CITY OF DOVER

DOVER PLANNING BOARD – AGENDA

Meeting Type: Regular Meeting
Meeting Location: Council Chambers, City Hall, 288 Central Ave, Dover NH 03820
Meeting Date: **Tuesday, December 10, 2019**
Meeting Time: **7:00 pm**

1. **CITIZENS' FORUM**
2. **APPROVAL OF THE PRIOR MINUTES**
   - November 12, 2019 Regular Meeting Minutes
3. **OLD BUSINESS**
4. **NEW BUSINESS**

A. Consideration and possible posting of amendments to Chapter 149, entitled "Site Review Regulations" of the code of the City of Dover. Amendments include updating terms, and titles, as well as revising references to State Statutes. The full text of the amendments is available in Planning Department & at www.dover.nh.gov located under City Documents & View Current City Reports.

B. Consideration and possible posting of amendments to Chapter 155, entitled "Subdivision of Land" of the code of the City of Dover. Amendments updating terms, and titles, as well as revising references to State Statutes.. The full text of the amendments is available in Planning Department & at www.dover.nh.gov located under City Documents & View Current City Reports.

C. Consideration and possible adoption of Recodification for Subdivision of Land and Site Review Regulations.

D. Consideration and acceptance of a Conditional Use Permit for the City of Dover, Assessor's Map H, Lot 58, zoned I-4, located at 271 Mast Road. (Proposal is to construct a replacement artificial recharge facility on the Bellamy River with 500 s.f. of permanent wetlands impact and a temporary wetland impact of 1,450 s.f.) *(P19-82)

E. Consideration and acceptance of a Conditional Use Permit for Eversource Energy, Assessor's Map I, Lot 22, owned by Jensen's Inc., at 13 Brookmoor Road, zoned R-40, and Assessor's Map M, Lot 91-A, owned by Townsquare Media Portsmouth, LLC located at 292 Middle Road, zoned R-40. (Proposal is to replace five existing utility pole structures in a utility easement, with temporary wetland impacts of 12,692 s.f. and temporary 50-foot wetland buffer impacts of 45,838 s.f.) *(P19-78)

F. Consideration and acceptance for a Site Review for Industrial Tower and Wireless, LLC, (Owners: Peter & Susan Rousseau), Assessor's Map K, Lot 1, zoned R-40, and located at 200 Henry Law Avenue. (Proposal is to construct a 150' communications tower and 80'x 80" compound with driveway.) *(P19-77)

G. Consideration and acceptance of a Lot Line Adjustment for 46 Venture Drive Properties, LLC., (Owner: Hussey Manufacturing Technology, LLC) Assessor's Map D, Lots 11-2 & 13-4, zoned I-4, and located at 44 Venture Drive. *(P19-70)

H. Consideration and acceptance of a Conditional Use Permit for 46 Venture Drive Properties, LLC., (Owner: Hussey Manufacturing Technology, LLC.) Assessor's Map D, Lot 11-2, zoned I-4, and located at Venture Drive. (Impacting 2,669 s.f. of steep slopes greater than 20%.) *(P19-68)

I. Consideration and acceptance of a Site Review for 46 Venture Drive Properties, LLC., (Owner: Hussey Manufacturing Technology, LLC) Assessor's Map D, Lot 11-2, zoned I-4, and located at Venture Drive. (Proposal is to construct a commercial building with 13,500 s.f. of retail space and 1,500 s.f. of office space as well as 2 driveways and 26 parking spaces.) *(P19-67)

J. Consideration and acceptance of a Conditional Use Permit for Chris Meyer & Nick Couturier, (Owner: Trinket Realty LLC), Assessor's Map 4, Lot 5, zoned CBD-General, and located at 14 Broadway, (Proposal is to use the building for a self-storage facility as well as private assigned outdoor parking spaces) *(P19-83)

K. Consideration and acceptance of a Lot Line Adjustment for 499 & 503 Tolend Road, (Owners: Denise & Kirk Purington & Tyrso Carvalho-Filho), Assessor's Map C, Lots 42-E & 42, zoned R-40, and located at 499 & 503 Tolend Road. *(P19-84)

5. STAFF COMMENT

6. MEMBER COMMENTS

7. ADJOURNMENT

*Indicates that if the application is accepted for discussion, the public hearing will be held the same evening. Note that some hearings will be continued from one meeting to another and some may be postponed. Since this is only a partial description of the proposal and may change, persons with questions or wishing to see the plans are invited to visit the Planning Office, Monday through Thursday from 8:30 am to 5:30 pm and Friday 8:30 am to 4:00 pm or email Dover-Planning@dover.nh.gov. You may also view materials at www.dover.nh.gov. Follow us on Twitter @DoverNHPlanning and find us on Facebook at https://www.facebook.com/DoverNHPlanning.

CITY OF DOVER

DOVER PLANNING BOARD – MINUTES

Meeting Type:	Regular Meeting
Meeting Location:	City Council Chamber's 288 Central Avenue
Meeting Date:	**Tuesday, November 12, 2019**
Meeting Time:	**7:00 pm**

Members Present: Gina Cruikshank (Chair), Hayley Harmon (Vice Chair), Dennis Ciotti (Councilor), Dave Landry, Frank Torr, Dave White, Matt Sullivan, Jackson Kaspari, Tom Clark, Erin Allgood (Alternate), Ellen Brooks (Alternate), Lisa McGunnigle (Alternate)

Members Not Present (excused): None

Members Not Present (un-excused): None

Staff Present: Donna Benton, City Planner

The Chair called the meeting to order at 7:00pm.

1. CITIZENS' FORUM

Citizens Forum Open. No one spoke. *Citizens Forum Closed.*

2. APPROVAL OF THE PRIOR MINUTES

- October 22, 2019 Regular Meeting Minutes
- October 16, 2019 Joint Meeting of the City Council and Planning Board

Motion: F. Torr made a motion to approve the minutes of October 22 and October 16, 2019 as submitted. Seconded by D. White Vote: U/A.

3. OLD BUSINESS

A. Public hearing and possible vote on the City's proposed Capital Improvements (CIP) FY 2022-2026. The CIP can be found on the City Web Site at www.dover.nh.gov and in the Library, City Clerk's office, and the Planning Department.*

D. White moved the remove the item from the table. Seconded by D. Landry. Vote: U/A

D. Benton explained this is the second public hearing. The Board is encouraged to vote tonight and staff will alert the City Council of the Planning Board's decision.

Public hearing re-opened. No one spoke. *Public hearing closed.*

D. Landry stated the document is very well and professionally put together. He also wanted to keep land preservation in the forefront of city government priorities.

F. Torr made a motion to approve the FY 2022-2026 CIP. Seconded by T. Clark. Vote: U/A.

4. NEW BUSINESS

A. Consideration and acceptance for a Site Review for City of Dover-Community Services, Assessor's Map 18, Lot 1, zoned R-12, and located at 145 Court Street. (Proposal is to construct a 12,000 s.f. building and 36 parking spaces for use by the City of Dover Facility, Grounds and Cemeteries Division.) *(P19-73)

T. Clark and D. White recused themselves from the case. Lisa McGunnigle and Erin Allgood sat in for them.

Geoff Aleva, Civil Consultants, representing the application, reviewed the request. The request is for a City maintenance building and parking to house the City Cemeteries and Grounds equipment and staff.

J. Kaspari wanted to confirm the eye wash station will be serviced regularly to make sure there are no built-up contaminants in the equipment.

There are 15-18 staff who will park on site in the front. There will be an area on the side where City vehicles will be parked. There are eight spaces on another side for visitors to the cemetery.

Director of Community Services, John Storer, answered board questions about the buildings at the old site, cemetery records and cemetery plots.

Motion: F. Torr made a motion to accept the application. Seconded by D. Ciotti. Vote U/A.

Public hearing opened. No one spoke. *Public Hearing closed.*

STAFF RECOMMENDATION- Waiver:
The Planning Department recommends the Planning Board accept the application, open the public hearing, and vote to grant the waiver to Chapter and that the criteria of Chapter 149-19.A have been met.

Condition to Be Met Prior to Granting the Waiver:
1. The applicant shall update the plan to indicate the Board granted the waiver to Chapter 149-13.A (4) & (8) and found that the criteria of Chapter 149-19.A have been met.

Motion: D. Landry made a motion that the Planning Board finds the criteria have been met and grants the waiver. Seconded by D. Ciotti. Vote U/A.

STAFF RECOMMENDATION- Site Plan:
The Planning Department recommends the Planning Board approve the Site Plan with the following non-binding conditions:

Conditions to Be Met Prior to the Signing of Plans:
1. The applicant shall provide:
    a. a digital version of plan set
    b. letter to serve from Eversource
    c. landscape O&M plan
2. The applicant must revise final plan set to:
    a. Add the owner's signatures to the final plat.
    b. Add LLS, PE and Architect signatures and stamps to final plan.
    c. Add note to the plan describing future reconfiguration of intersection of Court Street, Back and Middle Roads.
    d. Add signage or lane markings alerting drivers regarding the sight distance looking east on Middle Road, from Back Road.
    e. Add note to the plan about sidewalks along the Cemetery to be added as part of the Court Street reconstruction project.
    f. Add speed limit sign to Court St.
    g. Add common site notes 25, 26, 30, 31-33
    h. Address Fire/Building and Engineering TRC comments to the satisfaction of the Building Official.
    i. Add screening to generator and dumpster (landscaping)
    j. Provide parking regulation calculation.

Conditions to Be Met Prior to any Construction Activity:

3. A site construction sign with the contact information for the general contractor must be located and approved by the City Engineer or Assistant City Manager.

Conditions to Be Met Prior to Issuance of a Building Permit:

4. Applicant shall pay water/sewer investment fees in place at time of request for service.

Conditions to Be Met Prior to Occupancy:

5. Issuance of a certificate of occupancy.
6. The applicant shall provide a letter of credit or other form of security acceptable to the City for any unfinished work.

Motion: D. Landry made a motion to approve the Site Plan with the conditions listed. Seconded by D. Ciotti. Vote U/A.

B. Consideration and acceptance of an extension of a previously approved mixed-use Site Plan on December 12, 2017, for Salty Sea, LLC., Assessor's Map 40, Lot 25, zoned B-3, and located at 52 Old Rochester Road. (Request is to extend vesting process) *(P17-74A)

D. Benton stated that the applicant is requesting an extension of the vesting period for a previously approved Site Plan for a mixed-use project at 52 Old Rochester Road. The Planning Board chair signed the plans as meeting all conditions precedent on January 9, 2018.

New Hampshire RSA 674:39 I (a) states in part that "Active and substantial development or building has begun on the site by the owner or the owner's successor in interest in accordance with the approved subdivision plat within 24 months after the date of approval."

These measures have not been completed on the project, and the 24-month period expires December 12, 2019.

T. Clark and D. White retook their seats at the table.

FX Bruton, Bruton & Berube, representing the application, reviewed the proposal and application materials and explained the request. The commercial aspect of the project has been underway, but the residential portion has not yet begun. They are requesting to add an extra 12 months to the vesting time period.

Motion: F. Torr made a motion to accept the application. Seconded by D. Ciotti. Vote U/A.

Public hearing opened. No one spoke. *Public Hearing closed.*

STAFF RECOMMENDATION:
The Planning Department recommends that the Planning Board accept the application for review, open the public hearing, and determine if the applicant has demonstrated good cause exists.

If the Board finds good cause exists, a motion to grant a 12 month extension, with a new date for active and substantial development of December 12, 2020 should be made.

Motion: F. Torr made a motion to grant the 12-month extension. Seconded by D. White. Vote U/A

C. Consideration and acceptance of a Request to use Transfer of Development Rights for Michael Khavari, (Owner: Karen A. Towle, Trustee of the James B. Towle and Karen A Towle Revocable Trust), Assessor's Map 1, Lot 4-A, zoned R-12, and located at Leathers Lane. (Proposal is to request to buy 27 additional units to total 60 units). *(P19-74)

D. Benton stated that the applicant is looking to purchase 27 units to total 60 units via 30 duplexes through Transfer of Development Rights. She reminded the Board and the public that the request is to determine the maximum amount of units on the site and that the applicant would have to come back with a more detailed plan for TRC and Planning Board review.

FX Bruton, Bruton & Berube, representing the application, reviewed the proposal and application materials and explained the request.
He requested of the board that they do not take a vote tonight since there are many public members here, presumably to speak on this case, and he would like to hear what they have to say and be given a chance to come back next month to address their comments and take a vote.

The property is about 16 ac and is part of the Davis Farm site plan approval of 110 units in 1985. Phase I and Phase II were built (40 units). The proposal is for the remaining Phases III, IV and V.
The board previously approved 70 units for these phases and the applicant is requesting a total of 60 units.

Steve Haight, CivilWorks, addressed traffic and drainage.

Motion: F. Torr made a motion to accept the application. Seconded by D. Ciotti. Vote U/A.

Public hearing opened.
Mark Speidel, 28 Leathers Ln is concerned about the density of the project being too high for the neighborhood. He presented a petition signed by 128 people from the neighborhood. He read the petition into the record noting the points of the application they are opposed to.

Patricia Almy, 17 Leathers Ln agreed with Mr. Speidel and has signed the petition. She has concerns about density and traffic and trash accumulation at the end of the road.

Christine Shannon, 113 Katie Ln is an original resident of this development. She explained in depth the traffic issue and how the residents have to try to plan appointments around the traffic back up.

Maurene Keough, 1 Fords Landing Dr agreed with everything that has been said so far. She is concerned about sewer, water runoff and traffic. The intersection needs 'don't block the box' paint and signage. A traffic light will be needed at the end of Leathers Ln if this gets approved.

Alfred Demers, 21 Leathers Ln was curious where the entrance to the development will be and about the legality of an existing entrance to the site.

Connie Myers, 26 Rosanna Dr understands if they meet requirements, they can build but hopes the board will not allow the extra TDR units. She also pointed out that private roads do not have trash and plowing.

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Margaret Giguere, 18 Leathers Ln is concerned about privacy, traffic, trash at the corner, emergency vehicles and evacuation from the road.

Guy Giguere, 18 Leathers Ln noted the loss of privacy in the neighborhood. The sidewalk is not usable in that area and will need to be addressed.

David Vincent, 103 Katie Ln, noted he was a LLS and stated the 1985 approved plan should not even be brought up- it's too old to be relevant. He is concerned about the traffic, sight lines, wildlife and construction and trucking equipment on that road during construction.

Danielle Alley, 21 Fords Landing Dr is concerned about the runoff, loss of wildlife habitat, impermeable surfaces, trash and the pump house the association owns and how it would be affected. She also pointed out that setback and wetlands regulations are much stricter now than in 1985 and this project should be considered under today's standards.

Kayleigh Merritt, 33 Katie Ln is concerned about safety issues that increased traffic will cause. The proposal is not using the same land area that was in the plan in 1985.

Dan Carrel, 22 Leathers Ln stated the purpose and intent of the TDR is to promote development on the land with the least conservation value and to protect lands with significant conservation values. This site may not meet those standards. The conservation commission should look at this site for this impact.

Linda Colan, 34 Katie Ln mentioned leaving a buffer between the properties that exist in her area and the proposed buildings. The proposed structures are feet away from her structure.

Michael Bailey, 115 Bellamy Woods walks that area and it is very steep and a great wildlife area.

Tonya Grassetti, 37 Fords Landing Dr wondered why the Fords Landing project was never completed.

Public Hearing tabled.

D. Benton addressed some of the comments. Traffic will be addressed at the next phase, though the board can request various traffic studies. Wildlife will be looked at. The applicant is not automatically granted 33 units. Additional units at Red Barn was not approved. The width of the roads would have to meet standards for fire equipment.

FX Bruton stated the applicant would like to address some of the concerns of the public when they come back next month and requests the board to reopen the public hearing again at the next meeting.

D. Ciotti clarified with staff that the 1985 plan has expired.

D. Benton clarified 33 units have not been granted. Whatever plan the developer wants to present still has to come back before TRC and Planning Board for further discussion and approval.

Motion: F. Torr made a motion to table the case to December 10. Seconded by D. White. Vote U/A

The board took a five-minute recess for the public to exit before continuing the meeting.

5. STAFF COMMENTS

- D.Benton mentioned the letter received for Item 4A which was given to the Board and available at the Planning Office.
- Reminder that the Board only meets once in November and December. January 14th is the Meet and Greet and Goal Setting so start thinking of any regulation amendments you'd like to see.
- No new TRC items since the Board's last meeting.
- There are two surveys as part of the public feedback process for the update of the Recreation Chapter of the Master Plan which are closing soon.
- Bellamy Ridge HOA has rescinded their signature as co-applicant for the Red Barn II development so for the time being that application is tabled and needs to be revised by the applicant if they want to move forward.

6. MEMBER COMMENTS

D. Landry requested data showing the residential spread of assessments: how many homes in Dover there are in each of several different levels of value.
He also requested to drive around and see properties before the rezoning discussion.

The board discussed taking the tour to drive around to see projects that have been approved and areas for zoning consideration.

7. ADJOURNMENT

Motion: F. Torr made a motion to adjourn at 9:17pm. Seconded by D. White. Vote U/A

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CITY OF DOVER

CITY OF DOVER - ORDINANCE

Posted: Month, Date, Year

Ordinance Number: **O – yyyy.mm.dd -**
Ordinance Title: Site Review Regulation Amendments
Chapter: 153

1. Chapter 153 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 153-6 "APPLICATION REQUIREMENTS", by renaming the section "Application Requirements; Technical Review Committee"

AND

Chapter 153 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 153-6 "APPLICATION REQUIREMENTS; TECHNICAL REVIEW COMMITTEE", subsection B (6) to update the type of mailing required, to read as follows:

"(6) A list of abutting property owners that lie within two hundred (200) feet of the subject parcel. Information shall include name, mailing address, and Dover Tax Map and Lot Numbers. In addition to the ABUTTERS list, three duplicate sets of adhesive mailing labels for all ABUTTERS shall be submitted for use by staff in preparing verified ~~certified~~ mailings. by renaming the section "Application Requirements; Technical Review Committee"

AND

Chapter 153 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 153-6 "APPLICATION REQUIREMENTS; TECHNICAL REVIEW COMMITTEE", subsection C to update the deadline for filing an application, to read as follows:

"A. The APPLICANT shall file the application with the Planning Board Office at least 21 ~~fifteen (15)~~ days prior to the Planning Board meeting at which time the application will be accepted and a public hearing held.

2. Chapter 153 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 153-9 "EXPIRATION OF PLANNING BOARD APPROVAL", reorganizing the section B to read as follows:

"B.The Planning Board may grant time extensions, not to exceed one (1) year each. ~~The APPLICANT shall appear before the Planning Board and document that the following criteria are met:~~

(1) The APPLICANT shall appear before the Planning Board and document that the following criteria are met:

(~~1~~a) The proposed project is consistent with the City Master Plan.

(~~2~~b) Surrounding conditions (i.e., traffic flow, school capacity, water/sewer demand) have not changed to the point of requiring reanalyzing of the proposed project.

(~~3~~c) The proposed project complies with current City, State and Federal regulations, ordinances and statutes.

(2~~4~~) Notification of ABUTTERS shall be required of all first time extension requests. Said notification shall be by certified mail and shall be at the expense of the APPLICANT.

3. Chapter 153 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 153-10 "CONSTRUCTION OF IMPROVEMENTS; CERTIFICATE OF OCCUPANCY", amending section F (3) to read as follows:

   "(3) Permit holders shall be in compliance with NFPA 495, ~~The Code for the Manufacture, Transportation, Storage, and Use of~~ Explosive Materials Code, in addition to all other ordinances and codes set forth in the City of Dover Code, ~~Site Regulations~~ § 153-14A, Stormwater management, erosion control and flood hazards, of this chapter and the City of Dover Fire Prevention Code, which specifically prohibits the overnight storage of explosives or blasting agents. Further, all storage magazines shall be locked in the open position at the end of the day's operation, for easy inspection by City Officials."

4. Chapter 153 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 153-13 "SITE DEVELOPMENT PLAN", amending section A by removing (18) and renumbering as follows:

   " (18) ~~Reserved~~
   ~~(19)~~ A STORM WATER Management and EROSION Control Plan shall be developed in accordance with the requirements of Chapter 149-14-A if it is determined to be necessary by the Technical Review Committee during its review process, as outlined in Chapter 149-6-A. Site plans shall provide for the proper management of STORM WATER and EROSION and sedimentation control.

5. Chapter 153 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 153-14 "SITE DEVELOPMENT DESIGN CRITERIA", amending section D revised by replacing "Director of Planning" to "Director of Planning and Community Development."

AND

Chapter 153 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 153-14 "SITE DEVELOPMENT DESIGN CRITERIA", amending section D revised by adding subsection numbers to subsection (1) to read as follows:

"(1) Paved on-site parking shall be provided in accordance with the Parking Regulation Table.

(a) A parking PLAN shall be submitted that delineates the number of striped parking spaces and the parking arrangement. Where appropriate utilization of and construction of on-street parking is encouraged. Whenever a USE existing on the effective date of this Chapter is changed to a new USE, parking facilities and access shall be provided as required herein for such new USES. The following parking standards represent maximum requirements and may be increased as part of the approval of a SITE DEVELOPMENT PLAN. During PLAN review, the Director of Planning shall note a minimum number of spaces required.

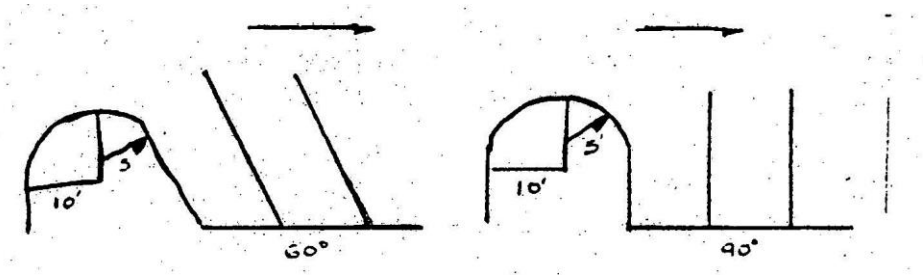
(b) In Dover, parking is based less on the direct land use and more on the intensity and turnover rate of the use. Efforts are made to understand that not all business are alike and that one commercial use may differ widely from a neighboring one, even if considered the same use. Turnover rate and intensity of use are more important to the provision of parking spaces. High turnover and high intensity use, such as retail, require less spaces than a use which has a low turnover and a low intensity, such as an assembly hall or gathering place. This concept and the table below will guide the Director of Planning in determining the minimum and maximum number of spaces required for a project. APPLICANTs shall meet with staff and review plans, prior to submission to determine parking needs.

(c) Uses located in the Central Business District - General have access to more publicly available parking, whether on-street or in a dedicated facility, as well as mass transit. The intent of off street parking downtown is to provide parking for employees of a business and not for customers. With this in mind, parking calculations for non-residential uses in the Central Business District – General may be solely for employees, upon the discretion of the Director of Planning."

AND

Chapter 153 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 153-14 "SITE DEVELOPMENT DESIGN CRITERIA", amending section D revised by adding subsection number (c) and revising the existing (c) to (d) to read as follows:

" (c) Entrance islands shall support a curve radii illustrated in Sketch A.



(~~c~~d) Parking lots shall be designed so as to avoid vehicles backing into the street.

AND

Chapter 153 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 153-14 "SITE DEVELOPMENT DESIGN CRITERIA", amending section F by removing (1) to as follows:

" F. Fire Hazards ~~(1)~~ The designation of fire lanes, and the storage of explosives, flammable liquids, liquefied petroleum gas or similar materials shall be in accordance with Chapter 109, entitled Fire Prevention, Safety, of the Code of the City of Dover."

AND

Chapter 153 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 153-14 "SITE DEVELOPMENT DESIGN CRITERIA", amending section G by subsection (4) to as follows:

"(4) Stormwater Management

(~~a~~) The following provisions are intended to support the site design criteria set forth in Section 149-14A. In the event of any conflict or inconsistency the more stringent provision shall prevail.

(a~~b~~) Where possible, interior landscaping islands and perimeter landscaping areas shall provide for stormwater treatment and bioretention as well as act as a visual buffer.

(b~~c~~) To promote on-site water retention and filtration, landscaped areas shall be designed in a manner that guides stormwater from on-site impervious streets, parking areas, sidewalks and walkways to vegetated areas or approved retention areas.

(c~~d~~) When irrigation systems are proposed, a temporary watering plan/ schedule, or low volume (drip) irrigation system shall be required. Permanent irrigation systems are

prohibited, except as noted below. Temporary irrigation systems shall be designed and installed for efficient and effective water use to the landscaped area for a limited period of time determined by the plant material and site conditions. For those exceptions when permanent irrigation is considered necessary, such as an athletic field, permanent irrigation shall utilize water saving technologies, including rain sensors, flow meters, and management systems that monitor current weather conditions and/or soil moisture.

(d~~e~~) All newly planted trees, shrubs and other vegetation shall have a watering plan during the establishment period (for trees, one-year-per-inch in caliper at planting, shrubs and other vegetation generally establish within one growing season). Mulching trees, shrubs, and plants helps retain soil moisture, moderates temperature fluctuations, provides protection from mechanical damage by mowers and trimmers, and serves as temporary covering of exposed soil until understory plants and ground covers fill in. However, thick applications of mulch (such as "volcano mulching") will kill trees and other vegetation. Mulch shall be no greater than three (3) inches in depth and shall not be in contact with the bark or stems of plants."

6. Chapter 153 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 153-14 "SITE DEVELOPMENT DESIGN CRITERIA", amending section L by removing subsection (2) and renumbering as follows:

"(2) Purpose

(a) The purpose of the Architectural Design Standards is to:

(1~~a~~) Provide for high quality architecture that respects UNIVERSAL DESIGN PRINCIPLES, enhances the appearance of Dover, reinforces pedestrian character where appropriate, and is sensitive to neighboring buildings, the broader setting, and natural and cultural resources.

(2~~b~~) Protect and enhance the positive visual qualities of Dover's downtowns, residential neighborhoods, commercial corridors, industrial parks, and scenic and rural landscapes.

(3~~c~~) Encourage design, which is compatible with the TRADITIONAL character of Dover and New England.

(4~~d~~) Enhance property values and foster civic pride.

(5~~e~~) Minimize potential aesthetic conflicts between residential and NONRESIDENTIAL USES and between single family and multifamily USES.

(b) Adherence to these standards should not be burdensome and they are not intended to stifle creativity or variety. On the contrary, the standards will likely encourage more thoughtful approaches to building design. There is much flexibility embodied in the guidelines and many ways of meeting the objectives. It is hoped

that they will serve as useful guidelines for design professionals and APPLICANTS seeking to produce quality designs respectful of place and context."

AND

Chapter 153 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 153-14 "SITE DEVELOPMENT DESIGN CRITERIA", amending section L by subsection (4) to as follows:

"(4) Applicability

(a) Architectural design review is required as part of Site PLAN Review process for all NONRESIDENTIAL structures and for all residential structures where the total number of dwelling units in one development, whether in one or more structures, exceeds four (however, in no event would any single family structures or properties be subject to review). This includes all new construction, building additions, and alterations to buildings if those alterations would significantly affect the exterior appearance of the building. Design review is required only for building ELEVATIONS and portions of structures that would be visible from a public street or path or from neighboring residential properties. All applicable development must conform to these guidelines as reasonably interpreted and applied by the Planning Board.

(b) Architectural design review is not conducted for routine repair or maintenance of structures, any work on the interior of a building, any existing structures for which no exterior alterations are proposed, and modifications solely for the purpose of providing safe means of egress or access in order to meet requirements of the Building Code or Life Safety Code. Architectural design review is only conducted in instances found within 149.4 Applicability of the Site Review Regulations."

AND

Chapter 153 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 153-14 "SITE DEVELOPMENT DESIGN CRITERIA", amending section L by subsection (5) to add the zoning district names to each subsection.

AND

Chapter 153 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 153-14 "SITE DEVELOPMENT DESIGN CRITERIA", amending section L by subsection (6) (h) to remove extra letters from wording to read as follows:.

"While it cannot be required under these guidelines, the reuse of existing structures that have special architectural, historical, cultural, or contextual value ~~by the S~~is strongly encouraged."

7. Chapter 153 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 153-14 "SITE DEVELOPMENT DESIGN CRITERIA", amending section L by renumbering subsection (7) as follows:

"(a) Siting of building.
(1) To the extent practical, structures should be located and configured in a visually harmonious manner in keeping with the terrain and vegetation and should not impede scenic views.
(2) Most buildings are oriented parallel or perpendicular to the street. This pattern reinforces the streetscape. Buildings should not be oriented at odd angles to the street unless this is already the prevailing pattern in the area or if it is dictated by strong topographic or site considerations.

(b) SCALE.
(1) Every effort should be made to provide an appropriate SCALE to new buildings both in their overall size and in their details.
(2) If practical, it is preferred that buildings contain at least two stories. Alternatively, a single story building should have a relatively steep roof or a high PARAPET. It is required in the CBD zone for buildings to be multistory in order to reinforce the SENSE OF ENCLOSURE of the street.

(c) PROPORTION. Buildings and their details should be well proportioned in accordance with commonly accepted design principles so as to create a sense of order and balance.

(d) MASSING. Large structures should be broken into smaller masses to provide human SCALE, variation, and depth. These smaller masses should have a strong relationship to one another and, ideally, each smaller mass will have integrity of form. Construction of unadulterated warehouse style big BOXES should generally be avoided (though their USE is of less concern in industrial parks). Blocky multifamily structures within predominantly single and two family neighborhoods are highly inappropriate.

(e) Roof.
(1) As a design element, the roof has a significant effect on the building's character. The lack of a roof often promotes a feeling of boxiness. The taller the building, the less necessary is a pitched roof. Multistory buildings in downtown and mill buildings rarely included a pitched roof.
(2) Incorporation of a moderate slope is preferred. Where flat roofs are used, however, there should be a distinct CORNICE and/or PARAPET to emphasize the top of the building. Extensive areas of visible roof should be broken up with DORMERS, CROSS GABLES, CUPOLAS, chimneys, PARAPETS, BALUSTRADES, and TOWERS.

(f) Building FACADE.

(1) Much attention should be given to create an attractive building FACADE. Broad expanses of blank walls are inappropriate. Traditionally, the parts of a FACADE that might be embellished, or at least articulated in some fashion include:

(a~~i~~) the horizontal base where the building meets the ground (such as a different treatment for the foundation)

(b~~ii~~) the horizontal top where the building meets the sky (such as a projecting CORNICE with BRACKETS)

(c~~iii~~) a horizontal section in between (such as a belt COURSE between stories)

(d~~iv~~) the vertical corners on the left and right sides (such as CORNER BOARDS or QUOINS)

(e~~v~~) vertical articulation in the middle (such as PILASTERS)

(f~~vi~~) the area around the door/entry (such as a PORTICO)

(g~~vii~~) the areas around the windows (such as window SURROUNDS)

(2) In addition, depth may be created for the FACADE through use of porches, projecting or recessed sections, BAY WINDOWS, or ARCADES.

(g) FENESTRATION.

(1) Windows are an integral part of a building and should be incorporated on front FACADES, and preferably side FACADES to humanize the building. It is desirable that the windows along with the door establish a coherent, orderly pattern and RHYTHM.

(2) It is preferable that windows be vertical or at least "no more squat than square" (except as described in CBD area, below). Horizontally shaped windows are discouraged. Where horizontal windows are sought, a series of contiguous vertical windows with MULLIONS in between should be used arranged in a horizontal band.

(3) In pedestrian oriented downtown or waterfront commercial centers, use of large picture type windows for retail USES on the first floor is strongly encouraged. In residential areas and on upper floors of downtown buildings use of multiple panes of glass (or the appearance of multiple panes) rather than picture type windows is preferred.

(4) Shutters, where appropriate, should be sized properly for the window opening (approximately one half the width of the opening.)

(h) Entrance.

(1) The entrance is an important element in defining a building. Articulation of the entrance is encouraged through use of a PORTICO, canopy, awning, sidelights, SURROUND, or other device.

(2) Generally, there should be an entrance, if not the primary entrance, located on the front FACADE. Use of a usable front porch on residential buildings is strongly encouraged.

(i) Materials.

(1) The use of natural materials or materials that appear natural is preferred. Materials should be high quality and durable. Wood (CLAPBOARD and shakes), brick, stone, fiber reinforced stucco, TEXTURED block, and terra cotta are the preferred materials, although fabricated materials which effectively imitate the character of these materials is acceptable. Conventional vinyl and aluminum siding arranged in a horizontal CLAPBOARD pattern is acceptable but not preferred. Its use is inappropriate in downtown areas.
(2)Sheet plastic, sheet fiberglass, T-111 plywood, PECKY SHINGLES, simulated brick, and similar materials should not be used. Use of highly reflective plastic or metal surfaces are inappropriate. Use of salvage style brick with multiple colors is discouraged. Prefabricated metal wall PANELS and undressed concrete/cinder block should not be used except in industrial park areas. When these materials are used in industrial park areas it is preferable to minimize the area over which they are used, minimize their use on front FACADES, and to combine their use with other materials, such as installing metal walls over a foundation of TEXTURED block.

(j) Color.

(1) Color of buildings is reviewed for NONRESIDENTIAL property only. Generally, it is preferable to use two or three colors. The main color(s) on a building should generally be nature blending, earth tone, neutral, or pastel in character. Bright colors should be limited to accent areas. High intensity colors, metallic colors, or fluorescent colors should not be used.
(2) Subtle colors are appropriate on larger, plain buildings, whereas smaller buildings with more detailing can more effectively incorporate brighter colors.

(k) Lighting. Use of low key, low intensity wall pack or spot type lighting, or lighting of signage on buildings is appropriate. Use of lighting to highlight the building in a prominent manner, such as brightly illuminated roof fins or neon tube lighting is discouraged.

AND

Chapter 153 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 153-14 "SITE DEVELOPMENT DESIGN CRITERIA", amending section L by renumbering subsection (9) as follows:

"(9) Process

(a) APPLICANTS should submit ELEVATION drawings drawn to scale of each pertinent FACADE. A color board containing actual color samples of exterior finishes, keyed to the ELEVATIONS and indicating the manufacturers name and color designation should also be submitted. APPLICANTS should also submit a material sample if appropriate, such as the type of brick proposed.
(b)Any proposed building illumination must be submitted and approved. No such lighting may be installed without approval.

(c)ELEVATION drawings must be prepared by a registered engineer, architect, or landscape architect (use of a registered architect is strongly encouraged). The Planning Board may waive this requirement in the case of smaller structures, less prominent structures, or as it deems appropriate.
(d)While APPLICANTS are required to meet the standards herein, it is not necessary to submit waiver requests from any specific design standards herein. It shall be up to the Planning Board to determine if the overall proposal meets the intent of this section.
(e)At its option, the Planning Board may secure the services of a consulting architect or other professional to assist in the review of an application. The BOARD may impose reasonable fees upon an APPLICANT to cover this expense.
(f)As part of the overall site review process the Technical Review Committee, will review plans for compliance with these standards and report to the Planning Board as to adherence."

8. Chapter 153 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by renaming 153-20 "ENFORCEMENT; FAILURE TO COMPLY WITH ORDER; VIOLATIONS AND PENALTY" to "Enforcement; Violations and Penalties" and by replacing the "occupancy permit" with certificate of occupancy and referring to the schedule of fees, to read as follows:

   "If, after an certificate of occupancy ~~permit~~, temporary or permanent has been issued and the building or buildings are occupied and/or used, the Planning Board finds that any of the conditions of an approved final site review application are in violation, the Planning Board, or its authorized representative, shall order the owner to make such corrections as it deems necessary to bring the use and operation into conformity with the provisions of such approval. Such order shall be complied with within a period of time extending not more than thirty (30) days from the original notice. Where the owner fails to comply with the notice of the Planning Board, a fine ~~not to exceed one hundred dollars ($100.) per day~~ as provided in the City Fine Schedule may be levied against said owner, and the CERTIFICATE OF OCCUPANCY shall be revoked as per RSA 676:4-a."

9. Chapter 153 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by renaming Article VIII "WORDS AND PHRASES" to "TERMINOLOGY".

CITY OF DOVER	CITY OF DOVER - ORDINANCE
	Posted: Month date, year
	Ordinance Number: **O – yyyy.mm.dd -**
	Ordinance Title: Subdivision of Land Regulation Amendments
	Chapter: 157

1. Chapter 157 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 157-7 "NONRESIDENTIAL AND MULTI-FAMILY DWELLING SUBDIVISION REVIEW.", by renaming the section "Nonresidential and Multi-Family Dwellings."

2. Chapter 157 of the Code of the City of Dover, entitled Subdivision of Land, is hereby amended by revising 157-9 "Application Submittal and Review", by revising the numbering and layout to include a new letter A as follows, with subsequent numbering to be follow (A-G bcomes 1-7):

"Anyone desiring to subdivide a tract of land shall file an application with the PLANNING BOARD. Only COMPLETE APPLICATIONS will be reviewed by the BOARD.

A. To be considered complete an application shall:

~~A~~. (1) Be made on forms available at the PLANNING BOARD office."

AND

Chapter 157 of the Code of the City of Dover, entitled Subdivision of Land, is hereby amended by revising 157-9 "Application Submittal and Review", Section A by revising the deadline for filing an application from 15 to 21 days, as follows:

~~E.~~ (5) Be filed with the Director of Planning at least ~~fifteen~~ 21 ~~(15)~~ calendar days prior to a regularly scheduled meeting of the BOARD. ~~Included with the application shall be the names and mailing addresses of all ABUTTERS as indicated in city records. The names of all ABUTTERS shall be obtained from City records not more than five (5) calendar days before the date of filing. In addition to the ABUTTERS list, three duplicate sets of adhesive mailing labels for all ABUTTERS shall be submitted for use by staff in preparing certified mailings.~~

AND

Chapter 157 of the Code of the City of Dover, entitled Subdivision of Land, is hereby amended by revising 157-9 "Application Submittal and Review", by adding a new section B as follows, with Current subsection H becoming C and subsequent numbering to follow:

B. Included with the application shall be the names and mailing addresses of all ABUTTERS as indicated in city records. The names of all ABUTTERS shall be obtained from City records not more than five (5) calendar days before the date of filing. In addition to the ABUTTERS list, three duplicate sets of adhesive mailing labels for all ABUTTERS shall be submitted for use by staff in preparing verified~~certified~~ mailings."

3. Chapter 157 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 157-11 "Actions by the Board/Public Hearings", revising Section C, to read as follows:

"C The PLANNING BOARD may apply to the City Council for an extension not to exceed an additional ~~sixty-five (65)~~90 days before acting to approve, conditionally approve, or disapprove an application. The APPLICANT may waive the time period requirements for PLANNING BOARD action and consent to such extension as may be mutually agreeable (RSA 676:4-I(f))."

AND

Chapter 157 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 157-11 "Actions by the Board/Public Hearings", revising Section E, to read as follows:

"E. Following a PUBLIC HEARING on a SUBDIVISION application, the BOARD shall approve, conditionally approve, disapprove or table the proposed SUBDIVISION application~~. If approved or conditionally approved, the requirements of 155-12 and 155-13 shall be met.~~ If the BOARD denies the preliminary plans, the APPLICANT shall be notified in writing as to the reasons for denial."

4. Chapter 157 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 157-12 "Public Notice requirements", to update the numbering and to amend, the type of mailing required to read as follows:

"No SUBDIVISION application shall be accepted or acted on by the PLANNING BOARD without giving due notice to the public.

A. Such notice will be given in the following manner:

(1) ~~B~~. The APPLICANT and all ABUTTERS shall be notified by ~~certified~~ verified mail of the date upon which the application will be formally submitted to the BOARD. The APPLICANT and all ABUTTERS shall also be notified in the same manner concerning the date of the PUBLIC HEARING. If notice of the PUBLIC HEARING has been included in the notice of submission or any prior notice, additional public notice of the PUBLIC HEARING is not required. Nor shall additional notice be required of a recessed PUBLIC HEARING if notice is provided at the PUBLIC HEARING, (including date, time and place) when the hearing will be resumed.

(2) ~~C~~. Notice shall be mailed at least ten (10) calendar days prior to submission.

(3) ~~D.~~ Notice to the general public shall be at the same time by advertising in a newspaper of general circulation or by posting. The notice shall include a general description of the proposal which is the subject of the application and shall identify the APPLICANT and the location of the proposal.

~~E~~B. All costs of notice, including mailing, posting or publishing, shall be paid by the APPLICANT. Failure to pay such costs shall constitute valid grounds for the PLANNING BOARD to terminate further consideration and to disapprove the application without a PUBLIC HEARING.

5. Chapter 157 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 157-14 "FINAL PLAT CERTIFICATION; RECORDING, PERFORMANCE AND MAINTENANCE GUARANTY", by renaming the section "Final Plat Certification; Recording, letter of credit or escrow agreement."

6. Chapter 157 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 157-16 "APPLICATION SUBMITTAL AND REVIEW", by adding a new subsection A, and renumbering items A-E to 1-5 to read as follows:

"Anyone desiring to subdivide a tract of land under the MINOR SUBDIVISION classification, shall file an application with the PLANNING BOARD in accordance with the following requirements, except for MINOR LOT LINE ADJUSTMENTS and boundary agreements as noted in 155-18 below. Only COMPLETE APPLICATIONS will be reviewed by the BOARD.

A. To be considered complete an application shall:

(1)~~A.~~ Be made on forms available at the PLANNING BOARD office.

(2)~~B.~~ Include fifteen (15) copies and an electronic copy of a FINAL PLAT layout as described in 155-29 of this Chapter. Additional information/data may be requested by the PLANNING BOARD for the proper review of said MINOR SUBDIVISION.

(3)~~C.~~ Include fifteen (15) copies of the PLAT CONSTRUCTION DETAIL SHEETS, if appropriate, as described in 155-37 of this Chapter.

~~D. Where city sewer service is not available, the APPLICANT shall provide evidence that all proposed LOTS are of a sufficient size to support individual waste systems as described in 155-42.~~

(4)~~E.~~ Include a fee in an amount to be determined in accordance with the fee schedule contained in 155-53 of this Chapter.

(5) ~~F~~. Be filed with the Director of Planning at least ~~fifteen (15)~~ 21 calendar days prior to a regularly scheduled meeting of the BOARD.

B. Included with the application shall be the names and mailing addresses of all ABUTTERS as indicated in city records. The names of all ABUTTERS shall be obtained from City records or the Strafford County Registry of Deeds not more than five (5) calendar days before the date of filing. In addition to the ABUTTERS list, two duplicate sets of adhesive mailing labels for all ABUTTERS shall be submitted for use by staff in preparing certified mailings.

C. Where City sewer service is not available, the APPLICANT shall provide evidence that all proposed LOTS are of a sufficient size to support individual waste systems as described in 157-41.

D~~C~~.PRELIMINARY PLATS are required for MINOR SUBDIVISIONS."

7. Chapter 157 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 157-17 "APPLICATION SUBMITTAL AND REVIEW FOR MINOR LOT LINE ADJUSTMENTS AND BOUNDARY AGREEMENTS", by adding a new subsection A, and renumbering items following items, updating deadlines from 15 to 21 days and changing the type of mailing required to read as follows:

"Anyone desiring to alter a LOT LINE shall file an application with the PLANNING BOARD in accordance with the following requirements. Only COMPLETE APPLICATIONS will be reviewed by the BOARD.

A. To be considered complete an application shall:

(1)~~A.~~ Be made on forms available at the PLANNING BOARD office.

(2)~~B.~~ Include fifteen (15) copies and an electronic copy of a surveyed PLAT layout that contains the following information:

(a~~1~~) Date, approximate true North point and scale.

(b~~2~~) Name, address and signature of OWNER and stamp of registered New Hampshire surveyor.

(c~~3~~) Names of OWNERS of record of abutting properties or developments.

(d~~4~~) Square footage within newly adjusted LOT LINES.

(e~~5~~) LOT LINES with accurate dimensions and bearings of a sufficient scale to determine readily the location bearing and length of all lines.

(f~~6~~)Zoning information and BUILDING SETBACK LINES for the zone.

(g~~7~~) Location map.

(h~~8~~) Existing structures.

(3)~~C~~. Be filed with the Director of Planning at least ~~fifteen (15)~~ 21 calendar days prior to a regularly scheduled meeting of the BOARD. ~~Included with the application shall be the names and mailing addresses of all ABUTTERS as indicated in city records. The names of all ABUTTERS shall be obtained from City records or the Strafford County Registry of Deeds not more than five (5) calendar days before the date of filing. In addition to the ABUTTERS list, three duplicate sets of adhesive mailing labels for all ABUTTERS shall be submitted for use by staff in preparing certified mailings.~~

(4)~~D~~. Include a fee in an amount to be determined in accordance with the fee schedule contained in Section 155-53 of this Chapter.

B. Included with the application shall be the names and mailing addresses of all ABUTTERS as indicated in city records. The names of all ABUTTERS shall be obtained from City records or the Strafford County Registry of Deeds not more than five (5) calendar days before the date of filing. In addition to the ABUTTERS list, three duplicate sets of adhesive mailing labels for all ABUTTERS shall be submitted for use by staff in preparing verified mailings.

C~~E~~. LOTS created under the Cluster SUBDIVISION with LOT LINES method of OPEN SPACE SUBDIVISIONS ~~(formerly 155-22.D (3)~~, shall not be allowed to have LOT LINE ADJUSTMENTS completed if the LOT LINE ADJUSTMENT would alter the area of Open Space approved at the time of SUBDIVISION."

8. Chapter 157 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 157-18 "ACTIONS BY THE BOARD/PUBLIC HEARINGS", subsection D, updating the RSA citation to read as follows:

   "D. The PLANNING BOARD is not authorized to approve without a PUBLIC HEARING, MINOR LOT LINE ADJUSTMENTS or boundary agreements which do not create BUILDABLE LOTS. This provision may not be waived (RSA ~~676:4 I (C)(V)~~ 674:4, I(e)(2))."

9. Chapter 157 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 157-21 "GENERAL REQUIREMENTS", subsection H, is revised adding a new subsection identifier to read as follows:

   "(a) For the purposes of the external boundary buffers required above, the buffer areas shall be considered an undisturbed natural area for the purpose of shielding the development from abutting properties. The external boundary buffer shall be preserved or established to comply with the perimeter landscaping standards in Chapter 155-36 F). **[Amended 12-18-12 per Planning Board]"**

   AND

   Chapter 157 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 157-21 "GENERAL REQUIREMENTS", subsection I, subsection (2) is revised by replacing the "Water Supply and Pollution Control Commission" with "Department of Environmental Services"

10. Chapter 157 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 157-22 "COMMON OPEN SPACE", subsection C, is amended by revising the numbering of subsections (d) and (e) to read as follows:

    "(6~~d~~) No privately owned recreation structures shall be built in the open common space without the approval of the PLANNING BOARD.

    (7e) Current Use Limitation: The common land areas, open space areas and natural areas in an approved development are considered to be a part of the residential use of such development and shall not be considered to be "open space land"; "farmland"; "wetlands"; "recreation land"; "floodplain"; or "wild land: within the meaning of RSA 79-A except where such consists of actively operated farmland."

11. Chapter 157 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 157-28 "FINAL PLAT LAYOUT", relocating subsection B (15) to new subsection C, and renumbering (16) to (15) to read as follows:

"(15) ~~An approved SUBDIVISION does not absolve the SUBDIVIDER or subsequent OWNER from conforming with the regulations, ORDINANCES and laws of the City of Dover, the State of New Hampshire or the U.S. Government. Specifically before construction, City and/or State approval of the design of any leach field, septic system of sewer system or sewer system connection well and City approval of DRIVEWAY access and BUILDING codes must be obtained.~~

~~(16)~~ An index of sheets on the cover sheet with an asterisk (*) next to sheets that are to be recorded at the Strafford County Registry of Deeds. **[Amended 05/24/16 per Planning Board]**

C. An approved SUBDIVISION does not absolve the SUBDIVIDER or subsequent OWNER from conforming with the regulations, ORDINANCES and laws of the City of Dover, the State of New Hampshire or the U.S. Government. Specifically before construction, City and/or State approval of the design of any leach field, septic system or sewer system connection well and City approval of DRIVEWAY access and BUILDING codes must be obtained."

12. Chapter 157 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 157-34 "STORMWATER MANAGEMENT, EROSION CONTROL, AND FLOOD HAZARDS", renumbering subsection E to read as follows:

"E. Flood Hazards. SUBDIVISIONS involving land designated as special FLOOD HAZARD AREAS shall be reviewed to determine whether such proposals will be reasonably safe from flooding and shall meet the following requirements:

~~(1) SUBDIVISIONS involving land designated as special FLOOD HAZARD AREAS shall be reviewed to determine whether such proposals will be reasonably safe from flooding and shall meet the following requirements:~~

(1~~a~~) Permits. Prior to preliminary approval, the PLANNING BOARD shall review the proposed development to assure that all necessary permits have been received from those government agencies from which approval is required by Federal and State law including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334.

(2~~b~~) Minimization of Flood Damage. Sufficient evidence (constructions drawings, grading and land treatment plans) shall be submitted so as to allow the PLANNING BOARD to determine that:

(a~~i~~) All such proposals are consistent with the need to minimize flood damage;

(b~~ii~~) All public utilities and facilities, such as sewer, gas, electrical, and water systems are located, and constructed to minimize or eliminate flood damage;

(c~~iii~~) Adequate drainage is provided so as to reduce exposure to flood hazards; and,

(d~~iv~~) New and replacement water and sewer systems (including on-site systems) are located, designed, and constructed to minimize infiltration and avoid impairment.

(3~~c~~) Elevation and flood-proofing records. The SUBDIVIDER shall obtain and maintain records of elevations and flood-proofing levels for all new or substantially improved structures, whether or not such structures contain a basement.

(4~~d~~) Base flood elevation data shall be provided for SUBDIVISION proposals and other proposed development which contains at least fifty (50) LOTS or five acres, whichever is less.

13. Chapter 157 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 157-35 "PARKS, OPEN SPACE, NATURAL FEATURES", amending subsection B (2) updating the Recreation Director's title to read as follows:

"(2) If no such areas are so delineated within the boundaries of a SUBDIVISION, the PLANNING BOARD may, where appropriate, require that the PLAT layout show SITES of a character, extent and location suitable for the development of a park, playground or other recreation purpose. Said area(s) shall not exceed fifteen (15) percent of the total area of the SUBDIVISION and shall have a sufficient legal restriction to assure permanence of use for open space and maintenance with respect thereto. The PLANNING BOARD shall consult with the Recreation Director ~~of Parks and Recreation~~ prior to the reservation of such land."

AND

Chapter 157 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 157-35 "PARKS, OPEN SPACE, NATURAL FEATURES", amending subsection E adding a number (6) to the final paragraph read as follows:

"(6) All newly planted trees, shrubs and other vegetation shall have a watering plan during the establishment period (for trees, one-year-per-inch in caliper at planting, shrubs and other vegetation generally establish within one growing season). Mulching trees, shrubs, and plants helps retain soil moisture, moderates temperature fluctuations, provides protection from mechanical damage by mowers and trimmers, and serves as temporary covering of exposed soil until understory plants and ground covers fill in. However, thick applications of mulch (such as "volcano mulching") will kill trees and other vegetation. Mulch shall be no greater than 3 inches in depth and shall not be in contact with the bark or stems of plants."

14. Chapter 157 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 157-41 "SANITARY SEWERS", Subsection B by replacing the "Water Supply and Pollution Control Commission" with "Department of Environmental Services" to read as follows:

" B. In the case of a private wastewater disposal system, both a City and a State permit is required. The system must be designed in accordance with New Hampshire ~~Water Supply and Pollution Control Commission (NHWSPCC)~~ Department of Environmental Services requirements and must be approved and inspected by the City and State. Back filling before either party has made the inspection will constitute grounds for rejection."

15. Chapter 157 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 157-42 "WATER MAINS AND FIRE HYDRANTS.", Subsection A by replacing the "Water Department" with "Community Services Department" to read as follows:

"A. All SUBDIVISIONs in the City of Dover shall provide municipal water service when available or required by the PLANNING BOARD. Installation of all water mains is subject to the approval of the ~~Water~~ Community Services Department.

AND

Chapter 157 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 157-42 "WATER MAINS AND FIRE HYDRANTS.", Subsection G by replacing the "Superintendent of the Water Department" with "Director of Community Services" to read as follows:

"G. The Director of Community Services ~~Superintendent of the Water Department~~ shall be notified at least forty-eight (48) hours prior to any construction involving water mains. All new pipes shall be inspected as provided by 155-38. Tests to be performed shall include but not be limited to water sampling and testing for contamination."

16. Chapter 157 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 157-50 "DRIVEWAYS", Subsection A by replacing the "licensing" with "permit" to read as follows:

" A) The provisions of this Section apply to the construction, reconstruction, alteration, surfacing or resurfacing of any DRIVEWAY which intersects with the right-of-way of any city-owned, city maintained way and/or other private way. Section 152-8 of the City Code, referring to permit ~~licensing~~ requirements, applies to all paving contractors or related construction enterprises engaged in the retailing of DRIVEWAY paving services to the general public within Dover's City limits.

AND

Chapter 157 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 157-50 "DRIVEWAYS", Subsection C (9) to become Subsection D, and removing superfluous wording to read as follows:

"D. ~~(9)~~ Where the Community Services Director finds that an unnecessary hardship may result from the strict compliance with these regulations, they may modify the above regulations so that substantial justice may be achieved and the public interest secured, provided that such modifications shall not have the effect of nullifying the intent and purpose of this Chapter ~~may be allowed~~."

17. Chapter 157 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 157-53 "FEES", by renaming the section "Fees, violations and penalties" and revising Subsection D replacing the "Schedule of Fees" with "City Fine Schedule" to read as follows:

"D. Driveway Violation/Penalties/Cost of Restoration. Any action taken which violates provisions of 155-51 shall be fined, as per the City Fine Schedule ~~of Fees~~. The landowner shall be liable for the cost of restoration of the affected public street to a condition which conforms to the provisions of this chapter to the satisfaction of the Community Services Director. If a landowner fails to ensure that the above said conformance is accomplished within thirty (30) days of receiving written notification from the Community Services Director, the restoration shall be accomplished by the city and charged to the landowner."

18. Chapter 157 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 157-54 "ADOPTION", by renaming the section "When effective; filling" and replacing the "Office of Energy and Planning" with "Office of Strategic Initiatives" to read as follows:

"In accordance with RSA 675:6, this Chapter shall become effective after a PUBLIC HEARING is held as specified in RSA 675:7, adoption and certification by a majority of the PLANNING BOARD members, and filing of certified copies with the City Clerk as required by RSA 675:8. Copies shall also be filed with the New Hampshire Office of Strategic Initiatives ~~Energy and Planning~~ as required by RSA 675:9."

19. Chapter 157 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 157-55 "INTERPRETATION AND CONFLICT", by renaming the section "Interpretation, Conflict with other provisions"

20. Chapter 157 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by revising 157-58 "AMENDMENTS", replacing the "Office of Energy and Planning" with "Office of Strategic Initiatives" to read as follows:

    "In accordance with RSA 675:6, this Chapter may be amended or rescinded by the BOARD following a PUBLIC HEARING as specified in RSA 675:7 on the proposed change. The Chairman of the BOARD shall transmit a copy certified by a majority of the PLANNING BOARD members of any changes so adopted to the City Clerk. Copies shall also be filed with the New Hampshire Office of Strategic Initiatives ~~Energy and Planning~~."

21. Chapter 157 of the Code of the City of Dover, entitled Site Review Regulations, is hereby amended by renaming Article X "WORDS AND PHRASES" to "TERMINOLOGY".

CITY OF DOVER

PLANNING BOARD - STAFF MEMO FILE #P19-82

Application Type: Conditional Use Permit
Applicant(s): City of Dover
Owner(s): City of Dover
Location: 271 Mast Road (Assessor's Map H, Lot 58)
Meeting Date: December 10, 2019

INTENT: Proposal is to construct a replacement artificial recharge facility on the Bellamy River with 500 s.f. of permanent wetlands impact and a temporary wetland impact of 1,450 s.f.

LOTS/UNITS PROPOSED: N/A

AGENDA ITEM: # 4-D

ACREAGE: N/A

ZONING DISTRICT: I-4

EXISTING LAND USE: Dover Community Services

PROPOSED LAND USE: Dover Community Services

SURROUNDING LAND USE: Residential, Bellamy River and Industrial

ZBA ACTION: N/A

ATTACHMENTS:

- Conditional Use Permit Application Materials including plans and Conservation Commission minutes from 11/12/19

APPLICATION IS COMPLETE: Yes

NOTICES SENT: Abutter notices were sent by certified or first class mail to all abutters for this meeting

PERMITS REQUIRED:

- City of Dover Conditional Use Permit
- NHDES Wetlands Permit

WAIVERS REQUESTED: None

Summary of Request and Background
The applicant is requesting a Conditional Use Permit for a replacement artificial recharge facility on the Bellamy River with 500 s.f. of permanent wetlands impact and a temporary wetland impact of 1,450 s.f.

The Conservation Commission endorsed this application at their November 12, 2019 meeting.

RSA 674:54 provides for the Planning Board review of governmental land uses and nonbinding written comments relative to conformity or nonconformity of the proposal with normally applicable land use regulations. This is a City project on land owned by the City of Dover.

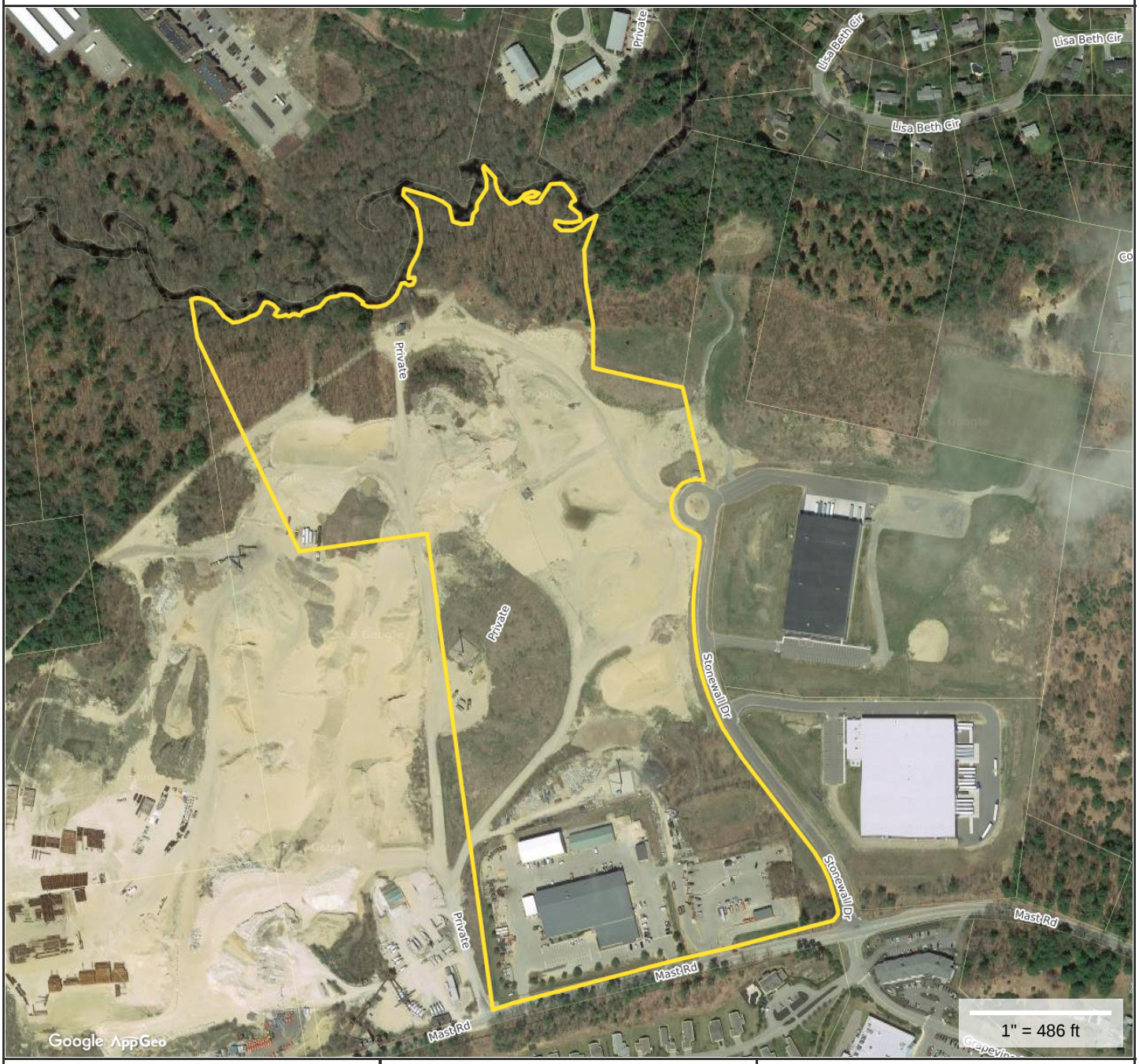
Consistency with Land Use Regulations
The Wetlands Protection District ordinance provides for Conditional Use Permits to allow impacts to wetlands and wetland buffers if standards related to demonstration of need, avoidance, minimization, and mitigation are met. This proposal is consistent with those standards.

STAFF RECOMMENDATION:
The Planning Department recommends the Planning Board accept the application, open the public hearing, and vote to approve the Conditional Use Permit with the following nonbinding condition:

Condition to Be Met Prior to the Issuance of the Conditional Use Permit:

1. The applicant shall provide the Planning Department with a copy of the NH Department of Environmental Services Wetlands Permit

271 Mast Road



Property Information

Property ID	H0058-000000
Location	271 275 MAST RD
Owner	CITY OF DOVER
Land Use	903

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

City of Dover, NH makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 10/18/2019
Data updated Daily

City of Dover, New Hampshire
CONDITIONAL USE PERMIT APPLICATION

[Revision Date: May 18, 2017]

RECEIVED
Planning Office
NOV 06 2019
Dover, New Hampshire

Office Use Only	Project #: P19-82	Date Received:
	Amount Paid:	Time Received:

APPLICANT AND OWNER INFORMATION

Name of Applicant: City of Dover Telephone #603-516-6450

Address of Applicant: 288 Central Avenue

E-Mail Address: b.boulanger@dover.nh.gov

Name of Property Owner (if different from applicant): _____ Telephone #_____

Address of Property Owner: 271 Mast Road

PROPERTY INFORMATION

Assessor's Map # H58 Lot(s) # 0

Address of Property: 271 Mast Road

Zoning District(s) I-4, Assembly and Office Overlay District(s) Conservation District, Groundwater Protection

Existing Use of Property: City of Dover Drinking Water Aquifer

CONDITIONAL USE PERMIT INFORMATION

Type of Conditional Use Permit (Check All That Apply):

☒ Conservation District	☐ RCM Use Overlay District	☐ I-1 District Uses
☒ *Groundwater Protection*	☐ Off-Street Parking and Loading	☐ Alternative Treatment Center
☐ *Wetland Protection District*	☐ Central Business District	☐ Heritage Residential District

Describe Proposed Use or Activity That Requires Conditional Use Permit and Describe Any Impacts:

Construction of a replacement groundwater recharge station to recharge the Pudding Hill Aquifer with water from the BellamyRiver. Impacts include construction of a replacement intake structure in river bank, replacement pumping station building, piping and recharge outlet structures.

List Any Associated State or Federal Permits That Have Been or Will Be Applied For and Indicate Their Status: NHDES Minor Impact Wetlands Permit: Submitted, Pending Approval.

NHDES Shoreland Permit: Pending submittal

Name of Professional That Prepared Plans: Thomas G. Page, Underwood Engineers

Address 25 Vaughan Mall, Portsmouth, NH Telephone #: 603-436-6192

Professional License #: 10959 E-mail address: tpage@underwoodengineers.com

SIGNATURES

I/We hereby submit this application to the City of Dover Planning Board and attest that to the best of my knowledge all of the information on this application form and in the accompanying application materials and documentation is true and accurate. As applicant or as agent, I attest that I am duly authorized to act in this capacity.

Signature of Property Owner: on behalf of City of Dover Date:

Signature of Applicant (if different from owner): Date: 11/4/19

Signature of Agent: Date: 11/4/19

John B. Stavers, Director of Community Services

AUTHORIZATION TO ENTER SUBJECT PROPERTY

I, and my successors, hereby authorize members of the Dover Planning Board, Planning Department and other pertinent City Departments and boards to enter my property for the purpose of evaluating this application, including performing inspections during the application phase, post-approval phase, construction phase and occupancy phase. It is understood that these individuals must use all reasonable care, courtesy, and diligence when on the property.

Signature of Property Owner: Date: 11/4/19

CITY OF DOVER CONDITIONAL USE
LIST OF ABUTTERS

Pursuant to RSA 676:4, the State Law of New Hampshire, the City of Dover is required to notify the applicant, abutters (including holders of conservation easements), and any professional whose seal is on the plan, of the public hearing by certified mail, return receipt requested. Staff will provide the abutter information, while the applicant must provide accurate contact information for the owner, applicant and professional agents representing the project.

Owner:

TAX MAP	LOT #	PROPERTY OWNER	MAILING ADDRESS
H58	0	City of Dover	288 Central Avenue

Applicant (if different from owner):

APPLICANT NAME	APPLICANT COMPANY	MAILING ADDRESS

Surveyor and/or Engineer/Professional Agent:

NAME	COMPANY	MAILING ADDRESS
Thomas G. Page	Underwood Engineers	25 Vaughan Mall, Portsmouth, NH 03801
Damon Burt	Fraggle Rock Environmental	38 Garland Road, Stafford, NH

Conservation Easement Holder:

TAX MAP	LOT #	NAME OF EASEMENT HOLDER	MAILING ADDRESS

P19-82 **271 Mast Road**

Property ID	Location	Owner 1	Owner 2	Owner Address 1	City	State	Zip
H0055-000000	BELLAMY RD	MACLEAN SANDY F &	GARRISON KAREN M	180 PISCATAQUA RD	DURHAM	NH	03824
H0004-000001	1 CIELO DR	HERON BAY PARTNERS LLC		242 CENTRAL AV	DOVER	NH	03820
H0004-000000	CIELO DR	HERON BAY PARTNERS LLC		242 CENTRAL AV	DOVER	NH	03820
H0035-D00000	LILAC LN	LILAC GARDEN LLC		1 LILAC LN OFC	DOVER	NH	03820
H0053-001000	15 STONEWALL DR	MAST ROAD DOVER LLC	C/O RAND-WHITNEY CONTAINER LLC	207 GREENWOOD ST	WORCESTER	MA	01607
H0058-000LS2	273 MAST RD	OMNIPOINT HOLDINGS INC	ATTN PROPERTY MANAGEMENT	4 SYLVAN WAY	PARSIPPANY	NJ	07054
H0041-S00000	WHITE CLIFFS	MSM BROTHERS INC		510 MARTHA'S WAY	DOVER	NH	03820
H0041-T00000	WHITE CLIFFS	MSM BROTHERS INC		510 MARTHA'S WAY	DOVER	NH	03820
H0053-000000	17 STONEWALL DR	H53 MAST RD LLC		340 CENTRAL AVE #202	DOVER	NH	03820
H0056-000000	BELLAMY RD	CITY OF DOVER		288 CENTRAL AVENUE	DOVER	NH	03820
H0059-000000	325 MAST RD	CANDIA SOUTH BRANCH BROOK HOLDINGS LLC		PO BOX 410	CANDIA	NH	03034
H0004-003000	GRAPEVINE DR	DOVER FIELDS CONDOMINIUM	C/O VC DOVER INVESTMENTS LLC	48 CONSTITUTION DR	BEDFORD	NH	03110
H0004-000009	9 CIELO DR	PLANTE KEVIN R & DIANE S TRUSTEES	PLANTE FAMILY 2013 REVOCABLE TRUST	9 CIELO DR	DOVER	NH	03820
H0004-000011	11 CIELO DR	RIVOIRE DAVID J & JOYCE C TRUSTEES	RIVOIRE DAVID J AND JOYCE C 2018 TRUST	11 CIELO DR	DOVER	NH	03820
H0004-000015	15 CIELO DR	STAFFORD ROBERT R &	STAFFORD LINDA J	15 CIELO DR	DOVER	NH	03820
H0004-000017	17 CIELO DR	CROTEAU LINDA M		17 CIELO DR	DOVER	NH	03820
H0004-000021	21 CIELO DR	MORRIS LUCILLE		21 CIELO DR	DOVER	NH	03820-5608
H0004-000023	23 CIELO DR	DAIGLE DAVID C &	DAIGLE CATHERINE A	23 CIELO DR	DOVER	NH	03820
H0004-000025	25 CIELO DR	KLINE JOSEPH K & SUSAN TRUSTEES	KLINE JOSEPH AND SUSAN E REVOCABLE FAMIL	25 CIELO DR	DOVER	NH	03820
H0058-000000	271 275 MAST RD	CITY OF DOVER		288 CENTRAL AVE	DOVER	NH	03820
		UNDERWOOD ENGINEERS	THOMAS G PAGE	25 VAUGHAN MALL	PORTSMOUTH	NH	03801
		FRAGGLE ROCK ENVIRONMENTAL	DAMON BURT	38 GARLAND ROAD	STAFFORD	NH	03884

Erickson motioned to approve the requested expenditure of $150,000 from the Conservation Fund, Lyon seconded. Vote: 7 in favor.

B. City of Dover Conditional Use Permit for 46 Venture Drive Properties, LLC (Owner: Hussey Manufacturing Technology, LLC), Assessor's Map D, Lot 11-2, zoned I-4, located at 46 Venture Drive.

Steve Haight was present to explain the proposal for construction of a 15,000 sq. ft. commercial building with driveways, paved parking and associated grading and drainage impacting 2,669 sq. ft. of steep slopes of 20% or greater. The drainage plans were reviewed. The plan has been to TRC and the plans were revised to reflect their comments. DBIDA approved the use of the parcel. The 20% slopes along the road were created when Venture Drive was built.

Fellows moved to endorse the Conditional Use Permit as presented, Schmidt seconded. Vote: 7 in favor

C. City of Dover Conditional Use Permit and NHDES Wetlands Permit for the City of Dover, Assessor's Map H, Lot 58, zoned I-4, located at 271 Mast Road.

Tom Page of Underwood Engineers was present to explain the proposal to construct a replacement artificial recharge facility on Bellamy River, including a new passive river intake structure, a new suction lifting pumping station, and a new pumping building, with 500 sq. ft. of permanent wetlands impact and a temporary wetlands impact of 1,450 square feet. Artificial recharge adds water from the river to recharge basins to help recharge aquifers and to prevent contamination from Madbury Metals impacting the wells. We met with NH Fish & Game to select the correct size screen for the intake. The wetlands permit has been submitted. Plan is to construct in 2020. This requires a 401 water quality permit from the state.

Hunt: Is there much of a change in the project footprint?

Page: The building is slightly larger.

Bird: Where are the recharge basins located?

Page showed them on a map.

Hunt: The water in the Bellamy River comes from the Bellamy Reservoir, which is controlled by Portsmouth.

Page: We are using State Drinking Water Funding to pay for this project.

Fellows moved to endorse the Conditional Use Permit and NHDES Wetlands Permit as presented, Erickson seconded. Vote: 7 in favor

D. City of Dover Conditional Use Permit for Eversource Energy, Assessor's Map I, Lot 22, owned by Jensen's Inc. at 13 Brookmoor Road, zoned R-40, and Assessor's Map M, Lot 91-A, owned by Townsquare Media Portsmouth, LLC at 292 Middle Road, zoned R-40.

Sarah Barnum of Normandeau Associated was present to explain the proposal to replace five existing utility pole structures in a utility easement, with temporary wetland impacts of 18,879 square feet and temporary 50-foot wetland buffer impacts of 44,543 square feet. We did a site walk with the contractor last week to refine the impacts to wetlands and they will be reduced.

Fellows: What activity takes place in each site?

DRAFT

NHDES-W-06-012

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

WETLANDS PERMIT APPLICATION

Water Division/ Wetlands Bureau

Land Resources Management

Check the status of your application: www.des.nh.gov/onestop

RSA/Rule: RSA 482-A/ Env-Wt 100-900

Administrative Use Only	Administrative Use Only	Administrative Use Only	File No.:
			Check No.:
			Amount:
			Initials:

1. REVIEW TIME: Indicate your Review Time below. To determine review time, refer to Guidance Document A for instructions.

☒ Standard Review (Minimum, Minor or Major Impact) ☐ Expedited Review (Minimum Impact only)

2. MITIGATION REQUIREMENT:

If mitigation is required, a Mitigation-Pre Application meeting must occur prior to submitting this Wetlands Permit Application. To determine if mitigation is required, please refer to the Determine if Mitigation is Required Frequently Asked Questions.

Mitigation Pre-Application Meeting Date: Month: __ Day: __ Year: ____

☒ N/A - Mitigation is not required

3. PROJECT LOCATION:

Separate wetland permit applications must be submitted for each municipality within which wetland impacts occur.

ADDRESS: **271 Mast Road**			TOWN/CITY: **Dover**
TAX MAP: **H58**	BLOCK:	LOT: **0**	UNIT:
USGS TOPO MAP WATERBODY NAME: **Bellamy River** ☐ NA		STREAM WATERSHED SIZE: **26.43 sq mi** ☐ NA	
LOCATION COORDINATES (If known): **118609,246661**		☐ Latitude/Longitude ☐ UTM ☒ State Plane	

4. PROJECT DESCRIPTION:

Provide a brief description of the project outlining the scope of work. Attach additional sheets as needed to provide a detailed explanation of your project. DO NOT reply "See Attached" in the space provided below.

Construction of a replacement artificial recharge facility along the Bellamy River in Dover. The components of the proposed recharge facility include: New passive river intake structure, New suction lift pumping station relocated outside of the flood plain,Two (2) artificial recharge basins located in the Pudding Hill Aquifer

5. SHORELINE FRONTAGE:

☐ N/A This does not have shoreline frontage. SHORELINE FRONTAGE: **1,778 LF**

Shoreline Frontage is calculated by determining the average of the distances of the actual natural navigable shoreline frontage and a straight line drawn between the property lines, both of which are measured at the normal high water line (Env-Wt 101.89).

6. RELATED NHDES LAND RESOURCES MANAGEMENT PERMIT APPLICATIONS ASSOCIATED WITH THIS PROJECT:

Please indicate if any of the following permit applications are required and, if required, the status of the application.

To determine if other Land Resources Management Permits are required, refer to the Land Resources Management Webpage.

Permit Type	Permit Required	File Number	Permit Application Status
Alteration of Terrain Permit Per RSA 485-A:17	☐ YES ☒ NO	____	☐ APPROVED ☐ PENDING ☐ DENIED
Individual Sewerage Disposal per RSA 485-A:2	☐ YES ☒ NO	____	☐ APPROVED ☐ PENDING ☐ DENIED
Subdivision Approval Per RSA 485-A	☐ YES ☒ NO	____	☐ APPROVED ☐ PENDING ☐ DENIED
Shoreland Permit Per RSA 483-B	☒ YES ☐ NO	____	☐ APPROVED ☒ PENDING ☐ DENIED

7. NATURAL HERITAGE BUREAU & DESIGNATED RIVERS:

See the Instructions & Required Attachments document for instructions to complete a & b below.

a. Natural Heritage Bureau File ID: NHB **19** - **2950** .

b. ☐ This project is within a Designated River corridor. The project is within ¼ mile of: _____ ; and date a copy of the application was sent to the Local River Management Advisory Committee: Month: __ Day: __ Year: ____

☒ N/A – This project is not within a Designated River corridor.

8. APPLICANT INFORMATION (Desired permit holder)

LAST NAME, FIRST NAME, M.I.: **City of Dover, NH**			
TRUST / COMPANY NAME: **City of Dover**	MAILING ADDRESS: **288 Central Avenue**		
TOWN/CITY: **Dover**		STATE: **NH**	ZIP CODE: **03820**
EMAIL or FAX: **b.boulanger@dover.nh.gov**	PHONE: **516-6450**		
ELECTRONIC COMMUNICATION: By initialing here: _____, I hereby authorize NHDES to communicate all matters relative to this application electronically.			

9. PROPERTY OWNER INFORMATION (If different than applicant)

LAST NAME, FIRST NAME, M.I.:			
TRUST / COMPANY NAME:	MAILING ADDRESS:		
TOWN/CITY:		STATE:	ZIP CODE:
EMAIL or FAX:	PHONE:		
ELECTRONIC COMMUNICATION: By initialing here _____, I hereby authorize NHDES to communicate all matters relative to this application electronically.			

10. AUTHORIZED AGENT INFORMATION

LAST NAME, FIRST NAME, M.I.: **Rees, Allison**	COMPANY NAME: **Underwood Engineers**		
MAILING ADDRESS: **99 North State Street**			
TOWN/CITY: **Concord**		STATE: **NH**	ZIP CODE: **03301**
EMAIL or FAX: **arees@underwoodengineers.com**	PHONE: **230-9898**		
ELECTRONIC COMMUNICATION: By initialing here **AMR**, I hereby authorize NHDES to communicate all matters relative to this application electronically.			

11. PROPERTY OWNER SIGNATURE:

See the Instructions & Required Attachments document for clarification of the below statements

By signing the application, I am certifying that:

1. I authorize the applicant and/or agent indicated on this form to act in my behalf in the processing of this application, and to furnish upon request, supplemental information in support of this permit application.
2. I have reviewed and submitted information & attachments outlined in the Instructions and Required Attachment document.
3. All abutters have been identified in accordance with RSA 482-A:3, I and Env-Wt 100-900.
4. I have read and provided the required information outlined in Env-Wt 302.04 for the applicable project type.
5. I have read and understand Env-Wt 302.03 and have chosen the least impacting alternative.
6. Any structure that I am proposing to repair/replace was either previously permitted by the Wetlands Bureau or would be considered grandfathered per Env-Wt 101.47.
7. I have submitted a Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review) to the NH State Historic Preservation Officer (SHPO) at the NH Division of Historical Resources to identify the presence of historical/ archeological resources while coordinating with the lead federal agency for National Historic Preservation Act (NHPA) 106 compliance.
8. I authorize NHDES and the municipal conservation commission to inspect the site of the proposed project.
9. I have reviewed the information being submitted and that to the best of my knowledge the information is true and accurate.
10. I understand that the willful submission of falsified or misrepresented information to the NHDES is a criminal act, which may result in legal action.
11. I am aware that the work I am proposing may require additional state, local or federal permits which I am responsible for obtaining.
12. The mailing addresses I have provided are up to date and appropriate for receipt of NHDES correspondence. NHDES will not forward returned

Property Owner Signature	**Bill Boulanger** Print name legibly	10/30/2019 Date

MUNICIPAL SIGNATURES

12. CONSERVATION COMMISSION SIGNATURE

The signature below certifies that the municipal conservation commission has reviewed this application, and:

1. Waives its right to intervene per RSA 482-A:11;
2. Believes that the application and submitted plans accurately represent the proposed project; and
3. Has no objection to permitting the proposed work.

⇨	Print name legibly	Date

DIRECTIONS FOR CONSERVATION COMMISSION

1. Expedited review ONLY requires that the conservation commission's signature is obtained in the space above.
2. Expedited review requires the Conservation Commission signature be obtained **prior** to the submittal of the original application to the Town/City Clerk for signature.
3. The Conservation Commission may refuse to sign. If the Conservation Commission does not sign this statement for any reason, the application is not eligible for expedited review and the application will be reviewed in the standard review time frame.

13. TOWN / CITY CLERK SIGNATURE

As required by Chapter 482-A:3 (amended 2014), I hereby certify that the applicant has filed four application forms, four detailed plans, and four USGS location maps with the town/city indicated below.

⇨	Print name legibly	Town/City	Date
Susan Mistretta	Susan Mistretta	Dover	11/1/19

DIRECTIONS FOR TOWN/CITY CLERK:

Per RSA 482-A:3,I

1. For applications where "Expedited Review" is checked on page 1, if the Conservation Commission signature is not present, NHDES will accept the permit application, but it will NOT receive the expedited review time.
2. IMMEDIATELY sign the original application form and four copies in the signature space provided above;
3. Return the signed original application form and attachments to the applicant so that the applicant may submit the application form and attachments to NHDES by mail or hand delivery.
4. IMMEDIATELY distribute a copy of the application with one complete set of attachments to each of the following bodies: the municipal Conservation Commission, the local governing body (Board of Selectmen or Town/City Council), and the Planning Board; and
5. Retain one copy of the application form and one complete set of attachments and make them reasonably accessible for public review.

DIRECTIONS FOR APPLICANT:

1. Submit the single, original permit application form bearing the signature of the Town/ City Clerk, additional materials, and the application fee to NHDES by mail or hand delivery.

14. IMPACT AREA:

For each jurisdictional area that will be/has been impacted, provide square feet and, if applicable, linear feet of impact.

***Permanent**: impacts that will remain after the project is complete.*

***Temporary**: impacts not intended to remain (and will be restored to pre-construction conditions) after the project is completed.*

***Intermittent Streams**: linear footage distance of disturbance is measured along the thread of the channel.*

***Perennial Streams/ Rivers**: the total linear footage distance is calculated by summing the lengths of disturbance to the channel and each bank.*

JURISDICTIONAL AREA	PERMANENT Sq. Ft. / Lin. Ft.	TEMPORARY Sq. Ft. / Lin. Ft.
Forested wetland	☐ ATF	☐ ATF
Scrub-shrub wetland	☐ ATF	☐ ATF
Emergent wetland	☐ ATF	☐ ATF
Wet meadow	☐ ATF	☐ ATF
Intermittent stream channel	/ ☐ ATF	/ ☐ ATF
Perennial Stream / River channel	250 / ☐ ATF	500 / ☐ ATF
Lake / Pond	/ ☐ ATF	/ ☐ ATF
Bank - Intermittent stream	/ ☐ ATF	/ ☐ ATF
Bank - Perennial stream / River	250 / 50 ☐ ATF	950 / 50 ☐ ATF
Bank - Lake / Pond	/ ☐ ATF	/ ☐ ATF
Tidal water	/ ☐ ATF	/ ☐ ATF
Salt marsh	☐ ATF	☐ ATF
Sand dune	☐ ATF	☐ ATF
Prime wetland	☐ ATF	☐ ATF
Prime wetland buffer	☐ ATF	☐ ATF
Undeveloped Tidal Buffer Zone (TBZ)	☐ ATF	☐ ATF
Previously-developed upland in TBZ	☐ ATF	☐ ATF
Docking - Lake / Pond	☐ ATF	☐ ATF
Docking - River	☐ ATF	☐ ATF
Docking - Tidal Water	☐ ATF	☐ ATF
Vernal Pool	☐ ATF	☐ ATF
TOTAL	500 / 50	1,450 / 50

15. APPLICATION FEE: See the Instructions & Required Attachments document for further instruction

☐ Minimum Impact Fee: Flat fee of $ 200

☒ Minor or Major Impact Fee: Calculate using the below table below

Permanent and Temporary (non-docking)	**1,950** sq. ft.	X $0.20 =	$ **390**
Temporary (seasonal) docking structure:	sq. ft.	X $1.00 =	$
Permanent docking structure:	sq. ft.	X $2.00 =	$
Projects proposing shoreline structures (including docks) add $200 =			$
Total =			$ **390**
The Application Fee is the above calculated Total or $200, whichever is greater =			$ **390**

NARRATIVE STATEMENT
PUDDING HILL AQUIFER RECHARGE
DOVER, NEW HAMPSHIRE

BACKGROUND AND PURPOSE

The Pudding Hill Aquifer contains three of the City of Dover's (City's) drinking water supply wells: the Griffin Well, Ireland Well and DPH-1 Well. The Griffin Well was taken offline in December 2015 due to contamination with per- and polyfluoroalkyl substances (PFAS) above the New Hampshire Ambient Groundwater Quality Standard (AGQS). PFAS levels in the Ireland Well increased to above the AGQS in 2018. At the request of the City, the Ireland Well was placed in inactive status but can be returned to service pending installation of treatment and approval by NHDES (per NHDES letter dated December 3, 2018). Contaminants in Well DPH-1 have remained close to or below detection levels to date, and the City has periodically operated the well as needed to meet peak demands. Other contaminants have been detected in supply and sentry wells including 1,4-Dioxane, MtBE, Iron and Manganese.

The remedial action plan proposed by the responsible party includes treatment for Dover's water supplies in the aquifer. A treatment facility to address the contaminants is currently under design. Artificial recharge is necessary to maintain the permitted capacity of the aquifer. Artificial recharge has also been identified as a method to reduce contaminant migration to the Ireland and DPH-1 Wells. Production from the aquifer is also protective of the Bellamy River water quality by reducing the flow of untreated water from springs to the river. The existing Bellamy Recharge Facility has reached the end of its useful life due to age and is in need of improvements.

PROJECT DESCRIPTION

The proposed work consists of constructing a replacement artificial recharge facility along the Bellamy River in Dover, New Hampshire.

The replacement facility will be relocated out of the 100-year flood plain to reduce the risk of flooding. The components of the proposed recharge facility include the following:

- New passive river intake structure set in riverbank
- New suction lift pumping system
- New pumping building located outside of the flood plain, at the existing building site
- Improvements to the two (2) artificial recharge basins located in the Pudding Hill Aquifer

The work is planned for construction in 2020 with final completion required by December 1, 2020 to meet funding deadlines. The withdrawal is anticipated to take place indefinitely. 401 Water Quality Certification is pending for the withdrawals. Temporary withdrawals for pilot testing is currently allowed by NHDES.

ALTERNATIVES CONSIDERED

"No Action" on the existing station was considered, however, artificial recharge has been determined necessary to meet the following three objectives in accordance with Emery & Garrett Groundwater Investigations (EGGI) letter dated September 10, 2019 in response to Sanborn, Head & Associates, Inc.'s (SHA) Remedial Action Plan: 1) eliminating the transport of contaminants to the Bellamy River via observed spring flows located south of the River; 2) decreasing contaminant transport to the Ireland Well; and 3) increasing aquifer yield. The proposed groundwater discharges are therefore protective of, and critical to, the water quality of the water supply wells.

The option of maintenance of the existing intake pool and rebuilding the berm was initially considered and discussed with the NHDES Wetlands Bureau on 3/23/18. However, this approach was abandoned after the discussion with the NHDES Wetlands Bureau. It was agreed to abandon the existing intake and put a new intake structure along the bank of the Bellamy River. The proposed intake structure will also help facilitate use of the groundwater recharge system under a wider range of stream flow conditions and provide intake screening required by New Hampshire Fish & Game to protect stream biota.

SUMMARY OF IMPACTS

The work within the delineated wetlands area will result in approximately 1,450 sf of temporary impact and 500 sf of permanent impact.

A turbidity curtain and appropriate BMPs will be in place before construction starts and will be inspected weekly and after major storm events per the SWPPP. Temporary sheeting/shoring and/or a coffer dam will be necessary to install the intake structure.

CONCLUSION

An estimated 1,450 square feet will be temporarily impacted and 500 sf of wetlands will be permanently impacted as part of the proposed improvements. Any negative effects of the work will be mitigated by the use of appropriate best management practices (i.e. stone check dams, silt fence etc). Final wetland permit requirements will be included in the construction documents and will be the responsibility of the Owner's contractor to follow.

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

WETLANDS PERMIT APPLICATION – ATTACHMENT A
MINOR AND MAJOR - 20 QUESTIONS

Land Resources Management
Wetlands Bureau

Check the Status of your application: www.des.nh.gov/onestop

RSA/ Rule: RSA 482-A, Env-Wt 100-900

Env-Wt 302.04 Requirements for Application Evaluation - For any major or minor project, the applicant shall demonstrate by plan and example that the following factors have been considered in the project's design in assessing the impact of the proposed project to areas and environments under the department's jurisdiction. Respond with statements demonstrating:

1. The need for the proposed impact.

The Pudding Hill Aquifer contains three of the City of Dover's (City's) drinking water supply wells: the Griffin Well, Ireland Well and DPH-1 Well. The Griffin Well was taken offline in December 2015 due to contamination with per- and polyfluoroalkyl substances (PFAS) above the New Hampshire Ambient Groundwater Quality Standard (AGQS). PFAS levels in the Ireland Well increased to above the AGQS in 2018. At the request of the City, the Ireland Well was placed in inactive status but can be returned to service pending installation of treatment and approval by NHDES (per NHDES letter dated December 3, 2018). Contaminants in Well DPH-1 have remained close to or below detection levels to date, and the City has periodically operated the well as needed to meet peak demands. Other contaminants have been detected in supply and sentry wells including 1,4-Dioxane, MtBE, Iron and Manganese.

The remedial action plan proposed by the responsible party includes treatment for Dover's water supplies in the aquifer. A treatment facility to address the contaminants is currently under design. Artificial recharge is necessary to maintain the permitted capacity of the aquifer. Artificial recharge has also been identified as a method to reduce contaminant migration to the Ireland and DPH-1 Wells. Production from the aquifer is also protective of the Bellamy River water quality by reducing the flow of untreated water from springs to the river. The existing Bellamy Recharge Facility has reached the end of its useful life due to age and is in need of improvements.

2. That the alternative proposed by the applicant is the one with the least impact to wetlands or surface waters on site.

Maintenance of the existing intake pool and rebuilding the berm was initially considered. However, after a discussion with the NHDES Wetlands Bureau, the decision was made to put a new intake structure along the bank of the Bellamy River.

3. The type and classification of the wetlands involved.

The Bellamy River is a river. There are two wetland classifications in the area: R3UB1 and PFO1E. Please see the attached functions and values report for details.

4. The relationship of the proposed wetlands to be impacted relative to nearby wetlands and surface waters.

No other wetlands have been delinieated in the project areas

5. The rarity of the wetland, surface water, sand dunes, or tidal buffer zone area.

Rivers are common in New Hampshire.

6. The surface area of the wetlands that will be impacted.

1,950 SF Total (500 SF Permanent, 1,450 SF Temporary)

7. The impact on plants, fish and wildlife including, but not limited to:
   a. Rare, special concern species;
   b. State and federally listed threatened and endangered species;
   c. Species at the extremities of their ranges;
   d. Migratory fish and wildlife;
   e. Exemplary natural communities identified by the DRED-NHB; and
   f. Vernal pools.

No vernal pools will be impacted.

The included federal iPaC report lists the possibility of two threatened species in the areal northern long-eared bat and small-whorled pogonia. However, no small-whorled pogonias are noted in the attached wetlands functions and values report.

The federal iPaC report lists 6 possible migratory bird species for this area.

NHB did not note any exemplary natural communities.

NHF&G reviewed the proposed project and said they do not anticipate a problem with it. However, they requested the use of "wildlife friendly" matting (if needed) and the distribution of flyers to all workers on the site regarding the Northern Black Racer.

8. The impact of the proposed project on public commerce, navigation and recreation.

There will be no impact to public commerce, navigation, or recreation. The river is not large enough along this stretch for these activities.

9. The extent to which a project interferes with the aesthetic interests of the general public. For example, where an applicant proposes the construction of a retaining wall on the bank of a lake, the applicant shall be required to indicate the type of material to be used and the effect of the construction of the wall on the view of other users of the lake.

The disturbance area cannot be seen from any public roadway or structure, and there is a large wooded area between the project area and the residential housing units across the river.

10. The extent to which a project interferes with or obstructs public rights of passage or access. For example, where the applicant proposes to construct a dock in a narrow channel, the applicant shall be required to document the extent to which the dock would block or interfere with the passage through this area.

There is no issue with interference with public rights of passage or access. The new intake structure will be in the bank of the river.

11. The impact upon abutting owners pursuant to RSA 482-A:11, II. For example, if an applicant is proposing to rip-rap a stream, the applicant shall be required to document the effect of such work on upstream and downstream abutting properties.

The installation of a replacement intake structure should have no impact on the abutting owners. Much of the work will be temporary in nature. The small area of permanent riverstone is minimal and will not impact the abutters.

12. The benefit of a project to the health, safety, and well being of the general public.

The addition of an artificial recharge source to the City of Dover's water supply system will benefit the residents and people who visit and work in the City of Dover. It will serve to minimize chances of well contamination and provide additional drinking water capacity to the City.

13. The impact of a proposed project on quantity or quality of surface and ground water. For example, where an applicant proposes to fill wetlands the applicant shall be required to document the impact of the proposed fill on the amount of drainage entering the site versus the amount of drainage exiting the site and the difference in the quality of water entering and exiting the site.

There will be no change in the quantity or quality of surface or groundwater as a result of the intake replacement.

14. The potential of a proposed project to cause or increase flooding, erosion, or sedimentation.

This project has the potential to increase erosion and sedimentation during construction. Best Management Practices, including a turbidity curtain, will be installed prior to any work. The project will be limited in duration to the extent practicable, which will minimize chances of erosion or sedimentation.

15. The extent to which a project that is located in surface waters reflects or redirects current or wave energy which might cause damage or hazards.

Current and wave energy are not applicable to this project.

16. The cumulative impact that would result if all parties owning or abutting a portion of the affected wetland or wetland complex were also permitted alterations to the wetland proportional to the extent of their property rights. For example, an applicant who owns only a portion of a wetland shall document the applicant's percentage of ownership of that wetland and the percentage of that ownership that would be impacted.

This parcel has 1,778 linear feet of frontage on the Bellamy River measured as the average between the length along the bank and a straight line distance. The length of disturbance for the installation of the new intake structure is approxmately 40 linear feet, or approximately 2% of the average bank frontage.

The Bellamy River is approximately 15 miles long, so 30 miles (158,400 linear feet) when taking into account both banks of the river.

If all property owners along the river were permitted alterations to 2% of their frontage, approximately 3,170 linear feet of the 30 miles of river bank would be altered.

17. The impact of the proposed project on the values and functions of the total wetland or wetland complex.

The functions and values of the river should not be affected. The impact area is small and partly temporary.

18. The impact upon the value of the sites included in the latest published edition of the National Register of Natural Landmarks, or sites eligible for such publication.

There are no natural landmarks near the site.

19. The impact upon the value of areas named in acts of congress or presidential proclamations as national rivers, national wilderness areas, national lakeshores, and such areas as may be established under federal, state, or municipal laws for similar and related purposes such as estuarine and marine sanctuaries.

There are no national rivers, wilderness areas, or lakeshores near the site. There are no estuarine or marine sanctuaries nearby.

20. The degree to which a project redirects water from one watershed to another.

No water will be redirected as a result of this project.

Additional comments

US Army Corps of Engineers®
New England District

New Hampshire General Permits (GPs)
Appendix B - Corps Secondary Impacts Checklist
(for inland wetland/waterway fill projects in New Hampshire)

1. Attach any explanations to this checklist. Lack of information could delay a Corps permit determination.
2. All references to "work" include all work associated with the project construction and operation. Work includes filling, clearing, flooding, draining, excavation, dozing, stumping, etc.
3. See GC 5, regarding single and complete projects.
4. Contact the Corps at (978) 318-8832 with any questions.

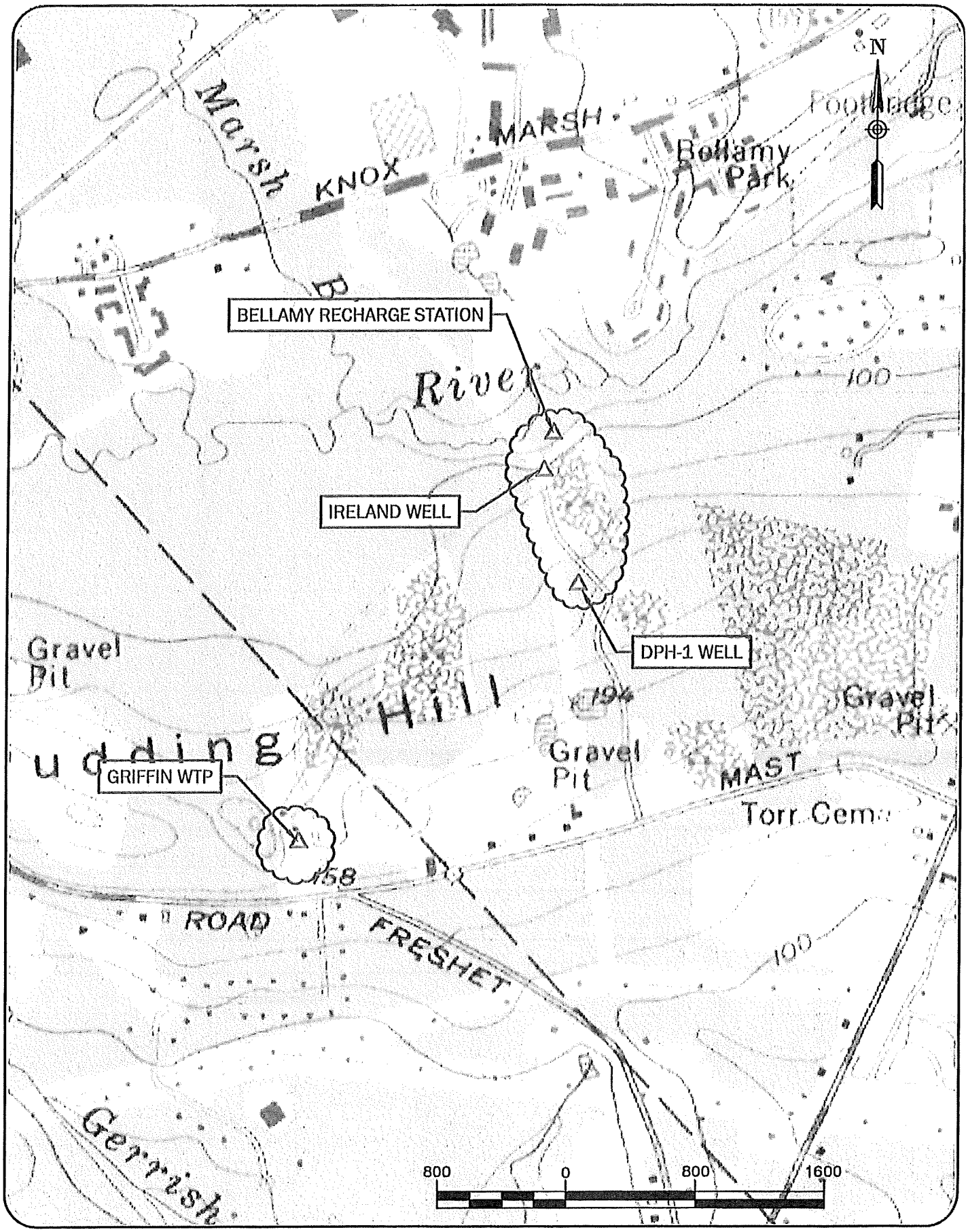
1. Impaired Waters	Yes	No
1.1 Will any work occur within 1 mile upstream in the watershed of an impaired water? See http://des.nh.gov/organization/divisions/water/wmb/section401/impaired_waters.htm to determine if there is an impaired water in the vicinity of your work area.*	X	
2. Wetlands	Yes	No
2.1 Are there are streams, brooks, rivers, ponds, or lakes within 200 feet of any proposed work?	X	
2.2 Are there proposed impacts to SAS, special wetlands. Applicants may obtain information from the NH Department of Resources and Economic Development Natural Heritage Bureau (NHB) DataCheck Tool for information about resources located on the property at https://www2.des.state.nh.us/nhb_datacheck/. The book Natural Community Systems of New Hampshire also contains specific information about the natural communities found in NH.		X
2.3 If wetland crossings are proposed, are they adequately designed to maintain hydrology, sediment transport & wildlife passage?	—	—
2.4 Would the project remove part or all of a riparian buffer? (Riparian buffers are lands adjacent to streams where vegetation is strongly influenced by the presence of water. They are often thin lines of vegetation containing native grasses, flowers, shrubs and/or trees that line the stream banks. They are also called vegetated buffer zones.)	X	
2.5 The overall project site is more than 40 acres?		X
2.6 What is the area of the previously filled wetlands?	0 SF	
2.7 What is the area of the proposed fill in wetlands?	0 SF	
2.8 What is the % of previously and proposed fill in wetlands to the overall project site?	N/A	
3. Wildlife	Yes	No
3.1 Has the NHB & USFWS determined that there are known occurrences of rare species, exemplary natural communities, Federal and State threatened and endangered species and habitat, in the vicinity of the proposed project? (All projects require an NHB ID number & a USFWS IPAC determination.) NHB DataCheck Tool: https://www2.des.state.nh.us/nhb_datacheck/ USFWS IPAC website: https://ecos.fws.gov/ipac/location/index	X	

3.2 Would work occur in any area identified as either "Highest Ranked Habitat in N.H." or "Highest Ranked Habitat in Ecological Region"? (These areas are colored magenta and green, respectively, on NH Fish and Game's map, "2010 Highest Ranked Wildlife Habitat by Ecological Condition.") Map information can be found at: • PDF: www.wildlife.state.nh.us/Wildlife/Wildlife_Plan/highest_ranking_habitat.htm. • Data Mapper: www.granit.unh.edu. • GIS: www.granit.unh.edu/data/downloadfreedata/category/databycategory.html.	X	
3.3 Would the project impact more than 20 acres of an undeveloped land block (upland, wetland/waterway) on the entire project site and/or on an adjoining property(s)?		X
3.4 Does the project propose more than a 10-lot residential subdivision, or a commercial or industrial development?		X
3.5 Are stream crossings designed in accordance with the GC 21?	—	—
4. Flooding/Floodplain Values	Yes	No
4.1 Is the proposed project within the 100-year floodplain of an adjacent river or stream?	X	
4.2 If 4.1 is yes, will compensatory flood storage be provided if the project results in a loss of flood storage?	N/A	
5. Historic/Archaeological Resources		
For a minimum, minor or major impact project - a copy of the Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review) with your DES file number shall be sent to the NH Division of Historical Resources as required on Page 11 GC 8(d) of the GP document**	X	

*Although this checklist utilizes state information, its submittal to the Corps is a Federal requirement.
** If your project is not within Federal jurisdiction, coordination with NH DHR is not required under Federal law.

ATTACHMENT A

USGS MAP



DATE			FIG.
2/1/17	UNDERWOOD engineers	WATER SYSTEM IMPROVEMENTS PUDDING HILL AQUIFER CITY OF DOVER, NEW HAMPSHIRE	5
PROJECT 2123	25 Vaughan Mall, Portsmouth, N.H. 03801 Tel. 603-436-8192 Fax. 603-431-4733		

ATTACHMENT B

APPLICABLE PLANS

CITY OF DOVER, New Hampshire

City Project No. _____ / DWSRF Project No. 0651010-04

60% DESIGN SUBMITTAL

WATER FACILITY IMPROVEMENTS - PHASE 2

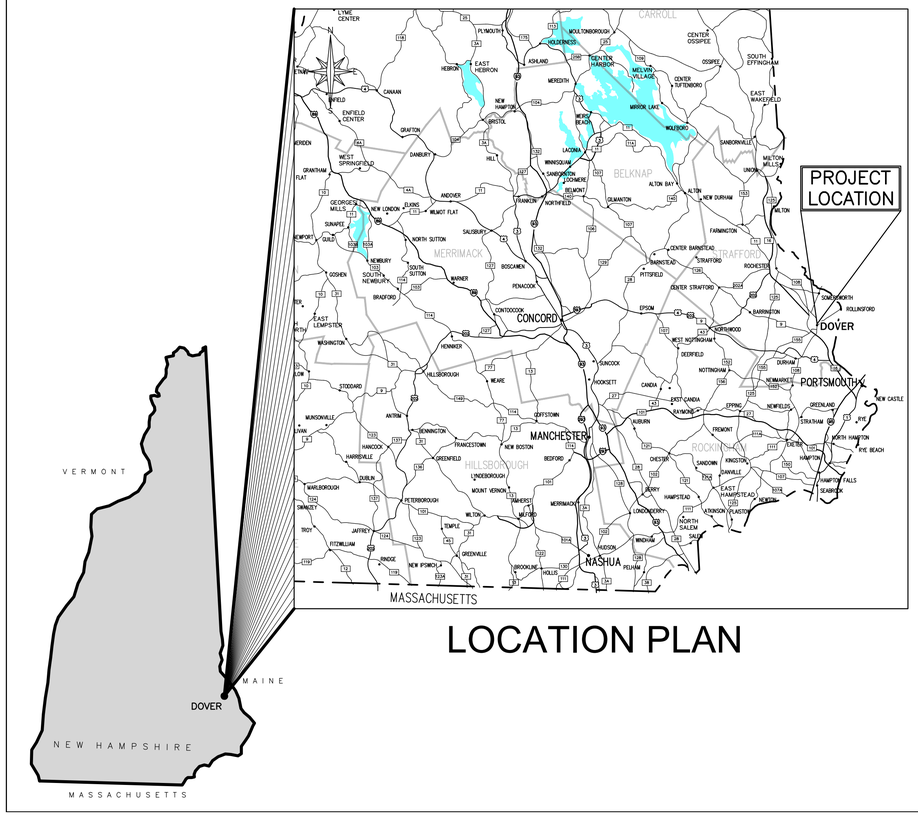
CONTRACT 4, BELLAMY RECHARGE FACILITY

PREPARED BY

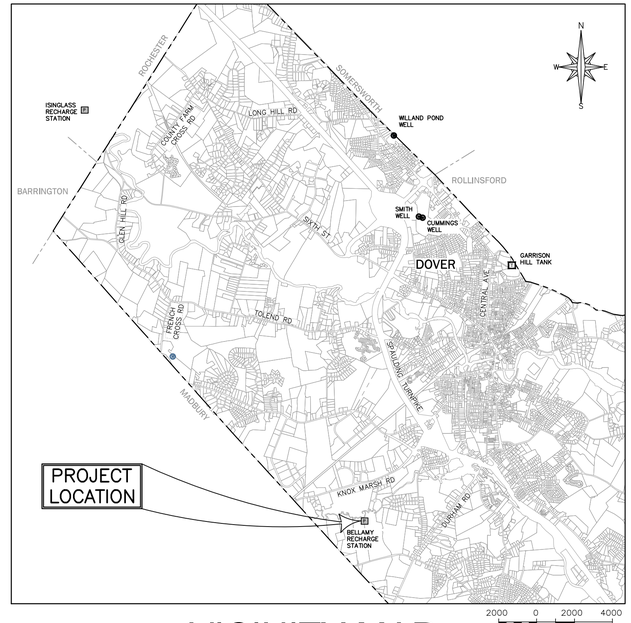
UNDERWOOD ENGINEERS

PORTSMOUTH, NEW HAMPSHIRE

NOVEMBER 2019



LOCATION PLAN



VICINITY MAP

UE #2123

UNDERWOOD engineers

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G3	LEGEND & ABBREVIATIONS	3
CIVIL		
C1	BELLAMY RECHARGE FACILITY OVERALL SITE PLAN	4
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C3	BELLAMY RECHARGE FACILITY SITE PLAN	6
C4	BELLAMY RECHARGE BASIN 1 PLAN & PROFILE	7
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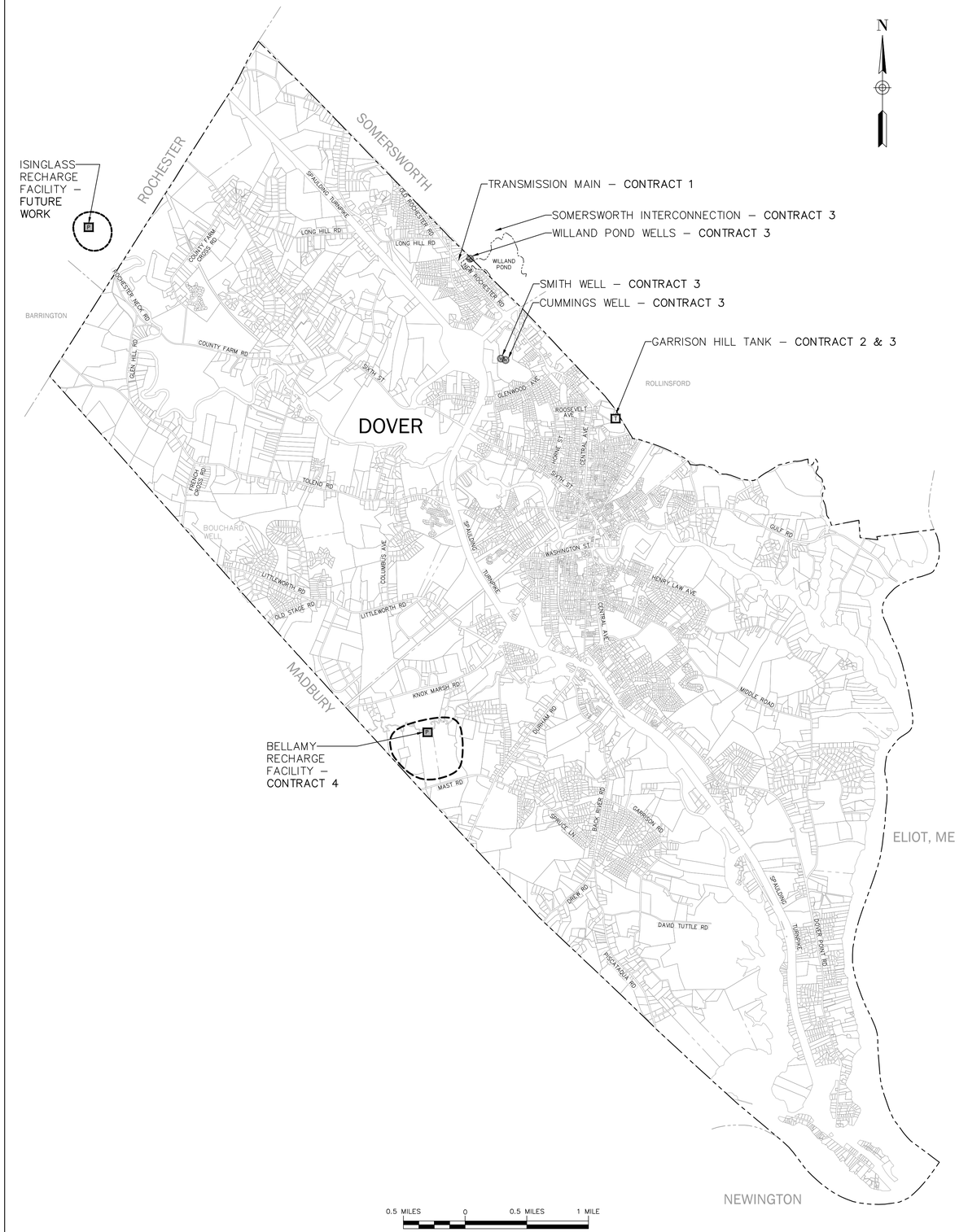
ARCHITECTURAL – TBD

STRUCTURAL – TBD

DWG NO.	SHEET TITLE	SHEET
PROCESS		
P1	PROCESS PIPING LEGEND AND NOTES	13
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P3	PROCESS DETAILS	15

ELECTRICAL – TBD

INSTRUMENTATION – TBD



ISSUE FOR
APPROVAL Date – By –
CONSTRUCTION Date – By –
RECORD DRAWING Date – By –

NO.	REVISIONS	APP'D

Drawn/Chk. MAH
Designed LJS
Checked TGP
Approved –
Date 11/19/2019
Book No. –
Project No. 2123
Dwg. ID 2123-G-INDEX
Scale AS SHOWN

60% DESIGN SUBMITTAL
NOV. 2019

UNDERWOOD engineers
25 Vaughan Mall, Portsmouth, N.H. 03801
Tel. 603-436-6192 Fax. 603-431-4733

INDEX & LOCATION PLAN

WATER FACILITIES IMPROVEMENTS–PHASE 2
CONTRACT 4, BELLAMY RECHARGE FACILITY
CITY OF DOVER, NEW HAMPSHIRE

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DWG NO G1
SHEET 1 OF 15

GENERAL NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR THE LOCATION, PROTECTION AND REPAIR (IF DAMAGED) OF ALL EXISTING UTILITIES AND SERVICES. THE APPROXIMATE LOCATIONS OF UTILITIES AND SERVICES ARE SHOWN ON THE DRAWINGS. NOT ALL UTILITIES ARE SHOWN ON THE PLANS. NOTIFY DIG-SAFE PRIOR TO COMMENCING CONSTRUCTION (811) AT THE REQUIRED FREQUENCY DICTATED BY LAW. CONTRACTOR SHALL GIVE ADEQUATE NOTICE TO THE ENGINEER OF CONFLICTS OF PROPOSED WORK WITH MARKED UTILITIES PRIOR TO CONSTRUCTING THE PROPOSED WORK.
2. THE SURFACE EVIDENCE OF THE UTILITIES SHOWN HAVE BEEN LOCATED BY FIELD SURVEY. THE LINE WORK REPRESENTING THE UNDERGROUND STRUCTURES AND PIPES SHOWN ARE BASED ON SURVEY AND PLANS AVAILABLE. THE ENGINEER/SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE ENGINEER/SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED.
3. CONTRACTOR IS RESPONSIBLE FOR OBTAINING CONSTRUCTION DEWATERING PERMIT, IF NECESSARY.
4. CONTRACTOR IS RESPONSIBLE FOR OBTAINING CITY OF DOVER AND CITY OF SOMERSWORTH EXCAVATION PERMITS.
5. THIS SET OF PLANS HAS BEEN CREATED TO BE USED IN CONJUNCTION WITH A TECHNICAL SPECIFICATION ENTITLED "WATER FACILITIES IMPROVEMENTS-PHASE 2".
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF ALL SURPLUS EARTH, TREES, LEDGE, PIPE AND SEWER OR DRAIN STRUCTURES EXCAVATED DURING CONSTRUCTION, UNLESS OTHERWISE INDICATED IN THE PROJECT MANUAL OR THE DRAWINGS OR UNLESS MATERIALS ARE CLAIMED BY THE OWNER.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PROPERTY RESTORATION BOTH PUBLIC AND PRIVATE. UTILITIES DAMAGED AS A RESULT OF THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
8. TEMPORARY AND OR PERMANENT PAVING REPAIRS SHOULD MAINTAIN EXISTING LINE AND GRADE EXCEPT AS DIRECTED BY THE ENGINEER. PAVING LIMITS SHALL BE AS SHOWN ON THE PLAN.
9. PAVEMENT REPAIRS TO DRIVEWAYS OR OTHER AREAS OUTSIDE DEFINED PAYMENT LIMITS, AS DEFINED ON THE DRAWINGS IS SUBSIDIARY AND WILL NOT BE MEASURED FOR PAYMENT.
10. NOT ALL OVERHEAD WIRE DROPS TO BUILDINGS ARE SHOWN. THE CONTRACTOR SHALL ANTICIPATE THEIR EXISTENCE IN ALL OPERATIONS.
11. ALL EXISTING WATER BOXES, SEWER AND CATCH BASIN FRAMES AND GRATES AND OTHER CASTINGS DISTURBED OR RELOCATED BY CONSTRUCTION ACTIVITIES UNDER THE JURISDICTION OF THE CITY OF DOVER SHALL BE ADJUSTED TO EXISTING LINE AND GRADE, UNLESS SHOWN OTHERWISE ON THESE PLANS OR AS DIRECTED BY THE ENGINEER. (SUBSIDIARY, EXCEPT WHERE PAID FOR BY SEPARATE BID ITEMS.)
12. CONTRACTOR IS RESPONSIBLE FOR SITE SECURITY AND SAFETY.
13. CONSTRUCTION SEQUENCE (GENERAL): PERFORM WORK IN GENERAL IN THIS SEQUENCE:
    A. PRIOR TO START OF CONSTRUCTION, PROVIDE A WRITTEN NARRATIVE OF CONSTRUCTION METHODS TO BE USED AND A PRELIMINARY SCHEDULE OF KEY MILESTONES.
    B. PREPARE SITE WHERE CONSTRUCTION IS PROPOSED.
    C. CONSTRUCT TEMPORARY AND PERMANENT EROSION CONTROL FACILITIES. INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES THROUGHOUT CONSTRUCTION.
    D. INSTALL PIPE IN DRY CONDITIONS TO ELEVATIONS SHOWN ON THE DRAWINGS. STABILIZE DISTURBED AREAS IMMEDIATELY AFTER PIPE INSTALLATION.
    E. BEGIN SEEDING AND MULCHING IMMEDIATELY AFTER FINAL GRADING.
    F. GRAVEL TRENCH REPAIRS SHALL BE ACCEPTABLE DURING THE WORK WEEK (MONDAY-FRIDAY). ALL TRENCHES SHALL BE RESTORED WITH TEMPORARY PAVEMENT AT THE END OF EVERY WORK WEEK (FRIDAY).
    G. FINISH GRADING, SEEDING, AND MULCHING OF SHOULDERS, DITCHES, AND DISTURBED AREAS.
    H. AFTER ALL DISTURBED AREAS HAVE ESTABLISHED VEGETATIVE COVER, (APPROVED BY THE ENGINEER) REMOVE TEMPORARY EROSION CONTROL MEASURES.
    I. FINAL PAVING (WEARING COURSE) TO BE CONSTRUCTED AFTER ONE FREEZE THAW CYCLE.
14. REFER TO GEOTECHNICAL REPORT FOR SUBSURFACE AND SOIL CONDITIONS. (TECHNICAL SPECIFICATIONS, APPENDIX A).

WATER DISTRIBUTION SYSTEM NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LAYOUT OF ALL NEW WATER LINES. THE INTENT IS TO INSTALL THE NEW WATER LINE IN THE APPROXIMATE LOCATION AS SHOWN ON THE PLANS. EXISTING WATER LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF EXISTING MAINS THAT ARE REMOVED.
2. MAINTAIN A MINIMUM 10 FEET HORIZONTAL DISTANCE BETWEEN WATER MAIN AND SEWER PIPING. MAINTAIN A MINIMUM 6 FEET HORIZONTAL DISTANCE (OUTSIDE OF PIPE TO OUTSIDE OF PIPE) BETWEEN WATER MAIN AND STORM DRAIN. NOTIFY ENGINEER OF ANY DISCREPANCIES.
3. MINIMUM DEPTH OF COVER SHALL BE 5' UNLESS SHOWN OTHERWISE ON THE DRAWINGS. THE NEW MAINS SHALL GENERALLY FOLLOW THE GROUND CONTOUR. HOWEVER, ABRUPT CHANGES IN GRADE SHALL BE AVOIDED.
4. EXISTING HYDRANT ASSEMBLIES SHALL BE REMOVED FROM SERVICE AND DISPOSED OF BY THE CONTRACTOR WHERE SHOWN ON THE DRAWINGS. HYDRANT TO BE CUT HYDRANT SIDE OF GATE VALVE AND HYDRANT LINE TO BE CAPPED IN PLACE. CLOSE GATE VALVE AND REMOVE TOP HALF OF BOX.
5. ALL NEW MAINS SHALL BE CLASS 52 DOUBLE CEMENT LINE DUCTILE IRON OR SDR HDPE, WHICH SHALL BE HDPE DR-11, AS SHOWN ON THE DRAWINGS. ALL JOINTS FOR DUCTILE IRON PIPE SHALL BE PUSH-ON JOINTS UNLESS SHOWN OTHERWISE ON THE DRAWINGS. ALL FITTINGS SHALL BE DUCTILE IRON MECHANICAL JOINT CLASS 350, UNLESS OTHERWISE SHOWN ON THE DRAWINGS. ALL HDPE PIP TO BE FUSED. ALL NEW 6" HYDRANT BRANCHES SHALL BE DUCTILE IRON CLASS 52 WITH RESTRAINED JOINTS.
6. ALL FITTINGS, HYDRANTS AND VALVES SHALL BE RESTRAINED BY USING PRECAST CONCRETE THRUST BLOCKS AND RETAINER GLANDS. MECHANICAL JOINT ADAPTERS SHALL BE USED TO JOIN GATE VALVES TO FITTINGS AND SHALL BE MECHANICAL JOINT FOSTER ADAPTERS, OR APPROVED EQUAL. 6" BRANCHES SHALL USE ANCHOR TEES. 8" AND 12" BRANCHES SHALL USE MECHANICAL JOINTS WITH FOSTER ADAPTERS WHERE APPLICABLE.
7. TEST PRESSURE FOR THE COMBINED PRESSURE AND LEAKAGE TEST SHALL BE 150 PSI OR 150% OF NORMAL OPERATING PRESSURE WHICHEVER IS GREATER. TEST SHALL BE PERFORMED IN ACCORDANCE WITH AWWA C-600.
8. TRENCHES SHALL NOT BE LEFT OPEN DURING NON-WORKING HOURS. ALL OPEN PIPES SHALL BE SECURED WITH A WATERTIGHT PLUG WHEN THE PIPE IS TEMPORARILY BACKFILLED AND WHEN PIPE LAYING IS NOT IN PROCESS.
9. A NEW WATER MAIN MUST CROSS ABOVE A SANITARY SEWER BUT MAY CROSS ABOVE OR BELOW A STORM SEWER. A FULL LENGTH OF WATER MAIN SHALL BE CENTERED AT THE CROSSING. MAINTAIN A MINIMUM CLEAR SEPARATION DISTANCE OF 18 INCHES.
10. MAIN LINE GATE VALVES MAY BE PLACED EITHER SIDE OF HYDRANT ASSEMBLIES BASED ON CONSTRUCTION SEQUENCE OR TO ALLOW ADEQUATE AND THOROUGH MAIN FLUSHING PRIOR TO TESTING.
11. NO VALVES, VALVE BOXES, FITTINGS, PIPE, ETC. SHALL BE RE-USED IN THE WORK. ALL ITEMS MEASURED FOR PAYMENT SHALL BE NEW, UNLESS SPECIFICALLY NOTED.
12. NOT ALL REQUIRED FITTINGS SUCH AS BENDS AND COUPLINGS ARE INDICATED. SOME FITTINGS MAY NOT BE REQUIRED DEPENDING ON THE FINAL LAYOUT. REQUIRED NUMBER, LOCATION, AND SIZE OF FITTINGS SHALL BE DETERMINED IN THE FIELD.
13. ALL EXISTING SYSTEM VALVES SHALL BE OPERATED ONLY BY CITY PERSONNEL. THE CONTRACTOR SHALL NOTIFY THE OWNER IF VALVE OPERATION IS REQUIRED.
14. ALL EXISTING WATER PIPE IDENTIFIED AS ABANDONED SHALL BE DEMOLISHED AS FOLLOWS: PIPE: CAP AT EACH END AND ABANDON IN PLACE UNLESS IT NEEDS TO BE REMOVED BECAUSE OF OTHER INTERFERENCES (INCIDENTAL), UNLESS NOTED OTHERWISE.
15. ALL GATE VALVES SHALL HAVE RESTRAINED MECHANICAL JOINTS AND BE JOINED DIRECTLY TO FITTINGS WITH FOSTER-ADAPTORS AND OPEN LEFT.
16. ASBESTOS CEMENT (AC) PIPE INDICATED TO BE DEMOLISHED SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS PAID AS ITEM TBD. UNDAMAGED ABANDONED AC PIPE SHALL BE LEFT IN PLACE.

SEWER AND DRAIN NOTES

1. ALL EXISTING STORM DRAINAGE SHALL BE PROTECTED BY CONTRACTOR. ANY EXISTING DRAINAGE DAMAGED WHILE COMPLETING THE WORK SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.

REFERENCE PLANS:

1. "CITY OF DOVER, NEW HAMPSHIRE, NHDES SITE #1984-01044 198, PROJECT #B17009 PUDDING HILL AQUIFER INTERIM IMPROVEMENTS, RECORD DRAWINGS" BY UNDERWOOD ENGINEERS, INC. PORTSMOUTH, NH, DATED JANUARY 30, 2018.

STORMWATER MANAGEMENT, EROSION & SEDIMENTATION CONTROL NOTES

1. A NPDES GENERAL PERMIT FOR CONSTRUCTION ACTIVITIES IS REQUIRED FOR THIS PROJECT. THE CONTRACTOR IS REQUIRED TO PREPARE AND SUBMIT BOTH A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND A NOTICE OF INTENT (NOI) TO FULFILL PROJECT REQUIREMENTS. THE SWPPP MUST BE PREPARED IN ACCORDANCE WITH THE EPA'S REQUIREMENTS. NO WORK IS TO PROCEED UNTIL THE SWPPP AND THE NOI ARE SUBMITTED AND ACCEPTED BY THE OWNER AND THE ENGINEER.
2. THE CONTRACTOR SHALL SUBMIT, FOR REVIEW AND APPROVAL, A SCHEDULE TO INCLUDE ALL EARTHWORK ACTIVITIES IN ACCORDANCE WITH SECTION 01310 OF THE PROJECT MANUAL.
3. EXCAVATION AND EARTHWORK SHALL BE CONDUCTED IN A MANNER THAT WILL MINIMIZE EFFECTS OF EROSION THROUGHOUT CONSTRUCTION.
4. THE CONTRACTOR SHALL, TO THE EXTENT POSSIBLE, PHASE EARTH WORK ACTIVITIES SO THAT THE SMALLEST PRACTICAL LAND AREA IS EXPOSED AT ANY GIVEN TIME.
5. THE CONTRACTOR SHALL LOAM, SEED AND MULCH ALL CUT SLOPES IMMEDIATELY FOLLOWING FINAL GRADING. TEMPORARY SEEDING AND MULCH SHALL BE APPLIED AT ALL UNVEGETATED AREAS THAT WILL BE EXPOSED FOR A PERIOD EXCEEDING TWENTY (20) DAYS.
6. HAYBALES, SILT FENCING AND EROSION STONE SHALL BE INSTALLED WHERE NECESSARY TO MINIMIZE THE EFFECTS OF EROSION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ANY ADDITIONAL MEASURES THAT MAY BE REQUIRED WHERE NECESSARY TO OBTAIN THE OBJECTIVES DESCRIBED HEREIN. ALL WORK SHALL BE COMPLETED IN CONFORMANCE WITH THE LATEST EDITION OF "STORM WATER MANAGEMENT AND EROSION AND SEDIMENT CONTROL HANDBOOK FOR URBAN AND DEVELOPING AREAS IN NEW HAMPSHIRE." PREVENT THE DEGRADATION OF DOWNSTREAM PROPERTIES AND DRAINAGE.
7. DRAINAGE SWALES SHALL BE MONITORED AND MAINTAINED THROUGHOUT CONSTRUCTION. SILT SHALL BE PERIODICALLY REMOVED FROM SWALES AS NECESSARY TO PREVENT MIGRATION.
8. HAY BALE BARRIERS SHALL BE INSTALLED ALONG SWALES AT 100 FOOT INTERVALS, AROUND CATCH BASINS AND AT ALL AREAS WHERE STORMWATER OR TRENCHWATER ARE CONCENTRATED.
9. HAY BALE BARRIERS AND SEDIMENT TRAPS ARE TO BE MAINTAINED AND KEPT CLEAN UNTIL ALL EXPOSED AREAS HAVE A HEALTHY STAND OF GROUND COVER, AT WHICH TIME TEMPORARY MEASURES ARE TO BE REMOVED. CONTRACTOR IS RESPONSIBLE FOR PROPER DISPOSAL OF SILT AND TEMPORARY MATERIALS REMOVED.
10. DISTURBED AREAS SHALL BE LOAMED AND SEEDED. MINIMUM DEPTH OF LOAM SHALL BE 4 INCHES.
11. PROVIDE SEED (PARK MIXTURE), LIME, FERTILIZER AND MULCH PER SECTION 02935 OF THE PROJECT MANUAL.

CONSTRUCTION LAYOUT

1. MCENANEY SURVEY TO PROVIDE SURVEY CONTROL POINTS PRIOR TO CONSTRUCTION.

SURVEY NOTES (BELLAMY SITE PLAN)

1. BY MCENANEY SURVEY
2. REFERENCE: TAX MAP H, LOT 58
3. OWNER OF RECORD:

   CITY OF DOVER, NH
   288 CENTRAL AVENUE
   DOVER, NEW HAMPSHIRE 03820
   S.C.R.D. VOLUME 648, PAGE 271

   H / 58 – DENOTES TAX MAP AND PARCEL NUMBER.
4. THE ELEVATIONS AND EXISTING CONDITIONS DEPICTED ON THIS PLAN ARE THE RESULT OF ON THE GROUND FIELD SURVEY METHODS DURING APRIL 2018.
5. CONTOUR LINES SHOWN WITHIN THE BELLAMY RIVER ARE NOT REPRESENTATIVE OF THE RIVER BOTTOM, CONTOURS WERE GENERATED FROM RIVER BANK TOPOGRAPHIC SHOTS.
6. HORIZONTAL DATUM BASED ON NEW HAMPSHIRE STATE PLANE(2800) NAD83(2011) DERIVED FROM REDUNDANT GPS OBSERVATIONS UTILIZING THE KEYNET GPS VRS NETWORK.
7. VERTICAL DATUM IS BASED ON APPROXIMATE NGVD29(GEOID12A) (±.2') DERIVED FROM REDUNDANT GPS OBSERVATIONS UTILIZING THE KEYNET GPS VRS NETWORK.
8. WETLANDS AND I.D. FLAGS SHOWN WERE AS DELINEATED BY DAMON BURT, N.H.C.W.S. #163 OF FRAGGLE ROCK ENVIRONMENTAL SERVICES. FLAGS A1 THROUGH A22 DELINEATED MAY 7, 2017, AND FIELD LOCATED BY THIS OFFICE ON MAY 9, 2017. FLAGS A30 THROUGH A38 DELINEATED APRIL 27, 2018, AND FIELD LOCATED BY THIS OFFICE ON APRIL 30, 2018. FLAGS No. A1 AND A30 ARE THE COMMON CONNECTION POINT.

NO.	REVISIONS	APP'D

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APPROVAL By –
Date –
CONSTRUCTION By –
Date –
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Date –

Drawn/Chk MAH
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Project No. 2123
Dwg. ID 1889-gen notes
Scale AS SHOWN

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NOV. 2019

UNDERWOOD engineers
25 Vaughan Mall, Portsmouth, N.H. 03801
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GENERAL NOTES

WATER FACILITIES IMPROVEMENTS-PHASE 2
CONTRACT 4, BELLAMY RECHARGE FACILITY
CITY OF DOVER, NEW HAMPSHIRE

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DWG NO G2
SHEET 2 OF 15

LEGEND:

EXISTING	PROPOSED	
		STRUCTURES/BUILDINGS
		CITY GIS LOT LINE
		RIGHT OF WAY (SEE SURVEY NOTE#13)
		FLOOD LINE
		SHORELAND BUFFER/SETBACK
		PAVED ROAD/DRIVE
		VERTICAL GRANITE CURB
		GRAVEL ROAD/DRIVE/TRAIL
S		GRAVITY SEWER
XS		GRAVITY SEWER (PER PAINT MARKINGS)
FM		FORCE MAIN SEWER
W	W	WATER LINE
	RW	RAW WATER LINE
D	D	DRAIN LINE
		FITTING BENDS 90°/45°/22.5°/11.25°
		FITTING TEE
		THRUST BLOCK
		REDUCER
		COUPLING
G	G	GAS LINE
OHW		OVERHEAD WIRE
UGU	UGU	UNDERGROUND UTILITY
126	126	2' CONTOUR ELEVATION
130	130	10' CONTOUR ELEVATION
	126	SPOT ELEVATION
		STOCKADE FENCE
		CHAINLINK FENCE
		GUARDRAIL
		RETAINING WALL
		EDGE OF VEGETATION
		EDGE OF WETLAND
		WETLAND FLAG
		WETLANDS
		CONIFER TREE
		DECIDUOUS TREE
		BUSH
		BUSH LINE
		DRAINAGE DITCH
		CONCRETE
		RIP RAP
		GRAVEL / CRUSHED STONE
0043-A00000		CITY OF DOVER PARCEL ID
X ff=25.54		THRESHOLD ELEVATION
		CONCRETE/GRANITE BOUND
	I.P.F. I.R.F.	IRON PIPE – IRON ROD
	D.H.S.	DRILL HOLE SET (CONTROL POINT)
		LIGHT POLE
		LIGHT POLE (ONE ARM)
		LIGHT POLE (TWO ARM)
		GUY POLE
		GUY WIRE
	HH	HANDHOLE
	TB	TELEPHONE BOX
	T	TELEPHONE MANOLE
		TRAFFIC SIGNAL
		TRAFFIC SIGNAL MAST ARM POLE

EXISTING	PROPOSED	
		UTILITY POLE
		UTILITY POLE W/ LIGHTS
		FLARED END SECTION
GM		GAS METER
E		ELECTRIC BOX
SWL		SINGLE WHITE LINE
DYL		DOUBLE YELLOW LINE
		SIGN
		BOLLARD
M		MANHOLE MISC.
		ROAD REFLECTOR POST
		PIPE
		POST
W		WELL
		HYDRANT
		WATER SHUT-OFF
WV		WATER VALVE
ICV		IRRIGATION CONTROL VALVE
S		SEWER MANHOLE
		CATCH BASIN SQUARE
		CATCH BASIN ROUND
		DROP INLET
D		DRAIN MANHOLE
GV		GAS VALVE
AC		AIR CONDITION UNIT
		MAILBOX
MW		MONITORING WELL
typ.		TYPICAL
i.r.s.		IRON ROD SET
swl		EDGE OF PAVEMENT
syl		SINGLE WHITE LINE
dyl		SINGLE YELLOW LINE
dswl		DOUBLE YELLOW LINE
		DASHED SINGLE WHITE LINE
vgc		VERTICAL GRANITE CURB
sgc		SLOPED GRANITE CURB
		DEMOLITION
		TEST PIT
B-401		BORING

NOTE:

1. THIS IS A STANDARD LEGEND SHEET, THEREFORE SOME ABBREVIATIONS MAY APPEAR ON THIS SHEET AND NOT ON THE DRAWINGS.

ABBREVIATIONS:

AB	ABANDONED	PO	POLYMER SOLUTION
AER	AEROBIC (AERATION)	PP	POTASSIUM PERMANGANATE
AVE	ABOVE FINISHED FLOOR	PS	PRIMARY SLUDGE
ALUM	ALUMINUM	PSF	POUNDS PER SQUARE FOOT
AN	ANAEROBIC	PSI	POUNDS PER SQUARE INCH
APPROX	APPROXIMATE	PSNH	PUBLIC SERVICE OF NEW HAMPSHIRE
ARCH	ARCHITECTURAL	PT	PRESSURE TREATED
AVG	AVERAGE	PVC	POLYVINYL CHLORIDE
AX	ANOXIC	PVCL	PVC CHLORINE LINE (VACUUM TUBE CASING)
BFP	BACKFLOW PREVENTOR	PVCU	PVC UNDERDRAIN
BIT	BITUMINOUS	PVDR	PVC DRAIN RETURN
BL	BASELINE	PVMT	PAVEMENT
BLDG	BUILDING	PVSA	PVC SAMPLE LINE
CB	CATCH BASIN	PVSL	PVC SUCTION LINE
CCT	CHLORINE CONTACT TANK	PW	PLANT WATER
CF	CUBIC FEET	PYCL	POLYETHYLENE CHLORINE LINE (VACUUM TUBING CASING)
CFS	CUBIC FEET PER SECOND	R (RAD)	RADIUS
CI	CAST IRON PIPE	RAS	RETURN ACTIVATED SLUDGE
CL	CENTERLINE	RCP	REINFORCED CONCRETE PIPE
CL2	CHLORINE LINE	RD	ROOF DRAIN
CMH	CHEMICAL MANHOLE	RD	ROAD
CMP	CORRUGATED METAL PIPE	REM	REMOVE
CONC	CONCRETE	R&D	REMOVE AND DISPOSE
CONST	CONSTRUCT	R&R	REMOVE AND REPLACE
CONT	CONTINUOUS, CONTINUATION	R&S	REMOVE AND SALVAGE
CP	POST CHLORINE PIPE	REF	REFER OR REFERENCE
CRA	CHLORINE RESIDUAL ANALYZER	REQD	REQUIRED
CS	CAUSTIC SODA	RS	RAW SEWAGE
D	DRAIN	ROW	RIGHT OF WAY
DI	DUCTILE IRON	S	MUNICIPAL SEWER
DIA	DIAMETER	S	SLOPE
DIP	DUCTILE IRON PIPE	SA	SAMPLE LINE
DMH	DRAIN MANHOLE	SB	SODIUM BISULFITE
DN	DOWN	SC	SCUM
DO	DISSOLVED OXYGEN	SCH	SCHEDULE
EL	ELEVATION	SD	SUMP DISCHARGE
ELEC	ELECTRIC	SE	SECONDARY EFFLUENT
EMER	EMERGENCY	SED	SEDIMENTATION
ENGR	ENGINEER	SEP	SEPTAGE
ENT	ENTRANCE	SEW	SEWAGE
EOP	EDGE OF PAVEMENT	SF	SQUARE FEET
EXIST	EXISTING	SHC	SODIUM HYPOCHLORITE
FDN	FOUNDATION	SHD	SODIUM HYDROXIDE
FF	FINISHED FLOOR	SHT	SHEET
FG	FINISHED GRADE	SI	SECONDARY INFLUENT
FLG	FLANGE	SMH	SEWER MANHOLE
FM	FORCE MAIN	S.S.	STAINLESS STEEL
FT	FOOT OR FEET	SQ	SQUARE
GALV	GALVANIZED	ST	STEEL
GAS	PROPANE GAS	STA	STATION
G.C.	GENERAL CONTRACTOR	STD	STANDARD
GEN	GENERATOR	STRS	STAIRS
GHWC	GAS & HOT WATER CONDUIT	STRUCT	STRUCTURAL
GND	GROUND	SUP	SUPERNATANT
GPM	GALLONS PER MINUTE	SW	SEAL WATER
GRD	GRIT DISCHARGE	SYMM	SYMMETRICAL
GRO	GRIT OVERFLOW	TBM	TEMPORARY BENCH MARK
HDPE	HIGH DENSITY POLYETHYLENE	TD	TANK DRAIN
HPS	HIGH PRESSURE SODIUM	TEMP	TEMPORARY
HW	HEADWATER	THK	THICKNESS
HWR	HOT WATER RETURN	TOC	TOP OF CONCRETE
HWS	HOT WATER SUPPLY	TOW	TOP OF WALL
IN	INCH	TRANS	TRANSFORMER
INV	INVERT ELEVATION	TWAS	THICKENED WASTE ACTIVATED SLUDGE
LB	POUND	TYP	TYPICAL
LF	LINEAR FEET	UNO	UNLESS NOTED OTHERWISE
LGT	LIGHT	V	VOLTS
LPA	LOW PRESSURE AIR	VIF	VERIFY IN FIELD
MANUF	MANUFACTURER	VC	VERTICAL CURVE
MGD	MILLION GALLONS PER DAY	VCD	VC DRAIN
MH	MANHOLE	VCP	VITRIFIED CLAY PIPE
MJ	MECHANICAL JOINT	VERT	VERTICAL
MON	MONUMENT	W	WATER
MW	MUNICIPAL WATER	WAS	WASTE ACTIVATED SLUDGE
NA	NOT APPLICABLE	WD	WOOD
NGVD	NATIONAL GEODETIC VERTICAL DATUM	WI	WROUGHT IRON
N/F	NOW OR FORMERLY	W/	WITH
NO.	NUMBER	(E)	EAST
OC	ODOR CONTROL	(N)	NORTH
OD	OUTSIDE DIAMETER	(S)	SOUTH
OS	OUTLET STRUCTURE	(W)	WEST
PB	PRIMARY BYPASS	@	AT (SPACING)
PCF	POUNDS PER CUBIC FOOT	ø	DIAMETER
PL	PROPERTY LINE	#	NUMBER
PLE	PLANT EFFLUENT	℄	CENTER LINE
		&	AND

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	CONSTRUCTION By – Date –	
	APPROVAL By – Date –	
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Drawn/Chk MAH
Designed LJS
Checked TGP
Approved –
Date 11/19/2019
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Dwg. ID 2123-gen notes
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NOV. 2019

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25 Vaughan Mall, Portsmouth, N.H. 03801
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LEGEND AND ABBREVIATIONS

WATER FACILITIES IMPROVEMENTS-PHASE 2
CONTRACT 4, BELLAMY RECHARGE FACILITY
CITY OF DOVER, NEW HAMPSHIRE

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DWG NO G3

SHEET 3 OF 15

NOTES:

1. RECHARGE BASINS NORTH 1 & SOUTH 2 ARE EXISTING.

PROPOSED INTAKE
EXISTING BELLAMY RECHARGE STATION (TO BE DEMOLISHED)
PROPOSED CONTROL BUILDING
SEE DRAWINGS C2 & C3
50' SHORELAND SETBACK
150' SHORELAND SETBACK
250' SHORELAND SETBACK
100 YEAR FLOOD PLAIN
AGGREGATE PUMP STATION
BELLAMY RIVER
EXISTING IRELAND WELL PUMP STATION
100' EVERSOURCE EASEMENT
NORTH RECHARGE BASIN
SEE DRAWING C5
IRELAND WELL 400' SPA
DPH-1 WELL
DPH-1 400' SPA
SOUTH RECHARGE BASIN
SEE DRAWING C4
COMMUNICATIONS TOWER
cemetery
STONEWALL DRIVE
CITY OF DOVER
TOWN OF MADBURY

H0062-000000
CANDIA SOUTH BRANCH BROOK HOLDINGS, LLC
P.O. BOX 410
CANDIA, NH 03034
4211/934

H0060-000000
CANDIA SOUTH BRANCH BROOK HOLDINGS, LLC
P.O. BOX 410
CANDIA, NH 03034
4211/934

H0060-A00000
CANDIA SOUTH BRANCH BROOK HOLDINGS, LLC
P.O. BOX 410
CANDIA, NH 03034

H0061-000000
CANDIA SOUTH BRANCH BROOK HOLDINGS, LLC
P.O. BOX 410
CANDIA, NH 03034
3923/904

H0059-000000
CANDIA SOUTH BRANCH BROOK HOLDINGS, LLC
P.O. BOX 410
CANDIA, NH 03034
3023/904

H0056-000000
CITY OF DOVER,
288 CENTRAL AVENUE
DOVER, NH 03820
2768/421

H0055-000000
MACLEAN SANDY F &,
GARRISON KAREN M
180 PISCATAQUA RD
DURHAM, NH 03824
3743/448

H0058-000LS2
CITY OF DOVER
288 CENTRAL AVE.
DOVER, NH 03820
2768/421

H0053-000000
H53 MAST ROAD, LLC
340 CENTRAL AVENUE,
SUITE 202
DOVER, NH 03820
4216/0317

100 0 100 200
SCALE: 1 INCH = 100 FT.

16°

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CONSTRUCTION	Date	–	By	–			
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Designed LdS
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Approved –
Date 11/19/2019
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Project No. 2123
Dwg. ID 2123-BELLAMY
Scale AS SHOWN

60% DESIGN SUBMITTAL
NOV. 2019

UNDERWOOD engineers
25 Vaughan Mall, Portsmouth, N.H. 03801
Tel. 603-436-6192 Fax. 603-431-4733

BELLAMY RECHARGE FACILITY
OVERALL SITE PLAN

WATER FACILITIES IMPROVEMENTS-PHASE 2
CONTRACT 4, BELLAMY RECHARGE FACILITY

CITY OF DOVER, NEW HAMPSHIRE

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DWG NO C1

SHEET 4 OF 15

N/F
LILAC GARDEN LLC
21 CONTINENTAL BLVD STE 101
MERRIMACK NH 03054
H0035–D00000

100 YEAR FLOOD PLAIN

50' SHORELAND SETBACK

LIMIT OF CLEARING (TYP.)

400' SANITARY PROTECTIVE RADIUS – IRELAND WELL

existing intake pool

36" culvert top of pipe el.=79.8 (out) el.=78.6 (in)

NOTE 1

DEMOLISH EXISTING PIER

DEMOLISH EXISTING PIPING TO EDGE OF POOL

DEMOLISH EXISTING PUMPING STATION AND FENCING

150' SHORELAND SETBACK

existing gravel road

BELLAMY RIVER

ALL TREES TO BE CLEARED IN THIS AREA

250' SHORELAND SETBACK

WETLANDS DELINEATION

H0058–000LS2
CITY OF DOVER
288 CENTRAL AVE.
DOVER, NH 03820
2768/421

existing gravel road

existing gravel road

EXISTING 8" SPOOL – TO BE REMOVED & PROVIDED TO THE CITY

existing ireland well pumping station

existing gravel access road

existing ireland well

16'

MAGNETIC

SCALE: 1 INCH = 20 FT.

NOTES:

1. EXISTING INTAKE PIPE TO BE LOCATED AND CAPPED AT EXISTING INTAKE POOL AND AT EXISTING BUILDING ENTRANCE.
2. ALL NOTES ON SITE PLAN DRAWING C5 APPLY TO THIS SHEET.

NOTE: WETLANDS DELINEATED BY DAMON BURT, CWS, CPESC, FRAGGLE ROCK ENVIRONMENTAL, STRAFFORD, NH, MAY 2017.

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BELLAMY RECHARGE FACILITY
EXISTING CONDITIONS & DEMO PLAN

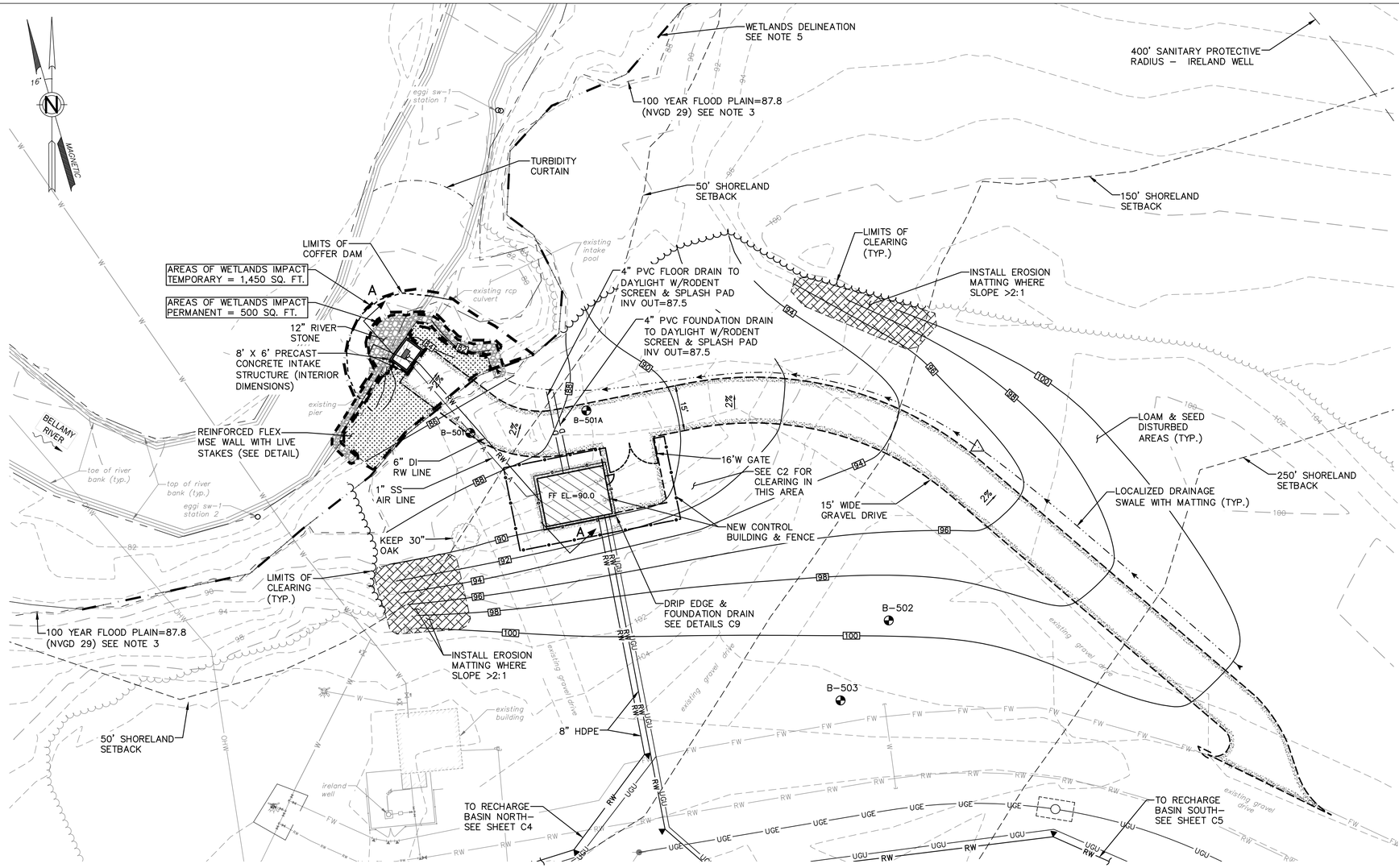
WATER FACILITIES IMPROVEMENTS–PHASE 2
CONTRACT 4, BELLAMY RECHARGE FACILITY

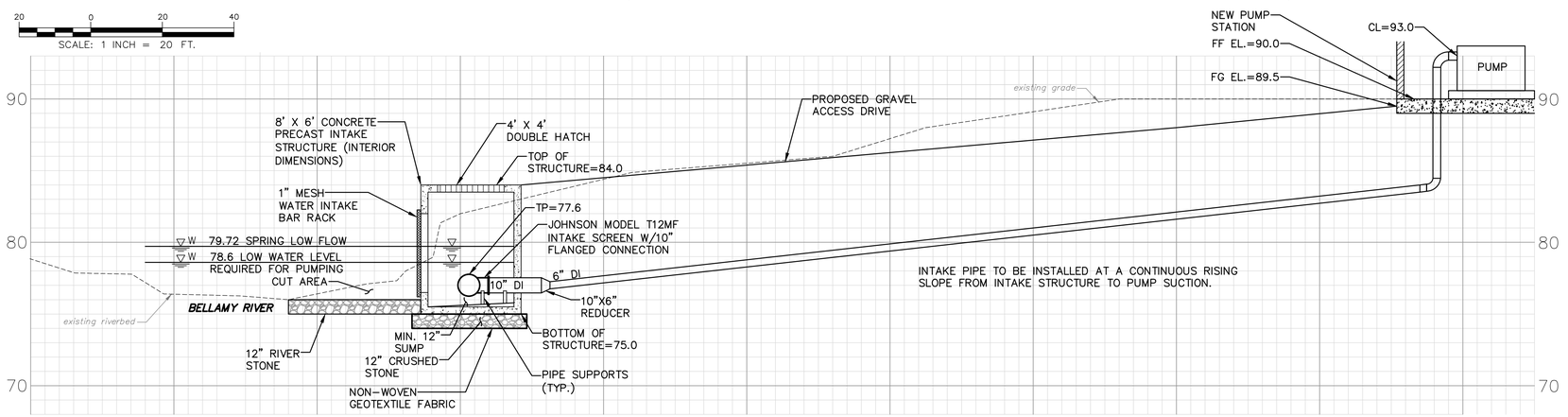
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DWG NO C2

SHEET 5 OF 15





SECTION A–A INTAKE STRUCTURE DETAIL SCALE: 1" = 5'

CONSTRUCTION SEQUENCE

1. ALL BMPS TO BE IN PLACE PRIOR TO WORK. CONTRACTOR SHALL SUBMIT EROSION CONTROL PLAN FOR REVIEW AND APPROVAL BY OWNER AND ENGINEER PRIOR TO ANY DISTURBANCE.
2. CONTRACTOR TO INSTALL TEMPORARY COFFERDAM TO LIMITS SHOWN. APPROPRIATE TURBIDITY CONTROLS SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
3. WORK WITHIN THE COFFERDAM SHALL BE DONE DURING PERIODS OF LOW FLOW. THE CONTRACTOR IS RESPONSIBLE FOR MONITORING WEATHER CONDITIONS TO AVOID WORKING DURING OR AFTER RAIN EVENTS.
4. SHEETING/SHORING TO BE INSTALLED AS NESSARY TO COMPLETE THIS WORK.
5. IF DEWATERING OF THE EXCAVATION IS REQUIRED DURING EXCAVATION WORK, THE DEWATERING PUMP SHALL DISCHARGE TO A SEDIMENT TRAP IN AN UPLAND AREA, WHICH SHALL BE A SILT SACK OR A SEDIMENT BASIN CONSTRUCTED FROM HAYBALES AND SILT FENCE, WHICH SHALL DISCHARGE OVERLAND PRIOR TO DISCHARGE TO THE RIVER. THE SEDIMENT TRAP SHALL BE IN PLACE PRIOR TO EXCAVATION WITHIN THE WETLANDS AREA.
6. DREDGED MATERIAL SHALL BE DEWATERED IN SEDIMENTATION BASINS LOCATED IN UPLAND AREAS, PRIOR TO STOCKPILING OR DISPOSAL.
7. ENTIRE DISTURBED AREA TO BE STABILIZED IMMEDIATELY AFTER WORK IN THE AREA IS COMPLETED.
8. THE TEMPORARY COFFERDAM AND TURBIDITY CONTROL SHALL BE REMOVED WITHIN 2 DAYS AFTER WORK WITHIN THE COFFERDAM IS COMPLETED, THE SUSPENDED PARTICLES HAVE SETTLED, AND THE WATER HAS RETURNED TO NORMAL CLARITY.
9. DISTURBED AREA SHALL BE REVEGETATED WITH NATIVE SPECIES WITHIN 3 DAYS OF STABILIZATION.
10. ALL EROSION CONTROL MATTING AND STABILIZATION PRODUCTS SHALL BE WILDLIFE FRIENDLY, WITHOUT SYNTHETIC NETTING OR THREAD, AS REQUIRED BY NH FISH & GAME. PRODUCTS TO BE SUBMITTED FOR SHOP DRAWING APPROVAL BY THE ENGINEER PRIOR TO USE.

NOTES:

1. CONTRACTOR SHALL INSTRUCT ALL WORKERS ONSITE TO BE AWARE OF THE POSSIBLE PRESENCE OF THE NORTHERN BLACK RACER SNAKE. THE CONTRACTOR SHALL PROVIDE INFORMATION ABOUT THE BLACK RACER TO ALL WORKERS, INCLUDING SUBCONTRACTORS. IF NORTHERN BLACK RACER ARE SEEN AT ANY TIME, PLEASE PHOTODOCUMENT WITH DATE, LOCATION, AND HABITAT TYPE AND SUBMIT TO WILDLIFE SIGHTINGS OR RAARP.
2. 100 YEAR FLOOD ELEVATION OF 87.05 FEET AMSL (NAVD 88) WAS INTERPOLATED FROM DATA ON FEMA FLOOD MAPS BY ASSUMING CONSTANT SLOPE BETWEEN AVAILABLE CROSS SECTIONS. THE ELEVATION WAS CONVERTED TO NGVD 29 TO MATCH THE PLANS FOR A FLOOD ELEVATION OF 87.8 FEET.
3. THE SHORELAND REFERENCE LINE IS DEFINED BY NHDES AS THE ORDINARY HIGH WATER MARK. THE TOP OF THE RIVER BANK IS USED ON THESE DRAWINGS AS A CONSERVATIVE SHORELAND REFERENCE LINE. SETBACK DISTANCES ARE BASED OFF THE TOP OF THE RIVER BANK.
4. WETLANDS AND I.D. FLAGS SHOWN WERE AS DELINEATED BY DAMON BURT, N.H.C.W.S. #163 OF FRAGGLE ROCK ENVIRONMENTAL SERVICES.
5. CONTRACTOR TO PROVIDE & INSTALL SHEETING AS NEEDED TO COMPLETE THE WORK.

STREAM BED RESTORATION NOTES:

1. RESTORE ALL DISTURBED STREAM BED AREAS TO NATURAL STATE USING EXISTING RIVER STONE.
2. MIMIC SURROUNDING SURFACE CHARACTERISTICS WITH STONES AND NATIVE GRANULAR MATERIAL.

INTAKE STRUCTURE BASIS OF DESIGN:

FLOW	=	800 GPM
STYLE	=	PASSIVE INTAKE SCREEN WITH HYDROBURST, JOHNSON SCREENS OR EQUAL
INTAKE VELOCITY	=	0.5 FEET PER SECOND OR LESS AS REQUIRED BY THE NEW HAMPSHIRE FISH & GAME TO AVOID IMPINGEMENT OF ANGUILLIFORM SWIMMERS
PUMP SCREEN OPENING	=	0.1" SLOTS
BAR RACK	=	1" OPENINGS

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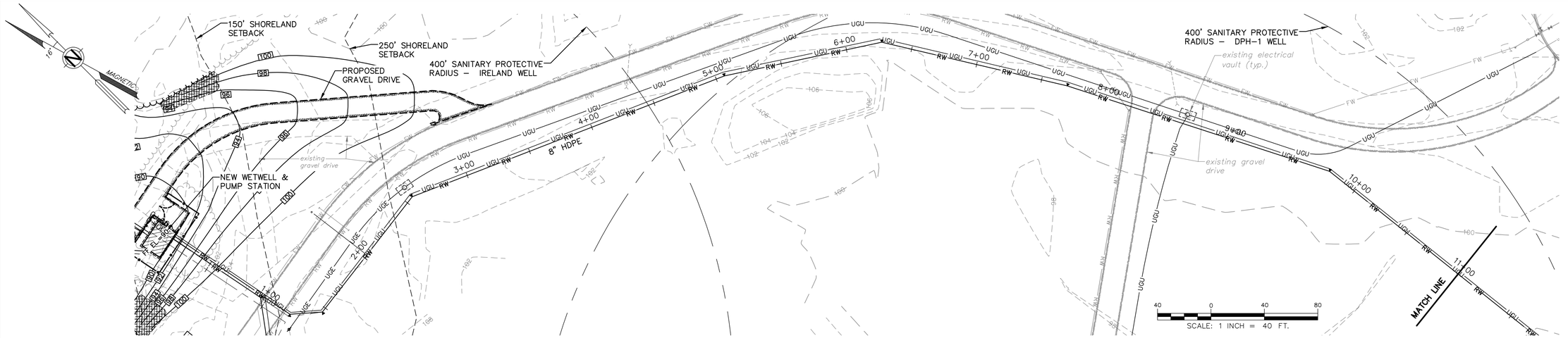
BELLAMY RECHARGE FACILITY
SITE PLAN

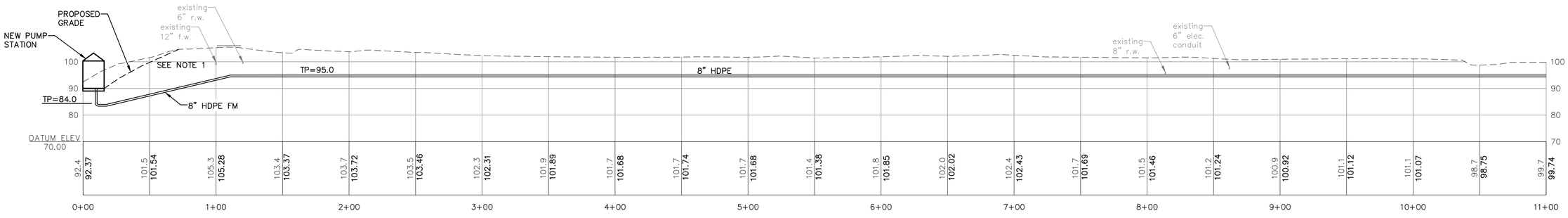
WATER FACILITIES IMPROVEMENTS–PHASE 2
CONTRACT 4, BELLAMY RECHARGE FACILITY

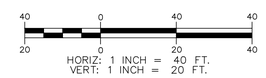
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DWG NO C3
SHEET 6 OF 15

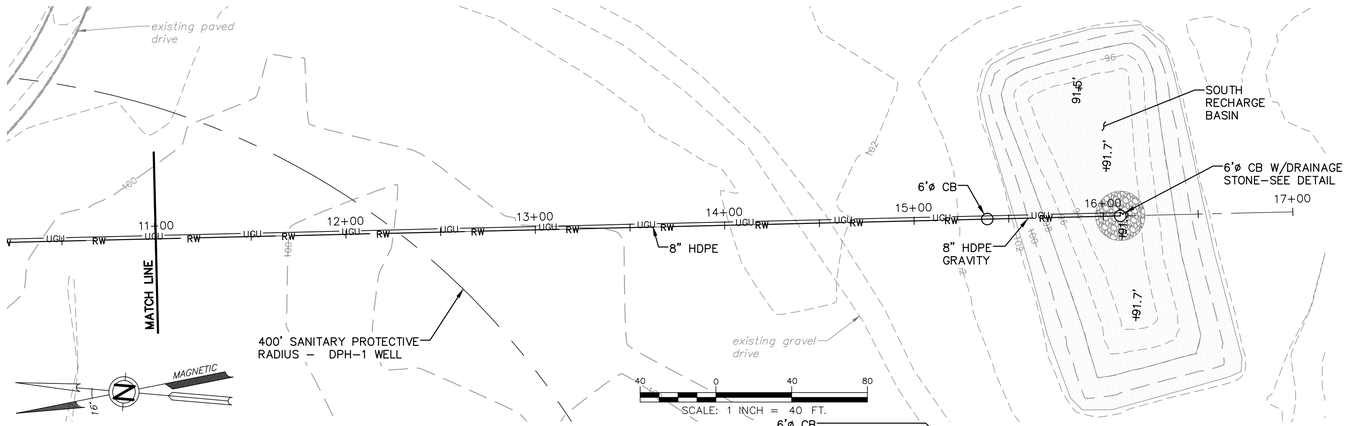


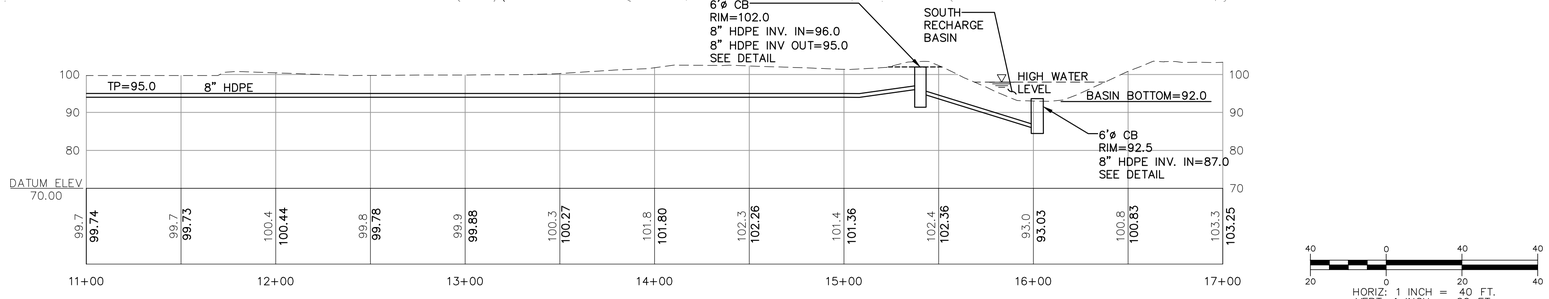




NOTES:

1. ASSUME 5.5' OF COVER ON EXISTING WATERMAINS.





ISSUE FOR						
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CONSTRUCTION	Date	–	By	–		
RECORD DRAWING	Date	–	By	–		

NO.	REVISIONS	APP'D

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BELLAMY RECHARGE FACILITY
SOUTH RECHARGE BASIN PLAN & PROFILE

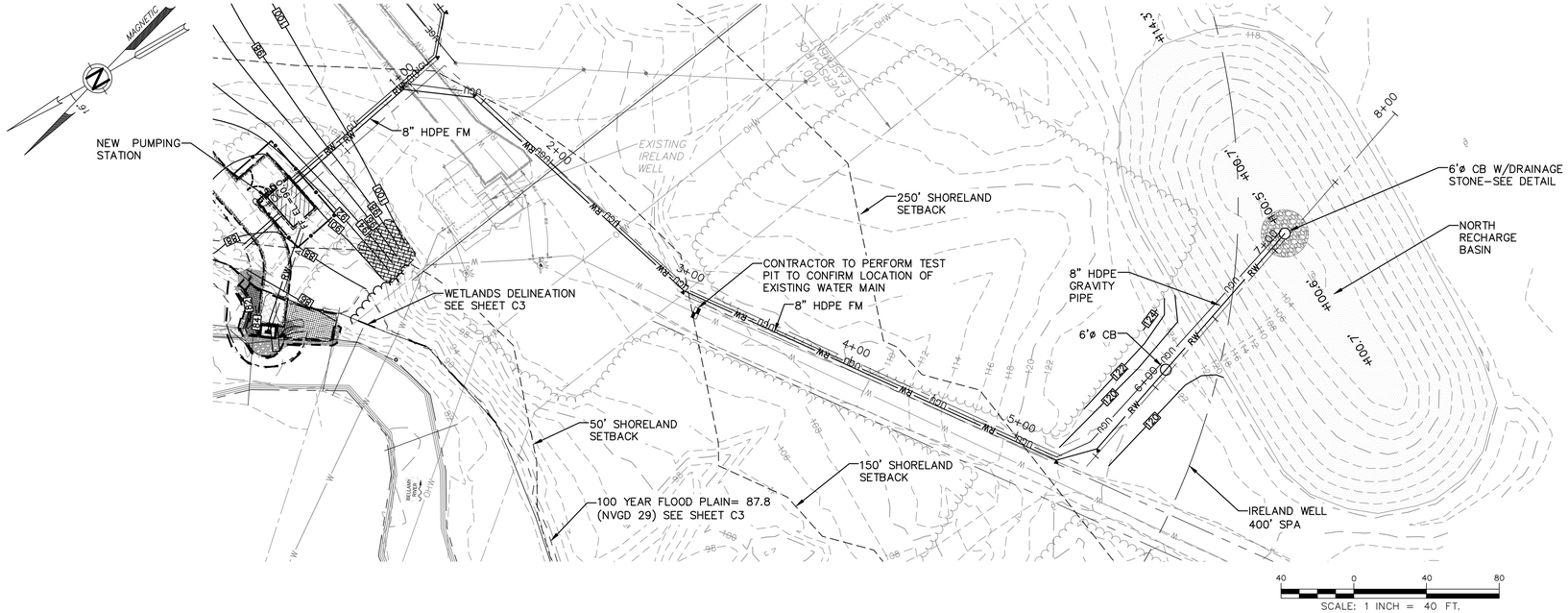
WATER FACILITIES IMPROVEMENTS–PHASE 2
CONTRACT 4, BELLAMY RECHARGE FACILITY

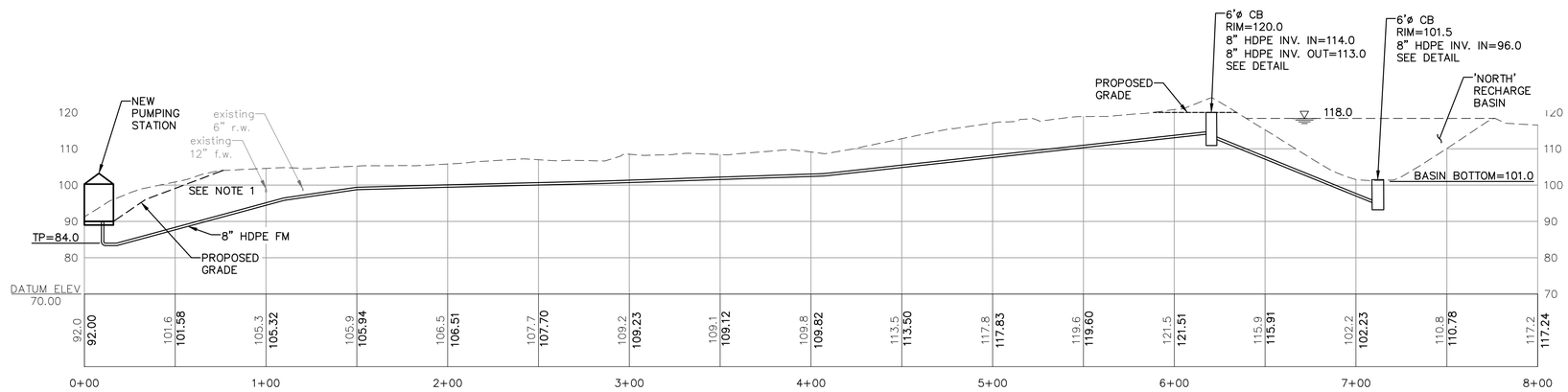
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DWG NO C4

SHEET 7 OF 15





NOTES:

1. ASSUME 5.5' OF COVER ON EXISTING WATERMAINS.

ISSUE FOR
APPROVAL Date _ By _
CONSTRUCTION Date _ By _
RECORD DRAWING Date _ By _

NO.	REVISIONS	APP'D

Drawn/Chk. MAH
Designed LdS
Checked TGP
Approved _
Date 11/19/2019
Book No. _
Project No. 2123
Dwg. ID 2123-BELLMAY
Scale AS SHOWN

60% DESIGN SUBMITTAL
NOV. 2019

UNDERWOOD engineers
25 Vaughan Mall, Portsmouth, N.H. 03801
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BELLAMY RECHARGE FACILITY
RECHARGE BASIN 1 PLAN & PROFILE

WATER FACILITIES IMPROVEMENTS-PHASE 2
CONTRACT 4, BELLAMY RECHARGE FACILITY

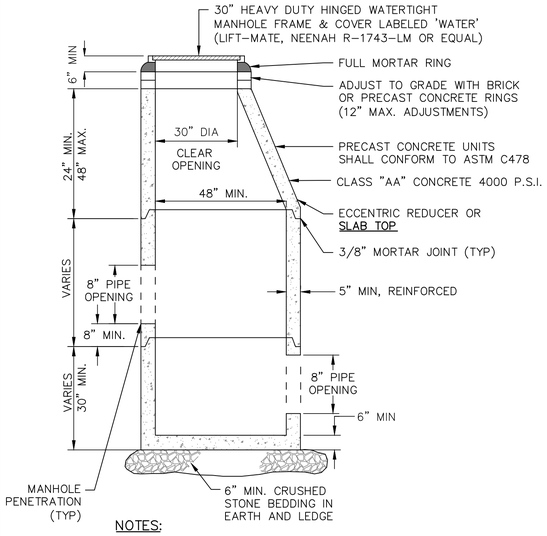
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DWG NO C5
SHEET 8 OF 15

STANDARD DRAIN MANHOLE NOTES:

1. IT IS THE INTENTION: THAT THE MANHOLE, INCLUDING ALL COMPONENT PARTS, HAVE ADEQUATE SPACE AND STRENGTH CONSIDERED NECESSARY BY THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION (NHDOT) FOR THE INTENDED SERVICE. SPACE REQUIREMENTS AND CONFIGURATIONS SHALL BE AS SHOWN ON THE DRAWING. MANHOLES MAY BE AN ASSEMBLY OF PRECAST SECTIONS WITH STEEL REINFORCEMENT, AS SPECIFIED IN SPECIFICATION SECTION 02431. THE COMPLETE STRUCTURE SHALL BE OF SUCH MATERIAL AND QUALITY AS TO WITHSTAND LOADS OF 8 TONS (H-20 LOADING) WITHOUT FAILURE.
2. PRECAST CONCRETE: BARREL SECTIONS, CONES, AND BASES SHALL CONFORM TO SPECIFICATION SECTION 02431.
3. FRAMES AND COVERS: DRAIN MANHOLE FRAMES AND COVERS SHALL BE OF HEAVY DUTY DESIGN AND PROVIDE A 30-INCH CLEAR OPENING. 3-INCH (MINIMUM HEIGHT) LETTERS STATING "DRAIN" SHALL BE PLAINLY CAST INTO THE CENTER OF EACH COVER.
4. BEDDING: SEE DETAIL AND SPECIFICATION SECTION 02229. WHERE ORDERED BY THE ENGINEER TO STABILIZE THE BASE, CRUSHED STONE 1-1/2 INCH TO 1/2 INCH SHALL BE USED.
5. SHALLOW MANHOLE: IN LIEU OF A CONE SECTION, WHEN MANHOLE IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER HAVING AN ECCENTRIC ENTRANCE AND CAPABLE OF SUPPORTING H-20 LOADS MAY BE USED, AS APPROVED BY THE ENGINEER.
6. SPECIFICATIONS: ADDITIONAL CONSTRUCTION SPECIFICATIONS ARE INCLUDED IN THE PROJECT MANUAL. THESE STANDARD MANHOLE DRAWINGS ARE NOT COMPLETE WITHOUT THESE SPECIFICATIONS.



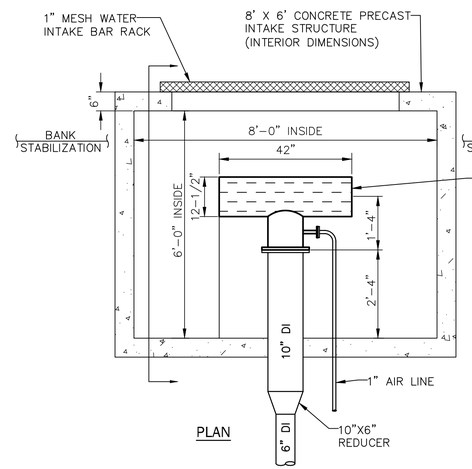
NOTES:

1. ENTIRE STRUCTURE TO BE REINFORCED FOR H-20 LOADING.

TYPICAL DRAINAGE MANHOLE

NOT TO SCALE

UE

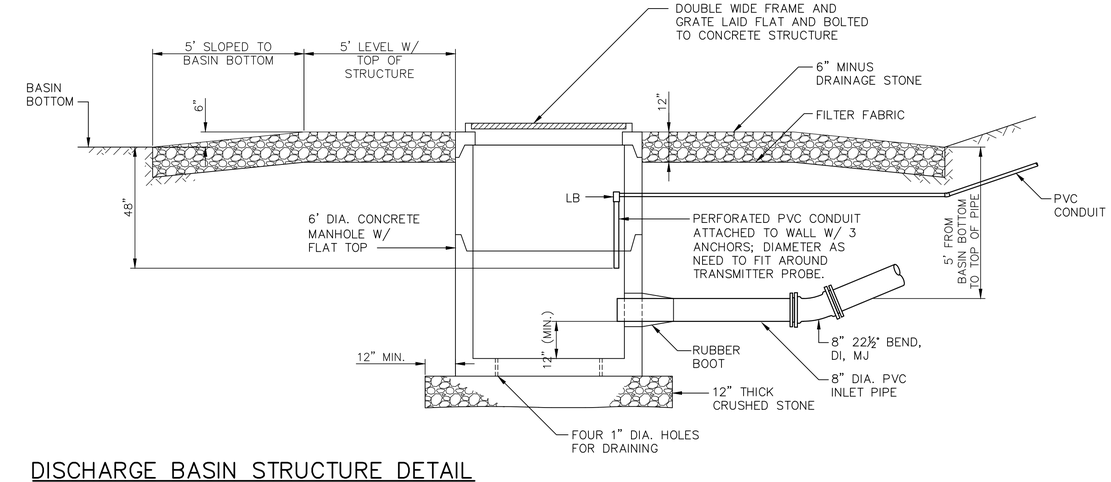


INTAKE STRUCTURE DETAIL

NOT TO SCALE

BAR RACK DETAIL

NOT TO SCALE



DISCHARGE BASIN STRUCTURE DETAIL

NOT TO SCALE

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RECHARGE DETAILS

WATER FACILITIES IMPROVEMENTS-PHASE 2
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DWG NO C6

SHEET 9 OF 15

NOTES:

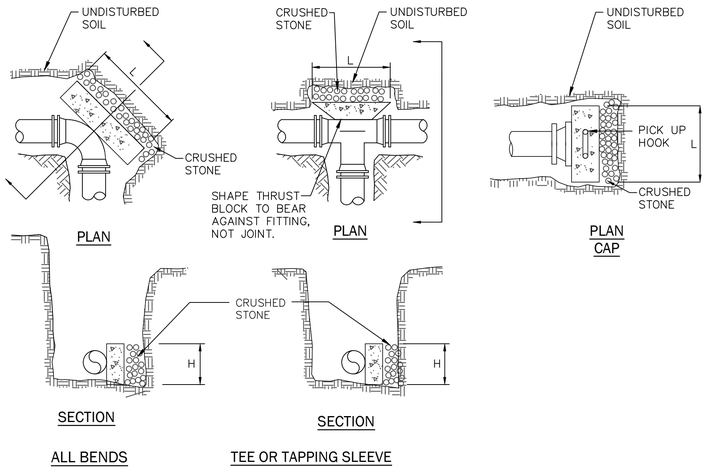
1. ALL THRUST BLOCKS SHALL BE PRE-CAST CONCRETE.
2. THE MINIMUM BEARING AREAS SHOWN IN THE THRUST BLOCK SCHEDULE ARE BASED ON A SYSTEM PRESSURE OF 100 PSI. IF THE SYSTEM PRESSURE IS ABOVE 100 PSI, INCREASE THE NOTED AREAS PROPORTIONAL TO THE ACTUAL SYSTEM PRESSURE. FOR EXAMPLE, IF THE ACTUAL SYSTEM PRESSURE IS 160 PSI, MULTIPLY THE ABOVE VALUES BY 160%.
3. SELECT THRUST BLOCKS SUCH THAT THE LENGTH (L) OF THE BLOCK IS APPROX. TWICE AS LONG AS THE DEPTH (H).
4. PLACE CRUSHED STONE BEHIND THRUST BLOCKS AGAINST UNDISTURBED SOIL.
5. PLACE THRUST BLOCKS ALONG THE FULL LENGTH OF THE FITTING TO MAXIMIZE BEARING AREA.
6. PLACE 2 LAYERS OF POLYETHYLENE OR ROOFING PAPER AROUND FITTINGS AS PROTECTION AGAINST DAMAGE FROM CONCRETE BLOCK.
7. PLACE A 12" LONG STEEL HORSESHOE-SHAPED PICKUP HOOK IN ALL PLUG AND CAP THRUST BLOCKS. DIAMETER OF HOOK SHALL BE A MINIMUM OF 5/8".
8. COAT ALL THREADED RODS, NUTS, AND BOLTS WITH BITUMINOUS PAINT.
9. PLACE ANTI-SEIZE LUBRICANT ON ALL BOLTS.
10. CONCRETE COMPRESSIVE STRENGTH: 2,000 PSI MINIMUM.
11. USE OF THRUST BLOCKS DOES NOT ELIMINATE THE REQUIREMENT OF OTHER RESTRAINTS. ALL VALVES AND FITTINGS SHALL BE RESTRAINED MJ.

THRUST BLOCK SCHEDULE

MINIMUM BEARING AREA (SQUARE FEET)

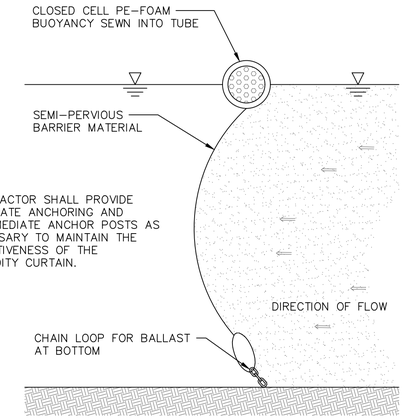
Nominal Dia. (in)	PIPE SIZE 4	6	8	10	12	16
Tees, Caps, Plugs, & Tapping Sleeves	1.05	2.32	4.15	6.37	9.15	16.23
90 Degree Bends	1.48	3.29	5.86	9.01	12.93	22.96
45 Degree Bends	0.80	1.78	3.17	4.88	7.00	12.42
22-1/2 Degree Bends	0.41	0.91	1.62	2.49	3.57	6.33
11-1/4 Degree Bends	0.21	0.46	0.81	1.25	1.79	3.18

System Pressure: 100 psi
Safety Factor: 1.5
Soil Bearing Capacity: 2,000 psf



PRECAST CONCRETE THRUST BLOCKS AND ANCHORS

NOT TO SCALE

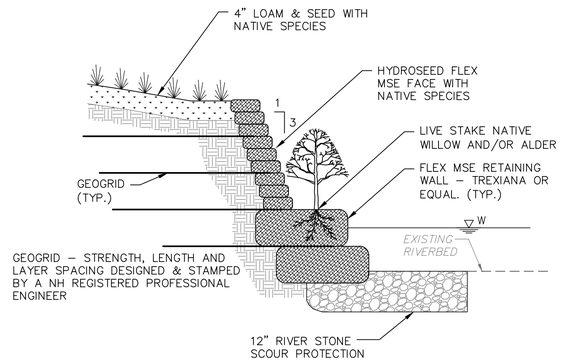


NOTES:

1. CONTRACTOR SHALL PROVIDE ADEQUATE ANCHORING AND INTERMEDIATE ANCHOR POSTS AS NECESSARY TO MAINTAIN THE EFFECTIVENESS OF THE TURBIDITY CURTAIN.

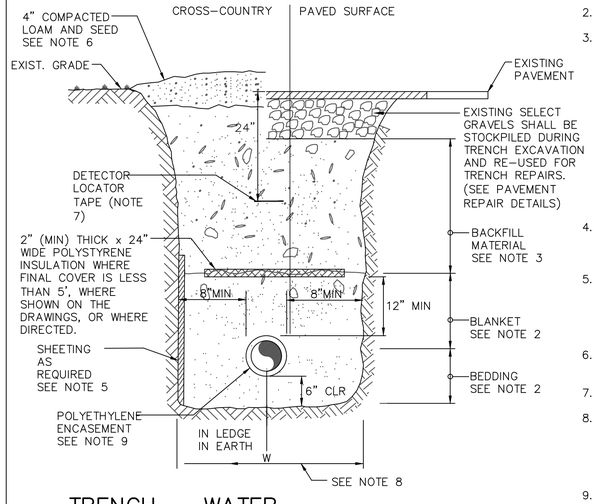
TURBIDITY CURTAIN

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FLEX MSE RETAINING WALL

NOT TO SCALE UE



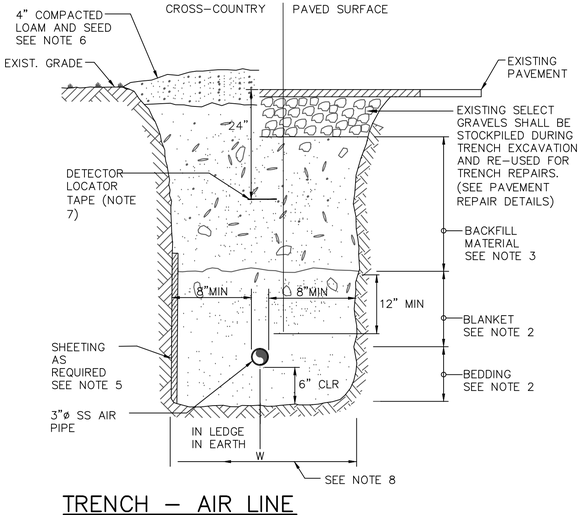
TRENCH - WATER

NOT TO SCALE

WATER TRENCH NOTES:

1. ORDERED EXCAVATION OF UNSUITABLE MATERIAL BELOW GRADE: BACKFILL AS STATED IN THE TECHNICAL SPECIFICATIONS OR AS SHOWN ON THE DRAWINGS.
2. BEDDING AND BLANKET: CLEAN SAND FREE FROM ORGANIC MATTER (SECTION 02200).
3. BACKFILL MATERIAL: IN ROADS, ROAD SHOULDERS, WALKWAYS AND TRAVELED WAYS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING THE COURSE OF CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS; PIECES OF PAVEMENT; ORGANIC MATTER; TOP SOIL; ALL WET OR SOFT MUCK, PEAT, OR CLAY; ALL EXCAVATED LEDGE MATERIAL; ALL ROCKS OVER 6 INCHES IN LARGEST DIMENSION; AND ANY MATERIAL WHICH, AS DETERMINED BY THE ENGINEER, WILL NOT PROVIDE SUFFICIENT SUPPORT OR MAINTAIN THE COMPLETED CONSTRUCTION IN A STABLE CONDITION.

   IN CROSS-COUNTRY CONSTRUCTION, SUITABLE MATERIAL SHALL BE AS DESCRIBED ABOVE, EXCEPT THAT THE ENGINEER MAY PERMIT THE USE OF TOP SOIL, LOAM, MUCK, OR PEAT, IF ENGINEER IS SATISFIED THAT THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE AND PROVIDED THAT EASY ACCESS TO THE PIPE LINE, FOR MAINTENANCE AND POSSIBLY RECONSTRUCTION, WILL BE PRESERVED.
4. MINIMUM COVER NOT LESS THAN 5 FEET, AND TO AVOID EXISTING AND PROPOSED STRUCTURES. PIPE TO BE DEEPER THAN 5' IF NECESSARY TO AVOID CONFLICTS WITH EXISTING AND PROPOSED DRAINAGE OR OTHER UTILITIES.
5. SHEETING, IF REQUIRED: WHERE SHEETING IS PLACED ALONGSIDE THE PIPE AND EXTENDS BELOW MID-DIAMETER, IT SHALL BE CUT OFF AND LEFT IN PLACE TO AN ELEVATION 1 FOOT ABOVE THE TOP OF PIPE. WHERE SHEETING IS ORDERED BY THE ENGINEER TO BE LEFT IN PLACE, IT SHALL BE CUT OFF AT LEAST 3 FEET BELOW FINISHED GRADE, BUT NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE.
6. FOR CROSS COUNTRY CONSTRUCTION, BACKFILL OR FILL SHALL BE MOUNDED TO A HEIGHT OF 6 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
7. LOCATOR TAPE TO BE TERRA TAPE SENTRY LINE 1350 OR EQUAL.
8. W = MAXIMUM ALLOWABLE TRENCH PAYMENT WIDTH: FOR ROCK EXCAVATION, FOR ORDERED EXCAVATION BELOW GRADE AND HANDLING OF EXCAVATED CONTAMINATED SOILS. FOR PIPES 16 INCHES NOMINAL DIAMETER OR LESS, W SHALL BE NO MORE THAN 36 INCHES. FOR PIPES GREATER THAN 16 INCHES IN NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS PIPE OUTSIDE DIAMETER (O.D.)
9. ALL DUCTILE IRON WATER MAIN, FITTINGS AND GATE VALVES SHALL BE ENCASED IN POLYETHYLENE IN ACCORDANCE WITH SPECIFICATIONS SECTION 02611. SHEETS OR TUBES SHALL BE TIGHTLY WRAPPED AROUND THE PIPE & SECURED AT 2' INTERVALS.



TRENCH - AIR LINE

NOT TO SCALE

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Designed LJS
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WATER & CIVIL DETAILS

WATER FACILITIES IMPROVEMENTS-PHASE 2
CONTRACT 4, BELLAMY RECHARGE FACILITY
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DWG NO C7

SHEET 10 OF 15

EROSION & SEDIMENTATION CONTROL NOTES:

DURING CONSTRUCTION AND THEREAFTER, EROSION CONTROL MEASURES ARE TO BE IMPLEMENTED AS NOTED:

1. EXTENT OF CLEARING IS SHOWN ON THE GRADING PLANS.
2. INITIAL EROSION CONTROL MEASURES TO BE INSTALLED PRIOR TO START OF CONSTRUCTION
   - PROVIDE A STABILIZED CONSTRUCTION ENTRANCE
   - DEFINE CLEARING LIMITS IN FIELD AS SHOWN ON THE DRAWINGS.
   - INSTALL SILT FENCE IN LOCATIONS SHOWN ON THE DRAWINGS (AFTER CLEARING) OR AS DIRECTED BY THE ENGINEER.
3. THE SMALLEST PRACTICABLE AREA OF LAND SHALL BE EXPOSED FOR THE SHORTEST PRACTICAL PERIOD AT ANY GIVEN TIME DURING CONSTRUCTION. EXPOSED AREAS SHALL BE PERMANENTLY STABILIZED WITHIN 48 HOURS OF FINISH GRADING.
4. CLEAR, GRUB AND STRIP TOPSOIL. REMOVE TREES, STUMPS, VEGETATION, ROOTS, OR OTHER OBJECTIONABLE MATERIAL. TOPSOIL WILL BE STOCKPILED. USING PERIMETER SILT FENCE AND SHALL BE SEEDED AND MULCH WEEKLY AS SOIL IS ADDED TO IT. ESTABLISH A STAGING, EQUIPMENT AND STORAGE AREA WITHIN THE LIMITS OF WORK.
5. EXCAVATION AND EARTHWORK SHALL BE CONDUCTED IN A MANNER THAT WILL MINIMIZE EFFECTS OF EROSION THROUGHOUT CONSTRUCTION.
6. CONSTRUCT SITE IMPROVEMENTS AND DRAINAGE STRUCTURES AS SHOWN ON THE DRAWINGS. REFER TO DRAINAGE AND EROSION DETAILS FOR ADDITIONAL INFORMATION.
7. AS DRAINAGE ELEMENTS ARE CONSTRUCTED, INSTALL STONE CHECK DAMS IN DRAINAGE SWALES. SEED AND MULCH AREAS AS REQUIRED BELOW.
8. SEEDING AND MULCHING:
   A. TEMPORARY SEEDING AND MULCHING:
      - TEMPORARILY SEED WITCH ANNUAL RYEGRASS AND MULCH DISTURBED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR MORE THAN 21 DAYS.
      - TEMPORARILY MULCH DISTURBED AREAS, INCLUDING STOCKPILES, WHICH WILL NOT BE WORKED FOR 7 TO 21 DAYS WITH CHOPPED HAY AND NETTING
      - SLOPES STEEPER THAN 3:1 PROVIDE EROSION CONTROL BLANKET.
   B. PERMANENT SEEDING AND MULCHING:
      - ALL DISTURBED AREAS TO BE VEGETATED SHALL BE COVERED WITH A MINIMUM OF 4 INCHES OF SCREENED TOPSOIL, SEEDED, FERTILIZED AND MULCHED AS REQUIRED TO PROVIDE A PERMANENT, DENSE, HEALTHY GROWTH OF GRASS.
      - FERTILIZER IS NOT PERMITTED WITHIN 400' WELL PROTECTIVE RADIUS.
      - ALL AREAS TO BE TOP SOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 4 INCHES PRIOR TO PLACEMENT OF TOPSOIL.
      - SLOPES FLATTER THAN 3:1 PROVIDE CHOPPED HAY MULCH WITH NETTING.
      - SLOPES EXCEEDING 3:1 PROVIDE EROSION CONTROL BLANKET.
9. HAY OR STRAW MULCH SHALL BE APPLIED AT A RATE OF TWO BALES PER 1,000 SQUARE FEET (OR APPROXIMATELY TWO TONS PER ACRE).
10. TEMPORARY EROSION CONTROL MEASURES ARE TO BE MAINTAINED AND KEPT CLEAN UNTIL ALL EXPOSED AREAS HAVE ESTABLISHED VEGETATION, AT WHICH TIME TEMPORARY MEASURES ARE TO BE REMOVED.
11. THE EROSION CONTROL SPECIFIED AND DETAILED ON THE PLANS SHALL BE CONSIDERED THE MINIMUM REQUIRED AND IS TO BE USED AS A GUIDELINE ONLY. ADDITIONAL MEASURES MAY BE DICTATED BY FIELD CONDITIONS. PROVIDE ADDITIONAL EROSION CONTROL AS REQUIRED BY THE TOWN, STATE OR THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING EROSION CONTROL DURING CONSTRUCTION AND UNTIL PERMANENT VEGETATION IS ESTABLISHED.
12. HAY BALES, SILT FENCING AND EROSION STONE SHALL BE INSTALLED WHERE NECESSARY TO MINIMIZE THE EFFECTS OF EROSION. ALL WORK SHALL BE COMPLETED IN CONFORMANCE WITH THE LATEST EDITION OF "STORM WATER MANAGEMENT AND EROSION AND SEDIMENT CONTROL HANDBOOK FOR URBAN AND DEVELOPING AREAS IN NEW HAMPSHIRE" TO PREVENT THE DEGRADATION OF DOWNSTREAM PROPERTIES AND DRAINAGE.
13. DRAINAGE SWALES SHALL BE MONITORED AND MAINTAINED THROUGHOUT OPERATION. SILT SHALL BE PERIODICALLY REMOVED FROM SWALES AS NECESSARY TO PREVENT SOIL MIGRATION.
14. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED: FINISHED COURSE GRAVELS HAVE BEEN INSTALLED; A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED; A MINIMUM OF 3" OF NON-EROSIVE MATERIALS SUCH AS STONE OR RIP RAP HAS BEEN PROPERLY INSTALLED; OR EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
15. WINTER CONSTRUCTION NOTES:
   A. ALL PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.
   B. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
   C. AFTER NOVEMBER 15TH, INCOMPLETE ROAD SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL (NHDOT ITEM 304.3).
16. THE CONTRACTOR IS RESPONSIBLE FOR STORMWATER MANAGEMENT DURING ALL PHASES OF CONSTRUCTION. NO WORK SHALL BE PERMITTED IN FLOWING WATER. DIVERSION SHALL BE ACCOMPLISHED BY THE USE OF SAND BAGS, BERMS, TEMPORARY CULVERTS, OR PUMPING. ALL DIVERTED WATER SHALL BE DISCHARGED TO DIRT BAGS, STONE FILL OR OTHER SUITABLE EROSION CONTROL STRUCTURE.
17. THE CONTRACTOR MAY NOT REMOVE EROSION CONTROL MEASURES UNTIL TURF IS VIGOROUSLY ESTABLISHED. ANY DISTURBED AREAS REMAINING AFTER OR AS A RESULT OF THE REMOVAL OF TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE LOAMED, SEEDED AND MULCHED.
18. STABILIZE ALL DITCHES AND SWALES PRIOR TO DIRECTING FLOW TO THEM.
19. PERMITS: THE PROPOSED PROJECT IS SUBJECT TO A NPDES CONSTRUCTION GENERAL PERMIT ISSUED BY EPA. NHDES PERSONNEL AND THE ENGINEER MAY MODIFY THE EROSION CONTROL PRACTICES AND THE APPROVED PLAN AT ANY TIME BASED ON SITE CONDITIONS.
20. WETLANDS: WETLANDS AREAS ARE IDENTIFIED ON THE PLANS. THE CONTRACTOR SHALL NOT IMPACT ANY WETLANDS.
21. THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.

EROSION CONTROL MATERIALS:

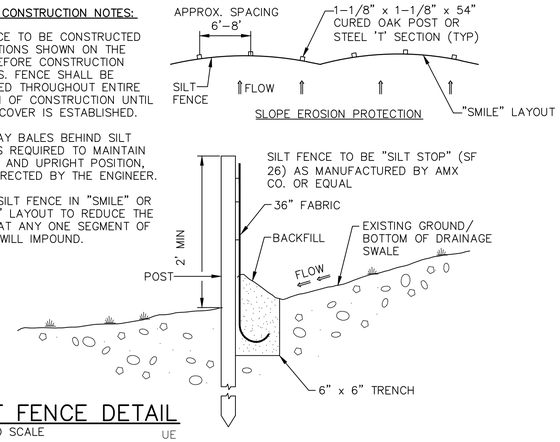
1. SILT FENCE: SILT FENCE SHALL INCLUDE PREFABRICATED 48-INCH WOOD POSTS OR APPROVED EQUIVALENT INSTALLED IN ACCORDANCE WITH THE DRAWINGS (OR AS DIRECTED BY THE ENGINEER).
2. RIP RAP: SEE DETAILS
3. MULCH: MULCH SHALL BE DRY MOWINGS OR ACCEPTABLE HERBACEOUS GROWTH, FREE OF NOXIOUS WEED OR WOODY STEMS. NO SALT HAY SHALL BE USED.
4. MULCH NETTING: NETTING USED TO HOLD MULCH IN PLACE SHALL BE AN APPROVED PAPER, TWINE, PLASTIC OR PLASTIC AND WOOD FIBER NETTING.
5. EROSION CONTROL MATTING (BLANKET): MATTING SHALL BE INSTALLED ON ANY SLOPES STEEPER THAN 3(H) TO 1(V). MATTING SHALL BE NORTH AMERICAN GREEN S75 OR APPROVED EQUIVALENT.
6. TEMPORARY SEED MIXTURE (OR EROSION CONTROL SEED MIXTURE): SEE SPECIFICATION SECTION 02935. 7. PERMANENT SEED MIXTURE: SEE SPECIFICATION SECTION 02935.

MAINTENANCE OF EROSION CONTROL STRUCTURES:

1. SILT FENCES ARE TO BE MAINTAINED AND CLEANED UNTIL SLOPES HAVE HEALTHY STAND OF GRASS. WHEN SEDIMENT ACCUMULATION REACHES A DEPTH OF 12" BEHIND THE SILT FENCE, THE SEDIMENT SHALL BE REMOVED AND DISPOSED OF PROPERLY.
2. REPAIR ALL DAMAGES CAUSED BY SOIL EROSION OR CONSTRUCTION EQUIPMENT AT OR BECOME THE END OF EACH WORKING DAY.
3. KEEP ALL DRAINAGE ENTRANCES FREE OF DEBRIS DURING CONSTRUCTION.
4. CLEAN STONE CHECK DAMS AND TEMPORARY DIVERSION DITCHES WHEN THEY BECOME FULL TO 50% OF THEIR ORIGINAL VOLUME OR AS DIRECTED BY THE ENGINEER.
5. VISUAL OBSERVATION OF ALL EROSION CONTROL MEASURES, AND ALL CLEARED AND GRADED AREAS ON THE CONSTRUCTION SITE SHOULD BE PERFORMED ONCE EVERY 14 CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM WITH RAINFALL AMOUNTS GRATER THAN 0.5 INCHES. CONTRACTOR TO USE FORMS CONTAINED IN THE STORMWATER POLLUTION PREVENTION PLAN PERMIT AS APPROPRIATE.

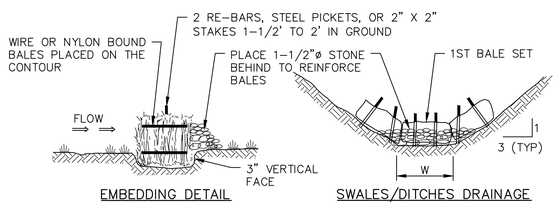
SILT FENCE CONSTRUCTION NOTES:

1. SILT FENCE TO BE CONSTRUCTED AT LOCATIONS SHOWN ON THE PLANS BEFORE CONSTRUCTION PROCEEDS. FENCE SHALL BE MAINTAINED THROUGHOUT ENTIRE DURATION OF CONSTRUCTION UNTIL GROUND COVER IS ESTABLISHED.
2. PLACE HAY BALES BEHIND SILT FENCE AS REQUIRED TO MAINTAIN FENCE IN AND UPRIGHT POSITION, OR AS DIRECTED BY THE ENGINEER.
3. INSTALL SILT FENCE IN "SMILE" OR "J-HOOK" LAYOUT TO REDUCE THE AREA THAT ANY ONE SEGMENT OF FENCING WILL IMPOUND.



SILT FENCE DETAIL

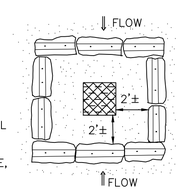
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EMBEDDING DETAIL SWALES/DITCHES DRAINAGE

HAY BALE BARRIER CONSTRUCTION SPECIFICATIONS:

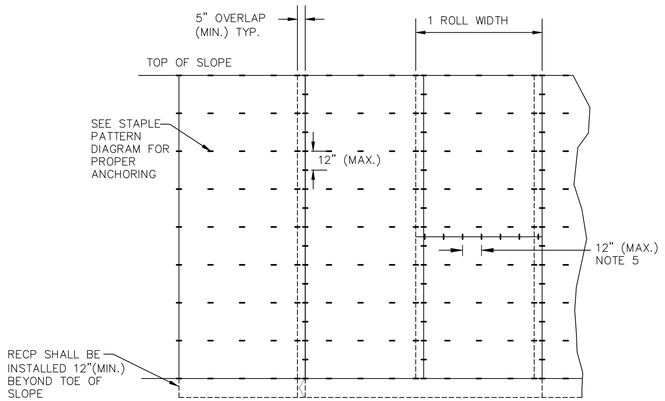
1. BALES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY BUTTED.
2. EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 3".
3. BALES SHALL BE SECURELY ANCHORED IN PLACE BY STAKE OR RE-BARS DRIVEN THROUGH THE BALES. THE FIRST STAKE IN EACH BALE SHALL BE ANGLED TOWARD PREVIOUSLY LAID BALE TO FORCE BALES TOGETHER.
4. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
5. BALES SHALL BE REMOVED, WHEN THEY HAVE SERVED THEIR PURPOSE, SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
6. BARRIERS SHALL BE SPACED AT 100' ALONG DRAINAGE SWALES/ DITCHES.



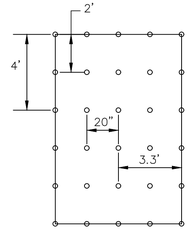
CATCH BASIN EROSION PROTECTION

HAY BALE DETAIL

NOT TO SCALE UE

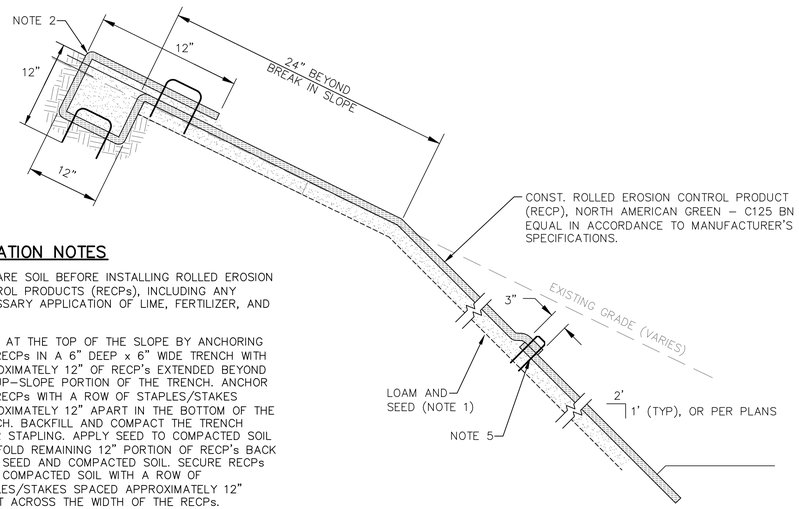


ROLLED EROSION CONTROL PRODUCT (RECP) LAYOUT



3.4 STAPLES PER SQ. YD. (272 STAPLES PER 6.67'x108' ROLL)

STAPLE PATTERN



INSTALLATION NOTES

1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECPs), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECPs IN A 6" DEEP x 6" WIDE TRENCH WITH APPROXIMATELY 12" OF RECP's EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECPs WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF RECP's BACK OVER SEED AND COMPACTED SOIL. SECURE RECPs OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE RECPs.
3. ROLL THE RECPs DOWN OR HORIZONTALLY ACROSS THE SLOPE. ALL RECP's MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN DIAGRAM.
4. THE EDGES OF PARALLEL RECPs MUST BE STAPLED WITH APPROXIMATELY 5" OVERLAP.
5. CONSECUTIVE RECPs SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE RECPs WIDTH.
6. INSTALL RCEPs WHERE FINISH GRADE IS 2 HORIZONTAL:1 VERTICAL, OR STEEPER, OR WHERE NOTED ON PLANS.

ROLLED EROSION CONTROL PRODUCT (RECP) X-SECTION

SLOPE STABILIZATION DETAIL

NOT TO SCALE

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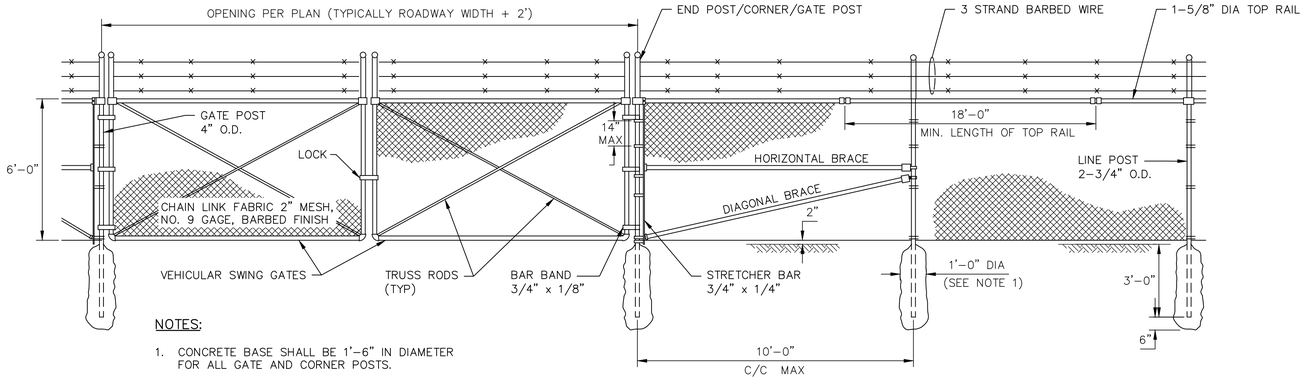
EROSION COTNROL DETAILS

WATER FACILITIES IMPROVEMENTS-PHASE 2
CONTRACT 4, BELLAMY RECHARGE FACILITY
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NOTES:

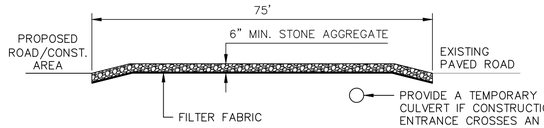
1. CONCRETE BASE SHALL BE 1'-6" IN DIAMETER FOR ALL GATE AND CORNER POSTS.
2. PROVIDE HORIZONTAL AND DIAGONAL BRACES AT ALL CORNER, PULL, TERMINAL, AND GATE POST.
3. POSTS SHALL BE SPACED AT A MAXIMUM OF 10'-0".

CHAIN LINK FENCE & GATE DETAIL

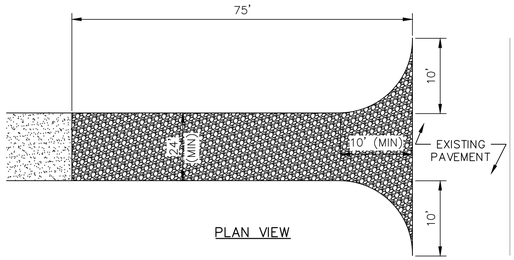
NOT TO SCALE

STABILIZED CONSTRUCTION ENTRANCE SPECIFICATIONS:

1. THE TEMPORARY STABILIZED CONSTRUCTION ENTRANCE SHALL CONSIST OF PLACING 1"-2" STONE, RECLAIMED STONE OR RECYCLED CONCRETE EQUIVALENT, AT THE LOCATION WHERE CONSTRUCTION VEHICLES EXIT THE SITE IN ORDER TO MINIMIZE MIGRATION OF DIRT ONTO THE ADJOINING PAVED ROADS.
2. STONE SHALL BE 1" TO 2" FRACTURED ROCK.
3. STONE SHALL BE PLACED OVER GEOTEXTILE FABRIC.
4. THE MINIMUM STONE DEPTH SHALL BE 6 INCHES.
5. THE MIN. DIMENSIONS OF THE STABILIZED ENTRANCE SHALL BE 24 FEET WIDE BY 75 FEET LONG.
6. SURFACE WATER RUNOFF FROM THE PAVED ROAD SHALL NOT BE PERMITTED TO COME IN CONTACT WITH THE STONE ENTRANCE. USE A CROSS CULVERT UNDER THE NEW ENTRANCE OR CONSTRUCT A BERM ALONG THE EDGE OF EXISTING PAVEMENT TO DIVERT WATER AWAY FROM THE STONE.
7. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF SEDIMENT ONTO PUBLIC ROADWAYS. TOP DRESS OR REPLACE STONE AS NEEDED. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADWAYS SHALL BE IMMEDIATELY REMOVED.
8. THE ENTRANCE SHALL BE MAINTAINED UNTIL THE SITE CONDITIONS WARRANT ITS REMOVAL.



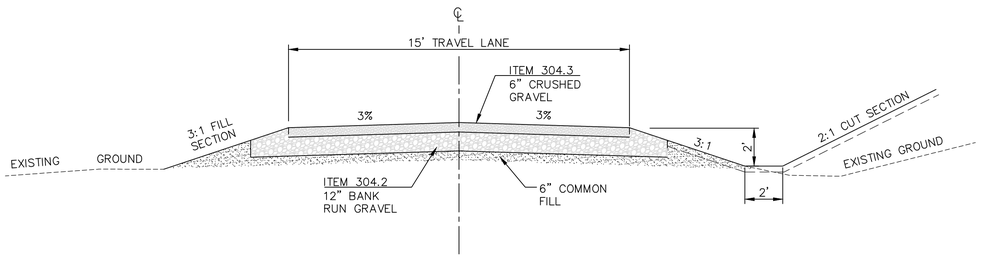
PROFILE VIEW



PLAN VIEW

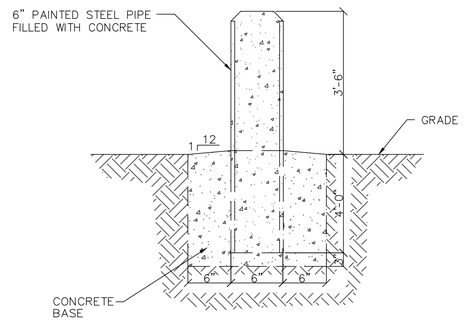
STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE



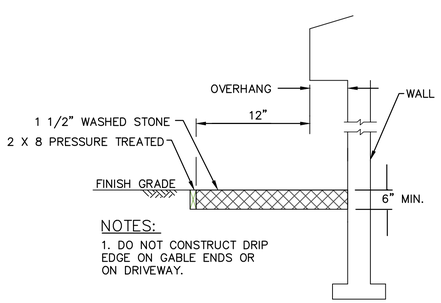
TYPICAL GRAVEL DRIVE AND ACCESS AREA SECTION

NOT TO SCALE



STEEL BOLLARD DETAIL

NOT TO SCALE

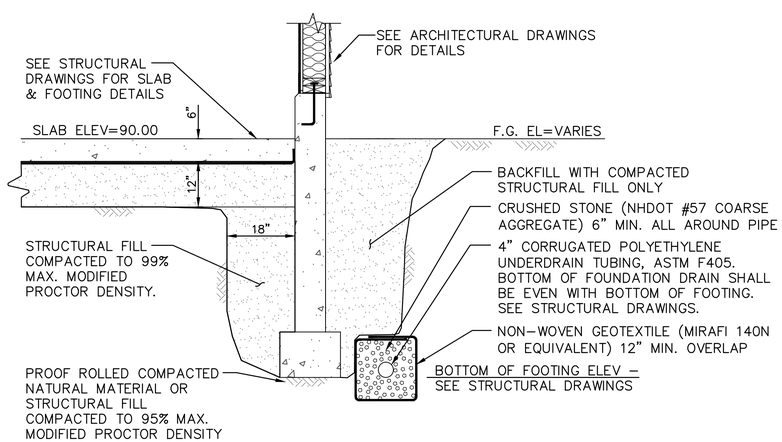


NOTES:

1. DO NOT CONSTRUCT DRIP EDGE ON GABLE ENDS OR ON DRIVEWAY.

DRIP EDGE

NOT TO SCALE



TYPICAL FOUNDATION DRAIN DETAIL

N.T.S.

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ROADWAY AND SITE DETAILS

WATER FACILITIES IMPROVEMENTS-PHASE 2
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DWG NO C9
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PIPE AND FITTING SYMBOLS

(SEE GENERAL ABBREVIATIONS FOR PIPE MATERIAL IDENTIFICATION)

1. ALL PIPE SIZES ARE SHOWN AS NOMINAL SIZES
2. PIPE SIZES 2 1/2" AND LESS ARE SHOWN AS SINGLE LINES
3. PIPE SIZES 3" AND ABOVE ARE ARE SHOWN AS DOUBLE LINES

DOUBLE LINE	SINGLE LINE	
		EXISTING PIPE
		NEW PIPE
		FLANGED JOINT
		MECHANICAL JOINT
		SOLVENT WELDED JOINT
		PUSH–ON JOINT
		FLANGED COUPLING ADAPTER
		ELBOW 90
		ELBOW 90 UP
		ELBOW 90 DOWN
		ELBOW 45
		ELBOW 45 UP
		ELBOW 45 DOWN
		TEE
		TEE UP
		TEE DOWN
		WYE
		WYE UP
		WYE DOWN
		CROSS
		CONCENTRIC REDUCER
		ECCENTRIC REDUCER
		UNION
		CAP (BLIND FLANGE)
		ANCHOR

ABBREVIATIONS

AL	ALUMINUM
AR	AIR RELEASE
CI	CAST IRON
CU	COPPER
DI	DUCTILE IRON
EQ	EQUAL
FEXT	FIRE EXTINGUISHER
FL	FLANGED
FRP	FIBERGLASS REINFORCED PLASTIC
H	HIGH
HDPE	HIGH DENSITY POLYETHYLENE
HP	HIGH POINT
LG	LONG
LP	LOW POINT
MJ	MECHANICAL JOINT
O.C.	ON CENTER
PE	PLAIN END
PVC	POLYVINYL CHLORIDE
R	RISER
R&D	REMOVE & DISPOSE
R&R	REMOVE & RELOCATE
RES	RESERVED
R.O.	ROUGH OPENING
SCH	SCHEDULE
SM	STATIC MIXER
SP	SPACE
SQ	SQUARE
SS	STAINLESS STEEL
STL	STEEL
T	TREAD
TU	TURBIDIMETER

FLOW STREAM IDENTIFICATION

CHEM	CHEMICAL FEED SYSTEMS YARD PIPING CONDUIT/SLEEVES
CLS	CHLORINE SOLUTION LINE
CON	STEAM HEATING CONDENSATE
CS	CAUSTIC SODA (SODIUM HYDROXIDE)
CW	POTABLE COLD WATER (INTERIOR ONLY)
D	DRAIN
F	FILTRATE
FB	FILTER BACKWASH
FC	FLUSHING CONNECTIONS
HW	POTABLE HOT WATER (INTERIOR ONLY)
INF	INFLUENT
LPA	LOW PRESSURE AIR
LPD	LOWER PRESSURE DIFFUSER LINES
PE	PLANT EFFLUENT
PF	PRE–FILTER (AFTER CHLORINE ADDITION)
PP	BLENDED PHOSPHATE
PW	PROCESS WASTE (FILTRATE)
RW	RAW WATER
S	SANITARY SEWER
SA	SAMPLE LINE
SD	SUMP PUMP DISCHARGE
SH	SODIUM HYPOCHLORITE
SHS	STEAM HEATING SUPPLY
SW	SEAL WATER
SWS	SERVICE WATER SUPPLY
TD	TANK DRAIN
V	VENT (INTERIOR VENTS ONLY)

VALVE SYMBOLS

(SEE GENERAL ABBREVIATIONS FOR PIPE MATERIAL IDENTIFICATION)

DOUBLE LINE	SINGLE LINE	
		AIR/VACUUM RELEASE
		BALL
		(VEE) BALL
		BUTTERFLY
		(BALL) CHECK
(FLANGED – TOP&SIDE)		(SWING) CHECK
		DIAPHRAGM
		FLUSHING CONNECTION
(FLANGED – SIDE) (FLANGED – TOP)		GATE
	M	MOTOR OPERATED VALVE
	HO	(HAND OPERATED) GATE
	K	(KNIFE) GATE
		GLOBE
		HOSE BIBB
		MULTI–PORT
		NEEDLE
		PINCH
		PINCH TYPE CHECK VALVE
(FLANGED – TOP&SIDE)		(ECCENTRIC) PLUG
		PRESSURE CONTROL
PRV		PRESSURE RELIEF
		QUICK CONNECTION
	S	SAMPLE
	S	SOLENOID OPERATED VALVE
	V	VALVE TYPE DESIGNATION (SEE SPECIFICATION 15100)
(FLANGED – SIDE) (FLANGED – TOP)		WATER OPERATED CONTROL VALVE

GATE SYMBOLS

ELEV	PLAN	
		FLAP
		SLIDE
		SLUICE

PUMP SYMBOLS

CENTRIFUGAL PUMP	xx
CHEMICAL FEED PUMP	
COMPRESSOR	
DIAPHRAGM PUMP	xx
PISTON PUMP	xx
PROGRESSING CAVITY PUMP	xx
SUBMERSIBLE SUMP PUMP	xx
SAMPLE PUMP	
POSITIVE DISPLACEMENT BLOWERS	
TRANSFER PUMP	

GENERAL NOTES

1. LAY PIPE TO UNIFORM GRADE BETWEEN INDICATED ELEVATION POINTS.
2. SIZE OF FITTINGS SHOWN ON PLANS SHALL CORRESPOND TO ADJACENT STRAIGHT RUN OF PIPE, UNLESS OTHERWISE INDICATED. TYPE OF JOINT AND FITTING MATERIAL SHALL BE THE SAME AS SHOWN FOR ADJACENT STRAIGHT RUN OF PIPE.
3. FINAL PIPE SUPPORT REQUIREMENTS SHALL BE DETERMINED IN THE FIELD AND REVIEWED BY THE ENGINEER PRIOR TO INSTALLATION. MAXIMUM SPACING SHALL BE 10' AND AT ALL BENDS AND TEES. PIPE ANCHORS TRUSS RODS AND SUPPORTS TO BE INSTALLED PER SPECIFICATION 15094.
4. ALL JOINTS SHALL BE WATERTIGHT. WALL PIPES OR SLEEVES SHALL BE USED WHEREVER PIPING PASSES FROM A STRUCTURE TO EARTH. SMALL (LESS THAN 3") WALL PENETRATIONS ARE NOT SHOWN.
5. SYMBOLS, LEGENDS, AND PIPE IDENTIFICATION SHOWN UNDER THE PROCESS DISCIPLINE SHALL ALSO BE FOLLOWED THROUGHOUT OTHER DISCIPLINES IN THE PROJECT PLANS. NOT ALL OF THE VARIOUS PIPING COMPONENTS SHOWN IN THE LEGEND ARE NECESSARILY USED IN THIS PROJECT.
6. PROVIDE UNIONS TO FACILITATE CONVENIENT REMOVAL OF VALVES, PIPING, AND MECHANICAL EQUIPMENT FOR SMALL DIAMETER CHEMICAL FEED AND WATER PIPING SYSTEMS.
7. SIZES OF EQUIPMENT FOUNDATIONS INDICATED ON THE DRAWINGS ARE APPROXIMATE. EXACT DIMENSIONS SHALL BE DETERMINED BY THE CONTRACTOR FOR THE EQUIPMENT FURNISHED. ALL FLOOR MOUNTED EQUIPMENT SHALL BE SET ON CONCRETE PADS CONFORMING TO DETAILS SHOWN ON THE STRUCTURAL AND/OR PROCESS DRAWINGS.
8. ALL MATERIALS USED IN THE PROJECT SHALL BE NEW. ALL EXISTING VALVES, PIPE, AND EQUIPMENT SHOWN TO BE DEMO'D SHALL BE DISPOSED OF BY THE CONTRACTOR OR SALVAGED TO DOVER COMMUNITY SERVICES PER THE DEMOLITION DRAWINGS.
9. CONTRACTOR TO USE SHOP DRAWINGS FOR ACTUAL DIMENSIONS OF EQUIPMENT AND ADJUST LAYOUT ACCORDINGLY.
10. CONTRACTOR SHALL FURNISH SHOP DRAWINGS OF PIPE LAYOUTS PRIOR TO INSTALLATION.
11. ALL PVC PIPE SHALL BE SCHEDULE 80 WITH 316 S.S. BOLTS WHERE SHOWN AS FLANGED.
12. ALL PIPE PENETRATIONS THROUGH WALLS SHALL BE SEALED WITH MECHANICAL RUBBER TYPE WALL SEALS.
13. ALL CONNECTIONS BETWEEN DISSIMILAR METALS SHALL BE GASKETED WITH NEOPRENE OR OTHER APPROVED METHOD.
14. DUCTILE IRON PIPE TO HAVE DUCTILE IRON FITTINGS.
15. ALL INTERIOR PIPING SHALL BE FLANGED DUCTILE IRON UNLESS NOTED OTHERWISE.

ANNOTATION SYMBOLS

- A / P7 — SECTION CUT NUMBER ID; SHEET UPON WHICH SECTION APPEARS
- 1 / P8 — DETAIL NUMBER ID; SHEET UPON WHICH DETAIL APPEARS
- 8 — KEY NOTE

LEGEND

- DEMOLITION
- STATIC MIXER
- PRESSURE TRANSDUCER
- MAGNETIC FLOW METER
- PRESSURE GAUGE

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Checked TGP
Approved –
Date 11/19/2019
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Dwg. ID 2123-BELLAMY
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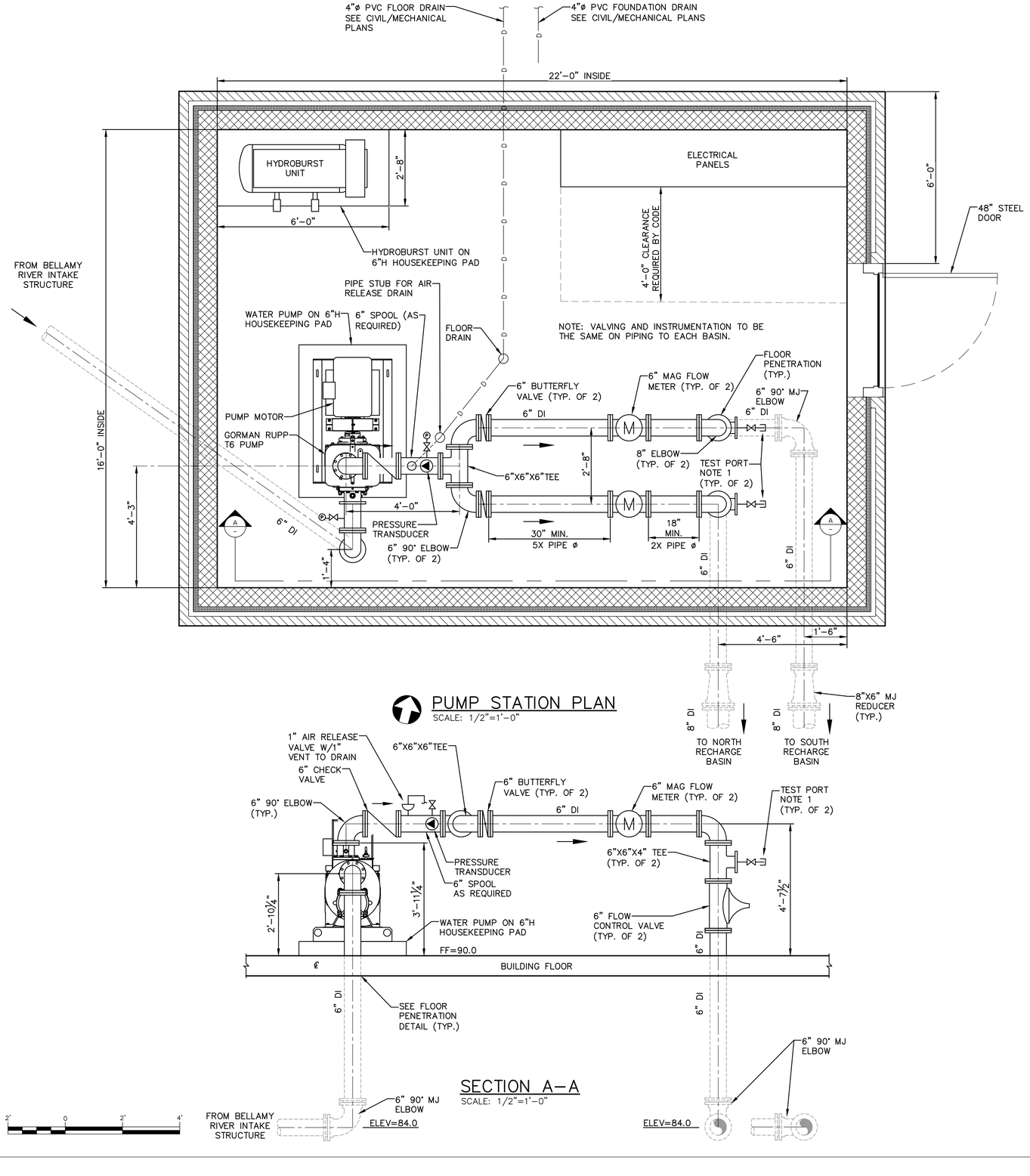
PUMPING STATIONS
PROCESS PIPING LEGEND & NOTES

WATER FACILITIES IMPROVEMENTS–PHASE 2
CONTRACT 4, BELLAMY RECHARGE FACILITY

CITY OF DOVER, NEW HAMPSHIRE

DWG NO P1

SHEET 13 OF 15



PUMP STATION PLAN
SCALE: 1/2"=1'-0"

SECTION A–A
SCALE: 1/2"=1'-0"

2' 0 2' 4'

NOTES:

1. THREADED FLANGE ADAPTER, BALL VALVE, AND 2 1/2" HOSE COUPLING. ORIENT IN FIELD PER OWNER FOR ACCESS FOR FLOWMETER TESTING.
2. 1/2" TAP, BALL VALVE AND 0–100 PSI PRESSURE GAUGE. ORIENT IN FIELD PER ENGINEER.
3. INSTALL MAGNETIC FLOW METERS W/MIN. 5 PIPE DIAMETERS STRAIGHT RUN UPSTREAM AND 3 PIPE DIAMETERS DOWNSTREAM, OR AS RECOMMENDED BY MANUFACTURER.
4. CONTRACTOR RESPONSIBLE TO VERIFY DIMENSIONS AND ELEVATIONS IN FIELD. EQUIPMENT AND PIPING LAYOUTS SHALL BE COORDINATED WITH EQUIPMENT SUPPLIED AND/OR EXISTING CONDITIONS.
5. ALL BURIED PIPE CONNECTIONS TO STRUCTURES SHALL HAVE FLEXIBLE CONNECTIONS APPROX. 4 FEET OUTSIDE THE STRUCTURE. COUPLINGS SHALL BE RESTRAINED ON PRESSURE PIPES.
6. PROVIDE PIPE SUPPORTS FOR ALL PIPE PER SPECIFICATIONS.

PUMP NOTES:

MODEL – GORMAN RUPP T6A35, X" IMPELLER

CAPACITY – 800 GPM

MINIMUM RIVER LEVEL – 78.6 ASML

TOTAL DYNAMIC HEAD – 70 FT.

TOTAL DYNAMIC SUCTION HEAD – 18 FT.

MAXIMUM STATIC SUCTION LIFT – 14.1 FT.

TOTAL DYNAMIC DISCHARGE HEAD – 42 FT.

REPRIME LIFT REQUIRED – 14.4 FT.

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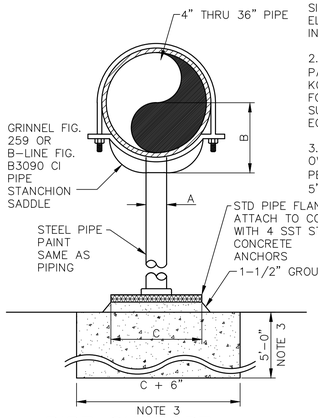
BELLAMY RECHARGE FACILITY
PUMP STATION – PROCESS PLAN

WATER FACILITIES IMPROVEMENTS–PHASE 2
CONTRACT 4, BELLAMY RECHARGE FACILITY

CITY OF DOVER, NEW HAMPSHIRE

DWG NO P2

SHEET 14 OF 15



PIPE SUPPORT

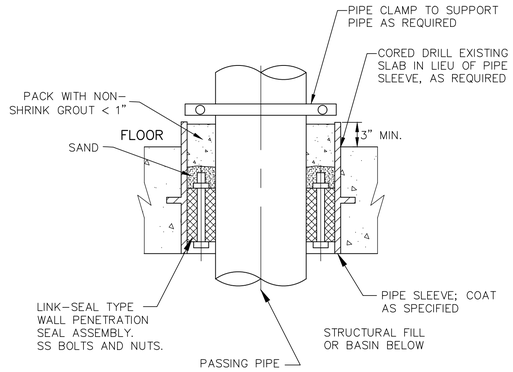
N.T.S.

NOTES:

1. PROVIDE HALF ROUND RIGID INSULATION AND INSULATION PROTECTION SHIELD, SIMILAR TO GRINNELL FIGURE 167 OR ELCEN FIGURE 219, WHERE PIPING IS INSULATED.
2. PROVIDE NEOPRENE WAFFLE ISOLATION PAD, SIMILAR TO MASON TYPE 'W' OR KORFUND KORPAD 40, UNDER SUPPORT FOOT WHEN PIPING IS ISOLATED OR SUPPORT IS ADJACENT TO MECHANICAL EQUIPMENT.
3. WHERE PIPE HAS TO BE SUPPORTED OVER EARTH, A TYPE A CONCRETE PEDESTAL EQUAL IN WIDTH TO C+6" AND 5' DEEP SHALL BE USED.

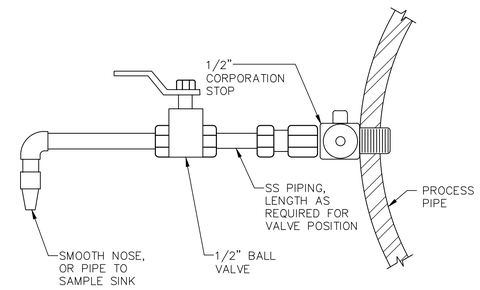
DIMENSION TABLE

PIPE SIZE	A	B	C
3"	3"	3-9/16"	9"
4"	3"	4-3/16"	9"
5"	3"	4-13/16"	9"
6"	3"	5-7/16"	9"
8"	3"	6-15/16"	9"
10"	3"	8-7/16"	9"
12"	3"	9-15/16"	9"
14"	4"	10-15/16"	11"
16"	4"	12-3/8"	11"
18"	4"	13-7/8"	11"
20"	6"	15-3/8"	13-1/2"
22"	6"	16-5/8"	13-1/2"
24"	6"	17-15/16"	13-1/2"
26"	6"	19-1/8"	13-1/2"
30"	6"	21-5/16"	13-1/2"
32"	6"	22-1/2"	13-1/2"
36"	8"	24-1/2"	16"



TYPICAL CONCRETE FLOOR PENETRATION

N.T.S. (WHERE DESIGNATED)

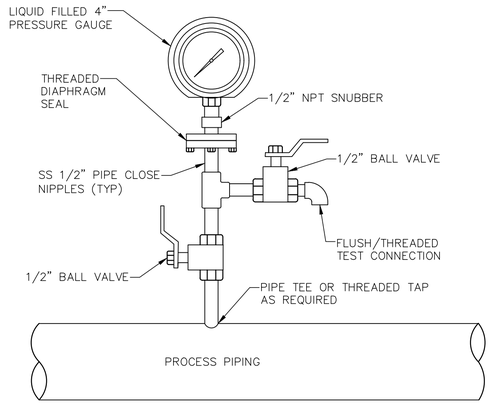


NOTES:

1. LOCATE IN FIELD PER ENGINEER.

SAMPLE PORT DETAIL

N.T.S.



NOTES:

1. SEE DIV. 15 FOR ADDITIONAL SPECIFICATIONS.
2. MINIMIZE HEIGHT OF ASSEMBLY.

GAUGE ASSEMBLY

N.T.S.

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1	ISSUE FOR APPROVAL Date - By -	
2	CONSTRUCTION Date - By -	
3	RECORD DRAWING Date - By -	

Drawn/Chk. MAH
Designed LdS
Checked TGP
Approved -
Date 11/19/2019
Book No. -
Project No. 2123
Dwg. ID 2123-BELLAMY
Scale AS SHOWN

60% DESIGN SUBMITTAL
NOV. 2019

UNDERWOOD engineers
25 Vaughan Mall, Portsmouth, N.H. 03801
Tel. 603-436-6192 Fax. 603-431-4733

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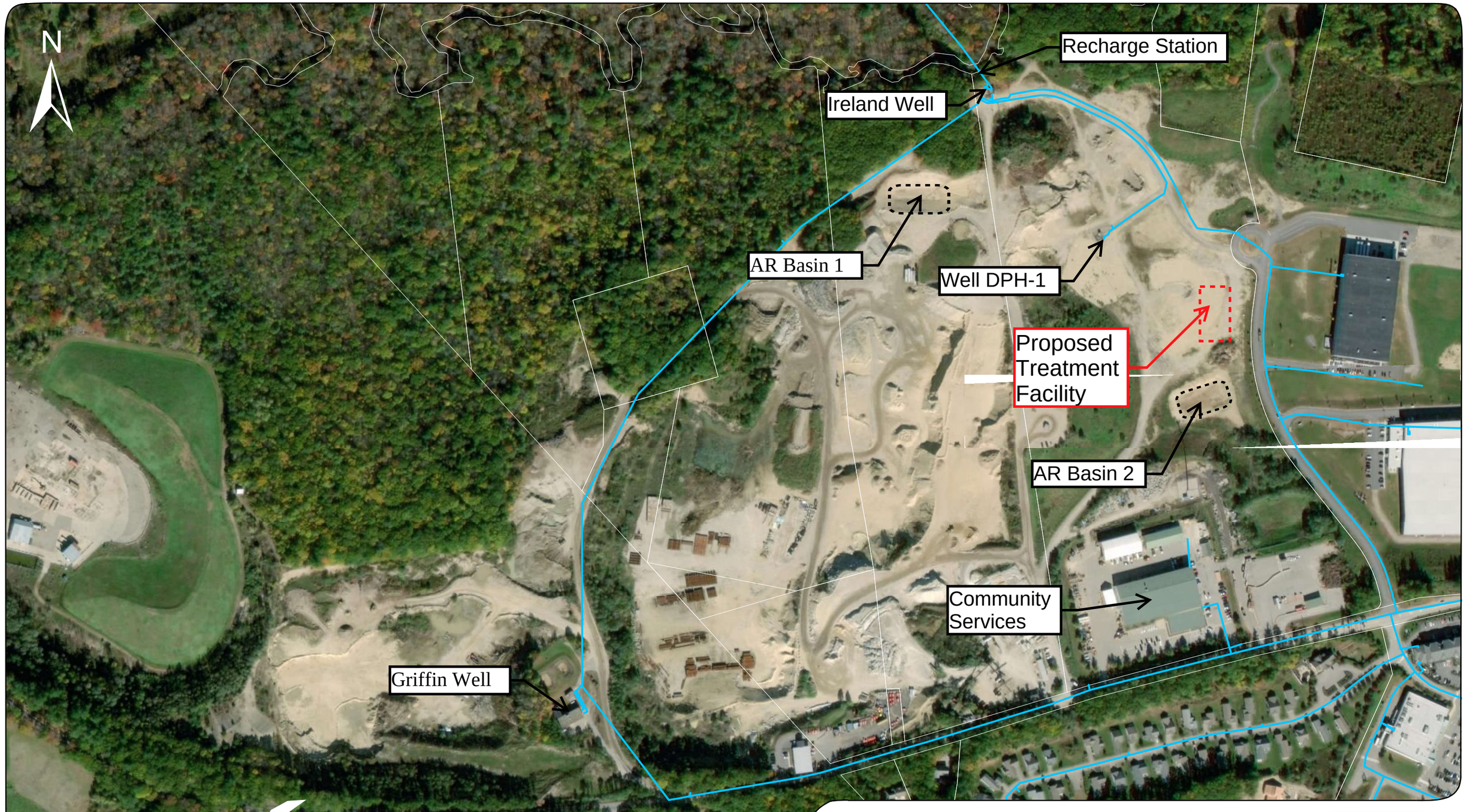
PUMPING STATIONS
PROCESS PIPING DETAILS

WATER FACILITIES IMPROVEMENTS-PHASE 2
CONTRACT 4, BELLAMY RECHARGE FACILITY

CITY OF DOVER, NEW HAMPSHIRE

DWG NO P3

SHEET 15 OF 15



DATE		
12/2/19	UNDERWOOD engineers	**Pudding Hill Aquifer Overview Aerial Plan Dover, NH**
PROJECT 2116	25 Vaughan Mall, Portsmouth, N.H. 03801 Tel. 603-436-6192 Fax. 603 - 431-4733	FIG. 1

ATTACHMENT C

WETLANDS FUNCTIONS AND VALUES REPORT

Wetland Function and Values Report

For

PUDDING HILL AQUIFER INTERM IMPROVEMENTS PROJECT

City of Dover

Dover, New Hampshire

May 2017

Prepared For:

McEneaney Associates, Inc.

Prepared By:

Damon Burt, CWS, CPESC
Fraggle Rock Environmental
38 Garland Road
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603-969-5574

Wetland Name/Code: *Pudding Hill Interim Aquifer Improvements Dover NH* Evaluation Date: *5/2017* Evaluator: *Damon Burt, CWS*

Summary of Scores

FUNCTION	SCORE
1. Ecological Integrity	7.2
2. Wetland-Dependent Wildlife Habitat	6.0
3. Fish & Aquatic Habitat	5.2
4. Scenic Quality	6.6
5. Educational Potential	5.7
6. Wetland-Based Recreation	5.6
7. Floodwater Storage	8.0
8. Groundwater	6.4
9. Sediment Trapping	5.6
10. Nutrient Removal / Retention / Transformation	5.1
11. Shoreline Anchoring	6.5
12. Noteworthiness	71

Narrative Description

Wetland study area is along existing Bellamy Recharge Pump Station in Dover, NH. The study area also includes City of Dover Ireland Pump Station and associated well above the bank of the River. Wetland/River study area is located along mixed land use area. Residential housing is located along northern extent of study area. Southern side of the study area is a gravel pit. Bellamy River flows from the west towards the east side of the study area. The Bellamy River headwaters flow into Bellamy Reservoir in Madbury and eventual flows onto tidal beyond dam in downtown Dover.

Wetland vegetation classes observed in the wetland include: Riverine Upper Perennial Unconsolidated bottom – cobble-gravel(R3UB1), Palustrine Forested Broad-leaved deciduous, Seasonally Flooded/Saturated (PFO1E).

ECOLOGICAL INTEGRITY

The ecological integrity of this study area is relativity high, with some disturbance, but sections remain natural with a diversity of plant species and variety of wetland types and functions.

WETLAND-DEPENDENT WILDLIFE HABITAT

The wetland study area is a section of Bellamy River and associated floodplain/wetlands. This wetland area has a high value for wildlife habitat and is noted as Highest Ranked Habitat as part of New Hampshire Wildlife Action Plan

Wetland Name/Code: *Pudding Hill Interim Aquifer Improvements Dover NH* Evaluation Date: *5/2017* Evaluator: *Damon Burt, CWS*

FISH AND AQUATIC HABITAT

Significant habitat for fish and aquatic life along study section, by amount of open water and stream habitat.

SCENIC QUALITY

Some contract with surrounding residential homes, gravel and Drinking water supply buildings adjacent to wetland area. A diversity of vegetation and wetland types can be view along study area.

EDUCATIONAL POTENTIAL

The wetland study area may have potential educational potential. The project area is located along City of Dover and existing gravel pit area that is generally restricted to access. There is currently no disabled access other than along road.

WETLAND-BASED RECREATION

The wetland study area allows opportunities for wildlife observation. Bellamy River could be used for water based activities, but very sinuous and limited access. No designated parking, lack of disabled access and no public access are limiting factors.

FLOODWATER STORAGE

The wetland study area floodwater capacity is high with significant floodplains along river. The wetlands a large part of the watershed enabling it to hold significant volumes of water produced by the watershed during times of high flow.

GROUNDWATER

The wetland study area is associated with a stratified drift aquifer area and City of Dover water supply. The study area has a high value for groundwater.

SEDIMENT TRAPPING

The wetland study area has sediment trapping function, with stream channel vegetation, moderate water depth and very sinuous stream channel.

NUTRIENT REMOVAL/ RETENTION/TRANSFORMATION

The wetland moderate ability to attenuate nutrients. Other factors are a seasonally saturated/flooded hydrology and poorly drained wetland soils that can support year-round nutrient attenuation.

SHORELINE ANCHORING

The wetland study area has shoreline anchoring capacity, but high flows along Bellamy can cause erosion and sedimentation.

NOTEWORTHINESS

This wetland study area is located along water supply area, gravel pit and residential area. Bellamy River and associated wetland areas along banks and provides significant wetland functions and values.



Photo 1 – View looking from upstream along Bellamy River and associated bank and wetlands. Pump station is located along upper right of photo.



Photo 2 – View looking north along a section of the study wetland near recharge pool area.



Photo 3 – Another view looking along edge of recharge pool area.



Photo 4 – View looking upstream showing different classes of wetlands along end of study area. The study area does have invasive Japanese barberry.



Photo 5 – View looking along Bellamy Recharge Pumping Station.



Photo 6 – View looking upstream along Bellamy River study area.

1 – ECOLOGICAL INTEGRITY

Evaluation Questions	Observations & Notes	Answers	Score
1. Are there land uses in the wetland's watershed that could degrade water quality in the wetland?	*Gravel Pit/City – drinking water supply area*	a. Less than 5% of the watershed has land uses that could degrade water quality. b. 5-10% of the watershed has land uses that could degrade water quality. c. > 10% of the watershed has land uses that could degrade water quality.	10 (5) 1
2. Is there evidence of fill in the wetland?	*Some historic disturbance along Bellamy River*	a. Less than 1 % b. From 1-3 % c. More than 3 %	(10) 5 1
3. What percentage of the wetland has been altered by agricultural activities?	*None*	a. Less than 5 % b. From 5 to 25 % c. More than 25 %	(10) 5 1
4. What percentage of the wetland has been adversely impacted by logging activity within the last 10 years?	*Small amount of tree work along pump stations*	a. Less than 1% b. From 1 to 10 % c. More than 10 %	(10) 5 1
5. How much human activity is taking place in the wetland (e.g. ATV use, trails, cars, dumping of brush and garbage, etc.)?	*Some evidence of walking use along river, City of Dover land generally restricted*	a. Low: Few trails in use, little or no traffic, and little or no litter. b. Moderate: Some used trails, roads, litter c. High: Many trails, roads, and/or litter	(10) 5 1
6. What percentage of the wetland is occupied by invasive plant species?	*Japanese Barberry along slopes at adjacent property.*	a. None b. 1-5% of the wetland has invasive species c. > 5% of the wetland has invasive species	10 (5) 1
7. Are there roads, driveways or railroads crossing or adjacent to the wetland or within 500 ft. of the wetland?	*Pump station and pit access roadways. Property generally restricted.*	a. No roads, driveways or railroads. within 500 ft. of, or in the wetland b. Roads, driveways, railroads are within 500 ft of the wetland c. Roads, driveways, railroads. cross or are adjacent to the wetland	10 5 (1)
8. How much human activity is taking place in the upland within 500 feet of the wetland edge?	*Use of southern side of 500 foot buffer zone for drinking water pump stations, wells and gravel pit. Multifamily residential housing along northside*	a. Little or no activity b. Human activity evident in up to 25% of the 500 ft zone c. Human activity evident in more than 25% of the 500 ft zone	10 5 (1)
9. What is the percent of impervious surface within 500 feet of the wetland edge?	*Use of southern side of 500 foot buffer zone for drinking water pump stations, wells and gravel pit .Some impervious areas along northside.*	a. Less than 3% impervious area within 500 ft of the wetland edge b. 3-10% impervious area within 500 ft of the wetland edge c. Greater than 10% impervious area within 500 ft of the wetland edge	(10) 5 1

10. Is there a human-made structure that regulates the flow of water through the wetland?	*No flow regulation within study area*	a. No human made structures present in the wetland b. One or more human made structures present in the wetland but hydrologic modification is slight c. One or more human made structures present in the wetland that severely block or alter surface water hydrology	(10) 5 1

AVERAGE SCORE FOR ECOLOGICAL INTEGRITY

(Add scores for each question and divide by 10) *7.2*

Wetland Name/Code: *Pudding Hill Interim Aquifer Improvements Dover NH* Evaluation Date: *5/2017* Evaluator: *Damon Burt, CWS*

2 – WETLAND-DEPENDENT WILDLIFE HABITAT

Evaluation Questions	Observations & Notes	Answers	Score
1. What is the wetland acreage?	*Study area is located along Bellamy River*	a. More than 100 acres b. From 20 - 100 acres c. Less than 20 acres	(10) 5 1
2. What is the score for Ecological Integrity?		Average score for **Ecological Integrity**	*7.2*
3. Has water quality in the wetland been degraded by land use in the watershed?		Record Answer from **Ecological Integrity**, Question 1	*5*
4. What is the area of shallow permanent open water less than 6.6 feet deep, including streams and shallow ponds that are part of the wetland complex?	*Study area is located along Bellamy River.*	a. More than 3 acres b. From 0.5 to 3 acres c. Less than 0.5 acre	(10) 5 1
5. Is there deepwater habitat (lakes or ponds > 6.6ft deep) and/or 4th order or higher rivers associated with the wetland?	*Study area is located along Bellamy River.*	a. Deepwater stream ≥1 mile long and/or lake or pond ≥10 acres present b. Deepwater stream < 1 mile long and/or lake or pond < 10 acres present c. No deepwater stream, lake or pond present	10 5 (1)
6. What is the diversity of vegetation classes in the wetland?	*3 classes: PEMIE, PFOIE, PUBI*	a. Three or more wetland classes (including islands) present b. Two wetland classes (including islands) present c. One wetland class present	(10) 5 1
7. Are other wetlands in close proximity to the study wetland?	*Yes upstream and downstream*	a. Other connected or unconnected wetlands within a 0.25 mile distance b. Wetland connected to other wetlands within a 0.5 to 1 mile distance by perennial stream or lake, OR other unconnected wetlands are present within a 0.25 to 0.5 mile distance c. Wetland not hydrologically connected to other wetlands within 1 mile and more than 0.5 miles from other unconnected wetlands.	(10) 5 1

Wetland Name/Code: *Pudding Hill Interim Aquifer Improvements Dover NH* Evaluation Date: *5/2017* Evaluator: *Damon Burt, CWS*

2 – WETLAND-DEPENDENT WILDLIFE HABITAT (continued)

Evaluation Questions	Observations & Notes	Answers	Score
8. **Are there wildlife travel corridors allowing access to other wetlands?**	*Roads and homes adjacent*	a. Free access along well vegetated stream corridor, woodland, or lakeshore b. Access partially blocked by roads, urban areas, or other obstructions c. Access blocked by roads, urban areas, or other obstructions	10 5 (1)
9. **What percentage of the wetland edge is bordered by undisturbed woodland or idle land (e.g. shrub land or abandoned fields) at least 500 feet in width?**	*Little undisturbed woods or idle land*	a. More than 95% of the wetland b. More than 75-95% of the wetland c. Less than 75% of the wetland	10 5 (1)
10. **What percentage of the wetland is occupied by invasive plant species?**		Record Answer from **Ecological Integrity**, Question 6	*5*

AVERAGE SCORE FOR WILDLIFE HABITAT

(Add scores for each question and divide by 10) *6.0*

Wetland Name/Code: *Pudding Hill Interim Aquifer Improvements Dover NH* Evaluation Date: *5/2017* Evaluator: *Damon Burt, CWS*

3 – FISH AND AQUATIC HABITAT

Evaluation Questions	Observations & Notes	Answers	Score
1. What is the dominant land use in the watershed above wetland?	*Urban residential, water wells and pump station, and commercial/industrial development*	a. Woodland, wetland, or abandoned farmland b. Active farmland or rural residential c. Urban and heavily developed suburban areas, commercial and industrial areas.	10 5 (1)
2. Has water quality in the wetland been degraded by land use in the watershed?		Record Answer from **Ecological Integrity**, Question 1	*5*
3. What is the area of shallow permanent open water less than 6.6 ft deep, including streams and ponds within the wetland?		Record Answer from **Wetland-Dependent Wildlife Habitat**, Question 4	*10*
4. What is the acreage of deepwater habitats deeper than 6.6 feet (pond or lake) associated with the wetland?		a. More than 100 acres b. From 10 to 100 acres c. Less than 10 acres d. deepwater pond or lake not present	10 5 1 (0)
5. What is the width (bank to bank) of the stream associated with the wetland?	*Bellamy River – width average along study area 30 feet*	a. More than 50 feet b. From 25 to 50 feet c. Less than 25 feet d. No stream present	10 (5) 1 0
6. Does the stream channel appear to have been recently altered?	*Majority of Channel natural. Some historic work for water supply use.*	a. Stream is in a natural channel, either a meandering low gradient stream, **OR** a steeper gradient stream with pools and riffles b. Portions of stream appear recently modified, **OR** stream formerly channelized but has regained some natural channel features c. Stream appears to have been recently been channelized, **OR** stream is confined in a non-vegetated chute or pipe d. No stream present	(10) 5 1 0
7. Within the wetland, what is the diversity of substrate types in in the area(s) occupied by open water for the non-growing season?	*Bellamy River*	a. 4 or more substrate types b. 2 or 3 substrate types c. 1 substrate type	10 (5) 1
8. How abundant are coarse woody material and large rocks?	*Some small rocks in bottom of stream*	a. Moderately Abundant to Abundant: More than 10% of water area contains cover objects such as logs, stumps, branches and rocks b. Scarce: Less than 10% of the water	(10) 5

Wetland Name/Code: *Pudding Hill Interim Aquifer Improvements Dover NH* Evaluation Date: *5/2017* Evaluator: *Damon Burt, CWS*

Evaluation Questions	Observations & Notes	Answers	Score
		area contains cover objects c. No visible woody materials or rocks	1
9. What is the abundance of floating & submerged vegetation?	Date of Observation *5/2017 None*	a. Abundant: More than 70% of water area contains cover objects such as pond lilies, pondweed, and bladderwort b. Moderately abundant: From 30 to 70% of water area contains floating and submerged vegetation c. Scarce: Less than 30% of the water area contains floating and submerged vegetation	10 5 (1)
10. Are there barriers to the passage of aquatic life? (e.g. dams, elevated culverts, bridge with a width less than the natural stream channel, road crossings, etc. along the stream reach associated with the wetland).		a. No barrier(s) present. b. An artificial barrier is present and equipped with a fish ladder or other provisions for fish passage, or artificial barrier is only present during extreme low water c. Dam, elevated culverts or other artificial barrier(s) is present without provisions for fish passage	10 (5) 1 0
11. Are rare or endangered fish or aquatic life present?		a. Documented occurrence of a rare or endangered fish or aquatic life species within or immediately adjacent to the subject wetland b. Documented occurrence of a rare or endangered fish or aquatic life species within .5 miles of wetland **and** suitable habitat exists for this species within the wetland c. No documented occurrence of a rare or endangered fish or aquatic life species within .5 miles of wetland, but suitable habitat exists and wetland is within range of one or more rare species d. No documented occurrence of a rare or endangered fish or aquatic life species within .5 miles of wetland, and suitable habitat is not known to exist	10 (5) 1 0

AVERAGE SCORE FOR FISH & AQUATIC LIFE HABITAT –
(Add scores for each question and divide by 11) *1.5*

Wetland Name/Code: *Pudding Hill Interim Aquifer Improvements Dover NH* Evaluation Date: *5/2017* Evaluator: *Damon Burt, CWS*

4 – SCENIC QUALITY

Evaluation Questions	Observations & Notes	Answers	Score
1. How many wetland vegetation classes are visible from the primary viewing location(s)?		a. Three or more classes b. Two classes c. One class	(10) 5 1
2. Is there public access at the viewing site?	*Study area wetland is located on City of Dover/sand pit*	a. Viewing site is on a property with public access, and trails to the site, or site is along a road. b. Wetland is on property with public access but no trails to the site. c. Wetland is on a property that does not have public access.	10 5 (1)
3. What is the visible extent across the wetland?	*Bellamy river and adjacent wetlands*	a. Large expanse visible and low growing plants, or mixed vegetation classes you can see through b. View is somewhat restricted by trees and shrubs c. Forested or scrub-shrub wetland with little or no expanse visible.	(10) 5 1
4. What is the approximate extent of open water (including streams) visible from the primary viewing location/s?	*Views along Bellamy River*	a. More than 3 acres b. From 1 to 3 acres c. Less than 1 acre	10 (5) 1
5. Does the wetland provide visual contrast with surrounding landforms?	*Contracts Urban land, developed and sand and gravel pit*	a. High level of visual contrast with surrounding natural landscape. b. Some visual contrast with surrounding natural landscape c. Little visual contrast with surrounding landscape, or surrounding landscape is developed	(10) 5 1
6. What is the diversity of vegetation types in the viewshed that flower or provide fall color?	*Emergent wetland vegetation, shrubs and forested floodplain wetland edge provide visual contrast throughout most of the year.*	a. High level of visual diversity b. Moderate level of visual diversity c. Low level or no visual diversity	10 (5) 1
7. What is the general appearance of the wetland and surrounding land use(s) visible from primary viewing location(s)?	*Limited disturbance along river corridor*	a. Wetland is undisturbed and natural. No visual detractors, such as buildings, litter, abandoned cars, or powerlines b. Limited disturbance in and/or around wetland. Minor visual detractors c. Severe visual detractors present	10 (5) 1

AVERAGE SCORE FOR SCENIC QUALITY

(Add scores for each question and divide by 7) *2.7*

Wetland Name/Code: *Pudding Hill Interim Aquifer Improvements Dover NH* Evaluation Date: *5/2017* Evaluator: *Damon Burt, CWS*

5 – EDUCATIONAL POTENTIAL

Evaluation Questions	Observations & Notes	Answers	Score
1. What is the Ecological Integrity of the wetland?		Average Score from **1- Ecological Integrity**	*3.2*
2. Does the wetland have high value wildlife habitat?		Average Score from **2 – Wetland-Dependent Wildlife Habitat**	*3.0*
3. Does the wetland have high value fish and aquatic life habitat?	*Bellamy river provides significant aquatic habitat*	Average Score from **2 – Fish & Aquatic Life Habitat**	*1.5*
4. Is all or part of the wetland on public or private property that has public access?	*City owned and private gravel pit property.*	a. Wetland is on a property with public or private access and trails to the site. b. Wetland is on a property with public or private access but no trails to the site. c. Wetland is on a property that does not have public access.	10 5 (1)
5. How close is the educational site to off-road parking suitable for 5-10 vehicles or large enough for a school bus?		a. Adequate parking is available less than a 5 minute walk from the educational site. b. Adequate parking is a 5-15 minute walk from educational site, or parking is limited to less than 5 cars. c. Adequate parking is more than 15 mins walk from the educational site, or no adequate parking is available.	(10) 5 1
6. How many wetland vegetation classes are accessible or potentially accessible for study at the educational site?	*Several wetland vegetation types observable.*	a. Three or more wetland vegetation classes b. Two wetland vegetation classes c. One wetland vegetation class	10 (5) 1
7. Is there access to open water (include streams) associated with the wetland at educational site?	*Bellamy River*	a. Direct access to water available b. Water access is a short distance (5 mins or less) from the educational site c. No access or access not feasible d. No open water	(10) 5 0
8. What is the aesthetic and visual quality of the educational site?		Average Score from **4 – Scenic Quality**	*2.7*
9. Is the educational site accessible to the disabled?	*No*	a. Yes b. No	10 (0)

AVERAGE SCORE FOR EDUCATIONAL POTENTIAL

(Add scores for each question and divide by 9) *4.1*

Wetland Name/Code: *Pudding Hill Interim Aquifer Improvements Dover NH* Evaluation Date: *5/2017* Evaluator: *Damon Burt, CWS*

6 – WETLAND-BASED RECREATION (CANOEING, KAYAKING, AND WILDLIFE OBSERVATION)

Evaluation Questions	Observations & Notes	Answers	Score
1. Are there opportunities for wildlife observation?	*Potential for wildlife observation*	Average score for **2 – Wetland-Dependent Wildlife Habitat**	*3.0*
2. Is there access to suitable open water for canoes and kayaks?	*Bellamy River*	a. Open water is present, with easy access b. Open water is present, but site is not easily accessed for canoes/kayaks. c. No open water and no access	10 (5) 1 0
3. Are there trail-based recreation opportunities?		a. Maintained trails are present in and immediately adjacent to the wetland b. Trails are present but not maintained c. No trails are present	10 5 (1)
4. Are there off-trail recreation opportunities (e.g. open water or undisturbed buffer)?	*Bellamy River*	a. Wetland has open water greater than 0.5 acres in size **AND** an undisturbed 500 ft buffer for greater than 75% of the wetland edge. b. Wetland has open water greater than 0.5 acres in size **OR** an undisturbed 500 ft buffer for greater than 75% of the wetland edge. c. Wetland has neither open water nor an undisturbed buffer greater than 75%	(10) 5 1 0
5. Is there off-road public parking at the potential recreation site for at least two cars?	*Yes, but not formally open to the public.*	a. Adequate parking is available less than 5 minutes from the recreation site. b. Adequate parking is a 5-10 minute walk from the recreation site, or parking is limited. c. Adequate parking is more than 10 minutes walk from the recreation site, or no adequate parking is available.	10 (5) 1
6. What is the scenic quality of the potential recreational site?		Average score from **4 – Scenic Quality**	*1.3*

AVERAGE SCORE FOR WATER-BASED RECREATION

(Add scores for each question and divide by 6) *1*

NH METHOD FOR THE EVALUATION OF FRESHWATER WETLANDS

Wetland Name/Code: *Pudding Hill Interim Aquifer Improvements Dover NH* Evaluation Date: *5/2017* Evaluator: *Damon Burt, CWS*

7 – FLOOD STORAGE

Instead of manually calculating the Wetland Flood Index on this data sheet, you can use the Flood Index Worksheet, an Excel spreadsheet provided on the NH Method website (http://nhmethod.org/manual.htm) which is set up to do all the calculations for you. An example of the spreadsheet is provided in Table 3.

Note that this function is scored somewhat differently from the other NH Method function. A series of factors are developed that are then use to derive the Flood Storage Index. The numerical scores for the factors do not correspond to the 10, 5, 1, 0 scoring scale used in the other functions.

In the following situations, the Flood Value Index does not need to be calculated for the wetland being studied. Instead a certain flood index range can be assumed:

1. Wetlands with slopes greater than 10% (10' vertical :100' horizontal) as measured along the flow path, where it is obvious that little flood attenuation could occur, **should be assigned a Low Flood Index Value range (0.0 to 0.9).**
2. For large ponds or lakes or wetlands with ponded water surface area greater than 200 acres and streams that are Fourth Order or higher (i.e. 4th, 5th, 6th etc.) **assign a High Flood Index Value range (7.6 to 10.0)**

Evaluation Questions	Observations and Notes	Answers	Factor
1. What is the Wetland Acreage (W)?	*Part of Bellamy River*	acres	1
2. What is the Watershed Acreage (S)?	*Watershed to Bellamy River*	acres	1
3. What is the Water Storage Depth in the wetland (D)?		a. Use the actual water storage depth if known b. Assign a default value of 1.0 if the wetland is located in a 100 year floodplain c. Assign a default value of 1.0 ft if the actual water storage depth is not known	(D=3.0_ft) D=1.0 ft D=1.0 ft
4. What is the Wetland Storage Volume (V)?		Multiply Water Storage Depth by Wetland acreage: D x A = V	V = *0.5* acre feet
5. Wetland Storage Volume Factor (F)		Insert value from Table 1	F= *1.0*
6. Watershed Area Factor (A)		Insert value from Table 2	A= *1.0*
7. Location of wetland within the watershed (L)		a. Wetland located within 1,000 ft of a 4th order or higher stream OR within 1000 ft of a pond/lake that outlets to a 4th order or higher stream b. Wetland located within 500 ft of a perennial stream (less than 4th order) c. Neither of the above situations apply to the study wetland	1.0 (.8) .6

SCORE FOR WETLAND FLOOD INDEX = F x A x L x 10 *1.0 x 1.0 x 0.8 x 10 =* ***8.0*** *(moderate to high Flood Value)*

Use the score to locate the Value Range below and assign Flood Index Value

Wetland Flood Index Values	Flood Value Type
0.0 – 0.9	Low Flood Value
1.0 – 2.5	Low Value to Moderate Flood
2.6 – 5.0	Moderate Flood Value
5.1 – 7.5	Moderate to High flood Value
(7.6 – 10.0)	High flood Value

8 – GROUNDWATER

Note that this function does not require any field work

Evaluation Questions	Observations & Notes	Answers	Score
1. **Does the wetland overlie stratified drift aquifer?**	yes	a. Wetland overlies stratified drift aquifer b. Wetland is adjacent to stratified drift aquifer c. Wetland is not located over or adjacent to stratified drift aquifer	(10) 5 1
2. **Is the wetland in a potential public water supply area?**		a. Wetland is in an area identified by Favorable Gravel Well Analysis b. Wetland is directly adjacent to an area identified by Favorable Gravel Well Analysis c. Wetland is not located in or adjacent to an area identified by Favorable Gravel Well Analysis	(10) 5 1
3. **Is the wetland within a public wellhead protection area?**	*Yes*	a. More than 75% of the wellhead protection area includes the wetland b. 25%-75% of the wellhead protection area includes the wetland c. Less than 25% of the wellhead protection area includes the wetland	(10) 5 1
4. **What is the dominant soil type within 100 ft of the wetland?** *Refer to Table 3 to answer this question*	*Mixed Alluvial Soils, Wetland*	a. More than 50% of the soil types within 100 ft of the wetland are on the list in Table 3. b. 25-50% of the soil types within 100 ft of the wetland listed in Table 3 c. < 25% of the soil types within 100 ft of the wetland are listed in Table 3	10 5 (1)
5. **What are the dominant soil types WITHIN the wetland?** *Refer to Table 3 to answer this question*	*Mixed Alluvial Soils, Wetland*	a. More than 50% of the soil types within the wetland are listed in Table 4. b. 25 – 50% of the soil types within the wetland are listed in Table 4. c. Less than 25% of the soil types within the wetland are listed in Table 4.	10 5 (1)

AVERAGE SCORE FOR GROUND WATER
(Add scores for each question and divide by 5) *1.0*

NH METHOD FOR THE EVALUATION OF FRESHWATER WETLANDS

Wetland Name/Code: *Pudding Hill Interim Aquifer Improvements Dover NH* Evaluation Date: *5/2017* Evaluator: *Damon Burt, CWS*

9 – SEDIMENT TRAPPING

Evaluation Questions	Observations &Notes	Answers	Score
1. What is the wetland's Flood Storage value?		Wetland Flood Index score from 7 – Flood Storage.	*1.5*
2. Does the wetland lack outlet or have a constricted outlet?		a. Wetland has no outlet or has a constricted outlet. b. Wetland has an outlet but flow path through wetland is primarily sheet flow or ponded in a shallow basin. c. Wetland outlet not constricted or flow primarily within stream channel.	(10) 5 1
3. What is the shape of the stream channel through the wetland?	*Stream channel is sinuous*	a. No stream channel evident in wetland b. Sinuous channel, where the length of the channel is GREATER THAN 1.5 times the length of the wetland along the stream. c. Channel where the length of the channel is LESS than 1.5 times the length of the wetland along the stream.	10 (5) 1
4. What is the ratio of the wetland's size to the size of its watershed? *Acres of Wetland* x 100 / *Area of watershed above wetland outlet*		a. Wetland is more than 10% of its watershed. b. Wetland is between 1-10% of its watershed. c. Wetland is less than 1% of its watershed.	10 (5) 1
5. What is the gradient within the wetland?		a. Wetland has gradient less than 0.5% or has no outlet b. Wetland gradient is 0.5% to 3% c. Wetland has gradient greater than 3%.	10 (5) 1
6. What is the areal extent (% coverage) all vegetation types that will most likely trap sediments? (e.g. forested swamps, scrub shrub swamps, and persistent emergent marshes)	*Bellamy River is 20 feet wide with significant flows, limiting vegetation growth in River.*	a. Persistent emergent plants (stems above surface of water /wetland throughout the year), trees and/or shrubs cover at least 90% of the surface area of the wetland. b. Persistent emergent, trees and/or shrubs, and/or non-persistent emergents (stems fall below the surface of water/wetland during fall and winter) cover 50-90% of the wetland's surface area. c. Open Water or Aquatic Bed vegetation covers < 50% of the surface area of the wetland	10 5 (1)
7. What is the average water depth in the wetland during growing season?	*Bellamy River is several feet deep.*	a. Average water depth is less than 1 foot or there is no open water b. Average water depth greater than 1 foot and less than 6.6 feet. c. Average water depth is greater than 6.6 feet	10 (5) 1

AVERAGE SCORE FOR SEDIMENT TRAPPING:
(Add scores for each question and divide by 7) *2.4*

Wetland Name/Code: *Pudding Hill Interim Aquifer Improvements Dover NH* Evaluation Date: *5/2017* Evaluator: *Damon Burt, CWS*

10 – NUTRIENT REMOVAL/RETENTION/TRANSFORMATION

Evaluation Questions	Observations &Notes	Answers	Score
1. What is the wetland's Flood Storage value?		Flood Index Score from **7 – Flood Storage.**	*1.5*
2. What is the wetland's ability to trap sediments?		Average score from **9 – Sediment Trapping.**	*2.4*
3. What is the extent (percent cover) of persistent emergent vegetation, trees and/or shrubs within the wetland?		Record answer from **9- Sediment Trapping,** Question 6	*1*
4. What hydroperiod occurs over more than 50% of the wetland?	*Bellamy River is a Perennial River*	a. Semi-permanently flooded, seasonally flooded/saturated, or saturated b. Seasonally flooded or temporarily flooded c. Permanently flooded; intermittently exposed	10 5 (1)
5. What soils cover the greatest percentage of the wetland?	*Mixed Alluvial Soil, wet*	a. Wetland is dominated by fine textured soils (refer to Table A, Appendix D) b. Wetland is dominated by organic and/or peat soils (refer to Table B, Appendix D) c. Wetland is dominated by sands and gravels (refer to Table C, Appendix D)	(10) 5 1

AVERAGE SCORE FOR NUTRIENT TRANSFORMATION

(Add scores for each question and divide by 5) *5.0*

Wetland Name/Code: *Pudding Hill Interim Aquifer Improvements Dover NH* Evaluation Date: *5/2017* Evaluator: *Damon Burt, CWS*

11 – SHORELINE ANCHORING

If there is no stream, river, lake or pond within or adjacent to the wetland, leave this Functional out of the evaluation.

Evaluation Questions	Observations & Notes	Answers	Score
1. What is the gradation of wetland vegetation types along the shoreline?		a. Three or more wetland vegation types present (PAB, PEM, PSS or PFO) b. Two wetland vegetation types present c. One wetland vegetation type present	(10) 5 1
2. What is the vegetation density in the wetland bordering watercourse, lake or pond?		a. High: More than 90% vegetation cover b. Moderate: From 70-90% vegetation cover c. Low: Less than 70% vegetation cover	10 5 (1)
3. How wide is the wetland bordering the watercourse, lake or pond?		a. More than 20 feet b. From 10-20 feet c. Less than 10 feet	10 (5) 1
4. How "rough" is the substrate of the wetland?		a. Wetland substrate characterized by many boulders, stones or cobbles b. Wetland susbstrate has few boulders, stones or cobbles, or substrate is mostly gravel or coarse sands c. Wetland substrate is uniformly smooth and is comprises of clays, silts or very fine sands or organic materials.	(10) 5 1

AVERAGE SCORE FOR SHORELINE ANCHORING

(Add scores for each question and divide by 4) *3*

12 – NOTEWORTHINESS

Describe noteworthy features in the wetland narrative

Evaluation Questions	Observations & Notes	Answers	Score
1. Does the wetland contain Critical Habitat as listed in the NH Wildlife Action Plan? (marsh and shrub wetland, floodplain forest and peatland).		a. No	1
2. Is the wetland located in or within 500 ft of an area of Highest Ranked Habitat (state or regional level), as identified on the NH Wildlife Action Plan Highest Ranked Habitat Condition map?		a. Yes	10
3. Does the wetland have local significance because has consistently high scores for all functions and/or is among the top 10 largest wetlands in town?		a. Yes	10
4. Does the wetland have local or regional significance, e.g. is it located in a priority area in a local or regional conservation plan, or it is one of the largest in the region?		a. Yes	10
5. Does the wetland have biological, geological, or other features that are locally rare or unique locally or on a regional or statewide scale?		a. Yes	10
6. Is the wetland known to contain an important historical or archaeological site?		a. Yes	10
7. Is the wetland hydrologically connected to a state or federally designated river within ¼ mile of the wetland's outlet?		a. Yes	10
8. Is the wetland one of just a few left in an urban setting?		a. Yes	10

TOTAL SCORE FOR NOTEWORTHINESS *71*

Add up the scores for all questions which received a YES answer.
The total score is the score for this function **(note that this score is not averaged).**
For example, if you answered YES to four questions, the score would be 40. If you answered YES to only one question, the score is 10



FRAGGLE ROCK ENVIRONMENTAL SERVICES

Locus Map

SWPPP

Pudding Hill Aquifer
Interim Improvements

Dover, NH



Google Earth

feet 3000

meters 900

U.S. Fish and Wildlife Service

National Wetlands Inventory

Pudding Hill Aquifer Interim Improvements



June 2, 2017

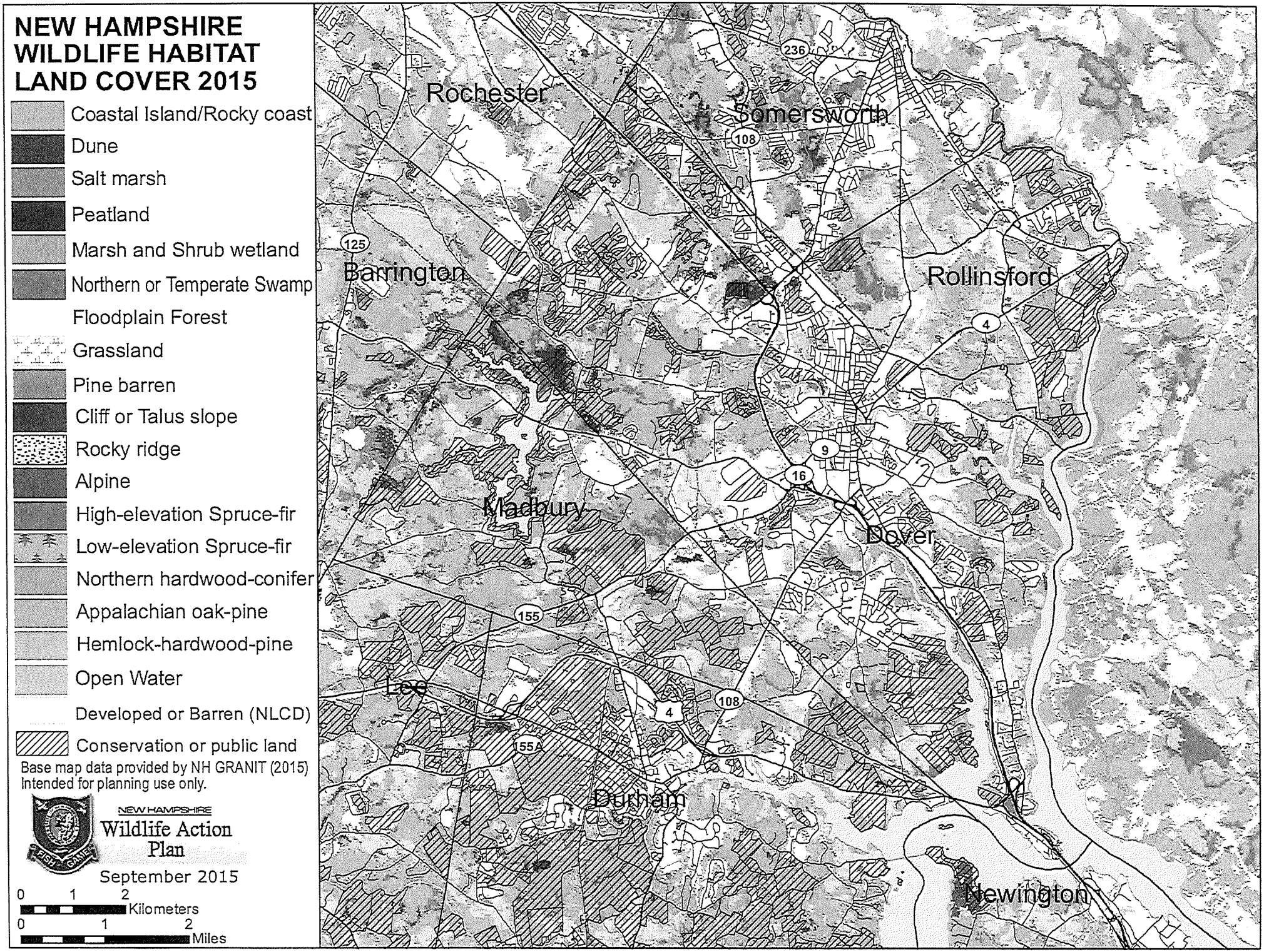
Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)

NEW HAMPSHIRE WILDLIFE HABITAT LAND COVER 2015



Base map data provided by NH GRANIT (2015)
Intended for planning use only.

NEW HAMPSHIRE
Wildlife Action Plan
September 2015

2015 HIGHEST RANKED WILDLIFE HABITAT BY ECOLOGICAL CONDITION

Highest Ranked Habitat in New Hampshire

Highest Ranked Habitat in the Biological Region

Biological region = TNC ecoregional subsection for terrestrial habitats or Aquatic Resource Mitigation region for wetlands and floodplain forest.

Supporting Landscapes

Conservation or public



Base map data provided by NH GRANIT (2015)
Not intended for legal use.

NEW HAMPSHIRE
Wildlife Action Plan
September 2015

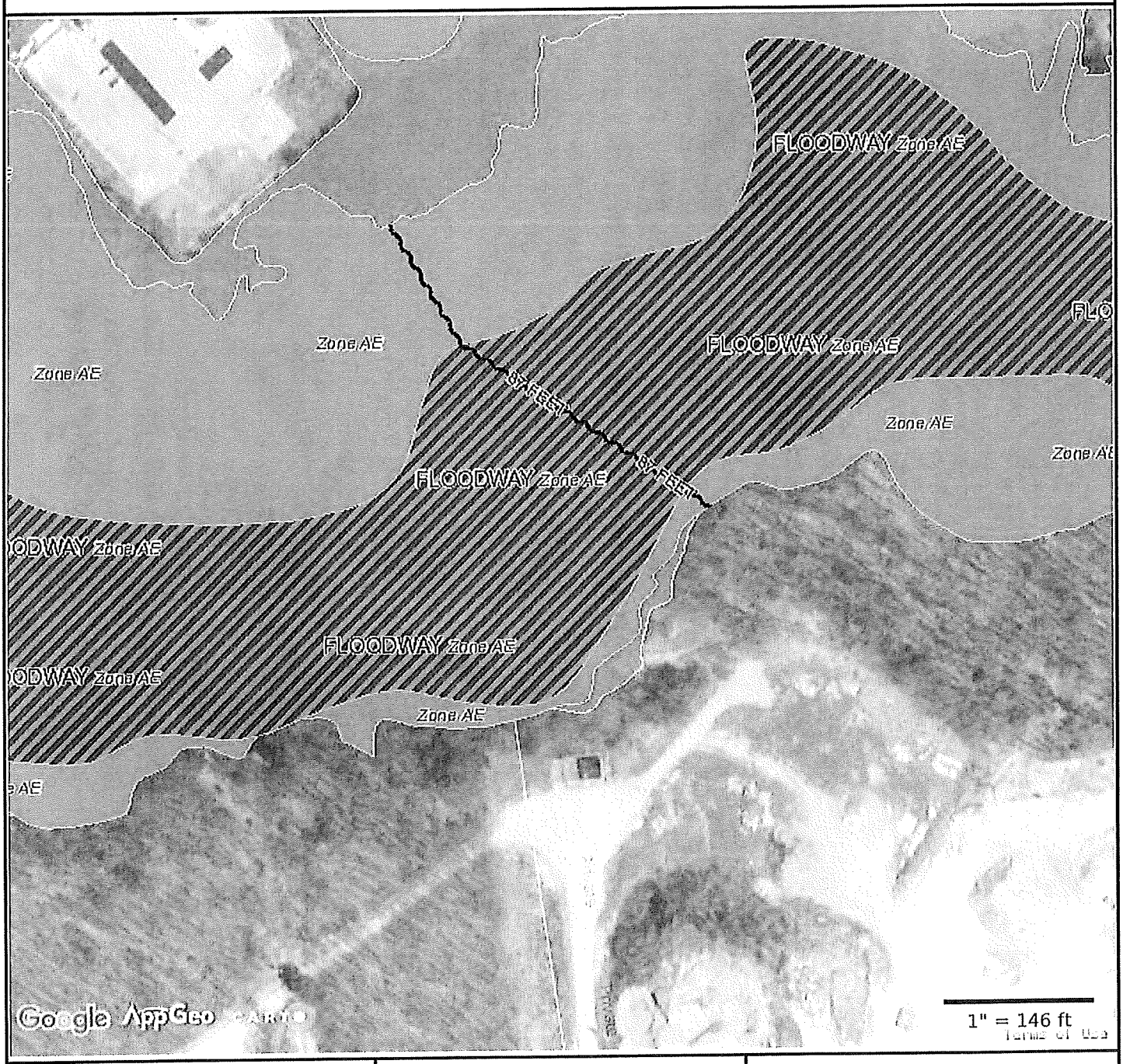
0 1 2 Kilometers

0 1 2 Miles

ATTACHMENT D

FLOODPLAIN MAP

HABITAT MAP

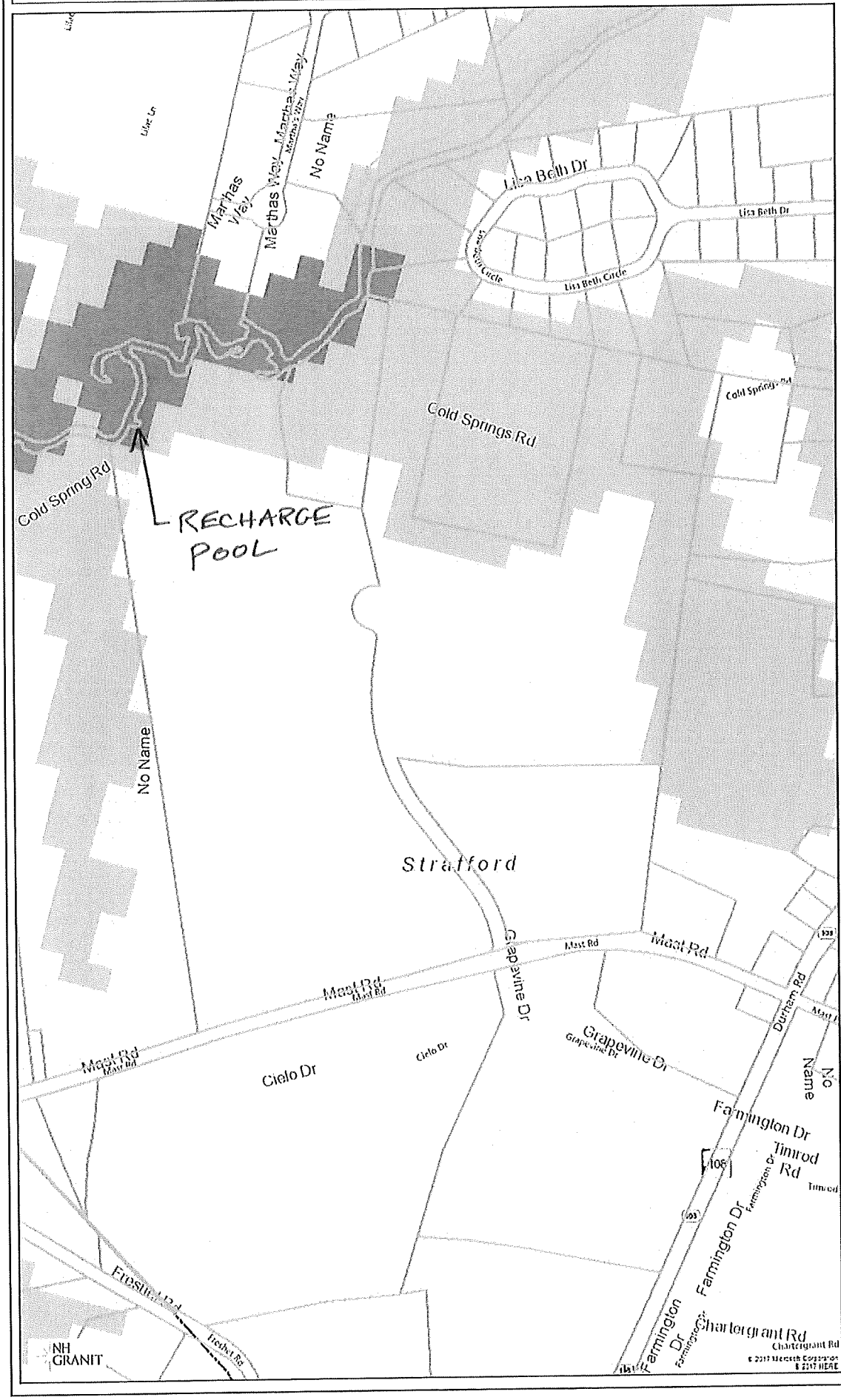


MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

City of Dover, NH makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Parcels updated 1/1/2016
Properties updated 08/11/2016

Map by NH GRANIT



Legend

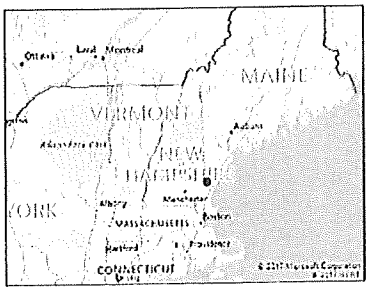
- Parcels - polygons
- Label Counties
- Label Interstates
- Label Turnpikes
- Label US Routes
- Label State Routes
- Label Local Roads
- State
- County
- City/Town
- WAP 2015: Highest Rank
  - Not Top Ranked
  - Highest Ranked Habitat in N
  - Highest Ranked Habitat in R
  - Supporting Landscape

Map Scale
1: 6,494

© NH GRANIT, www.granit.unh.edu
Map Generated: 3/27/2017

Notes

Highest Ranked Habitats



Map Theme Legends

FEMA Flood Zones

- Cross-Sections
- Coastal Transects
- Limit of Moderate Wave Action
- Coastal Barrier Resources System Area
- Base Flood Elevations

Flood Hazard Zones

- 1% Annual Chance Flood Hazard
- Regulatory Floodway
- Special Floodway
- Area of Undetermined Flood Hazard
- 0.2% Annual Chance Flood Hazard
- Future Conditions 1% Annual Chance Flood
- Area with Reduced Risk Due to Levee

FEMA Map Service Center

ATTACHMENT E

NHB REPORT AND FEDERAL iPaC LIST

CONFIDENTIAL – NH Dept. of Environmental Services review

Memo

NH Natural Heritage Bureau
NHB Datacheck Results Letter

To: Allison Rees, Underwood Engineers
99 North State Street
Concord, NH 03301

From: Amy Lamb, NH Natural Heritage Bureau
Date: 9/18/2019 (valid for one year from this date)
Re: Review by NH Natural Heritage Bureau
NHB File ID: NHB19-2950 Town: Dover Location: Tax Maps: H58/0
Description: Abandon existing aquifer recharge intake pool and install new intake structure manhole on the bank of the Bellamy River, replace existing recharge station building.
cc: Kim Tuttle

As requested, I have searched our database for records of rare species and exemplary natural communities, with the following results.

Comments: Please contact the NH Fish & Game Department.

Vertebrate species	State[1]	Federal	Notes
American Eel (*Anguilla rostrata*)	SC	--	Contact the NH Fish & Game Dept (see below).
New England Cottontail (*Sylvilagus transitionalis*)	E	--	Contact the NH Fish & Game Dept (see below).
Northern Black Racer (*Coluber constrictor constrictor*)	T	--	Contact the NH Fish & Game Dept (see below).
Spotted Turtle (*Clemmys guttata*)	T	--	Contact the NH Fish & Game Dept (see below).

[1]Codes: "E" = Endangered, "T" = Threatened, "SC" = Special Concern, "--" = an exemplary natural community, or a rare species tracked by NH Natural Heritage that has not yet been added to the official state list. An asterisk (*) indicates that the most recent report for that occurrence was more than 20 years ago.

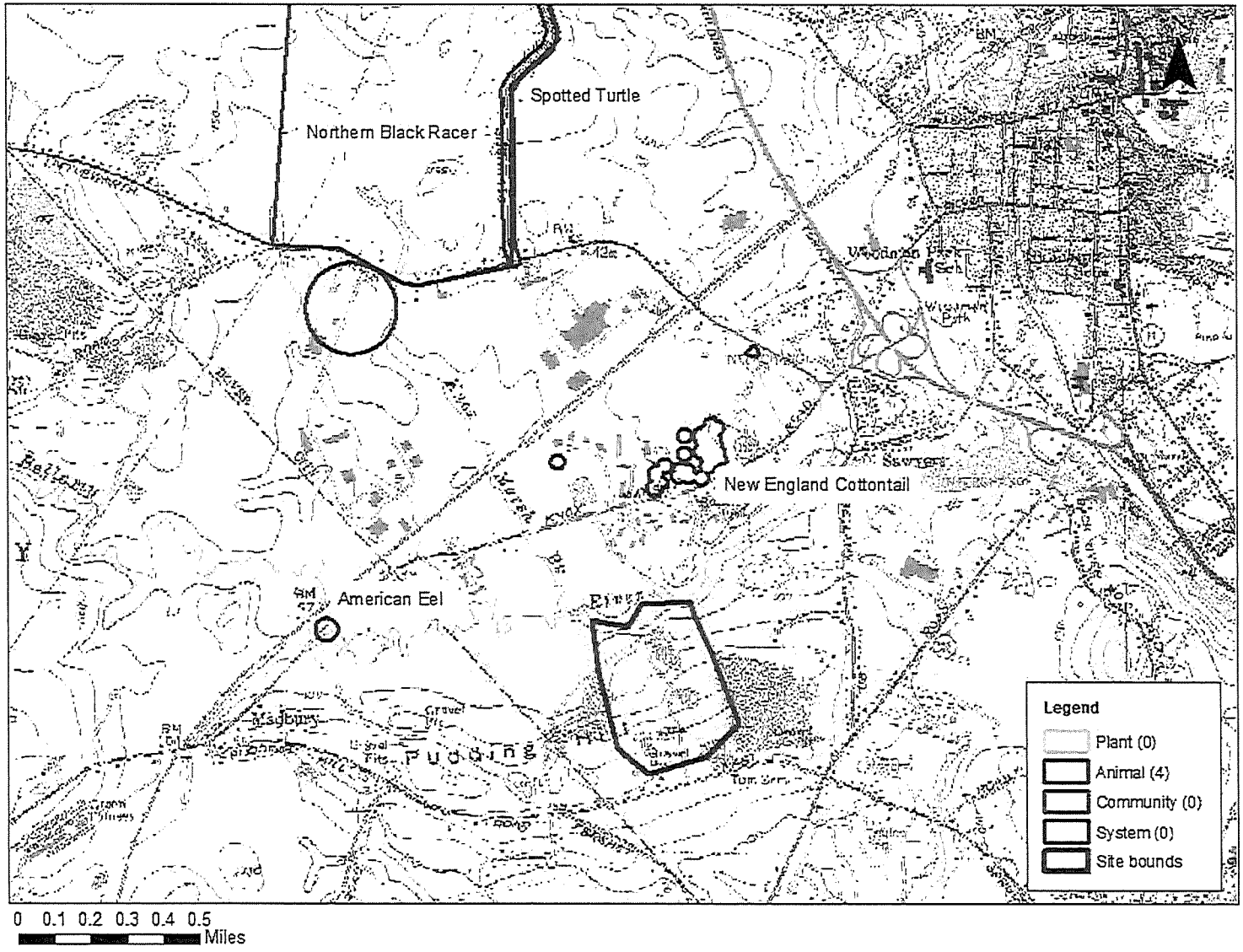
Contact for all animal reviews: Kim Tuttle, NH F&G, (603) 271-6544.

A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

Department of Natural and Cultural Resources
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301

NHB19-2950


Spotted Turtle
Northern Black Racer
New England Cottontail
American Eel
Legend
Plant (0)
Animal (4)
Community (0)
System (0)
Site bounds
0 0.1 0.2 0.3 0.4 0.5
Miles

New Hampshire Natural Heritage Bureau - Animal Record

American Eel (*Anguilla rostrata*)

Legal Status

Federal: Not listed
State: Special Concern

Conservation Status

Global: Apparently secure but with cause for concern
State: Rare or uncommon

Description at this Location

Conservation Rank: Not ranked
Comments on Rank:

Detailed Description: 2000: Area 13219: Not enumerated.
General Area:
General Comments:
Management Comments:

Location

Survey Site Name: Bellamy River
Managed By:

County: Strafford
Town(s): Madbury
Size: 1.9 acres
Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2000: Bellamy River

Dates documented

First reported: 2000 Last reported: 2000

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

CONFIDENTIAL – NH Dept. of Environmental Services review

New Hampshire Natural Heritage Bureau - Animal Record

New England Cottontail (*Sylvilagus transitionalis*)

Legal Status

Federal: Not listed
State: Listed Endangered

Conservation Status

Global: Rare or uncommon
State: Critically imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Not ranked
Comments on Rank:

Detailed Description: 2014: Winter observation at 1 point.
2011: Winter observations at 22 points.
2003: Seen (Obs_id 442). Seen (Obs_id 441).
General Area: 2003: Terrestrial: Scrub / shrubland (Obs_id 442, 441).
General Comments: 2003: Results of J. Litvaitis Regional New England Cottontail Survey - 2003 (Obs_id 442). 2003: Results of J. Litvaitis Regional New England Cottontail Survey - 2003 (Obs_id 441).

Management Comments:

Location

Survey Site Name: Knox Marsh
Managed By:

County: Strafford
Town(s): Dover
Size: 14.2 acres
Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2003: Rte. 9, ca. 200 meters from junction with Rte. 155; old field south of road (Obs_id 442). 2003: Traveling NE on Rte. 155, old field patch on left after the Dover bus depot (Obs_id 441).

Dates documented

First reported: 2003-01-01 Last reported: 2014

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

CONFIDENTIAL – NH Dept. of Environmental Services review

New Hampshire Natural Heritage Bureau - Animal Record

Northern Black Racer (*Coluber constrictor constrictor*)

Legal Status		Conservation Status	
Federal:	Not listed	Global:	Demonstrably widespread, abundant, and secure
State:	Listed Threatened	State:	Imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Not ranked
Comments on Rank:

Detailed Description: 2003: 6-foot long roadkill, about 2 weeks ago [from 9/18/03] (Obs_id 2003.0132). 1999: 5 adult or subadult snakes captured and monitored with radio telemetry.
General Area: 2003: Large hayfield (industrial park) (Obs_id 2003.0132). 1999: No details.
General Comments: 1999: Collected under plastic cover sheets and traps.
Management Comments:

Location

Survey Site Name: Rte. 9, north of
Managed By: Ezra Greens Farm

County: Strafford
Town(s): Dover
Size: 405.5 acres Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2003: Crosby Road, intersection Rte. 9, 150'-200' down on right (Obs_id 2003.0132). 1999: Nearly a square mile area, ca. 1 mile west of Dover. Bounded by Rte. 9 to the south, Tolend Rd. to the north, Columbus Ave. to the east, and woods (and subdivisions) to the west.

Dates documented

First reported: 1998 Last reported: 2003-09-18

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

CONFIDENTIAL – NH Dept. of Environmental Services review

New Hampshire Natural Heritage Bureau - Animal Record

Spotted Turtle (*Clemmys guttata*)

Legal Status

Federal: Not listed
State: Listed Threatened

Conservation Status

Global: Demonstrably widespread, abundant, and secure
State: Imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Fair quality, condition and/or landscape context ('C' on a scale of A-D).
Comments on Rank:

Detailed Description: 2006: Area 11682: 1 adult female seen.
General Area:
General Comments:
Management Comments:

Location

Survey Site Name: Columbus Avenue, Dover
Managed By: Goldberg Park

County: Strafford
Town(s): Dover
Size: 18.3 acres
Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2006: Area 11682: Columbus Avenue, Dover.

Dates documented

First reported: 2006-06-06 Last reported: 2006-06-06

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

CONFIDENTIAL – NH Dept. of Environmental Services review

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
http://www.fws.gov/newengland

September 12, 2019

In Reply Refer To:
Consultation Code: 05E1NE00-2017-SLI-1179
Event Code: 05E1NE00-2019-E-07486
Project Name: Pudding Hill Aquifer Recharge

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2017-SLI-1179

Event Code: 05E1NE00-2019-E-07486

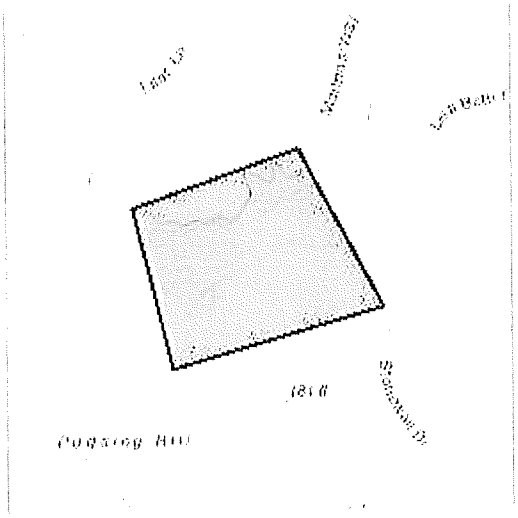
Project Name: Pudding Hill Aquifer Recharge

Project Type: WATER SUPPLY / DELIVERY

Project Description: New intake structure for the City of Dover aquifer recharge station.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/43.17326834257679N70.90051440830186W



Counties: Strafford, NH

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Flowering Plants

NAME	STATUS
Small Whorled Pogonia *Isotria medeoloides* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1890	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

IPaC Information for Planning and Consultati **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical hab (collectively referred to as *trust resource*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. Th may also include trust resources that occur outside of the project area, but that could potential directly or indirectly affected by activities in the project area. However, determining the likelihoo extent of effects a project may have on trust resources typically requires gathering additional specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing proposed activities) informatior

Below is a summary of the project information you provided and contact information for the US office(s) with jurisdiction in the defined project area. Please read the introduction to each section follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for addition information applicable to the trust resources addressed in that secti

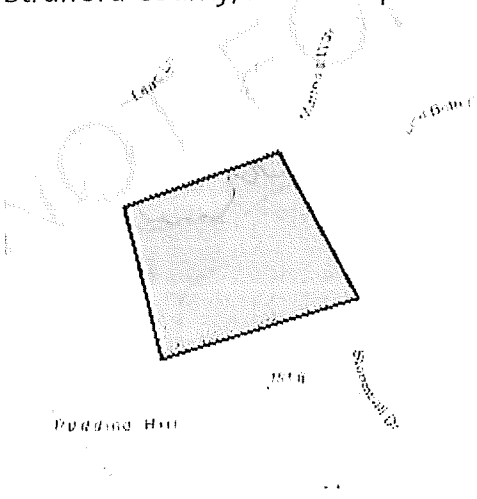
Project informatio

NAME

Pudding Hill Aquifer Recharge

LOCATION

Strafford County, New Hampshir



DESCRIPTION

New intake structure for the City of Dover aquifer recharge stati

Local office

New England Ecological Services Field Office

(603) 223-2541
(603) 223-0104

70 Commercial Street, Suite 30(
Concord, NH 03301-5094

http://www.fws.gov/newengla

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each spe Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside the species range if the species could be indirectly affected by activities in that area (e.g., placin dam upstream of a fish population, even if that fish does not occur at the dam site, may indir impact the species by reducing or eliminating water flow downstream). Because species can mc and site conditions can change, the species on this list are not guaranteed to be found on or near project area. To fully determine any potential effects to species, additional site-specific and pr specific information is often require

Section 7 of the Endangered Species Act**requires** Federal agencies to "request of the Secretar information whether any species which is listed or proposed to be listed may be present in the ar such proposed action" for any project that is conducted, permitted, funded, or licensed by any Fe agency. A letter from the local office and a species list which fulfills this requirement**only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (s directions below) or from the local field office direct

For project evaluations that require USFWS concurrence/review, please return to the IPaC webs and request an official species list by doing the followin

1. Log in to IPaC.
2. Go to your My Projects list
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by th Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospher Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdictio

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also show species that are candidates, or proposed, for listing. See th listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of th National Oceanic and Atmospheric Administration within the Department of Comme

The following species are potentially affected by activities in this locati

Mammals

NAME	STATUS

Flowering Plants

NAME	STATUS
Small Whorled Pogonia Isotria medeoloides No critical habitat has been designated for this specie https://ecos.fws.gov/ecp/species/189	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endange species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migra birds, eagles, and their habitats should follow appropriate regulations and consider impleme appropriate conservation measures, as describe below

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following li

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-spec birds-of-conservation-concern.ph
- Measures for avoiding and minimizing impacts to bir http://www.fws.gov/birds/managem /project-assessment-tools-and-guidanc conservation-measures.ph
- Nationwide conservation measures for bir http://www.fws.gov/migratorybirds/pdf/managen /nationwidestandardconservationmeasures.p

The birds listed below are birds of particular concern either because they occur on USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn m about the levels of concern for birds on your list and how this list is generated, see the b below This is not a list of every bird you may find in this location, nor a guarantee that every bird on thi will be found in your project area. To see exact locations of where birders and the general public h

sighted birds in and around your project area, visit tE-bird data mapping toc(Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Co additional maps and models detailing the relative occurrence and abundance of bird species on list are available. Links to additional information about Atlantic Coast birds, and other impo information about your migratory bird list, including how to properly interpret and use your mig bird report, can be foun below

For guidance on when to schedule activities or implement avoidance and minimization measure reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, bu warrants attention because of the Eagle Act or for potent susceptibilities in offshore areas from certain types of developmen activities. https://ecos.fws.gov/ecp/species/162	Breeds Oct 15 to Aug 31
Black-billed Cuckoo Coccyzus erythropthalmus This is a Bird of Conservation Concern (BCC) throughout its range i the continental USA and Alaska https://ecos.fws.gov/ecp/species/939	Breeds May 15 to Oct 10
Bobolink Dolichonyx oryzivorus This is a Bird of Conservation Concern (BCC) throughout its range i the continental USA and Alaska	Breeds May 20 to Jul 31

Prairie Warbler Dendroica discolor This is a Bird of Conservation Concern (BCC) throughout its range i	Breeds May 1 to Jul 31
Rusty Blackbird Euphagus carolinus This is a Bird of Conservation Concern (BCC) throughout its range i the continental USA and Alaska	Breeds elsewhere
Wood Thrush Hylocichla mustelina This is a Bird of Conservation Concern (BCC) throughout its range i the continental USA and Alaska	Breeds May 10 to Aug 31

Probability of Presence Summar

The graphs below provide our best understanding of when birds of concern are most likely t present in your project area. This information can be used to tailor and schedule your project acti to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Pro Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpr report.

Probability of Presence ( )

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) y project overlaps during a particular week of the year. (A year is represented as 12 4-week months taller bar indicates a higher probability of species presence. The survey effort (see below) can be u to establish a level of confidence in the presence score. One can have higher confidence in t presence score if the corresponding survey effort is also hig

How is the probability of presence score calculated? The calculation is done in three ste

1. The probability of presence for each week is calculated as the number of survey events in week where the species was detected divided by the total number of survey events for that w For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in them, the probability of presence of the Spotted Towhee in week 12 is 0.
2. To properly present the pattern of presence across the year, the relative probability of presen calculated. This is the probability of presence divided by the maximum probability of pres across all weeks. For example, imagine the probability of presence in week 20 for the Spot Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 i 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statist conversion so that all possible values fall between 0 and 10, inclusive. This is the probabilit presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the

Breeding Season ( )

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds acros entire range. If there are no yellow bars shown for a bird, it does not breed in your project a

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of sur performed for that species in the 10km grid cell(s) your project area overlaps. The number of sur is expressed as a range, for example, 33 to 64 surveys

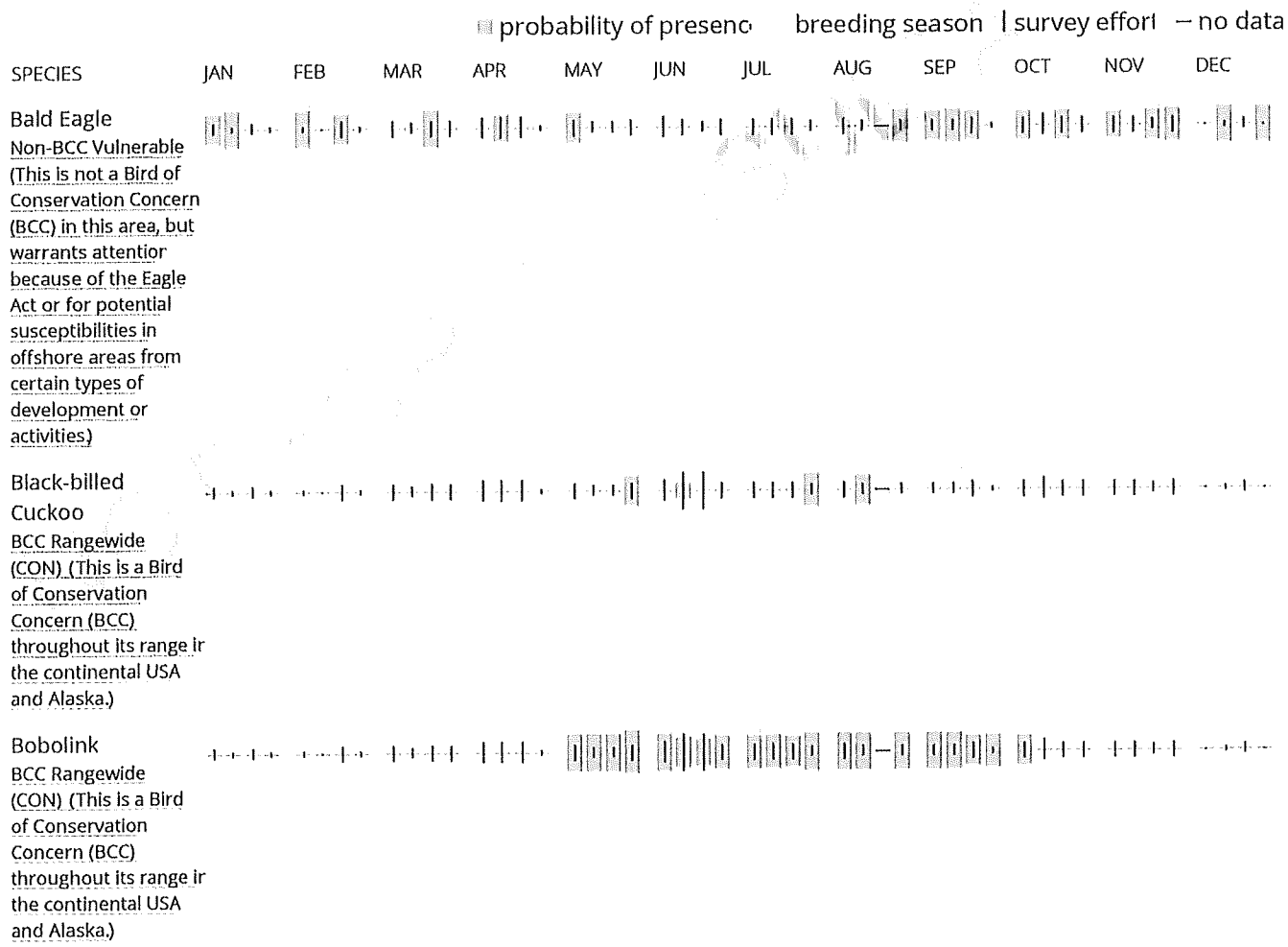
To see a bar's survey effort range, simply hover your mouse cursor over the b

No Data (–)

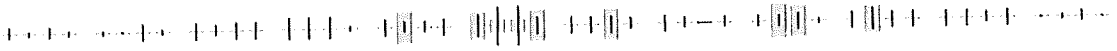
A week is marked as having no data if there were no survey events for that we

Survey Timeframe

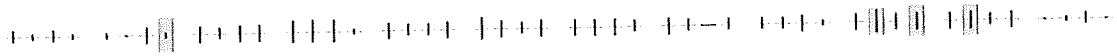
Surveys from only the last 10 years are used in order to ensure delivery of currently relev information. The exception to this is areas off the Atlantic coast, where bird returns are based o years of available data, since data in these areas is currently much more spars



Prairie Warbler
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Rusty Blackbird
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Wood Thrush
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory bird

Nationwide Conservation Measuredescribes measures that can help avoid and minimize impacts to all birds at a location year round. Implementation of these measures is particularly important when birds are most likely to oc the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoi their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur a breeding in your project area, view the Probability of Presence SummaAdditional measure:and/orpermitsmay be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species pr on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWSBirds of Conservation Concern (BCC)and other species that may warrant special attention in your project locati

The migratory bird list generated for your project is derived from data provided byAvian Knowledge Network (AKN). The AKN data is based on a growing collection osurvey, banding, and citizen science datasetand is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project inter and that have been identified as warranting special attention because they are a BCC species in that area, an ea (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activitie development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is representative of all birds that may occur in your project area. To get a list of all birds potentially present ir project area, please visit theAKN Phenology Tool

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

Knowledge Network (AKN). This data is derived from a growing collection survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To more about how the probability of presence graphs are produced and how to interpret them, go the Probab Presence Summary and then click on the "Tell me about these graphs" lir

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or round), you may refer to the following resources. The Cornell Lab of Ornithology All About Birds Bird Gui or (if you are unsuccessful in locating the bird of interest there), t Cornell Lab of Ornithology Neotropical Birds gui If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your pr area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indic then the bird likely does not breed in your project are

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of conc

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their rang anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Island
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in th continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either becaus the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from ce types of development or activities (e.g. offshore energy development or longline fishi

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, tc and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For m information on conservation measures you can implement to help avoid and minimize migratory bird impac requirements for eagles, please see the FAQs for these topic

Details about birds that are potentially affected by offshore project

For additional details about the relative occurrence and abundance of both individual bird species and groups o species within your project area off the Atlantic Coast, please visit t Northeast Ocean Data Porta The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project r Alternately, you may download the bird model results files underlying the portal maps throug NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the At Outer Continental Shel project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, incl migration. Models relying on survey data may not include this information. For additional information on mari tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may nee obtain a permi to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Repor

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority cor To learn more about how your list is generated, and see options for identifying what other birds may be in your p area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specil location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the s effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A survey effort is the key component. If the survey effort is high, then the probability of presence score can be vi as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a la certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what bi concern have the potential to be in your project area, when they might be there, and if they might be breeding (\ means nests might be present). The list helps you know what to look for to confirm presence, and helps guide y knowing when to implement conservation measures to avoid or minimize potential impacts from your p activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me a conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom o migratory bird trust resources page

Facilities

National Wildlife Refuge land

Any activity proposed on lands managed by th National Wildlife Refug system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuge discuss any questions or concerns

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 40 the Clean Water Act, or other State/Federal statutes

For more information please contact the Regulatory Program of the lo U.S. Army Corps of Engineers District

Please note that the NWI data being shown may be out of date. We are currently working to up our NWI data set. We recommend you verify these results with a site visit to determine the ac

extent of wetlands on site

This location overlaps the following wetlanc

FRESHWATER EMERGENT WETLAND

PEM1Ax

PEM1E

FRESHWATER FORESTED/SHRUB WETLAND

PFO1E

PFO1C

FRESHWATER POND

PUSAx

A full description for each wetland code can be found at tNational Wetlands Inventory websi

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level informa on the location, type and size of these resources. The maps are prepared from the analysis of high altitude ima Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in th of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the we boundaries or classification established through image analys

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata be consulted to determine the date of the source imagery used and any mapping probl

Wetlands or other mapped features may have changed since the date of the imagery or field work. There ma occasional differences in polygon boundaries or classifications between the information depicted on the map ar actual conditions on site

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial im as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aqu vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. S deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. T habitats, because of their depth, go undetected by aerial image

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands different manner than that used in this inventory. There is no attempt, in either the design or products of this inv to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establis geographical scope of the regulatory programs of government agencies. Persons intending to engage in activ involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, sta local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect activities.

ATTACHMENT F

NHF&G CORRESPONDANCE

Allison M. Rees

From: Tuttle, Kim <Kim.Tuttle@wildlife.nh.gov>
Sent: Thursday, May 4, 2017 1:29 PM
To: 'Allison M. Rees'
Cc: Holman, Heidi; Carpenter, Matthew
Subject: RE: NHB17-0906 Mast Road Dover
Attachments: RECP Specs.pdf; ROLANKA GEONATURAL EROSION.DOC; Curlex-III-FibreNet-CSI.PDF; SnakeFlyer_FinalVersion.pdf

Hi Allison,

I think we are all set on this one. Please avoid the use of welded plastic or 'biodegradable plastic' netting or thread in erosion control matting at this project site, if needed. There are numerous documented cases of snakes and other wildlife being trapped and killed in erosion control matting with synthetic netting and thread. Several 'wildlife friendly' options such as woven organic material (e.g., coco matting) are commercially available. Attached are a few examples of acceptable erosion control blankets. This looks acceptable as well:
http://www.americanexcelsior.com/erosioncontrol/library/Tech%20Notes/Biodegradable%20Blanket%20With%20Out%20Netting%20Material%20-%20Curlex%20NetFree.pdf

It is illegal to harm, harass, or kill northern black racers in New Hampshire. All construction personnel must be made aware of the potential presence and protected status of this species and the attached flyer distributed to them. If northern black racer are seen at any time, please photodocument with date, location, and habitat type and submit to Wildlife Sightings or RAARP. Please feel free to contact me if you have any questions about this review.

Check out reptiles and amphibians of NH!!:
http://www.wildlife.state.nh.us/nongame/reptiles-amphibians.html

Report your sightings of reptiles and amphibians in 3 ways:
1) Email details of observation or completed form to RAARP@wildlife.nh.gov *or*
2) Enter your observation online at http://nhwildlifesightings.unh.edu.

Sincerely,

Kim Tuttle
Wildlife Biologist
NH Fish and Game
11 Hazen Drive
Concord, NH 03301
603-271-6544

From: Allison M. Rees [mailto:arees@underwoodengineers.com]
Sent: Thursday, May 4, 2017 1:13 PM
To: Tuttle, Kim
Cc: Holman, Heidi; Carpenter, Matthew
Subject: RE: NHB17-0906 Mast Road Dover

Hi Kim,

I just following up on this project. Do you have any comments, or are we good to go?

Thank you,
Allison

Allison Rees, P.E.
Project Engineer
Underwood Engineers
99 North State Street
Concord, NH 03301
(603) 230-9898

From: Tuttle, Kim [mailto:Kim.Tuttle@wildlife.nh.gov]
Sent: Wednesday, March 29, 2017 1:24 PM
To: 'Allison M. Rees' <arees@underwoodengineers.com>
Cc: Holman, Heidi <Heidi.Holman@wildlife.nh.gov>; Carpenter, Matthew <Matthew.Carpenter@wildlife.nh.gov>
Subject: NHB17-0906 Mast Road Dover

Hello Allison,

Could you send over an aerial outlining the limits of disturbance for this project including equipment staging areas? Could you also please submit any photos of shrubby areas that may be disturbed? When do you plan to do the dredging project?

Thanks,

Kim Tuttle
Wildlife Biologist
NH Fish and Game
11 Hazen Drive
Concord, NH o3301
603-271-6544

From: Allison M. Rees [mailto:arees@underwoodengineers.com]
Sent: Wednesday, March 29, 2017 1:10 PM
To: Lamb, Amy
Cc: Tuttle, Kim
Subject: RE: NHB review: NHB17-0906

Hi Amy,

Thanks so much for the quick response!

I've attached a draft version of the wetlands permit application. It's not finished yet – you'll see there are still blank sections. However, this has photos, plans, and a narrative that describes the work the City wants to do for maintenance of that intake pool for artificial recharge of the water supply system.

Please let me know if there's any other information that would help either of you with your reviews.

Thank you,
Allison



Allison Rees, P.E.
Project Engineer
Underwood Engineers
99 North State Street
Concord, NH 03301
(603) 230-9898

From: Lamb, Amy [mailto:Amy.Lamb@dred.nh.gov]
Sent: Wednesday, March 29, 2017 12:53 PM
To: 'arees@underwoodengineers.com' <arees@underwoodengineers.com>
Cc: Tuttle, Kim <Kim.Tuttle@wildlife.nh.gov>
Subject: NHB review: NHB17-0906

Attached, please find the review we have completed. If your review memo includes potential impacts to plants or natural communities please contact me for further information. If your project had potential impacts to wildlife, please contact NH Fish and Game at the phone number listed on the review.

Best,
Amy

Amy Lamb
Ecological Information Specialist

NH Natural Heritage Bureau
DRED - Forest & Lands
172 Pembroke Rd
Concord, NH 03301
603-271-2215 ext. 323

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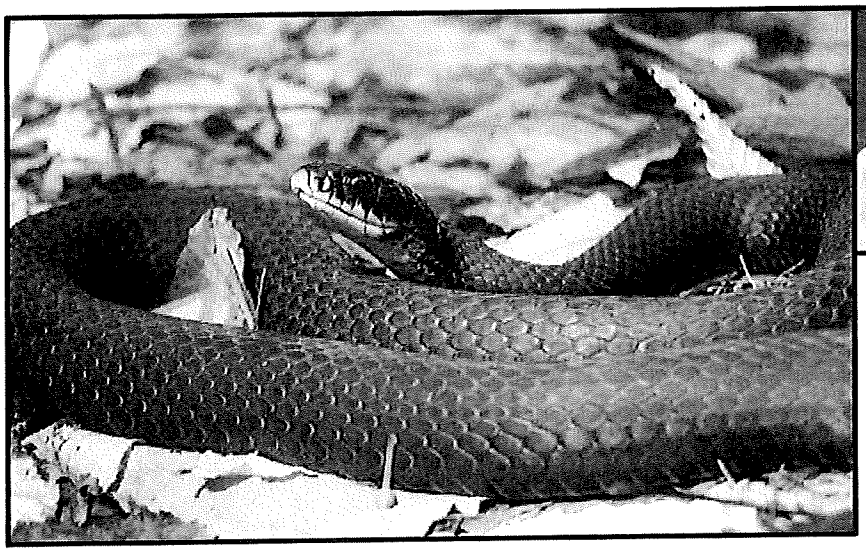
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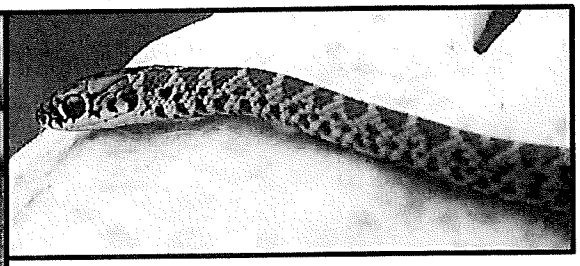
SEEKING REPORTS OF RARE SNAKES

The NH Fish & Game Department is collecting observations of two species:

NONGAME & Endangered Wildlife PROGRAM
New Hampshire Fish and Game Department

BLACK RACER *(state threatened)*

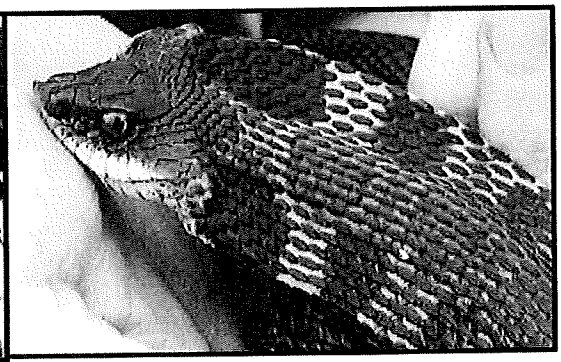




- Solid black with a white throat and chin
- Slender with glossy scales, 3-6 ft. long
- Hatchlings are very small and patterned

EASTERN HOGNOSE SNAKE *(state endangered)*





- Black, gray or patterned appearance
- Upturned snout, 2-3 ft. long
- May spread neck out or hiss

Both Species Are Harmless!

Report sightings to RAARP@wildlife.nh.gov or 603-271-2461

Please report promptly, noting specific location and date

Photographs strongly encouraged

For more information on New Hampshire's 11 native snakes, see http://www.wildlife.state.nh.us/Wildlife/Nongame/snakes.htm

ATTACHMENT G

DIVISION OF HISTORICAL RESOURCES RESPONSE TO SECTION 106 SUBMITTAL

Please mail the completed form and required material to:

New Hampshire Division of Historical Resources
State Historic Preservation Office
Attention: Review & Compliance
19 Pillsbury Street, Concord, NH 03301-3570

RECEIVED
APR 07 2017

DHR Use Only
R&C # 8598
Log In Date 4/7/17
Response Date 4/17/17
Sent Date 4/18/17

Request for Project Review by the New Hampshire Division of Historical Resources

RECEIVED
APR 20 2017
UNDERWOOD ENGINEERS
CONCORD, NH

☒ This is a new submittal
☐ This is additional information relating to DHR Review & Compliance (R&C) #:

GENERAL PROJECT INFORMATION

Project Title Pudding Hill Aquifer Recharge

Project Location Bellamy Recharge Station, 271 Mast Road

City/Town Dover Tax Map H58 Lot # 0

NH State Plane - Feet Geographic Coordinates: Easting 1188609 Northing 246661
(See RPR Instructions and R&C FAQs for guidance.)

Lead Federal Agency and Contact *(if applicable)*
(Agency providing funds, licenses, or permits)
Permit Type and Permit or Job Reference #

State Agency and Contact *(if applicable)* NHDES

Permit Type and Permit or Job Reference # Wetlands

APPLICANT INFORMATION

Applicant Name City of Dover, New Hampshire

Mailing Address 288 Central Avenue Phone Number 5166000

City Dover State NH Zip 03820 Email b.boulanger@dover.nh.gov

CONTACT PERSON TO RECEIVE RESPONSE

Name/Company Allison Rees, Underwood Engineers

Mailing Address 99 North State Street Phone Number 2309898

City Concord State NH Zip 03301 Email arees@underwoodengineers.com

This form is updated periodically. Please download the current form at www.nh.gov/nhdhr/review. *Please refer to the Request for Project Review Instructions for direction on completing this form.* Submit one copy of this project review form for each project for which review is requested. Include a self-addressed stamped envelope to expedite review response. Project submissions will not be accepted via facsimile or e-mail. This form is required. Review request form must be complete for review to begin. Incomplete forms will be sent back to the applicant without comment. Please be aware that this form may only initiate consultation. For some projects, additional information will be needed to complete the Section 106 review. All items and supporting documentation submitted with a review request, including photographs and publications, will be retained by the DHR as part of its review records. Items to be kept confidential should be clearly identified. For questions regarding the DHR review process and the DHR's role in it, please visit our website at: www.nh.gov/nhdhr/review or contact the R&C Specialist at christina.st.louis@dcr.nh.gov or 603.271.3558.

PROJECTS CANNOT BE PROCESSED WITHOUT THIS INFORMATION

Project Boundaries and Description

- ☒ Attach the relevant portion of a 7.5' USGS Map (photocopied or computer-generated) ***indicating the defined project boundary.*** *(See RPR Instructions and R&C FAQs for guidance.)*
- ☒ Attach a detailed narrative description of the proposed project.
- ☒ Attach a site plan. The site plan should include the project boundaries and areas of proposed excavation.
- ☒ Attach photos of the project area (overview of project location and area adjacent to project location, and specific areas of proposed impacts and disturbances.) *(Informative photo captions are requested.)*
- ☒ A DHR file review must be conducted to identify properties within or adjacent to the project area. Provide file review results in **Table 1.** *(Blank table forms are available on the DHR website.)* File review conducted on 04/04/2017.

Architecture

Are there any buildings, structures (bridges, walls, culverts, etc.) objects, districts or landscapes within the project area? ☒ Yes ☐ No
If no, skip to Archaeology section. If yes, submit all of the following information:

Approximate age(s): Recharge station constructed in 1988 (29 years)

- ☒ Photographs of ***each*** resource or streetscape located within the project area, with captions, along with a mapped photo key. (Digital photographs are accepted. All photographs must be clear, crisp and focused.)
- ☐ If the project involves rehabilitation, demolition, additions, or alterations to existing buildings or structures, provide additional photographs showing detailed project work locations. (i.e. Detail photo of windows if window replacement is proposed.)

Archaeology

Does the proposed undertaking involve ground-disturbing activity? ☐ Yes ☒ No
If yes, submit all of the following information:

- ☐ Description of current and previous land use and disturbances.
- ☐ Available information concerning known or suspected archaeological resources within the project area (such as cellar holes, wells, foundations, dams, etc.)

Please note that for many projects an architectural and/or archaeological survey or other additional information may be needed to complete the Section 106 process.

DHR Comment/Finding Recommendation *This Space for Division of Historical Resources Use Only*

☐ Insufficient information to initiate review. ☐ Additional information is needed in order to complete review.

☐ No Potential to cause Effects ☑ No Historic Properties Affected ☐ No Adverse Effect ☐ Adverse Effect

Comments: In future please take care when entering geographic coordinates. Accuracy is important. Thank You

If plans change or resources are discovered in the course of this project, you must contact the Division of Historical Resources as required by federal law and regulation.

Authorized Signature: Michael Bonfanti DHR Date: 4-17-17

ATTACHMENT H

PHOTOS

PUDDING HILL AQUIFER RECHARGE
City of Dover
Dover, New Hampshire

1: Looking north towards the intake pool (photo taken 3/3/17)



2: Looking north towards the intake pool and the Bellamy River (2/17/17)



PUDDING HILL AQUIFER RECHARGE

City of Dover

Dover, New Hampshire

3: Looking north toward the intake pool (2/17/17)



4: Looking northeast at the berm (2/17/17)



ATTACHMENT I

ABUTTER NOTIFICATION AND OWNER PERMISSION

U.S. Postal Service
CERTIFIED MAIL® RECEIPT
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For delivery information, visit our website at www.usps.com®

OFFICIAL USE

Certified Mail Fee $ 3.50

Extra Services & Fees (check box, add fee as appropriate)
- ☐ Return Receipt (hardcopy) $ 2.80
- ☐ Return Receipt (electronic) $
- ☐ Certified Mail Restricted Delivery $
- ☐ Adult Signature Required $
- ☐ Adult Signature Restricted Delivery $

Postage $ .65

Total Postage and Fees $ 6.95

Sent To H53 Mast Road LLC

Street and Apt. No. 340 Central Ave. #202

City, State, ZIP+4 Dover, NH 03820

PS Form 3800

10.24.19 Postmark Here

7017 2620 0000 0292 2249

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- ☐ Adult Signature Required $
- ☐ Adult Signature Restricted Delivery $

Postage $ .65

Total Postage and Fees $ 6.95

Sent To Mast Road Dover LLC

Street and Apt. No. 207 Greenwood Street

City, State, ZIP+4® Worcester, MA 01607

PS Form 3800, A

10-24-19 Postmark Here

7017 2620 0000 0292 2195

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- ☐ Certified Mail Restricted Delivery $
- ☐ Adult Signature Required $
- ☐ Adult Signature Restricted Delivery $

Postage $ .65

Total Postage and Fees $ 6.95

Sent To MSM Brothers, Inc.

Street and Apt. No. 510 Martha's Way

City, State, ZIP+4 Dover, NH 03820

PS Form 3800

10-24-19 Postmark Here

7017 2620 0000 0292 2639

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- ☐ Adult Signature Required $
- ☐ Adult Signature Restricted Delivery $

Postage $ .65

Total Postage and Fees $ 6.95

Sent To City of Dover, NH

Street and Apt. No. 288 Central Ave.

City, State, ZIP+4 Dover, NH 03820

PS Form 3800

10-24-19 Postmark Here

7017 2620 0000 0292 2708

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OFFICIAL USE

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Extra Services & Fees (check box, add fee as appropriate)
- ☐ Return Receipt (hardcopy) $ 2.80
- ☐ Return Receipt (electronic) $
- ☐ Certified Mail Restricted Delivery $
- ☐ Adult Signature Required $
- ☐ Adult Signature Restricted Delivery $

Postage $ .65

Total Postage and Fees $ 6.95

Sent To Candia So Branch Brook Holdings LLC

Street and Apt. No. PO Box 410

City, State, ZIP+4 Candia, NH 03034

PS Form 3800

10-24-19 Postmark Here

7017 2620 0000 0292 4349

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- ☐ Return Receipt (electronic) $
- ☐ Certified Mail Restricted Delivery $
- ☐ Adult Signature Required $
- ☐ Adult Signature Restricted Delivery $

Postage $ .65

Total Postage and Fees $ 6.95

Sent To Monument Garden LLC

Street and Apt. No. 21 Continental Blvd Suite 101

City, State, ZIP+4® Merrimack, NH 03054

PS Form 3800, A

10-24-19 Postmark Here

7017 2620 0000 0292 4448

civil &
environmental
engineering

UNDERWOOD
engineers

2123.12

October 29, 2019

Candia South Branch Brook Holdings LLC
PO Box 410
Candia, NH 03034

Re: ***Pudding Hill Aquifer Recharge***
City of Dover, Bellamy Recharge Station
Standard Dredge and Fill Wetlands Permit
Dover, New Hampshire

Dear Candia South Branch Brook Holdings LLC:

The City of Dover is submitting a Wetlands Permit Application to the NHDES Wetlands Bureau to request their approval of the above-mentioned project. Under State Law RSA 482-A, they are required to notify you as an abutter of the proposed project. **No action is required on your part.**

The City of Dover's municipal drinking water system uses the existing aquifer recharge system to supplement the groundwater for their municipal wells. The proposed project includes improvements to the existing river intake structure, pumping station and force main that are used as part of this system. Please see the attached USGS plan for the location of the project.

The disturbance of the wetlands will be mostly temporary in nature. All work will be done within the City's lot. Your property will not be affected.

The City will have the detailed full project permit application available for viewing at the City Clerk office at 288 Central Avenue, Dover, New Hampshire once it is complete. The permit application will also be available for public review and comment at the NHDES Wetlands Bureau, 29 Hazen Drive, in Concord.

You may also contact me at (603) 436-6192 with any questions you have about this project.

Very truly yours,

UNDERWOOD ENGINEERS, INC.

Cole Melendy, P.E.
Senior Project Engineer

Encl.

cc: Bill Boulanger – City of Dover

ph 603.436.6192
fx 603.431.4733
25 Vaughan Mall
Portsmouth, NH 03801
underwoodengineers.com

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environmental
engineering

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engineers

2123.12

October 29, 2019

Monument Garden LLC
21 Continental Blvd Suite 101
Merrimack, NH 03054

Re: ***Pudding Hill Aquifer Recharge***
City of Dover, Bellamy Recharge Station
Standard Dredge and Fill Wetlands Permit
Dover, New Hampshire

Dear Monument Garden LLC:

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fx 603.431.4733
25 Vaughan Mall
Portsmouth, NH 03801
underwoodengineers.com

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engineering

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October 29, 2019

MSM Brothers Inc
510 Marthas Way
Dover, NH 03820

Re: Pudding Hill Aquifer Recharge
City of Dover, Bellamy Recharge Station
Standard Dredge and Fill Wetlands Permit
Dover, New Hampshire

Dear MSM Brothers Inc:

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Cole Melendy, P.E.
Senior Project Engineer

Encl.

cc: Bill Boulanger – City of Dover

ph 603.436.6192
fx 603.431.4733
25 Vaughan Mall
Portsmouth, NH 03801
underwoodengineers.com

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October 29, 2019

City of Dover
288 Central Avenue
Dover, NH 03820

Re: ***Pudding Hill Aquifer Recharge***
City of Dover, Bellamy Recharge Station
Standard Dredge and Fill Wetlands Permit
Dover, New Hampshire

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UNDERWOOD ENGINEERS, INC.

Cole Melendy, P.E.
Senior Project Engineer

Encl.

cc: Bill Boulanger – City of Dover

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fx 603.431.4733
25 Vaughan Mall
Portsmouth, NH 03801
underwoodengineers.com

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October 29, 2019

H53 Mast Road LLC
340 Central Avenue #202
Dover, NH 03820

Re: Pudding Hill Aquifer Recharge
City of Dover, Bellamy Recharge Station
Standard Dredge and Fill Wetlands Permit
Dover, New Hampshire

Dear H53 Mast Road LLC:

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Cole Melendy, P.E.
Senior Project Engineer

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25 Vaughan Mall
Portsmouth, NH 03801
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2123.12

October 29, 2019

Mast Road Dover LLC
207 Greenwood Street
Worcester, MA 01607

Re: ***Pudding Hill Aquifer Recharge***
City of Dover, Bellamy Recharge Station
Standard Dredge and Fill Wetlands Permit
Dover, New Hampshire

Dear Mast Road Dover LLC:

The City of Dover is submitting a Wetlands Permit Application to the NHDES Wetlands Bureau to request their approval of the above-mentioned project. Under State Law RSA 482-A, they are required to notify you as an abutter of the proposed project. **No action is required on your part.**

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Cole Melendy, P.E.
Senior Project Engineer

Encl.

cc: Bill Boulanger – City of Dover

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fx 603.431.4733
25 Vaughan Mall
Portsmouth, NH 03801
underwoodengineers.com

CITY OF DOVER

PLANNING BOARD - STAFF MEMO FILE #P19-78

Application Type:	Conditional Use Permit
Applicant(s):	Eversource Energy
Owner(s):	Eversource Energy
Location:	13 Brookmoor (Assessor's Map I, Lot 22) & 292 Middle Rd (Assessor's Map M, Lot 91-A)
Meeting Date:	December 10, 2019

INTENT: Proposal is to replace utility pole structures in a utility easement within the wetlands and wetland buffer temporarily. The temporary wetland impacts of 12,692 s.f and temporary wetland buffer impacts of 45,838 s.f.

LOTS/UNITS PROPOSED: N/A

AGENDA ITEM: # 4-E

ACREAGE: N/A

ZONING DISTRICT: R-40

EXISTING LAND USE: Utility/Residential

PROPOSED LAND USE: Same as existing

SURROUNDING LAND USE: Residential & Commercial and Residential & Piscataqua River,

ZBA ACTION: N/A

ATTACHMENTS:

- Conditional Use Permit Application Materials including plans and Conservation Commission minutes from 11/12/19

APPLICATION IS COMPLETE: Yes

NOTICES SENT: Abutter notices were sent by certified or first class mail to all abutters for this meeting

PERMITS REQUIRED:

- City of Dover Conditional Use Permit
- Utility Maintenance Permit from NHDES

WAIVERS REQUESTED: None

Summary of Request and Background
The applicant is requesting a Conditional Use Permit to replace utility pole structures in a utility easement within wetlands and wetland buffer temporarily. The temporary wetland impacts of 12,692 s.f and temporary wetland buffer impacts of 45,838 s.f..

The Conservation Commission endorsed this application at their November 12, 2019 meeting.

Consistency with Land Use Regulations
The Wetlands Protection District ordinance provides for Conditional Use Permits to allow impacts to wetlands and wetland buffers if standards related to demonstration of need, avoidance, minimization, and mitigation are met. This proposal is consistent with those standards.

STAFF RECOMMENDATION:
The Planning Department recommends the Planning Board accept the application, open the public hearing, and vote to approve the Conditional Use Permit with the following condition:

Condition to Be Met Prior to the Issuance of the Conditional Use Permit:

1. The applicant shall provide the Planning Department with a copy of the NH Department of Environmental Services approved Utility Maintenance Permit

13 Brookmoor Road



Property Information

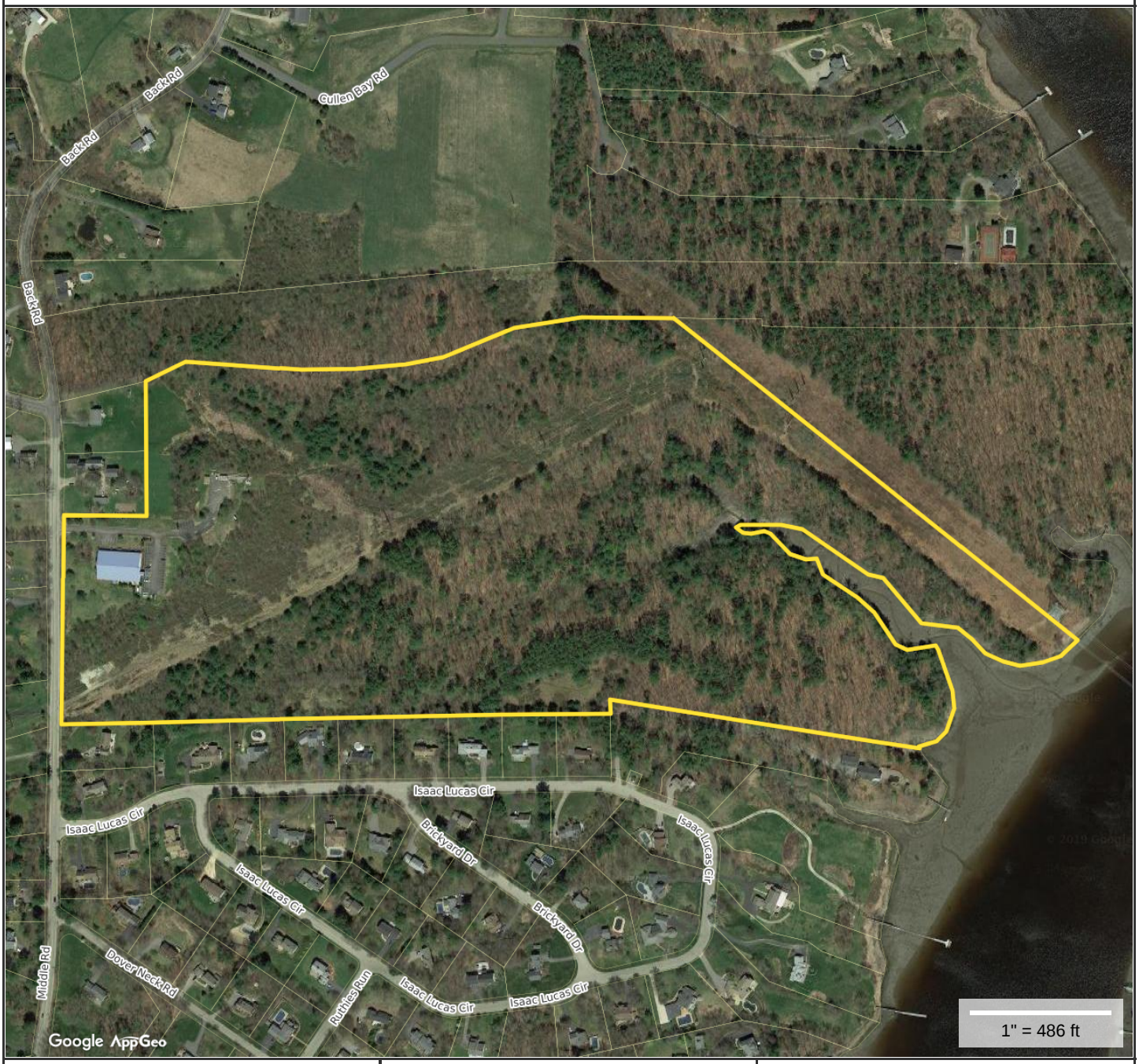
Property ID	I0022-000000
Location	13 BROOKMOOR RD
Owner	JENSEN'S INC
Land Use	386

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

City of Dover, NH makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 10/18/2019
Data updated Daily

292 Middle Road



Property Information

Property ID	M0091-A00000
Location	292 MIDDLE RD
Owner	TOWNSQUARE MEDIA PORTSMOUTH LLC
Land Use	433

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

City of Dover, NH makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 10/18/2019
Data updated Daily

City of Dover Planning Board
Conditional Use Permit Application

Transmission Line 307 Structure Replacement

Prepared For
Eversource Energy
13 Legends Drive
Hooksett, NH 03106

Prepared By
Normandeau Associates, Inc.
25 Nashua Road
Bedford, NH 03110
(603) 472-5191
www.normandeau.com

November 2019

NORMANDEAU ASSOCIATES
ENVIRONMENTAL CONSULTANTS

November 1, 2019

City of Dover
Planning Board
288 Central Avenue
Dover, NH 03820

Re: Conditional Use Permit for Structure Replacements on Eversource Transmission Line 307

Dear Sir/Madam:

On behalf of Eversource Energy (Eversource), Normandeau Associates, Inc. (Normandeau) is filing a Conditional Use Permit Application requesting approval to replace existing utility pole structures within Eversource transmission Line 307 in the City of Dover.

Attached are the conditional use permit application and all required supplemental materials for review of this proposal. We anticipate attending the regularly scheduled meeting of the Dover Conservation Commission on November 12, 2019 and Planning Board meeting on December 10, 2019 to present the details of this project.

Sincerely,

Sarah Barnum, PhD
Project Manager

Attachment:

1. Conditional Use Permit Application
2. 11x17 in. plan sets

Cc: Jeni Menendez, Eversource, via email

TABLE OF CONTENTS

City of Dover Conditional Use Permit Application Form

1 Filing Fee

2 Project Description

3 Tax Maps

4 Abutter List

5 Property Easement Deeds

6 Proposed Plans

DISCLOSURE STATEMENT

The data contained in all pages of this document have been submitted in confidence and contain trade secrets and/or privileged or confidential information, and such data shall be used or disclosed only for evaluation purposes, provided that if a contract is awarded to this proposer as a result of or in connection with the submission of this proposal, the client shall have the right to use or disclose the data herein to the extent provided in the contract. This document includes data that shall not be disclosed outside of the purposes of this submittal and shall not be duplicated, used, or disclosed--in whole or in part--for any purpose other than for evaluation purposes.

City of Dover Conditional Use Permit Application Form

City of Dover, New Hampshire
CONDITIONAL USE PERMIT APPLICATION

[Revision Date: May 18, 2017]

Office Use Only	Project #:		Date Received:	
	Amount Paid:		Time Received:	

APPLICANT AND OWNER INFORMATION

Name of Applicant: Eversource Energy Telephone # (603) 634-2992

Address of Applicant: 13 Legends Drive, Hooksett, NH 03106

E-Mail Address: jeni.menendez@eversource.com

Name of Property Owner (if different from applicant): Multiple Telephone # Multiple

Address of Property Owner: Multiple (see additional detail)

PROPERTY INFORMATION

Assessor's Map # Multiple Lot(s) # Multiple (See additional detail)

Address of Property: Multiple (see additional detial)

Zoning District(s) _____ Overlay District(s) _____

Existing Use of Property: _____

CONDITIONAL USE PERMIT INFORMATION

Type of Conditional Use Permit (Check All That Apply):

☒ Conservation District ☐ RCM Use Overlay District ☐ I-1 District Uses

☐ Groundwater Protection ☐ Off-Street Parking and Loading ☐ Alternative Treatment Center

☐ Wetland Protection District ☐ Central Business District ☐ Heritage Residential District

Describe Proposed Use or Activity That Requires Conditional Use Permit and Describe Any Impacts:

Replacement of existing utility poles, requiring work within the 50-foot buffer of a freshwater wetland, defined as an area within the

Conservation District, resulting in temporary impacts (see narrative for additional details).

List Any Associated State or Federal Permits That Have Been or Will Be Applied For and Indicate Their Status: A Utility Maintenance Notification (UMN) will be submitted to NHDES. (The City of Dover will receive a hard copy.)

Name of Professional That Prepared Plans: William McCloy, NHCWS

Address PO Box 205, Rutland, VT 05701 Telephone #: (802) 861-7038

Professional License #: 268 E-mail address: wmccloy@normandeau.com

SIGNATURES

I/We hereby submit this application to the City of Dover Planning Board and attest that to the best of my knowledge all of the information on this application form and in the accompanying application materials and documentation is true and accurate. As applicant or as agent, I attest that I am duly authorized to act in this capacity.

Signature of Property Owner: See property easement deeds Date:

Signature of Applicant (if different from owner): Jeni Menendez Date: 10/31/19

Signature of Agent: Date: 11/1/19

AUTHORIZATION TO ENTER SUBJECT PROPERTY

I, and my successors, hereby authorize members of the Dover Planning Board, Planning Department and other pertinent City Departments and boards to enter my property for the purpose of evaluating this application, including performing inspections during the application phase, post-approval phase, construction phase and occupancy phase. It is understood that these individuals must use all reasonable care, courtesy, and diligence when on the property.

Signature of Property Owner: See property easement deeds Date:

PLANNING BOARD
ESTIMATED FEE SCHEDULE

This is only provided to give you an estimate of the application fees. *After you submit an application, staff will invoice you a total.* All fees must be paid two weeks before the Planning Board meeting. **If the Fee has not been paid, the item will not be placed upon the agenda.**

A. TOTAL FEE paid by cash or check made payable to "City of Dover"

1. Application fee for the following:
   - SUBDIVISION $150.00 x # _____ new lots created = $ _____
   - LOT LINE ADJUSTMENT $200.00 (if more than two lots involved, add $100.00 per lot) =
   - SITE REVIEW – TRANSFER OF DEVELOPMENT RIGHTS Application fee $150.00 = $ _____
   - SITE REVIEW - RESIDENTIAL $100.00 x # ____ per dwelling unit = $ _____
   - SITE REVIEW – NON-RESIDENTIAL (not to exceed $10,000)
     New construction $.15 sq. ft. x # _____ sq. ft. = $ _____
     Additions (new floor space) $.10 per sq. ft. x # _____sq. ft. = $ _____
   - IMPERVIOUS PAVED AREA (for new development) OR IMPERVIOUS PARKING LOT ADDITIONS (not to exceed $10,000) $.07 sq. ft. x # _____ = $ _____
   - MOTEL/HOTEL $35.00 x # ___ per lodging unit = $ _____
   - CHANGE OF USE (not to exceed $5,000)
     Existing floor space $.10 per sq. ft. x # ____ sq. ft. = $ _____
   - CONDITIONAL USE PERMIT $150.00 x # 1 per application = $ 150.00
   - GRAVEL PIT/ EXCAVATIONS - Application fee $50.00 & Permit fee $75.00 = $ _____
   - EXTENSIONS OF/AMENDMENTS TO/WAIVERS FOR AN APPROVED PLAN ($150.00 minimum) $50.00 x # ____ per hour of review $ _____
   - REQUEST FOR REZONING $150.00 = $ _____
   - DRIVEWAY WAIVER – $100.00 application fee =
     Letter of rejection from Engineering Department, diagram & letter from owner $ _____

B. Abutter Notification/Mailing Labels - this office will create and print the abutter list and provide labels in triplicate for each abutter. The applicant/owner will need to provide to this office the engineer, architect, land surveyor or soil scientist whose professional seal appears on the plan with names and addresses for notices. You will be notified with the amount due, once this has been completed.

1. Applicant & Owner, engineer, architect, land surveyor or soil scientist
   Certified letters fee # _____ of x $8.00 =
2. Certified letters fee: # of abutters _____ X $8.00 = $?
3. First Class Mail fee (for individual owner of units within a condominium or other collective form of ownership): # of abutters _____ X $1.00 = $ _____
4. Creating/Printing Abutter Labels in triplicate per sheet 5 x $10.00 = $ 50.00

C. Foster's newspaper public notice fee **$ 80.00**

(Revised October 2, 2018)

TOTAL FEE $ _____

CITY OF DOVER CONDITIONAL USE
LIST OF ABUTTERS

Pursuant to RSA 676:4, the State Law of New Hampshire, the City of Dover is required to notify the applicant, abutters (including holders of conservation easements), and any professional whose seal is on the plan, of the public hearing by certified mail, return receipt requested. Staff will provide the abutter information, while the applicant must provide accurate contact information for the owner, applicant and professional agents representing the project.

Owner:

TAX MAP	LOT #	PROPERTY OWNER	MAILING ADDRESS
	Multiple	Multiple (See additional detail)	Multiple (See additional detail)

Applicant (if different from owner):

APPLICANT NAME	APPLICANT COMPANY	MAILING ADDRESS
Jennifer Menendez	Eversource Energy	13 Legends Drive, Hooksett, NH 03106

Surveyor and/or Engineer/Professional Agent:

NAME	COMPANY	MAILING ADDRESS
William McCloy	Normandeau Associates, Inc.	PO Box 205, Rutland, VT 05701

Conservation Easement Holder:

TAX MAP	LOT #	NAME OF EASEMENT HOLDER	MAILING ADDRESS

Additional Detail for Owner Information and Property Information on Page One of the Conditional Use Permit Application Form

Property Owner Information

1. Jensen's Inc (Parcel ID: I0022-000000)
   13 Brookmoor Road
   Dover, NH 03802
   (Book No. 4623/Page No. 816); Date: 20181217

   Map: I-1, Lot: 22
   246 Redstone St
   Southington, CT 06489
   Zone: R-40
   Existing Use: C
   Overlay District: Wetland Protection District & Conservation District

2. Townsquare Media Portsmouth LLC (Parcel ID: M0091-A00000)
   292 Middle Road
   Dover, NH 03802
   (Book No. 4236/Page No. 706); Date: 20140821

   Map: M-3, Lot: 91, Sub: A00000
   PO Box 576
   Dover, NH 03821-0576
   Zone: R-40
   Existing Use: I
   Overlay District: Wetland Protection District & Conservation District

1 Filing Fee

A filling fee will be invoiced by the City of Dover after the CUP Application has been submitted. Once the invoice is received, the fee will be paid for by check via hand delivery, mail, or other preferred method to the City of Dover.

2 Project Description

On behalf of Eversource Energy (Eversource), Normandeau Associates, Inc. (Normandeau) is submitting a Conditional Use Permit application for the City of Dover requesting approval to replace utility pole structures within the existing Line 307 345KV utility transmission right-of-way (ROW) in the City of Dover. Eversource proposes to replace six pole structures on the line in order to provide reliable electrical power to customers.

The proposed replacements in the City of Dover include structures 51, 53, 54, 55, 77, and 78 (Section 6, Proposed Plans). The attached plans only include pages relevant to these structures.
All work associated with this project is located within the existing ROW and disturbance will be temporary. Work will occur in wetlands for structures 55 and 78 and require work within a 50-foot buffer from the reference line of a freshwater wetland, defined as an area within Dover's Conservation District for structures 53, 54, and 77. Structure 51 is located within the 250-foot protected shoreland.

The only expected soil disturbance within the wetland buffer will occur where the replacement utility poles will be installed, approximately 10 feet from the existing poles. Construction will require using equipment capable of hauling new structures and excavation to install replacement poles. Wetland matting will be used for wetland crossings and upland matting will be used to limit ground disturbance and vegetation impacts within the wetland buffer area. Once the work is finished, matting will be removed and any disturbed areas will be restored. Road building, grading, and graveling outside of the wetland buffer may be required and will be restored to the extent practical.

During construction and through restoration, the Best Management Practices Manual for Utility Maintenance in and Adjacent to Wetlands and Waterbodies in New Hampshire (NH Department of Natural and Cultural Resources, 2018) will be adhered to.

A list has been generated for those properties which abut the proposed area within the Conservation District where work will occur, including those across streets or waterways, or those that lie directly within 200 linear feet of the proposed site under construction where temporary wetland impacts are expected to occur (Section 4, Abutter List). In lieu of property owner signatures, a copy of easement documents for all properties located within the utility ROW where work will occur is included in Section 5.

The proposed utility pole replacements for each identified structure located within transmission ROW Line 307 adheres to the criteria of Dover Code Zoning, Article VII, 170-27, 170-27.1.

Dover Code Zoning, Article VII, 170-27:

(1) To prevent the development of STRUCTURES and land uses on naturally occurring wetlands and flood- prone areas which would contribute to pollution of surface and ground water by sewage or other contaminants.

- The proposed project will install new utility poles to replace existing utility poles which currently do not contribute to pollution. The proposed installations are not expected to contribute to pollution. Only clean material or native back fill will be used to install the new utility poles.

(2) To prevent the destruction of natural wetlands or aquifer areas which provide flood protection, recharge of groundwater supply and augmentation of stream flow during dry periods.
- Work within wetlands will use best management practices along with erosion and sedimentation controls as appropriate. Impacts are not expected to permanently destroy or alter wetlands or streams. No impervious surface construction is proposed so the project will not prevent groundwater recharge or cause a flood hazard.

(3) To prevent unnecessary or excessive expenses to the city to provide and maintain essential services and utilities which arise because of inharmonious use of wetlands and other environmentally sensitive areas.
- The proposed project is a public utility which provides an essential service to the community and will not result in expenses to the city.

(4) To encourage those uses that can be most appropriately and safely located in wetland and other environmentally sensitive areas.
- Access routes were chosen to avoid and minimize disturbance in wetlands and streams and associated buffers to the extent possible. Utility pole replacements will include excavation within 10 feet from existing utility poles where new utility poles will be installed. Temporary erosion and sediment control methods will be used where necessary to prevent impacts to nearby existing wetlands.

(5) To preserve existing natural drainage systems and the vegetation and wildlife habitats therein.
- No changes to natural drainage systems are proposed. Vegetation and related habitats will be protected using BMPs including temporary and permanent erosion and sediment controls.

(6) To preserve wetlands and other environmentally sensitive areas for other ecological reasons inter alia, those cited in RSA 483-B.
- The proposed utility pole replacement work does not occur or fall within criteria of RSA 483 – B. The City of Dover will be copied on other state applications when applicable.

(7) To preserve and enhance those aesthetic values associated with waterways and the natural shoreline.
- Eversource believes there will be no changes in aesthetics resulting from the proposed project because existing utility poles will be cut at ground level and new utility poles will be installed within 10 feet from the base of existing poles with no change in structure height.

(8) To protect public health and safety by minimizing hazards, including soil erosion, storm water runoff, SLOPE instability risks, and environmental degradation associated with development on steep and/or unstable slopes.

- BMPs will be utilized throughout construction to ensure erosion hazards are controlled and minimized in accordance with The Best Management Practices Manual for Utility Maintenance in and Adjacent to Wetlands and Waterbodies in New Hampshire (NH Department of Natural and Cultural Resources, 2018).

Dover Code Zoning, Article VII, 170-27.1:

(1) Prevent the development of STRUCTURES and land uses on wetlands, which will contribute to pollution of surface and ground water by sewerage, toxic substances or sedimentation.
    - The proposed project will install new utility poles to replace existing utility poles which currently do not contribute to pollution. The proposed installations are not expected to contribute to pollution. Only clean material or native back fill will be used to install the new utility poles.

(2) Prevent the destruction of, or Significant changes to, wetlands which provide flood protection, recharge the groundwater supply and augment stream flow during dry periods and filtration of water flowing into ponds and streams.
    - Work within wetlands will use best management practices and erosion and sedimentation controls as appropriate. Impacts are not expected to permanently destroy or alter wetlands or streams. No impervious surface construction is proposed so the project will not prevent groundwater recharge or cause a flood hazard.

(3) Protect unique and unusual natural areas and rare, threatened, and endangered species.
    - A project review was conducted by the New Hampshire Natural Heritage Bureau for this project. One listed animal species and two listed plant spaces were determined to be present within the vicinity of where utility pole replacements will occur in Dover for this project. Eversource has consulted with NHF&G and NH NHB and will adhere to all the recommended BMPs to avoid impacts to these species.

(4) Protect wildlife habitats, maintain ecological balances and enhance ecological values such as those cited in RSA 482-A:1.
    - No changes are proposed to natural drainage systems, streams, or wetlands. Vegetation and related habitats will be protected using BMPs; including temporary and permanent erosion and sediment controls. All impacts will occur within the utility right-of-way and matted vegetation is expected to rebound shortly within the current growing season, post proposed work.

(5) Protect potential water supplies and existing aquifers (water-bearing stratum) and aquifer recharge areas.

- As previously stated, no changes to natural drainage systems, streams, or wetlands are proposed. All activities will adhere to BMPs therefore Eversource anticipates potential water supplies and existing aquifers will not be affected.

(6) Prevent unnecessary or excessive expense to the city for the purpose of providing and/or maintaining essential services and utilities, which might be required as a result of misuse or abuse of wetlands.
- The proposed project is a public utility which provides an essential service to the community and will not result in expenses to the city.

(7) Encourage those low-intensity uses that can be harmoniously, appropriately and safely located in wetlands.
- BMPs in accordance with The Best Management Practices Manual for Utility Maintenance in and Adjacent to Wetlands and Waterbodies in New Hampshire (NH Department of Natural and Cultural Resources, 2018) will be adhered to throughout the process for the protection of wetlands and the surrounding environment.

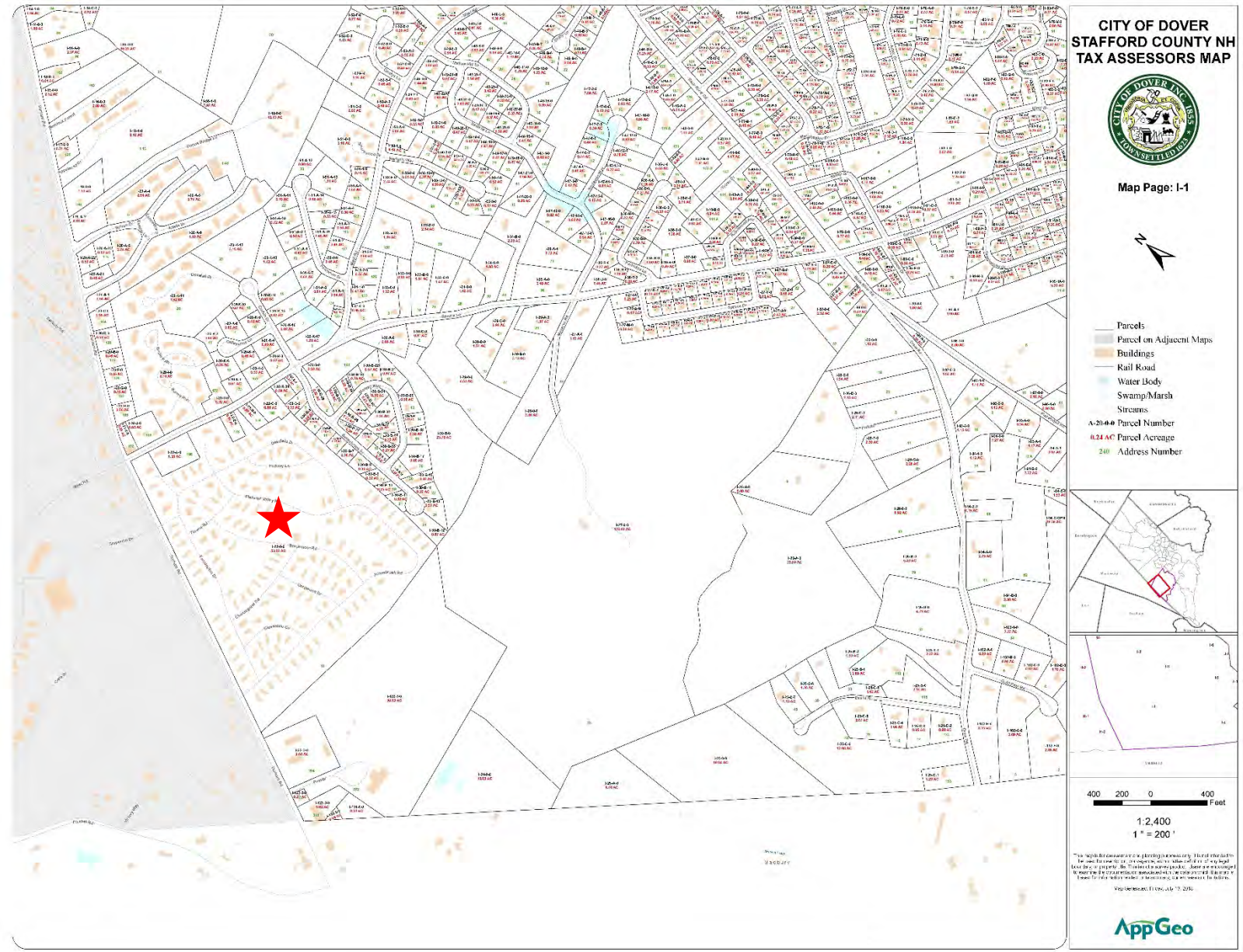
(8) Preserve and enhance the aesthetic values associated with wetlands in the City of Dover.
- Eversource believes there will be no changes in aesthetics resulting from the proposed project because existing utility poles will be cut at ground level and new utility poles will be installed within 10 feet from the base of existing poles with no change in structure height.

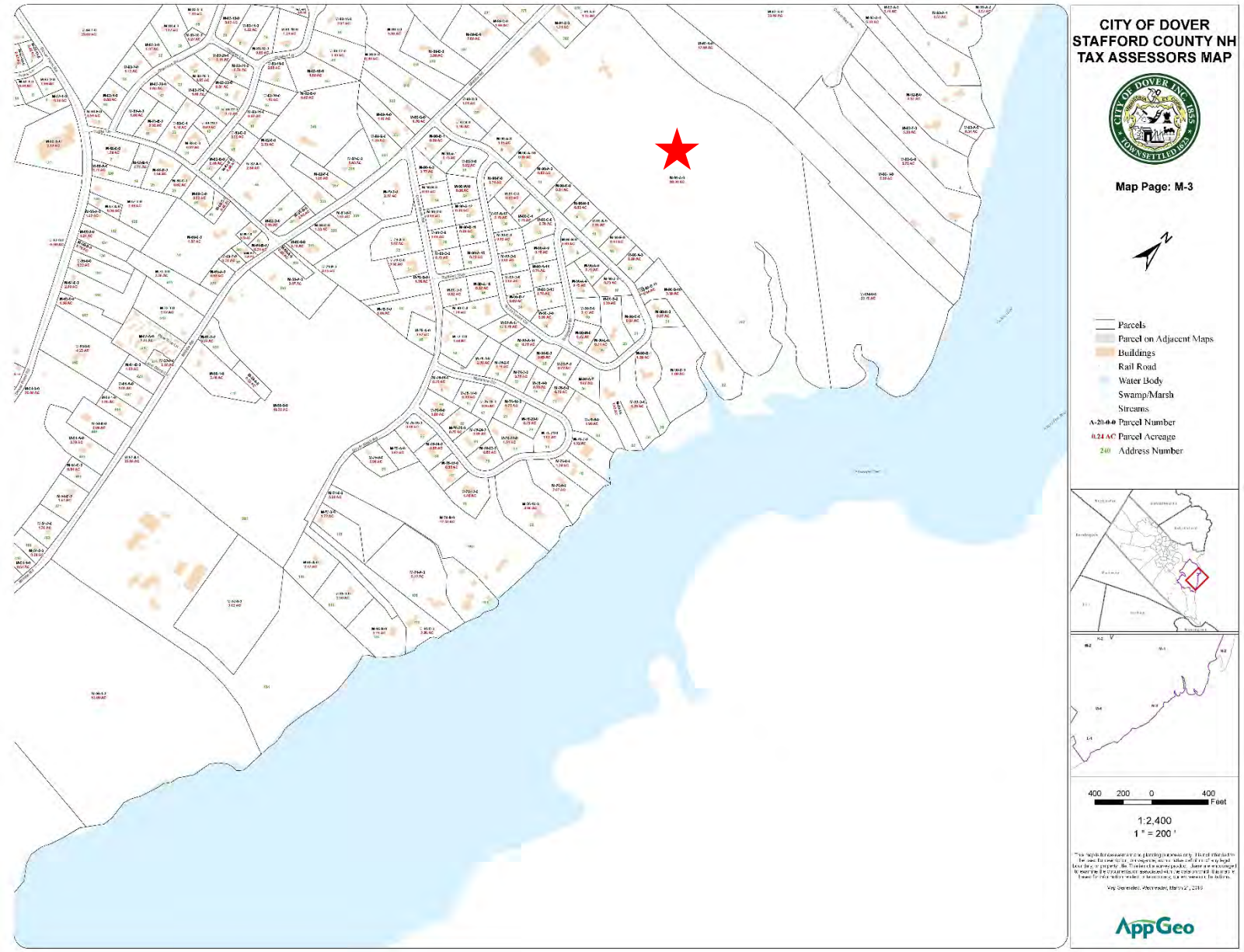
(9) Avoid the high costs of constructing heavy STRUCTURES and prevent damage to STRUCTURES and abutting properties caused by inappropriate development in wetland areas.
- This project is replacing of existing utility poles to ensure reliable electrical power to customers. Work is not proposed in wetlands. Access routes will be developed to provide safe access and a platform to conduct the work and limited only to what is necessary and will be restored to the extent practical upon completion.

3 Tax Maps

Proposed work is indicated with red stars on parcels (2 total) on attached parcel maps. Associated Easement Documentation is provided (Section 5).

The City of Dover uses an online GIS mapping system for public records of parcel information. Property record cards, location, and other pertinent information were obtained via the City of Dover's online interactive MapGeo program, located at: https://dovernh.mapgeo.io. Tax maps were downloaded from https://www.dover.nh.gov/government/city-operations/finance/tax-assessment/tax-maps/index.html.


CITY OF DOVER
STAFFORD COUNTY NH
TAX ASSESSORS MAP
Map Page: I-1
Parcels
Parcel on Adjacent Maps
Buildings
Rail Road
Water Body
Swamp/Marsh
Streams
A-20-0-0 Parcel Number
0.24 AC Parcel Acreage
240 Address Number
400 200 0 400
Feet
1:2,400
1 " = 200 '
AppGeo


CITY OF DOVER
STAFFORD COUNTY NH
TAX ASSESSORS MAP
Map Page: M-3
Parcels
Parcel on Adjacent Maps
Buildings
Rail Road
Water Body
Swamp/Marsh
Streams
A-20-0-0 Parcel Number
0.24 AC Parcel Acreage
240 Address Number
400 200 0 400
Feet
1:2,400
1 " = 200 '
AppGeo

4 Abutter List

The total number of abutters for the proposed maintenance amounts to 48.

Abutters include those properties which adjoin properties with proposed work within the Conservation District or Wetland Protection District (including those across streets or waterways) or those that lie directly within 200 linear feet of the proposed site under construction.

Property Owner Information

Structures 77, 78

Property ID	Location	Owner 1	Owner 2	Owner Address	City	State	Zip Code
I0022-000000	13 BROOKMOOR RD	JENSEN'S INC		246 REDSTONE ST	SOUTHINGTON	CT	06489

Structures 51,53,54,55

Property ID	Location	Owner 1	Owner 2	Owner Address	City	State	Zip Code
M0091-A00000	292 MIDDLE RD	TOWNSQUARE MEDIA PORTSMOUTH LLC		PO BOX 576	DOVER	NH	03821-0576

Abutter Information

Property ID	Location	Owner 1	Owner 2	Owner Address 1	City	State	Zip
H0002-000000	275 DURHAM RD	CITY OF DOVER		288 CENTRAL AVENUE	DOVER	NH	03820
H0002-B00000	291 DURHAM RD	LEMIEUX PAUL L & CATHERINE E & DAVID P T	LEMIEUX FAMILY TRUST	291 DURHAM ROAD	DOVER	NH	03820
H0003-000000	283 DURHAM RD	MOORE ANDREW T	MOORE EMILY J	283 DURHAM RD	DOVER	NH	03820-5300
H0004-001000	217 DURHAM RD	TORR SCOTT A &	TORR RENEE L	217 DURHAM RD	DOVER	NH	03820-5300
H0004-003000	GRAPEVINE DR	DOVER FIELDS CONDOMINIUM	C/O VC DOVER INVESTMENTS LLC	48 CONSTITUTION DR	BEDFORD	NH	03110
H0004-B00000	207 DURHAM RD	TORR ROBERT H		215 MAST RD	DOVER	NH	03820

H0004-N00000	211 DURHAM RD	HUTOMO JEFFRY &	IRAWAN SUSIANAWATI	211 DURHAM RD	DOVER	NH	03820
I0020-000000	177 MAST RD	GOODWIN ANN R		177 MAST RD	DOVER	NH	03820
I0020-I00000	DURHAM RD	PADDOCKS CONDOS MASTER CARD	C/O VIRGINIA AND DAVID STUART	29 SURREY RUN	DOVER	NH	03820
I0020-J00000	199 MAST RD	TYER CRAIG		199 MAST RD	DOVER	NH	03821
I0020-K00001	173 MAST RD	KADDEN WARREN		173 MAST RD	DOVER	NH	03820
I0021-000000	192 DURHAM RD	SCHULTEN STEPHEN & C REV TRUSTS	SCHULTEN STEPHEN B AND CAROLYN H TRUSTEE	18 COTE DRIVE	DOVER	NH	03820
I0022-A00000	196 MAST RD	GOODWIN DALE RALPH & JEANNIE FROST TRUST	GOODWIN FAMILY REVOCABLE TRUST	196 MAST ROAD	DOVER	NH	03820
I0022-B00000	174 MAST RD	CLARK ALISSA E &	CLARK DANIEL	174 MAST ROAD	DOVER	NH	03820
I0022-C00000	168 MAST RD	RAND DENISE		396 FIRST AVE	WEST HAVEN	CT	06516
I0022-E00000	178 MAST RD	LITTLEFIELD ERIC P &	LITTLEFIELD LAUREN H	178 MAST RD	DOVER	NH	03820
I0027-000000	33 MESERVE RD	COLPRIT STEPHEN W & PHEBE C TRUSTEES	COLPRIT STEPHEN W AND PHEBE C REV LIV TR	33 MESERVE RD	DOVER	NH	03820
I0030-B00002	5 SUNNYBROOKE DR	IOVANNE LINDSAY C	IOVANNE LINDA J	5 SUNNYBROOKE DRIVE	DOVER	NH	03820
I0030-B00003	7 SUNNYBROOKE DR	PERKINS DEBORAH A		7 SUNNYBROOKE DR	DOVER	NH	03820
I0030-B00004	9 SUNNYBROOKE DR	MOLLOY ROBERT F		10 SUMNER DR	DOVER	NH	03820

I0030-B00005	11 SUNNYBROOKE DR	DEBOIS FRANCIS R SR & LAURETTE S TRUSTEE	DEBOIS FAMILY REVOCABLE TRUST	11 SUNNYBROOKE DR	DOVER	NH	03820
I0030-B00006	13 SUNNYBROOKE DR	LEE JEFFREY W		13 SUNNYBROOKE DR	DOVER	NH	03820
I0030-B00007	SUNNYBROOKE DR	SUNNYBROOKE CONDOMINIUM ASSC		PO BOX 1367	DOVER	NH	03820
I0030-B00008	15 SUNNYBROOKE DR	FISHBEIN DANIEL E &	WOLFF BELINDA J	15 SUNNYBROOKE DR	DOVER	NH	03820-4448
I0030-B00009	17 SUNNYBROOKE DR	KOSKI STEVEN F	KOSKI JUDY M	17 SUNNYBROOKE DR	DOVER	NH	03820
I0030-B00010	19 SUNNYBROOKE DR	MICHAUD JENNIFER		19 SUNNYBROOKE DR	DOVER	NH	03820
I0030-B00011	21 SUNNYBROOKE DR	TOLWOOD REALTY LLC		242 CENTRAL AVE	DOVER	NH	03820
I0030-B00012	23 SUNNYBROOKE DR	BUCKSON LESLIE	C/O BRIAN BLAIR	PO BOX 9	SOMERSWORTH	NH	03878-0009
I0122-000000	282 DURHAM RD	ELKS ORDER OF		282 DURHAM RD	DOVER	NH	03820
M0089-000000	315 MIDDLE RD	GAGNON SCOTT C TRUSTEE	GAGNON SCOTT REVOCABLE TRUST	315 MIDDLE RD	DOVER	NH	03820
M0089-C00000	291 MIDDLE RD	SPALDING MELISSA		291 MIDDLE RD	DOVER	NH	03820
M0089-D00000	309 MIDDLE RD	HACKETT THEODORE S &	HACKETT CYNTHIA A	309 MIDDLE ROAD	DOVER	NH	03820
M0089-E00000	297 MIDDLE RD	MAMIGONIAN CARL H & SHARON J TRUSTEES	MAMIGONIAN CARL AND SHARON REVOCABLE LIV	297 MIDDLE RD	DOVER	NH	03820
M0090-A00003	20 ISAAC LUCAS CR	DICKSON DAVID K	DICKSON DIANE N	20 ISAAC LUCAS CR	DOVER	NH	03820

M0090-A00005	16 ISAAC LUCAS CR	SPURLING ERIC A TRUSTEE	SPURLING ERIC A LIVING TRUST	16 ISAAC LUCAS CR	DOVER	NH	03820
M0090-A00006	10 ISAAC LUCAS CR	SCHELLER P KARL & PATRICIA A TRUSTEES	SCHELLER FAMILY TRUST	2 WATERFORD WAY APT 205	MANCHESTER	NH	03102
M0090-A00008	6 ISAAC LUCAS CR	COVERT WILLIAM D &	COVERT PAIGE C	6 ISAAC LUCAS CR	DOVER	NH	03820
M0090-A00010	8 ISAAC LUCAS CR	HOLDEN KEVIN F &	HOLDEN DEBORAH E	8 ISAAC LUCAS CIRCLE	DOVER	NH	03820
M0090-D00010	22 ISAAC LUCAS CR	COOK N MILES III &	COOK AMANDA	22 ISAAC LUCAS CR	DOVER	NH	03820-4910
M0090-E00000	18 ISAAC LUCAS CR	DUGAS JANE M TRUSTEE	DUGAS JANE 2011 REVOCABLE TRUST	18 ISAAC LUCAS CR	DOVER	NH	03820
M0090-K00000	12 ISAAC LUCAS CR	GABARRO SETH RAFAEL &	GABARRO ANTHONY PHILIP	12 ISAAC LUCAS CR	DOVER	NH	03820-4910
M0090-N00000	14 ISAAC LUCAS CR	STEVENS CHRISTOPHER L		14 ISAAC LUCAS CR	DOVER	NH	03820
M0090-X00000	320 MIDDLE RD	ROCHEFORT JEFFREY R		320 MIDDLE ROAD	DOVER	NH	03820
M0091-000000	286 MIDDLE RD	STRANGE EDWARD S		286 MIDDLE RD	DOVER	NH	03820
M0091-B00000	278 MIDDLE RD	MCKENNA JAMES F & JOANNE E TRUSTEES	MCKENNA JAMES AND JOANNE REVOCABLE LIVIN	278 MIDDLE ROAD	DOVER	NH	03820
M0092-A00000	BACK RD	LANGS PATRICIA		10 HAWTHORN ROAD	DOVER	NH	03820
M0102-000000	277 MIDDLE RD	DRISCOLL BRENDAN C		277 MIDDLE RD	DOVER	NH	03820
M0104-000000	BACK RD	DEXTER ALAN G TRUSTEE &	NICHOLS WILLIAM O JR	4217 BLACK SYCAMORE DR	CHARLOTTE	NC	28226

5 Property Easement Deeds

PROPERTY EASEMENT DEED
FOR STRUCTURE MAINTENANCE ON STRUCTURE #78

EAA-5125

1-13

KNOW ALL MEN BY THESE PRESENTS

That I, MRS. ARA R. MASON

of DOVER County of STRAFFORD

in the State of New Hampshire (hereinafter called the first party) in consideration of one dollar paid by the Public Service Company of New Hampshire and asssigns (hereinafter called the second party), the receipt whereof is hereby acknowledged, do hereby give, grant, bargain, sell and convey unto the second party, its successors and assigns, the right to erect, repair, maintain, rebuild, operate and patrol electric transmission and distribution lines, consisting of suitable and sufficient poles and towers, with suitable foundations, together with wires strung upon and extending between the same, for the transmission of electric current, together with all necessary cross-arms, braces, anchors, wires and guys, over and across a strip of land 125 feet in width being a part of the lands owned by the first party in the town of Dover in said County, bounded and described as follows:

Beginning at land of Albert F. Seavey Estate and extending northerly to land of Mrs. Anna L. Merrill. Said right of way strip lies 62 1/2 feet on each side of present survey line recently made by said second parties engineers and contains 1.08 acres more or less.

Being a part of the same premises described in deed of

to dated and recorded in the

County Registry of Deeds. Book Page

The exact location of the transmission lines aforesaid is to be selected by the second party, after its final surveys have been completed, within the above limitations.

Permission is given to remove such trees as in the judgment of the second party may interfere with or endanger said lines or their operation. Permission is also given to trim or remove trees and underbrush for a width of 62 1/2 feet on each side of the center line of the herein described transmission line right of way strip.

The second party agrees to cut the timber upon said right of way strip into 14 foot lengths and the wood into sled lengths, said timber and wood shall remain the property of the first party.

The second party agrees that before transmitting electricity over the transmission lines, rights for which are granted in this instrument, it will pay or tender to said first party the sum of $ 200 00, and the first party hereby agrees to accept said sum as full payment for all rights granted hereunder and as full compensation for any damage done to her property by the exercising of the rights herein granted.

It is agreed that all agreements, understandings and negotiations, written or verbal, heretofore made or entered into by the parties hereto or their representatives with respect to said premises are hereby waived and cancelled, and that there are no agreements, promises or understandings with respect to said premises not herein mentioned.

To have and to hold to the second party, its successors and assigns forever.

The first party covenants and agrees that She has full right, title and authority to convey the foregoing rights and privileges and will defend same to said second party against the claims or demands of all persons.

~~And I, the _____ of said first party, hereby release all my rights of dower curtesy in the foregoing premises so far as affected by the above conveyance.~~

WITNESS the hand and seal of the first party this 6th day of November, 1930

In the presence of

D. B. Baston — Ora R. Mason

Ora R. Mason

State of New Hampshire

Strafford SS.

Nov. 6 1930.

personally appeared and acknowledged the foregoing instrument to be her voluntary act and deed. Before me,

David B. Baston

Justice of the Peace
~~Notary Public~~

State of New Hampshire

SS.

19

personally appeared and acknowledged the foregoing instrument to be voluntary act and deed. Before me,

Justice of the Peace
Notary Public

Date Nov. 6 1930

Received of the PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE

Two hundred and 00/100 Dollars

It being the payment in full for the herein described right of way.

Ora R. Mason

5007-M-7-28-S

Cl 1.25

X X

Deed

[illegible] COUNTY RECORDS.
Received 8.30 A.M. Nov 13 1930
Recorded Vol 442 Page 418
Examined
Geo. G. Welch
Register.

PROPERTY EASEMENT DEED
FOR STRUCTURE MAINTENANCE ON STRUCTURES #53-55

C/r EAA-11030

Peggs-Dover Line

EAA-4795
1 3
03

KNOW ALL MEN BY THESE PRESENTS

THAT .....I....Edith.M..Hayes.....
.....
of.....Portsmouth..... County of ....Rockingham.....
in the State of New Hampshire..... (hereinafter called the first party) in consideration of one dollar paid by ~~W. Brodie Smith~~ the Public Service Co. of New Hampshire and assigns (hereinafter called the second party), the receipt whereof is hereby acknowledged, do hereby give, grant, bargain, sell and convey unto the second party, its successors and assigns, the perpetual right and easement to erect, repair, maintain, rebuild, operate and patrol an electric transmission line, consisting of suitable and sufficient poles or towers, with suitable foundations, together with wires strung upon and extending between the same, for the transmission of electric current, together with all necessary cross-arms, braces, anchors, wires and guys, over and across the lands owned by the first party in the town of ...Dover..... in the County, of Strafford bounded and described as follows:

Northerly by the Mast Road,

Easterly by land of Freeman and Everett Thompson.

Southerly by the Madbury-Dover Town Line.

Westerly by the Durham Road.

The center line of said right of way being more particularly described as follows:

Beginning at a stake in the wire fence beside the Durham Road, about 200 feet from the residence of Narcisse Paul, and extending South 72 degrees 15' East, 1483 feet, through field, pasture and woodland to a stake in the fence between this property and that belonging to Freeman and Everett Thompson.

Permission is given the first party to instal a private telephone linebut it is understood that this right of way is not to be used by any commercial telephone company.

Permission is given to remove such trees as in the judgment of the second party may interfere with or endanger said line or its operation. Permission is also given to trim or remove trees and underbrush for a width of ....fifty.... ft. on ea side of the center line of said transmission line. The second party covenants and agrees fpr itself, its successors and assigns to pay all taxes that may be assessed on the poles or wires erected hereunder on the premises of the first party.

The second party agrees that before transmitting electricity over the transmission line, rights for which are granted in this instrument, it will pay or tender to said first party the sum of $300.00....., and the first party hereby agrees to accept said sum as full payment for all rights granted hereunder and as full compensation for any damage done to her property by the exercising of the rights herein granted.

To have and to hold to the said second party, its successors and assigns forever.

The first party covenants and agrees that she has full right, title and authority to convey the foregoing rights and privileges and will defend same to said grantee against the claims or demands of all persons.

And I, the husband.. of said first party, hereby release all my rights of curtesy in the forogoing promises so far as affected by the above conveyance.

WITNESS the hand and seal of the first party this 16th day of October, 1926.

In the presence of

C. C. Randall — Edith M. Hayes

Clyde Spinney — Fred F. Hayes

State of New Hampshire

Rockingham SS.

Oct. 16, 1926

Edith M. Hayes and Fred F. Hayes personally appeared and acknowledged the foregoing instrument to be their... voluntary act and deed. Before me,

Ceylon Spinney
Justice of the Peace

DEED

EDITH F. HAYES

TO

FRED F. HAYES

$300.00

STRAFFORD COUNTY RECORDS.

Received Oct 22 1926

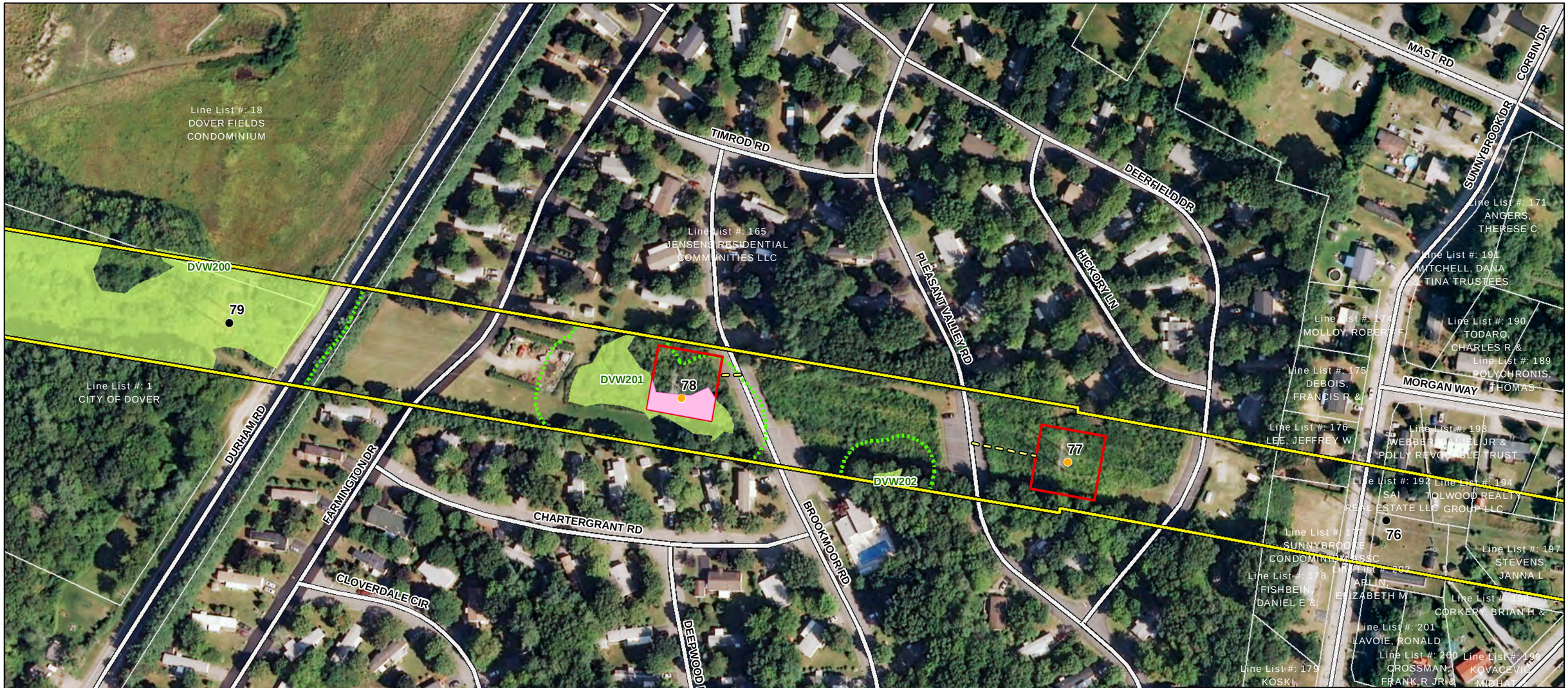
Recorded Vol. 423 Page 200

Examined

George E. Wallace
Register

156

6 Proposed Plans



Wetlands were delineated by Normandeau Associates, Inc. November 2017 and May, June, and July 2018. The wetland delineations were completed in accordance with the criteria described in the U.S. Army Corps of Engineers Wetland Delineation Manual Technical Report Y-87-1 (January,1987) and the Regional Supplement for the Northcentral and Northeast Region (January, 2012) and meet the criteria for wetland delineation in accordance with the NH DES administrative rules Env-Wt 301.01.

- Existing Structure ro be Replaced
- Existing Structure to Remain
- Primary Access Road
- Alternate Access Road
- Work Pad
- 307 Right-of-way
- Stream Centerline
- Stream Top of Bank
- Vernal Pools
- Estimated Wetland
- Wetlands
- Town of Durham 100' Wetland Buffer
- City if Dover 50' Wetland Buffer
- 50' Waterfront Buffer
- 150' Woodland Buffer
- 250' Protected Shoreland
- 100' Tidal Buffer Zone
- Arch. Sensitive Area
- Roads NHDOT
- Town Line
- Parcels
- Temporary Wetland Impact

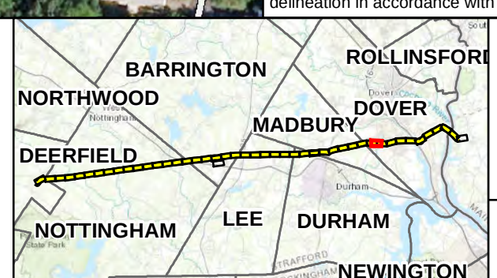
STATE OF NEW HAMPSHIRE
WILLIAM S. McCURRY
No. 268
CERTIFIED WETLAND SCIENTIST
7/2018

Town: Dover

N W E S

1 inch = 150 feet

0 75 150 Feet



Index Map - 1" - 35,000 feet

Eversource - 307 Line

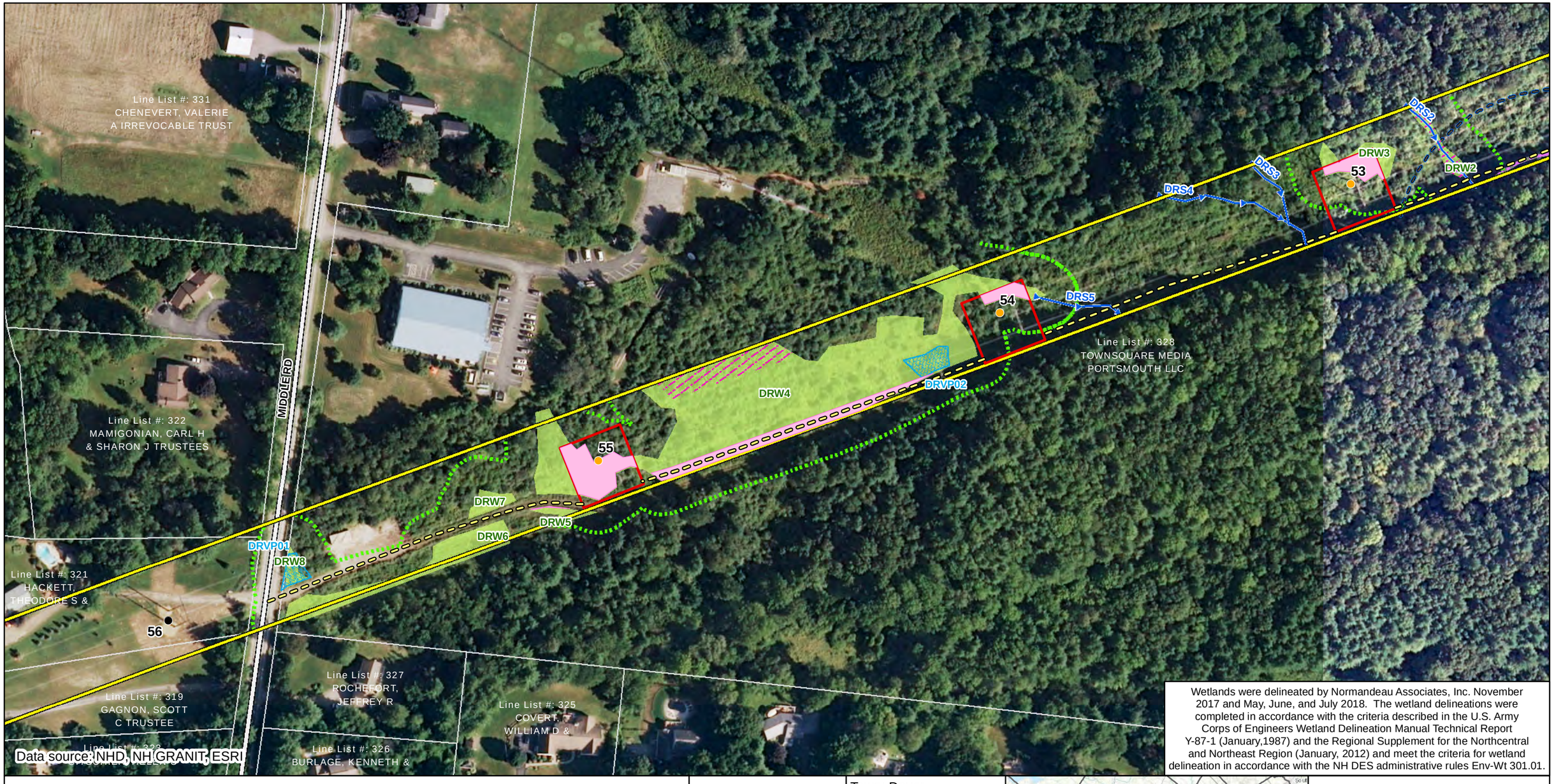
2020 Structure Replacement

Page 9 of 11

Date: 11/1/2019

NORMANDEAU ASSOCIATES
Environmental Consultants

J:\Projects\Eversource_307\MXD\EV_307_StructureReplacement_103019.mxd



Wetlands were delineated by Normandeau Associates, Inc. November 2017 and May, June, and July 2018. The wetland delineations were completed in accordance with the criteria described in the U.S. Army Corps of Engineers Wetland Delineation Manual Technical Report Y-87-1 (January,1987) and the Regional Supplement for the Northcentral and Northeast Region (January, 2012) and meet the criteria for wetland delineation in accordance with the NH DES administrative rules Env-Wt 301.01.

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- Existing Structure to Remain
- Primary Access Road
- Alternate Access Road
- Work Pad
- 307 Right-of-way
- Stream Centerline
- Stream Top of Bank
- Vernal Pools
- Estimated Wetland
- Wetlands
- Town of Durham 100' Wetland Buffer
- City if Dover 50' Wetland Buffer
- 50' Waterfront Buffer
- 150' Woodland Buffer
- 250' Protected Shoreland
- 100' Tidal Buffer Zone
- Arch. Sensitive Area
- Roads NHDOT
- Town Line
- Parcels
- Temporary Wetland Impact

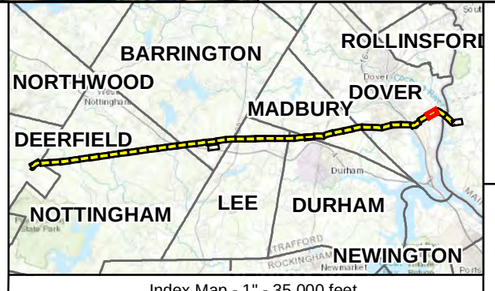
STATE OF NEW HAMPSHIRE
WILLIAM S. McCLUSKEY
7/2018
No. 268
CERTIFIED WETLAND SCIENTIST

Town: Dover

N W E S

1 inch = 150 feet

0 75 150 Feet



Index Map - 1" - 35,000 feet

Eversource - 307 Line
2020 Structure Replacement
Page 10 of 11
Date: 11/1/2019

NORMANDEAU ASSOCIATES
Environmental Consultants

J:\Projects\Eversource_307\MXD\EV_307_StructureReplacement_103019.mxd

P19-78 **13 Broomoor Road & 292 Middle Road**

Property ID	Location	Owner 1	Owner 2	Owner Address 1	City	State	Zip
H0002-B00000	291 DURHAM RD	LEMIEUX PAUL L & CATHERINE E & DAVID PT	LEMIEUX FAMILY TRUST	291 DURHAM ROAD	DOVER	NH	03820
H0003-000000	283 DURHAM RD	MOORE ANDREW T	MOORE EMILY J	283 DURHAM ROAD	DOVER	NH	03820
H0004-001000	217 DURHAM ROAD	TORR SCOTT A & TORR RENEE L		217 DURHAM ROAD	DOVER	NH	03820-5300
H0004-003000	GRAPEVINE DRIVE	DOVER FIELDS CONDOMINIUM	C/O VC DOVER INVESTMENTS LLC	48 CONSTITUTION DR	BEDFORD	NH	03110
H0004-B00000	207 DURHAM ROAD	TORR ROBERT H		215 MAST ROAD	DOVER	NH	03820
H0004-N00000	211 DURHAM ROAD	HUTOMO JEFFRY & IRAWAN SUSIANAWATI		211 DURHAM ROAD	DOVER	NH	03820
I0020-000000	177 MAST ROAD	GOODWIN ANN R		177 MAST ROAD	DOVER	NH	03820
I0020-I00000	DURHAM ROAD	PADDOCKS CONDOS MASTER CARD	C/O VIRGINIA AND DAVID STUART	29 SURREY RUN	DOVER	NH	03820
I0020-J00000	199 MAST ROAD	TYLER CRAIG		199 MAST ROAD	DOVER	NH	03820
I0020-K00001	173 MAST ROAD	KADDEN WARREN		173 MAST ROAD	DOVER	NH	03820
I0021-000000	192 DURHAM ROAD	SCHULTEN STEPHEN & C REV TRUSTS	SCHULTEN STEPHEN B AND CAROLYN H TRUSTEE	18 COTE DRIVE	DOVER	NH	03820
I0022-A00000	196 MAST ROAD	GOODWIN DALE RALPH & JEANNIE FROST TRUST	GOODWIN FAMILY REVOCABLE TRUST	196 MAST ROAD	DOVER	NH	03820
I0022-B00000	174 MAST ROAD	CLARK ALISSA E & CLARK DANIEL		174 MAST ROAD	DOVER	NH	03820
I0022-C00000	168 MAST ROAD	RAND DENISE		396 FIRST AVENUE	WEST HAVEN	CT	06516
I0022-E00000	178 MAST ROAD	LITTLEFIELD ERIC P & LITTLEFIELD LAUREN H		178 MAST ROAD	DOVER	NH	03820
I0027-000000	33 MESERVE ROAD	COLPRIT STEPHEN W & PHEBE C TRUSTEES	COLPRIT STEPHEN W AND PHEBE C REV LIV TR	33 MESERVE RD	DOVER	NH	03820
I0030-B00002	5 SUNNYBROOKE DRIVE	IOVANNE LINDSAY C	IOVANNE LINDA J	5 SUNNYBROOKE DRIVE	DOVER	NH	03820
I0030-B00003	7 SUNNYBROOKE DRIVE	PERKINS DEBORAH A		7 SUNNYBROOKE DRIVE	DOVER	NH	03820
I0030-B00004	9 SUNNYBROOKE DR	MOLLOY ROBERT F		10 SUMMER DR	DOVER	NH	03820
I0030-B00005	11 SUNNYBROOKE DRIVE	DEBOIS FRANCIS R SR.& LAURETTE S TRUSTEE	DEBOIS FAMILY REVOCABLE TRUST	11 SUNNYBROOKE DR	DOVER	NH	03820
I0030-B00006	13 SUNNYBROOKE DRIVE	LEE JEFFREY W		13 SUNNYBROOKE DRIVE	DOVER	NH	03820
I0030-B00007	SUNNYBROOKE DRIVE	SUNNYBROOKE CONDOMINIUM ASSC		P.O. BOX 1367	DOVER	NH	03820
I0030-B00008	15 SUNNYBROOKE DRIVE	FISHBEIN DANIEL E & WOLFF BELINDA J		15 SUNNYBROOKE DR	DOVER	NH	03820
I0030-B00009	17 SUNNYBROOKE DRIVE	KOSKI STEVEN F & KOSKI JUDY M		17 SUNNYBROOKE	DOVER	NH	03820
I0030-B00010	19 SUNNYBROOKE DRIVE	MICHAUD JENNIFER		19 SUNNYBROOKE DR	DOVER	NH	03820
I0030-B00011	21 SUNNYBROOKE DRIVE	TOLWOOD REALTY LLC		242 CENTRAL AVENUE	DOVER	NH	03820
I0030-B00012	23 SUNNYBROOKE DRIVE	BUCKSON LESLIE	C/O BRIAN BLAIR	P.O. BOX 9	SOMERSWORTH	NH	03878-0009
I0122-000000	282 DURHAM ROAD	ELKS ORDER OF		282 DURHAM RD	DOVER	NH	03820
I0022-000085	20 PLEASANT VALLEY RD	ROLLINS JOHN M &	ROLLINS DIANNA P	20 PLEASANT VALLEY RD	DOVER	NH	03820
I0022-000086	11 BROOKMOOR RD	LEROY ROBERT C		11 BROOKMOOR RD	DOVER	NH	03820
I0022-000087	9 BROOKMOOR RD	MARTIN WILLIAM G &	MARTIN PAIGE	9 BROOKMOOR RD	DOVER	NH	03820
I0022-000103	8 BROOKMOOR RD	HALEY JEANNE E		8 BROOKMOOR RD	DOVER	NH	03820
I0022-000104	10 BROOKMOOR RD	CHEESEMAN DOROTHY L		10 BROOKMOOR ROAD	DOVER	NH	03820
I0022-000105	15 CHARTERGRANT RD	NAVEDO MARTINEZ ERIK &	LIU ANQI	15 CHARTERGRANT RD	DOVER	NH	03820
I0022-000106	2 DEEPWOOD DR	SANTOS NANCY & WILLIAM TRUSTEES	SANTOS NANCY REVOCABLE LIVING TRUST	2 DEEPWOOD DRIVE	DOVER	NH	03820
I0022-000107	4 DEEPWOOD DR	BOUCHER PHYLLIS &	STEVENS JENNIFER	4 DEEPWOOD DRIVE	DOVER	NH	03820
I0022-000120	14 BROOKMOOR RD	BADO DONNA R		14 BROOKMOOR RD	DOVER	NH	03820-5339
I0022-000121	14 CHARTERGRANT RD	DREHOBL MICHELLE		14 CHARTERGRANT RD	DOVER	NH	03820
I0022-000000	13 BROOKMOOR RD	JENSEN'S INC		246 REDSTONE ST	SOUTHINGTON	CT	06489
M0090-D00013	22 A ISAAC LUCAS CR	CITY OF DOVER		288 CENTRAL AV	DOVER	NH	03820
M0102-000000	277 MIDDLE RD	DRISCOLL BRENDAN C		277 MIDDLE RD	DOVER	NH	03820
M0104-000000	BACK RD	DEXTER ALAN G TRUSTEE &	NICHOLS WILLIAM O JR	4217 BLACK SYCAMORE DR	CHARLOTTE	NC	28226
M0089-000000	315 MIDDLE RD	GAGNON SCOTT C TRUSTEE	GAGNON SCOTT REVOCABLE TRUST	315 MIDDLE RD	DOVER	NH	03820
M0089-C00000	291 MIDDLE RD	SPALDING MELISSA		291 MIDDLE RD	DOVER	NH	03820
M0089-D00000	309 MIDDLE RD	HACKETT THEODORE S &	HACKETT CYNTHIA A	309 MIDDLE ROAD	DOVER	NH	03820
M0089-E00000	297 MIDDLE RD	MAMIGONIAN CARL H & SHARON J TRUSTEES	MAMIGONIAN CARL AND SHARON REVOCABLE LIV	297 MIDDLE RD	DOVER	NH	03820
M0089-F00000	319 MIDDLE RD	GITSCHIER HELEN C		319 MIDDLE RD	DOVER	NH	03820
M0090-A00003	20 ISAAC LUCAS CR	DICKSON DAVID K	DICKSON DIANE N	20 ISAAC LUCAS CR	DOVER	NH	03820
M0090-A00005	16 ISAAC LUCAS CR	SPURLING ERIC A TRUSTEE	SPURLING ERIC A LIVING TRUST	16 ISAAC LUCAS CR	DOVER	NH	03820
M0090-A00006	10 ISAAC LUCAS CR	SCHELLER P KARL & PATRICIA A TRUSTEES	SCHELLER FAMILY TRUST	2 WATERFORD WAY APT 205	MANCHESTER	NH	03102
M0090-A00008	6 ISAAC LUCAS CR	COVERT WILLIAM D &	COVERT PAIGE C	6 ISAAC LUCAS CR	DOVER	NH	03820
M0090-A00010	8 ISAAC LUCAS CR	HOLDEN KEVIN F &	HOLDEN DEBORAH E	8 ISAAC LUCAS CIRCLE	DOVER	NH	03820
M0090-D00009	ISAAC LUCAS CR	BRICKYARD ESTATES/DOCK OWNERS	C/O REGINALD FITZGERALD	10 BRICKYARD DR	DOVER	NH	03820
M0090-D00010	22 ISAAC LUCAS CR	COOK N MILES III &	COOK AMANDA	22 ISAAC LUCAS CR	DOVER	NH	03820-4910
M0090-E00000	18 ISAAC LUCAS CR	DUGAS JANE M TRUSTEE	DUGAS JANE 2011 REVOCABLE TRUST	18 ISAAC LUCAS CR	DOVER	NH	03820
M0090-H00000	24 ISAAC LUCAS CR	EVERETT DONNA MARIE		24 ISAAC LUCAS CIR	DOVER	NH	03820
M0090-K00000	12 ISAAC LUCAS CR	GABARRO SETH RAFAEL &	GABARRO ANTHONY PHILIP	12 ISAAC LUCAS CR	DOVER	NH	03820-4910
M0090-N00000	14 ISAAC LUCAS CR	STEVENS CHRISTOPHER L		14 ISAAC LUCAS CR	DOVER	NH	03820
M0090-S00000	2 ISAAC LUCAS CR	BURLAGE KENNETH &	BURLAGE JACQUELYN KC	2 ISAAC LUCAS CR	DOVER	NH	03820-4910
M0090-X00000	320 MIDDLE RD	ROCHEFORT JEFFREY R		320 MIDDLE ROAD	DOVER	NH	03820
M0091-B00000	278 MIDDLE RD	MCKENNA JAMES F & JOANNE E TRUSTEES	MCKENNA JAMES AND JOANNE REVOCABLE LIVIN	278 MIDDLE ROAD	DOVER	NH	03820
M0092-A00000	BACK RD	LANGS PATRICIA		10 HAWTHORN ROAD	DOVER	NH	03820
M0092-B00000	CULLEN BAY RD	CULLEN BAY HOMEOWNERS ASSC	C/O LORI LANDER-TREASURER	135 BAY SHORE DR	CAPE CORAL	FL	33904-5808
M0092-H00000	CULLEN BAY RD	LOOMIS JAMES L &	LOOMIS ANNE Y	6 CULLEN BAY RD	DOVER	NH	03820
M0091-000000	286 MIDDLE RD	STRANGE EDWARD S		286 MIDDLE RD	DOVER	NH	03820
M0091-A00000	292 MIDDLE RD	TOWNSQUARE MEDIA PORTSMOUTH LLC		PO BOX 576	DOVER	NH	03821-0576
		EVERSOURCE ENERGY		13 LEGENDS DRIVE	HOOKSETT	NH	03106
		WILLIAM MC CLOY, NHCWS	NORMANDEAU ASSOCIATES, INC.	P.O.BOX 205	RUTLAND	VT	05701
I0022-000000	13 BROOKMOOR RD	JENSEN'S INC		246 REDSTONE STREET	SOUTHINGTON	CT	06489
M0091-A00000	292 MIDDLE ROAD	TOWNSQUARE MEDIA PORTSMOUTH LLC		P.O. BOX 576	DOVER	NH	03821-0576

Erickson motioned to approve the requested expenditure of $150,000 from the Conservation Fund, Lyon seconded. Vote: 7 in favor.

B. City of Dover Conditional Use Permit for 46 Venture Drive Properties, LLC (Owner: Hussey Manufacturing Technology, LLC), Assessor's Map D, Lot 11-2, zoned I-4, located at 46 Venture Drive.

Steve Haight was present to explain the proposal for construction of a 15,000 sq. ft. commercial building with driveways, paved parking and associated grading and drainage impacting 2,669 sq. ft. of steep slopes of 20% or greater. The drainage plans were reviewed. The plan has been to TRC and the plans were revised to reflect their comments. DBIDA approved the use of the parcel. The 20% slopes along the road were created when Venture Drive was built.

Fellows moved to endorse the Conditional Use Permit as presented, Schmidt seconded. Vote: 7 in favor

C. City of Dover Conditional Use Permit and NHDES Wetlands Permit for the City of Dover, Assessor's Map H, Lot 58, zoned I-4, located at 271 Mast Road.

Tom Page of Underwood Engineers was present to explain the proposal to construct a replacement artificial recharge facility on Bellamy River, including a new passive river intake structure, a new suction lifting pumping station, and a new pumping building, with 500 sq. ft. of permanent wetlands impact and a temporary wetlands impact of 1,450 square feet. Artificial recharge adds water from the river to recharge basins to help recharge aquifers and to prevent contamination from Madbury Metals impacting the wells. We met with NH Fish & Game to select the correct size screen for the intake. The wetlands permit has been submitted. Plan is to construct in 2020. This requires a 401 water quality permit from the state.

Hunt: Is there much of a change in the project footprint?

Page: The building is slightly larger.

Bird: Where are the recharge basins located?

Page showed them on a map.

Hunt: The water in the Bellamy River comes from the Bellamy Reservoir, which is controlled by Portsmouth.

Page: We are using State Drinking Water Funding to pay for this project.

Fellows moved to endorse the Conditional Use Permit and NHDES Wetlands Permit as presented, Erickson seconded. Vote: 7 in favor

D. City of Dover Conditional Use Permit for Eversource Energy, Assessor's Map I, Lot 22, owned by Jensen's Inc. at 13 Brookmoor Road, zoned R-40, and Assessor's Map M, Lot 91-A, owned by Townsquare Media Portsmouth, LLC at 292 Middle Road, zoned R-40.

Sarah Barnum of Normandeau Associated was present to explain the proposal to replace five existing utility pole structures in a utility easement, with temporary wetland impacts of 18,879 square feet and temporary 50-foot wetland buffer impacts of 44,543 square feet. We did a site walk with the contractor last week to refine the impacts to wetlands and they will be reduced.

Fellows: What activity takes place in each site?

DRAFT

Barnum: Wooden poles will be replaced by metal poles. Wooden posts are cut in place to reduce disturbance. Timber mats are used for wetland crossings. Construction will start early next year.

Aube: Will any Eversource staff be on site to monitor the work?

Barnum: Monitoring the work is part of our contract with Eversource. The Middle Road site is home to NE Cottontail habitat so we will minimize the impacts as much as possible.

Bird: Get us the reduced impact numbers so the Planning Board will have them.

Barnum: This is permitted under a Utility Maintenance Permit from DES.

Fellows moved to endorse the Conditional Use Permit as presented, Erickson seconded. Vote: 7 in favor

a. Vote on request for expenditures from the Conservation Fund for:

    1. Expenditure to hire Truslow Resource Consulting, LLC to prepare a Baseline Documentation Report for Morin Parcel - $1,384

Bird explained this is a contract for the preparation of a Baseline Documentation Report for Morin Parcel that the public hearing was held earlier. The City hired this firm after going through a written bid process. The work is already underway. Additionally I am requesting your approval for an additional expenditure for a title report that was prepared by Couture Title Services for this property in the amount of $175. Normally these expenses would be included in the City Council resolution but we were being more proactive and having this work done before seeking City Council approval for the easement.

Erickson motioned to approve the requested expenditures of $1,384 and $175 from the Conservation Fund, Fellows seconded. Vote: 7 in favor.

5. REPORT FROM THE CHAIR

A. Review of Correspondence Received From NH Department of Environmental Services: None

6. OTHER BUSINESS:

A. Discussion on ideas for amendments to Wetlands or Conservation District Ordinances

Bird explained that the Planning Board is soliciting ideas for any potential amendments that the Conservation Commission wants to make to the environmental ordinances like wetlands or conservation district. Need feedback by the December 9th meeting. Bird will e-mail the 3 ordinances to members.

B. Update on Forest Management Sub-committee Meeting Held on November 4, 2019

Fellows: The meeting primarily focused on the RFP and the proposed interview process. The proposals are due back tomorrow.

C. Report on NH Association of Conservation Commission Annual Meeting and Conference

Fellows attending and had these comments: Good event with discussion on environmental economics. Went to session on Emerald Ash Borer, which is found nearby and soon will be in Dover. There is no native predator so you have to treat with chemical or remove tree. Aube also presented on Shoreland.

7. ADJOURNMENT

The Chair declared the meeting adjourned at 6:55 pm.

DRAFT

CITY OF DOVER

PLANNING BOARD - STAFF MEMO FILE #P19-77

Application Type:	Site Plan
Applicant(s):	Industrial Tower and Wireless, LLC
Owner(s):	Peter & Susan Rousseau
Location:	200 Henry Law Ave (Assessor's Map K, Lot 1)
Meeting Date:	December 10, 2019

INTENT: Proposal is to construct a 150' communications tower and 80'x80' compound with gravel driveway.

LOTS/UNITS PROPOSED: N/A

AGENDA ITEM #: 4-F

ACREAGE: 28.8 for subject parcel. 55.18 between two parcels

ZONING DISTRICT: R-40

EXISTING LAND USE: Residential/farm

PROPOSED LAND USE: Existing plus tower

SURROUNDING LAND USE: Residential

ZBA ACTION: Z18-07/Z18-22, ZBA decision to deny variance vacated through court settlement. ITW is granted a variance for a new tower on a lot where new facilities are not permitted. See US District Court Agreement for Judgment in Case No. 1:19-cv-00067-PB, filed 10/01/19.

ATTACHMENTS: Application materials, Site Plan, TRC minutes from 11/21/19

APPLICATION IS COMPLETE: Yes

NOTICES SENT: Abutter notices were sent by certified mail to all abutters for this meeting

PERMITS REQUIRED: N/A

WAIVERS REQUESTED: N/A

Summary of Request and Background

The applicant is proposing to construct a 150' tall communications tower with a 80'x80' compound with gravel driveway. Screening for the compound shown on the plan includes stockade fencing and landscaping plus existing treelines.

The Technical Review Committee reviewed this application at its November 21, 2019 meeting.

Consistency with Land Use Regulations

Chapter 170-22)of the Zoning Ordinance of the City Code provides for review of new telecommunications facilities by the Planning Board.

Chapter 149-4 of the Site Review Regulations of the City Code provides for site review by the Planning Board of new construction of various types. This plan is consistent with those regulations.

STAFF RECOMMENDATION:

The Planning Department recommends the Planning Board accept the application, open the public hearing, and vote to approve the Site Plan with the following conditions:

Conditions to Be Met Prior to the Signing of Plans:

1. The applicant shall provide:
    a. a digital version of plan set
    b. letter to serve from Eversource
    c. a revised current use plan to the Assessing Department's satisfaction
2. The applicant must revise final plan set to:
    a. Add the owner's signatures to the final plat
    b. Add LLS and PE signatures and stamps to final plan
    c. Revise common notes to the satisfaction of the Assistant City Manager
    d. Add federal permit number and date
    e. Provide truck turning template on plan
    f. Add note regarding lighting provided within and around compound/tower
    g. Revise site construction note to indicate no Sunday hours
    h. Add note that access way will be plowed for year round access to the satisfaction of the Building Official.

Conditions to Be Met Prior to any Construction Activity:

3. A site construction sign with the contact information for the general contractor must be located and approved by the City Engineer or Assistant City Manager.

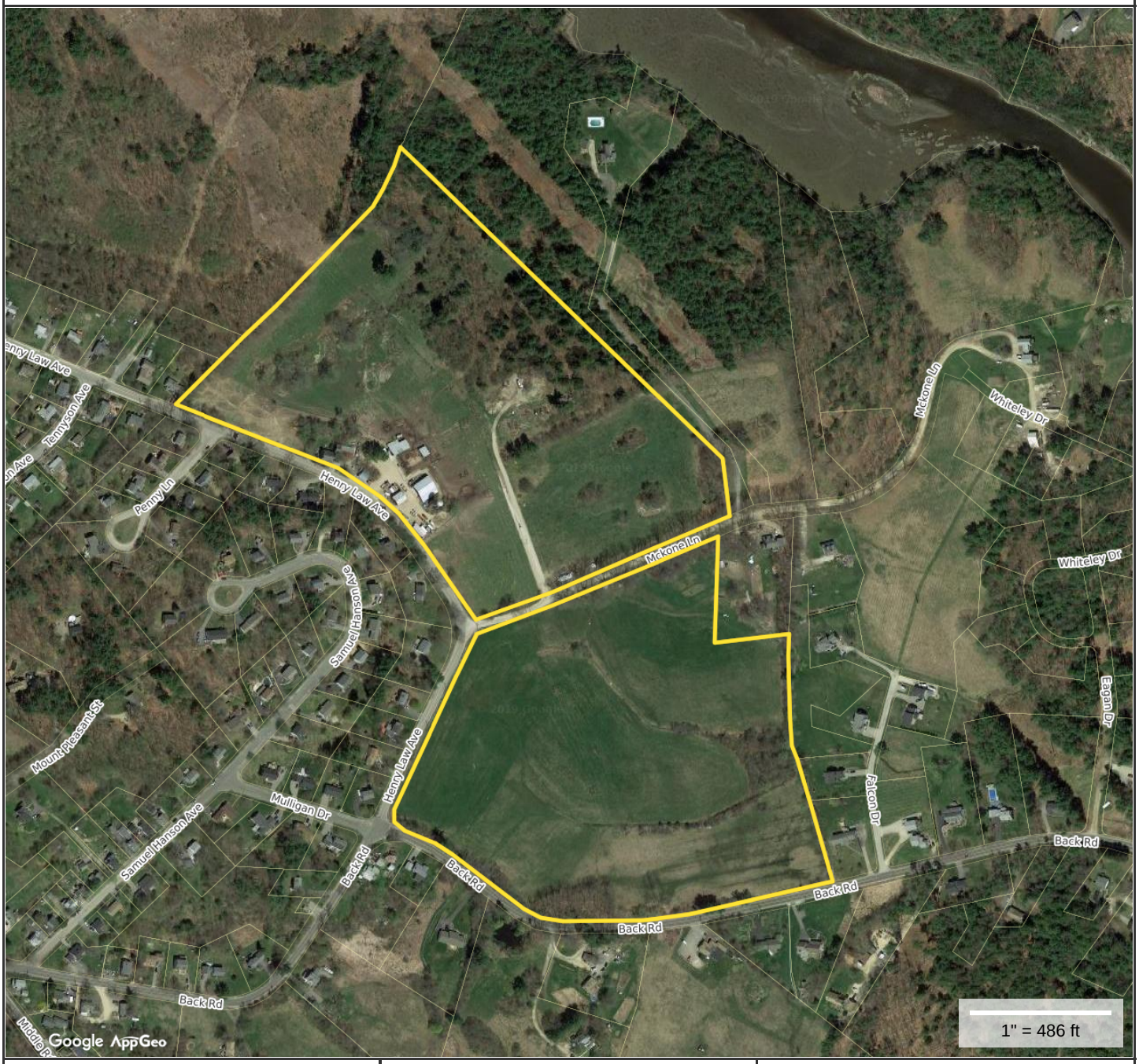
Condition to Be Met Prior to Issuance of Building Permit:

4. Impact fees shall be paid per the invoice included in the Notice of Decision.

Condition to be Met Prior to Issuance of Certificate of Completion:

5. The applicant shall provide a letter of credit or other form of security acceptable to the City for any unfinished work.

200 Henry Law Avenue



Property Information

Property ID	K0001-000000
Location	200 HENRY LAW AV
Owner	ROUSSEAU SUSAN J
Land Use	101

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

City of Dover, NH makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 10/18/2019
Data updated Daily

City of Dover, New Hampshire
SITE REVIEW APPLICATION

[Revision Date: June 4, 2019]

RECEIVED
Planning Office
OCT 30 2019
Dover, New Hampshire

Office Use Only	Project #: P19-77	Date Received:
	Amount Paid:	Time Received:

APPLICANT AND OWNER INFORMATION

Name of Applicant: Industrial Tower & Wireless, LLC Telephone # 781-319-1011

Address of Applicant: 40 Lone St., Marshfield, MA 02050

E-Mail Address: Kevin.Delaney@induscom.com

Name of Property Owner (*if different from applicant*): Peter + Susan Rousseau Telephone # 603-396-6126

Address of Property Owner: 200 Henry Law Ave

PROPERTY INFORMATION

Address of Property: 200 Henry Law Ave

Assessor's Map # K Lot(s) # 1-0-0

Zoning District(s) R-40 Overlay District(s) _____

Size of Parcel: — sq. ft. 28.8 ac. Property Deed: Book 1139 Page: 797

Existing Use of Property: cattle farming operation

SITE PLAN INFORMATION

Describe Proposed Use: To construct a 150' communications tower and 80'x80' compound with gravel driveway.

Area of Parcel to be Developed: 33,000 sq. ft. +/-

If Multi-family Residential, Specify Number of Units & Buildings Proposed: N/A

Number of Parking Spaces: Existing N/A Proposed _____

Highway Access (check where applicable): ✓ City Street ____ State Highway

Number of Employees Total: N/A In Maximum Shift: _____

Disposition of Parcel:

Building Footprint _____ sq. ft.

Total Building Area _____ sq. ft.

Paved Area -0- sq. ft.

Building Setbacks:

Front Yard 613 ft.

Rear Yard 307 ft.

Side Yard: Right 307 ft. Left 543 ft.

City Water? ___Yes X No How far is city water from the property? _____

City Sewer? ___Yes X No How far is city sewer from the property? _____

BUILDING INFORMATION

Type of Building to be Built: Communications Tower

Height of ~~Building~~: Tower 150' Finished Floor Elevation: 546

Number of Seats (where applicable) N/A

Estimated value of construction: _____ Refuse removal: Public/(Private) (circle one)

WAIVER REQUESTS

Site Review Regulations section(s) to be waived: NONE

Justification for waiver request(s) (*attach additional sheets as needed*):

SURVEYOR INFORMATION

Name of Surveyor and Company (Licensed in N.H.) Michael D. Ploof / Fieldstone Land Consultants

Address 206 Elm St, Milford, NH 03055 Telephone #: 603-672-5456

Professional License #: #946 E-mail address: www.FieldstoneLandConsultants.com

ENGINEER INFORMATION

Name of Engineer and Company (Licensed in N.H.) Fieldstone Land Consultants

Address 206 Elm St, Milford, NH 03055 Telephone #: 603-672-5456

Professional License #: _____ E-mail address: _____

ARCHITECT INFORMATION

Name of Architect and Company (Licensed in N.H.) N/A

Address _____ Telephone #: _____

Professional License #: _____ E-mail address: _____

LANDSCAPE ARCHITECT INFORMATION

Name of Landscape Architect and Company (Licensed in N.H.) N/A

Address _____ Telephone #: _____

Professional License #: _____ E-mail address: _____

SOIL SCIENTIST INFORMATION

Name of Soil Scientist and Company (Licensed in N.H.) N/A

Address _____ Telephone #: _____

Professional License #: _____ E-mail address: _____

CONSERVATION EASEMENT HOLDER

Name of Easement Holder: N/A Telephone #_____

Address Easement Holder: _____

SIGNATURES

I/We hereby submit this application to the City of Dover Planning Board and attest that to the best of my knowledge all of the information on this application form and in the accompanying application materials and documentation is true and accurate. Furthermore, I/we submit that the existing conditions sheet of the plan represents the lot in question, and that no alteration of the site shall take place during Planning Board review up to and including the pre-construction meeting. As applicant or as agent, I attest that I am duly authorized to act in this capacity.

Signature of Property Owner: _____ Date: 11/4/19

Signature of Applicant (*if different from owner*): _____ Date: 10/24/19

Signature of Agent: _____ Date: _____

AUTHORIZATION TO ENTER SUBJECT PROPERTY

I, and my successors, hereby authorize members of the Dover Planning Board, Planning Department and other pertinent City Departments and boards to enter my property for the purpose of evaluating this application, including performing inspections during the application phase, post-approval phase, construction phase and occupancy phase. It is understood that these individuals must use all reasonable care, courtesy, and diligence when on the property.

Signature of Property Owner: _____ Date: 11/4/19

AUTHORIZATION TO COMPLETE THE PROJECT ON SUBJECT PROPERTY

I, and my successors, hereby the City of Dover or its assigns to enter my property for the purpose of completing the site work as required by the approved plan should the letter or credit or other surety be called. It is understood that these individuals must use all reasonable care, courtesy, and diligence when on the property.

Signature of Property Owner: _____ Date: 11/4/19

Signature of Applicant (*if different from owner*): _____ Date: 10/24/19

CERTIFICATION OF FEES

I, and my successors, hereby certify that I understand that the City of Dover collects impact fees, utility investment fees and inspection fees for projects developed in Dover. Said fees must be paid before a Certificate of Occupancy can be obtained for a structure, unless a different payment schedule is agreed to by the applicant and the City prior to approvals being issued by the Dover Planning Board. Additionally, should the property be in "Current Use" it will be subject to the Land Use Change Tax.

Signature of Property Owner: _____ Date: 11/4/19

Signature of Applicant (*if different from owner*): _____ Date: 10/24/19

RECEIVED
Planning Office
NOV 07 2019
Dover, New Hampshire

City of Dover, New Hampshire
SITE PLAN REVIEW SUBMISSION CHECKLIST

[Revision Date: June 4, 2019]

This site plan review checklist, as required by Chapter 149-6-B(2), should be completed by the applicant. It is intended to assist the applicant in the planning process of preparing a Site Plan Review application for Planning Board action. The size of the project will determine the types of information required for review, therefore, a **pre-application conference** with the Planning Department to determine the list of items that must be completed is strongly encouraged.

The first step would be to appear before the Technical Review Committee, to apply, eight (8) folded copies of the site plan with scale of not less than 1"=50' or 1" =100' for larger site plans, need to be provided, along with payment of plan review fees.

Two weeks prior to Planning Board, three (3) full size and twelve (12) half size (11x17), folded, copies of the plan set and materials, including response to TRC comments, will be due. Abutter/Notice Fees will be invoiced and need to be paid 28 hours prior to the Planning Board meeting.

The applicant is cautioned that this checklist is only a guide and is not intended to be a complete list of all site plan review requirements. Please refer to the Site Plan Review Regulations for full details.

APPLICANT: Industrial Tower + Wireless, LLC File Number: _____

PROJECT TITLE: Communication Facility

PROPERTY LOCATION: 200 Henry Law Ave Tax Map: K Lot: 1-0-0

	Where/How Provided	Reviewed
1. Completed and signed Application form	Attached	
2. Plan Review Fees are provided	Attached	
3. Electronic copy of the engineered/surveyed plan layout	Attached Fieldstone PDF	
4. Electronic copy of supplementary materials and application	N/A	
5. Traffic Impact Assessment and Analysis (Standard or Advanced)	N/A	
6. Waiver requests to the Site Plan Review Regulations, with written justification	N/A	
7. Conditional Use Permit applications	N/A	
8. A colored rendering of the streetscape that will be created along the existing public right-of-way	N/A	
9. A colored architectural plan showing all sides of buildings	N/A	
10. Folded copies of site plan w/scale of not less than 1"=50' or 1"=100' for larger site plans, for TRC. Plans shall contain the following items as appropriate:	Attached	
Location map at appropriate scale	Sheet 1 - Top Right	
Proposed Project name and title and Planning File #	Sheet 1 - lower right corner	
Date, north arrow and scale	Sheet 1 - bottom middle	
Names of all abutting property owners	Top of Sheet 1	
Name and address of owners and/or applicants	Sheet 1 - Right	
Signature & stamp of NH licensed land surveyor and/or engineer	Sheet 1 - Right	
Zoning District boundaries, including any special or overlay districts	Note 4 - Sheet 1	
Location of Conservation District areas	N/A	
Location, names and widths of existing and proposed streets, including pavement widths, grades, curbs and crosswalks	Sheet 1	
Location and widths of existing & proposed easements & right of ways	Sheet 3A	
Location and width of existing and proposed access/egress ways	Sheet 3A	

	Explain How Provided	Reviewed
Depict pedestrian walkways and accessible access	NONE	
Existing and proposed property lines with dimensions and bearings tied into Dover's Geographic Information System coordinate system	Sheet 3	
Existing and proposed topographic information at two foot intervals	Sheet 3	
Existing and proposed buildings and structure locations		
Minimum building setbacks or build to lines on all lots	Sheet 3A	
Location and size of existing and proposed electric, telephone, gas cable and other underground utilities	Sheet 3A Detail	
Existing and proposed water lines and fire hydrants, including materials and capacity needed	N/A	
Location and materials of sanitary sewage facilities within project site and projected additional peak hour sewer load	N/A	
Existing and proposed stormwater lines and facilities	Sheet 3A - Drive	
Lighting plan depicting all existing and proposed exterior light fixtures and a lighting level analysis for parking lots	N/A	
Location of Flood Hazard Zone	Sheet 1 - Note 8	
Location of all bodies of water and watercourses	NONE	
Location of wetlands and buffers	NONE	
Neighborhood plan with aerial underlay showing how project relates to abutting uses within the plan set	N/A	
Existing natural features and/or significant vegetation on property	Sheet 2	
Depict existing contours up to 100 ft. beyond project limits	Sheet 3	
Landscape plan depicting existing and proposed landscaping, prepared by a licensed Professional Landscape Architect	N/A - Sht. 4 Details	
Location of parking layout delineating spaces and arrangement; note addressing maximum required spaces	N/A	
Location, material and size of existing and proposed pavement area	Sht. 5 - Cross-section	
Location of proposed fire lanes	Sht. 3A - Compound Detail	
Specify finished floor elevations of buildings	Sht. 3A 546'	
Location of solid waste disposal facilities (dumpster, pad and screening, etc.), including required screening	N/A	
Depict all service, storage, loading bays and utility areas	Sht 3A - Compound Details	
All applicable Dover Common Site Plan notes	Attached to Application	
11. Additional Information if appropriate		
Stormwater Management Plan depicting the existing & proposed storm drainage system and engineered drainage analysis	N/A	
Stormwater Management System Operation and Maintenance Plan	N/A	
Letter to Serve from Public and Private Utilities	Needed	
Erosion and Sedimentation Control Plan	Sheet 5 - Details	
Landscape Operation and Maintenance Plan	N/A	
Proposed restrictive covenants or homeowners association documents	N/A	
Dates and permit numbers of all required state and federal permits	Needed	
If wetland buffer, indicate placards locations, as applicable	N/A	
Depict test boring locations, groundwater elevations and soil profiles and/or soils types call-outs	Sheet 3 - soil types	
Location of proposed drive-in facilities	N/A	
Provide additional exhibits/technical data determined appropriate by the Planning Board or its staff as required		

REVIEWED BY: _____ DATE_____ TRC DATE_____

CITY OF DOVER PLANNING DEPARTMENT
Revised June 4, 2019

APPLICANT: _Industrial Tower & Wireless, LLC_____ FILE NUMBER: _____

List of Common Site Plan Notes

The following list of commonly required notes is intended to be used as a guide to applicants and should not be construed as a comprehensive note requirement list for all projects. A preapplication conference with the Planning Department is suggested to help determine the actual notes that may be required.

1. The intent of this plan is for the construction of a communication facility

2. Owners of Record are: Peter & Susan Rousseau
   200 Henry Law Avenue
   Dover, NH 03820

   _____
   Authorized Signature

3. The parcel(*s*) is (*are*) shown as Lot No. 1-0-0, Map K of the City of Dover Tax Assessor's Maps.

4. The subject parcel(s) contains 28.8 acres of land.

5. Title reference for the project parcel(*s*) is the Strafford County Registry of Deeds, Book No. 1139, Page No. 797.

6. Reference Plans: Sheet number 1 – on the lower right - lists the 3 plans in the SCRD

7. All applicable right-of-way, conservation, slope, construction, power line, cross travel, or other easements shall be referenced in a note. See Sheet number 3-A – top right

8. Zoning dimensional and density requirements are as follows:

Required:	Provided:
a. Zoning district R-40 sub-district _____	
b. Minimum lot size: 40,000 sq. ft.	
c. Minimum lot frontage: 150 ft.	
d. Minimum yard setbacks/build-to-lines:	
Front 150 ft.	Front 613.4'
Side 25 ft.	Left side 543.1'
Rear 30 ft.	Right side 307.5
Abut-a-street _____ ft.	
e. Maximum/minimum lot coverage _____ %	
f. Minimum/maximum bldg. height _____ ft./stories	

This property falls within the following zoning overlay districts: *(List districts)*

9. List any variances or special exceptions granted by the Zoning Board of Adjustment or Conditional Use Permits granted by the Planning Board for the proposed use or structure, including the case number and date of decision and any conditions. Settlement Agreement

10. Property line information was taken from the plans that are referenced on the plans as stated as Note #5 on Sheet 3.

11. Subject parcel is (*is not*) located within a Federally designated flood hazard area (Community panel number 33017C0xxxD, Effective Date: September 30, 2015). N/A

12. Wetlands were delineated by _____, Certified Wetlands Scientist, Certification Number ____, in accordance with Chapter 170-27.1 of the Zoning Ordinance, on _____, 20___. N/A

13. As-built plans of the subdivision shall be submitted on paper and in digital format AutoCAD DWG, AutoCAD DXF or ESRI format to the City of Dover Engineer's Office upon completion of project if a street is proposed for City acceptance. As-built plans shall be prepared and certified correct by a L.L.S. or P.E. Digital files shall be geo-referenced to New Hampshire State Plane Coordinates NAD83 and shall be expressed in feet. N/A

14. The installation of electric power, cable television and telephone lines shall be underground throughout the site for which development is proposed. AGREED

15. The subject parcel(s) is (are) served by municipal water and sewer (*or is served by on-site well and septic system*). N/A

16. All construction shall conform with the State of New Hampshire Department of Transportation (NHDOT) "Standard Specifications for Road and Bridge Construction" and with the City of Dover Community Services Regulations and standard specification for construction. The more stringent specification shall apply. N/A

17. All erosion control notes shall include provisions for construction sequencing, temporary erosion control measures, and permanent standards such as loam spread rate for disturbed areas, rates of lime, type and rates for fertilizer, and seed and mulch mixture with rates of application.

18. The limits of construction disturbance that are located in or within the 50 ft. of Conservation and Wetland Districts shall be staked, flagged and clearly identified prior any earth disturbing activity occurs.

19. All treatment swales to be constructed shall have sod bottoms.

20. A letter of credit for the cost of revegetating all disturbed areas on the site shall be submitted, and the approved construction sign installed prior to any earth disturbing activity occurs.

21. A pre-construction conference with the developer, the design engineer, the earthwork contractor and the City Engineer shall occur prior to any earth disturbing activity. AGREED

22. Site Construction hours shall be limited to Monday-Friday 7 AM-6 PM, Saturday and Sunday 9 AM-4 PM. Hours of construction must be documented on a site construction sign along with the contact information for the general contractor. Said signage must be located and approved by the City Engineer or Assistant City Manager. AGREED

23. Building addresses (including apt/unit numbers if applicable) shall be assigned by the Building Official at the time of issuance of a building permit. AGREED

24. The proposed use for the site (structure) is a communications facility. (More specific uses are encouraged, such as single family, duplex, multi-family, restaurant, hotel, doctor's office, etc. Should more than one use be proposed, an indication of the percentage of each use is suggested.) N/A

25. The following federal and state permits have been issued for the subject property: FAA, FCC and NH Section 106 approvals will be issued prior to construction.

26. Commercial vehicle route during construction shall conform to Dover City Code or be coordinated with the Community Services Director. AGREED

27. Any retaining wall taller than four feet (4') requires issuance of a building permit from Inspection Services. N/A

28. Any fence taller than six feet (6') requires the issuance of a building permit from Inspection Services. AGREED – The proposed fence is 8' – see Compound Detail Sheet Number 3-A

29. Applicant shall complete Land Use Development Tracking Form, most recently revised version, utilizing the online Pollution Tracking and Accounting Pilot Project (PTAPP) portal. https://www.unh.edu/unhsc/ptapp

30. The owner of record shall record at the Registry of Deeds documentation sufficient to provide notice to all persons/entities that may acquire any property subject to the requirements and responsibilities described in the approved STORMWATER Management Plan. The notice shall comply with the applicable requirements for recording contained in RSA 477 and 478. The notice need not set forth the requirements at length, so long as it is sufficient to provide notice to prospective purchasers to the requirements for maintenance and reporting.

31. Fire department access road(s) shall be installed and maintained to support the imposed loads of fire apparatus in all weather conditions at all times.

32. The maximum parking space calculation is _____ (broken down) and ____ spaces are provided.

33. Exterior lighting shall be cut-off type fixtures per Chapter 149-14-E and shall provide lighting directed on-site only.

34. Topographic survey performed by Fieldstone Land Consultants, PLLC on 2/6/18.

35. Elevations are based on U.S.G.S. datum. (**or** Elevations depicted are based on information obtained from the City Engineer's Office and was derived from coordinates for control stations _____ and _____. These coordinates have not been adjusted to 1983 datum).

36. A security system shall be installed as required by Chapter 58, Article I, section 58-2 of the Code of the City of Dover. (*If a business establishment or multi-family dwelling contained in a new, altered or repaired structure*) N/A

37. Approved backflow preventers shall be provided for both fire and domestic water lines. N/A

38. The (*existing or proposed*) structure shall be served by a sprinkler system as required by Chapter 109- 30 of the Code of the City of Dover and the adopted State of NH Building and Fire Codes. N/A

39. Sprinkler connections must be flushed in accordance with NFPA 24 and a Contractor's Material and Test Certificate for Underground Piping form must be completed and approved by Inspection Services prior to connection of the backflow device. N/A

40. Fire department connection(s) shall be located on the street side of the building per NFPA 13. Access to the FDC shall maintain a clear and unobstructed path at all times. N/A

41. The site layout is designed in compliance with applicable accessibility regulations. The proposed structure will be also be designed in accordance with applicable accessibility regulations. (i.e. IBC, ANSI-117.1) and NH RSA 155-A:5. N/A

REMARKS:

STATEMENT OF COMPLIANCE WITH PROVISIONS OF THE ORDINANCE SPECIFIED IN THE AGREEMENT FOR JUDGEMENT

- **170-22D (2) a** - See submitted site plans and Tab 1 for coverage study.
- **170-22D (2) b** - See Tab 2 for RF Report and FAA Approval.
- **170-22D (2) c** - See Tab 3 for summary of NEPA evaluation and compliance.
- **170-22D (2) g** - See Tab 4 regarding statement that the tower will accommodate the maximum number of carriers.
- **170-22E (3)** - See sheet #3 of the site plans. The proposed site is in compliance with all required setbacks.
- **170-22E (4)** - See sheets 3, 3A, and 4 of the site plans. Security fencing will consist of an eight-foot stockade fence.
- **170-22E (5)** - See sheet 3-A of the site plans. The tower compound will have a suitable landscape buffer that includes existing and proposed vegetation.
- **170-22E (6) a** – See site plan note 19 on sheet 3-A. The tower will be galvanized steel which is a dull grey color.
- **170-22E (6) b** – The inside of the compound will have outdoor equipment cabinets that will be screened by the fencing and landscaping as shown on sheet 3-A of the site plans.
- **170-22E (6) c** – The antennas and supporting equipment will be closely compatible with the color of the tower.
- **170-22E (6) d** – See Tab 2. The tower is not required to be lit per the FAA Determination of No Hazard.
- **170-22E (6) e** – The security fencing will only contain the required signage by the FCC as identified in note 7 on sheet 3-A of the site plans, which identify the tower owner, provides an emergency phone number, and warns that only ITW personnel are authorized to work on the tower.
- **170-22E (7)** – The tower will comply with all applicable federal requirements, and ITW agrees to comply with any new applicable federal requirements in the future, if necessary.

- **170-22E (8) -** The tower will comply with all applicable building codes, and ITW agrees to comply with any new applicable building codes in the future, if necessary.

- **170-22E (9)** – ITW agrees to comply with certification of safety standards and continued need.

- **170-22H –** ITW will comply with all applicable Bonding and Security and Insurance requirements.

- **170-22I** – ITW will comply with the requirements for removal of abandoned towers.

OTHER SUBMITTALS PER PLANNING COMMENTS

- **Copy of utility easement** - See Tab 5

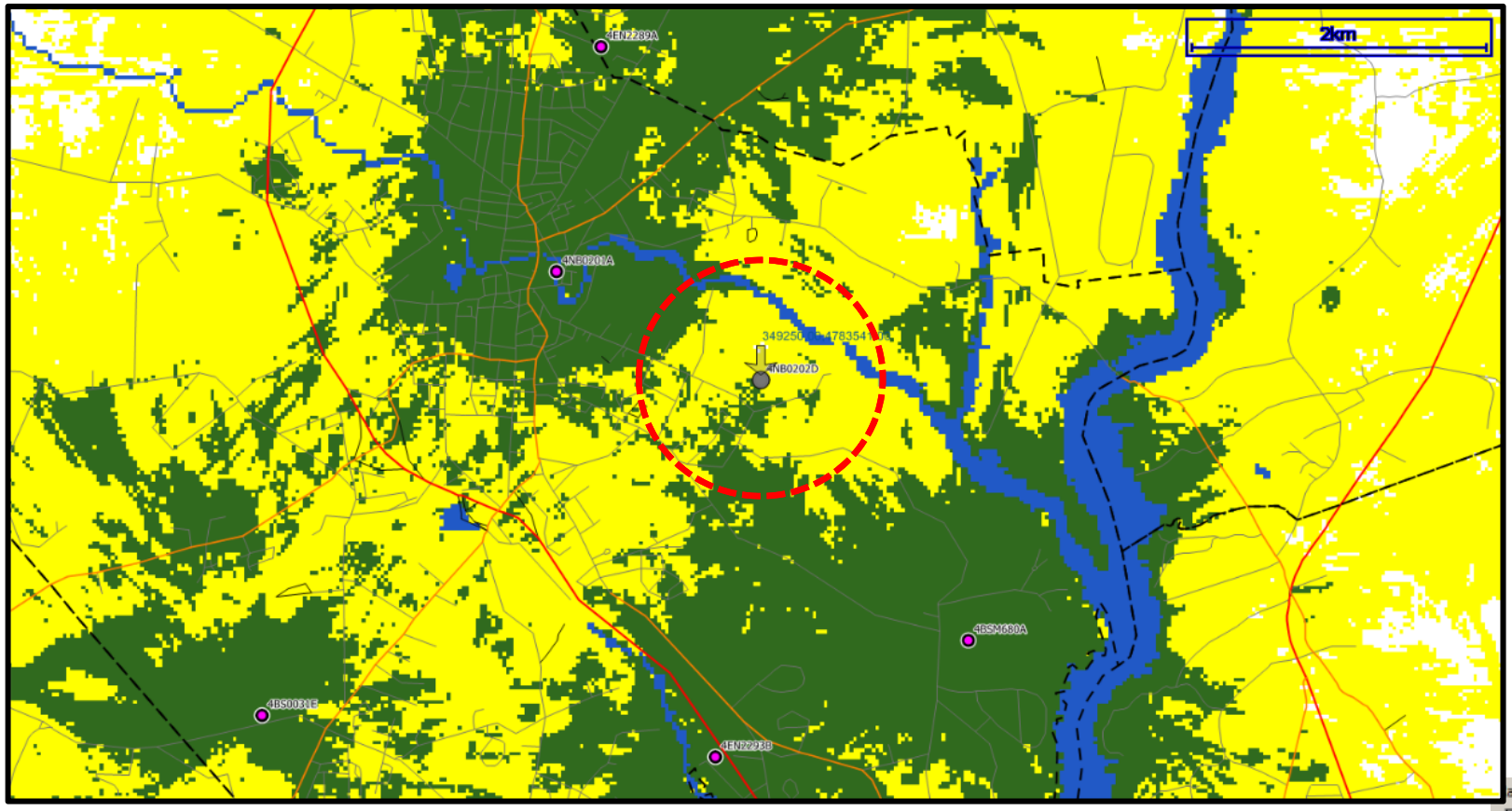
- **Statement regarding fall zone from Eversource** - See Tab 6

- **Rendition of tower –** See Tab 7

- **Estimate of cost for tower removal –** See Tab 8

TAB 1

Existing LTE 2100 MHz Coverage in Dover, NH



Existing T-Mobile On-Air Site

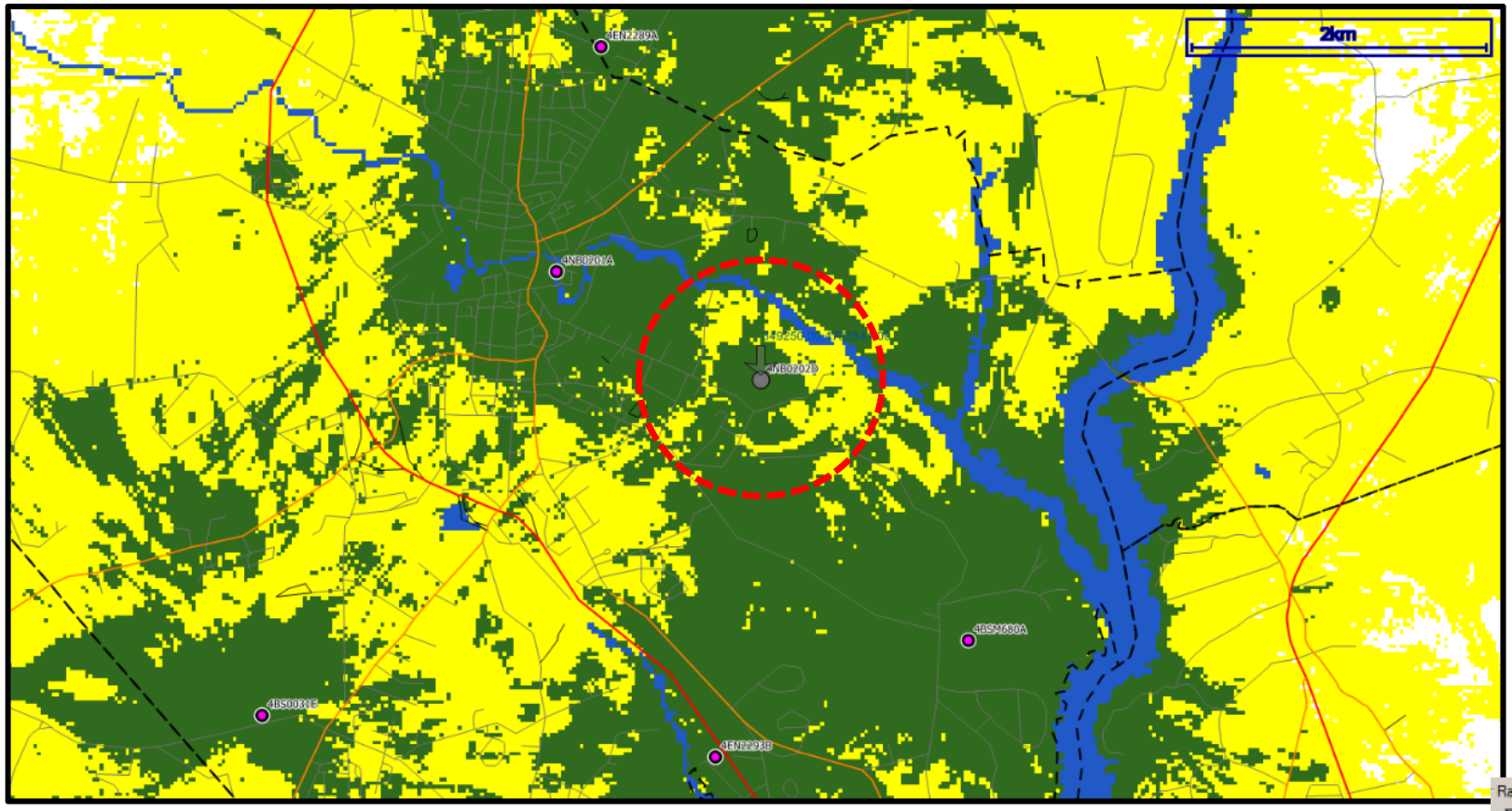
Propose T-Mobile Site

- Other_Road
  - Line
    - Line 1
- Primary_Road
  - Line
    - Line 1
- Secondary_Road
  - Line
    - Line 1
- Neighborhood_Road
  - Line
    - Line 1

anges

Minimum	Maximum	Label	Colour
-114	-97	In-Vehicle	
-97	0	In-Building	

Propose LTE AWS Coverage with 200 Henry Law Ave, Dover, NH at Height of 150 Feet Tip AGL



Existing T-Mobile On-Air Site

Propose T-Mobile Site

- Other_Road
  - Line
    - Line 1
- Primary_Road
  - Line
    - Line 1
- Secondary_Road
  - Line
    - Line 1
- Neighborhood_Road
  - Line
    - Line 1

Ranges

Minimum	Maximum	Label	Colour
-114	-97	In-Vehicle	
-97	0	In-Building	

TAB 2

DONALD L. HAES, JR., CHP, CLSO

Radiation Safety Specialist

NH and MA Registered Provider of Health Physics Services

PO Box 198, Hampstead, NH 03841 617-680-6262 Email: donald_haes_chp@comcast.net

November 25, 2019

RE: Installation of a proposed Industrial Communications personal wireless services facility to be located at Map K Lot 1-0-0 (200 Henry Law Ave), Dover, NH.

PURPOSE

I have reviewed the information pertinent to the proposed installation at the above location. To determine regulatory compliance, theoretical calculations of maximal radio-frequency (RF) fields have been prepared. The physical conditions are that Industrial Communications proposes to install a Personal Wireless Services (PWS) facility including a 150-foot free-standing lattice styled tower at Map K Lot 1-0-0 (200 Henry Law Ave), Dover, NH (for approximate location, see Figure 2). The lattice tower will be designed to allow the collocation of up to five (5) PWS providers' antennas and associated equipment. The typical PWS installations would consist of directional panel antennas mounted on the lattice tower with up to four antennas each in three "arrays" aimed 120° apart. The mounting centerline heights of the antennas are typically spaced evenly at 10-foot separation distances down the lattice tower.

This report considers the contributions of ALL FIVE major PWS providers in the reginal area operating at their FCC-licensed capacities. The calculated values of RF fields are presented as a percent of current Maximum Permissible Exposures (%MPE) as adopted by the Federal Communications Commission (FCC).[i,ii]

SUMMARY

Theoretical RF field calculations data indicate the summation of ALL FIVE MAJOR PWS providers RF contributions would be within the established RF exposure guidelines (See Figure 3). This includes all publicly accessible areas, and the neighborhood in general. The results support compliance with the pertinent sections of the FCC's guidelines for RF exposure.

Based on the results of the theoretical RF field calculations, it is my expert opinion that this facility would comply with all regulatory guidelines for RF exposure with the possible full loading including ALL FIVE MAJOR PWS providers' installations.

Note: The analyses, conclusions and professional opinions are based upon the precise parameters and conditions of this particular site; **Lattice tower at Map K Lot 1-0-0 (200 Henry Law Ave), Dover, NH**. Utilization of these analyses, conclusions and professional opinions for any personal wireless services installation, existing or proposed, other than the aforementioned has not been sanctioned by the author, and therefore should not be accepted as evidence of regulatory compliance.

EXPOSURE LIMITS AND GUIDELINES

RF exposure guidelines enforced by the FCC were established by the American National Standards Institute (ANSI) [iii] and the National Council on Radiation Protection and Measurement (NCRP).[iv] The RF exposure guidelines are listed for RF workers and members of the public. The applicable FCC RF exposure guidelines for the public are listed in Table 1 and depicted in Figure 1. All listed values are intended to be averaged over any contiguous 30-minute period. NOTE: The values for "workers" is five times the values for members of the public.

Table 1: Maximum Permissible Exposure (MPE) Values in Public Areas

Frequency Bands	Electric Fields	Magnetic Fields	Equivalent Power Density
0.3 – 1.34 MHz	614 (V/m)	1.63 (A/m)	(100) mW/cm^2
1.34 - 30 MHz	824/f (V/m)	2.19/f (A/m)	(100) mW/cm^2
30 - 300 MHz	27.5 (V/m)	0.073 (A/m)	0.2 mW/cm^2
300 - 1500 MHz	--	--	f/1500 mW/cm^2
1500 - 100,000	--	--	1.0 mW/cm^2

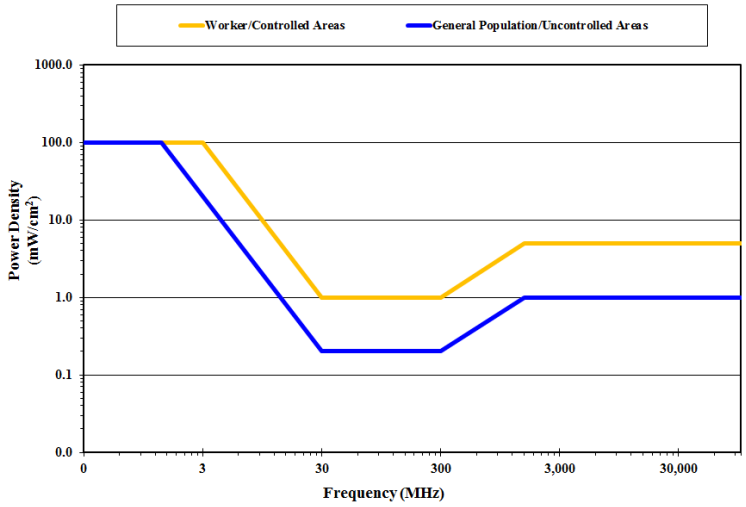


Figure 1: FCC Limits for Maximum Permissible Exposure (MPE)

NOTE: FCC 5% Rule – At multiple transmitter sites, actions necessary to bring the area into compliance with the RF exposure guidelines are the shared responsibility of all licensees whose transmitters produce RF field levels in excess of 5% of the applicable FCC MPEs.



Figure 2: Approximate Location of Proposed PWS Facility
Map K Lot 1-0-0 (200 Henry Law Ave), Dover, NH
(Picture courtesy Google Earth©2019 and may not represent current conditions)

OBSERVATIONS IN CONSIDERATION WITH FCC RULES §1.1307(B) & §1.1310

Will it be physically possible to stand next to or touch any omnidirectional antenna and/or stand in front of a directional antenna?
NO; access to the lattice tower will be restricted, and the site will adhere to RF safety guidelines regarding the PWS antennas, including appropriate signage.

THEORETICAL RF FIELD CALCULATIONS - GROUND LEVELS

METHODOLOGY

These calculations are based on what are called "worst-case" estimates. That is, the estimates assume 100% use of all transmitters simultaneously. Additionally, the calculations make the assumption that the surrounding area is a flat plane. The resultant values are thus conservative in that they over predict actual resultant power densities.

The calculations are based on the following information (See Table 2 data):

1. Effective Radiated Power (ERP).
2. Antenna height (LOWEST centerline, above ground level (AGL)).
3. Antenna vertical radiation patterns; the source of the negative gain (G) values. "Directional" antennas are designed to focus the RF signal, resulting in "patterns" of signal loss and gain. Antenna radiation patterns display the loss of signal strength relative to the direction of propagation due to elevation angle changes. The gain is expressed as "G^{E}".

   Note: "G" is a unitless factor usually expressed in decibels (dB); where $G = 10^{(dB/10)}$
   For example: for an antenna *gain* of 3 dB, the net factor $(G) = 10^{(3/10)} = 2$
   For an antenna *loss* of -3 dB, the net factor $(G) = 10^{(-3/10)} = 0.5$

To determine the magnitude of the RF field, the power density (S) from an isotropic RF source is calculated, making use of the power density formula as outlined in FCC's OET Bulletin 65, Edition 97-01: [v]

$$S = \frac{P \cdot G}{4 \cdot \pi \cdot R^2}$$

Where:
- $P \rightarrow$ Power to antenna (watts)
- $G \rightarrow$ Gain of antenna
- $R \rightarrow$ Distance (range) from antenna source to point of intersection with the ground (feet)
- $R^2 = (\text{Height})^2 + (\text{Horizontal distance})^2$

Since: $P \cdot G$ = EIRP (Effective Isotropic Radiated Power) for broadcast antennas, the equation can be presented in the following form:

$$S = \frac{EIRP}{4 \cdot \pi \cdot R^2}$$

In the situation of off-axis power density calculations, apply the negative elevation gain (G^{E}) value from the vertical radiation patterns with the following formula:

$$S = \frac{EIRP \cdot G^{E}}{4 \cdot \pi \cdot R^2}$$

Ground reflections may add in-phase with the direct wave, and essentially double the electric field intensity. Because power density is proportional to the *square* of the electric field, the power density may quadruple, that is, increase by a factor of four (4). Since ERP is routinely used, it is necessary to convert ERP into EIRP by multiplying by the factor of 1.64 (the gain of a half-wave dipole relative to an isotropic radiator). Therefore, downrange power density estimates can be calculated by using the formula:

$$S = \frac{4 \cdot (ERP \cdot 1.64) \cdot G^E}{4 \cdot \pi \cdot R^2} = \frac{ERP \cdot 1.64 \cdot G^E}{\pi \cdot R^2} = \frac{0.522 \cdot ERP \cdot G^E}{R^2}$$

To calculate the % MPE, use the formula:

$$\%\ MPE = \frac{S}{MPE} \cdot 100$$

The results of the calculations for the potential RF emissions resulting from the summation of ALL FIVE MAJOR PWS antennas are depicted in Figure 3 as plotted against linear distance from the base of the lattice tower. This build-out represents a "fully loaded" lattice tower. Note that the values have been calculated for a height of 6' AGL in accordance with regulatory rationale. Also depicted on the graphs are values for a height of 16' AGL (height of a typical 2nd story).

A logarithmic scale was used to plot the calculated theoretical %MPE values in order to compare with the MPE of 100%, which is so much larger that it would be off the page in a linear plot. The curves are variable due to the application of the vertical radiation patterns. See Appendix A for typical PWS vertical radiation patterns.

ANTENNA INVENTORY

Table 2: Possible Antenna Inventory
Lattice tower at Map K Lot 1-0-0 (200 Henry Law Ave), Dover, NH

Antenna Centerline (AGL)	Typical Antenna Type	Typical Parameters: ERP & Tx Frequencies	Typical Use
Possible Installations by PWS Carriers			
145’	T-Mobile Panel Antenna “Arrays”; 3 Sectors Of Up To 4 Panels Each	1950 watts @ 1950 MHz 5613 watts @ 2350-2360 MHz 2750 watts @ 1900 MHz	LTE AWS PCS
135’	US Cellular Panel Antenna “Arrays”; 3 Sectors Of Up To 4 Panels Each	4175 watts @ 1970-1975 MHz 2260 watts @ MHz 860 - 890 MHz 1950 watts @ 700 MHz	PCS UMTS LTE
125’	Verizon Wireless Panel Antenna “Arrays”; 3 Sectors Of Up To 4 Panels Each	4357 watts @ 1865-1870 MHz 3035 watts @ MHz 860 - 890 MHz 3035 watts @ 700 MHz 5049 watts @ 2150 MHz	PCS CDMA LTE AWS
115’	AT&T Mobility Panel Antenna “Arrays”; 3 Sectors Of Up To 4 Panels Each	4175 watts @ 1970-1975 MHz 2260 watts @ MHz 860 - 890 MHz 1950 watts @ 1950 MHz 5613 watts @ 2350-2360 MHz	PCS UMTS LTE AWS
105’	Sprint Panel Antenna “Arrays” 3 Sectors Of Up To 2 Panels Each	2720 watts @ 1950-1965 MHz	PCS

Table Notes:

AWC: Advanced Wireless Communication
AWS: Advanced Wireless Systems
CDMA: Code Division Multiple Access (“cellular voice”)
GSM: General Service Mobile
LTE : Long Term Evolution (aka “4G”)
PCS: Personal Communication System
UMTS: Universal Mobile Telecommunications System

RESULTS OF THEORETICAL RF FIELD CALCULATIONS

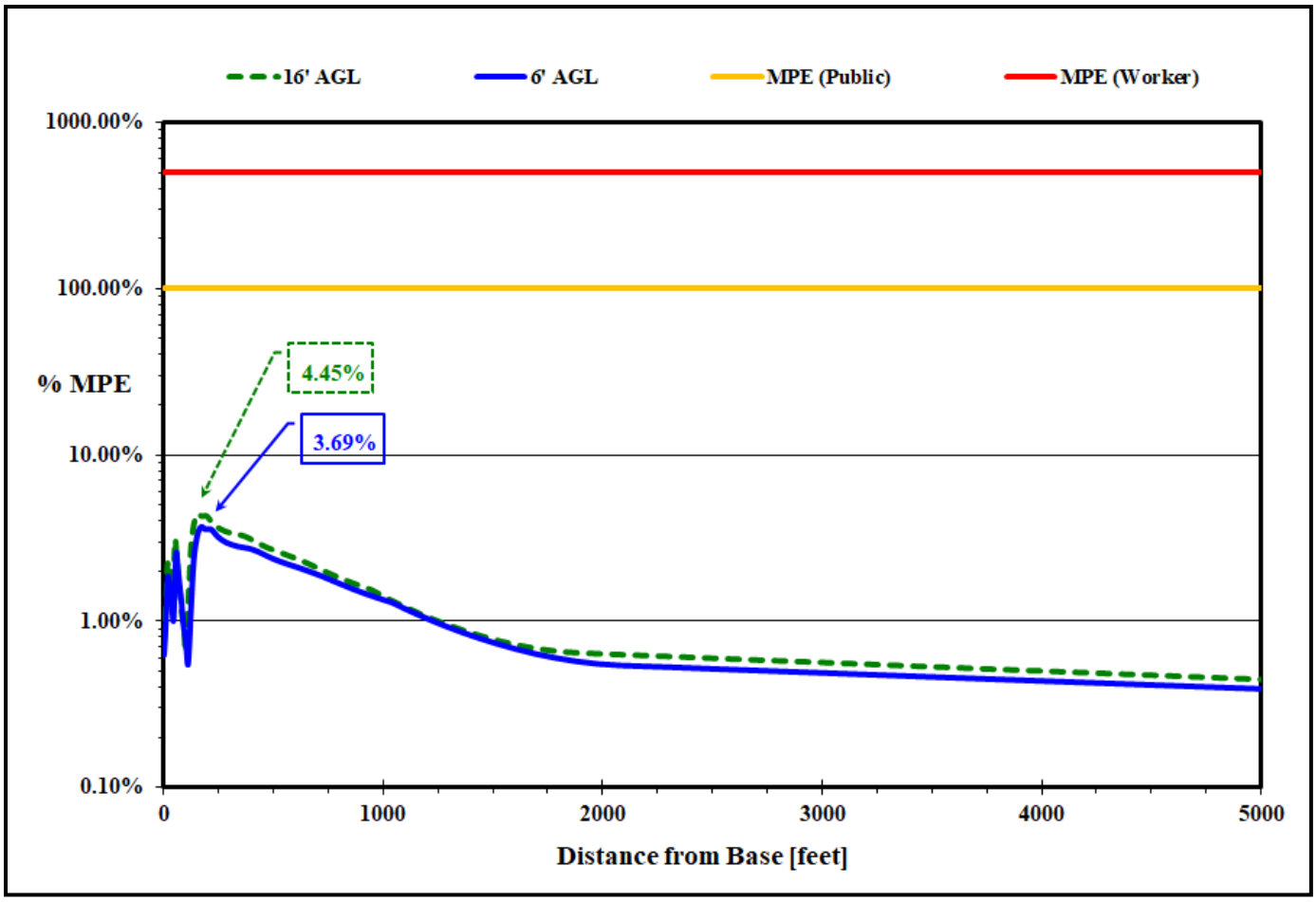


Figure 3: Theoretical Cumulative Maximum Percent MPE - vs. – Distance (Summation of ALL FIVE MAJOR PWS PROVIDERS' RF Contributions)

CONCLUSION

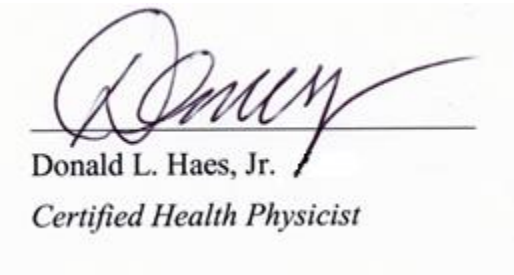
Theoretical RF field calculations data indicate the summation of ALL FIVE MAJOR PWS providers RF contributions would be within the established RF exposure guidelines (See Figure 3). This includes all publicly accessible areas, and the neighborhood in general. The results support compliance with the pertinent sections of the FCC's guidelines for RF exposure.

The number and duration of calls passing through PWS facilities cannot be accurately predicted. Thus, in order to estimate the highest RF fields possible from operation of these installations, the maximal amount of usage was considered. Even in this so-called "worst-case", the resultant increase in RF field levels are far below established levels considered safe.

Based on the results of the theoretical RF field calculations, it is my expert opinion that this facility would comply with all regulatory guidelines for RF exposure with the possible full loading including ALL FIVE MAJOR PWS providers' installations.

Feel free to contact me if you have any questions.

Sincerely,



Donald L. Haes, Jr.
Certified Health Physicist

Note: The analyses, conclusions and professional opinions are based upon the precise parameters and conditions of this particular site; **Lattice tower at Map K Lot 1-0-0 (200 Henry Law Ave), Dover, NH**. Utilization of these analyses, conclusions and professional opinions for any personal wireless services installation, existing or proposed, other than the aforementioned has not been sanctioned by the author, and therefore should not be accepted as evidence of regulatory compliance.

DONALD L. HAES, JR., CHP, CLSO

Radiation Safety Specialist

NH and MA Registered Provider of Health Physics Services

PO Box 198, Hampstead, NH 03841 617-680-6262 Email: donald_haes_chp@comcast.net

STATEMENT OF CERTIFICATION

1. I certify to the best of my knowledge and belief, the statements of fact contained in this report are true and correct.

2. The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are personal, unbiased professional analyses, opinions and conclusions.

3. I have no present or prospective interest in the property that is the subject of this report and I have no personal interest or bias with respect to the parties involved.

4. My compensation is not contingent upon the reporting of a predetermined energy level or direction in energy level that favors the cause of the client, the amount of energy level estimate, the attainment of a stipulated result, or the occurrence of a subsequent event.

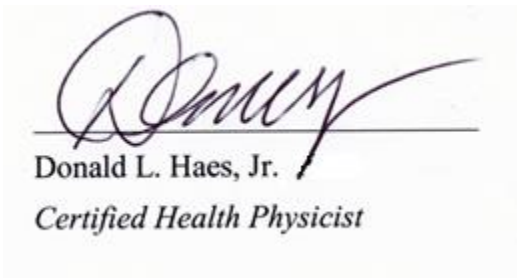
5. This assignment was not based on a requested minimum environmental energy level or specific power density.

6. My compensation is not contingent on an action or event resulting from the analyses, opinions, or conclusions in, or the use of, this report.

7. The consultant has accepted this assessment assignment having the knowledge and experience necessary to complete the assignment competently.

8. My analyses, opinions, and conclusions were developed and this report has been prepared, in conformity with the *American Board of Health Physics* (ABHP) statements of standards of professional responsibility for Certified Health Physicists.

Date: November 25, 2019



Donald L. Haes, Jr.

Certified Health Physicist

DONALD L. HAES, JR., CHP, CLSO

Radiation Safety Specialist

PO Box 198, Hampstead, NH 03841 617-680-6262 Email: donald_haes_chp@comcast.net

SUMMARY OF QUALIFICATIONS

- **Academic Training -**
  - Graduated from Chelmsford High School, Chelmsford, MA; June 1973.
  - Completed Naval Nuclear Naval Nuclear Power School, 6-12/1976.
  - Completed Naval Nuclear Reactor Plant Mechanical Operator and Engineering Laboratory Technician (ELT) schools and qualifications, Prototype Training Unit, Knolls Atomic Power Laboratory, Windsor, Connecticut, 1-9/1977.
  - Graduated Magna Cum Laude from University of Lowell with a Bachelor of Science Degree in *Radiological Health Physics*; 5/1987.
  - Graduated from University of Lowell with a Master of Science Degree in *Radiological Sciences and Protection*; 5/1988.

- **Certification -**
  - Board Certified by the American Board of Health Physics 1994; renewed 1998, 2002, 2006, 2010, 2014, and 2018. Expiration 12/31/2022.
  - Board Certified by the Board of Laser Safety 2008; renewed 2011, 2014, 2017. Expiration 12/31/2020.

- **Employment History -**
  - Consulting Health Physicist; Ionizing/Nonionizing Radiation, 1988 - present.
  - Radiation, RF and Laser Safety Officer; BAE Systems, 2005–2018 (retired).
  - Assistant Radiation Safety Officer; MIT, 1988 – 2005 (retired).
  - Radiopharmaceutical Production Supervisor - DuPont/NEN, 1981 – 1988 (retired).
  - United States Navy; Nuclear Power Qualifications, 1975 – 1981 (Honorably Discharged).

- **Professional Societies -**
  - Health Physics Society [HPS].
  - American Academy of Health Physics [AAHP]
  - Institute of Electrical and Electronics Engineers [IEEE];
  - International Committee on Electromagnetic Safety [ICES] (ANSI C95 series).
  - Laser Institute of America [LIA].
  - Board of Laser Safety [BLS].
  - American National Standards Institute Accredited Standards Committee [ASC Z136].
  - Committee on Man and Radiation [COMAR].

APPENDIX A

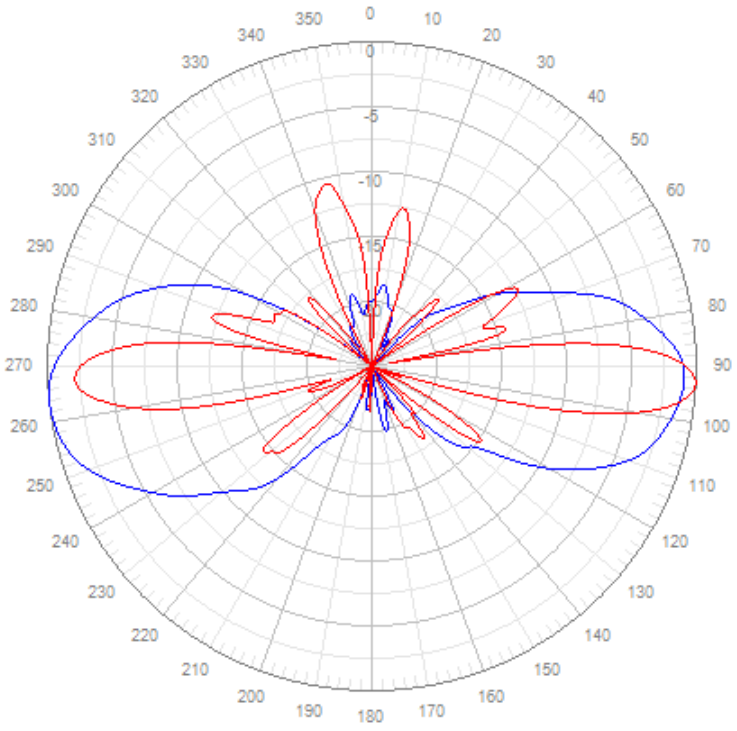
COMMSCOPE®

Base Station Antennas

Model: NH65PS-DG-F0M

Legend

Description	Frequency	Tilt	Cut	Color
Dual Polarization	880	0	V	
Dual Polarization	2155	2	V	



ENDNOTES

[i]. Federal Register, Federal Communications Commission Rules; *Radiofrequency radiation; environmental effects evaluation guidelines* Volume 1, No. 153, 41006-41199, August 7, 1996. (47 CFR Part 1; Federal Communications Commission).

[ii]. Telecommunications Act of 1996, 47 USC; Second Session of the 104th Congress of the United States of America, January 3, 1996.

[iii]. ANSI/IEEE C95.1-1999: American National Standard, *Safety levels with respect to human exposure to radio frequency electromagnetic fields, from 3 KHz to 300 GHz* **(Updated in 2019)**.

[iv]. National Council on Radiation Protection and Measurements (NCRP); *Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields*, NCRP Report 86, 1986.

[v]. OET Bulletin 65: Federal Communications Commission Office of Engineering and Technology, *Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields*; Edition 97-01, August 1999.

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2017-ANE-4141-OE

Issued Date: 05/06/2019

Kevin P. Delaney
Industrial Tower and Wireless, LLC.
40 Lone Street
Marshfield, MA 02050

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Antenna Tower Dover
Location:	Dover, NH
Latitude:	43-11-22.50N NAD 83
Longitude:	70-51-18.90W
Heights:	146 feet site elevation (SE)
	180 feet above ground level (AGL)
	326 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 11/06/2020 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

A copy of this extension will be forwarded to the Federal Communications Commission (FCC) because the structure is subject to their licensing authority.

If we can be of further assistance, please contact our office at (202) 267-4525, or david.maddox@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2017-ANE-4141-OE.

Signature Control No: 347826688-404775049 (EXT)
David Maddox
Specialist

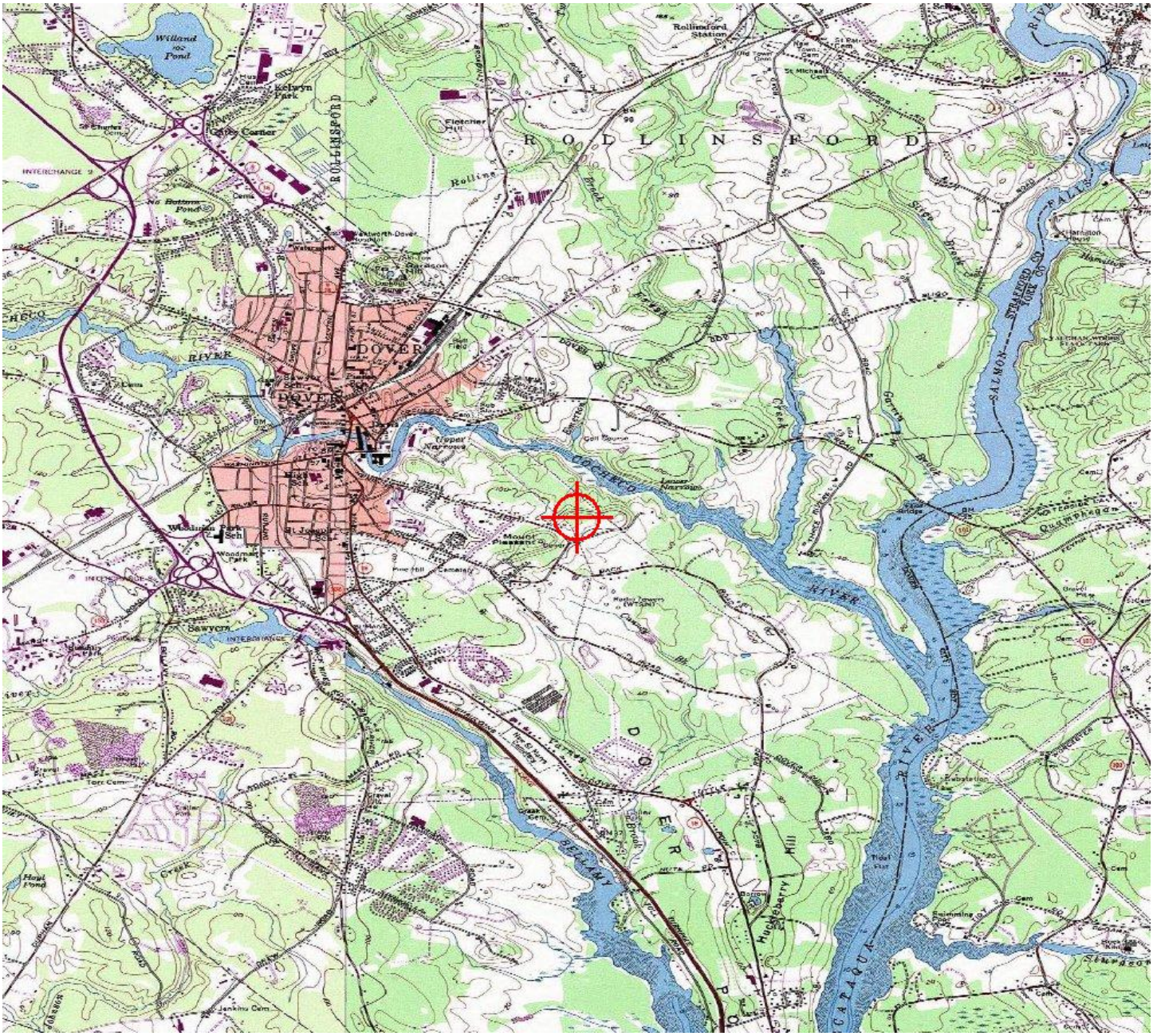
Attachment(s)
Additional Information
Case Description
Map(s)

cc: FCC

Reminder:
7460-2 Part 1 is requested because structure is in proximity to Littlebrook Air Park (3B4) Eliot, ME.

Applicant proposes to construct a communications tower for cellular, PCS, microwave & other wireless communications applications.

TOPO Map for ASN 2017-ANE-4141-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2017-ANE-4141-OE

Issued Date: 11/13/2017

Kevin P. Delaney
Industrial Tower and Wireless, LLC.
40 Lone Street
Marshfield, MA 02050

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Antenna Tower Dover
Location:	Dover, NH
Latitude:	43-11-22.50N NAD 83
Longitude:	70-51-18.90W
Heights:	146 feet site elevation (SE)
	180 feet above ground level (AGL)
	326 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 L Change 1.

This determination expires on 05/13/2019 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

A copy of this determination will be forwarded to the Federal Communications Commission (FCC) because the structure is subject to their licensing authority.

If we can be of further assistance, please contact our office at (817) 222-5922, or debbie.cardenas@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2017-ANE-4141-OE.

Signature Control No: 347826688-348868892 (DNE)
Debbie Cardenas
Technician

Attachment(s)
Frequency Data

cc: FCC

Frequency Data for ASN 2017-ANE-4141-OE

LOW FREQUENCY	HIGH FREQUENCY	FREQUENCY UNIT	ERP	ERP UNIT
6	7	GHz	55	dBW
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17.7	19.7	GHz	55	dBW
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614	698	MHz	1000	W
614	698	MHz	2000	W
698	806	MHz	1000	W
806	901	MHz	500	W
806	824	MHz	500	W
824	849	MHz	500	W
851	866	MHz	500	W
869	894	MHz	500	W
896	901	MHz	500	W
901	902	MHz	7	W
929	932	MHz	3500	W
930	931	MHz	3500	W
931	932	MHz	3500	W
932	932.5	MHz	17	dBW
935	940	MHz	1000	W
940	941	MHz	3500	W
1670	1675	MHz	500	W
1710	1755	MHz	500	W
1850	1910	MHz	1640	W
1850	1990	MHz	1640	W
1930	1990	MHz	1640	W
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2110	2200	MHz	500	W
2305	2360	MHz	2000	W
2305	2310	MHz	2000	W
2345	2360	MHz	2000	W
2496	2690	MHz	500	W

TAB 3

Industrial Communications & Electronics, Inc.
Industrial Tower and Wireless, LLC
Industrial Communications, LLC

40 Lone Street
Marshfield, Massachusetts 02050
781-319-1111 • Fax 781-837-4000
www.industrialcommunications.com

November 26, 2019

Planning Board
City of Dover
288 Central Avenue
Dover, NH 03820

RE: NEPA Compliance
Map K / Lot 1-0-0
200 Henry Law Avenue

Dear Planning Board Members:

This letter is to provide the City of Dover written evidence of NEPA compliance of our above site. As you are aware, all new tower construction requires compliance with the National Environmental Policy Act of 1969 (NEPA) and FCC regulations identified in 47 CFR 1.1311.

INTRODUCTION

Site Description: The site will consist of a 150' AGL lattice style tower located within an 80' x 80' compound.

Site Location: The proposed tower is to be located at 200 Henry Law Avenue (Map K & Lot 1-0-0), Dover, NH.

SITE INFORMATION

Zoning Classification: The land which will house the proposed tower is zoned as Rural Residential.

ENVIRONMENTAL ISSUES

Wilderness Area: The proposed tower is not located within a designated wilderness area.

Wildlife Area: The proposed tower is not located within a designated wildlife area.

Endangered Species and Critical Habitat: Correspondence dated 11/26/19 from the New Hampshire Natural Heritage Bureau along with the NH Nongame and Endangered Species Program concluded that the proposed tower was not expected to have any impact on rare or endangered species. See Exhibit A

Historical and Significant Sites: Correspondence dated 6/28/18 with the New Hampshire Division of Historical Resources confirms that the proposed tower will have "No Effect" on historically significant sites. See Exhibit B

Indian Religious Sites: Utilizing the FCC's Tower Construction Notification System (TCNS) all federally recognized Native American Tribes were notified of the project and none of them have responded with concerns of the site having an impact on Indian Religious Sites.

Floodplains: The property is not located within a floodplain.

Surface Features and Wetlands: The proposed tower will not be placed within jurisdictional wetlands and the site will not result in the significant change in surface features.

High Intensity Lighting: No high intensity lighting is required for the proposed tower per the FAA Approval dated 11/13/17. See Exhibit C

Radiation Exposure: The proposed tower will meet all applicable regulations regarding radiation exposure and will not exceed maximum levels per the Donald Haes RF Emissions Report dated 11/25/19. See Exhibit D.

FINDINGS, ISSUES AND RECOMMENDATIONS

The proposed tower located at 200 Henry Law Ave, Dover, NH was found to have no recognized environmental conditions.

Industrial Tower and Wireless, LLC's conclusions regarding the site are based on observations, regulatory research, the attached correspondence and reports, and our interpretation of the site history and site usage information.

In addition, this proposed site was reviewed by the City of Dover's Heritage Commission in or about June 2018, which found no issues. If you have any questions or require additional information, please contact the undersigned at 781-319-1011.

Sincerely,

Kevin P. Delaney
Engineering and Regulatory Compliance Manager

Exhibit A

To: Kevin Delaney, Industrial Tower and Wireless, LLC
40 Lone Street

Marshfield, MA 02050

From: NH Natural Heritage Bureau

Date: 11/26/2019 (valid for one year from this date)

Re: Review by NH Natural Heritage Bureau of request submitted 11/26/2019

NHB File ID: NHB19-3832 **Applicant:** Kevin Delaney

Location: Dover
Tax Maps: Map K, Lot 1-0-0

Project Description: Applicant proposes to construct a 150' communications tower within an 80'x80' compound.

The NH Natural Heritage database has been checked by staff of the NH Natural Heritage Bureau and/or the NH Nongame and Endangered Species Program for records of rare species and exemplary natural communities near the area mapped below. The species considered include those listed as Threatened or Endangered by either the state of New Hampshire or the federal government.

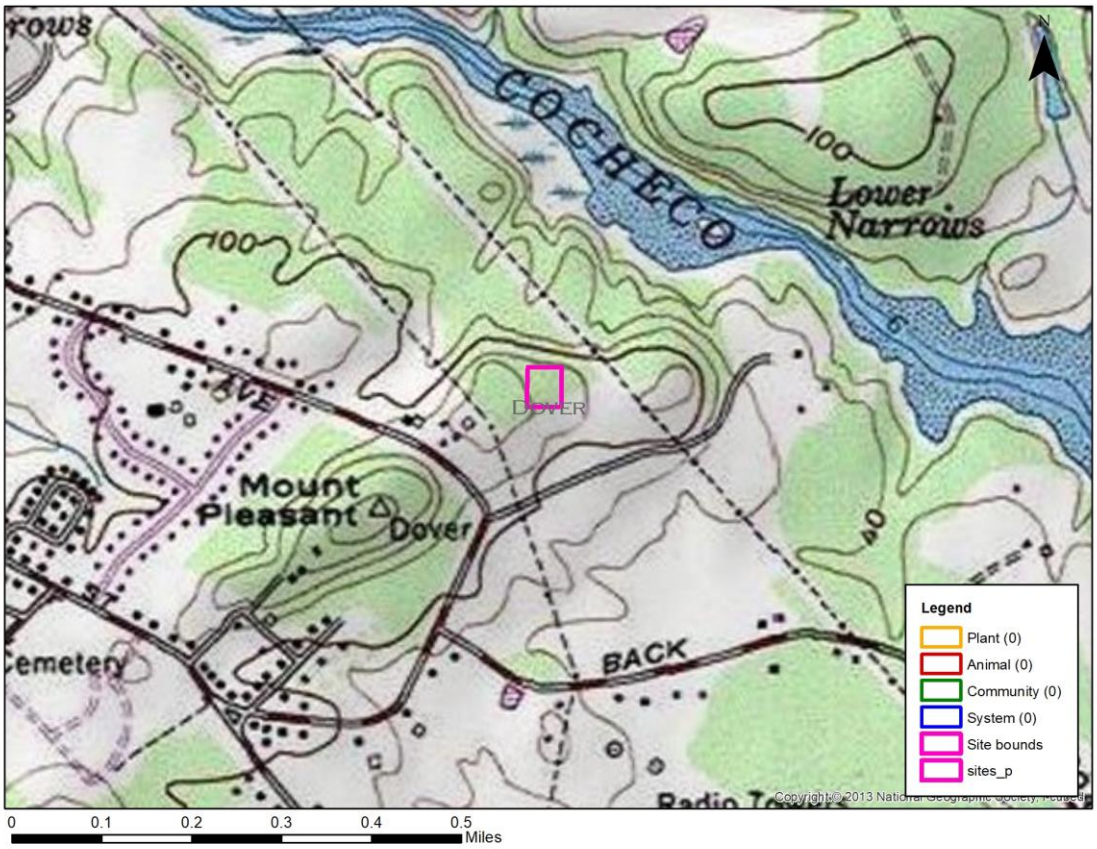
It was determined that, although there was a NHB record (e.g., rare wildlife, plant, and/or natural community) present in the vicinity, we do not expect that it will be impacted by the proposed project. This determination was made based on the project information submitted via the NHB Datacheck Tool on 11/26/2019, and cannot be used for any other project.

Department of Natural and Cultural Resources
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301

MAP OF PROJECT BOUNDARIES FOR: **NHB19-3832**

NHB19-3832



Department of Natural and Cultural Resources
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DNCR/NHB
172 Pembroke Rd.
Concord, NH 03301

Exhibit B

Kevin Delaney

From: towernotifyinfo@fcc.gov
Sent: Thursday, June 28, 2018 1:45 PM
To: Kevin Delaney
Subject: Section 106 Notification of SHPO/THPO Concurrence- Email ID #2976442

This is to notify you that the Lead SHPO/THPO has concurred with the following filing:
Date of Action: 06/28/2018
Direct Effect: No Adverse Effect on Historic Properties in APE
Visual Effect: No Adverse Effect on Historic Properties in APE
Comment Text: Thank you for coordinating with the Dover Heritage Commission as requested.

File Number: 0008140408
TCNS Number: 164584
Purpose: Update
Original Purpose: New Tower Submission Packet
Notification Date: 7AM EST 06/21/2018
Applicant: Industrial Tower and Wireless, LLC
Consultant: The Public Archaeology Laboratory, Inc.
Positive Train Control Filing Subject to Expedited Treatment Under Program Comment: No
Site Name: ITW Dover, NH
Site Address: off Henry Law Avenue
Detailed Description of Project:
Site Coordinates: 43-11-22.5 N, 70-51-18.9 W
City: Dover
County: STRAFFORD
State:NH
Lead SHPO/THPO: New Hampshire Division of Historical Resources

NOTICE OF FRAUDULENT USE OF SYSTEM, ABUSE OF PASSWORD AND RELATED MISUSE
Use of the Section 106 system is intended to facilitate consultation under Section 106 of the National Historic Preservation Act and may contain information that is confidential, privileged or otherwise protected from disclosure under applicable laws. Any person having access to Section 106 information shall use it only for its intended purpose. Appropriate action will be taken with respect to any misuse of the system.

Exhibit C

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2017-ANE-4141-OE

Issued Date: 05/06/2019

Kevin P. Delaney
Industrial Tower and Wireless, LLC.
40 Lone Street
Marshfield, MA 02050

**** Extension ****

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Signature Control No: 347826688-404775049 (EXT)
David Maddox
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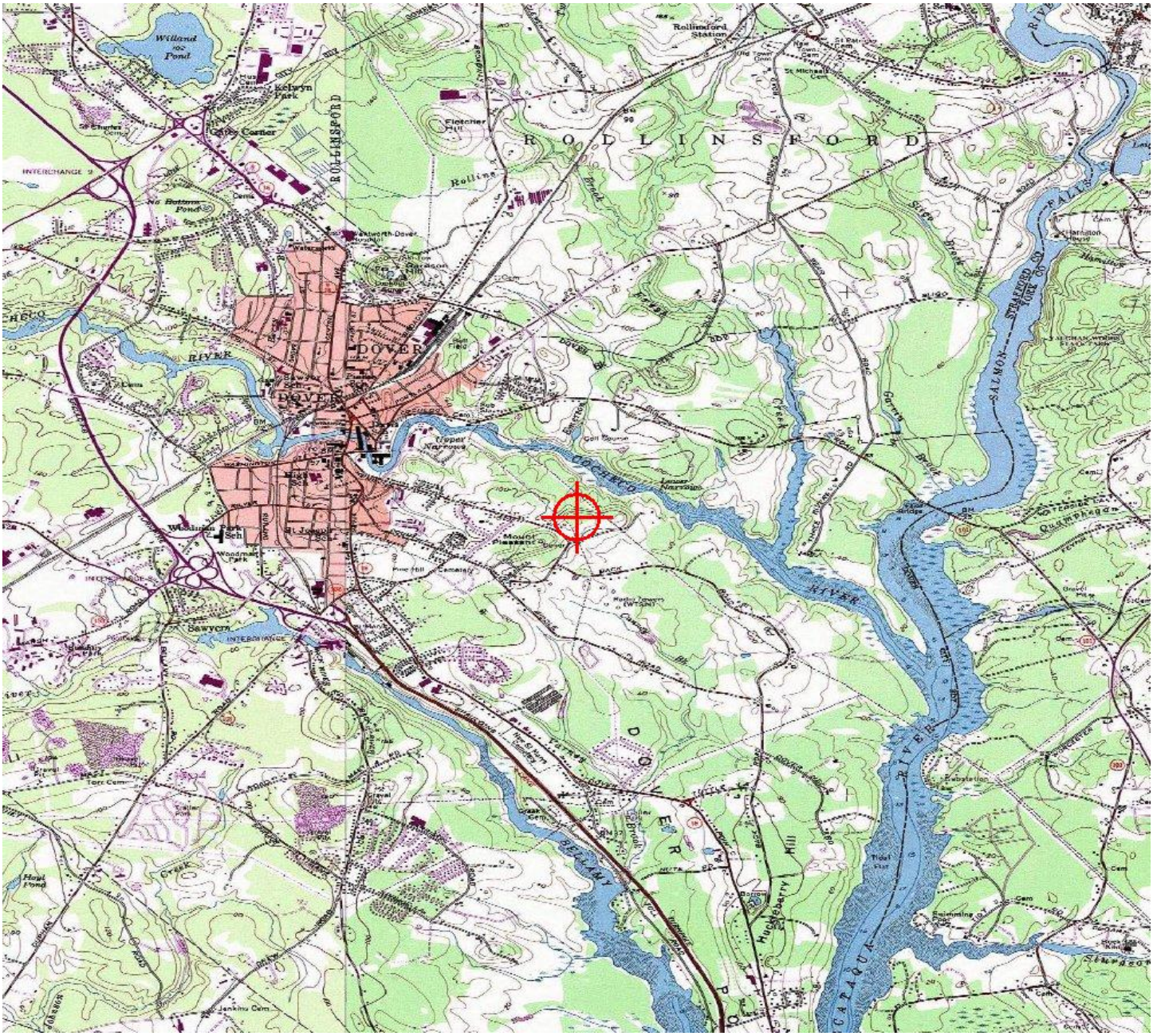
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cc: FCC

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If we can be of further assistance, please contact our office at (817) 222-5922, or debbie.cardenas@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2017-ANE-4141-OE.

Signature Control No: 347826688-348868892 (DNE)
Debbie Cardenas
Technician

Attachment(s)
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cc: FCC

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2496	2690	MHz	500	W

Exhibit D

DONALD L. HAES, JR., CHP, CLSO

Radiation Safety Specialist

NH and MA Registered Provider of Health Physics Services

PO Box 198, Hampstead, NH 03841 617-680-6262 Email: donald_haes_chp@comcast.net

November 25, 2019

RE: Installation of a proposed Industrial Communications personal wireless services facility to be located at Map K Lot 1-0-0 (200 Henry Law Ave), Dover, NH.

PURPOSE

I have reviewed the information pertinent to the proposed installation at the above location. To determine regulatory compliance, theoretical calculations of maximal radio-frequency (RF) fields have been prepared. The physical conditions are that Industrial Communications proposes to install a Personal Wireless Services (PWS) facility including a 150-foot free-standing lattice styled tower at Map K Lot 1-0-0 (200 Henry Law Ave), Dover, NH (for approximate location, see Figure 2). The lattice tower will be designed to allow the collocation of up to five (5) PWS providers' antennas and associated equipment. The typical PWS installations would consist of directional panel antennas mounted on the lattice tower with up to four antennas each in three "arrays" aimed 120° apart. The mounting centerline heights of the antennas are typically spaced evenly at 10-foot separation distances down the lattice tower.

This report considers the contributions of ALL FIVE major PWS providers in the reginal area operating at their FCC-licensed capacities. The calculated values of RF fields are presented as a percent of current Maximum Permissible Exposures (%MPE) as adopted by the Federal Communications Commission (FCC).[i,ii]

SUMMARY

Theoretical RF field calculations data indicate the summation of ALL FIVE MAJOR PWS providers RF contributions would be within the established RF exposure guidelines (See Figure 3). This includes all publicly accessible areas, and the neighborhood in general. The results support compliance with the pertinent sections of the FCC's guidelines for RF exposure.

Based on the results of the theoretical RF field calculations, it is my expert opinion that this facility would comply with all regulatory guidelines for RF exposure with the possible full loading including ALL FIVE MAJOR PWS providers' installations.

Note: The analyses, conclusions and professional opinions are based upon the precise parameters and conditions of this particular site; **Lattice tower at Map K Lot 1-0-0 (200 Henry Law Ave), Dover, NH**. Utilization of these analyses, conclusions and professional opinions for any personal wireless services installation, existing or proposed, other than the aforementioned has not been sanctioned by the author, and therefore should not be accepted as evidence of regulatory compliance.

EXPOSURE LIMITS AND GUIDELINES

RF exposure guidelines enforced by the FCC were established by the American National Standards Institute (ANSI) [iii] and the National Council on Radiation Protection and Measurement (NCRP).[iv] The RF exposure guidelines are listed for RF workers and members of the public. The applicable FCC RF exposure guidelines for the public are listed in Table 1 and depicted in Figure 1. All listed values are intended to be averaged over any contiguous 30-minute period. NOTE: The values for "workers" is five times the values for members of the public.

Table 1: Maximum Permissible Exposure (MPE) Values in Public Areas

Frequency Bands	Electric Fields	Magnetic Fields	Equivalent Power Density
0.3 – 1.34 MHz	614 (V/m)	1.63 (A/m)	(100) mW/cm^2
1.34 - 30 MHz	824/f (V/m)	2.19/f (A/m)	(100) mW/cm^2
30 - 300 MHz	27.5 (V/m)	0.073 (A/m)	0.2 mW/cm^2
300 - 1500 MHz	--	--	f/1500 mW/cm^2
1500 - 100,000	--	--	1.0 mW/cm^2

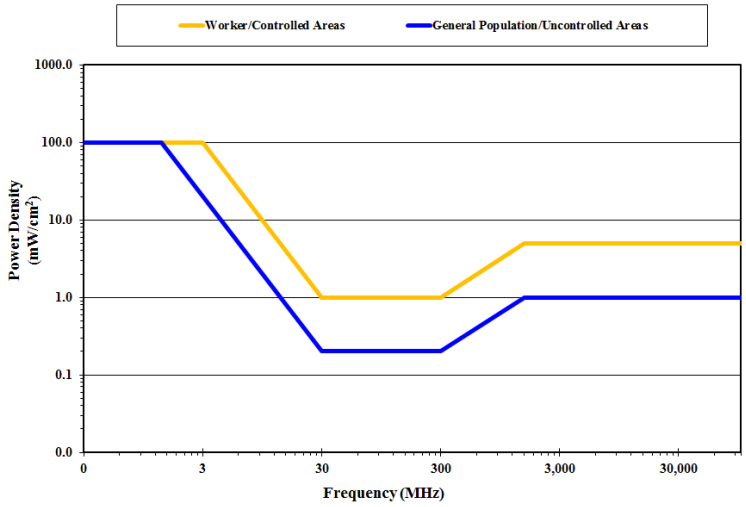


Figure 1: FCC Limits for Maximum Permissible Exposure (MPE)

NOTE: FCC 5% Rule – At multiple transmitter sites, actions necessary to bring the area into compliance with the RF exposure guidelines are the shared responsibility of all licensees whose transmitters produce RF field levels in excess of 5% of the applicable FCC MPEs.



Figure 2: Approximate Location of Proposed PWS Facility
Map K Lot 1-0-0 (200 Henry Law Ave), Dover, NH
(Picture courtesy Google Earth©2019 and may not represent current conditions)

OBSERVATIONS IN CONSIDERATION WITH FCC RULES §1.1307(B) & §1.1310

Will it be physically possible to stand next to or touch any omnidirectional antenna and/or stand in front of a directional antenna?
NO; access to the lattice tower will be restricted, and the site will adhere to RF safety guidelines regarding the PWS antennas, including appropriate signage.

THEORETICAL RF FIELD CALCULATIONS - GROUND LEVELS

METHODOLOGY

These calculations are based on what are called "worst-case" estimates. That is, the estimates assume 100% use of all transmitters simultaneously. Additionally, the calculations make the assumption that the surrounding area is a flat plane. The resultant values are thus conservative in that they over predict actual resultant power densities.

The calculations are based on the following information (See Table 2 data):

1. Effective Radiated Power (ERP).
2. Antenna height (LOWEST centerline, above ground level (AGL)).
3. Antenna vertical radiation patterns; the source of the negative gain (G) values. "Directional" antennas are designed to focus the RF signal, resulting in "patterns" of signal loss and gain. Antenna radiation patterns display the loss of signal strength relative to the direction of propagation due to elevation angle changes. The gain is expressed as "G^{E}".

   Note: "G" is a unitless factor usually expressed in decibels (dB); where $G = 10^{(dB/10)}$
   For example: for an antenna *gain* of 3 dB, the net factor $(G) = 10^{(3/10)} = 2$
   For an antenna *loss* of -3 dB, the net factor $(G) = 10^{(-3/10)} = 0.5$

To determine the magnitude of the RF field, the power density (S) from an isotropic RF source is calculated, making use of the power density formula as outlined in FCC's OET Bulletin 65, Edition 97-01: [v]

$$S = \frac{P \cdot G}{4 \cdot \pi \cdot R^2}$$

Where:
- $P \rightarrow$ Power to antenna (watts)
- $G \rightarrow$ Gain of antenna
- $R \rightarrow$ Distance (range) from antenna source to point of intersection with the ground (feet)
- $R^2 = (\text{Height})^2 + (\text{Horizontal distance})^2$

Since: $P \cdot G$ = EIRP (Effective Isotropic Radiated Power) for broadcast antennas, the equation can be presented in the following form:

$$S = \frac{EIRP}{4 \cdot \pi \cdot R^2}$$

In the situation of off-axis power density calculations, apply the negative elevation gain (G^{E}) value from the vertical radiation patterns with the following formula:

$$S = \frac{EIRP \cdot G^{E}}{4 \cdot \pi \cdot R^2}$$

Ground reflections may add in-phase with the direct wave, and essentially double the electric field intensity. Because power density is proportional to the *square* of the electric field, the power density may quadruple, that is, increase by a factor of four (4). Since ERP is routinely used, it is necessary to convert ERP into EIRP by multiplying by the factor of 1.64 (the gain of a half-wave dipole relative to an isotropic radiator). Therefore, downrange power density estimates can be calculated by using the formula:

$$S = \frac{4 \cdot (ERP \cdot 1.64) \cdot G^E}{4 \cdot \pi \cdot R^2} = \frac{ERP \cdot 1.64 \cdot G^E}{\pi \cdot R^2} = \frac{0.522 \cdot ERP \cdot G^E}{R^2}$$

To calculate the % MPE, use the formula:

$$\%\ MPE = \frac{S}{MPE} \cdot 100$$

The results of the calculations for the potential RF emissions resulting from the summation of ALL FIVE MAJOR PWS antennas are depicted in Figure 3 as plotted against linear distance from the base of the lattice tower. This build-out represents a "fully loaded" lattice tower. Note that the values have been calculated for a height of 6' AGL in accordance with regulatory rationale. Also depicted on the graphs are values for a height of 16' AGL (height of a typical 2nd story).

A logarithmic scale was used to plot the calculated theoretical %MPE values in order to compare with the MPE of 100%, which is so much larger that it would be off the page in a linear plot. The curves are variable due to the application of the vertical radiation patterns. See Appendix A for typical PWS vertical radiation patterns.

ANTENNA INVENTORY

Table 2: Possible Antenna Inventory
Lattice tower at Map K Lot 1-0-0 (200 Henry Law Ave), Dover, NH

Antenna Centerline (AGL)	Typical Antenna Type	Typical Parameters: ERP & Tx Frequencies	Typical Use
Possible Installations by PWS Carriers			
145’	T-Mobile Panel Antenna “Arrays”; 3 Sectors Of Up To 4 Panels Each	1950 watts @ 1950 MHz 5613 watts @ 2350-2360 MHz 2750 watts @ 1900 MHz	LTE AWS PCS
135’	US Cellular Panel Antenna “Arrays”; 3 Sectors Of Up To 4 Panels Each	4175 watts @ 1970-1975 MHz 2260 watts @ MHz 860 - 890 MHz 1950 watts @ 700 MHz	PCS UMTS LTE
125’	Verizon Wireless Panel Antenna “Arrays”; 3 Sectors Of Up To 4 Panels Each	4357 watts @ 1865-1870 MHz 3035 watts @ MHz 860 - 890 MHz 3035 watts @ 700 MHz 5049 watts @ 2150 MHz	PCS CDMA LTE AWS
115’	AT&T Mobility Panel Antenna “Arrays”; 3 Sectors Of Up To 4 Panels Each	4175 watts @ 1970-1975 MHz 2260 watts @ MHz 860 - 890 MHz 1950 watts @ 1950 MHz 5613 watts @ 2350-2360 MHz	PCS UMTS LTE AWS
105’	Sprint Panel Antenna “Arrays” 3 Sectors Of Up To 2 Panels Each	2720 watts @ 1950-1965 MHz	PCS

Table Notes:

AWC: Advanced Wireless Communication
AWS: Advanced Wireless Systems
CDMA: Code Division Multiple Access (“cellular voice”)
GSM: General Service Mobile
LTE : Long Term Evolution (aka “4G”)
PCS: Personal Communication System
UMTS: Universal Mobile Telecommunications System

RESULTS OF THEORETICAL RF FIELD CALCULATIONS

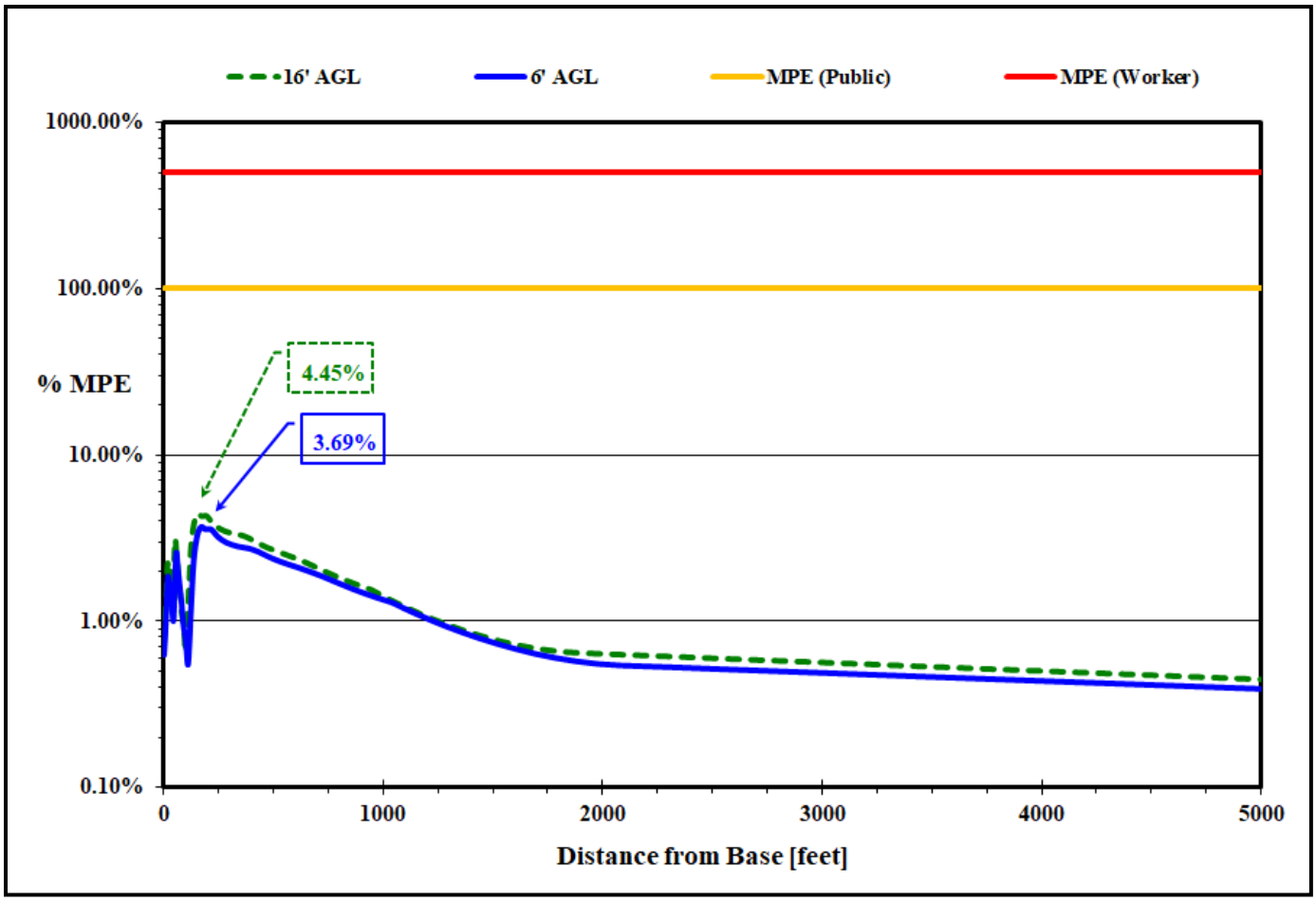


Figure 3: Theoretical Cumulative Maximum Percent MPE - vs. – Distance (Summation of ALL FIVE MAJOR PWS PROVIDERS' RF Contributions)

CONCLUSION

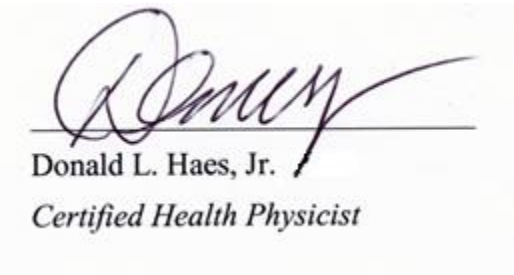
Theoretical RF field calculations data indicate the summation of ALL FIVE MAJOR PWS providers RF contributions would be within the established RF exposure guidelines (See Figure 3). This includes all publicly accessible areas, and the neighborhood in general. The results support compliance with the pertinent sections of the FCC's guidelines for RF exposure.

The number and duration of calls passing through PWS facilities cannot be accurately predicted. Thus, in order to estimate the highest RF fields possible from operation of these installations, the maximal amount of usage was considered. Even in this so-called "worst-case", the resultant increase in RF field levels are far below established levels considered safe.

Based on the results of the theoretical RF field calculations, it is my expert opinion that this facility would comply with all regulatory guidelines for RF exposure with the possible full loading including ALL FIVE MAJOR PWS providers' installations.

Feel free to contact me if you have any questions.

Sincerely,



Donald L. Haes, Jr.
Certified Health Physicist

Note: The analyses, conclusions and professional opinions are based upon the precise parameters and conditions of this particular site; **Lattice tower at Map K Lot 1-0-0 (200 Henry Law Ave), Dover, NH**. Utilization of these analyses, conclusions and professional opinions for any personal wireless services installation, existing or proposed, other than the aforementioned has not been sanctioned by the author, and therefore should not be accepted as evidence of regulatory compliance.

DONALD L. HAES, JR., CHP, CLSO

Radiation Safety Specialist

NH and MA Registered Provider of Health Physics Services

PO Box 198, Hampstead, NH 03841 617-680-6262 Email: donald_haes_chp@comcast.net

STATEMENT OF CERTIFICATION

1. I certify to the best of my knowledge and belief, the statements of fact contained in this report are true and correct.

2. The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are personal, unbiased professional analyses, opinions and conclusions.

3. I have no present or prospective interest in the property that is the subject of this report and I have no personal interest or bias with respect to the parties involved.

4. My compensation is not contingent upon the reporting of a predetermined energy level or direction in energy level that favors the cause of the client, the amount of energy level estimate, the attainment of a stipulated result, or the occurrence of a subsequent event.

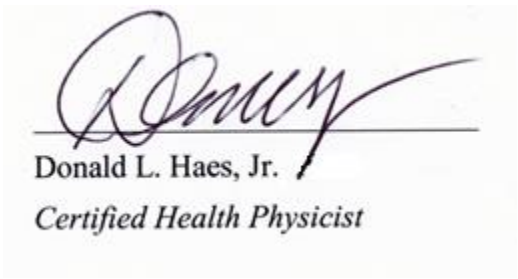
5. This assignment was not based on a requested minimum environmental energy level or specific power density.

6. My compensation is not contingent on an action or event resulting from the analyses, opinions, or conclusions in, or the use of, this report.

7. The consultant has accepted this assessment assignment having the knowledge and experience necessary to complete the assignment competently.

8. My analyses, opinions, and conclusions were developed and this report has been prepared, in conformity with the *American Board of Health Physics* (ABHP) statements of standards of professional responsibility for Certified Health Physicists.

Date: November 25, 2019



Donald L. Haes, Jr.

Certified Health Physicist

DONALD L. HAES, JR., CHP, CLSO

Radiation Safety Specialist

PO Box 198, Hampstead, NH 03841 617-680-6262 Email: donald_haes_chp@comcast.net

SUMMARY OF QUALIFICATIONS

- **Academic Training -**
  - Graduated from Chelmsford High School, Chelmsford, MA; June 1973.
  - Completed Naval Nuclear Naval Nuclear Power School, 6-12/1976.
  - Completed Naval Nuclear Reactor Plant Mechanical Operator and Engineering Laboratory Technician (ELT) schools and qualifications, Prototype Training Unit, Knolls Atomic Power Laboratory, Windsor, Connecticut, 1-9/1977.
  - Graduated Magna Cum Laude from University of Lowell with a Bachelor of Science Degree in *Radiological Health Physics*; 5/1987.
  - Graduated from University of Lowell with a Master of Science Degree in *Radiological Sciences and Protection*; 5/1988.

- **Certification -**
  - Board Certified by the American Board of Health Physics 1994; renewed 1998, 2002, 2006, 2010, 2014, and 2018. Expiration 12/31/2022.
  - Board Certified by the Board of Laser Safety 2008; renewed 2011, 2014, 2017. Expiration 12/31/2020.

- **Employment History -**
  - Consulting Health Physicist; Ionizing/Nonionizing Radiation, 1988 - present.
  - Radiation, RF and Laser Safety Officer; BAE Systems, 2005–2018 (retired).
  - Assistant Radiation Safety Officer; MIT, 1988 – 2005 (retired).
  - Radiopharmaceutical Production Supervisor - DuPont/NEN, 1981 – 1988 (retired).
  - United States Navy; Nuclear Power Qualifications, 1975 – 1981 (Honorably Discharged).

- **Professional Societies -**
  - Health Physics Society [HPS].
  - American Academy of Health Physics [AAHP]
  - Institute of Electrical and Electronics Engineers [IEEE];
  - International Committee on Electromagnetic Safety [ICES] (ANSI C95 series).
  - Laser Institute of America [LIA].
  - Board of Laser Safety [BLS].
  - American National Standards Institute Accredited Standards Committee [ASC Z136].
  - Committee on Man and Radiation [COMAR].

APPENDIX A

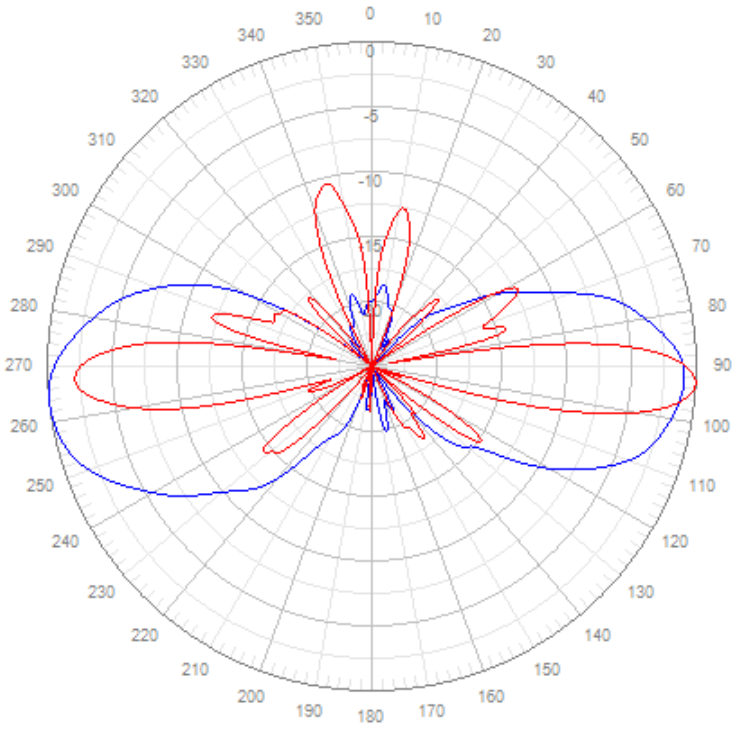
COMMSCOPE®

Base Station Antennas

Model: NH65PS-DG-F0M

Legend

Description	Frequency	Tilt	Cut	Color
Dual Polarization	880	0	V	
Dual Polarization	2155	2	V	



ENDNOTES

[i]. Federal Register, Federal Communications Commission Rules; *Radiofrequency radiation; environmental effects evaluation guidelines* Volume 1, No. 153, 41006-41199, August 7, 1996. (47 CFR Part 1; Federal Communications Commission).

[ii]. Telecommunications Act of 1996, 47 USC; Second Session of the 104th Congress of the United States of America, January 3, 1996.

[iii]. ANSI/IEEE C95.1-1999: American National Standard, *Safety levels with respect to human exposure to radio frequency electromagnetic fields, from 3 KHz to 300 GHz* **(Updated in 2019)**.

[iv]. National Council on Radiation Protection and Measurements (NCRP); *Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields*, NCRP Report 86, 1986.

[v]. OET Bulletin 65: Federal Communications Commission Office of Engineering and Technology, *Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields*; Edition 97-01, August 1999.

TAB 4

170.22 D (g)

The tower will be engineered to structurally accommodate 5 major wireless co-locaters [not the minimum of 3 as stated in 170.22 D (g)].

We respectfully request that certification that the tower will accommodate up to 5 carriers be a condition of the approval. It is typical for boring tests to be conducted prior to filing for a building permit, and the certification will follow the boring drill test.

TAB 5

Return to:
Public Service of NH
Attn: Pauline Boire
PO Box 330
Manchester, NH 03105
EBA- _____
STORMS# 3011557
Town: 129 Dover
Tax Parcel ID: K0001-000000

EASEMENT DEED

KNOW ALL MEN BY THESE PRESENTS that **Peter J. Rousseau and Susan J. Rousseau (husband and wife)** of **200 Henry Law Avenue, Dover, New Hampshire 03820**, (hereinafter called the Grantor(s)), for consideration paid, grant(s) to PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE (PSNH), d/b/a Eversource Energy, a corporation duly established by law, with a mailing address of P.O. Box 330, in Manchester, in the County of Hillsborough, in the State of New Hampshire, 03105, (hereinafter called the Grantee), and its successors, with QUITCLAIM covenants, the RIGHT and EASEMENT to lay, install, construct, reconstruct, operate, maintain, repair, replace, patrol and remove **above/underground** lines which may consist of wires, cables, pipes, ducts, conduits, manholes, and such testing terminals, transformers and foundations and enclosures for the same, vaults, pedestals, repeaters, markers, poles, and towers together with foundations, crossarms, braces, anchors, guys, grounds and other equipment, for transmitting electric current and/or communications and intelligence, and to do the necessary cutting and trimming of trees and brush, over, under and across land owned by the Grantor(s) off **McKone Lane** in **Dover**, County of **Strafford**, State of New Hampshire, more fully described in deed of **Peter J. Rousseau** to **Peter J. Rousseau and Susan J. Rousseau** dated **July 27, 1984** and recorded in the **Strafford** County Registry of Deeds, Book **1139**, Page **797**.

Said easement will be located within the following described limits:

Beginning at a point on the Grantor's southerly boundary at McKone Avenue, said point being at or across from PSNH pole numbered 139/2, thence extending above and/or underground in various directions as may be necessary to provide service to a communications tower located on the property, to include but not limited to pole numbered 139/2A. The final location of the easement shall be determined by the location of the facilities as installed, whenever installed.

The width of this easement shall be 20 feet, measured either 10 feet on each side of the center line of the distribution lines as constructed, or, if less than 10 feet exists on either side to the nearest adjacent boundary line, measured 20 feet from the boundary line. This easement grants the right for guying/anchoring facilities outside the 20-foot strip, together with the right to lay, install, construct, reconstruct, operate, maintain, repair, replace and remove any service cables and related equipment extending to any buildings or structures on said land to provide electric or telephone service and/or communications and intelligence thereto. This conveyance

shall include the right of access from other land of the Grantor(s) for all purposes in connection with the exercise of the within granted easement; the right to excavate, trench, and backfill by men or machines and temporarily to place excavated earth and other material on adjacent land, provided that the land shall be restored by the Grantee(s) to substantially the condition in which it was immediately prior to such excavation, trenching, and backfilling; the right to go upon adjoining land when working on said lines and associated equipment; and the right to install temporary aboveground lines for temporary periods over and across said land of the Grantor(s) to provide continuity of service thereon when only underground line rights are requested.

The Grantor(s) for **themselves** and **their** heirs, executors, administrators, successors and assigns, covenant(s) and agree(s) that **they** will not erect or maintain, or permit to be erected or maintained, any building or structure of any kind or nature upon the land over said easement and that **they** will not plant or permit to be planted any trees over said easement.

Witness **our** hand(s) this 4 day of April, 2018.

Peter J. Rousseau

Susan J. Rousseau

State/Commonwealth of MASSACHUSETTS
County of PLYMOUTH

The foregoing instrument was acknowledged before me this 6th day of APRIL, 2018, by **Peter J. Rousseau and Susan J. Rousseau** of **Dover, New Hampshire**.

My Commission expires:

Notary Public/Justice of the Peace

PETER P. SCRENCI
Notary Public
COMMONWEALTH OF MASSACHUSETTS
My Commission Expires
October 14, 2022

TAB 6

PSNH/Eversource has been informed of this proposed tower and has consented to its construction, as evidenced by the easement granted for the utilities. (See Tab 5). As explained in the TRC meeting, towers are often built next to or inside utility easements as normal practice. Eversource does not sign fall-zone easements.

We note that no such easement is required. The City of Dover's setback requirement states:

"Towers shall be set back a distance equal to one hundred percent (100%) of the HEIGHT of the TOWER from any boundary line, or other principal use STRUCTURE located on the property the TOWER is sited upon. This provision may be waived by the PLANNING BOARD provided the intent of this Chapter remains intact."

The setbacks from "principal use STRUCTURES" does not apply to the transmission towers and lines, which are not the "principal" use of this parcel.

If the Planning Board nevertheless believes that an easement is required, then we request a waiver, given that PSNH/Eversource has already consented to this project.

TAB 7



Rendering of ITW Proposed Tower – 200 Henry Law Ave

©2014 Industrial Tower and Wireless, LLC • 40 Lone Street, Marshfield, MA 02050 • (781) 319-1111 • www.industrialcommunications.com

TAB 8

Industrial Communications LLC.
40 Lone Street
Marshfield, Massachusetts 02050
85 Ray Rd.
Dunbarton, NH 03046
781-319-1111 Fax 781-837-4000

November 25, 2019

Kevin Delaney
Industrial Tower & Wireless
40 Lone Street
Marshfield, MA 02050

RE: **INDUSTRIAL TOWER & WIRELESS – DOVER, NH**

Kevin:

Per your request, we have prepared this statement for the decommissioning of the above referenced telecommunication site as required by the Town of Dover, NH. This statement includes our estimate for the removal of the communications tower, equipment shelters, barriers, electrical components, antennas, etc. as shown on Industrial Tower & Wireless drawings.

Removal Costs	
Crane Rental	$2,500.00
General Labor	$2,750.00
Disposal of misc. electrical components	$1,100.00
Disposal of misc. steel, fencing/barriers	$3,900.00
Miscellaneous landscaping restoration costs	$4,500.00

Estimated Total Removal Cost = $14,750.00 (fourteen thousand seven hundred and fifty dollars)

Please note that this estimate, to the best of our knowledge, reflects the true current cost associated with decommissioning the site. Due to ever changing economic conditions, we make no guarantee that this estimate will assure that all costs will be covered in the future.

Chris Mitchell

Project Manager
Industrial Communications LLC
617-799-2437

P19-77 **200 Henry Law**

Property ID	Location	Owner 1	Owner 2	Owner Address 1	City	State	Zip
21026-002000	3 PENNY LN	WEBBER DANA M		3 PENNY LN	DOVER	NH	03820
21026-009000	4 PENNY LN	ROSE GEORGE F		3044 KNOX MCRAE DR	TITUSVILLE	FL	32780
21026-010000	2 PENNY LN	EASON DOUGLAS E &	EASON DONNA J	2 PENNY LN	DOVER	NH	03820
21026-011000	191 HENRY LAW AV	MORRISON MARK	MORRISON CHRISTINE O	191 HENRY LAW AV	DOVER	NH	03820-3849
21026-012000	193 HENRY LAW AV	DIAMOND CHRISTOPHER R &	LONGLEY DIONE	193 HENRY LAW AV	DOVER	NH	03820
21026-013000	47 SAMUEL HANSON AV	BOUCHER THOMAS W & SALLY CO-TRUSTEES	BOUCHER FAMILY REVOCABLE TRUST	47 SAMUEL HANSON AVE	DOVER	NH	03820
21026-014000	45 SAMUEL HANSON AV	WALKER MATTHEW &	WALKER COLLEEN	45 SAMUEL HANSON AV	DOVER	NH	03820
21026-01A000	1 PENNY LN	FRACASSA NORM JR	FRACASSA AMY V	1 PENNY LN	DOVER	NH	03820
21026-027000	43 SAMUEL HANSON AV	HACKETT THOMAS A	HACKETT ANN MARIE	43 SAMUEL HANSON AVENUE	DOVER	NH	03820
21026-028000	197 HENRY LAW AV	DEMARAY ALLEN D & TANYA L		197 HENRY LAW AVE	DOVER	NH	03820
21026-029000	41 SAMUEL HANSON AV	DUSSAULT CHRISTINA L		41 SAMUEL HANSON AVE	DOVER	NH	03820
21026-030000	199 HENRY LAW AV	SCHIRMER CATHERINE S		199 HENRY LAW AV	DOVER	NH	03820
21026-031000	39 SAMUEL HANSON AV	WINN CARL E & CHRISTINA J TRUSTEES	WINN FAMILY REVOCABLE TRUST OF 2014	39 SAMUEL HANSON AVENUE	DOVER	NH	03820
21026-032000	37 SAMUEL HANSON AV	VILES FRED		37 SAMUEL HANSON AVENUE	DOVER	NH	03820
21026-033000	203 HENRY LAW AV	OTMINSKI PHILIP &	OTMINSKI CLARICE	51 KETTLE RUN	EAST AURORA	NY	14052
21026-034000	35 SAMUEL HANSON AV	WONG STEVEN P		35 SAMUEL HANSON AVENUE	DOVER	NH	03820
21026-036000	205 HENRY LAW AV	PROULX RAYMOND ROGER &	PROULX SARANINA VERONICA	205 HENRY LAW AV	DOVER	NH	03820
21026-038000	207 HENRY LAW AV	BAKER MICHAEL J		31 SAMUEL HANSEN AVE	DOVER	NH	03820
21026-040000	209 HENRY LAW AV	NGUYEN NGUYEN THI		209 HENRY LAW AVENUE	DOVER	NH	03820
21026-041000	1 MULLIGAN DR	GOULDSBROUGH STACI L &	GOULDSBROUGH NATHAN D	1 MULLIGAN DR	DOVER	NH	03820
21026-042000	3 MULLIGAN DR	CHALIFOUR DIANNE		3 MULLIGAN DR	DOVER	NH	03820
21026-048000	2 MULLIGAN DR	OLSEN-HAYWARD ANNE MARIE		2 MULLIGAN DR	DOVER	NH	03820
21076-000000	31 TENNYSON AV	SLINGERLAND STEPHEN D &	PAOLA MARY ELLEN	31 TENNYSON AVENUE	DOVER	NH	03820
21077-000000	183 HENRY LAW AV	LACROIX FREDA		183 HENRY LAW AV	DOVER	NH	03820
K0001-001000	43 MCKONE LN	SURINA MATTHEW P & JENNIFER L TRUSTEES	SURINA FAMILY REVOCABLE TRUST	43 MCKONE LN	DOVER	NH	03820
K0001-A00000	38 MCKONE LN	MARTINEAU RAYMOND J JR TRUSTEE	MARTINEAU RAYMOND JR REVOCABLE TRUST	PO BOX 118	DOVER	NH	03821-0118
K0001-A00001	MCKONE LN	STATE OF NEW HAMPSHIRE	FISH AND GAME DEPT	11 HAZEN DR	CONCORD	NH	03301
K0001-B00000	MCKONE LN	STATE OF NEW HAMPSHIRE	FISH AND GAME DEPT	11 HAZEN DR	CONCORD	NH	03301
K0002-000000	HENRY LAW AV	STATE OF NEW HAMPSHIRE	C/O NH FISH AND GAME	11 HAZEN DR	CONCORD	NH	03301
K0002-E00000	180 HENRY LAW AV	GOLLEDGE CAROL C	GOLLEDGE GARY A	180 HENRY LAW AVENUE	DOVER	NH	03820
K0002-G00000	182 HENRY LAW AV	CROTEAU JEFFREY &	MCDERMOTT CAROL E	182 HENRY LAW AVE	DOVER	NH	03820
K0002-Q00000	HENRY LAW AV	LORD ELAINE &	BUNDZA JUANITA LORD	125 HENRY LAW AV	DOVER	NH	03820
K0006-A00000	101 BACK RD	BROADCAST LANE LLC		126 DANIEL ST STE 200	PORTSMOUTH	NH	03801
K0007-000000	117 BACK RD	BORRIN ERIC D &	KATZ JENNIFER A	117 BACK RD	DOVER	NH	03820
K0007-001000	109 BACK RD	FREDETTE ROBERT F & ANN B TRUSTEES	FREDETTE FAMILY REVOCABLE TRUST	109 BACK RD	DOVER	NH	03820
K0007-A00000	131 C BACK RD	ROULEAU MICHAEL B		131 BACK RD	DOVER	NH	03820
K0008-000000	81 BACK RD	MULLIGAN FRANK A	MULLIGAN LINDA	81 BACK ROAD	DOVER	NH	03820
K0008-A00000	89 BACK RD	MULLIGAN THOMAS C &	MULLIGAN FRANCES A	89 BACK RD	DOVER	NH	03820
K0009-001000	75 BACK RD	STENBERG MELANIE		75 BACK RD	DOVER	NH	03820
K0010-000000	61 BACK RD	EAGAN RAYMOND J		61 BACK RD	DOVER	NH	03820
K0010-A00000	67 BACK RD	KIRKPATRICK CHARLES DARROW &	KIRKPATRICK ZOE LITSIOS	67 BACK RD	DOVER	NH	03820
N0019-000OPN	FALCON DR	FALCON DRIVE HOMEOWNER'S ASSOCIATION	C/O ROSS JOHN J	18 FALCON DR	DOVER	NH	03820
N0019-001000	12 FALCON DR	US BANK TRUST NA TRUSTEE	LSF11 MASTER PARTICIPATION TRUST	3701 REGENT BOULEVARD	IRVING	TX	75063
N0019-002000	18 FALCON DR	COOK WILLIAM F &	HERSEY SHACINA J	18 FALCON DR	DOVER	NH	03820
N0019-003000	26 FALCON DR	FLANDERS CHASE H &	TERRY JANINE E	26 FALCON DR	DOVER	NH	03820-5017
N0019-005000	47 MCKONE LN	AYER ANTHONY P		47 MCKONE LN	DOVER	NH	03820
N0021-000000	160 BACK RD	AYER JACQUELINE TRUSTEE	AYER JACQUELINE REV TRUST	100 MCKONE LN # A	DOVER	NH	03820-3852
N0021-002000	152 BACK RD	WINKLER EDWARD S &	WINKLER ANNE-MARIE	152 BACK RD	DOVER	NH	03820
			INDUSTRIAL TOWER & WIRELESS LLC	40 LONE STREET	MARSHFIELD	MA	02050
		FIELDSTONE LAND CONSULTANTS	MICHAEL D PLOOF	206 ELM STREET	MILFORD	NH	03055
			PETER & SUSAN ROUSSEAU	200 HENRY LAW AVENUE	DOVER	NH	03820

CITY OF DOVER

TECHNICAL REVIEW COMMITTEE MINUTES – P19-77

Application Type:	TRC Review
Applicant(s):	Industrial Tower and Wireless, LLC
Owner(s):	Industrial Tower and Wireless, LLC
Location:	200 Henry Law (Tax Map K, Lot 1-0-0)
Date:	November 21, 2019

INTENT: Proposal is to construct a 150' communications tower and 80'x80' compound with gravel driveway.

LOTS/UNITS PROPOSED:
Communications Tower in addition to Existing Residential and Farm

AGENDA ITEM #: 1

ACREAGE: 28.8 for subject parcel. 55. 18 between two parcels

ZONING DISTRICT: R-40

EXISTING LAND USE:
Residential/farm

SURROUNDING LAND USE:
Residential

ZBA ACTION: Z18-07/Z18-22, ZBA decision to deny variance vacated through settlement out of court. ITW is granted a variance for a new tower on a lot where new facilities are not permitted. See US District Court Agreement for Judgment in Case No. 1:19-cv-00067-PB, filed 10/01/19.

PERMITS REQUIRED: N/A

WAIVERS REQUESTED: N/A

ATTENDANCE:
Members:
Donna Benton, Planning
Sgt. Marn Speidel, Police
Dan Barufaldi, Econ. Development
Frank Torr, Planning Board
Dave White, Engineering
Elena Piekut, Planning/Zoning
James Maxfield, Fire/Inspections

Others:
Kevin Fadden, Industrial Tower and Wireless
Kevin Delaney, Industrial Tower and Wireless

Approval of 11/14/2019 Meeting Minutes
D. White moved to approve the minutes of November 14, 2019. F. Torr seconded. Vote: U/A

PLAN REVIEW:
Planning Comments:
- Provide copy of easement
- Provide letter to serve and acknowledgment of fall zone from Eversource
- Please revise plan to:
  - Add owners' signatures and date
  - Add LLS & PE signature
  - Add dates and numbers of federal permits
  - Add Planning file number P19-77
  - Remove Dover approvals box
  - Add note referencing Zoning Board cases Z18-07 and Z18-22 and US District Court agreement
  - Add note regarding lighting provided within and around compound/tower
  - Public safety impact fee ($512) will be invoiced
  - Reference or add abutter information on Sheet 2
  - Provide rendering of tower (170-22.E(6)(a))
  - Change fencing to 8' solid vinyl or wood (B.P required)
  - Add Common Site Plan notes: 9, 10 (or waiver), 12, 13, 14, 15, 16, 17, 20, 21, 22, 25, 26, 28, 29, 31, 34, 40, & 41
  - Provide responses or otherwise address provisions agreed to: 170-22.D(2)(a), (b), (c) and (g); 170-22.E (Preamble), (3) through (9), 170-22.H and 170-22.I.
  - On sheet 3:
    - Show existing buildings
    - Indicate screening around equipment outside fenced area

Police Department Comments:
- Add note that snow storage is on-site

Fire/Inspections Comments:
- Add common note regarding year-round site access
- Show truck turning template

Engineering Comments: None

Economic Development Comment:
- Concerned about winter access

DRAFT

CITY OF DOVER

TECHNICAL REVIEW COMMITTEE MINUTES – P19-77

Application Type:	TRC Review
Applicant(s):	Industrial Tower and Wireless, LLC
Owner(s):	Industrial Tower and Wireless, LLC
Location:	200 Henry Law (Tax Map K, Lot 1-0-0)
Date:	November 21, 2019

Planning Board Comments:

- Natural buffer is sufficient
- No Sunday construction hours

Next Steps:
Resubmit by December 2nd for December 10th Planning Board meeting.

Adjournment:
D. White made a motion to adjourn at 11:55 am. Seconded by D. Benton Vote: U/A.

DRAFT

CITY OF DOVER

PLANNING BOARD - STAFF MEMO FILE #P19-70

Application Type:	Minor Lot Line Adjustment
Applicant(s):	46 Venture Drive Properties LLC
Owner(s):	Hussey Manufacturing Technology, LLC
Location:	Venture Drive (Map D, Lots 11-2 & 13-4)
Meeting Date:	December 10, 2019

INTENT: To adjust the lot lines between lots D/11-2 and D/13-4. D/11-2 will go from 5.67 acres to 5.16 acres. Lot D/13-4 will go from 3.58 acres to 4.10 acres.

LOTS/UNITS PROPOSED: N/A

AGENDA ITEM #: 4-G

AREA:	Existing:	Proposed:
D/11-2:	5.67 ac	5.16 ac
D/13-4	3.58 ac	4.10 ac

ZONING DISTRICT: I-4

EXISTING LAND USE: Vacant

PROPOSED LAND USE: Industrial

SURROUNDING LAND USE: Industrial and vacant

ZBA ACTION: N/A

ATTACHMENTS: Application materials including LLA Plan

APPLICATION IS COMPLETE: Yes

NOTICES SENT: Abutter notices were sent by certified or first class mail to all abutters for this meeting.

PERMITS REQUIRED: CUP for Steep Slopes

WAIVERS REQUESTED: N/A

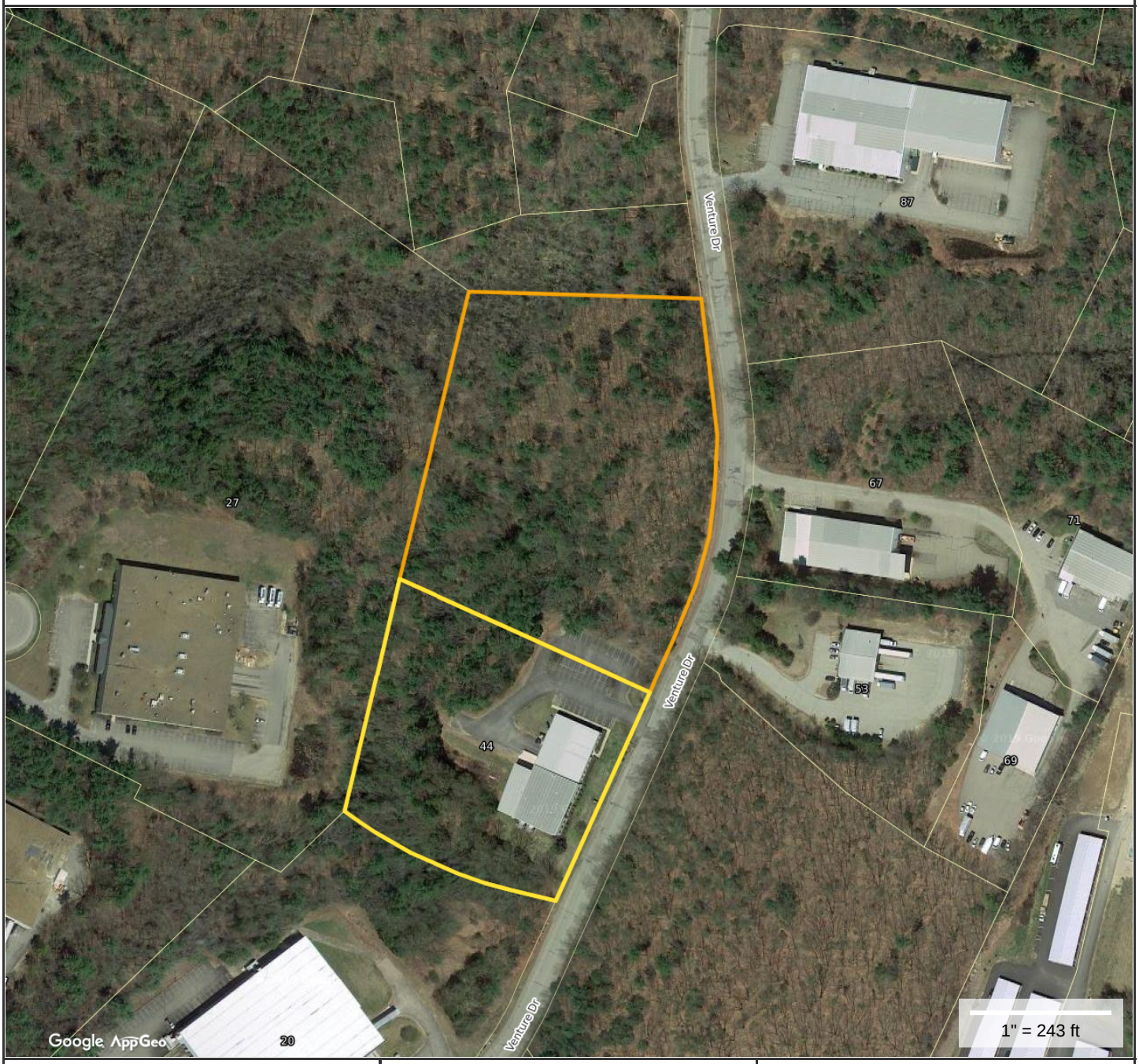
Summary of Request and Background
The applicant is proposing to adjust the lot line between the two lots moving 22,294 s.f to lot 13-4 from 11-2 Both lots would have conforming frontage and lot 13-4 would increase its conformity by enlarging the lot area.

Consistency with Land Use Regulations
Chapter 155-18 of the Land Subdivision Regulations of the City Code provides for the adjustment of existing lot lines between two or more lots. This plan is consistent with those regulations.

STAFF RECOMMENDATION:
The Planning Department recommends that the Planning Board accept the application for review, open the public hearing, and vote to approve the minor lot line adjustment with the following conditions:

Conditions to Be Met Prior to Signing of Plans:
1. The applicant shall provide the Planning Department with a digital version of the final plat
2. The applicant shall revise the plat to:
   a. Add Planning file number P19-70
   b. Add signature and stamp of LLS
   c. Add owners' signatures

44 Venture Drive



Property Information

Property ID	D0013-004000
Location	44 VENTURE DR
Owner	HUSSEY MANUFACTURING TECHNOLOGY LLC
Land Use	316

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

City of Dover, NH makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 10/18/2019
Data updated Daily

City of Dover, New Hampshire
MINOR LOT LINE ADJUSTMENT APPLICATION

[Revision Date: June 4, 2019]

Office Use Only	Project #:		Date Received:	
	Amount Paid:		Time Received:	

APPLICANT INFORMATION

Name of Applicant: 46 Venture Drive Properties, LLC Telephone #_____

Address of Applicant: 910 Day Hill Road Windsor, CT 06095

FIRST PROPERTY OWNER AND PARCEL INFORMATION

Name of 1st Property Owner (*if different from applicant*): Hussey Manufacturing Technology, LLC Telephone #_____

Address of 1st Property Owner: 44 Venture Drive Dover, NH 03820

Address of Property: Venture Drive

Assessor's Map # D Lot(s) # 13-4

Property Deed: Book 4369 Page: 608

Zoning District(s) I - 4 Overlay District(s) NONE

Size of Existing Parcel (sq. ft.): 156,117 Size of Proposed Parcel (sq. ft.): 178,411

SECOND PROPERTY OWNER AND PARCEL INFORMATION

Name of 2nd Property Owner (*if different from applicant*): Hussey Manufacturing Technology, LLC Telephone #_____

Address of 2nd Property Owner: 44 Venture Drive Dover, NH 03820

Address of Property: Venture Drive

Assessor's Map # D Lot(s) # 11-2

Property Deed: Book 4369 Page: 608

Zoning District(s) I - 4 Overlay District(s) NONE

Size of Existing Parcel (sq. ft.): 246,860 Size of Proposed Parcel (sq. ft.): 224,566

THIRD PROPERTY OWNER AND PARCEL INFORMATION

Name of 3rd Property Owner (*if different from applicant*): N/A Telephone #_____

Address of 3rd Property Owner: _____

Address of Property: _____

Assessor's Map # _____ Lot(s) # _____

Property Deed: Book _____ Page: _____

Zoning District(s) _____ Overlay District(s) _____

Size of Existing Parcel (sq. ft.): _____ Size of Proposed Parcel (sq. ft.): _____

[Use additional application form if more than two lots are being adjusted]

SURVEYOR INFORMATION

Name of Surveyor and Company (Licensed in N.H.) MCENEANEY SURVEY ASSOCIATES

Address 24 CHESTNUT STREET DOVER, NH 03820 Telephone #: 603-742-0911

Professional License #: Kevin M. McEneaney, LLS NH 661 E-mail address: kevin@surveynh.com

CONSERVATION EASEMENT HOLDER (s)

Name of Easement Holder: N/A Telephone #_____

Address Easement Holder: _____

Name of 2nd Easement Holder: _____ Telephone #_____

Address 2nd Easement Holder: _____

SIGNATURES

I/We hereby submit this application to the City of Dover Planning Board and attest that to the best of my knowledge all of the information on this application form and in the accompanying application materials and documentation is true and accurate. As applicant or as agent, I attest that I am duly authorized to act in this capacity.

Signature of First Property Owner: _____ Date: 9/6/19

Signature of Second Property Owner: _____ Date: _____

Signature of Applicant (*if different from owner*): _____ Date: 9-6-19

Signature of Agent: _____ Date: 9/6/19

AUTHORIZATION TO ENTER SUBJECT PROPERTY

I hereby authorize members of the Dover Planning Board, Planning Department and other pertinent City Departments and boards to enter my property for the purpose of evaluating this application, including performing inspections during the application phase, post-approval phase, construction phase and occupancy phase. It is understood that these individuals must use all reasonable care, courtesy, and diligence when on the property.

Signature of Property Owner: _____ Date: 9/6/19

City of Dover, New Hampshire
LOT LINE ADJUSTMENT SUBMISSION CHECKLIST

[Revision Date: June 4, 2019]

This review checklist is intended to assist the applicant in the planning process of preparing a Subdivision application for Planning Board action. The size of the project will determine the types of information required for review, therefore, a **pre-application conference** with the Planning Department to determine the list of items that must be completed is strongly encouraged.

Plan Review Fees are due along with three (3) full size and twelve (12) half size (11x17), folded, copies of the plan set and materials, 3 weeks prior to the Planning Board meeting. Abutter/Notice Fees will be invoiced and are due 28 hours prior to Planning Board.

The applicant is cautioned that this checklist is only a guide and is not intended to be a complete list of all subdivision requirements. Please refer to the Subdivision Regulations for full details.

APPLICANT: 46 Venture Drive Properties, LLC File Number: P19-70

PROPERTY LOCATION: Venture Drive Tax Map: D Lot: 13-4 and Lot: 11-2

	Where/How Provided	Reviewed
1. Completed and signed Application form	✓	
2. Plan Review Fees are provided	✓	
3. Electronic copy of the surveyed plat layout	✓	
4. Electronic copy of supplementary materials and application	✓	
5. Fifteen copies of LLA plan w/scale of not less than 1"=50' or 1"=100' for larger adjustments. Plans shall contain the following items as appropriate:	✓	
Location map at appropriate scale	✓	
Planning File #	✓	
Date, north arrow and scale	✓	
Names of all abutting property owners	✓	
Name and address of owners	✓	
Signature & stamp of NH licensed land surveyor	✓	
Zoning District boundaries, including any special or overlay districts	✓	
Location of Conservation District areas	N/A	
Location, names and widths of existing and streets, including pavement widths, grades, curbs and crosswalks	✓	
Location and widths of existing & proposed easements & right of ways	✓	
Existing and proposed property lines with dimensions and bearings tied into Dover's Geographic Information System coordinate system	✓	
Existing and proposed lot areas in square feet	✓	
Existing and proposed buildings and structure locations	✓	
Minimum building setbacks or build to lines on all lots	✓	
Map and lot numbers for existing and proposed lots as assigned by Tax Assessor	✓	
Location, material and size of existing and proposed permanent monuments	✓	
All applicable Dover Common Subdivision notes	✓	

REVIEWED BY: _____ DATE_____

Letter of Authorization

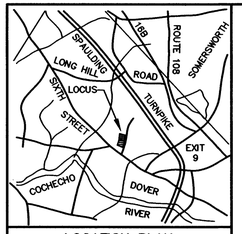
We the owners of the land located at 46 Venture Dr, Dover NH Map B, Lot 11-2, Book 3048, Page 890 give permission to the Morris company to apply for permits and application for this land.

X _____ Hussey Manufacturing Technology, LLC

Owner of 46 Venter Dr

P19-70 **44 Venture Drive**

Property ID	Location	Owner 1	Owner 2	Owner Address 1	City	State	Zip
D0011-005SND	VENTURE DR	CIOTTI DENNIS TRUSTEE	CIOTTI DENNIS REVOCABLE TRUST	PO BOX 757	DOVER	NH	03821
D0011-006000	QUALITY WY	DOVER BUSINESS & IND DEV AUTHORITY	F/K/A DOVER IND DEV AUTHORITY	288 CENTRAL AV	DOVER	NH	03820
D0011-006SND	QUALITY WY	DOVER BUSINESS & IND DEV AUTHORITY	F/K/A DOVER IND DEV AUTHORITY	288 CENTRAL AV	DOVER	NH	03820
D0011-007SN1	QUALITY WY	DOVER BUSINESS & IND DEV AUTHORITY	F/K/A DOVER IND DEV AUTHORITY	288 CENTRAL AV	DOVER	NH	03820
D0013-000000	VENTURE DR	CRAMER JOHANNES		20 VENTURE DR	DOVER	NH	03820
D0013-001000	20 VENTURE DR	CRAMER FABRICS INC		20 VENTURE DR	DOVER	NH	03820
D0013-002000	17 PRODUCTION DR	CF HOLDINGS LLC		56 STAGECOACH RD	DURHAM	NH	03824
D0013-003000	27 PRODUCTION DR	JMW PRODUCTION LLC	C/O MFB HOLDINGS INC	27 PRODUCTION DR	DOVER	NH	03820
D0014-001000	67 VENTURE DR	67 VENTURE LLC	C/O JEFF LONDRES	340 ODIORNE POINT RD	PORTSMOUTH	NH	03801
D0014-004000	87 VENTURE DR	CHURCHILL MEDICAL SYSTEMS INC	ADVANCED MEDICAL INC	2750 MORRIS RD #A200	LANSDALE	PA	19446-6083
D0014-03A000	53 VENTURE DR	EVEREST CO INC	C/O LEPAGE BAKERIES	PO BOX 1900	AUBURN	ME	04211-1900
D0011-002000	VENTURE DR	HUSSEY MANUFACTURING TECHNOLOGY LLC		44 VENTURE DR	DOVER	NH	03820-5912
D0013-004000	44 VENTURE DR	HUSSEY MANUFACTURING TECHNOLOGY LLC		44 VENTURE DR	DOVER	NH	03820-5912
		46 VENTURE DRIVE PROPERTIES, LLC		910 DAY HILL ROAD	WINDSOR	CT	06095
		MCENEANEY SURVEY ASSOCIATES		24 CHESTNUT STREET	DOVER	NH	03820



LOCATION PLAN
(NO SCALE)

REFERENCE PLANS:

1.) SUBDIVISION PLAN DOVER INDUSTRIAL DEVELOPMENT AUTHORITY, VENTURE DRIVE, DOVER, NEW HAMPSHIRE. SCALE: 1" = 50'; DATED: NOVEMBER 8, 1999, REVISED THROUGH 12/3/99; BY TRITECH ENGINEERING CORPORATION. RECORDED S.C.R.D. PLAN 57–78.

2.) BOUNDARY LINE ADJUSTMENT DOVER INDUSTRIAL DEVELOPMENT AUTHORITY, VENTURE DRIVE, DOVER, NEW HAMPSHIRE. SCALE: 1" = 40'; DATED: MARCH 19, 1998, REVISED THROUGH 4/15/98; BY TRITECH ENGINEERING CORPORATION. RECORDED S.C.R.D. PLAN 51–78.

3.) SUBDIVISION OF LAND PREPARED FOR DOVER INDUSTRIAL DEVELOPMENT AUTHORITY, VENTURE DRIVE AND PRODUCTION DRIVE, DOVER, NEW HAMPSHIRE. SCALE: 1" = 80'; DATED: APRIL 6, 1997, REVISED THROUGH 9/12/97; BY McENEANEY SURVEY ASSOCIATES, INC. RECORDED S.C.R.D. PLAN 50–52.

4.) SUBDIVISION PLAN DOVER INDUSTRIAL DEVELOPMENT AUTHORITY, SIXTH STREET / LONG HILL ROAD EXT., DOVER, NEW HAMPSHIRE. SCALE: 1" = 100'; DATED: JANUARY 17, 1992; BY TERRASCAN. RECORDED S.C.R.D. PLANS 41–91 & 41–92.

CITY GRID
S.C.R.D. 57–78

D / 13–3
JMW PRODUCTION LLC
c/o MFB HOLDINGS, INC.
27 PRODUCTION DRIVE
DOVER, NH 03820
4349 / 640

D/11–6SND
DOVER BUSINESS AND INDUSTRIAL DEVELOPMENT AUTHORITY
F/K/A DOVER INDUSTRIAL DEVELOPMENT AUTHORITY
288 CENTRAL AVENUE
DOVER, NH 03820
1559 / 394

(A)
22,294 S.F.
0.51 Ac.

IRON ROD
I.R.(tbs)
IRON ROD
359.99'
N13°01'58"E
L1
L5
383.32'
N13°02'03"E
CONSERVATION DISTRICT SENDING AREA 60,762 S.F. (SCRD 57–78, NOTES 12 + 14)
75' BUILDING SETBACK LINE (TYP.)
OPEN SPACE AS SHOWN ON S.C.R.D. PLAN 41–92 – STATUS UNKNOWN
EDGE OF WETLAND (SEE NOTE 10)
S88°47'50"E
373.18'
IRON ROD
30' WIDE UTILITY EASEMENT
LOT LINE TO BE ABANDONED
NEW LOT LINE
N66°13'36"W 441.14'
S66°13'36"E 450.62'
50' WETLAND BUFFER (TYP.)
AREA WITH SLOPES GREATER THAN 20 PERCENT (STEEP); DOVER CONSERVATION DISTRICT
GRANITE BOUND
EXISTING STRUCTURE AND DRIVEWAY / PARKING AREAS
D / 13–1
CRAMER FABRICS, INC.
20 VENTURE DRIVE
DOVER, NH 03820
1694 / 733
D / 13–4
NEW PARCEL AREA
178,411 S.F.
4.10 Ac.
D / 11–2
NEW PARCEL AREA
224,566 S.F.
5.16 Ac.
139.36'
S08°26'44"E
GRANITE BOUND
IRON ROD
GRANITE BOUND
N – 262,991.54
E – 701,428.80
(SEE NOTE 8)
L3
S23°46'24"W 367.50'
24'
28'
I.R.(tbs)
GRANITE BOUND
C2
L2
L4
D/14–4
CHURCHILL MEDICAL SYSTEMS, INC.
ADVANCED MEDICAL, INC.
2750 MORRIS ROAD #A200
LANSDALE, PA 19446–6083
1951 / 542
VENTURE DRIVE
PUBLIC 60' WIDE R.O.W.
D/14–1
67 VENTURE LLC
c/o JEFF LONDRES
340 ODIORNE POINT ROAD
PORTSMOUTH, NH 03801
4565 / 17
ACCESS AND UTILITY EASEMENT – (SEE NOTE 14)
IRON ROD
N – 263,327.866
E – 701,576.949
(SEE NOTE 8)
D / 13
JOHANNES CRAMER
20 VENTURE DRIVE
DOVER, NH 03820
3461 / 261
D/14–3A
THE EVEREST COMPANY, INC.
c/o LEPAGE BAKERIES
P.O. Box 1900
AUBURN, ME 04211–1900
1892 / 429

LEGEND

S.F. – SQUARE FEET
Ac. – ACRE
(TYP.) – TYPICAL
± – MORE OR LESS
W/ – WITH
ø – DIAMETER
S.C.R.D. – STRAFFORD COUNTY REGISTRY OF DEEDS
R.O.W. – RIGHT OF WAY
I.R.(tbs) – IRON ROD (TO BE SET)

No.	Bearing	Distance
L1	N13°02'03"E	50.89'
L2	S23°46'24"W	50.00'
L3	N77°19'19"W	59.30'
L4	S23°46'24"W	58.71'
L5	N13°02'03"E	64.70'

No.	Central Angle	Radius	Arc Length	Chord Length	Chord Bearing
C1	23°02'19"	780.00	313.64	311.53	N65°48'09"W
C2	32°13'09"	720.00	404.88	399.56	S07°39'52"W

NOTES:

1.) OWNER OF RECORD:
D / 11–2, D / 13–4 — HUSSEY MANUFACTURING TECHNOLOGY, LLC
44 VENTURE DRIVE
DOVER, NEW HAMPSHIRE 03820–5912
S.C.R.D. VOL. 4369, PAGE 608

2.) D / 11–2 – DENOTES TAX MAP AND PARCEL NUMBER.

3.) THE SUBJECT PARCEL IS LOCATED WITHIN THE ASSEMBLY AND OFFICE (I–4) ZONING DISTRICT.

4.) DIMENSIONAL REGULATIONS:

	I–4
MINIMUM LOT SIZE:	5 ACRES
MINIMUM LOT COVERAGE:	33 PERCENT
MINIMUM FRONTAGE:	400 FEET
BUILDING SETBACKS:	
FRONT	75 FEET
SIDE	75 FEET
REAR	75 FEET
MAXIMUM BUILDING HEIGHT:	40 FEET

5.) PLAN INTENT: TO ADJUST THE PARCELS BOUNDARIES AS SHOWN. TRACT "A" 22,294 S.F. / 0.51 Ac. IS TO BE ADDED TO PARCEL D / 13–4.

6.) PARCEL AREAS =

PARCEL	ORIGINAL PARCEL	NEW PARCEL
D / 11–2	246,860 S.F. / 5.67 Ac.	224,566 S.F. / 5.16 Ac.
D / 13–4	156,117 S.F. / 3.58 Ac.	178,411 S.F. / 4.10 Ac.

7.) THE SUBJECT PARCELS ARE LOCATED WITHIN AREAS DETERMINED TO BE OUTSIDE THE 0.2 PERCENT ANNUAL CHANCE FLOODPLAIN AS SHOWN ON FLOOD INSURANCE RATE MAP COMMUNITY NUMBER 330145; PANEL 0310; SUFFIX E; MAP NUMBER 33017C0310E; EFFECTIVE DATE SEPTEMBER 30, 2015.

8.) BASIS OF BEARINGS IS CITY OF DOVER / GEOD CORPORATION GRID NORTH AS TAKEN FROM S.C.R.D. PLAN 57–78.

9.) VERTICAL DATUM IS APPROXIMATE NGVD29 AS TAKEN FROM CITY OF DOVER / GEOD CORPORATION DATA.

10.) JURISDICTIONAL WETLANDS IDENTIFIED AND FLAGGED BY MICHAEL CUOMO, N.H.C.W.S. #004 AND N.H. C.S.S. #006 DURING MAY 2019 AND FIELD LOCATED BY McENEANEY SURVEY ASSOCIATES, INC.

11.) PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A SURVEY PERFORMED BY MCENEANEY SURVEY ASSOCIATES, INC. DURING MAY & JUNE 2019 WITH AN ERROR NOT GREATER THAN 1 IN 10,000.

12.) PARCELS ARE SUBJECT TO AND BENEFIT FROM EASEMENTS OF RECORD.

13.) THE PARCELS ARE CONSIDERED UNDER THE "TRANSFER OF DEVELOPMENT RIGHTS ZONING ORDINANCE"
PER S.C.R.D. PLAN 57–78; PARCEL D / 11–2 SENDING AREA IS PROVIDED ON–STE.
PER S.C.R.D. PLAN 51–78; PARCEL D / 13–4 SENDING AREA IS PROVIDED PER S.C.R.D. PLAN 50–70.

14.) THE 28' X 24' ACCESS AND UTILITY EASEMENT SHOWN ON S.C.R.D. PLAN 51–78 IS TO BE ADJUSTED AND EXTENDED TO THE NEWLY CREATED BOUNDARY LINE BETWEEN THE SUBJECT PARCELS IN A LOCATION CONVENIENT TO EACH PARCEL.L.

NO.	DATE	DESCRIPTION	BY	CHK
		REVISIONS		

19–2224	LL ADJ	19–05	1–22
PROJECT NO	TYPE	FIELDBOOK & PAGES	

"I HEREBY CERTIFY THAT THIS PLAN IS BASED ON AN ACTUAL GROUND SURVEY PERFORMED WITH A TOTAL STATION, BY ME OR THOSE UNDER MY DIRECT SUPERVISION AND THAT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, SAID SURVEY MEETS OR EXCEEDS THE MINIMUM PRECISION REQUIREMENTS FOR SURVEY CLASSIFICATION "U" AS SET FORTH IN TABLE 500.1 OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES OF THE BOARD OF LICENSURE FOR LAND SURVEYORS."

LOT LINE ADJUSTMENT PLAN
PREPARED FOR
HUSSEY MANUFACTURING TECHNOLOGY, LLC
TAX MAP D, LOT Nos. 11–2 & 13–4
VENTURE DRIVE
CITY of DOVER
COUNTY of STRAFFORD
STATE of NEW HAMPSHIRE

DOVER PLANNING FILE No. P 19–___

DRAWN BY: RJM	FILE: MSA\2224\DWG\2224 LLADJ
SCALE: 1" = 50'	DATE: JULY 22, 2019

50 25 0 25 50 100 150 200

STATE OF NEW HAMPSHIRE — No. 681 KEVIN M. McENEANEY — LICENSED LAND SURVEYOR — SIGNATURE

McENEANEY SURVEY ASSOCIATES of NEW ENGLAND
P.O. Box 681 – 24 CHESTNUT STREET
DOVER, NH 03820 (603) 742–0911

SURVEYING – PLANNING – CONSULTING

CITY OF DOVER

PLANNING BOARD - STAFF MEMO FILE #P19-68

Application Type:	Conditional Use Permit
Applicant(s):	46 Venture Drive Properties, LLC
Owner(s):	Hussey Manufacturing Technology, LLC
Location:	Venture Drive (Assessor's Map D, Lot 11-2)
Meeting Date:	December 10, 2019

INTENT: Proposal is to impact 2,669 s.f. of steep slopes greater than 20% as part of the Site Plan for 46 Venture Drive (P19-67 or Item 4I)

LOTS/UNITS PROPOSED: N/A

AGENDA ITEM #: 4-H

ACREAGE: 5.16 acres

ZONING DISTRICT: I-4

EXISTING LAND USE:
Industrial/vacant

PROPOSED LAND USE: Industrial

SURROUNDING LAND USE: Industrial and vacant

ZBA ACTION: N/A

ATTACHMENTS: Application materials, Site Plan, TRC minutes from 9/26/19**,** Conservation Commission minutes from 11/12/19

APPLICATION IS COMPLETE: Yes

NOTICES SENT: Abutter notices were sent by certified mail to all abutters for this meeting

PERMITS REQUIRED: CUP for steep slopes

WAIVERS REQUESTED: None

Summary of Request and Background
The applicant is proposing to construct a 15,000 s.f. commercial building with 13,500 s.f. of retail space and 1,500 s.f. of office space with associated parking. The site is serviced by public water and sewer.

The application impacts 2,668 s.f. of steep slopes greater than 20%.

The Technical Review Committee reviewed this application at their September 26, 2019 meeting. The Conservation Commission endorsed the CUP application at their November 12, 2019 meeting.

Consistency with Land Use Regulations
The Conservation District ordinance provides for Conditional Use permits to allow impacts within 100' of a tidal river if standards related to demonstration of avoidance of impact, minimization of impact, mitigation and soil erosion and sedimentation control are met. This proposal is consistent with those standards.

STAFF RECOMMENDATION:
The Planning Department recommends the Planning Board accept the application, open the public hearing, and vote to approve the Conditional Use Permit with the following conditions:

Conditions to Be Met Prior to the Issuance of a Conditional Use Permit:

1. The lot line adjustment (P19-70) is approved.
2. The Site Plan (P19-67) is approved.

Venture Drive



Property Information

Property ID	D0011-002000
Location	VENTURE DR
Owner	HUSSEY MANUFACTURING TECHNOLOGY LLC
Land Use	440

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

City of Dover, NH makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 10/18/2019
Data updated Daily

City of Dover, New Hampshire
CONDITIONAL USE PERMIT APPLICATION

[Revision Date: May 18, 2017]

Office Use Only	Project #:		Date Received:	
	Amount Paid:		Time Received:	

APPLICANT AND OWNER INFORMATION

Name of Applicant: 46 Venture Drive Properties, LLC Telephone #_____

Address of Applicant: 910 Day Hill Road Windsor, CT 06095

E-Mail Address: _____

Name of Property Owner (if different from applicant): Hussey Manufacturing Technology, LLC Telephone #_____

Address of Property Owner: 44 Venture Drive Dover, NH 03820

PROPERTY INFORMATION

Assessor's Map # D Lot(s) # 11-2

Address of Property: 46 Venture Drive

Zoning District(s) I - 4 Overlay District(s) NONE

Existing Use of Property: ASSEMBLY AND OFFICE DISTRICT - VACANT

CONDITIONAL USE PERMIT INFORMATION

Type of Conditional Use Permit (Check All That Apply):

☑ Conservation District ☐ RCM Use Overlay District ☐ I-1 District Uses

☐ Groundwater Protection ☐ Off-Street Parking and Loading ☐ Alternative Treatment Center

☐ Wetland Protection District ☐ Central Business District ☐ Heritage Residential District

Describe Proposed Use or Activity That Requires Conditional Use Permit and Describe Any Impacts:

Construction of a 15,000 s.f. commercial building consisting of 13,500 s.f. of retail space and 1,500 s.f. of office space with associated parking (26 parking spaces, including 2 HCA spaces) and other pavement which will impact 2,669 s.f. within areas of slopes greater than 20%.

List Any Associated State or Federal Permits That Have Been or Will Be Applied For and Indicate Their Status: _____

_____

Name of Professional That Prepared Plans: CIVILWORKS NEW ENGLAND

Address P.O. BOX 1166 DOVER, NH 03821 Telephone #: 603-749-0443

Professional License #: STEPHEN J. HAIGHT P.E. #7978 E-mail address: shaight@civilworksne.com

SIGNATURES

I/We hereby submit this application to the City of Dover Planning Board and attest that to the best of my knowledge all of the information on this application form and in the accompanying application materials and documentation is true and accurate. As applicant or as agent, I attest that I am duly authorized to act in this capacity.

Signature of Property Owner: _____ Date: 9/6/19

Signature of Applicant (if different from owner): _____ Date: 9-6-19

Signature of Agent: _____ Date: 9/6/19

AUTHORIZATION TO ENTER SUBJECT PROPERTY

I, and my successors, hereby authorize members of the Dover Planning Board, Planning Department and other pertinent City Departments and boards to enter my property for the purpose of evaluating this application, including performing inspections during the application phase, post-approval phase, construction phase and occupancy phase. It is understood that these individuals must use all reasonable care, courtesy, and diligence when on the property.

Signature of Property Owner: _____ Date: 9/6/19

P19-68 **44 Venture Drive**

Property ID	Location	Owner 1	Owner 2	Owner Address 1	City	State	Zip
D0011-005SND	VENTURE DR	CIOTTI DENNIS TRUSTEE	CIOTTI DENNIS REVOCABLE TRUST	PO BOX 757	DOVER	NH	03821
D0011-006000	QUALITY WY	DOVER BUSINESS & IND DEV AUTHORITY	F/K/A DOVER IND DEV AUTHORITY	288 CENTRAL AV	DOVER	NH	03820
D0011-006SND	QUALITY WY	DOVER BUSINESS & IND DEV AUTHORITY	F/K/A DOVER IND DEV AUTHORITY	288 CENTRAL AV	DOVER	NH	03820
D0011-007SN1	QUALITY WY	DOVER BUSINESS & IND DEV AUTHORITY	F/K/A DOVER IND DEV AUTHORITY	288 CENTRAL AV	DOVER	NH	03820
D0013-000000	VENTURE DR	CRAMER JOHANNES		20 VENTURE DR	DOVER	NH	03820
D0013-001000	20 VENTURE DR	CRAMER FABRICS INC		20 VENTURE DR	DOVER	NH	03820
D0013-002000	17 PRODUCTION DR	CF HOLDINGS LLC		56 STAGECOACH RD	DURHAM	NH	03824
D0013-003000	27 PRODUCTION DR	JMW PRODUCTION LLC	C/O MFB HOLDINGS INC	27 PRODUCTION DR	DOVER	NH	03820
D0014-001000	67 VENTURE DR	67 VENTURE LLC	C/O JEFF LONDRES	340 ODIORNE POINT RD	PORTSMOUTH	NH	03801
D0014-004000	87 VENTURE DR	CHURCHILL MEDICAL SYSTEMS INC	ADVANCED MEDICAL INC	2750 MORRIS RD #A200	LANSDALE	PA	19446-6083
D0014-03A000	53 VENTURE DR	EVEREST CO INC	C/O LEPAGE BAKERIES	PO BOX 1900	AUBURN	ME	04211-1900
D0011-002000	VENTURE DR	HUSSEY MANUFACTURING TECHNOLOGY LLC		44 VENTURE DR	DOVER	NH	03820-5912
D0013-004000	44 VENTURE DR	HUSSEY MANUFACTURING TECHNOLOGY LLC		44 VENTURE DR	DOVER	NH	03820-5912
		46 VENTURE DRIVE PROPERTIES, LLC		910 DAY HILL ROAD	WINDSOR	CT	06095
		MCENEANEY SURVEY ASSOCIATES		24 CHESTNUT STREET	DOVER	NH	03820

CITY OF DOVER

TECHNICAL REVIEW COMMITTEE MINUTES – P19-67

Application Type:	Site Plan Review
Applicant(s):	46 Venture Drive Properties LLC
Owner(s):	Hussey Manufacturing Technology, LLC
Location:	Venture Drive (Tax Map D, Lot 11-2)
Date:	September 26, 2019

INTENT: To construct a 15,000 s.f. commercial building with 13,500 s.f. of retail space and 1,500 s.f. of office space with associated parking (26 parking spaces including 2 HCA spaces) and other pavement. A related CUP will appear before the Planning Board for the 2,660 s.f. of impact within the slopes greater than 20%. A related LLA plan will also appear before the Planning Board.

LOTS/UNITS PROPOSED: N/A

AGENDA ITEM #: 2

ACREAGE: 5.16 acres

ZONING DISTRICT: I-4

EXISTING LAND USE: Vacant

SURROUNDING LAND USE: Industrial and vacant

ZBA ACTION: None

PERMITS REQUIRED:
-CUP for steep slope impact

WAIVERS REQUESTED: None

ATTENDANCE:
Members:
Donna Benton, Planning
Chris Parker, Zoning
Dave White, Engineering
Dan Barufaldi, Economic Development
Sgt. Speidel, Police

Others:
Jase Gregoire, CivilWorks NE
Steve Haight, CivilWorks NE

PLAN REVIEW:
Planning Comments:

- Impact fees
- Water and Sewer Investment fees
- Please revise application to include:
  - Letter from Eversource regarding ability to provide service
  - Proof that DBIDA approves architecturals
- Please revise plan set to:
  - Superimpose site plan on neighborhood plan
  - Remove LLA plan and submit as separate plan
  - Revise existing conditions to presume LLA is approved
  - Add planning file number throughout (P19-67)
  - Add common site plan notes or indicate location of: PTAP, wall, fence, and elevation
  - Add topo note and title reference note to sheet 8
  - Add security lighting around the building
  - Revise streetscape to indicate lights to appear as those on sheet 16
  - Engineer, LLS, Architect, CWS, and Landscape Architect to sign and stamp final plan set
  - Indicate a minimum 3.5" caliper
  - Indicate materials on architecturals
  - Add wetland buffer placards
  - Add note about reusing stonewall along Venture Drive
  - Remove site note 11 on sheet 5 which is duplicated

Police Department Comments:

- Site review application lists this project as 13,500 s.f. retail space, plus 1,500 s.f. office space. Traffic Assessment calculates trip generation based on "light industrial, land use 110" code. Is this appropriate?
- Contribute toward Venture/Sixth intersection improvements (to provide better truck turning radius)
- Remove crosswalk on detail sheet as it's not needed at entrance

Fire/Inspections Comments:

- Provide a proposed location for the pad mount electrical transformer and pad
- Is a generator being proposed- if so locate on utility plan
- If gas is to supply structure locate on utility plan and screen
- Indicate location of FDC
- Provide "No Parking Fire Lane" signage along the front parking lot.

CITY OF DOVER

TECHNICAL REVIEW COMMITTEE MINUTES – P19-67

Application Type:	Site Plan Review
Applicant(s):	46 Venture Drive Properties LLC
Owner(s):	Hussey Manufacturing Technology, LLC
Location:	Venture Drive (Tax Map D, Lot 11-2)
Date:	September 26, 2019

- Provide accessible aisle and parking detail .
- Provide the codes/standards used for accessibility design and that plans are in accordance w/ NH RSA 155-A:5.
- Provide elevation plans and identify sprinkler/mechanical rooms on floor plan.

Engineering Comments:
- Landscape plan and utility/grading plan conflict
- Increase landscaping along Venture Drive where so wooded today

Economic Development Comments:
- B & W rendering insufficient.
- Building shown is stark with no architectural amenities. Needs improvement.
- Needs accurately colored renderings and list of materials used.

Planning Board Comments: N/A

Next Steps:
Submit for Planning Board when ready

TRC paused at: 11:39am

Erickson motioned to approve the requested expenditure of $150,000 from the Conservation Fund, Lyon seconded. Vote: 7 in favor.

B. City of Dover Conditional Use Permit for 46 Venture Drive Properties, LLC (Owner: Hussey Manufacturing Technology, LLC), Assessor's Map D, Lot 11-2, zoned I-4, located at 46 Venture Drive.

Steve Haight was present to explain the proposal for construction of a 15,000 sq. ft. commercial building with driveways, paved parking and associated grading and drainage impacting 2,669 sq. ft. of steep slopes of 20% or greater. The drainage plans were reviewed. The plan has been to TRC and the plans were revised to reflect their comments. DBIDA approved the use of the parcel. The 20% slopes along the road were created when Venture Drive was built.

Fellows moved to endorse the Conditional Use Permit as presented, Schmidt seconded. Vote: 7 in favor

C. City of Dover Conditional Use Permit and NHDES Wetlands Permit for the City of Dover, Assessor's Map H, Lot 58, zoned I-4, located at 271 Mast Road.

Tom Page of Underwood Engineers was present to explain the proposal to construct a replacement artificial recharge facility on Bellamy River, including a new passive river intake structure, a new suction lifting pumping station, and a new pumping building, with 500 sq. ft. of permanent wetlands impact and a temporary wetlands impact of 1,450 square feet. Artificial recharge adds water from the river to recharge basins to help recharge aquifers and to prevent contamination from Madbury Metals impacting the wells. We met with NH Fish & Game to select the correct size screen for the intake. The wetlands permit has been submitted. Plan is to construct in 2020. This requires a 401 water quality permit from the state.

Hunt: Is there much of a change in the project footprint?

Page: The building is slightly larger.

Bird: Where are the recharge basins located?

Page showed them on a map.

Hunt: The water in the Bellamy River comes from the Bellamy Reservoir, which is controlled by Portsmouth.

Page: We are using State Drinking Water Funding to pay for this project.

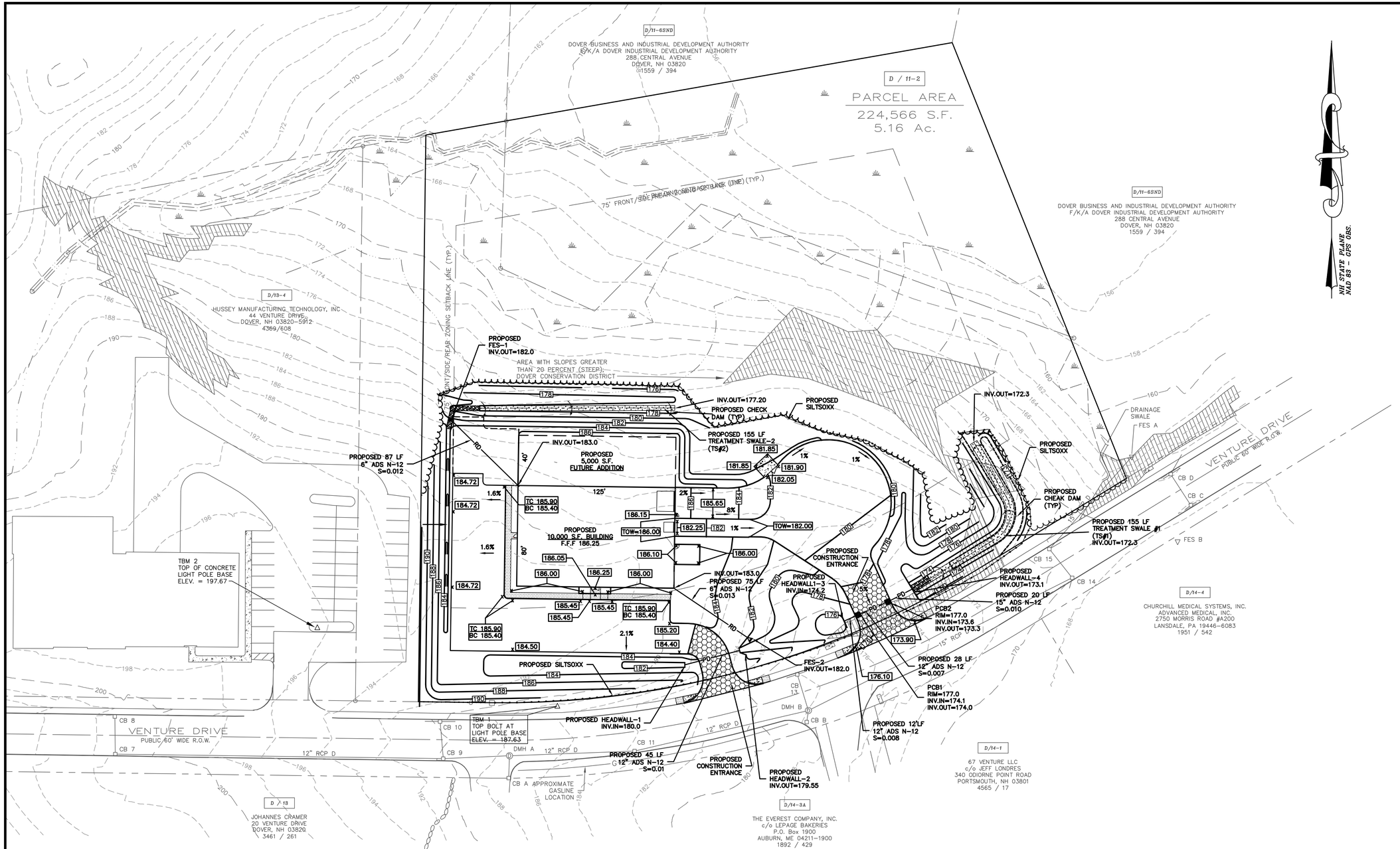
Fellows moved to endorse the Conditional Use Permit and NHDES Wetlands Permit as presented, Erickson seconded. Vote: 7 in favor

D. City of Dover Conditional Use Permit for Eversource Energy, Assessor's Map I, Lot 22, owned by Jensen's Inc. at 13 Brookmoor Road, zoned R-40, and Assessor's Map M, Lot 91-A, owned by Townsquare Media Portsmouth, LLC at 292 Middle Road, zoned R-40.

Sarah Barnum of Normandeau Associated was present to explain the proposal to replace five existing utility pole structures in a utility easement, with temporary wetland impacts of 18,879 square feet and temporary 50-foot wetland buffer impacts of 44,543 square feet. We did a site walk with the contractor last week to refine the impacts to wetlands and they will be reduced.

Fellows: What activity takes place in each site?

DRAFT



GRADING NOTES:
1. SEE NOTE SHEET #5 FOR ADDITIONAL GRADING & DRAINAGE NOTES.
2. 20% SLOPE IMPACT TOTAL = 2,669 S.F.
3. BOUNDRY AND TOPOGRAPHIC INFORMATION FROM REFERENCE PLAN NO. 1.

REFRENCE PLANS:
1. EXISTING CONDITIONS PLAN PREPARED FOR HUSSEY MANUFACTURING TECHNOLOGY, LLC VENTURE DRIVE, CITY OF DOVER, OUNTY OF STRAFFORD, STATE OF NEW HAMPSHIRE DOVER PLANNING FILE NUMBER 19-67, DATE: JULY 3, 2019. REVISED: AUGUST 14, 2019.

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P19-67

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

NO.	REVISION	APP'D	DATE
1	REVISION PER TRC COMMENTS	SJH	10-18-19

DATE: 10-18-19
SCALE: 1"=40'
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO:19014
FILE: SITE.DWG

GRADING, DRAINAGE & EROSION CONTROL PLAN

APPLICANT:
VENTURE DRIVE PROPERTIES, LLC
910 DAY HILL ROAD
WINDSOR, CT 06095

OWNER:
HUSSEY MANUFACTURING TECHNOLOGY, LLC
44 VENTURE DRIVE
DOVER, NH 03820

7

CITY OF DOVER

PLANNING BOARD - STAFF MEMO FILE #P19-67

Application Type:	Site Plan
Applicant(s):	46 Venture Drive Properties, LLC
Owner(s):	Hussey Manufacturing Technology, LLC
Location:	Venture Drive (Assessor's Map D, Lot 11-2)
Meeting Date:	December 10, 2019

INTENT: To construct a 15,000 s.f. commercial building with 13,500 s.f. of retail space and 1,500 s.f. of office space with associated parking (26 parking spaces including 2 HCA spaces) and other pavement.

LOTS/UNITS PROPOSED: N/A

AGENDA ITEM #: 4-I

ACREAGE: 5.16 acres

ZONING DISTRICT: I-4

EXISTING LAND USE:
Industrial/vacant

PROPOSED LAND USE: Industrial

SURROUNDING LAND USE: Industrial and vacant

ZBA ACTION: N/A

ATTACHMENTS: Application materials, Site Plan, TRC minutes from 9/26/19**,** Conservation Commission minutes from 11/12/19

APPLICATION IS COMPLETE: Yes

NOTICES SENT: Abutter notices were sent by certified mail to all abutters for this meeting

PERMITS REQUIRED: CUP for steep slopes

WAIVERS REQUESTED: None

Summary of Request and Background
The applicant is proposing to construct a 15,000 s.f. commercial building with 13,500 s.f. of retail space and 1,500 s.f. of office space with associated parking. The site is serviced by public water and sewer.

The Technical Review Committee reviewed this application at their September 26, 2019 meeting.

Consistency with Land Use Regulations
Chapter 149-4 of the Site Review Regulations of the City Code provides for site review by the Planning Board of new construction of various types. This plan is consistent with those regulations.

STAFF RECOMMENDATION:
The Planning Department recommends the Planning Board accept the application, open the public hearing, and vote to approve the Site Plan with the following conditions:

Conditions to Be Met Prior to the Signing of Plans:

1. The LLA (P19-70) is approved.
2. The CUP (P19-68) is approved.
3. The applicant shall provide:
    a. a digital version of plan set
    b. letter to serve from Eversource
4. The applicant must revise final plan set to:
    a. Add the owner's signatures to the final plat
    b. Add LLS, PE, Architect, and LLA signatures and stamps to final plan
    c. Address any outstanding Inspection Services TRC comments

Conditions to Be Met Prior to any Construction Activity:

5. A site construction sign with the contact information for the general contractor must be located and approved by the City Engineer or Assistant City Manager.

Conditions to Be Met Prior to Issuance of a Building Permit:

6. The new building expansion shall be assessed and pay the current water and sewer investment fees in place at the time of application for service.

Conditions to Be Met Prior to Occupancy:

7. Issuance of a certificate of occupancy.
8. Impact fees shall be paid per the invoice included with the Notice of Decision.
9. The applicant shall provide a letter of credit or other form of security acceptable to the City for any unfinished work.

Venture Drive



Property Information

Property ID	D0011-002000
Location	VENTURE DR
Owner	HUSSEY MANUFACTURING TECHNOLOGY LLC
Land Use	440

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

City of Dover, NH makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 10/18/2019
Data updated Daily

City of Dover, New Hampshire
SITE REVIEW APPLICATION

[Revision Date: June 4, 2019]

Office Use Only	Project #:		Date Received:	
	Amount Paid:		Time Received:	

APPLICANT AND OWNER INFORMATION

Name of Applicant: 46 Venture Drive Properties, LLC Telephone #

Address of Applicant: 910 Day Hill Road Windsor, CT 06095

E-Mail Address:

Name of Property Owner (*if different from applicant*): Hussey Manufacturing Technology, LLC Telephone #

Address of Property Owner: 44 Venture Drive Dover, NH 03820

PROPERTY INFORMATION

Address of Property: 46 Venture Drive

Assessor's Map # D Lot(s) # 11-2

Zoning District(s) I - 4 Overlay District(s) NONE

Size of Parcel: 224,566 sq. ft. 5.16 ac. Property Deed: Book 4369 Page: 608

Existing Use of Property: ASSEMBLY AND OFFICE DISTRICT - VACANT

SITE PLAN INFORMATION

Describe Proposed Use: 1,500 s.f. Office Space & 13,500 s.f. Retail Space

Area of Parcel to be Developed: 44,150 sq. ft.

If Multi-family Residential, Specify Number of Units & Buildings Proposed: N/A

Number of Parking Spaces: Existing 0 Proposed 26, including 2 HCA

Highway Access (check where applicable): ✓ City Street ____ State Highway

Number of Employees Total: 10 In Maximum Shift: 1

Disposition of Parcel:

Building Footprint 15,000 sq. ft.

Total Building Area 15,000 sq. ft.

Paved Area 29,150 sq. ft.

Building Setbacks:

Front Yard 75 ft.

Rear Yard 75 ft.

Side Yard: Right 75 ft. Left 75 ft.

City Water? ✓ Yes ___ No How far is city water from the property? at street

City Sewer? ✓ Yes ___ No How far is city sewer from the property? at street

BUILDING INFORMATION

Type of Building to be Built: SINGLE STORY STEEL BUILDING

Height of Building: 35' Finished Floor Elevation: 186.25

Number of Seats (where applicable) N/A

Estimated value of construction: $300,000 Refuse removal: Public Private (circle one)

WAIVER REQUESTS

Site Review Regulations section(s) to be waived: NONE

Justification for waiver request(s) (*attach additional sheets as needed*):

SURVEYOR INFORMATION

Name of Surveyor and Company (Licensed in N.H.) MCENEANEY SURVEY ASSOCIATES

Address 24 CHESTNUT STREET DOVER, NH 03820 Telephone #: 603-742-0911

Professional License #: KEVIN M. MCENEANEY, NH LLS 661 E-mail address: kevin@surveynh.com

ENGINEER INFORMATION

Name of Engineer and Company (Licensed in N.H.) CIVILWORKS NEW ENGLAND

Address P.O. BOX 1166 DOVER, NH 03821 Telephone #: 603-749-0443

Professional License #: STEPHEN J. HAIGHT P.E. #7978 E-mail address: shaight@civilworksne.com

ARCHITECT INFORMATION

Name of Architect and Company (Licensed in N.H.) JOHN M. TUTTLE, AIA - TW DESIGNS

Address P.O. BOX 69 STRAFFORD, NH 03884 Telephone #: 603-664-2181

Professional License #: NH #4015 E-mail address: john@tw-designs.com

LANDSCAPE ARCHITECT INFORMATION

Name of Landscape Architect and Company (Licensed in N.H.) IRONWOOD DESIGN GROUP, LLC

Address 55 MAIN STREET, SUITE 129 NEWMARKET, NH 03857 Telephone #: 603-772-0590

Professional License #: JEFF HYLAND, NH #026 E-mail address: jhyland@fewood.com

SOIL SCIENTIST INFORMATION

Name of Soil Scientist and Company (Licensed in N.H.) Michael Cuomo

Address 6 York Pond Road York, ME 03909 Telephone #: 207-363-4532

Professional License #: NH CWS #004 E-mail address: mcuomosoil@gmail.com

CONSERVATION EASEMENT HOLDER

Name of Easement Holder: N/A Telephone #_____

Address Easement Holder: _____

SIGNATURES

I/We hereby submit this application to the City of Dover Planning Board and attest that to the best of my knowledge all of the information on this application form and in the accompanying application materials and documentation is true and accurate. Furthermore, I/we submit that the existing conditions sheet of the plan represents the lot in question, and that no alteration of the site shall take place during Planning Board review up to and including the pre-construction meeting. As applicant or as agent, I attest that I am duly authorized to act in this capacity.

Signature of Property Owner: _____ Date: 9/6/19

Signature of Applicant (*if different from owner*): _____ Date: 9-6-19

Signature of Agent: _____ Date: 9/6/19

AUTHORIZATION TO ENTER SUBJECT PROPERTY

I, and my successors, hereby authorize members of the Dover Planning Board, Planning Department and other pertinent City Departments and boards to enter my property for the purpose of evaluating this application, including performing inspections during the application phase, post-approval phase, construction phase and occupancy phase. It is understood that these individuals must use all reasonable care, courtesy, and diligence when on the property.

Signature of Property Owner: _____ Date: 9/6/19

AUTHORIZATION TO COMPLETE THE PROJECT ON SUBJECT PROPERTY

I, and my successors, hereby the City of Dover or its assigns to enter my property for the purpose of completing the site work as required by the approved plan should the letter or credit or other surety be called. It is understood that these individuals must use all reasonable care, courtesy, and diligence when on the property.

Signature of Property Owner: _____ Date: 9/6/19

Signature of Applicant (*if different from owner*): _____ Date: 9-6-19

CERTIFICATION OF FEES

I, and my successors, hereby certify that I understand that the City of Dover collects impact fees, utility investment fees and inspection fees for projects developed in Dover. Said fees must be paid before a Certificate of Occupancy can be obtained for a structure, unless a different payment schedule is agreed to by the applicant and the City prior to approvals being issued by the Dover Planning Board. Additionally, should the property be in "Current Use" it will be subject to the Land Use Change Tax.

Signature of Property Owner: _____ Date: 9/6/19

Signature of Applicant (*if different from owner*): _____ Date: 9-6-19

City of Dover, New Hampshire
SITE PLAN REVIEW SUBMISSION CHECKLIST

[Revision Date: June 4, 2019]

This site plan review checklist, as required by Chapter 149-6-B(2), should be completed by the applicant. It is intended to assist the applicant in the planning process of preparing a Site Plan Review application for Planning Board action. The size of the project will determine the types of information required for review, therefore, a **pre-application conference** with the Planning Department to determine the list of items that must be completed is strongly encouraged.

The first step would be to appear before the Technical Review Committee, to apply, eight (8) folded copies of the site plan with scale of not less than 1"=50' or 1" =100' for larger site plans, need to be provided, along with payment of plan review fees.

Two weeks prior to Planning Board, three (3) full size and twelve (12) half size (11x17), folded, copies of the plan set and materials, including response to TRC comments, will be due. Abutter/Notice Fees will be invoiced and need to be paid 28 hours prior to the Planning Board meeting.

The applicant is cautioned that this checklist is only a guide and is not intended to be a complete list of all site plan review requirements. Please refer to the Site Plan Review Regulations for full details.

APPLICANT: 46 Venture Drive Properties, LLC File Number: P19-67

PROJECT TITLE: SITE DEVELOPMENT PLAN

PROPERTY LOCATION: 46 Venture Drive Tax Map: D Lot: 11-2

	Where/How Provided	Reviewed
1. Completed and signed Application form	✓	
2. Plan Review Fees are provided	✓	
3. Electronic copy of the engineered/surveyed plan layout	✓	
4. Electronic copy of supplementary materials and application	✓	
5. Traffic Impact Assessment and Analysis (Standard or Advanced)	✓	
6. Waiver requests to the Site Plan Review Regulations, with written justification	NONE REQUESTED	
7. Conditional Use Permit applications	✓	
8. A colored rendering of the streetscape that will be created along the existing public right-of-way	WITH PLAN SET	
9. A colored architectural plan showing all sides of buildings	WITH PLAN SET	
10. Folded copies of site plan w/scale of not less than 1"=50' or 1"=100' for larger site plans, for TRC. Plans shall contain the following items as appropriate:	✓ TRC date: 9/26/19	
Location map at appropriate scale	LOCATED ON SHEET #1, 3	
Proposed Project name and title and Planning File #	LOCATED ON ALL PLAN SHEETS	
Date, north arrow and scale	LOCATED ON SHEETS #2, 3, 5-8, 14, 16, 17	
Names of all abutting property owners	LOCATED ON SHEET #3, 5, 6, 7, 8	
Name and address of owners and/or applicants	LOCATED ON SHEET #1	
Signature & stamp of NH licensed land surveyor and/or engineer	PENDING APPROVAL	
Zoning District boundaries, including any special or overlay districts	N/A	
Location of Conservation District areas	LOCATED ON SHEET #3, 5, 7	
Location, names and widths of existing and proposed streets, including pavement widths, grades, curbs and crosswalks	LOCATED ON SHEET #3, 5, 6, 7, 8	
Location and widths of existing & proposed easements & right of ways	N/A	
Location and width of existing and proposed access/egress ways	LOCATED ON SHEET # 3, 5, 6, 7, 8	

	Explain How Provided	Reviewed
Depict pedestrian walkways and accessible access	LOCATED ON SHEET #6	
Existing and proposed property lines with dimensions and bearings tied into Dover's Geographic Information System coordinate system	LOCATED ON SHEET # 3, 5	
Existing and proposed topographic information at two foot intervals	LOCATED ON SHEET #3	
Existing and proposed buildings and structure locations	LOCATED ON SHEETS #3, 6	
Minimum building setbacks or build to lines on all lots	LOCATED ON SHEET #3, 5, 6, 7, 8	
Location and size of existing and proposed electric, telephone, gas cable and other underground utilities	LOCATED ON SHEET #3, 8	
Existing and proposed water lines and fire hydrants, including materials and capacity needed	LOCATED ON SHEET #3, 8	
Location and materials of sanitary sewage facilities within project site and projected additional peak hour sewer load	MUNICIPAL SEWER, SEE NOTE SHEET#4 FOR VOLUME CALCULATIONS	
Existing and proposed stormwater lines and facilities	LOCATED ON SHEET #3, 8	
Lighting plan depicting all existing and proposed exterior light fixtures and a lighting level analysis for parking lots	LOCATED ON SHEET #14, 15	
Location of Flood Hazard Zone	LOCATED ON SHEET #4, NOTE #4	
Location of all bodies of water and watercourses	N/A	
Location of wetlands and buffers	LOCATED ON SHEET #3, 5, 6, 7, 8	
Neighborhood plan with aerial underlay showing how project relates to abutting uses within the plan set	LOCATED ON SHEET #2	
Existing natural features and/or significant vegetation on property	LOCATE ON SHEET #3	
Depict existing contours up to 100 ft. beyond project limits	LOCATED ON SHEET #3	
Landscape plan depicting existing and proposed landscaping, prepared by a licensed Professional Landscape Architect	WITH PLAN SET	
Location of parking layout delineating spaces and arrangement; note addressing maximum required spaces	LOCATED ON SHEET #6	
Location, material and size of existing and proposed pavement area	LOCATED ON SHEET #3, 6, 7	
Location of proposed fire lanes	LOCATED ON SHEET #16	
Specify finished floor elevations of buildings	LOCATED ON SHEET #6, 7, 8	
Location of solid waste disposal facilities (dumpster, pad and screening, etc.), including required screening	LOCATED ON SHEET #6	
Depict all service, storage, loading bays and utility areas	LOCATED ON SHEET #6	
All applicable Dover Common Site Plan notes	LOCATED ON SHEET #4	
11. Additional Information if appropriate		
Stormwater Management Plan depicting the existing & proposed storm drainage system and engineered drainage analysis	ATTACHED	
Stormwater Management System Operation and Maintenance Plan	ATTACHED	
Letter to Serve from Public and Private Utilities	LETTERS/REQUESTS ATTACHED	
Erosion and Sedimentation Control Plan	LOCATED ON SHEET #7	
Landscape Operation and Maintenance Plan	ATTACHED	
Proposed restrictive covenants or homeowners association documents	SEE ATTACHED RELEASE OF RESTRICTIONS DEED	
Dates and permit numbers of all required state and federal permits	N/A	
If wetland buffer, indicate placards locations, as applicable	N/A	
Depict test boring locations, groundwater elevations and soil profiles and/or soils types call-outs	N/A	
Location of proposed drive-in facilities	N/A	
Provide additional exhibits/technical data determined appropriate by the Planning Board or its staff as required	TBD	

REVIEWED BY: _____ DATE_____ TRC DATE_____

Letter of Authorization

We the owners of the land located at 46 Venture Dr, Dover NH Map B, Lot 11-2, Book 3048, Page 890 give permission to the Morris company to apply for permits and application for this land.

X _____ Hussey Manufacturing Technology, LLC

Owner of 46 Venter Dr

PROJECT NARRATIVE

for
46 Venture Drive Properties, LLC
Venture Drive, Dover, NH
Tax Map D, Lot 11-2

PROJECT OVERVIEW

The project applicant is proposing a commercial building on an undeveloped lot. The proposed site will include a commercial building with 13,500 s.f. of retail space and 1,500 s.f. of office space, 2 driveway layouts, 1 entrance for customers and employees, and 1 shipping entrance that can accommodate tractor trailer trucks. The project will not impact the wetlands or the 50 foot wetlands buffer. The project will impact 2,669 S.F of steep slopes in the Dover Conservation District.

The project consists of the following general construction:

- Log and clear the site for construction;
- Construction of (1) new commercial building;
- Construction of storm water treatment structures, grading, and other drainage requirements;
- Site utility construction;
- Construct new 30' wide driveway for shipping entrance, and new 24' wide driveway employee and customer parking.
- Stabilize remaining areas with loam and seed.

PROJECT LOCATION AND SITE CHARACTERISTICS

The project site is located within the Assembly and Office district. The project area consists of (1) parcel of land containing +/- 5.16 acres, currently undeveloped, shown on Tax Map D, Lot 11-2. The project site is accessed from Venture Drive.

DRIVEWAY AND PARKING LOT

There are two proposed entrances to our site, 1 entrance for shipping and 1 entrance for parking. The proposed shipping entrance will be 30' wide with curbing. The proposed entrance for parking will be 24' wide with curbing along the east side of the entrance and along the parking spaces, and curbing along the west side of the entrance up until the first parking space. Lighting for the proposed parking lot and driveway will be per the lighting plan. For the proposed development, the City of Dover parking maximums allow for the following:

- Retail/Service (13,500 SF) = 49 Spaces Maximum
- Office (1,500 SF) = 5 Spaces Maximum
    - Total for Site = **54 Spaces Maximum (Surface)**
    - Total proposed = **26 Spaces (2 Accessible Space)**

WETLAND IMPACT TYPE

There is no wetland impact.

DRAINAGE

The proposed development of the site includes land clearing and grubbing within the limits of work, one commercial building with space for future expansion, a parking lot for customer and employees, and access for tractor trailers.

The development also includes the construction of, utilities, drainage structures including the storm water quality treatment structures of grass treatment swales. The onsite drainage improvements have been designed to provide mitigation of both stormwater quantity and quality. All runoff from the proposed impervious portions of the site will be conveyed to the grass treatment swales through roof drains, catch basins, sheet flow, and rip rap swales. The system has been designed to capture, treat and attenuate storm water flows from the full build out of the developed site prior to discharge to the wetlands in the south of the site. The analysis indicates that with the mitigation measures proposed and implemented there will be no measurable impact to the watershed as a result of the proposed development of the site.

TRAFFIC

A traffic study was completed for the project and is attached as a report to this submittal. Overall and as expected, there is minimal increase in traffic due to the proposed facility.

UTILITIES

The proposed project expects to connect to City of Dover water and sewer as well as Unitil natural gas and Eversource electric. All utilities are located within the Venture Drive right-of-way which is the anticipated location for this connection. Internal water services will be 6” mains with a 1” connection to the building. The building will be sprinkled and connections made per the City’s Community Services Utility Division and Fire Department requirements and standards. The project plans to connect to the gravity sewer line in Venture Drive. Electricity for the site is proposed to be provided by the existing electric lines located along Venture Drive.

SITE PLAN REVIEW: P19-67

46 VENTURE DRIVE / TAX MAP D, LOT 11-2

RESPONSE TO TRC COMMENTS

MADE ON 9/26/19

PLANNING DEPARTMENT COMMENTS:

- *Impact Fees*.
  Applicant is aware of the assessment of impact fees for this project.

- *Water and Sewer Investment Fees.*
  Applicant is aware of the assessment of water and sewer investment fees for this project.

- *Revise Application to include:*

  - *Letter from Eversource regarding ability to provide service.*
    Pending. See attached email, dated 9/4/19, to Eversource requesting confirmation of ability to provide service.

  - *Proof that DBIDA approves architecturals.*
    See attached email, dated 10/21/19, from DBIDA approving the architectural design.

- *Revise Plan Set to:*

  - *Superimpose site plan on neighborhood plan.*
    The site plan has been superimposed over the neighborhood plan (see Sheet 2)

  - *Remove LLA plan and submit as a separate plan.*
    The lot line adjustment plan has been removed from the site plan set and will be submitted separately (P19-70)

  - *Revise existing conditions to presume LLA is approved.*
    The existing conditions plan is revised to presume the approved lot line adjustment.

  - *Add planning file number throughout (P19-67).*
    The Dover Planning File Number, P19-67, has been added to all site plan sheets.

  - *Add common site plan notes or indicate location of: PTAP, wall, fence, and elevation.*
    Common Site Plan Notes are located on Sheet 4.

  - *Add topo note and title reference note to sheet 8.*
    Topo note and title reference are located on Sheet 7.

  - *Add security lighting around the building.*
    Security lighting has been added around the building. See lighting plan, sheet 14.

RESPONSE TO TRC COMMENTS

MADE ON 9/26/19

- *Revise streetscape to indicate lights to appear as those on sheet 16.*
  Streetscape has been revised to reflect the lighting as shown on Sheets 14 and 15.

- Engineer, LLS, Architect, CWS, and Landscape Architect to sign & stamp final plans.
  Professional stamps and signatures will be applied to final approved plan set.

- *Indicate a minimum 3.5" caliper.*
  Landscape plan has been revised to indicate trees will be a minimum of 3.5" caliper.

- *Indicate materials on architecturals.*
  Architectural renderings have been revised to indicate materials to be used.

- *Add wetland buffer placards.*
  Wetland buffer placards will be installed prior to construction. See sheet 4, Grading Note #16

- *Add note about reusing stonewall along Venture Drive.*
  See notation on the Demolition Plan, Sheet 5, regarding the reuse of the stone wall.
  The landscape plan also reflects the reuse of the stone wall (Farmer's Wall) along Venture Drive.

- *Remove site note 11 on sheet 5 which is duplicated.*
  The duplicate of Note 11 on Sheet 5 has been removed.

POLICE DEPARTMENT COMMENTS:

- *Site review application lists this project as 13,500 s.f. retail space, plus 1,500 s.f. office space. Traffic Assessment calculates trip generation based on "light industrial, land use 110 code. Is this appropriate?*
  This comment was resolved during a discussion at the TRC meeting.

- *Contribute towards Venture/Sixth intersection improvements (to provide better truck turning radius).*
  This comment was resolved during a discussion at the TRC meeting.

- *Remove crosswalk on detail sheet as it's not needed at entrance.*
  Crosswalk on detail sheet has been removed.

ENGINEERING COMMENTS:

- *Landscape plan and utility/grading plan conflict.*
  Plans have been revised to eliminate conflict between landscape and grading plan.

- Increase landscaping along Venture Drive where so wooded today.
  See revised landscape plan for additional trees to be planted along Venture Drive.

RESPONSE TO TRC COMMENTS
MADE ON 9/26/19

FIRE/INSPECTION COMMENTS:

- *Provide a proposed location for the pad mount electrical transformer and pad.*
  A location for the pad mount electrical transformer and pad has been added to Sheet 6.

- *Is a generator being proposed? If so, locate on utility plan.*
  No generator is being proposed.

- *If gas is to supply structure, locate on utility plan and screen.*
  Structure is supplied with gas. See revised Utility Plan, Sheet 8, for location in Venture Drive.

- *Indicate location of FDC.*
  Fire Department Connection is shown on Sheet 6 (Site Plan) and Sheet 8 (Utility Plan).

- *Provide "No Parking Fire Lane" signage along the front parking lot.*
  "No Parking Fire Lane" signage has been added along the front parking lot. See Sheet 6.

- *Provide accessible aisle and parking detail.*
  Accessible aisle and parking detail has been added to Sheet 6.

- *Provide the codes/standards used for accessibility design and that plans are in accordance with NH RSA 155-A:5.*
  See Sheet 4, Note 15 for accessibility design codes and standards.

- *Provide elevation plans and identify sprinkler/mechanical rooms on floor plan.*
  Elevation plans have been provided, see Sheet A3.1. Architect floor plans, Sheet A1.1, are revised to show location of sprinkler/mechanical rooms.

ECONOMIC DEVELOPMENT COMMENTS:

- *Black and white rendering insufficient.*
  Architectural elevation renderings have been revised to add color for more detail.

- *Building shown is stark with no architectural amenities. Needs improvement.*
  See attached email from DBIDA, approving architectural plans.

- *Needs accurately colored renderings and list of materials used.*
  Architectural elevation renderings have been revised to indicate materials to be used.

PLANNING BOARD COMMENTS: N/A

From: Barufaldi, Daniel [mailto:d.barufaldi@dover.nh.gov]
Sent: Monday, October 21, 2019 4:07 PM
To: Steve Haight <shaight@civilworksne.com>
Subject: RE: Venture Drive

Hi Steve,
I am writing this email to confirm that the DBIDA Board of Directors, with a quorum present, voted unanimously at its October 3, 2019 Board meeting to accept the architectural elements on the building rendering presented at that time.

Daniel J. Barufaldi
Economic Development Director

Daniel Barufaldi
Economic Development Director
d.barufaldi@dover.nh.gov

288 Central Avenue
Dover, New Hampshire 03820-4169
(603) 516-6043
Fax: (603) 516-6049
www.dover.nh.gov

Dover Business & Industrial Development Authority

City of Dover, New Hampshire

September 6, 2019

Steve Height
Principle
Civilworks, Inc.
181 Watson Rd.
Dover, NH 03820

Dear Steve,

I am writing to inform you that at an official meeting of the DBIDA Board of Directors held on September 5, 2019 with a quorum of members present, the Board voted unanimously to approve the removal of the single driveway requirement from the warranty deed that formerly required it for the property at 44 Venture drive originally sold to Formax Corporation, thence to H.M. Machine and a portion of which is to be sold to the Morris Co. If you have any further questions on this matter please contact me at 603-516-6043.

Sincerely,

Daniel J. Barufaldi
Director of Economic Development

cc. Joshua Wyatt

From: Jase Gregoire
Sent: Wednesday, October 23, 2019 8:58 AM
To: Busby, Michael J <michael.busby@eversource.com>
Cc: Hanson, Mary Jo <maryjo.hanson@eversource.com>; Collins, Mark T <mark.collins@eversource.com>; Emmons, Trevor S <trevor.emmons@eversource.com>; peteramarosa@comcast.net; Steve Haight <shaight@civilworksne.com>
Subject: RE: CNE#19014 Morris Building 46 Venture Drive Ability to Serve

Good morning Mike,

The project proponent (Peter Amarosa) has called to set up a work order but was told that one could not be issued until the site was cleared and the building staked out.

We can stake out the building but cannot clear the lot.

In the past we have received the "ability to serve" letter without clearing the parcel ahead of time

Please advise.

Best regards,

Jase

From: Busby, Michael J [mailto:michael.busby@eversource.com]
Sent: Wednesday, September 04, 2019 9:50 AM
To: Jase Gregoire <jgregoire@civilworksne.com>
Cc: Hanson, Mary Jo <maryjo.hanson@eversource.com>; Collins, Mark T <mark.collins@eversource.com>; Emmons, Trevor S <trevor.emmons@eversource.com>; peteramarosa@comcast.net; Steve Haight <shaight@civilworksne.com>
Subject: RE: CNE#19014 Morris Building 46 Venture Drive Ability to Serve

Hi Jase,

Please call 1-800-362-7764 to create a work request and a field tech should contact you w/in 2 working days. The field tech will work with you to help layout how Eversource will provide service for your project. I've attached a template of the "letter to serve" so you can fill in the pertinent information specific to your project. The letter will refer to a site plan that should show how Eversource intends to provide service. Once you fill in the information in green return it to the Tech and myself and I'll edit as required and sign.

Michael J. Busby, PE - Manager – Field Engineering & Design

Eastern Region | Eversource NH

1700 Lafayette Road | Portsmouth , NH 03801

603-436-7708 X555-5678

Michael.busby@Eversource.com

From: Jase Gregoire <jgregoire@civilworksne.com>
Sent: Wednesday, September 4, 2019 8:41 AM
To: Busby, Michael J <michael.busby@eversource.com>
Cc: Hanson, Mary Jo <maryjo.hanson@eversource.com>; Collins, Mark T <mark.collins@eversource.com>; Emmons, Trevor S <trevor.emmons@eversource.com>; peteramarosa@comcast.net; Steve Haight <shaight@civilworksne.com>
Subject: CNE#19014 Morris Building 46 Venture Drive Ability to Serve

Good morning Mike,

As part of the Site Planning process in the City of Dover they require that we reach out to the Utility providers and request an acknowledgment of an ability to serve.

Attached is a sketch plan showing the location of the property.

The proposed building would be 3 phase and the load required is 1600 AMP.

If you have any questions for require and additional information please do not hesitate to contact me directly.

Best regards,

Jase

Jase R. Gregoire

Staff Engineer

Civilworks New England/Haight Engineering, PLLC

181 Watson Road

P.O. Box 1166

Dover, New Hampshire 03821

O: 603.750.4266

F: 603.749.7348

jgregoire@civilworksne.com

www.civilworksne.com

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Jase Gregoire

From: White, Dave <D.White@dover.nh.gov>
Sent: Thursday, September 12, 2019 2:13 PM
To: Jase Gregoire; Young, Gretchen
Subject: RE: CNE#19014 Venture Drive Ability to Serve Request
Attachments: enterprise park pg2.pdf; ent pk index.pdf

Water and sewer are available to the site. Here is what I have for plans but these are not asbuilts.

Dave White, PE
City Engineer
Dover, NH

From: Jase Gregoire <jgregoire@civilworksne.com>
Sent: Tuesday, September 3, 2019 3:07 PM
To: White, Dave <D.White@dover.nh.gov>; Young, Gretchen <G.Young@dover.nh.gov>
Subject: CNE#19014 Venture Drive Ability to Serve Request

Good Afternoon Dave,

Venture Drive Properties, LLC is proposing to construct a commercial building on Venture Drive.

Parcel: Map D, Lot 11-2

The project will generally consist of (1) 15,000 sf building, which is expected to generate sewer & water usage of approximately 1525 gpd*.

* Volume is based on NHDES Env-Wq 1008.03 Table 1008-1 Design Flow figures: for Unspecified office space and warehouses

Please advise to the availability of sewer and water to the site.

Regards

Jase Gregoire

Jase R. Gregoire
Staff Engineer
Civilworks New England/Haight Engineering, PLLC
181 Watson Road
P.O. Box 1166
Dover, New Hampshire 03821
O: 603.749.0443
F: 603.749.7348
jgregoire@civilworksne.com
www.civilworksne.com

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Unitil

9/9/19

Venture Drive Properties, LLC
12 Crosby Road
Dover, NH 03820

RE: Natural gas service to 46 Venture Drive, Dover, NH

Unitil's natural gas division has reviewed the requested site for natural gas service.

Unitil hereby confirms natural gas is available from Venture Drive to supply the proposed Facility.

Please contact me with any questions at 603-294-5144.

Sincerely,

David Beaulieu
Business Development Executive
Unitil
325 West Road
Portsmouth, NH 03801

Michael Cuomo, Soil Scientist
6 York Pond Road, York, Maine 03909
207 363 4532
mcuomosoil@gmail.com

Steve Haight, P.E.
Civilworks of New England
P.O. Box 1166
Dover, NH 03820

10 June 2019

Dear Mr. Haight;

This letter is in reference to the vacant lot 11-3 located on Venture Drive in Dover, NH. On 30 May 2019 I conducted a wetland investigation of this property.

Wetlands were identified as defined by the State of New Hampshire.

Env-Wt 101.113 "Wetland" means "wetlands", as defined by RSA 482-A:2, X, namely "an area that is inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal conditions does support, a prevalence of vegetation typically adapted for life in saturated soil conditions." Wetlands include swamps, marshes, bogs and similar areas.

Wetlands were identified on site using the technical criteria in the *Corps of Engineers Wetlands Delineation Manual* and the *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual*. These are the standards used by State and Federal regulators and conform to local requirements.

A single wetland was identified running from Venture Drive in the north east corner of the lot to the southern property line. The wetland-upland boundary is now marked with 68 sequentially

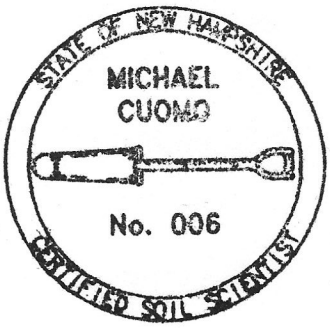
numbered blue flags plus pink and black flags labeled 'Wetland Boundary'. The wetland continues off the property in both directions and contains a stream channel.

Please call if you have questions regarding this work.

Sincerely,

Michael Cuomo
NH Wetland Scientist #004
NH Soil Scientist #006





Landscape Operation & Maintenance Plan for 46 Venture Drive

Weekly Tasks

1. Mow and edge lawns if needed. Lawns to be cut to 3.5" height.
2. Prune back any shrubs overhanging curbs or sidewalks.
3. Prune back any groundcover overhanging curbs or sidewalks.
4. Remove litter and leaves from plants bed, and parking lots.
5. Remove any broken or fallen branches from trees. Remove sucker growth from tree trunks.
6. Remove any weeds larger than 2 inches (5 cm) high or wide from plant beds. Weeds 2 inches (5 cm) and larger must be removed, not just killed.
7. Replace bark mulch which has been knocked or washed out of plant beds. Smooth mulch layer if it has been disturbed.
8. Replace decorative rock which has been knocked or washed out of drip strips. Smooth decorative rock surface if it has been disturbed.
9. Check plants for signs of stress, pests or disease. Request authorization to replace other dead or missing plants. Note: Maintenance contractor must request authorization to make replacements within one week of the damage becoming evident.
10. Sweep or blow clean all walkways, curbs, and gutters.
11. Treat for any signs of disease or pest infestation.
12. Complete any items required on the Monthly Checklist.
13. Hand water any plants that are dry and stressed.
14. Check the irrigation system (if there is a system). Make emergency repairs as needed or request authorization to make major repairs. Note: Maintenance contractor must request authorization for repairs within one week of the damage becoming evident.
15. Adjust the irrigation controllers for current water needs of plants.
16. **Gently prune shrubs at appropriate time of year based on species, for shape and form. DO NOT shear.**

Yearly Tasks

Early Spring

1. Prune any tree branches that interfere with public safety. Prune all parking lot and street trees yearly to encourage strong growth.
2. Apply granular fertilizer to shrubs beds and lawns. Be sure to make application prior to a moderate rainfall in drip-irrigated planters so the rain will wash the fertilizer in.
3. Submit receipts to owner's authorized representative as proof of fertilizer purchase.
4. Trim any perennial foliage left in the fall for winter interest to within six inches of the ground.

5. Add new mulch to plant beds where the mulch depth has been reduced to less than 2 inches (5 cm) thick. Mulch depth shall not exceed 2". Additional mulch not required where shrubs or groundcover completely hide the soil surface from view.
6. Where there is irrigation and after threat of frost is gone, flush out irrigation systems as needed and check for proper operation of each valve zone.
7. Clean or replace plugged sprinkler nozzles. Replace plugged drip emitters.
8. Replace irrigation controller program back-up batteries.

June:

No additional items

July:

No additional items

August:

No additional items

September:

1. Inventory all plant materials. Inventory shall include an exact count of all shrubs and trees, itemized by planter. Replace any dead or missing plants.

October:

1. Prepare irrigation system for winter. Make sure backflow preventer is well insulated or drained prior to first freeze. Blow out pipes using compressed air in areas where freezing could result in breakage.
2. Mow field areas.

November:

1. "WILT-PRUF" broadleaf evergreens when temperature permits.

December:

1. Prune any tree branches that interfere with public safety. Prune all parking lot and street trees yearly to encourage strong growth.

Stormwater Management System Inspection & Maintenance Plan

VENTURE DRIVE PROPERTIES, LLC
MAP D, LOT 11-2

Venture Drive
Dover, New Hampshire
Strafford County

September 2019

Prepared For:

VENTURE DRIVE PROPERTIES, LLC
910 Day Hill Road
Windsor, CT 06095

Prepared By:

CIVILWORKS NE
P.O. Box 1166
181 Watson Road
Dover, New Hampshire 03820

Introduction

Civilworks NE, has prepared the following Stormwater Management System Inspection & Maintenance Plan for **Venture Drive Properties, LLC,** at Venture Drive Dover, NH. The intent of this plan is to provide a list of procedures that document the inspection and maintenance requirements of the Stormwater Management System for this site.

The following inspection and maintenance program is necessary in order to keep the Stormwater Management System functioning properly. These measures will also help to minimize potential environmental impacts to the areas surrounding the developed site. By following the enclosed procedures, the property owners, and maintenance personnel will be able to maintain the functional design of the Stormwater Management System and maximize its ability to remove sediment and other contaminants from site generated stormwater runoff while at the same time ensuring the recharge of groundwater resources through continued infiltration.

This plan also requires the Owner/Operator to prepare and implement a salt minimization plan to reduce salt usage on-site and ultimately within the watershed. This plan will allow the owner/operator to monitor and modify how much salt is needed, when it should be applied, where it needs to be applied, with the ultimate goal of reducing salt-use without compromising safety. It is expected that salt-use reduction will lead to long-term cost-savings as a result of purchasing less salt and reduced impacts on vegetation (e.g., landscaping) and corrosion of infrastructure .

The salt minimization plan should include the retention of a contractor who has completed the Green SnowPro Training course and obtained NH DES Salt Application Certification.

It is anticipated that this be a living document that will be updated at regular intervals (recommend updating annually in advance of the winter season in order to facilitate adjustments.

Owner

Venture Drive Properties, LLC
910 Day Hill Road
Windsor, CT 06095

In the event of a change in ownership, this Inspection and Maintenance Plan shall be transferred to the new party; transfer shall be documented to NH DES in writing.

Contact / Responsible Party

Peter Amarosa
12 Crosby Road
Dover, NH 03820

Phone: 969-1711
Email: peteramarosa@comcast.net

The contact information for the Contact / Responsible Party shall be kept current; transfer shall be documented to NH DES in writing.

Management Company

Venture Drive Properties, LLC
910 Day Hill Road
Windsor, CT 06095

The contact information for the Management Party shall be kept current.

Inspection Schedule / Record Retention

Inspection frequency should, at a minimum, be in accordance with New Hampshire Stormwater Manual, Volume 2, latest edition, as updated by NH DES. See the Inspection and Maintenance Plan for frequency requirements. A copy of the completed Stormwater Management System's Inspection & Maintenance Log and Deicing Salt Quantity Use Log shall be maintained, kept on-site, and be made available to local, state, or federal regulators as applicable by law. All Inspection and Maintenance records must be provided to NH DES upon request.

Stormwater Management System Components

The Stormwater Management System associated with the project is designed to mitigate both the quantity and quality of site-generated stormwater runoff and to recharge the underlying groundwater resources. As a result, its design includes the following elements:

- Culverts
- Energy Dissipation Structures (Rip Rap)
- Treatment Swales
- Catch Basins
- Pavement
- Outlet Structures
- Litter / Trash Removal

Structure callouts in ( ) correlate to the design plans, a copy of which shall be maintained with this Inspection and Maintenance Plan.

Control of Invasive Species

During maintenance activities, check for the presence of invasive plants and remove in a safe manner. Invasive plants shall be controlled to prevent them from reproducing, spreading, or re-growing. See the University of New Hampshire – Cooperative Extension's "Method for Disposing Non-Native Invasive Plants", included at the end of this manual, for guidance on the removal and disposal of invasive species.

Inspection and Maintenance Plan

By implementing the following procedures, the owners will be able to maintain the functional design of the Stormwater Management System and maximize the system's ability to remove sediment and other contaminants from site generated stormwater runoff and to effectively recharge the underlying groundwater resources.

CULVERTS:

- Inspect once per year.
- Inspect for clogging and sediment accumulation.
- Remove all debris immediately and sediment accumulations ≥ 2 inches.

ENERGY DISSIPATION STRUCTURES (RIP RAP): As Applicable

- Inspect the outlet protection annually for damage and deterioration. Repair damages immediately.
- If stones become displaced from the riprap areas they should be replaced immediately and chinked in to assure stability. Add additional riprap as needed. Vegetation growing through the riprap should be eliminated at least yearly.

TREATMENT SWALES:

- Inspect once per year.
- Inspect for erosion, sediment accumulation, vegetation loss, and presence of invasive species.
- Remove debris and accumulated sediment, based on inspection.
- Repair eroded areas as needed; remove invasive species and dead vegetation.
- Perform periodic mowing of swales (at least twice annually), maintain a 4" stand of vegetative growth.

OUTLET STRUCTURE(S):

- Inspect once per year.
- Inspect for clogging and sediment accumulation.
- Remove all debris immediately and sediment accumulations ≥ 2 inches.

CATCH BASIN(S):

- Inspect once per year.
- Inspect for floatables, sediment accumulation, and hydrocarbons (oils and grease).
- Remove all floatables immediately and sediment accumulations ≥ 1 foot.
- Hydrocarbons shall be removed immediately by skimming, absorbent materials, or other methods and should be disposed of in accordance with applicable State and Federal regulations.

PAVEMENT:

- Minimize sanding.
- Minimize application of salt for ice control.
- Clean periodically (1-2 times per year) using a sweeper or vacuum sweeper. Vacuum sweeping is the preferred method.

LITTER / TRASH REMOVAL:

- Routinely patrol site for litter pick up.

DE-ICING AGENTS

- To address the concerns associated with the application of chlorides and other deicing materials, NHDES recommends that the Owner/Operator develop a Road Salt and Deicing Minimization Plan for the parking lots and roadways. The plan should develop the policies that the development will keep in place to minimize salt and other deicer use after the project has been completed. The plan should include tracking the use of salt and other deicers for each storm event and compiling salt use data annually. (See Anti-icing Data Form in the appendix).
- Use sand as primary agent for driveway and access way safety during ice and snow conditions
- Minimize the use of salt during the winter
- Use de-icing or anti-caking agents, added to enhance performance and application characteristics of sand mixtures, only as necessary and at minimum application rates.
- Recommend using a certified Winter Operator (Green SnowPro Trained) for applying de-icing agents.
- Monitor weather and apply de-icing agents based on weather conditions and temperatures.

ANTI-ICING AND SALT MINIMIZATION

- Owner to develop a Road Salt and Deicing Minimization Plan
- Provide a written policy that the "Development" will keep in place to minimize salt and other deicer use after the project has been completed.
- Use the attached form to track the use of salt and other deicers for each storm event and compiling salt use data annually.

Inspection & Maintenance Table

System Component / BMP	Minimum Inspection Frequency	Minimum Inspection Requirements	Maintenance / Cleanout Threshold
Culverts	Annually	Check for sediment accumulation and clogging	≥ 2 in. sediment depth
Energy Dissipation (ED) Structures (RipRap)	Annually	Check for displaced stones Check for woody vegetation	Replace immediately Remove annually
Treatment Swales	Annually	• Check for sediment accumulation • Check for erosion • Ensure swale is stabilized • Maintain healthy stand of veg., 4" minimum • Inspect for invasive species	≥ 1 in. sediment Repair immediately Restore veg. in-kind Mow twice per year Remove/Dispose of accordingly
Outlet Structure(s)	Annually	• Inspect once per year. • Inspect for clogging and sediment accumulation. • Remove all debris immediately and sediment accumulations ≥ 2 inches.	≥ 2 in. sediment Remove immediately
Catch Basins	Annually	• Check for sediment accumulation • Check for floatable contaminants	≥ 1 ft. sediment depth Remove all floatables
Pavement • Sanding • Salt Applications • Sweep/Vacuum • Trash/Debris	 Limit use As Req. 1 - 2 x's Year Periodically	 Minimize use to prevent tracking issues RECORD APPLICATION RATES Sweep or vacuum to prevent tracking issues Check for trash/debris	 Sweep to prevent issues Minimize as Req. Sweep/Vac as needed Remove when noticed
Litter / Trash Removal	Periodically	Check for litter and trash	Remove when noticed

Inspection & Maintenance Checklist/Log

The following page contains a blank copy of the Stormwater Management System's Inspection & Maintenance Log and a Deicing Salt Quantity Use Log. These forms are provided to assist the owners with the inspection and maintenance of the aforementioned Stormwater Management System.

Stormwater Management System's Inspection & Maintenance Log

Date of Inspection/Maintenance: _____ Inspector: _____

System Component / BMP	Cleaning / Repair Needed (List Items / Comments)	Date of Cleaning/Repair	Performed By

Deicing Salt Quantity Use Log

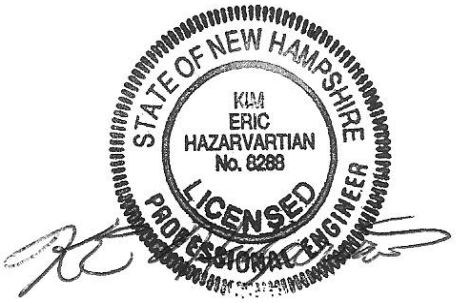
Date	Amount of Material Applied	Comments

TEPP LLC TRANSPORTATION ENGINEERING, PLANNING AND POLICY

93 Stiles Road, Suite 201, Salem, New Hampshire 03079 USA
800 Turnpike Street, Suite 300, North Andover, Massachusetts 01845 USA
Phone (603) 212-9133 and Fax (603) 226-4108
Email tepp@teppllc.com and Web www.teppllc.com

MEMORANDUM

Ref: 1485
Subject: Traffic Assessment
Venture Drive
Dover, New Hampshire
From: Kim Eric Hazarvartian, Ph.D., P.E., PTOE
Principal
Date: September 12, 2019



INTRODUCTION

Civilworks New England has retained TEPP LLC to prepare this traffic-assessment memorandum (TAM). This TAM regards 44 Venture Drive in the City of Dover, New Hampshire.

This TAM includes:

- existing site description
- proposed project description
- road description
- public transit
- sight distances
- trip generation
- trip distribution/assignment
- potential traffic impacts

This TAM concludes that:

- relevant sight distances at the Industrial Park Drive/proposed driveway intersections will be adequate
- the proposed project is not anticipated to add significant new traffic to the area

EXISTING SITE DESCRIPTION

The site:

- is along the west side of Industrial Park Drive
- has an area of about 5.67 acres
- is wooded
- has proximate industrial development and wooded land

PROPOSED PROJECT DESCRIPTION

The project will provide:

- one building with a total floor area of about 15,000 square feet (sf)
- initial floor area of 10,000 sf, with a later addition of 5,000 sf
- two unsignalized driveways intersecting the west side of Venture Drive

ROAD DESCRIPTION

Industrial Park Drive:

- is under the jurisdiction of the City
- is a cul de sac local industrial street
- is oriented about north-south
- at the south end, intersects with Sixth Street, an arterial street
- includes a curvilinear horizontal alignment
- has minor vertical grades
- has asphalt-cement-concrete pavement in overall good condition
- has one travel lane per direction
- generally has unmarked pavement
- has a posted speed limit of 30 mph
- includes a sidewalk along the west side
- has sloped granite curb along both sides

- generally does not includes utility poles
- includes luminaires along the west side

PUBLIC TRANSIT

Collaborative Alliance for Seacoast Transportation (COAST) Route 33 provides on-call bus service stopping anywhere along Venture Drive. Service is on non-holiday weekdays. Route 33 connects with:

- central Dover, to the southeast
- the Dover Transportation Center, to the southeast
- the New Hampshire Department of Transportation Park and Ride facility near Indian Brook Drive and Spaulding Turnpike interchange 9, to the east
- the Strafford County Complex, to the west

SIGHT DISTANCES

The American Association of State Highway and Transportation Officials (AASHTO) has established authoritative policy for sight distances at unsignalized intersections in terms of:

- stopping sight distance (SSD)
- optional intersection sight distance (ISD)[1]

SSD:

- provides for safety
- enables a driver, on the major road, to perceive and react accordingly to a vehicle entering the major road from a minor road
- is conservative because it encompasses a wide range of brake-reaction times and deceleration rates[2]

Optional ISD:

- is ordinarily greater than SSD and may enhance traffic operations
- is not required for safety

[1] AASHTO, *A Policy on Geometric Design of Highways and Streets*, 6th Edition (Washington, DC, 2011), pages 9-28 to 9-29.

[2] AASHTO, pages 3-2 to 3-6.

Table 1 shows that relevant available sight distances for the Venture Drive/proposed driveway intersections will be adequate.

Table 1. Sight distances.

Intersection and View	Sight Distance (feet)[a]	Provide for Speeds (miles per hour) SSD	ISD
Venture Drive/Proposed South Driveway			
Venture Drive to/from North	400	50+	36+
Venture Drive to/from South	400	50+	36+
Venture Drive/Proposed North Driveway			
Venture Drive to/from North	400	50+	36+
Venture Drive to/from South	400	50+	36+

[a] Provided by Civilworks New England. With roadside and vegetation maintenance.

CALCULATED TRIP GENERATION

The Institute of Transportation Engineers (ITE) compiles and publishes trip-generation information for a variety of land uses in *Trip Generation Manual*.[3] This authoritative guide for calculating site traffic includes information for light industrial, land use 110, based on floor area.[4]

Table 2 shows calculated vehicle trips due to the proposed development as:

Table 2. Trip generation.

Weekday Period	Vehicle-Trips[a] Total	In	Out
Daily	115	57	58
AM-Street-Peak Hour	11	10	1
PM-Street-Peak Hour	10	1	9

[a] ITE, *Trip Generation Manual*, light industrial, land use 110, 15,000-sf floor area.

[3] ITE, *Trip Generation Manual*, 10th edition (Washington DC, September 2017).

[4] ITE, *Trip Generation Manual*, Volume 2, Data, Industrial (Land Uses 100-199), pages 1 to 19.

- weekday daily, 115 (total of in and out)
- weekday AM-street-peak hour, 11 (10 in and 1 out)
- weekday PM-street-peak hour, 10 (1 in and 9 out)

TRIP DISTRIBUTION/ASSIGNMENT

Calculated trip generation is so low that area traffic operations are not sensitive to trip distribution/assignment. Vehicle-trips to and from the east may predominate largely due to connections with central Dover and the Spaulding Turnpike.

POTENTIAL TRAFFIC IMPACTS

The calculations show less than 100 peak-hour primary vehicle-trips, due to the proposed project. More specifically, tabulated peak-hour trip generation is:

- 10 to 11 vehicle-trips
- split entering versus exiting the site
- further split by orientation to and from the north, south, east or west

Therefore, the proposed project is not anticipated to add significant new traffic to the area.

CONCLUSION

In conclusion:

- relevant sight distances at the Venture Drive/proposed driveway intersections will be adequate
- the proposed project is not anticipated to add significant new traffic to the area

DRAINAGE ANALYSIS

VENTURE DRIVE PROPERTIES, LLC
MAP D, LOT 11-2

VENTURE DRIVE
Dover, New Hampshire
Strafford County

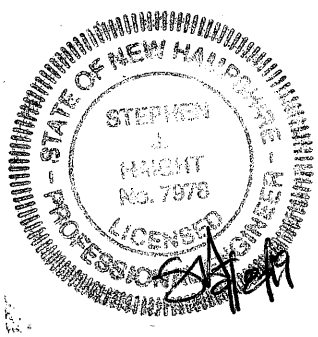
SEPTEMBER, 2019

Prepared For:

VENTURE DRIVE PROPERTIES, LLC
910 Day Hill Road
Windsor, CT 06095

Prepared By:

Civilworks NE
PO Box 1166
181 Watson Road
Dover, NH 03820



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- Area and Soil Listings
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A-2 Developed Watersheds

- Drainage Diagram
- Area and Soil Listings
- Node Listing – 2-yr
- Node Listing – 10-yr
- 10-yr Storm Summary Hydrographs
- Node Listing – 25-yr
- Node Listing – 50-yr

1.0 INTRODUCTION

This is a hydrologic analysis of the subject parcel Map D/11-2 (5.67 AC). The site is currently undeveloped, consisting primarily of wooded areas with wetlands in the north, and east. The site generally slopes southwest to northeast from Venture Drive to the rear property line and the wetlands along the north and east side of the property. The proposed development of the site will include the development of a 15,000 sf +/- building, accompanying parking area and walkways. The development will result in approximately 2.1 acres of disturbance. To account for this development, stormwater management measures and associated site grading are proposed.

To effectively analyze the pre development subject parcel, the site has been subdivided into three (3) sub-catchments (A1, A2, and A3). The sub-catchments are routed to one point of discharge (A). Sub-catchments A1 and A2 drain to existing catch basins in Venture Drive that daylight to a swale which ultimately discharges to the large wetland to the northeast of the property. Sub-catchment A3 drains directly to the large wetland.

The post development analysis has been divided into eleven (11) sub-catchments that discharge to the same point of analysis developed for the pre-development model. Sub-catchments 1 – 10 model the developed area of the site and direct water to the existing closed drainage system in Venture drive or to proposed pipes, catch basins, and roof drains which discharge to one of two treatment swales prior to running offsite to the large wetlands. Sub-catchment 11 includes the undeveloped areas of the site and discharges directly to the wetland on the northeast of the property.

Runoff from the proposed impervious portions of the site will be conveyed to one of two treatment swales to treat the runoff for water quality prior to discharge to the large on/offsite wetlands. The analysis indicates that the proposed development of the site will have negligible impact on the watershed.

2.0 DRAINAGE ANALYSIS

A comprehensive hydrologic study of this site has been performed utilizing nationally recognized runoff estimating techniques developed by the USDA, Soil Conservation Services (SCS). The technique and runoff models are described in various SCS publications and references as follows:

"Stormwater Management and Erosion Sediment Control Handbook for Urban and Developing Areas in New Hampshire"

"New Hampshire Stormwater Manual Volume 2 - Post-Construction Best Management Practices Selection & Design"

"Civil Engineering Reference Manual, Fifth Edition"

"Open-Channel Hydraulics" Chow.

"Stormwater Modeling System" HydroCAD Ver. 10.0

2.1 DRAINAGE DESIGN PARAMETERS

A brief review of the procedures and parameters used in the drainage study follows:

2.1.1 Watersheds

The watersheds and sub-catchment areas were delineated using wetland data provided by Michael Cuomo N.H. Certified Wetland Scientist (CWS) #004 and on-site topographic survey data from a survey performed by McEneaney Survey Associates, Inc. during April and May 2019.

2.1.2 Soils

Soil types were determined utilizing the NRCS Web Soil Survey (WSS) mapping tool at http://websoilsurvey.nrcs.usda.gov which references the Strafford County, New Hampshire Soil Survey Area, Version 18, September 5, 2018. The soil drainage classification used for this analysis is Class B and D.

Soil/Soil Group:
Hydrologic Drainage Class B:

EaB - Elmwood fine sandy loam, 3 to 8 percent slopes

Hydrologic Drainage Class C/D (modeled as D):

ScB - Scantic silt loam, 3 to 8 percent slopes

Hydrologic Drainage Class D:

HcB - Hollis/Charlton fine sandy loam, 3 to 8 percent slopes

2.1.3 Rainfall Data

Extreme precipitation estimate values from the Northeast Regional Climate Center were utilized in this analysis. The analysis has been performed for the 2-year, 10-year, 25-year, and 50-year storm events with 3.13", 4.71", 5.96", and 7.11" rainfall depths respectively.

2.1.4 Runoff Curve Numbers

The SCS runoff curve numbers were used and are summarized within each subcatchment drainage summary in Appendix A.

2.2 EXISTING CONDTIONS

For purposes of this analysis the subject parcel was analyzed as 3 sub-catchments discharging to 1 point of analysis.

2.2.1 Table A – Existing Conditions (2, 10, 25, and 50-year storm events)

Watershed	**Pre Development Peak Flows (cfs)**			
	2-yr	**10-yr**	**25-yr**	**50-yr**
A	4.11	8.16	11.34	14.35

2.3 DEVELOPED CONDITIONS

The post development watershed was analyzed with 11 sub-catchment areas. Post development sub-catchments have the same summing point as the pre development analysis.

2.3.1 Table B – Developed Conditions (2, 10, 25, and 50-year storm events)

Watershed	**Post Development Peak Flows (cfs)**			
	2-yr	**10-yr**	**25-yr**	**50-yr**
A	5.34	9.62	12.89	15.90

Comparison Chart

Watershed	Pre/**Post Development Peak Flows (cfs)**			
	2-yr	**10-yr**	**25-yr**	**50-yr**
A	4.11/**5.34**	8.16/**9.62**	11.34/**12.89**	14.35/**15.90**

APPENDIX A

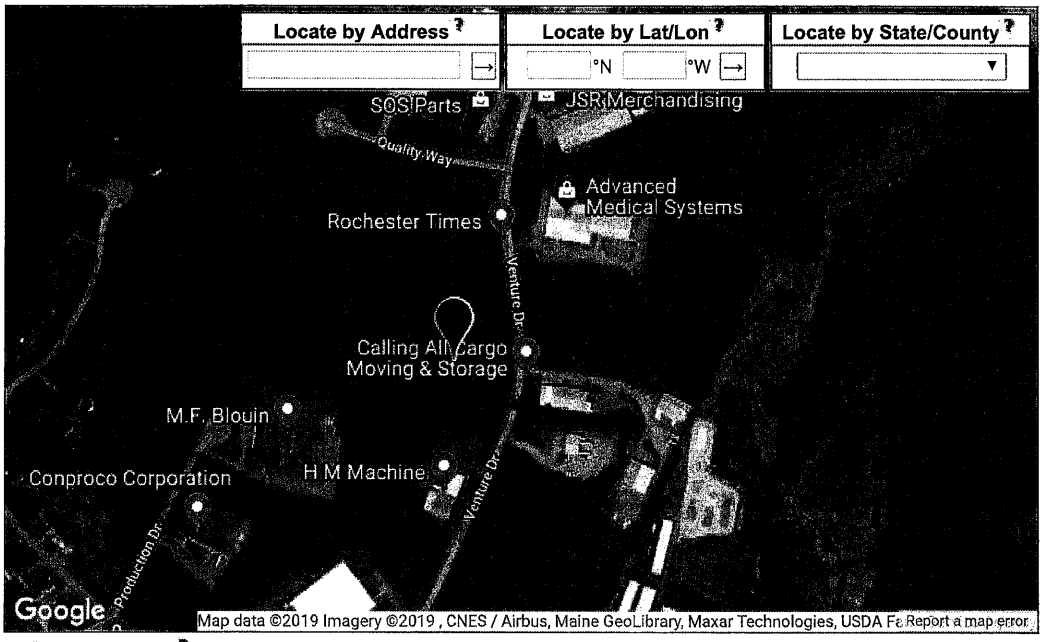
HYDROLOGIC CALCULATIONS

About this Project **Data & Products** **Daily Monitoring** **Documentation**

Select Product

- Extreme Precipitation Tables - HTML
- Extreme Precipitation Tables - Text/CSV
- Partial Duration Series - by Point
- Partial Duration Series - by Station
- Distribution Curves - Graphical
- Distribution Curves - Text/TBL
- Intensity Frequency Duration Graphs
- Precipitation Frequency Duration Graphs
- GIS Data Files
- Regional/State Maps

Select Location *Double-click the map to place a marker, or enter address or latitude/longitude.*



Select Options

Smoothing	Delivery
Yes	Popup

Submit

Version 1.12 Copyright 2010-2019.
This project is a joint collaboration between:

Northeast Regional Climate Center (NRCC) Cornell University

Natural Resources Conservation Service (NRCS) USDA NRCS

Contact: precip@cornell.edu

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing	Yes
State	New Hampshire
Location	
Longitude	70.910 degrees West
Latitude	43.221 degrees North
Elevation	0 feet
Date/Time	Sun, 04 Aug 2019 09:20:25 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.81	1.03	**1yr**	0.70	0.98	1.20	1.54	1.99	2.59	2.86	**1yr**	2.29	2.75	3.15	3.88	4.44	**1yr**
2yr	0.32	0.49	0.61	0.80	1.01	1.28	**2yr**	0.87	1.17	1.50	1.91	2.44	3.13	3.49	**2yr**	2.77	3.36	3.85	4.59	5.22	**2yr**
5yr	0.37	0.57	0.72	0.96	1.23	1.58	**5yr**	1.06	1.44	1.85	2.38	3.06	3.95	4.47	**5yr**	3.50	4.30	4.92	5.78	6.54	**5yr**
10yr	0.40	0.63	0.80	1.09	1.42	1.85	**10yr**	1.22	1.69	2.18	2.82	3.64	4.71	5.39	**10yr**	4.17	5.18	5.93	6.90	7.75	**10yr**
25yr	0.46	0.74	0.94	1.30	1.72	2.27	**25yr**	1.49	2.09	2.69	3.52	4.58	5.96	6.91	**25yr**	5.27	6.64	7.58	8.71	9.72	**25yr**
50yr	0.52	0.83	1.06	1.48	2.00	2.66	**50yr**	1.73	2.45	3.18	4.17	5.46	7.11	8.34	**50yr**	6.29	8.02	9.14	10.40	11.54	**50yr**
100yr	0.58	0.94	1.21	1.71	2.32	3.12	**100yr**	2.01	2.88	3.74	4.94	6.49	8.49	10.07	**100yr**	7.52	9.68	11.02	12.42	13.71	**100yr**
200yr	0.64	1.05	1.36	1.96	2.71	3.67	**200yr**	2.33	3.39	4.42	5.87	7.74	10.15	12.16	**200yr**	8.98	11.70	13.29	14.83	16.29	**200yr**
500yr	0.76	1.25	1.63	2.36	3.31	4.54	**500yr**	2.86	4.21	5.50	7.35	9.74	12.85	15.62	**500yr**	11.37	15.02	17.03	18.78	20.48	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.24	0.37	0.45	0.60	0.74	0.90	**1yr**	0.64	0.88	0.92	1.25	1.54	2.05	2.46	**1yr**	1.82	2.36	2.94	3.42	4.10	**1yr**
2yr	0.31	0.49	0.60	0.81	1.00	1.18	**2yr**	0.86	1.15	1.36	1.82	2.35	3.05	3.39	**2yr**	2.70	3.26	3.74	4.46	5.08	**2yr**
5yr	0.35	0.54	0.67	0.91	1.16	1.40	**5yr**	1.00	1.37	1.61	2.14	2.77	3.69	4.11	**5yr**	3.26	3.95	4.59	5.39	6.09	**5yr**
10yr	0.38	0.59	0.73	1.02	1.31	1.60	**10yr**	1.13	1.56	1.81	2.44	3.12	4.24	4.77	**10yr**	3.75	4.58	5.30	6.21	6.97	**10yr**
25yr	0.44	0.66	0.83	1.18	1.55	1.91	**25yr**	1.34	1.87	2.11	2.84	3.64	5.08	5.76	**25yr**	4.50	5.54	6.47	7.50	8.35	**25yr**
50yr	0.48	0.73	0.91	1.31	1.77	2.19	**50yr**	1.52	2.14	2.36	3.20	4.08	5.83	6.64	**50yr**	5.16	6.39	7.51	8.63	9.55	**50yr**
100yr	0.54	0.81	1.02	1.47	2.02	2.51	**100yr**	1.74	2.45	2.65	3.58	4.55	6.69	7.65	**100yr**	5.92	7.35	8.72	9.94	10.90	**100yr**
200yr	0.60	0.90	1.14	1.65	2.30	2.87	**200yr**	1.98	2.81	2.96	4.02	5.07	7.66	8.80	**200yr**	6.78	8.46	10.12	11.45	12.46	**200yr**
500yr	0.70	1.04	1.33	1.94	2.75	3.46	**500yr**	2.38	3.39	3.44	4.67	5.87	9.13	10.59	**500yr**	8.08	10.18	12.32	13.81	14.81	**500yr**

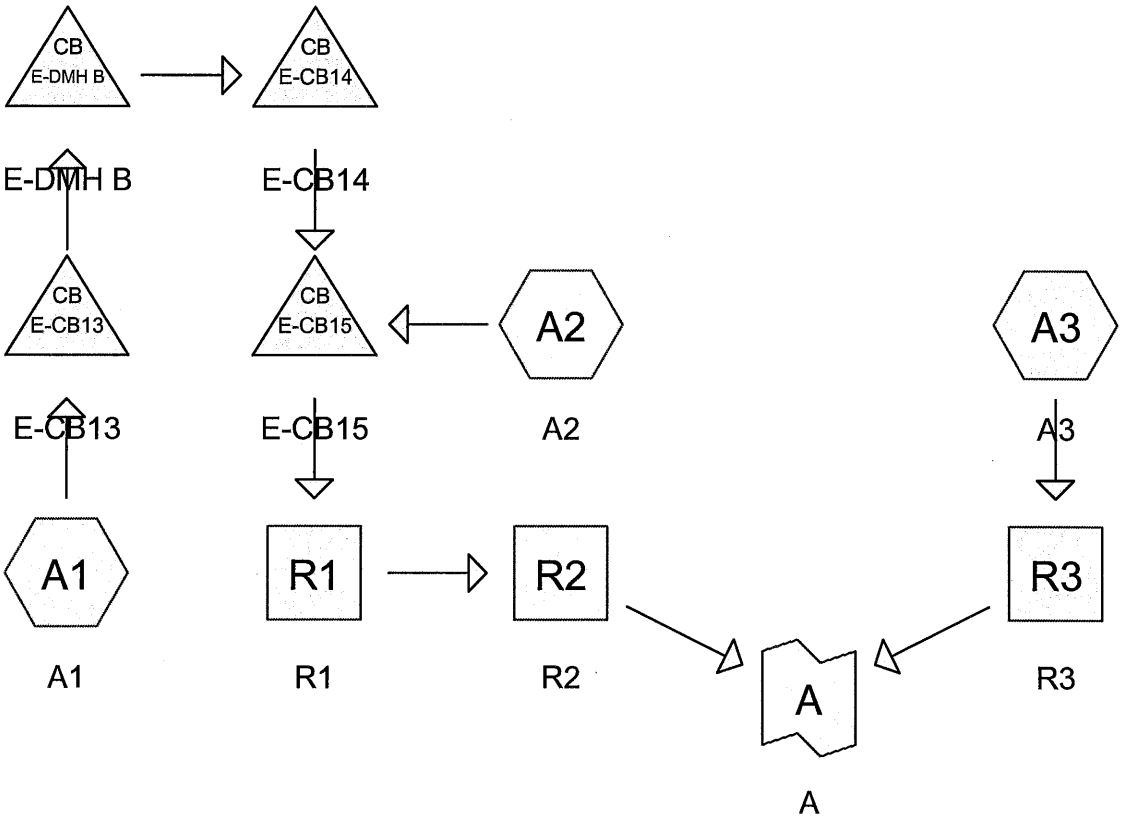
Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.43	0.53	0.71	0.87	1.08	**1yr**	0.75	1.05	1.23	1.73	2.20	2.82	3.07	**1yr**	2.49	2.95	3.37	4.17	4.74	**1yr**
2yr	0.33	0.51	0.62	0.84	1.04	1.24	**2yr**	0.90	1.22	1.47	1.95	2.51	3.24	3.61	**2yr**	2.86	3.47	3.98	4.73	5.39	**2yr**
5yr	0.39	0.60	0.75	1.03	1.31	1.58	**5yr**	1.13	1.54	1.85	2.49	3.19	4.21	4.83	**5yr**	3.73	4.64	5.27	6.20	6.96	**5yr**
10yr	0.46	0.70	0.87	1.21	1.57	1.91	**10yr**	1.35	1.87	2.22	3.03	3.84	5.18	6.02	**10yr**	4.58	5.79	6.63	7.60	8.47	**10yr**
25yr	0.55	0.84	1.05	1.50	1.97	2.46	**25yr**	1.70	2.41	2.87	3.94	4.94	6.81	8.08	**25yr**	6.03	7.77	8.86	10.01	11.03	**25yr**
50yr	0.64	0.97	1.21	1.75	2.35	2.97	**50yr**	2.03	2.90	3.48	4.80	5.99	8.37	10.12	**50yr**	7.41	9.73	11.07	12.30	13.48	**50yr**
100yr	0.75	1.13	1.41	2.04	2.80	3.58	**100yr**	2.42	3.50	4.22	5.87	7.28	10.30	12.68	**100yr**	9.12	12.19	13.81	15.14	16.48	**100yr**
200yr	0.87	1.30	1.65	2.39	3.33	4.34	**200yr**	2.88	4.24	5.13	7.18	8.84	12.71	15.90	**200yr**	11.25	15.29	17.25	18.63	20.18	**200yr**
500yr	1.06	1.58	2.03	2.95	4.19	5.56	**500yr**	3.62	5.44	6.62	9.38	11.45	16.80	21.45	**500yr**	14.87	20.62	23.17	24.55	26.40	**500yr**

Powered by ACIS
Northeast Regional Climate Center

A-1

EXISTING WATERSHEDS



Subcat Reach Pond Link

Routing Diagram for 19014-Pre_jpg
Prepared by {enter your company name here}, Printed 9/8/2019
HydroCAD® 10.00-24 s/n 03240 © 2018 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.026	61	>75% Grass cover, Good, HSG B (A2, A3)
0.166	80	>75% Grass cover, Good, HSG D (A1, A2)
0.003	98	Paved roads w/curbs & sewers, HSG B (A2)
0.058	98	Paved roads w/curbs & sewers, HSG D (A1, A2)
0.236	55	Woods, Good, HSG B (A3)
4.848	77	Woods, Good, HSG D (A1, A2, A3)
5.338	**76**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.266	HSG B	A2, A3
0.000	HSG C	
5.072	HSG D	A1, A2, A3
0.000	Other	
5.338		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.026	0.000	0.166	0.000	0.193	>75% Grass cover, Good	A1, A2, A3
0.000	0.003	0.000	0.058	0.000	0.061	Paved roads w/curbs & sewers	A1, A2
0.000	0.236	0.000	4.848	0.000	5.084	Woods, Good	A1, A2, A3
0.000	**0.266**	**0.000**	**5.072**	**0.000**	**5.338**	**TOTAL AREA**	

A – 1

NODE LISTING – 2-YR

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment A1: A1 Runoff Area=19,543 sf 7.87% Impervious Runoff Depth>1.28"
Flow Length=346' Tc=11.3 min CN=79 Runoff=0.50 cfs 0.048 af

Subcatchment A2: A2 Runoff Area=27,298 sf 4.13% Impervious Runoff Depth>1.22"
Flow Length=397' Tc=12.2 min CN=78 Runoff=0.64 cfs 0.064 af

Subcatchment A3: A3 Runoff Area=185,679 sf 0.00% Impervious Runoff Depth>1.10"
Flow Length=549' Tc=14.1 min CN=76 Runoff=3.57 cfs 0.390 af

Reach R1: R1 Avg. Flow Depth=0.36' Max Vel=1.95 fps Inflow=1.13 cfs 0.111 af
n=0.080 L=42.0' S=0.0790 '/' Capacity=9.69 cfs Outflow=1.13 cfs 0.111 af

Reach R2: R2 Avg. Flow Depth=0.17' Max Vel=0.55 fps Inflow=1.13 cfs 0.111 af
n=0.080 L=485.0' S=0.0155 '/' Capacity=7.39 cfs Outflow=0.73 cfs 0.109 af

Reach R3: R3 Avg. Flow Depth=0.42' Max Vel=0.93 fps Inflow=3.57 cfs 0.390 af
n=0.080 L=170.0' S=0.0135 '/' Capacity=21.89 cfs Outflow=3.42 cfs 0.388 af

Pond E-CB13: E-CB13 Peak Elev=174.96' Inflow=0.50 cfs 0.048 af
12.0" Round Culvert n=0.013 L=30.0' S=0.0100 '/' Outflow=0.50 cfs 0.048 af

Pond E-CB14: E-CB14 Peak Elev=165.76' Inflow=0.50 cfs 0.048 af
15.0" Round Culvert n=0.013 L=29.2' S=0.0068 '/' Outflow=0.50 cfs 0.048 af

Pond E-CB15: E-CB15 Peak Elev=165.20' Inflow=1.13 cfs 0.111 af
15.0" Round Culvert n=0.013 L=68.9' S=0.0041 '/' Outflow=1.13 cfs 0.111 af

Pond E-DMH B: E-DMH B Peak Elev=174.39' Inflow=0.50 cfs 0.048 af
15.0" Round Culvert n=0.013 L=234.7' S=0.0366 '/' Outflow=0.50 cfs 0.048 af

Link A: A Inflow=4.11 cfs 0.497 af
Primary=4.11 cfs 0.497 af

Total Runoff Area = 5.338 ac Runoff Volume = 0.501 af Average Runoff Depth = 1.13"
98.85% Pervious = 5.277 ac 1.15% Impervious = 0.061 ac

A – 1

NODE LISTING – 10-YR

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment A1: A1 Runoff Area=19,543 sf 7.87% Impervious Runoff Depth>2.54"
Flow Length=346' Tc=11.3 min CN=79 Runoff=0.90 cfs 0.095 af

Subcatchment A2: A2 Runoff Area=27,298 sf 4.13% Impervious Runoff Depth>2.46"
Flow Length=397' Tc=12.2 min CN=78 Runoff=1.17 cfs 0.128 af

Subcatchment A3: A3 Runoff Area=185,679 sf 0.00% Impervious Runoff Depth>2.29"
Flow Length=549' Tc=14.1 min CN=76 Runoff=6.92 cfs 0.812 af

Reach R1: R1 Avg. Flow Depth=0.48' Max Vel=2.33 fps Inflow=2.06 cfs 0.223 af
n=0.080 L=42.0' S=0.0790 '/' Capacity=9.69 cfs Outflow=2.06 cfs 0.223 af

Reach R2: R2 Avg. Flow Depth=0.24' Max Vel=0.68 fps Inflow=2.06 cfs 0.223 af
n=0.080 L=485.0' S=0.0155 '/' Capacity=7.39 cfs Outflow=1.49 cfs 0.220 af

Reach R3: R3 Avg. Flow Depth=0.58' Max Vel=1.14 fps Inflow=6.92 cfs 0.812 af
n=0.080 L=170.0' S=0.0135 '/' Capacity=21.89 cfs Outflow=6.73 cfs 0.810 af

Pond E-CB13: E-CB13 Peak Elev=175.10' Inflow=0.90 cfs 0.095 af
12.0" Round Culvert n=0.013 L=30.0' S=0.0100 '/' Outflow=0.90 cfs 0.095 af

Pond E-CB14: E-CB14 Peak Elev=165.89' Inflow=0.90 cfs 0.095 af
15.0" Round Culvert n=0.013 L=29.2' S=0.0068 '/' Outflow=0.90 cfs 0.095 af

Pond E-CB15: E-CB15 Peak Elev=165.43' Inflow=2.06 cfs 0.223 af
15.0" Round Culvert n=0.013 L=68.9' S=0.0041 '/' Outflow=2.06 cfs 0.223 af

Pond E-DMH B: E-DMH B Peak Elev=174.50' Inflow=0.90 cfs 0.095 af
15.0" Round Culvert n=0.013 L=234.7' S=0.0366 '/' Outflow=0.90 cfs 0.095 af

Link A: A Inflow=8.16 cfs 1.030 af
Primary=8.16 cfs 1.030 af

Total Runoff Area = 5.338 ac Runoff Volume = 1.035 af Average Runoff Depth = 2.33"
98.85% Pervious = 5.277 ac 1.15% Impervious = 0.061 ac

A – 1

10-YR STORM SUMMARY

Summary for Subcatchment A1: A1

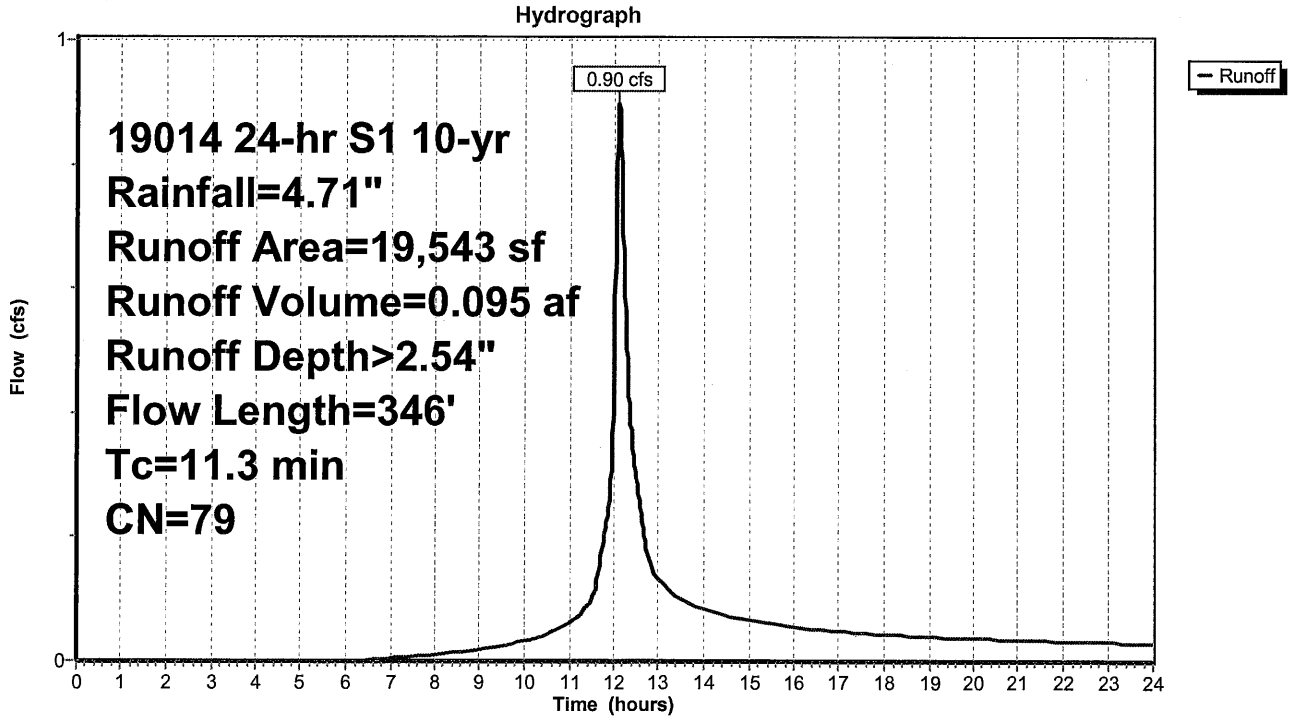
Runoff = 0.90 cfs @ 12.11 hrs, Volume= 0.095 af, Depth> 2.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
19014 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
14,159	77	Woods, Good, HSG D
3,845	80	>75% Grass cover, Good, HSG D
1,539	98	Paved roads w/curbs & sewers, HSG D
19,543	79	Weighted Average
18,004		92.13% Pervious Area
1,539		7.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	50	0.0400	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.13"
0.8	50	0.0400	1.00		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	17	0.1760	2.94		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.9	229	0.0440	4.26		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.3	346	Total			

Subcatchment A1: A1



Summary for Subcatchment A2: A2

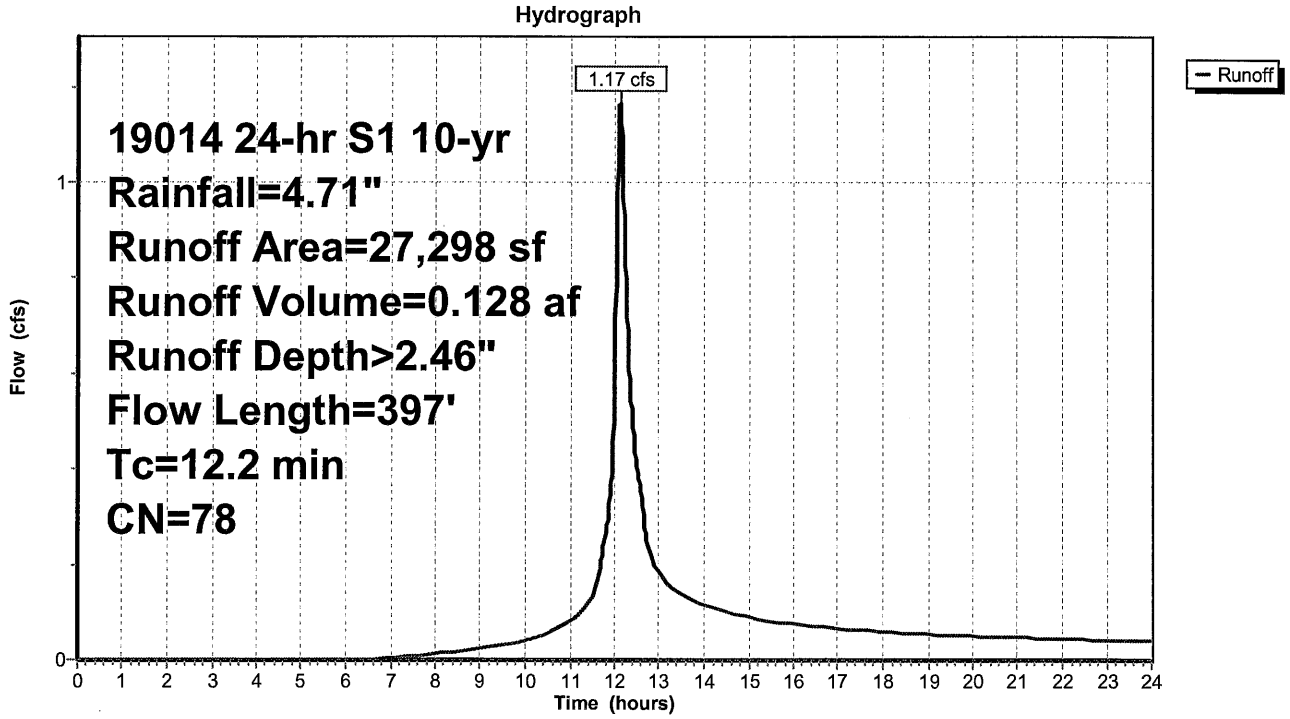
Runoff = 1.17 cfs @ 12.12 hrs, Volume= 0.128 af, Depth> 2.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
19014 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
154	61	>75% Grass cover, Good, HSG B
142	98	Paved roads w/curbs & sewers, HSG B
22,611	77	Woods, Good, HSG D
3,406	80	>75% Grass cover, Good, HSG D
985	98	Paved roads w/curbs & sewers, HSG D
27,298	78	Weighted Average
26,171		95.87% Pervious Area
1,127		4.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	50	0.0400	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.13"
1.8	154	0.0810	1.42		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	34	0.0590	1.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	159	0.0420	4.16		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.2	397	Total			

Subcatchment A2: A2



Summary for Subcatchment A3: A3

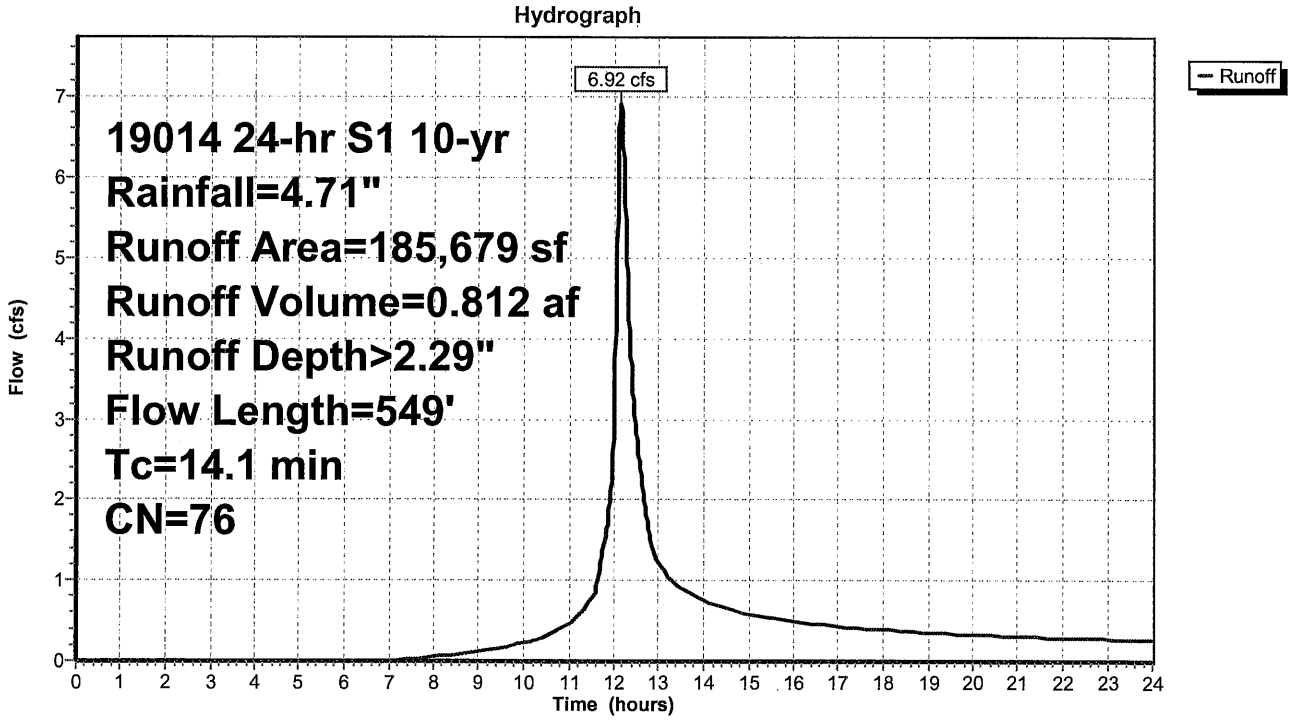
Runoff = 6.92 cfs @ 12.14 hrs, Volume= 0.812 af, Depth> 2.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
19014 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
10,284	55	Woods, Good, HSG B
998	61	>75% Grass cover, Good, HSG B
174,397	77	Woods, Good, HSG D
185,679	76	Weighted Average
185,679		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	50	0.0400	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.13"
4.3	387	0.0890	1.49		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	112	0.0240	5.34	14.25	**Parabolic Channel,** W=4.00' D=1.00' Area=2.7 sf Perim=4.6' n= 0.030 Stream, clean & straight
14.1	549	Total			

Subcatchment A3: A3



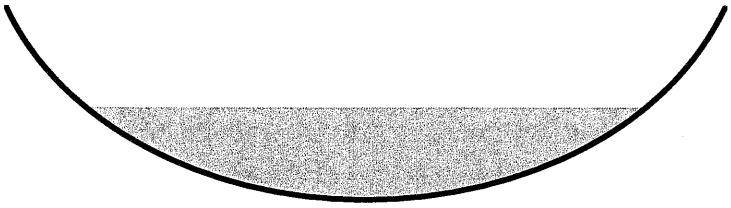
Summary for Reach R1: R1

Inflow Area = 1.075 ac, 5.69% Impervious, Inflow Depth > 2.49" for 10-yr event
Inflow = 2.06 cfs @ 12.11 hrs, Volume= 0.223 af
Outflow = 2.06 cfs @ 12.12 hrs, Volume= 0.223 af, Atten= 0%, Lag= 0.2 min

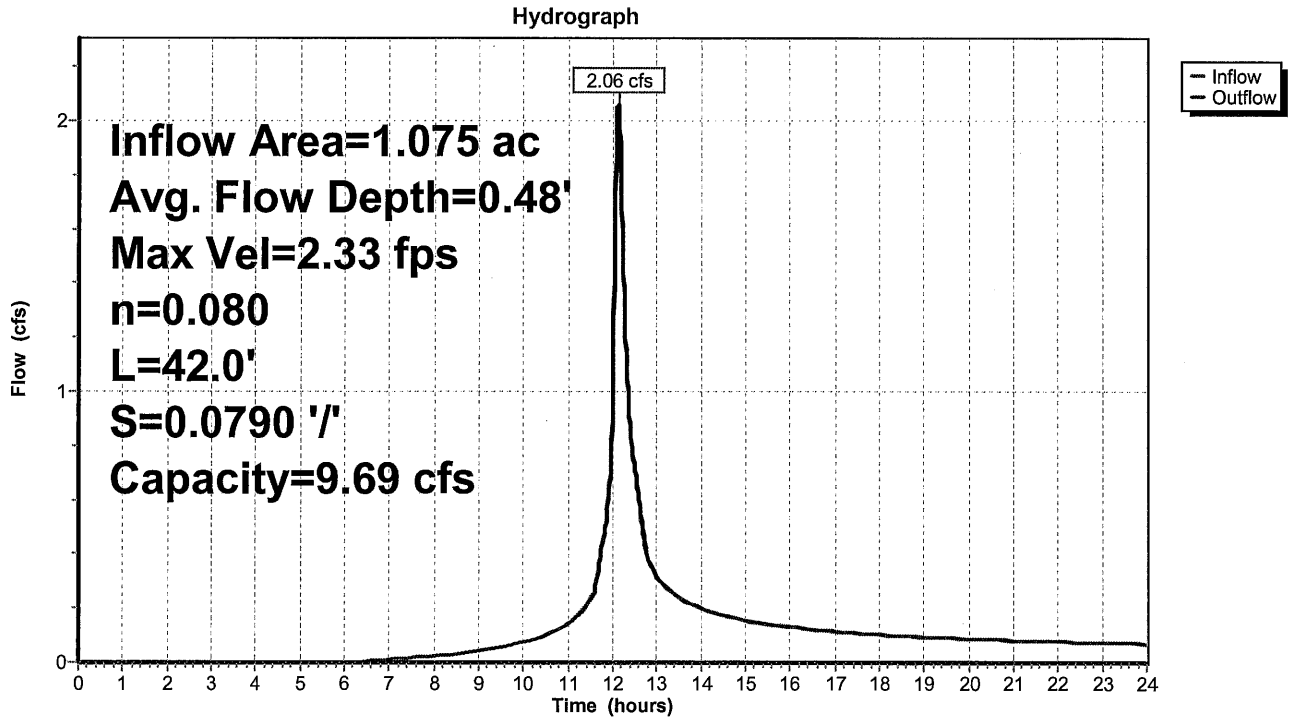
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.33 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 0.94 fps, Avg. Travel Time= 0.7 min

Peak Storage= 37 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.48'
Bank-Full Depth= 1.00' Flow Area= 2.7 sf, Capacity= 9.69 cfs

4.00' x 1.00' deep Parabolic Channel, n= 0.080 Earth, long dense weeds
Length= 42.0' Slope= 0.0790 '/'
Inlet Invert= 164.32', Outlet Invert= 161.00'



Reach R1: R1



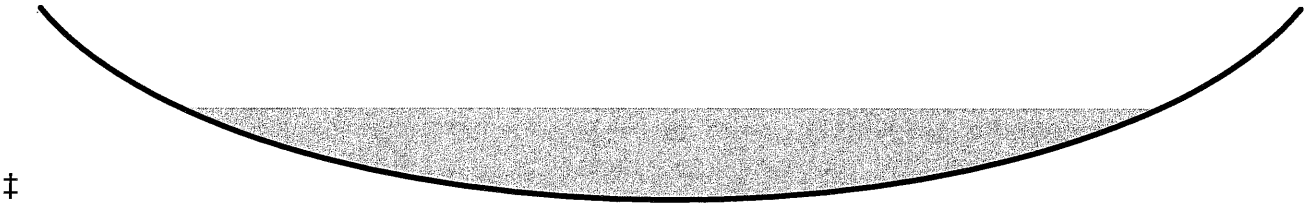
Summary for Reach R2: R2

Inflow Area = 1.075 ac, 5.69% Impervious, Inflow Depth > 2.49" for 10-yr event
Inflow = 2.06 cfs @ 12.12 hrs, Volume= 0.223 af
Outflow = 1.49 cfs @ 12.23 hrs, Volume= 0.220 af, Atten= 27%, Lag= 6.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.68 fps, Min. Travel Time= 11.9 min
Avg. Velocity = 0.29 fps, Avg. Travel Time= 27.7 min

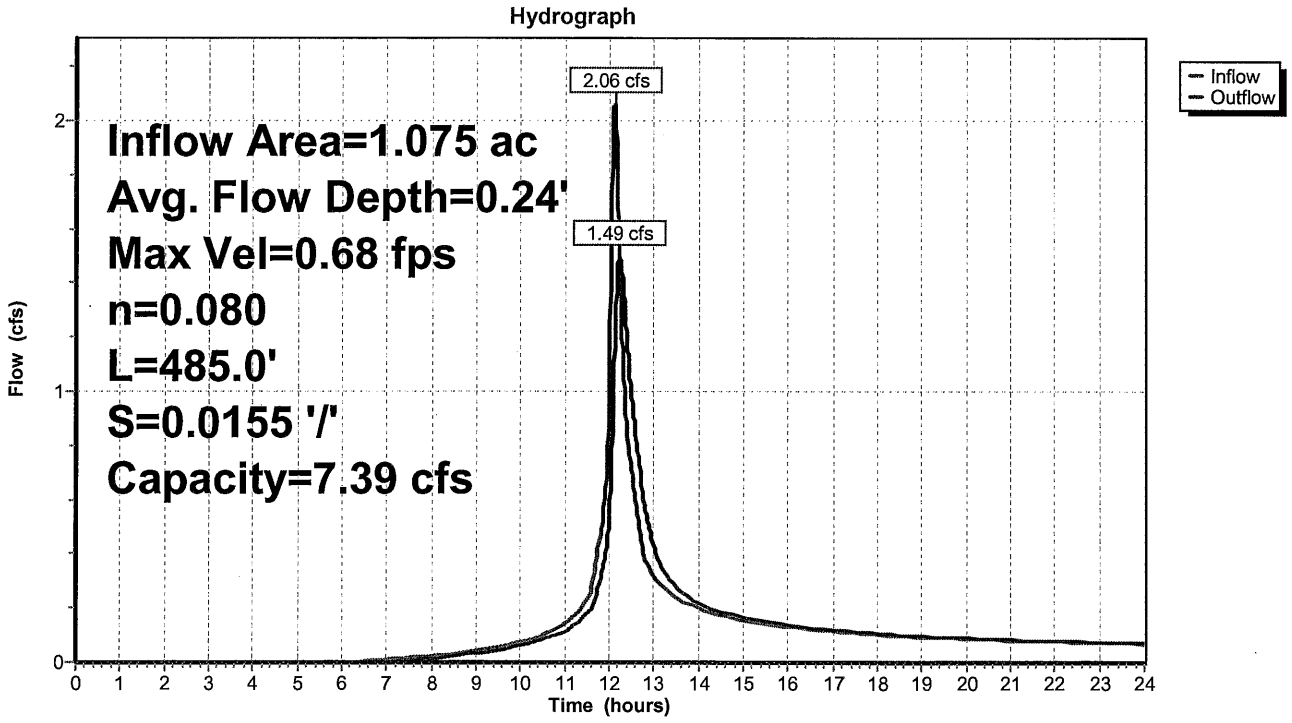
Peak Storage= 1,068 cf @ 12.23 hrs
Average Depth at Peak Storage= 0.24'
Bank-Full Depth= 0.50' Flow Area= 6.7 sf, Capacity= 7.39 cfs

20.00' x 0.50' deep Parabolic Channel, n= 0.080 Earth, dense brush, high stage
Length= 485.0' Slope= 0.0155 '/'
Inlet Invert= 161.00', Outlet Invert= 153.50'



‡

Reach R2: R2



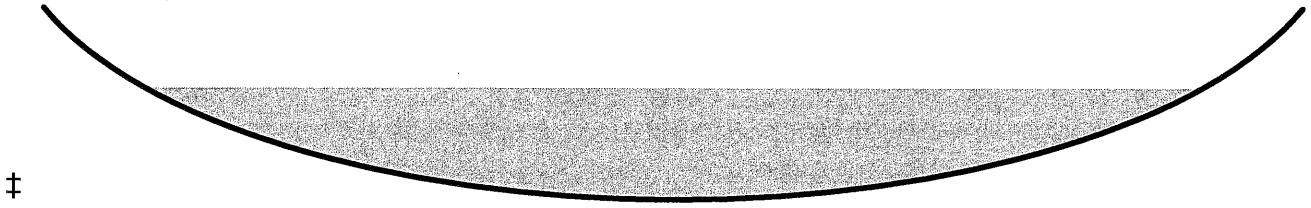
Summary for Reach R3: R3

Inflow Area = 4.263 ac, 0.00% Impervious, Inflow Depth > 2.29" for 10-yr event
Inflow = 6.92 cfs @ 12.14 hrs, Volume= 0.812 af
Outflow = 6.73 cfs @ 12.18 hrs, Volume= 0.810 af, Atten= 3%, Lag= 2.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.14 fps, Min. Travel Time= 2.5 min
Avg. Velocity = 0.48 fps, Avg. Travel Time= 6.0 min

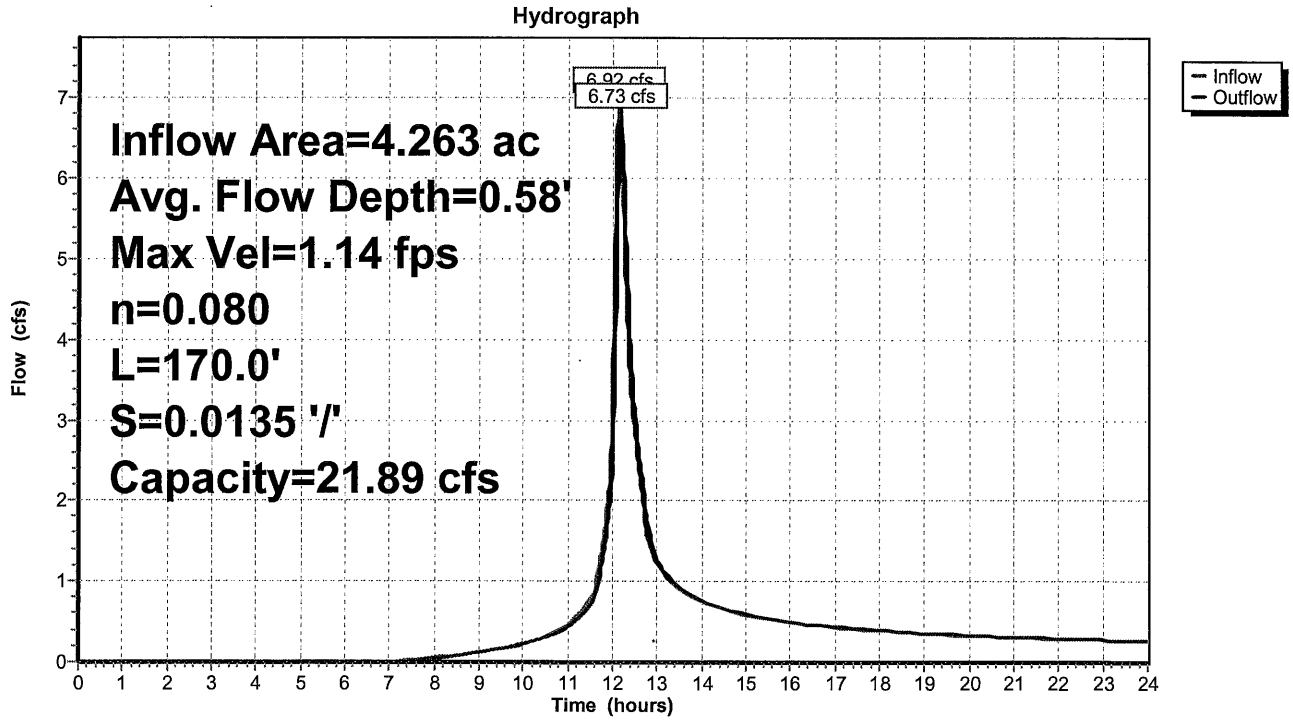
Peak Storage= 1,001 cf @ 12.18 hrs
Average Depth at Peak Storage= 0.58'
Bank-Full Depth= 1.00' Flow Area= 13.3 sf, Capacity= 21.89 cfs

20.00' x 1.00' deep Parabolic Channel, n= 0.080 Earth, dense brush, high stage
Length= 170.0' Slope= 0.0135 '/'
Inlet Invert= 155.80', Outlet Invert= 153.50'



‡

Reach R3: R3



Summary for Pond E-CB13: E-CB13

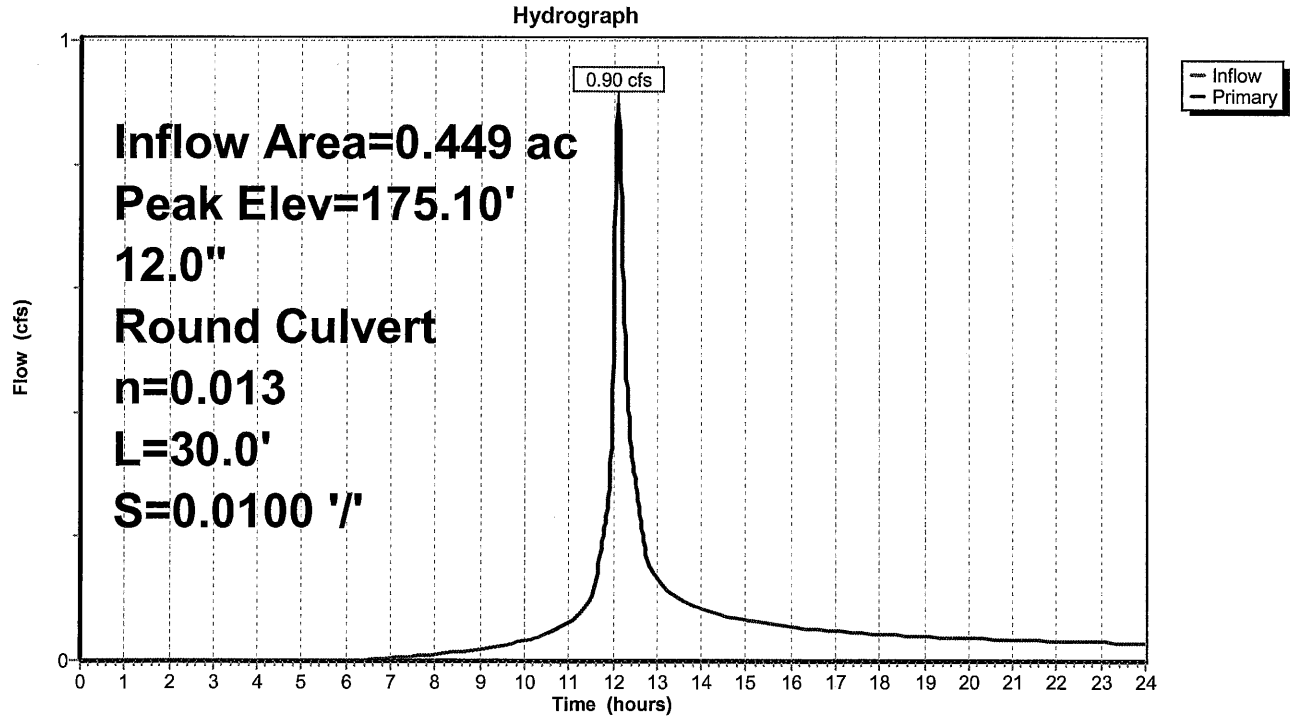
Inflow Area = 0.449 ac, 7.87% Impervious, Inflow Depth > 2.54" for 10-yr event
Inflow = 0.90 cfs @ 12.11 hrs, Volume= 0.095 af
Outflow = 0.90 cfs @ 12.11 hrs, Volume= 0.095 af, Atten= 0%, Lag= 0.0 min
Primary = 0.90 cfs @ 12.11 hrs, Volume= 0.095 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 175.10' @ 12.11 hrs
Flood Elev= 178.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	174.60'	**12.0" Round Culvert** L= 30.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 174.60' / 174.30' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.90 cfs @ 12.11 hrs HW=175.10' TW=174.50' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 0.90 cfs @ 3.35 fps)

Pond E-CB13: E-CB13



Summary for Pond E-CB14: E-CB14

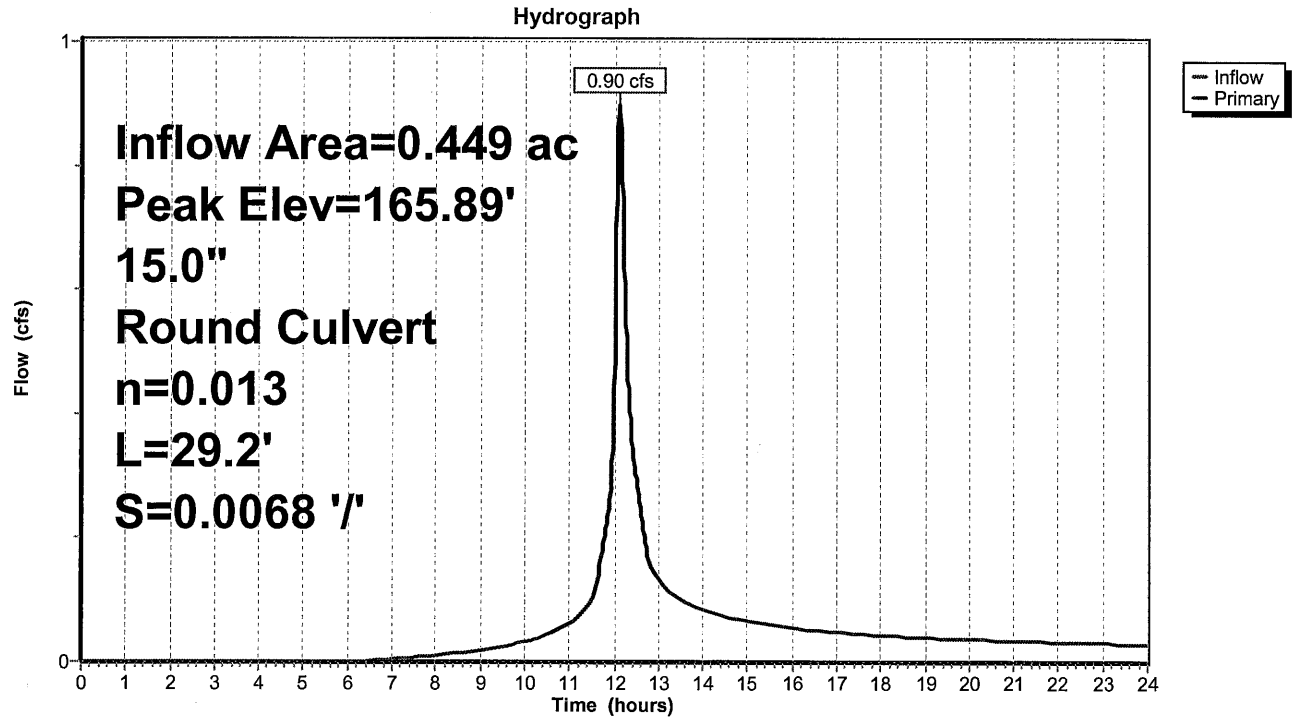
Inflow Area = 0.449 ac, 7.87% Impervious, Inflow Depth > 2.54" for 10-yr event
Inflow = 0.90 cfs @ 12.11 hrs, Volume= 0.095 af
Outflow = 0.90 cfs @ 12.11 hrs, Volume= 0.095 af, Atten= 0%, Lag= 0.0 min
Primary = 0.90 cfs @ 12.11 hrs, Volume= 0.095 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 165.89' @ 12.11 hrs
Flood Elev= 169.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	165.40'	**15.0" Round Culvert** L= 29.2' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 165.40' / 165.20' S= 0.0068 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=0.90 cfs @ 12.11 hrs HW=165.89' TW=165.43' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 0.90 cfs @ 2.97 fps)

Pond E-CB14: E-CB14



Summary for Pond E-CB15: E-CB15

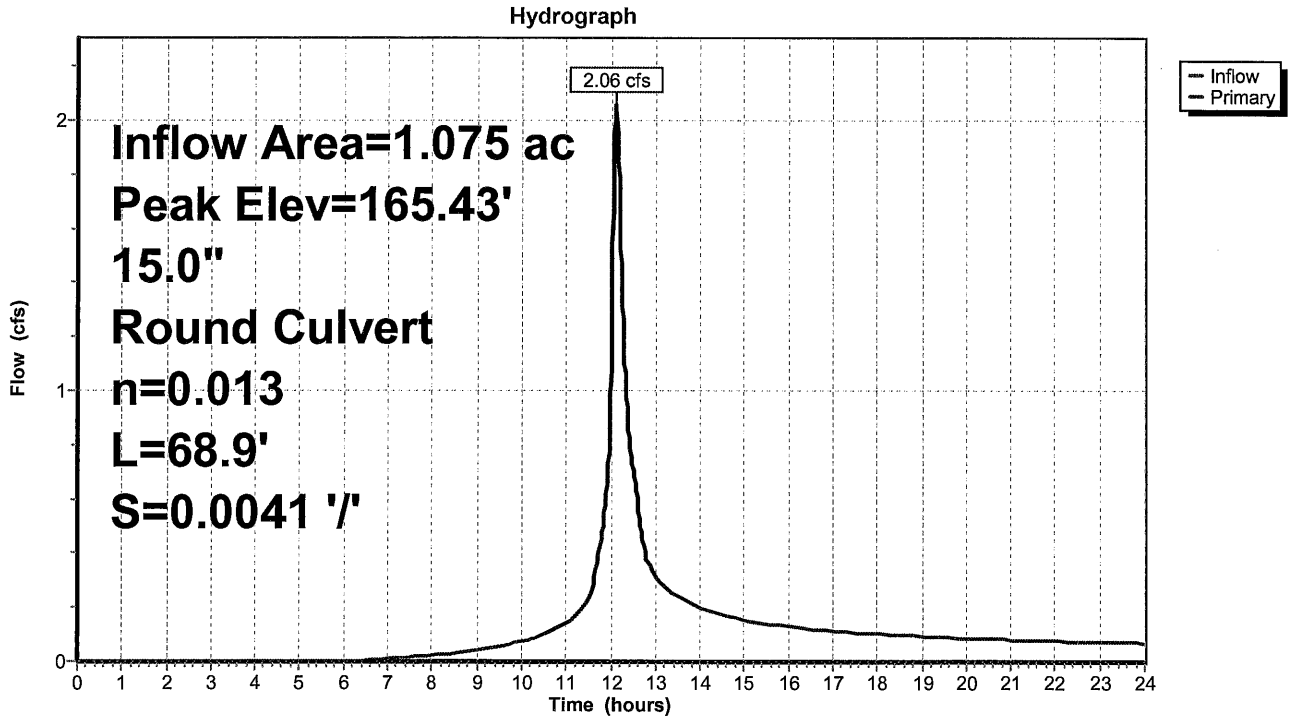
Inflow Area = 1.075 ac, 5.69% Impervious, Inflow Depth > 2.49" for 10-yr event
Inflow = 2.06 cfs @ 12.11 hrs, Volume= 0.223 af
Outflow = 2.06 cfs @ 12.11 hrs, Volume= 0.223 af, Atten= 0%, Lag= 0.0 min
Primary = 2.06 cfs @ 12.11 hrs, Volume= 0.223 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 165.43' @ 12.11 hrs
Flood Elev= 169.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	164.60'	**15.0" Round Culvert** L= 68.9' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 164.60' / 164.32' S= 0.0041 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=2.06 cfs @ 12.11 hrs HW=165.43' TW=164.80' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 2.06 cfs @ 3.35 fps)

Pond E-CB15: E-CB15



Summary for Pond E-DMH B: E-DMH B

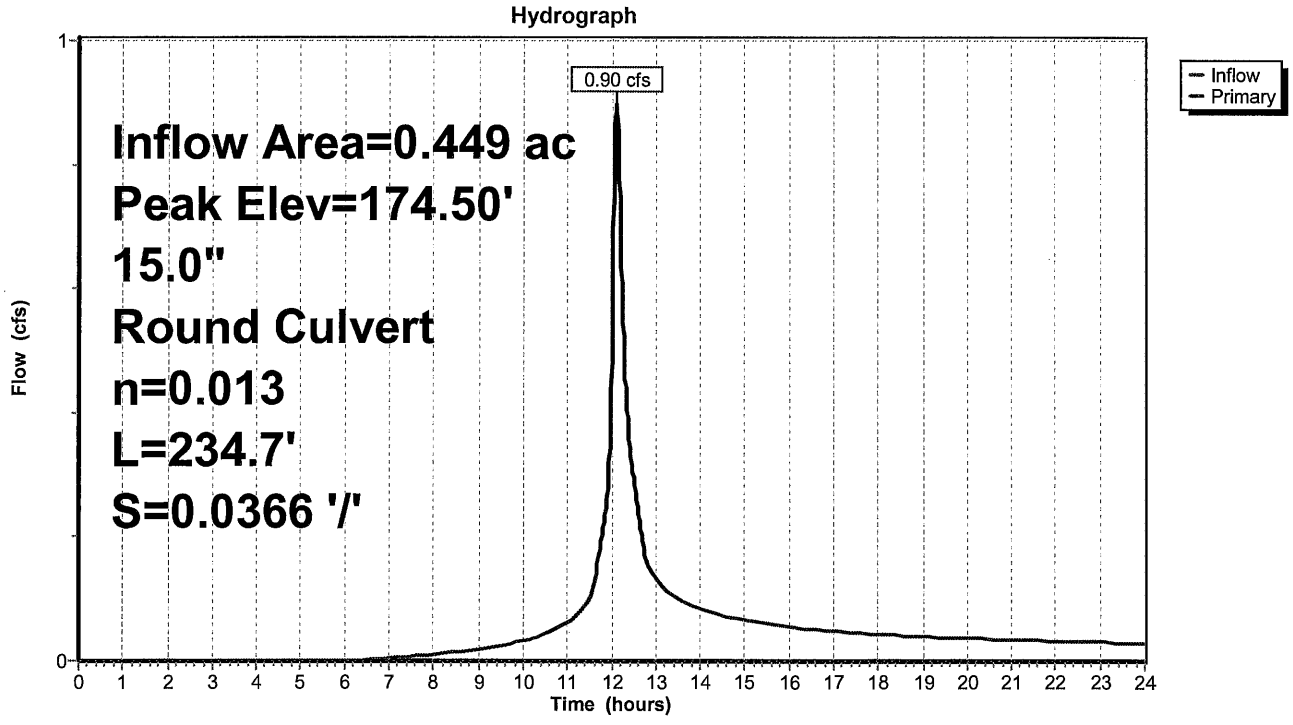
Inflow Area = 0.449 ac, 7.87% Impervious, Inflow Depth > 2.54" for 10-yr event
Inflow = 0.90 cfs @ 12.11 hrs, Volume= 0.095 af
Outflow = 0.90 cfs @ 12.11 hrs, Volume= 0.095 af, Atten= 0%, Lag= 0.0 min
Primary = 0.90 cfs @ 12.11 hrs, Volume= 0.095 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 174.50' @ 12.11 hrs
Flood Elev= 178.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	174.10'	**15.0" Round Culvert** L= 234.7' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 174.10' / 165.50' S= 0.0366 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=0.90 cfs @ 12.11 hrs HW=174.50' TW=165.89' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 0.90 cfs @ 2.68 fps)

Pond E-DMH B: E-DMH B

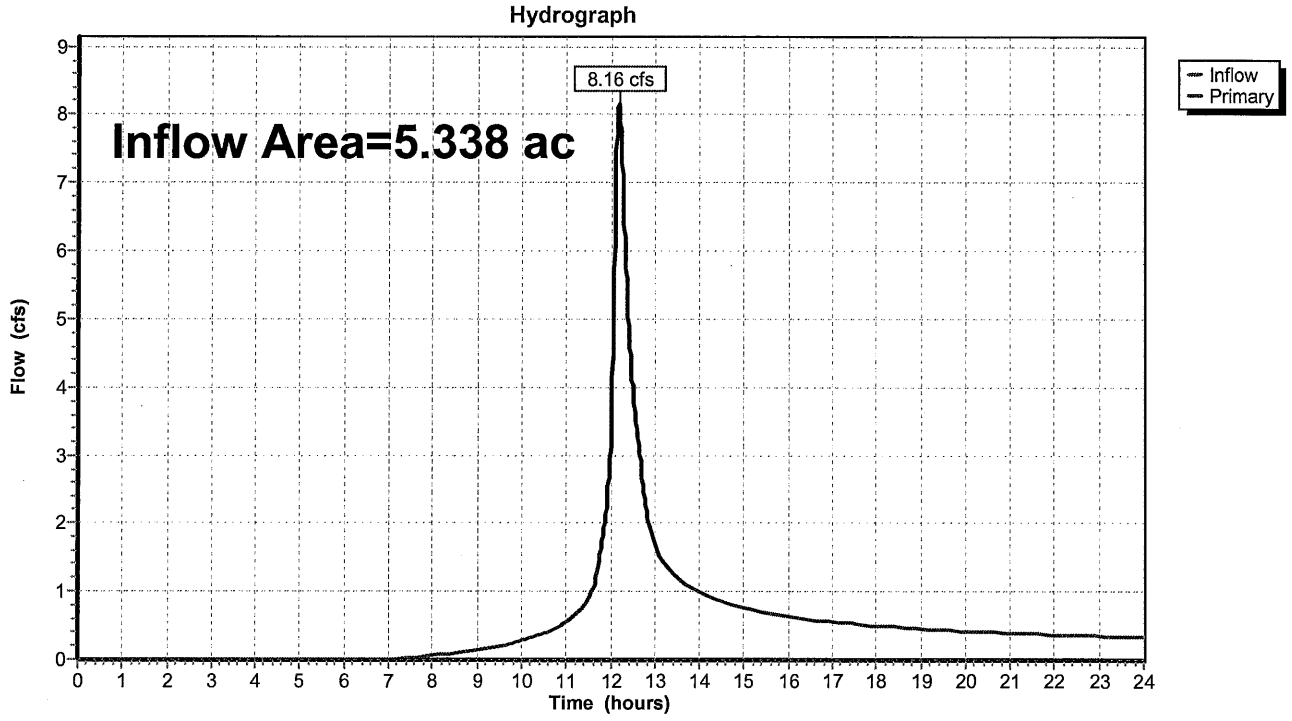


Summary for Link A: A

Inflow Area = 5.338 ac, 1.15% Impervious, Inflow Depth > 2.32" for 10-yr event
Inflow = 8.16 cfs @ 12.18 hrs, Volume= 1.030 af
Primary = 8.16 cfs @ 12.18 hrs, Volume= 1.030 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link A: A



A – 1

NODE LISTING – 25-YR

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment A1: A1 Runoff Area=19,543 sf 7.87% Impervious Runoff Depth>3.63"
Flow Length=346' Tc=11.3 min CN=79 Runoff=1.20 cfs 0.136 af

Subcatchment A2: A2 Runoff Area=27,298 sf 4.13% Impervious Runoff Depth>3.53"
Flow Length=397' Tc=12.2 min CN=78 Runoff=1.58 cfs 0.184 af

Subcatchment A3: A3 Runoff Area=185,679 sf 0.00% Impervious Runoff Depth>3.33"
Flow Length=549' Tc=14.1 min CN=76 Runoff=9.53 cfs 1.182 af

Reach R1: R1 Avg. Flow Depth=0.55' Max Vel=2.54 fps Inflow=2.77 cfs 0.320 af
n=0.080 L=42.0' S=0.0790 '/' Capacity=9.69 cfs Outflow=2.77 cfs 0.320 af

Reach R2: R2 Avg. Flow Depth=0.28' Max Vel=0.75 fps Inflow=2.77 cfs 0.320 af
n=0.080 L=485.0' S=0.0155 '/' Capacity=7.39 cfs Outflow=2.10 cfs 0.316 af

Reach R3: R3 Avg. Flow Depth=0.67' Max Vel=1.26 fps Inflow=9.53 cfs 1.182 af
n=0.080 L=170.0' S=0.0135 '/' Capacity=21.89 cfs Outflow=9.32 cfs 1.179 af

Pond E-CB13: E-CB13 Peak Elev=175.19' Inflow=1.20 cfs 0.136 af
12.0" Round Culvert n=0.013 L=30.0' S=0.0100 '/' Outflow=1.20 cfs 0.136 af

Pond E-CB14: E-CB14 Peak Elev=165.98' Inflow=1.20 cfs 0.136 af
15.0" Round Culvert n=0.013 L=29.2' S=0.0068 '/' Outflow=1.20 cfs 0.136 af

Pond E-CB15: E-CB15 Peak Elev=165.60' Inflow=2.77 cfs 0.320 af
15.0" Round Culvert n=0.013 L=68.9' S=0.0041 '/' Outflow=2.77 cfs 0.320 af

Pond E-DMH B: E-DMH B Peak Elev=174.56' Inflow=1.20 cfs 0.136 af
15.0" Round Culvert n=0.013 L=234.7' S=0.0366 '/' Outflow=1.20 cfs 0.136 af

Link A: A Inflow=11.34 cfs 1.495 af
Primary=11.34 cfs 1.495 af

Total Runoff Area = 5.338 ac Runoff Volume = 1.502 af Average Runoff Depth = 3.38"
98.85% Pervious = 5.277 ac 1.15% Impervious = 0.061 ac

A – 1

NODE LISTING – 50-YR

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment A1: A1 Runoff Area=19,543 sf 7.87% Impervious Runoff Depth>4.67"
Flow Length=346' Tc=11.3 min CN=79 Runoff=1.48 cfs 0.174 af

Subcatchment A2: A2 Runoff Area=27,298 sf 4.13% Impervious Runoff Depth>4.55"
Flow Length=397' Tc=12.2 min CN=78 Runoff=1.96 cfs 0.238 af

Subcatchment A3: A3 Runoff Area=185,679 sf 0.00% Impervious Runoff Depth>4.33"
Flow Length=549' Tc=14.1 min CN=76 Runoff=11.99 cfs 1.539 af

Reach R1: R1 Avg. Flow Depth=0.61' Max Vel=2.70 fps Inflow=3.44 cfs 0.412 af
n=0.080 L=42.0' S=0.0790 '/' Capacity=9.69 cfs Outflow=3.44 cfs 0.412 af

Reach R2: R2 Avg. Flow Depth=0.31' Max Vel=0.81 fps Inflow=3.44 cfs 0.412 af
n=0.080 L=485.0' S=0.0155 '/' Capacity=7.39 cfs Outflow=2.67 cfs 0.408 af

Reach R3: R3 Avg. Flow Depth=0.75' Max Vel=1.36 fps Inflow=11.99 cfs 1.539 af
n=0.080 L=170.0' S=0.0135 '/' Capacity=21.89 cfs Outflow=11.76 cfs 1.536 af

Pond E-CB13: E-CB13 Peak Elev=175.27' Inflow=1.48 cfs 0.174 af
12.0" Round Culvert n=0.013 L=30.0' S=0.0100 '/' Outflow=1.48 cfs 0.174 af

Pond E-CB14: E-CB14 Peak Elev=166.07' Inflow=1.48 cfs 0.174 af
15.0" Round Culvert n=0.013 L=29.2' S=0.0068 '/' Outflow=1.48 cfs 0.174 af

Pond E-CB15: E-CB15 Peak Elev=165.74' Inflow=3.44 cfs 0.412 af
15.0" Round Culvert n=0.013 L=68.9' S=0.0041 '/' Outflow=3.44 cfs 0.412 af

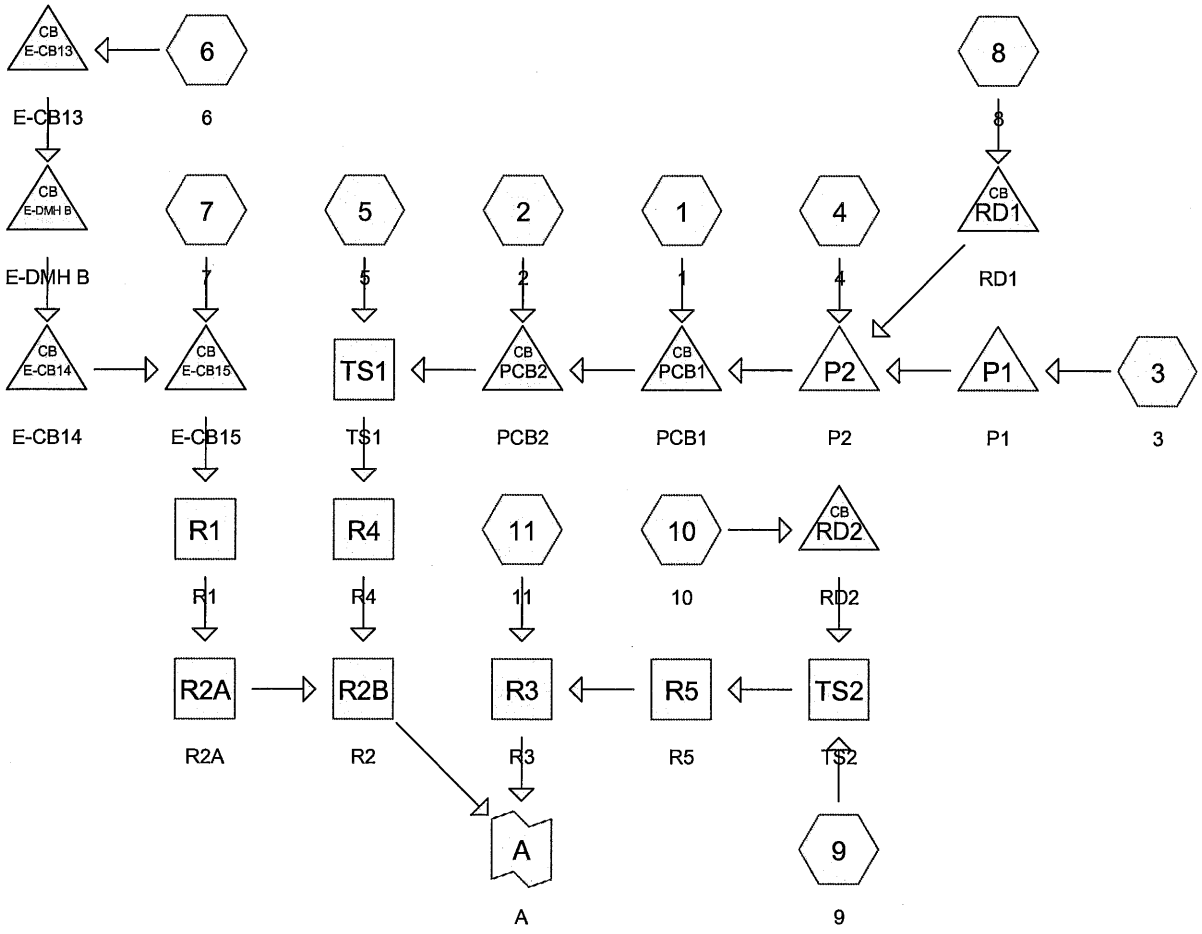
Pond E-DMH B: E-DMH B Peak Elev=174.62' Inflow=1.48 cfs 0.174 af
15.0" Round Culvert n=0.013 L=234.7' S=0.0366 '/' Outflow=1.48 cfs 0.174 af

Link A: A Inflow=14.35 cfs 1.943 af
Primary=14.35 cfs 1.943 af

Total Runoff Area = 5.338 ac Runoff Volume = 1.951 af Average Runoff Depth = 4.39"
98.85% Pervious = 5.277 ac 1.15% Impervious = 0.061 ac

A-2

DEVELOPED WATERSHEDS



Subcat Reach Pond Link

Routing Diagram for 19014-Post_jpg

Prepared by {enter your company name here}, Printed 9/8/2019

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.026	61	>75% Grass cover, Good, HSG B (5, 7, 11)
1.141	80	>75% Grass cover, Good, HSG D (3, 4, 5, 6, 7, 9, 11)
0.003	98	Paved roads w/curbs & sewers, HSG B (7)
0.738	98	Paved roads w/curbs & sewers, HSG D (1, 2, 3, 4, 6, 7, 9)
0.352	98	Roofs, HSG D (4, 8, 10)
0.004	98	Unconnected pavement, HSG D (11)
0.237	55	Woods, Good, HSG B (11)
2.837	77	Woods, Good, HSG D (5, 11)
5.338	**81**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.266	HSG B	5, 7, 11
0.000	HSG C	
5.072	HSG D	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
0.000	Other	
5.338		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.026	0.000	1.141	0.000	1.167	>75% Grass cover, Good	3, 4, 5, 6, 7, 9, 11
0.000	0.003	0.000	0.738	0.000	0.741	Paved roads w/curbs & sewers	1, 2, 3, 4, 6, 7, 9
0.000	0.000	0.000	0.352	0.000	0.352	Roofs	4, 8, 10
0.000	0.000	0.000	0.004	0.000	0.004	Unconnected pavement	11
0.000	0.237	0.000	2.837	0.000	3.074	Woods, Good	5, 11
0.000	**0.266**	**0.000**	**5.072**	**0.000**	**5.338**	**TOTAL AREA**	

A – 2

NODE LISTING – 2-YR

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: 1 Runoff Area=6,571 sf 100.00% Impervious Runoff Depth>2.90"
Flow Length=180' Slope=0.0280 '/' Tc=0.9 min CN=98 Runoff=0.52 cfs 0.036 af

Subcatchment 2: 2 Runoff Area=5,517 sf 100.00% Impervious Runoff Depth>2.90"
Flow Length=139' Slope=0.0270 '/' Tc=0.7 min CN=98 Runoff=0.44 cfs 0.031 af

Subcatchment 3: 3 Runoff Area=15,234 sf 46.74% Impervious Runoff Depth>1.93"
Flow Length=187' Tc=7.9 min CN=88 Runoff=0.70 cfs 0.056 af

Subcatchment 4: 4 Runoff Area=11,541 sf 5.23% Impervious Runoff Depth>1.41"
Flow Length=157' Tc=7.3 min CN=81 Runoff=0.39 cfs 0.031 af

Subcatchment 5: 5 Runoff Area=9,072 sf 0.00% Impervious Runoff Depth>1.28"
Flow Length=96' Tc=6.4 min CN=79 Runoff=0.29 cfs 0.022 af

Subcatchment 6: 6 Runoff Area=6,287 sf 50.96% Impervious Runoff Depth>2.02"
Flow Length=305' Tc=3.2 min CN=89 Runoff=0.38 cfs 0.024 af

Subcatchment 7: 7 Runoff Area=3,052 sf 60.62% Impervious Runoff Depth>2.10"
Flow Length=132' Tc=1.6 min CN=90 Runoff=0.20 cfs 0.012 af

Subcatchment 8: 8 Runoff Area=5,000 sf 100.00% Impervious Runoff Depth>2.90"
Flow Length=51' Slope=0.0200 '/' Tc=0.3 min CN=98 Runoff=0.40 cfs 0.028 af

Subcatchment 9: 9 Runoff Area=17,296 sf 44.79% Impervious Runoff Depth>1.93"
Flow Length=179' Tc=12.9 min CN=88 Runoff=0.64 cfs 0.064 af

Subcatchment 10: 10 Runoff Area=10,000 sf 100.00% Impervious Runoff Depth>2.90"
Flow Length=51' Slope=0.0200 '/' Tc=0.3 min CN=98 Runoff=0.80 cfs 0.055 af

Subcatchment 11: 11 Runoff Area=142,947 sf 0.13% Impervious Runoff Depth>1.10"
Flow Length=369' Tc=10.3 min CN=76 Runoff=3.18 cfs 0.300 af

Reach R1: R1 Avg. Flow Depth=0.26' Max Vel=1.59 fps Inflow=0.57 cfs 0.037 af
n=0.080 L=42.0' S=0.0790 '/' Capacity=9.69 cfs Outflow=0.57 cfs 0.037 af

Reach R2A: R2A Avg. Flow Depth=0.11' Max Vel=0.69 fps Inflow=0.57 cfs 0.037 af
n=0.080 L=121.0' S=0.0421 '/' Capacity=12.21 cfs Outflow=0.50 cfs 0.036 af

Reach R2B: R2 Avg. Flow Depth=0.31' Max Vel=0.52 fps Inflow=2.24 cfs 0.239 af
n=0.080 L=364.0' S=0.0066 '/' Capacity=4.83 cfs Outflow=1.67 cfs 0.236 af

Reach R3: R3 Avg. Flow Depth=0.46' Max Vel=0.90 fps Inflow=3.89 cfs 0.418 af
n=0.080 L=133.0' S=0.0113 '/' Capacity=19.98 cfs Outflow=3.73 cfs 0.417 af

Reach R4: R4 Avg. Flow Depth=0.17' Max Vel=1.41 fps Inflow=1.84 cfs 0.203 af
n=0.080 L=153.0' S=0.1082 '/' Capacity=19.56 cfs Outflow=1.82 cfs 0.203 af

Reach R5: R5 Avg. Flow Depth=0.13' Max Vel=0.95 fps Inflow=0.82 cfs 0.118 af
n=0.080 L=311.0' S=0.0714 '/' Capacity=15.89 cfs Outflow=0.79 cfs 0.118 af

Reach TS1: TS1 Avg. Flow Depth=0.42' Max Vel=0.60 fps Inflow=2.24 cfs 0.204 af
n=0.090 L=155.0' S=0.0052 '/' Capacity=8.66 cfs Outflow=1.84 cfs 0.203 af

Reach TS2: TS2 Avg. Flow Depth=0.44' Max Vel=0.35 fps Inflow=1.07 cfs 0.119 af
n=0.150 L=155.0' S=0.0052 '/' Capacity=3.84 cfs Outflow=0.82 cfs 0.118 af

Pond E-CB13: E-CB13 Peak Elev=174.91' Inflow=0.38 cfs 0.024 af
12.0" Round Culvert n=0.013 L=30.0' S=0.0100 '/' Outflow=0.38 cfs 0.024 af

Pond E-CB14: E-CB14 Peak Elev=165.71' Inflow=0.38 cfs 0.024 af
15.0" Round Culvert n=0.013 L=29.2' S=0.0068 '/' Outflow=0.38 cfs 0.024 af

Pond E-CB15: E-CB15 Peak Elev=165.02' Inflow=0.57 cfs 0.037 af
15.0" Round Culvert n=0.013 L=68.9' S=0.0041 '/' Outflow=0.57 cfs 0.037 af

Pond E-DMH B: E-DMH B Peak Elev=174.35' Inflow=0.38 cfs 0.024 af
15.0" Round Culvert n=0.013 L=234.7' S=0.0366 '/' Outflow=0.38 cfs 0.024 af

Pond P1: P1 Peak Elev=180.42' Storage=8 cf Inflow=0.70 cfs 0.056 af
12.0" Round Culvert n=0.012 L=45.0' S=0.0100 '/' Outflow=0.70 cfs 0.056 af

Pond P2: P2 Peak Elev=174.89' Storage=48 cf Inflow=1.25 cfs 0.115 af
12.0" Round Culvert n=0.012 L=12.0' S=0.0083 '/' Outflow=1.24 cfs 0.115 af

Pond PCB1: PCB1 Peak Elev=174.68' Inflow=1.58 cfs 0.151 af
12.0" Round Culvert n=0.012 L=28.0' S=0.0143 '/' Outflow=1.58 cfs 0.151 af

Pond PCB2: PCB2 Peak Elev=174.07' Inflow=2.02 cfs 0.182 af
15.0" Round Culvert n=0.012 L=20.0' S=0.0100 '/' Outflow=2.02 cfs 0.182 af

Pond RD1: RD1 Peak Elev=183.43' Inflow=0.40 cfs 0.028 af
6.0" Round Culvert n=0.012 L=75.0' S=0.0133 '/' Outflow=0.40 cfs 0.028 af

Pond RD2: RD2 Peak Elev=184.38' Inflow=0.80 cfs 0.055 af
6.0" Round Culvert n=0.012 L=87.0' S=0.0115 '/' Outflow=0.80 cfs 0.055 af

Link A: A Inflow=5.34 cfs 0.653 af
Primary=5.34 cfs 0.653 af

Total Runoff Area = 5.338 ac Runoff Volume = 0.660 af Average Runoff Depth = 1.48"
79.45% Pervious = 4.241 ac 20.55% Impervious = 1.097 ac

A – 2

NODE LISTING – 10-YR

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: 1 Runoff Area=6,571 sf 100.00% Impervious Runoff Depth>4.47"
Flow Length=180' Slope=0.0280 '/' Tc=0.9 min CN=98 Runoff=0.68 cfs 0.056 af

Subcatchment 2: 2 Runoff Area=5,517 sf 100.00% Impervious Runoff Depth>4.47"
Flow Length=139' Slope=0.0270 '/' Tc=0.7 min CN=98 Runoff=0.57 cfs 0.047 af

Subcatchment 3: 3 Runoff Area=15,234 sf 46.74% Impervious Runoff Depth>3.39"
Flow Length=187' Tc=7.9 min CN=88 Runoff=1.06 cfs 0.099 af

Subcatchment 4: 4 Runoff Area=11,541 sf 5.23% Impervious Runoff Depth>2.72"
Flow Length=157' Tc=7.3 min CN=81 Runoff=0.67 cfs 0.060 af

Subcatchment 5: 5 Runoff Area=9,072 sf 0.00% Impervious Runoff Depth>2.55"
Flow Length=96' Tc=6.4 min CN=79 Runoff=0.52 cfs 0.044 af

Subcatchment 6: 6 Runoff Area=6,287 sf 50.96% Impervious Runoff Depth>3.49"
Flow Length=305' Tc=3.2 min CN=89 Runoff=0.55 cfs 0.042 af

Subcatchment 7: 7 Runoff Area=3,052 sf 60.62% Impervious Runoff Depth>3.60"
Flow Length=132' Tc=1.6 min CN=90 Runoff=0.28 cfs 0.021 af

Subcatchment 8: 8 Runoff Area=5,000 sf 100.00% Impervious Runoff Depth>4.47"
Flow Length=51' Slope=0.0200 '/' Tc=0.3 min CN=98 Runoff=0.52 cfs 0.043 af

Subcatchment 9: 9 Runoff Area=17,296 sf 44.79% Impervious Runoff Depth>3.38"
Flow Length=179' Tc=12.9 min CN=88 Runoff=0.98 cfs 0.112 af

Subcatchment 10: 10 Runoff Area=10,000 sf 100.00% Impervious Runoff Depth>4.47"
Flow Length=51' Slope=0.0200 '/' Tc=0.3 min CN=98 Runoff=1.03 cfs 0.086 af

Subcatchment 11: 11 Runoff Area=142,947 sf 0.13% Impervious Runoff Depth>2.29"
Flow Length=369' Tc=10.3 min CN=76 Runoff=6.09 cfs 0.626 af

Reach R1: R1 Avg. Flow Depth=0.31' Max Vel=1.78 fps Inflow=0.83 cfs 0.063 af
n=0.080 L=42.0' S=0.0790 '/' Capacity=9.69 cfs Outflow=0.83 cfs 0.063 af

Reach R2A: R2A Avg. Flow Depth=0.14' Max Vel=0.78 fps Inflow=0.83 cfs 0.063 af
n=0.080 L=121.0' S=0.0421 '/' Capacity=12.21 cfs Outflow=0.75 cfs 0.063 af

Reach R2B: R2 Avg. Flow Depth=0.38' Max Vel=0.61 fps Inflow=3.43 cfs 0.410 af
n=0.080 L=364.0' S=0.0066 '/' Capacity=4.83 cfs Outflow=2.74 cfs 0.406 af

Reach R3: R3 Avg. Flow Depth=0.61' Max Vel=1.09 fps Inflow=7.18 cfs 0.821 af
n=0.080 L=133.0' S=0.0113 '/' Capacity=19.98 cfs Outflow=6.98 cfs 0.819 af

Reach R4: R4 Avg. Flow Depth=0.21' Max Vel=1.62 fps Inflow=2.85 cfs 0.348 af
n=0.080 L=153.0' S=0.1082 '/' Capacity=19.56 cfs Outflow=2.84 cfs 0.347 af

Reach R5: R5 Avg. Flow Depth=0.15' Max Vel=1.08 fps Inflow=1.24 cfs 0.196 af
n=0.080 L=311.0' S=0.0714 '/' Capacity=15.89 cfs Outflow=1.21 cfs 0.195 af

Reach TS1: TS1 Avg. Flow Depth=0.54' Max Vel=0.69 fps Inflow=3.25 cfs 0.349 af
n=0.090 L=155.0' S=0.0052 '/' Capacity=8.66 cfs Outflow=2.85 cfs 0.348 af

Reach TS2: TS2 Avg. Flow Depth=0.55' Max Vel=0.40 fps Inflow=1.50 cfs 0.197 af
n=0.150 L=155.0' S=0.0052 '/' Capacity=3.84 cfs Outflow=1.24 cfs 0.196 af

Pond E-CB13: E-CB13 Peak Elev=174.98' Inflow=0.55 cfs 0.042 af
12.0" Round Culvert n=0.013 L=30.0' S=0.0100 '/' Outflow=0.55 cfs 0.042 af

Pond E-CB14: E-CB14 Peak Elev=165.78' Inflow=0.55 cfs 0.042 af
15.0" Round Culvert n=0.013 L=29.2' S=0.0068 '/' Outflow=0.55 cfs 0.042 af

Pond E-CB15: E-CB15 Peak Elev=165.11' Inflow=0.83 cfs 0.063 af
15.0" Round Culvert n=0.013 L=68.9' S=0.0041 '/' Outflow=0.83 cfs 0.063 af

Pond E-DMH B: E-DMH B Peak Elev=174.41' Inflow=0.55 cfs 0.042 af
15.0" Round Culvert n=0.013 L=234.7' S=0.0366 '/' Outflow=0.55 cfs 0.042 af

Pond P1: P1 Peak Elev=180.54' Storage=11 cf Inflow=1.06 cfs 0.099 af
12.0" Round Culvert n=0.012 L=45.0' S=0.0100 '/' Outflow=1.06 cfs 0.099 af

Pond P2: P2 Peak Elev=175.14' Storage=75 cf Inflow=1.94 cfs 0.202 af
12.0" Round Culvert n=0.012 L=12.0' S=0.0083 '/' Outflow=1.92 cfs 0.201 af

Pond PCB1: PCB1 Peak Elev=174.87' Inflow=2.29 cfs 0.258 af
12.0" Round Culvert n=0.012 L=28.0' S=0.0143 '/' Outflow=2.29 cfs 0.258 af

Pond PCB2: PCB2 Peak Elev=174.25' Inflow=2.83 cfs 0.305 af
15.0" Round Culvert n=0.012 L=20.0' S=0.0100 '/' Outflow=2.83 cfs 0.305 af

Pond RD1: RD1 Peak Elev=183.55' Inflow=0.52 cfs 0.043 af
6.0" Round Culvert n=0.012 L=75.0' S=0.0133 '/' Outflow=0.52 cfs 0.043 af

Pond RD2: RD2 Peak Elev=185.67' Inflow=1.03 cfs 0.086 af
6.0" Round Culvert n=0.012 L=87.0' S=0.0115 '/' Outflow=1.03 cfs 0.086 af

Link A: A Inflow=9.62 cfs 1.225 af
Primary=9.62 cfs 1.225 af

Total Runoff Area = 5.338 ac Runoff Volume = 1.236 af Average Runoff Depth = 2.78"
79.45% Pervious = 4.241 ac 20.55% Impervious = 1.097 ac

A – 2

10-YR STORM SUMMARY

Summary for Subcatchment 1: 1

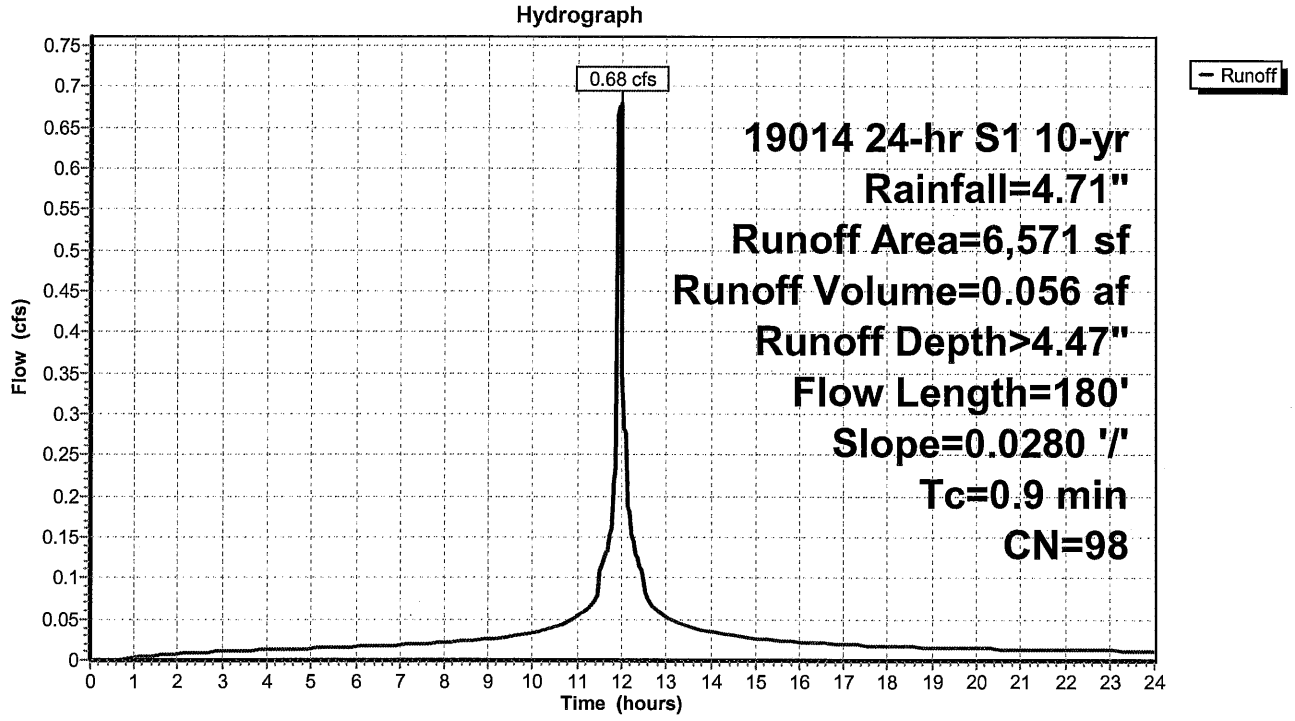
Runoff = 0.68 cfs @ 11.99 hrs, Volume= 0.056 af, Depth> 4.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
19014 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
6,571	98	Paved roads w/curbs & sewers, HSG D
6,571		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	180	0.0280	3.40		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps

Subcatchment 1: 1



Summary for Subcatchment 2: 2

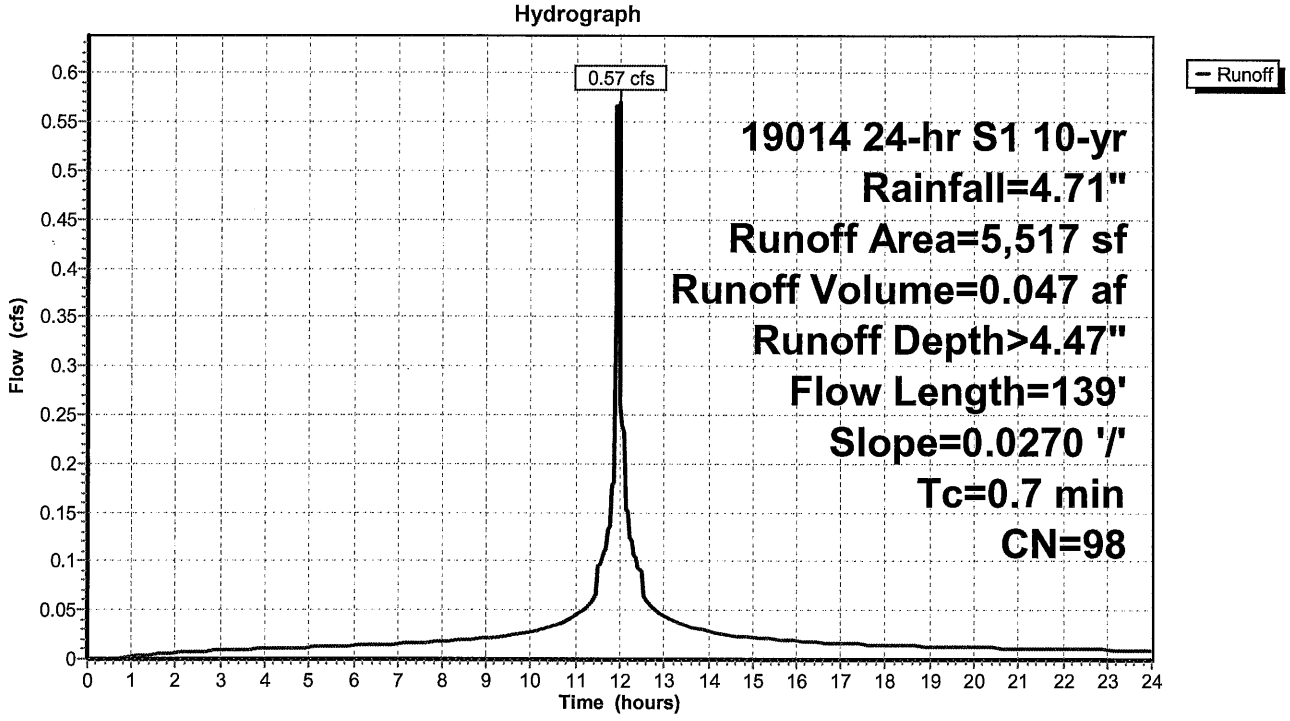
Runoff = 0.57 cfs @ 11.99 hrs, Volume= 0.047 af, Depth> 4.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
19014 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
5,517	98	Paved roads w/curbs & sewers, HSG D
5,517		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	139	0.0270	3.34		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps

Subcatchment 2: 2



Summary for Subcatchment 3: 3

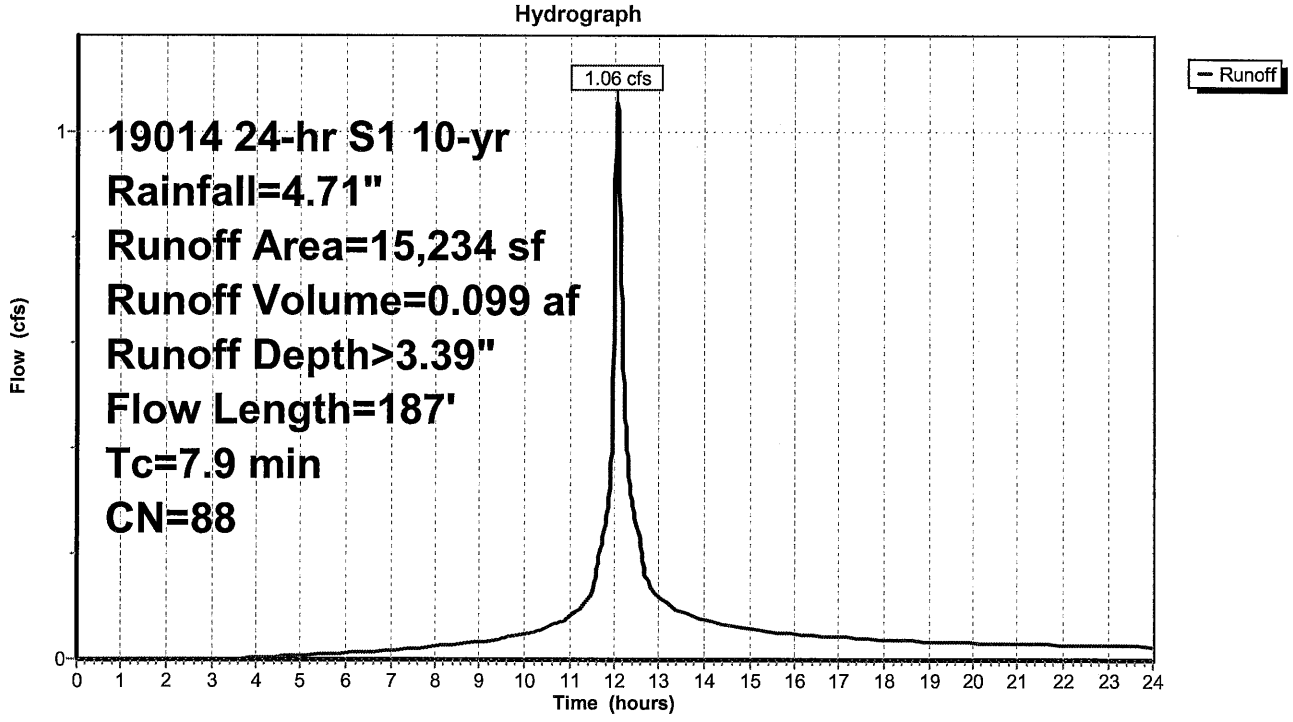
Runoff = 1.06 cfs @ 12.06 hrs, Volume= 0.099 af, Depth> 3.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
19014 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
8,114	80	>75% Grass cover, Good, HSG D
7,120	98	Paved roads w/curbs & sewers, HSG D
15,234	88	Weighted Average
8,114		53.26% Pervious Area
7,120		46.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.0	50	0.0300	0.12		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.13"
0.9	137	0.0260	2.42		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
7.9	187	Total			

Subcatchment 3: 3



Summary for Subcatchment 4: 4

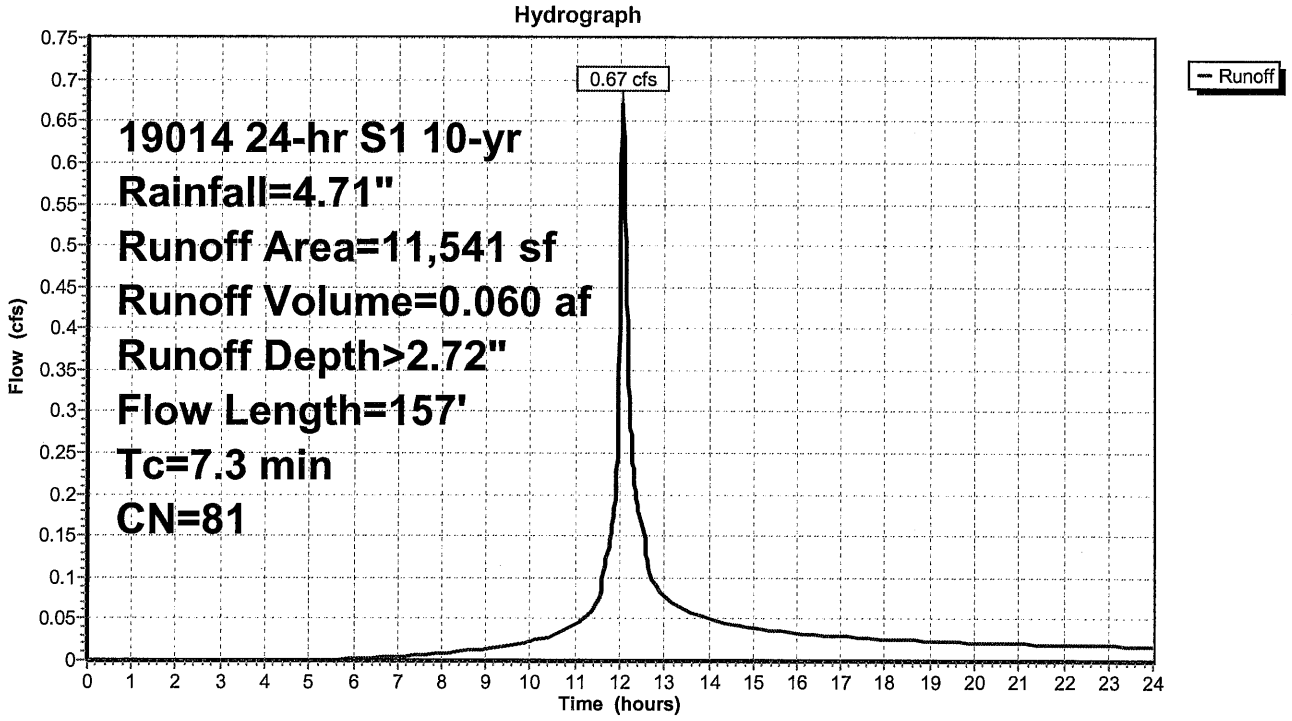
Runoff = 0.67 cfs @ 12.05 hrs, Volume= 0.060 af, Depth> 2.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
19014 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
10,937	80	>75% Grass cover, Good, HSG D
279	98	Paved roads w/curbs & sewers, HSG D
325	98	Roofs, HSG D
11,541	81	Weighted Average
10,937		94.77% Pervious Area
604		5.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	50	0.0400	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.13"
1.0	107	0.0650	1.78		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
7.3	157	Total			

Subcatchment 4: 4



Summary for Subcatchment 5: 5

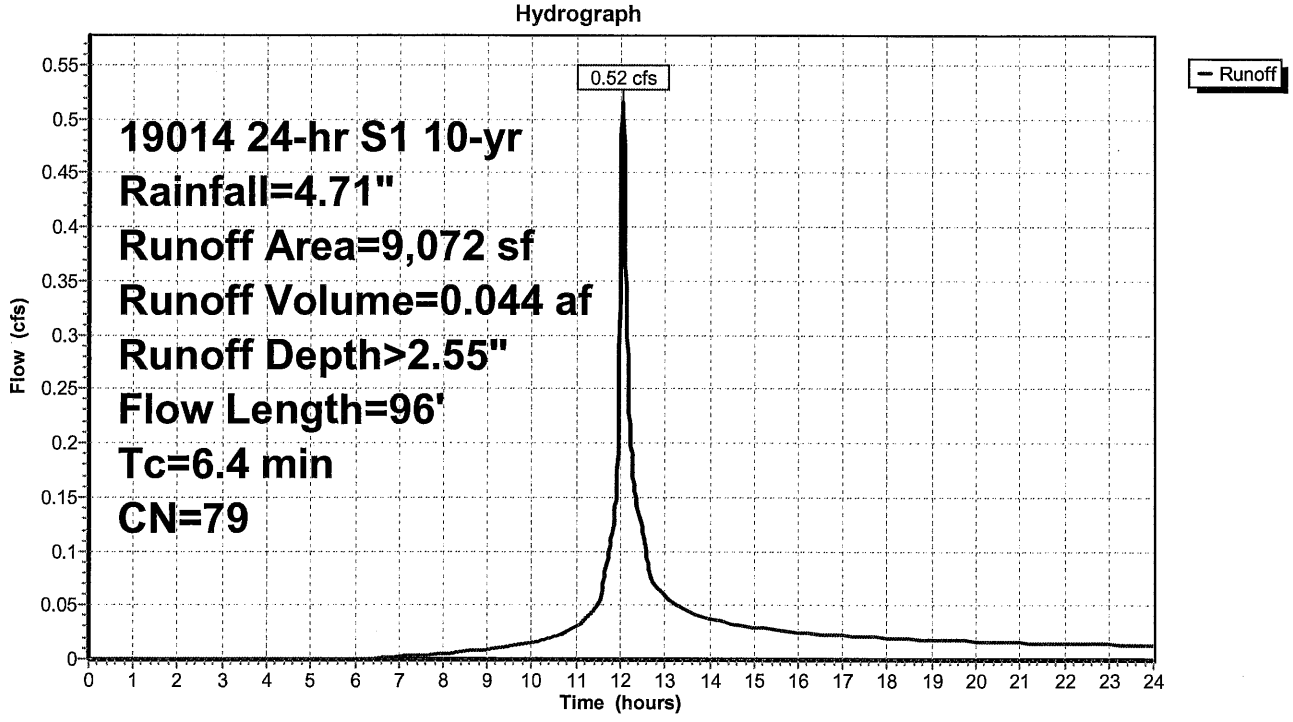
Runoff = 0.52 cfs @ 12.04 hrs, Volume= 0.044 af, Depth> 2.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
19014 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
385	61	>75% Grass cover, Good, HSG B
1,108	77	Woods, Good, HSG D
7,579	80	>75% Grass cover, Good, HSG D
9,072	79	Weighted Average
9,072		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	50	0.0440	0.14		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.13"
0.4	46	0.0830	2.02		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
6.4	96	Total			

Subcatchment 5: 5



Summary for Subcatchment 6: 6

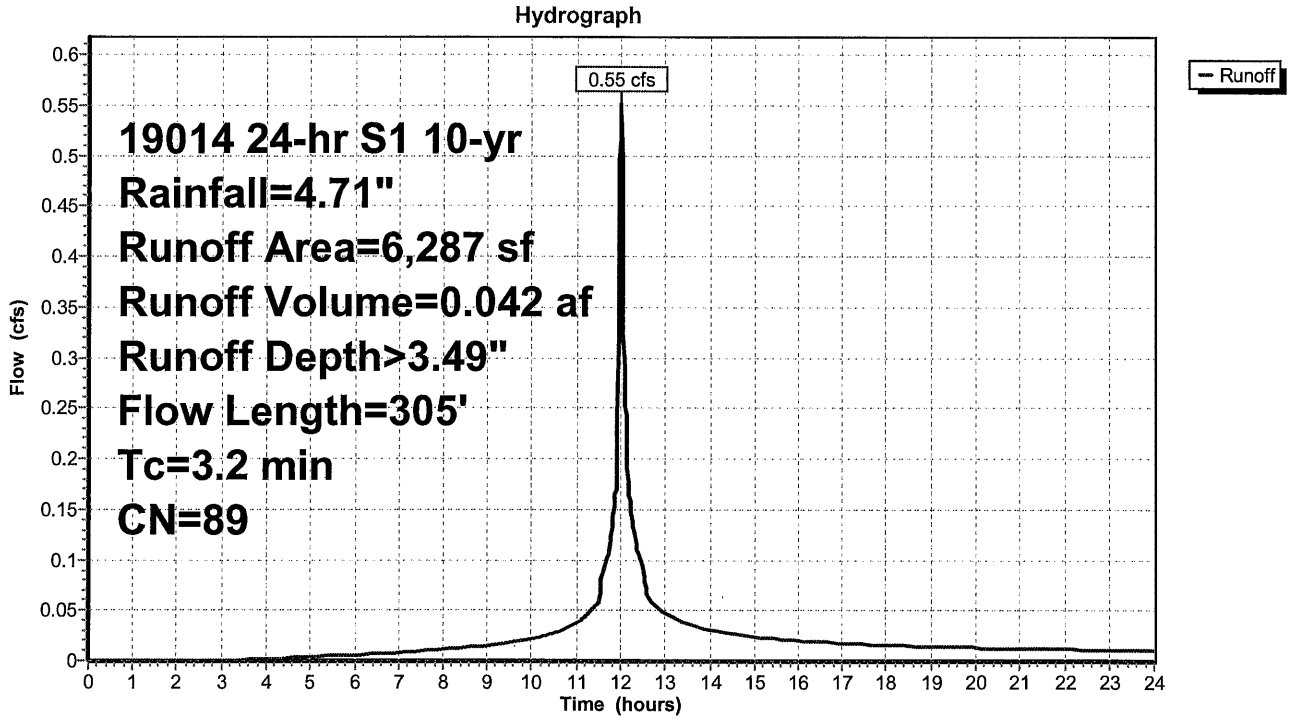
Runoff = 0.55 cfs @ 12.01 hrs, Volume= 0.042 af, Depth> 3.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
19014 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
3,083	80	>75% Grass cover, Good, HSG D
3,204	98	Paved roads w/curbs & sewers, HSG D
6,287	89	Weighted Average
3,083		49.04% Pervious Area
3,204		50.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	14	0.0500	0.11		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.13"
1.1	291	0.0450	4.31		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.2	305	Total			

Subcatchment 6: 6



Summary for Subcatchment 7: 7

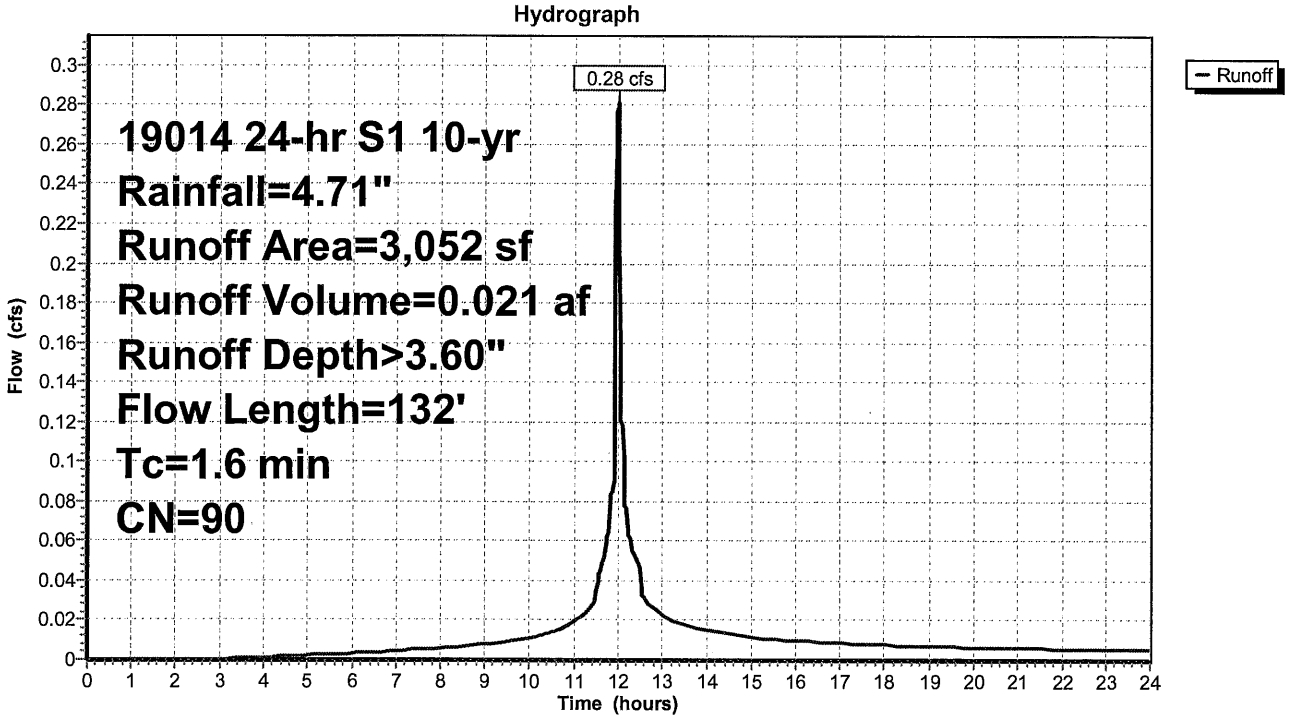
Runoff = 0.28 cfs @ 12.00 hrs, Volume= 0.021 af, Depth> 3.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
19014 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
138	61	>75% Grass cover, Good, HSG B
142	98	Paved roads w/curbs & sewers, HSG B
1,064	80	>75% Grass cover, Good, HSG D
1,708	98	Paved roads w/curbs & sewers, HSG D
3,052	90	Weighted Average
1,202		39.38% Pervious Area
1,850		60.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	11	0.1500	0.17		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.13"
0.5	121	0.0470	4.40		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.6	132	Total			

Subcatchment 7: 7



Summary for Subcatchment 8: 8

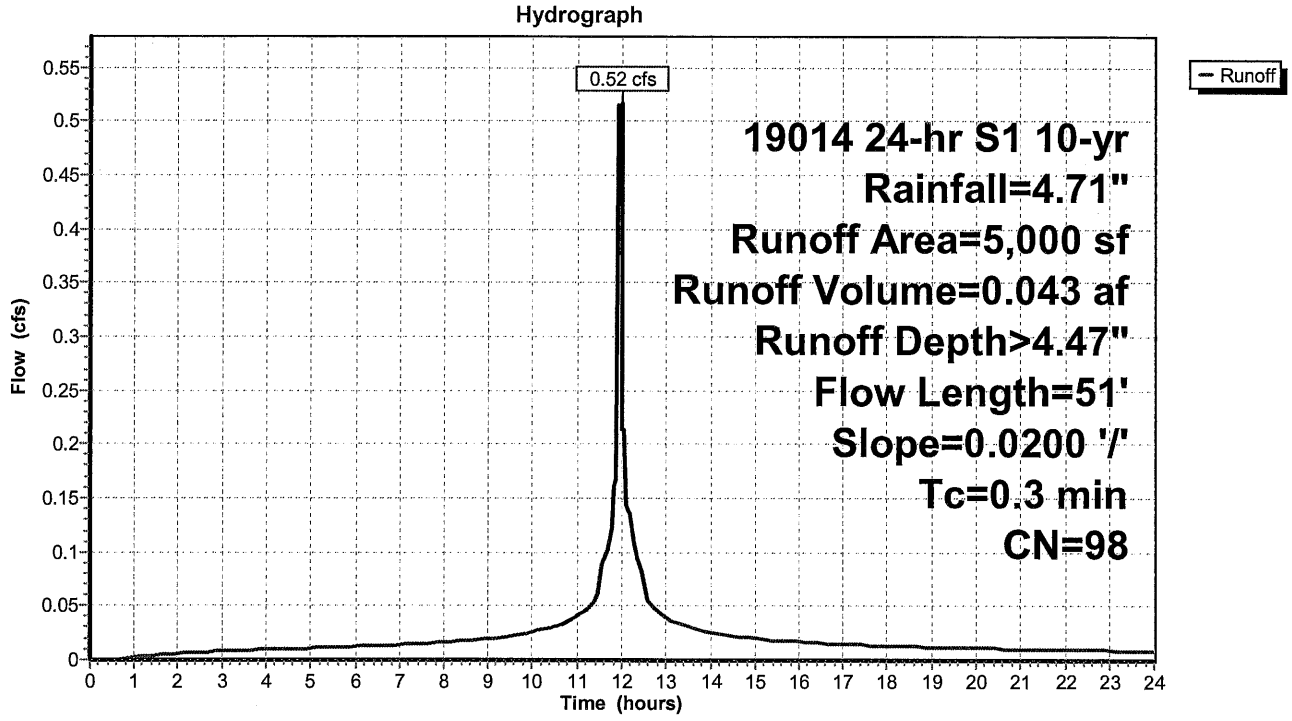
Runoff = 0.52 cfs @ 11.99 hrs, Volume= 0.043 af, Depth> 4.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
19014 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
5,000	98	Roofs, HSG D
5,000		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	51	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps

Subcatchment 8: 8



Summary for Subcatchment 9: 9

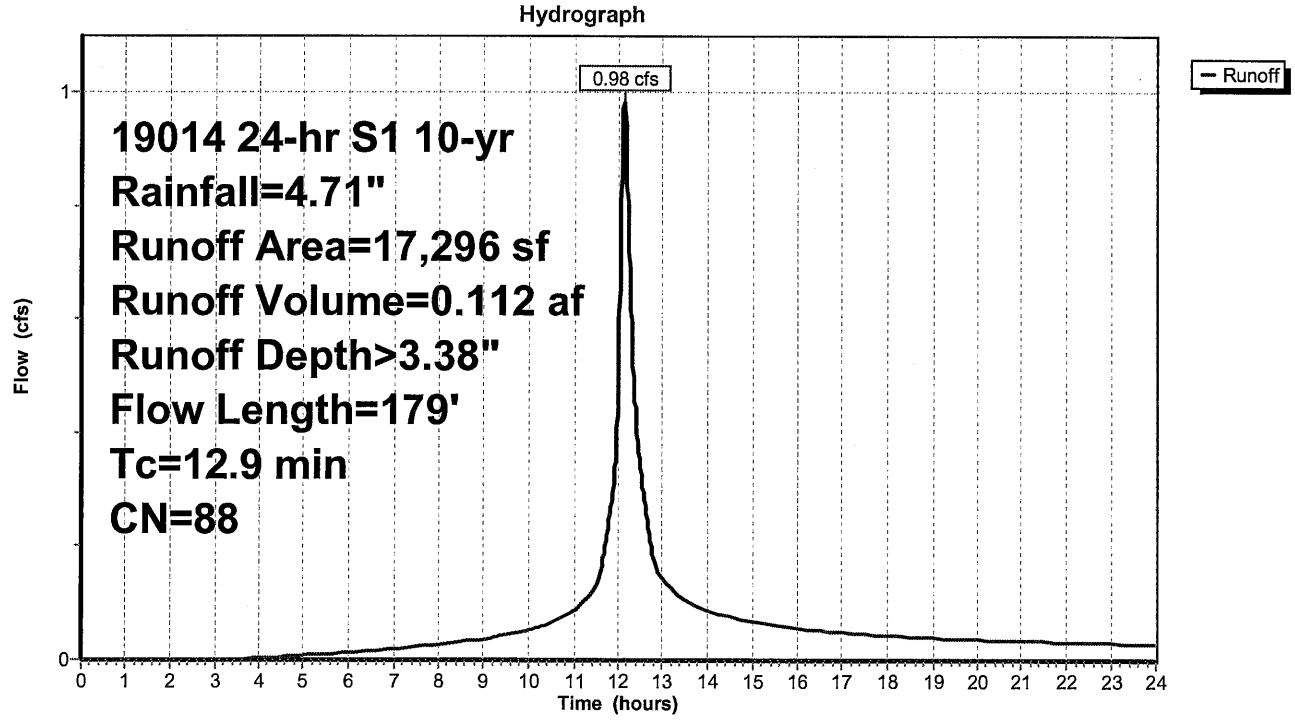
Runoff = 0.98 cfs @ 12.13 hrs, Volume= 0.112 af, Depth> 3.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
19014 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
9,549	80	>75% Grass cover, Good, HSG D
7,747	98	Paved roads w/curbs & sewers, HSG D
17,296	88	Weighted Average
9,549		55.21% Pervious Area
7,747		44.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	50	0.0100	0.08		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.13"
2.0	129	0.0050	1.06		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
12.9	179	Total			

Subcatchment 9: 9



Summary for Subcatchment 10: 10

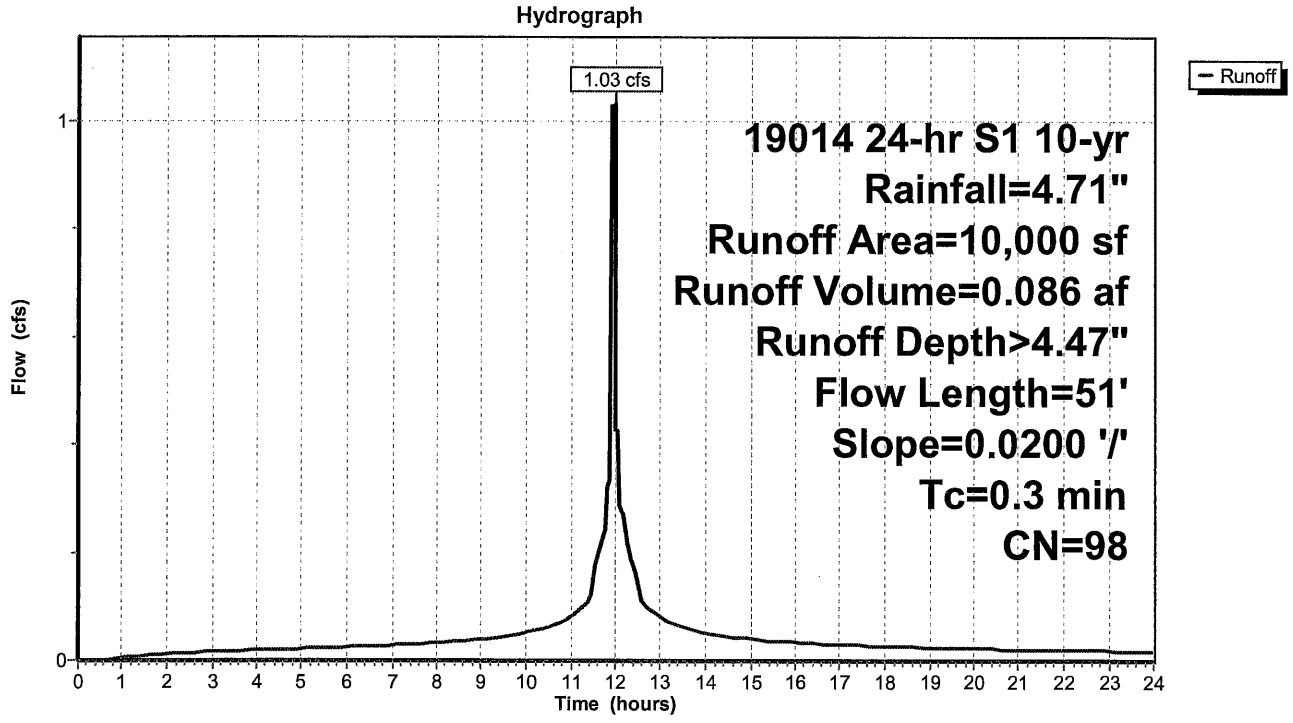
Runoff = 1.03 cfs @ 11.99 hrs, Volume= 0.086 af, Depth> 4.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
19014 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
10,000	98	Roofs, HSG D
10,000		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	51	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps

Subcatchment 10: 10



Summary for Subcatchment 11: 11

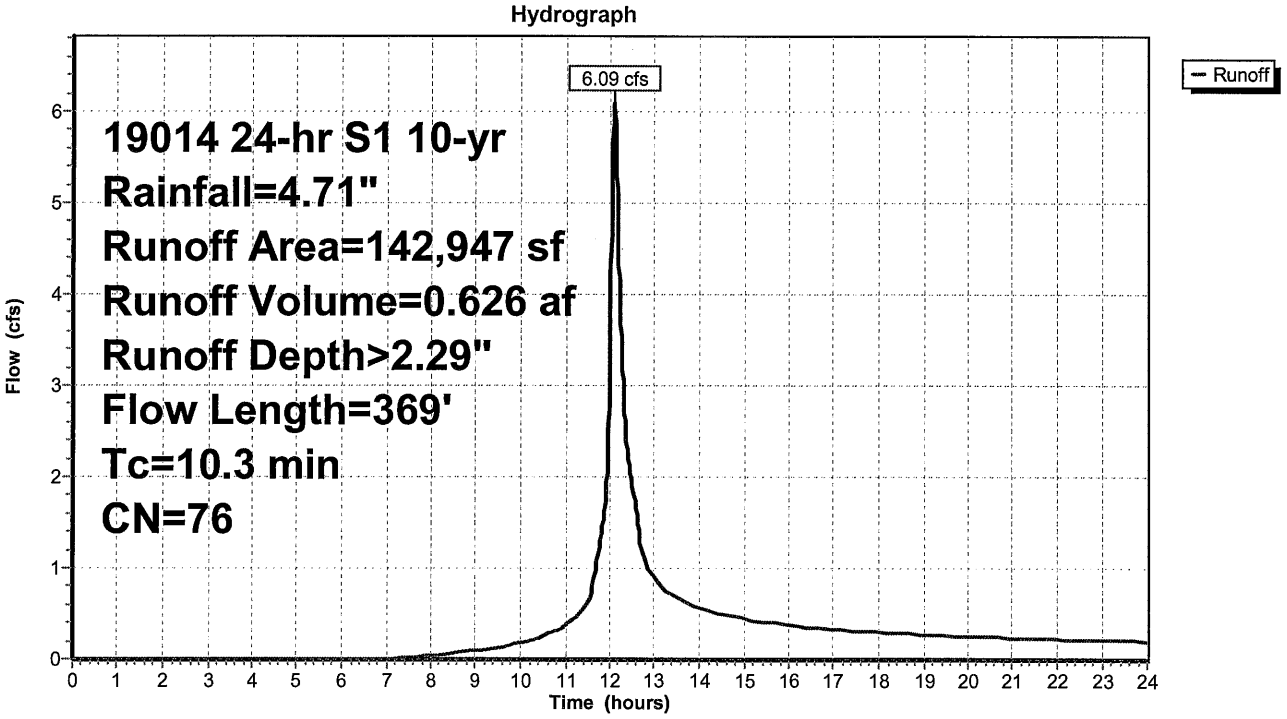
Runoff = 6.09 cfs @ 12.09 hrs, Volume= 0.626 af, Depth> 2.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
19014 24-hr S1 10-yr Rainfall=4.71"

Area (sf)	CN	Description
10,310	55	Woods, Good, HSG B
602	61	>75% Grass cover, Good, HSG B
122,489	77	Woods, Good, HSG D
9,366	80	>75% Grass cover, Good, HSG D
180	98	Unconnected pavement, HSG D
142,947	76	Weighted Average
142,767		99.87% Pervious Area
180		0.13% Impervious Area
180		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	50	0.0350	0.13		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.13"
0.2	25	0.0800	1.98		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
3.5	294	0.0780	1.40		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
10.3	369	Total			

Subcatchment 11: 11



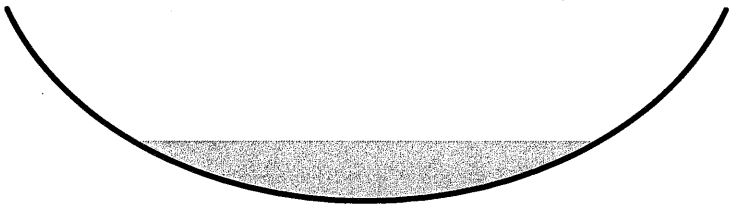
Summary for Reach R1: R1

Inflow Area = 0.214 ac, 54.12% Impervious, Inflow Depth > 3.53" for 10-yr event
Inflow = 0.83 cfs @ 12.00 hrs, Volume= 0.063 af
Outflow = 0.83 cfs @ 12.01 hrs, Volume= 0.063 af, Atten= 0%, Lag= 0.2 min

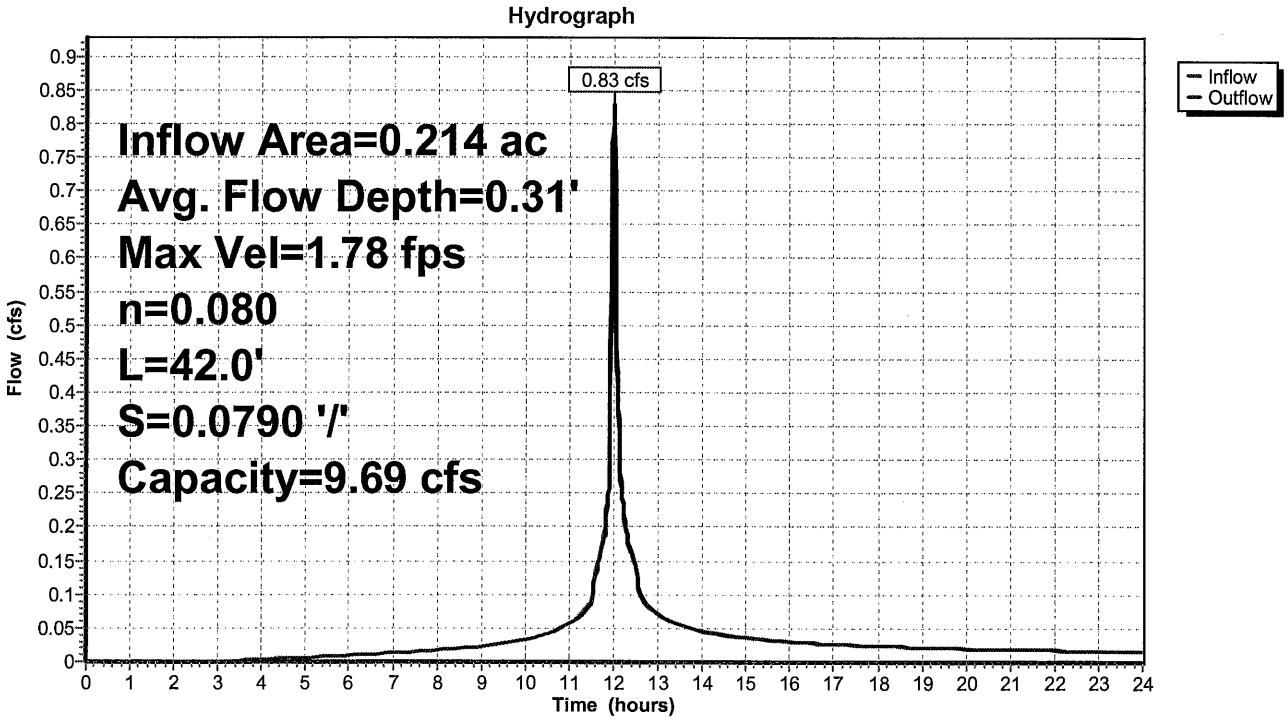
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Max. Velocity= 1.78 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 0.61 fps, Avg. Travel Time= 1.1 min

Peak Storage= 20 cf @ 12.01 hrs
Average Depth at Peak Storage= 0.31'
Bank-Full Depth= 1.00' Flow Area= 2.7 sf, Capacity= 9.69 cfs

4.00' x 1.00' deep Parabolic Channel, n= 0.080 Earth, long dense weeds
Length= 42.0' Slope= 0.0790 '/'
Inlet Invert= 164.32', Outlet Invert= 161.00'



Reach R1: R1



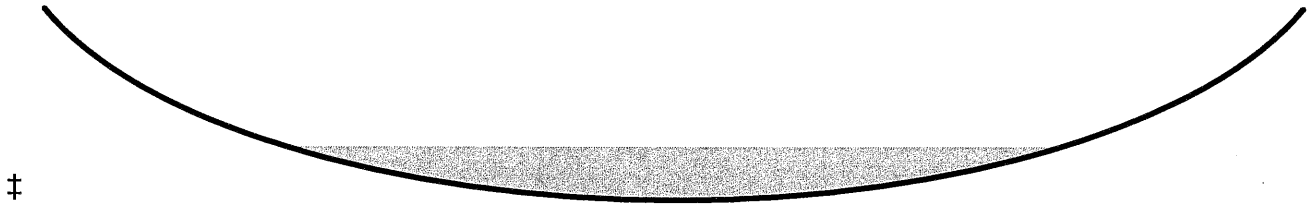
Summary for Reach R2A: R2A

Inflow Area = 0.214 ac, 54.12% Impervious, Inflow Depth > 3.52" for 10-yr event
Inflow = 0.83 cfs @ 12.01 hrs, Volume= 0.063 af
Outflow = 0.75 cfs @ 12.02 hrs, Volume= 0.063 af, Atten= 9%, Lag= 1.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Max. Velocity= 0.78 fps, Min. Travel Time= 2.6 min
Avg. Velocity = 0.27 fps, Avg. Travel Time= 7.5 min

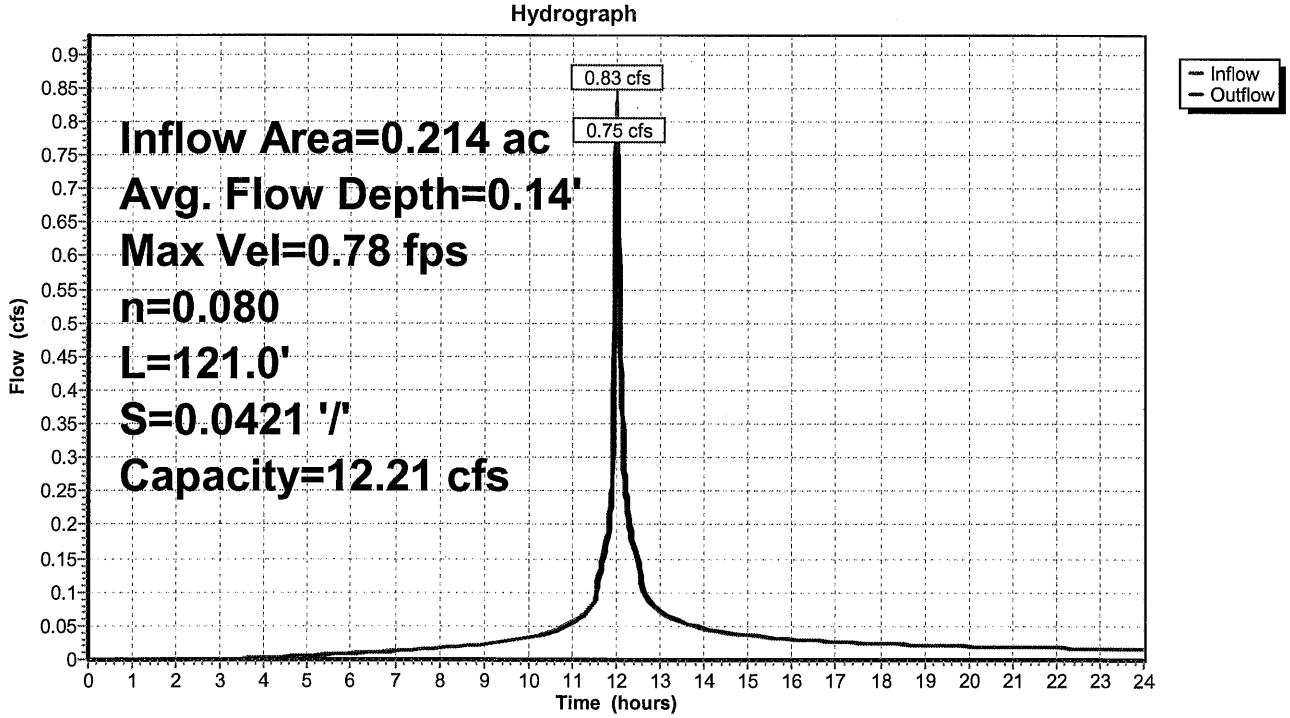
Peak Storage= 117 cf @ 12.02 hrs
Average Depth at Peak Storage= 0.14'
Bank-Full Depth= 0.50' Flow Area= 6.7 sf, Capacity= 12.21 cfs

20.00' x 0.50' deep Parabolic Channel, n= 0.080 Earth, dense brush, high stage
Length= 121.0' Slope= 0.0421 '/'
Inlet Invert= 161.00', Outlet Invert= 155.90'



‡

Reach R2A: R2A



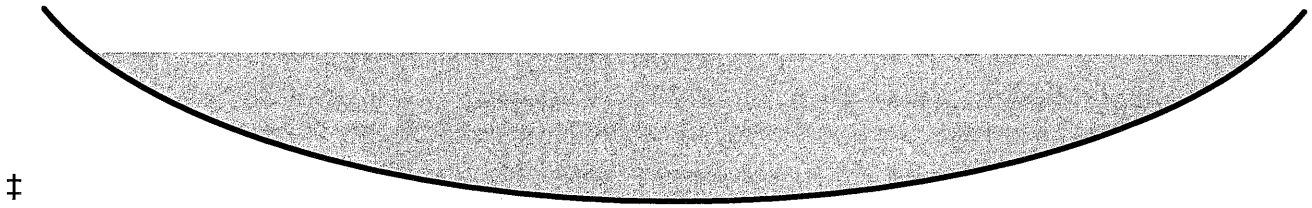
Summary for Reach R2B: R2

Inflow Area = 1.430 ac, 47.96% Impervious, Inflow Depth > 3.44" for 10-yr event
Inflow = 3.43 cfs @ 12.04 hrs, Volume= 0.410 af
Outflow = 2.74 cfs @ 12.17 hrs, Volume= 0.406 af, Atten= 20%, Lag= 7.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Max. Velocity= 0.61 fps, Min. Travel Time= 10.0 min
Avg. Velocity = 0.24 fps, Avg. Travel Time= 25.4 min

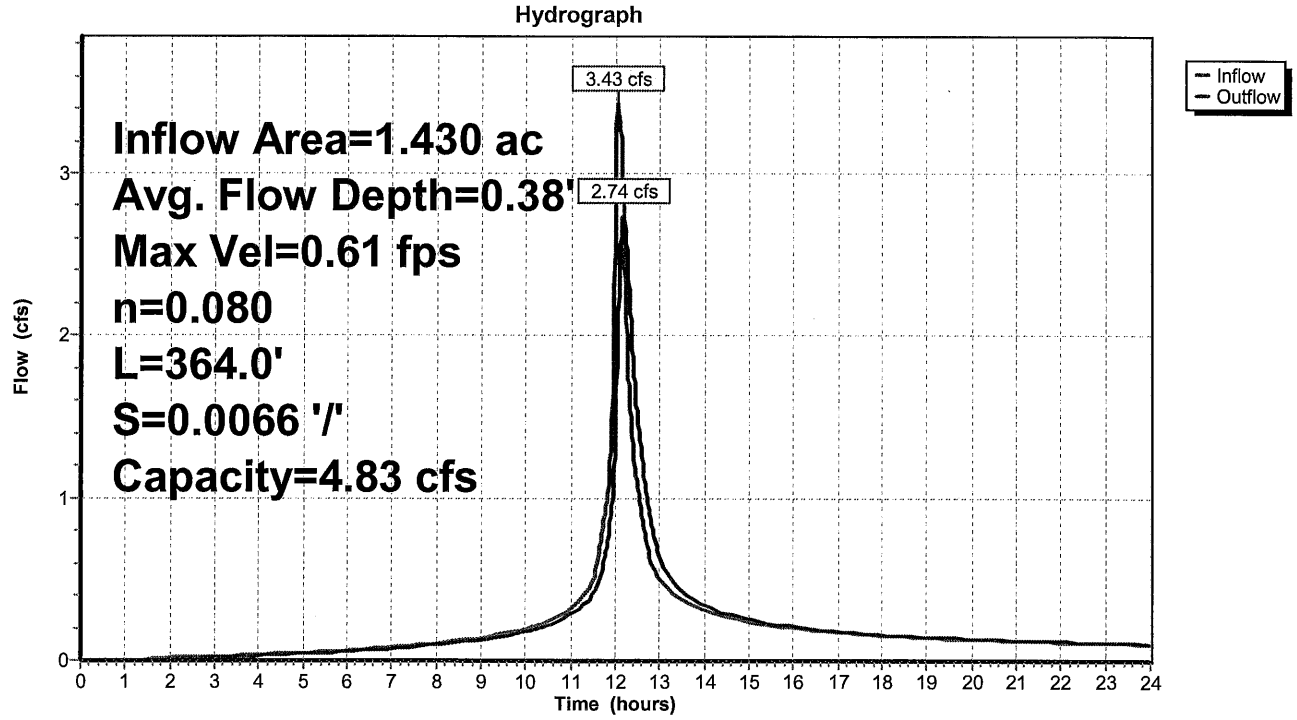
Peak Storage= 1,637 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.38'
Bank-Full Depth= 0.50' Flow Area= 6.7 sf, Capacity= 4.83 cfs

20.00' x 0.50' deep Parabolic Channel, n= 0.080 Earth, dense brush, high stage
Length= 364.0' Slope= 0.0066 '/'
Inlet Invert= 155.90', Outlet Invert= 153.50'



‡

Reach R2B: R2



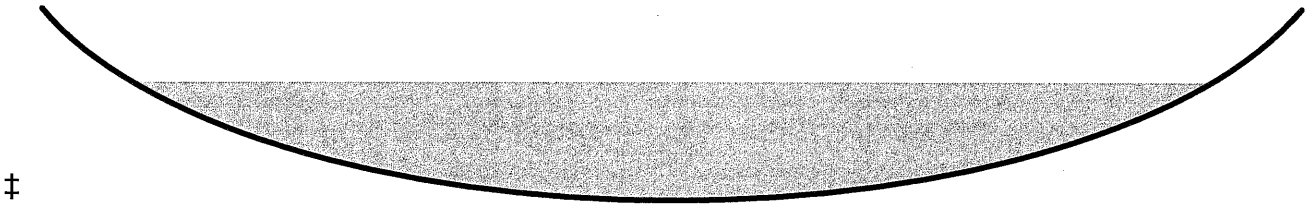
Summary for Reach R3: R3

Inflow Area = 3.908 ac, 10.53% Impervious, Inflow Depth > 2.52" for 10-yr event
Inflow = 7.18 cfs @ 12.10 hrs, Volume= 0.821 af
Outflow = 6.98 cfs @ 12.12 hrs, Volume= 0.819 af, Atten= 3%, Lag= 1.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Max. Velocity= 1.09 fps, Min. Travel Time= 2.0 min
Avg. Velocity = 0.38 fps, Avg. Travel Time= 5.9 min

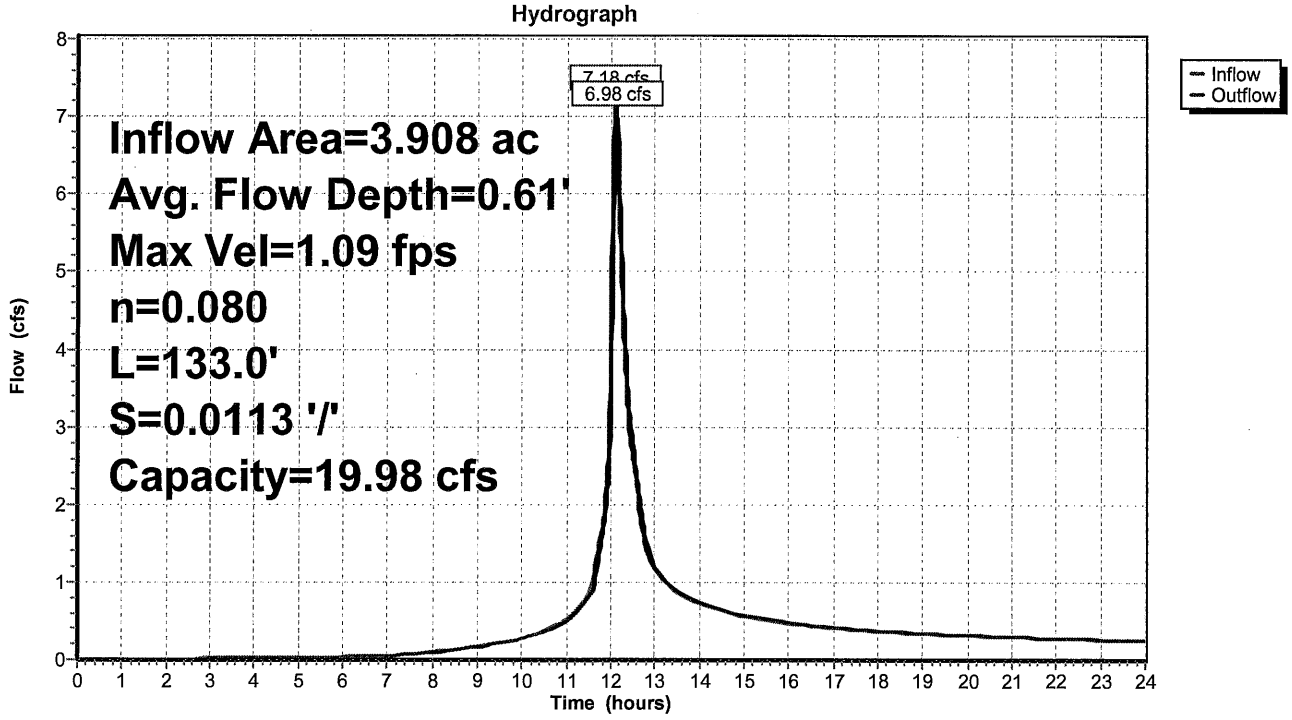
Peak Storage= 855 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.61'
Bank-Full Depth= 1.00' Flow Area= 13.3 sf, Capacity= 19.98 cfs

20.00' x 1.00' deep Parabolic Channel, n= 0.080 Earth, dense brush, high stage
Length= 133.0' Slope= 0.0113 '/'
Inlet Invert= 155.00', Outlet Invert= 153.50'



‡

Reach R3: R3



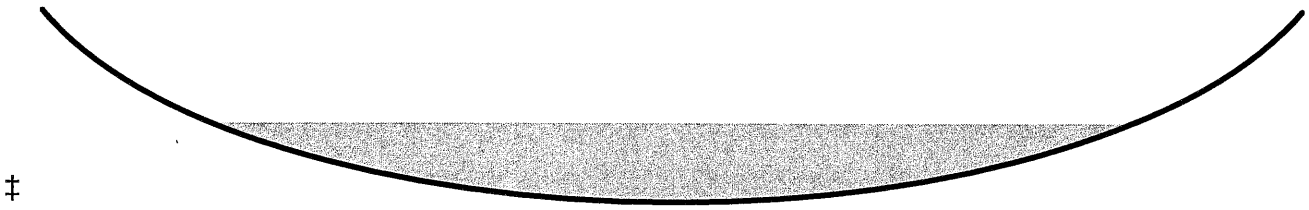
Summary for Reach R4: R4

Inflow Area = 1.215 ac, 46.87% Impervious, Inflow Depth > 3.43" for 10-yr event
Inflow = 2.85 cfs @ 12.08 hrs, Volume= 0.348 af
Outflow = 2.84 cfs @ 12.10 hrs, Volume= 0.347 af, Atten= 1%, Lag= 0.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Max. Velocity= 1.62 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 0.61 fps, Avg. Travel Time= 4.2 min

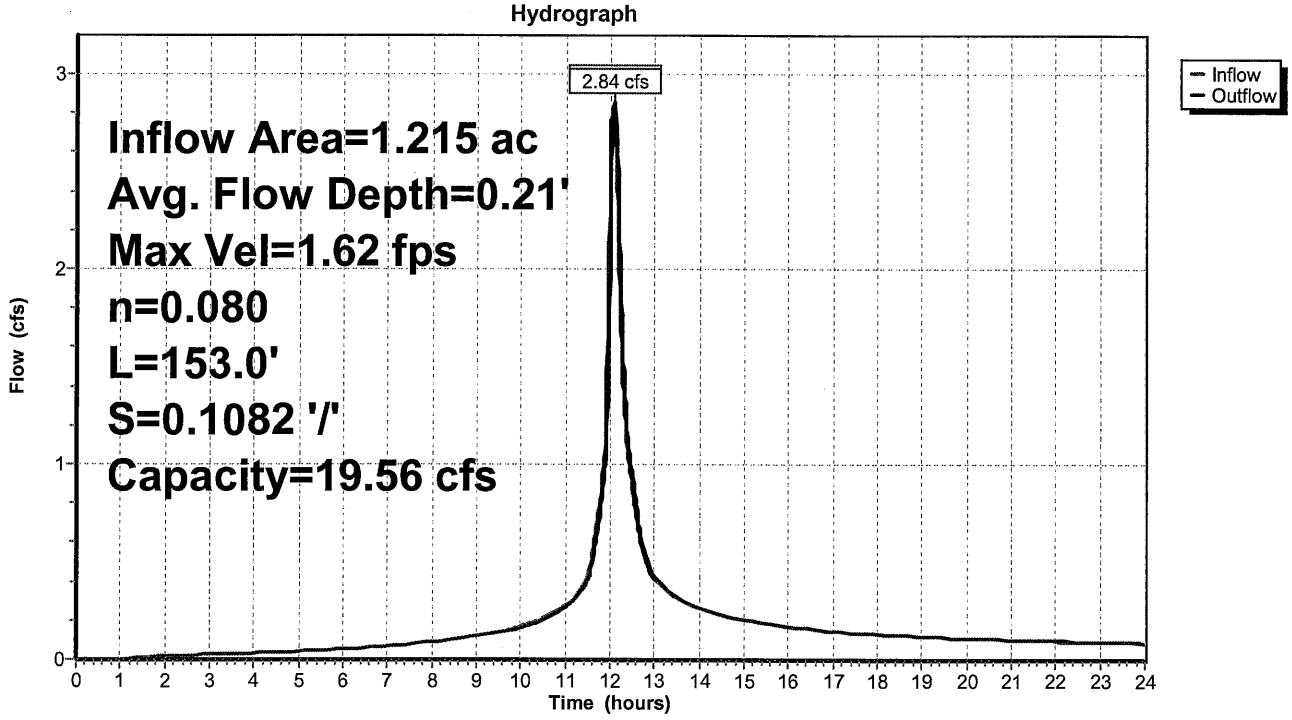
Peak Storage= 268 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.21'
Bank-Full Depth= 0.50' Flow Area= 6.7 sf, Capacity= 19.56 cfs

20.00' x 0.50' deep Parabolic Channel, n= 0.080 Earth, dense brush, high stage
Length= 153.0' Slope= 0.1082 '/'
Inlet Invert= 172.45', Outlet Invert= 155.90'



‡

Reach R4: R4



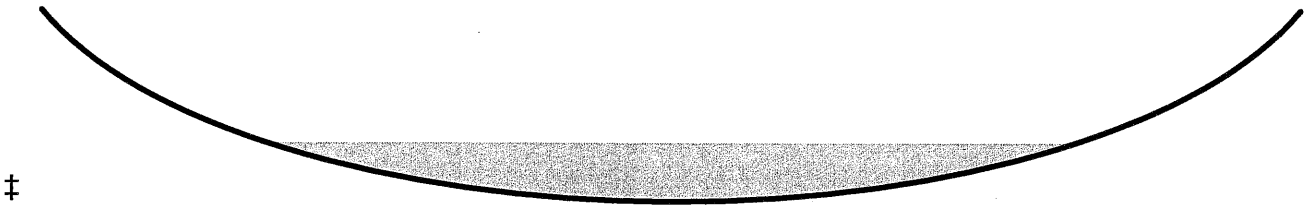
Summary for Reach R5: R5

Inflow Area = 0.627 ac, 65.02% Impervious, Inflow Depth > 3.76" for 10-yr event
Inflow = 1.24 cfs @ 12.15 hrs, Volume= 0.196 af
Outflow = 1.21 cfs @ 12.20 hrs, Volume= 0.195 af, Atten= 3%, Lag= 3.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Max. Velocity= 1.08 fps, Min. Travel Time= 4.8 min
Avg. Velocity = 0.44 fps, Avg. Travel Time= 11.7 min

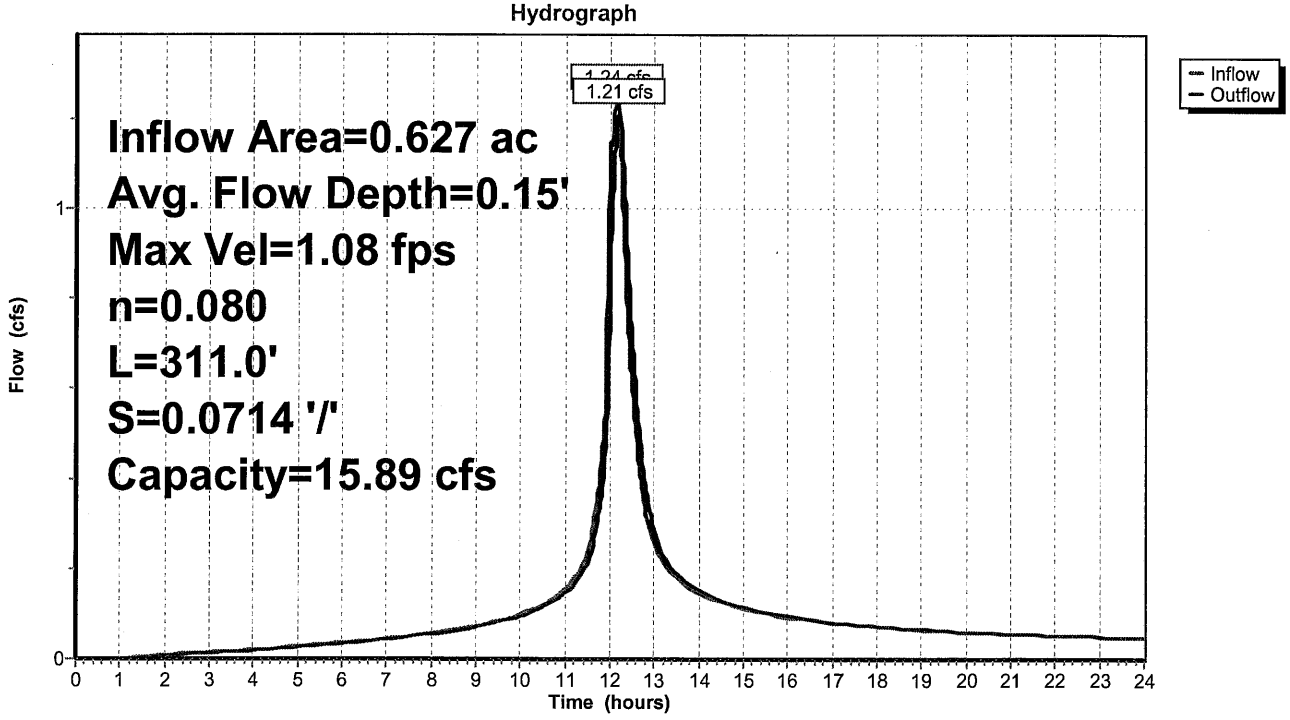
Peak Storage= 348 cf @ 12.20 hrs
Average Depth at Peak Storage= 0.15'
Bank-Full Depth= 0.50' Flow Area= 6.7 sf, Capacity= 15.89 cfs

20.00' x 0.50' deep Parabolic Channel, n= 0.080 Earth, dense brush, high stage
Length= 311.0' Slope= 0.0714 '/'
Inlet Invert= 177.20', Outlet Invert= 155.00'



‡

Reach R5: R5



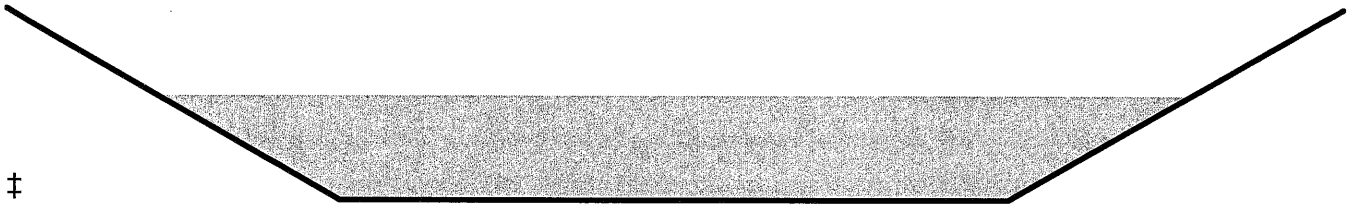
Summary for Reach TS1: TS1

Inflow Area = 1.215 ac, 46.87% Impervious, Inflow Depth > 3.45" for 10-yr event
Inflow = 3.25 cfs @ 12.00 hrs, Volume= 0.349 af
Outflow = 2.85 cfs @ 12.08 hrs, Volume= 0.348 af, Atten= 12%, Lag= 5.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Max. Velocity= 0.69 fps, Min. Travel Time= 3.8 min
Avg. Velocity = 0.22 fps, Avg. Travel Time= 11.6 min

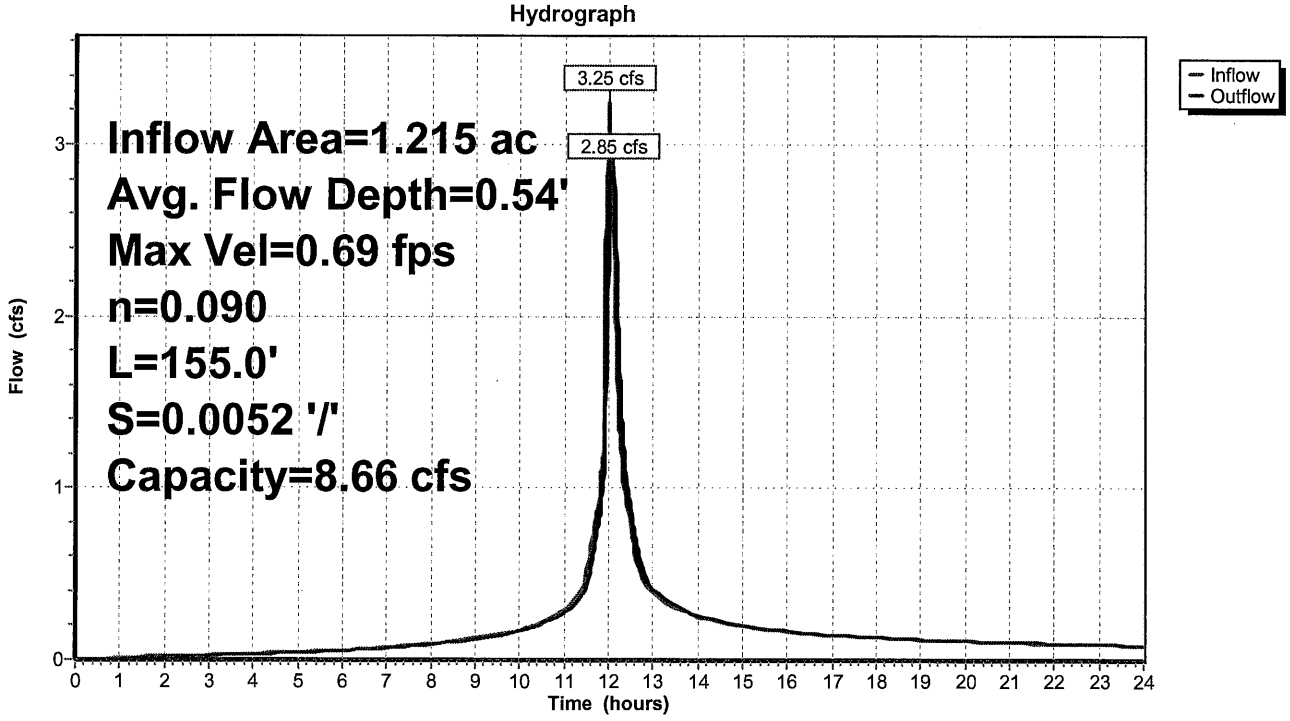
Peak Storage= 644 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.54'
Bank-Full Depth= 1.00' Flow Area= 9.0 sf, Capacity= 8.66 cfs

6.00' x 1.00' deep channel, n= 0.090
Side Slope Z-value= 3.0 '/' Top Width= 12.00'
Length= 155.0' Slope= 0.0052 '/'
Inlet Invert= 173.10', Outlet Invert= 172.30'



‡

Reach TS1: TS1



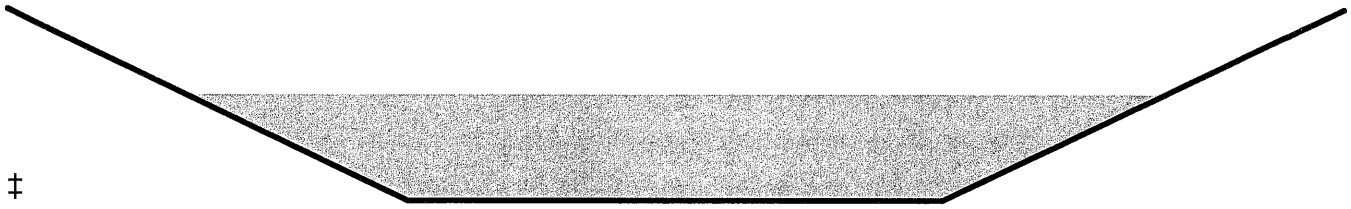
Summary for Reach TS2: TS2

Inflow Area = 0.627 ac, 65.02% Impervious, Inflow Depth > 3.78" for 10-yr event
Inflow = 1.50 cfs @ 11.99 hrs, Volume= 0.197 af
Outflow = 1.24 cfs @ 12.15 hrs, Volume= 0.196 af, Atten= 17%, Lag= 9.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Max. Velocity= 0.40 fps, Min. Travel Time= 6.5 min
Avg. Velocity = 0.15 fps, Avg. Travel Time= 17.3 min

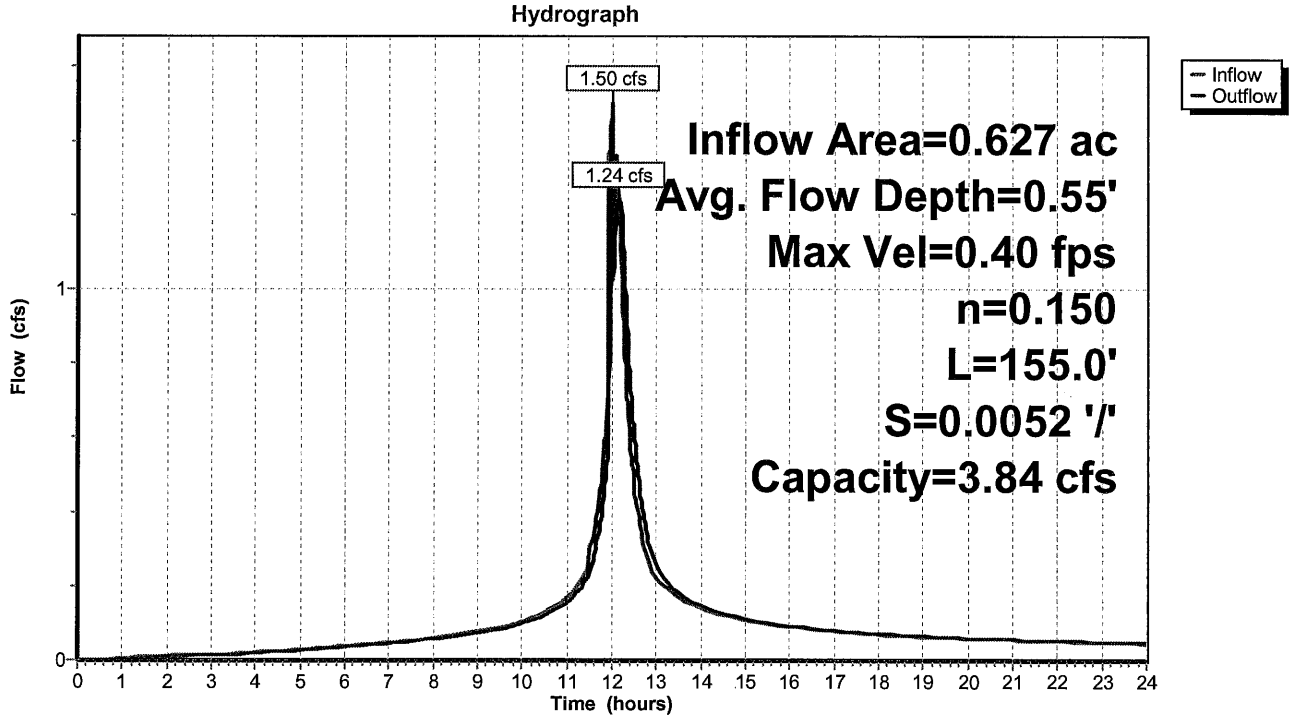
Peak Storage= 484 cf @ 12.15 hrs
Average Depth at Peak Storage= 0.55'
Bank-Full Depth= 1.00' Flow Area= 7.0 sf, Capacity= 3.84 cfs

4.00' x 1.00' deep channel, n= 0.150
Side Slope Z-value= 3.0 '/' Top Width= 10.00'
Length= 155.0' Slope= 0.0052 '/'
Inlet Invert= 178.00', Outlet Invert= 177.20'



‡

Reach TS2: TS2



Summary for Pond E-CB13: E-CB13

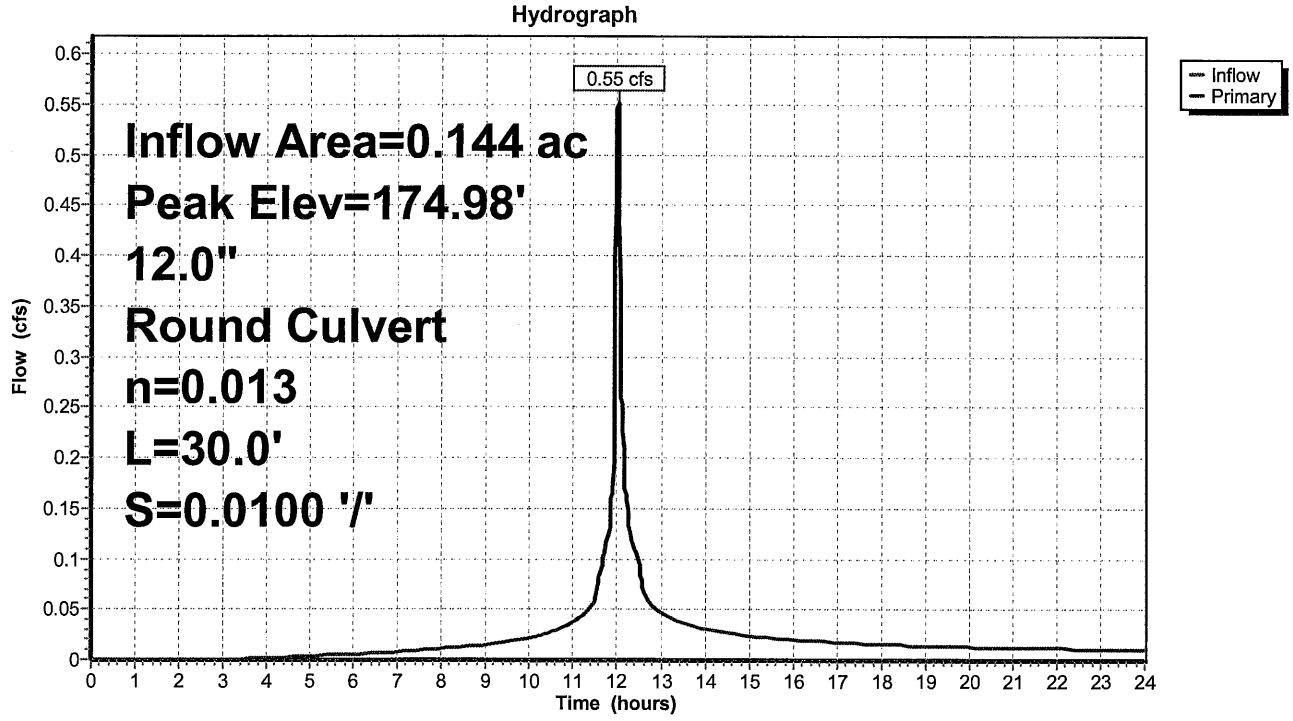
Inflow Area = 0.144 ac, 50.96% Impervious, Inflow Depth > 3.49" for 10-yr event
Inflow = 0.55 cfs @ 12.01 hrs, Volume= 0.042 af
Outflow = 0.55 cfs @ 12.01 hrs, Volume= 0.042 af, Atten= 0%, Lag= 0.0 min
Primary = 0.55 cfs @ 12.01 hrs, Volume= 0.042 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 174.98' @ 12.01 hrs
Flood Elev= 178.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	174.60'	**12.0" Round Culvert** L= 30.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 174.60' / 174.30' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.55 cfs @ 12.01 hrs HW=174.98' TW=174.41' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 0.55 cfs @ 2.98 fps)

Pond E-CB13: E-CB13



Summary for Pond E-CB14: E-CB14

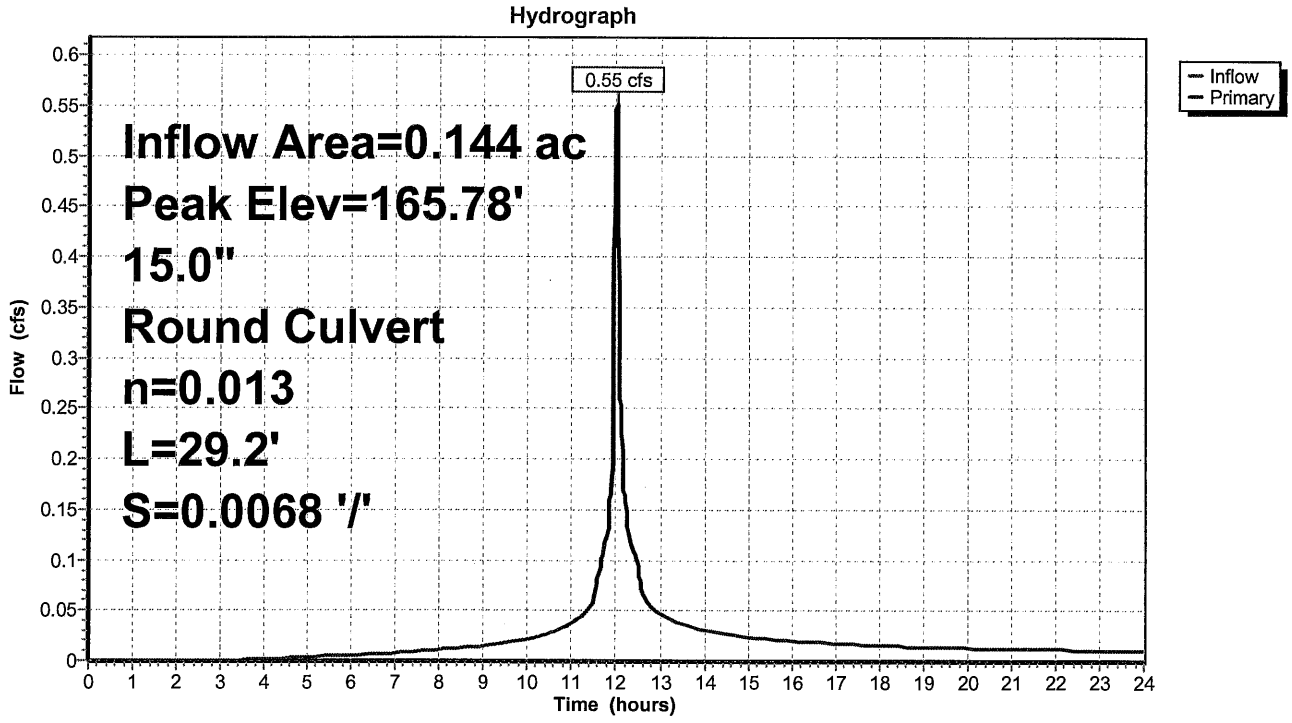
Inflow Area = 0.144 ac, 50.96% Impervious, Inflow Depth > 3.49" for 10-yr event
Inflow = 0.55 cfs @ 12.01 hrs, Volume= 0.042 af
Outflow = 0.55 cfs @ 12.01 hrs, Volume= 0.042 af, Atten= 0%, Lag= 0.0 min
Primary = 0.55 cfs @ 12.01 hrs, Volume= 0.042 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 165.78' @ 12.01 hrs
Flood Elev= 169.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	165.40'	**15.0" Round Culvert** L= 29.2' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 165.40' / 165.20' S= 0.0068 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=0.55 cfs @ 12.01 hrs HW=165.78' TW=165.11' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 0.55 cfs @ 2.63 fps)

Pond E-CB14: E-CB14



Summary for Pond E-CB15: E-CB15

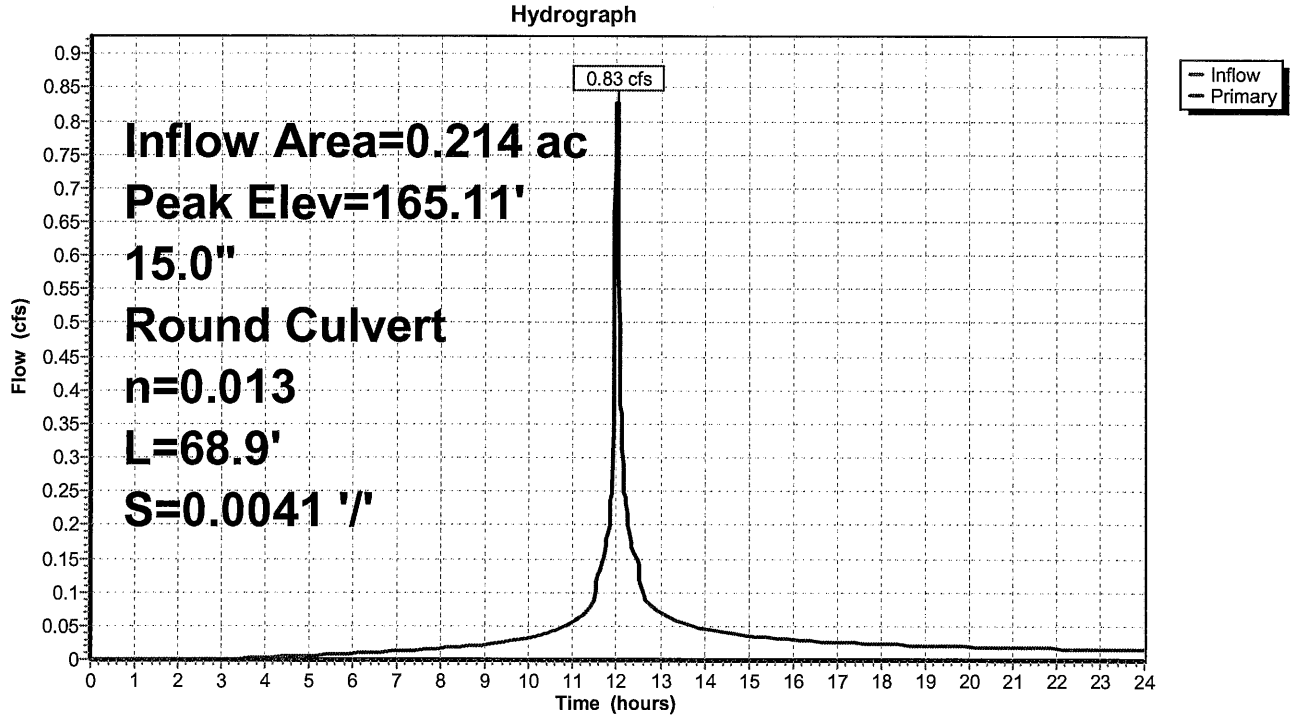
Inflow Area = 0.214 ac, 54.12% Impervious, Inflow Depth > 3.53" for 10-yr event
Inflow = 0.83 cfs @ 12.00 hrs, Volume= 0.063 af
Outflow = 0.83 cfs @ 12.00 hrs, Volume= 0.063 af, Atten= 0%, Lag= 0.0 min
Primary = 0.83 cfs @ 12.00 hrs, Volume= 0.063 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 165.11' @ 12.00 hrs
Flood Elev= 169.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	164.60'	**15.0" Round Culvert** L= 68.9' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 164.60' / 164.32' S= 0.0041 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=0.83 cfs @ 12.00 hrs HW=165.11' TW=164.63' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.83 cfs @ 2.62 fps)

Pond E-CB15: E-CB15



Summary for Pond E-DMH B: E-DMH B

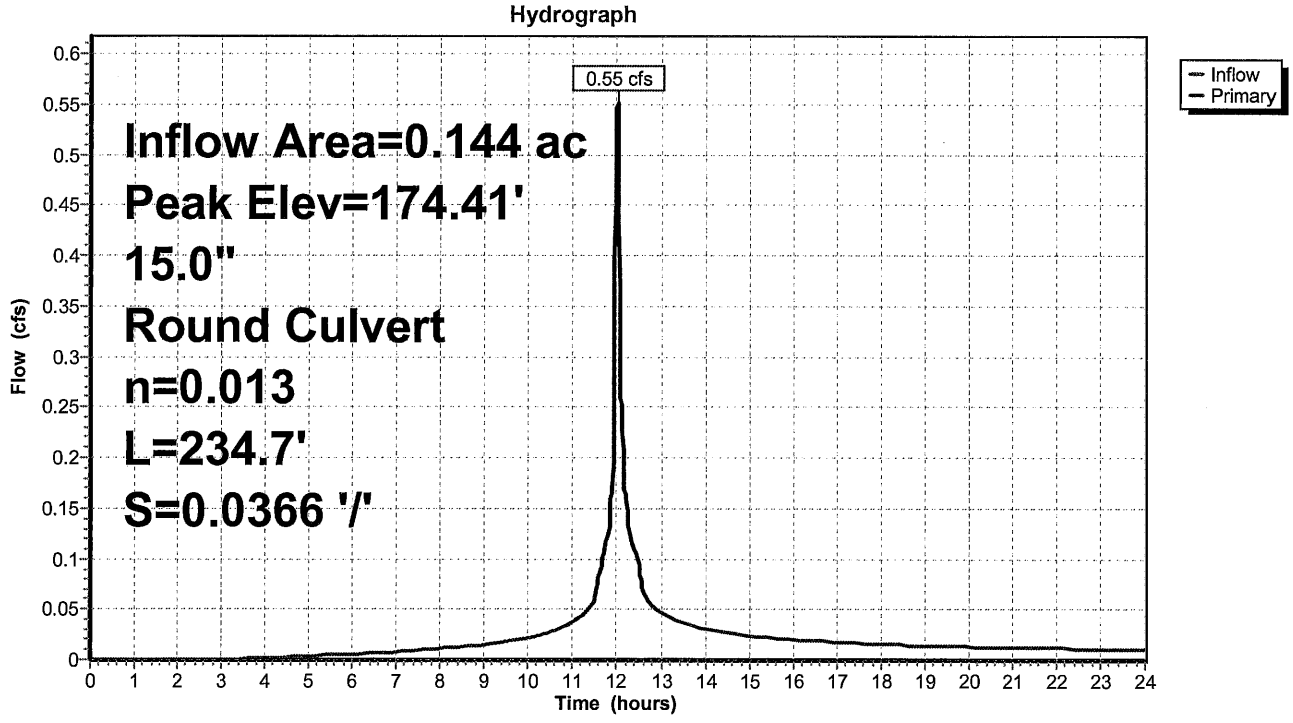
Inflow Area = 0.144 ac, 50.96% Impervious, Inflow Depth > 3.49" for 10-yr event
Inflow = 0.55 cfs @ 12.01 hrs, Volume= 0.042 af
Outflow = 0.55 cfs @ 12.01 hrs, Volume= 0.042 af, Atten= 0%, Lag= 0.0 min
Primary = 0.55 cfs @ 12.01 hrs, Volume= 0.042 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 174.41' @ 12.01 hrs
Flood Elev= 178.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	174.10'	**15.0" Round Culvert** L= 234.7' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 174.10' / 165.50' S= 0.0366 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=0.55 cfs @ 12.01 hrs HW=174.41' TW=165.78' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.55 cfs @ 2.36 fps)

Pond E-DMH B: E-DMH B



Summary for Pond P1: P1

Inflow Area = 0.350 ac, 46.74% Impervious, Inflow Depth > 3.39" for 10-yr event
Inflow = 1.06 cfs @ 12.06 hrs, Volume= 0.099 af
Outflow = 1.06 cfs @ 12.06 hrs, Volume= 0.099 af, Atten= 0%, Lag= 0.2 min
Primary = 1.06 cfs @ 12.06 hrs, Volume= 0.099 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 180.54' @ 12.06 hrs Surf.Area= 38 sf Storage= 11 cf
Flood Elev= 183.00' Surf.Area= 1,049 sf Storage= 779 cf

Plug-Flow detention time= 0.3 min calculated for 0.099 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (820.0 - 819.8)

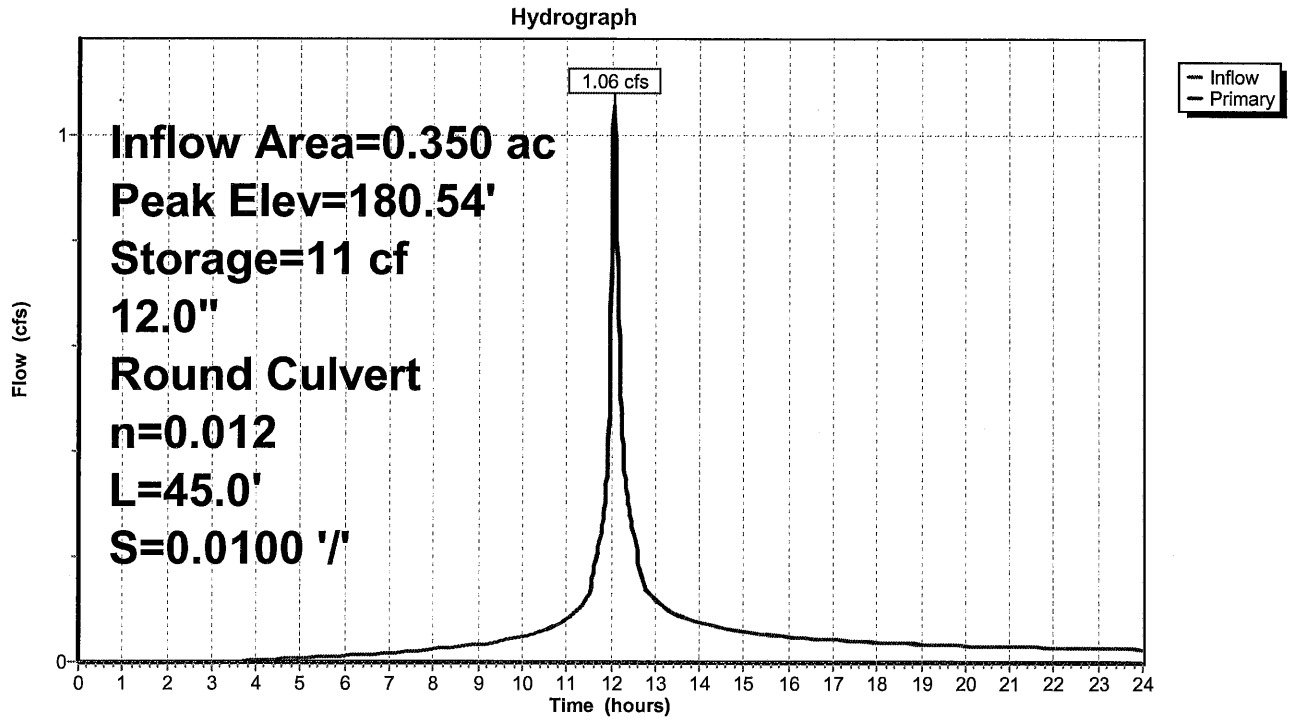
Volume	Invert	Avail.Storage	Storage Description
#1	180.00'	779 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
180.00	8	11.8	0	0	8
182.00	231	107.6	188	188	926
183.00	1,049	252.5	591	779	5,082

Device	Routing	Invert	Outlet Devices
#1	Primary	180.00'	**12.0" Round Culvert** L= 45.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 180.00' / 179.55' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.05 cfs @ 12.06 hrs HW=180.54' TW=175.13' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 1.05 cfs @ 3.56 fps)

Pond P1: P1


Hydrograph
1.06 cfs
Inflow
Primary
Inflow Area=0.350 ac
Peak Elev=180.54'
Storage=11 cf
12.0"
Round Culvert
n=0.012
L=45.0'
S=0.0100 '/'
Flow (cfs)
0
1
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
Time (hours)

Summary for Pond P2: P2

Inflow Area = 0.729 ac, 40.04% Impervious, Inflow Depth > 3.32" for 10-yr event
Inflow = 1.94 cfs @ 12.06 hrs, Volume= 0.202 af
Outflow = 1.92 cfs @ 12.07 hrs, Volume= 0.201 af, Atten= 1%, Lag= 0.9 min
Primary = 1.92 cfs @ 12.07 hrs, Volume= 0.201 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 175.14' @ 12.07 hrs Surf.Area= 129 sf Storage= 75 cf
Flood Elev= 177.00' Surf.Area= 799 sf Storage= 813 cf

Plug-Flow detention time= 1.3 min calculated for 0.201 af (100% of inflow)
Center-of-Mass det. time= 0.8 min (814.1 - 813.3)

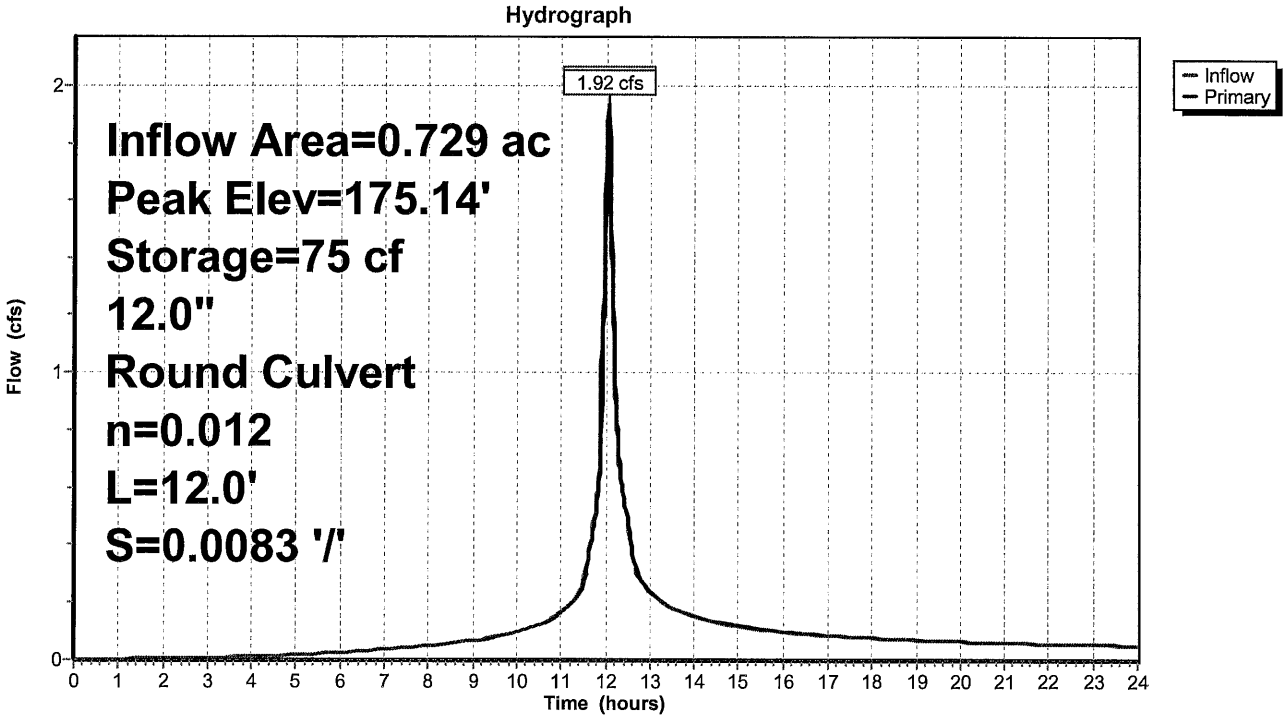
Volume	Invert	Avail.Storage	Storage Description
#1	174.20'	813 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
174.20	46	33.9	0	0	46
175.00	106	45.5	59	59	126
176.00	329	56.7	207	266	230
177.00	799	122.0	547	813	1,163

Device	Routing	Invert	Outlet Devices
#1	Primary	174.20'	**12.0" Round Culvert** L= 12.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 174.20' / 174.10' S= 0.0083 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.94 cfs @ 12.07 hrs HW=175.14' TW=174.84' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 1.94 cfs @ 3.29 fps)

Pond P2: P2


Hydrograph
1.92 cfs
Inflow Area=0.729 ac
Peak Elev=175.14'
Storage=75 cf
12.0"
Round Culvert
n=0.012
L=12.0'
S=0.0083 '/'
Inflow
Primary
Flow (cfs)
Time (hours)
0
1
2
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

Summary for Pond PCB1: PCB1

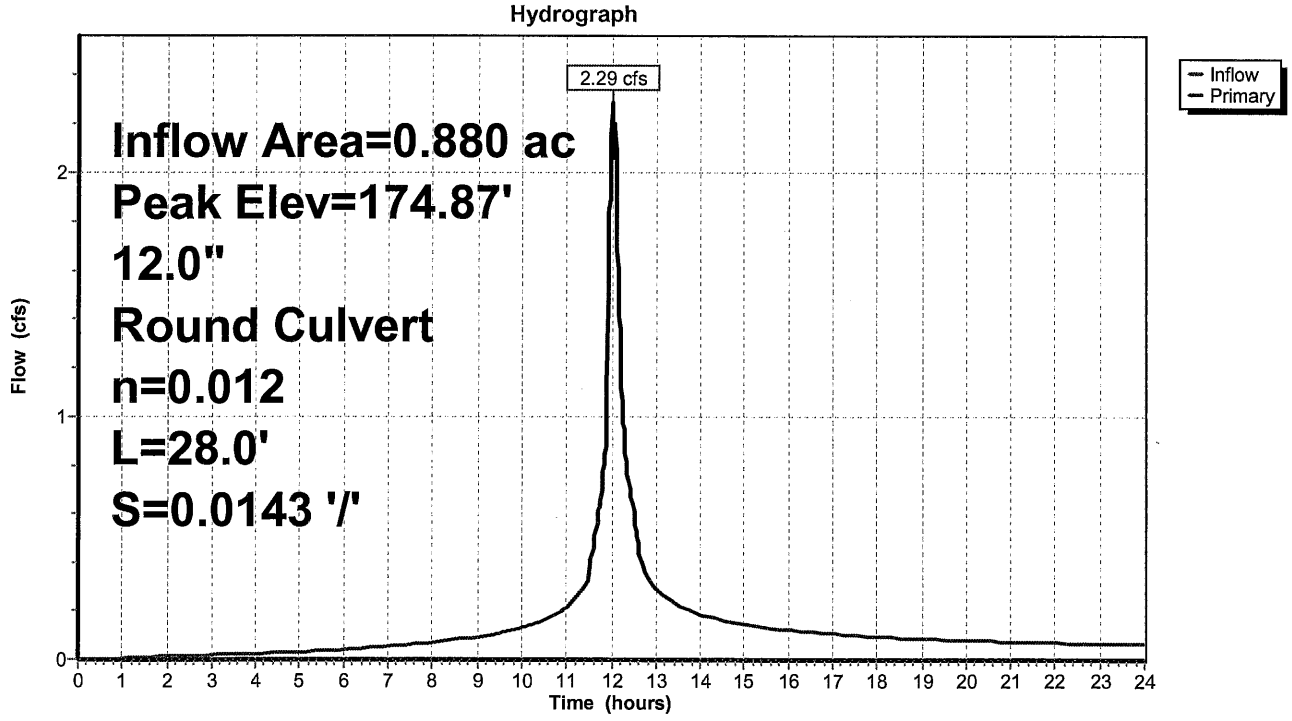
Inflow Area = 0.880 ac, 50.32% Impervious, Inflow Depth > 3.51" for 10-yr event
Inflow = 2.29 cfs @ 12.01 hrs, Volume= 0.258 af
Outflow = 2.29 cfs @ 12.01 hrs, Volume= 0.258 af, Atten= 0%, Lag= 0.0 min
Primary = 2.29 cfs @ 12.01 hrs, Volume= 0.258 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 174.87' @ 12.00 hrs
Flood Elev= 177.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	174.00'	**12.0" Round Culvert** L= 28.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 174.00' / 173.60' S= 0.0143 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.28 cfs @ 12.01 hrs HW=174.86' TW=174.24' (Dynamic Tailwater)
1=Culvert (Inlet Controls 2.28 cfs @ 3.16 fps)

Pond PCB1: PCB1



Summary for Pond PCB2: PCB2

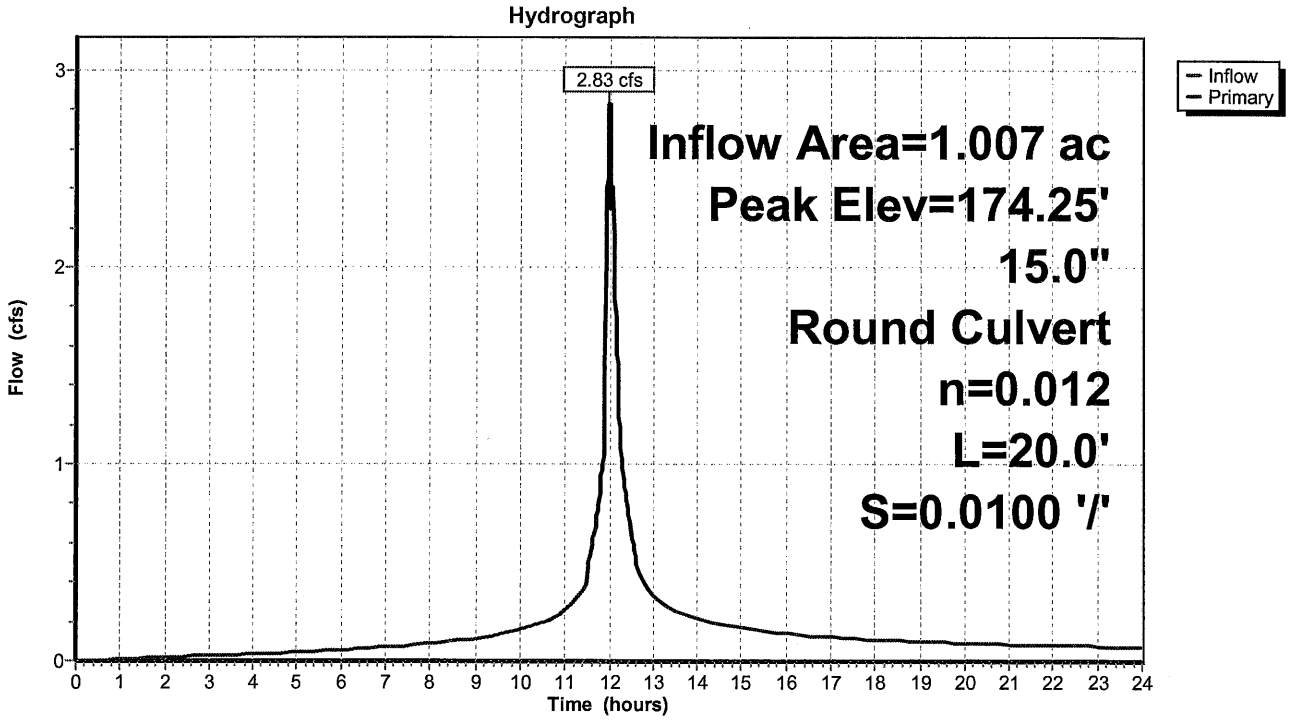
Inflow Area = 1.007 ac, 56.57% Impervious, Inflow Depth > 3.63" for 10-yr event
Inflow = 2.83 cfs @ 12.00 hrs, Volume= 0.305 af
Outflow = 2.83 cfs @ 12.00 hrs, Volume= 0.305 af, Atten= 0%, Lag= 0.0 min
Primary = 2.83 cfs @ 12.00 hrs, Volume= 0.305 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 174.25' @ 12.00 hrs
Flood Elev= 177.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	173.30'	**15.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 173.30' / 173.10' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=2.82 cfs @ 12.00 hrs HW=174.25' TW=173.61' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 2.82 cfs @ 3.90 fps)

Pond PCB2: PCB2



Summary for Pond RD1: RD1

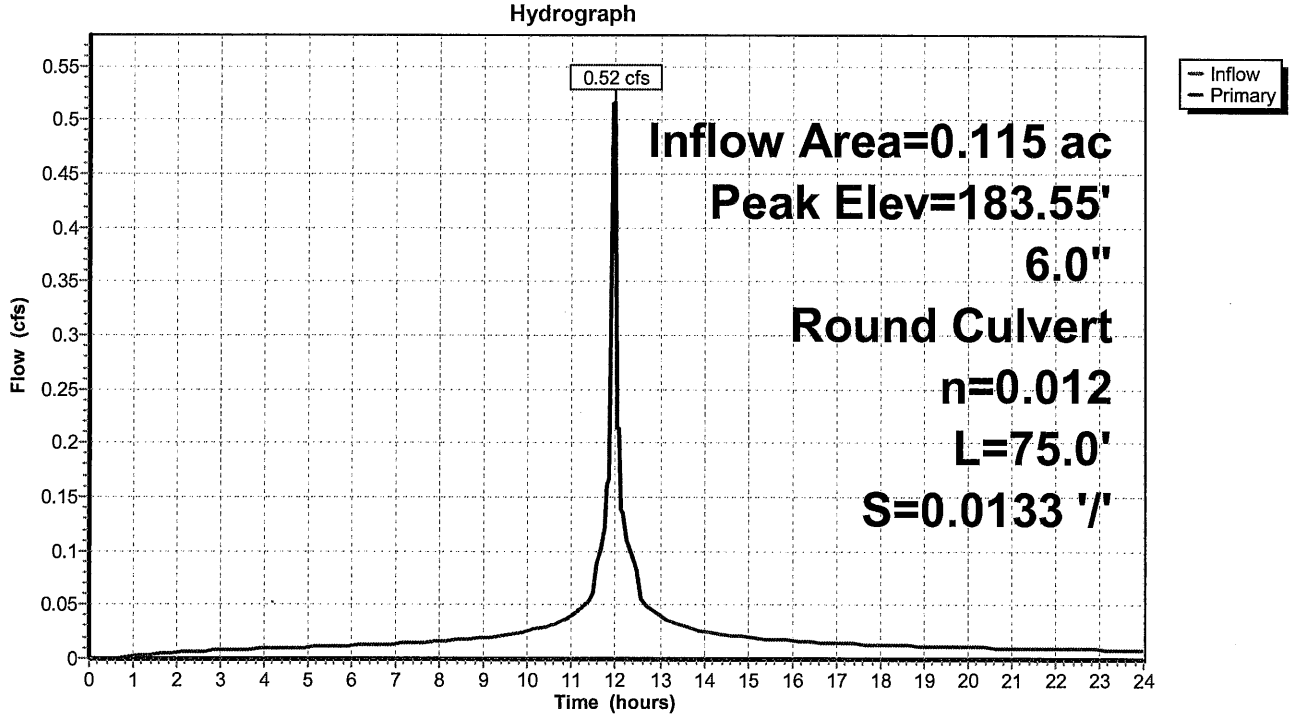
Inflow Area = 0.115 ac,100.00% Impervious, Inflow Depth > 4.47" for 10-yr event
Inflow = 0.52 cfs @ 11.99 hrs, Volume= 0.043 af
Outflow = 0.52 cfs @ 11.99 hrs, Volume= 0.043 af, Atten= 0%, Lag= 0.0 min
Primary = 0.52 cfs @ 11.99 hrs, Volume= 0.043 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 183.55' @ 11.99 hrs
Flood Elev= 186.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	183.00'	**6.0" Round Culvert** L= 75.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 183.00' / 182.00' S= 0.0133 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf

Primary OutFlow Max=0.52 cfs @ 11.99 hrs HW=183.55' TW=175.06' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.52 cfs @ 2.63 fps)

Pond RD1: RD1



Summary for Pond RD2: RD2

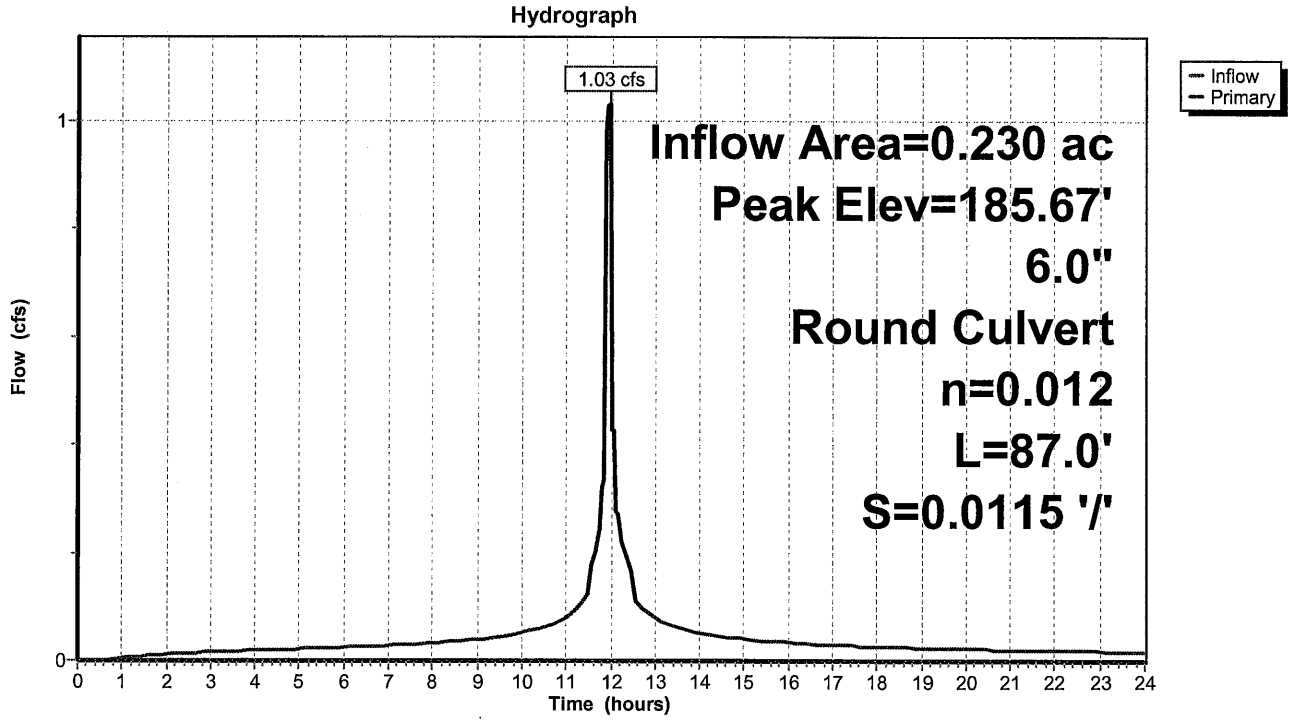
Inflow Area = 0.230 ac,100.00% Impervious, Inflow Depth > 4.47" for 10-yr event
Inflow = 1.03 cfs @ 11.99 hrs, Volume= 0.086 af
Outflow = 1.03 cfs @ 11.99 hrs, Volume= 0.086 af, Atten= 0%, Lag= 0.0 min
Primary = 1.03 cfs @ 11.99 hrs, Volume= 0.086 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 185.67' @ 11.99 hrs
Flood Elev= 186.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	183.00'	**6.0" Round Culvert** L= 87.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 183.00' / 182.00' S= 0.0115 '/' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf

Primary OutFlow Max=1.03 cfs @ 11.99 hrs HW=185.67' TW=178.52' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 1.03 cfs @ 5.26 fps)

Pond RD2: RD2

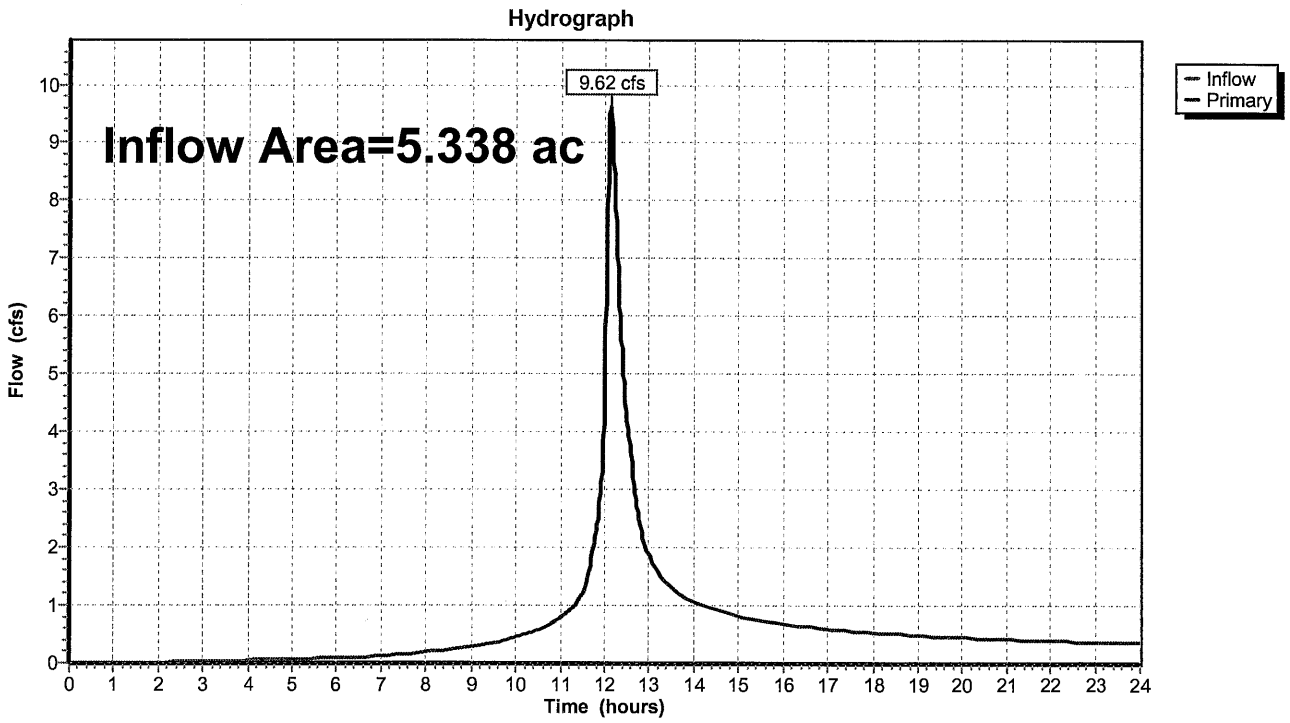


Summary for Link A: A

Inflow Area = 5.338 ac, 20.55% Impervious, Inflow Depth > 2.75" for 10-yr event
Inflow = 9.62 cfs @ 12.13 hrs, Volume= 1.225 af
Primary = 9.62 cfs @ 12.13 hrs, Volume= 1.225 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link A: A



A – 2

NODE LISTING – 25-YR

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: 1 Runoff Area=6,571 sf 100.00% Impervious Runoff Depth>5.72"
Flow Length=180' Slope=0.0280 '/' Tc=0.9 min CN=98 Runoff=0.80 cfs 0.072 af

Subcatchment 2: 2 Runoff Area=5,517 sf 100.00% Impervious Runoff Depth>5.72"
Flow Length=139' Slope=0.0270 '/' Tc=0.7 min CN=98 Runoff=0.67 cfs 0.060 af

Subcatchment 3: 3 Runoff Area=15,234 sf 46.74% Impervious Runoff Depth>4.58"
Flow Length=187' Tc=7.9 min CN=88 Runoff=1.31 cfs 0.133 af

Subcatchment 4: 4 Runoff Area=11,541 sf 5.23% Impervious Runoff Depth>3.84"
Flow Length=157' Tc=7.3 min CN=81 Runoff=0.88 cfs 0.085 af

Subcatchment 5: 5 Runoff Area=9,072 sf 0.00% Impervious Runoff Depth>3.64"
Flow Length=96' Tc=6.4 min CN=79 Runoff=0.69 cfs 0.063 af

Subcatchment 6: 6 Runoff Area=6,287 sf 50.96% Impervious Runoff Depth>4.69"
Flow Length=305' Tc=3.2 min CN=89 Runoff=0.68 cfs 0.056 af

Subcatchment 7: 7 Runoff Area=3,052 sf 60.62% Impervious Runoff Depth>4.81"
Flow Length=132' Tc=1.6 min CN=90 Runoff=0.34 cfs 0.028 af

Subcatchment 8: 8 Runoff Area=5,000 sf 100.00% Impervious Runoff Depth>5.72"
Flow Length=51' Slope=0.0200 '/' Tc=0.3 min CN=98 Runoff=0.61 cfs 0.055 af

Subcatchment 9: 9 Runoff Area=17,296 sf 44.79% Impervious Runoff Depth>4.57"
Flow Length=179' Tc=12.9 min CN=88 Runoff=1.23 cfs 0.151 af

Subcatchment 10: 10 Runoff Area=10,000 sf 100.00% Impervious Runoff Depth>5.72"
Flow Length=51' Slope=0.0200 '/' Tc=0.3 min CN=98 Runoff=1.22 cfs 0.109 af

Subcatchment 11: 11 Runoff Area=142,947 sf 0.13% Impervious Runoff Depth>3.33"
Flow Length=369' Tc=10.3 min CN=76 Runoff=8.35 cfs 0.911 af

Reach R1: R1 Avg. Flow Depth=0.34' Max Vel=1.89 fps Inflow=1.01 cfs 0.084 af
n=0.080 L=42.0' S=0.0790 '/' Capacity=9.69 cfs Outflow=1.02 cfs 0.084 af

Reach R2A: R2A Avg. Flow Depth=0.15' Max Vel=0.83 fps Inflow=1.02 cfs 0.084 af
n=0.080 L=121.0' S=0.0421 '/' Capacity=12.21 cfs Outflow=0.93 cfs 0.084 af

Reach R2B: R2 Avg. Flow Depth=0.43' Max Vel=0.66 fps Inflow=4.24 cfs 0.550 af
n=0.080 L=364.0' S=0.0066 '/' Capacity=4.83 cfs Outflow=3.54 cfs 0.545 af

Reach R3: R3 Avg. Flow Depth=0.71' Max Vel=1.19 fps Inflow=9.73 cfs 1.170 af
n=0.080 L=133.0' S=0.0113 '/' Capacity=19.98 cfs Outflow=9.51 cfs 1.167 af

Reach R4: R4 Avg. Flow Depth=0.23' Max Vel=1.73 fps Inflow=3.55 cfs 0.466 af
n=0.080 L=153.0' S=0.1082 '/' Capacity=19.56 cfs Outflow=3.54 cfs 0.466 af

Reach R5: R5 Avg. Flow Depth=0.17' Max Vel=1.16 fps Inflow=1.55 cfs 0.259 af
n=0.080 L=311.0' S=0.0714 '/' Capacity=15.89 cfs Outflow=1.51 cfs 0.258 af

Reach TS1: TS1 Avg. Flow Depth=0.62' Max Vel=0.74 fps Inflow=3.77 cfs 0.468 af
n=0.090 L=155.0' S=0.0052 '/' Capacity=8.66 cfs Outflow=3.55 cfs 0.466 af

Reach TS2: TS2 Avg. Flow Depth=0.62' Max Vel=0.42 fps Inflow=1.82 cfs 0.261 af
n=0.150 L=155.0' S=0.0052 '/' Capacity=3.84 cfs Outflow=1.55 cfs 0.259 af

Pond E-CB13: E-CB13 Peak Elev=175.03' Inflow=0.68 cfs 0.056 af
12.0" Round Culvert n=0.013 L=30.0' S=0.0100 '/' Outflow=0.68 cfs 0.056 af

Pond E-CB14: E-CB14 Peak Elev=165.82' Inflow=0.68 cfs 0.056 af
15.0" Round Culvert n=0.013 L=29.2' S=0.0068 '/' Outflow=0.68 cfs 0.056 af

Pond E-CB15: E-CB15 Peak Elev=165.16' Inflow=1.01 cfs 0.084 af
15.0" Round Culvert n=0.013 L=68.9' S=0.0041 '/' Outflow=1.01 cfs 0.084 af

Pond E-DMH B: E-DMH B Peak Elev=174.44' Inflow=0.68 cfs 0.056 af
15.0" Round Culvert n=0.013 L=234.7' S=0.0366 '/' Outflow=0.68 cfs 0.056 af

Pond P1: P1 Peak Elev=180.61' Storage=14 cf Inflow=1.31 cfs 0.133 af
12.0" Round Culvert n=0.012 L=45.0' S=0.0100 '/' Outflow=1.31 cfs 0.133 af

Pond P2: P2 Peak Elev=175.48' Storage=130 cf Inflow=2.45 cfs 0.273 af
12.0" Round Culvert n=0.012 L=12.0' S=0.0083 '/' Outflow=2.42 cfs 0.273 af

Pond PCB1: PCB1 Peak Elev=175.02' Inflow=2.72 cfs 0.345 af
12.0" Round Culvert n=0.012 L=28.0' S=0.0143 '/' Outflow=2.72 cfs 0.345 af

Pond PCB2: PCB2 Peak Elev=174.33' Inflow=3.21 cfs 0.405 af
15.0" Round Culvert n=0.012 L=20.0' S=0.0100 '/' Outflow=3.21 cfs 0.405 af

Pond RD1: RD1 Peak Elev=183.66' Inflow=0.61 cfs 0.055 af
6.0" Round Culvert n=0.012 L=75.0' S=0.0133 '/' Outflow=0.61 cfs 0.055 af

Pond RD2: RD2 Peak Elev=186.88' Inflow=1.22 cfs 0.109 af
6.0" Round Culvert n=0.012 L=87.0' S=0.0115 '/' Outflow=1.22 cfs 0.109 af

Link A: A Inflow=12.89 cfs 1.712 af
Primary=12.89 cfs 1.712 af

Total Runoff Area = 5.338 ac Runoff Volume = 1.725 af Average Runoff Depth = 3.88"
79.45% Pervious = 4.241 ac 20.55% Impervious = 1.097 ac

A – 2

NODE LISTING – 50-YR

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points x 2
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: 1 Runoff Area=6,571 sf 100.00% Impervious Runoff Depth>6.87"
Flow Length=180' Slope=0.0280 '/' Tc=0.9 min CN=98 Runoff=0.92 cfs 0.086 af

Subcatchment 2: 2 Runoff Area=5,517 sf 100.00% Impervious Runoff Depth>6.87"
Flow Length=139' Slope=0.0270 '/' Tc=0.7 min CN=98 Runoff=0.77 cfs 0.073 af

Subcatchment 3: 3 Runoff Area=15,234 sf 46.74% Impervious Runoff Depth>5.69"
Flow Length=187' Tc=7.9 min CN=88 Runoff=1.56 cfs 0.166 af

Subcatchment 4: 4 Runoff Area=11,541 sf 5.23% Impervious Runoff Depth>4.90"
Flow Length=157' Tc=7.3 min CN=81 Runoff=1.07 cfs 0.108 af

Subcatchment 5: 5 Runoff Area=9,072 sf 0.00% Impervious Runoff Depth>4.67"
Flow Length=96' Tc=6.4 min CN=79 Runoff=0.85 cfs 0.081 af

Subcatchment 6: 6 Runoff Area=6,287 sf 50.96% Impervious Runoff Depth>5.81"
Flow Length=305' Tc=3.2 min CN=89 Runoff=0.80 cfs 0.070 af

Subcatchment 7: 7 Runoff Area=3,052 sf 60.62% Impervious Runoff Depth>5.93"
Flow Length=132' Tc=1.6 min CN=90 Runoff=0.40 cfs 0.035 af

Subcatchment 8: 8 Runoff Area=5,000 sf 100.00% Impervious Runoff Depth>6.87"
Flow Length=51' Slope=0.0200 '/' Tc=0.3 min CN=98 Runoff=0.70 cfs 0.066 af

Subcatchment 9: 9 Runoff Area=17,296 sf 44.79% Impervious Runoff Depth>5.68"
Flow Length=179' Tc=12.9 min CN=88 Runoff=1.46 cfs 0.188 af

Subcatchment 10: 10 Runoff Area=10,000 sf 100.00% Impervious Runoff Depth>6.87"
Flow Length=51' Slope=0.0200 '/' Tc=0.3 min CN=98 Runoff=1.40 cfs 0.131 af

Subcatchment 11: 11 Runoff Area=142,947 sf 0.13% Impervious Runoff Depth>4.34"
Flow Length=369' Tc=10.3 min CN=76 Runoff=10.49 cfs 1.187 af

Reach R1: R1 Avg. Flow Depth=0.37' Max Vel=1.98 fps Inflow=1.19 cfs 0.104 af
n=0.080 L=42.0' S=0.0790 '/' Capacity=9.69 cfs Outflow=1.19 cfs 0.104 af

Reach R2A: R2A Avg. Flow Depth=0.17' Max Vel=0.88 fps Inflow=1.19 cfs 0.104 af
n=0.080 L=121.0' S=0.0421 '/' Capacity=12.21 cfs Outflow=1.11 cfs 0.104 af

Reach R2B: R2 Avg. Flow Depth=0.47' Max Vel=0.70 fps Inflow=4.91 cfs 0.681 af
n=0.080 L=364.0' S=0.0066 '/' Capacity=4.83 cfs Outflow=4.22 cfs 0.675 af

Reach R3: R3 Avg. Flow Depth=0.79' Max Vel=1.28 fps Inflow=12.14 cfs 1.503 af
n=0.080 L=133.0' S=0.0113 '/' Capacity=19.98 cfs Outflow=11.89 cfs 1.500 af

Reach R4: R4 Avg. Flow Depth=0.24' Max Vel=1.81 fps Inflow=4.11 cfs 0.577 af
n=0.080 L=153.0' S=0.1082 '/' Capacity=19.56 cfs Outflow=4.09 cfs 0.576 af

Reach R5: R5 Avg. Flow Depth=0.18' Max Vel=1.22 fps Inflow=1.83 cfs 0.318 af
n=0.080 L=311.0' S=0.0714 '/' Capacity=15.89 cfs Outflow=1.80 cfs 0.316 af

Reach TS1: TS1 Avg. Flow Depth=0.67' Max Vel=0.77 fps Inflow=4.22 cfs 0.579 af
n=0.090 L=155.0' S=0.0052 '/' Capacity=8.66 cfs Outflow=4.11 cfs 0.577 af

Reach TS2: TS2 Avg. Flow Depth=0.68' Max Vel=0.45 fps Inflow=2.13 cfs 0.319 af
n=0.150 L=155.0' S=0.0052 '/' Capacity=3.84 cfs Outflow=1.83 cfs 0.318 af

Pond E-CB13: E-CB13 Peak Elev=175.07' Inflow=0.80 cfs 0.070 af
12.0" Round Culvert n=0.013 L=30.0' S=0.0100 '/' Outflow=0.80 cfs 0.070 af

Pond E-CB14: E-CB14 Peak Elev=165.86' Inflow=0.80 cfs 0.070 af
15.0" Round Culvert n=0.013 L=29.2' S=0.0068 '/' Outflow=0.80 cfs 0.070 af

Pond E-CB15: E-CB15 Peak Elev=165.22' Inflow=1.19 cfs 0.104 af
15.0" Round Culvert n=0.013 L=68.9' S=0.0041 '/' Outflow=1.19 cfs 0.104 af

Pond E-DMH B: E-DMH B Peak Elev=174.47' Inflow=0.80 cfs 0.070 af
15.0" Round Culvert n=0.013 L=234.7' S=0.0366 '/' Outflow=0.80 cfs 0.070 af

Pond P1: P1 Peak Elev=180.68' Storage=18 cf Inflow=1.56 cfs 0.166 af
12.0" Round Culvert n=0.012 L=45.0' S=0.0100 '/' Outflow=1.56 cfs 0.166 af

Pond P2: P2 Peak Elev=175.94' Storage=247 cf Inflow=2.93 cfs 0.340 af
12.0" Round Culvert n=0.012 L=12.0' S=0.0083 '/' Outflow=2.84 cfs 0.339 af

Pond PCB1: PCB1 Peak Elev=175.18' Inflow=3.11 cfs 0.426 af
12.0" Round Culvert n=0.012 L=28.0' S=0.0143 '/' Outflow=3.11 cfs 0.426 af

Pond PCB2: PCB2 Peak Elev=174.39' Inflow=3.49 cfs 0.498 af
15.0" Round Culvert n=0.012 L=20.0' S=0.0100 '/' Outflow=3.49 cfs 0.498 af

Pond RD1: RD1 Peak Elev=183.79' Inflow=0.70 cfs 0.066 af
6.0" Round Culvert n=0.012 L=75.0' S=0.0133 '/' Outflow=0.70 cfs 0.066 af

Pond RD2: RD2 Peak Elev=188.28' Inflow=1.40 cfs 0.131 af
6.0" Round Culvert n=0.012 L=87.0' S=0.0115 '/' Outflow=1.40 cfs 0.131 af

Link A: A Inflow=15.90 cfs 2.175 af
Primary=15.90 cfs 2.175 af

Total Runoff Area = 5.338 ac Runoff Volume = 2.190 af Average Runoff Depth = 4.92"
79.45% Pervious = 4.241 ac 20.55% Impervious = 1.097 ac

P19-67 **44 Venture Drive**

Property ID	Location	Owner 1	Owner 2	Owner Address 1	City	State	Zip
D0011-005SND	VENTURE DR	CIOTTI DENNIS TRUSTEE	CIOTTI DENNIS REVOCABLE TRUST	PO BOX 757	DOVER	NH	03821
D0011-006000	QUALITY WY	DOVER BUSINESS & IND DEV AUTHORITY	F/K/A DOVER IND DEV AUTHORITY	288 CENTRAL AV	DOVER	NH	03820
D0011-006SND	QUALITY WY	DOVER BUSINESS & IND DEV AUTHORITY	F/K/A DOVER IND DEV AUTHORITY	288 CENTRAL AV	DOVER	NH	03820
D0011-007SN1	QUALITY WY	DOVER BUSINESS & IND DEV AUTHORITY	F/K/A DOVER IND DEV AUTHORITY	288 CENTRAL AV	DOVER	NH	03820
D0013-000000	VENTURE DR	CRAMER JOHANNES		20 VENTURE DR	DOVER	NH	03820
D0013-001000	20 VENTURE DR	CRAMER FABRICS INC		20 VENTURE DR	DOVER	NH	03820
D0013-002000	17 PRODUCTION DR	CF HOLDINGS LLC		56 STAGECOACH RD	DURHAM	NH	03824
D0013-003000	27 PRODUCTION DR	JMW PRODUCTION LLC	C/O MFB HOLDINGS INC	27 PRODUCTION DR	DOVER	NH	03820
D0014-001000	67 VENTURE DR	67 VENTURE LLC	C/O JEFF LONDRES	340 ODIORNE POINT RD	PORTSMOUTH	NH	03801
D0014-004000	87 VENTURE DR	CHURCHILL MEDICAL SYSTEMS INC	ADVANCED MEDICAL INC	2750 MORRIS RD #A200	LANSDALE	PA	19446-6083
D0014-03A000	53 VENTURE DR	EVEREST CO INC	C/O LEPAGE BAKERIES	PO BOX 1900	AUBURN	ME	04211-1900
D0011-002000	VENTURE DR	HUSSEY MANUFACTURING TECHNOLOGY LLC		44 VENTURE DR	DOVER	NH	03820-5912
D0013-004000	44 VENTURE DR	HUSSEY MANUFACTURING TECHNOLOGY LLC		44 VENTURE DR	DOVER	NH	03820-5912
		46 VENTURE DRIVE PROPERTIES, LLC		910 DAY HILL ROAD	WINDSOR	CT	06095
		MCENEANEY SURVEY ASSOCIATES		24 CHESTNUT STREET	DOVER	NH	03820

CITY OF DOVER

TECHNICAL REVIEW COMMITTEE MINUTES – P19-67

Application Type:	Site Plan Review
Applicant(s):	46 Venture Drive Properties LLC
Owner(s):	Hussey Manufacturing Technology, LLC
Location:	Venture Drive (Tax Map D, Lot 11-2)
Date:	September 26, 2019

INTENT: To construct a 15,000 s.f. commercial building with 13,500 s.f. of retail space and 1,500 s.f. of office space with associated parking (26 parking spaces including 2 HCA spaces) and other pavement. A related CUP will appear before the Planning Board for the 2,660 s.f. of impact within the slopes greater than 20%. A related LLA plan will also appear before the Planning Board.

LOTS/UNITS PROPOSED: N/A

AGENDA ITEM #: 2

ACREAGE: 5.16 acres

ZONING DISTRICT: I-4

EXISTING LAND USE: Vacant

SURROUNDING LAND USE: Industrial and vacant

ZBA ACTION: None

PERMITS REQUIRED:
-CUP for steep slope impact

WAIVERS REQUESTED: None

ATTENDANCE:
Members:
Donna Benton, Planning
Chris Parker, Zoning
Dave White, Engineering
Dan Barufaldi, Economic Development
Sgt. Speidel, Police

Others:
Jase Gregoire, CivilWorks NE
Steve Haight, CivilWorks NE

PLAN REVIEW:
Planning Comments:

- Impact fees
- Water and Sewer Investment fees
- Please revise application to include:
  - Letter from Eversource regarding ability to provide service
  - Proof that DBIDA approves architecturals
- Please revise plan set to:
  - Superimpose site plan on neighborhood plan
  - Remove LLA plan and submit as separate plan
  - Revise existing conditions to presume LLA is approved
  - Add planning file number throughout (P19-67)
  - Add common site plan notes or indicate location of: PTAP, wall, fence, and elevation
  - Add topo note and title reference note to sheet 8
  - Add security lighting around the building
  - Revise streetscape to indicate lights to appear as those on sheet 16
  - Engineer, LLS, Architect, CWS, and Landscape Architect to sign and stamp final plan set
  - Indicate a minimum 3.5" caliper
  - Indicate materials on architecturals
  - Add wetland buffer placards
  - Add note about reusing stonewall along Venture Drive
  - Remove site note 11 on sheet 5 which is duplicated

Police Department Comments:

- Site review application lists this project as 13,500 s.f. retail space, plus 1,500 s.f. office space. Traffic Assessment calculates trip generation based on "light industrial, land use 110" code. Is this appropriate?
- Contribute toward Venture/Sixth intersection improvements (to provide better truck turning radius)
- Remove crosswalk on detail sheet as it's not needed at entrance

Fire/Inspections Comments:

- Provide a proposed location for the pad mount electrical transformer and pad
- Is a generator being proposed- if so locate on utility plan
- If gas is to supply structure locate on utility plan and screen
- Indicate location of FDC
- Provide "No Parking Fire Lane" signage along the front parking lot.

CITY OF DOVER

TECHNICAL REVIEW COMMITTEE MINUTES – P19-67

Application Type:	Site Plan Review
Applicant(s):	46 Venture Drive Properties LLC
Owner(s):	Hussey Manufacturing Technology, LLC
Location:	Venture Drive (Tax Map D, Lot 11-2)
Date:	September 26, 2019

- Provide accessible aisle and parking detail .
- Provide the codes/standards used for accessibility design and that plans are in accordance w/ NH RSA 155-A:5.
- Provide elevation plans and identify sprinkler/mechanical rooms on floor plan.

Engineering Comments:
- Landscape plan and utility/grading plan conflict
- Increase landscaping along Venture Drive where so wooded today

Economic Development Comments:
- B & W rendering insufficient.
- Building shown is stark with no architectural amenities. Needs improvement.
- Needs accurately colored renderings and list of materials used.

Planning Board Comments: N/A

Next Steps:
Submit for Planning Board when ready

TRC paused at: 11:39am

Erickson motioned to approve the requested expenditure of $150,000 from the Conservation Fund, Lyon seconded. Vote: 7 in favor.

B. City of Dover Conditional Use Permit for 46 Venture Drive Properties, LLC (Owner: Hussey Manufacturing Technology, LLC), Assessor's Map D, Lot 11-2, zoned I-4, located at 46 Venture Drive.

Steve Haight was present to explain the proposal for construction of a 15,000 sq. ft. commercial building with driveways, paved parking and associated grading and drainage impacting 2,669 sq. ft. of steep slopes of 20% or greater. The drainage plans were reviewed. The plan has been to TRC and the plans were revised to reflect their comments. DBIDA approved the use of the parcel. The 20% slopes along the road were created when Venture Drive was built.

Fellows moved to endorse the Conditional Use Permit as presented, Schmidt seconded. Vote: 7 in favor

C. City of Dover Conditional Use Permit and NHDES Wetlands Permit for the City of Dover, Assessor's Map H, Lot 58, zoned I-4, located at 271 Mast Road.

Tom Page of Underwood Engineers was present to explain the proposal to construct a replacement artificial recharge facility on Bellamy River, including a new passive river intake structure, a new suction lifting pumping station, and a new pumping building, with 500 sq. ft. of permanent wetlands impact and a temporary wetlands impact of 1,450 square feet. Artificial recharge adds water from the river to recharge basins to help recharge aquifers and to prevent contamination from Madbury Metals impacting the wells. We met with NH Fish & Game to select the correct size screen for the intake. The wetlands permit has been submitted. Plan is to construct in 2020. This requires a 401 water quality permit from the state.

Hunt: Is there much of a change in the project footprint?

Page: The building is slightly larger.

Bird: Where are the recharge basins located?

Page showed them on a map.

Hunt: The water in the Bellamy River comes from the Bellamy Reservoir, which is controlled by Portsmouth.

Page: We are using State Drinking Water Funding to pay for this project.

Fellows moved to endorse the Conditional Use Permit and NHDES Wetlands Permit as presented, Erickson seconded. Vote: 7 in favor

D. City of Dover Conditional Use Permit for Eversource Energy, Assessor's Map I, Lot 22, owned by Jensen's Inc. at 13 Brookmoor Road, zoned R-40, and Assessor's Map M, Lot 91-A, owned by Townsquare Media Portsmouth, LLC at 292 Middle Road, zoned R-40.

Sarah Barnum of Normandeau Associated was present to explain the proposal to replace five existing utility pole structures in a utility easement, with temporary wetland impacts of 18,879 square feet and temporary 50-foot wetland buffer impacts of 44,543 square feet. We did a site walk with the contractor last week to refine the impacts to wetlands and they will be reduced.

Fellows: What activity takes place in each site?

DRAFT

DISCHARGE PT. A

REACH R3

REACH R2

REACH R1

D/11-6SND
DOVER BUSINESS AND INDUSTRIAL DEVELOPMENT AUTHORITY
F/K/A DOVER INDUSTRIAL DEVELOPMENT AUTHORITY
288 CENTRAL AVENUE
DOVER, NH 03820
1559 / 394

D / 11-2
PARCEL AREA
246,985 S.F.
5.67 Ac.

D/11-6SND
DOVER BUSINESS AND INDUSTRIAL DEVELOPMENT AUTHORITY
F/K/A DOVER INDUSTRIAL DEVELOPMENT AUTHORITY
288 CENTRAL AVENUE
DOVER, NH 03820
1559 / 394

D/18-4
HUSSEY MANUFACTURING TECHNOLOGY, INC
44 VENTURE DRIVE
DOVER, NH 03820-5912
4369/608

D / 18
JOHANNES CRAMER
20 VENTURE DRIVE
DOVER, NH 03820
3461 / 261

D/14-1
67 VENTURE LLC
c/o JEFF LONDRES
340 ODIORNE POINT ROAD
PORTSMOUTH, NH 03801
4565 / 17

D/14-1
CHURCHILL MEDICAL SYSTEMS, INC.
ADVANCED MEDICAL, INC.
2750 MORRIS ROAD #A200
LANSDALE, PA 19446-6083
1951 / 542

D/14-2A
THE EVEREST COMPANY, INC.
c/o LEPAGE BAKERIES
P.O. Box 1900
AUBURN, ME 04211-1900
1892 / 429

ScB

HcB

HcB

EaB

A1

A2

A3

VENTURE DRIVE
PUBLIC 60' WIDE R.O.W.

VENTURE DRIVE
PUBLIC 60' WIDE R.O.W.

DRAINAGE SWALE

CB 9
CB 10
CB 11
CB 13
CB 14
CB 15
CB A
CB B
CB C
CB D
DMH A
DMH B
FES B

12" RCP D
15" RCP D

NH STATE PLANE
NAD 83 - GPS OBS.

PRE-DEVELOPMENT WATERSHED CHARACTERISTICS

SUBCATCHMENT DESIGNATION	AREA (ACRES)	LONGEST FLOW PATH (FEET)	Tc (MIN)
A1	0.45	346	11.3
A2	0.63	397	12.2
A3	4.26	549	14.1

SOILS DATA

Soil information provided from NRCS Web Soil Survey (WSS) mapping tool at http://websoilsurvey.nrcs.usda.gov and references the Strofford County, NH Soil Survey Area, Version 18, September 5, 2018.

Hydrologic Drainage Class B:
EaB — Elmwood fine sandy loam, 3 – 8 Percent Slopes

Hydrologic Drainage Class C/D:
ScB — Scantic silt loam, 3 – 8 Percent Slopes

Hydrologic Drainage Class D:
HcB — Hollis/Charlton fine sandy loam, 3 – 8 Percent Slopes

LEGEND:

- EX 2' CONTOUR
- EX 10' CONTOUR
- EDGE OF PAVEMENT
- EXISTING TREELINE
- WEB SOIL SURVEY BOUNDARY
- ScB — WEB SOIL SURVEY SOIL DESIGNATION
- EDGE OF WETLAND
- SUBCATCHMENT BOUNDARY
- LONGEST FLOW PATH WITH DIRECTION OF FLOW
- (A1) SUBCATCHMENT DESIGNATION

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P19-___

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

NO.	REVISION	APP'D	DATE

DATE: 9/9/19
SCALE: 1"=40'
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO: 19014
FILE: DRN.DWG

PRE-DEVELOPMENT WATERSHED PLAN

OWNER:
HUSSEY MANUFACTURING TECHNOLOGY, LLC
44 VENTURE DRIVE
DOVER, NH 03820

APPLICANT:
VENTURE DRIVE PROPERTIES, LLC
910 DAY HILL ROAD
WINDSOR, CT 06095

W-1

DISCHARGE PT. A

REACH R3

REACH R2B

REACH R5

REACH R2A

REACH R4

REACH R1

D/11-8SND
DOVER BUSINESS AND INDUSTRIAL DEVELOPMENT AUTHORITY
F/K/A DOVER INDUSTRIAL DEVELOPMENT AUTHORITY
288 CENTRAL AVENUE
DOVER, NH 03820
1559 / 394

D / 11-2
PARCEL AREA
246,985 S.F.
5.67 Ac.

D/11-8SND
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F/K/A DOVER INDUSTRIAL DEVELOPMENT AUTHORITY
288 CENTRAL AVENUE
DOVER, NH 03820
1559 / 394

D/13-4
HUSSEY MANUFACTURING TECHNOLOGY, INC.
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DOVER, NH 03820-5912
4369/608

D / 13
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20 VENTURE DRIVE
DOVER, NH 03820
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c/o LEPAGE BAKERIES
P.O. Box 1900
AUBURN, ME 04211-1900
1892 / 429

D/14-1
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c/o JEFF LONDRES
340 ODIORNE POINT ROAD
PORTSMOUTH, NH 03801
4585 / 17

D/14-4
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ADVANCED MEDICAL, INC.
2750 MORRIS ROAD #A200
LANSDALE, PA 19446-6083
1951 / 542

ScB
HcB
EaB
HcB

TREATMENT SWALE 2 (TS2)
TREATMENT SWALE 1 (TS1)
ROOF DRAIN 2 (RD2)
PROPOSED 5,000 S.F. FUTURE ADDITION
PROPOSED 10,000 S.F. BUILDING
ROOF DRAIN 1 (RD1)
PIPE 2 (P2)
PIPE 1 (P1)
CATCH BASIN 2 (CB2)
CATCH BASIN 1 (CB1)
DRAINAGE SWALE

VENTURE DRIVE
PUBLIC 60' WIDE R.O.W.

CB A, CB B, CB 9, CB 10, CB 11, CB 13, CB 14, CB 15, CB C, CB D
DMH A, DMH B
FES B

12" RCP D

NE STATE PLANE
NAD 83 - GPS OBS.

POST-DEVELOPMENT WATERSHED CHARACTERISTICS

SUBCATCHMENT DESIGNATION	AREA (ACRES)	LONGEST FLOW PATH (FEET)	Tc (MIN)
1	0.15	180	0.9
2	0.13	139	0.7
3	0.35	187	7.9
4	0.26	157	7.3
5	0.21	96	6.4
6	0.14	305	3.2
7	0.07	132	1.6
8	0.11	51	0.3
9	0.40	179	12.9
10	0.23	51	0.3
11	3.28	369	10.3

LEGEND:

- EX 2' CONTOUR
- EX 10' CONTOUR
- PROPOSED CONTOUR
- EDGE OF PAVEMENT
- PROPOSED EDGE OF PAVEMENT
- EXISTING TREELINE
- PROPOSED TREELINE
- WEB SOIL SURVEY BOUNDARY
- ScB — WEB SOIL SURVEY SOIL DESIGNATION
- EDGE OF WETLAND
- SUBCATCHMENT BOUNDARY
- LONGEST FLOW PATH WITH DIRECTION OF FLOW
- (11) — SUBCATCHMENT DESIGNATION

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)
1 inch = 40 ft.

SOILS DATA

Soil information provided from NRCS Web Soil Survey (WSS) mapping tool at http://websoilsurvey.nrcs.usda.gov and references the Strafford County, NH Soil Survey Area, Version 18, September 5, 2018.

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HcB — Hollis/Charlton fine sandy loam, 3 – 8 Percent Slopes

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PLANNING FILE NO.: P19-___

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CIVIL ENGINEERING
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NO.	REVISION	DATE	APP'D

DATE: 9/9/19
SCALE: 1"=40'
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY: SJH
PROJECT NO: 19014
FILE: DRN.DWG

POST-DEVELOPMENT WATERSHED PLAN

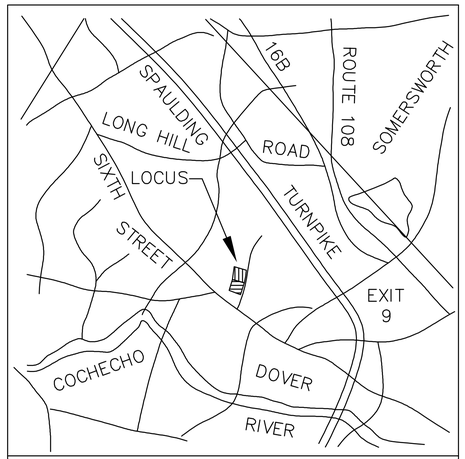
OWNER:
HUSSEY MANUFACTURING TECHNOLOGY, LLC
44 VENTURE DRIVE
DOVER, NH 03820

APPLICANT:
VENTURE DRIVE PROPERTIES, LLC
910 DAY HILL ROAD
WINDSOR, CT 06095

W-2

SITE DEVELOPMENT
SITE PLAN

TAX MAP D, LOT 11-2
46 VENTURE DRIVE
DOVER, NH
OCTOBER 18, 2019



LOCATION PLAN
(NO SCALE)

OWNER
HUSSEY MANUFACTURING TECHNOLOGY, LLC
44 VENTURE DRIVE
DOVER, NH 03820

_____ _____
FOR:_____ DATE

APPLICANT
46 VENTURE DRIVE PROPERTIES, LLC
910 DAY HILL ROAD
WINDSOR, CT 06095

_____ _____
FOR:_____ DATE

SITE CIVIL ENGINEER
CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

LAND SURVEYOR
MCENEANEY SURVEY ASSOCIATES, INC.
P.O. BOX 681
24 CHESTNUT STREET
DOVER, NH 03820
(603) 742-0911

LANDSCAPE ARCHITECT
IRONWOOD DESIGN GROUP, LLC
55 MAIN STREET, SUITE 129
NEWMARKET, MH 03857

WETLAND SCIENTIST
MICHAEL CUOMO
6 YORK POND ROAD
YORK, ME 03909

SHEET INDEX	SHEET
COVER SHEET	1
NEIGHBORHOOD PLAN	2
EXISTING CONDITIONS PLAN (BY MCENEANEY SURVEY)	3
NOTE SHEET	4
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GRADING, DRAINAGE & EROSION CONTROL PLAN	7
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LIGHTING PLAN	14
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DOVER LADDER TRUCK MOVEMENT PLAN	16
LANDSCAPE PLAN	-
STREET SCAPE PLAN	-
ARCHITECTURAL ELEVATIONS & FLOOR PLANS	-

PLANNING FILE NO.: P19-67



ABUTTERS LIST
(WITHIN 200 FT)

	TAX MAP	LOT NO.	NAME & ADDRESS
D 13-4	D	13-4	HUSSEY MANUFACTURING TECHNOLOGY, LLC 44 VENTURE DRIVE DOVER, NH 03820-5912
D 13-3	D	13-3	JMW PRODUCTION,LLC C/O MFB HOLDINGS, INC. 27 PRODUCTION DRIVE DOVER, NH 03820
D 13	D	13	CRAMER JOHANNES 20 VENTURE DRIVE DOVER, NH 03820
D 14-1	D	14-167	VENTURE, LLC C/O JEFF LONDRES 340 ODIORNE POINT ROAD PORTSMOUTH, NH 03801
D 14-4	D	14-4	CHURCHHILL MEDICAL SYSTEMS, INC. ADVANCED MEDICAL, INC. 2750 MORRIS ROAD #A200 LANSDALE, PA 19446-6083
D 14-3A	D	14-3A	EVEREST CO., INC. C/O LEPAGE BAKERIES PO BOX 1900 AUBURN, ME 04211-1900
D 11-6-SND	D	11-6-SND	DOVER BUSINESS & IND DEV AUTHORITY F/K/A DOVER IND DEV AUTHORITY 288 CENTRAL AV. DOVER, NH 03820

SITE

TAX MAP	LOT NO.	NAME & ADDRESS
D 11-2	D 11-2	HUSSY MANUFACTURING TECHNOLOGY, LLC 44 VENTURE DRIVE DOVER, NH 03820-5912

H 33-E TAX MAP LOT NUMBER

NH STATE PLANE
NAD 83 - GPS OBS.

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P19-67

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

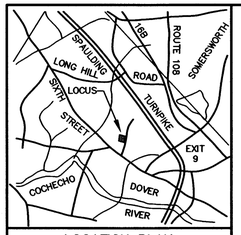
NO.	REVISION	DATE	APP'D
1	REVISION PER TRC COMMENTS	10-18-19	SJH

DATE: 10-18-19
SCALE: AS SHOWN
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO:19014
FILE: SITE.DWG

NEIGHBORHOOD PLAN

APPLICANT:
VENTURE DRIVE PROPERTIES, LLC
910 DAY HILL ROAD
WINDSOR, CT 06095

OWNER:
HUSSEY MANUFACTURING TECHNOLOGY, LLC
44 VENTURE DRIVE
DOVER, NH 03820



LOCATION PLAN
(NO SCALE)

DRAINAGE STRUCTURE SCHEDULE

CB 8
RIM = 201.25
NEXT CB 7

CB 7
RIM = 201.25
NEXT CB 9

CB 10
RIM = 189.6
INV. IN 6" PVC (2) = 186.4 UNDERDRAINS
INV. OUT 12" RCP = 185.9 CB 9
SUMP = 182.9

CB 9
RIM = 189.7
INV. IN 12" RCP = 184.7 CB 7
INV. IN 12" RCP = 184.7 CB 10
INV. OUT 12" RCP = 184.6 DMH A
SUMP = 181.8

DMH A
RIM = 187.7
INV. IN 12" RCP = 182.5 CB 9
INV, IN 12" RCP = 182.4 CB A
INV. OUT 12" RCP = 184.6 CB 11
SUMP = 182.2

CB A
RIM = 187.1
NEXT DMH A

CB 11
RIM = 183.7
INV. IN 6" PVC = 178.9 UNDERDRAIN
INV. IN 12" RCP = 178.7 DMH A
INV. OUT 12" RCP = 178.6 DMH B
SUMP = 175.5

DMH B
RIM = 178.0
INV. IN 12" RCP = 174.7 CB B
INV. IN 12" RCP = 174.3 CB 13
INV. IN 12" RCP = 174.3 CB 11
INV. OUT 12" RCP = 174.1 CB 14
SUMP = 172.6

CB B
RIM = 177.8
NEXT DMH B

CB 13
RIM = 178.0
INV. IN 6" PVC (2) = 174.9 UNDERDRAINS
INV. OUT 12" RCP = 174.6 DMH B
SUMP = 171.3

CB 14
RIM = 169.2
INV. IN 6" PVC = 166.8 UNDERDRAIN
INV. IN 12" RCP = 165.5 CB 13
INV. OUT 15" RCP = 165.4 CB 15
SUMP = 161.0

CB 15
RIM = 169.3
INV. IN 6" PVC = 165.9 UNDERDRAIN
INV. IN 15" RCP = 165.2 CB 14
INV. OUT 15" RCP = 164.3
SUMP = 161.1

FES A
INV. OUT 15" RCP = 161.8

FES B
INV. = 163.9

CB C
RIM = 167.9

CB D
RIM = 167.9

REFERENCE PLANS:

1.) SUBDIVISION PLAN DOVER INDUSTRIAL DEVELOPMENT AUTHORITY, VENTURE DRIVE, DOVER, NEW HAMPSHIRE. SCALE: 1" = 50'; DATED: NOVEMBER 8, 1999, REVISED THROUGH 12/3/99; BY TRITECH ENGINEERING CORPORATION. RECORDED S.C.R.D. PLAN 57–78.

2.) BOUNDARY LINE ADJUSTMENT DOVER INDUSTRIAL DEVELOPMENT AUTHORITY, VENTURE DRIVE, DOVER, NEW HAMPSHIRE. SCALE: 1" = 40'; DATED: MARCH 19, 1998, REVISED THROUGH 4/15/98; BY TRITECH ENGINEERING CORPORATION. RECORDED S.C.R.D. PLAN 51–78.

3.) SUBDIVISION OF LAND PREPARED FOR DOVER INDUSTRIAL DEVELOPMENT AUTHORITY, VENTURE DRIVE AND PRODUCTION DRIVE, DOVER, NEW HAMPSHIRE. SCALE: 1" = 80'; DATED: APRIL 6, 1997, REVISED THROUGH 9/12/97; BY McENEANEY SURVEY ASSOCIATES, INC. RECORDED S.C.R.D. PLAN 50–52.

4.) SUBDIVISION PLAN DOVER INDUSTRIAL DEVELOPMENT AUTHORITY, SIXTH STREET / LONG HILL ROAD EXT., DOVER, NEW HAMPSHIRE. SCALE: 1" = 100'; DATED: JANUARY 17, 1992; BY TERRASCAN. RECORDED S.C.R.D. PLANS 41–91 & 41–92.

LEGEND

S.F. – SQUARE FEET
Ac. – ACRE
(TYP.) – TYPICAL
± – MORE OR LESS
W/ – WITH
ø – DIAMETER
S.C.R.D. – STRAFFORD COUNTY REGISTRY OF DEEDS
R.O.W. – RIGHT OF WAY

CB – CATCH BASIN
DMH – DRAIN MANHOLE
FES – FLARED END SECTION
D – DRAIN
PVC – POLYVINYL CHLORIDE
RCP – REINFORCED CONCRETE PIPE
S SMH – SEWER MANHOLE
S – SEWER
SDR 35 – MATERIAL SPECIFICATION
TBM – TEMPORARY BENCHMARK
ELEV. – ELEVATION
INV. – INVERT

WF 01 – WETLAND FLAG IDENTIFICATION NUMBER
– WETLAND
– EDGE OF WETLAND
W W – WATER MAIN
– WATER GATE VALVE
– WATER SHUT-OFF (CURB STOP)
– FIRE HYDRANT
N – NORTHING
E – EASTING
X–C – CROSS COUNTRY
126 – EXISTING CONTOUR

D / 13–3

JMW PRODUCTION LLC
c/o MFB HOLDINGS, INC.
27 PRODUCTION DRIVE
DOVER, NH 03820
4349 / 640

CITY GRID
S.C.R.D. 57–78
359.99'
N13°01'58"E

D / 11–2

PARCEL AREA
224,566 S.F.
5.16 Ac.

IRON ROD WITH TRITECH CAP FOUND
50.89'
N13°02'03"E
64.70'
IRON ROD WITH TRITECH CAP FOUND
STREAM
OPEN SPACE AS SHOWN ON S.C.R.D. PLAN 41–92 – STATUS UNKNOWN
BUILDING SETBACK LINE (TYP.)
CONSERVATION DISTRICT SENDING AREA 60,762 S.F. (SCRD 57–78, NOTES 12 + 14)
50' WETLAND BUFFER (TYP.)
AREA WITH SLOPES GREATER THAN 20 PERCENT (STEEP); DOVER CONSERVATION DISTRICT
S66°13'36"E 450.62'
441.14'
N66°13'36"W
ABANDONED LOT LINE
NEW LOT LINE
S88°47'50"E 373.18'

D / 13–4

PARCEL AREA
178,411 S.F.
4.10 Ac.

TBM 2
TOP OF CONCRETE LIGHT POLE BASE
ELEV. = 197.67
D / 13–4

HUSSEY MANUFACTURING TECHNOLOGY, LLC
44 VENTURE DRIVE
DOVER, NH 03820–5912
4369 / 608

BITUMINOUS CONCRETE PARKING
EDGE OF PAVEMENT

TEST PIT 1
ELEV. 189.3
TEST PIT 2
ELEV. 189.0
TEST PIT 3
ELEV. 186.4

GRANITE BOUND WITH DRILL HOLE FOUND

EASEMENT FOR SEWER & WATER AS SHOWN ON S.C.R.D. PLAN 57–78

TELEPHONE MANHOLE
SECTOR CABINET A
TELECOMMUNICATION
CATV
FIRE HYDRANT

IRON ROD WITH TRITECH CAP FOUND
I.R.(tbs)
GRANITE BOUND WITH DRILL HOLE FOUND
TBM 1
TOP BOLT AT LIGHT POLE BASE
ELEV. = 187.63
50.00'
58.71'
S23°46'24"W

C1

VENTURE DRIVE
60' WIDE R.O.W.

IRON ROD WITH CAP FOUND, FLUSH
N – 263,327.886
E – 701,576.949
(SEE NOTE 8)

D / 13

JOHANNES CRAMER
20 VENTURE DRIVE
DOVER, NH 03820
3461 / 261

D/14–3A

THE EVEREST COMPANY, INC.
c/o LEPAGE BAKERIES
P.O. Box 1900
AUBURN, ME 04211–1900
1892 / 429

D/14–1

67 VENTURE LLC
c/o JEFF LONDRES
340 ODIORNE POINT ROAD
PORTSMOUTH, NH 03801
4565 / 17

D/11–6SND

D.B.I.D.A.
F/K/A D.I.D.A.
288 CENTRAL AVENUE
DOVER, NH 03820
1559 / 394

D/14–4

CHURCHILL MEDICAL SYSTEMS, INC.
ADVANCED MEDICAL, INC.
2750 MORRIS ROAD #A200
LANSDALE, PA 19446–6083
1951 / 542

DRAINAGE SWALE
FES A
FES B
GRANITE BOUND WITH DRILL HOLE FOUND
N – 263,961.194
E – 701,653.589
(SEE NOTE 8)
CB D
CB C
SECTOR CABINET 5
15" RCP D
VENTURE DRIVE
139.56'
S08°26'44"E
SMH 20
CB 15
CB 14
15" PVC SDR 35 S
TELECOMMUNICATION
SECTOR CABINET
12" W
8" PVC SDR 35 S
12" RCP D
SMH 19
CB 13
DMH B
CB B
SMH 17
CB 8
CB 7
CB 10
CB 9
DMH A
CB A
SMH 18
CB 11
12" RCP D
8" PVC SDR 35 S

No.	Central Angle	Radius	Arc Length	Chord Length	Chord Bearing
C1	32°13'09"	720.00	404.88	399.56	S07°39'52"W

SANITARY SEWER STRUCTURE SCHEDULE

SMH 17
RIM = 196.7
INV. OUT 8" PVC = 190.1 SMH 18

SMH 18
RIM = 184.2
INV. IN 8" PVC = 177.1 SMH 17
INV. OUT 8" PVC = 177.0 SMH 19

SMH 19
RIM = 177.4
INV. IN 8" PVC = 155.5 SMH 18 DROP
INV. IN 15" PVC = 155.5 SMH 20
INV. OUT 15" PVC = 155.4 (X–C EAST)

SMH 20
RIM = 169.4
INV. IN 15" PVC = 156.0 (ROADWAY NORTH)
INV. OUT 15" PVC = 155.9 SMH 19

NOTES:

1.) OWNER OF RECORD:
D / 11–2 HUSSEY MANUFACTURING TECHNOLOGY, LLC
44 VENTURE DRIVE
DOVER, NEW HAMPSHIRE 03820–5912
S.C.R.D. VOL. 4369, PAGE 608

2.) D / 11–2 – DENOTES TAX MAP AND PARCEL NUMBER.

3.) THE SUBJECT PARCEL IS LOCATED WITHIN THE ASSEMBLY AND OFFICE (I–4) ZONING DISTRICT.

4.) DIMENSIONAL REGULATIONS:

	I–4
MINIMUM LOT SIZE:	5 ACRES
MINIMUM LOT COVERAGE:	33 PERCENT
MINIMUM FRONTAGE:	400 FEET
BUILDING SETBACKS:	
FRONT	75 FEET
SIDE	75 FEET
REAR	75 FEET
MAXIMUM BUILDING HEIGHT:	40 FEET

5.) THE INTENT OF THIS PLAN IS TO DEPICT AND DESCRIBE THE SUBJECT PARCEL "EXISTING CONDITIONS". INFORMATION SHOWN IS BASED ON SURVEY FIELD DATA TAKEN DURING MAY AND JUNE 2019 BY THIS OFFICE.

6.) PARCEL AREA: 224,566 S.F. / 5.16 Ac.

7.) THE SUBJECT PARCEL IS LOCATED OUTSIDE THE 0.2 PERCENT ANNUAL CHANCE FLOODPLAIN AS SHOWN ON FLOOD INSURANCE RATE MAP COMMUNITY NUMBER 330145; PANEL 0310; SUFFIX E; MAP NUMBER 33017C0310E; EFFECTIVE DATE SEPTEMBER 30, 2015.

8.) BASIS OF BEARINGS IS CITY OF DOVER / GEOD CORPORATION GRID NORTH AS TAKEN FROM S.C.R.D. PLAN 57–78.

9.) VERTICAL DATUM IS APPROXIMATE NGVD29 AS TAKEN FROM CITY OF DOVER / GEOD CORPORATION DATA.

10.) JURISDICTIONAL WETLANDS IDENTIFIED AND FLAGGED BY MICHAEL CUOMO, N.H.C.W.S. #004 AND N.H. C.S.S. #006 DURING MAY 2019 AND FIELD LOCATED BY McENEANEY SURVEY ASSOCIATES, INC.

11.) PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A SURVEY PERFORMED BY MCENEANEY SURVEY ASSOCIATES, INC. DURING MAY & JUNE 2019 WITH AN ERROR NOT GREATER THAN 1 IN 10,000.

12.) PARCEL IS SUBJECT TO AND BENEFIT FROM EASEMENTS OF RECORD.

13.) VENTURE DRIVE UTILITIES AND SERVICES INFORMATION SHOWN IS AS TAKEN FROM CITY OF DOVER, ENTERPRISE PARK DESIGN PLANS DATED APRIL 1992, AND FROM SURFACE FEATURES FOUND DURING SURVEY.

ATTENTION:

HIGH PRESSURE GAS MAIN EXISTS WITHIN THE RIGHT OF WAY OF VENTURE DRIVE; PRIOR TO ANY EARTH MOVING ACTIVITY CONTACT DIGSAFE AT "811" OR 1–888–344–7233 TO VERIFY LOCATION.

"I HEREBY CERTIFY THAT THIS PLAN IS BASED ON AN ACTUAL GROUND SURVEY PERFORMED WITH A TOTAL STATION, BY ME OR THOSE UNDER MY DIRECT SUPERVISION AND THAT, TO THE BEST OF MY KNOWLEDGE AND BELIEF, SAID SURVEY MEETS OR EXCEEDS THE MINIMUM PRECISION REQUIREMENTS FOR SURVEY CLASSIFICATION "U" AS SET FORTH IN TABLE 500.1 OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES OF THE BOARD OF LICENSURE FOR LAND SURVEYORS."

NO.	DATE	DESCRIPTION	BY	CHK
		REVISIONS		
2	10/1/19	AMEND PARCEL TO LOT LINE ADJUSTMENT AREA	RJM	KMM
1	8/14/19	CORRECT CB 15 OUTLET LOCATION	RJM	KMM

19–2224	EXIST. COND.	19–05	1–22
PROJECT NO	TYPE	FIELDBOOK & PAGES	

TOPOGRAPHIC PLAN

EXISTING CONDITIONS PLAN
PREPARED FOR
HUSSEY MANUFACTURING TECHNOLOGY, LLC
TAX MAP D, LOT No. 11–2
VENTURE DRIVE
CITY of DOVER
COUNTY of STRAFFORD
STATE of NEW HAMPSHIRE

DOVER PLANNING FILE No. P 19–___

DRAWN BY: RJM | FILE: MSA\2224\19–2224 EC LLA
SCALE: 1" = 40' | DATE: JULY 3, 2019

40 20 0 20 40 80 120 160

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR No. 661 KEVIN M. McENEANEY Signature

McEneaney Survey Associates of NEW ENGLAND
P.O. Box 681 – 24 CHESTNUT STREET
DOVER, NH 03820 (603) 742–0911

SURVEYING – PLANNING – CONSULTING

GENERAL NOTES

1. OWNERS OF RECORD:
   HUSSY MANUFACTURING TECHNOLOGY, LLC
   44 VENTURE DRIVE
   DOVER, NEW HAMPSHIRE 03820
   S.C.R.D. VOL. 4369, PAGE 608
2. D / 11-2 – DENOTES TAX MAP AND PARCEL NUMBER.
3. ZONING DISTRICT: ASSEMBLY AND OFFICE (I-4)

		REQUIRED	PROPOSED
MINIMUM LOT SIZE	=	5 ACRES	5.16 ACRES
MAXIMUM COVERAGE	=	33%	6.6%
MINIMUM FRONTAGE	=	400 FEET	±603 FEET
FRONT SETBACK	=	75 FEET	>76 FEET
ABUT A STREET SETBACK	=	75 FEET	>76 FEET
SIDE SETBACK	=	75 FEET	77 FEET
REAR SETBACK	=	75 FEET	±248 FEET
MAXIMUM BUILDING HEIGHT	=	40 FEET	<40 FEET

4. THE PARCEL IS LOCATED WITHIN AREAS DETERMINED TO BE OUTSIDE THE 0.2 PERCENT ANNUAL CHANCE FLOODPLAIN AS SHOWN ON FLOOD INSURANCE RATE MAP COMMUNITY NUMBER 330145; PANELS 0310; SUFFIX E; MAP NUMBERS 33017C0310E; EFFECTIVE DATE SEPTEMBER 30, 2015.
5. BASIS OF BEARINGS IS CITY OF DOVER / GEOD CORPORATION GRID NORTH AS TAKEN FROM S.C.R.D. PLAN 57-78.
6. VERTICAL DATUM IS APPROXIMATE NGVD29 AS TAKEN FROM CITY OF DOVER / GEOD CORPORATION DATA.
7. JURISDICTIONAL WETLANDS IDENTIFIED AND FLAGGED BY MICHAEL CUOMO, N.H.C.W.S. #004 AND N.H. C.S.S. #006 DURING MAY 2019 AND FIELD LOCATED BY McENEANEY SURVEY ASSOCIATES OF NEW ENGLAND.
8. PARCEL IS SUBJECT TO AND BENEFIT FROM EASEMENTS OF RECORD.
9. THE OWNER OF RECORD SHALL RECORD AT THE REGISTRY OF DEEDS DOCUMENTATION SUFFICIENT TO PROVIDE NOTICE TO ALL PERSONS THAT MAY ACQUIRE ANY PROPERTY SUBJECT TO THE REQUIREMENTS AND RESPONSIBILITIES DESCRIBED IN THE APPROVED STORMWATER MANAGEMENT PLAN. THE NOTICE SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS FOR RECORDING CONTAINED IN RSA 477 AND 478. THE NOTICE NEED NOT SET FORTH THE REQUIREMENTS AT LENGTH, SO LONG AS IT IS SUFFICIENT TO PROVIDE NOTICE TO PROSPECTIVE PURCHASERS TO THE REQUIREMENTS FOR MAINTENANCE AND REPORTING.

DEMOLITION NOTES:

1. COORDINATE REMOVAL, RELOCATION, DISPOSAL OR SALVAGE OF UTILITIES WITH THE OWNER AND APPROPRIATE UTILITY COMPANY.
2. ANY EXISTING WORK OR PROPERTY DAMAGED OR DISRUPTED BY CONSTRUCTION/DEMOLITION ACTIVITIES SHALL BE REPLACED OR REPAIRED TO MATCH ORIGINAL EXISTING CONDITIONS BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
3. THE CONTRACTOR SHALL NOTIFY "DIG SAFE" PRIOR TO ANY DEMOLITION/ CONSTRUCTION ACTIVITIES. (811).
4. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING STRUCTURES, UTILITIES AND PAVEMENT ON THE SITE TO THE LIMITS SHOWN UNLESS SPECIFICALLY IDENTIFIED TO REMAIN.
5. IT IS THE CONTRACTORS RESPONSIBILITY TO FAMILIARIZE HIMSELF WITH THE CONDITIONS OF ALL OF THE PERMIT APPROVALS.
6. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS NOT ALREADY OBTAINED BY THE OWNER AND ARRANGE AND PAY FOR NECESSARY INSPECTIONS AND APPROVALS FROM THE AUTHORITIES HAVING JURISDICTION.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEMOLITION AND OFF-SITE DISPOSAL OF MATERIALS REQUIRED TO COMPLETE THE WORK, EXCEPT FOR WORK NOTED TO BE COMPLETED BY OTHERS.
8. THE LOCATION OF UNDERGROUND UTILITIES ARE APPROXIMATE AND THE LOCATION IS NOT GUARANTEED BY THE OWNER OR THE ENGINEER. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES, ANTICIPATE CONFLICTS, REPAIR EXISTING UTILITIES AND RELOCATE EXISTING UTILITIES REQUIRED TO COMPLETE THE WORK.
9. ALL MATERIALS SCHEDULED TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE SPECIFIED. THE CONTRACTOR SHALL DISPOSE OF ALL MATERIALS OFF-SITE IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS, ORDINANCES, AND CODES.
10. EXISTING ("OLD") WATER SERVICES SHALL BE DISCONNECTED AND SHUT-OFF AT THE WATER MAIN. (IF APPLICABLE)
11. EXISTING SEWER SERVICES TO BE CUT AND PERMANENTLY CAPPED AT PROPERTY LINE. (IF APPLICABLE)
12. ALL EROSION CONTROL NOTES SHALL INCLUDE PROVISIONS FOR CONSTRUCTION SEQUENCING, TEMPORARY EROSION CONTROL MEASURES, AND PERMANENT STANDARDS SUCH AS LOAM SPREAD RATE FOR DISTURBED AREAS, RATES OF LIME, TYPE AND RATES FOR FERTILIZER, AND SEED AND MULCH MIXTURE WITH RATES OF APPLICATION.

SITE NOTES:

1. PROPERTY LINE INFORMATION HAS BEEN OBTAINED FROM A PLAN REFERENCED AND PREPARED BY MCENEANEY SURVEY ASSCOIATS OF NEW ENGLAND (SEE EXISTING CONDITIONS PLAN IN THIS PLAN.
2. THE INTENT OF THIS PLAN IS TO SHOW SITE IMPROVEMENTS ASSOCIATED WITH THE CONSTRUCTION OF A COMMERCIAL BUILDING, SURFACE PARKING, DRIVE AISLES, DRAINAGE IMPROVEMENTS, AND UTILITIES.
3. EXTERIOR LIGHTING SHALL BE CUT-OFF TYPE FIXTURES PER CHAPTER 149-14-E AND SHALL PROVIDE LIGHTING DIRECTED ON-SITE ONLY.
4. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO APPLICABLE CITY AND STATE CODES.
5. STRIPE PARKING AREAS AS SHOWN INCLUDING HANDICAP SYMBOLS AND PAINTED ISLANDS. ALL MARKINGS SHALL BE CONSTRUCTED USING WHITE TRAFFIC PAINT, MEETING THE REQUIREMENTS OF AASHTO M-248-TYPE N.
6. ALL PAVEMENT MARKINGS AND SIGNS SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", THE "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS, AND THE AMERICAN WITH DISABILITIES ACT, LATEST EDITIONS.
7. PAINTED ISLANDS SHALL BE 4 INCHES WIDE DIAGONAL LINES 3 FEET ON CENTER.
8. ON-SITE SNOW STORAGE SHALL OCCUR ALONG THE EDGES OF PROPOSED PAVEMENT.
9. ALL LAYOUT SHALL BE PERFORMED BY A NEW HAMPSHIRE LICENSED LAND SURVEYOR UNDER CONTRACT WITH THE CONTRACTOR.
10. SEE DETAILS FOR SIGN LEGENDS.
11. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE CONSTRUCTION PROCEDURES AND SEQUENCE TO ENSURE THE SAFETY OF THE FACILITIES AND THEIR COMPONENTS DURING DEMOLITION AND CONSTRUCTION UNLESS OTHERWISE DIRECTED BY THE OWNERS REPRESENTATIVE. THIS INCLUDES THE ADDITION OF NECESSARY SHORING, SHEETING, TEMPORARY BRACING, GUYS OR TIE-DOWNS. SUCH MATERIALS SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AT THE COMPLETION OF THE PROJECT.
12. METHODS OF DEMOLITION, CONSTRUCTION AND ERECTION ARE THE CONTRACTOR'S RESPONSIBILITY UNLESS OTHERWISE SPECIFIED. IT IS THE CONTRACTORS' RESPONSIBILITY TO PROVIDE AND MAINTAIN ENVIRONMENTAL CONTROLS AS REQUIRED BY FEDERAL, STATE AND MUNICIPAL REGULATIONS AND PERMITS. ENVIRONMENTAL CONTROLS SHALL INCLUDE BUT SHALL NOT BE LIMITED TO DUST CONTROL AND SILT BARRIERS.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE DONE TO STRUCTURES OR UTILITIES OR INJURIES TO THE PUBLIC DURING THE CONSTRUCTION PHASE CAUSED BY HIMSELF, HIS EMPLOYEES, HIS SUBCONTRACTORS OR EMPLOYEES OF SAME. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL TEMPORARY FACILITIES FOR THE PROTECTION OF THE WORK, WORKERS AND PUBLIC SAFETY.
14. BUILDING ADDRESSES TO BE ASSIGNED BY THE BUILDING OFFICIAL AT THE TIME OF ISSUANCE OF A BUILDING PERMIT.
15. THE SITE LAYOUT IS DESIGNED IN COMPLIANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS NH RSA 155-A:5. THE PROPOSED STRUCTURE WILL ALSO BE DESIGNED IN ACCORDANCE WITH APPLICABLE ACCESSIBILITY REGULATIONS.
16. THE SITE SHALL BE MAINTAINED TO PROVIDE ACCESSIBILITY IN ALL WEATHER CONDITIONS.
17. COMMERCIAL VEHICLE ROUTE DURING CONSTRUCTION SHALL CONFORM WITH DOVER CITY CODE OR BE COORDINATED WITH THE COMMUNITY SERVICES DIRECTOR.
18. THE SUBJECT PARCEL(S) IS SERVED BY MUNICIPAL WATER AND SEWER.
19. THE LIMITS OF CONSTRUCTION DISTURBANCE THAT ARE LOCATED IN OR WITHIN THE 50 FT. OF CONSERVATION AND WETLAND DISTRICTS SHALL BE STAKED, FLAGGED AND CLEARLY IDENTIFIED PRIOR TO ANY EARTH DISTURBING ACTIVITY OCCURS.
20. AS-BUILT PLANS OF THE SITE SHALL BE SUBMITTED ON PAPER AND IN A DIGITAL FORMAT IN PDF AND AUTOCAD DWG, AUTOCAD DXF OR AN ESRI FORMAT TO THE CITY OF DOVER ENGINEER'S OFFICE UPON COMPLETION OF PROJECT. AS-BUILT PLANS SHALL BE PREPARED AND CERTIFIED CORRECT BY A L.L.S. OR P.E. DIGITAL FILES SHALL BE GEO-REFERENCED TO NEW HAMPSHIRE STATE PLANE COORDINATES NAD83 AND SHALL BE EXPRESSED IN FEET.
21. A SECURITY SYSTEM SHALL BE INSTALLED AS REQUIRED BY CHAPTER 58, ARTICLE I, SECTION 58-2 OF THE CODE OF THE CITY OF DOVER.
22. SITE CONSTRUCTION HOURS SHALL BE LIMITED TO MONDAY-FRIDAY 7 AM-6 PM, SATURDAY AND SUNDAY WORK HOURS 9 AM-4 PM. HOURS OF CONSTRUCTION MUST BE DOCUMENTED ON A SITE CONSTRUCTION SIGN ALONG WITH THE CONTACT INFORMATION FOR THE GENERAL CONTRACTOR. SAID SIGNAGE MUST BE LOCATED AND APPROVED BY THE CITY ENGINEER OR ASSISTANT CITY MANAGER.
23. A PRE-CONSTRUCTION CONFERENCE WITH THE DEVELOPER, THE DESIGN ENGINEER, THE EARTHWORK CONTRACTOR AND THE CITY ENGINEER SHALL OCCUR PRIOR TO ANY EARTH DISTURBING ACTIVITY.
24. ALL CONSTRUCTION SHALL CONFORM WITH THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION (NHDOT) "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" AND WITH THE CITY OF DOVER COMMUNITY SERVICES REGULATIONS AND STANDARD SPECIFICATION FOR CONSTRUCTION. THE MORE STRINGENT SPECIFICATION SHALL APPLY.
25. ANY RETAINING WALL TALLER THAN FOUR FEET (4') REQUIRES ISSUANCE OF A BULDING PERMIT FROM INSPECTION SERVICES.
26. ANY FENCE TALLER THAN SIX FEET (6') REQUIRES THE ISSUANCE OF A BUILDING PERMIT FROM INSPECTION SERVICES.
27. APPLICANT SHALL COMPLETE LAND USE DEVELOPMENT TRACKING FORM, MOST RECENTLY REVISED VERSION, UTILIZING THE ONLINE POLLUTION TRACKING AND ACCOUNTING PILOT PROJECT (PTAPP) PORTAL.
    HTTP://WWW.UNH.EDU/UNHSC/PTAPP
28. THE FOLLOWING FEDERAL AND STATE PERMITS HAVE BEEN ISSUED FOR THE SUBJECT PROPERTY: N/A
29. LIST OF VARIANCES OR SPECIAL EXCEPTIONS GRANTED BY THE ZONING BOARD OF ADJUSTMENT OR CONDITIONAL USE PERMITS GRANTED BY THE PLANNING BOARD FOR THE PROPESED USE OR STRUCTURE: CONDITIONAL USE PERMIT: PENDING
30. A LETTER OF CREDIT FOR THE COST OF REVEGETATING ALL DISTURBED AREAS ON THE SITE SHALL BE SUBMITTED PRIOR TO ANY EARTH DISTURBING ACTIVITY OCCURS

GRADING NOTES:

1. ALL ROAD (INCLUDING PARKING LOT AND DRAINAGE) WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARDS FOR CONSTRUCTION OF THE CITY OF DOVER, N.H. AND "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, STATE OF NEW HAMPSHIRE, DEPARTMENT OF TRANSPORTATION", LATEST EDITION. THE MORE STRINGENT SPECIFICATION SHALL APPLY.
2. CONTRACTOR SHALL RETAIN A GEOTECHNICAL ENGINEERING CONSULTANT APPROVED BY THE OWNER, TO CONDUCT COMPACTION TESTING AND FILL GRADATION MONITORING PER THE ABOVE REFERENCED "STANDARD SPECIFICATIONS".
3. SEE EROSION CONTROL NOTES & DETAIL SHEET FOR TEMPORARY AND PERMANENT EROSION CONTROL MEASURES.
4. ALL DRAINAGE PIPES SHALL BE HDPE OR APPROVED EQUAL UNLESS OTHERWISE NOTED.
5. ALL DISTURBED AREAS NOT OTHERWISE CALLED FOR SURFACE TREATMENT SHALL RECEIVE 6" OF HIGH QUALITY LOAM AND SHALL BE SEEDED WITH GRASS.
6. ALL SITEWORK CONSTRUCTION SHALL BE ADVANCED USING "BEST MANAGEMENT PRACTICES" SANCTIONED BY THE USDA SCS AND NHDES.
7. TEMPORARY CONSTRUCTION ENTRANCE SHALL BE INSTALLED, UTILIZED AND MAINTAINED UNTIL BASE MATERIALS ARE CONSTRUCTED.
8. CONTRACTOR SHALL PROVIDE A FINISH GRADED SURFACE FREE OF LOW SPOTS AND PONDING AREAS. CRITICAL AREAS INCLUDE BUILDING ENTRANCE AND UNDER RAISED STRUCTURES.
9. DENSITY REQUIREMENTS:

LOCATION	MINIMUM DENSITY
BELOW PAVED OR CONCRETE AREAS	95%
TRENCH BEDDING MATERIAL AND SAND BLANKET BACKFILL	95%
BELOW LOAM AND SEED AREA	90%

   *ALL PERCENTAGES SHALL BE OF THE MAXIMUM DRY DENSITY AT THE OPTIMUM MOISTURE CONTENT AS DETERMINED AND CONTROLLED IN ACCORDANCE WITH AASHTO STANDARD 180, METHOD C. FIELD DENSITY TESTS SHALL BE MADE IN ACCORDANCE WITH AASHTO STANDARD T-191, T-204, OR T-238 AND T-239.

10. SEE GENERAL EROSION CONTROL NOTES ON DETAIL SHEET.
11. PROVIDE INLET PROTECTION BARRIERS AROUND ALL EXISTING AND PROPOSED STORM DRAINAGE INLETS WITHIN THE WORK LIMITS AND AS SHOWN ON PLAN. MAINTAIN FOR THE DURATION OF THE PROJECT UNTIL PAVEMENT HAS BEEN INSTALLED AND UPSTREAM AREAS HAVE BEEN STABILIZED.
12. INSPECT SILT BARRIERS AFTER EACH RAIN STORM OF 1/4 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS 1/3 THE STRUCTURE HEIGHT.
13. A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) IS REQUIRED FOR THIS PROJECT. THE SWPPP MUST INCLUDE THE APPROPRIATE BEST MANAGEMENT PRACTICES (BMP'S) TO MINIMIZE THE DISCHARGE OF POLLUTANTS FROM THE SITE. PARTIES RESPONSIBLE FOR DEVELOPING THE SWPPP SHOULD REFER TO THE EPA NPDES CONSTRUCTION GENERAL PERMITS NOTICE OF INTENT FOR A COMPLETE OUTLINE OR REQUIRED ELEMENTS. THESE PLANS AND THE STORMWATER MANAGEMENT SYSTEM INSPECTION & MAINTENANCE PLAN PREPARED FOR THIS PROJECT MAY BE UTILIZED IN FULFILLING THE REQUIREMENTS.
14. ALL TREATMENT SWALES TO BE CONSTRUCTED SHALL HAVE SOD BOTTOMS.
15. LIMIT TREE CLEARING TO ONLY THE EXTENT NECESSARY FOR CONSTRUCTION.
16. PLACARDS SHALL BE INSTALLED ALONG THE EDGE OF WETLAND PRIOR TO CONSTRUCTION.

UTILITY NOTES:

1. THE PROJECT SITE IS SERVED BY CITY WATER AND SEWER.
2. THE BEST AVAILABLE INFORMATION WAS USED TO DETERMINE THE LOCATION AND SIZE OF EXISTING UTILITIES. THE LOCATION IS NOT GUARANTEED BY THE OWNER OR THE ENGINEER. THE EXACT SIZE AND LOCATION OF UTILITIES SHALL BE CONFIRMED IN THE FIELD BY THE CONTRACTOR PRIOR TO COMMENCING WORK. IT IS ALSO THE CONTRACTOR'S RESPONSIBILITY TO ANTICIPATE CONFLICTS AND REPAIR EXISTING UTILITIES AS NECESSARY TO COMPLETE THE WORK AT NO ADDITIONAL COST TO THE OWNER.
3. ALL EXISTING UTILITY LOCATIONS ARE APPROXIMATE AS SHOWN. THE CONTRACTOR SHALL VERIFY THEIR EXACT LOCATIONS WITH THE RESPECTIVE UTILITY OWNERS PRIOR TO WORK BEING PERFORMED. CALL DIGSAFE AT 1-888-388-7233 OR "811".
4. ALL PROPOSED UTILITY SERVICES SHALL BE UNDERGROUND WITHIN THE SITE.
5. UNDERGROUND ELECTRIC, TELEPHONE, AND CABLE TV CONDUITS SHALL BE INSTALLED IN ACCORDANCE WITH/PER EVERSOURCE, VERIZON, COMCAST, AND UNITIL STANDARDS.
6. PROPOSED INSTALLATION OF UNDERGROUND CONDUITS FOR TELEPHONE, ELECTRIC AND GAS SERVICE SHALL BE COORDINATED WITH THE RESPECTIVE CONTACTS AS FOLLOWS:
   ELECTRIC: EVERSOURCE 1.800.362.7764
   CABLE: COMCAST 603.334.3615
   GAS: UNITIL 866.933.3821
7. SEE ELECTRICAL DRAWINGS AND DETAILS FOR OUTDOOR LIGHTING CONDUIT LOCATIONS.
8. SEE GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR PROPOSED GRADING AND EROSION CONTROL MEASURES.
9. ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.
10. SEWAGE LOADING (PER ENV. – Wq 1008.03 TABLE 1008-1)

OFFICE: 1500 S.F. x 5 GPD/100 S.F.	= 750 GPD
WAREHOUSE: 13,500 S.F. x 5 GPD/100 S.F.	= 675 GPD
(DRY GOODS) 10 EMPLOYEES @ 10 GAL.	= 100 GPD
TOTAL	= 1525 GPD

11. THE PROPOSED STRUCTURES SHALL BE SERVED BY A SPRINKLER SYSTEM AS REQUIRED UNDER CHAPTER 109-30 OF THE CODE OF THE CITY OF DOVER AND THE 2009 STATE BUILDING CODE.
12. SPRINKLER CONNECTIONS MUST BE FLUSHED IN ACCORDANCE WITH NFPA 24 AND A CONTRACTOR'S MATERIAL AND TEST CERTIFICATE FOR UNDERGROUND PIPING FORM MUST BE COMPLETED.
13. FIRE DEPARTMENT CONNECTIONS SHALL BE LOCATED ON THE STREET SIDE OF THE BUILDING PER NFPA 13.
14. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO APPLICABLE CITY AND STATE CODES.
15. APPROVED BACKFLOW PREVENTORS SHALL BE INSTALLED ON BOTH FIRE AND DOMESTIC WATER LINES.
16. ALL UNUSED WATER SERVICES SHALL BE REMOVED BACK TO THE CORPORATION AT THE MAIN.

LEGEND

S.F.	SQUARE FEET		PROPOSED SIGN
Ac.	ACRE	74	PROPOSED FINISH GRADE
±	MORE OR LESS	x 74.00	PROPOSED SPOT GRADE
(TYP.)	TYPICAL	PD	PROPOSED DRAIN LINE
S.C.R.D.	STRAFFORD COUNTY REGISTER OF DEEDS		PAVEMENT WITH CURB
TBR	TO BE REMOVED		SILT BARRIER
	EXISTING UTILITY POLE	PG	PROPOSED GAS
	EXISTING SIGN	PW	PROPOSED WATER
	EXISTING WATER SHUT-OFF		PROPOSED FENCE
	EXISTING WATER VALVE	PE	PROPOSED ELECTRIC
	EXISTING GAS VALVE	PD	PROPOSED DRAIN LINE
	EXISTING HYDRANT	RD	PROPOSED ROOF DRAIN
	EXISTING LIGHT/SIGNAL POLE	PUD	PROPOSED UNDERDRAIN LINE
S	EXISTING SEWER MANHOLE		PROPOSED CATCHBASIN
D	EXISTING DRAINAGE MANHOLE		INLET PROTECTION
	EXISTING CATCHBASIN		HANDICAP PARKING SYMBOL
5'R	PAVEMENT RADIUS		PROPOSED CONCRETE
SGC	SLOPE GRANITE CURB		PROPOSED SIDEWALK
VGC	VERTICAL GRANITE CURB		PROPOSED POROUS PAVEMENT
x 74.00	EXISTING SPOT GRADE		
94	EXISTING GRADE		
OHW	OVERHEAD WIRES		
E	EXISTING ELECTRIC		
W	EXISTING WATER LINE		
S	EXISTING SEWER LINE		
D	EXISTING DRAINAGE LINE		
G	EXISTING GAS LINE		

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P19-67

NO.	REVISION	REVISION PER TRC COMMENTS	SJH	10-18-19
			APP'D	DATE

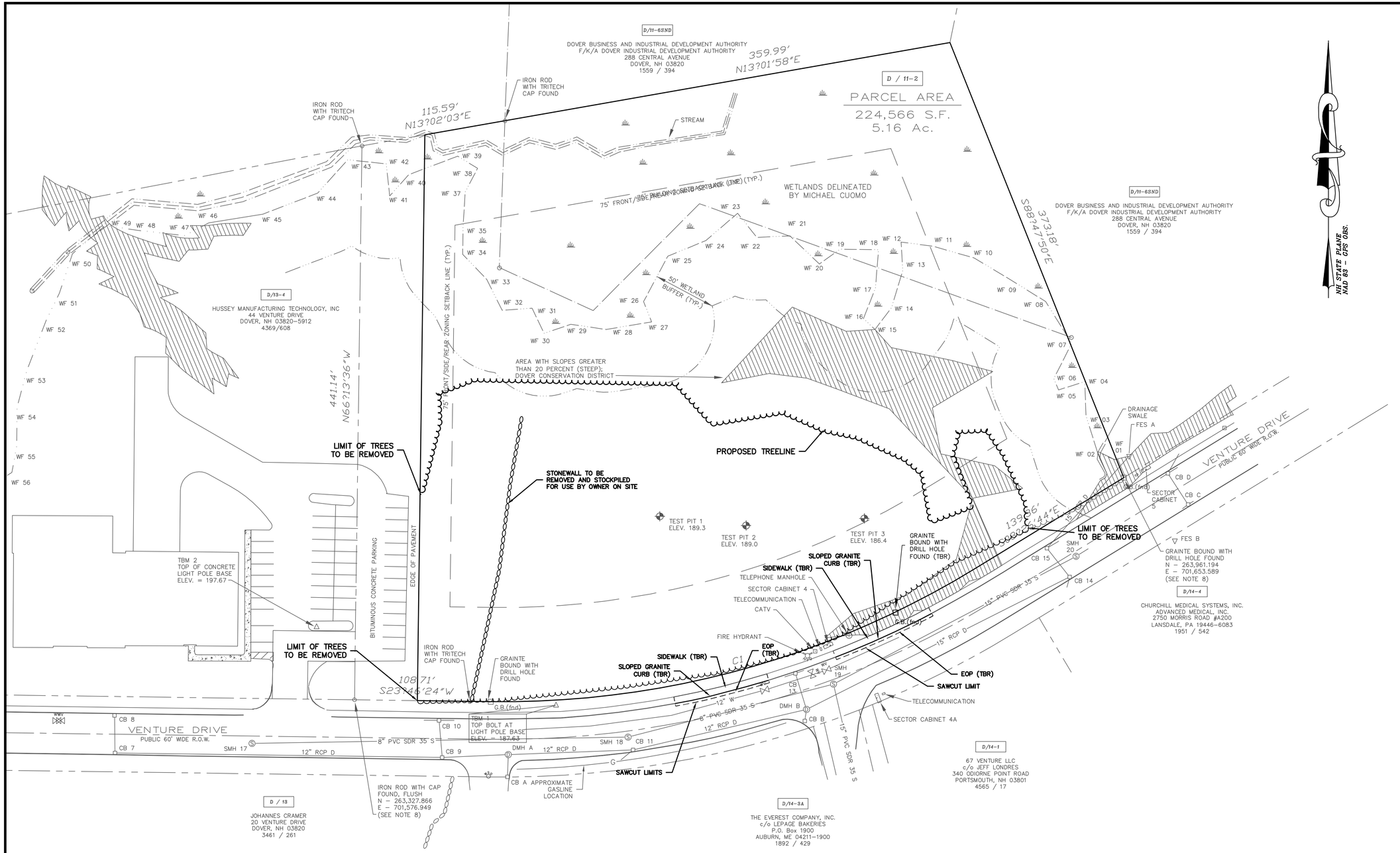
DATE: 10-18-19
SCALE: AS SHOWN
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY: SJH
PROJECT NO: 19014
FILE: SITE.DWG

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

NOTE SHEET

OWNER:
HUSSEY MANUFACTURING TECHNOLOGY, LLC
44 VENTURE DRIVE
DOVER, NH 03820

APPLICANT:
VENTURE DRIVE PROPERTIES, LLC
910 DAY HILL ROAD
WINDSOR, CT 06095



NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P19-67

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NO.	REVISION	DATE	APP'D
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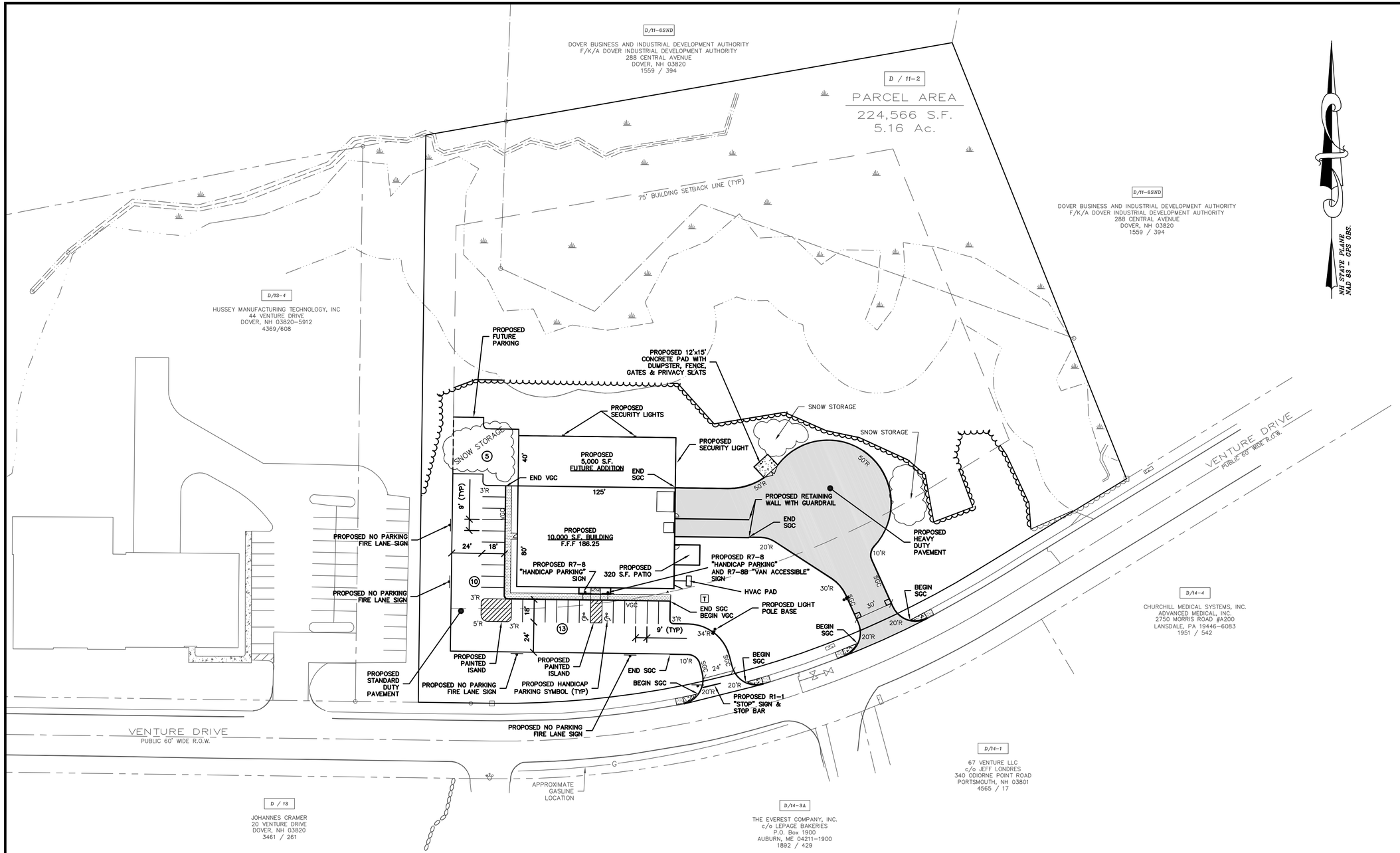
DATE: 10-18-19
SCALE: 1"=40'
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO:19014
FILE: SITE.DWG

DEMOLITION PLAN

OWNER:
HUSSEY MANUFACTURING TECHNOLOGY, LLC
44 VENTURE DRIVE
DOVER, NH 03820

APPLICANT:
VENTURE DRIVE PROPERTIES, LLC
910 DAY HILL ROAD
WINDSOR, CT 06095

5



GENERAL NOTES

1. SEE NOTE SHEET #4 FOR ADDITIONAL SITE RELATED NOTES.

GENERAL NOTES

ZONING DISTRICT: ASSEMBLY AND OFFICE (I-4)

		REQUIRED	PROPOSED
MINIMUM LOT SIZE	=	5 ACRES	5.16 ACRES
MAXIMUM COVERAGE	=	33%	6.6%
MINIMUM FRONTAGE	=	400 FEET	±603 FEET
FRONT SETBACK	=	75 FEET	>76 FEET
ABUT A STREET SETBACK	=	75 FEET	>76 FEET
SIDE SETBACK	=	75 FEET	77 FEET
REAR SETBACK	=	75 FEET	±248 FEET
MAXIMUM BUILDING HEIGHT	=	40 FEET	<40 FEET

PARKING CALCULATIONS

	MAX ALLOWED	PROPOSED
OFFICE 1,500 S.F. 1 SP/300 S.F.	= 5	
RETAIL 13,500S.F. 1 SP/275	= 49	
TOTAL PARKING	54	28

LEGEND

S.F.	SQUARE FEET
Ac.	ACRE
±	MORE OR LESS
(TYP.)	TYPICAL
S.C.R.D.	STRAFFORD COUNTY REGISTRY OF DEEDS
TBR	TO BE REMOVED
	EXISTING UTILITY POLE
	EXISTING SIGN
	EXISTING LIGHT/SIGNAL POLE
	PROPOSED SIGN
	PAVEMENT WITH CURB
	PROPOSED FENCE
	HANDICAP PARKING SYMBOL
	PROPOSED CONCRETE
	PROPOSED SIDEWALK
(5)	PROPOSED PARKING SPACE COUNT
T	PROPOSED TRANSFORMER PAD

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P19-67

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

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OWNER:
HUSSEY MANUFACTURING TECHNOLOGY, LLC
44 VENTURE DRIVE
DOVER, NH 03820

APPLICANT:
VENTURE DRIVE PROPERTIES, LLC
910 DAY HILL ROAD
WINDSOR, CT 06095

SITE PLAN

6

D/11-6SND
DOVER BUSINESS AND INDUSTRIAL DEVELOPMENT AUTHORITY
F/K/A DOVER INDUSTRIAL DEVELOPMENT AUTHORITY
288 CENTRAL AVENUE
DOVER, NH 03820
01559 / 394

D / 11-2
PARCEL AREA
224,566 S.F.
5.16 Ac.

75' FRONT/SIDE/REAR ZONING SETBACK LINE (TYP.)

D/11-6SND
DOVER BUSINESS AND INDUSTRIAL DEVELOPMENT AUTHORITY
F/K/A DOVER INDUSTRIAL DEVELOPMENT AUTHORITY
288 CENTRAL AVENUE
DOVER, NH 03820
1559 / 394

NH STATE PLANE
NAD 83 - GPS OBS.

D/13-4
HUSSEY MANUFACTURING TECHNOLOGY, INC
44 VENTURE DRIVE
DOVER, NH 03820-5912
4369/608

AREA WITH SLOPES GREATER THAN 20 PERCENT (STEEP); - DOVER CONSERVATION DISTRICT

PROPOSED FES-1 INV.OUT=182.0

INV.OUT=177.20
PROPOSED CHECK DAM (TYP)
PROPOSED SILTSOXX
PROPOSED 155 LF TREATMENT SWALE-2 (TS#2)
INV.OUT=183.0
PROPOSED 87 LF 6" ADS N-12 S=0.012
PROPOSED 5,000 S.F. FUTURE ADDITION
TC 185.90 BC 185.40
PROPOSED 10,000 S.F. BUILDING F.F.F 186.25
TOW=186.00
TOW=182.00
INV.OUT=183.0
PROPOSED 75 LF 6" ADS N-12 S=0.013
TC 185.90 BC 185.40
PROPOSED SILTSOXX
PROPOSED HEADWALL-1 INV.IN=180.0
PROPOSED 45 LF 12" ADS N-12 S=0.01
PROPOSED CONSTRUCTION ENTRANCE
PROPOSED HEADWALL-2 INV.OUT=179.55

INV.OUT=172.3
PROPOSED SILTSOXX
PROPOSED CHEAK DAM (TYP)
PROPOSED 155 LF TREATMENT SWALE #1 (TS#1) INV.OUT=172.3
DRAINAGE SWALE
FES A
FES B
VENTURE DRIVE
PUBLIC 60' WIDE R.O.W.
CB D
CB C
CB 15
CB 14
PROPOSED CONSTRUCTION ENTRANCE
PROPOSED HEADWALL-3 INV.IN=174.2
PROPOSED HEADWALL-4 INV.OUT=173.1
PROPOSED 20 LF 15" ADS N-12 S=0.010
PCB2 RIM=177.0 INV.IN=173.6 INV.OUT=173.3
PROPOSED 28 LF 12" ADS N-12 S=0.007
PCB1 RIM=177.0 INV.IN=174.1 INV.OUT=174.0
PROPOSED 12'LF 12" ADS N-12 S=0.008
FES-2 INV.OUT=182.0

D/14-4
CHURCHILL MEDICAL SYSTEMS, INC.
ADVANCED MEDICAL, INC.
2750 MORRIS ROAD #A200
LANSDALE, PA 19446-6083
1951 / 542

TBM 2
TOP OF CONCRETE LIGHT POLE BASE
ELEV. = 197.67

TBM 1
TOP BOLT AT LIGHT POLE BASE
ELEV. = 187.63

CB 8
CB 7
CB 10
CB 9
DMH A
CB 11
CB A APPROXIMATE GASLINE LOCATION
DMH B
CB B
CB 12
CB 13
12" RCP D

D / 13
JOHANNES CRAMER
20 VENTURE DRIVE
DOVER, NH 03820
3461 / 261

D/14-3A
THE EVEREST COMPANY, INC.
c/o LEPAGE BAKERIES
P.O. Box 1900
AUBURN, ME 04211-1900
1892 / 429

D/14-1
67 VENTURE LLC
c/o JEFF LONDRES
340 ODIORNE POINT ROAD
PORTSMOUTH, NH 03801
4565 / 17

GRAPHIC SCALE
40 0 20 40 80 160
(IN FEET)

GRADING NOTES:
1. SEE NOTE SHEET #5 FOR ADDITIONAL GRADING & DRAINAGE NOTES.
2. 20% SLOPE IMPACT TOTAL = 2,669 S.F.
3. BOUNDRY AND TOPOGRAPHIC INFORMATION FROM REFERENCE PLAN NO. 1.

REFRENCE PLANS:
1. EXISTING CONDITIONS PLAN PREPARED FOR HUSSEY MANUFACTURING TECHNOLOGY, LLC VENTURE DRIVE, CITY OF DOVER, OUNTY OF STRAFFORD, STATE OF NEW HAMPSHIRE DOVER PLANNING FILE NUMBER 19-67, DATE: JULY 3, 2019. REVISED: AUGUST 14, 2019.

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P19-67

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

NO.	REVISION	DATE	APP'D
1	REVISION PER TRC COMMENTS	10-18-19	SJH

DATE: 10-18-19
SCALE: 1"=40'
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO:19014
FILE: SITE.DWG

GRADING, DRAINAGE & EROSION CONTROL PLAN

OWNER:
HUSSEY MANUFACTURING TECHNOLOGY, LLC
44 VENTURE DRIVE
DOVER, NH 03820

APPLICANT:
VENTURE DRIVE PROPERTIES, LLC
910 DAY HILL ROAD
WINDSOR, CT 06095

D/11-6SND

DOVER BUSINESS AND INDUSTRIAL DEVELOPMENT AUTHORITY
F/K/A DOVER INDUSTRIAL DEVELOPMENT AUTHORITY
288 CENTRAL AVENUE
DOVER, NH 03820
1559 / 394

D / 11-2

PARCEL AREA
224,566 S.F.
5.16 Ac.

75' BUILDING SETBACK LINE (TYP)

D/11-6SND

DOVER BUSINESS AND INDUSTRIAL DEVELOPMENT AUTHORITY
F/K/A DOVER INDUSTRIAL DEVELOPMENT AUTHORITY
288 CENTRAL AVENUE
DOVER, NH 03820
1559 / 394

NH STATE PLANE
NAD 83 - CPS OBS.

D/13-4

HUSSEY MANUFACTURING TECHNOLOGY, INC
44 VENTURE DRIVE
DOVER, NH 03820-5912
4369/608

TBM 2
TOP OF CONCRETE
LIGHT POLE BASE
ELEV. = 197.67

PROPOSED
5,000 S.F.
FUTURE ADDITION

40'

125'

70'

80'

PROPOSED
10,000 S.F. BUILDING
F.F.F 186.25

PROPOSED 1"
DOMESTIC
WATER SERVICE

PROPOSED
INV.OUT=181.47

PROPOSED
FIRE DEPARTMENT
CONNECTION
(FDC)

HVAC PAD

PROPOSED 6"
WATER SERVICE
PROPOSED 120 LF
6" SDR 35
S=0.008

PROPOSED
FIRE DEPARTMENT
CONNECTION

PROPOSED WATER TAP
AND GATE VALVE

PROPOSED SEWER CHIMNEY
INTO EXISTING SEWER MAIN
INV.=180.51

PROPOSED GAS VALVE

TELEPHONE MANHOLE
SECTOR CABINET 4
TELECOMMUNICATION
CATV
FIRE HYDRANT

VENTURE DRIVE
PUBLIC 60' WIDE R.O.W.

SECTOR
CABINET
5

SMH
20

SMH
19

SMH
18

SMH
17

TBM 1
TOP BOLT AT
LIGHT POLE BASE
ELEV. = 187.63

8" PVC SDR 35 S

12" W

8" PVC SDR 35 S

15" PVC SDR 35 S

TELECOMMUNICATION

SECTOR CABINET 4A

APPROXIMATE
GASLINE
LOCATION

D/14-4

CHURCHILL MEDICAL SYSTEMS, INC.
ADVANCED MEDICAL, INC.
2750 MORRIS ROAD #A200
LANSDALE, PA 19446-6083
1951 / 542

D/14-1

67 VENTURE LLC
c/o JEFF LONDRES
340 ODIORNE POINT ROAD
PORTSMOUTH, NH 03801
4565 / 17

D/14-3A

THE EVEREST COMPANY, INC.
c/o LEPAGE BAKERIES
P.O. Box 1900
AUBURN, ME 04211-1900
1892 / 429

D / 13

JOHANNES CRAMER
20 VENTURE DRIVE
DOVER, NH 03820
3461 / 261

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P19-67

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UTILITY PLAN

OWNER:
HUSSEY MANUFACTURING
TECHNOLOGY, LLC
44 VENTURE DRIVE
DOVER, NH 03820

APPLICANT:
VENTURE DRIVE
PROPERTIES, LLC
910 DAY HILL ROAD
WINDSOR, CT 06095

8

DESCRIPTION

THE INTENT OF THIS PLAN IS TO SHOW THE IMPROVEMENTS ASSOCIATED WITH THE CONSTRUCTION OF (1) COMMERCIAL BUILDING, SITE ACCESS DRIVE, PARKING AREAS, UTILITY INSTALLATION, AND DRAINAGE IMPROVEMENTS.

PROJECT NAME AND LOCATION

MORRIS BUILDING
44 VENTURE DRIVE
DOVER, NH 03820

LATITUDE N43°07'18"
LONGITUDE W70°49'58"

DISTURBED AREA

±91,161 square feet

SEQUENCE OF MAJOR ACTIVITIES

1. CONTRACTOR SHALL PREPARE THE SWPPP, FILE FOR AND OBTAIN THE NOI A MINIMUM OF 2 WEEKS PRIOR TO COMMENCEMENT OF SITE WORK.
2. PLACE TEMPORARY EROSION AND SEDIMENT CONTROL BMP'S PRIOR TO EARTH MOVING ACTIVITIES.
3. ALL EROSION CONTROL AND PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO COMMENCING EARTH MOVING OPERATIONS.
4. SELECTIVE DEMOLITION.
5. REGRADE SITE TO SUBGRADE.
6. SWALES AND PONDS (AS APPLICABLE) SHALL BE CONSTRUCTED EARLY ON IN THE CONSTRUCTION SEQUENCE AND BEFORE ROUGH GRADING OF THE SITE AND ALL DITCHES AND SWALES SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
7. INSTALL DRAINAGE STRUCTURES AND CONTROLS.
8. INSTALL UNDERGROUND UTILITIES AND FOUNDATIONS FOR STRUCTURES.
9. PLACE GRAVELS AND FINE GRADE.
10. STABILIZE, ROADWAYS & PARKING LOTS WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
11. ALL CUT AND FILL SLOPES SHALL BE LOAMED AND SEEDED (AS APPLICABLE) WITHIN 72 HOURS OF ACHIEVING FINISH GRADE.
12. ALL EROSION CONTROL MEASURES SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EVERY 1/2" OF RAINFALL.
13. IN ALL CASES THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION AND IN NO CASE SHALL EXCEED 3.5 ACRES AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED. ALL DISTURBED AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
14. WHEN ALL SITE WORK IS COMPLETE AND ALL DISTURBED AREAS ARE STABILIZED REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AND FILE THE EPA – N.O.T.

DEFINITIONS

AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED.
1. BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED
2. A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED
3. A MINIMUM OF 3" OF NON–EROSIVE MATERIAL SUCH AS STONE OR RIP–RAP HAS BEEN INSTALLED; OR
4. EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED

INSTALLATION, MAINTENANCE AND INSPECTION PROCEDURES OF EROSION AND SEDIMENT CONTROLS

A. GENERAL

1. Silt Fence

a. Synthetic filter fabric shall be a pervious sheet of propylene, nylon, polyester or ethylene yarn and shall be certified by the manufacturer or supplier as conforming to the following requirements:

Physical Property	Test	Requirements
Filtering Efficiency	VTM–51	75% minimum
Tensile Strength at 20% Maximum Elongation*	VTM–52	Extra Strength 50 lb/lin in (min)
Standard Strength 30 lb/lin in (min)		
Flow Rate	VTM–51	0.3 gal/sf/min (min)

* Requirements reduced by 50 percent after six (6) months of installation.

Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six (6) months of expected usable construction life at a temperature range of 0 degrees F to 120 Degrees F.

b. The height of a silt fence shall not exceed thirty–six (36) inches.
c. The filter fabric shall be purchased in a continuous roll cut to the length of the barrier to avoid the use of joints. When joints are necessary, filter cloth shall be spliced together only at support post, with a minimum six (6) inch overlap, and securely sealed.
d. Posts shall be spaced a maximum of ten (10) feet apart at the barrier location and driven securely into the ground (minimum of 12 inches). When extra strength fabric is used without the wire support fence, post spacing shall not exceed 6 feet.
e. Posts for silt fences shall be 2–inch diameter wood with a minimum length of 5 feet.
f. Wire fence reinforcement for silt fences using standard strength filter cloth shall be a minimum of 42 inches in height, a minimum of 14 gauge and shall have a maximum mesh spacing of 6 inches.
g. A trench shall be excavated approximately four (4) inches wide and four (4) inches deep along the line of posts and upslope from the barrier.
h. When standard strength filter fabric is used, a wire mesh support fence shall be fastened securely to the upslope side of the posts using heavy duty wire staples at least one (1) inch long, tie wires or hog rings. The wire shall extend no more than 36 inches above the original ground surfaces.
i. The "standard strength" filter fabric shall be stapled or wired to the fence, and eight (8) inches of the fabric shall be extended into the trench. The fabric shall not extend more than 36 inches above the original ground surface. Filter fabric shall not be stapled to existing trees.
j. When extra strength filter fabric and closer post spacing are used, the wire mesh support fence may be eliminated. In such a case, the filter fabric is stapled or wired directly to the posts with all other provisions of item (i) applying.
k. The trench shall be backfilled and the soil compacted over the filter fabric.
l. Silt fences shall be removed when they have served their useful purpose, but not before the upslope areas has been permanently stabilized.

2. Sequence of Installation

Sediment barriers shall be installed prior to any soil disturbance of the contributing drainage area above them.

3. Maintenance

a. Check dams and silt fence barriers shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. They shall be repaired if there are any signs of erosion or sedimentation below them. Any required repairs shall be made immediately. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind them, sediment barriers shall be replaced with a temporary check dam.
b. Should the fabric on a silt fence or filter barrier decompose or become ineffective prior to the end of the expected usable life and the barrier still is necessary, the fabric shall be replaced promptly.
c. Sediment deposits should be removed after each storm event. They must be removed when deposits reach approximately one third (1/3) the height of the barrier.
d. Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required shall be dressed to conform with the existing grade, prepared and seeded.

B. MULCHING

1. Timing

In order for mulch to be effective, it must be in place prior to major storm events. There are two (2) types of standards which shall be used to assure this.
a. Apply mulch prior to any storm event. It will be necessary to closely monitor weather predictions, usually by contacting the National Weather Service in Concord, to have adequate warning of significant storms.
b. Required Mulching within a specified time period. The time period can range from 14 to 21 days of inactivity on a area, the length of time varying with site conditions. Professional judgement shall be used to evaluate the interaction of site conditions (soil erodibility, season of year, extent of disturbance, proximity to sensitive resources, etc.) and the potential impact of erosion on adjacent areas to choose an appropriate time restriction.

2. Application Rate

Mulch shall be applied at a rate of between 1.5 to 2 tons per acre, or 90 to 100 pounds per 1000 square feet.

3. Guidelines for Winter Mulch Application. When mulch is applied to provide protection over winter (past the growing season) it shall be at a rate of 6,000 pounds of hay or straw per acre. A tackifier may be added to the mulch.

4. Maintenance All mulches must be inspected periodically, in particular after rainstorms, to check for rill erosion. If less than 90% of the soil surface is covered by mulch, additional mulch shall be immediately applied.

5. Excelsior Matting Excelsior Matting shall be used in place of mulch on all slopes steeper than 3:1.

C. TEMPORARY GRASS COVER

1. Seedbed Preparation

Apply fertilizer at the rate of 600 pounds per acre of 10–10–10. Apply limestone (equivalent to 50 percent calcium plus magnesium oxide) at a rate of three (3) tons per acre.

2. Seeding

a. Utilize annual rye grass at a rate of 40 lbs/acre.
b. Where the soil has been compacted by construction operations, loosen soil to a depth of two (2) inches before applying fertilizer, lime and seed.
c. Apply seed uniformly by hand, cyclone seeder, or hydroseeder (slurry including seed and fertilizer). Hydroseedings, which include mulch, may be left on soil surface. Seeding rates must be increased 10% when hydroseeding.

3. Maintenance

Temporary seedings shall be periodically inspected. At a minimum, 95% of the soil surface should be covered by vegetation. If any evidence of erosion or sedimentation is apparent, repairs shall be made and other temporary measures used in the interim (mulch, filter barriers, check dams, etc.).

E. PERMANENT SEEDING

1. Bedding – stones larger than 1 ½ ", trash, roots, and other debris interfere with seeding and future maintenance of the area should be removed. Where feasible, the soil should be tilled to a depth of 4" to prepare a seedbed and mix fertilizer into the soil.

2. Fertilizer – lime and fertilizer should be applied evenly over the area prior to or at the time of seeding and incorporated into the soil. Kinds and amounts of lime and fertilizer should be based on an evaluation of soil tests. When a soil test is not available, the following minimum amounts should be applied:
Agricultural Limestone @ 100 lbs. per 1,000 s.f.
10–20–20 fertilizer @ 12 lbs. per 1,000 s.f.

3. Seed Mixture (recommended)
Rate:

Type	LBS. per Acre	LBS. per 1,000 s.f.
Tall Fescue	20	0.45
Creeping Red Fescue	20	0.45
Birdsfoot Trefoil	8	0.20
Total	48	1.10

4. Sodding – sodding is done where it is desirable to rapidly establish cover on a disturbed area. Sodding an area may be substituted for permanent seeding procedures anywhere on site. Bed preparation, fertilizing, and placement of sod shall be performed according to the S.C.S. Handbook.

Sodding is recommended for steep sloped areas, areas immediately adjacent to sensitive water courses, easily erodible soils (fine sand/silt) etc.

5. Provide a minimum of 4 inches (5 inches loose) of topsoil to all areas to be seeded.

E. STORM DRAIN INLET PROTECTION

1. Straw/Hay Bale Inlet Structure

a. Bales shall be either wire bound or string tied with the bindings oriented around the sides rather than over and under the bales.
b. Bales shall be placed lengthwise in a single row surrounding the inlet, with the ends of adjacent bales pressed together.
c. The filter barrier shall be entrenched and backfilled. A trench shall be excavated around the inlet the width of bale to a minimum depth of four (4) inches. After the bales are staked, the excavated soil shall be backfilled and compacted against the filter barrier.
d. Each bale shall be securely anchored and held in place by at least two (2) stakes or rebars driven through the bale.
e. Loose straw/hay shall be wedged between bales to prevent water from entering between bales.
f. All structures should be inspected after every rainstorm and repairs made as necessary.
g. Sediment should be removed from the devices after the sediment has reached a maximum of one–third the depth of the trap.
h. Haybales should be removed and the area repaired as soon as the contributing drainage area to the inlet has been completely stabilized.

TIMING OF CONTROLS/MEASURES

As indicated in the sequence of Major Activities the silt fences shall be installed prior to commencing any clearing or grading of the site. Structural controls shall be installed concurrently with the applicable activity. Areas where construction activity temporarily ceases for more than twenty one (21) days will be stabilized with a temporary seed and mulch within fourteen (14) days of the last disturbance. Once construction activity ceases permanently in an area, silt fences and any earth/dikes will be removed once permanent measures are established. All areas shall be stabilized within 72 hours of achieving finish grade.

WASTE DISPOSAL

A. WASTE MATERIALS

All waste materials will be collected and stored in securely lidded receptacles. All trash and construction debris from the site will be deposited in a dumpster. No construction waste materials will be buried on site. All personnel will be instructed regarding the correct procedure for waste disposal by the superintendent.

B. HAZARDOUS WASTE

All hazardous waste materials will be disposed of in the manner specified by local or state regulation or by the manufacturer. Site personnel will be instructed in these practices by the superintendent.

C. SANITARY WASTE

All sanitary waste will be collected from the portable units a minimum of once per week by a licensed sanitary waste management contractor.

SPILL PREVENTION

A. MATERIAL MANAGEMENT PRACTICES

The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances during construction to stormwater runoff:

Good Housekeeping:

The following good housekeeping practices will be followed on site during the construction project:

- An effort will be made to store only sufficient amounts of products to do the job.
- All materials stored on site will be stored in a neat, orderly manner in their proper (original if possible) containers and, if possible, under a roof or other enclosure.
- Manufacturer's recommendations for proper use and disposal will be followed.
- The site superintendent will inspect daily to ensure proper use and disposal of materials.
- Substances will not be mixed with one another unless recommended by the manufacturer.
- Whenever possible all of a product will be used up before disposing of the container.

Hazardous Products:

The following practices will be used to reduce the risks associated with hazardous materials:

- Products will be kept in their original containers unless they are not resealable.
- Original labels and material safety data will be retained for important product information.
- Surplus product that must be disposed of will be discarded according to the manufacturer's recommended methods of disposal.

B. PRODUCT SPECIFICATION PRACTICES

The following product specific practices will be followed on site:

Petroleum Products:

All on site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled. Any asphalt based substances used on site will be applied according to the manufacturer's recommendations.

Fertilizers:

Fertilizers used will be applied only in the minimum amounts directed by the specifications. Once applied fertilizer will be worked into the soil to limit exposure to stormwater. Storage will be in a covered shed or enclosed trailers. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid

Paints:

spills.
All containers will be tightly sealed and stored when not required for use. Excess paint will not be discharged to the storm sewer system but will be disposed of properly according to manufacturer's instructions or state and local regulations.

Concrete Trucks:

Concrete trucks will discharge and wash out surplus concrete or drum wash water in a contained area on site.

C. SPILL CONTROL PRACTICES

In addition to good housekeeping and material management practices discussed in the previous section the following practices will be followed for spill prevention and cleanup:

- Manufacturer's recommended methods for spill cleanup will be clearly posted and site personnel will be made aware of the procedures and the location of the information and cleanup supplies.
- Materials and equipment necessary for spill cleanup will be kept in the material storage area on site. Equipment and materials will include but not be limited to brooms, dustpans, mops, rags, gloves, goggles, kitty litter, sand, sawdust and plastic or metal trash containers specifically for this purpose.
- All spills will be cleaned up immediately after discovery.
- The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- Spills of toxic or hazardous material will be reported to the appropriate state or local government agency, regardless of the size.
- The spill prevention plan will be adjusted to include measures to prevent this type of spill from recurring and how to cleanup the spill if it recurs. A description of the spill, its cause, and the cleanup measures will be included.
- The site superintendent responsible for day–to–day site operations will be the spill prevention and cleanup coordinator.

The project proponent is required to manage construction to meet the requirements and intent of RSA 430:53 and AGR 3800 relative to controlling invasive species and controlling fugitive dust in accordance with ENV–A 1002.
AGR 3800 Prohibited Invasive Plant Species Rules

The rule, Agr 3800, states : "No person shall collect, transport, import, export, move, buy, sell, distribute, propogate or transplant any living and viable portion of any plant species, which includes all of their cultivars and varieties, listed in Table 3800.1, New Hampshire prohibited invasive species list". A complete copy of the rules can be accessed on the internet at http://agriculture.nh.gov/topics/plants_insects.htm.

Env–A 1002 FUGITIVE DUST: Precautions to Prevent, Abate, and Control Fugitive Dust.
(a) Any person engaged in any activity within the state that emits fugitive dust, other than those listed in Env–A 1002.02(b), shall take precautions throughout the duration of the activity in order to prevent, abate, and control the emission of fugitive dust.

(b) Precautions required by (a), above, shall include but not be limited to the following:

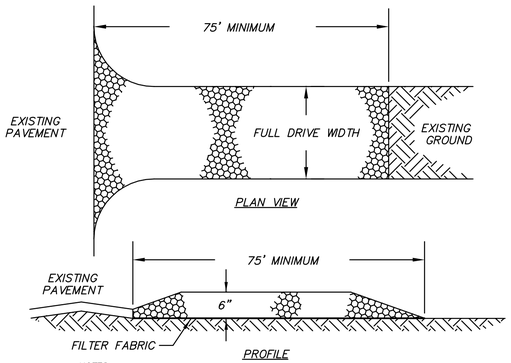
(1) The use of water or hydrophilic material on operations or surfaces, or both;

(2) The application of asphalt, water or hydrophilic material, or tarps or other such covers to material stockpiles;

(3) The use of hoods, fans, fabric filters, or other devices to enclose and vent areas where materials prone to producing fugitive dust are handled;

(4) The use of containment methods for sandblasting or similar operations; and

(5) The use of vacuums or other suction devices to collect airborne particulate matter.



NOTES:

1. SEE EROSION CONTROL NOTES BELOW FOR MATERIAL, INSTALLATION AND MAINTENANCE REQUIREMENTS.
2. TO BE INSTALLED AT EACH POINT OF EGRESS FROM THE WORK AREA.

STABILIZED CONSTRUCTION ENTRANCE

1. SPECIFICATIONS
   A. AGGREGATE SIZE: USE THREE (3) INCHES STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
   B. AGGREGATE THICKNESS: NOT LESS THAN SIX (6) INCHES.
   C. WIDTH TEN (10) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH OF POINTS WHERE INGRESS OR EGRESS OCCURS.
   D. LENGTH: AS REQUIRED, BUT NOT LESS THAN SEVENTY–FIVE (75) FEET. PIPING OF SURFACE WATER UNDER ENTRANCE SHALL BE PROVIDED AS REQUIRED.
   E. GEOTEXTILE: TO BE PLACED OVER THE ENTIRE AREA TO BE COVERED WITH AGGREGATE.
   F. CRITERIA FOR GEOTEXTILE: THE FABRICS SHALL BE TREVIA SPUNBOND 1135, MIRAFI 600X OR EQUAL.
2. MAINTENANCE
   THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF SEDIMENT ONTO PUBLIC RIGHT–OF–WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH AGGREGATE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING STORM DRAINS, DITCHES, OR WATERWAYS.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

PER 149–10 F:
All site improvements which require blasting of land shall meet the following requirements prior to any blasting occurring.

1. The Applicant shall prepare a pre–blast survey of all structures within five (500) feet of the external boundaries of the proposed lot to be developed. This survey, along with a monitoring plan, shall be on file with the Dover Fire and Rescue. Upon recommendations of the Chief , the planning Board may require a pre–blast survey of all structures within one thousand (1000) feet.
2. The Applicant shall hold a neighborhood meeting to review the blasting plan and pre–blast survey, with representatives of the Fire and Rescue and the blasting company in attendance, prior to any on–site blasting. Abutters within on thousand (1000) feet of the external boundary of the project parcel shall be notified by certified mail (paid for by the applicant) of the meeting no less than ten (10) days prior to the meeting.
3. Permit holders shall be in compliance with NFPA 495, The Code for the Manufacture, Transportation, Storage and Use of Explosive Material, in addition to all other ordinances and codes set forth in the City of Dover Fire Prevention Code, which specifically prohibits the overnight storage of explosive or blasting agents. Further all storage magazines shall be locked in the open position at the end of the days' operation, for easy inspection by City Officials.
4. blasting permits may be obtained by calling the Dover Fire and Rescue during normal business hours. The permits are only active for the dates and time specified on the permit.
5. Permit holders shall hold insurance against claims for damages for personal injury and property which may arise from performance of the work.
6. Hours of operation for the blasting shall be no earlier than 8:00 am and no later than 6:00 pm Monday through Friday, excluding federal holidays.

MAINTENANCE OF STORMWATER MANAGEMENT FACILITIES

The project proponent is responsible for the maintenance of all stormwater facilities during construction and the property owner is responsible after construction is complete.

CATCH BASINS & STORMWATER TREATMENT STRUCTURES

1. Catch basins & Stormwater treatment structures should be inspected on a monthly basis and/or after a major rainfall event to assure that debris or sediments do not reduce the effectiveness of the system.

WINTER CONSTRUCTION NOTES

1. All proposed post–development vegetated areas which do not exhibit a minimum of 85 % vegetative growth by October 15th, or which are disturbed after October 15th, shall be stabilized by seeding and installing erosion control blankets on slopes greater than 3:1, and seeding and placing 3 to 4 tons of mulch per acre, secured with anchored netting, elsewhere. The placement of erosion control blankets or mulch and netting shall not occur over accumulated snow or on frozen ground and shall be completed in advance of thaw or spring melt.
2. All slopes which do not exhibit a minimum of 85% vegetative growth by October 15th, or which are disturbed after October 15th shall be stabilized with stone or erosion control blankets.
3. After October 15th, incomplete road surfaces shall be protected with a minimum of 3–inches of crushed gravel per NHDOT item 403.3, or if construction is to continue through the winter season be cleared of any accumulated snow after each storm event.

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P19–67

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

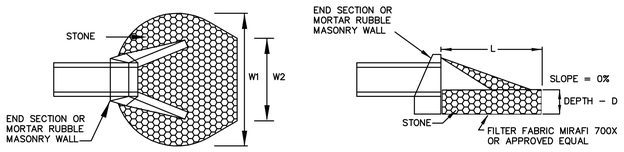
NO.	REVISION	DATE	APP'D
1	REVISION PER TRC COMMENTS	10–18–19	SJH

DATE: 10–18–19
SCALE: AS SHOWN
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO:19014
FILE: SITE.DWG

EROSION CONTROL NOTES

APPLICANT:
VENTURE DRIVE PROPERTIES, LLC
910 DAY HILL ROAD
WINDSOR, CT 06095

OWNER:
HUSSEY MANUFACTURING TECHNOLOGY, LLC
44 VENTURE DRIVE
DOVER, NH 03820



PLAN SECTION

STONE APRON OUTLET PROTECTION DETAIL
OUTLET TO FLAT AREA, NON DEFINED CHANNEL

MAINTENANCE

THE OUTLET PROTECTION SHOULD BE CHECKED AT LEAST ANNUALLY AND AFTER EVERY MAJOR STORM. IF THE RIPRAP HAS BEEN DISPLACED, UNDERMINED OR DAMAGED, IT SHOULD BE REPAIRED IMMEDIATELY. THE CHANNEL IMMEDIATELY BELOW THE OUTLET SHOULD BE CHECKED TO SEE THAT EROSION IS NOT OCCURRING. THE DOWNSTREAM CHANNEL SHOULD BE KEPT CLEAR OF OBSTRUCTIONS SUCH AS FALLEN TREES, DEBRIS, AND SEDIMENT THAT COULD CHANGE FLOW PATTERNS AND/OR TAILWATER DEPTHS ON THE PIPES. REPAIRS MUST BE CARRIED OUT IMMEDIATELY TO AVOID ADDITIONAL DAMAGE TO THE OUTLET PROTECTION APRON.

STONE GRADATION

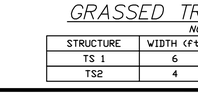
% OF WEIGHT SMALLER THAN THE GIVEN SIZE	SIZE OF STONE
100	1.5 TO 2.0 D50
85	1.3 TO 1.8 D50
50	1.0 TO 1.5 D50
15	0.3 TO 0.5 D50

OUTLET	*W1 (FT)*	*W2 (FT)*	*L (FT)*	*D50 (IN)*
CB1	*14*	*6*	*17*	*6*
TS2	*INLET*	*8*	*40*	*6*

CONSTRUCTION SPECIFICATIONS

1. THE SUBGRADE FOR THE FILTER MATERIAL, GEOTEXTILE FABRIC, AND RIPRAP SHALL BE PREPARED TO THE LINES AND GRADES SHOWN ON THE PLANS.
2. THE ROCK OR GRAVEL USED FOR FILTER OR RIPRAP SHALL CONFORM TO THE SPECIFIED GRADATION.
3. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE ROCK RIPRAP. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
4. STONE FOR THE RIP RAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.
5. STONE APRON SHALL BE CONSTRUCTED ON A 6" THICK (MIN) GRAVEL BASE.

RIP RAP OUTLET PROTECTION
NOT TO SCALE



INSTALLATION DETAIL

OIL-ABSORBANT SILTSACK●

(FOR AREAS WHERE THERE IS A CONCERN FOR OIL RUN-OFF OR SPILLS)
DEPENDING ON YOUR PARTICULAR APPLICATION, THE SILTSACK● CAN BE MADE FROM EITHER ONE OF THE ABOVE FABRICS WITH AN OIL-ABSORBANT PILLOW INSERT OR, MADE COMPLETELY FROM AN OIL-ABSORBANT SILTSACK●, WITH A WOVEN PILLOW INSERT.

SILTSACK●
SPECIFICATIONS

NOTE: THE SILTSACK WILL BE MANUFACTURED FROM A WOVEN POLYPROPYLENE FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS. AS SUPPLIED BY AN HARRIS OF PORTSMOUTH OR APPROVED EQUAL

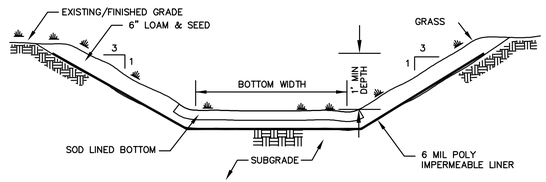
REGULAR FLOW SILTSACK●
(FOR AREAS OF LOW TO MODERATE PRECIPITATION AND RUN-OFF)

PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	300 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	120 LBS
MULLEN BURST	ASTM D-3786	800 PSI
TRAPEZOID TEAR	ASTM D-4533	120 LBS
UV RESISTANCE	ASTM D-4355	80 %
APPARENT OPENING SIZE	ASTM D-4751	40 US SIEVE
FLOW RATE	ASTM D-4491	40 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	0.55 SEC -1

HI-FLOW SILTSACK●
(FOR AREAS OF MODERATE TO HEAVY PRECIPITATION AND RUN-OFF)

PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	265 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	125 LBS
MULLEN BURST	ASTM D-3786	420 PSI
TRAPEZOID TEAR	ASTM D-4533	95 LBS
UV RESISTANCE	ASTM D-4355	90 %
APPARENT OPENING SIZE	ASTM D-4751	20 US SIEVE
FLOW RATE	ASTM D-4491	200 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	1.5 SEC -1

DETAIL OF INLET SEDIMENT CONTROL DEVICE
NOT TO SCALE



GRASSED TREATMENT SWALE

NOTES:

1. THE FOUNDATION AREA OF THE WATERWAY SHALL BE CLEARED AND GRUBBED OF ALL TREES, BRUSH, STUMPS, AND OTHER OBJECTIONABLE MATERIAL. MATERIALS REMOVED SHALL BE DISPOSED OF SO THEY WILL NOT INTERFERE WITH THE CONSTRUCTION OR PROPER FUNCTIONING OF THE WATERWAY.

2. THE WATERWAY SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE AND CROSS SECTION AS REQUIRED TO MEET THE DESIGN CRITERIA. THE WATERWAY SHALL BE FREE OF IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.

3. EARTH FILLS REQUIRED TO MEET SUBGRADE REQUIREMENTS BECAUSE OF OVER EXCAVATION OR TOPOGRAPHY SHALL BE COMPACTED TO THE SAME DENSITY AS THE SURROUNDING SOIL TO PREVENT UNEQUAL SETTLEMENT THAT COULD CAUSE DAMAGE TO THE COMPLETED WATERWAY. EARTH REMOVED AND NOT NEEDED IN CONSTRUCTION SHALL BE SPREAD OR DISPOSED OF SO IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE WATERWAY.

4. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER AS TO MINIMIZE EROSION AND AIR AND WATER POLLUTION. ALL APPROPRIATE STATE AND LOCAL LAWS AND REGULATIONS SHALL BE COMPLIED WITH FOR INSTALLATION.

5. VEGETATION SHALL BE ESTABLISHED IN THE SWALE PRIOR TO ALLOWING STORMWATER RUNOFF TO FLOW THROUGH THE SWALE.

6. MAINTENANCE OF THE VEGETATION IN THE GRASSED WATERWAY IS EXTREMELY IMPORTANT IN ORDER TO PREVENT RILLING, EROSION, AND FAILURE OF THE WATERWAY. MOWING SHOULD BE DONE FREQUENTLY ENOUGH TO CONTROL ENCROACHMENT OF WEEDS AND WOODY VEGETATION AND TO KEEP THE GRASSES IN A VIGOROUS CONDITION. THE VEGETATION SHOULD NOT BE MOWED TOO CLOSELY SO AS TO REDUCE THE EROSION RESISTANCE IN THE WATERWAY.

7. THE WATERWAY SHOULD BE INSPECTED PERIODICALLY AND AFTER EVERY MAJOR STORM TO DETERMINE THE CONDITION OF THE WATERWAY. RILLS AND DAMAGED AREAS SHOULD BE PROMPTLY REPAIRED AND REVEGETATED AS NECESSARY TO PREVENT FURTHER DETERIORATION.

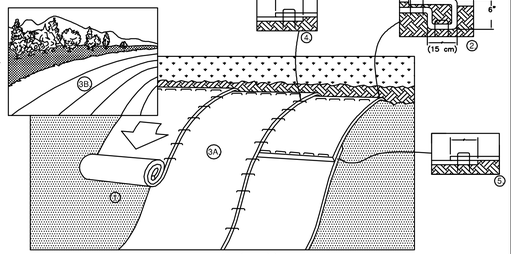
8. PERIODIC APPLICATIONS OF LIME AND FERTILIZER MAY BE NEEDED TO MAINTAIN VIGOROUS GROWTH.

GRASSED TREATMENT SWALE
NOT TO SCALE

STRUCTURE	WIDTH (FT)	LENGTH (FT)	SLOPE (FT/FT)
TS 1	6	155	0.0052
TS2	4	155	0.0052

SLOPE INSTALLATION
NORTH AMERICAN GREEN – SC150

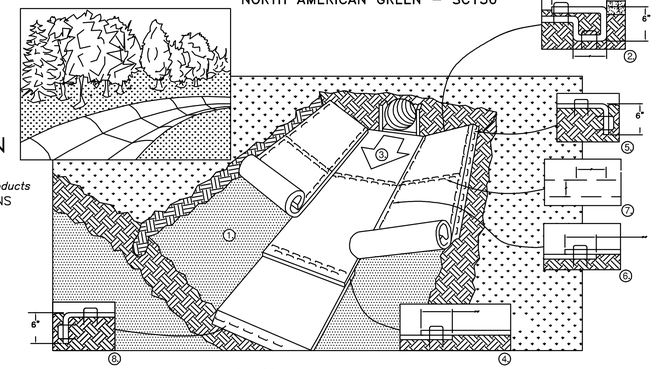
NORTH AMERICAN GREEN
EROSION CONTROL *Products Guaranteed* SOLUTIONS



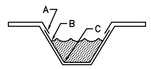
1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP's), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
   NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECP's IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF RECP's EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP's WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF RECP's BACK OVER SEED AND COMPACTED SOIL. SECURE RECP's OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART ACROSS THE WIDTH OF THE RECP's.
3. ROLL THE RECP's (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. RECP's WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP's MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM® STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL RECP's MUST BE STAPLED WITH APPROXIMATELY 2" – 5" (5 CM – 12.5 CM) OVERLAP DEPENDING ON RECP's TYPE.
5. CONSECUTIVE RECP's SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5 CM) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30 CM) APART ACROSS ENTIRE RECP's WIDTH.
   NOTE:
   *IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY SECURE THE RECP's.

CHANNEL INSTALLATION
NORTH AMERICAN GREEN – SC150

NORTH AMERICAN GREEN
EROSION CONTROL *Products Guaranteed* SOLUTIONS



1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP's), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
   NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE RECP's IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF RECP's EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP's WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF RECP's BACK OVER SEED AND COMPACTED SOIL. SECURE RECP's OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" ACROSS THE WIDTH OF THE RECP's.
3. ROLL CENTER RECP's IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. RECP's WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP's MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. PLACE CONSECUTIVE RECP's END OVER END (SHINGLE STYLE) WITH A 4" – 6" OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER TO SECURE RECP's.
5. FULL LENGTH EDGE OF RECP's AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
6. ADJACENT RECP's MUST BE OVERLAPPED APPROXIMATELY 2" – 5" (DEPENDING ON RECP's TYPE) AND STAPLED.
7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
8. THE TERMINAL END OF THE RECP's MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. NOTE: * IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY ANCHOR THE RECP's.



CRITICAL POINTS
A. OVERLAPS AND SEAMS
B. PROJECTED WATER LINE
C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

NOTE:
* HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.

** IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY ANCHOR THE RECP's.

SEEKING REPORTS OF RARE TURTLES

The NH Fish & Game Department is collecting observations of four turtle species:



Blanding's turtle (state endangered)
- Large, dark/black domed shell with lighter speckles
- Distinct yellow throat/chin
- Aquatic but often moves on land



Wood turtle (special concern)
- Sculpted, pyramidal brownish shell
- Orange around neck and limbs
- River/stream turtle spending many months on land



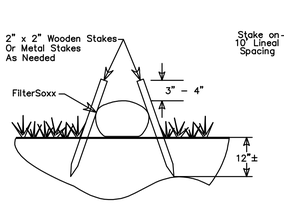
Eastern box turtle (state endangered)
- Small terrestrial turtle with highly domed shell
- Irregular yellow or orange markings over brown/black base



Spotted turtle (state threatened)
- Small, mostly aquatic with black or dark brown with yellow spots.
- Fairly flat shell compared to Blanding's turtle

Report sightings to RAARP@wildlife.nh.gov or 603-271-2461 *Please report promptly, noting specific location and date – Photographs strongly encouraged*

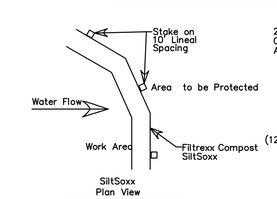
NOTES:
1. *ALL OUTSIDE CONSTRUCTION PERSONNEL SHALL RECEIVE TRAINING IN THE IDENTIFICATION OF RARE TURTLE SPECIES AND MADE AWARE OF THEIR PROTECTED STATUS.*
2. *THE USE OF WELDED PLASTIC OR 'BIODEGRADABLE PLASTIC' NETTING OR THREAD IN EROSION CONTROL MATTING IS PROHIBITED.*
3. *THE USE OF EROSION CONTROL BERM, WHITE FILTREXX DEGRADABLE WOVEN SILT SOCK, OR 'WILDLIFE FRIENDLY' WOVEN ORGANIC MATERIAL (E.G. COCO OR JUTE MATTING SUCH AS NORTH AMERICAN GREEN SC150BN OR EQUIVALENT) ARE ACCEPTABLE FOR USE*
4. *IF WOOD, SPOTTED, OR BLANDING'S TURTLES ARE FOUND LAYING EGGS IN THE WORK AREA, PLEASE CONTACT MELISSA DOPERALSKI AT 271-1738 or JOSH MEGYESY AT 271-1125 FOR FURTHER INSTRUCTIONS.*



Notes:
1. All material to meet Filtrexx specifications
2. FilterSoxx compost/soil/rock/seed fill to meet application requirements.
3. Compost material to be dispersed on site, as determined by Engineer.

FilterSoxx Section
At Ends of Run Cross Stakes

FilterSoxx Staking Details



Notes:
1. All material to meet Filtrexx specifications
2. SiltSoxx compost/soil/rock/seed fill to meet application requirements.
3. SiltSoxx depicted is for minimum slopes. Greater slopes may require larger socks per the Engineer.
4. Compost material to be dispersed on site, as determined by Engineer.

SiltSoxx Details
NOT TO SCALE

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P19-67

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

NO.	REVISION	DATE	APP'D
1	REVISION PER TRC COMMENTS	10-18-19	SJH

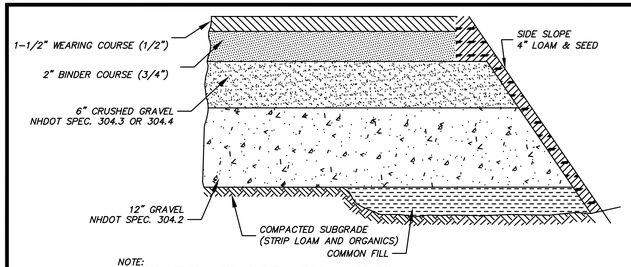
DATE: 10-18-19
SCALE: AS SHOWN
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO:19014
FILE: SITE.DWG

OWNER:
HUSSEY MANUFACTURING TECHNOLOGY, LLC
44 VENTURE DRIVE
DOVER, NH 03820

APPLICANT:
VENTURE DRIVE PROPERTIES, LLC
910 DAY HILL ROAD
WINDSOR, CT 06095

EROSION CONTROL DETAILS

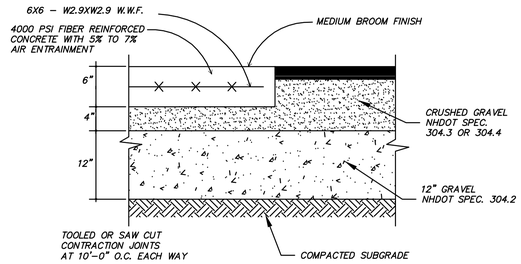
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NOTE:
1. SEE SITE PLAN FOR PAVEMENT WIDTH AND LOCATION.
2. SEE GRADING, DRAINAGE AND EROSION CONTROL PLAN FOR PAVEMENT SLOPE AND CROSS-SLOPE.

TYPICAL PAVEMENT SECTION

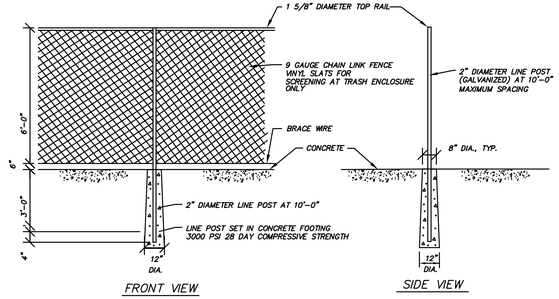
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NOTE: PITCH CONCRETE PAD GRADING TO CENTER

DUMPSTER DETAIL

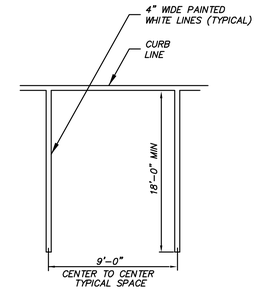
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NOTES:
1. DUMPSTER CHAINLINK FENCE SHALL HAVE GREEN VINYL PRIVACY SLATS.

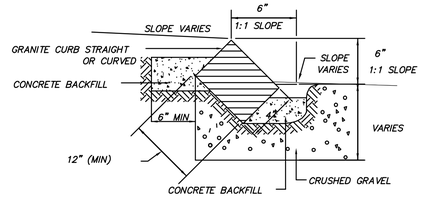
CHAINLINK FENCE DETAIL

NOT TO SCALE



STANDARD PARKING STALL

NOT TO SCALE



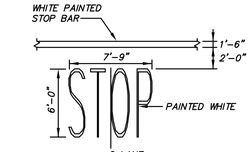
NOTES
1. ADJOINING STONES OF STRAIGHT CURB LAID ON CURVES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH
2. MINIMUM LENGTH OF STRAIGHT CURB STONES = 18"
3. MAXIMUM LENGTH OF STRAIGHT CURB STONES = 8'
4. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES - SEE CHART

RADIUS FOR STONES WITH SQUARE JOINTS	MAXIMUM LENGTH
16'-28'	1'-6"
29'-41'	2'
42'-55'	3'
56'-68'	4'
69'-82'	5'
83'-96'	6'
97'-110'	7'
OVER 110'	8'

SLOPED GRANITE CURBING

NOT TO SCALE

LENGTH AS REQUIRED (SEE SITE PLAN)

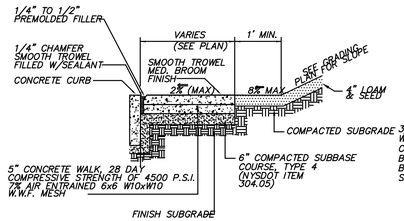


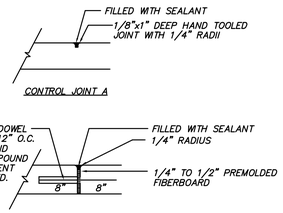
NOTE: PAVEMENT MARKINGS TO BE INSTALLED IN LOCATIONS SHOWN ON THE PLANS. APPLY TWO COATS.

STOP BAR & LEGEND

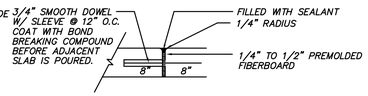
PAVEMENT MARKINGS

NOT TO SCALE

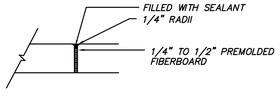




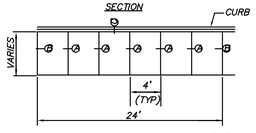
CONTROL JOINT A



EXPANSION JOINT B



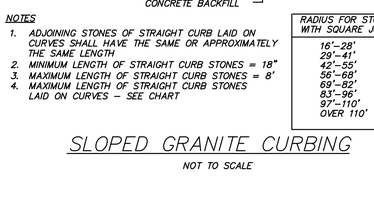
ISOLATION JOINT C



PLAN

CONCRETE SIDEWALK

NOT TO SCALE

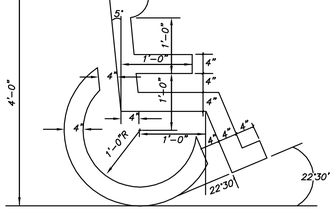


MAX. LENGTH	
RADIUS	3'
	4'
	5'
	6'
21'	7'
22'-28'	8'
29'-35'	9'
36'-42'	10'
43'-49'	
50'-56'	

1. SEE SITE PLAN FOR LIMITS OF CURBING.
2. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
3. MINIMUM LENGTH OF CURB STONES = 3'
4. MAXIMUM LENGTH OF CURB STONES = 10'
5. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES (SEE CHART)
6. ALL RADII 20 FEET AND SMALLER TO BE CONSTRUCTED USING CURVED SECTIONS.

VERTICAL GRANITE CURB

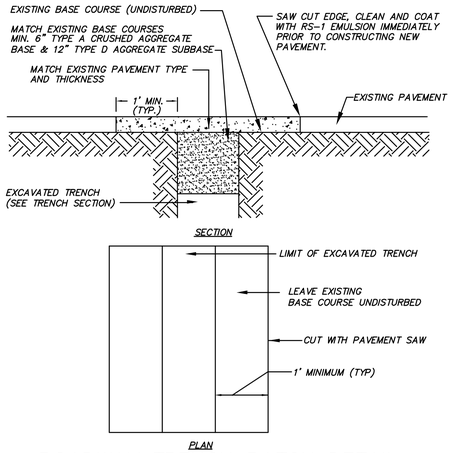
NOT TO SCALE



NOTE: SYMBOL TO BE PAINTED IN ALL HANDICAPPED SPACES

PAINTED HANDICAP SYMBOL

NOT TO SCALE

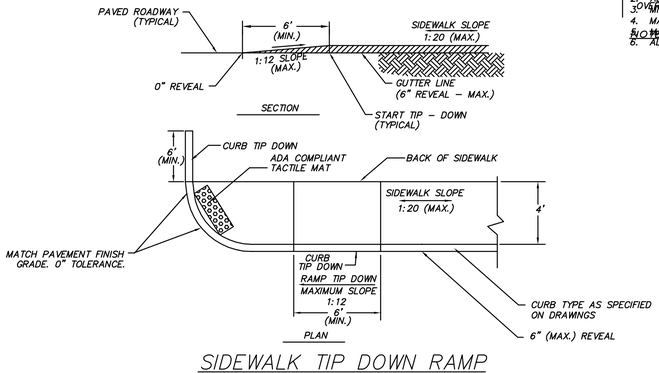


SECTION

PLAN

ROADWAY TRENCH PATCH DETAIL

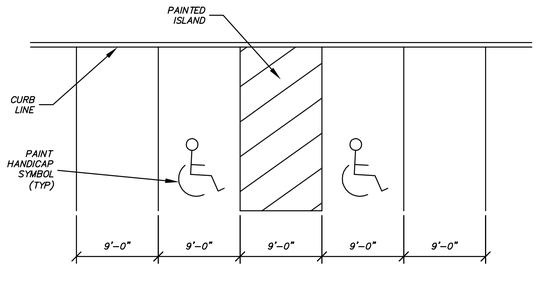
NOT TO SCALE



PLAN

SIDEWALK TIP DOWN RAMP

NOT TO SCALE



HANDICAP PARKING LAYOUT

NOT TO SCALE

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P19-67

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

NO.	REVISION	PER TRC COMMENTS	SJH	10-18-19
			APP'D	DATE

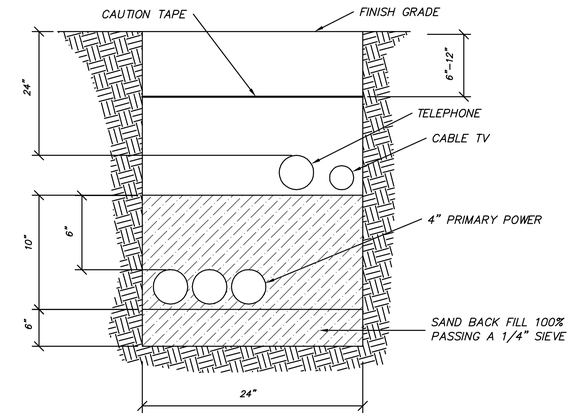
DATE: 10-18-19
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APPROVED BY:SJH
PROJECT NO:19014
FILE: SITE.DWG

OWNER:
HUSSEY MANUFACTURING TECHNOLOGY, LLC
44 VENTURE DRIVE
DOVER, NH 03820

APPLICANT:
VENTURE DRIVE PROPERTIES, LLC
910 DAY HILL ROAD
WINDSOR, CT 06095

DETAILS

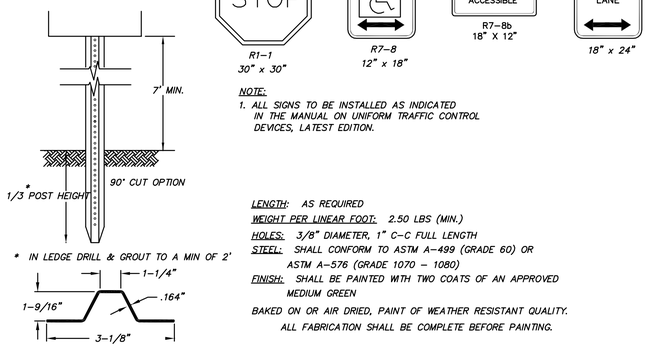
11



1. TELEPHONE CONDUIT SHALL BE 3" SCHEDULE 40 PVC, WITH STEEL SWEEPS AT RISER POLE, 90° BENDS AND AT BUILDING.
2. LEAVE PULL ROPE IN ALL CONDUITS FOR CABLE INSTALLATION.
3. FOR COMPLETE SPECIFICATIONS SEE "PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE CONSTRUCTION SPECIFICATIONS FOR UNDERGROUND CONDUIT SYSTEMS".
4. CONTRACTOR SHOULD VERIFY THE NUMBER & SIZE OF CONDUIT WITH THE APPROPRIATE UTILITIES.

UTILITY TRENCH

NOT TO SCALE

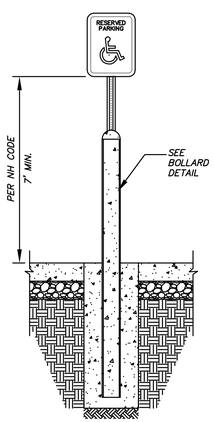


NOTE:
1. ALL SIGNS TO BE INSTALLED AS INDICATED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.

LENGTH: AS REQUIRED
WEIGHT PER LINEAR FOOT: 2.50 LBS (MIN.)
HOLES: 3/8" DIAMETER, 1" C-C FULL LENGTH
STEEL: SHALL CONFORM TO ASTM A-499 (GRADE 60) OR ASTM A-576 (GRADE 1070 - 1080)
FINISH: SHALL BE PAINTED WITH TWO COATS OF AN APPROVED MEDIUM GREEN
BAKED ON OR AIR DRIED, PAINT OF WEATHER RESISTANT QUALITY. ALL FABRICATION SHALL BE COMPLETE BEFORE PAINTING.

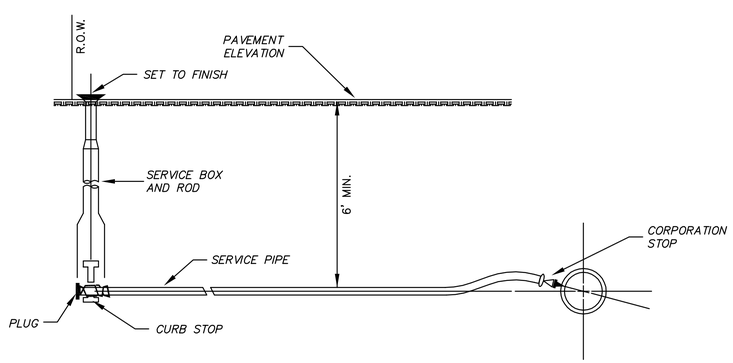
SIGN LEGEND & SIGN POST

NOT TO SCALE



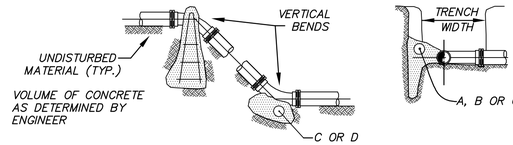
SIGN IN BOLLARD

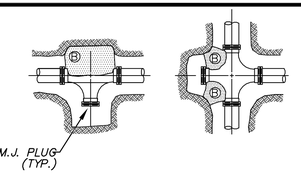
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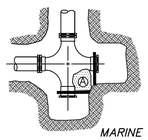
TYPICAL WATER SERVICE CONNECTION

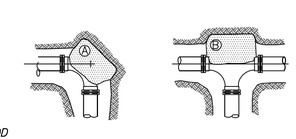
NOT TO SCALE



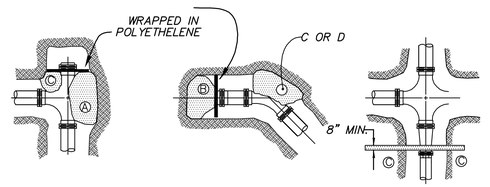


TEST PRESSURE = 200psi	SQUARE FEET OF CONCRETE THRUST BLOCKING BEARING ON UNDISTURBED MATERIAL					
	REACTION TYPE	PIPE SIZE				
		4"	6"	8"	10"	12"
	A 90°	0.89	2.19	3.82	11.14	17.24
	B 180°	0.65	1.55	2.78	8.38	12.00
	C 45°	0.48	1.19	2.12	6.02	9.32
	D 22-1/2°	0.25	0.60	1.06	3.08	4.74
	E 11-1/4°	0.13	0.30	0.54	1.54	2.38



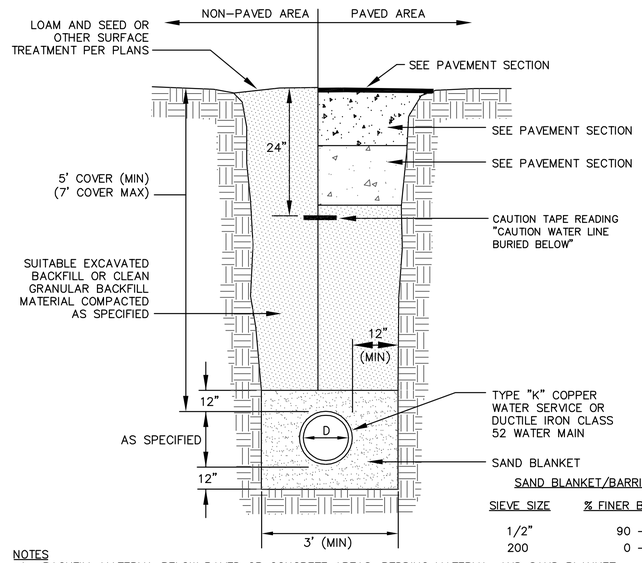


NOTES:
1. POUR THRUST BLOCKS AGAINST UNDISTURBED MATERIAL, WHERE TRENCH WALL HAS BEEN DISTURBED, EXCAVATE LOOSE MATERIAL AND EXTEND THRUST BLOCK TO UNDISTURBED MATERIAL. NO JOINTS SHALL BE COVERED WITH CONCRETE.
2. ON BENDS AND TEES, EXTEND THRUST BLOCKS FULL LENGTH OF FITTING.
3. PLACE BOARD IN FRONT OF ALL PLUGS BEFORE POURING THRUST BLOCKS.
4. WHERE M.J. PIPE IS USED, M.J. PLUG WITH RETAINER GLAND MAY BE SUBSTITUTED FOR END BLOCKINGS.



TRUST BLOCK DETAIL

NOT TO SCALE



SIEVE SIZE	% FINER BY WEIGHT
1/2"	90 - 100
200	0 - 15

NOTES
1. BACKFILL MATERIAL BELOW PAVED OR CONCRETE AREAS, BEDDING MATERIAL, AND SAND BLANKET SHALL BE COMPACTED TO NOT LESS THAN 95% OF AASHTO T 99, METHOD C. SUITABLE BACKFILL MATERIAL BELOW LOAM AREAS SHALL BE COMPACTED TO NOT LESS THAN 90% OF AASHTO T 99, METHOD C.

WATER MAIN TRENCH

NOT TO SCALE

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P19-67

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

NO.	REVISION	PER TRC COMMENTS	SJH	10-18-19
			APP'D	DATE

DATE: 10-18-19
SCALE: AS SHOWN
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO:19014
FILE: SITE.DWG

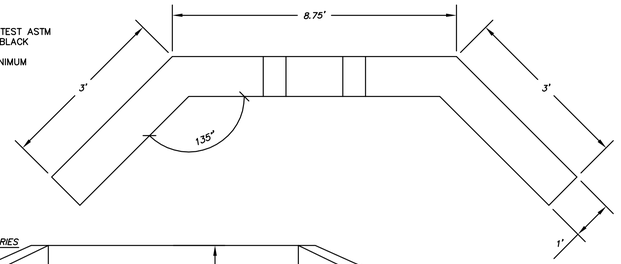
OWNER:
HUSSEY MANUFACTURING TECHNOLOGY, LLC
44 VENTURE DRIVE
DOVER, NH 03820

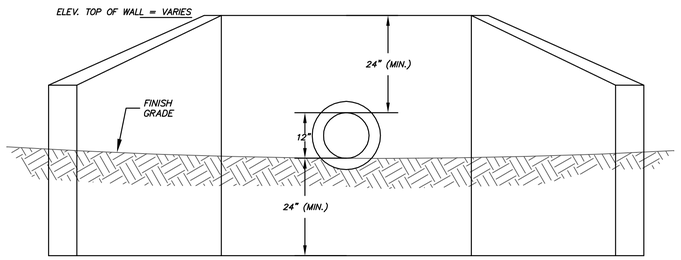
APPLICANT:
VENTURE DRIVE PROPERTIES, LLC
910 DAY HILL ROAD
WINDSOR, CT 06095

DETAILS

12

NOTES:
1. STEEL REINFORCEMENT CONFORMS TO LATEST ASTM SPECIFICATION: ASTM A-615 GRADE 60 BLACK DEFORMED BARS
2. CONCRETE: fc=4,000 PSI @ 28 DAYS MINIMUM
3. EST. WEIGHT: 8,175 LBS



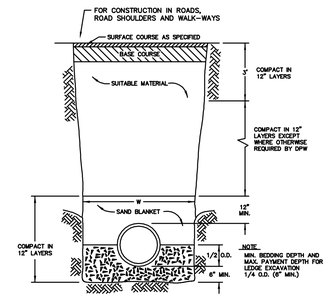


HEADWALL	T.O.W.	INV.
HW-1	183.5	180.0
HW-2	183.0	179.55
HW-3	177.5	174.2
HW-4	177.5	173.7

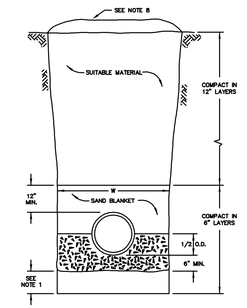
HEADWALL DETAIL

NOT TO SCALE

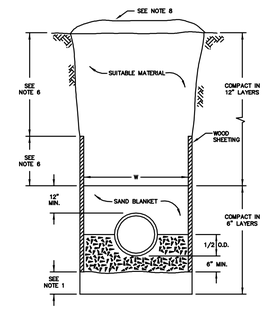
STANDARD TRENCH SECTION



LEDGE CONSTRUCTION



EARTH CONSTRUCTION



EARTH CONSTRUCTION WITH SHEETING

NOTES:

1.) ORDERED EXCAVATION OF UNSUITABLE MATERIAL BELOW GRADE. REFILL WITH BEDDING MATERIAL. SEE ALSO NOTE 7.

2.) BEDDING : SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING ASTM C33 STONE SIZE NO. 67.

100% PASSING	1 INCH SCREEN
90 – 100% PASSING	3/4 INCH SCREEN
20 – 55% PASSING	3/8 INCH SCREEN
0 – 10% PASSING	#4 SIEVE
0 – 5% PASSING	#8 SIEVE

– CRUSHED STONE 1/2 INCH – 1 1/2 INCH MAY BE USED INSTEAD OF SCREENED GRAVEL WHERE ALLOWED BY THE ENGINEER.

3.) SAND BLANKET : CLEAN SAND FREE FROM ORGANIC MATTER SO GRADED THAT 90-100% PASSES A 1/2 INCH SIEVE AND NOT MORE THAN 15% WILL PASS A #200 SIEVE.

4.) SUITABLE MATERIAL: IN ROADS, ROAD SHOULDERS, WALK-WAYS AND TRAVELED WAYS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING THE COURSE OF CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, ALL WET OR SOFT MUCK, PEAT OR CLAY, ALL EXCAVATED LEDGE MATERIAL, AND ALL ROCKS OVER SIX INCHES IN LARGEST DIMENSION, OR ANY MATERIAL WHICH, AS DETERMINED BY THE ENGINEER, WILL NOT PROVIDE SUFFICIENT SUPPORT OR MAINTAIN THE COMPLETED CONSTRUCTION IN A STABLE CONDITION.

IN CROSS-COUNTRY CONSTRUCTION, SUITABLE MATERIAL SHALL BE AS DESCRIBED ABOVE, EXCEPT THAT THE ENGINEER MAY PERMIT THE USE OF TOP SOIL, LOAM, MUCK OR PEAT, IF HE IS SATISFIED THAT THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE AND PROVIDED THAT EASY ACCESS TO THE SEWER FOR MAINTENANCE AND POSSIBLY RECONSTRUCTION, WHEN NECESSARY, WILL BE PRESERVED.

5.) BASE COURSE : IF ORDERED BY THE ENGINEER, SHALL MEET THE REQUIREMENTS OF DIVISION 300 OF THE LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION OF THE STATE OF NEW HAMPSHIRE, DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS, (D.O.T.).

6.) WOOD SHEETING : IF REQUIRED, WHERE SHEETING IS PLACED ALONGSIDE THE PIPE AND EXTENDS BELOW MID-DIAMETER, IT SHALL BE CUT OFF AND LEFT IN PLACE TO AN ELEVATION NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE. WHERE SHEETING IS ORDERED BY THE ENGINEER TO BE LEFT IN PLACE, IT SHALL BE CUT OFF AT LEAST 3 FEET BELOW FINISHED GRADE, BUT NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE.

7.) W = MAXIMUM ALLOWABLE TRENCH WIDTH TO A PLANE 12 INCHES ABOVE THE PIPE. FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS, W SHALL BE NO MORE THAN 36 INCHES; FOR PIPES GREATER THAN 15 INCHES NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS PIPE O.D. W SHALL ALSO BE THE PAYMENT WIDTH FOR LEDGE EXCAVATION AND FOR ORDERED EXCAVATION BELOW GRADE.

8.) FOR CROSS COUNTRY CONSTRUCTION : BACKFILL OR FILL SHALL BE MOUNDED TO A HEIGHT OF 6 INCHES ABOVE THE ORIGINAL GROUND SURFACE.

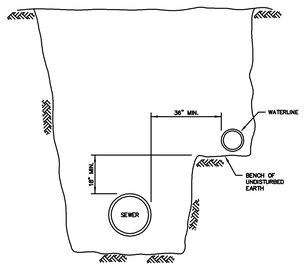
9.) CONCRETE FOR ENCASEMENT SHALL CONFORM TO THE REQUIREMENTS FOR CLASS A (3000#) CONCRETE OF THE NEW HAMPSHIRE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS STANDARD SPECIFICATIONS AS FOLLOWS:

CEMENT: 6.0 BAGS PER CUBIC YARD
WATER : 5.75 GALLONS PER BAG CEMENT
MAXIMUM SIZE OF AGGREGATE: 1 INCH

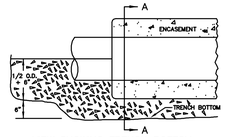
10.) NEW HAMPSHIRE WATER SUPPLY AND POLLUTION CONTROL COMMISSION (NH DES) DESIGN STANDARDS REQUIRE 10 FT. SEPARATION. HOWEVER, SHOULD CONSTRUCTION OPERATIONS REVEAL OR EXPOSE A WATERLINE (MAIN OR SERVICE) RUNNING APPROXIMATELY PARALLEL AND LESS THAN 10 FT. HORIZONTAL FROM THE PROPOSED SEWER INSTALLATION AND WHERE IT IS NOT PRACTICABLE TO RELOCATE THE SEWER, THE FOLLOWING METHODS OF PROTECTION MUST BE EMPLOYED.

A. IF THE WATERLINE CAN BE KEPT AT LEAST 18 INCHES ABOVE AND 3 FEET TO ONE SIDE OF THE SEWER, AS SHOWN AND SUPPORTED ON A BENCH OF ORIGINAL SOIL, NO OTHER PROTECTION IS REQUIRED.

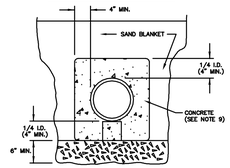
11.) IF FULL CASEMENT IS UTILIZED, DEPTH OF CONCRETE BELOW PIPE SHALL BE 1/4 I.D. (4" MIN.) BLOCK SUPPORT SHALL BE SOLID CONCRETE BLOCKS.



WATER AND SEWER IN SAME TRENCH



VIEW SHOWING TRENCH BOTTOM CHANGE AT ENCASEMENT



SECTION A-A

CONCRETE FULL ENCASEMENT
(SEE NOTE 11)

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P19-67

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

NO.	REVISION	PER TRC COMMENTS	SJH	10-18-19
			APP'D	DATE

DATE: 10-18-19
SCALE: AS SHOWN
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO:19014
FILE: SITE.DWG

DETAILS

OWNER:
HUSSEY MANUFACTURING
TECHNOLOGY, LLC
44 VENTURE DRIVE
DOVER, NH 03820

APPLICANT:
VENTURE DRIVE
PROPERTIES, LLC
910 DAY HILL ROAD
WINDSOR, CT 06095

13

D / 11-2

PARCEL AREA
224,566 S.F.

NH STATE PLANE
NAD 83 - GPS OBS.

PROPOSED
5,000 S.F.
FUTURE ADDITION

PROPOSED
10,000 S.F. BUILDING
F.F.F 186.25

40'

125'

80'

VENTURE DRIVE
PUBLIC 60' WIDE R.O.W.

APPROXIMATE
GASLINE
LOCATION

G

VENTURE DRIVE
PUBLIC 60' WIDE R.O.W.

20'-0" MOUNT HEIGHT

2'-0"
BASE ABOVE
GRADE

TYPICAL POLE DETAIL
NOT TO SCALE

0.25 FOOT CANDLES
0.50 FOOT CANDLES
1.0 FOOT CANDLES
LIGHT FIXTURE
LIGHT POLE BASE

TYPICAL LIGHT SPREAD
NOT TO SCALE

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

StatArea_1
FRONT PARKING LOT AREA
Illuminance (Fc)
Average = 1.02
Maximum = 2.2
Minimum = 0.3
Avg/Min Ratio = 3.40
Max/Min Ratio = 7.33

NOTES:
1. LIGHTING PHOTOMETRICS PREPARED BY CHARRON INC.

Luminaire Schedule

Symbol	Qty	Label	Arrangement	Description
	1	P4	SINGLE	RZR-M-IV-48LED-NW-525-HS/ SNTS204-11-1 (20' AFG)
	1	S4	SINGLE	RZR-M-IV-48LED-NW-350-HS/ SNTS204-11-1 (20' AFG)
	1	W	SINGLE	RZR-WM2-IV-FT-40PLED-525mA-NW-HS/ WALL MTD 18' AFG
	6	W4	SINGLE	RZR-WM2-IV-FT-40PLED-350mA-NW-HS/ 18' AFG

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P19-67

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

NO.	REVISION	APP'D	DATE
1	REVISION PER TRC COMMENTS	SJH	10-18-19

DATE: 10-18-19
SCALE: 1"=40'
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO:19014
FILE: SITE.DWG

LIGHTING PLAN

OWNER:
HUSSEY MANUFACTURING
TECHNOLOGY, LLC
44 VENTURE DRIVE
DOVER, NH 03820

APPLICANT:
VENTURE DRIVE
PROPERTIES, LLC
910 DAY HILL ROAD
WINDSOR, CT 06095

SOLID STATE AREA LIGHTING

RAZAR SERIES-LED

S P E C I F I C A T I O N S

PROJECT NAME:

PROJECT TYPE:



RAZAR

(MODELS: RZRM, RZR, RZR-G & RZR-MAF*) PATENT PENDING

OPTICAL HOUSING
Heavy cast low copper aluminum (A356 alloy; <0.2% copper) assembly with integral cooling fins. The Optical Panel mounting surface is milled flat (surface variance <± .002") to facilitate thermal transfer of heat to housing and cooling fins. Solid barrier wall separates optical and electrical compartments. The optical and electrical compartments are integrated to create one assembly. Minimum wall thickness is .188".

ELECTRICAL HOUSING w/ INTEGRATED ARM
Heavy cast low copper aluminum (A356 alloy; <0.2% copper) assembly with integral cooling ribs surrounding the electrical compartment and a flat surface on the top of the arm to accommodate a photocell receptacle. Solid barrier wall separates optical and electrical compartments. The optical compartment and electrical compartment with the integrated support arm combine to create one assembly. Minimum wall thickness is .188". Cast and hinged driver assembly cover is integrated with wiring compartment cover.

PLED™ OPTICS
Emitters (LED's) are arrayed on a metal core PCB panel with each emitter located on a copper thermal transfer pad and enclosed by an LED refractor. LED optics completely seal each individual emitter to meet an IP66 rating. In asymmetric distributions, a micro-reflector inside the refractor re-directs the house side emitter output towards the street side and functions as a house side shielding element. Refractors are injection molded H12 acrylic. Each LED refractor is sealed to the PCB over an emitter and all refractors are retained by an aluminum frame. Any one Panel, or group of Panels in a luminaire, have the same optical pattern. LED refractors produce standard site/area distributions. Panels are field replaceable and field rotatable in 90° increments.

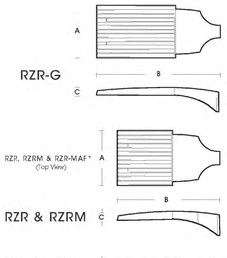
LED DRIVER(S)
Constant current electronic with a power factor of >.90 and a minimum operating temperature of -40°F/-40°C. Driver(s) is/are UL and cUL recognized and mounted directly against the Electrical Housing to facilitate thermal transfer, held down by universal clamps to facilitate easy removal. In-line terminal blocks facilitate wiring between the driver and optical arrays. Drivers accept an input of 120-277V, 50/60Hz or 347V-480V, 50,60Hz. (0 - 10V dimmable driver is standard. Driver has a minimum of 3KV internal surge protection. Luminaire supplied with 20KV surge protector for field accessible installation.)

LED EMITTERS
High output LED's are utilized with drive currents ranging from 350mA to 1050mA. 70CRI Minimum. LED's are available in standard Neutral White (4000K), or optional Cool White (5000K) or Warm White (3000K). Consult Factory for other LED options.

AMBER LED's
PCA (Phosphor Converted Amber) LED's utilize phosphors to create color output similar to LPS lamps and have a slight output in the blue spectral bandwidth. **TRA** (True Amber) LED's utilize material that emit light in the amber spectral bandwidth only without the use of phosphors.

FINISH
Electrostatically applied TGIC Polyester Powder Coat on substrate prepared with 20 PSI power wash at 140°F. Four step media blast and iron phosphate pretreatment for protection and paint adhesion. 400°F bake for maximum hardness and durability.

MAST ARM FITTER/ELECTRICAL HOUSING
Replaces standard Electrical Housing. Fits standard 2 3/8" O.D. horizontal tenon. Two (2) straps with two (2) bolts each encircle the lower half of the tenon. Upper half of the tenon rests on self-centering steps that position the angle of the luminaire at 0°, +1.5°, +1.5 or +3° up from the horizontal. All hardware is stainless steel.



FIXTURE	A	B	C	D
RZR-G	15" 381mm	36.5" 927mm	3" 76mm	7" 187mm
RZR	14.76" 375mm	28.25" 718mm	2.75" 70mm	6.5" 165mm
RZRM	11.5" 292mm	22" 559mm	2.5" 64mm	5.25" 133mm
RZR-MAF	15" 381mm	28.25" 718mm	2.5" 64mm	4" 102mm

*DLC PENDING AS OF 7/17

c UL us LISTED DLC PREMIUM MADE IN THE USA 2018358

U.S. Architectural Lighting
660 West Avenue O, Palmdale, CA 93551
Phone (661) 233-2000 Fax (661) 233-2001
www.usaltg.com
U.S. ARCHITECTURAL LIGHTING

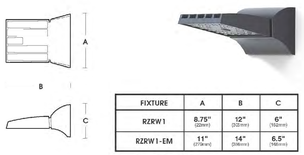
SOLID STATE AREA LIGHTING

RAZAR WALLMOUNT-LED

S P E C I F I C A T I O N S

PROJECT NAME:

PROJECT TYPE:



FIXTURE	A	B	C
RZRW1	8.75" (222mm)	12" (305mm)	6" (152mm)
RZRW1-EM	11" (279mm)	14" (356mm)	6.5" (165mm)

RZR-WM1

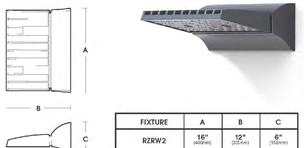
PATENT PENDING

OPTICAL HOUSING
Heavy cast low copper aluminum (A356 alloy; <0.2% copper) assembly with integral cooling fins. The Optical Panel mounting surface is milled flat (surface variance <± .003") to facilitate thermal transfer of heat to housing and cooling fins. The Optical Housing bolts to the Electrical Housing forming a unified assembly. The minimum wall thickness is .188".

ELECTRICAL HOUSING
Heavy cast low copper aluminum (A356 alloy; <0.2% copper) assembly. Minimum wall thickness is .188". Fixture Mounting Plate attixes to mounting surface over a recessed j-box. Electrical Housing anchors on the top edge of the Mounting Plate and stainless steel recessed socket head screws tighten the Electrical Housing to the Mounting Plate from the bottom.

PLED™ OPTICAL MODULES
Emitters (LED's) are arrayed on a metal core PCB panel with each emitter located on a copper thermal transfer pad and enclosed by an LED refractor. LED optics completely seal each individual emitter to meet an IP66 rating. The asymmetric distributions, have a micro-reflector inside the refractor which re-directs the house side emitter output towards the street side and functions as a house side shielding element. Refractors are injection molded H12 acrylic. Each LED refractor is sealed to the PCB over an emitter and all refractors are retained by an aluminum frame. Any one Panel, or group of Panels in a luminaire, have the same optical pattern. LED refractors produce Type II, III, and Type IV site/area distributions as well as other specialty asymmetric distributions. Panels are field replaceable and field rotatable in 90° increments.

LED DRIVER(S)
Constant current electronic with a power factor of >.90 and a minimum operating temperature of -40°F/-40°C. Driver(s) is/are UL and cUL recognized and mounted directly against the Electrical Housing to facilitate thermal transfer, held down by universal clamps to facilitate easy removal. In-line terminal blocks facilitate wiring between the driver and optical arrays. Drivers accept an input of 120-277V, 50/60Hz or 347V-480V, 50,60Hz. (0 - 10V dimmable driver is standard. Driver has a minimum of 3KV internal surge protection. Luminaire supplied with 20KV surge protector for field accessible installation.)



FIXTURE	A	B	C
RZRW2	16" (406mm)	12" (305mm)	6" (152mm)
RZRW2-EM	16" (406mm)	14" (356mm)	6.5" (165mm)

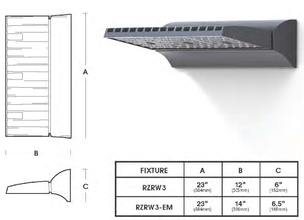
RZR-WM2

PATENT PENDING

LED EMITTERS
High output LED's are utilized with drive currents ranging from 350mA to 1050mA. 70CRI Minimum. LED's are available in standard Neutral White (4000K), or optional Cool White (5000K) or Warm White (3000K). Consult Factory for other LED options.

AMBER LED's
PCA (Phosphor Converted Amber) LED's utilize phosphors to create color output similar to LPS lamps and have a slight output in the blue spectral bandwidth. **TRA** (True Amber) LED's utilize material that emits light in the amber spectral bandwidth only without the use of phosphors.

FINISH
Electrostatically applied TGIC Polyester Powder Coat on substrate prepared with 20 PSI power wash at 140°F. Four step media blast and iron phosphate pretreatment for protection and paint adhesion. 400°F bake for maximum hardness and durability.



FIXTURE	A	B	C
RZRW3	23" (584mm)	12" (305mm)	6" (152mm)
RZRW3-EM	23" (584mm)	14" (356mm)	6.5" (165mm)

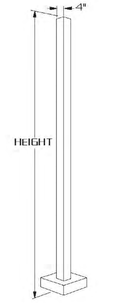
RZR-WM3

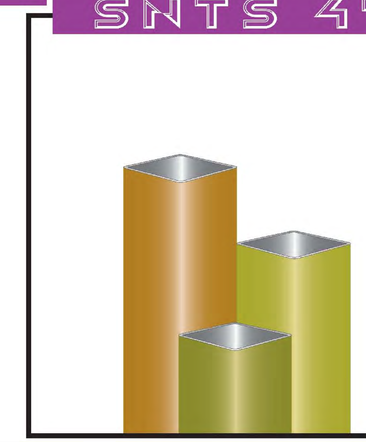
PATENT PENDING

c UL us LISTED MADE IN THE USA 2019093

U.S. Architectural Lighting
660 West Avenue O, Palmdale, CA 93551
Phone (661) 233-2000 Fax (661) 233-2001
www.usaltg.com
U.S. ARCHITECTURAL LIGHTING

SNTS 4"





4" SQUARE STRAIGHT STEEL

SPECIFICATIONS

SHAFT: 4" SQUARE, FABRICATED FROM HIGH GRADE STRUCTURAL STEEL TUBE. SHAFT CONFORMS TO ASTM-A-501-68 SPECIFICATIONS. MEETS OR EXCEEDS MINIMUM YIELD STRENGTH OF 46,000 P.S.I. WALL THICKNESS 11 GA. (.120 WALL) FOR 7 GA. (.180 WALL) AS SPECIFIED. REINFORCED HAND HOLE IS FURNISHED WITH COVER. SHAFT IS FURNISHED WITH GROUND LUG LOCATED INSIDE POLE ON WALL OPPOSITE HAND HOLE.

BASE PLATE: FABRICATED FROM STRUCTURAL QUALITY HOT ROLLED STEEL. MEETS OR EXCEEDS MINIMUM YIELD STRENGTH OF 36,000 P.S.I. BASE TELESCOPES AND IS CIRCUMFERENTIALLY WELDED TO POLE SHAFT. SLOTTED BOLT HOLES PROVIDE 1" FLEXIBILITY ON EITHER SIDE OF BOLT CIRCLE CENTERLINE.

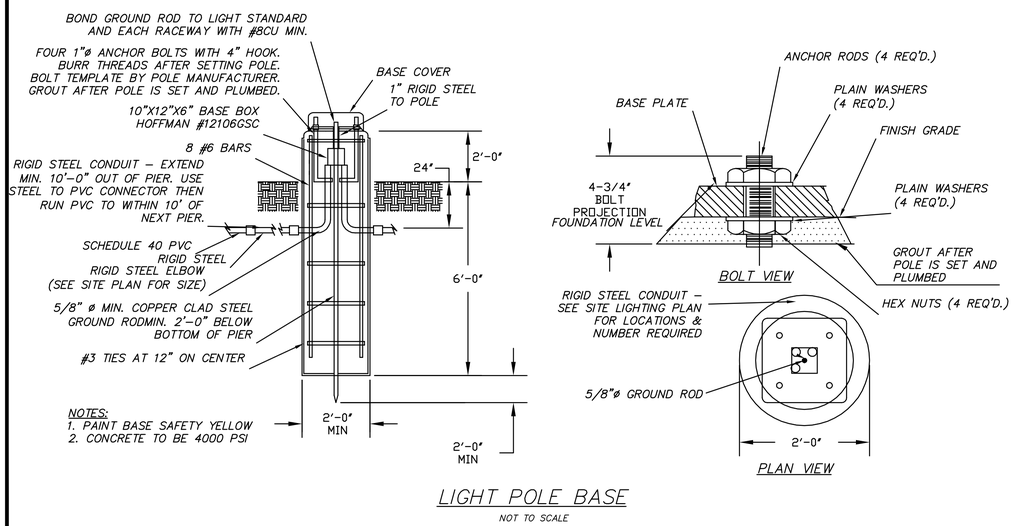
ANCHORAGE: (4) ANCHOR BOLTS FABRICATED FROM HOT ROLLED STEEL BAR. MINIMUM YIELD STRENGTH OF 50,000 P.S.I. BOLTS HAVE "L" BEND ON ONE END AND ARE THREADED ON THE OTHER END. BOLTS ARE FULLY GALVANIZED AND ARE FURNISHED WITH TWO NUTS AND TWO WASHERS.

BASE COVER: FABRICATED FROM HEAVY GAUGE QUALITY CARBON STEEL. TWO PIECE COVER CONCEALS BASE.

FINISH: POLYESTER POWDER COAT. THE METAL SURFACE IS PRETREATED BY SAND BLAST PROCESS FOR MAXIMUM PAINT ADHESION. ELECTROSTATICALLY APPLIED POLYESTER POWDER TOPCOAT IS BAKED AT 400° TEMPERATURE FOR MAXIMUM HARDNESS AND EXTERIOR DURABILITY.

U.S. ARCHITECTURAL LIGHTING
680 WEST AVENUE O, PALMDALE, CA. 93551
(661) 233-2000
FAX NO. (661) 233-2001
www.usaltg.com

F1-1
REV. 11-16



LIGHT POLE BASE

NOT TO SCALE

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P19–67

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

NO.	REVISION	APP'D	DATE
1	REVISION PER TRC COMMENTS	SJH	10–18–19

DATE: 10–18–19
SCALE: AS SHOWN
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO:19014
FILE: SITE.DWG

DETAILS

OWNER:
HUSSEY MANUFACTURING
TECHENOLOGY, LLC
44 VENTURB DRIVE
DOVER, NH 03820

APPLICANT:
VENTURE DRIVE
PROPERTIES, LLC
910 DAY HILL ROAD
WINDSOR, CT 06095

15

PROPOSED
5,000 S.F.
FUTURE ADDITION

40'

125'

PROPOSED
10,000 S.F. BUILDING
F.F.F 186.25

80'

NH STATE PLANE
NAD 83 - GPS OBS.

45.50

8.50 20.00

Dover ladder feet

Width : 8.50
Track : 8.50
Lock to Lock Time : 6.0
Steering Angle : 44.0

Dover ladder Custom

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)

NOT FOR CONSTRUCTION FOR PERMIT USE ONLY

PLANNING FILE NO.: P19-67

CIVILWORKS NEW ENGLAND
CIVIL ENGINEERING
181 Watson Road, P.O. Box 1166
Dover, New Hampshire 03820
(603) 749-0443

NO.	REVISION	APP'D	DATE
1	REVISION PER TRC COMMENTS	SJH	10-18-19

DATE: 10-18-19
SCALE: AS SHOWN
DRAWN BY: SRD
DESIGN BY: SRD
APPROVED BY:SJH
PROJECT NO:19014
FILE: SITE.DWG

DOVER LADDER TRUCK MOVEMENT PLAN

OWNER:
HUSSEY MANUFACTURING TECHNOLOGY, LLC
44 VENTURE DRIVE
DOVER, NH 03820

APPLICANT:
VENTURE DRIVE PROPERTIES, LLC
910 DAY HILL ROAD
WINDSOR, CT 06095

16

PROPERTY LINE (TYP.)

PARCEL AREA

246,985 S.F.
5.67 Ac.

PROPOSED
5,000 S.F.
FUTURE ADDITION

PROPOSED
10,000 S.F. BUILDING

6' TALL PRIVACY FENCE (TYP)

PROPOSED
PATIO

HVAC

LANDSCAPE BOULDER

LOAM & SEED

ASPHALT PARKING

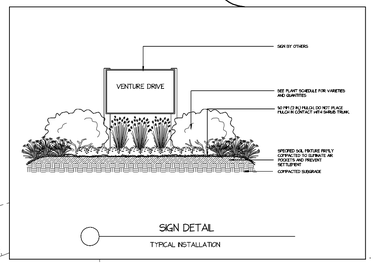
VENTURE DRIVE
PUBLIC 60' WIDE R.O.W.

SIGN AND PLANTING

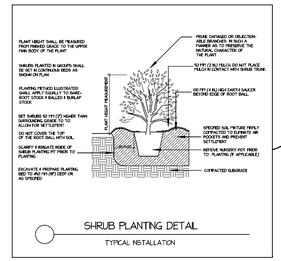
FARMER'S WALL

PROPERTY LINE (TYP.)

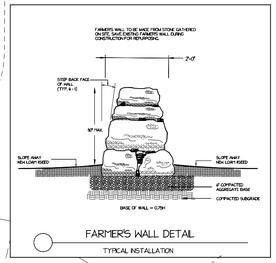
SIDEWALK



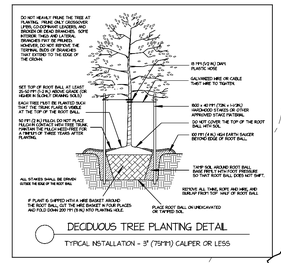
SIGN DETAIL
TYPICAL INSTALLATION



SHRUB PLANTING DETAIL
TYPICAL INSTALLATION



FARMER'S WALL DETAIL
TYPICAL INSTALLATION



DECIDUOUS TREE PLANTING DETAIL
TYPICAL INSTALLATION - 3" (75MM) CALIPER OR LESS

Key	Qty	Botanical Name	Common Name	Size/Condition	Remarks
Trees					
AbF	7	Abies fraseri	FRASER FIR	8-10' B4B	
AfA	5	Acer x freemanii 'Armstrong'	ARMSTRONG FREEMAN MAPLE	3.5" B4B	
JsS	3	Juniperus scopulorum 'Skyrocket'	SKYROCKET COLORADO RED CEDAR	5-6' B4B	
MoI	1	Malus x 'Prairifire'	PRAIRIFIRE FLOWERING CRABAPPLE	3.5" B4B	
Shrubs					
CoB	9	Cornus stolonifera 'Bailey'	BAILEY1 RED OSIER DOGWOOD	#7	
IgC	4	Ilex glabra 'Compacta'	COMPACTA GALLBERRY HOLLY	#5	
RsR	14	Rhododendron (subgenus Rhododendron) 'PJM'	PJM RHODODENDRON	30-36" B4B	
SjG	26	Spiraea japonica 'Goldflame'	GOLDFLAME JAPANESE SPIREA	#2	
Ornamental Grasses					
PvH	28	Panicum virgatum 'Heavy Metal'	HEAVY METAL SWITCH GRASS	#2	
PvS	6	Panicum virgatum 'Shenandoah'	SHENANDOAH SWITCH GRASS	#2	
Perennials and Annuals					
EpM	31	Echinacea purpurea 'Magnus'	MAGNUS PURPLE CONEFLOWER	1 GAL	
GsN	28	Geranium sanguineum 'New Hampshire Purple'	NEW HAMPSHIRE PURPLE BLOOD RED CRANESBILL	1 GAL	
HeS	12	Hemerocallis 'Stella de Oro'	STELLA DE ORO DAYLILY	1 GAL	
LsB	15	Leucanthemum x superbum 'Becky'	BECKY SHASTA DAISY	1 GAL	
SaM	38	Salvia 'Marcus'	MARCUS MEADOW SAGE	1 GAL	

10 0 5 10 20 30 50

NOT TO SCALE

LANDSCAPE NOTES

—Contractor responsible for all final measurements.

—Design is for planning purposes only.

—All work to conform to the standards set by the City of Dover, NH

—The design is based on a plan provided by Civilworks NE and may require adjustment due to actual field conditions.

—The contractor shall follow best management practices during construction and shall take all means necessary to stabilize and protect the site from erosion.

—The contractor shall locate and verify the existence of all utilities prior to starting work. Contractor shall obtain a Dig-Safe Ticket prior to the start of work.

—Owner/Contractor responsible for verifying location of all property lines, easements, right of ways, restrictive covenants, zoning matters, or engineering issues such as land support, geology, and hydrology.

—The contractor shall verify layout and grades and inform the client of any discrepancies or changes in layout and/or grade relationships prior to construction.

—The client shall procure any required permits prior to construction.

—Contractor shall notify owner immediately is at any point during demolition or construction a site condition is discovered which may negatively impact the completed project.
This includes but is not limited to, unforeseen drainage problems, unknown subsurface conditions, and discrepancies between the site and the plan.
If a contractor is aware of a potential site issue and does not bring it to the attention of the owner immediately, they are responsible for the labor and material associated with correcting the problem.

—Substitutions and changes are not to be made without prior approval by the Owner or Designer.

—All material shall conform to the guidelines established by the current American Standard for Nursery Stock, published by the American Assoc. of Nurserymen.

—Landscaping beds shall have a minimum of 3" of shredded bark mulch applied, unless otherwise noted.

—All plants shall be installed as per details and the contract specified.

—All plants must be nursery grown.

—Plant material shall bear the same relationship to finished grade as to the original planting grade prior to digging.

—If a discrepancy exists between the number of plants on the supplied list and the number shown on the drawings, the greater number shall apply.

—All plants shall be watered thoroughly twice during the first 24 hour period after planting. All plants shall be watered weekly, or more often, if necessary during the first growing season.

—All daylilies and ornamental grasses shall be deadheaded and cut back every season.

—All disturbed areas will be dressed with a minimum of 4" of topsoil and planted as noted on the plans or seeded except plant beds.

—In no case shall mulch touch the stem of a plant nor shall mulch ever be more than 3" thick total (including previously applied mulch) over the root ball of any plant.

—Snow shall be stored a minimum of 5' from shrubs and trunks of trees.

—Landscape Architect not responsible for the means and methods of the contractor.

RYE BEACH LANDSCAPING

PO Box 200
RYE BEACH, NH
03871

603.964.6888
ryebeachlandscaping.com

design by: BSG
(Rye Beach Landscaping)
drawn by: SH
(Rye Beach Landscaping)
checked by: JM
(Ironwood Design Group)

issue for review 10/16/2019

46 VENTURE DRIVE
DOVER, NH

VENTURE DRIVE PROPERTIES, LLC
44 VENTURE DRIVE
DOVER, NH 03820

PLANTING PLAN

SCALE not to scale

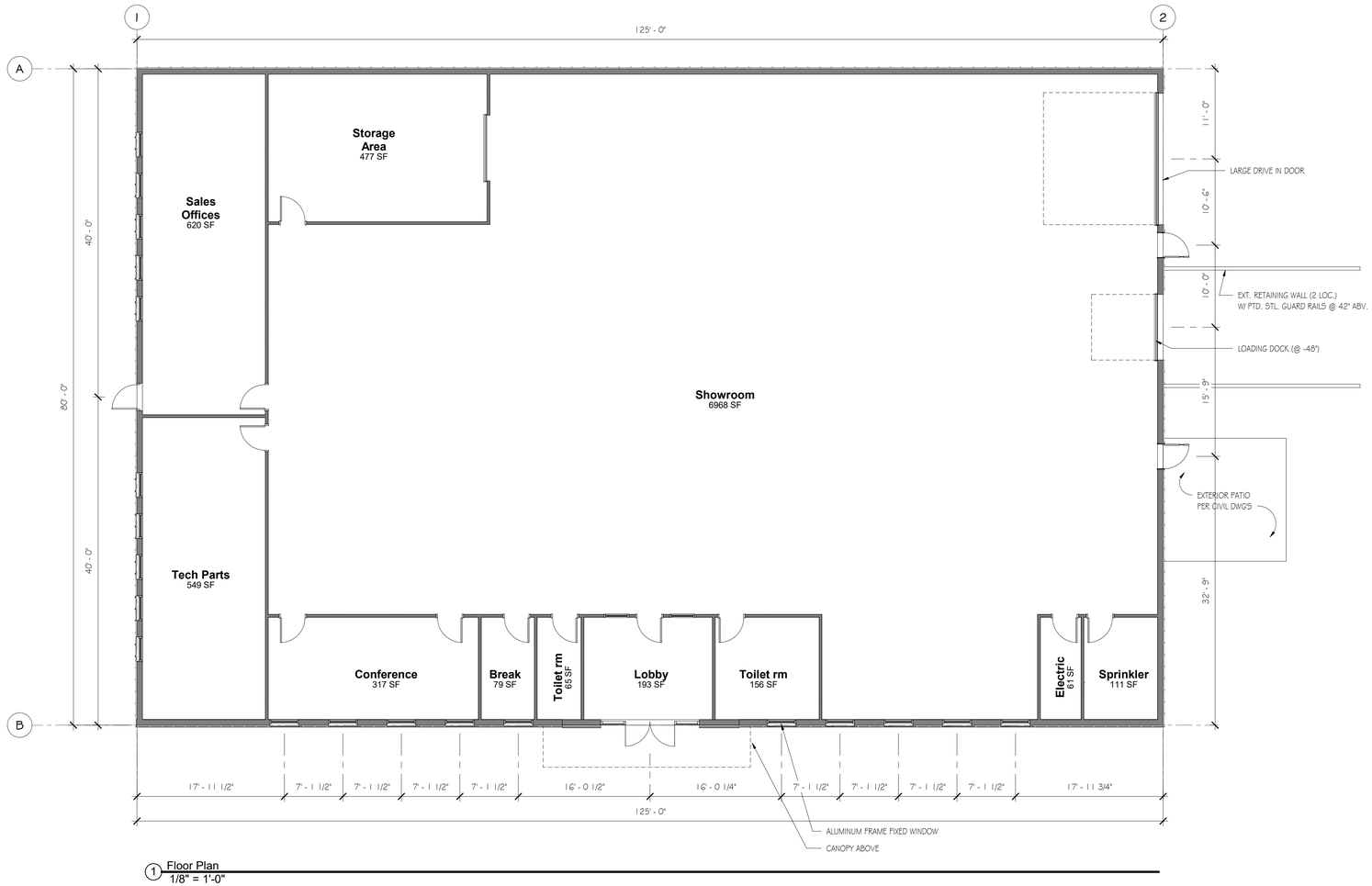
DATE 10/16/2019

DRAWING # L-1



Streetscape

TW DESIGNS LLC
P.O. BOX 69 STRAFFORD, NH 03884
P: 603.664.2181 | F: 603.664.9508



1 Floor Plan
1/8" = 1'-0"

T:\3 Projects\19034-Robert E Morris\19034-A.rvt

PLANNING BOARD SET
10/22/2019

True
PROJECT NORTH

No. Description Date

Revision Schedule

Project Info:

Robert E Morris Co.

46 Venture Drive
Dover, NH

Sheet Status:

Latest Release:
Issued For: Planning Board Set
Org. Issue Date: N.F.C.

JOB NO:
DRAFTED: JMT
CHECKED: Checker
SCALE: 1/8" = 1'-0"

Sheet Title:

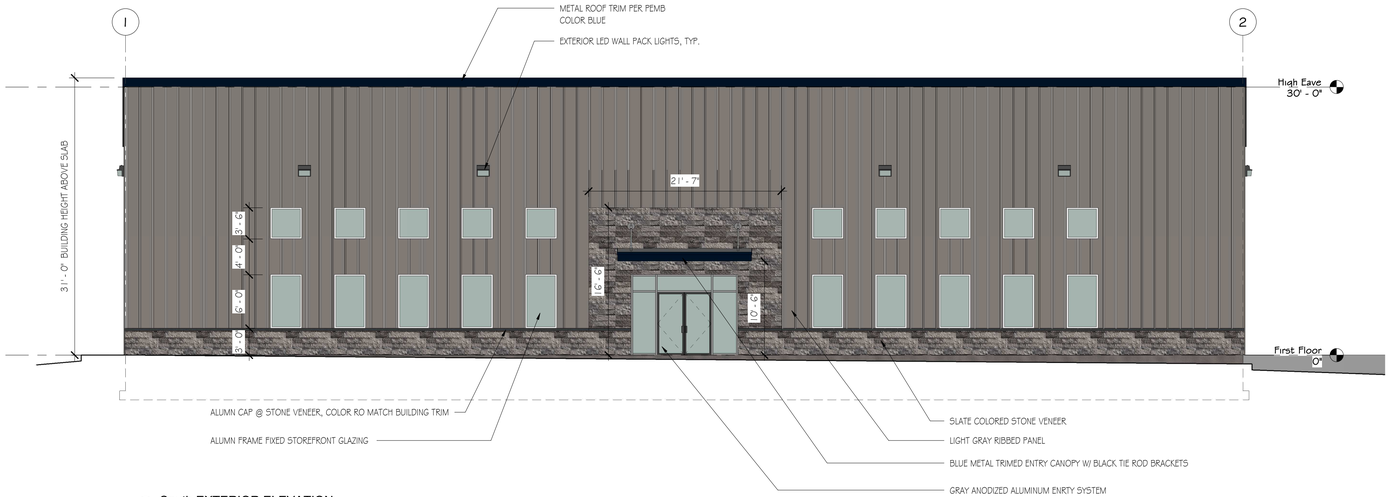
Proposed Floor Plan

Sheet Number:

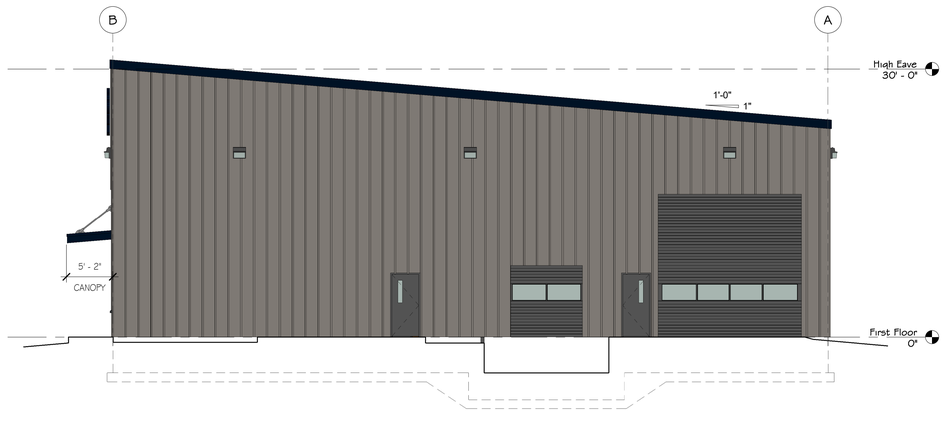
A1.1

Printed on: 10/22/2019

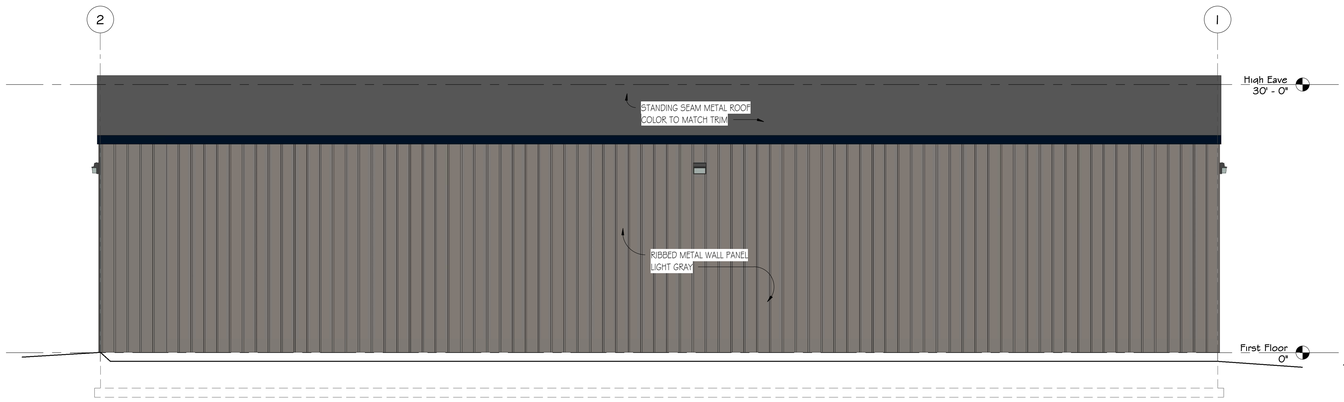
T|W DESIGNS LLC
P.O. BOX 69 STRAFFORD, NH 03884
P: 603.664.2181 | F: 603.664.9508



1 South EXTERIOR ELEVATION
1/8" = 1'-0"



2 East Exterior Elevation
1/8" = 1'-0"



3 North Exterior Elevation
1/8" = 1'-0"



4 West Exterior Elevation
1/8" = 1'-0"

PLANNING BOARD SET
10/22/2019

No.	Description	Date

Revision Schedule

Project Info:

Robert E Morris Co.

46 Venture Drive
Dover, NH

Sheet Status:

Latest Release:
Issued For: Planning Board Set
Org. Issue Date: N.F.C.

JOB NO:
DRAFTED: Author
CHECKED: Checker
SCALE: 1/8" = 1'-0"

Sheet Title:

Exterior Elevation

Sheet Number:

A3.1

Printed on: 10/22/2019

T:\3 Projects\19034-Robert E Morris\19034-A.rvt

Item 4J (P19-83) will not be heard on December 10th, 2019

CITY OF DOVER

PLANNING BOARD - STAFF MEMO FILE #P19-84

Application Type:	Minor Lot Line Adjustment
Applicant(s):	499 & 503 Tolend Road
Owner(s):	Denise & Kirk Purington & Tyrso Carvalho-Filho
Location:	499 & 503 Tolend (Map C, Lots 42-E & 42)
Meeting Date:	December 10, 2019

INTENT: To adjust the lot lines between lots C/42 and C/42-E. C/42 will decrease from 4.99 acres to 2.92 acres and C/42-E will increase from 4.63 acres to 6.70 acres.

LOTS/UNITS PROPOSED: N/A

AGENDA ITEM #: 4-K

AREA:

	Existing:	Proposed:
C/42:	4.99 ac	2.92 ac
C/42-E	4.63 ac	6.70 ac

ZONING DISTRICT: R-40

EXISTING LAND USE: Residential

PROPOSED LAND USE: N/A

SURROUNDING LAND USE: Residential & Cochecho River

ZBA ACTION: H82-6: Variance granted to subdivide without frontage granted on 3/18/82

ATTACHMENTS: Application materials including LLA Plan

APPLICATION IS COMPLETE: Yes

NOTICES SENT: Abutter notices were sent by certified or first class mail to all abutters for this meeting.

PERMITS REQUIRED: N/A

WAIVERS REQUESTED: N/A

Summary of Request and Background
The applicant is proposing to adjust the lot line between the two lots moving 90,151 s.f to lot C/42-E from C/42. This would increase the size of the lot that has no frontage, while maintaining the frontage that exists for the other lot. While this appears to be an odd layout, it is permitted by the City's regulations, as it is not increasing the non-conformity.

Consistency with Land Use Regulations
Chapter 155-18 of the Land Subdivision Regulations of the City Code provides for the adjustment of existing lot lines between two or more lots. This plan is consistent with those regulations.

STAFF RECOMMENDATION:
The Planning Department recommends that the Planning Board accept the application for review, open the public hearing, and vote to approve the minor lot line adjustment with the following conditions:

Conditions to Be Met Prior to Signing of Plans:
1. The applicant shall provide the Planning Department with a digital version of the final plat
2. The applicant shall revise the plat to:
   a. Add Planning file number P19-83 to the title block
   b. Add signature and stamp of LLS
   c. Add owners' signatures.

499 & 503 Tolend Road



Property Information

Property ID	04005-000000
Location	14 BROADWAY
Owner	TRINKET REALTY LLC
Land Use	401

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

City of Dover, NH makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 10/18/2019
Data updated Daily

NORWAY PLAINS ASSOCIATES, INC.

SURVEYORS - ENGINEERS - TRANSPORTATION PLANNERS

31 Mooney Street
Alton, New Hampshire 03809
Alton Office (603) 875-3948
E-MAIL: jrunnals@norwayplains.com
WEB: www.norwayplains.com

2 Continental Boulevard (03867) P. O. Box 249
Rochester, New Hampshire 03866-0866
Telephone (603) 335-3948
NH (800) 479-3948

November 18, 2019

Dover Planning Department
288 Central Avenue
Dover, New Hampshire

Re: **Lot Line Adjustment, 499 & 503 Tolend Road, Dover, N.H. – Tax Map Parcels C-42 and C-42-E**

Dear Planning Department;

Denise and Kirk Purington are proposing a Lot Line Adjustment of their property located at 503 Tolend Road (parcel C-42) and with Tyrso Carvalho-Filho at 499 Tolend Road (parcel C-42-E).

Parcel C-42 and C-42-E are developed with residential dwellings and driveways. Both lots are serviced by municipal water and have individual septic systems. No new construction or development is being proposed with this application.

Parcel C-42 had a lot area of 217,456 square feet and the new area will be 127,305 square feet / 2.92 acres. Parcel C-42-E had a lot area of 201,700 +/- square feet and its new area will be 291,851+/- square feet / 6.7 +/- acres.

Sincerely,

NORWAY PLAINS ASSOCIATES, INC.

Sincerely,

Joel D. Runnals, LLS 865

City of Dover, New Hampshire
MINOR LOT LINE ADJUSTMENT APPLICATION

[Revision Date: June 4, 2019]

Office Use Only	Project #:		Date Received:	
	Amount Paid:		Time Received:	

APPLICANT INFORMATION

Name of Applicant: Denise & Kirk Purington \ Tyrso Carvalho-Filho Telephone #603-749-5996 \ 603-285-2061

Address of Applicant: 503 Tolend Road, Dover, NH 03820 \ 499 Tolend Road, Dover, NH 03820

FIRST PROPERTY OWNER AND PARCEL INFORMATION

Name of 1st Property Owner (*if different from applicant*): Denise & Kirk Purington Telephone #_____

Address of 1st Property Owner: 503 Tolend Road, Dover, NH 03820

Address of Property: 503 Tolend Road, Dover, NH 03820

Assessor's Map # C Lot(s) # 42

Property Deed: Book 4004 Page: 0666

Zoning District(s) Residential Overlay District(s) _____

Size of Existing Parcel (sq. ft.): 217,456 Size of Proposed Parcel (sq. ft.): 127,305

SECOND PROPERTY OWNER AND PARCEL INFORMATION

Name of 2nd Property Owner (*if different from applicant*): Tyrso Carvalho-Filho Telephone #_____

Address of 2nd Property Owner: 499 Tolend Road, Dover, NH 03820

Address of Property: 499 Tolend Road, Dover, NH 03820

Assessor's Map # C Lot(s) # 42-E

Property Deed: Book 4701 Page: 228

Zoning District(s) Residential Overlay District(s) _____

Size of Existing Parcel (sq. ft.): 201,700 Size of Proposed Parcel (sq. ft.): 291,851

THIRD PROPERTY OWNER AND PARCEL INFORMATION

Name of 3rd Property Owner (*if different from applicant*): _____ Telephone #_____

Address of 3rd Property Owner: _____

Address of Property: _____

Assessor's Map # _____ Lot(s) # _____

Property Deed: Book _____ Page: _____

Zoning District(s) _____ Overlay District(s) _____

Size of Existing Parcel (sq. ft.): _____ Size of Proposed Parcel (sq. ft.): _____

[Use additional application form if more than two lots are being adjusted]

SURVEYOR INFORMATION

Name of Surveyor and Company (Licensed in N.H.) Norway Plains Associates, Inc.

Address PO Box 249, Rochester, NH 03866 Telephone #: 603-335-3948

Professional License #: LLS 865 E-mail address: jrunnals@norwayplains.com

CONSERVATION EASEMENT HOLDER (s)

Name of Easement Holder: _____ Telephone #_____

Address Easement Holder: _____

Name of 2nd Easement Holder: _____ Telephone #_____

Address 2nd Easement Holder: _____

SIGNATURES

I/We hereby submit this application to the City of Dover Planning Board and attest that to the best of my knowledge all of the information on this application form and in the accompanying application materials and documentation is true and accurate. As applicant or as agent, I attest that I am duly authorized to act in this capacity.

Signature of First Property Owner: Kirk Everett Puyton Sr. Denise Puyton Date: 11-18-19

Signature of Second Property Owner: _____ Date: 11-18-19

Signature of Applicant (*if different from owner*): _____ Date: _____

Signature of Agent: Joel D Runnals Date: 11-18-19

AUTHORIZATION TO ENTER SUBJECT PROPERTY

I hereby authorize members of the Dover Planning Board, Planning Department and other pertinent City Departments and boards to enter my property for the purpose of evaluating this application, including performing inspections during the application phase, post-approval phase, construction phase and occupancy phase. It is understood that these individuals must use all reasonable care, courtesy, and diligence when on the property.

Signature of Property Owner: Kirk Everett Puyton Sr. Date: 11/18/19

PLANNING BOARD FEE SCHEDULE

(Revised May 14, 2019)

Below are the fees associated with plan review. Please complete the information below and provide payment with your application submittal. **Plan review fees shall be paid prior to technical review committee (TRC) being scheduled.** For plans not requiring TRC review, **fees are due 21 days prior** to the Planning Board meeting. Staff will coordinate abutter/notice fees, which will be invoiced and must be paid 28 hours before the Planning Board meeting for an application to be heard. Fees shall be paid by cash or check made payable to "City of Dover."

A. Plan Review Fees

1. Application fee for the following (SELECT ALL THAT APPLY):

☐	SUBDIVISION $150.00 x # _____ new lots created=	$_____
☒	LOT LINE ADJUSTMENT $100.00 X # of lots involved=	$ 200.00
☐	TRANSFER OF DEVELOPMENT RIGHTS Application fee $150.00=	$_____
☐	SITE REVIEW – RESIDENTIAL $100.00 x # ____ per dwelling unit=	$_____
☐	SITE REVIEW – NON-RESIDENTIAL (not to exceed $10,000)	
	o New construction $.15 sq. ft. x # _____ sq. ft.=	$_____
	o Additions (new floor space) $.10 per sq. ft. x # _____sq. ft.=	$_____
☐	MOTEL/HOTEL $35.00 x # ___ per lodging unit=	$_____
☐	CHANGE OF USE (not to exceed $5,000)	
	o Existing floor spaces $.10 per sq. ft. x # _____ sq. ft. =	$_____
☐	CONDITIONAL USE PERMIT $150.00 x # _____ per application=	$_____
☐	GRAVEL PIT/ EXCAVATIONS	
	o Application fee $50.00=	$_____
	o Permit fee $75.00=	$_____
☐	EXTENSIONS OF/AMENDMENTS TO/WAIVERS FOR AN APPROVED PLAN $50.00 x # ____ per hour of review (3 hour minimum)=	$_____
☐	REQUEST FOR REZONING Application fee $150.00=	$_____
☐	DRIVEWAY WAIVER Application fee $100.00=	$_____
	SUB TOTAL=	**$** 200.00

AND

2. IMPERVIOUS PAVED AREA (for new development or additions to existing parking lots (not to exceed $10,000) $.07 sq. ft. x # _____= $_____

TOTAL PLAN REVIEW FEE= $ 200.00

B. Abutter Notification/Mailing Labels - this office will create and print the abutter list and provide labels in triplicate for each abutter. The applicant/owner will need to review the list and provide to this office the engineer, architect, licensed land surveyor (LLS), licensed landscape architect (LLA) and/or soil scientist whose professional seal appears on the plan with names and addresses for notices.

☒	Applicant & Owner, engineer, architect, LLS, LLA and/or soil scientist	
	o Certified letters fee # 3 of x $8.00=	$ 24.00
☒	Certified letters fee: # of abutters 7 X $8.00=	$ 56.00
☐	First Class Mail fee (for individual owner of units within a condominium or other collective form of ownership): # of abutters _____ X $1.00=	$_____
☐	Creating/Printing Abutter Labels in triplicate per sheet _____ x $10.00=	$_____
	SUB TOTAL=	**$** 80.00

C. Foster's newspaper public notice fee **$ 80.00**

TOTAL NOTICE FEE= $ 160.00

The above amount must be paid 28 hours prior to the Planning Board meeting, to be heard.

City of Dover, New Hampshire
LOT LINE ADJUSTMENT SUBMISSION CHECKLIST

[Revision Date: June 4, 2019]

This review checklist is intended to assist the applicant in the planning process of preparing a Subdivision application for Planning Board action. The size of the project will determine the types of information required for review, therefore, a **pre-application conference** with the Planning Department to determine the list of items that must be completed is strongly encouraged.

Plan Review Fees are due along with three (3) full size and twelve (12) half size (11x17), folded, copies of the plan set and materials, 3 weeks prior to the Planning Board meeting. Abutter/Notice Fees will be invoiced and are due 28 hours prior to Planning Board.

The applicant is cautioned that this checklist is only a guide and is not intended to be a complete list of all subdivision requirements. Please refer to the Subdivision Regulations for full details.

APPLICANT: Denise & Kirk Purington \ Tyrso Carvalho-Filho File Number: _____

PROPERTY LOCATION: 503 Tolend Road \ 499 Tolend Road Tax Map: C Lot: 42 and Lot: 42-E

	Where/How Provided	Reviewed
1. Completed and signed Application form	Attached	
2. Plan Review Fees are provided	Attached	
3. Electronic copy of the surveyed plat layout		
4. Electronic copy of supplementary materials and application		
5. Fifteen copies of LLA plan w/scale of not less than 1"=50' or 1"=100' for larger adjustments. Plans shall contain the following items as appropriate:		
Location map at appropriate scale	See plan	
Planning File #	See plan	
Date, north arrow and scale	See plan	
Names of all abutting property owners	See plan	
Name and address of owners	See plan	
Signature & stamp of NH licensed land surveyor	See plan	
Zoning District boundaries, including any special or overlay districts	See Plan	
Location of Conservation District areas	NA	
Location, names and widths of existing and streets, including pavement widths, grades, curbs and crosswalks	See plan	
Location and widths of existing & proposed easements & right of ways	See plan	
Existing and proposed property lines with dimensions and bearings tied into Dover's Geographic Information System coordinate system	See plan	
Existing and proposed lot areas in square feet	See plan	
Existing and proposed buildings and structure locations	See plan	
Minimum building setbacks or build to lines on all lots	See plan	
Map and lot numbers for existing and proposed lots as assigned by Tax Assessor	See plan	
Location, material and size of existing and proposed permanent monuments	See plan	
All applicable Dover Common Subdivision notes	See plan	

REVIEWED BY: _____ DATE_____

APPOINTMENT OF REPRESENTATION

We, Denise and Kirk Purington,

Authorize Norway Plains Associates, Inc., and its professionals to represent us before such Boards,

Departments, Commissions and Agencies in the City of

Dover, NH as they may pertain to the application, public hearing,

And referenced plans.

"Lot Line Adjustment Plan, 499 & 503 Tola

end Road, City of Dover, Strafford County, New Hampshire, Prepared for: Denise & Kirk Purington, Sr. and Tyrso Carvalho-Filho", dated November 2019 by Norway Plains Associates, Inc.

Date: 11-18-19

By: Denise Purington

Denise Purington

Date: 11/18/19

By: Kirk Everett Purington Sr.

Kirk Purington

APPOINTMENT OF REPRESENTATION

I, Tyrso Carvalho-Filho,

Authorize Norway Plains Associates, Inc., and its professionals to represent us before such Boards,

Departments, Commissions and Agencies in the City of

Dover, NH as they may pertain to the application, public hearing,

And referenced plan.

"Lot Line Adjustment Plan, 499 & 503 Tolend Road, City of Dover, Strafford County, New Hampshire, Prepared for: Denise & Kirk Purington, Sr. and Tyrso Carvalho-Filho", dated November 2019 by Norway Plains Associates, Inc.

Date: 11-18-19

By: _____

Tyrso Carvalho-Filho

ABUTTER LIST

Applicant: Denise & Kirk Purington \ Tyrso Carvalho-Filho
Phone: (603) 749-5996 \ (603) 285-2061
Project Address: 499 & 503 Tolend Road, Dover, NH

List the names and addresses of all parties below. For abutting lot owners, list each owner whose lot adjoins or is directly across the street or a body of water from the subject property. This form may not be completed more than five (5) days prior to submitting the application.

LEGAL OWNER OF SUBJECT LOT

Map	Lot	Owner Name	Mailing Address
C	42	Denise & Kirk E. Purington, Sr.	499 Tolend Road, Dover, NH 03820
C	42-E	Tyrso Carvalho-Filho	503 Tolend Road, Dover, NH 03820

ABUTTING LOT OWNERS

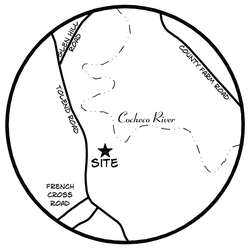
Map	Lot	Owner Name	Owner Mailing Address (NOT property location)
C	41	City of Dover	288 Central Avenue, Dover, NH 03820
C	42-A	Terrie & Mark Hale	22 Nancy Lane, Dover, NH 03820
C	33-A	Darlene & Dennis Shanahan	508 Tolend Road, Dover, NH 03820
C	33-B	Michael & Erin Joyce	496 Tolend Road, Dover, NH 03820
C	44-001	Wilson Family Revocable Trust of 2018	473 Tolend Road, Dover, NH 03820
C	44	Tolend Associates	PO Box 18330, Boulder, CO 80308
C	45	Tyrso Carvalho-Filho & Kerrie Carvalho	503 Tolend Road, Dover, NH 03820

PROFESSIONALS AND EASEMENT HOLDERS. Engineers, Surveyors, Soil Scientists, and Architects whose seal appears or will appear on the plans (other than any agent submitting this application); holders of conservation, preservation, or agricultural easements; and upstream dam owners/NHDES.

Name of Professional or Easement Holder	Mailing Address
Joel D. Runnals, LLS Norway Plains Assoc., Inc.	PO Box 249; Rochester, NH 03866-0249

P19-84 **499 & 503 Tolend Road**

Property ID	Location	Owner 1	Owner 2	Owner Address 1	City	State	Zip
C0033-A00000	508 TOLEND RD	SHANAHAN DARLENE A	SHANAHAN DENNIS M	508 TOLEND ROAD	DOVER	NH	03820-5605
C0033-B00000	496 TOLEND RD	JOYCE MICHAEL &	JOYCE ERIN A	496 TOLEND RD	DOVER	NH	03820
C0033-C00000	486 TOLEND RD	WOODARD MARY ANN	WOODARD GEORGE H	486 TOLEND ROAD	DOVER	NH	03820
C0040-B00000	523 TOLEND RD	ROUSSEAU AARON D &	ROUSSEAU JENNIFER C	PO BOX 982	DOVER	NH	03821-0982
C0040-D00000	519 TOLEND RD	LABA PAUL R &	LABA KAREN A	519 TOLEND RD	DOVER	NH	03820
C0042-A00000	509 TOLEND RD	HALE TERRIE &	HALE MARK	22 NANCY LN	DOVER	NH	03820
C0042-C00000	477 TOLEND RD	SCHOMMER DAVID J &	SCHOMMER TAMI M	477 TOLEND RD	DOVER	NH	03820
C0042-D00000	493 TOLEND RD	DOWALIBY WARREN & PATRICIA REV LIV TRUST	DOWALIBY WARREN AND PATRICIA TRUSTEE	493 TOLEND ROAD	DOVER	NH	03820
C0044-001000	473 TOLEND RD	WILSON WAYNE C & MARTHA R TRUSTEES	WILSON FAMILY REVOCABLE TRUST OF 2018	473 TOLEND ROAD	DOVER	NH	03820
C0044-002000	471 TOLEND RD	LEGER SAMUEL T &	LEGER AMANDA R	471 TOLEND RD	DOVER	NH	03820
C0045-000000	475 TOLEND RD	CARVALHO FILHO TYRSO S &	CARVALHO KERRIE M	503 TOLEND ROAD	DOVER	NH	03820
C0004-000000	262 COUNTY FARM RD	STRAFFORD COUNTY		PO BOX 799	DOVER	NH	03821-0799
C0041-000000	TOLEND RD	CITY OF DOVER		288 CENTRAL AVE	DOVER	NH	03820
C0044-000000	TOLEND RD	TOLEND ASSOCIATES	C/O RODRIGUE TERRY J	PO BOX 18330	BOULDER	CO	80308
C0042-000000	503 TOLEND RD	CARVALHO-FILHO TYRSO		503 TOLEND RD	DOVER	NH	03820
C0042-E00000	499 TOLEND RD	PURINGTON KIRK E SR &	PURINGTON DENISE	499 TOLEND ROAD	DOVER	NH	03820
		NORWAY PLAINS ASSOC., INC	JOEL D RUNNALS, LLS	P.O. BOX 249	ROCHESTER	NH	03866-0249



LOCUS
N.T.S

TAX MAP C, LOT 41
CITY OF DOVER
288 CENTRAL AVENUE
DOVER, NH 03820
SCRD BOOK 3178, PAGE 0511

STONE BOUND FOUND +2"

STEEL STAKE FOUND +3"

GRANITE BOUND FOUND +1"

1" IRON PIN FOUND +9"

N 30°41'48" E 86.42'

85'+/-

154'+/-

540' +/- ALONG COCHECO RIVER

TAX MAP C, LOT 4
STRAFFORD COUNTY
PO BOX 799
DOVER, NH 03821-0799

Cocheco River

50' CONSERVATION DISTRICT

TAX MAP C, LOT 42-A
TERRIE & MARK HALE
22 NANCY LANE
DOVER, NH 03820
SCRD BOOK 4492, PAGE 0944

N 22°47'53" E 313.66'

318.03'

370.23'

LOT LINE TO BE ABANDONED
S 35°17'23" E

SHED

TOAD 6x8

BARN

1" IRON PIN FOUND +6"

TAX MAP C, LOT 33-A
DARLENE & DENNIS SHANAHAN
508 TOLEND ROAD
DOVER, NH 03820

N 37°59'30" E 170.83'

119.11'

51.72'

TBS

AREA TO BE CONVEYED FROM PARCEL C-42 TO PARCEL C-42-E
AREA: 90,151 sf / 2.07 acres

S 37°15'28" E 157.19'

PROPOSED LOT LINE

TAX MAP C, LOT 42-E
OLD AREA: 201,700+/- sf / 4.63+/- acres
NEW AREA: 291,851+/- sf / 6.7+/- acres

N 38°51'16" W 191.12'

PROPOSED LOT LINE N 55°08'41" E 230.50'

PROPOSED LOT LINE N 38°01'16" E 135.07'

L1

142x6'

142x7'

52.20'

1" IRON PIN FOUND +7"

GRAVEL DRIVEWAY

50' RIGHT-OF-WAY

293.50'
S 55°08'41" W

1" IRON PIPE FOUND +1"

R= 50.00'
L= 14.94'

142x5'

142x4'

S 82°09'54" E 250.92'

S 05°37'57" W

477.73'
617.16'

NPA-6516
DOVER-615

TAX MAP C, LOT 33-B
MICHAEL & ERIN JOYCE
496 TOLEND ROAD
DOVER, NH 03820

TAX MAP C, LOT 2-D
WARREN & PATRICIA DOWALIBY REV. LIVING TRUST
493 TOLEND ROAD
DOVER, NH 03820
SCRD BOOK 3339, PAGE 0580

TOLEND ROAD

493 TOLEND ROAD

GARAGE

4,000 sf PSDA

142x7'

143x8'

143x5'

143x2'

SHED

N 15°03'56" W 154.31'

1" IRON PIPE FOUND +2"

142x8'

142x8'

APPROXIMATE LOCATION LEACH FIELD

SEPTIC TANK COVER

503 TOLEND ROAD

GRAVEL DRIVEWAY

132.20'

20' EASEMENT 6978-382

TAX MAP C, LOT 45
TYRSO FILHO-CARVALHO & KERRIE CARVALHO
503 TOLEND ROAD
DOVER, NH 03820
SCRD BOOK 4695, PAGE 0129

N 27°22'22" E 192.19'

TAX MAP C, LOT 42
OLD AREA: 217,456 sf / 4.99 acres
NEW AREA: 127,305 sf / 2.92 acres

143x6'

144x5'

208.00'

409.00'

S 22°30'12" W

144x8'

20' EASEMENT 3910-810

N 32°17'46" W 194.82'

1" IRON PIN FOUND +6"

477 TOLEND ROAD

TAX MAP C, LOT 42
DAVID & TAMI SCHOMMER
477 TOLEND ROAD
DOVER, NH 03820
SCRD BOOK 3687, PAGE 0029

#4 RE-BAR FOUND +5"

TAX MAP C, LOT 44
TOLEND ASSOCIATES
PO BOX 18330
BOULDER, CO 80308
SCRD BOOK 1988, PAGE 0494

208.00'

GRAVEL DRIVEWAY

TAX MAP C, LOT 44-001
WILSON FAMILY REV TRUST OF 2018
473 TOLEND ROAD
DOVER, NH 03820
SCRD BOOK 4584, PAGE 0239

RESERVED FOR REGISTRY OF DEEDS

I HEREBY CERTIFY THAT THIS PLAN, PREPARED UNDER MY DIRECTION, IS THE RESULT OF A SURVEY MADE ON THE GROUND AS PER RECORD DESCRIPTIONS AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. THE PLAN CLOSURE EXCEEDS 1:10,000.

STATE OF NEW HAMPSHIRE — No. 865 JOEL D. RUNNALS — LICENSED LAND SURVEYOR — SIGNATURE

2019

JOEL D. RUNNALS, L.L.S. 865 DATE

NOTES:

1. THE PURPOSE OF THIS PLAN IS PERFORM A LOT LINE ADJUSTMENT BETWEEN TAX MAP C, LOTS 42 & 42-E.
2. THE PARCELS ARE LOCATED IN THE RURAL RESIDENTIAL (R-40) DISTRICT.
3. LOT REQUIREMENTS (R-40):
   LOT SIZE; 40,000 sf
   FRONTAGE; 150'
   SETBACKS; FY= 40', SY= 25', RY= 30'
   NHDES LOT SIZE: GROUP 3 (EaA) 48,000 sf / 2 (with muncipal water) = 28,000 sf.
4. PARCEL AREAS:
   PARCEL C-42
   OLD AREA= 217,456 sf / 4.99 acres
   NEW AREA= 127,305 sf / 2.92 acres
   PARCEL C-42-E
   OLD AREA= 201,700 +/- sf / 4.63 acres
   NEW AREA= 291,851 +/- sf / 6.70 acres
   90,151 sf / 2.07 acres SHALL BE CONVEYED FROM TAX MAP C, LOT 42 TO TAX MAP C, LOT 42-E.
5. THE PARCELS ARE SERVICED BY MUNICIPAL WATER AND INDIVIDUAL SEPTIC SYSTEMS.
6. A PORTION OF PARCEL C-42-E IS LOCATED WITHIN THE 100 YEAR FLOOD ZONE AS SHOWN ON THE FLOOD INSURANCE RATE MAP 33017C0305E DATED 09-30-15.
7. SOILS PER NRCS, (EaA) ELMWOOD FINE SANDY LOAM 0-3 % SLOPES.
8. HORIZONTAL DATUM IS BASED ON NHSC2800 (DOVER'S GIS).
   VERTICAL DATUM NAVD88.
9. PLANNING FILE NUMBER P??-??.

KIRK E. PURINGTON, SR. DATE

DENISE PURINGTON DATE

TYRSO CARVALHO-FILHO DATE

TAX MAP C, LOT 42
OWNER OF RECORD:
TYRSO CARVALHO-FILHO
503 TOLEND ROAD
DOVER, NH 03820
S.C.R.D. BOOK 4004, PAGE 0666

TAX MAP C, LOT 42-E
OWNER OF RECORD:
DENISE & KIRK E. PURINGTON, SR
499 TOLEND ROAD
DOVER, NH 03820
S.C.R.D. BOOK 4701, PAGE 228

LOT LINE ADJUSTMENT PLAN
499 & 503 TOLEND ROAD
CITY OF DOVER
STRAFFORD COUNTY
NEW HAMPSHIRE
PREPARED FOR:
DENISE & KIRK E. PURINGTON, SR.
and TYRSO CARVALHO-FILHO

SCALE: 1"= 60' NOVEMBER 2019

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 INCH= 60 FEET

REVISIONS:

REFERENCE PLANS:

1. "PLAN OF LAND OF FRED & ARLENE MUDGETT, DOVER, NH" DATED JULY 1952 BY T.W. CHESLEY CLIENT'S RECORDS
2. "SUBDIVISION PLAN FOR EVERETT & ALICE PURINGTON, DOVER, NEW HAMPSHIRE" DATED SEPTEMBER 27, 1972 BY FRANK EMERY C.E. SCRD POCKET 6, FOLDER 3, PLAN 54
3. "PROPOSED SUBDIVISION OF ALICE PURINGTON, TOLEND ROAD, DOVER, N.H." DATED MAY 1982 BY RICHARD P. TOWLE, RLS SCRD PLAN 23A-54
4. "SUBDIVISION OF SUBDIVISION OF LAND OF BRADY AND VAN GROUW, TOLEND RD., DOVER, N.H." DATED MAY 1982 BY RICHARD P. TOWLE, RLS SCRD PLAN 24-64
5. "SUBDIVISION OF LAND ON TOLEND ROAD, DOVER, NH FOR TOLEND ASSOCIATES, PORTSMOUTH, NEW HAMPSHIRE " DATED DECEMBER 10, 1985 BY KEVIN M. McENBANEY, LLS SCRD PLAN 29-41

FILE NO. 305
PLAN NO.C-3018-LLA
DWG. NO.19250-LDD\LLA-1
F.B. NO."TJR"

ABREVIATION LEGEND:
TBS "NPA" MON TO BE SET
SCRD STRAFFORD COUNTY REGISTRY OF DEEDS
000x0' SPOT ELEVATION