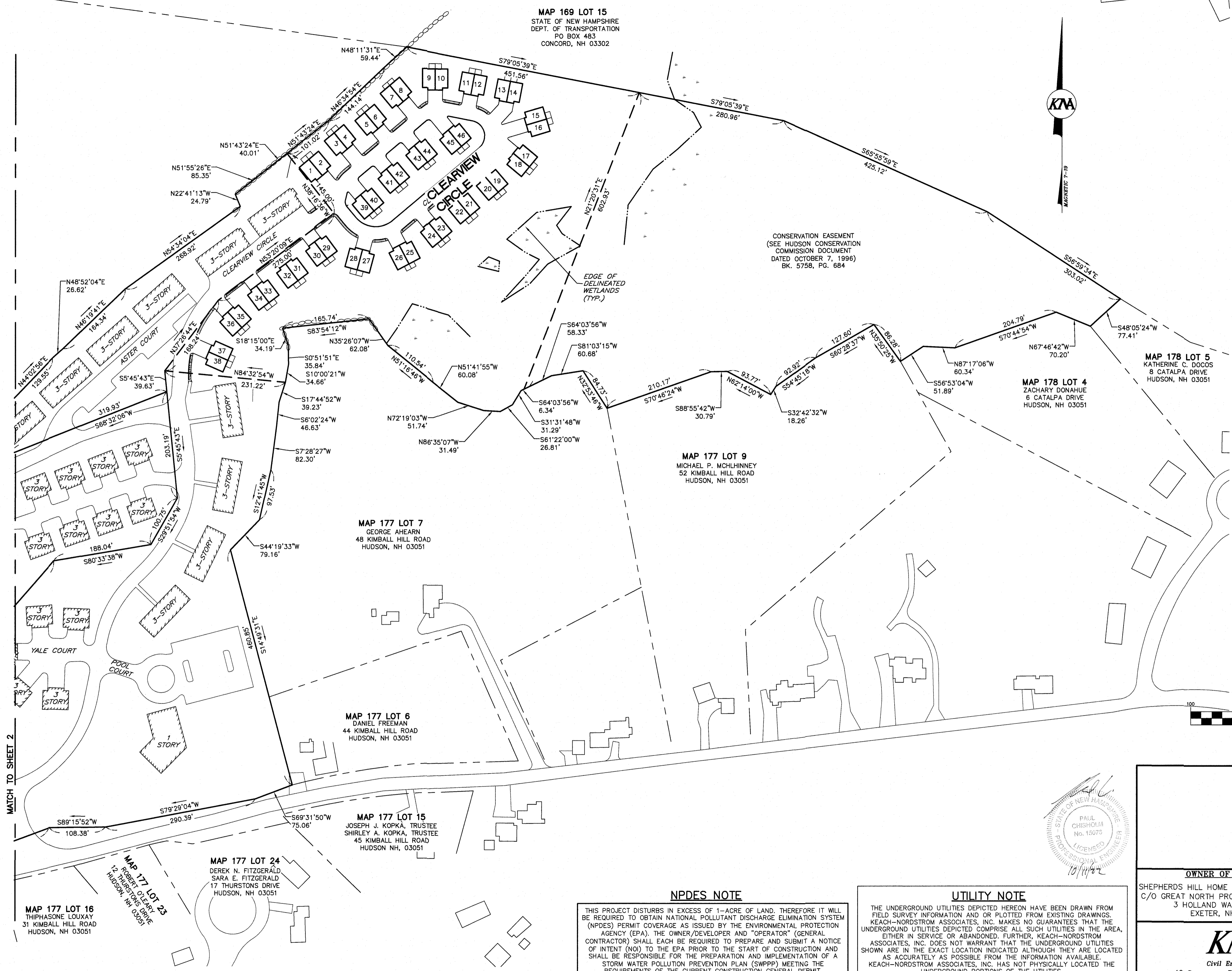
DATE: MAY 2, 2022 SCALE: 1"=100'
PROJECT NO: 17-0824-1 SHEET 2 OF 51

MAP 169 LOT 15
STATE OF NEW HAMPSHIRE
DEPT. OF TRANSPORTATION
PO BOX 483
CONCORD, NH 03302

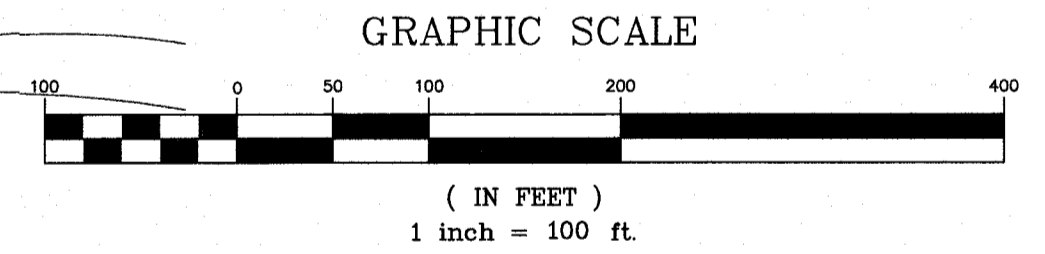
SEE SHEET 1 FOR NOTES
& REFERENCE PLANS

LEGEND

- BUTTER LINE
- PHASE LINE
- BOUNDARY LINE
- WETLAND
- EDGE OF PAVEMENT
- ZONE LINE
- EXISTING BUILDING LINE



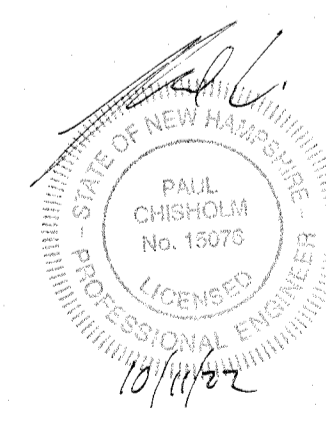
CONSERVATION EASEMENT
(SEE HUDSON CONSERVATION
COMMISSION DOCUMENT
DATED OCTOBER 7, 1996)
BK. 5758, PG. 684



MATCH TO SHEET 2

MASTER SITE PLAN
SHEPHERDS HILL
MAP 177 LOT 5
SHADOWBROOK DRIVE
HUDSON, NEW HAMPSHIRE
HILLSBOROUGH COUNTY

OWNER OF RECORD: SHEPHERDS HILL HOME OWNERS ASSOCIATION C/O GREAT NORTH PROPERTY MANAGEMENT 3 HOLLAND WAY, SUITE 201 EXETER, NH 03833	APPLICANT: SHEPHERDS HILL, LLC 253 MAIN STREET NASHUA, NH 03060
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KMA KEACH-NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

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THIS PROJECT DISTURBS IN EXCESS OF 1-ACRE OF LAND. THEREFORE IT WILL BE REQUIRED TO OBTAIN NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT COVERAGE AS ISSUED BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA). THE OWNER/DEVELOPER AND "OPERATOR" (GENERAL CONTRACTOR) SHALL EACH BE REQUIRED TO PREPARE AND SUBMIT A NOTICE OF INTENT (NOI) TO THE EPA PRIOR TO THE START OF CONSTRUCTION AND SHALL BE RESPONSIBLE FOR THE PREPARATION AND IMPLEMENTATION OF A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) MEETING THE REQUIREMENTS OF THE CURRENT CONSTRUCTION GENERAL PERMIT.

UTILITY NOTE

THE UNDERGROUND UTILITIES DEPICTED HEREON HAVE BEEN DRAWN FROM FIELD SURVEY INFORMATION AND/OR PLOTTED FROM EXISTING DRAWINGS. KEACH-NORDSTROM ASSOCIATES, INC. MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES DEPICTED COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. FURTHER, KEACH-NORDSTROM ASSOCIATES, INC. DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM THE INFORMATION AVAILABLE. KEACH-NORDSTROM ASSOCIATES, INC. HAS NOT PHYSICALLY LOCATED THE UNDERGROUND PORTIONS OF THE UTILITIES.

SURVEYOR'S CERTIFICATION:

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR THOSE UNDER MY DIRECT SUPERVISION. FURTHER, THAT THIS PLAN IS BASED ON AN ACTUAL FIELD SURVEY MADE ON THE GROUND BY THIS OFFICE IN SEPTEMBER 2017. SAID SURVEY HAS AN ERROR OF CLOSURE BETTER THAN ONE PART IN TEN THOUSAND (1:10,000).

LICENSED LAND SURVEYOR

DATE

JOSHUA BRIEN, CERTIFIED WETLAND SCIENTIST #256 OF KEACH-NORDSTROM ASSOCIATES, INC. OF BEDFORD, NH PERFORMED THE DELINEATION OF JURISDICTIONAL WETLANDS IN OCTOBER OF 2020 USING THE TECHNICAL CRITERIA IN THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL (TECHNICAL REPORT Y-87-1, JANUARY 1987).

APPROVED BY THE HUDSON, NH PLANNING BOARD
DATE OF MEETING: _____

SIGNATURE DATE: _____

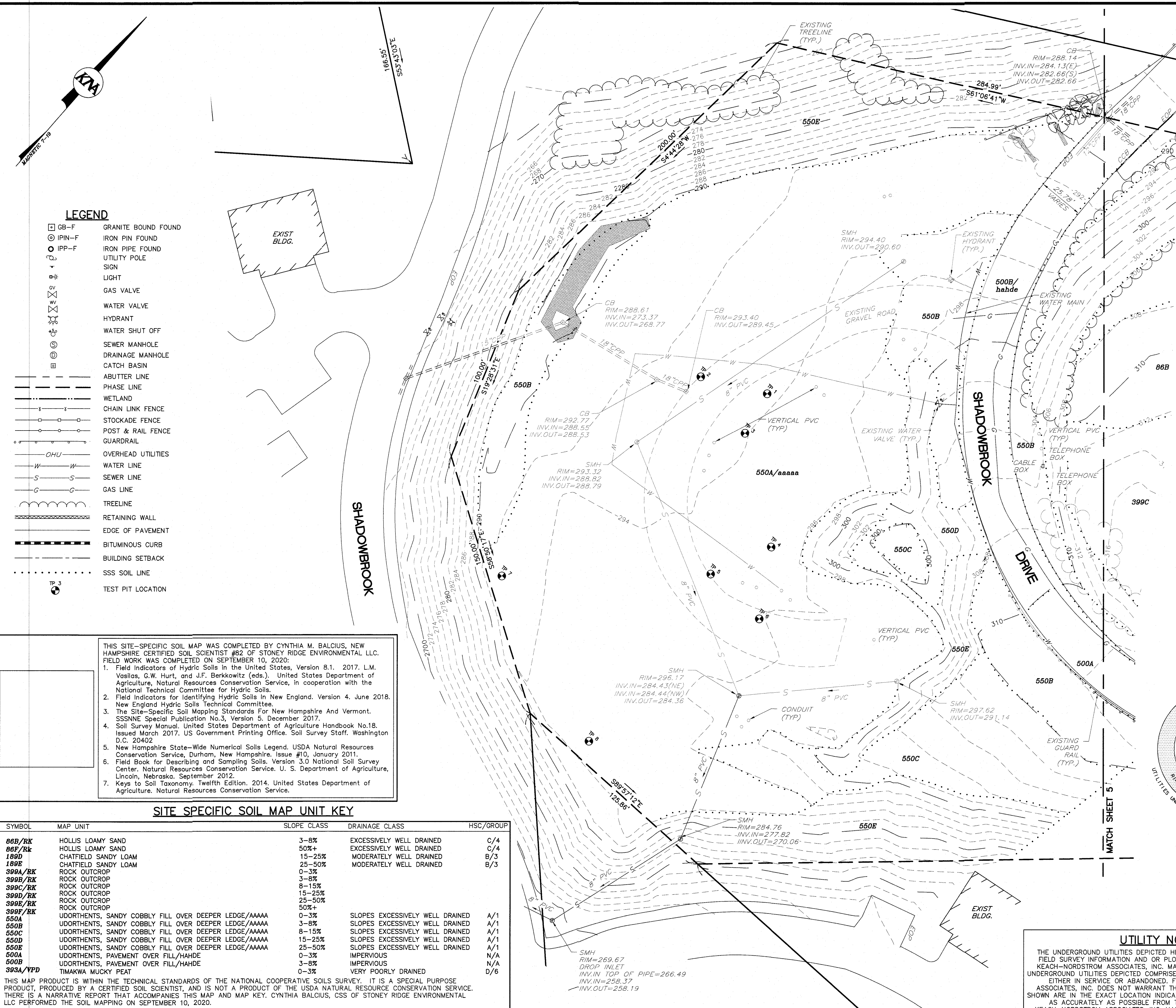
SIGNATURE DATE: _____

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PURSUANT TO THE SITE REVIEW REGULATIONS OF THE HUDSON PLANNING BOARD, THE SITE PLAN APPROVAL GRANTED HEREIN EXPIRES TWO YEARS FROM DATE OF APPROVAL

No.	DATE	DESCRIPTION	BY
1	7/7/22	REVISED PER COMMENTS	ACL
2	10/6/22	REVISED PER TOWN COMMENTS	ACL

DATE: MAY 2, 2022 SCALE: 1"=100'
PROJECT NO: 17-0824-1 SHEET 3 OF 51



LEGEND

□ GB-F	GRANITE BOUND FOUND
○ IPIN-F	IRON PIN FOUND
○ IPP-F	IRON PIPE FOUND
○ U	UTILITY POLE
○ S	SIGN
○ L	LIGHT
○ G	GAS VALVE
○ W	WATER VALVE
○ H	HYDRANT
○ WSO	WATER SHUT OFF
○ SM	SEWER MANHOLE
○ DM	DRAINAGE MANHOLE
○ CB	CATCH BASIN
---	ABUTTER LINE
---	PHASE LINE
---	WETLAND
---	CHAIN LINK FENCE
---	STOCKADE FENCE
---	POST & RAIL FENCE
---	GUARDRAIL
---	OVERHEAD UTILITIES
---	WATER LINE
---	SEWER LINE
---	GAS LINE
---	TREELINE
---	RETAINING WALL
---	EDGE OF PAVEMENT
---	BITUMINOUS CURB
---	BUILDING SETBACK
---	SSS SOIL LINE
○ TP	TEST PIT LOCATION

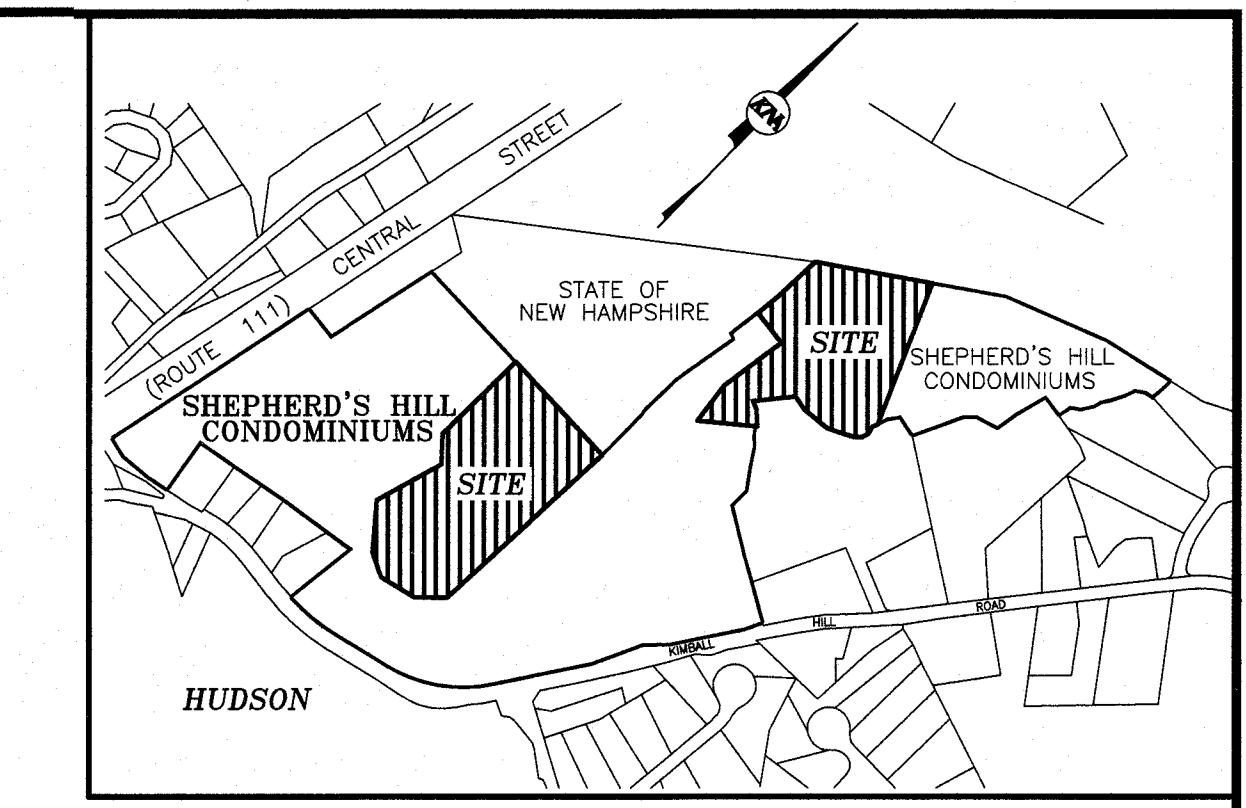
THIS SITE-SPECIFIC SOIL MAP WAS COMPLETED BY CYNTHIA M. BALCIUS, NEW HAMPSHIRE CERTIFIED SOIL SCIENTIST #82 OF STONEY RIDGE ENVIRONMENTAL LLC. FIELD WORK WAS COMPLETED ON SEPTEMBER 10, 2020:

- Field Indicators of Hydric Soils in the United States, Version 8.1, 2017, L.M. Vasiles, C.W. Hurt, and J.F. Benkowitz (eds.), United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with the National Technical Committee for Hydric Soils.
- Field Indicators for Identifying Hydric Soils in New England, Version 4, June 2018, New England Hydric Soils Technical Committee.
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- New Hampshire State-Wide Numerical Soils Legend, USDA Natural Resources Conservation Service, Durham, New Hampshire, Issue #10, January 2011.
- Field Book for Describing and Sampling Soils, Version 3.0 National Soil Survey Center, Natural Resources Conservation Service, U. S. Department of Agriculture, Lincoln, Nebraska, September 2012.
- Keys to Soil Taxonomy, Twelfth Edition, 2014, United States Department of Agriculture, Natural Resources Conservation Service.

SITE SPECIFIC SOIL MAP UNIT KEY

SYMBOL	MAP UNIT	SLOPE CLASS	DRAINAGE CLASS	HSC/GROUP
88B/RK	HOLLIS LOAMY SAND	3-8%	EXCESSIVELY WELL DRAINED	C/4
88F/RK	HOLLIS LOAMY SAND	50%+	EXCESSIVELY WELL DRAINED	C/4
188D	CHATFIELD SANDY LOAM	15-25%	MODERATELY WELL DRAINED	B/3
188E	CHATFIELD SANDY LOAM	25-50%	MODERATELY WELL DRAINED	B/3
398A/RK	ROCK OUTCROP	0-3%		
398B/RK	ROCK OUTCROP	3-8%		
398C/RK	ROCK OUTCROP	8-15%		
398D/RK	ROCK OUTCROP	15-25%		
398E/RK	ROCK OUTCROP	25-50%		
398F/RK	ROCK OUTCROP	50%+		
550A	UDORTHENTS, SANDY COBBLY FILL OVER DEEPER LEDGE/AAAAA	0-3%	SLOPES EXCESSIVELY WELL DRAINED	A/1
550B	UDORTHENTS, SANDY COBBLY FILL OVER DEEPER LEDGE/AAAAA	3-8%	SLOPES EXCESSIVELY WELL DRAINED	A/1
550C	UDORTHENTS, SANDY COBBLY FILL OVER DEEPER LEDGE/AAAAA	8-15%	SLOPES EXCESSIVELY WELL DRAINED	A/1
550D	UDORTHENTS, SANDY COBBLY FILL OVER DEEPER LEDGE/AAAAA	15-25%	SLOPES EXCESSIVELY WELL DRAINED	A/1
550E	UDORTHENTS, SANDY COBBLY FILL OVER DEEPER LEDGE/AAAAA	25-50%	SLOPES EXCESSIVELY WELL DRAINED	A/1
500A	UDORTHENTS, PAVEMENT OVER FILL/HAHDE	0-3%	IMPERVIOUS	N/A
500B	UDORTHENTS, PAVEMENT OVER FILL/HAHDE	3-8%	IMPERVIOUS	N/A
393A/TPD	TIMAKWA MUCKY PEAT	0-3%	VERY POORLY DRAINED	D/6

THIS MAP PRODUCT IS WITHIN THE TECHNICAL STANDARDS OF THE NATIONAL COOPERATIVE SOILS SURVEY. IT IS A SPECIAL PURPOSE PRODUCT, PRODUCED BY A CERTIFIED SOIL SCIENTIST, AND IS NOT A PRODUCT OF THE USDA NATURAL RESOURCE CONSERVATION SERVICE. THERE IS A NARRATIVE REPORT THAT ACCOMPANIES THIS MAP AND MAP KEY. CYNTHIA BALCIUS, CSS OF STONEY RIDGE ENVIRONMENTAL LLC PERFORMED THE SOIL MAPPING ON SEPTEMBER 10, 2020.



REFERENCE PLAN

- SHEPHERD'S HILL CONDOMINIUM, SITE AND FLOOR PLANS FOR LAND UNITS #1, #2 & #3. REMAINING CONVERTIBLE LAND IN ACCORDANCE WITH THE 24TH DECLARATION OF THE SHEPHERD'S HILL CONDOMINIUM, HCRD PLAN #37633.

NOTES:

- THE PURPOSE OF THIS PLAN IS TO DEPICT THE EXISTING CONDITIONS PRESENT ON ASSESSOR'S MAP 177 LOT 5, SPECIFICALLY IN LAND UNITS 2 & 3 AS SHOWN HEREON AND NO OTHER REASON.
- AREA OF PARCEL = 68.1 ACRES.
- OWNERS OF RECORD:
SHEPHERD'S HILL HOME OWNERS ASSOCIATION
C/O GREAT NORTHERN PROPERTY MANAGEMENT
3 HOLLAND WAY, SUITE 201
EXETER, NH 03833
DECLARATION OF CONDOMINIUM: HCRD BK. 6846 PG. 0065
24TH AMENDMENT BK. 8530 PG. 1901
SETTLEMENT AGREEMENT: HCRD BK. 8836 PG. 2477
COURT ORDER: HCRD BK. 8837 PG. 2078
- THE SUBJECT PARCEL LIES WITHIN THE GENERAL (G) & BUSINESS (B) ZONING DISTRICT
MINIMUM BUILDING SETBACK REQUIREMENTS: GENERAL: BUSINESS:
LOT AREA 43,560 S.F. 53,560 S.F.
LOT FRONTAGE 150' 150'
FRONT YARD 50 FT 50 FT
SIDE YARD 15 FT 15 FT
REAR YARD 15 FT 15 FT
- BOUNDARY INFORMATION IS BASED ON REFERENCE PLAN.
- NORTH ORIENTATION IS MAGNETIC. HORIZONTAL DATUM IS ASSUMED. VERTICAL DATUM IS NAVD88.
- EXISTING CONDITIONS FOR LAND UNITS 2 & 3 ARE BASED ON AN ACTUAL FIELD SURVEY MADE BY THIS OFFICE IN SEPTEMBER OF 2017.
- EXAMINATION OF THE FLOOD INSURANCE RATE MAP (FIRM) FOR THE TOWN OF HUDSON NEW HAMPSHIRE, HILLSBOROUGH COUNTY, MAP NUMBER 3301C0518D, PANEL NUMBER 518 OF 701, EFFECTIVE DATE: SEPTEMBER 25, 2009, INDICATES THAT THE SUBJECT PARCEL IS NOT LOCATED WITHIN A FLOOD HAZARD AREA.
- BENCHMARKS SET AS NOTED, BASED ON NAVD88.
- THE LOCATION OF ANY UNDERGROUND UTILITY INFORMATION SHOWN ON THIS PLAN IS APPROXIMATE. KEACH-NORDSTROM ASSOCIATES, INC. MAKES NO CLAIM TO THE ACCURACY OR COMPLETENESS OF UTILITIES SHOWN. PRIOR TO ANY EXCAVATION ON SITE, THE OWNER OR CONTRACTOR SHALL CONTACT DIG SAFE AT 811.
- WETLANDS WERE DELINEATED BY JOSHUA BRIEN, C.W.S. #256 OF KEACH-NORDSTROM ASSOCIATES, INC. IN OCTOBER OF 2020.
- EASEMENTS, RIGHTS AND RESTRICTIONS SHOWN OR IDENTIFIED HEREON ARE THOSE THAT WERE FOUND DURING RESEARCH CONDUCTED AT THE HILLSBOROUGH COUNTY REGISTRY OF DEEDS. ADDITIONAL EASEMENTS, RIGHTS AND RESTRICTIONS MAY EXIST WHICH A TITLE EXAMINATION OF THE PREMISES MAY DETERMINE.

GRAPHIC SCALE
1 inch = 30 ft.

EXISTING CONDITIONS PLAN
SHEPHERD'S HILL
MAP 177 LOT 5
SHADOWBROOK DRIVE
HUDSON, NEW HAMPSHIRE
HILLSBOROUGH COUNTY

OWNER OF RECORD: SHEPHERD'S HILL HOME OWNERS ASSOCIATION C/O GREAT NORTHERN PROPERTY MANAGEMENT 3 HOLLAND WAY, SUITE 201 EXETER, NH 03833	APPLICANT: SHEPHERD'S HILL, LLC 253 MAIN STREET NASHUA, NH 03060
--	--

KEACH-NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

APPROVED BY THE HUDSON, NH PLANNING BOARD
DATE OF MEETING: _____
SIGNATURE DATE: _____
SIGNATURE DATE: _____
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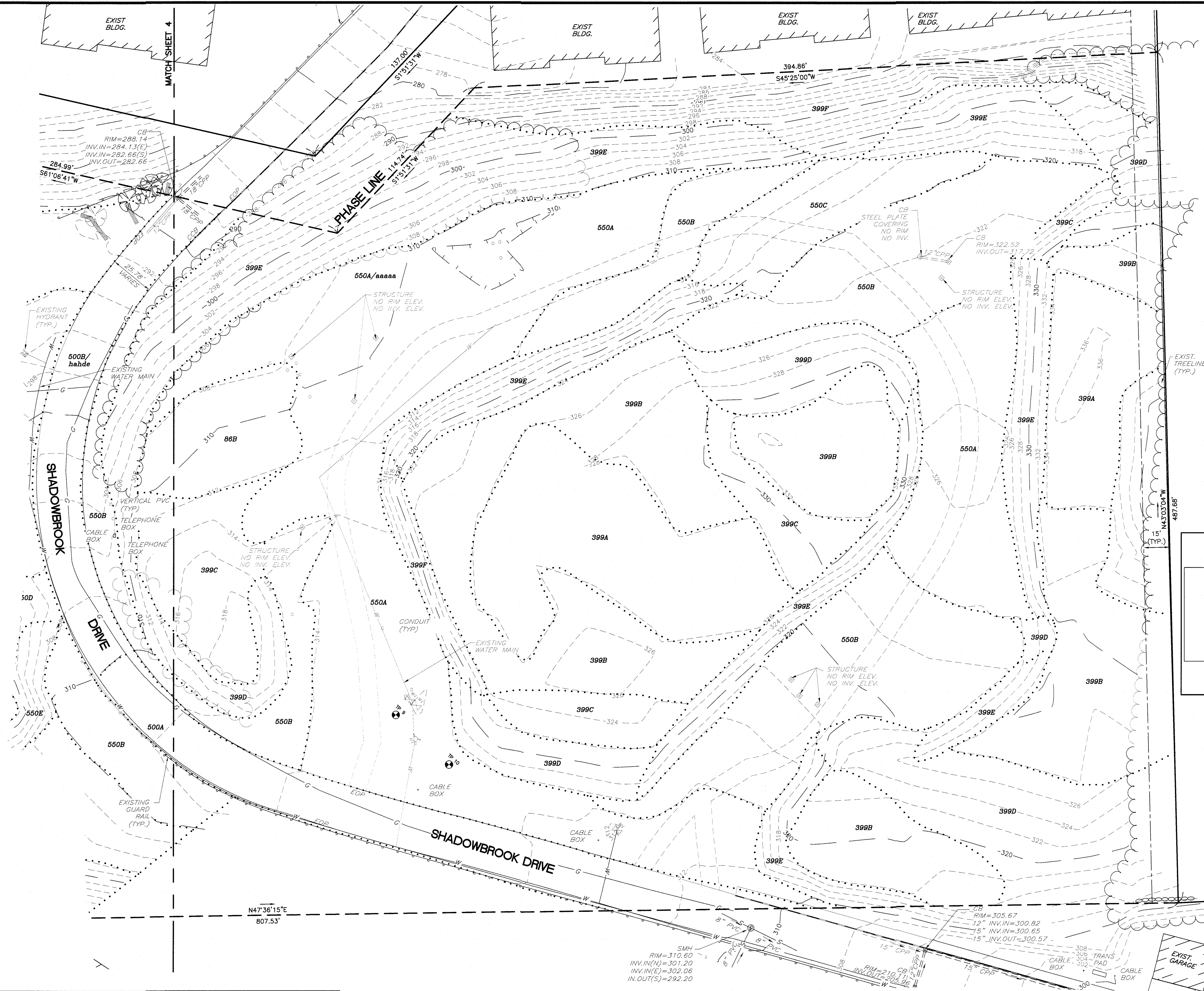
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REVISIONS

No.	DATE	DESCRIPTION	BY
1	7/7/22	REVISED PER COMMENTS	ACL
2	10/6/22	REVISED PER TOWN COMMENTS	ACL

DATE: MAY 2, 2022
SCALE: 1"=30'
PROJECT NO: 17-0824-1
SHEET 4 OF 51

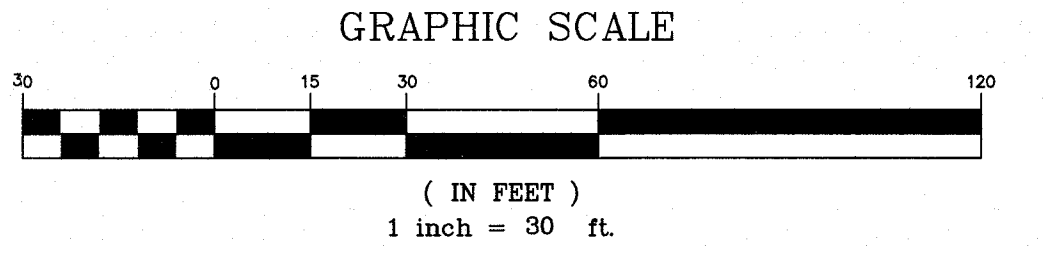


SEE SHEET 4 FOR NOTES & LEGEND



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1. Field Indicators of Hydric Soils in the United States, Version 8.1, 2017. L.M. Vosias, G.W. Hurt, and J.F. Berkowitz (eds.). United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with the National Technical Committee for Hydric Soils.
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EXISTING CONDITIONS PLAN
SHEPHERDS HILL
 MAP 177 LOT 5
 SHADOWBROOK DRIVE
 HUDSON, NEW HAMPSHIRE
 HILLSBOROUGH COUNTY

OWNER OF RECORD: SHEPHERDS HILL HOME OWNERS ASSOCIATION C/O GREAT NORTH PROPERTY MANAGEMENT 3 HOLLAND WAY, SUITE 201 EXETER, NH 03833	APPLICANT: SHEPHERDS HILL, LLC 253 MAIN STREET NASHUA, NH 03060
--	---

KMA KEACH-NORDSTROM ASSOCIATES, INC.
 Civil Engineering Land Surveying Landscape Architecture
 10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

PURSUANT TO THE SITE REVIEW REGULATIONS OF THE HUDSON PLANNING BOARD, THE SITE PLAN APPROVAL GRANTED HEREIN EXPIRES TWO YEARS FROM DATE OF APPROVAL.

APPROVED BY THE HUDSON, NH PLANNING BOARD
 DATE OF MEETING: _____

 SIGNATURE DATE: _____

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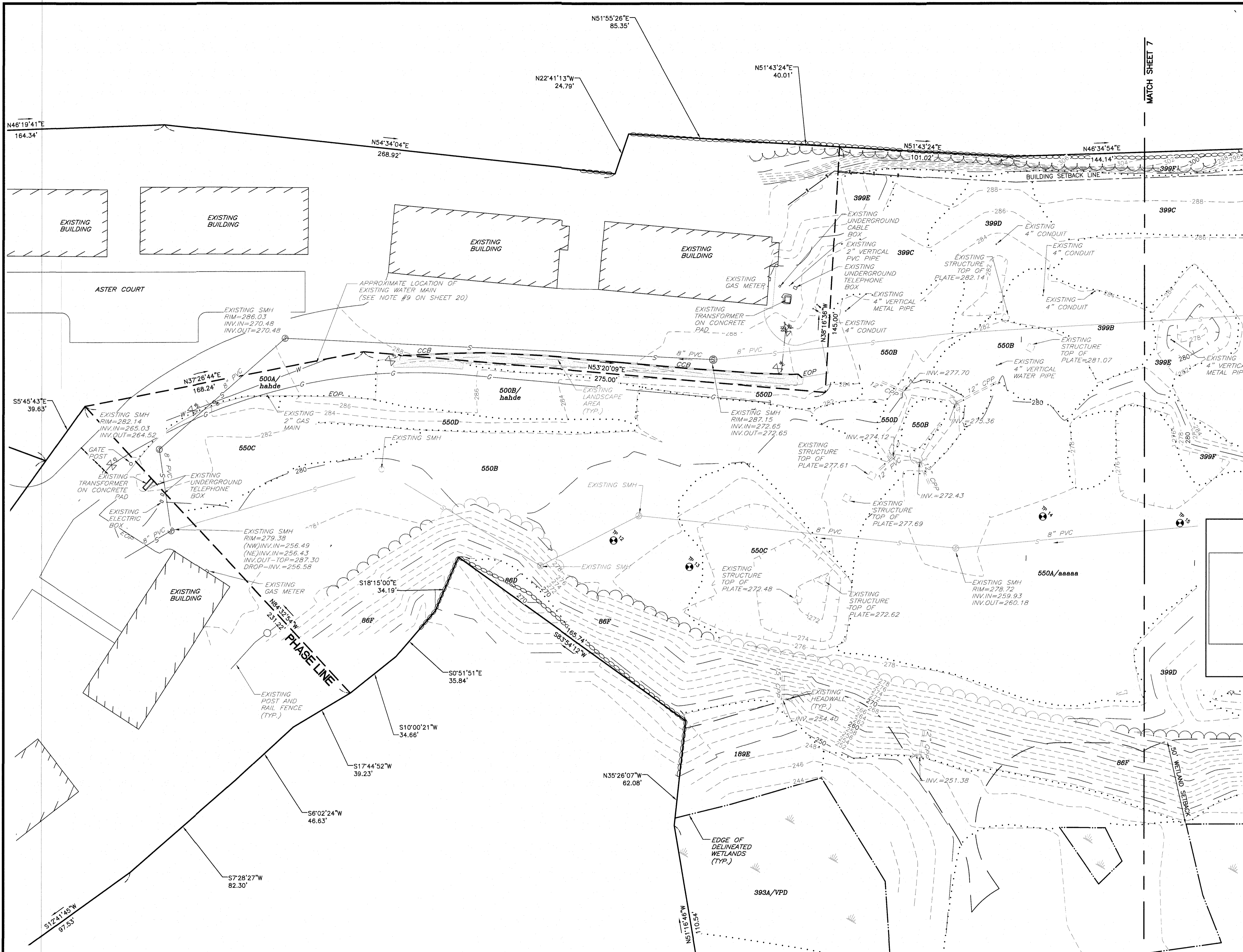
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[Signature]
 10/1/22
 LICENSED LAND SURVEYOR DATE

REVISIONS			
No.	DATE	DESCRIPTION	BY
1	7/7/22	REVISED PER COMMENTS	ACL
2	10/6/22	REVISED PER TOWN COMMENTS	ACL

DATE: MAY 2, 2022 SCALE: 1"=30'
 PROJECT NO: 17-0824-1 SHEET 5 OF 51

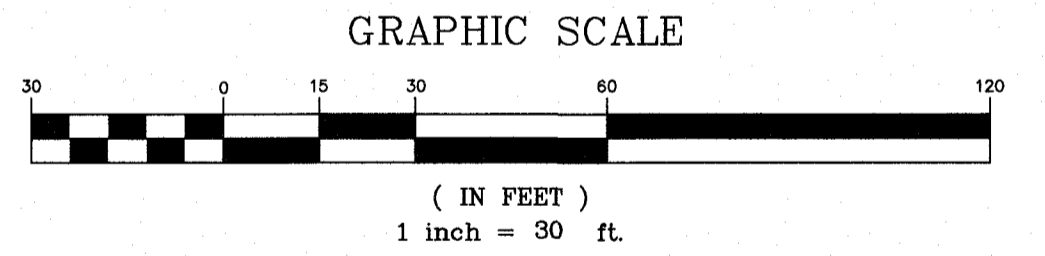


SEE SHEET 4 FOR NOTES & LEGEND



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- THIS SITE-SPECIFIC SOIL MAP WAS COMPLETED BY CYNTHIA M. BALCIUS, NEW HAMPSHIRE CERTIFIED SOIL SCIENTIST #92 OF STONEY RIDGE ENVIRONMENTAL LLC. FIELD WORK WAS COMPLETED ON SEPTEMBER 10, 2020:
- Field Indicators of Hydric Soils in the United States, Version 8.1. 2017. L.M. Vasilius, G.W. Hurl, and J.F. Berkkowitz (eds.). United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with the National Technical Committee for Hydric Soils.
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EXISTING CONDITIONS PLAN
SHEPHERDS HILL
 MAP 177 LOT 5
 SHADOWBROOK DRIVE
 HUDSON, NEW HAMPSHIRE
 HILLSBOROUGH COUNTY

OWNER OF RECORD:
 SHEPHERDS HILL HOME OWNERS ASSOCIATION
 C/O GREAT NORTH PROPERTY MANAGEMENT
 3 HOLLAND WAY, SUITE 201
 EXETER, NH 03833

APPLICANT:
 SHEPHERDS HILL, LLC
 253 MAIN STREET
 NASHUA, NH 03060

KMA KEACH-NORDSTROM ASSOCIATES, INC.
 Civil Engineering Land Surveying Landscape Architecture
 10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

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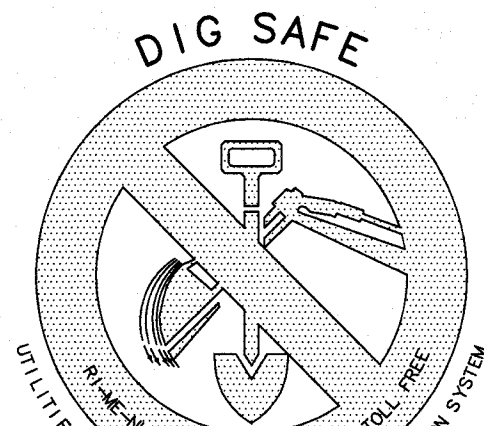
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DATE: MAY 2, 2022 SCALE: 1"=30'
 PROJECT NO: 17-0824-1 SHEET 6 OF 51

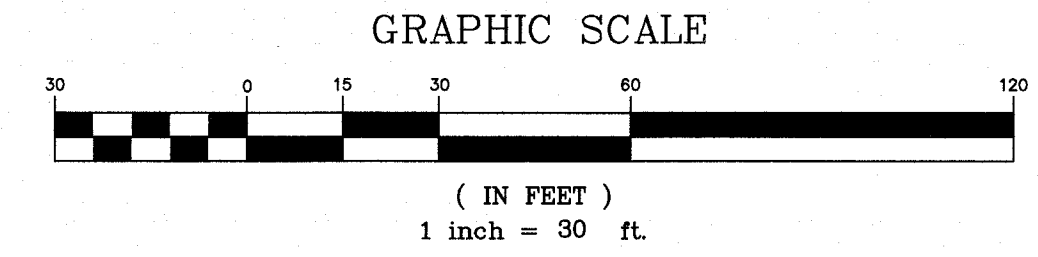


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- THIS SITE-SPECIFIC SOIL MAP WAS COMPLETED BY CYNTHIA M. BALOUS, NEW HAMPSHIRE CERTIFIED SOIL SCIENTIST #22 OF STONEY RIDGE ENVIRONMENTAL LLC. FIELD WORK WAS COMPLETED ON SEPTEMBER 10, 2020:
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EXISTING CONDITIONS PLAN
SHEPHERDS HILL
 MAP 177 LOT 5
 SHADOWBROOK DRIVE
 HUDSON, NEW HAMPSHIRE
 HILLSBOROUGH COUNTY

OWNER OF RECORD:
 SHEPHERDS HILL HOME OWNERS ASSOCIATION
 C/O GREAT NORTH PROPERTY MANAGEMENT
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APPLICANT:
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 10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

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APPROVED BY THE HUDSON, NH PLANNING BOARD
 DATE OF MEETING: _____
 _____ SIGNATURE DATE: _____
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JOSHUA BRIEN, CERTIFIED WETLAND SCIENTIST #256 OF KEACH-NORDSTROM ASSOCIATES, INC. OF BEDFORD, NH PERFORMED THE DELINEATION OF JURISDICTIONAL WETLANDS IN OCTOBER OF 2020 USING THE TECHNICAL CRITERIA IN THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL (TECHNICAL REPORT Y-87-1, JANUARY 1987).

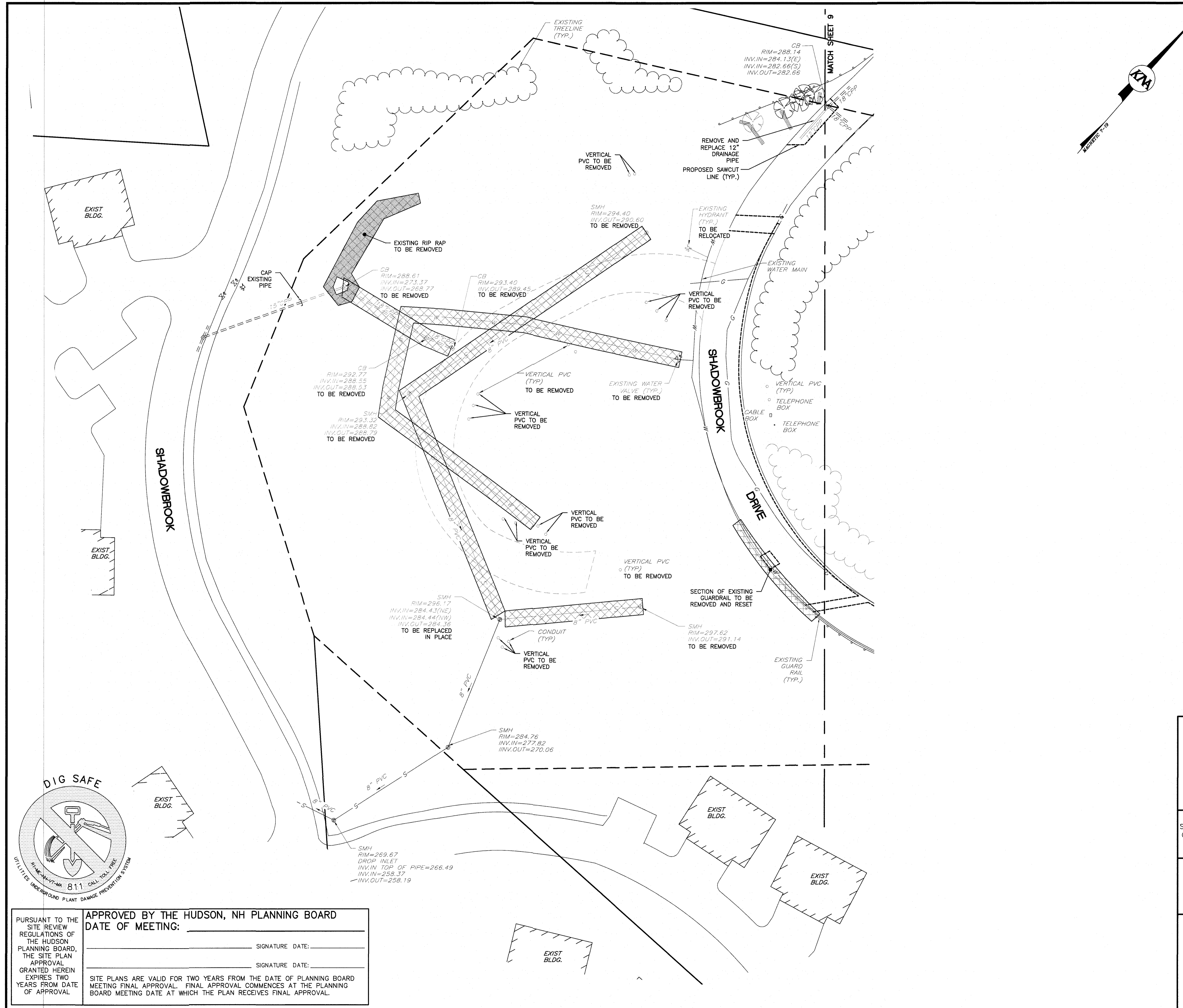
SURVEYOR'S CERTIFICATION:
 I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR THOSE UNDER MY DIRECT SUPERVISION. FURTHER, THAT THIS PLAN IS BASED ON AN ACTUAL FIELD SURVEY MADE ON THE GROUND BY THIS OFFICE IN SEPTEMBER 2017. SAID SURVEY HAS AN ERROR OF CLOSURE BETTER THAN ONE PART IN TEN THOUSAND (1:10,000).

12/6/22

 LICENSED LAND SURVEYOR DATE

REVISIONS			
No.	DATE	DESCRIPTION	BY
1	7/7/22	REVISED PER COMMENTS	ACL
2	10/6/22	REVISED PER TOWN COMMENTS	ACL

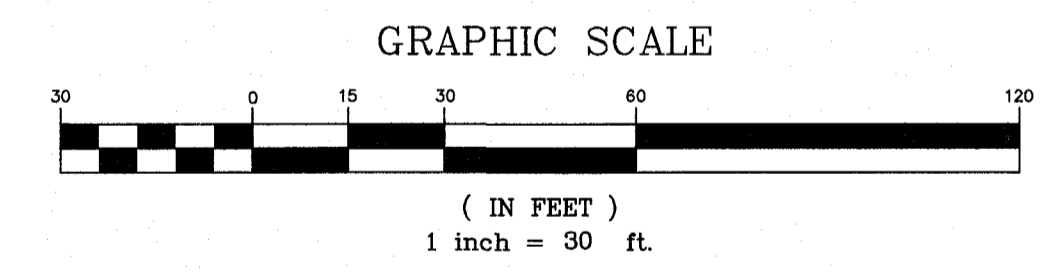
DATE: MAY 2, 2022 SCALE: 1"=30'
 PROJECT NO: 17-0824-1 SHEET 7 OF 51



- REMOVALS/DEMOLITION NOTES:**
- ALL STUMPS, ROOTS, BRANCHES, BRUSH, WOODS AND OTHER PERISHABLE MATERIAL RESULTING FROM THE CLEARING AND GRUBBING OPERATIONS SHALL BE DISPOSED OF BY AN APPROVED METHOD.
 - ITEMS TO BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH THE TOWN OF HUDSON REQUIREMENTS, UNLESS OTHERWISE SHOWN HEREON OR DIRECTED BY OWNER.
 - ALL EXISTING PAVEMENT AND GRAVEL WITHIN THE CROSS HATCHED AREA IS TO BE REMOVED DURING THE DEMOLITION PHASE OF THE PROJECT. EXCESS MATERIAL FROM THESE AREAS SHALL BE APPROPRIATELY DISPOSED OF OFFSITE BY AN APPROVED METHOD.
 - THE CONTRACTOR SHALL CONTROL ALL DUST GENERATED DURING THE REMOVAL PHASE AND CONSTRUCTION PHASE SO THAT NO DUST LEAVES THE SITE.
 - ANY MONUMENTS DISTURBED DURING CONSTRUCTION SHALL BE RESET BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR AT THE SITE CONTRACTORS EXPENSE.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING "DIG SAFE" AT 811 AT LEAST 72 HOURS BEFORE DIGGING.
 - DEBRIS REMOVED FROM THE SITE SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
 - DURING REMOVAL OF EXISTING SEWER MANHOLES AND LINES, CONTRACTOR TO WORK WITH SITE ENGINEER TO ENSURE ALL EXISTING SANITARY SEWER IS REMOVED AND CAPPED.

LEGEND

- GB-F GRANITE BOUND FOUND
- IPIN-F IRON PIN FOUND
- DH-F DRILL HOLE FOUND
- IPP-F IRON PIPE FOUND
- RRS-F RAILROAD SPIKE FOUND
- U UTILITY POLE
- SIGN SIGN
- LIGHT LIGHT
- GAS VALVE GAS VALVE
- WATER VALVE WATER VALVE
- HYDRANT HYDRANT
- WATER SHUT OFF WATER SHUT OFF
- WELL WELL
- SEWER MANHOLE SEWER MANHOLE
- DRAINAGE MANHOLE DRAINAGE MANHOLE
- CATCH BASIN CATCH BASIN
- FLARED END SECTION FLARED END SECTION
- ABUTTER LINE ABUTTER LINE
- PROPERTY LINE PROPERTY LINE
- WETLAND WETLAND
- STOCKADE FENCE STOCKADE FENCE
- OHU OVERHEAD UTILITIES
- GAS LINE GAS LINE
- WATER LINE WATER LINE
- SEWER LINE SEWER LINE
- DRAINAGE LINE DRAINAGE LINE
- TREELINE TREELINE
- EDGE OF PAVEMENT EDGE OF PAVEMENT
- VERTICAL GRANITE CURB VERTICAL GRANITE CURB
- SLOPED GRANITE CURB SLOPED GRANITE CURB
- BITUMINOUS CURB BITUMINOUS CURB
- EDGE OF GRAVEL EDGE OF GRAVEL
- 10' CONTOUR 10' CONTOUR
- 2' CONTOUR 2' CONTOUR
- STONEWALL STONEWALL
- SCS SOIL LINE SCS SOIL LINE
- BUILDING SETBACK BUILDING SETBACK
- EASEMENT EASEMENT
- LIMIT OF CLEARING LIMIT OF CLEARING
- SAWCUT LINE SAWCUT LINE
- ITEMS TO BE REMOVED ITEMS TO BE REMOVED
- PHASE LINE PHASE LINE



REMOVALS/DEMOLITION PLAN
SHEPHERDS HILL
 MAP 177 LOT 5
 SHADOWBROOK DRIVE
 HUDSON, NEW HAMPSHIRE
 HILLSBOROUGH COUNTY

OWNER OF RECORD: SHEPHERDS HILL HOME OWNERS ASSOCIATION C/O GREAT NORTH PROPERTY MANAGEMENT 3 HOLLAND WAY, SUITE 201 EXETER, NH 03833	APPLICANT: SHEPHERDS HILL, LLC 253 MAIN STREET NASHUA, NH 03060
--	---

KMA KEACH-NORDSTROM ASSOCIATES, INC.
 Civil Engineering Land Surveying Landscape Architecture
 10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

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PROJECT NO: 17-0824-1 **SHEET** 8 OF 51



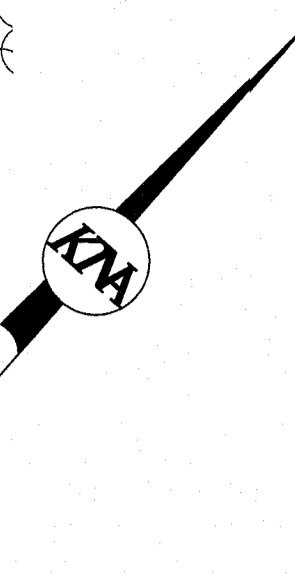
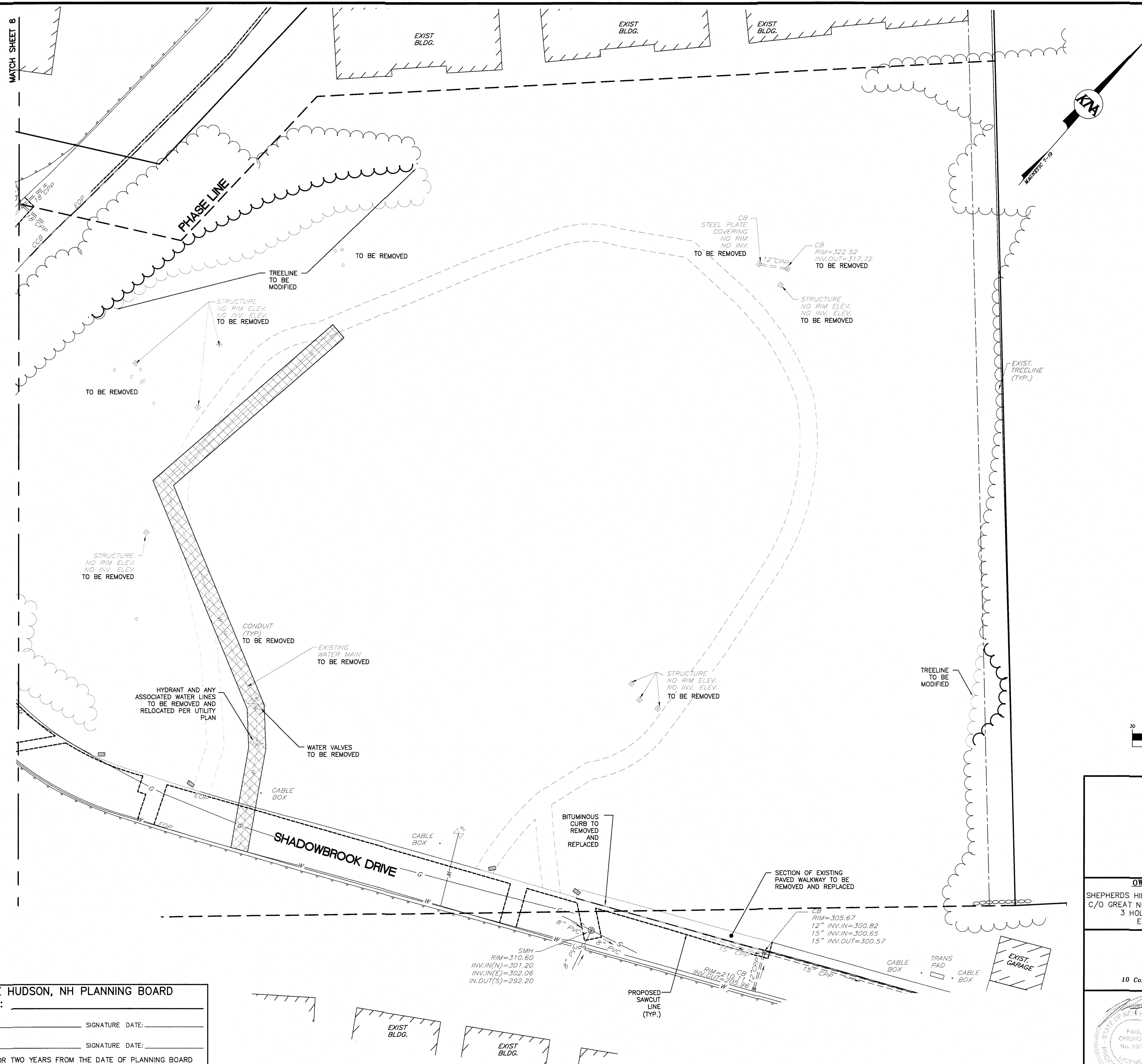
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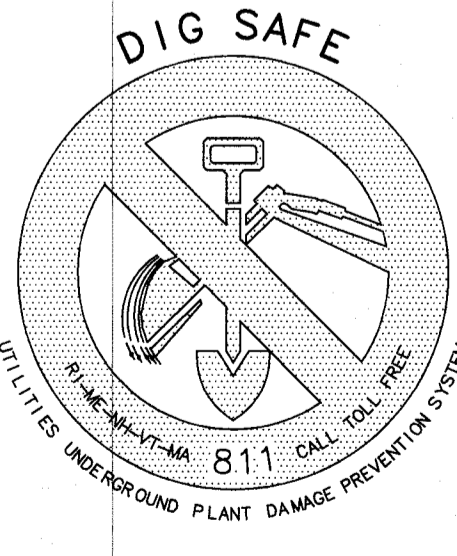
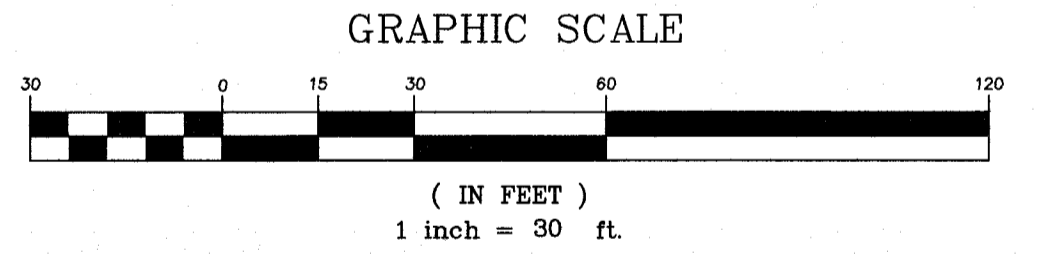
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SEE SHEET 8 FOR NOTES & LEGEND



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REMOVALS/DEMOLITION PLAN
SHEPHERDS HILL
 MAP 177 LOT 5
 SHADOWBROOK DRIVE
 HUDSON, NEW HAMPSHIRE
 HILLSBOROUGH COUNTY

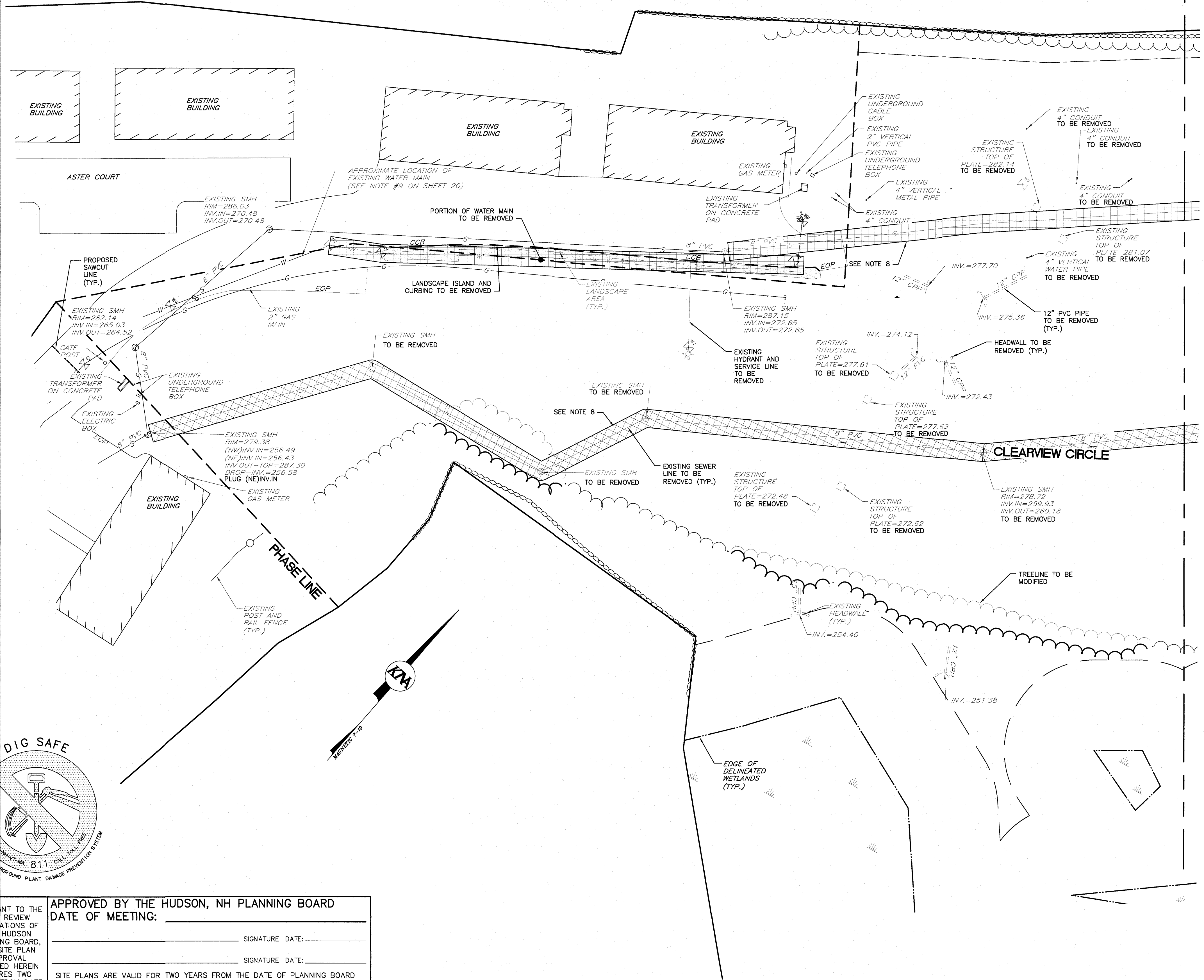
OWNER OF RECORD: SHEPHERDS HILL HOME OWNERS ASSOCIATION
 C/O GREAT NORTH PROPERTY MANAGEMENT
 3 HOLLAND WAY, SUITE 201
 EXETER, NH 03833

APPLICANT: SHEPHERDS HILL, LLC
 253 MAIN STREET
 NASHUA, NH 03060

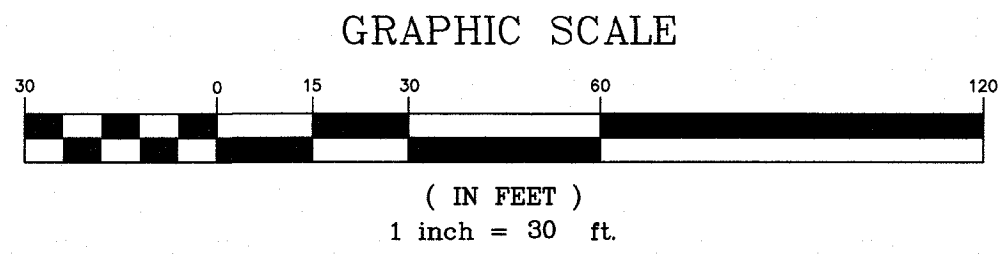
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 PROJECT NO: 17-0824-1 SHEET 9 OF 51



SEE SHEET 8 FOR NOTES & LEGEND



REMOVALS/DEMOLITION PLAN
SHEPHERDS HILL
 MAP 177 LOT 5
 SHADOWBROOK DRIVE
 HUDSON, NEW HAMPSHIRE
 HILLSBOROUGH COUNTY

OWNER OF RECORD:
 SHEPHERDS HILL HOME OWNERS ASSOCIATION
 C/O GREAT NORTH PROPERTY MANAGEMENT
 3 HOLLAND WAY, SUITE 201
 EXETER, NH 03833

APPLICANT:
 SHEPHERDS HILL, LLC
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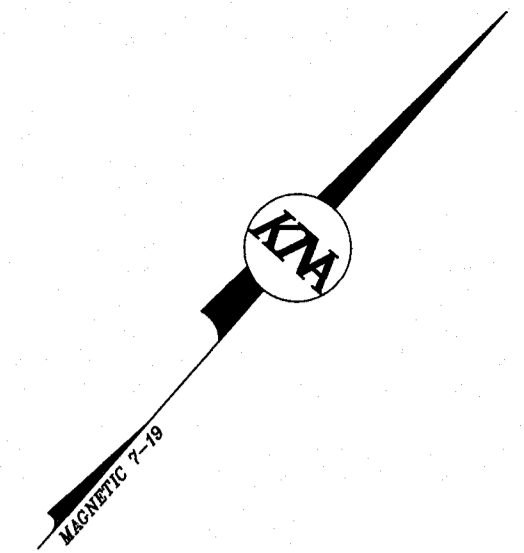
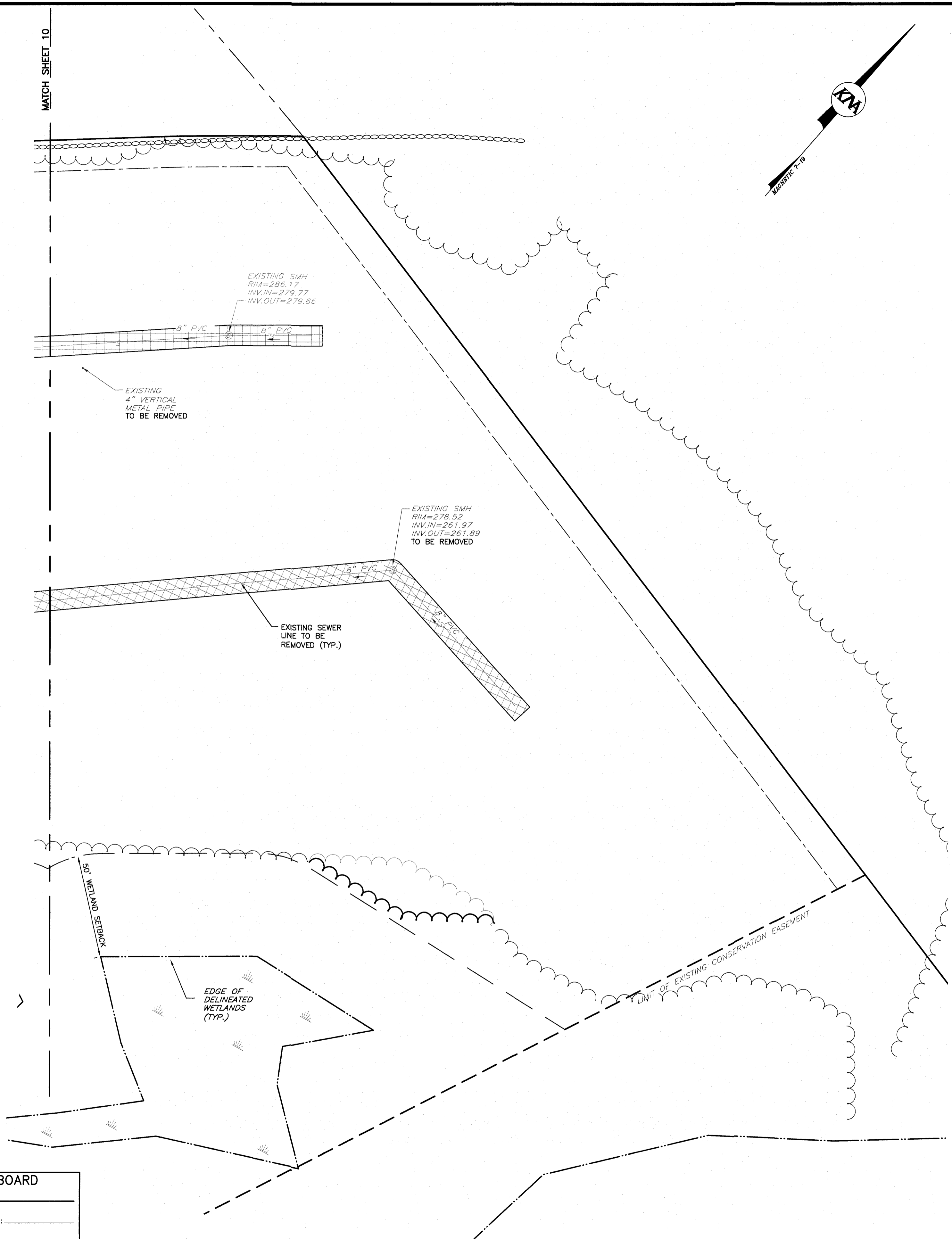
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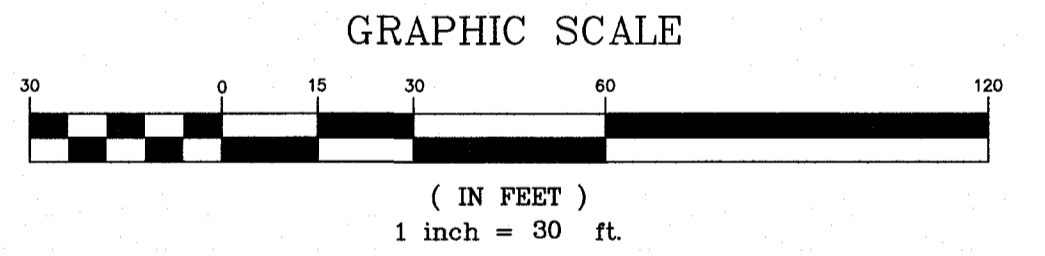
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SEE SHEET 8 FOR
NOTES & LEGEND



REMOVALS/DEMOLITION PLAN
SHEPHERDS HILL
 MAP 177 LOT 5
 SHADOWBROOK DRIVE
 HUDSON, NEW HAMPSHIRE
 HILLSBOROUGH COUNTY

OWNER OF RECORD: SHEPHERDS HILL HOME OWNERS ASSOCIATION C/O GREAT NORTH PROPERTY MANAGEMENT 3 HOLLAND WAY, SUITE 201 EXETER, NH 03833	APPLICANT: SHEPHERDS HILL, LLC 253 MAIN STREET NASHUA, NH 03060
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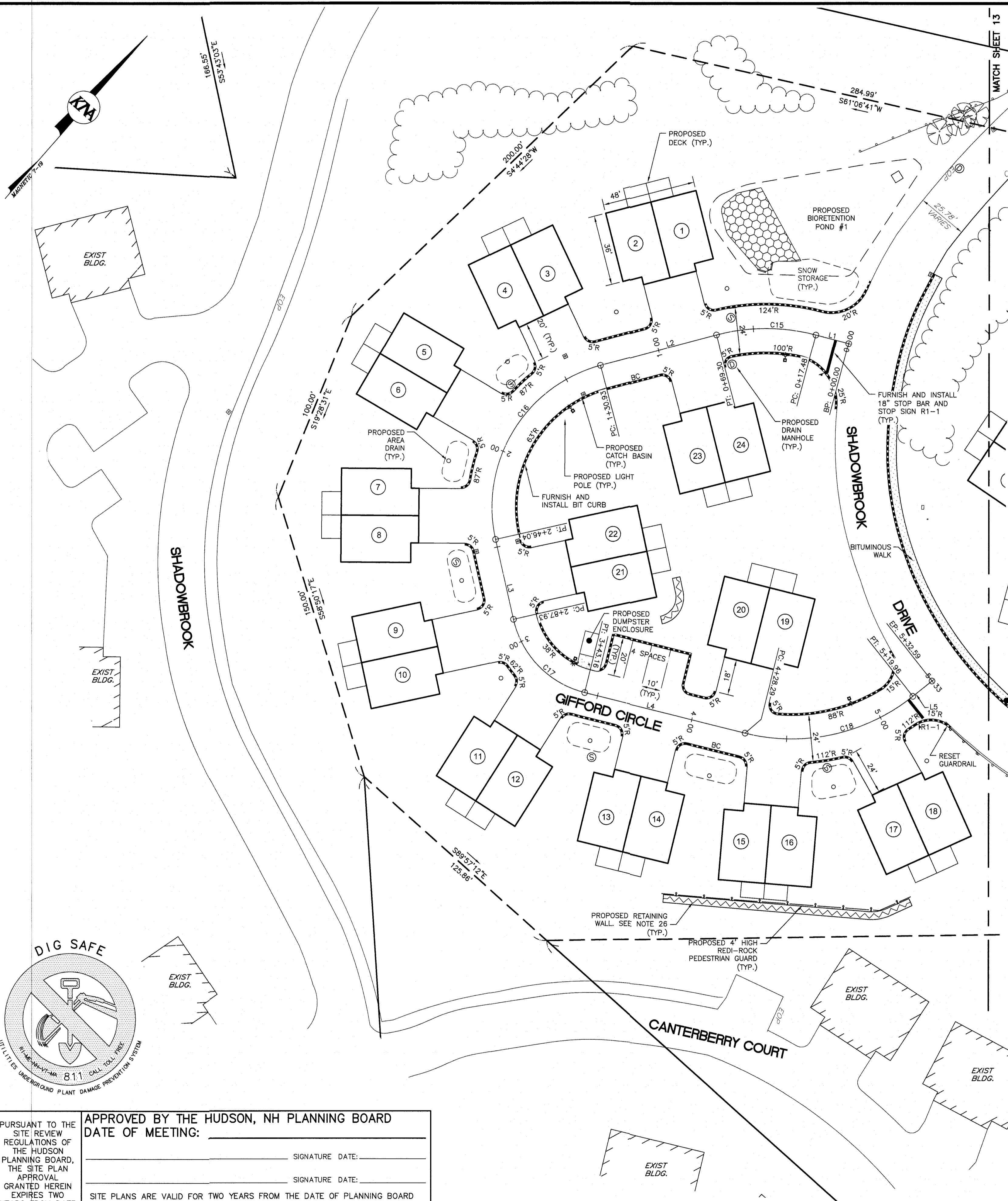
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LEGEND

- GB-F GRANITE BOUND FOUND
- IPIN-F IRON PIN FOUND
- IPP-F IRON PIPE FOUND
- UTILITY POLE
- SIGN
- LIGHT
- GAS VALVE
- WATER VALVE
- HYDRANT
- WATER SHUT OFF
- SEWER MANHOLE
- DRAINAGE MANHOLE
- CATCH BASIN
- ABUTTER LINE
- PROPERTY LINE
- BROOK
- WETLAND
- CHAIN LINK FENCE
- STOCKADE FENCE
- POST & RAIL FENCE
- GUARDRAIL
- OHU OVERHEAD UTILITIES
- TRELISE
- RETAINING WALL
- EDGE OF PAVEMENT
- BUILDING SETBACK
- PROPOSED BITUMINOUS CURB
- PROPOSED EDGE OF PAVEMENT
- SNOW STORAGE
- PROPOSED STORMWATER MANAGEMENT AREA
- SAWCUT LINE
- PROPOSED STONEWALL
- EASEMENT
- PROPOSED STOCKADE FENCE
- PHASE LINE

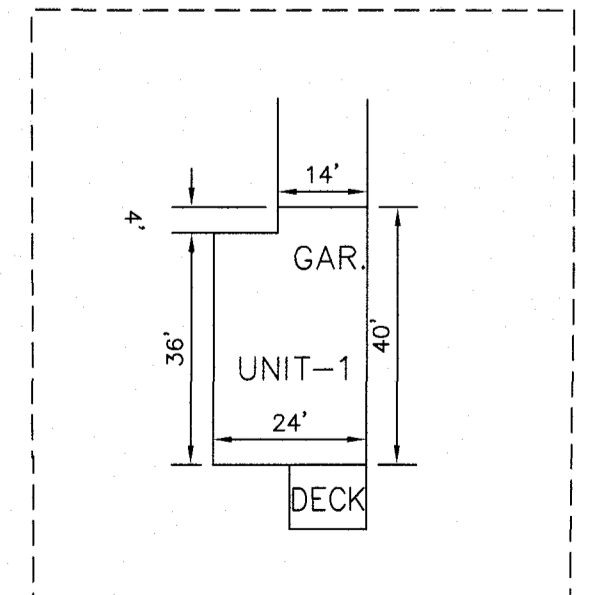
SEE SHEET 1 FOR NOTES & REFERENCE PLANS

LINE TABLE: GIFFORD CIRCLE

LINE #	LENGTH	BEARING
L1	12.626	N09° 49' 27.17"E
L2	85.129	N62° 20' 50.19"E
L3	41.893	S54° 21' 46.80"E
L4	61.629	S33° 34' 16.79"W
L5	17.476	S63° 16' 01.13"W

CURVE TABLE: GIFFORD CIRCLE

CURVE #	RADIUS	LENGTH	DELTA
C15	100.000	51.829	S48° 25' 08.96"W
C16	75.000	115.106	S10° 23' 45.01"E
C17	50.000	55.231	S86° 00' 28.30"E
C18	100.000	91.670	N36° 05' 08.68"E

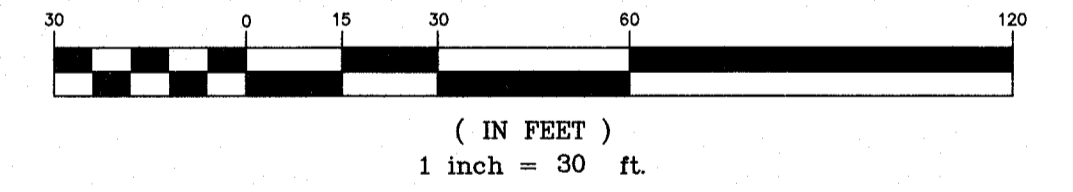


TYPICAL UNIT DETAIL
Exterior Dimensions
not to scale

NOTES:

- THE PURPOSE OF THIS PLAN IS TO DEPICT THE FINAL PHASE OF SHEPHERD'S HILL CONDOMINIUM PROJECT WHICH CONSISTS OF 118 RESIDENTIAL UNITS, PARKING, AND ASSOCIATED SITE APPURTENANCES.
- EACH UNIT OWNER WITHIN THE DEVELOPMENT SHALL POSSESS AN EQUAL SHARE OF THE COMMON OPEN SPACE AREA ASSOCIATED WITH THIS DEVELOPMENT.
- TOTAL SITE OF DEVELOPMENT AREA: 68.1 ACRES.
- OWNER OF RECORD: SHEPHERD'S HILL HOME OWNERS ASSOCIATION
C/O GREAT NORTH PROPERTY MANAGEMENT
3 HOLLAND WAY, SUITE 201
EXETER, NH 03833
- THE SUBJECT PARCEL IS LOCATED WITHIN THE GENERAL (G) & BUSINESS (B) ZONING DISTRICT AND IS SUBJECT TO THE FOLLOWING DIMENSIONAL REQUIREMENTS:
MINIMUM REQUIREMENTS: (G) (B)
- LOT AREA 43,560 SF 53,560 SF (MULTI)
- FRONTAGE 150 FT 150 FT
- FRONT SETBACK 50 FT 50 FT
- SIDE SETBACK 15 FT 15 FT
- REAR SETBACK 15 FT 15 FT
- BOUNDARY AND TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED ON A FIELD SURVEY PERFORMED BY THIS OFFICE IN SEPTEMBER 2017.
- HORIZONTAL DATUM IS NAD83. VERTICAL DATUM IS NAVD88. BOTH DATUMS WERE OBTAINED THROUGH GPS METHODS UTILIZING NHDOT DISK #229-0420.
- EXAMINATION OF THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAPS (FIRM) FOR THE TOWN OF HUDSON, NEW HAMPSHIRE, HILLSBOROUGH COUNTY, MAP NUMBER 33011C0519D, PANEL NUMBER 517 OF 701 AND MAP NUMBER 33011C0519D, PANEL NUMBER 519 OF 701, EFFECTIVE DATE SEPTEMBER 25, 2009, INDICATES THAT NO PORTION OF THE SUBJECT PARCEL IS LOCATED IN A DESIGNATED FLOOD ZONE.
- THE LOCATION OF ANY UNDERGROUND UTILITY INFORMATION SHOWN ON THIS PLAN IS APPROXIMATE. KEACH-NORDSTROM ASSOCIATES, INC. MAKES NO CLAIM TO THE ACCURACY OR COMPLETENESS OF UTILITIES SHOWN. PRIOR TO ANY EXCAVATION ON SITE THE CONTRACTOR SHALL CONTACT DIG SAFE AT 811.
- EASEMENTS, RIGHTS AND RESTRICTIONS SHOWN OR IDENTIFIED HEREON ARE THOSE FOUND DURING RESEARCH AT THE HILLSBOROUGH COUNTY REGISTRY OF DEEDS. OTHER EASEMENTS, RIGHTS AND RESTRICTIONS MAY EXIST WHICH A TITLE EXAMINATION OF THE SUBJECT PREMISES MAY DETERMINE.
- THE SITE IS TO BE SERVICED BY MUNICIPAL WATER & SEWER.
- PROPER EROSION AND SEDIMENT CONTROLS SHALL BE INSTALLED PRIOR TO CLEARING AND EXCAVATION. THE CONTROLS SHALL BE MAINTAINED IN GOOD WORKING ORDER UNTIL COMPLETION OF CONSTRUCTION. THE TOWN OF HUDSON RESERVES THE RIGHT TO REQUIRE ADDITIONAL EROSION CONTROL MEASURES DURING CONSTRUCTION, IF NECESSARY.
- IF DURING LOT DEVELOPMENT, SLOPES OF 2:1 EXCEED 20 FEET, 3:1 EXCEEDS 30 FEET, OR 4:1 EXCEEDS 40 FEET THE CONTRACTOR SHALL ADD BENCHING PER NHDES REQUIREMENTS.
- PARKING CALCULATIONS:
REQUIRED: RESIDENTIAL = 2 PER UNIT = 118 UNITS X 2 = 236 SPACES
PROVIDED:
1 PER GARAGE = 118 PARKING SPACES
1 IN FRONT OF GARAGE = 118 PARKING SPACES
VISITOR PARKING = 8 PARKING SPACES
- REQUIRED SPACES = 236 PARKING SPACES
- PROVIDED SPACES = 244 PARKING SPACES
- PERMITS REQUIRED:
-NHDES ADT: SUBMITTED
-NHDES SEWER CONNECTION: PERMIT #
- THE ONSITE DRAINAGE SYSTEM SHALL BE CONSTRUCTED AND MAINTAINED IN COMPLIANCE WITH LOCAL AND NHDES REQUIREMENTS FOR SUCH SYSTEMS.
- SEE ARCHITECTURAL PLANS FOR WALKWAYS AND OTHER FEATURES AT THE BUILDINGS. CONTRACTOR TO PERFORM THIS WORK AS DIRECTED BY THE OWNER.
- IF LOT DEVELOPMENT INVOLVES BLASTING AND/OR RAMMING OF BEDROCK MATERIALS, SAID ACTIVITIES SHALL BE LIMITED TO THE HOURS BETWEEN 7:00 A.M. AND 5:00 P.M. MONDAY THROUGH FRIDAY ONLY. SAID BLASTING / RAMMING ACTIVITIES ARE PROHIBITED ON SATURDAY AND SUNDAY.
- CONSTRUCTION ACTIVITIES INVOLVING THE UNITS SHALL BE LIMITED TO THE HOURS BETWEEN 7:00 A.M. AND 6:00 P.M. MONDAY THROUGH FRIDAY. INTERIOR CONSTRUCTION ACTIVITIES ARE ALLOWED ON SATURDAY 7:00 A.M. AND 6:00 P.M. BOTH INTERIOR AND EXTERIOR CONSTRUCTION ACTIVITIES ARE PROHIBITED ON SUNDAYS.
- THIS PROJECT MEETS THE 2019 MS4 REQUIREMENTS.
- THE DEVELOPMENT WILL BE RESIDENTIAL DUPLEX UNITS.
- ALL BUILDINGS SHALL ADDRESS FIRE PROTECTION COMPLIANCE DURING THE BUILDING PERMIT PROCESS.
- ALL SEWER CONNECTIONS SHALL CONFIRM TO THE TOWN OF HUDSON SANITARY SEWER CONSTRUCTION STANDARDS AND NHDES STANDARDS.
- SEE ARCHITECTURAL DRAWING FOR FINAL UNIT DECK SIZING AND FINISHED HEIGHT OF PROPOSED DRIVEWAYS TO CONFIRM SITE GRADING AT WALKOUT EGRESS.
- PROPOSED PRIVATE DRIVES WILL BE PLOWED AS A TOWN ROAD WITH EXCESS SNOW BEING STORED ALONG THE ROADWAY SHOULDERS.
- PROPOSED RETAINING WALL, TO BE GRAVITY REDI ROCK OR TAPERED 1 TO 5 LEDGE FACE. CONTRACTOR TO VERIFY DEPTH TO LEDGE WITH ENGINEER PRIOR TO CONSTRUCTION OF EITHER.
- THREE HANDICAP ACCESSIBLE UNITS MUST BE PROVIDED. THE DEVELOPER MAY CHOOSE WHICH THREE UNITS SHALL BE HANDICAP ACCESSIBLE BASED ON COMPLIANCE WITH ADA REGULATIONS.
- ALL PROPOSED UNITS ARE UNDER 38 FEET IN HEIGHT.

GRAPHIC SCALE



RESIDENTIAL SITE LAYOUT PLAN
SHEPHERD'S HILL
MAP 177 LOT 5
SHADOWBROOK DRIVE
HUDSON, NEW HAMPSHIRE
HILLSBOROUGH COUNTY

OWNER OF RECORD: SHEPHERD'S HILL HOME OWNERS ASSOCIATION
C/O GREAT NORTH PROPERTY MANAGEMENT
3 HOLLAND WAY, SUITE 201
EXETER, NH 03833

APPLICANT: SHEPHERD'S HILL, LLC
253 MAIN STREET
NASHUA, NH 03060

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DATE: MAY 2, 2022 SCALE: 1"=30'
PROJECT NO: 17-0824-1 SHEET 12 OF 51



PURSUANT TO THE SITE REVIEW REGULATIONS OF THE HUDSON PLANNING BOARD, THE SITE PLAN APPROVAL GRANTED HEREIN EXPIRES TWO YEARS FROM DATE OF APPROVAL.

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SEE SHEET 1 FOR NOTES & REFERENCE PLANS

SEE SHEET 12 FOR LEGEND & ADDITIONAL NOTES

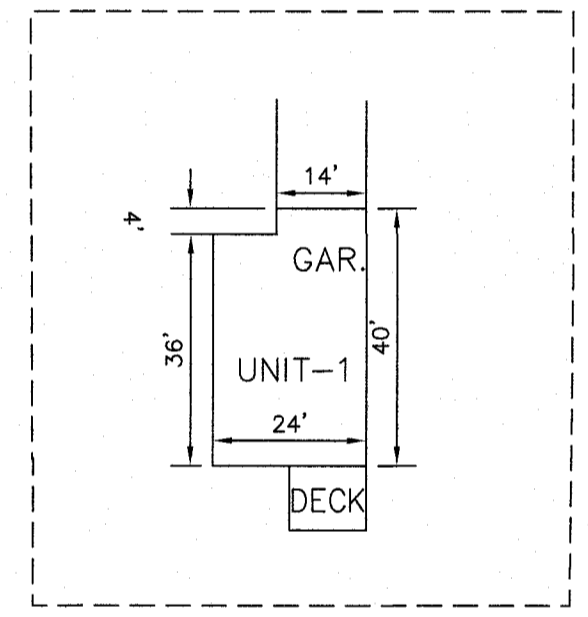


LINE TABLE: TRINITY CIRCLE

LINE #	LENGTH	BEARING
L6	42.922	N23° 15' 06.09"W
L7	89.906	N31° 49' 20.88"W
L8	155.747	N38° 34' 42.73"E
L9	16.905	S43° 03' 04.03"E
L10	91.238	S14° 50' 11.97"W
L11	4.153	S14° 50' 11.97"W
L12	30.546	S25° 54' 37.56"E

CURVE TABLE: TRINITY CIRCLE

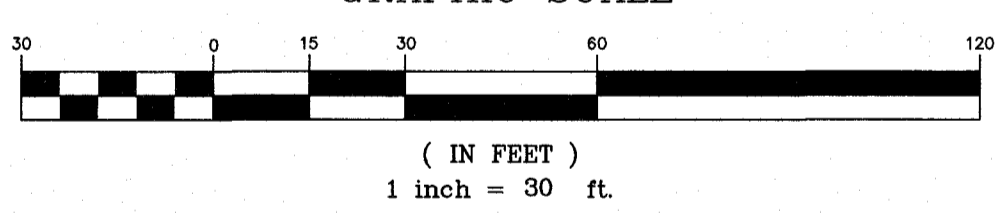
CURVE #	RADIUS	LENGTH	DELTA
C19	100.000	14.959	N27° 32' 13.48"W
C20	137.000	168.336	N03° 22' 40.93"E
C21	88.000	151.599	N87° 55' 50.61"E
C22	163.000	164.684	S14° 06' 26.03"E
C23	38.000	27.024	S05° 32' 12.79"E



TYPICAL UNIT DETAIL

Exterior Dimensions
not to scale

GRAPHIC SCALE



RESIDENTIAL SITE LAYOUT PLAN
SHEPHERDS HILL
 MAP 177 LOT 5
 SHADOWBROOK DRIVE
 HUDSON, NEW HAMPSHIRE
 HILLSBOROUGH COUNTY

OWNER OF RECORD:
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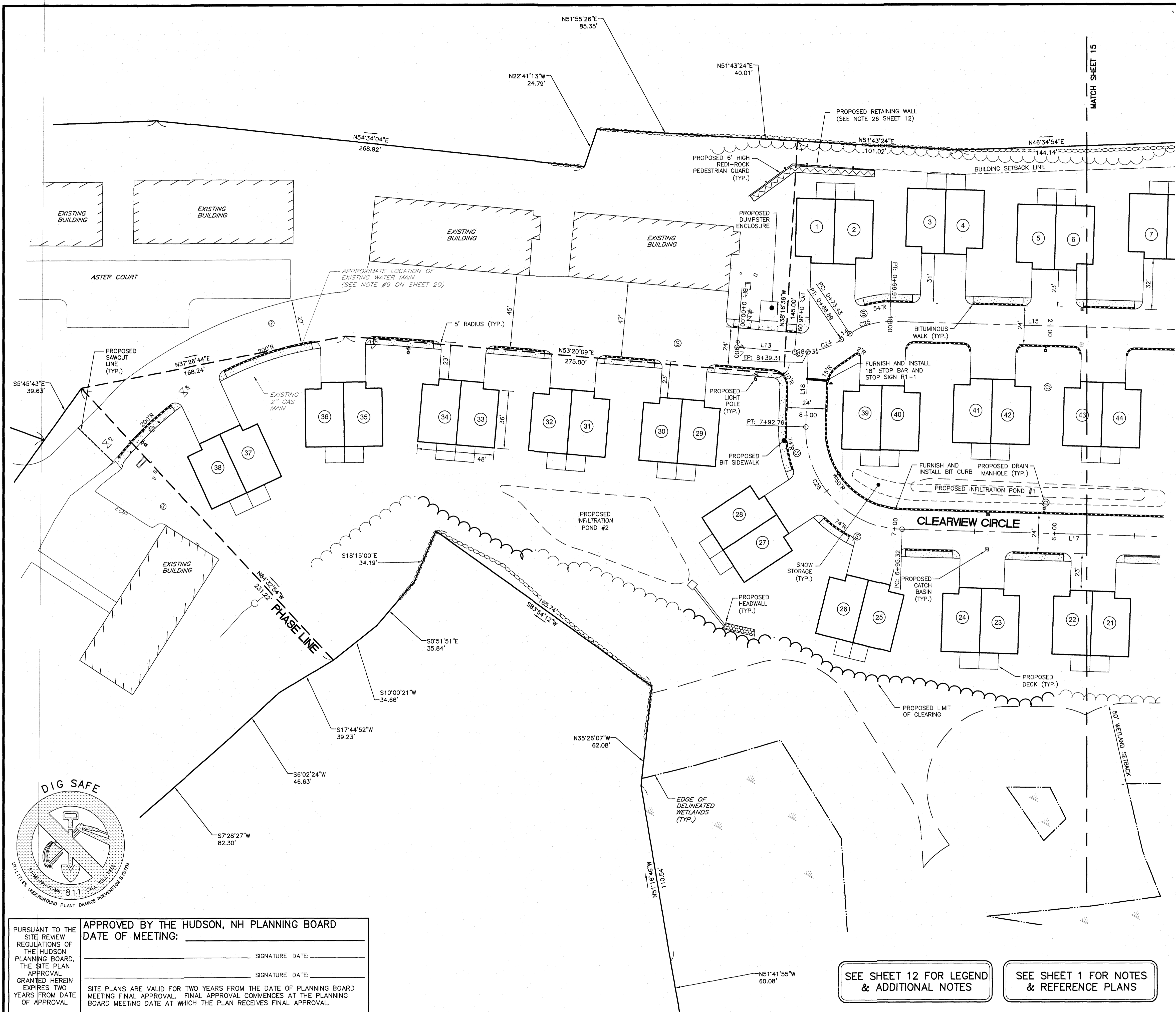
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KMA KEACH-NORDSTROM ASSOCIATES, INC.
 Civil Engineering Land Surveying Landscape Architecture
 10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

REVISIONS

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2	10/6/22	REVISED PER TOWN COMMENTS	ACL

DATE: MAY 2, 2022 SCALE: 1"=30'
 PROJECT NO: 17-0824-1 SHEET 13 OF 51

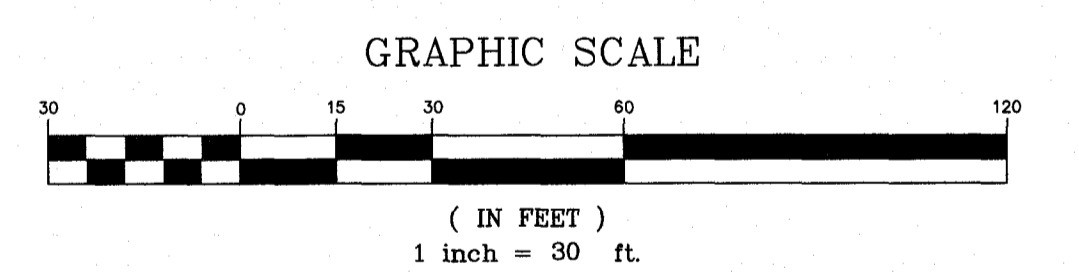
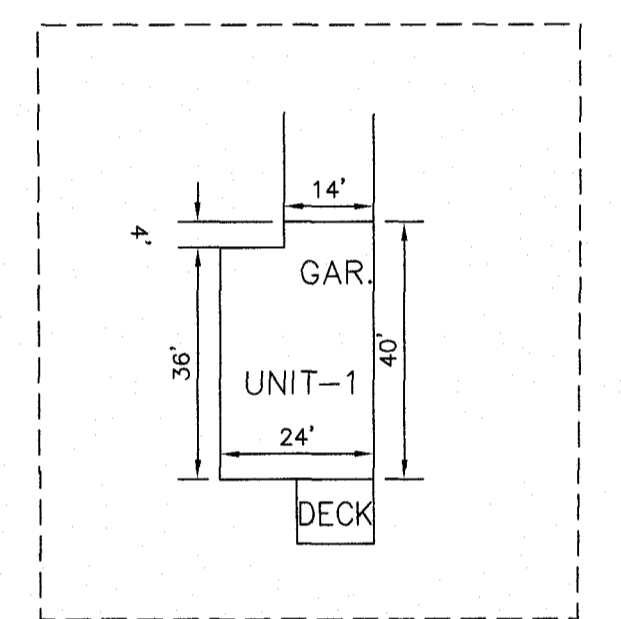


LINE TABLE: CLEARVIEW CIRCLE

LINE #	LENGTH	BEARING
L13	36.094	N53° 12' 03.34"E
L14	6.548	N13° 59' 44.23"E
L15	192.319	N50° 06' 30.17"E
L16	59.397	S79° 05' 39.03"E
L17	215.328	S50° 03' 39.54"W
L18	46.558	N39° 53' 29.83"W

CURVE TABLE: CLEARVIEW CIRCLE

CURVE #	RADIUS	LENGTH	DELTA
C24	45.000	30.792	N33° 35' 53.78"E
C25	42.000	26.472	N32° 03' 07.20"E
C26	38.000	33.690	N75° 30' 25.57"E
C27	42.000	94.676	S14° 30' 59.74"E
C28	62.000	97.441	N84° 54' 55.14"W



RESIDENTIAL SITE LAYOUT PLAN
SHEPHERDS HILL
 MAP 177 LOT 5
 SHADOWBROOK DRIVE
 HUDSON, NEW HAMPSHIRE
 HILLSBOROUGH COUNTY

OWNER OF RECORD: SHEPHERDS HILL HOME OWNERS ASSOCIATION
 C/O GREAT NORTH PROPERTY MANAGEMENT
 3 HOLLAND WAY, SUITE 201
 EXETER, NH 03833

APPLICANT: SHEPHERDS HILL, LLC
 253 MAIN STREET
 NASHUA, NH 03060

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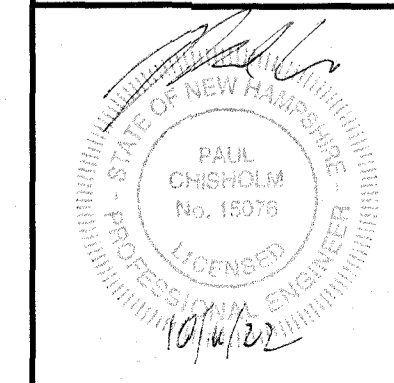
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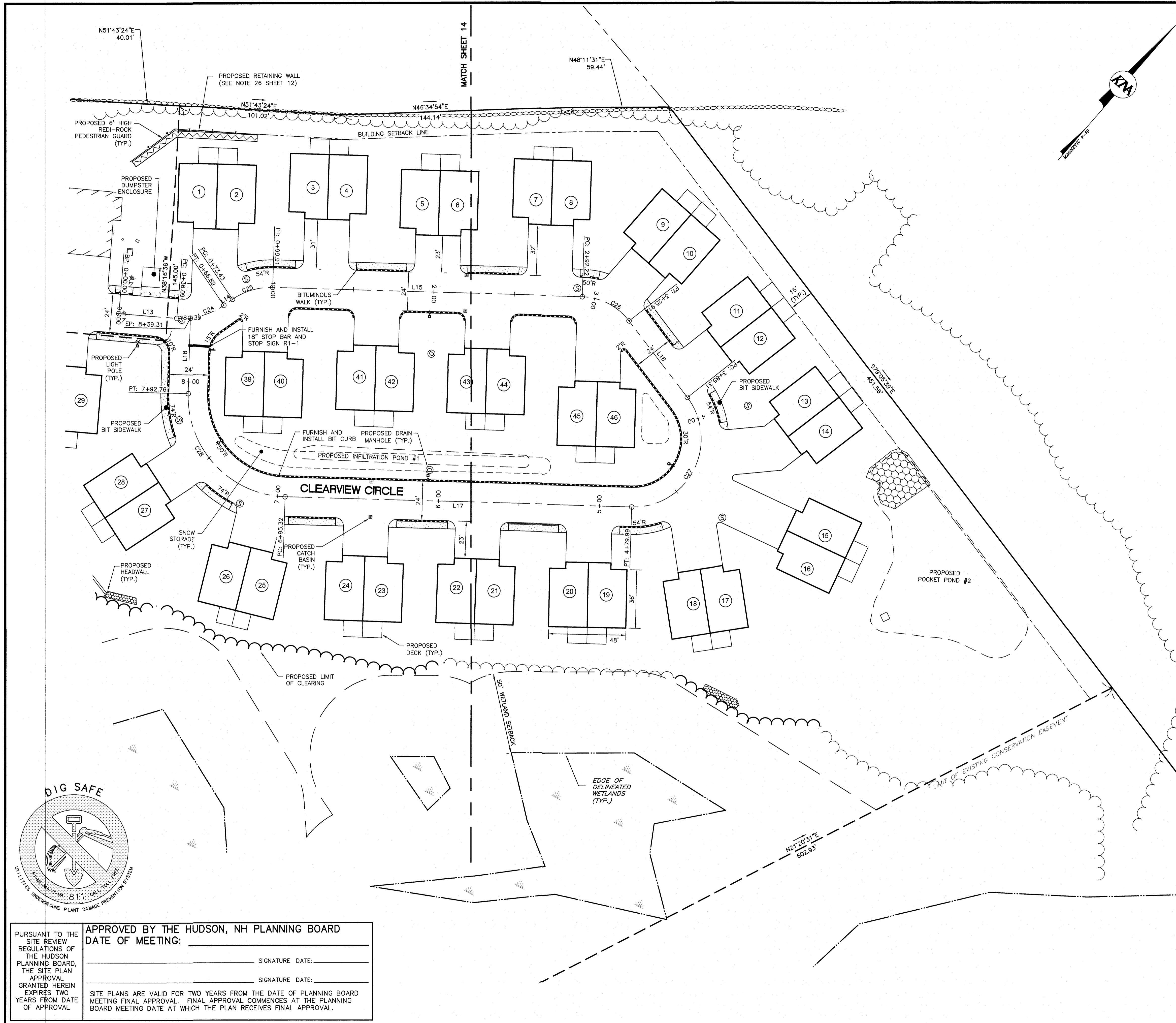
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SEE SHEET 12 FOR LEGEND & ADDITIONAL NOTES

SEE SHEET 1 FOR NOTES & REFERENCE PLANS



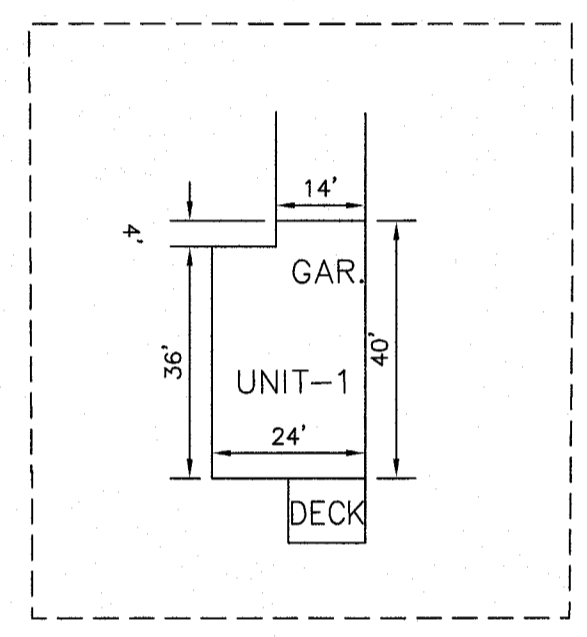


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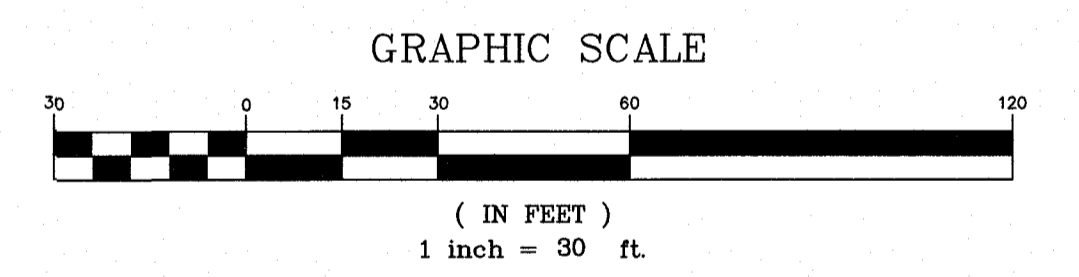


TYPICAL UNIT DETAIL

Exterior Dimensions
not to scale

SEE SHEET 12 FOR LEGEND
& ADDITIONAL NOTES

SEE SHEET 1 FOR NOTES
& REFERENCE PLANS



RESIDENTIAL SITE LAYOUT PLAN
SHEPHERDS HILL
 MAP 177 LOT 5
 SHADOWBROOK DRIVE
 HUDSON, NEW HAMPSHIRE
 HILLSBOROUGH COUNTY

OWNER OF RECORD:
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STRUCTURE TABLE	
STRUCTURE NAME	DETAILS
AD#109	RIM = 310.05 INV OUT = 308.69
AD#108	RIM = 309.80 INV IN = 305.95 INV OUT = 305.85
AD#107	RIM = 306.30 INV IN = 302.96 INV OUT = 302.85
AD#106	RIM = 303.80 INV IN = 299.97 INV OUT = 299.87
AD#105	RIM = 301.00 INV IN = 297.63 INV OUT = 297.53
CB#4	RIM = 298.00 INV IN = 294.34 INV OUT = 294.24
AD#104	RIM = 299.00 INV IN = 295.38 INV OUT = 295.27
AD#100	RIM = 297.10 INV OUT = 295.81
CB#5	RIM = 298.00 INV IN = 294.66 INV OUT = 294.56
AD#103	RIM = 297.40 INV OUT = 294.23
AD#101	RIM = 297.00 INV IN = 294.35 INV OUT = 294.25
AD#102	RIM = 297.00 INV IN = 293.05 INV OUT = 292.95
CB#3	RIM = 296.31 INV IN = 292.58 INV IN = 292.19 INV OUT = 292.09
CB#30	RIM = 296.31 INV IN = 292.40 INV IN = 292.40 INV OUT = 292.30
DMH#2	RIM = 297.80 INV IN = 291.29 INV OUT = 291.19
HW#1	INV IN = 291.04
OS#6	RIM = 293.80 INV IN = 284.75
EX CB	RIM = 289.08 INV IN = 282.66
CB#201	RIM = 293.24 INV OUT = 291.88
HW#200	INV IN = 291.45
DMH#60	RIM = 290.49 INV IN = 283.29 INV OUT = 283.19

- CONSTRUCTION NOTES:**
- ALL WORK SHALL CONFORM TO THE APPLICABLE REGULATIONS AND STANDARDS OF THE TOWN OF HUDSON, AND SHALL BE BUILT IN A WORKMANLIKE MANNER IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, STATE OF NEW HAMPSHIRE, DEPARTMENT OF TRANSPORTATION, APPROVED AND ADOPTED 2016 ARE HEREBY INCORPORATED BY REFERENCE.
 - ROAD AND DRAINAGE CONSTRUCTION SHALL CONFORM TO THE TYPICAL SECTIONS AND DETAILS SHOWN ON THE PLANS, AND SHALL MEET THE REQUIREMENTS AND SPECIFICATIONS FOR ROAD CONSTRUCTION, PUBLIC WORKS DEPARTMENT, HUDSON, NEW HAMPSHIRE.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING AND DETERMINING THE LOCATION, SIZE AND ELEVATION OF ALL EXISTING UTILITIES, SHOWN OR NOT SHOWN ON THESE PLANS, PRIOR TO THE START OF ANY CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES FOUND INTERFERING WITH THE PROPOSED CONSTRUCTION, AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING "DIG SAFE" AT 811 AT LEAST 72 HOURS BEFORE DIGGING.
 - SEE CONSTRUCTION DETAILS FOR SPECIFIC CONSTRUCTION INFORMATION.
 - CONTRACTOR TO COORDINATE ELECTRICAL CONDUITS TO PROPOSED BUILDING THROUGH LOCAL VENDOR.
 - SHOULD BLASTING BE REQUIRED ALL REQUIREMENTS LISTED IN THE TOWN OF HUDSON'S SITE PLAN REGULATIONS SECTION 202.

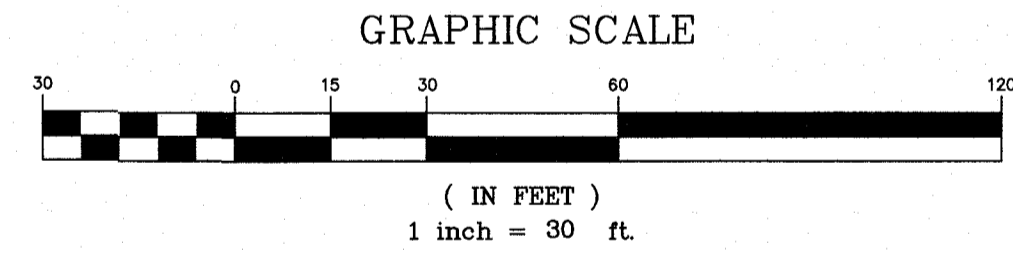
LEGEND

<ul style="list-style-type: none"> ▣ GB-F GRANITE BOUND FOUND ● IPIN-F IRON PIN FOUND ○ DH-F DRILL HOLE FOUND ○ IPP-F IRON PIPE FOUND ○ UTILITY POLE ○ SIGN ○ LIGHT ○ GAS VALVE ○ WATER VALVE ○ HYDRANT ○ WATER SHUT OFF ○ WELL ○ SEWER MANHOLE ○ DRAINAGE MANHOLE ○ CATCH BASIN ○ ABUTTER LINE ○ PROPERTY LINE ○ CHAIN LINK FENCE ○ STOCKADE FENCE ○ POST & RAIL FENCE ○ OHU OVERHEAD UTILITIES ○ G GAS LINE ○ W WATER LINE ○ S SEWER LINE ○ TREELINE ○ RETAINING WALL ○ EDGE OF PAVEMENT ○ EDGE OF GRAVEL ○ 10' CONTOUR ○ 2' CONTOUR ○ BUILDING SETBACK ○ EASEMENT ○ PROPOSED PROPERTY LINE ○ PROPOSED CHAIN LINK FENCE ○ PROPOSED STOCKADE FENCE ○ PROPOSED POST & RAIL FENCE ○ OHU PROPOSED OVERHEAD UTILITIES ○ UGU PROPOSED UNDERGROUND UTILITIES ○ G PROPOSED GAS LINE ○ W PROPOSED WATER LINE ○ S PROPOSED SEWER LINE ○ PROPOSED DRAINAGE LINE 	<ul style="list-style-type: none"> ■ GB-TBS GRANITE BOUND TO BE SET ● IPIN-TBS IRON PIN TO BE SET ○ DH-TBS DRILL HOLE TO BE SET ○ IPP-TBS PROPOSED UTILITY POLE ○ PROPOSED SIGN ○ PROPOSED LIGHT ○ PROPOSED GAS VALVE ○ PROPOSED WATER VALVE ○ PROPOSED HYDRANT ○ PROPOSED WATER SHUT OFF ○ PROPOSED WELL ○ PROPOSED SEWER MANHOLE ○ PROPOSED DRAINAGE MANHOLE ○ PROPOSED CATCH BASIN ○ PROPOSED OUTLET STRUCTURE ○ PROPOSED END SECTION ○ PROPOSED TREELINE ○ PROPOSED 2' CONTOUR ○ PROPOSED SWALE ○ PROPOSED RETAINING WALL ○ PROPOSED STONEWALL ○ PROPOSED BITUMINOUS CURB
--	---

FLOOR ELEVATION LEGEND

FF	FINISH FLOOR
W/O	WALK OUT
GS	GARAGE SLAB

- EXCAVATION & FILL NOTES:**
- ALL LEDGE AND BOULDER EXCAVATION AND REMOVAL ACTIVITIES SHALL CONFORM WITH SECTION 203 OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AS PUBLISHED BY THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION AND TOWN REQUIREMENTS FOR BLASTING PERMITS/SUBMITTALS. NO LEDGE OR BOULDERS SHALL BE BURIED WITHIN THE TOWN OWNED RIGHT-OF-WAY.
 - STUMPS SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES STANDARDS. PRIOR TOWN APPROVAL IS REQUIRED FOR ANY ON-SITE STUMP BURIALS. STUMPS CANNOT BE BURIED OR OTHERWISE DISPOSED OF WITHIN THE TOWN OWNED RIGHT-OF-WAY. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROLLING, CONTAINING, AND DULY REMOVING ALL CONSTITUENTS OF CONCERN BROUGHT TO THE SITE BY THE CONTRACTOR, SUBCONTRACTORS, SUPPLIERS, OR ANYONE ELSE FOR WHOM CONTRACTOR IS RESPONSIBLE, AND FOR ANY ASSOCIATED COSTS; AND FOR THE COST FOR REMOVING AND REMEDIATING ANY HAZARDOUS ENVIRONMENTAL CONDITIONS CREATED BY THE PRESENCE OF ANY SUCH CONSTITUENTS OF CONCERN.
 - CONTRACTOR SHALL NOT IMPORT ANY FILL OVER THE AMOUNT OF TEN CUBIC YARDS CUMULATIVE TOTAL PER SOURCE TO ANY JOB SITE IN THE TOWN OF HUDSON WITHOUT SOILS TESTING VERIFYING THE ABSENCE OF ALL CONSTITUENTS OF CONCERN, AND WITHOUT PRIOR APPROVAL BY THE ENGINEERING DEPARTMENT STAFF. DOCUMENTATION SUCH AS TEST REPORTS, CERTIFICATIONS AND SIEVE ANALYSES OF FILL SHALL BE PROVIDED TO THE ENGINEERING DEPARTMENT FOR APPROVAL PRIOR TO TRANSPORTING THE MATERIAL TO HUDSON.



GRADING & DRAINAGE PLAN
SHEPHERDS HILL
 MAP 177 LOT 5
 SHADOWBROOK DRIVE
 HUDSON, NEW HAMPSHIRE
 HILLSBOROUGH COUNTY

OWNER OF RECORD: SHEPHERDS HILL HOME OWNERS ASSOCIATION C/O GREAT NORTH PROPERTY MANAGEMENT 3 HOLLAND WAY, SUITE 201 EXETER, NH 03833	APPLICANT: SHEPHERDS HILL, LLC 253 MAIN STREET NASHUA, NH 03060
--	---

KMA
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 PROJECT NO: 17-0824-1 SHEET 16 OF 51



SEE SHEET 1 FOR NOTES & REFERENCE PLANS

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LOAM & SEED ALL DISTURBED AREAS (TYP.)

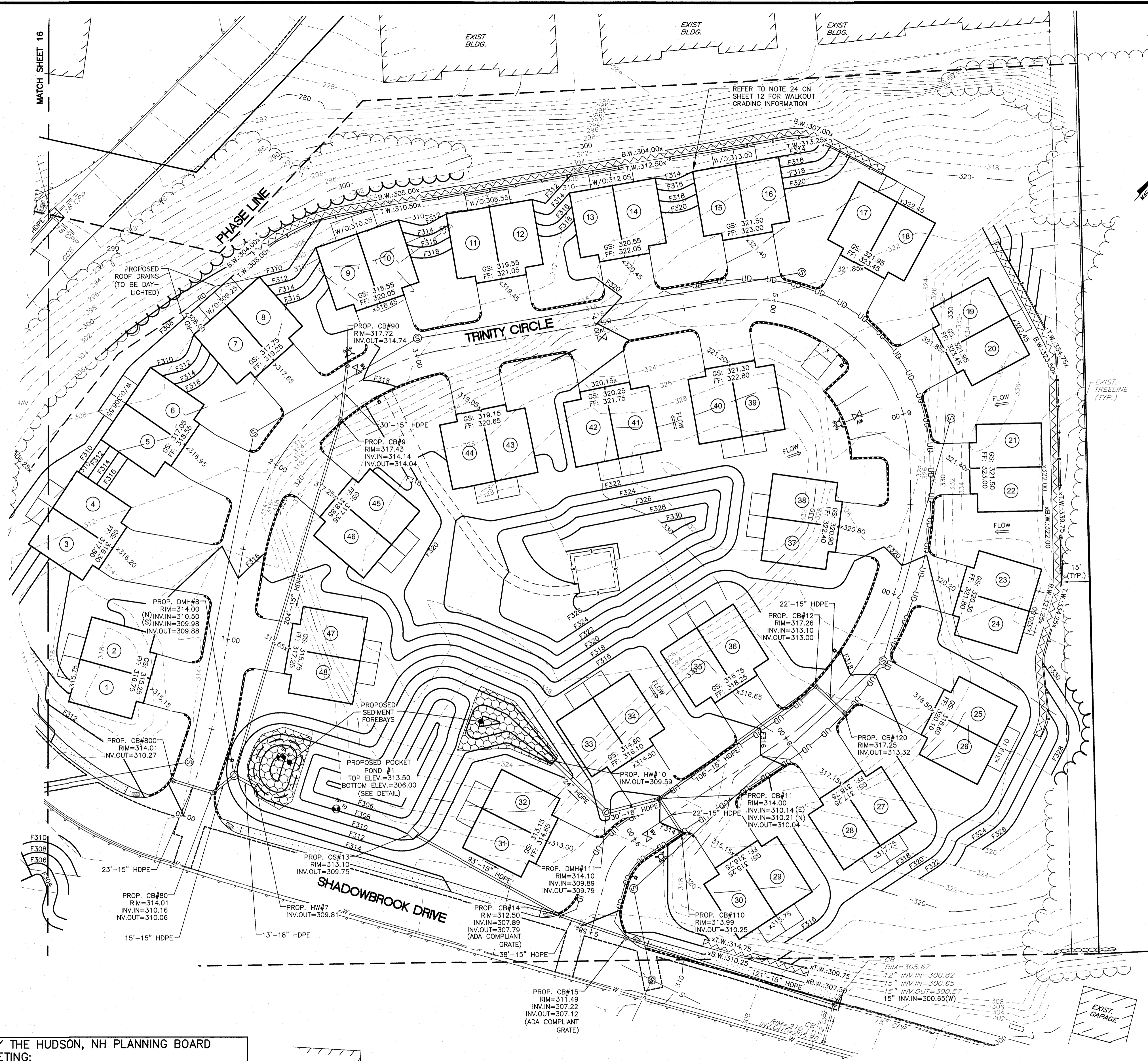
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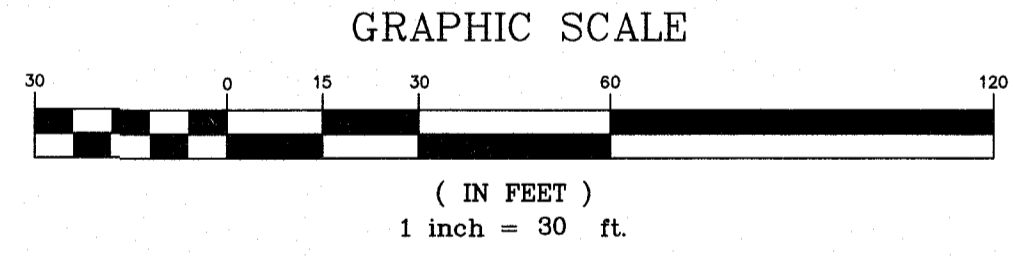
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SEE SHEET 1 FOR NOTES & REFERENCE PLANS

SEE SHEET 16 FOR ADDITIONAL NOTES AND LEGEND



GRADING & DRAINAGE PLAN
SHEPHERDS HILL
 MAP 177 LOT 5
 SHADOWBROOK DRIVE
 HUDSON, NEW HAMPSHIRE
 HILLSBOROUGH COUNTY

OWNER OF RECORD: SHEPHERDS HILL HOME OWNERS ASSOCIATION C/O GREAT NORTH PROPERTY MANAGEMENT 3 HOLLAND WAY, SUITE 201 EXETER, NH 03833	APPLICANT: SHEPHERDS HILL, LLC 253 MAIN STREET NASHUA, NH 03060
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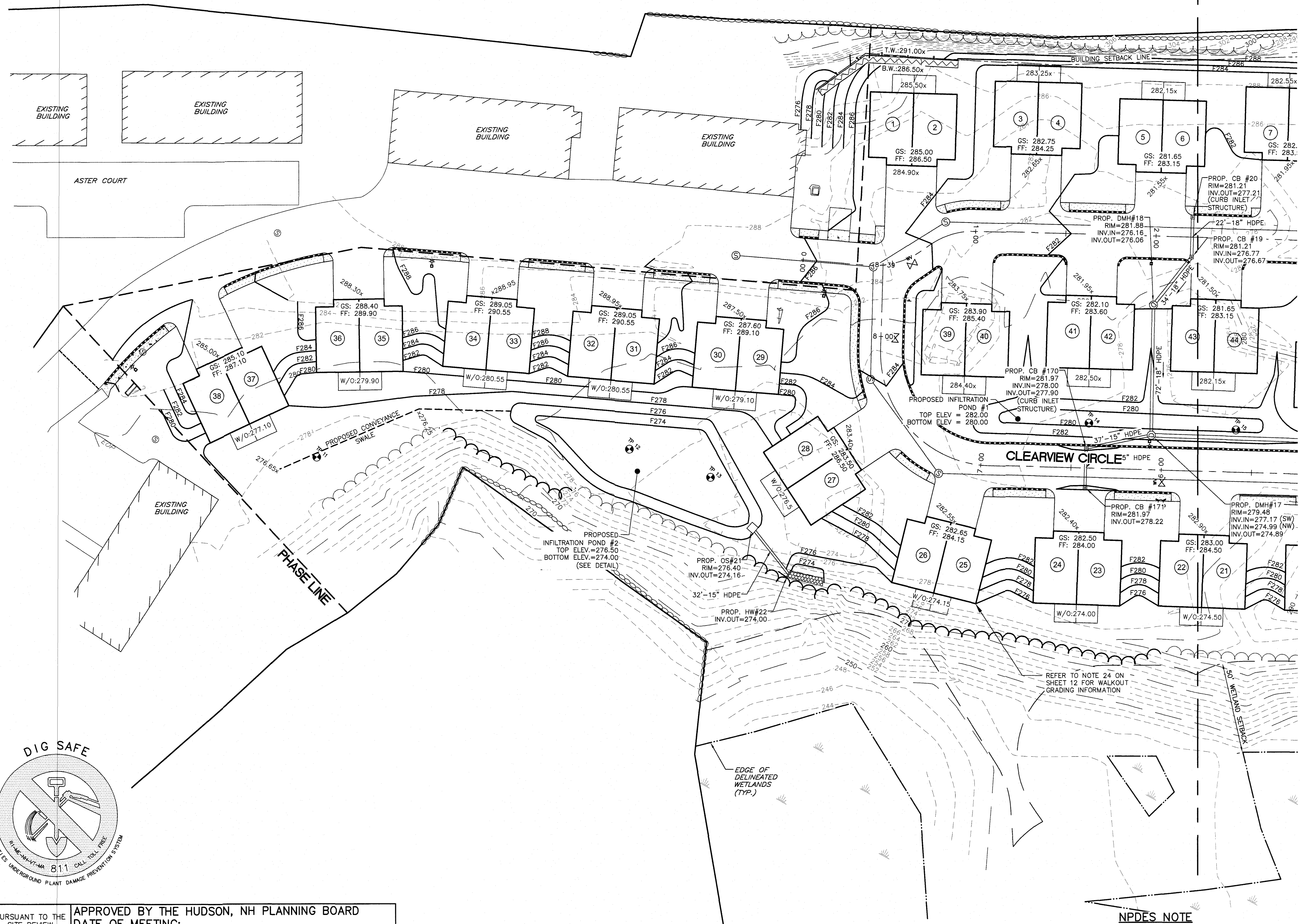
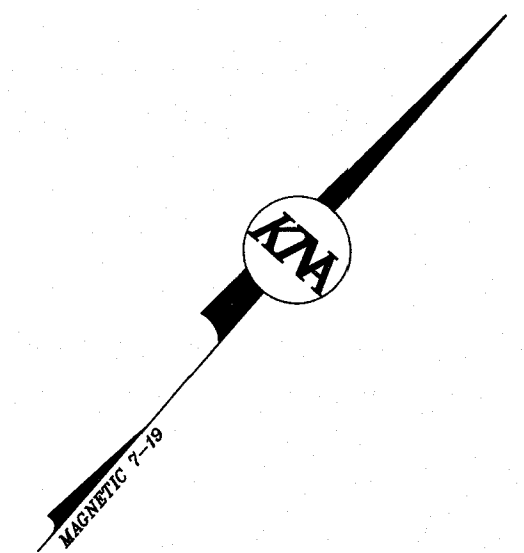
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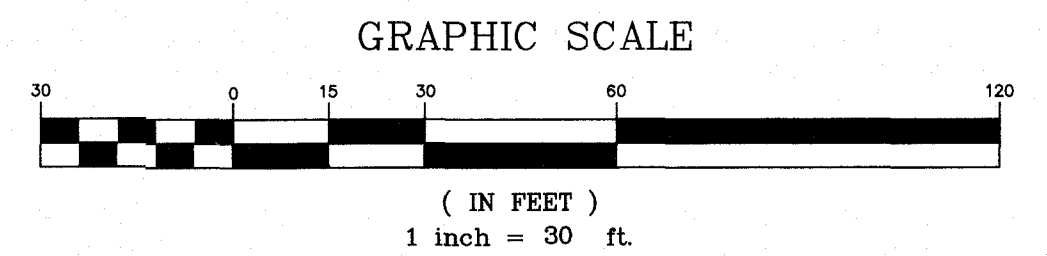
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NPDES NOTE

THIS PROJECT DISTURBS IN EXCESS OF 1-ACRE OF LAND. THEREFORE IT WILL BE REQUIRED TO OBTAIN NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT COVERAGE AS ISSUED BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA). THE OWNER/DEVELOPER AND "OPERATOR" (GENERAL CONTRACTOR) SHALL EACH BE REQUIRED TO PREPARE AND SUBMIT A NOTICE OF INTENT (NOI) TO THE EPA PRIOR TO THE START OF CONSTRUCTION AND SHALL BE RESPONSIBLE FOR THE PREPARATION AND IMPLEMENTATION OF A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) MEETING THE REQUIREMENTS OF THE CURRENT CONSTRUCTION GENERAL PERMIT.



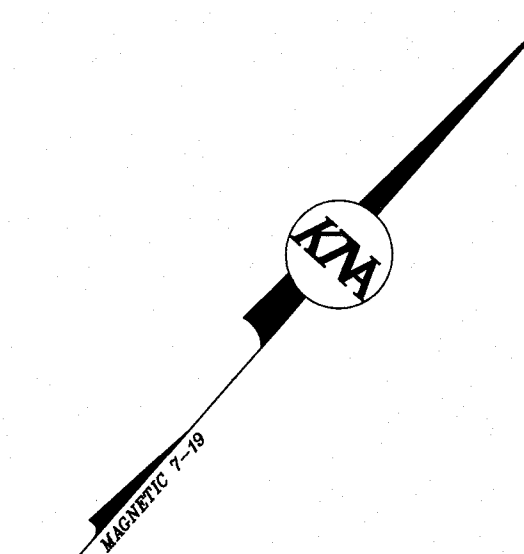
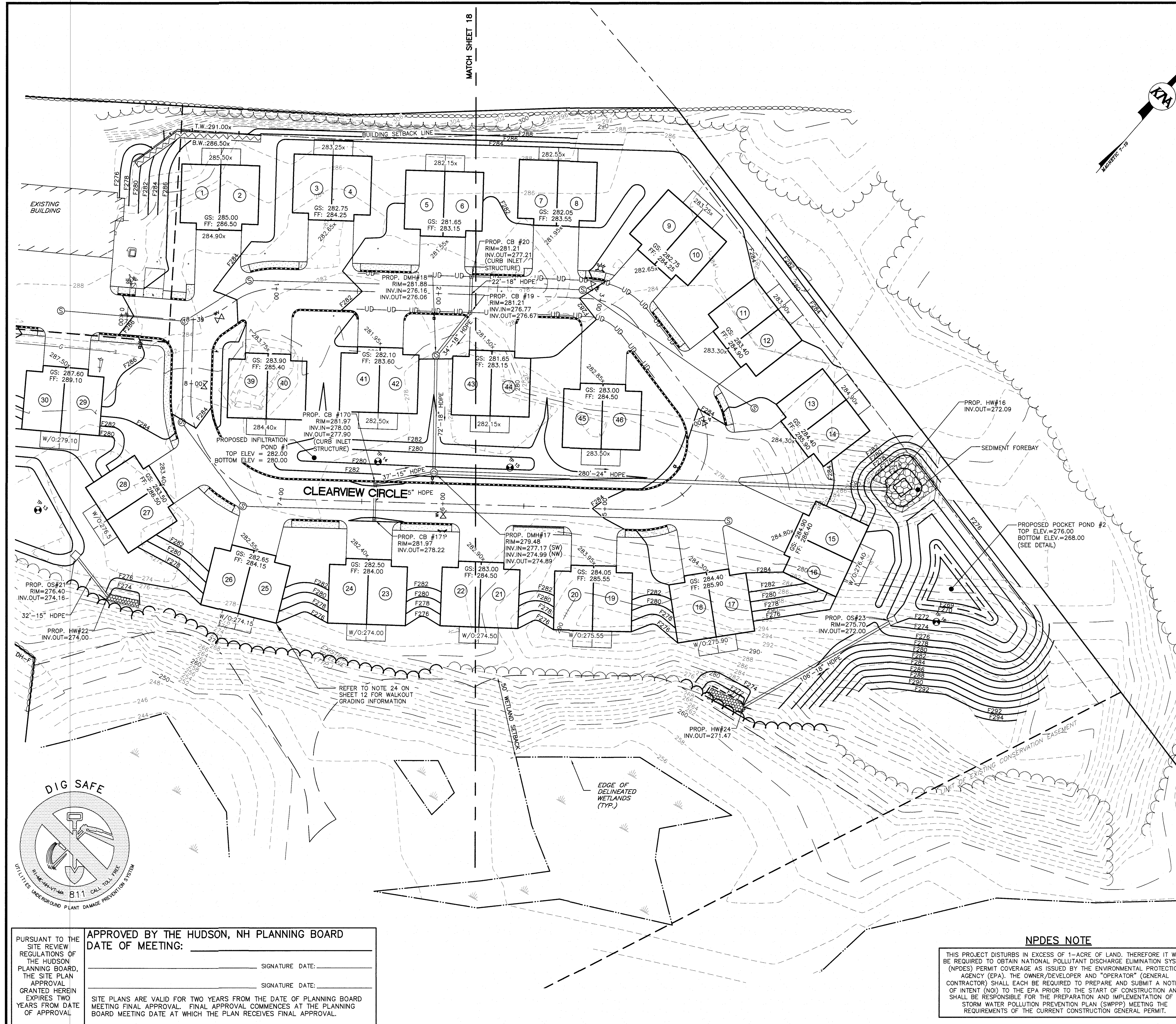
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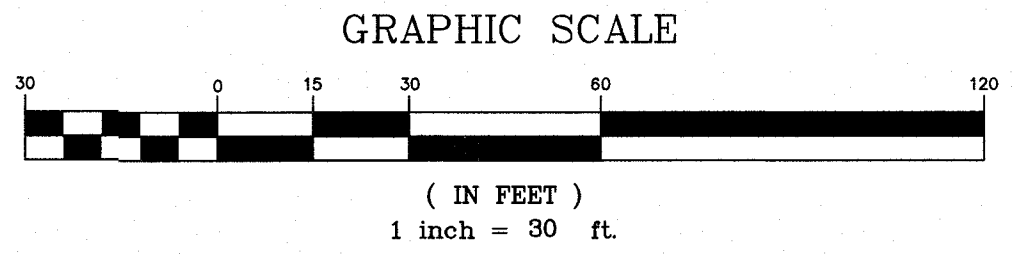
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GRADING & DRAINAGE PLAN
SHEPHERDS HILL
 MAP 177 LOT 5
 SHADOWBROOK DRIVE
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 HILLSBOROUGH COUNTY

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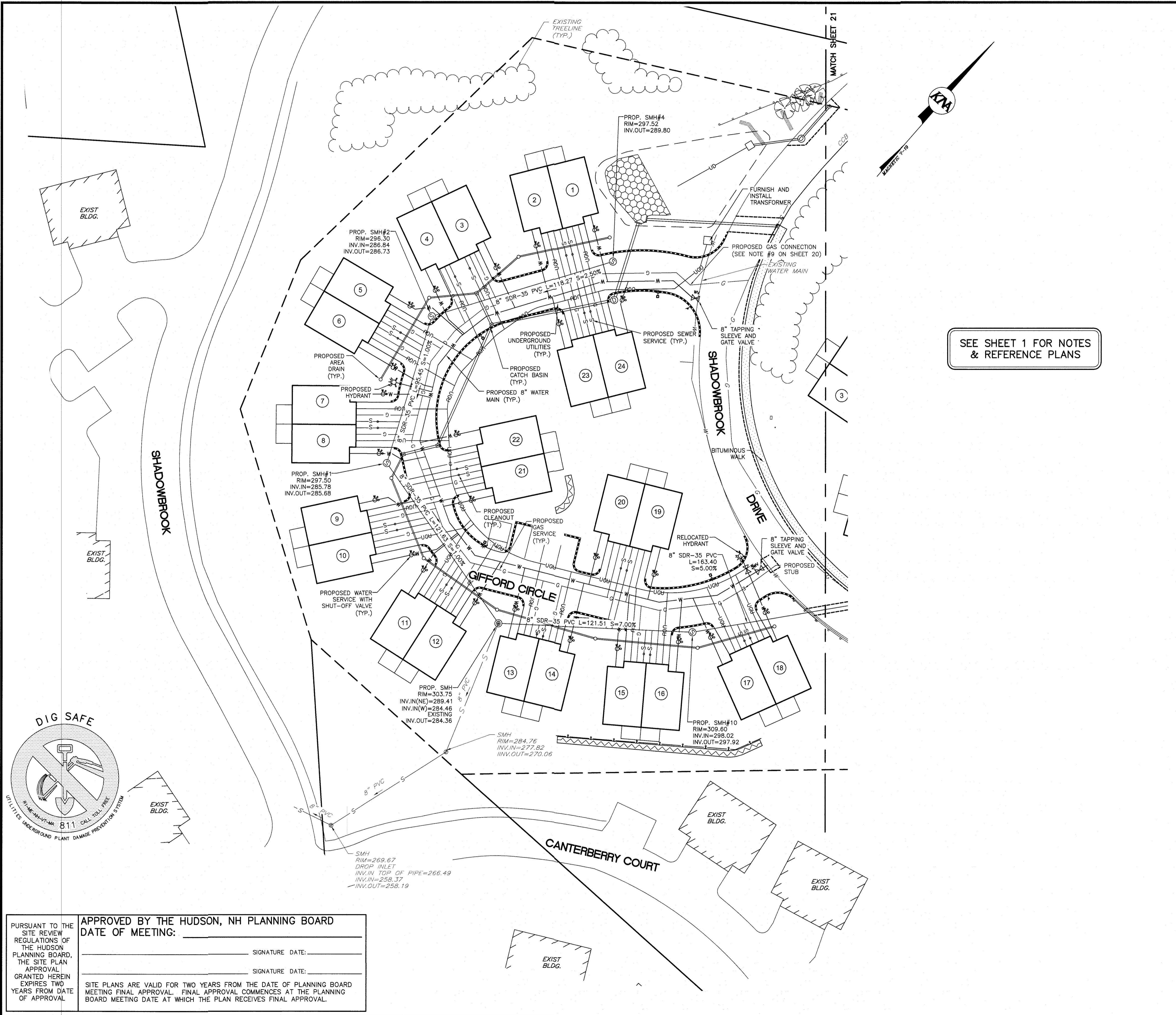
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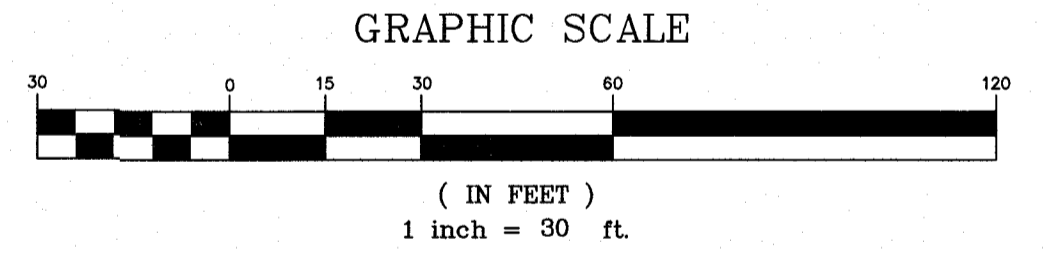


- CONSTRUCTION NOTES:**
1. THE PURPOSE OF THIS PLAN IS TO SHOW THE PROPOSED UTILITY SYSTEMS FOR THIS SITE.
 2. ALL WORK SHALL CONFORM TO THE APPLICABLE REGULATIONS AND STANDARDS OF THE TOWN OF HUDSON, AND SHALL BE BUILT IN A WORKMANLIKE MANNER IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS, AND CONFORM TO THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, STATE OF NEW HAMPSHIRE, DEPARTMENT OF TRANSPORTATION, APPROVED AND ADOPTED 2016 ARE HEREBY INCORPORATED BY REFERENCE.
 3. CONSTRUCTION SHALL CONFORM TO THE TYPICAL SECTIONS AND DETAILS SHOWN ON THE PLANS, AND SHALL MEET THE REQUIREMENTS AND SPECIFICATIONS FOR ROAD CONSTRUCTION, PUBLIC WORKS DEPARTMENT, HUDSON, NEW HAMPSHIRE.
 4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING AND DETERMINING THE LOCATION, SIZE AND ELEVATION OF ALL EXISTING UTILITIES, SHOWN OR NOT SHOWN ON THESE PLANS, PRIOR TO THE START OF ANY CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES FOUND INTERFERING WITH THE PROPOSED CONSTRUCTION, AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING "DIG SAFE" AT 811 AT LEAST 72 HOURS BEFORE DIGGING.
 5. ALL WATER UTILITIES SHALL CONFORM TO TOWN OF HUDSON WATER WORKS REGULATIONS.
 6. THE CONTRACTOR SHALL TAKE CARE WHEN EXCAVATING DUE TO LACK OF RECORD UTILITY INFORMATION. ANY UTILITIES DISCOVERED DURING CONSTRUCTION SHALL BE REPORTED TO THE DESIGN ENGINEER.
 7. THE LOCATION OF ANY UNDERGROUND UTILITY INFORMATION SHOWN ON THIS PLAN IS APPROXIMATE. KEACH-NORDSTROM ASSOCIATES, INC. MAKES NO CLAIM TO THE ACCURACY OR COMPLETENESS OF UTILITIES SHOWN. PRIOR TO ANY EXCAVATION ON SITE THE CONTRACTOR SHALL CONTACT DIG SAFE AT 811.
 8. CONTRACTOR TO VERIFY LOCATION OF UNDERGROUND ELECTRIC, GAS, AND WATER FOR UNIT 29 THROUGH 38 ON CLEARVIEW CIRCLE PRIOR TO START OF CONSTRUCTION OF HOMES.
 9. CONTRACTOR TO DETERMINE THE MOST SUITABLE LOCATIONS FOR WATER AND GAS CONNECTIONS/EXTENSIONS BASED ON THE IN-FIELD LOCATION OF EXISTING UTILITIES.
 10. UNDERGROUND UTILITY SERVICE CONNECTIONS FOR UNITS 29 THROUGH 38 SHALL BE DETERMINED BY THE UTILITY PROVIDER.

LEGEND

- GB-F GRANITE BOUND FOUND
- CB-F CONCRETE BOUND FOUND
- IPP-F IRON PIPE FOUND
- UTILITY POLE
- SIGN
- LIGHT
- GAS VALVE
- WATER VALVE
- HYDRANT
- WATER SHUT OFF
- DRAINAGE MANHOLE
- CATCH BASIN
- ABUTTER LINE
- PROPERTY LINE
- OVERHEAD UTILITIES
- GAS LINE
- WATER LINE
- SEWER LINE
- SFM SEWER FORCEMAIN
- DRAINAGE LINE
- TREELINE
- EDGE OF PAVEMENT
- EDGE OF GRAVEL
- BUILDING SETBACK
- EXISTING EASEMENT
- SAWCUT LINE
- PROPOSED OF PAVEMENT
- PROPOSED EASEMENT
- PROPOSED DRAINAGE LINE
- UGU PROPOSED UNDERGROUND UTILITIES
- G PROPOSED GAS LINE
- W PROPOSED WATER LINE
- S PROPOSED SEWER LINE
- PHASE LINE

SEE SHEET 1 FOR NOTES & REFERENCE PLANS



UTILITY PLAN
SHEPHERDS HILL
 MAP 177 LOT 5
 SHADOWBROOK DRIVE
 HUDSON, NEW HAMPSHIRE
 HILLSBOROUGH COUNTY

OWNER OF RECORD: SHEPHERDS HILL HOME OWNERS ASSOCIATION C/O GREAT NORTH PROPERTY MANAGEMENT 3 HOLLAND WAY, SUITE 201 EXETER, NH 03833	APPLICANT: SHEPHERDS HILL, LLC 253 MAIN STREET NASHUA, NH 03060
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KMA KEACH-NORDSTROM ASSOCIATES, INC.
 Civil Engineering Land Surveying Landscape Architecture
 10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

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DATE: MAY 2, 2022 SCALE: 1"=30'
 PROJECT NO: 17-0824-1 SHEET 20 OF 51



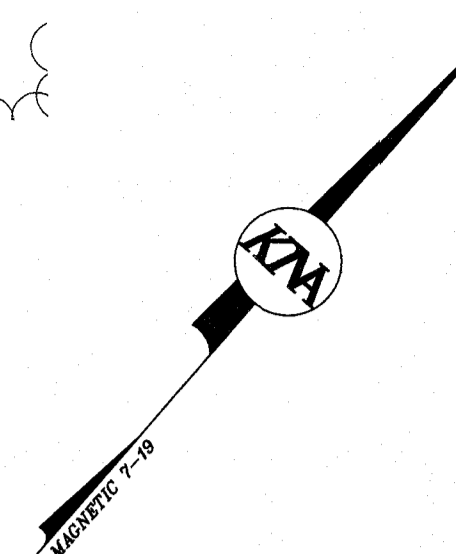
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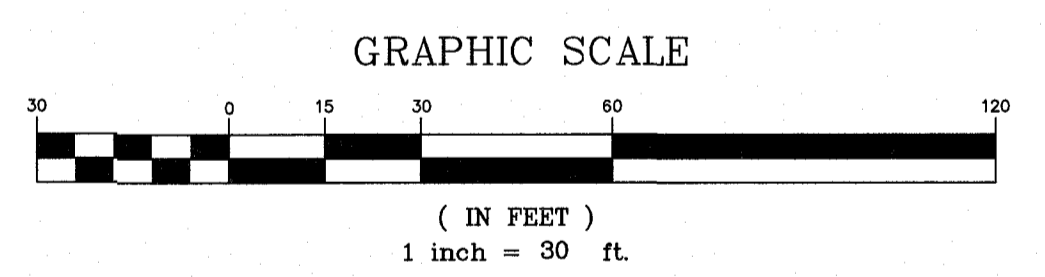
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SEE SHEET 1 FOR NOTES & REFERENCE PLANS

SEE SHEET 20 FOR ADDITIONAL NOTES AND LEGEND



UTILITY PLAN
SHEPHERDS HILL
 MAP 177 LOT 5
 SHADOWBROOK DRIVE
 HUDSON, NEW HAMPSHIRE
 HILLSBOROUGH COUNTY

OWNER OF RECORD:
 SHEPHERDS HILL HOME OWNERS ASSOCIATION
 C/O GREAT NORTH PROPERTY MANAGEMENT
 3 HOLLAND WAY, SUITE 201
 EXETER, NH 03833

APPLICANT:
 SHEPHERDS HILL, LLC
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 NASHUA, NH 03060

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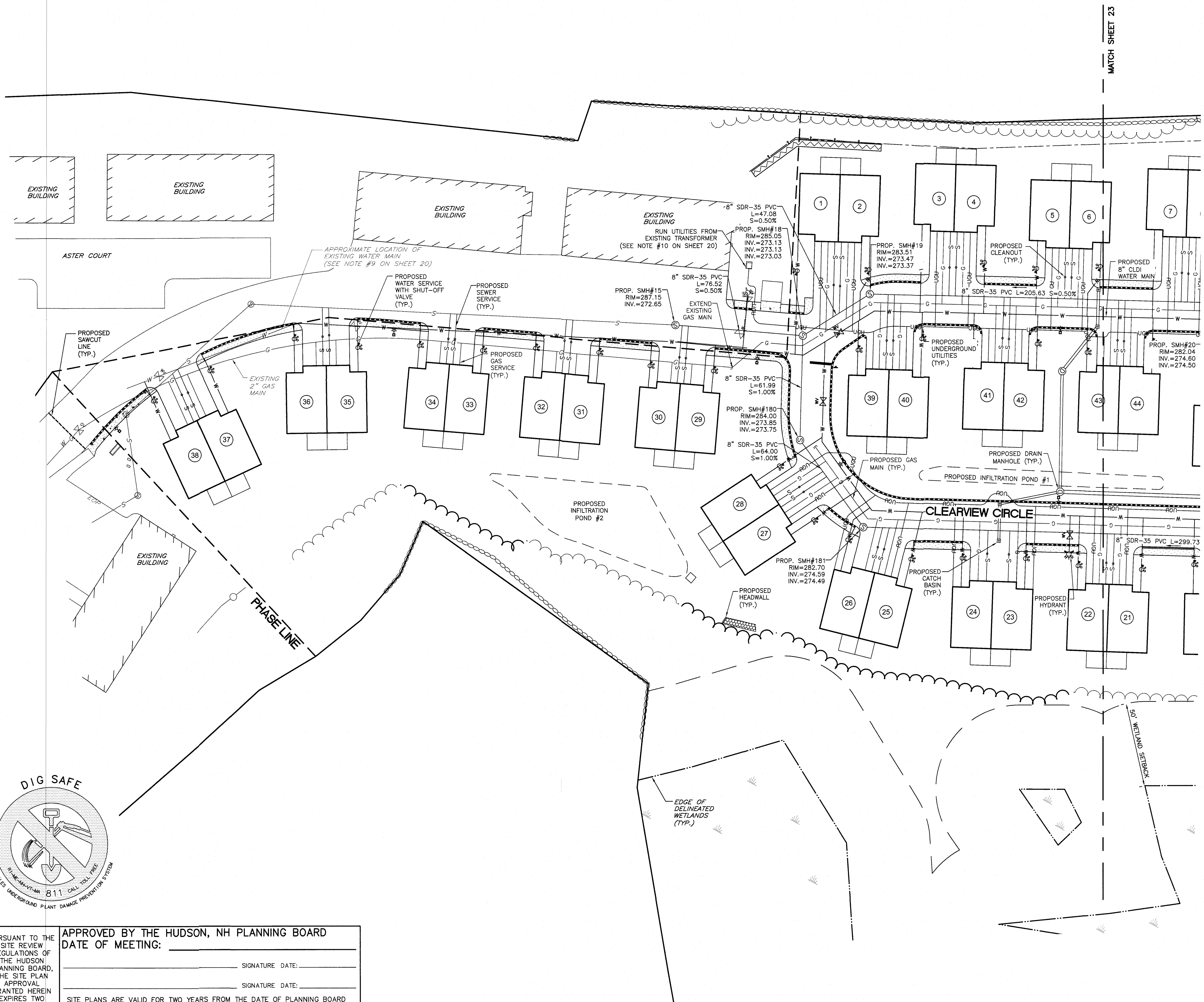
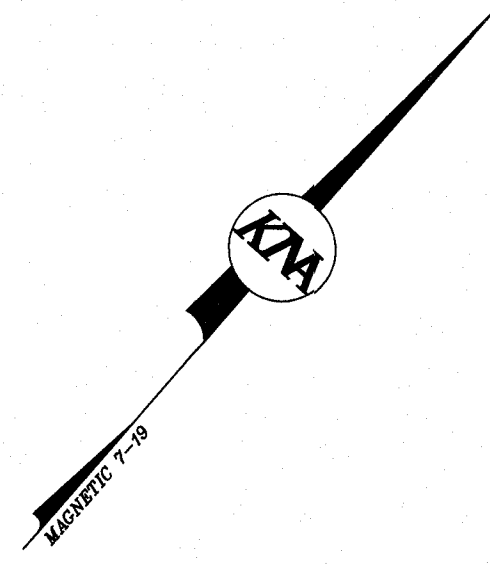
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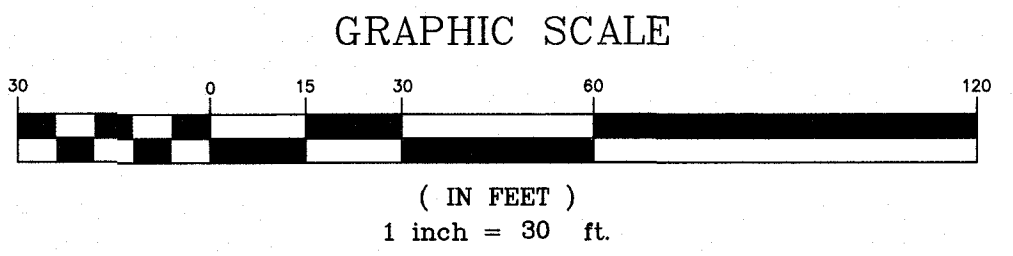
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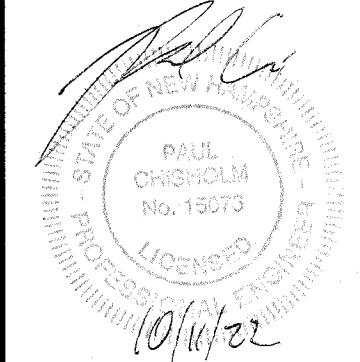
SEE SHEET 20 FOR ADDITIONAL NOTES AND LEGEND



UTILITY PLAN
SHEPHERDS HILL
 MAP 177 LOT 5
 SHADOWBROOK DRIVE
 HUDSON, NEW HAMPSHIRE
 HILLSBOROUGH COUNTY

OWNER OF RECORD: SHEPHERDS HILL HOME OWNERS ASSOCIATION C/O GREAT NORTH PROPERTY MANAGEMENT 3 HOLLAND WAY, SUITE 201 EXETER, NH 03833	APPLICANT: SHEPHERDS HILL, LLC 253 MAIN STREET NASHUA, NH 03060
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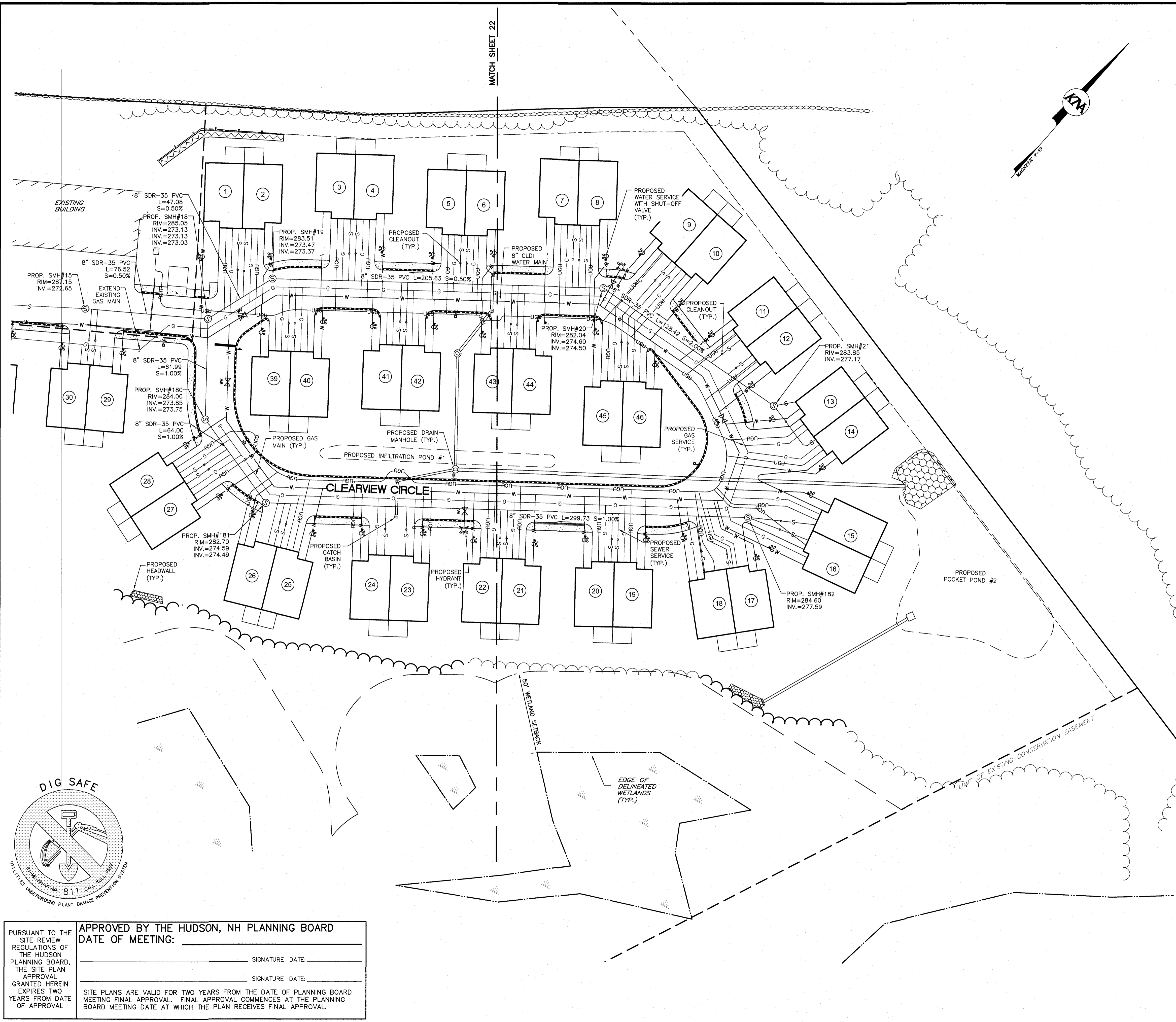
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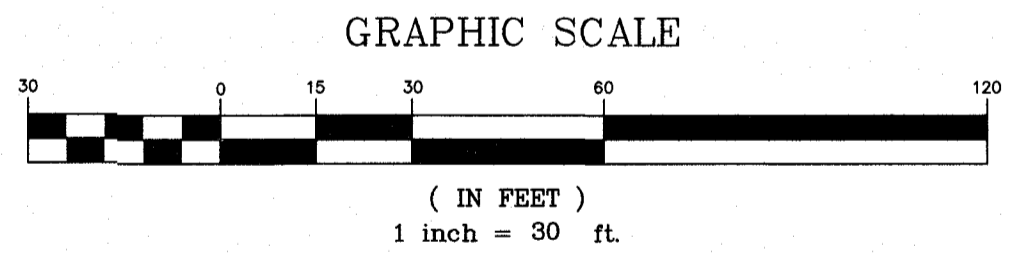
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SEE SHEET 1 FOR NOTES & REFERENCE PLANS

SEE SHEET 20 FOR ADDITIONAL NOTES AND LEGEND

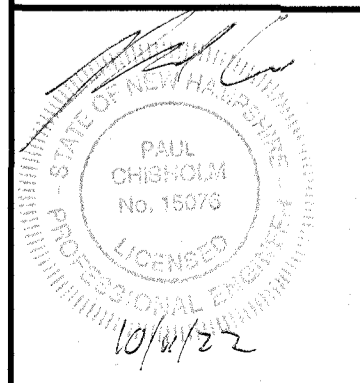


UTILITY PLAN
SHEPHERDS HILL
 MAP 177 LOT 5
 SHADOWBROOK DRIVE
 HUDSON, NEW HAMPSHIRE
 HILLSBOROUGH COUNTY

OWNER OF RECORD:
 SHEPHERDS HILL HOME OWNERS ASSOCIATION
 C/O GREAT NORTH PROPERTY MANAGEMENT
 3 HOLLAND WAY, SUITE 201
 EXETER, NH 03833

APPLICANT:
 SHEPHERDS HILL, LLC
 253 MAIN STREET
 NASHUA, NH 03060

KEA KEACH-NORDSTROM ASSOCIATES, INC.
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 10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881



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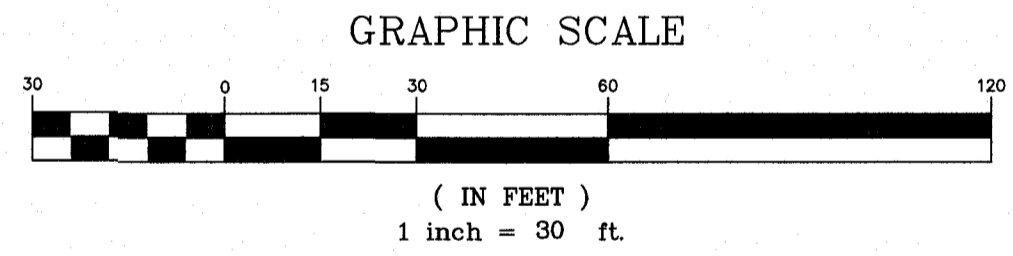
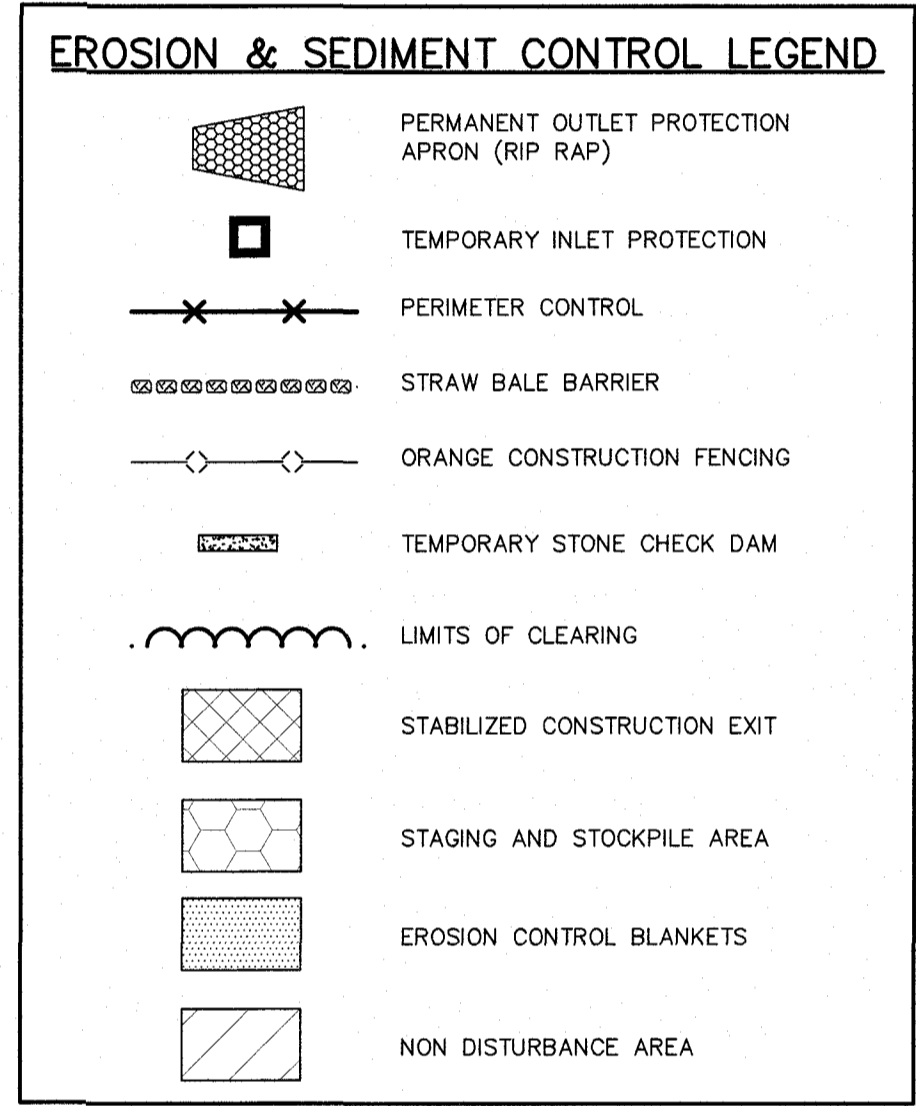
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- EROSION CONTROL NOTES:**
1. THE PURPOSE OF THIS PLAN IS TO DEPICT THE REQUIRED ONSITE TEMPORARY CONSTRUCTION EROSION CONTROL MEASURES AS WELL AS THE PERMANENT EROSION CONTROL MEASURES.
 2. ALL MEASURES IN THE PLAN SHALL MEET AS A MINIMUM THE BEST MANAGEMENT PRACTICES SET FORTH IN VOLUME 3 OF THE NEW HAMPSHIRE STORMWATER MANUAL TITLED "EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION," DATED DECEMBER 2010, AS AMENDED FROM TIME TO TIME.
 3. WHENEVER PRACTICAL, NATURAL VEGETATION SHALL BE RETAINED, PROTECTED OR SUPPLEMENTED. THE STRIPPING OF VEGETATION SHALL BE DONE IN A MANNER THAT MINIMIZES SOIL EROSION.
 4. APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO LAND DISTURBANCE.
 5. THE AREA OF DISTURBANCE SHALL BE KEPT TO A MINIMUM. DISTURBED AREAS REMAINING IDLE FOR MORE THAN 30 DAYS SHALL BE STABILIZED.
 6. MEASURES SHALL BE TAKEN TO CONTROL EROSION WITHIN THE PROJECT AREA. SEDIMENT IN RUNOFF WATER SHALL BE TRAPPED AND RETAINED WITHIN THE PROJECT AREA USING APPROVED MEASURES. WETLAND AREAS AND SURFACE WATERS SHALL BE PROTECTED FROM SEDIMENT.
 7. OFFSITE SURFACE WATER AND RUNOFF FROM UNDISTURBED AREAS SHALL BE DIVERTED AWAY FROM DISTURBED AREAS WHERE FEASIBLE OR CARRIED NON-EROSIVELY THROUGH THE PROJECT AREA. INTEGRITY OF DOWNSTREAM DRAINAGE SYSTEMS SHALL BE MAINTAINED.
 8. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED IN FUNCTIONING CONDITION UNTIL FINAL SITE STABILIZATION IS ACCOMPLISHED.
 9. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED AFTER FINAL SITE STABILIZATION. TRAPPED SEDIMENT AND OTHER DISTURBED SOIL AREAS RESULTING FROM THE REMOVAL OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED WITHIN 30 DAYS UNLESS CONDITIONS DICTATE OTHERWISE.
 10. THE TOWN OF HUDSON SHALL RESERVE THE RIGHT TO REQUIRE FURTHER EROSION CONTROL PRACTICES DURING CONSTRUCTION SHOULD THEY FIND IT NECESSARY.
 11. SNOW ACCUMULATED DURING THE WINTER CONSTRUCTION CONDITIONS SHOULD BE STORED IN THE STAGING & STOCKPILE AREA DETERMINED BY THE CONTRACTOR, SURROUNDED BY SILT FENCE.

LOAM & SEED ALL DISTURBED AREAS (TYP.)



EROSION CONTROL PLAN
SHEPHERDS HILL
 MAP 177 LOT 5
 SHADOWBROOK DRIVE
 HUDSON, NEW HAMPSHIRE
 HILLSBOROUGH COUNTY

OWNER OF RECORD: SHEPHERDS HILL HOME OWNERS ASSOCIATION
 C/O GREAT NORTH PROPERTY MANAGEMENT
 3 HOLLAND WAY, SUITE 201
 EXETER, NH 03833

APPLICANT: SHEPHERDS HILL, LLC
 253 MAIN STREET
 NASHUA, NH 03060

KMA KEACH-NORDSTROM ASSOCIATES, INC.
 Civil Engineering Land Surveying Landscape Architecture
 10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881



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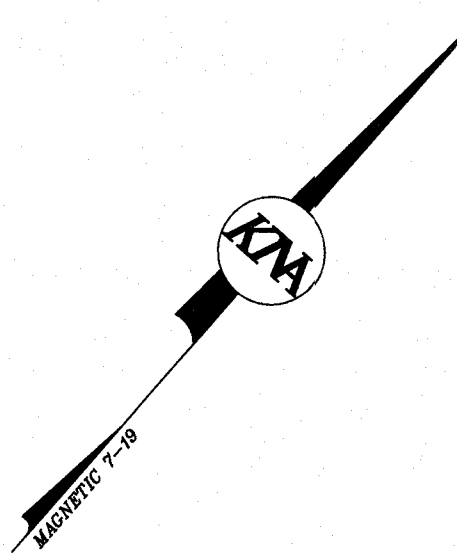
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NPDES NOTE

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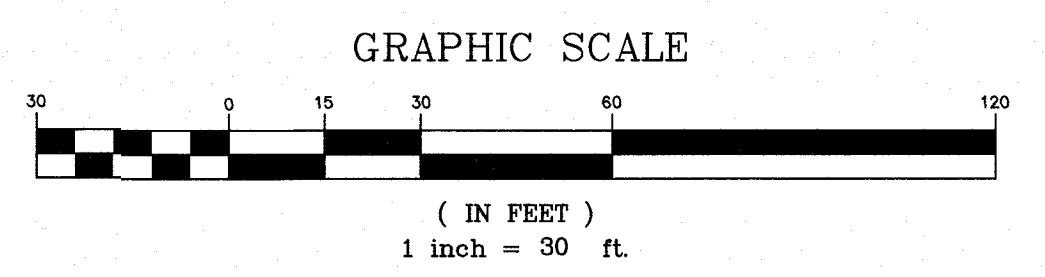


LOAM & SEED ALL
DISTURBED AREAS (TYP.)

SEE SHEET 24 FOR
NOTES

EROSION & SEDIMENT CONTROL LEGEND

	PERMANENT OUTLET PROTECTION APRON (RIP RAP)
	TEMPORARY INLET PROTECTION
	PERIMETER CONTROL
	STRAW BALE BARRIER
	ORANGE CONSTRUCTION FENCING
	TEMPORARY STONE CHECK DAM
	LIMITS OF CLEARING
	STABILIZED CONSTRUCTION EXIT
	STAGING AND STOCKPILE AREA
	EROSION CONTROL BLANKETS
	NON DISTURBANCE AREA



EROSION CONTROL PLAN
SHEPHERDS HILL
 MAP 177 LOT 5
 SHADOWBROOK DRIVE
 HUDSON, NEW HAMPSHIRE
 HILLSBOROUGH COUNTY

OWNER OF RECORD: SHEPHERDS HILL HOME OWNERS ASSOCIATION C/O GREAT NORTH PROPERTY MANAGEMENT 3 HOLLAND WAY, SUITE 201 EXETER, NH 03833	APPLICANT: SHEPHERDS HILL, LLC 253 MAIN STREET NASHUA, NH 03060
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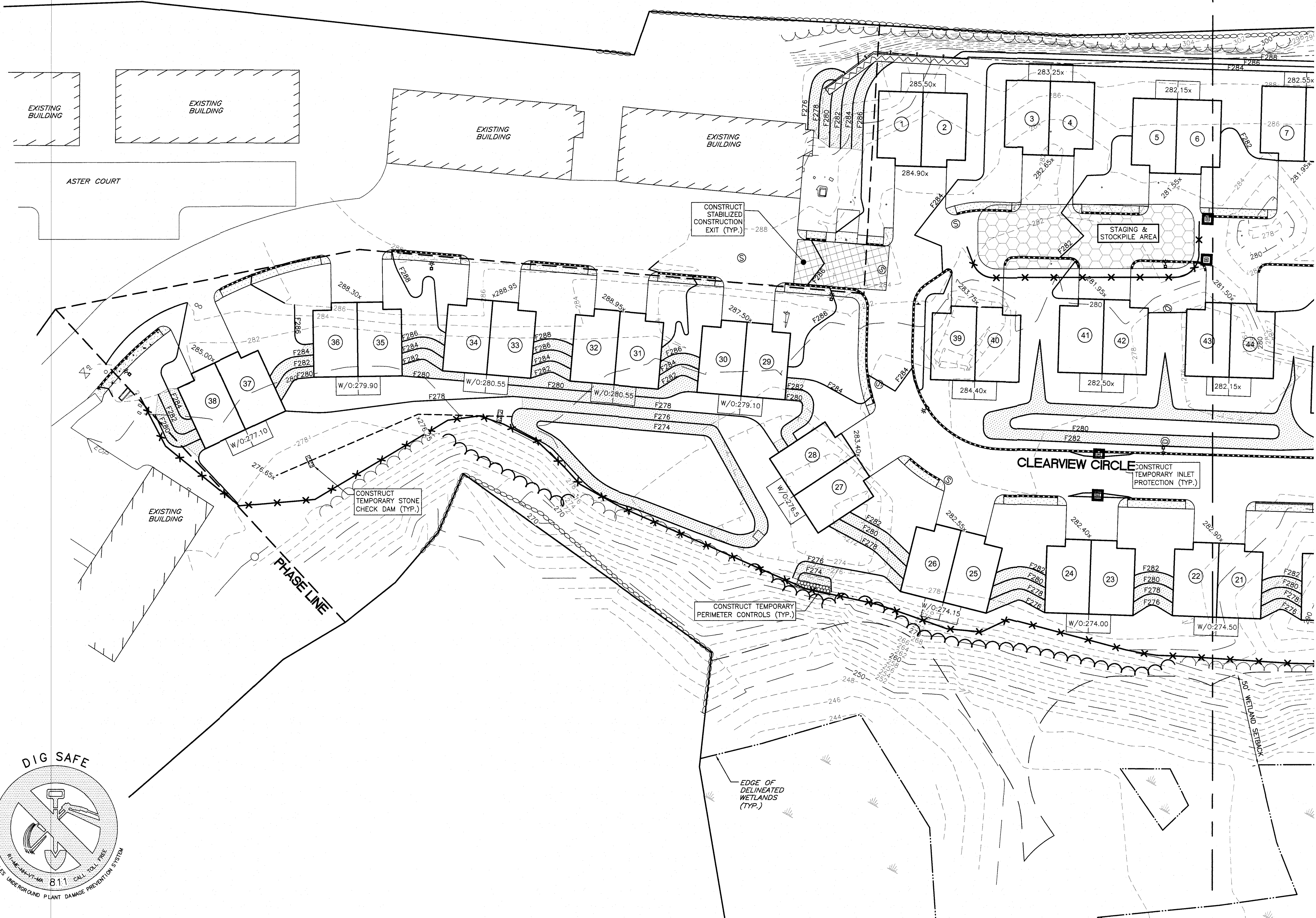
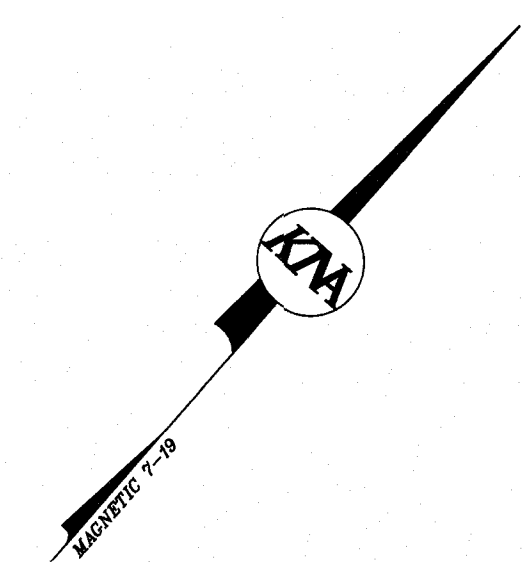
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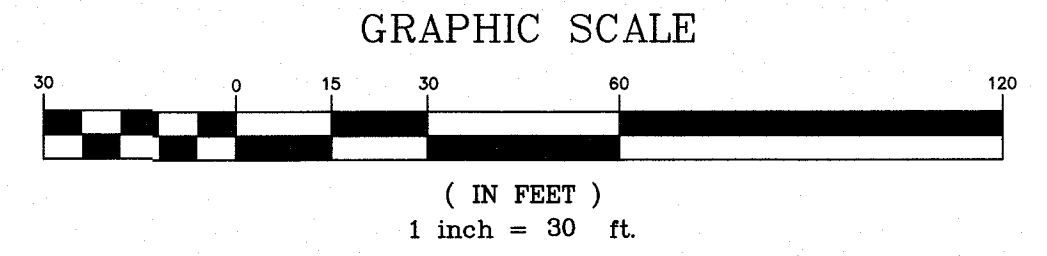
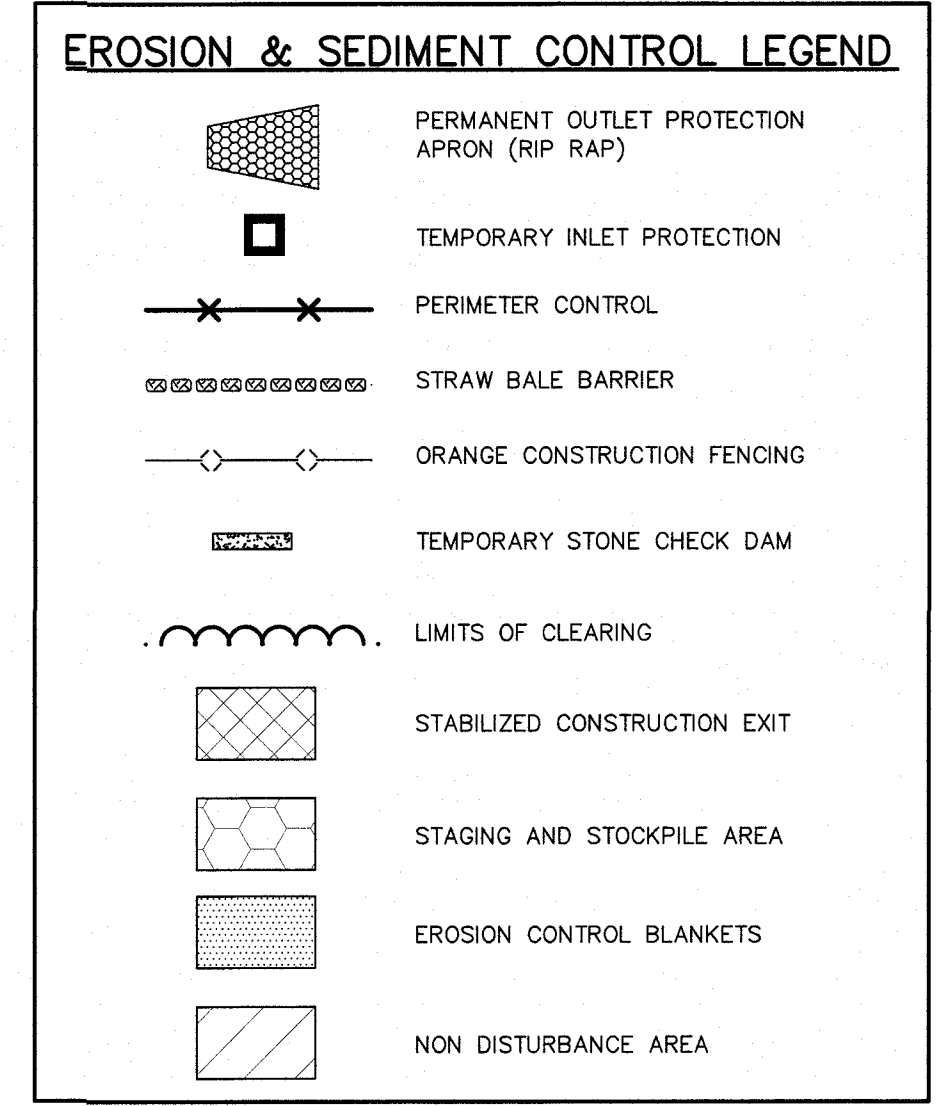
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LOAM & SEED ALL DISTURBED AREAS (TYP.)

SEE SHEET 24 FOR NOTES



EROSION CONTROL PLAN
SHEPHERDS HILL
 MAP 177 LOT 5
 SHADOWBROOK DRIVE
 HUDSON, NEW HAMPSHIRE
 HILLSBOROUGH COUNTY

OWNER OF RECORD: SHEPHERDS HILL HOME OWNERS ASSOCIATION C/O GREAT NORTH PROPERTY MANAGEMENT 3 HOLLAND WAY, SUITE 201 EXETER, NH 03833	APPLICANT: SHEPHERDS HILL, LLC 253 MAIN STREET NASHUA, NH 03060
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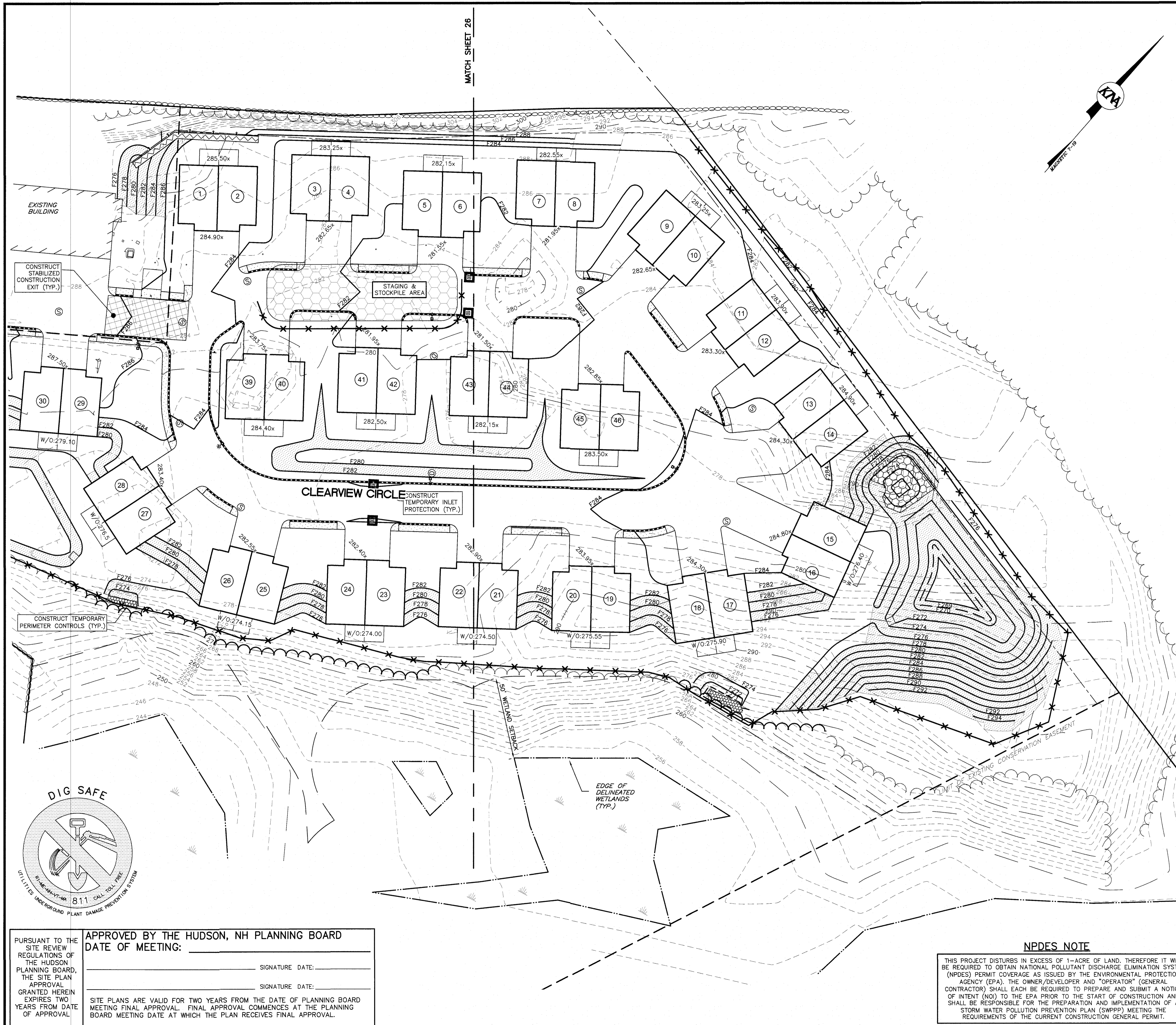
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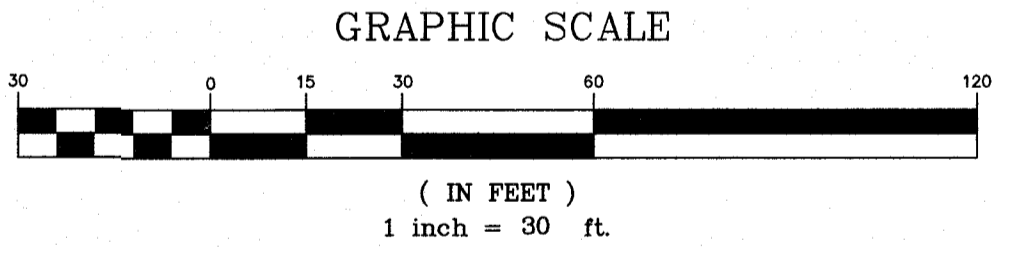


LOAM & SEED ALL DISTURBED AREAS (TYP.)

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EROSION & SEDIMENT CONTROL LEGEND

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- TEMPORARY INLET PROTECTION
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- STRAW BALE BARRIER
- ORANGE CONSTRUCTION FENCING
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EROSION CONTROL PLAN
SHEPHERDS HILL
 MAP 177 LOT 5
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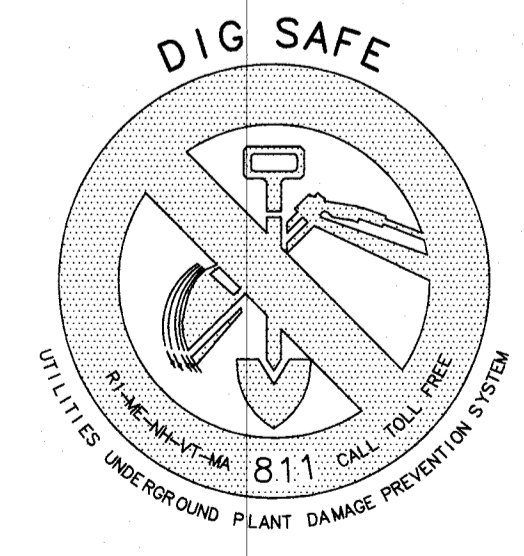
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LANDSCAPE NOTES:

- ALL PLANT MATERIALS USED SHALL BE NURSERY STOCK AND SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR FROM DATE OF INSTALLATION. ANY MATERIAL WHICH DIES OR DOES NOT SHOW HEALTHY APPEARANCE WITHIN THIS TIME SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE; WITH SAME WARRANTY REQUIREMENTS AS THE ORIGINAL WARRANTIES TYPICALLY DO NOT COVER LOSS DUE TO INSECT INFESTATION OR MECHANICAL DAMAGE (I.E. SNOW STORAGE).
- IF THE SOIL CONDITIONS ARE EXTREMELY SANDY, ALL TREES SHALL HAVE A 6" LAYER OF COMPACTED TOPSOIL PLACED IN THE BASE OF THE PLANT PIT AS A MOISTURE RETENTION LAYER. THE PLANT PIT SIDEWALLS SHALL BE OVER EXCAVATED BY AN ADDITIONAL 12" BEYOND THE NORMAL OUTSIDE RADIUS OF THE HOLE. A TOPSOIL MIXTURE SHALL BE USED TO BACKFILL THE HOLE AS FOLLOWS: ORGANIC TOPSOIL, AMENDED WITH 10% WOOD ASH, 10% MANURE, 30% COMPOST AND A GRANULAR HYDROGEL TO ABSORB AND RETAIN WATER.
- PLANTING BEDS AND SAUCERS SHALL RECEIVE A FOUR INCH (4") MINIMUM THICKNESS OF PINE/HEMLOCK BARK MULCH OVER A 5 OZ. POLYPROPYLENE WEED CONTROL FABRIC.
- PAVEMENT AND ROAD BASE MATERIAL ENCOUNTERED IN ANY LAWN OR PLANTING BED SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR AND SUITABLE AMENDED SOIL INSTALLED AS SPECIFIED ABOVE.
- NOT LESS THAN FOUR INCHES (4") OF LOAM SHALL BE RESTORED TO ALL DISTURBED AREAS INTENDED FOR LAWNS, PLANTING BEDS OR FOR NATURAL RE-GROWTH.
- LANDSCAPING PLAN TO MEET ALL APPLICABLE TOWN REGULATIONS IN SECTION 10 OF THE TOWN OF MERRIMACK'S SITE PLAN REGULATIONS INCLUDING BUFFER REQUIREMENTS AS AGREED UPON WITH THE PLANNING BOARD TO STAFF'S DISCRETION.
- ONLY LOW PHOSPHATE, SLOW RELEASE NITROGEN FERTILIZERS SHALL BE USED ON LAWN AREAS.

LANDSCAPE IRRIGATION SYSTEM DESIGN NOTES:

- LANDSCAPE/IRRIGATION SYSTEM CONTRACTOR SHALL FURNISH AND INSTALL AN UNDERGROUND IRRIGATION SYSTEM CAPABLE OF PROVIDING SEASONAL COVERAGE OVER THOSE AREAS DESIGNATED ON THIS PLAN.
- PRIOR TO THE INSTALLATION OF IRRIGATION SYSTEM, LANDSCAPE/IRRIGATION SYSTEM CONTRACTOR SHALL SUBMIT DETAILED SHOP DRAWINGS OF SYSTEM TOGETHER WITH CATALOGUE CUTS OF ALL HEADS, VALVING, CONTROLLER EQUIPMENT, PIPING AND BACKFLOW PREVENTION EQUIPMENT AND APPURTENANCES TO DESIGN ENGINEER FOR REVIEW AND APPROVAL. INSTALLATION OF SYSTEM SHALL NOT COMMENCE UNTIL DESIGN ENGINEER HAS APPROVED SAID SHOP DRAWINGS IN WRITING AND INFORMED THE GENERAL CONTRACTOR OF THE SAME. BACKFLOW PREVENTION AND WATER SUPPLY CONNECTIONS TO CONFORM TO THE REQUIREMENTS OF THE WATER PROVIDER.

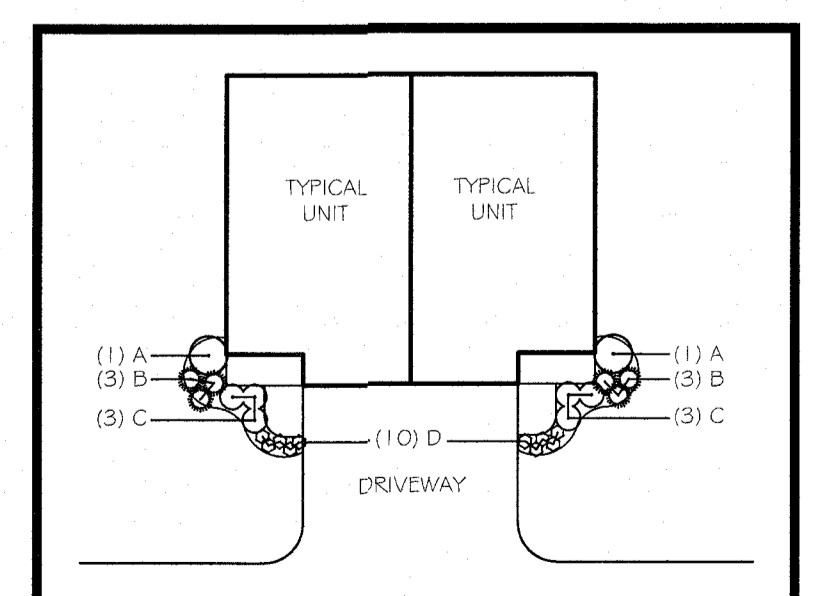
LOAM & SEED ALL DISTURBED AREAS (TYP.)

LANDSCAPE CALCULATIONS

PROPOSED PAVED AREA = 110,740 SF
 PROPOSED PARKING SPACES = 69
 REQUIRED SHADE TREES:
 1 SHADE TREE / 1,600 SF OF PAVED AREA OR, 1 SHADE TREE / 5 PARKING SPACES
 110,740 / 1,600 = 69 SHADE TREES REQUIRED
 TREES PROVIDED = 69 SHADE TREES + 12 EVERGREENS PROPOSED = 81 TREES TOTAL
 REQUIRED SHRUBS:
 1 SHRUB / 200 SF OF PAVED AREA OR, 1.6 SHRUBS / 1 PARKING SPACES
 110,740 / 200 = 554 SHRUBS REQUIRED
 SHRUBS PROVIDED = 840 SHRUBS PROPOSED AROUND UNITS

UNIT PLANTING PLANT SCHEDULE			
SYMBOL	PLANT NAME - SCIENTIFIC / COMMON	SIZE	QUANTITY
A	<i>Hydrangea p. 'Pinkie Winky' / Pinkie Winky Panicle Hydrangea</i>	2-2.5' B&B	2
	<i>Syringa mayen 'Palibin' / Dwarf Korean Lilac</i>	2-2.5' B&B	
	<i>Viburnum carlesii / Mayflower Viburnum</i>	2-2.5' B&B	
B	<i>Calamagrostis a. 'Karl Foerster' / Karl Foerster Feather Reed Grass</i>	#2	6
	<i>Panicum virgatum 'Shenandoah' / Shenandoah Switch Grass</i>	#2	
C	<i>Hydrangea paniculata 'Bobo' / Bobo Panicle Hydrangea</i>	#2	6
	<i>Physocarpus opulifolius 'Burgundy Candy' / Burgundy Candy Ninebark</i>	#2	
	<i>Spiraea bumalda 'Goldflame' / Goldflame Spiraea</i>	#2	
	<i>Hemerocallis 'Happy Returns' / Happy Returns Daylily</i>	#1	
D	<i>Nepeta 'Walker's Low' / Walker's Low Catmint</i>	#1	10
	<i>Rudbeckia fulgida 'Goldstrum' / Goldstrum Black-Eyed Susan</i>	#1	

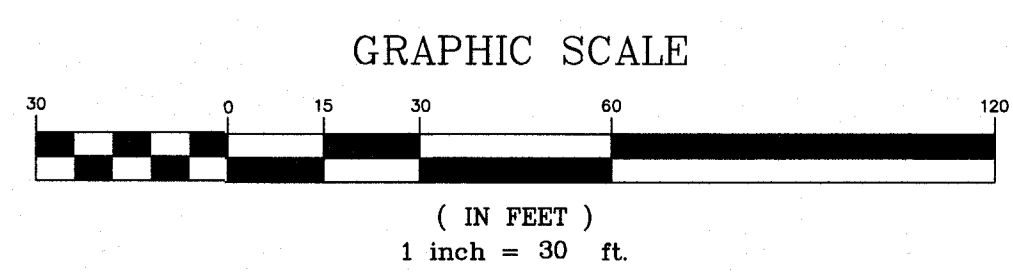
PLANTING SCHEDULE						
Botanical Name / Common Name	Size	Label	Quantity	Mature Height		
Trees						
<i>Acer rubrum 'Redpointe' / Redpointe Red Maple</i>	2.5-3" CAL.	AR	27	40-60'		
<i>Picea glauca / White Spruce</i>	6-7" B&B	PG	12	40-60'		
<i>Platanus x acerifolia 'Exclamation' / Exclamation Planetree</i>	2.5-3" CAL.	PA	19	40-60'		
<i>Tilia cordata 'Greenspire' / Greenspire Littleleaf Linden</i>	2.5-3" CAL.	TC	22	40-60'		



"TYPICAL UNIT LANDSCAPE"
NTS



- DECIDUOUS TREE
- EVERGREEN TREE
- FLOWERING OR ORNAMENTAL TREE
- LARGE EVERGREEN SHRUBS
- SMALL EVERGREEN SHRUBS
- PERENNIALS
- ORNAMENTAL GRASS
- GROUND COVER
- LARGE DECIDUOUS SHRUBS
- SMALL DECIDUOUS SHRUBS
- MASSING OF PERENNIALS
- NEW SHADE TREE



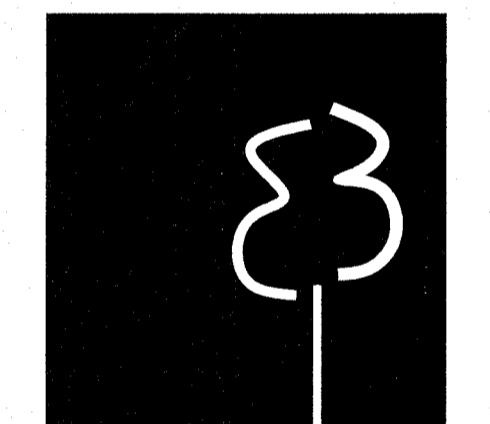
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terrain
planning & design llc

311 kast hill road
 hopkinton nh 03229
 603. 746. 3512
 terrainplanning.com

LANDSCAPE PLAN
SHEPHERDS HILL
 MAP 177 LOT 5
 SHADOWBROOK DRIVE
 HUDSON, NEW HAMPSHIRE
 HILLSBOROUGH COUNTY

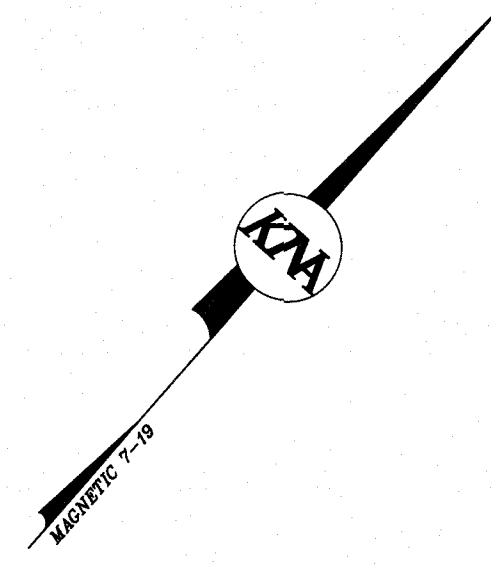
OWNER OF RECORD:
 SHEPHERDS HILL HOME OWNERS ASSOCIATION
 C/O GREAT NORTH PROPERTY MANAGEMENT
 3 HOLLAND WAY, SUITE 201
 EXETER, NH 03833

APPLICANT:
 SHEPHERDS HILL, LLC
 253 MAIN STREET
 NASHUA, NH 03060

KMA KEACH-NORDSTROM ASSOCIATES, INC.
 Civil Engineering Land Surveying Landscape Architecture
 10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

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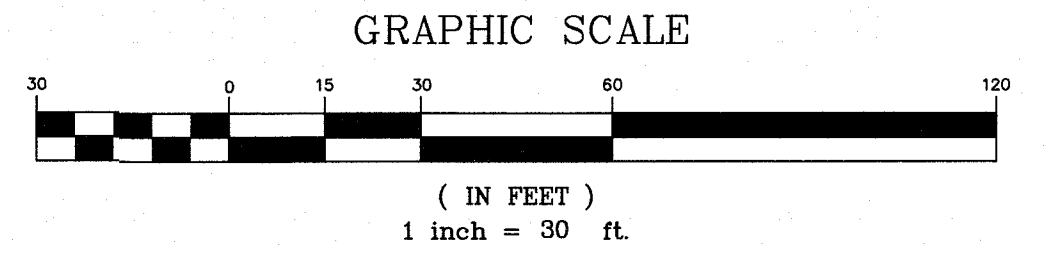
DATE: MAY 2, 2022 SCALE: 1"=30'
 PROJECT NO: 17-0824-1 SHEET 28 OF 51



MATCH SHEET 30



SEE SHEET 28 FOR LANDSCAPE NOTES & LEGEND



LANDSCAPE PLAN
SHEPHERDS HILL
 MAP 177 LOT 5
 SHADOWBROOK DRIVE
 HUDSON, NEW HAMPSHIRE
 HILLSBOROUGH COUNTY

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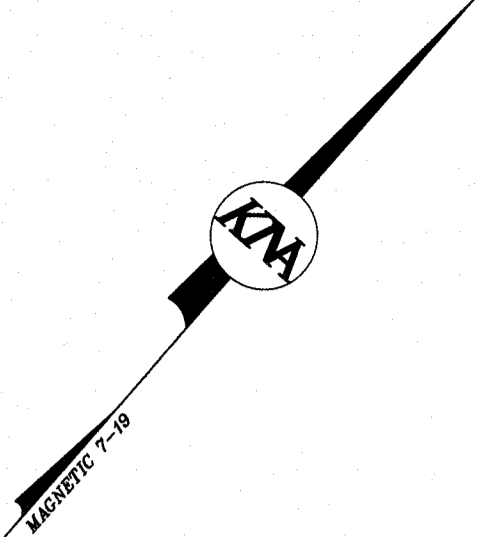
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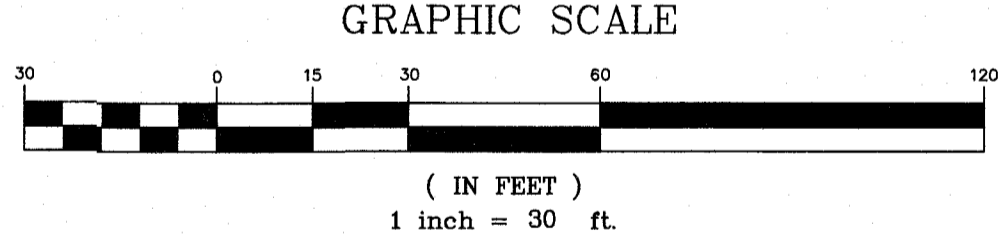
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PROJECT NO: 17-0824-1		SHEET 30 OF 51	

MATCH SHEET 29



SEE SHEET 28 FOR LANDSCAPE NOTES & LEGEND



LANDSCAPE PLAN
SHEPHERDS HILL
MAP 177 LOT 5
SHADOWBROOK DRIVE
HUDSON, NEW HAMPSHIRE
HILLSBOROUGH COUNTY

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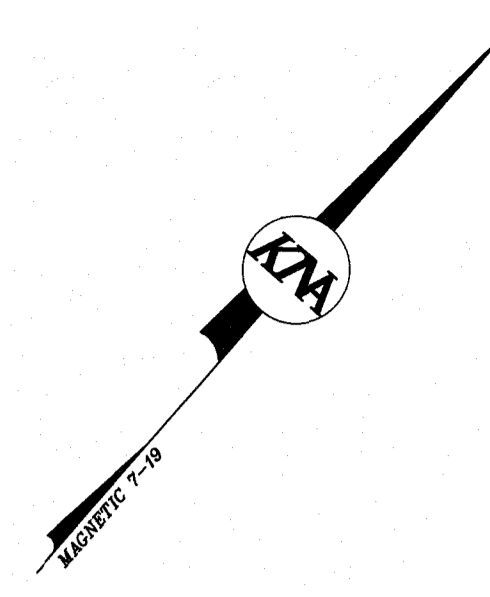
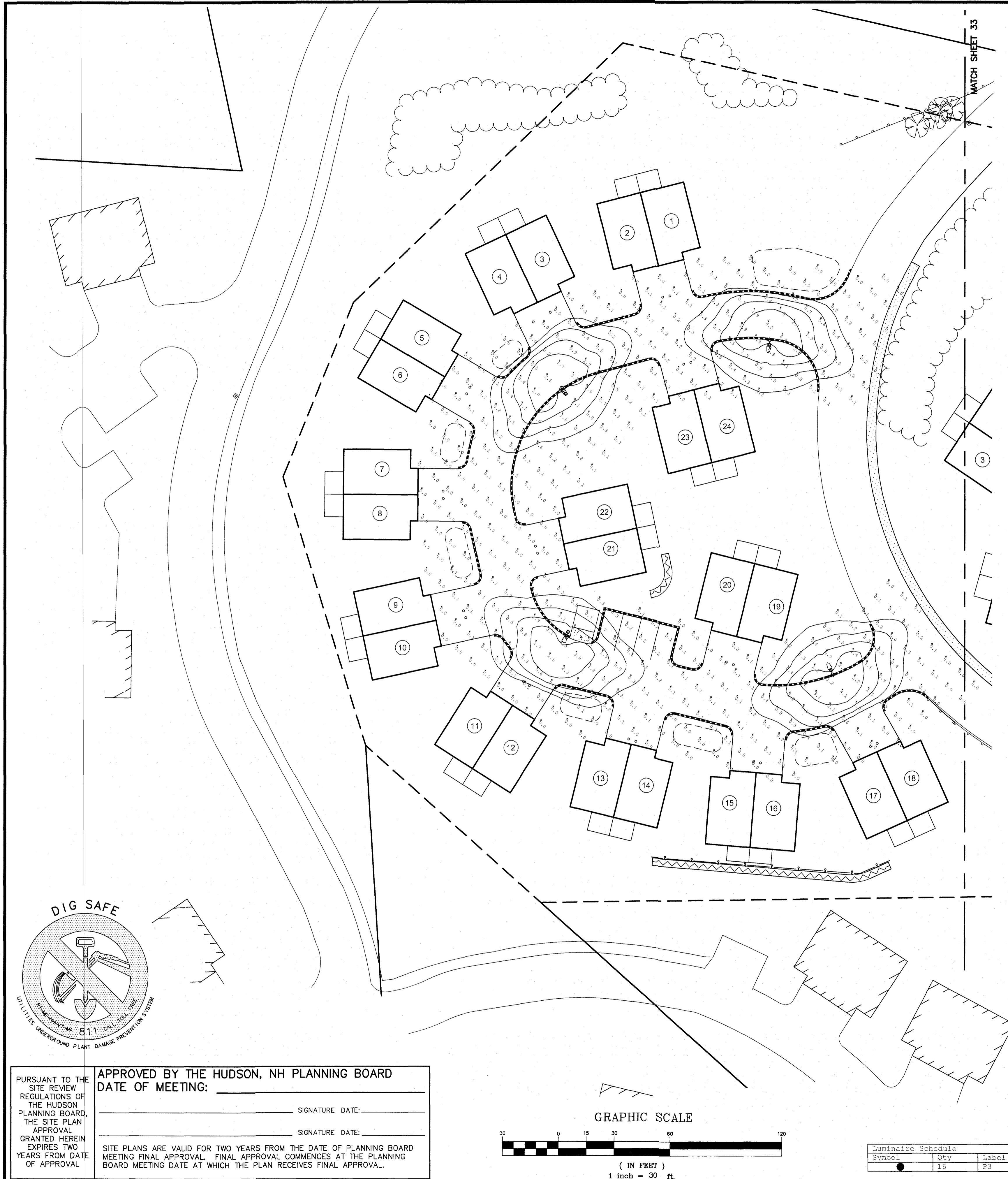
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PROJECT NO: 17-0824-1 SHEET 31 OF 51



- LIGHTING NOTES:**
- ALL LIGHTING FIXTURES AND POLES SHALL MATCH PREVIOUS PROJECT PHASE(S) EXISTING LIGHTING IN COLOR, SHAPE AND DESIGN TO THE MAXIMUM EXTENT PRACTICABLE.
 - LIGHTS SHALL BE ON DURING ALL NIGHTTIME HOURS.
 - SEE ELECTRICAL PLANS FOR ADDITIONAL INFORMATION REGARDING LIGHT INSTALLATION AND WIRING REQUIREMENTS.
 - ALL PROPOSED LIGHTING SHALL MEET IES FULL CUT-OFF CLASSIFICATION.
 - ALL LIGHTING MUST COMPLY WITH THE TOWN OF HUDSON'S SUBDIVISION/SITE PLAN REGULATIONS.
 - ALL FINAL SITE LIGHTING AND CONDUIT LAYOUT SHALL BE COORDINATED WITH LOCAL UTILITY PROVIDER.
 - LIGHT POLES SHOULD BE PLACED 4' FROM EDGE OF PAVEMENT WHEREVER POSSIBLE.
 - UTILITY CONTACT INFORMATION:
PSNH
(800) 362-7764
PSNESH@PSNH.COM
DERRY WORK CENTER
16A STREET

PEMCO LIGHTING PRODUCTS Est. 1982
A GSSI COMPANY

PLB210

DECORATIVE ALUMINUM POLES

Specifications and Features:

- 2" - 8" x 12" standard heights
- Straight, smooth or fluted poles.

Shaft
Smooth or fluted tubing uses 6061-T6 aluminum alloy while tapered poles use 6061 aluminum alloy.

Structural Base
AS16 alloy sand cast aluminum, four bolt base. An extra large access cover is included. A grounding lug is also provided.

Tenons
T300-Standard for post top (2 7/8" OD x 3" tall)
T355-Standard for shepherd's crooks arms (2 7/8" OD x 5.5" tall)
SLV-Male sleeve welded to pole; ready for end-on-arm set-up (consult factory).

Anchor Bolts
Standards with each pole includes four 3/4" x 25" steel hot dip galvanized anchor bolts each with two nuts, two flat washers and one lock washer.

Accessories
GFI-C/Weatherproof GFI in-use cover, cast aluminum (must indicate location)
GFI-W/Weatherproof GFI in-use cover, plastic (must indicate location)
DBS-Direct burial shaft to convert pole to embedded/buried installation. 48" shaft with anti-rotation fins included.
USB-Dual USB Port (must indicate location)

Finish - Super Durable Polyester TGIC Powder Coat

- Standard finishes: high gloss black, textured steel, high gloss white, medium bronze, dark bronze, green, gray, silver metallic
- Premium finishes (add): Verde patina, powder patina, silver sparkle, semi-gloss or matte black
- Custom and Marine-grade finishes are available. All RAL colors are available to match (add).

PEMCO Lighting Products 155 Plover Way/Wilmington, DE 19804 Phone 302 892 9000 Fax 302 892 9005
www.pemcolighting.com info@pemcolighting.com PLB210 (1/07/20)
Send data sheets to: info@pemcolighting.com

PEMCO LIGHTING PRODUCTS Est. 1982
A GSSI COMPANY

LEXINGTON

POST TOPS

Specifications and Features:

Radiant™ LED

- Conformal Coating LED light engine
- CCT: 2700, 3000, 4000, 5000

Distribution

- Types II, III, IV, V

Electrical

- Electronic Driver, 120-277V, 50/60Hz or 347/480V, 50/60Hz
- 0-10V Dimmable Driver
- Surge Protection INCLUDED
- Surge protection device meets IEEE C62.41 2002 C High 10kA

Controls (Optional)

- Button eye photo control (PC)
- 3 pin twist-lock receptacle (PCR3)**
- 7 pin twist-lock receptacle (PCR7)**

Housing

- Choice of multiple cast decorative housings with 3" slip fit.

Finish

- Super durable polyester powder coat finish. Custom finishes available, including patinas and all RAL colors.

Listings & Ratings

- ETL listed to UL 1585 standard for wet location.

Warranty

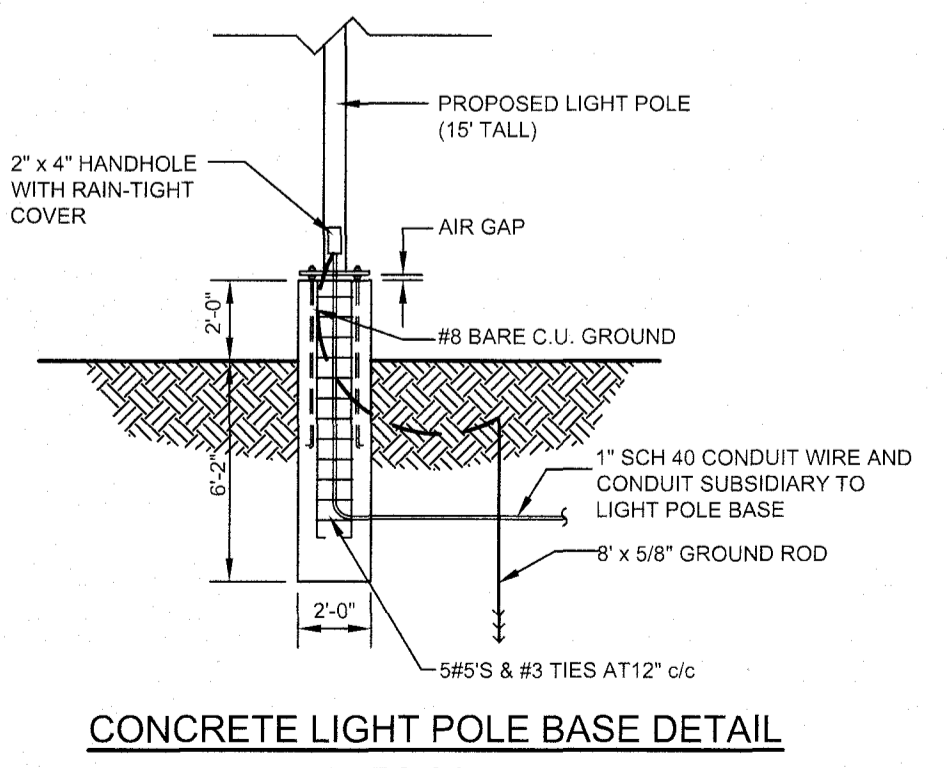
- 5 year limited warranty

LEXINGTON

Example: LEX-G1-70W4K-U-5-A1-T1-PC-F-BK

ORDERING FORMAT	Example: LEX-G1-70W4K-U-5-A1-T1-PC-F-BK
LEX	NL
LED	NL No Secondary Lens
Luminaire	None
Rating	None

PEMCO Lighting Products 155 Plover Way/Wilmington, DE 19804 Phone 302 892 9000 Fax 302 892 9005
www.pemcolighting.com info@pemcolighting.com Lexington (1/07/20)
Send data sheets to: info@pemcolighting.com



Luminaire Schedule

Symbol	Qty	Label	Arrangement	Description
●	16	P3	SINGLE	LEX-NL-60W3K-U-3-N-N-N / PLB-210-3-12-S-125-T300-N-COLOR



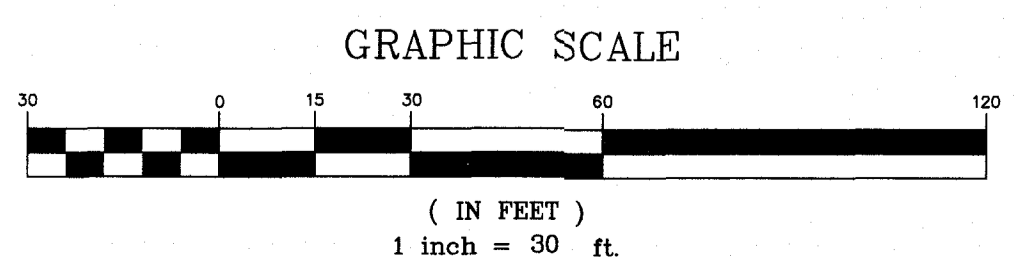
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IN ASSOCIATION WITH:

CHARRON
BRIGHTER.

P.O. BOX 4650
MANCHESTER, NH 03108
(603) 624-4827
FAX (603) 624-9764
SALES@CHARRONINC.COM

LIGHTING PLAN
SHEPHERDS HILL
MAP 177 LOT 5
SHADOWBROOK DRIVE
HUDSON, NEW HAMPSHIRE
HILLSBOROUGH COUNTY

OWNER OF RECORD: SHEPHERDS HILL HOME OWNERS ASSOCIATION
C/O GREAT NORTH PROPERTY MANAGEMENT
3 HOLLAND WAY, SUITE 201
EXETER, NH 03833

APPLICANT: SHEPHERDS HILL, LLC
253 MAIN STREET
NASHUA, NH 03060

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PROJECT NO: 17-0824-1 SHEET 32 OF 51

SEE SHEET 32 FOR
LIGHTING NOTES & DETAILS



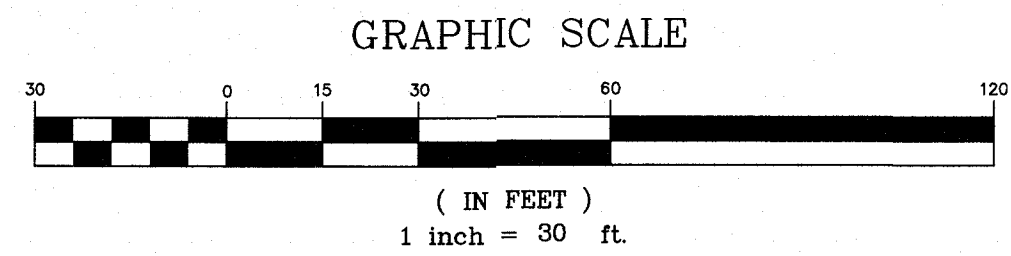
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SALES@CHARRON.COM

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MAP 177 LOT 5
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LIGHTING NOTES & DETAILS



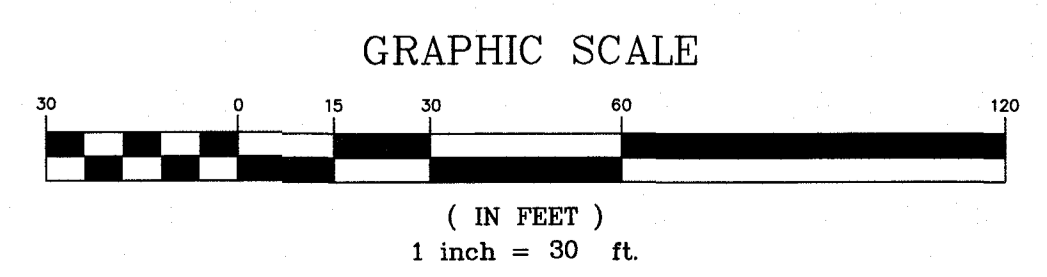
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LIGHTING PLAN
SHEPHERDS HILL
MAP 177 LOT 5
SHADOWBROOK DRIVE
HUDSON, NEW HAMPSHIRE
HILLSBOROUGH COUNTY

OWNER OF RECORD: SHEPHERDS HILL HOME OWNERS ASSOCIATION C/O GREAT NORTH PROPERTY MANAGEMENT 3 HOLLAND WAY, SUITE 201 EXETER, NH 03833	APPLICANT: SHEPHERDS HILL, LLC 253 MAIN STREET NASHUA, NH 03060
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KEACH-NORDSTROM ASSOCIATES, INC.
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10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

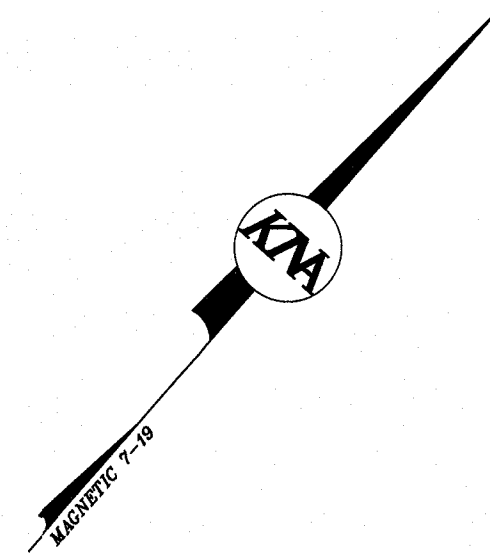
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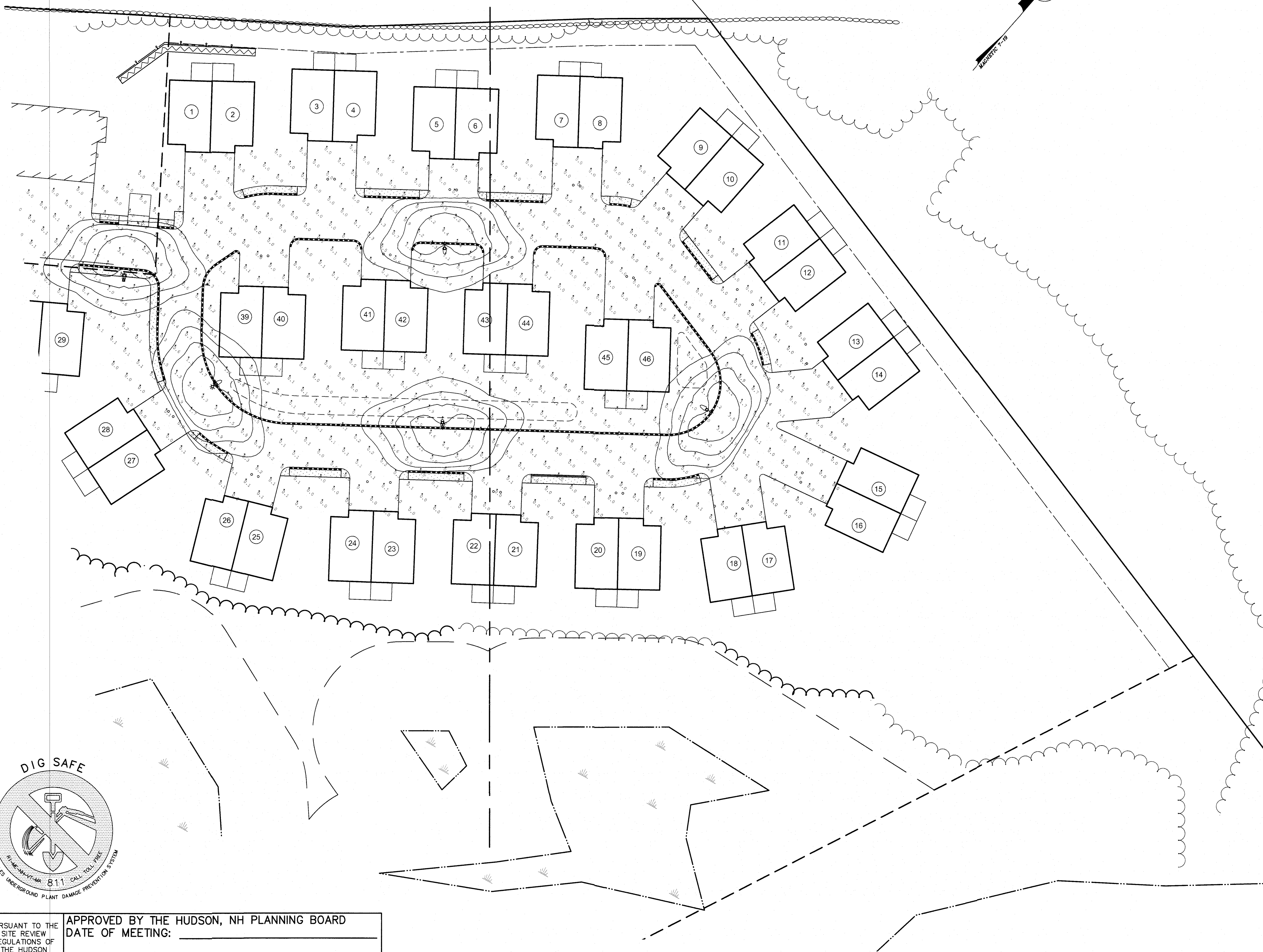
SCALE: 1"=30'

PROJECT NO: 17-0824-1 SHEET 34 OF 51

SEE SHEET 32 FOR
LIGHTING NOTES & DETAILS



MATCH SHEET 34



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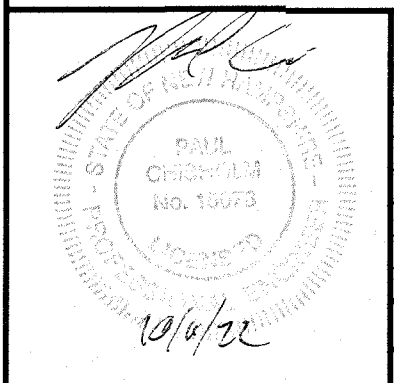
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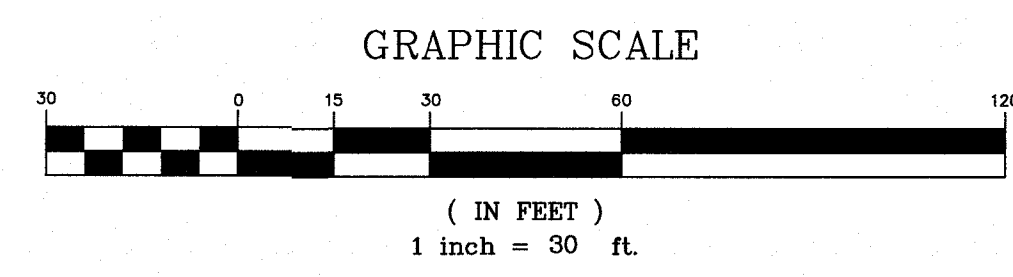
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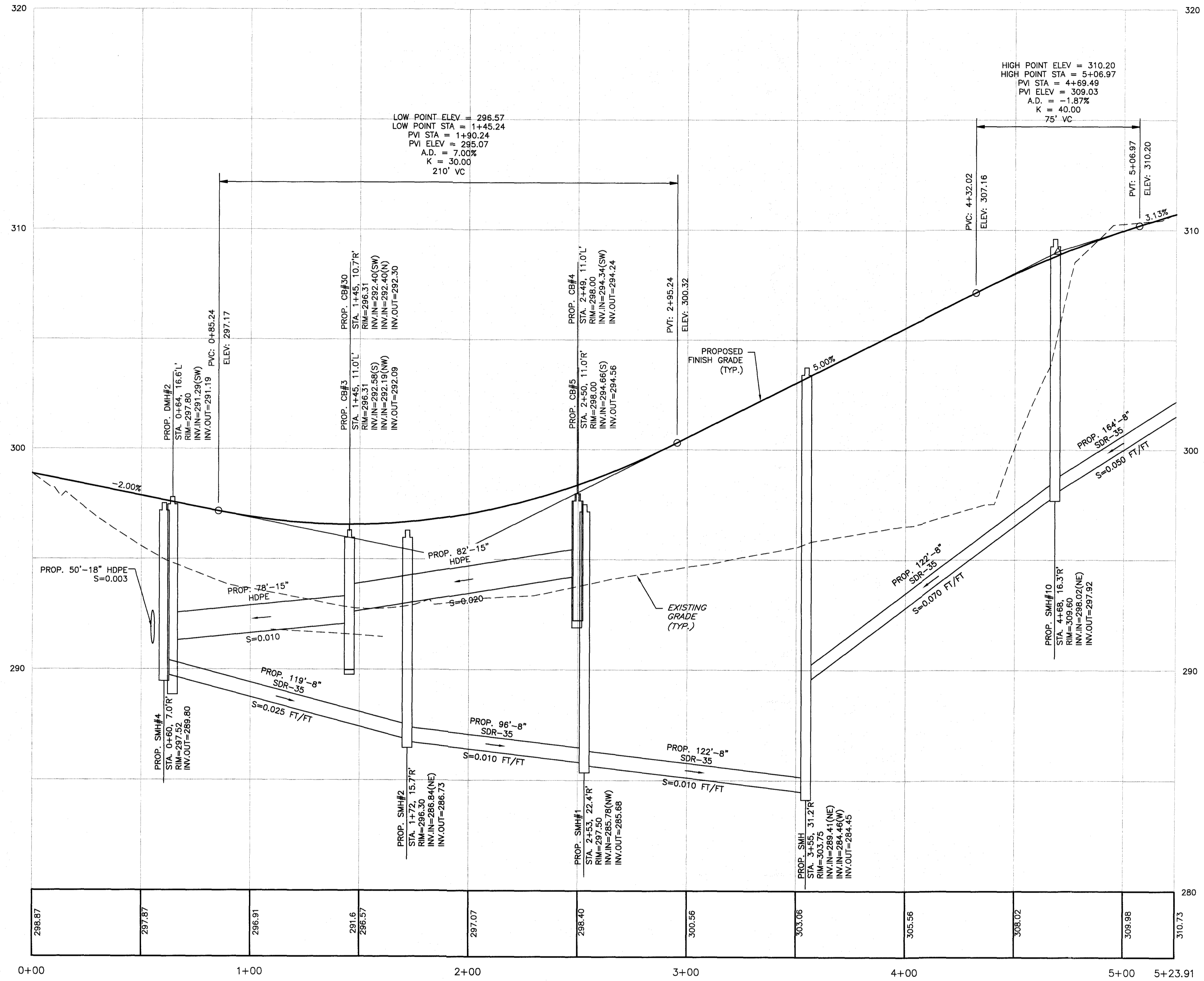
APPROVED BY THE HUDSON, NH PLANNING BOARD
DATE OF MEETING: _____

SIGNATURE DATE: _____

SIGNATURE DATE: _____

SITE PLANS ARE VALID FOR TWO YEARS FROM THE DATE OF PLANNING BOARD MEETING FINAL APPROVAL. FINAL APPROVAL COMMENCES AT THE PLANNING BOARD MEETING DATE AT WHICH THE PLAN RECEIVES FINAL APPROVAL.





GIFFORD CIRCLE PROFILE
 SCALE: 1" = 30' (HORIZ.)
 1" = 3' (VERT.)

**ROADWAY PROFILES
 SHEPHERDS HILL
 MAP 177 LOT 5
 SHADOWBROOK DRIVE
 HUDSON, NEW HAMPSHIRE
 HILLSBOROUGH COUNTY**

OWNER OF RECORD:
 SHEPHERDS HILL HOME OWNERS ASSOCIATION
 C/O GREAT NORTH PROPERTY MANAGEMENT
 3 HOLLAND WAY, SUITE 201
 EXETER, NH 03833

APPLICANT:
 SHEPHERDS HILL, LLC
 253 MAIN STREET
 NASHUA, NH 03060

KMA KEACH-NORDSTROM ASSOCIATES, INC.
 Civil Engineering Land Surveying Landscape Architecture
 10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

REVISIONS

No.	DATE	DESCRIPTION	BY
1	7/7/22	REVISED PER COMMENTS	ACL
2	10/6/22	REVISED PER TOWN COMMENTS	ACL

DATE: MAY 2, 2022 SCALE: 1"=30'
 PROJECT NO: 17-0824-1 SHEET 36 OF 51

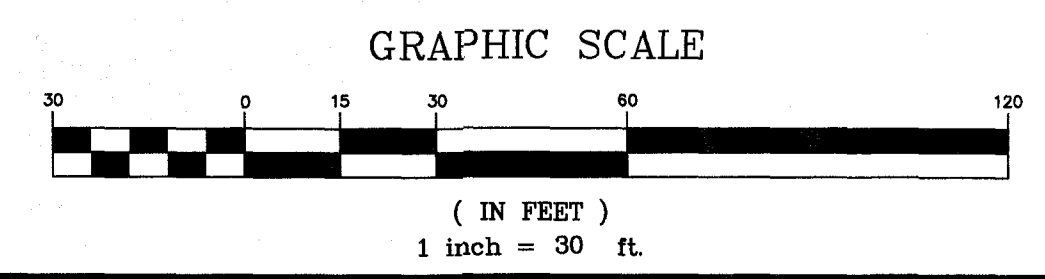
PURSUANT TO THE SITE REVIEW REGULATIONS OF THE HUDSON PLANNING BOARD, THE SITE PLAN APPROVAL GRANTED HEREIN EXPIRES ONE YEAR FROM DATE OF APPROVAL.

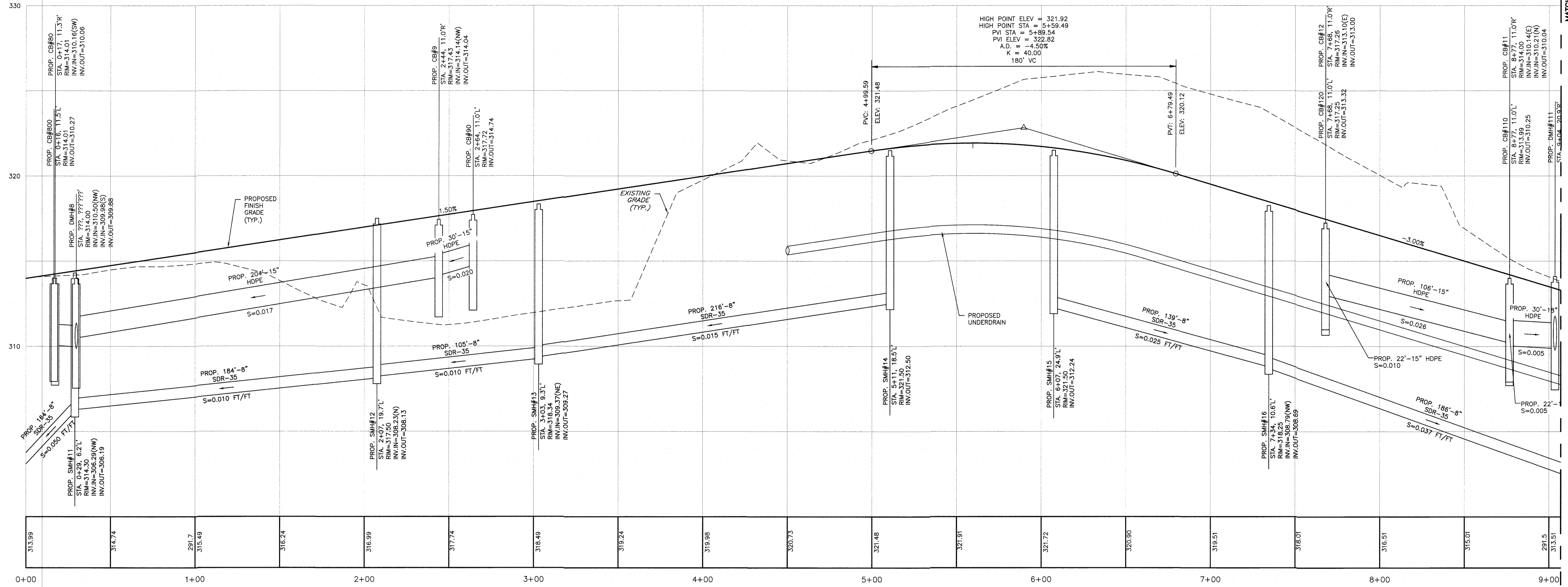
APPROVED BY THE HUDSON, NH PLANNING BOARD
 DATE OF MEETING: _____

 SIGNATURE DATE: _____

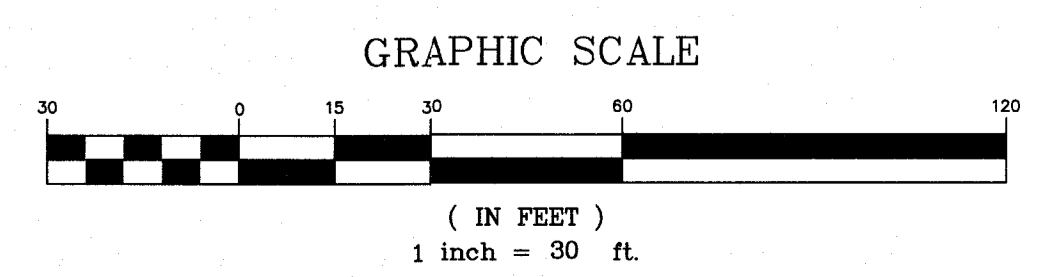
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TRINITY CIRCLE PROFILE
 SCALE: 1" = 30' (HORIZ.)
 1" = 3' (VERT.)



ROADWAY PROFILES
SHEPHERDS HILL
 MAP 177 LOT 5
 SHADOWBROOK DRIVE
 HUDSON, NEW HAMPSHIRE
 HILLSBOROUGH COUNTY

OWNER OF RECORD: SHEPHERDS HILL HOME OWNERS ASSOCIATION C/O GREAT NORTH PROPERTY MANAGEMENT 3 HOLLAND WAY, SUITE 201 EXETER, NH 03833	APPLICANT: SHEPHERDS HILL, LLC 253 MAIN STREET NASHUA, NH 03060
--	---

KMA
 KEACH-NORDSTROM ASSOCIATES, INC.
 Civil Engineering Land Surveying Landscape Architecture
 10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 827-2881

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2	10/6/22	REVISED PER TOWN COMMENTS	ACL

DATE: MAY 2, 2022 SCALE: 1"=30'
 PROJECT NO: 17-0824-1 SHEET 37 OF 51

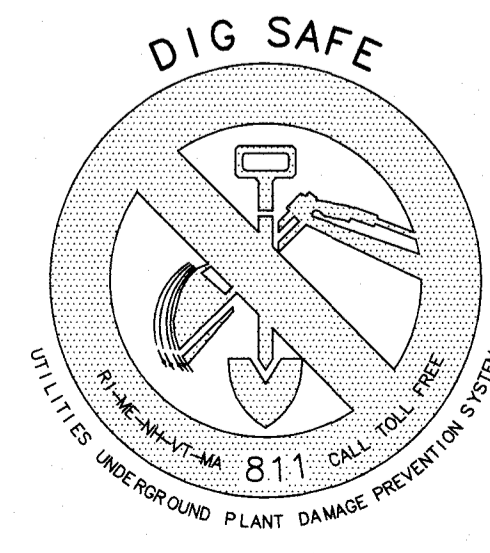
PURSUANT TO THE SITE REVIEW REGULATIONS OF THE HUDSON PLANNING BOARD, THE SITE PLAN APPROVAL GRANTED HEREIN EXPIRES ONE YEAR FROM DATE OF APPROVAL.

APPROVED BY THE HUDSON, NH PLANNING BOARD
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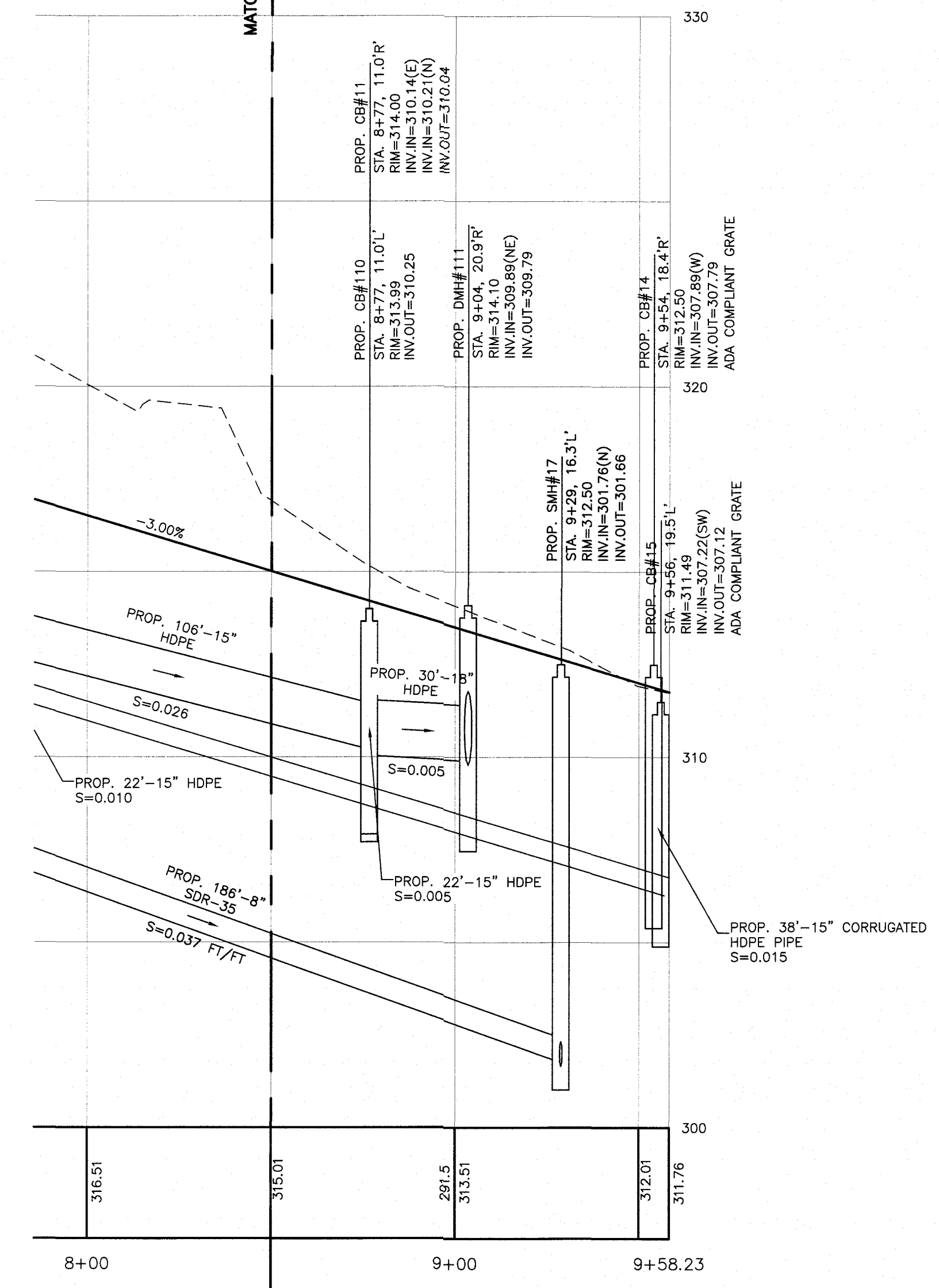
 SIGNATURE DATE: _____

 SIGNATURE DATE: _____

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MATCH SHEET 37



TRINITY CIRCLE PROFILE
 SCALE: 1" = 30' (HORIZ.)
 1" = 3' (VERT.)

ROADWAY PROFILES
SHEPHERDS HILL
 MAP 177 LOT 5
 SHADOWBROOK DRIVE
 HUDSON, NEW HAMPSHIRE
 HILLSBOROUGH COUNTY

OWNER OF RECORD: SHEPHERDS HILL HOME OWNERS ASSOCIATION C/O GREAT NORTH PROPERTY MANAGEMENT 3 HOLLAND WAY, SUITE 201 EXETER, NH 03833	APPLICANT: SHEPHERDS HILL, LLC 253 MAIN STREET NASHUA, NH 03060
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KMA KEACH-NORDSTROM ASSOCIATES, INC.
 Civil Engineering Land Surveying Landscape Architecture
 10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

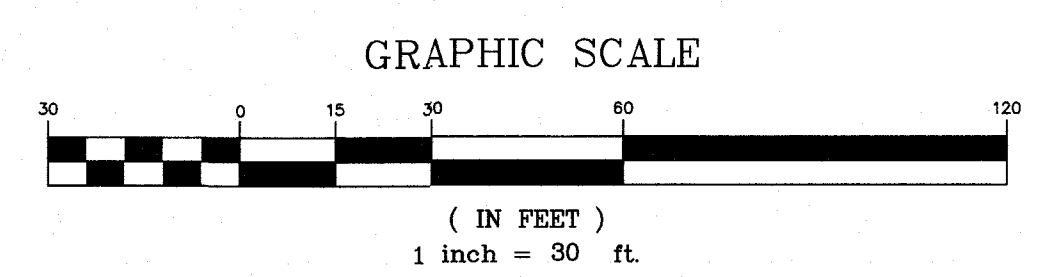
REVISIONS			
No.	DATE	DESCRIPTION	BY
1	7/7/22	REVISED PER COMMENTS	ACL
2	10/6/22	REVISED PER TOWN COMMENTS	ACL

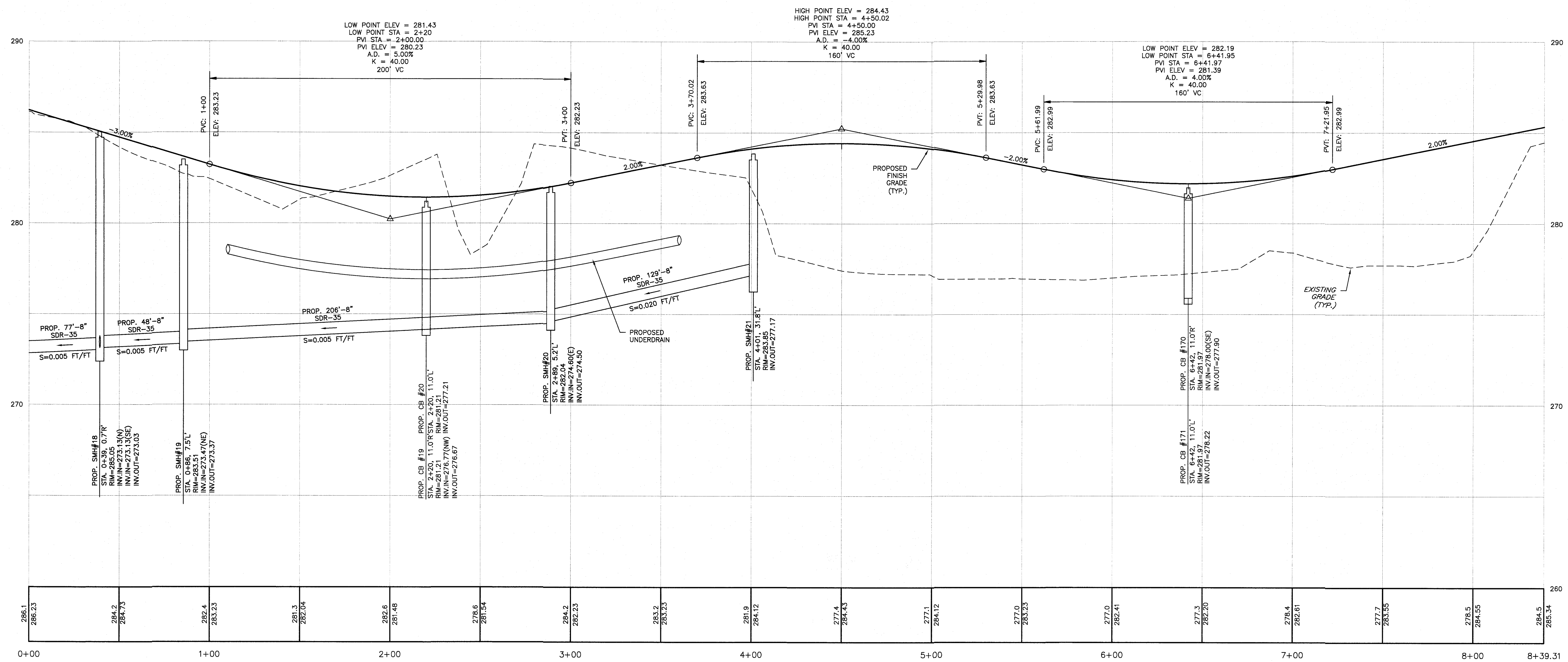
DATE: MAY 2, 2022 SCALE: 1"=30'
 PROJECT NO: 17-0824-1 SHEET 38 OF 51

PURSUANT TO THE SITE REVIEW REGULATIONS OF THE HUDSON PLANNING BOARD, THE SITE PLAN APPROVAL GRANTED HEREIN EXPIRES ONE YEAR FROM DATE OF APPROVAL.

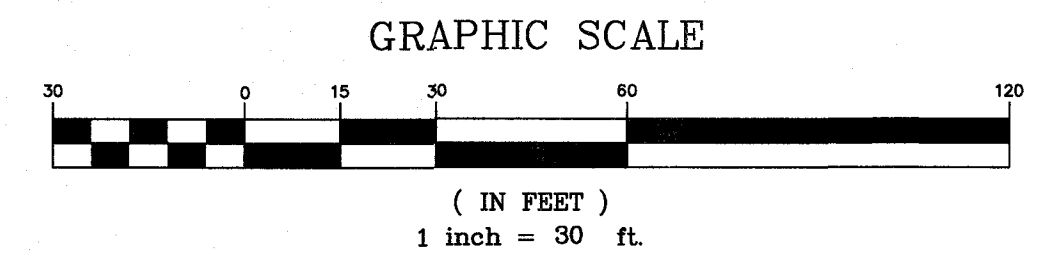
APPROVED BY THE HUDSON, NH PLANNING BOARD
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CLEARVIEW CIRCLE PROFILE
 SCALE: 1" = 30' (HORIZ.)
 1" = 3' (VERT.)



ROADWAY PROFILES
SHEPHERDS HILL
 MAP 177 LOT 5
 SHADOWBROOK DRIVE
 HUDSON, NEW HAMPSHIRE
 HILLSBOROUGH COUNTY

OWNER OF RECORD: SHEPHERDS HILL HOME OWNERS ASSOCIATION C/O GREAT NORTH PROPERTY MANAGEMENT 3 HOLLAND WAY, SUITE 201 EXETER, NH 03833	APPLICANT: SHEPHERDS HILL, LLC 253 MAIN STREET NASHUA, NH 03060
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 10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

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2	10/6/22	REVISED PER TOWN COMMENTS	ACL

DATE: MAY 2, 2022 SCALE: 1"=30'
 PROJECT NO: 17-0824-1 SHEET 39 OF 51

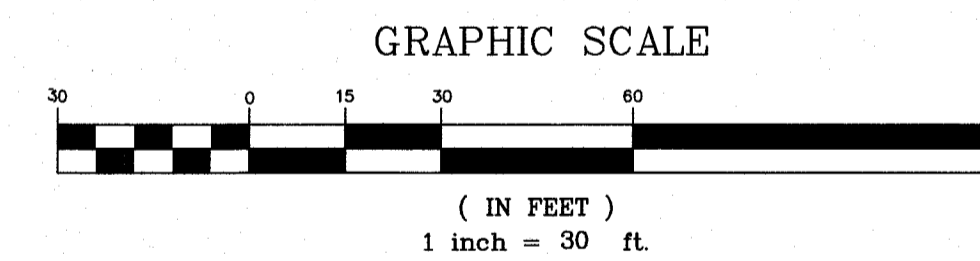
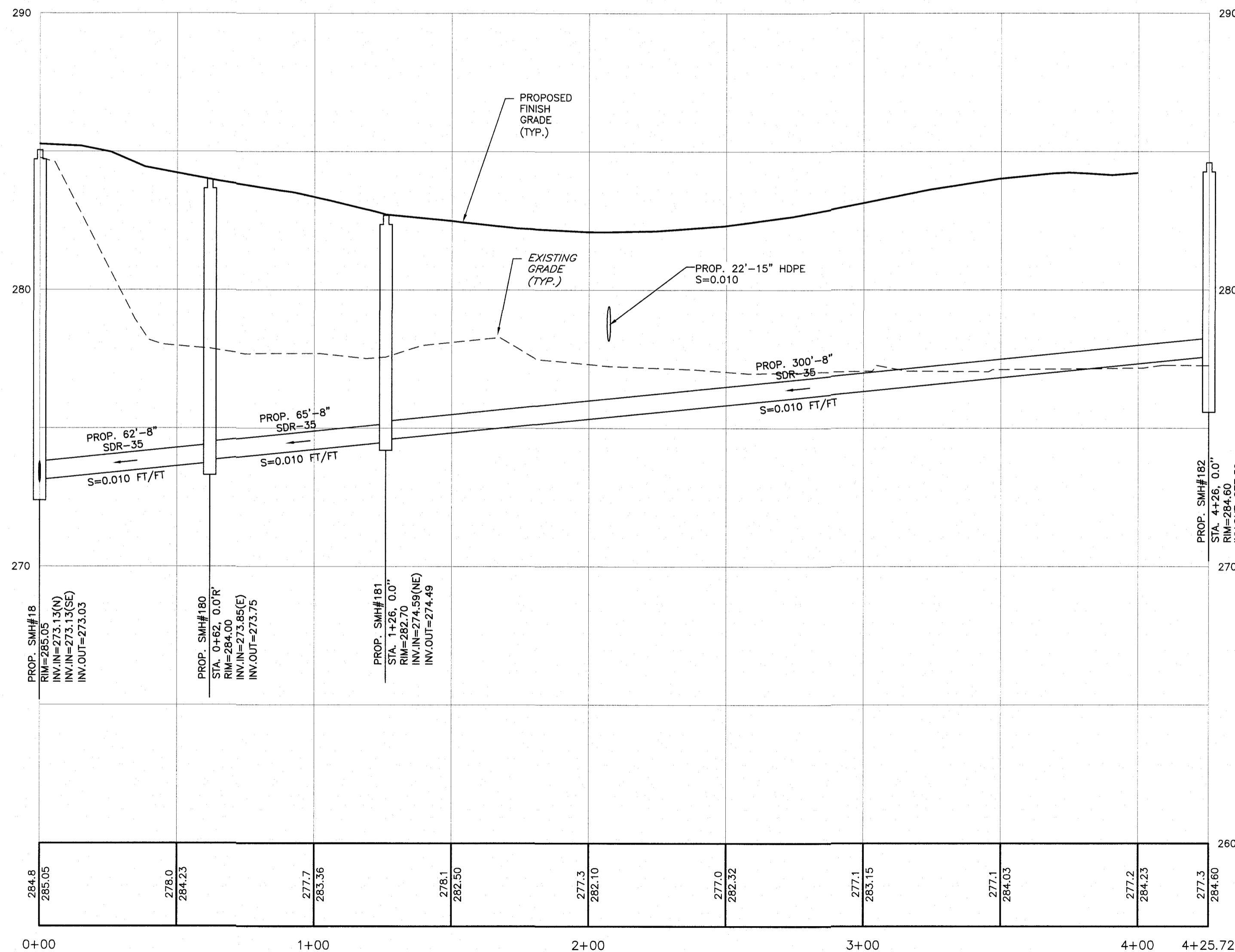
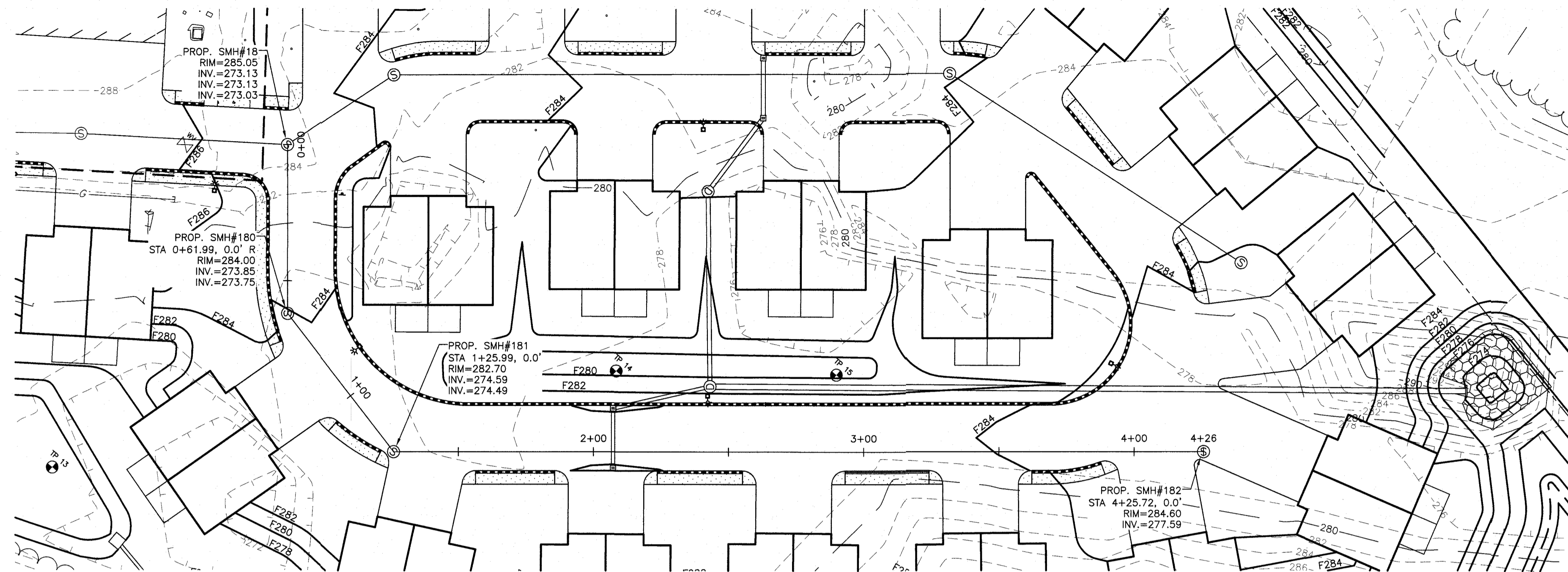
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SEWER PLAN & PROFILE
SHEPHERDS HILL
 MAP 177 LOT 5
 SHADOWBROOK DRIVE
 HUDSON, NEW HAMPSHIRE
 HILLSBOROUGH COUNTY

OWNER OF RECORD: SHEPHERDS HILL HOME OWNERS ASSOCIATION C/O GREAT NORTH PROPERTY MANAGEMENT 3 HOLLAND WAY, SUITE 201 EXETER, NH 03833	APPLICANT: SHEPHERDS HILL, LLC 253 MAIN STREET NASHUA, NH 03060
--	---

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 10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

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2	10/6/22	REVISED PER TOWN COMMENTS	ACL

DATE: MAY 2, 2022 SCALE: 1"=30'
 PROJECT NO: 17-0824-1 SHEET 40 OF 51

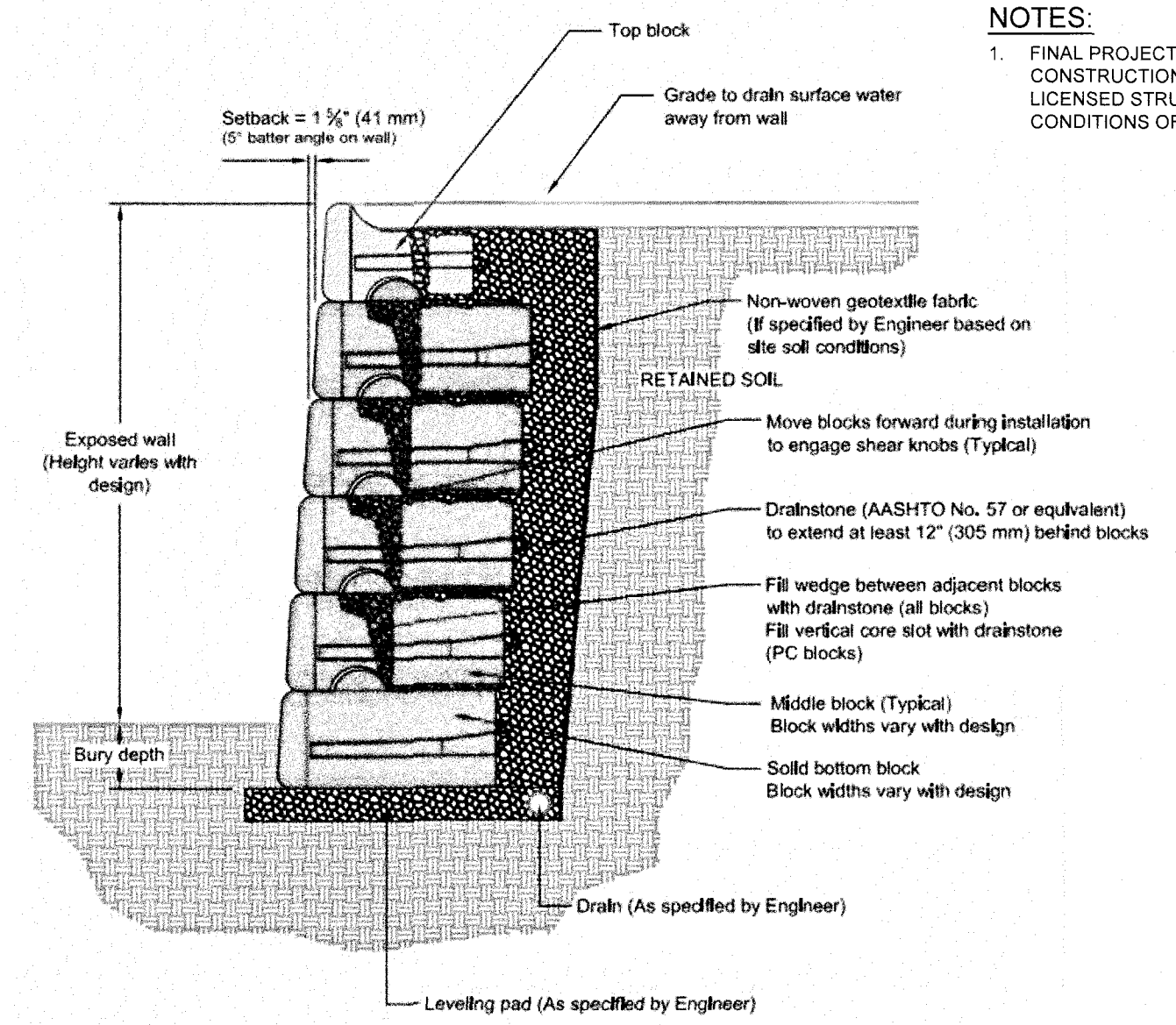
PURSUANT TO THE SITE REVIEW REGULATIONS OF THE HUDSON PLANNING BOARD, THE SITE PLAN APPROVAL GRANTED HEREIN EXPIRES ONE YEAR FROM DATE OF APPROVAL.

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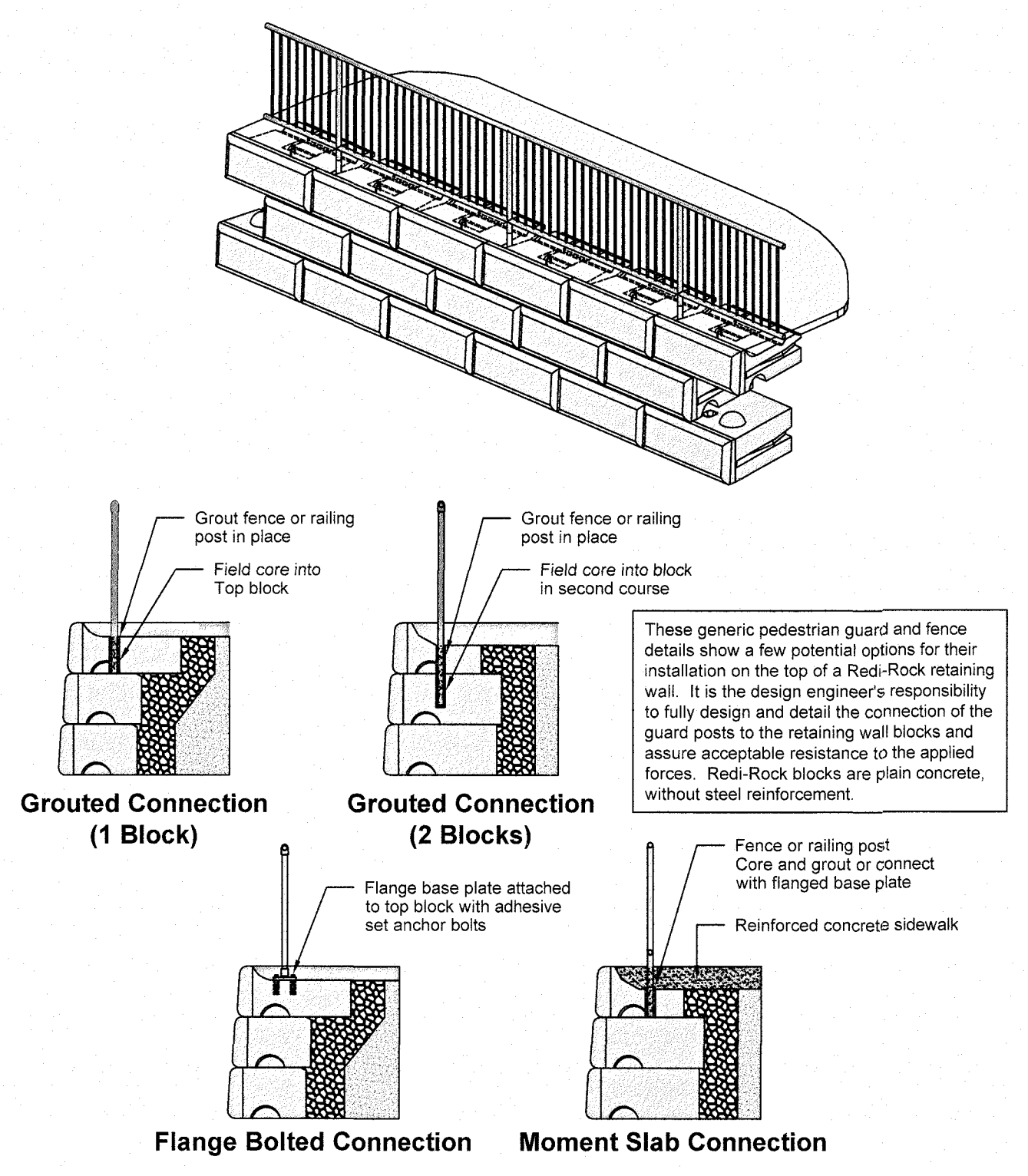
CLEARVIEW CIRCLE SEWER PROFILE

SCALE: 1" = 30' (HORIZ.)
 1" = 3' (VERT.)

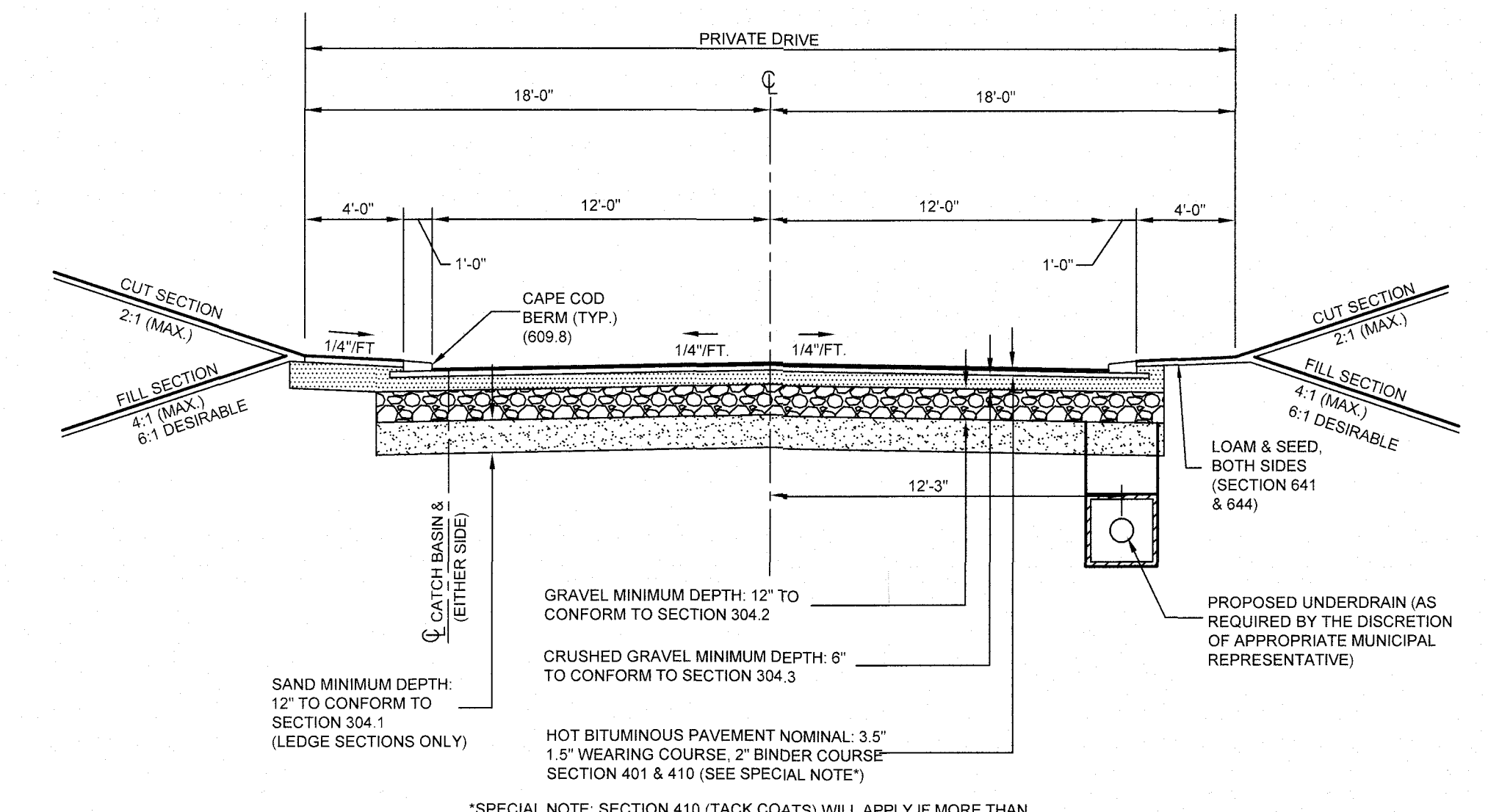


REDI-ROCK TYPICAL GRAVITY WALL DETAIL
NOT TO SCALE

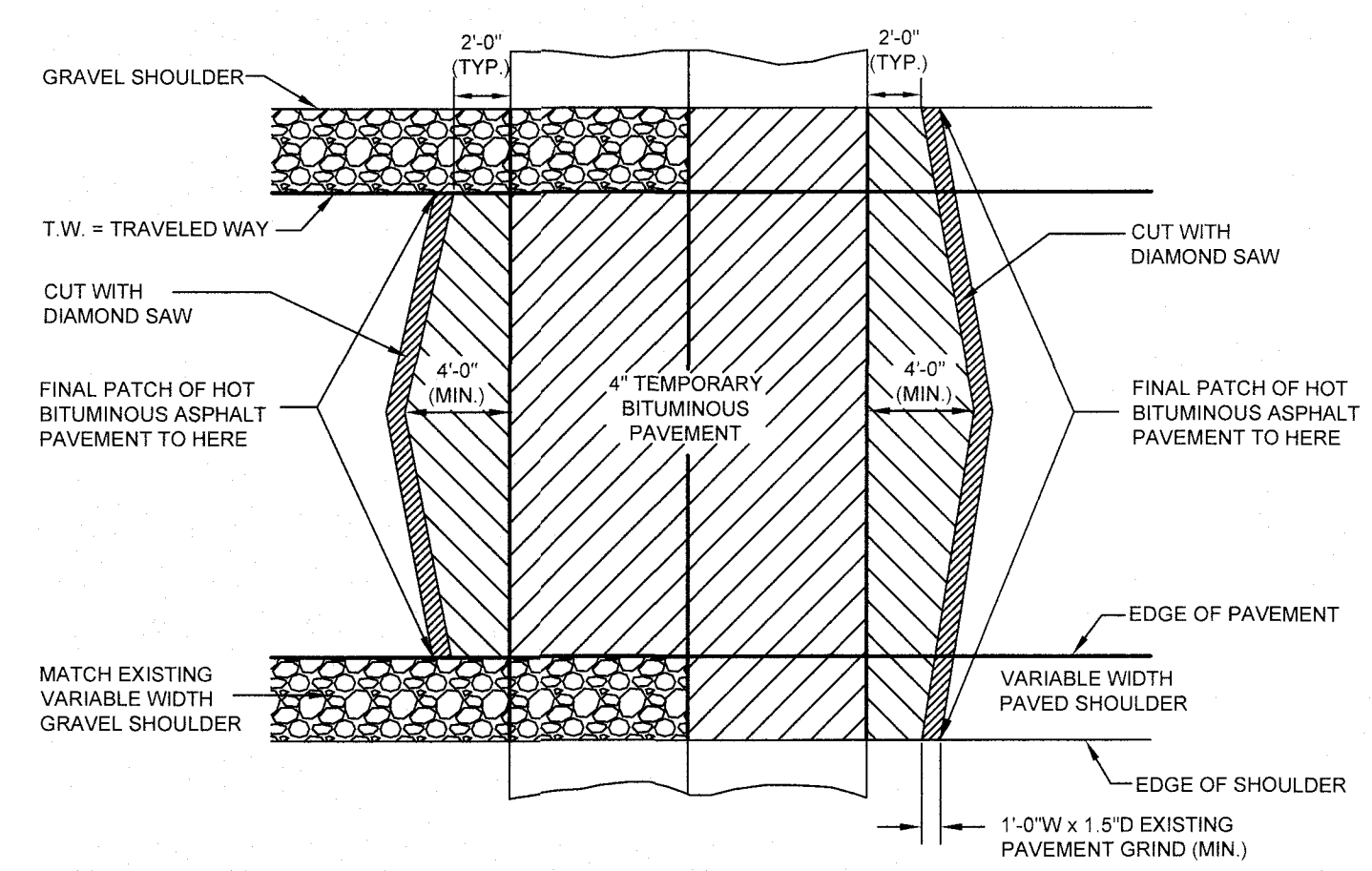
NOTES:
1. FINAL PROJECT DESIGNS, INCLUDING ALL CONSTRUCTION DETAILS, SHALL BE PREPARED BY A LICENSED STRUCTURAL ENGINEER USING THE ACTUAL CONDITIONS OF THE PROPOSED SITE.



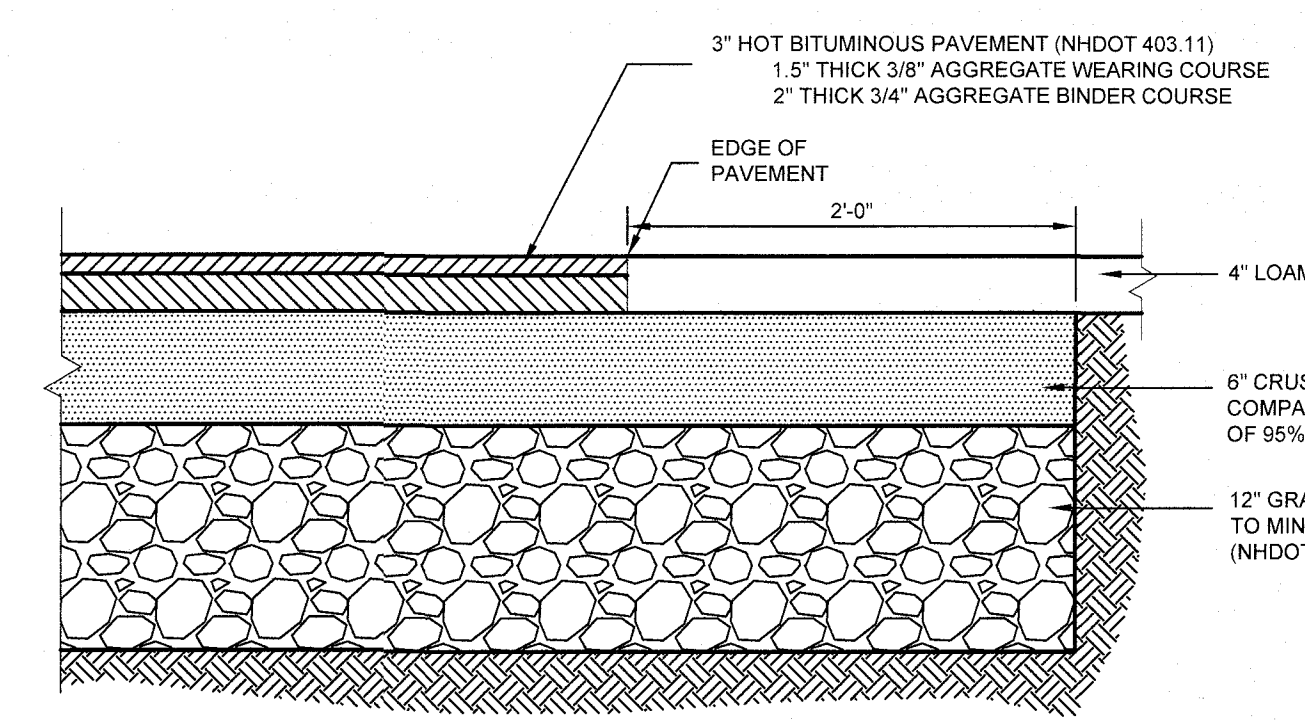
REDI-ROCK PEDESTRIAN GUARD
NOT TO SCALE



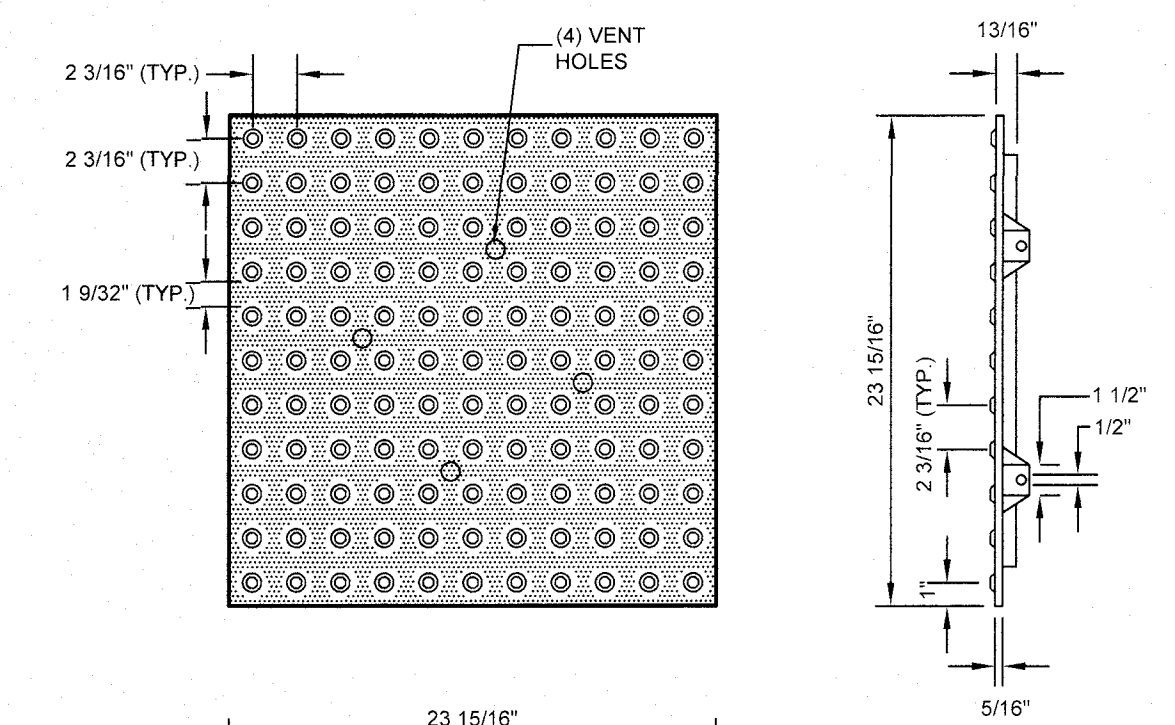
TYPICAL PRIVATE ROADWAY CROSS SECTION
NOT TO SCALE



PERMANENT PAVEMENT REPAIR
NOT TO SCALE

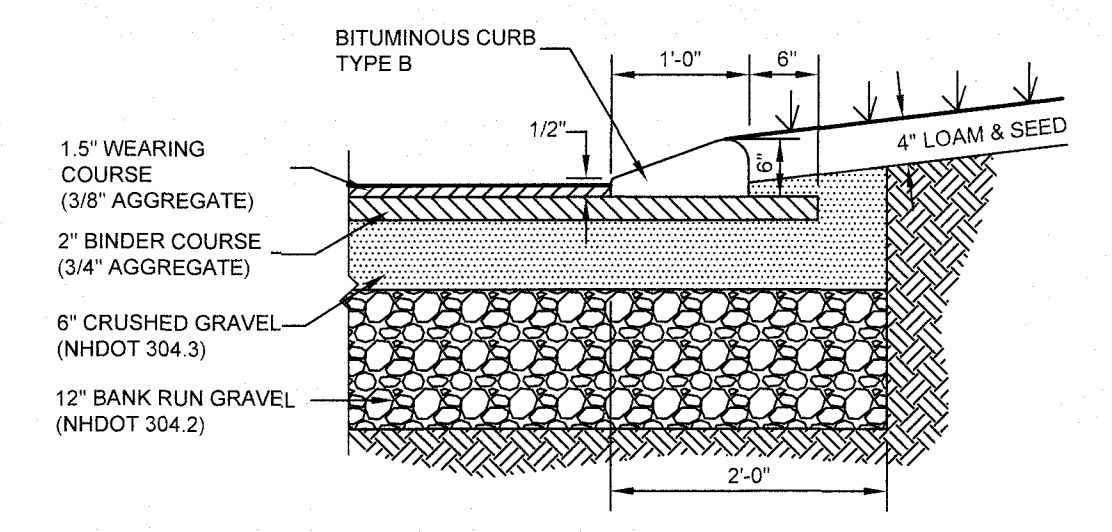


DRIVEWAY SECTION
NOT TO SCALE
(MARCH 2008)

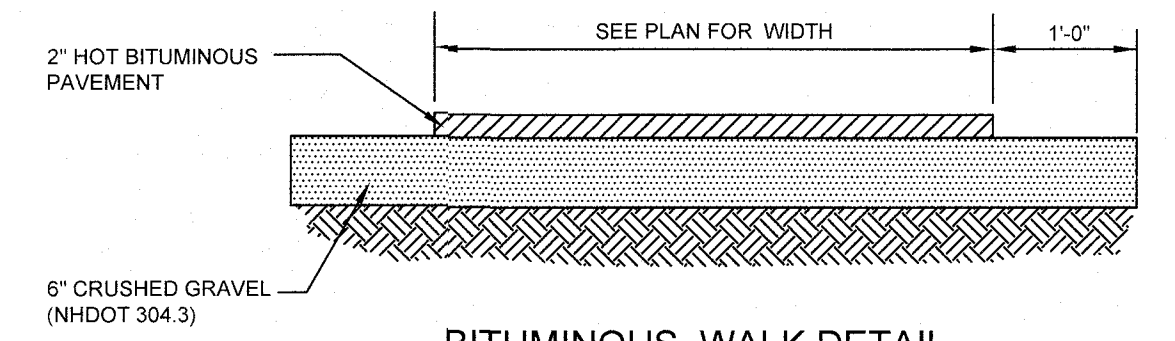


NOTES:
1. DETECTABLE WARNING PLATE SHALL BE NEENAH FOUNDRY OR APPROVED EQUAL.
2. THE PLATE MUST COMPLY WITH ADAAG (AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES) AND ARCHITECTURAL BARRIER ACT GUIDELINES.
3. MATERIAL SHALL BE CAST GRAY IRON.
4. FINISH: NO PAINT.
24\"/>

24\"/>



BITUMINOUS CURB TYPE B DETAIL
NOT TO SCALE
(MARCH 2008)



BITUMINOUS WALK DETAIL
NOT TO SCALE
(MARCH 2008)

PURSUANT TO THE SITE REVIEW REGULATIONS OF THE HUDSON PLANNING BOARD, THE SITE PLAN APPROVAL GRANTED HEREIN EXPIRES TWO YEAR FROM DATE OF APPROVAL.

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CONSTRUCTION DETAILS
SHEPHERDS HILL
MAP 177 LOT 5
SHADOWBROOK DRIVE
HUDSON, NEW HAMPSHIRE
HILLSBOROUGH COUNTY

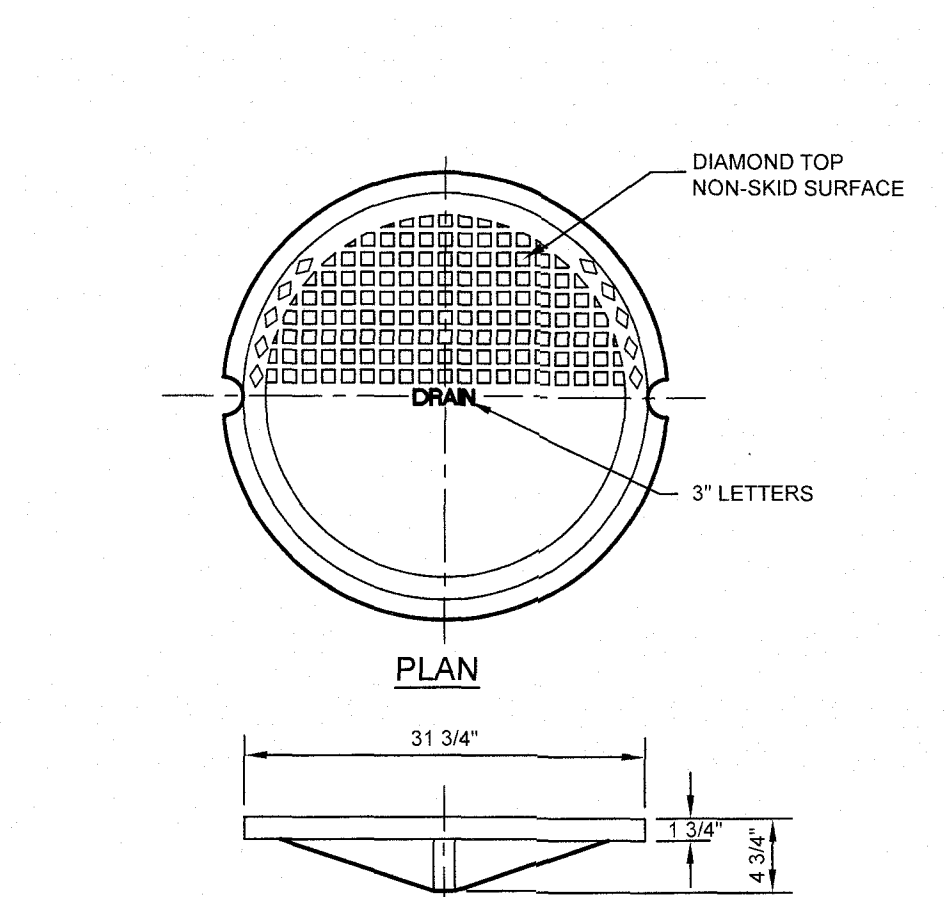
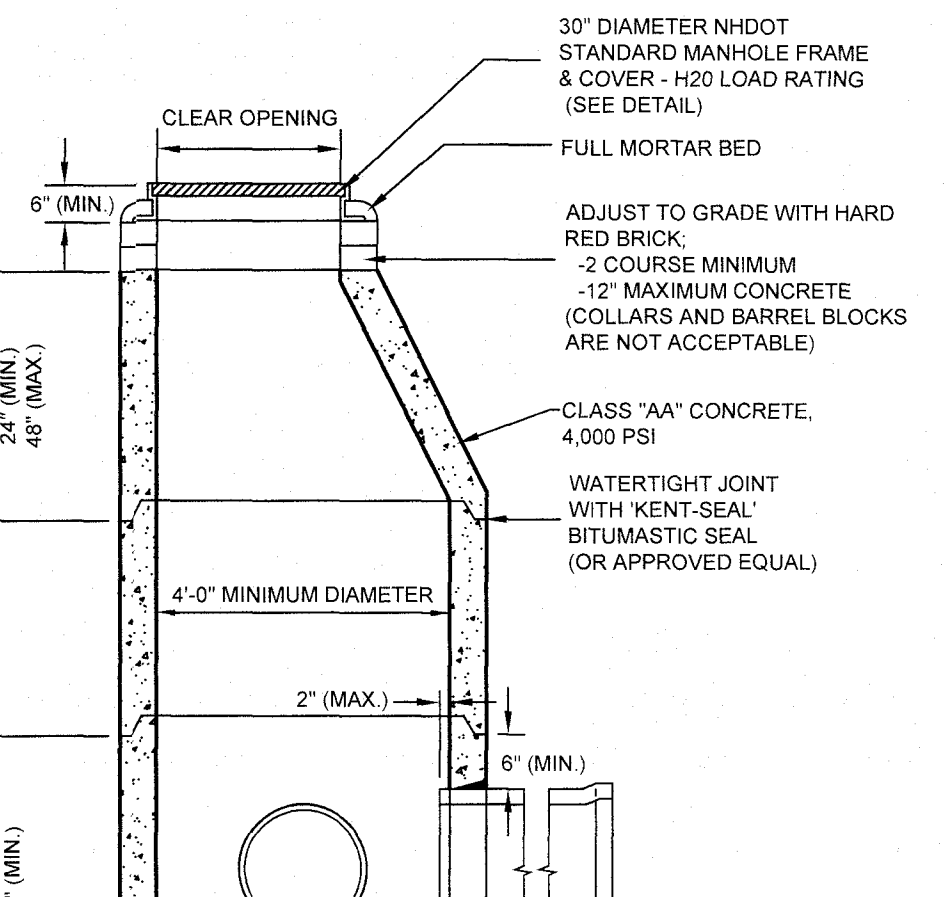
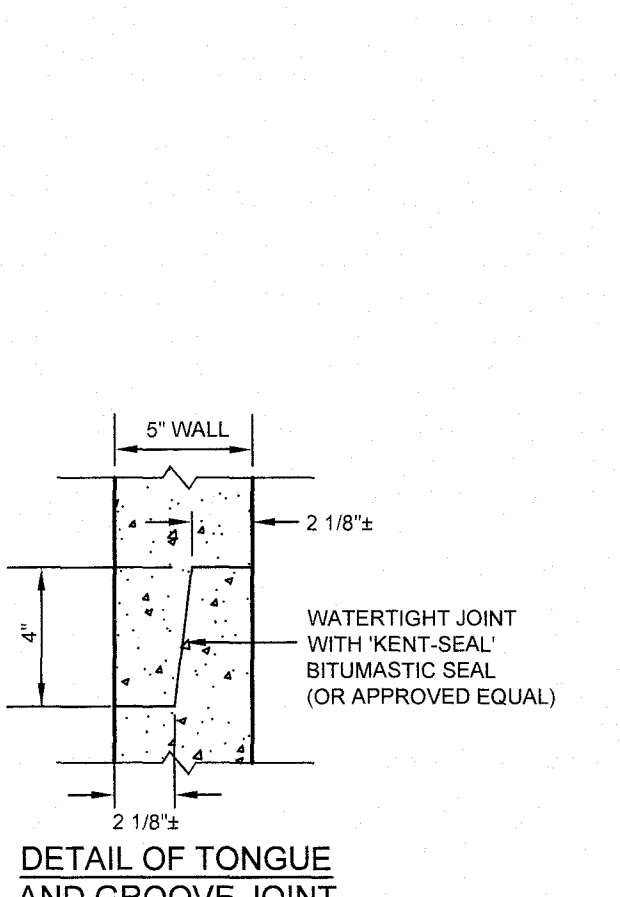
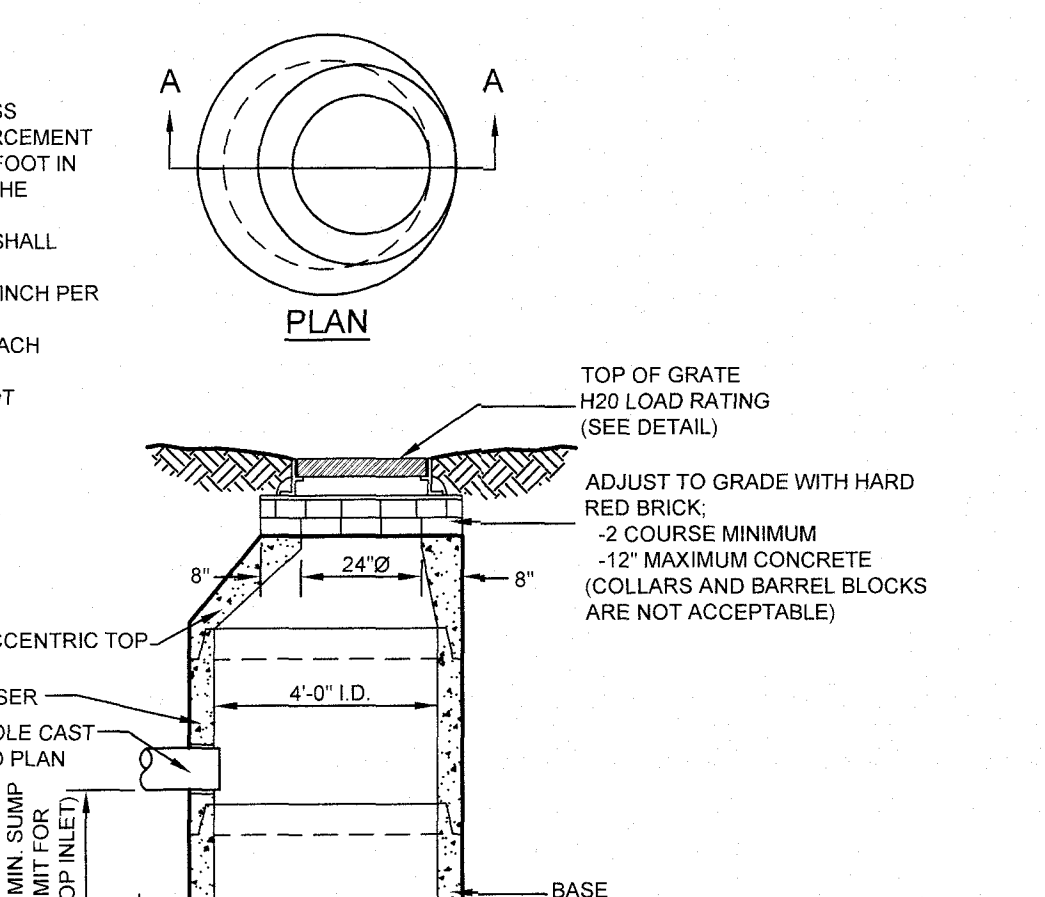
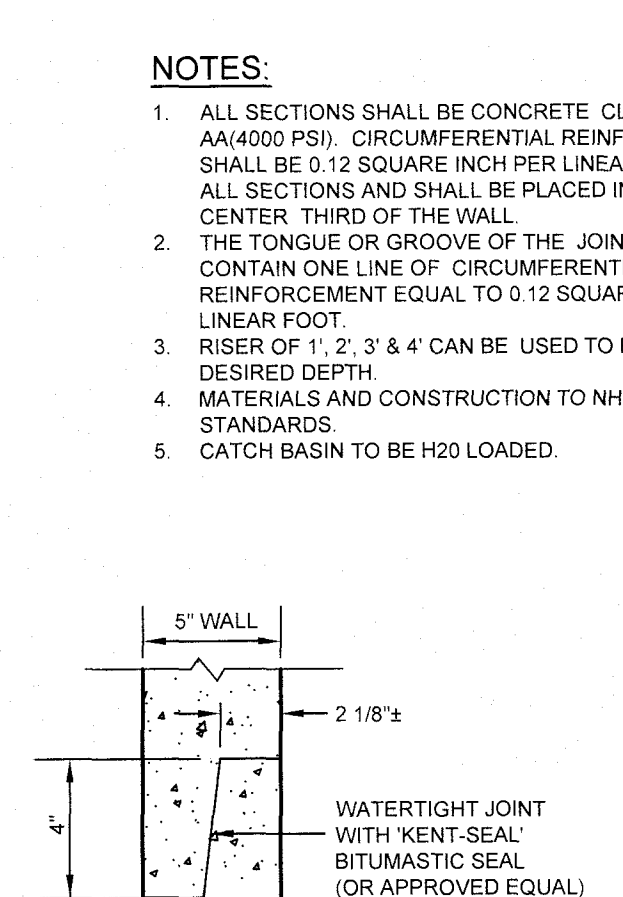
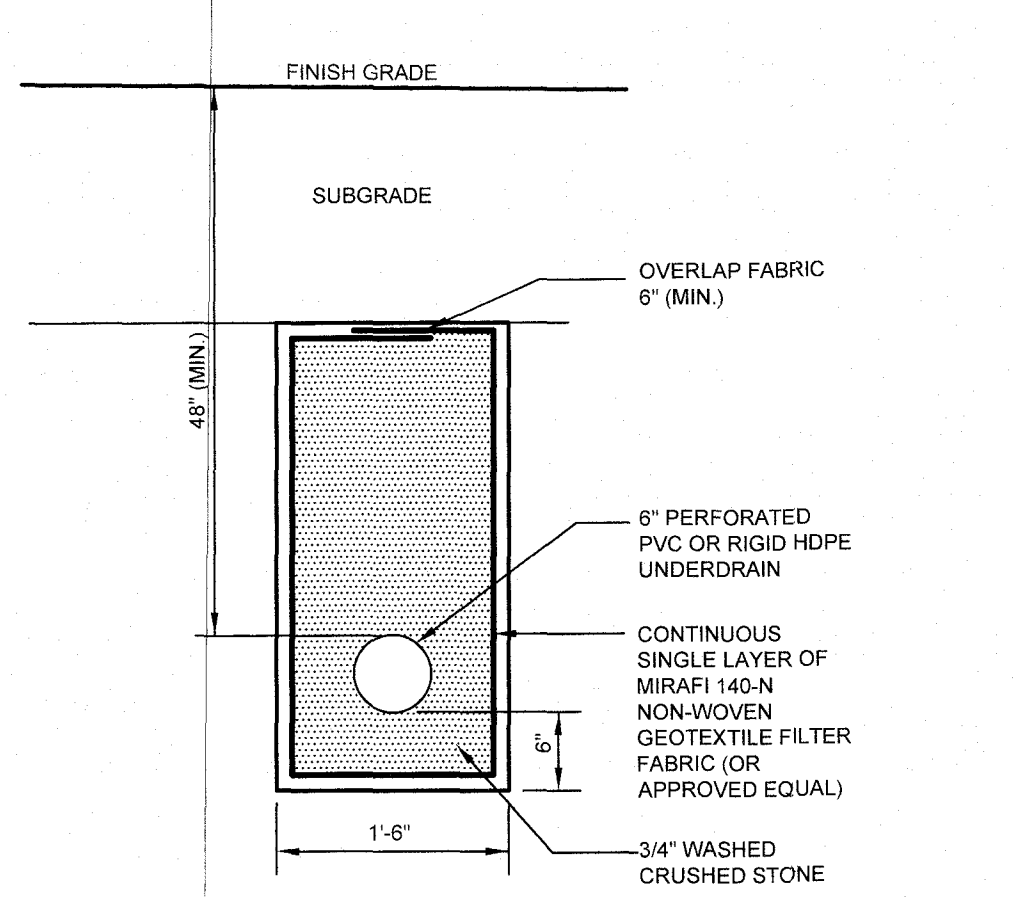
OWNER OF RECORD: SHEPHERDS HILL HOME OWNERS ASSOCIATION
C/O GREAT NORTH PROPERTY MANAGEMENT
3 HOLLAND WAY, SUITE 201
EXETER, NH 03833

APPLICANT: SHEPHERDS HILL, LLC
253 MAIN STREET
NASHUA, NH 03060

KM KEACH-NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

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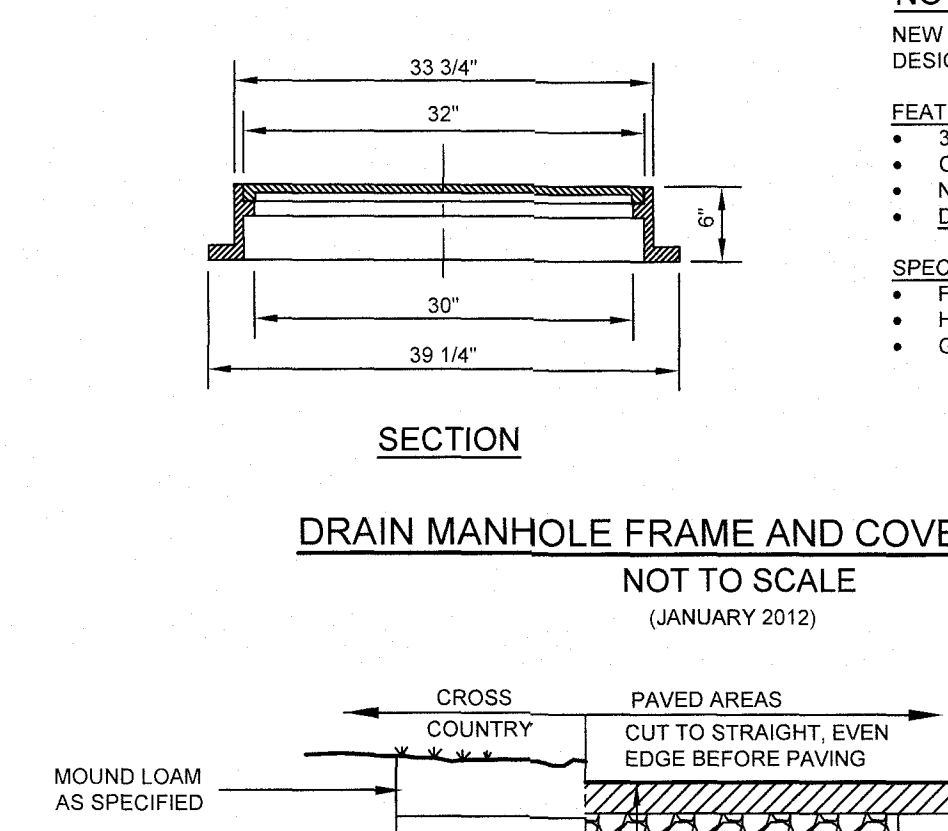
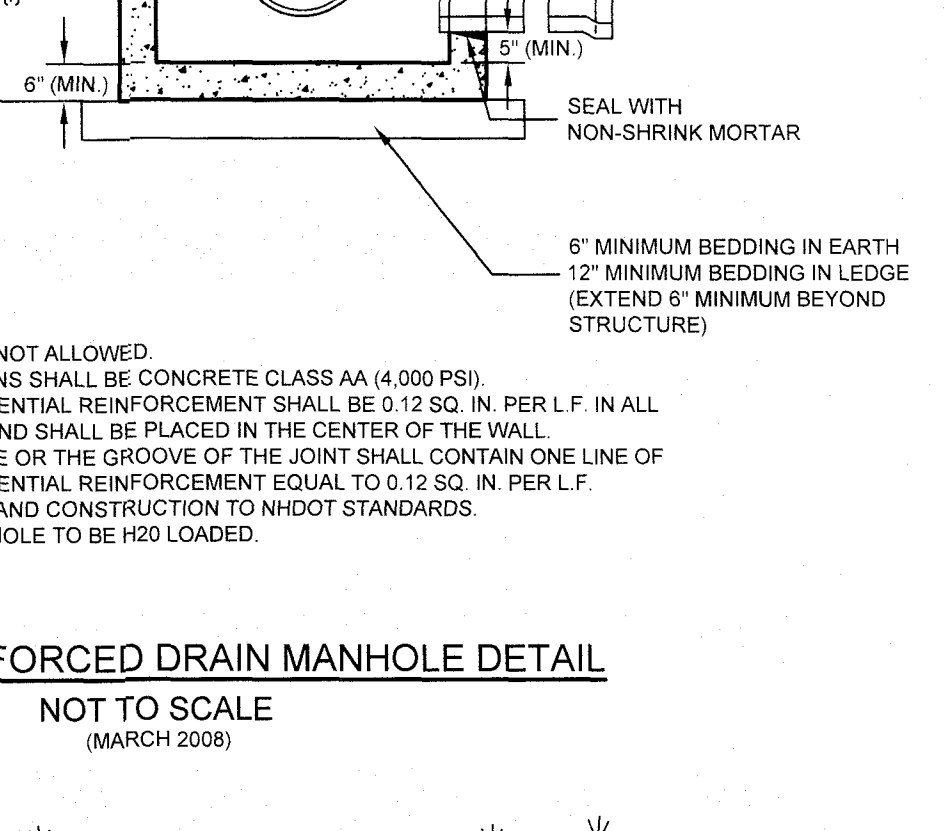
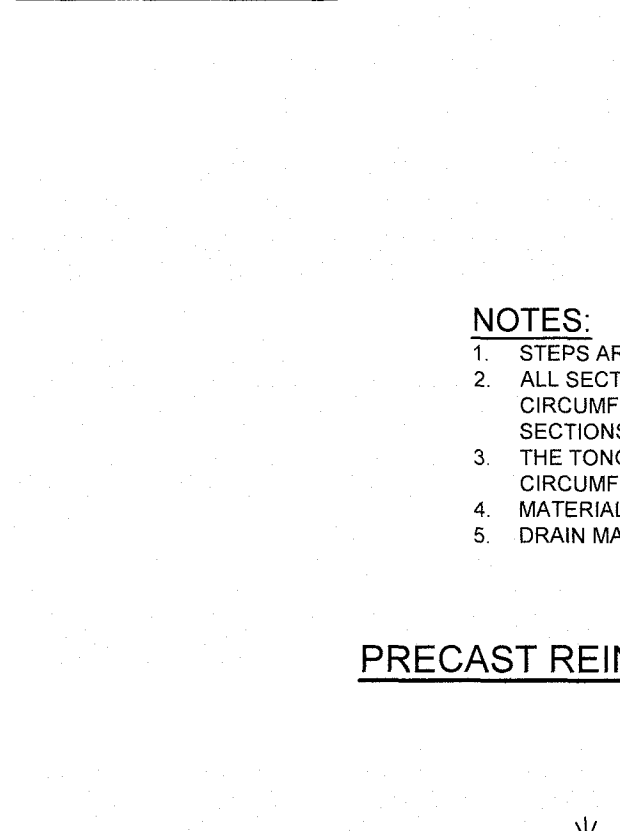
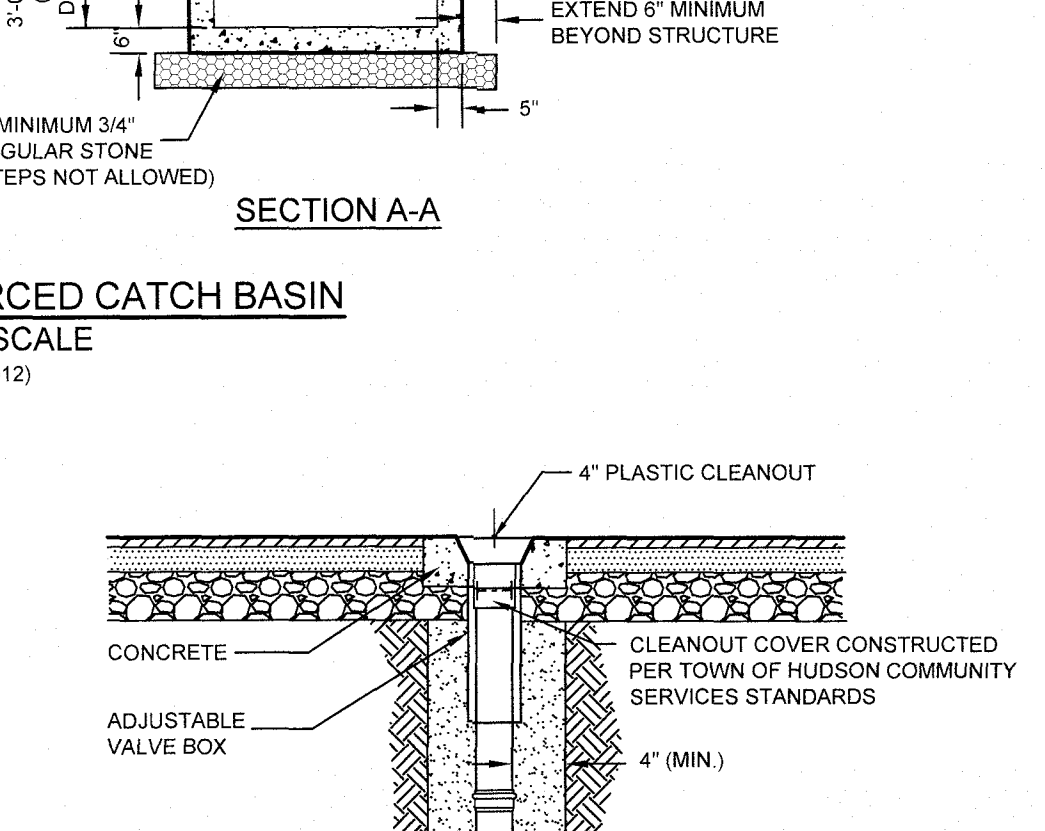
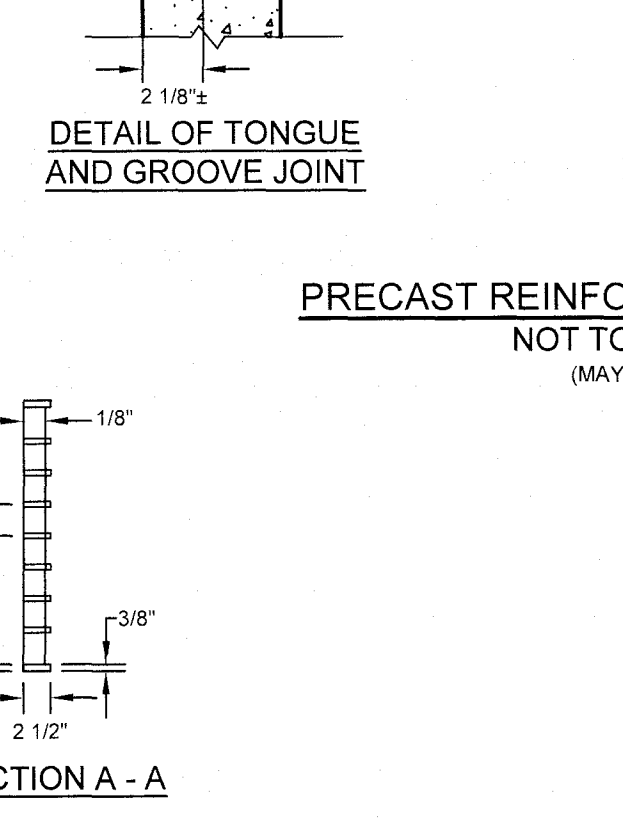
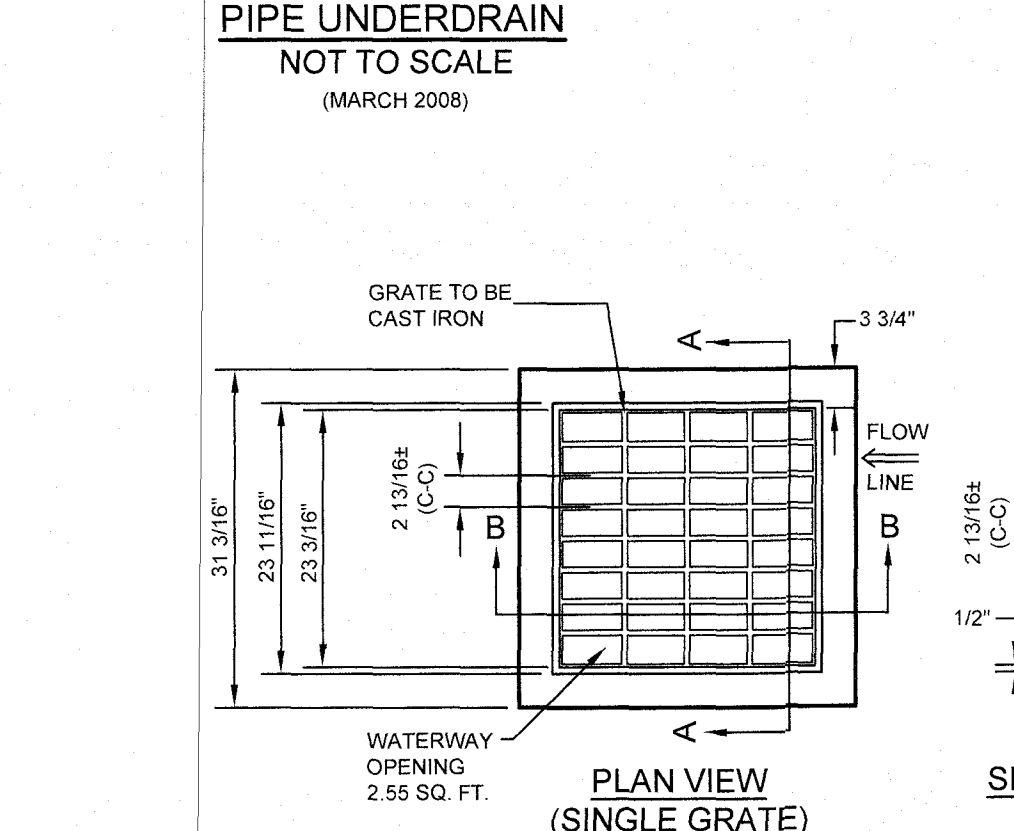
DATE: MAY 2, 2022 SCALE: AS SHOWN
PROJECT NO: 17-0824-1 SHEET 41 OF 51



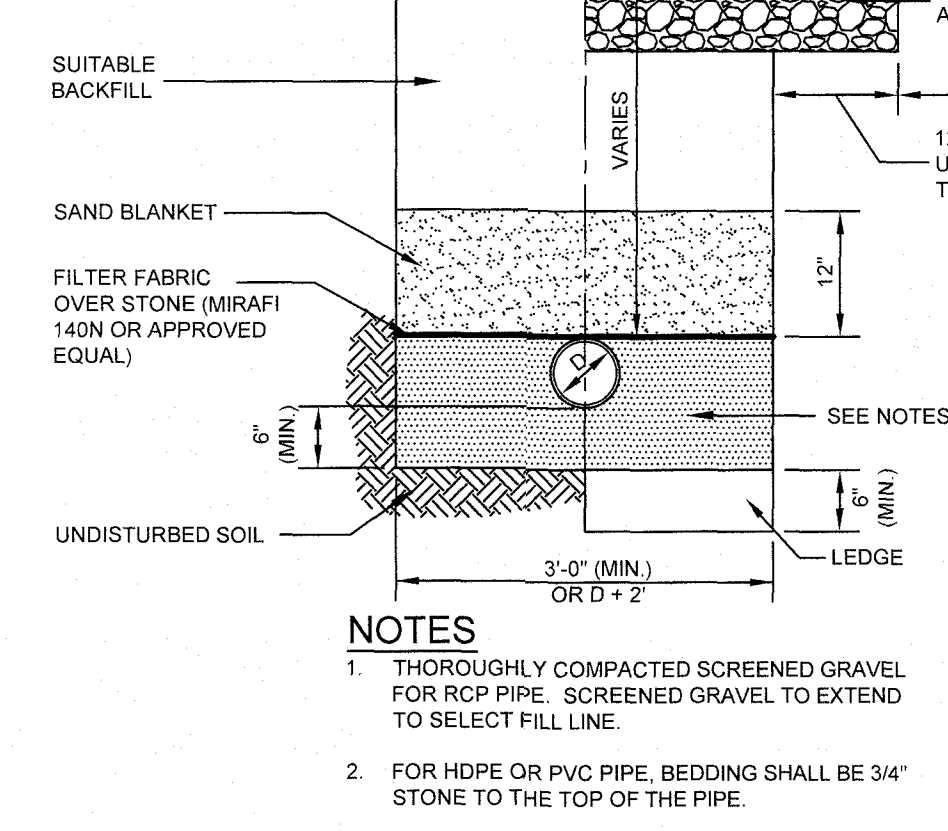
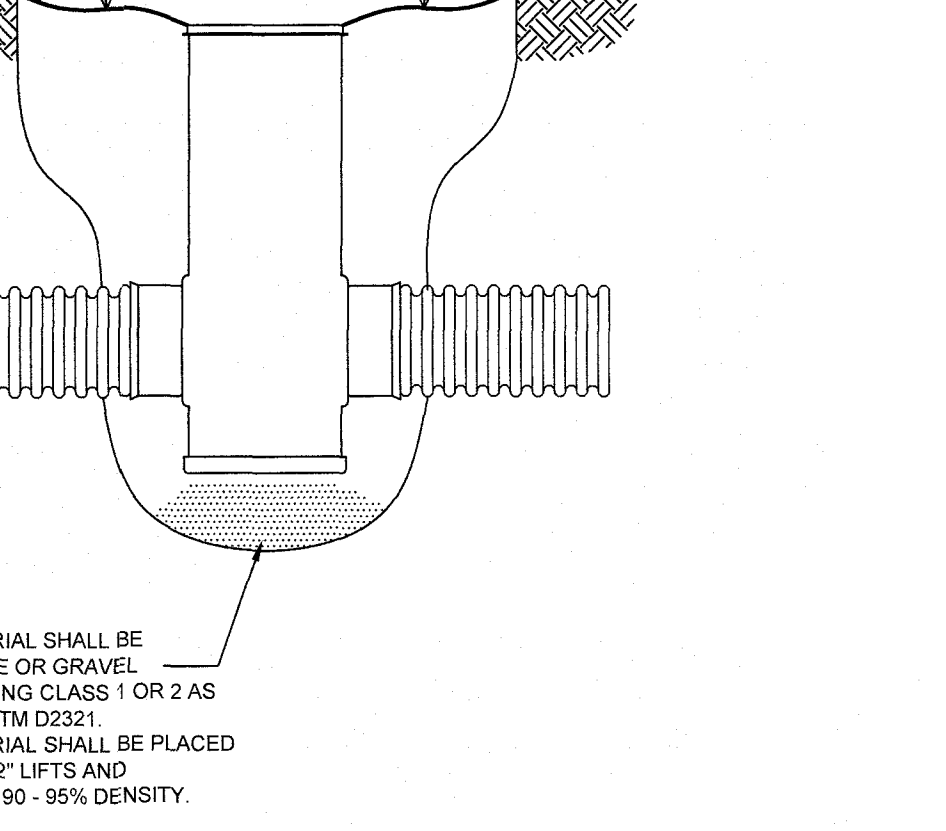
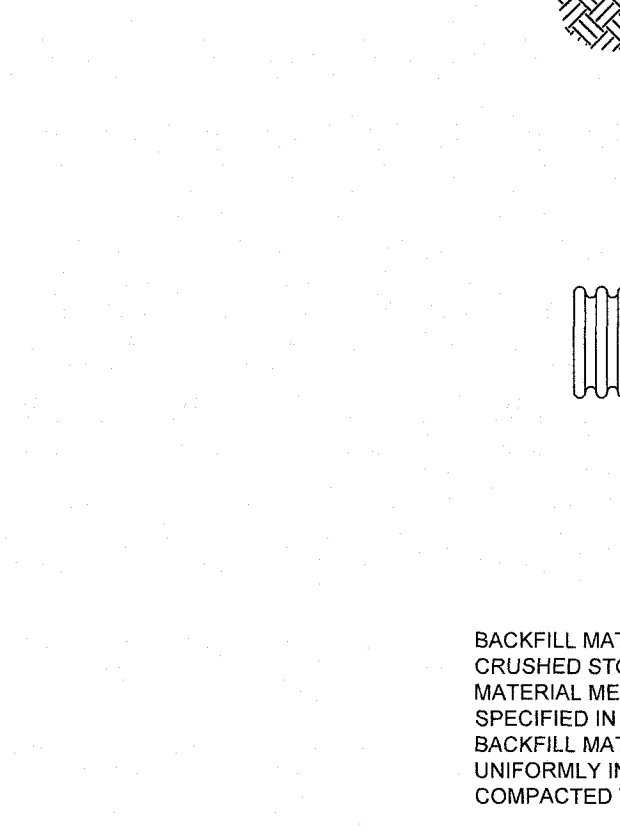
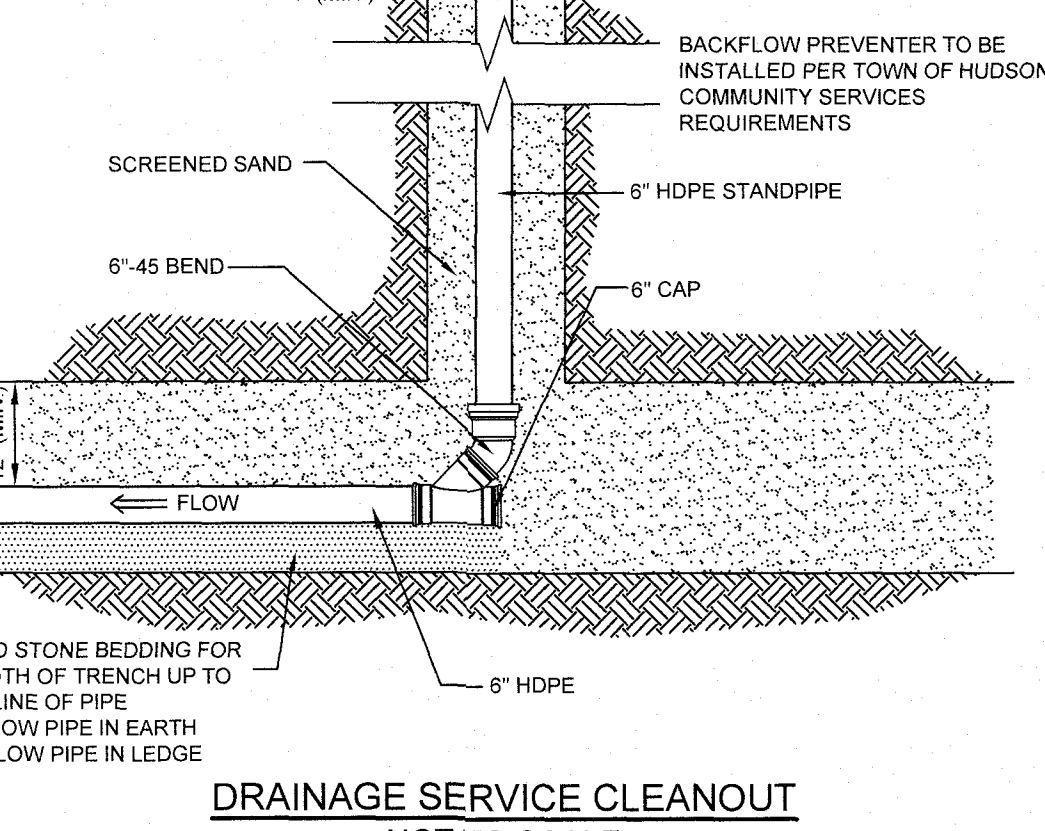
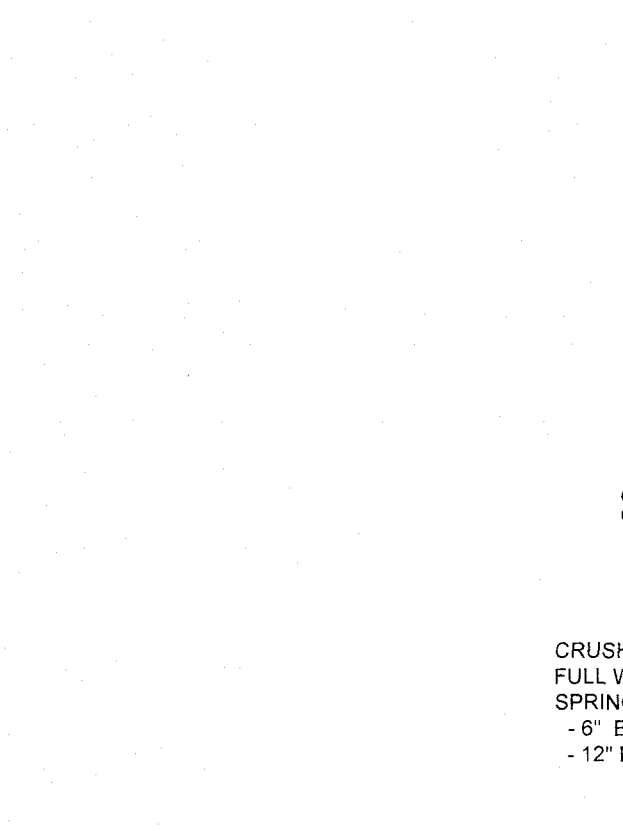
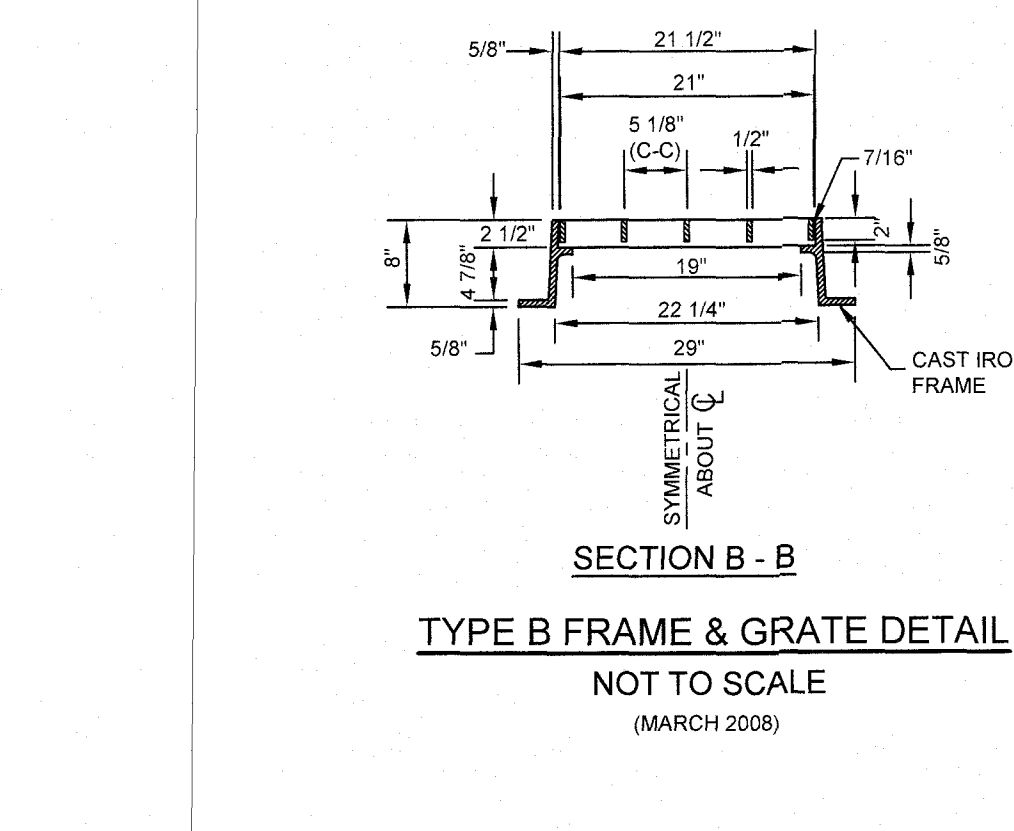
NOTES:
 NEW HAMPSHIRE MAINTAINS A CLEAR OPENING DESIGNATION OF 30" FOR ITS MANHOLE CASTINGS.

FEATURES:
 • 3" LETTERING
 • COVERS MARKED DRAIN
 • NONROCKING COVER
 • DIAMOND SURFACE DESIGN

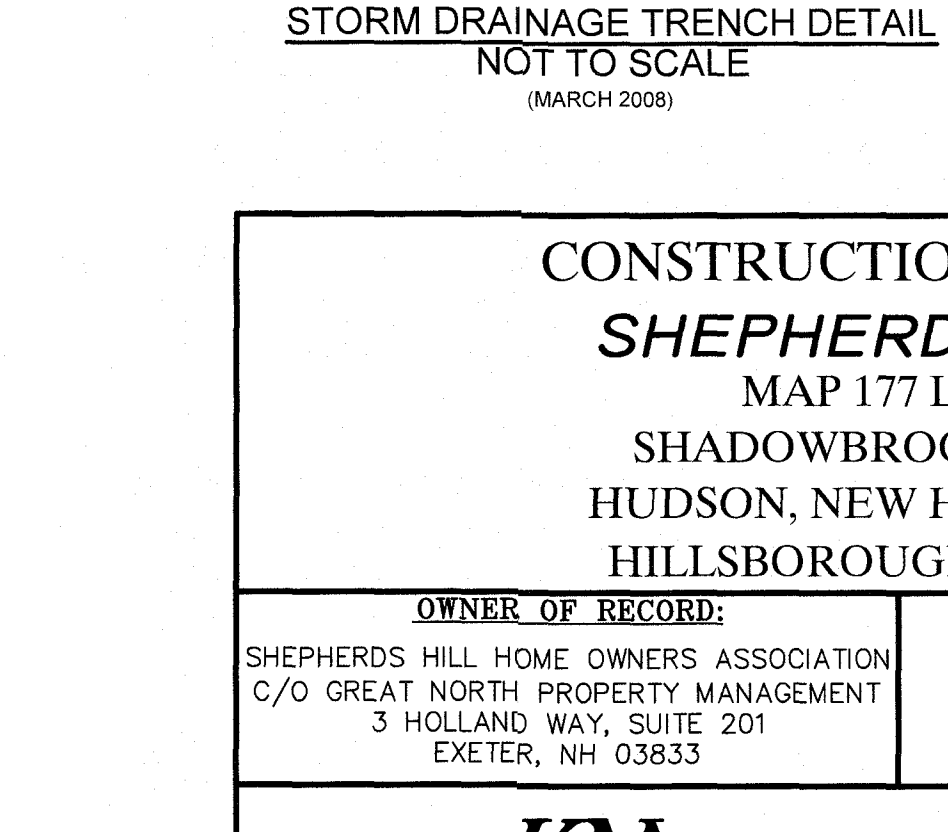
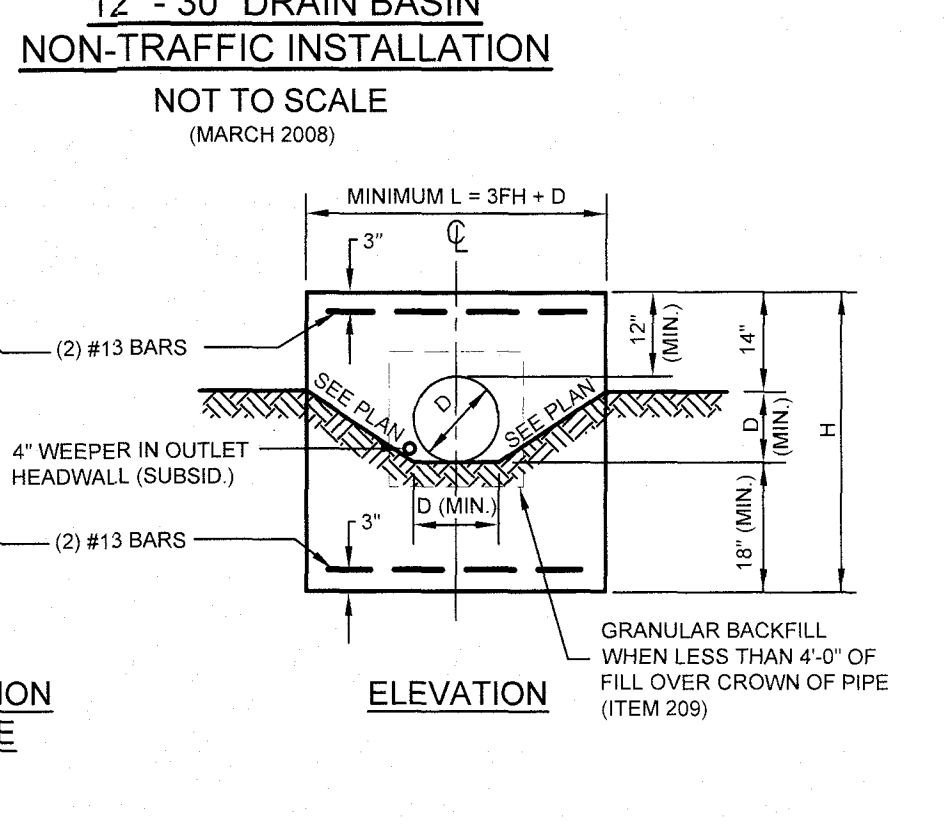
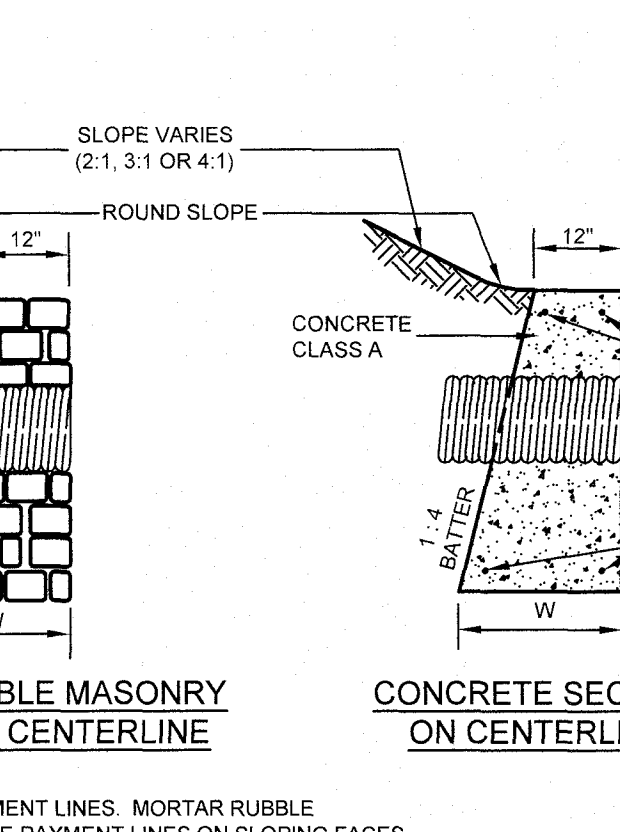
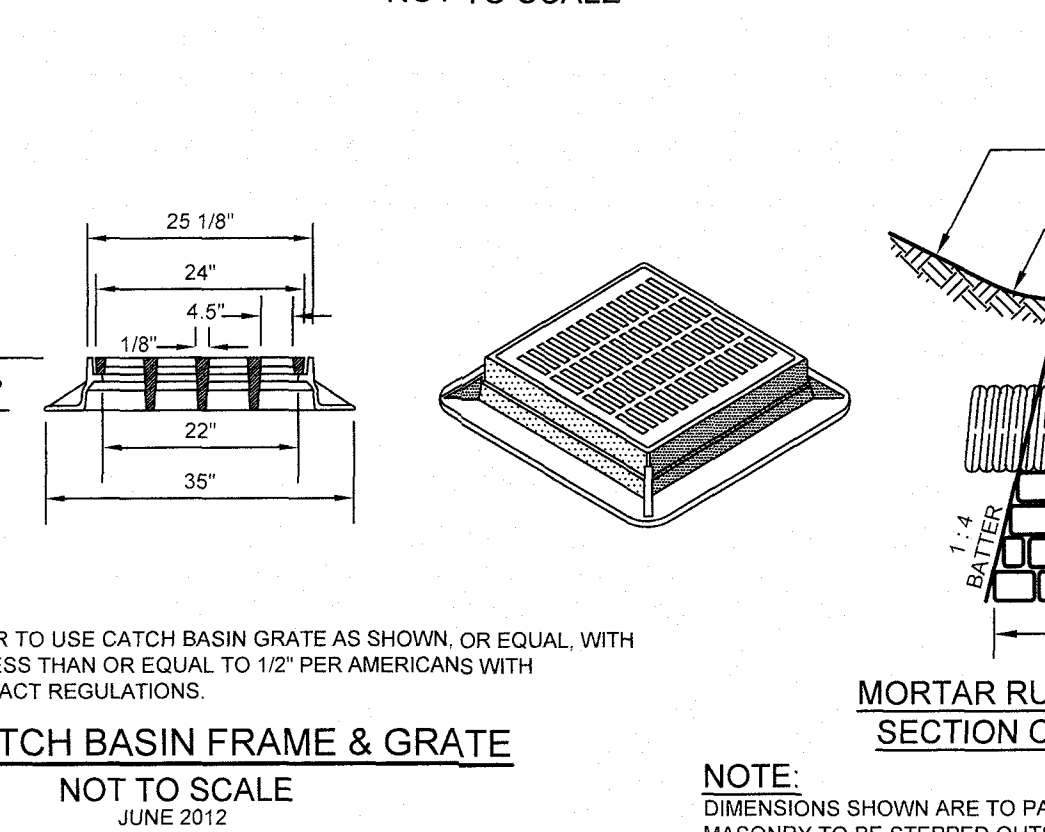
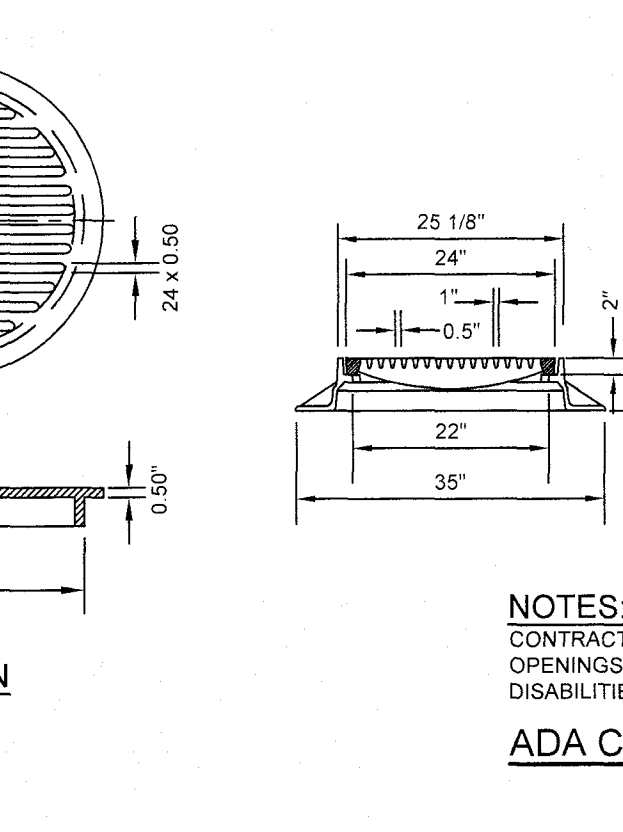
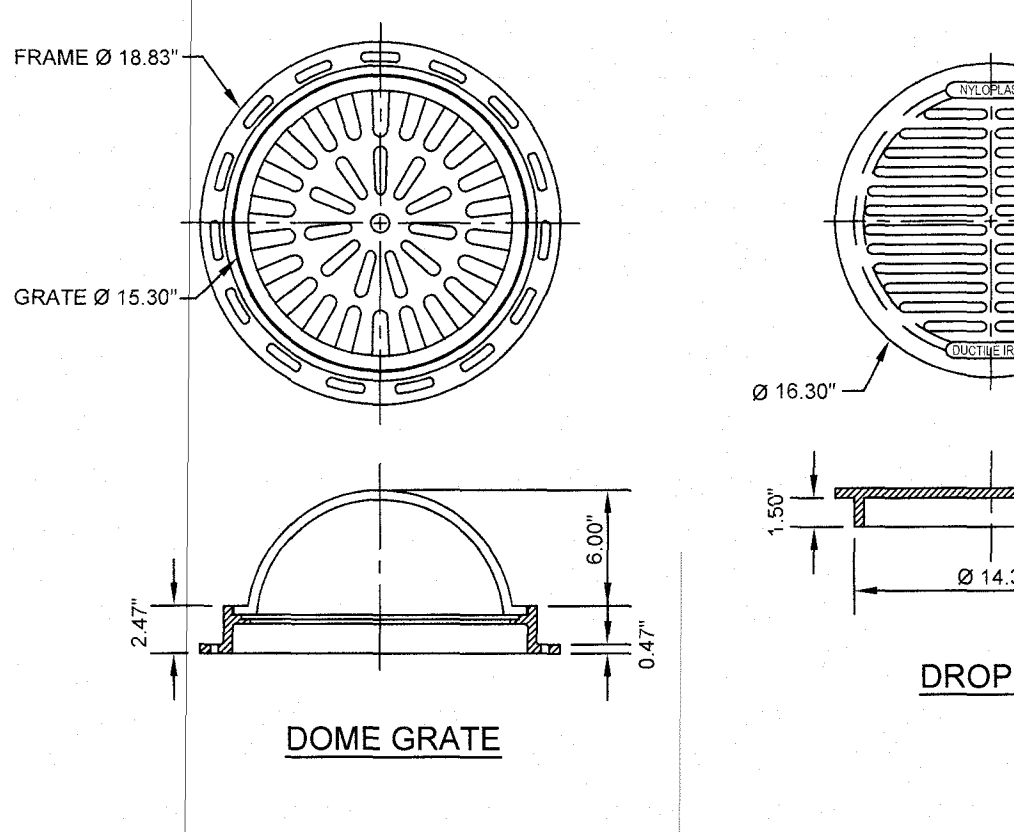
SPECIFICATIONS:
 • FULLY MACHINED FRAME AND COVER
 • H-20 LOAD RATED
 • GRAY CAST IRON MEETS ASTM A48 CLASS 30



NOTES:
 1. STEPS ARE NOT ALLOWED.
 2. ALL SECTIONS SHALL BE CONCRETE CLASS AA (4,000 PSI).
 3. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ. IN. PER L.F. IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER OF THE WALL.
 4. THE TONGUE OR THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER L.F.
 5. MATERIALS AND CONSTRUCTION TO NHDOT STANDARDS.
 6. DRAIN MANHOLE TO BE H20 LOADED.

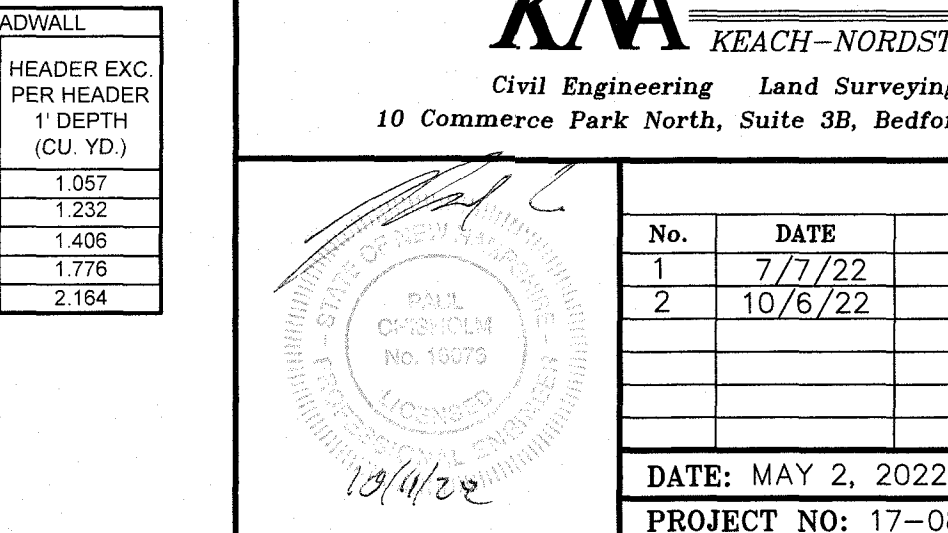
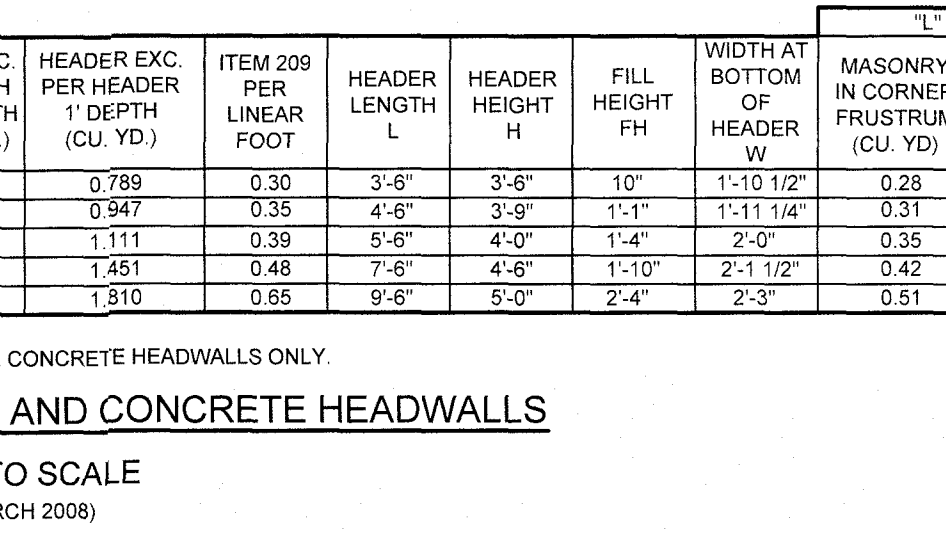
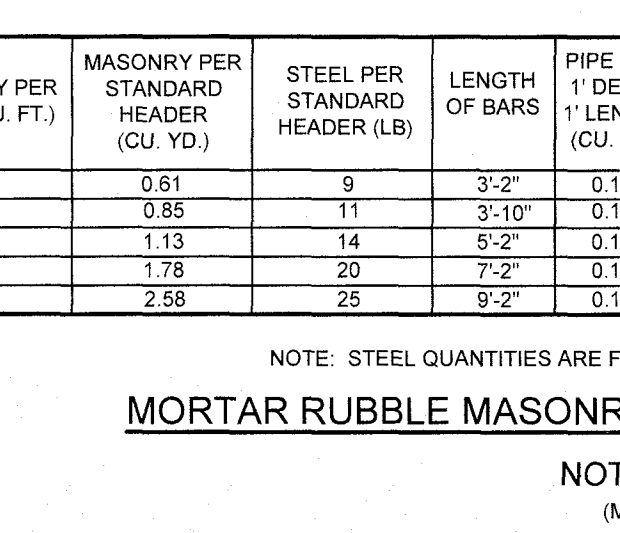
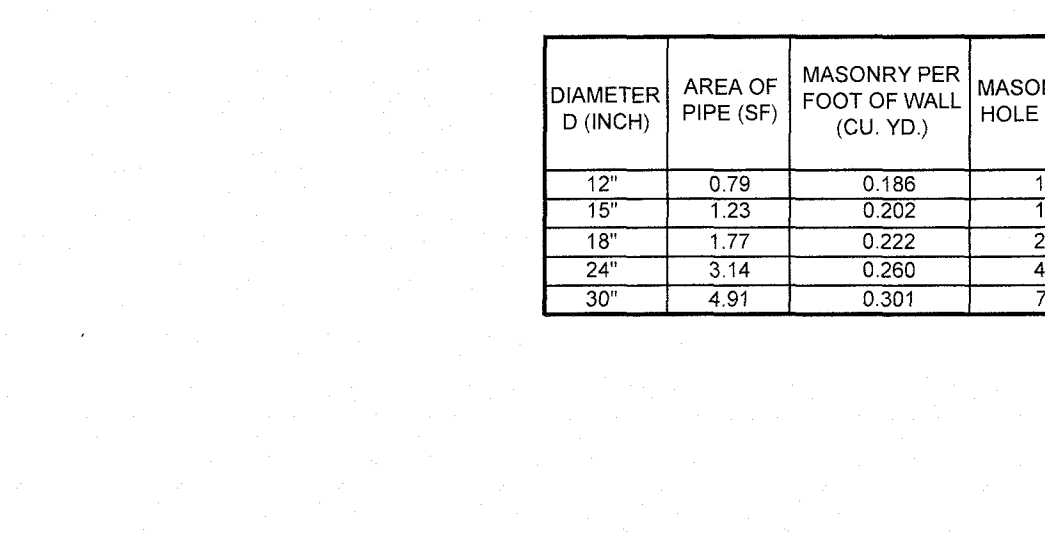
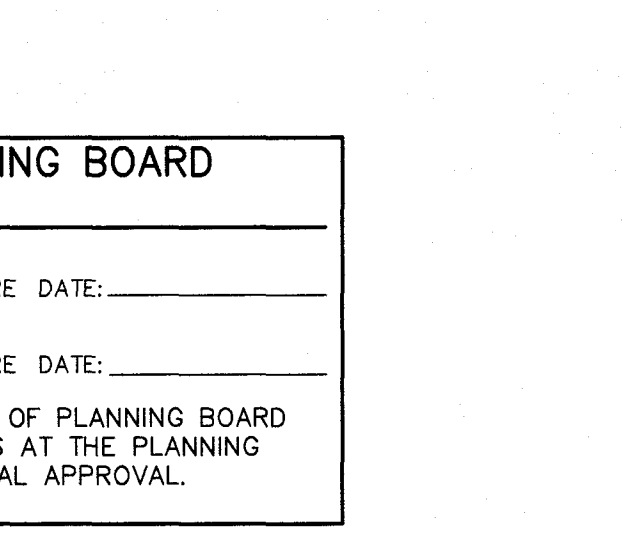
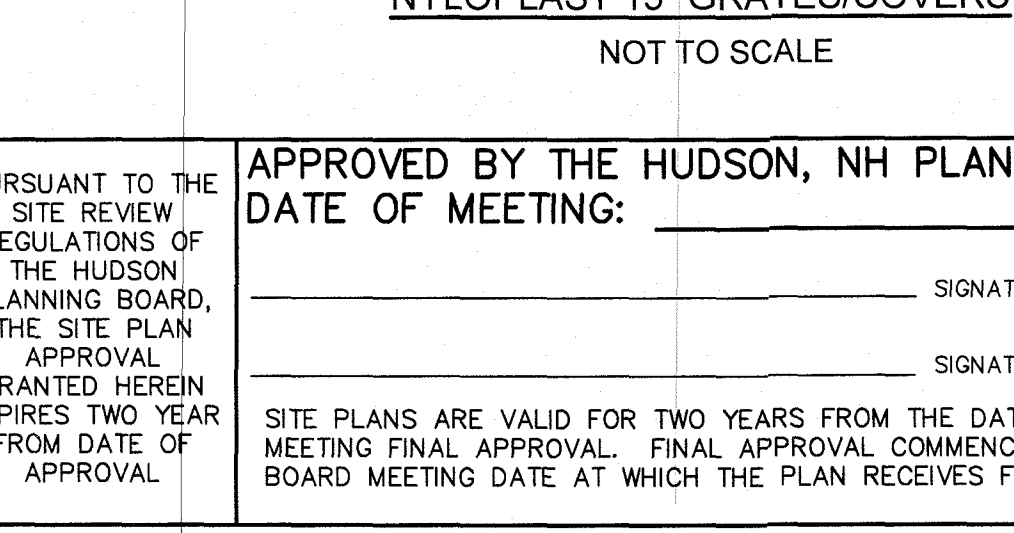


NOTES:
 1. THOROUGHLY COMPACTED SCREENED GRAVEL FOR RCP PIPE. SCREENED GRAVEL TO EXTEND TO SELECT FILL LINE.
 2. FOR HDPE OR PVC PIPE, BEDDING SHALL BE 3/4" STONE TO THE TOP OF THE PIPE.



NOTES:
 CONTRACTOR TO USE CATCH BASIN GRATE AS SHOWN, OR EQUAL, WITH OPENINGS LESS THAN OR EQUAL TO 1/2" PER AMERICANS WITH DISABILITIES ACT REGULATIONS.

NOTE:
 DIMENSIONS SHOWN ARE TO PAYMENT LINES. MORTAR RUBBLE MASONRY TO BE STEPPED OUTSIDE PAYMENT LINES ON SLOPING FACES.



CONSTRUCTION DETAILS
SHEPHERDS HILL
 MAP 177 LOT 5
 SHADOWBROOK DRIVE
 HUDSON, NEW HAMPSHIRE
 HILLSBOROUGH COUNTY

OWNER OF RECORD:
 SHEPHERDS HILL HOME OWNERS ASSOCIATION
 C/O GREAT NORTH PROPERTY MANAGEMENT
 3 HOLLAND WAY, SUITE 201
 EXETER, NH 03833

APPLICANT:
 SHEPHERDS HILL, LLC
 253 MAIN STREET
 NASHUA, NH 03060

KEACH-NORDSTROM ASSOCIATES, INC.
 Civil Engineering Land Surveying Landscape Architecture
 10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

REVISIONS

No.	DATE	DESCRIPTION	BY
1	7/7/22	REVISED PER COMMENTS	ACL
2	10/6/22	REVISED PER TOWN COMMENTS	ACL

DATE: MAY 2, 2022 **SCALE:** AS SHOWN
PROJECT NO: 17-0824-1 **SHEET** 42 OF 51

PURSUANT TO THE SITE REVIEW REGULATIONS OF THE HUDSON PLANNING BOARD, THE SITE PLAN APPROVAL GRANTED HEREIN EXPIRES TWO YEAR FROM DATE OF APPROVAL

APPROVED BY THE HUDSON, NH PLANNING BOARD
DATE OF MEETING: _____
 _____ SIGNATURE DATE: _____
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SITE PLANS ARE VALID FOR TWO YEARS FROM THE DATE OF PLANNING BOARD MEETING FINAL APPROVAL. FINAL APPROVAL COMMENCES AT THE PLANNING BOARD MEETING DATE AT WHICH THE PLAN RECEIVES FINAL APPROVAL.

DIAMETER D (INCH)	AREA OF PIPE (SF)	MASONRY PER FOOT OF WALL (CU. YD.)	MASONRY PER HOLE PER FOOT (CU. FT.)	MASONRY PER STANDARD HEADER (CU. YD.)	STEEL PER STANDARD HEADER (LB)	LENGTH OF BARS	PIPE EXC. PER FOOT (CU. YD.)	HEADER EXC. PER FOOT (CU. YD.)	ITEM 209 PER FOOT	HEADER LENGTH L	HEADER HEIGHT H	FILL HEIGHT FH	WIDTH AT BOTTOM OF HEADER W	MASONRY IN CORNER FRUSTRUM (CU. YD.)	HEADER EXC. PER FOOT (CU. YD.)
12"	0.79	0.188	1.08	0.61	9	3'-2"	0.111	0.789	0.30	3'-6"	3'-6"	10"	1'-10 1/2"	0.28	1.067
15"	1.23	0.262	1.73	0.85	11	3'-10"	0.139	0.947	0.35	4'-6"	4'-6"	1'-11 1/4"	1'-11 1/4"	0.31	1.232
18"	1.77	0.222	2.52	1.13	14	5'-2"	0.130	1.111	0.39	5'-6"	4'-0"	1'-4"	2'-0"	0.35	1.406
24"	3.14	0.260	4.71	1.78	20	7'-2"	0.148	1.451	0.48	7'-6"	4'-6"	1'-10"	2'-1 1/2"	0.42	1.776
30"	4.91	0.301	7.67	2.58	25	9'-2"	0.185	1.810	0.65	9'-6"	5'-0"	2'-4"	2'-3"	0.51	2.164

NOTE: STEEL QUANTITIES ARE FOR CONCRETE HEADWALLS ONLY.

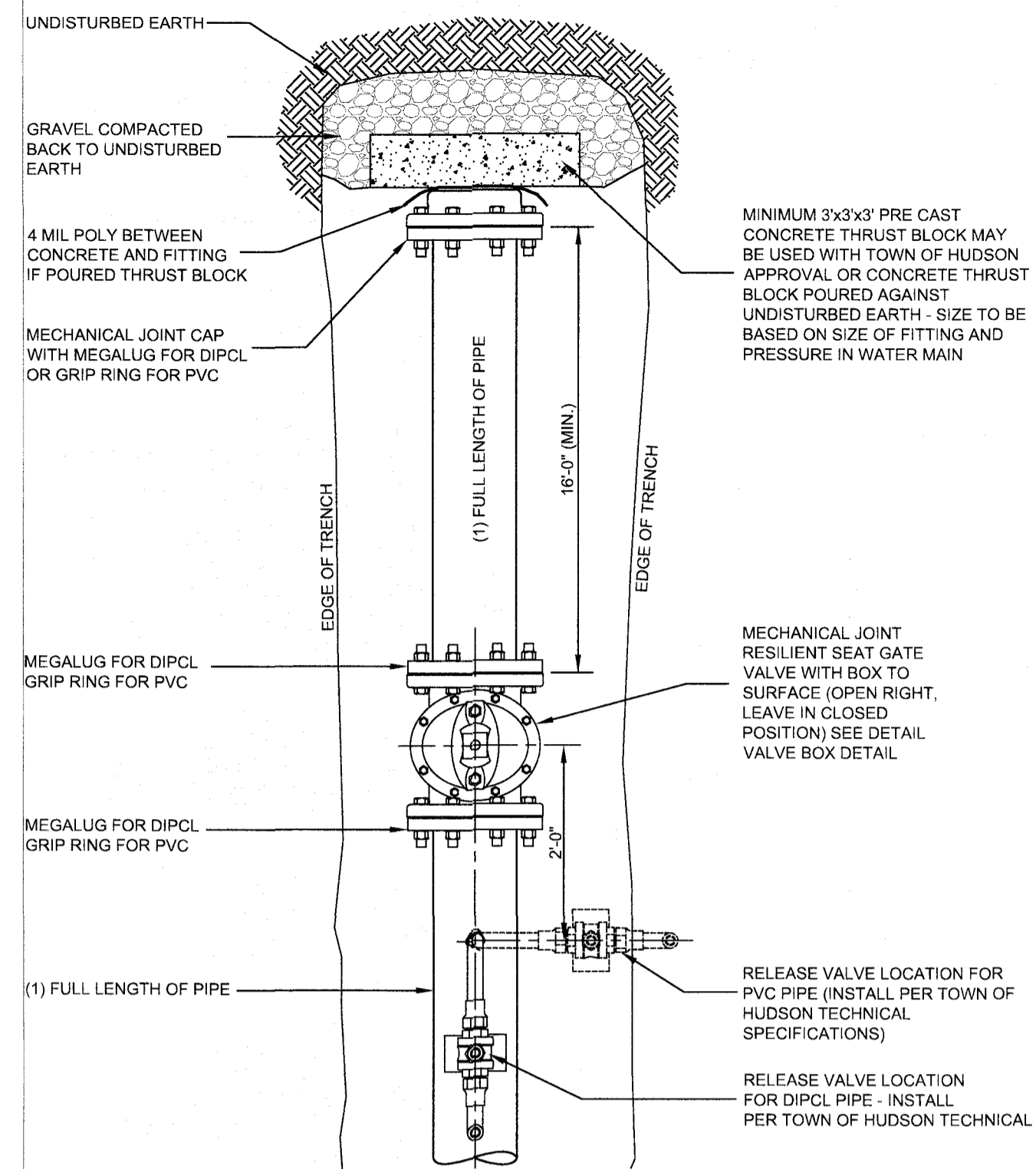
MORTAR RUBBLE MASONRY AND CONCRETE HEADWALLS
 NOT TO SCALE
 (MARCH 2008)

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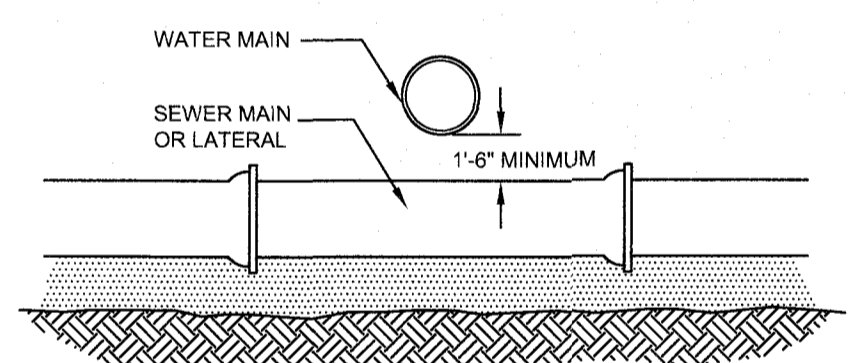
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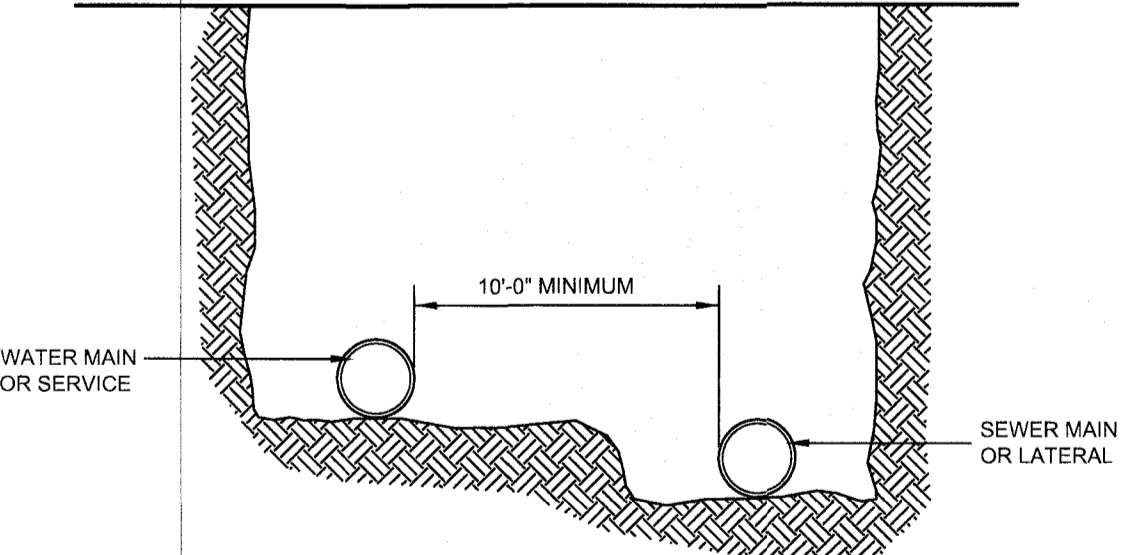


- NOTES:**
1. ALL MATERIALS AND INSTALLATION PROCEDURES WILL CONFORM TO TOWN OF HUDSON TECHNICAL SPECIFICATIONS.
 2. ALL PIPE SHOULD HAVE A MINIMUM DEPTH OF 5'-0" FROM TOP OF PIPE TO FINISH GRADE.

END OF MAIN INSTALLATION (A-08)
NOT TO SCALE
(MARCH 2008)

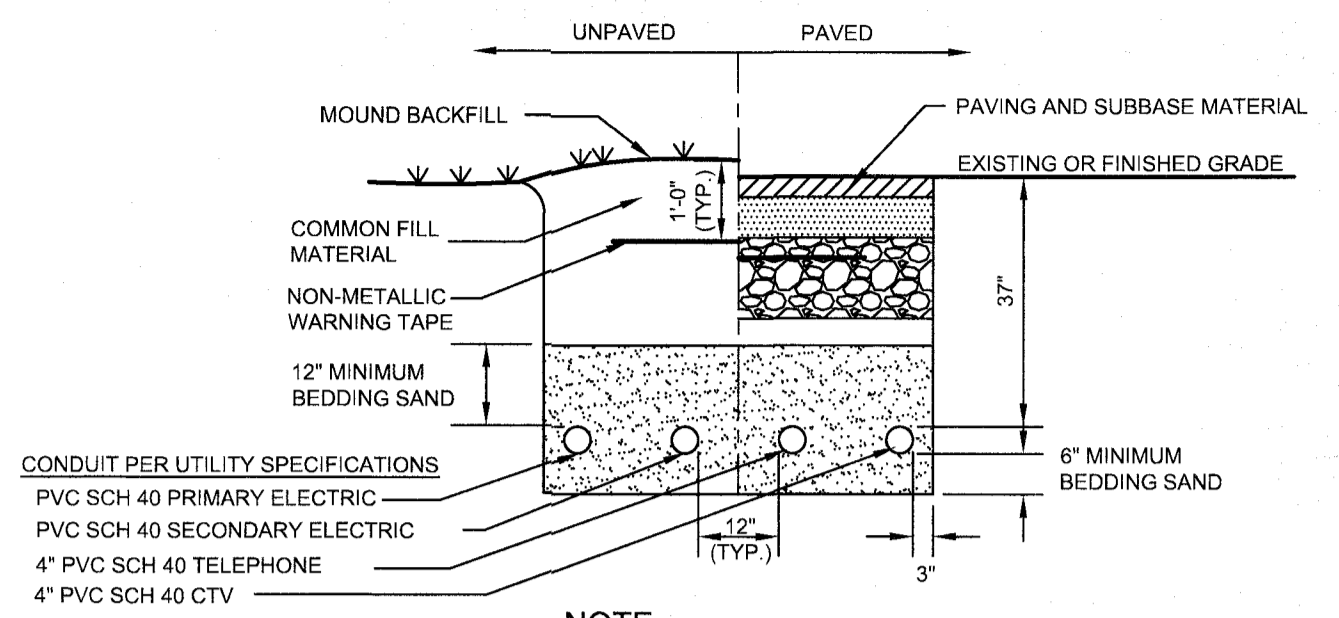


MAIN CROSSINGS

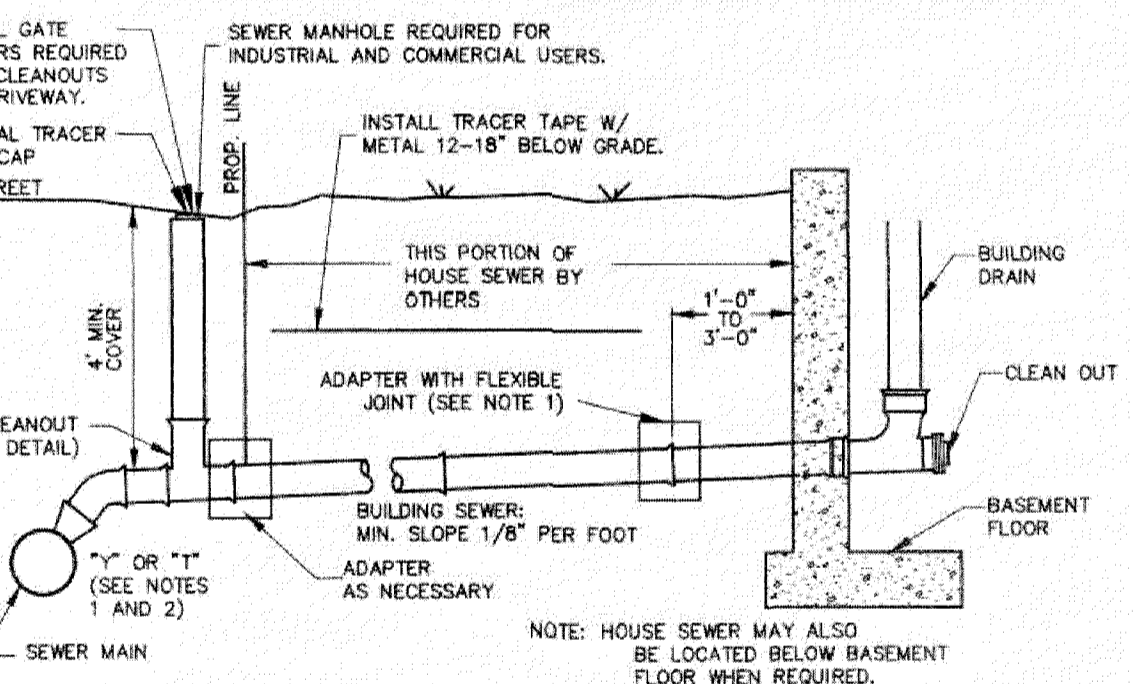


PARALLEL INSTALLATION

WATER MAIN/SEWER MAIN SEPARATION
NOT TO SCALE

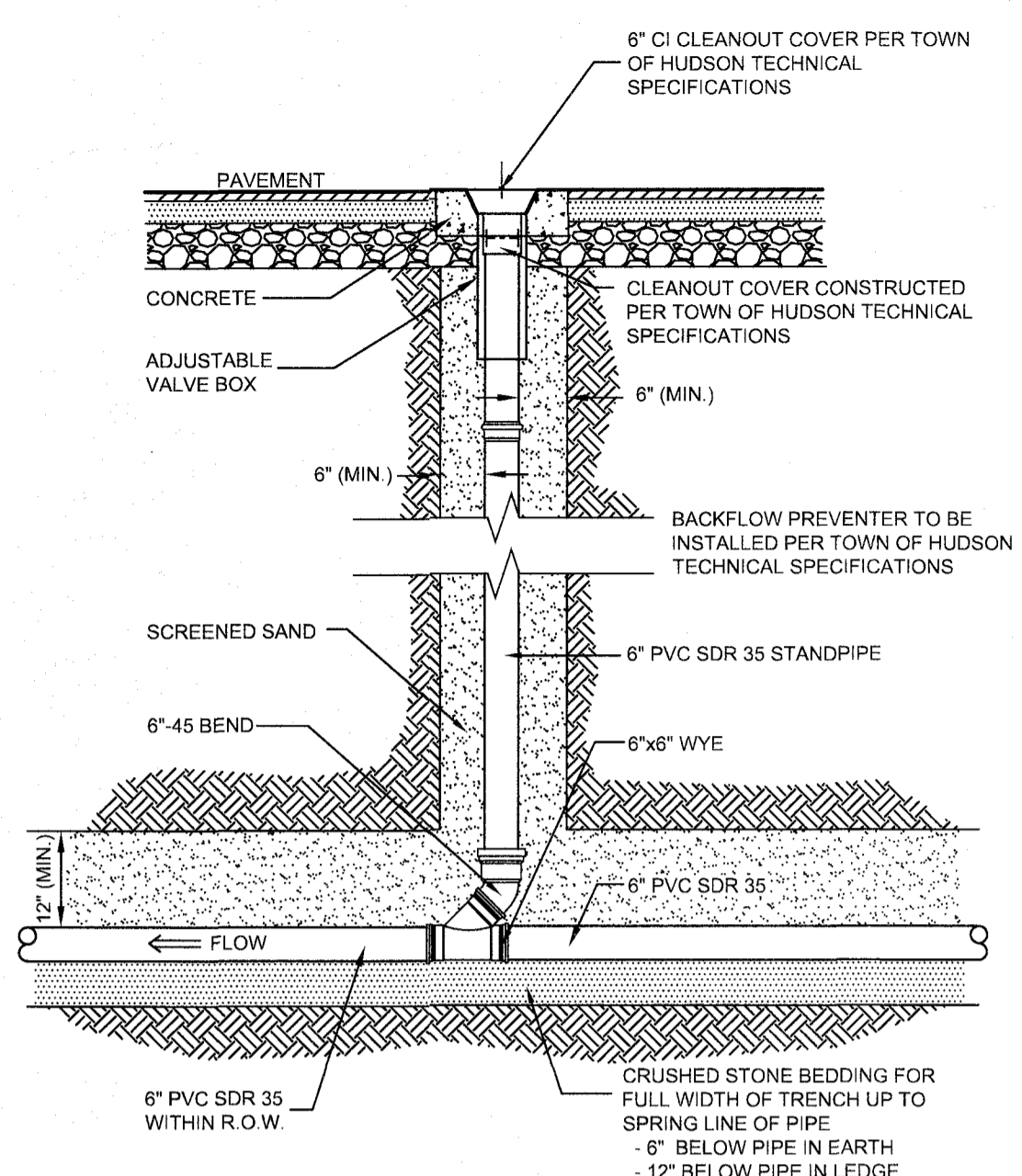


UTILITY TRENCH DETAIL
NOT TO SCALE
(MARCH 2008)

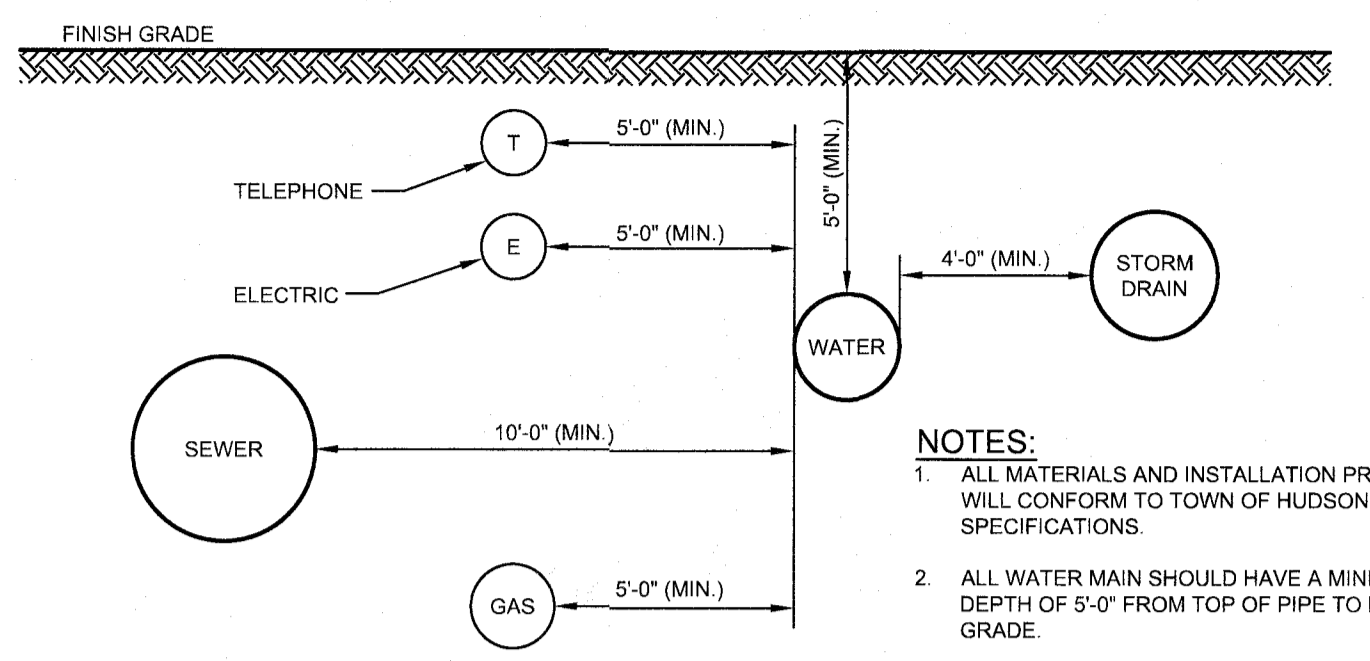


1. JOINTS SHALL BE DEPENDENT UPON A NEOPRENE OR ELASTOMERIC GASKET FOR WATER TIGHTNESS. ALL JOINTS SHALL BE PROPERLY MATCHED WITH THE PIPE MATERIALS USED. WHERE DIFFERING MATERIALS ARE TO BE CONNECTED, AS AT THE STREET SEWER "Y" OR AT THE FOUNDATION WALL, APPROPRIATE ADAPTERS SHALL BE USED.
2. WHERE A "Y" OR "Y" IS NOT AVAILABLE IN THE EXISTING STREET SEWER, AN APPROPRIATE CONNECTION SHALL BE MADE IN ACCORDANCE WITH THE TOWN ENGINEER.
3. PIPE SHALL BE 6" DIAMETER MINIMUM FROM SEWER MAIN TO EASEMENT (R.R.) AND 4" DIAMETER MINIMUM FROM CLEANOUT TO BUILDING FOUNDATION.

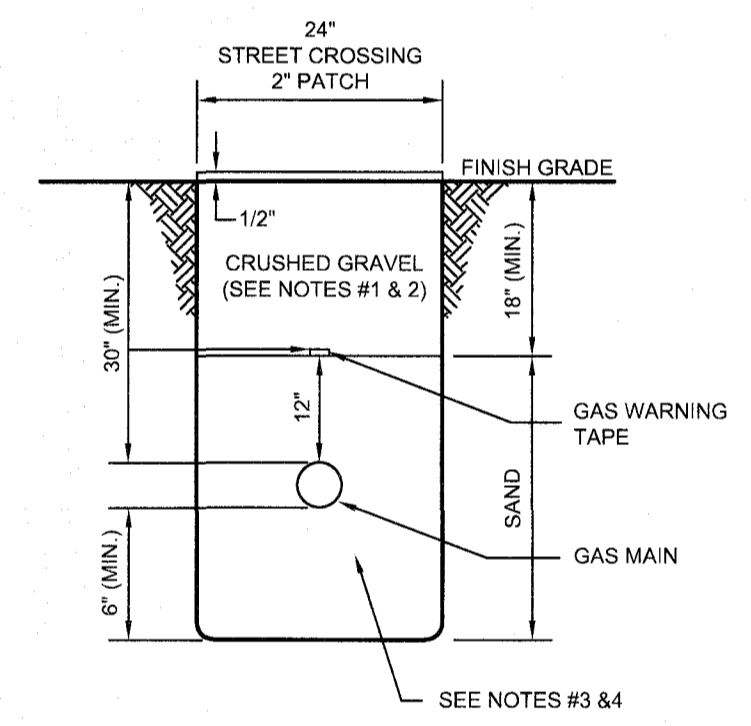
SEWER BUILDING SERVICE CONNECTION DETAIL
NOT TO SCALE



SEWER SERVICE CLEANOUT
NOT TO SCALE

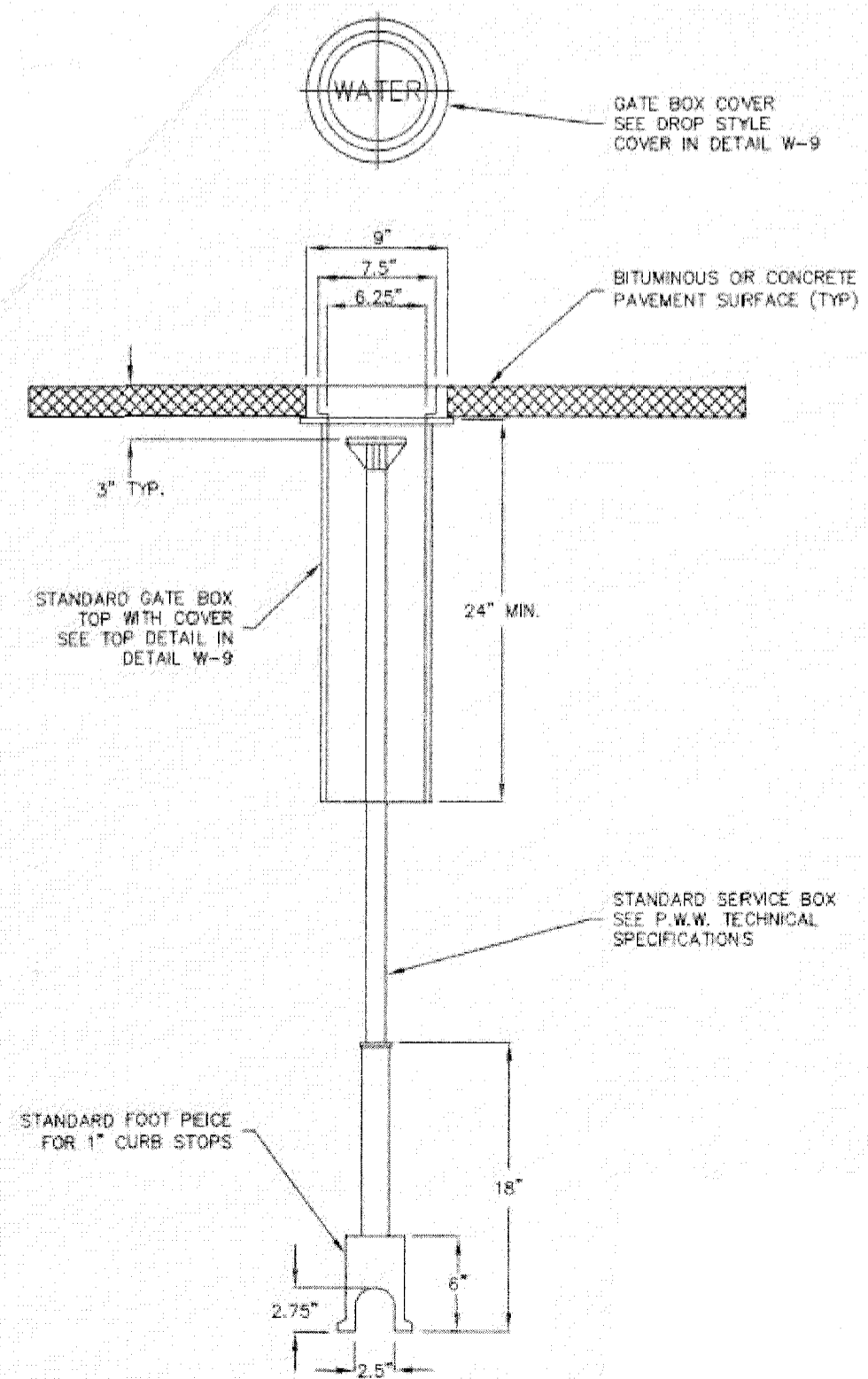


UTILITY SEPARATION (MAIN) DETAIL (A-01)
NOT TO SCALE



- NOTES:**
1. TYPE II AGGREGATE BASE. REQUIRES 95% COMPACTION.
 2. THE TOP 18" OF ALL TRENCHES IN ESTABLISHED HIGHWAYS, STREETS AND OTHER PAVED AREAS SUBJECT TO TRAFFIC, SHALL BE BACKFILLED WITH TYPE II BASE.
 3. NO CONDUITS SHALL BE INSTALLED ABOVE OR PARALLEL TO GAS LINES.
 4. NON-METALLIC RED WARNING TAPE WILL BE 6" WIDE, MARKED "LE UTILITIES BURIED BELOW" AND SHALL BE PLACED IN ALL TRENCHES AT LEAST 18" BELOW FINISH GRADE AND 12" ABOVE LE CONDUIT.

GAS MAIN TRENCH DETAIL
NOT TO SCALE



NOTE:
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WATER SERVICE BOX IN PAVED AREAS DETAIL
NOT TO SCALE

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PROJECT NO: 17-0824-1 SHEET 43 OF 51

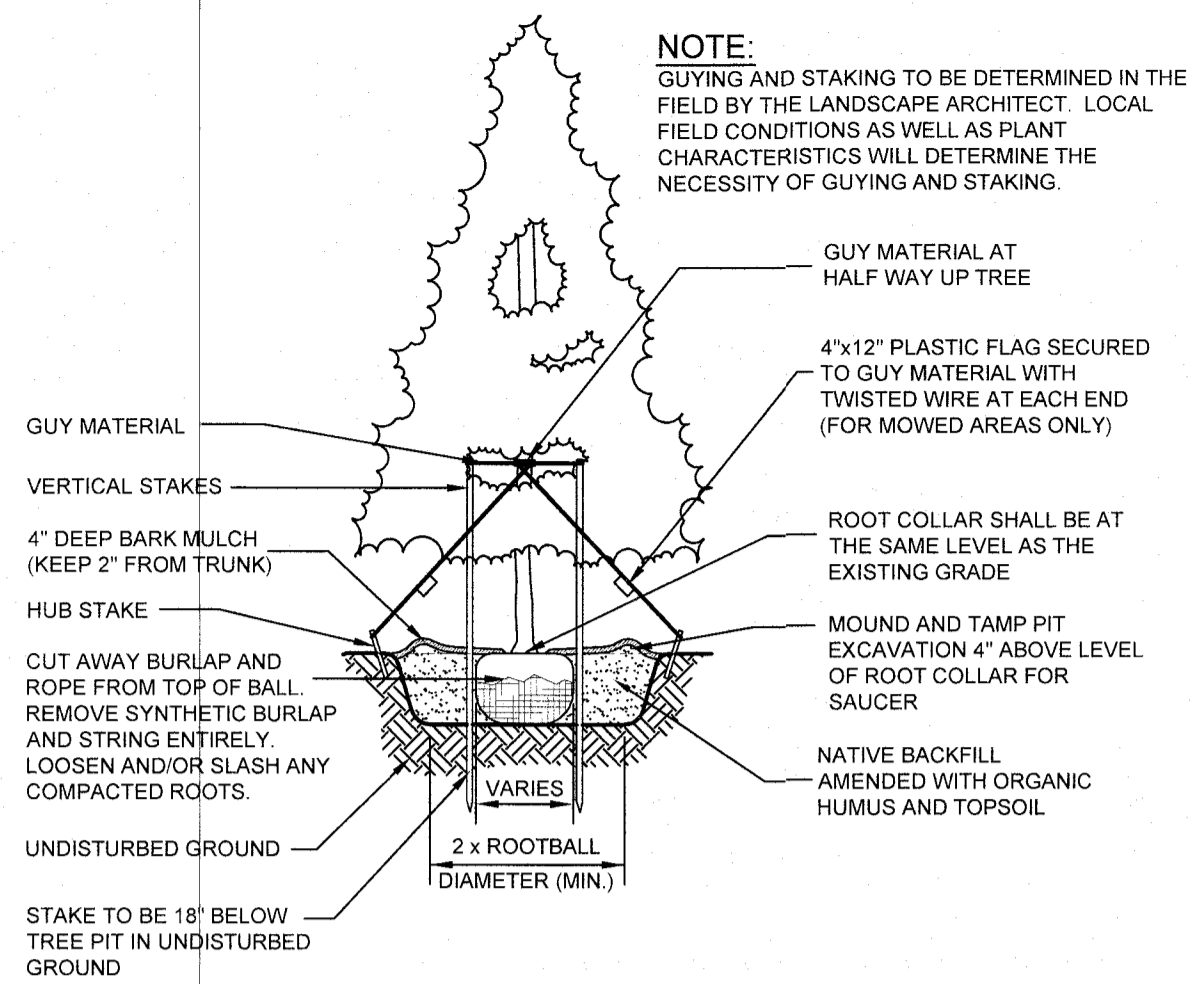
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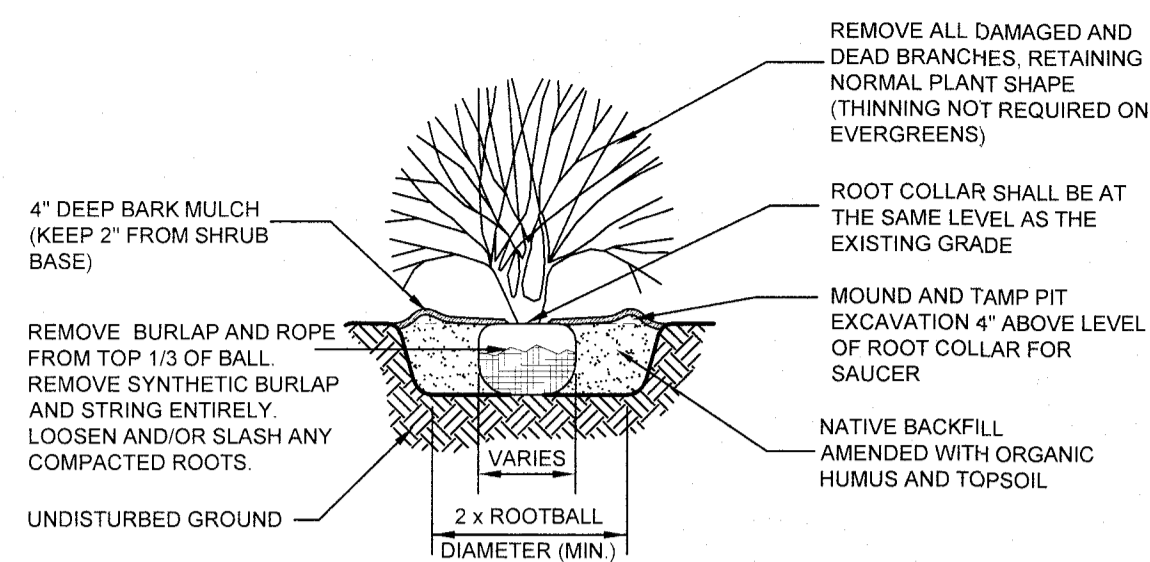
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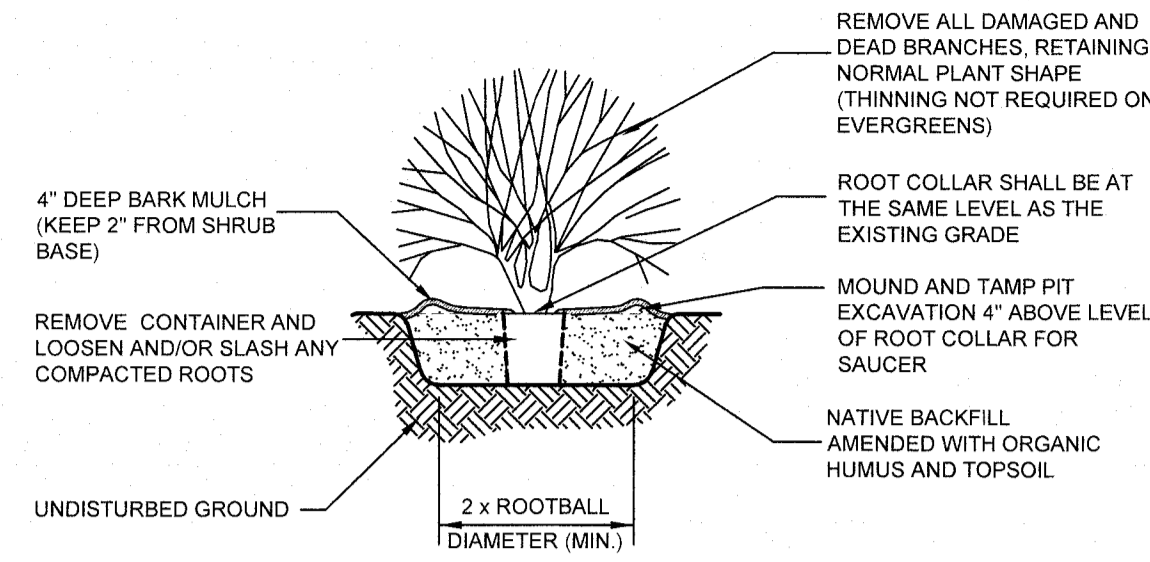
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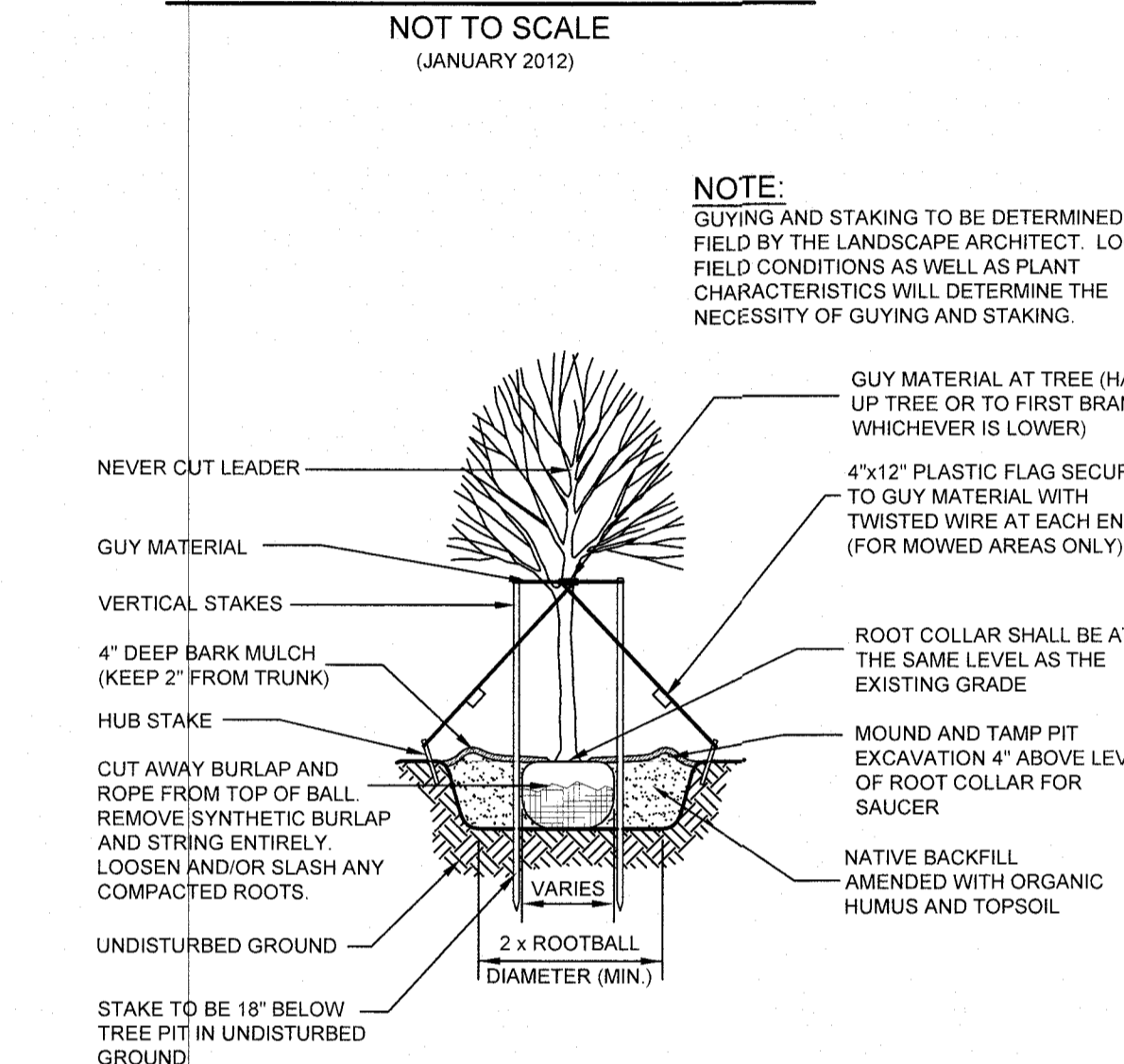
EVERGREEN TREE PLANTING DETAIL
NOT TO SCALE
(JANUARY 2012)



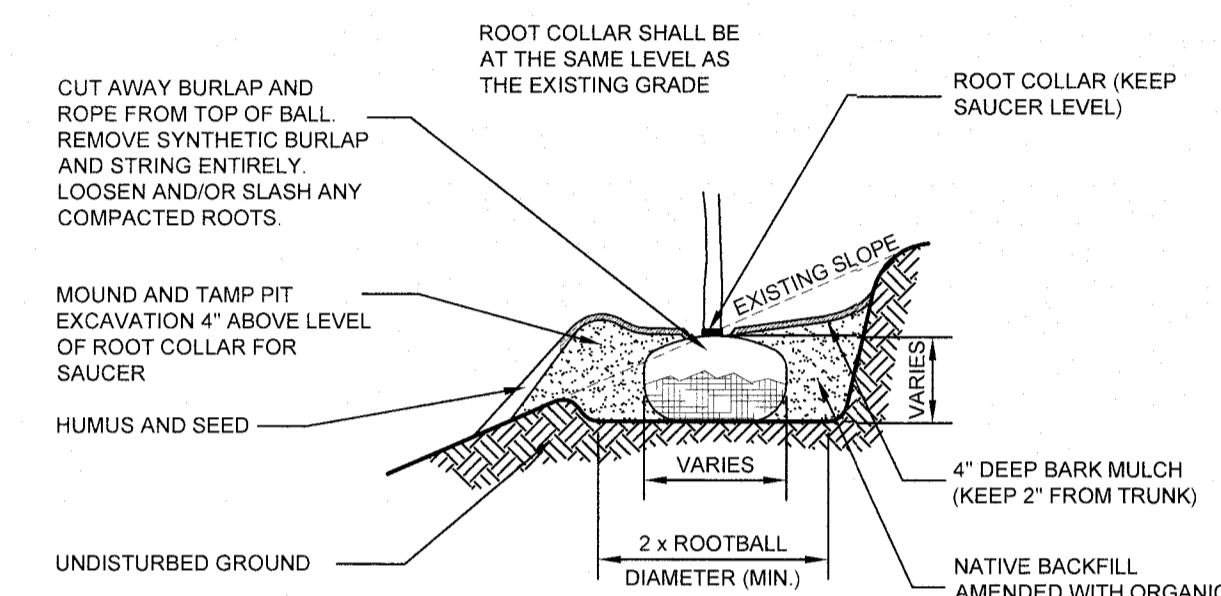
BALLED & BURLAP SHRUB PLANTING DETAIL
NOT TO SCALE
(JANUARY 2012)



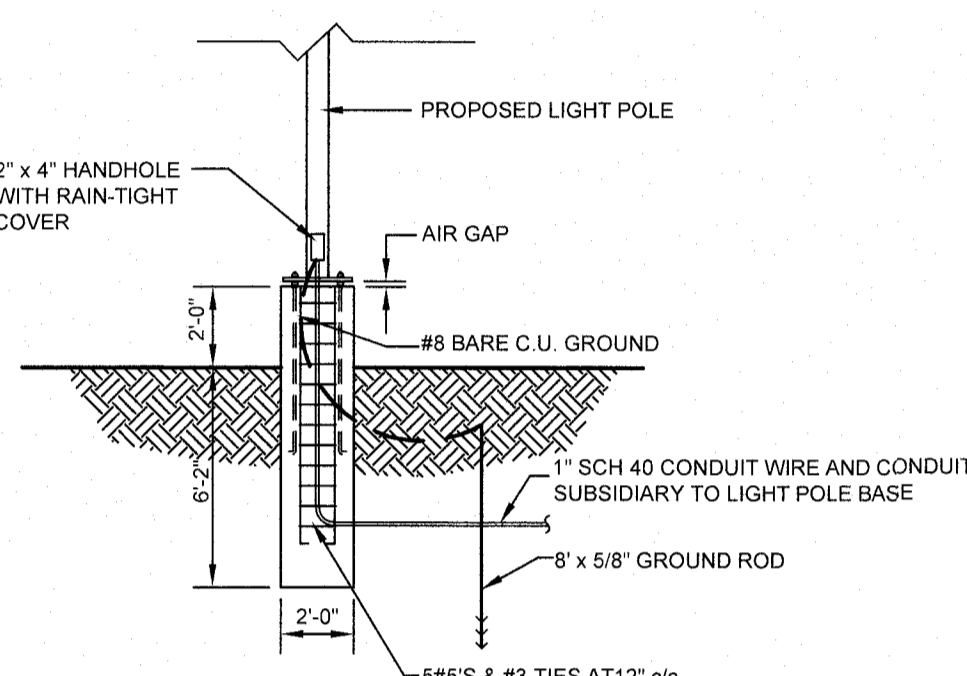
CONTAINER SHRUB PLANTING DETAIL
NOT TO SCALE
(JANUARY 2012)



DECIDUOUS TREE PLANTING DETAIL
NOT TO SCALE
(JANUARY 2012)



TYPICAL PLANTING PIT ON SLOPE 4:1 OR GREATER
NOT TO SCALE
(JANUARY 2012)

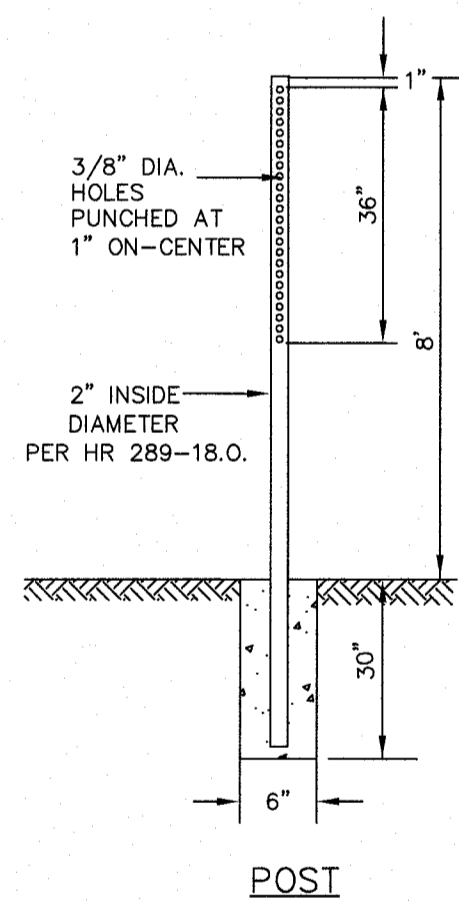


CONCRETE LIGHT POLE BASE DETAIL
NOT TO SCALE
(MARCH 2008)

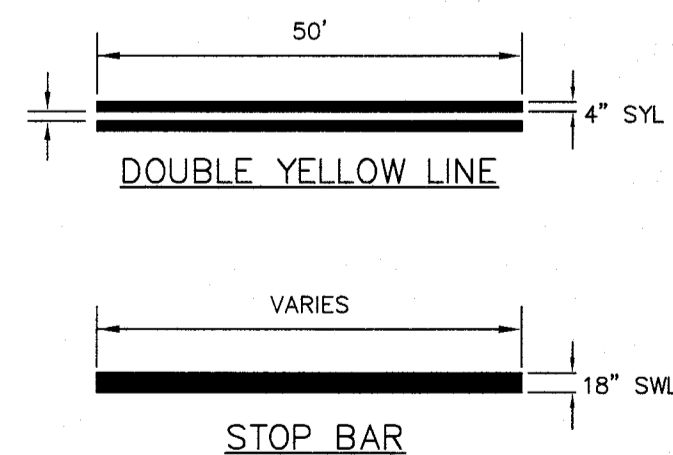


- NOTES:**
- STREET NAME SIGNS SHALL BE METAL, IN CONFORMITY WITH NEW SIGNS PURCHASED BY THE TOWN, TWO-FACED AND REFLECTORIZED, SIX INCHES HIGH WITH THREE--AND--ONE--HALF--INCH LETTERS EMBOSSED AND REFLECTORIZED WITH GREEN BACKGROUND AND WHITE LETTERS, OF ALUMINUM METAL.

TYPICAL SIGN PLATE DETAILS
NOT TO SCALE



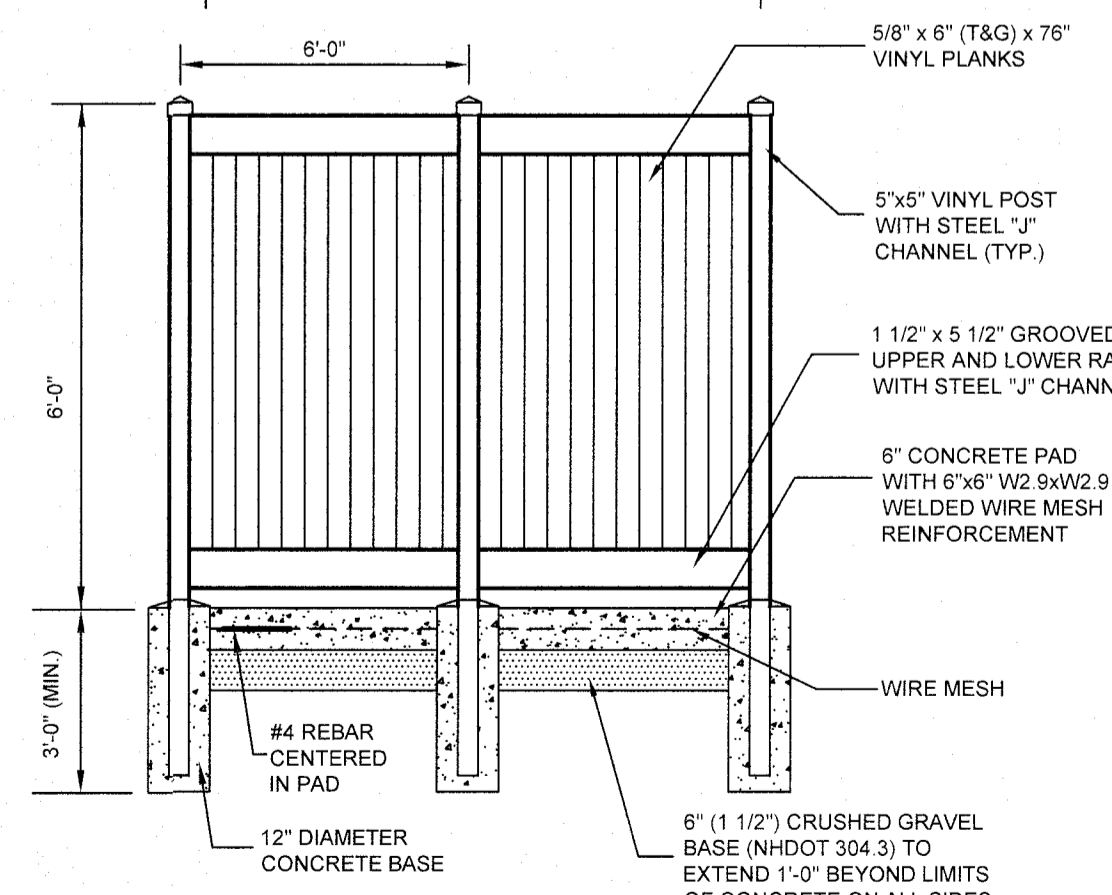
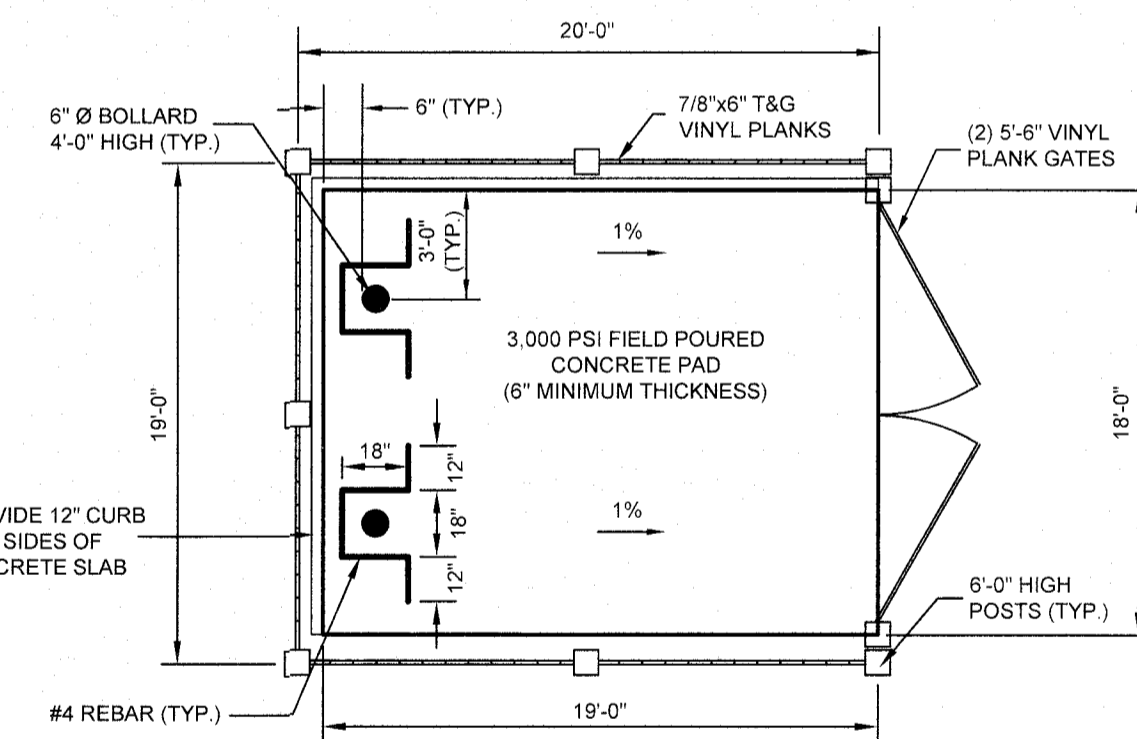
TYPICAL SIGN POST DETAIL
NOT TO SCALE



STRIPING NOTES:

- ALL PAVEMENT MARKINGS SHALL BE IN CONFORMANCE WITH THESE STANDARDS AND THE CURRENT EDITION OF MUTCD.
- WIDTH OF LINES SHALL VARY NO MORE THAN 1/4 INCH FROM THAT SPECIFIED.
- THE WET FILM THICKNESS OF A PAINTED LINE SHALL BE A MINIMUM OF 15 MILS THROUGHOUT THE ENTIRE WIDTH AND LENGTH OF LINE SPECIFIED.
- OVERSPRAY SHALL BE KEPT TO AN ABSOLUTE MINIMUM.
- ALL PAINT SHALL COMPLY WITH NHDOT SPECIFICATION SECTION 706.

TYPICAL PAVEMENT MARKING DETAIL
NOT TO SCALE



NOTE:
THIS DUMPSTER ENCLOSURE WILL ACCOMMODATE MOST 2, 4, 6 AND 8 CY DUMPSTERS.

VINYL STOCKADE TRASH ENCLOSURE DETAIL

TURF ESTABLISHMENT SCHEDULE

PURPOSE:

TO ESTABLISH AND MAINTAIN PERMANENT AND TEMPORARY TURF AREAS, RESTORE GROWTH TO EXISTING TURF AREAS DISTURBED DURING CONSTRUCTION AND CONTROL SOIL EROSION.

PREPARATION AND EXECUTION:

- RAKE THE SUBGRADE OF ALL AREAS TO BE LOAMED AND SEEDED TO REMOVE RUBBISH, STICKS, ROOTS AND STONES LARGER THAN 1 INCH.
- PLACE LOAM OVER AREAS TO BE SEEDED AND SPREAD.
- FINE GRADE SURFACE AND SUPPLEMENT WITH SUITABLE LOAM WHERE NEEDED TO CREATE A UNIFORM SURFACE ACCORDING TO THE FINISH GRADES INDICATED. TOP AND BOTTOM OF SLOPES SHALL BE ROUNDED. NO LOAM SHALL BE SPREAD IF THE SUBGRADE IS EXCESSIVELY WET OR FROZEN.
- IF THE pH OF THE SOIL NEEDS TO BE RAISED, APPLY LIME EVENLY OVER LOAM SURFACE AND THOROUGHLY INCORPORATE LIME INTO THE LOAM BY HEAVY RAKING TO AT LEAST ONE-HALF THE DEPTH OF THE LOAM.
- APPLY NO PHOSPHATE. SLOW RELEASE NITROGEN FERTILIZER AND MIX WITH THE UPPER 2 INCHES OF LOAM.
- DETERMINE APPROPRIATE MIXTURE FOR AREA TO BE SEEDED BASED ON EXAMINATION OF PROJECT PLANS. UNIFORMLY SPREAD THE SEED BY BROADCASTING OR HYDROSEEDING. IF BROADCASTING, LIGHTLY RAKE INTO THE PREPARED SURFACE AND ROLL. IF HYDROSEEDING, USE 4 TIMES THE RECOMMENDED RATE OF INOCULANT. AFTER SEED IS SPREAD, WATER THOROUGHLY WITH A FINE SPRAY.
- SEEDING AND INITIAL FERTILIZING SHALL BE DONE BETWEEN APRIL 1 AND JUNE 1 OR BETWEEN AUGUST 15 AND OCTOBER 14, OR AS PERMITTED. SEEDING SHALL NOT BE DONE DURING WINDY WEATHER OR WHEN THE GROUND IS FROZEN, EXCESSIVELY WET OR OTHERWISE UNTILLABLE.
- WITHIN 24 HOURS AFTER SEEDING OPERATION, UNIFORMLY MULCH THE AREA WITH STRAW. ANCHOR MULCH ON ALL SLOPES EXCEEDING 3:1 USING MULCH NETTING INSTALLED IN ACCORDANCE WITH THE MANUFACTURER.
- PROTECT AND PREVENT AGAINST WASHOUTS. ANY WASHOUTS WHICH OCCUR SHALL BE PROMPTLY REGRADED AND RESEED.
- WHEN IT IS IMPRACTICAL TO ESTABLISH PERMANENT GROWTH ON DISTURBED EARTH BY OCTOBER 14, A TEMPORARY SEED MIXTURE SHALL BE USED. WHEN TEMPORARY SEEDING CANNOT ESTABLISH VISIBLE GROWTH, THE DISTURBED AREA SHALL BE COVERED WITH SIX INCHES OF MULCH FOR THE WINTER.

MAINTENANCE:

ALL SEEDED AREAS SHALL BE KEPT WATERED AND IN GOOD CONDITION. RESEED AS NECESSARY TO ESTABLISH HEALTHY UNIFORM GROWTH OVER THE ENTIRE SEEDED AREA. MAINTAIN SEEDED AREAS IN AN APPROVED CONDITION UNTIL FINAL ACCEPTANCE. MAINTENANCE SHALL INCLUDE REPAIRS FOR DAMAGE CAUSED BY EROSION.

APPLICATIONS:

- LOAM SHALL BE APPLIED AT A MINIMUM COMPACTED THICKNESS OF 4 INCHES.
- LIME SHALL BE USED WHEN NECESSARY TO RAISE THE pH OF THE SOIL AND APPLIED AT ONE OF THE FOLLOWING RATES:

EXISTING SOIL PH	TONS/ACRE	POUNDS/CUBIC YARD
4.0 - 4.4	3	12
4.5 - 4.9	2	8
5.0 - 5.4	1	4

- FERTILIZER SHALL BE APPLIED AT THE MANUFACTURER'S RECOMMENDED RATE. THE MIDDLE NUMBER OF THE FERTILIZER'S ANALYSIS RATIO, WHICH INDICATES PHOSPHORUS PERCENT ON A DRY WEIGHT BASIS, MUST BE ZERO (EX. 20-0-5, 19-0-6, 18-0-5, ETC). CONTRACTOR MUST SUBMIT A "SOIL TESTING FORM-COMMERCIAL LANDSCAPE & GROUNDS MAINTENANCE" ALONG WITH A SOIL SAMPLE TO UNH COOPERATIVE EXTENSION PRIOR TO THE APPLICATION OF ANY FERTILIZER TO DETERMINE WHAT LEVELS AND RATES OF FERTILIZER ARE NECESSARY.
- MULCH SHALL BE APPLIED AT A RATE OF 13 CUBIC YARDS PER 1,000 S.F. OF LANDSCAPE BED.
- CONTRACTOR MUST SUBMIT A "SOIL TESTING FORM-COMMERCIAL LANDSCAPE & GROUNDS MAINTENANCE" ALONG WITH A SOIL SAMPLE TO UNH COOPERATIVE EXTENSION PRIOR TO THE APPLICATION OF ANY FERTILIZER.

MATERIALS:

- LOAM SHALL CONSIST OF LOOSE, FRIABLE TOPSOIL WITH NO ADMIXTURE OF REFUSE OR MATERIAL TOXIC TO PLANT GROWTH. LOAM SHALL BE FREE OF VIABLE PARTS OF PROHIBITED INVASIVE PLANTS AND BE GENERALLY FREE OF STONES, LUMPS, STUMPS AND SIMILAR OBJECTS LARGER THAN 2 INCHES IN GREATEST DIAMETER, SUBSOIL, ROOTS AND WEEDS. THE MINIMUM AND MAXIMUM pH VALUE SHALL BE FROM 5.5 TO 7.5.
- LIME SHALL BE A CALIC OR DOLOMITIC GROUND AGRICULTURAL LIMESTONE CONTAINING NOT LESS THAN 95% OF EITHER CALCIUM OR MAGNESIUM CARBONATE, OR BOTH. IT SHALL CONFORM TO THE STANDARDS OF THE ASSOCIATION OF OFFICIAL AGRICULTURAL CHEMISTS AND SHALL COMPLY WITH ALL STATE AND FEDERAL RULES AND REGULATIONS.
- FERTILIZER SHALL BE STANDARD COMMERCIAL GRADE, NO PHOSPHORUS, SLOW RELEASE NITROGEN FERTILIZER CONFORMING TO ALL STATE AND FEDERAL RULES AND REGULATIONS AND TO THE STANDARDS OF THE ASSOCIATION OF OFFICIAL AGRICULTURAL CHEMISTS.
- GRASS SEED SHALL MEET THE REQUIREMENTS OF THE NEW HAMPSHIRE AGRICULTURAL AND VEGETABLE SEED LAWS AND SHALL INCLUDE NO "PRIMARY NOXIOUS WEED SEEDS".
- SEED MIXTURE FOR LAWN AREAS SHALL CONSIST OF THE FOLLOWING:

KIND OF SEED	MINIMUM PURITY (%)	MINIMUM GERMINATION (%)	POUNDS/ACRE (TOTAL 120 POUNDS)
CREeping RED FESCUE	96	85	40
PERENNIAL RYEGRASS	98	90	50
KENTUCKY BLUEGRASS	97	85	25
REDTOP	95	80	5

SEED MIXTURE FOR SLOPE AREAS SHALL CONSIST OF THE FOLLOWING:

KIND OF SEED	MINIMUM PURITY (%)	MINIMUM GERMINATION (%)	POUNDS/ACRE (TOTAL 95 POUNDS)
CREeping RED FESCUE	96	85	35
PERENNIAL RYEGRASS	98	90	30
REDTOP	95	80	5
ALSIKE CLOVER	97	90	5
BIRDSFOOT TREFOIL	98	80	5
LANCE-LEAVED COREOPSIS	95	80	4
OXEYE DAISY	95	80	3
BLACKEYED SUSAN	95	80	4
WILD LUPINE	95	80	4

TEMPORARY SEEDING MIXTURE SHALL BE APPLIED AT A RATE OF 2 POUNDS PER 1,000 SF AND SHALL BE AN APPROVED CONSERVATION MIX OR CONSIST OF THE FOLLOWING:

- 15% BLACKWELL OR SHELTER SWITCHGRASS
 - 30% NIAGRA OR KAW BIG BLUESTEM
 - 30% CAMPER OR BLAZE LITTLESTEM
 - 15% NE-27 OR BLAZE SAND LOVEGRASS
 - 10% VIKING BIRDSFOOT TREFOIL
- INOCULUM SPECIFIC TO BIRDSFOOT TREFOIL MUST BE USED WITH THIS MIXTURE. IF SEEDING BY HAND, A STICKING AGENT SHALL BE USED. IF SEEDING WITH A HYDROSEEDER, USE FOUR TIMES THE RECOMMENDED AMOUNT OF INOCULUM.
- SEED MIXTURE FOR STORMWATER MANAGEMENT AREAS, INCLUDING DETENTION BASINS AND VEGETATED TREATMENT SWALES, SHALL BE APPLIED AT A RATE OF 70 POUNDS PER ACRE OR 1.6 POUNDS PER 1,000 SF, AND SHALL CONSIST OF THE FOLLOWING:**
- 25% CREEPING RED FESCUE
 - 15% SWITCH GRASS
 - 15% FOX SEDGE
 - 15% CREEPING BENTGRASS
 - 10% FLATPEA
 - 20% WILDFLOWER VARIETY
- STRAW USED FOR MULCH SHALL CONSIST OF MOWED AND PROPERLY CURED GRASS OR LEGUME MOWINGS, FREE FROM WEEDS, TWIGS, DEBRIS, INVASIVE SPECIES OR OTHER DELETERIOUS MATERIAL AND ROT OR MOLD.**
- NATIVE PLANTINGS SHOULD BE USED FOR ALL NEW GREENSCAPES, TO THE EXTENT PRACTICABLE.**
- ALL WILD/LOWER SEEDING MIXES SHOULD BE FREE OF INVASIVE SPECIES.**

CONSTRUCTION DETAILS

SHEPHERDS HILL
MAP 177 LOT 5
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HUDSON, NEW HAMPSHIRE
HILLSBOROUGH COUNTY

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C/O GREAT NORTH PROPERTY MANAGEMENT
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SHEET 45 OF 51

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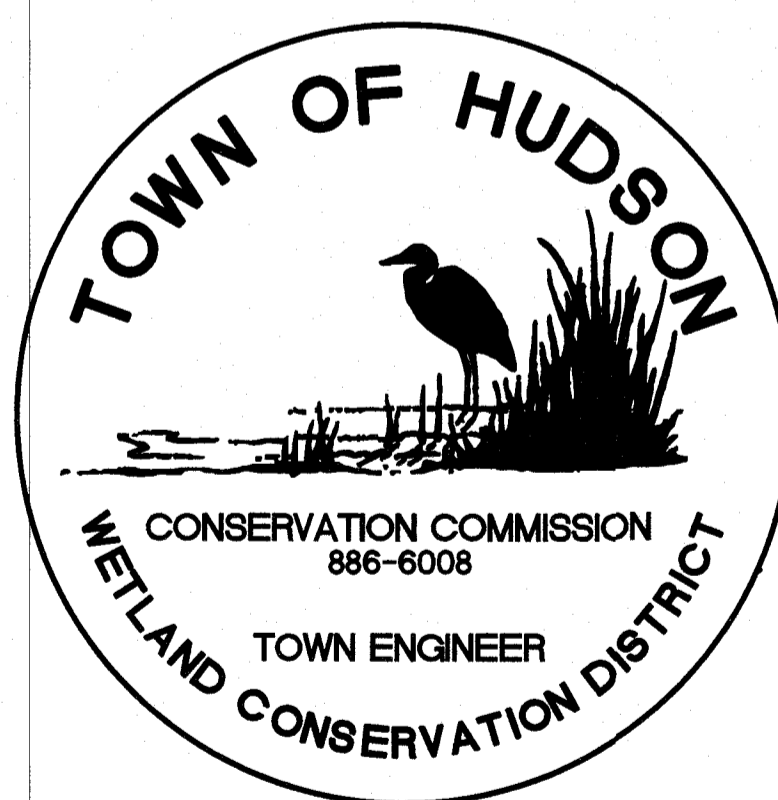
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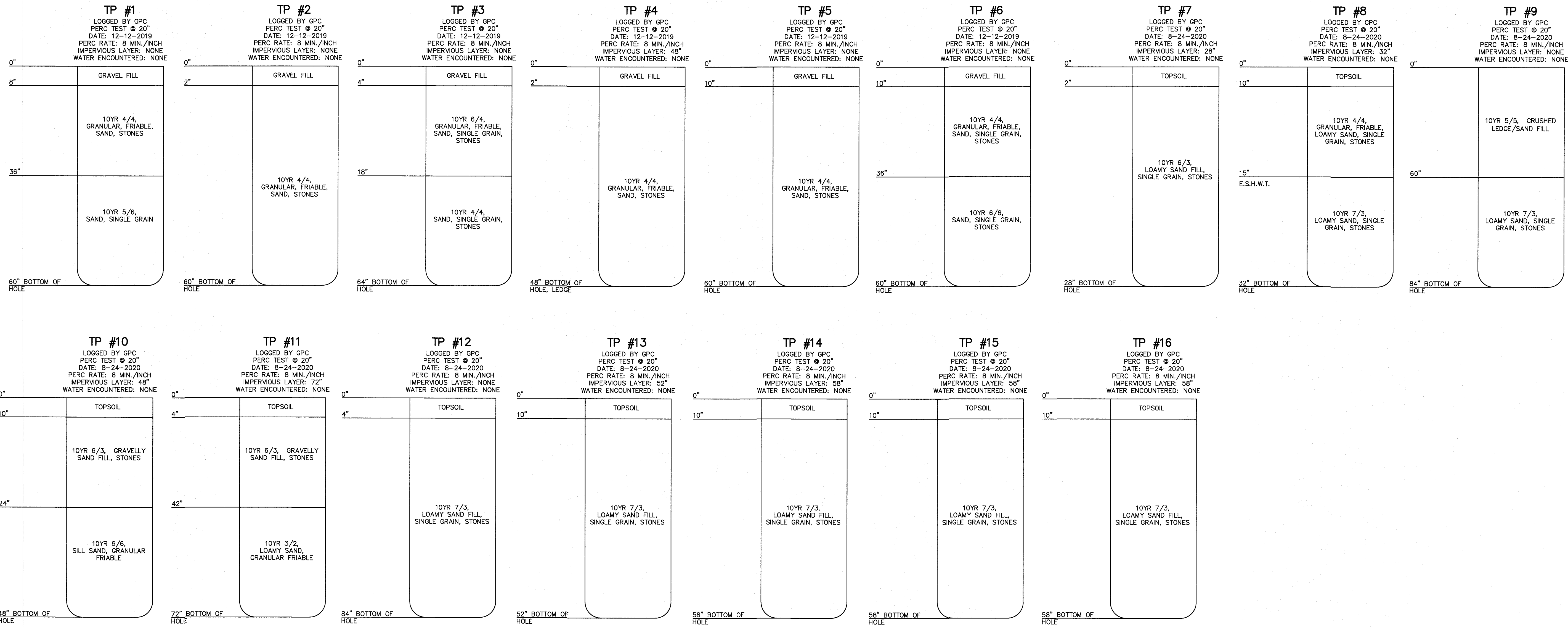
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WETLAND CONSERVATION DISTRICT
BOUNDARY MARKER
NOT TO SCALE
(MARCH 2010)



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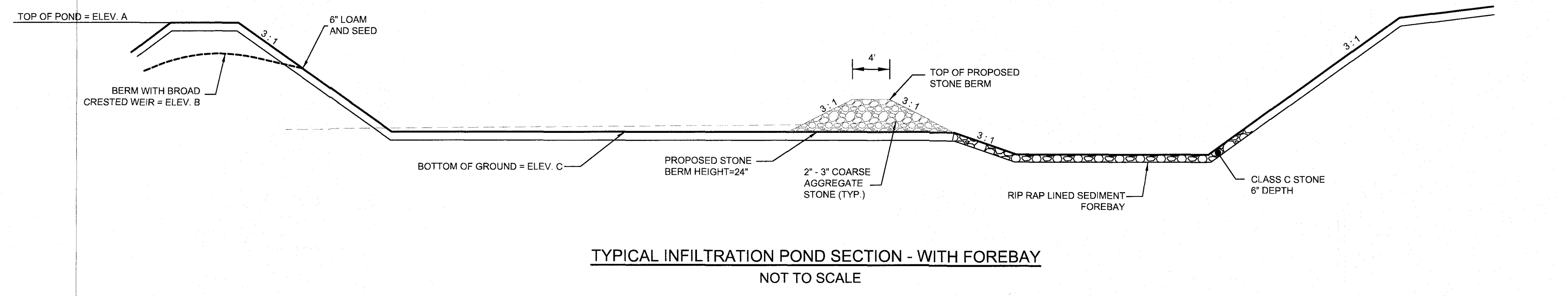
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MAINTENANCE REQUIREMENTS:

- SEDIMENT FOREBAYS:**
- INSPECT AT LEAST ANNUALLY;
 - CONDUCT PERIODIC MOWING OF EMBANKMENTS (GENERALLY TWO TIMES PER YEAR) TO CONTROL GROWTH OF WOODY VEGETATION ON EMBANKMENTS;
 - REMOVE DEBRIS FROM OUTLET STRUCTURES AT LEAST ONCE ANNUALLY;
 - REMOVE AND DISPOSE OF ACCUMULATED SEDIMENT BASED ON INSPECTION;
 - INSTALL AND MAINTAIN A STAFF GAGE OR OTHER MEASURING DEVICE, TO INDICATE DEPTH OF SEDIMENT ACCUMULATION AND LEVEL AT WHICH CLEAN-OUT IS REQUIRED.
- INFILTRATION:**
- REMOVAL OF DEBRIS FROM INLET AND OUTLET STRUCTURES;
 - REMOVAL OF ACCUMULATED SEDIMENT;
 - INSPECTION AND REPAIR OF OUTLET STRUCTURES AND APPURTENANCES;
 - INSPECTION OF INFILTRATION COMPONENTS AT LEAST TWICE ANNUALLY, AND FOLLOWING ANY RAINFALL EVENT EXCEEDING 2.5 INCHES IN A 24 HOUR PERIOD, WITH MAINTENANCE OR REHABILITATION CONDUCTED AS WARRANTED BY SUCH INSPECTION;
 - INSPECTION OF PRETREATMENT MEASURES AT LEAST TWICE ANNUALLY, AND REMOVAL OF ACCUMULATED SEDIMENT AS WARRANTED BY INSPECTION, BUT NO LESS THAN ONCE ANNUALLY;
 - PERIODIC MOWING OF EMBANKMENTS;
 - REMOVAL OF WOODY VEGETATION FROM EMBANKMENTS;
 - INSPECTION AND REPAIR OF EMBANKMENTS AND SPILLWAYS;
 - IF AN INFILTRATION SYSTEM DOES NOT DRAIN WITHIN 72-HOURS FOLLOWING A RAINFALL EVENT, THEN A QUALIFIED PROFESSIONAL SHOULD ASSESS THE CONDITION OF THE FACILITY TO DETERMINE MEASURES REQUIRED TO RESTORE INFILTRATION FUNCTION, INCLUDING BUT NOT LIMITED TO REMOVAL OF ACCUMULATED SEDIMENTS OR RECONSTRUCTION OF THE INFILTRATION TRENCH.
- POCKET POND:**
- THE BOTTOMS, INTERIOR AND EXTERIOR SIDE SLOPES AND CREST OF EARTHEN DETENTION BASINS SHOULD BE MOWED, AND THE VEGETATION MAINTAINED IN HEALTHY CONDITION, AS APPROPRIATE TO THE FUNCTION OF THE FACILITY AND TYPE OF VEGETATION.
 - VEGETATED EMBANKMENTS THAT SERVE AS "BERMS" OR "DAMS" THAT IMPOUND WATER SHOULD BE MOWED AT LEAST ONCE ANNUALLY TO PREVENT THE ESTABLISHMENT OF WOODY VEGETATION;
 - INLET AND OUTLET PIPES, INLET AND OUTLET STRUCTURES, ENERGY DISSIPATION STRUCTURES OR PRACTICES AND OTHER STRUCTURAL APPURTENANCES SHOULD BE INSPECTED AT LEAST ANNUALLY BY A QUALIFIED PROFESSIONAL AND CORRECTIVE ACTION IMPLEMENTED (EG. MAINTENANCE, REPAIRS OR REPLACEMENT) AS INDICATED BY SUCH INSPECTION;
 - TRASH AND DEBRIS SHOULD BE REMOVED FROM THE BASIN AND ANY INLET OR OUTLET STRUCTURES WHENEVER OBSERVED BY INSPECTION;
 - ACCUMULATED SEDIMENT SHOULD BE REMOVED WHEN IT SIGNIFICANTLY AFFECTS BASIN CAPACITY.
- SWALE:**
- INSPECT AT LEAST TWICE ANNUALLY
 - CONDUCT PERIODIC MOWING OF EMBANKMENTS (GENERALLY TWO TIMES PER YEAR) TO CONTROL GROWTH OF WOODY VEGETATION ON EMBANKMENTS;
 - REMOVE TRASH AND DEBRIS AT LEAST EACH INSPECTION;
 - REMOVE AND DISPOSE OF ACCUMULATED SEDIMENT BASED ON INSPECTION;

CONSTRUCTION PRACTICE REQUIREMENTS:

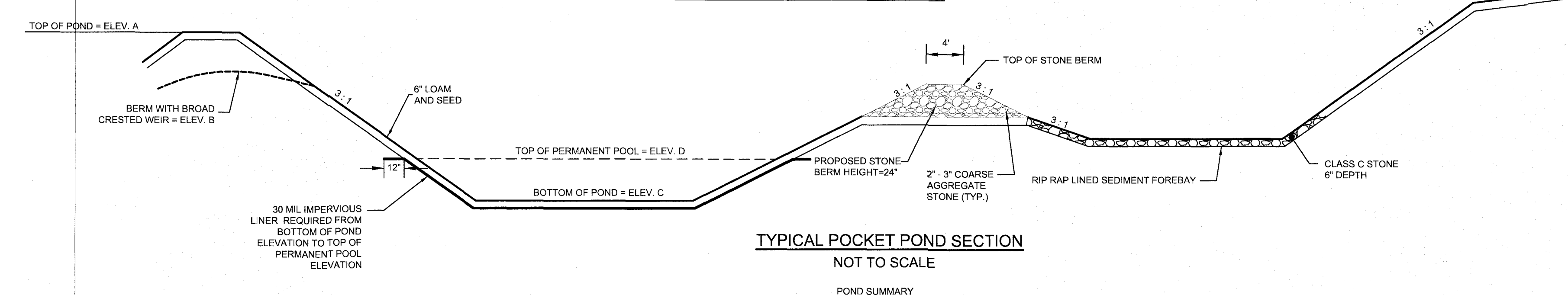
- STORMWATER PONDS, INFILTRATION BASINS, AND SWALES MUST BE INSTALLED BEFORE ROUGH GRADING TO SITE.
- RUNOFF MUST BE DIRECTED TO TEMPORARY PRACTICES UNTIL STORMWATER BMPs ARE STABILIZED.
- STORMWATER PONDS, INFILTRATION BASINS, AND SWALES MUST BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
- DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH CONSTRUCTION EQUIPMENT, IF FEASIBLE, PERFORM EXCAVATION WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION SYSTEM.
- AFTER THE INFILTRATION SYSTEM AREA IS EXCAVATED TO THE FINAL DESIGN ELEVATION, THE FLOOR SHOULD BE DEEPLY TILLED WITH A ROTARY TILLER OR DISC HARROW TO RESTORE INFILTRATION RATES, FOLLOWED BY A PASS WITH A LEVELING DRAG.
- DO NOT PLACE INFILTRATION SYSTEMS INTO SERVICE UNTIL THE CONTRIBUTING AREAS HAVE BEEN FULLY STABILIZED.
- INFILTRATION BASIN FLOOR PREPARATION WILL INCLUDE GRASS TURF THAT CAN BE INUNDATED FOR UP TO 72 HOURS.
- INFILTRATION AREAS ARE TO BE PROTECTED FROM OVER-COMPACTION DURING CONSTRUCTION.



TYPICAL INFILTRATION POND SECTION - WITH FOREBAY
NOT TO SCALE

POND SUMMARY

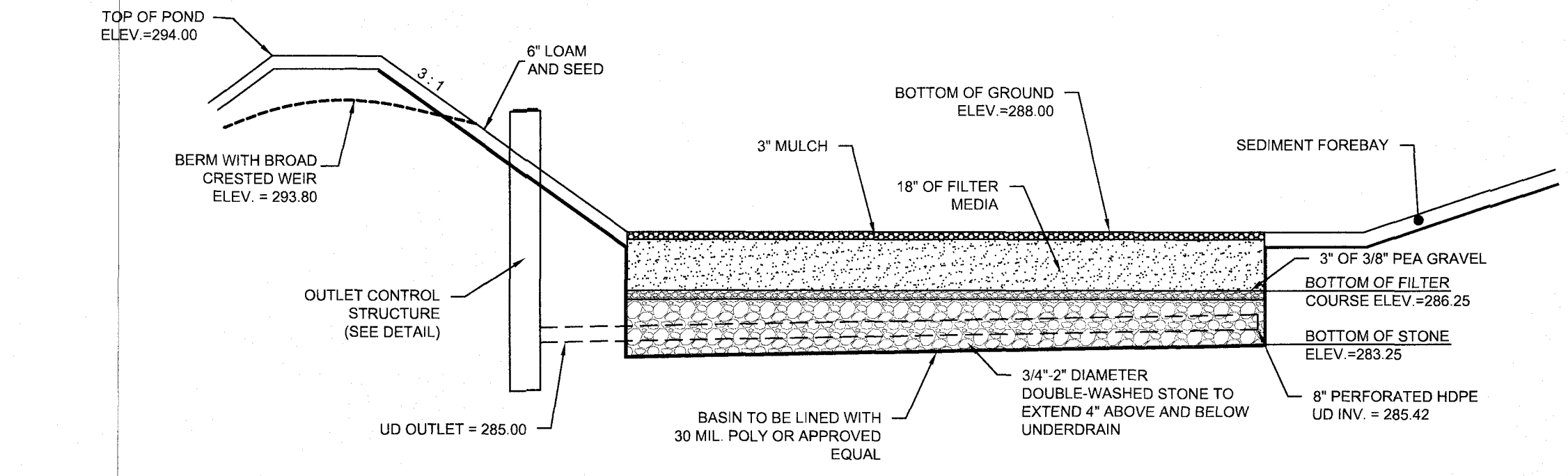
POND NUMBER	ELEV. A	ELEV. B	ELEV. C
INFILTRATION POND #1	282.00	N/A	280.00
INFILTRATION POND #2	276.00	N/A	274.00



TYPICAL POCKET POND SECTION
NOT TO SCALE

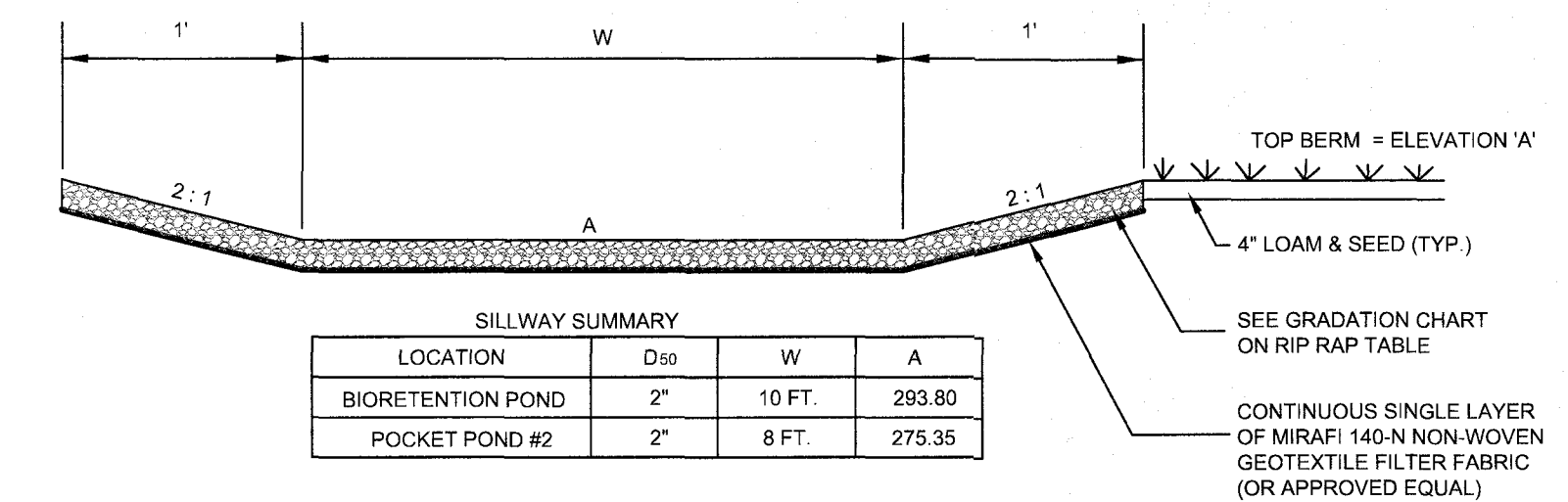
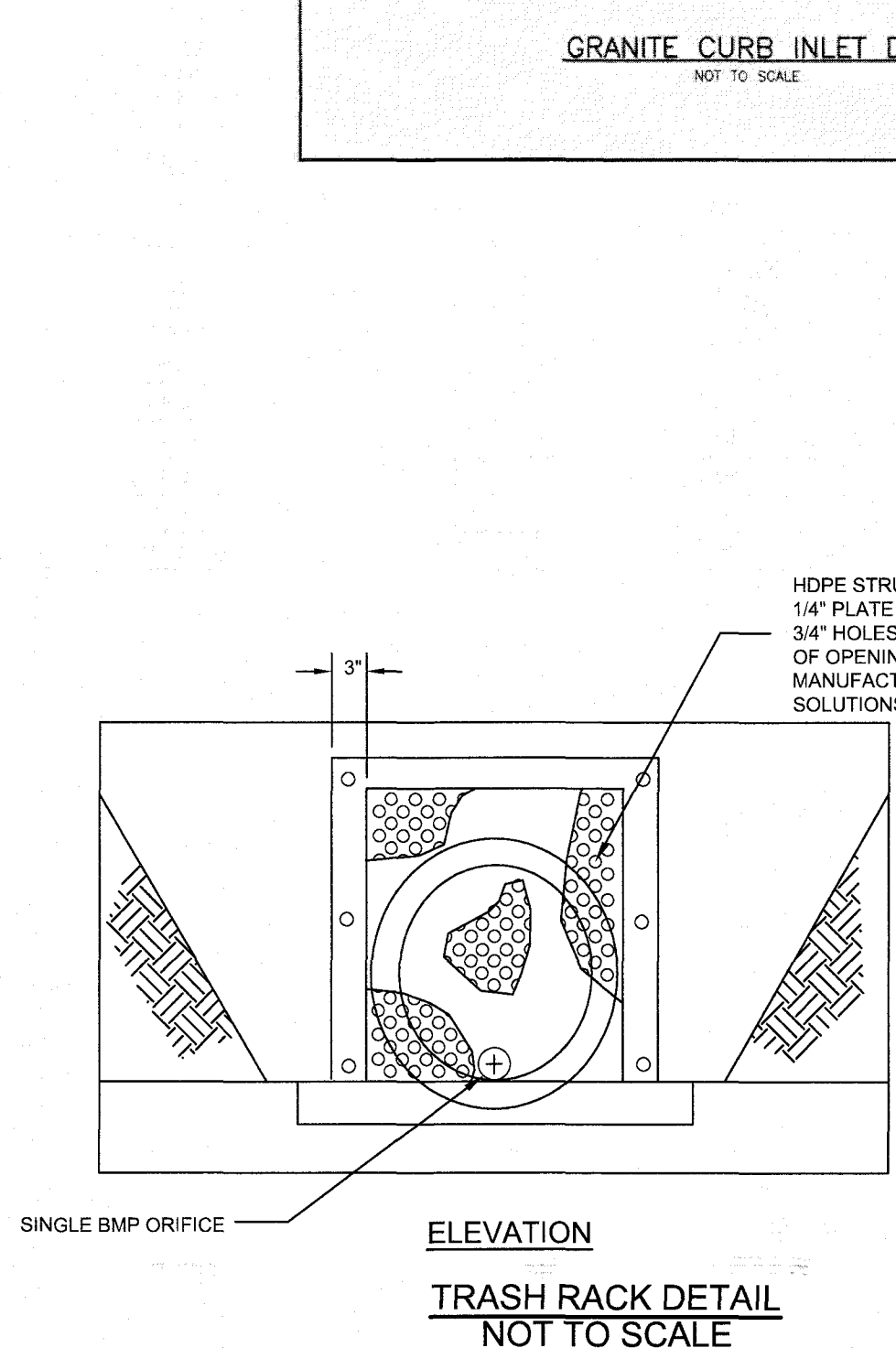
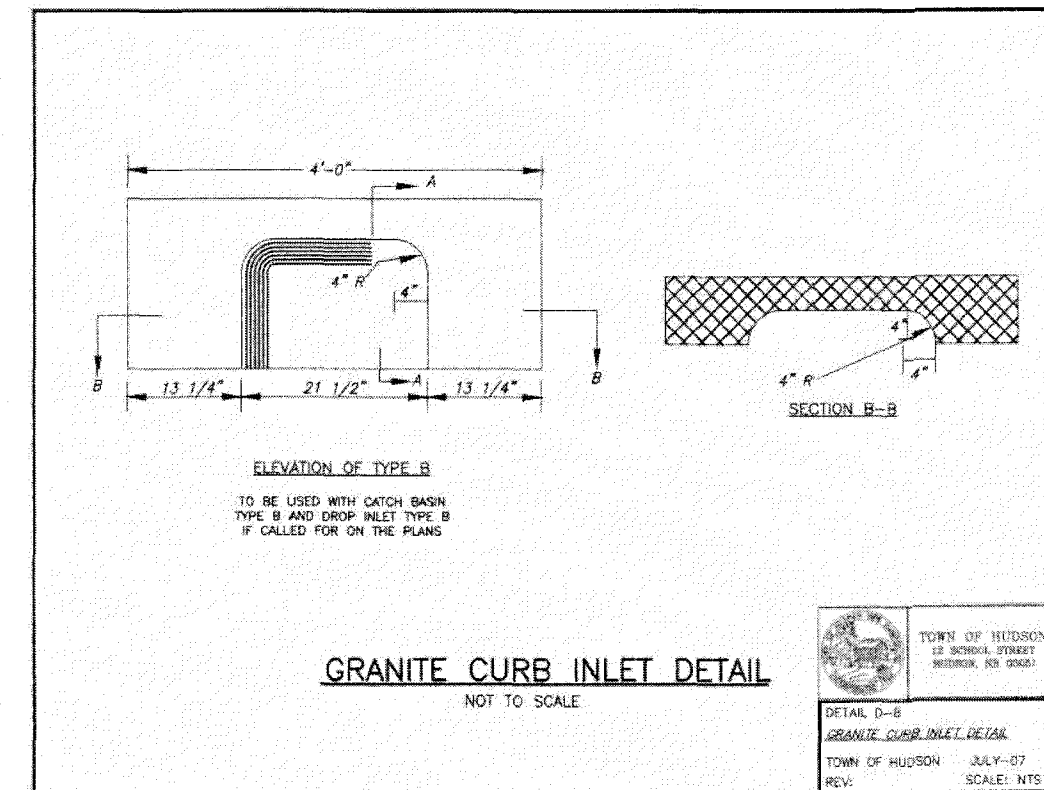
POND SUMMARY

POND NUMBER	ELEV. A	ELEV. B	ELEV. C	ELEV. D
POCKET POND #1	313.50	N/A	306.00	309.80
POCKET POND #2	276.00	275.35	288.00	272.10



TYPICAL BIORETENTION POND SECTION
NOT TO SCALE

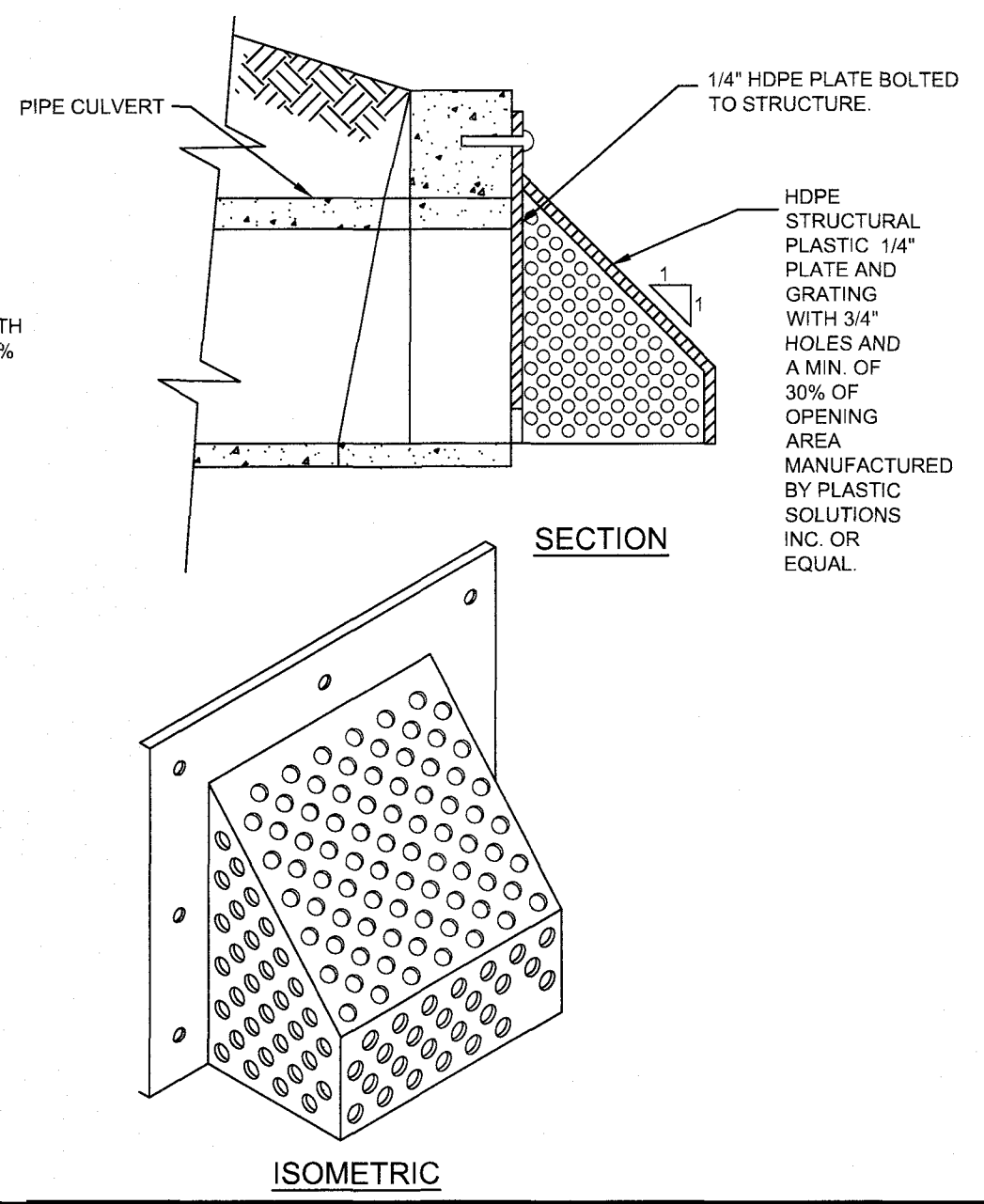
COMPONENT MATERIAL	PERCENT OF MIXTURE BY VOLUME	GRADATION OF MATERIAL	
		SIEVE NO.	PERCENT BY WEIGHT PASSING STANDARD SIEVE
FILTER MEDIA OPTION A			
ASTM C-33 CONCRETE SAND	50 TO 55		
LOAMY SAND TOPSOIL, WITH FINES AS INDICATED	20 TO 30	200	15 TO 25
MODERATELY FINE SHREDDED BARK OR WOOD FIBER MULCH, WITH FINES AS INDICATED	20 TO 30	200	<5
FILTER MEDIA OPTION B			
MODERATELY FINE SHREDDED BARK OR WOOD FIBER MULCH, WITH FINES AS INDICATED	20 TO 30	200	<5
	70 TO 80	10	85 TO 100
		20	70 TO 100
		60	15 TO 40
LOAMY COARSE SAND		200	8 TO 15



SILLWAY SUMMARY

LOCATION	D ₅₀	W	A
BIORETENTION POND	2"	10 FT.	293.80
POCKET POND #2	2"	8 FT.	275.35

SPILLWAY DETAIL
NOT TO SCALE



ISOMETRIC

CONSTRUCTION DETAILS
SHEPHERDS HILL
MAP 177 LOT 5
SHADOWBROOK DRIVE
HUDSON, NEW HAMPSHIRE
HILLSBOROUGH COUNTY

OWNER OF RECORD: SHEPHERDS HILL HOME OWNERS ASSOCIATION C/O GREAT NORTH PROPERTY MANAGEMENT 3 HOLLAND WAY, SUITE 201 EXETER, NH 03833	APPLICANT: SHEPHERDS HILL, LLC 253 MAIN STREET NASHUA, NH 03060
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KEACH-NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

REVISIONS			
No.	DATE	DESCRIPTION	BY
1	7/7/22	REVISED PER COMMENTS	ACL
2	10/6/22	REVISED PER TOWN COMMENTS	ACL

DATE: MAY 2, 2022 SCALE: AS SHOWN
PROJECT NO: 17-0824-1 SHEET 49 OF 51

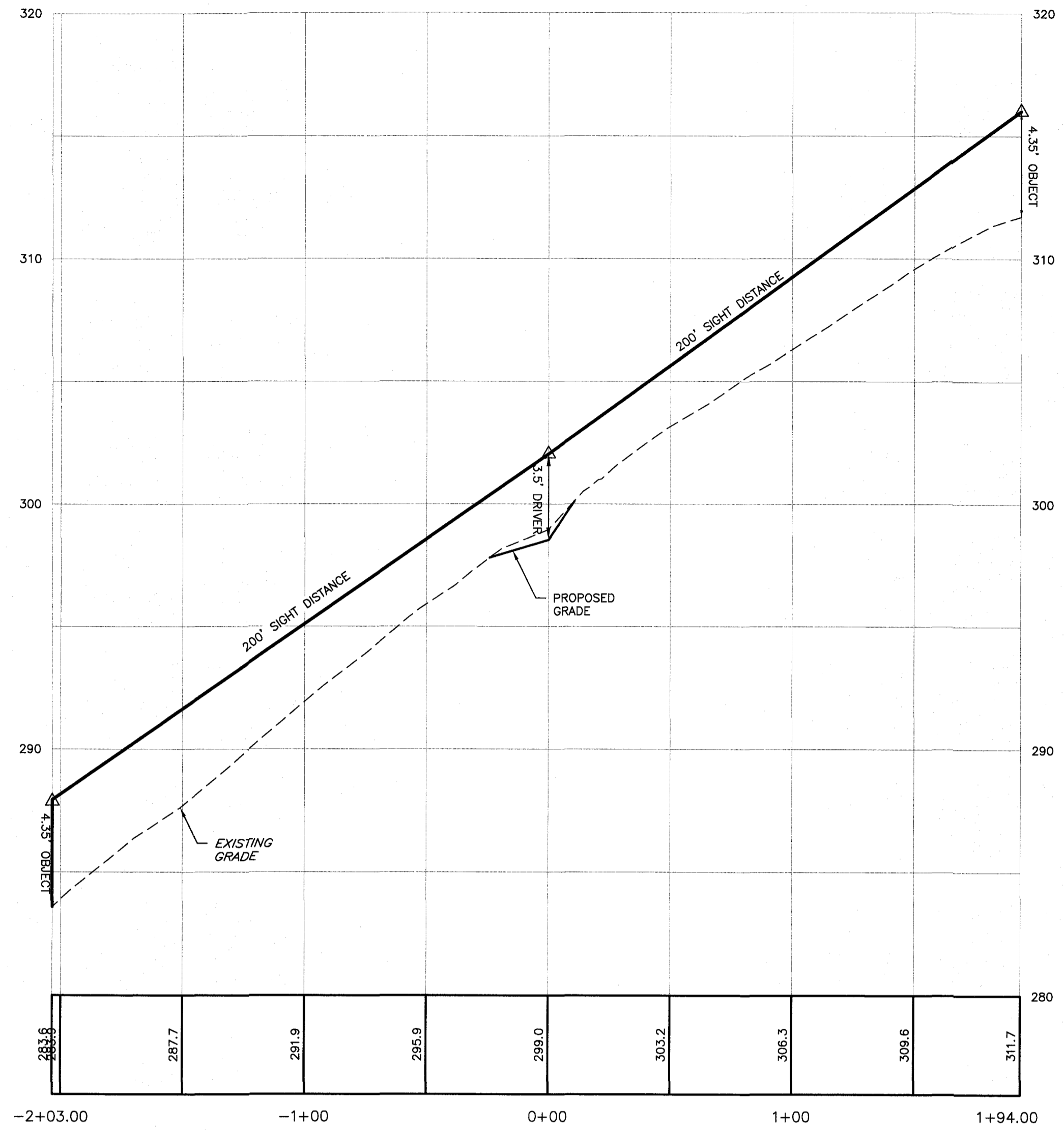
PURSUANT TO THE SITE REVIEW REGULATIONS OF THE HUDSON PLANNING BOARD, THE SITE PLAN APPROVAL GRANTED HEREIN EXPIRES TWO YEAR FROM DATE OF APPROVAL.

APPROVED BY THE HUDSON, NH PLANNING BOARD
DATE OF MEETING: _____

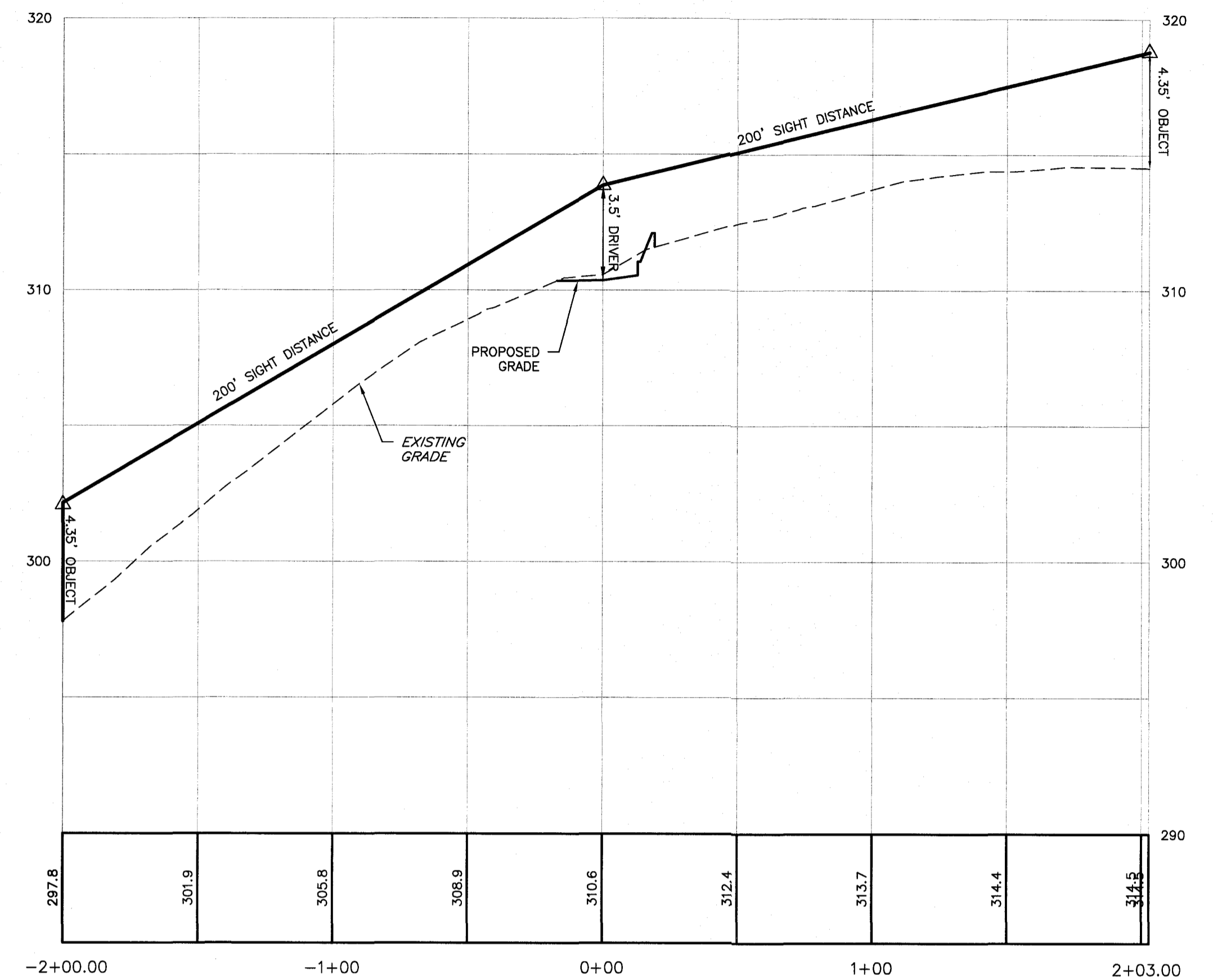
SIGNATURE DATE: _____

SIGNATURE DATE: _____

SITE PLANS ARE VALID FOR TWO YEARS FROM THE DATE OF PLANNING BOARD MEETING FINAL APPROVAL. FINAL APPROVAL COMMENCES AT THE PLANNING BOARD MEETING DATE AT WHICH THE PLAN RECEIVES FINAL APPROVAL.



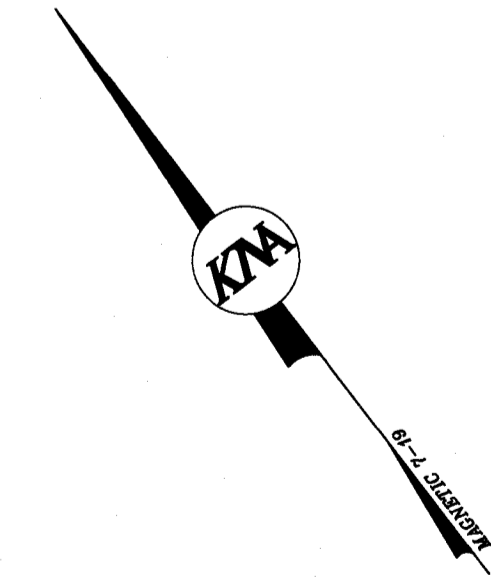
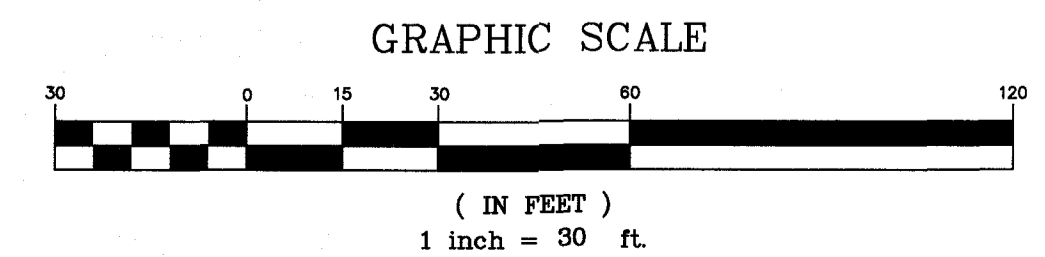
GIFFORD CIRCLE WESTERN DRIVEWAY PROFILE
 SCALE: 1" = 40' (HORIZ.)
 1" = 4' (VERT.)



GIFFORD CIRCLE EASTERN DRIVEWAY PROFILE
 SCALE: 1" = 40' (HORIZ.)
 1" = 4' (VERT.)



GIFFORD CIRCLE SIGHT DISTANCE PLAN
 SCALE: 1" = 40' (HORIZ.)



PURSUANT TO THE SITE REVIEW REGULATIONS OF THE HUDSON PLANNING BOARD, THE SITE PLAN APPROVAL GRANTED HEREIN EXPIRES ONE YEAR FROM DATE OF APPROVAL.

APPROVED BY THE HUDSON, NH PLANNING BOARD
 DATE OF MEETING: _____
 _____ SIGNATURE DATE: _____
 _____ SIGNATURE DATE: _____

SITE PLANS ARE VALID FOR TWO YEARS FROM THE DATE OF PLANNING BOARD MEETING FINAL APPROVAL. FINAL APPROVAL COMMENCES AT THE PLANNING BOARD MEETING DATE AT WHICH THE PLAN RECEIVES FINAL APPROVAL.

SIGHT DISTANCE PLAN & PROFILE
SHEPHERDS HILL
 MAP 177 LOT 5
 SHADOWBROOK DRIVE
 HUDSON, NEW HAMPSHIRE
 HILLSBOROUGH COUNTY

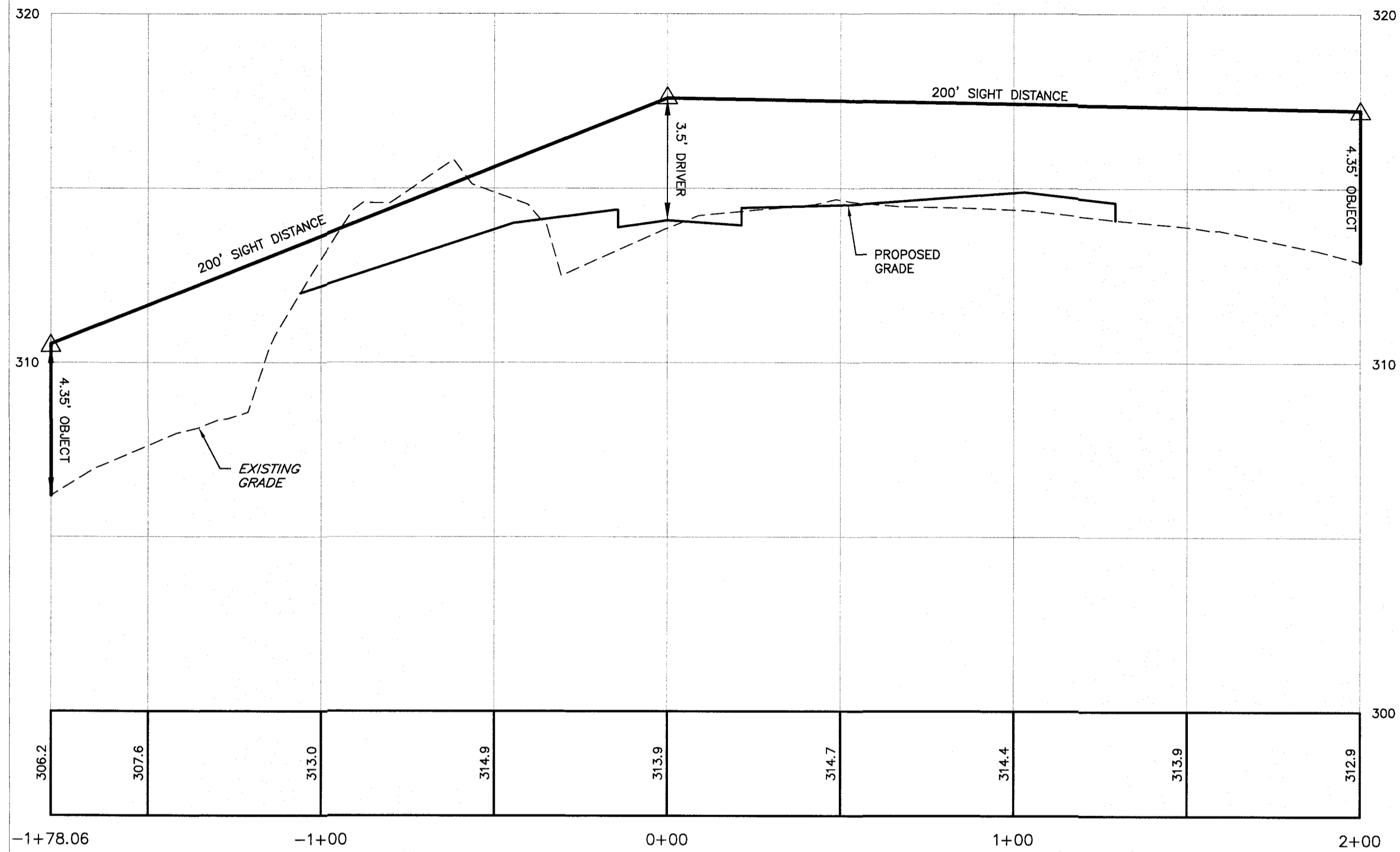
OWNER OF RECORD:
 SHEPHERDS HILL HOME OWNERS ASSOCIATION
 C/O GREAT NORTH PROPERTY MANAGEMENT
 3 HOLLAND WAY, SUITE 201
 EXETER, NH 03833

APPLICANT:
 SHEPHERDS HILL, LLC
 253 MAIN STREET
 NASHUA, NH 03060

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 Civil Engineering Land Surveying Landscape Architecture
 10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627-2881

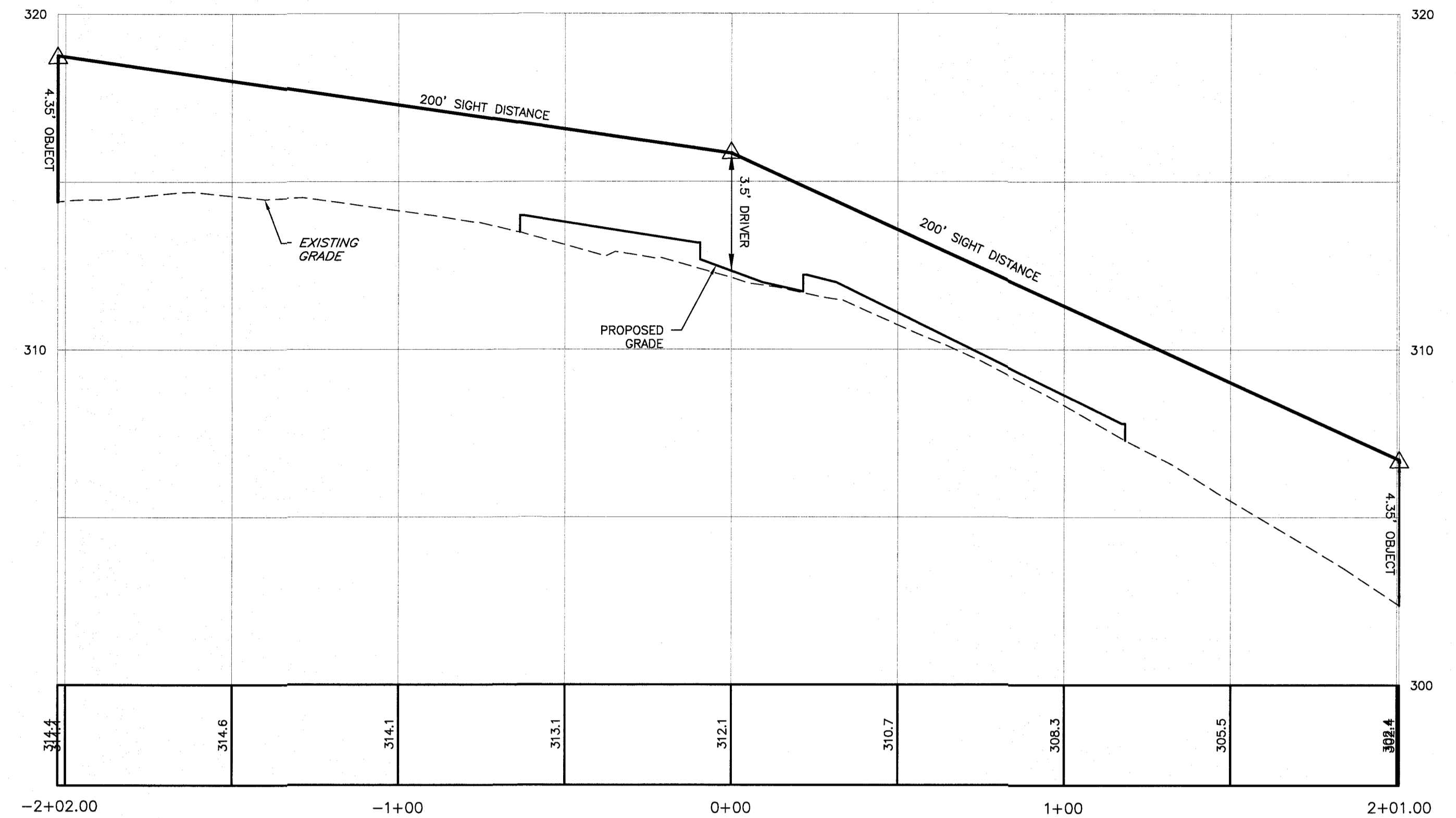
REVISIONS			
No.	DATE	DESCRIPTION	BY
1	7/7/22	REVISED PER COMMENTS	ACL
2	10/6/22	REVISED PER TOWN COMMENTS	ACL

DATE: MAY 2, 2022
 PROJECT NO: 17-0824-1
 SCALE: 1"=40'
 SHEET SD1



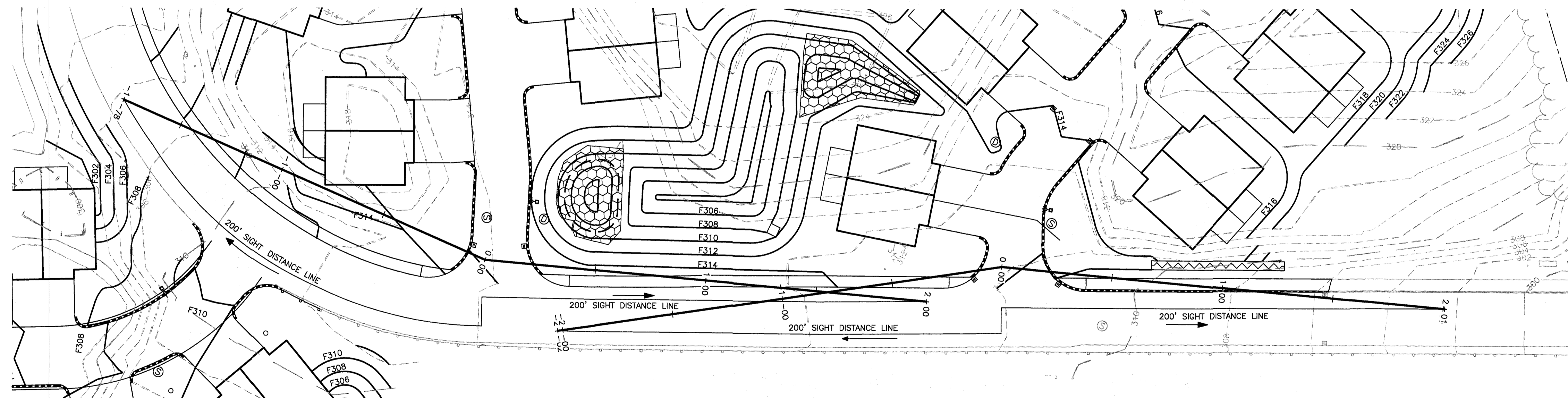
TRINITY CIRCLE WESTERN DRIVEWAY PROFILE

SCALE: 1" = 30' (HORIZ.)
1" = 3' (VERT.)



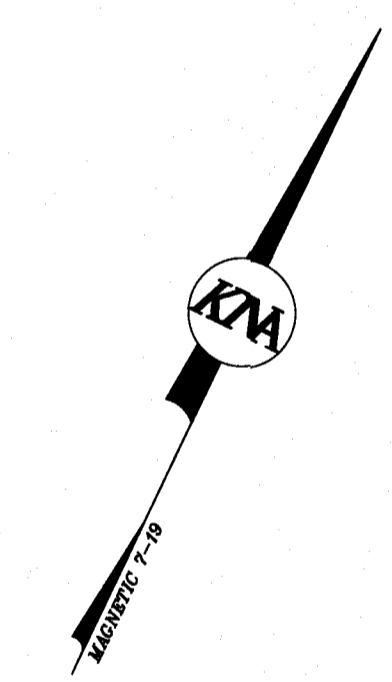
TRINITY CIRCLE EASTERN DRIVEWAY PROFILE

SCALE: 1" = 30' (HORIZ.)
1" = 3' (VERT.)



TRINITY CIRCLE SIGHT DISTANCE PLAN

SCALE: 1" = 30' (HORIZ.)



SIGHT DISTANCE PLAN & PROFILE
SHEPHERDS HILL
MAP 177 LOT 5
SHADOWBROOK DRIVE
HUDSON, NEW HAMPSHIRE
HILLSBOROUGH COUNTY

OWNER OF RECORD: SHEPHERDS HILL HOME OWNERS ASSOCIATION C/O GREAT NORTH PROPERTY MANAGEMENT 3 HOLLAND WAY, SUITE 201 EXETER, NH 03833	APPLICANT: SHEPHERDS HILL, LLC 253 MAIN STREET NASHUA, NH 03060
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10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 827-2881

REVISIONS			
No.	DATE	DESCRIPTION	BY
1	7/7/22	REVISED PER COMMENTS	ACL
2	10/6/22	REVISED PER TOWN COMMENTS	ACL

DATE: MAY 2, 2022 SCALE: 1"=40'
PROJECT NO: 17-0824-1 SHEET SD2

PURSUANT TO THE SITE REVIEW REGULATIONS OF THE HUDSON PLANNING BOARD, THE SITE PLAN APPROVAL GRANTED HEREIN EXPIRES ONE YEAR FROM DATE OF APPROVAL.

APPROVED BY THE HUDSON, NH PLANNING BOARD
DATE OF MEETING: _____

SIGNATURE DATE: _____

SIGNATURE DATE: _____

SITE PLANS ARE VALID FOR TWO YEARS FROM THE DATE OF PLANNING BOARD MEETING FINAL APPROVAL. FINAL APPROVAL COMMENCES AT THE PLANNING BOARD MEETING DATE AT WHICH THE PLAN RECEIVES FINAL APPROVAL.

