TOWN OF KILLINGLY
INLAND WETLANDS AND WATERCOURSES COMMISSION

Monday, August 2, 2021

Regular Meeting – Hybrid Meeting
7:00 PM
TOWN MEETING ROOM – 2ND FLOOR
Killingly Town Hall
172 Main Street
Killingly, CT

AGENDA

Public can also view this meeting on Facebook Live.
Go to www.killinglyct.gov and click on Facebook Live at the bottom of the page.

I. **CALL TO ORDER**

II. **ROLL CALL**

III. **ADOPTION OF MINUTES – (Review/Discussion/Action)**

A. July 12, 2021 Regular Meeting Minutes

IV. **CITIZENS' PARTICIPATION** – Pursuant to Governor's Executive Order 7B, all public comment can be emailed to publiccomment@killinglyct.gov or mailed to Town of Killingly, 172 Main Street, Killingly, CT 06239 on or before the meeting. All public comment received prior to the meeting will be posted on the Town's website www.killinglyct.gov.

V. **Unfinished Business: – (Review/Discussion/Action)**

A. **Application 21-1527 of Brian Lejeune and Katherine Zeigler** for a permanent wetland crossing over existing logging road for proposed agricultural use (reforestation, orchard, and lumber tree plantings); 1,200 sq ft wetlands disturbance; Located at 88 Stone Road; Map ID 009116; Alt ID 19-8; 16.71 acres; Rural Development Zone.

VI. **New Business:** (listed in order of receipt) – (Review/Discussion/Action)

If the application is complete the Commission shall decide if a public hearing and/or site walk should be held on each application and continue further action until next month's meeting. The Commission may also delegate to its duly authorized agent.

VII. **Correspondence to the Commission**

VIII. **Staff Report**

A. Authorized Agent Approvals
B. Monthly Zoning/Wetlands Report
C. Other

IX. **Town Council Liaison**

X. **Adjournment**

TOWN OF KILLINGLY
INLAND WETLANDS AND WATEROURSES COMMISSION (IWWC)
Killingly Town Hall
172 Main Street
Danielson, CT
REGULAR MEETING MINUTES
Monday, July 12, 2021, 7:00 PM

This meeting was held in virtual format with connections via live stream and video conferencing.

I. Call to order: Chairman Sandy Eggers called the meeting to order at 7:00 p.m.

II. Roll Call:

Members Present: Chairman Sandy Eggers, Vice Chairman Rodney Galton, Deborah Lamiotte, Fred Ruhlemann

Members Absent: Secretary Corina Torrey

Also Present: Jonathan Blake, Town Planner/Zoning Enforcement Officer

III. Adoption of Minutes:

A. June 7, 2021 Regular Meeting:

MOTION #1 (07.12.21): made by Fred Ruhlemann **SECONDED BY** Fred Ruhlemann that the Inland Wetlands and Watercourses Commission approve the June 7, 2021 Regular Meeting Minutes – as presented
VOICE VOTE: UNANIMOUS; MOTION CARRIED

IV. Citizens' Participation: NONE

V. Unfinished Business:

A. Application #21-1525, Greenskies Clean Energy, LLC: Installation of solar a 1.068 MW DC solar photovoltaic array facility to be installed at Killingly High School; with associated grading, drainage, and utilities within the 200' upland review area; Located at 226 Putnam Pike; Map ID 003431; Alt ID 79-2; 141.59 acres; Rural Development Zone

APPLICANT/PRESENTATION: Greenskies group of representatives were present to provide a review of what was essentially discussed at the IWWC June 7, 2021 meeting. Since that meeting, Greenskies has been in regular contact with the Killingly Engineering Department on development of the drainage management plan.

TOWN STAFF/COMMENTS: David Capacchione, Town Engineer and Gary Martin Assistant Towne Engineer provided the applicant with a project review letter dated July 8, 2021, and ensuing communications containing recommendations about for improving basin access and providing a comprehensive maintenance schedule.

IWWC COMMENTS: Commission members are pleased with modifications made to the drainage plan. The original concern was that existing wetlands were being starved. Members would like to see the applicant continue to work with Town Staff on development of the basin maintenance plan.

MOTION #2 (07.12.21): made by Rodney Galton SECONDED BY Deborah Lamiotte that the Inland Wetland and Watercourses approve Application #21-1525, Greenskies Clean Energy, LLC with condition:

1. Applicant work with Town Staff on development of a scheduled maintenance and access plan for the basins

VOICE VOTE: UNANIMOUS; MOTION CARRIED

VI. New Business:

A. **Application #21-1526, Raymond & Diane Sorel:** Proposed 2 lot re-subdivision with existing houses, wells, septic systems and driveways; proposed septic reserve area within the 200' upland review area; Located at 1645 Putnam Pike; Map ID 002667; Alt ID 21-20; 50.07 acres; Rural Development Zone / Five Mile River Overlay.

APPLICANT/PRESENTATION: Applicant or representative was not present this meeting.

TOWN STAFF/COMMENTS: Jonathan Blake explained this is a re-subdivision with existing structures. Proposal is to divide off the existing apartment as a standalone lot. The primary septic system is in place. A reserve system would need to be installed and would be within the upland review area. Site plans require a modification to add elevations and drainage calculations are needed. Jonathan Blake noted this application can be approved as a Jurisdictional Ruling.

IWWC COMMENTS: The complete system requires Department of Health approval. Any changes to the site plan must come back for Commission review.

MOTION #3 (07.12.21): made by Rodney Galton **SECONDED BY** Deborah Lamiotte that the Inland Wetland and Watercourses Commission authorize Agent Approval for a Jurisdictional Ruling for Application #21-1526, Raymond & Diane Sorel
VOICE VOTE: UNANIMOUS; MOTION CARRIED

B. **Application #21-1527, Brian Lejeune & Katherine Zeigler:** Proposed permanent wetland crossing over existing logging road for proposed agricultural use (reforestation, orchard & lumber tree plantings); 1,200 sq ft wetlands disturbance; Located at 88 Stone Road; Map ID 009116; Alt ID 19-8; 16.71 acres; Rural Development Zone.

APPLICANT/PRESENTATION: Brian Lejeune was present. He noted proposed activities involve crossing an intermittent water section to access back of property in order to plant trees. Machinery will be needed and will cross over wetlands. The access point for the proposed permanent crossing is a pre-existing logging road used about three to four years ago when the property was heavily logged. Crossing will be constructed using two 12" culverts covered by crushed stone. No vegetation will be removed and we are only adding trees and not taking anything away. A professional soil scientist is involved with this process and a formal report will be submitted into the record.

MOTION # 4 (07.12.21): made by Fred Ruhlemann SECONDED BY Deborah Lamiotte that the Inland Wetland and Watercourses Commission accept Application #21-1527, Brian Lejeune & Katherine Zeigler, with no site walk or public hearing, and the applicant is to provide details on drainage calculations for the August 2, 2021 meeting
VOICE VOTE: UNANIMOUS; MOTION CARRIED

VII. Correspondence to the Commission: N/A

VIII. Staff Report: N/A

IX. Town Council Liaison: Budget Cycle has been completed. Downtown purchases of businesses show encouragement. Food truck event in town was excellent.

X. Adjournment:

MOTION #5 (07.12.21): made by Rodney Galton **SECONDED BY** Deborah Lamiotte that the Inland Wetland Watercourses Commission adjourn at 7:31 p.m.
VOICE VOTE: UNANIMOUS; MOTION CARRIED

Respectfully submitted,
Sherry Pollard
IWWC Recording Secretary

(21-000813)

Property within 500' of adjoining Town boundary? yes
If so, which town(s)? Putnam
Date the notice was sent by KIWWC to town clerk of adjoining municipality(ies)
Receipt date of copy of Applicants notice to adjoining municipality

Application #: 21-1527
Date Submitted: 7/9/21
Date of Receipt by Comm.: 7/12/21
Fee: 160.00
Staff Initials: TL

KILLINGLY INLAND WETLANDS & WATERCOURSES COMMISSION APPLICATION

A $100.00 base fee (or, for a proposed subdivision, $100.00 per lot, whichever is greater) plus $60.00 state fee must accompany each application (Total fee: $160.00). THIS FEE IS NON-REFUNDABLE. Checks or money orders should be made payable to the Town of Killingly. Public hearing fee: $225.00 required in addition to the above fees if a public hearing is required by the commission(s) and not already included.

TO BE COMPLETED BY THE APPLICANT – PLEASE PRINT

Applicant's Name: Brian Lejeune
Day Phone #: 401-441-8697 Evening Phone #: 401-441-8697
Mailing Address: 564 Cooper rd Chepachet RI 02814
Owner of Record: See above (self-prepared)
Mailing Address: Phone #.

Applicant's interest in the land if the applicant is not the property owner:

Authorization of property owner:

LOCATION OF PROPERTY:

House # and Street: 88 Stone Rd
Tax Map Number: Block: Lot: 19-8
Zoning District: RD Lot Size: 16.71 acres Lot Frontage: 51.85'
Easements and/or deed restrictions: See attached

PURPOSE:

Provide the purpose and description of the proposed activity, including a list of all proposed regulated activities:

See attached document

ON-SITE WETLANDS AND WATERCOURSES:
Windham County wetland soil types and areas of each type: See attached Soil survey from USDA, soil scientist report, and printed application

Watercourse(s) – type (pond, stream, marsh, bog, drainage ditch, etc.), manmade or natural, and area of each:

ALTERNATIVES:
List alternatives considered by the applicant and state why the proposal to alter wetlands as set forth in the application is necessary and was chosen:

See attached printed response

MATERIALS:
Provide the volume (cubic yard) and nature of materials to be deposited and/or extracted:

See attached printed response

MITIGATIVE MEASURES:
List measures to be taken to minimize or avoid any adverse impact on the regulated area:

See attached printed response and soil scientist report

BIOLOGICAL EVALUATION:
Describe the ecological communities and functions of the wetlands or watercourses involved with the application and the effects of the proposed regulated activities on these communities and wetland functions:

See attached printed response and soil scientist report

SITE PLAN*:

Scale 1"=40' showing existing and proposed conditions in relation to wetlands and water courses to include, but not be limited to:

Contours

Buildings

Wells

Driveways

Septic Systems

Drainage Systems (Including Culverts, Footing and Curtain Drains)

Erosion and Sedimentation controls

Wetlands

Watercourses

Areas of Excavation and /or Material Deposit

Refer to Section 6.0 – Application Information Requirements and Section 7.0 – Application Evaluation Criteria of the Killingly Inland Wetlands & Watercourses Commission Regulations for information the Commission may require. Professionally prepared plans (Licensed Land Surveyor/Professional Engineer registered in the State of Connecticut, Soil Scientist) may be required for significant activities.

ADDITIONAL INFORMATION:

List additional information submitted by the applicant:

KWP Assessors maps, Soil scientist report, current driveway easement, deed restriction, GIS maps, Abutters contact information, USDA Soil report

The applicant understands that this application is to be considered complete only when all information and documents required by the Commission have been submitted. The undersigned warrants the truth of all statements contained herein and in all supporting documents according to the best of his/her knowledge and belief. Permission is granted to the Town of Killingly, Killingly Inland Wetlands & Watercourses Commission, and its agent (s) to walk the land, at reasonable times, and perform those tests necessary to properly review the application, both before and after a final decision has been issued.

Applicant's Signature: Brian T. Legere Date: 7/8/21

Owner of Record: Brian T. Legere Date: 7/8/21

PROJECTS WITHIN A PUBLIC WATER SUPPLY WATERSHED OR AQUIFER AREA

"As required by Sections 8-3i and 22a-42f of the Connecticut General Statutes, ALL APPLICANTS, before a Town Board for any project within a public water supply aquifer and/or watershed area are required to notify a water company of any such proposed project by **certified mail** NO LATER THAN SEVEN (7) DAYS after the date of the application..."

For those within a Connecticut Water Company watershed, they need to file the attached updated Project Notification Form, which is required for applications for projects within their aquifer or watershed areas.

Said form is to be mailed, certified mail return receipt, to the following:

Jessica Demar, Environmental & Regulatory Compliance Coordinator
Connecticut Water Company
93 West Main Street
Clinton, CT 06413

(Office) 860.669.8636
(Fax) 860.669.9326
(Customer Service) 800.286.5700

Killingly Wetlands & Watercourses Commission Application

Applicant Name: Brian Lejeune and Katherine Zeigler (owners)
Day/Evening phone: 401-441-8699
Mailing Address: 564 Cooper Road Chepachet, RI 02814

Location of Property:

House number and street: 88 Stone Road Killingly, CT 06241

Tax map #: [redacted]	Block:	Lot: 19-8
Zoning District:	Lot Size: 16.71 Acres	Lot Frontage: 51.85'

Easements and/or deed restrictions: See attached

Purpose

The purpose of the proposed activity is for a permanent crossing of an intermittent watercourse, to allow access using an existing logging road to the rear of the property at 88 Stone Road for reforestation efforts, and preparation of the land for orchard and lumber tree planting in subsequent years. Eventually the goal is to have the land designated as an orchard or sustainable tree farm and remediate some of the damage done during previous logging. The proposed activity will include installing a stone-lined drainage ditch and two drainage pipes to allow for a stable crossing over a previously delineated intermittent watercourse on the property. The proposed crossing will be approximately 100 feet long and 12 feet wide to allow access for a farm truck and tractor. No additional clearing is needed beyond the extent of the existing logging road. No structures, wells, or sewage systems will be installed within 200' of the delineated intermittent watercourse or proposed crossing.

On-site wetlands and watercourses

Windham county wetland Soil types and areas of each type: (within 200' of the proposed activity). Please refer to the attached USDA NRCS Web Soil Survey report. The area specified in the soil survey report encompasses the entire property and some of the adjacent properties. The soil types within 200' of the proposed wetlands crossing are 52C - Sutton fine sandy loam, 2 to 15 percent slopes, extremely stony (coarse-loamy, mixed, superactive, mesic Aquic Dystrudepts) classified as moderately well drained and 73C – Carlton-Chatfield complex, 0 to 15 percent slopes, very rocky (Coarse loamy, mixed, superactive, mesic Typic Dystrudepts) classified as well drained.

Watercourse(s) – type (pond, stream, marsh, bog, drainage ditch, etc), manmade or natural, and area of each

- Natural intermittent watercourse within 100' wide wetlands boundary
- Proposed manmade stone-lined drainage ditch and 2 pipes for water flow

Alternatives

Since the intermittent watercourse designated as wetlands bisects the entire property there is no alternative to access the rear of the property but to cross it. The proposed crossing was chosen at a narrow point to minimize disturbing the wetlands area. Because of the length of the section of wetlands required to cross (100 feet) a bridge is not an economical solution and the potential need for heavy tractors and trucks to cross makes a bridge more challenging than the proposed solution.

Materials

1. **(26) Double-staked hay bales** will be used as a soil/silt retainer down-gradient of the proposed crossing to be removed only after final inspection
2. **(2) 12" diameter cement pipes** will be installed to provide for unrestricted flow and drainage of intermittent water
3. **(100 CY) Crushed stone** to surround pipes and to bring roadway grade 1' above pipe level. Stone will also be used within proposed drainage ditch

Mitigative Measures

- Work in the intermittent watercourse shall commence only under no-flow conditions.
- The work shall be completed within 48 hours after commencing.
- The weather forecast shall be checked prior to starting work. No work shall commence if any rain is predicted in the following 48 hours.
- Prior to commencing work, double-staked hay bales shall be installed down gradient of the proposed crossing as shown on the plan.
- All disturbed soils shall be seeded with a mix recommended by the United Stated Department of Agriculture (U.S.D.A.) Natural Resources Conservation Service (N.R.C.S.) and covered lightly with hay mulch.
- Sediment controls shall remain in place until permission to remove them has been obtained from the agent for the Killingly Inland Wetlands and Watercourses Commission.

Biological evaluation

The area of the proposed intermittent watercourse crossing is a forested palustrine zone consisting of mainly red maple, black birch, and northern red oak with lowbush and highbush blueberries and witch hazel. The understory consists of partridge berry, sedges, interrupted fern, upland ferns, dewberry, and mosses (but no sphagnum moss. The function of the intermittent watercourse is to provide seasonal and storm water drainage from the adjacent higher elevation property to the north down to the low lying areas in adjacent properties and beyond which lie to the south. The proposed intermittent watercourse crossing and installation of a culvert, (2) 12" pipes, and depositing of crushed stone is designed to minimize the potential impact by allowing water flow to remain unrestricted and for organisms to easily traverse the crossing. The choice to use crushed stone rather than fill or gravel will minimize contamination of flowing water with sediments and act as an additional erosion control measure.

A more detailed description of vegetation, the intermittent watercourse, its function and values, wetlands disturbance, and potential habitat disturbance are provided in the attached report prepared by Margaret Washburn, Registered Professional Soil Scientist.

Site Plan

See attached. Notes from site plan are listed below.

Notes:

[1]Margaret Washburn, Registered Professional Soil Scientist (Washburn Wetland Consulting LLC), has made recommendations regarding the timing of the proposed site work as follows:

- The crossing is proposed at a narrow point on an intermittent watercourse that is not shown on the United States Geological Service (U.S.G.S.) topographic map for the subject property.
- Prior to commencing work, double-staked hay bales shall be installed down gradient of the proposed crossing as shown on the plan.
- Work in the intermittent watercourse shall commence only under no-flow conditions.
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- Sediment controls shall remain in place until permission to remove them has been obtained from the agent for the Killingly Inland Wetlands and Watercourses Commission.
- All disturbed soils shall be seeded with a mix recommended by the United Stated Department of Agriculture (U.S.D.A.) Natural Resources Conservation Service (N.R.C.S.) and covered lightly with hay mulch.

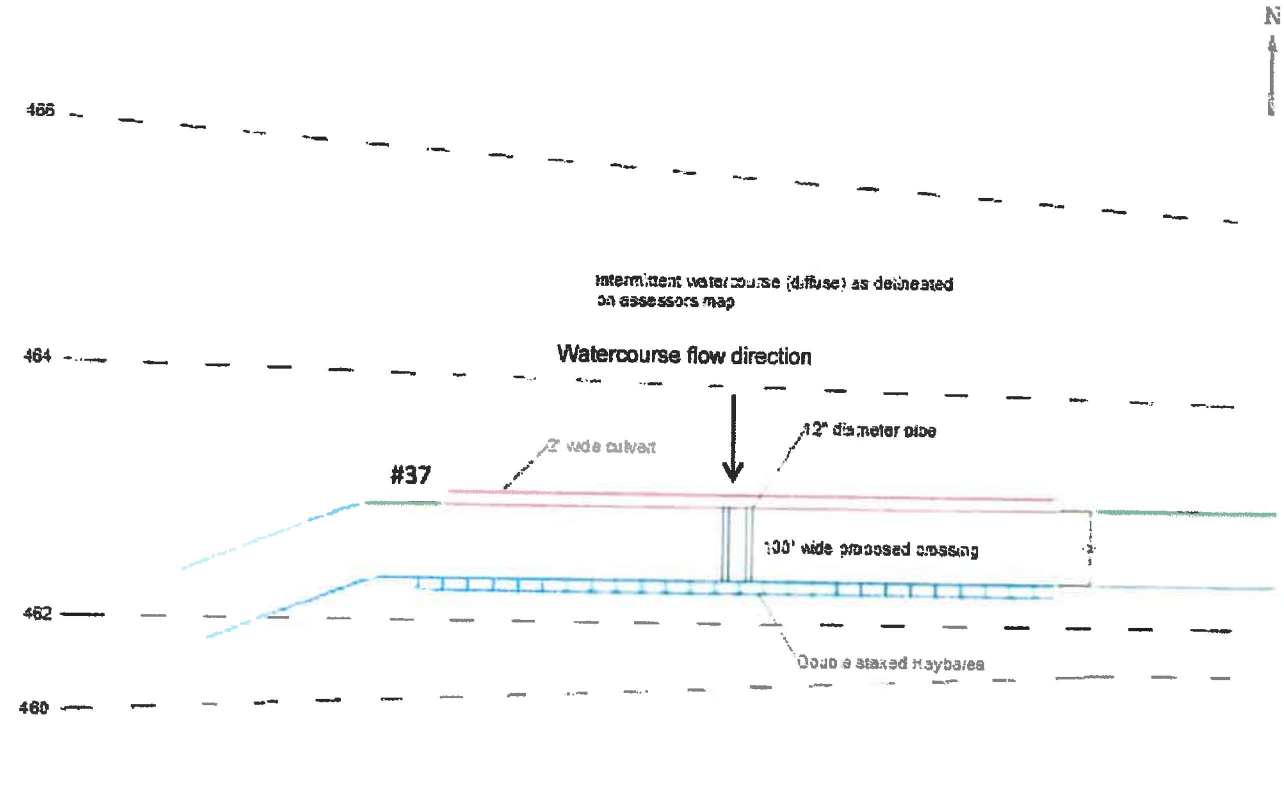
[2]Limits of clearing do not exceed 12' designated roadway which was previously cleared for logging

[3]No structures, wells, or sewage systems will be installed within 200' of the delineated intermittent watercourse or proposed crossing.

[4]Any changes within 200' of wetlands or watercourses must be resubmitted to Killingly Inland Wetlands and Watercourses Commission's agent after all erosion and sediment control measures are installed prior to any construction or excavation on the property

Additional information

The KWP assessors map, Soil Scientist report, current driveway easement, and deed restrictions are provided along with the IWWC application.



Notes:

*The recommendations below, set forth by Margaret Washburn (Washburn Wetland Consulting LLC) Registered Professional Soil Scientist, informed the design of the proposed site plan and will dictate timing of the proposed site work provided the proposed mitigation plan is accepted by the IWWC.

- The crossing is proposed at a narrow point on an intermittent watercourse that is not shown on the United States Geological Service (U.S.G.S.) topographic map for the subject property.
- Prior to commencing work, double-staked hay bales shall be installed down gradient of the proposed crossing as shown on the plan.
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Soil scientist certification of plans

Margaret Washburn

Margaret Washburn
Washburn Wetland Consulting LLC
19 Wolf Den Road
Pomfret Center, CT 06259-2022
(860)-428-8424

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[3]Any changes within 200' of wetlands or watercourses must be resubmitted to Killingly Inland Wetlands and Watercourses Commission's agent after all erosion and sediment control measures are installed prior to any construction or excavation on the property

[4]Wetlands (yellow) were delineated and flagged by Michael Schaefer in 2004 (Shown on Killingly map 7 055 Assessors lot # 19-8)

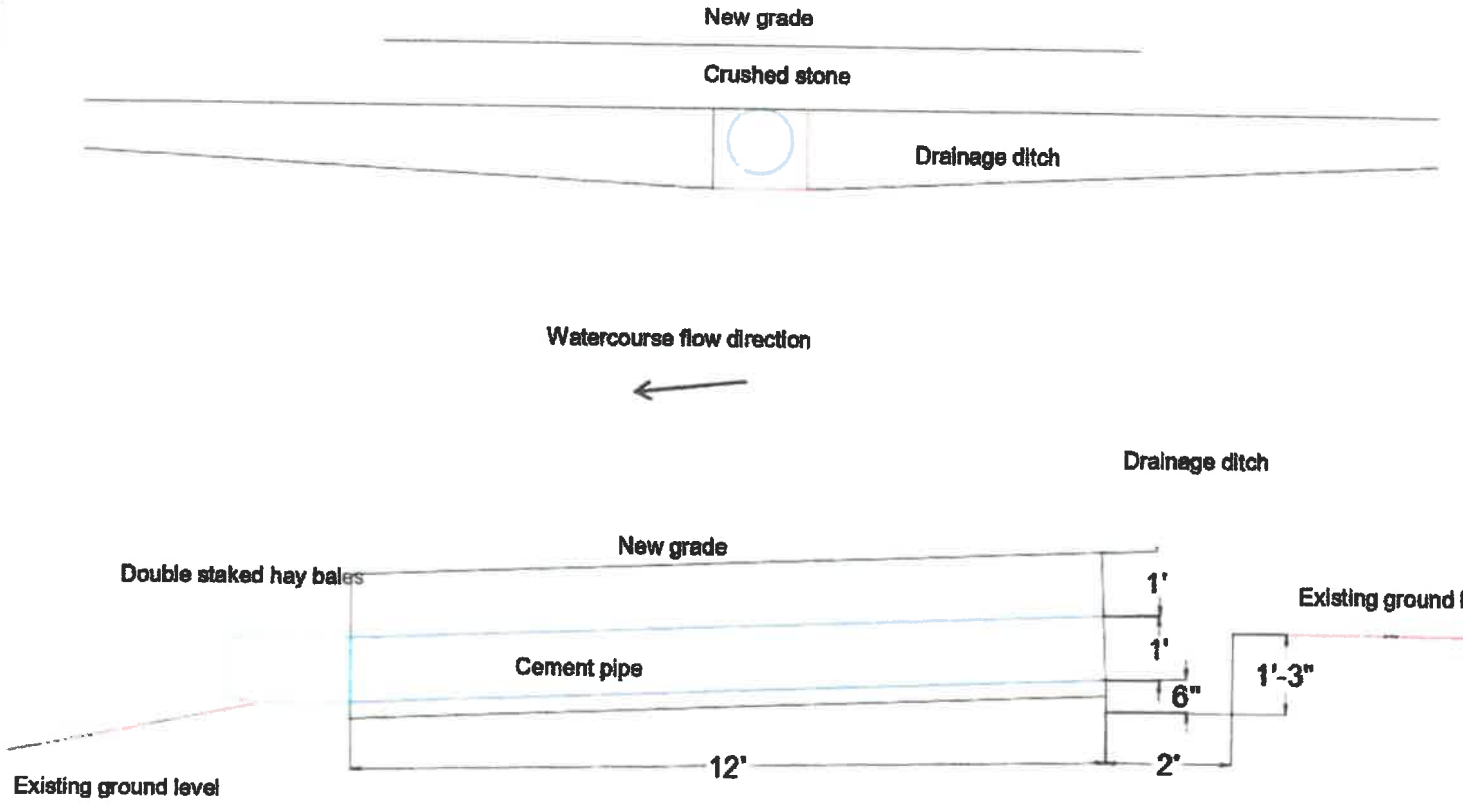
No.	Revision/Issue	Date

Proposed Crossing
88 Stone Rd
Killingly, CT 06241

Proposed crossing	1
8-30/2021	
1" = 30'	

8/30/21 wetlands crossing dwg

Cross section views of proposed crossing



General Notes

[1]Crushed stone will encase drainage pipes and cover cement 1' diameter pipes by 1'

[2]6-8 inch riprap will fill the bottom of the drainage ditch (culvert) with at least a 10' curtain on each side of each pipe to an elevation several inches above the pipe opening to promote erosion control

[3] Cement pipe will be tilted down grade ½ inch per foot of length to ensure proper flow of intermittent watercourse

[4]Drainage ditch will be tapered toward pipes openings

[5]No work will commence on proposed crossing until approval has been granted by IWWC

No.	Revision/Issue	Date

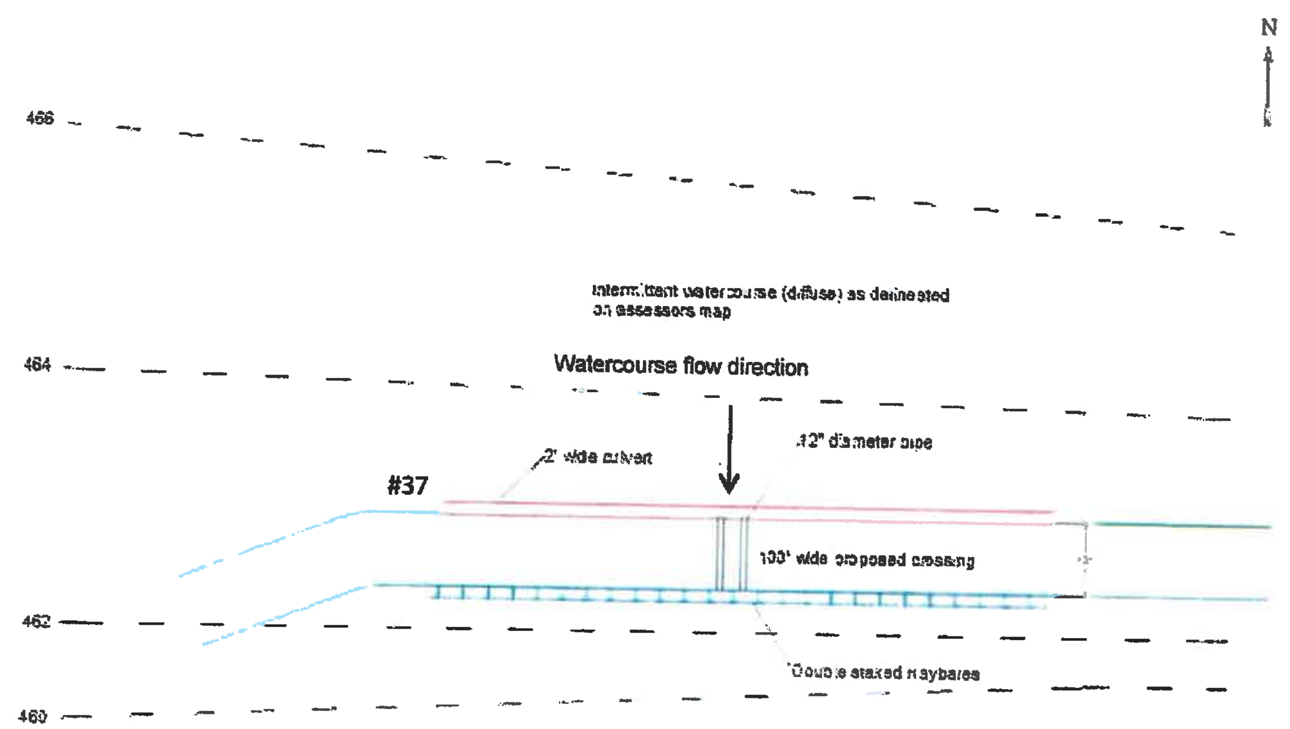
Proposed Crossing
88 Stone Rd
Killingly, CT 06241

Proposed crossing

6/30/2021

1" = 30'

2



#39

458

Notes:

[1]The recommendations below, set forth by Margaret Washburn (Washburn Wetland Consulting LLC) Registered Professional Soil Scientist, informed the design of the proposed site plan and will dictate timing of the proposed site work provided the proposed mitigation plan is accepted by the IWWC.

- The crossing is proposed at a narrow point on an intermittent watercourse that is not shown on the United States Geological Service (U.S.G.S.) topographic map for the subject property.
- Prior to commencing work, double-staked hay bales shall be installed down gradient of the proposed crossing as shown on the plan.
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- All disturbed soils shall be seeded with a mix recommended by the United Stated Department of Agriculture (U.S.D.A.) Natural Resources Conservation Service (N.R.C.S.) and covered lightly with hay mulch.

Soil scientist certification of plans

Margaret Washburn

Margaret Washburn
Washburn Wetland Consulting LLC
19 Wolf Den Road
Pomfret Center, CT 06259-2022
(860)-428-8424

General Notes

[1]Limits of clearing do not exceed 12' designated roadway which was previously cleared for logging

[2]No structures, wells, or sewage systems will be installed within 200' of the delineated intermittent watercourse or proposed crossing.

[3]Any changes within 200' of wetlands or watercourses must be resubmitted to Killingly Inland Wetlands and Watercourses Commission's agent after all erosion and sediment control measures are installed prior to any construction or excavation on the property

[4]Wetlands (yellow) were delineated and flagged by Michael Schaefer in 2004 (Shown on Killingly map 7 055 Assessors lot # 19-8)

No.	Revision/Issue	Date

Proposed Crossing
88 Stone Rd
Killingly, CT 06241

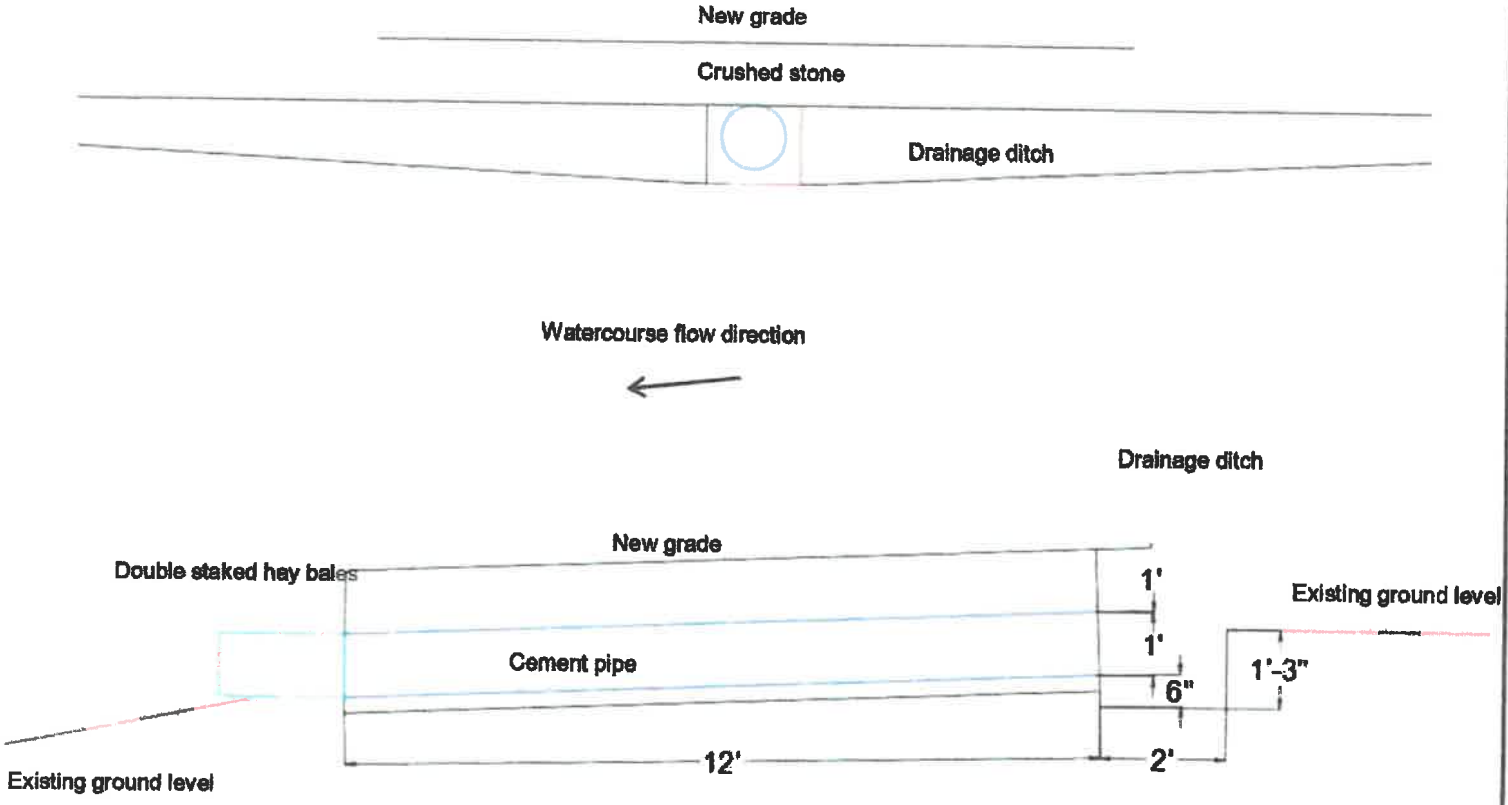
Proposed crossing

6/30/2021

1" = 30'

1

Cross section views of proposed crossing



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[3] Cement pipe will be tilted down grade ½ inch per foot of length to ensure proper flow of intermittent watercourse

[4]Drainage ditch will be tapered toward pipes openings

[5]No work will commence on proposed crossing until approval has been granted by IWWC

Proposed Crossing
68 Stowe Rd
Killingly, CT 06241

6/30/2021

1" = 30'

2

WASHBURN WETLAND CONSULTING LLC

19 Wolf Den Road • Pomfret Center, Connecticut 06259-2022
Telephone (860) 428-8424 • washburnwetland@gmail.com

Brian Lejeune
564 Cooper Road
Chepachet, RI 02814

July 4, 2021

Dear Brian,

At your request, on June 11 and July 2, 2021, I conducted a site investigation at 88 Stone Road (Assessors Map ID: Map 9/Lot 116) in Killingly, CT. The purposes of the site investigations were to advise you on mitigation for your proposed wetlands crossing and evaluate the wetlands functions and values, potential wetlands disturbance and potential habitat disturbance. At your request, I did not delineate any wetlands on the subject property.

The subject property is located on an area of gently sloping to sloping (3 to 15 percent slopes) soils formed in glacial till uplands. References used in the soil identification process included *Soil Survey of Windham County Connecticut* (USDA Soil Conservation Service, December 1981), the U.S.G.S. topographic map for the subject property, the Survey Plan prepared for River Investment Company & Richard J. Schad, Stone Road, Killingly, Connecticut, dated 3/22/2004 and stamped by Bruce Woodis, Land Surveyor, as well as Northeast CT Connecticut Council of Governments (NECCOG) GIS maps. The wetlands in the area of the proposed wetlands crossing were delineated by Michael G. Schaefer in 2004. Please refer to the KWP Survey Plan for further details regarding the wetlands delineation.

Soils

According to Map 27 of the *Soil Survey,* in the area of the wetlands delineation, the upland soils consist of Canton and Charlton extremely stony fine sandy loams. The *Soil Survey* shows no wetlands soils in the area of the proposed crossing. Although I did not delineate the wetlands soils shown on the survey plan, from interpreting the data in the *Soil Survey*, including Figure 1 on page 4, it is likely that they consist of a complex of Ridgebury, Leicester and Whitman extremely stony fine sandy loams.

The area where the wetlands crossing is proposed has already been disturbed when small logs (corduroy) were placed across the driveway in the wetlands to allow equipment to cross the wetlands while minimizing soil disturbance. Therefore, my description of the wetland functions and values and potential habitat disturbance are based on the adjacent undisturbed wetlands upstream and downstream of the existing corduroy wetlands crossing. It should also be noted that the subject property was logged in recent years, a temporary disturbance that appears to have followed appropriate best management practices for the renewable resource of timber.

Vegetation

The wetlands in the adjacent undisturbed wetlands upstream and downstream of the existing corduroy crossing consist of an intermittent watercourse draining through a wooded

swamp. Whether due to recent logging practices or heavy browse by deer, the shrub layer is scanty, consisting of highbush blueberry, lowbush blueberry and witch hazel. An herbaceous layer consisting of partridge berry, sedges, interrupted fern, upland ferns, dewberry, and mosses (but no sphagnum moss) was observed. Saplings and trees consisting of red maple, black birch and northern red oak were observed.

The Intermittent Watercourse

The intermittent watercourse in the adjacent undisturbed wetlands upstream and downstream of the corduroy crossing consists of a series of braided channels running through extremely stony, wooded terrain. Due to the 3 to 15 percent slopes on the subject property, the water flowing through during stream events is highly oxygenated, important for native brook trout and other fish species in larger downstream watercourses. The water in the braided channels is cooled by the shade from the overhanging hardwood canopy, also important for native brook trout and other fish species in larger downstream watercourses. The braided channels range from two to eight inches in width, and average one to three inches in depth. Small ponded areas occur during storm events. Scouring and the deposition of detritus were observed in the braided channels.

Functions and Values

The following functions and values may be attributed to the wetlands in the adjacent undisturbed wetlands upstream and downstream of the corduroy crossing:

Protection of public and private water supply
Protection of groundwater supply
Flood control
Storm damage prevention
Prevention of pollution
Water quality improvement
Aquatic Productivity
Erosion control
Harvesting of natural products
Protection of land containing shellfish and fisheries (the nearby Five Mile River)
Protection of wildlife habitat
Recreation and aesthetics

Wetlands Disturbance

Approximately 1,200 square feet of wetlands disturbance will result from the proposed wetlands crossing. The existing corduroy crossing will not be suitable long-term for the proposed agricultural pursuits on the subject property. It is advisable to construct a crossing that will hold up to farm vehicle traffic while minimizing soil disturbance. The following mitigation plan will minimize wetlands impacts during construction of the proposed crossing.

Potential Habitat Disturbance

Approximately 1,200 square feet of wildlife habitat disturbance will result from the proposed wetlands crossing. Because the wetlands are wooded, wildlife such as birds and squirrels will still be able to use the canopy over the crossing for nesting, cover and food. Small terrestrial organisms such as rodents, snails and toads will be able to crawl or hop over the driveway crossing. Invertebrates and insects will be able to pass through the pipes under the driveway, or cross over the driveway surface. The following mitigation plan will help to minimize siltation of the downstream wetlands during construction of the proposed crossing.

Mitigation Plan

The crossing is proposed at a narrow point on an intermittent watercourse that is not shown on the United States Geological Service (U.S.G.S.) topographic map for the subject property.

Work in the intermittent watercourse shall commence only under no-flow conditions.

The work shall be completed within 48 hours after commencing.

The weather forecast shall be checked prior to starting work. No work shall commence if any rain is predicted in the following 48 hours.

Prior to commencing work, double-staked hay bales shall be installed down gradient of the proposed crossing as shown on the plan.

All disturbed soils shall be seeded with a mix recommended by the United Stated Department of Agriculture (U.S.D.A.) Natural Resources Conservation Service (N.R.C.S.) and covered lightly with hay mulch.

Sediment controls shall remain in place until permission to remove them has been obtained from the agent for the Killingly Inland Wetlands and Watercourses Commission.

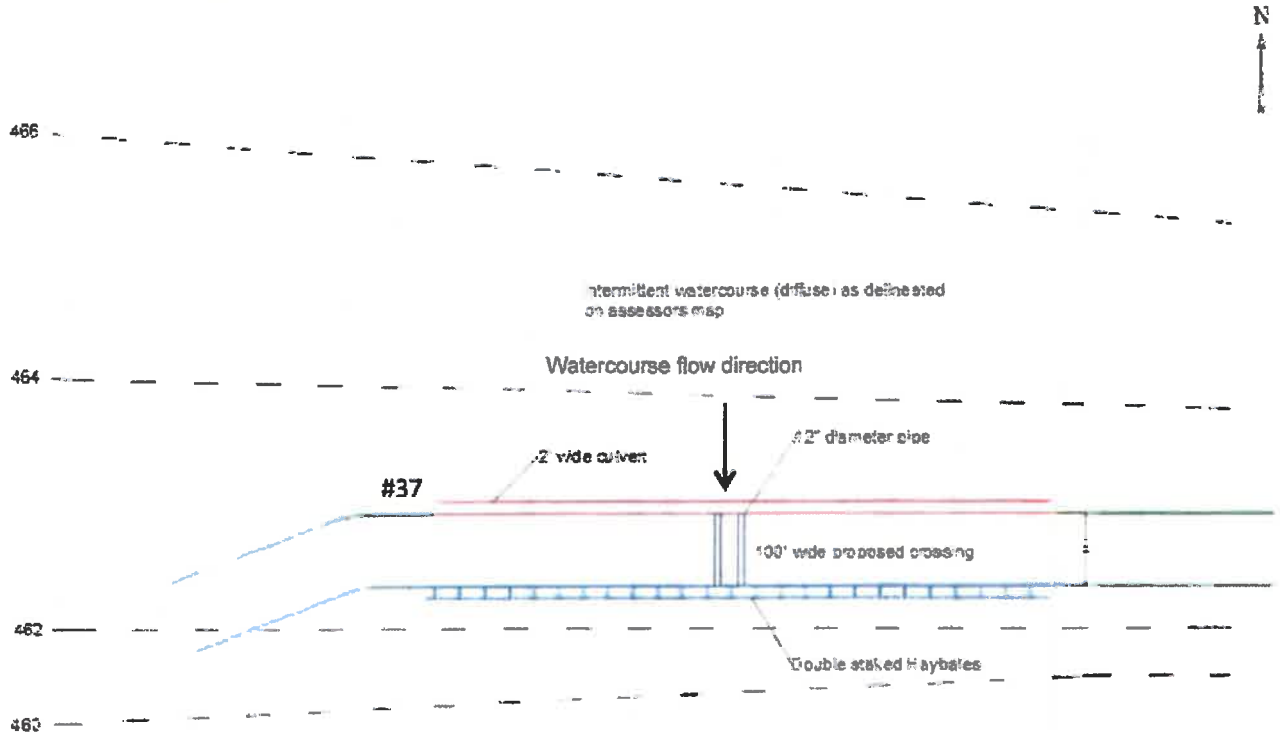
Conclusion

It has been a pleasure working for you on this site. Please feel free to call me if I may be of further assistance.

Sincerely,

Margaret Washburn, M.S.

Margaret Washburn, M.S.
Registered Professional Soil Scientist



Notes:

[1]The recommendations below, set forth by Margaret Washburn (Washburn Wetland Consulting LLC) Registered Professional Soil Scientist, informed the design of the proposed site plan and will dictate timing of the proposed site work provided the proposed mitigation plan is accepted by the IWWC.

- The crossing is proposed at a narrow point on an intermittent watercourse that is not shown on the United States Geological Service (U.S.G.S.) topographic map for the subject property.
- Prior to commencing work, double-staked hay bales shall be installed down gradient of the proposed crossing as shown on the plan.
- Work in the intermittent watercourse shall commence only under no-flow conditions.
- The work shall be completed within 48 hours after commencing.
- The weather forecast shall be checked prior to starting work. No work shall commence if any rain is predicted in the following 48 hours.
- Sediment controls shall remain in place until permission to remove them has been obtained from the agent for the Killingly Inland Wetlands and Watercourses Commission.
- All disturbed soils shall be seeded with a mix recommended by the United States Department of Agriculture (U.S.D.A.) Natural Resources Conservation Service (N.R.C.S.) and covered lightly with hay mulch.

Soil scientist certification of plans

Margaret Washburn

Margaret Washburn
Washburn Wetland Consulting LLC
19 Wolf Den Road
Pomfret Center, CT 06259-2022
(860)-428-8424

[1]Limits of clearing do not exceed 12' designated roadway which was previously cleared for logging

[2]No structures, wells, or sewage systems will be installed within 200' of the delineated intermittent watercourse or proposed crossing.

[3]Any changes within 200' of wetlands or watercourses must be resubmitted to Killingly Inland Wetlands and Watercourses Commission's agent after all erosion and sediment control measures are installed prior to any construction or excavation on the property

[4]Wetlands (yellow) were delineated and flagged by Michael Schaefer in 2004 (Shown on Killingly map 7 055 Assessors lot # 19-8)

Proposed Crossing
88 Brooklyn Rd
Killingly, CT 06241

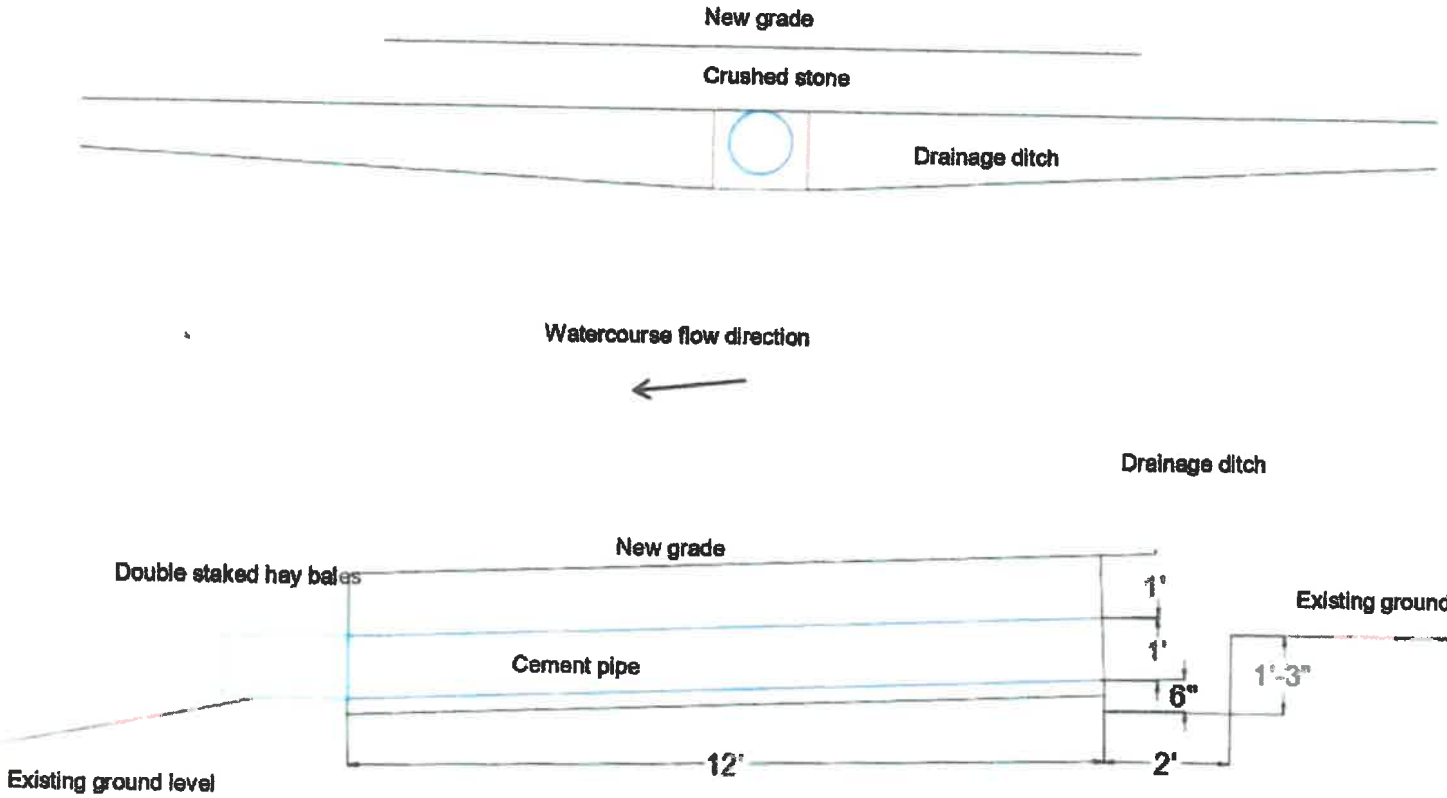
6/30/2022

1" = 30'

1

6/30/21

Cross section views of proposed crossing



[1]Crushed stone will encase drainage pipes and cover cement 1' diameter pipes by 1'

[2]6-8 inch riprap will fill the bottom of the drainage ditch (culvert) with at least a 10' curtain on each side of each pipe to an elevation several inches above the pipe opening to promote erosion control

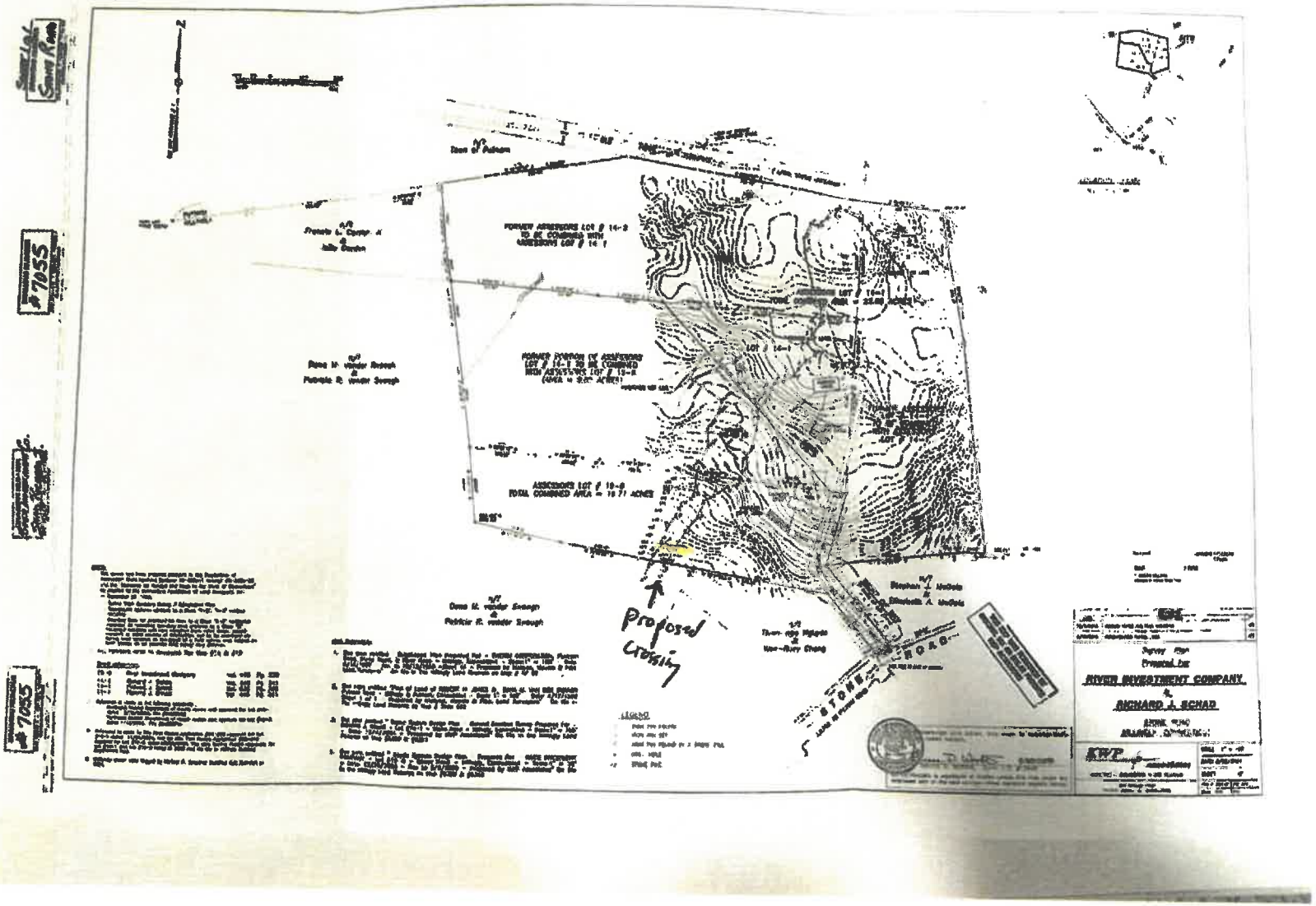
[3] Cement pipe will be tilted down grade ¼ inch per foot of length to ensure proper flow of intermittent watercourse

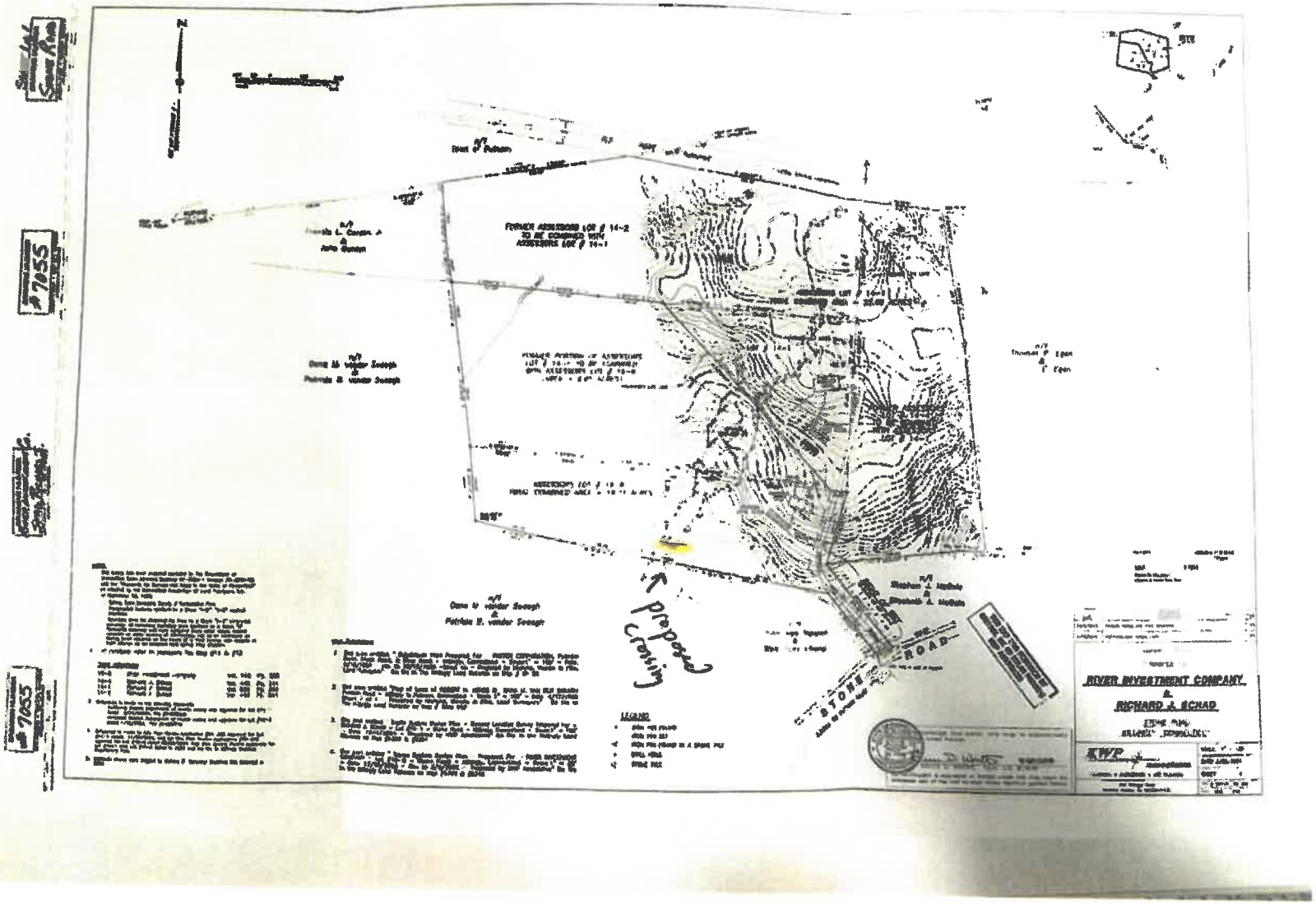
[4]Drainage ditch will be tapered toward pipes openings

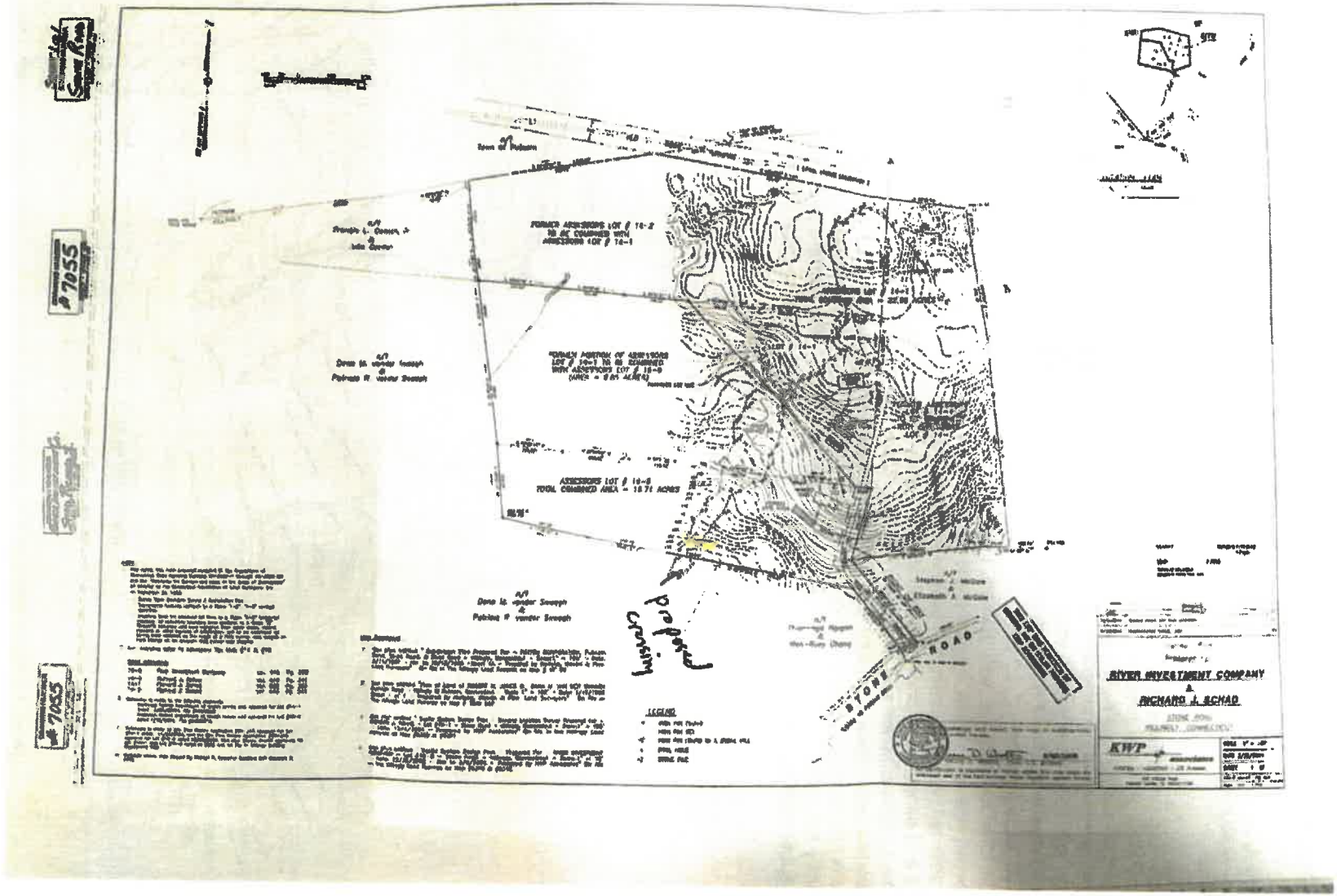
[5]No work will commence on proposed crossing until approval has been granted by IWWC

Proposed Crossing
88 Stone Rd
Killingly, CT 06241

Proposed drawing
8/30/2021
1" = 30'
2


Proposed Crossing
STONE ROAD
RIVER INVESTMENT COMPANY
&
RICHARD J. SCHAD


Proposed Driveway
STONE
ROAD
RIVER INVESTMENT COMPANY
&
RICHARD A. SCHAD


FORMER ASSESSORS LOT # 10-2
TOTAL COMBINED AREA = 18.71 ACRES
ASSESSORS LOT # 10-6
TOTAL COMBINED AREA = 18.71 ACRES
ROAD
STONE
RIVER INVESTMENT COMPANY
&
RICHARD J. SCHAD
KWP

3. Charlton-Canton-Leicester

Nearly level to steep, well drained and poorly drained, loamy soils on broad ridges and hillsides of glacial till uplands

This map unit makes up about 32 percent of the survey area. The unit is about 25 percent Charlton soils, 20 percent Canton soils, 10 percent Leicester soils, and 45 percent soils of minor extent (fig. 1).

The unit consists of broad, steep ridges and hills that extend mostly in a north-south direction. Slopes range from 3 to 35 percent.

The Charlton soils are well drained. They are mostly on broad hills and ridges. Typically, the surface layer of the soils is fine sandy loam, the subsoil is fine sandy loam and sandy loam, and the substratum is sandy loam.

The Canton soils are well drained. They are mostly on broad hills and ridges. Typically, the surface layer of the soils is fine sandy loam, the subsoil is fine sandy loam, gravelly fine sandy loam, and gravelly sandy loam, and the substratum is gravelly loamy sand.

The Leicester soils are poorly drained. They are in narrow drainageways and small depressions. Typically, the surface layer of the soils is fine sandy loam, the subsoil is fine sandy loam, and the substratum is sandy loam.

The soils of minor extent mainly are excessively drained Gloucester soils and somewhat excessively drained Hollis soils on steep side slopes of hills, well drained Paxton soils and moderately well drained Woodbridge soils on rounded hills, moderately well drained Sutton soils on concave slopes and in slight depressions, poorly drained Ridgebury soils and very poorly drained Whitman soils along narrow drainageways, and very poorly drained Adrian, Palms, and Carlisle soils in depressions.

Most areas of this unit are in woodland. Some areas, mainly the gently sloping to moderately steep areas that have been cleared of stones, are used for farming or community development. A seasonal high water table in some areas is the major limitation. The steep areas of the unit are better suited to trees and wildlife habitat than to most other uses.

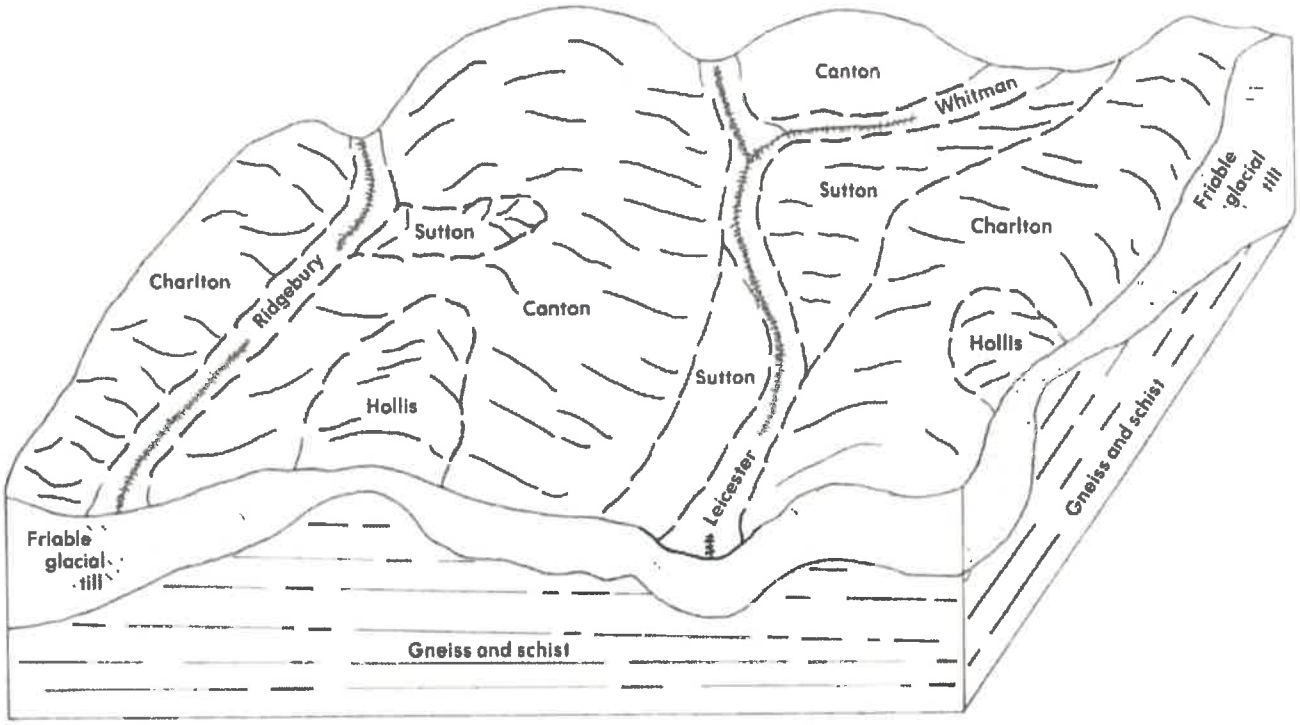
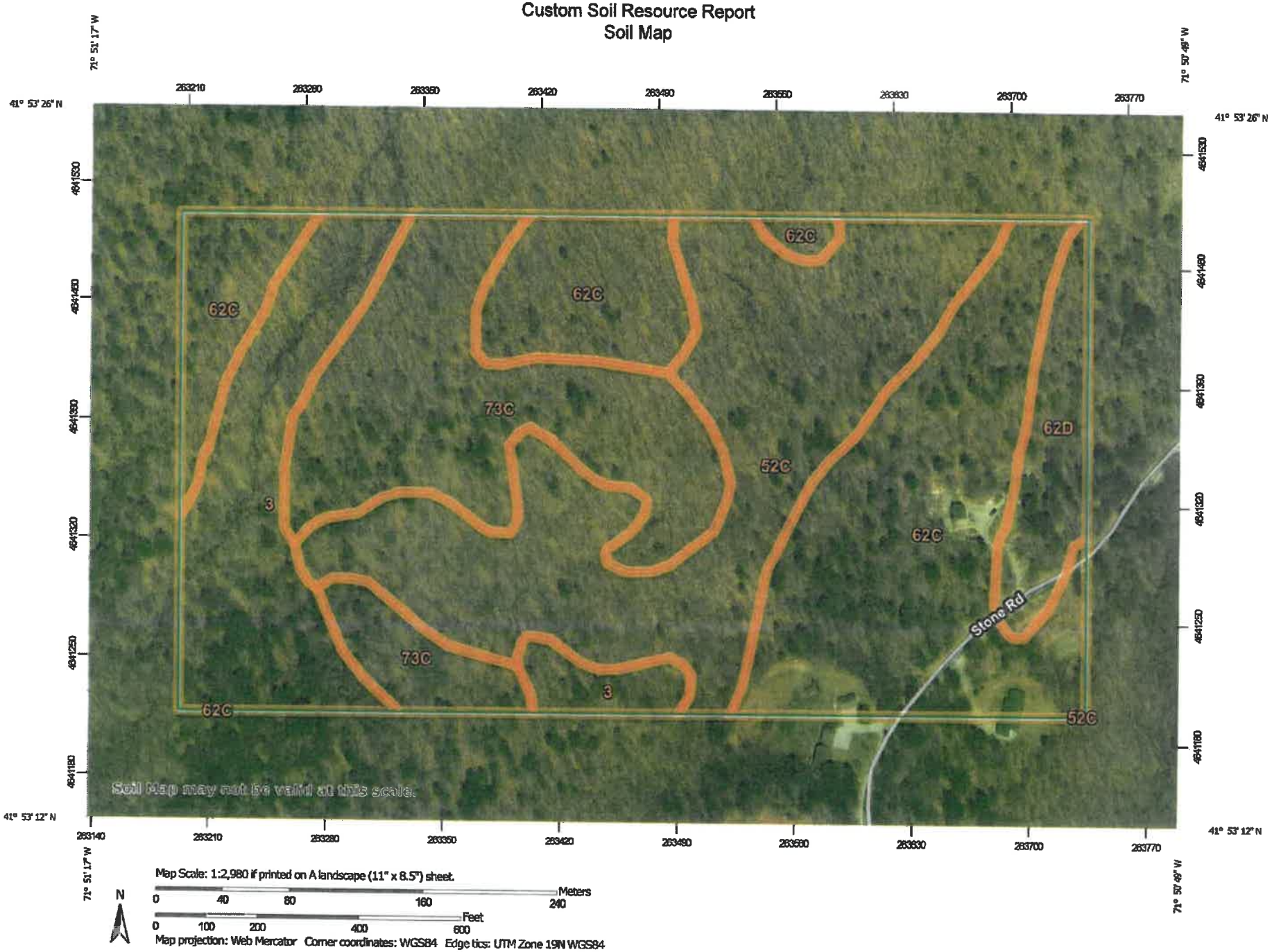
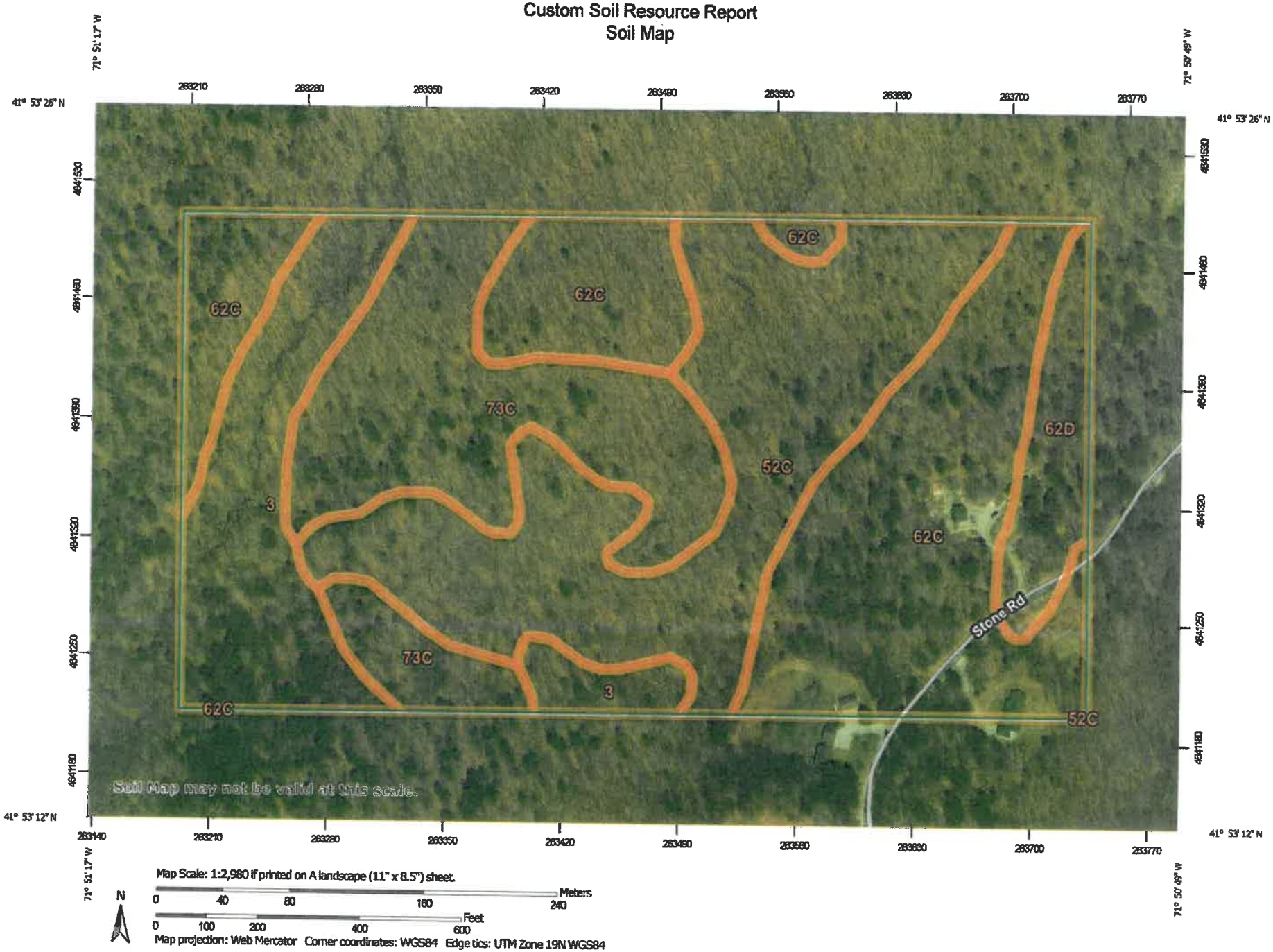


Figure 1.—Typical pattern of soils and underlying material in the Charlton-Canton-Leicester association.

Custom Soil Resource Report
Soil Map



Custom Soil Resource Report
Soil Map



United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for State of Connecticut

July 5, 2021

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

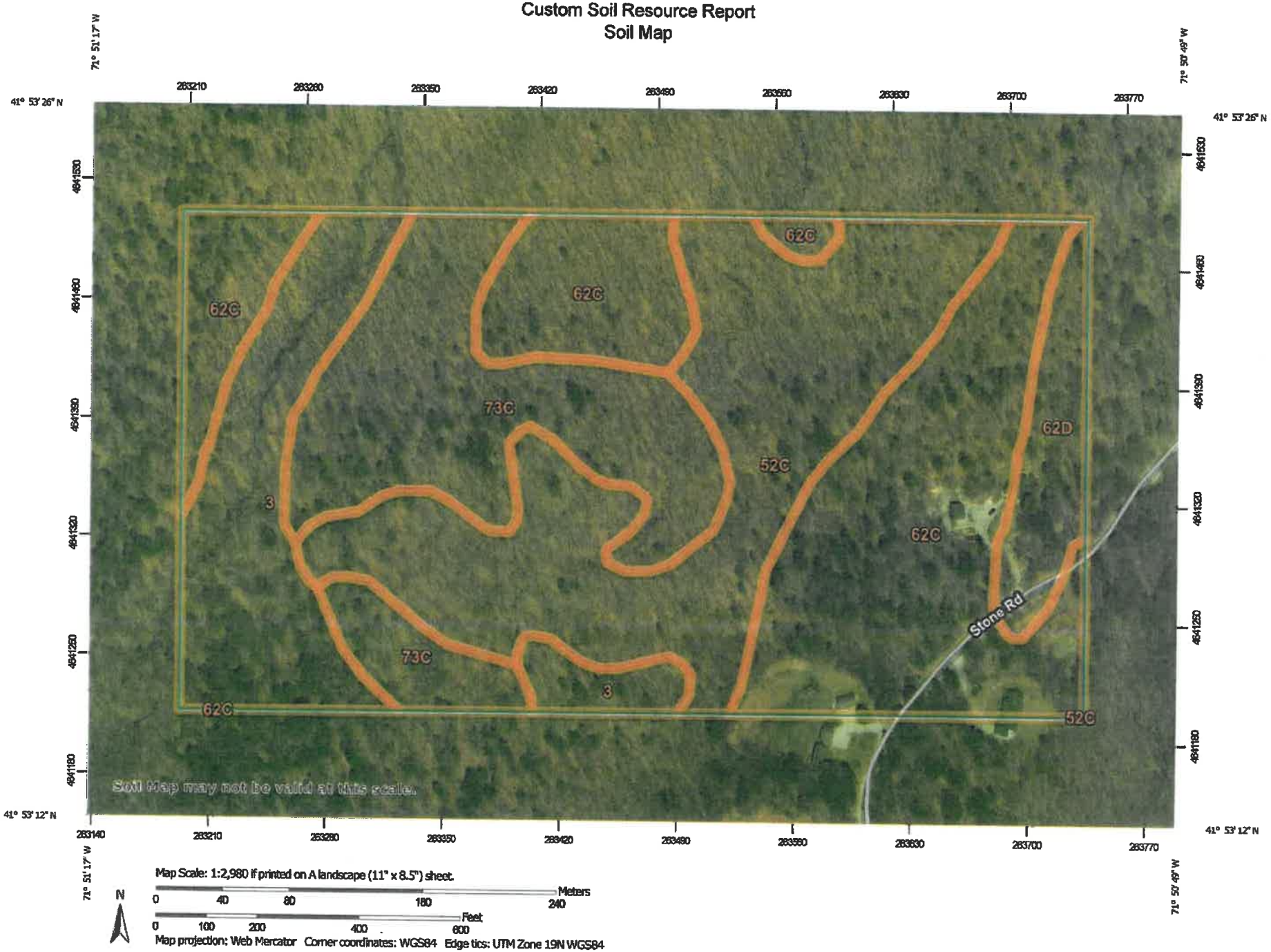
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut
Survey Area Data: Version 20, Jun 9, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 14, 2011—Aug 27, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	5.7	14.5%
52C	Sutton fine sandy loam, 2 to 15 percent slopes, extremely stony	10.8	27.4%
62C	Canton and Charlton fine sandy loams, 3 to 15 percent slopes, extremely stony	12.8	32.5%
62D	Canton and Charlton fine sandy loams, 15 to 35 percent slopes, extremely stony	2.0	5.0%
73C	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	8.1	20.5%
Totals for Area of Interest		**39.4**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor

components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

State of Connecticut

3—Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2t2qt
Elevation: 0 to 1,480 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Ridgebury, extremely stony, and similar soils: 40 percent
Leicester, extremely stony, and similar soils: 35 percent
Whitman, extremely stony, and similar soils: 17 percent
Minor components: 8 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ridgebury, Extremely Stony

Setting

Landform: Drumlins, depressions, drainageways, hills, ground moraines
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope, head slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 6 inches: fine sandy loam
Bw - 6 to 10 inches: sandy loam
Bg - 10 to 19 inches: gravelly sandy loam
Cd - 19 to 66 inches: gravelly sandy loam

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 15 to 35 inches to densic material
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: D
Ecological site: F144AY009CT - Wet Till Depressions
Hydric soil rating: Yes

Description of Leicester, Extremely Stony

Setting

Landform: Ground moraines, depressions, drainageways, hills
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave
Parent material: Coarse-loamy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 7 inches: fine sandy loam
Bg - 7 to 18 inches: fine sandy loam
BC - 18 to 24 inches: fine sandy loam
C1 - 24 to 39 inches: gravelly fine sandy loam
C2 - 39 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: High (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B/D
Ecological site: F144AY009CT - Wet Till Depressions
Hydric soil rating: Yes

Description of Whitman, Extremely Stony

Setting

Landform: Depressions, drainageways, hills, ground moraines, drumlins
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oi - 0 to 1 inches: peat

A - 1 to 10 inches: fine sandy loam
Bg - 10 to 17 inches: gravelly fine sandy loam
Cdg - 17 to 61 inches: fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 7 to 38 inches to densic material
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: F144AY009CT - Wet Till Depressions
Hydric soil rating: Yes

Minor Components

Woodbridge, extremely stony

Percent of map unit: 6 percent
Landform: Ground moraines, drumlins, hills
Landform position (two-dimensional): Backslope, footslope, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Swansea

Percent of map unit: 2 percent
Landform: Swamps, bogs
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

52C—Sutton fine sandy loam, 2 to 15 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2xffj
Elevation: 10 to 760 feet

Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Sutton, extremely stony, and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sutton, Extremely Stony

Setting

Landform: Hills, ground moraines
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Coarse-loamy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 7 inches: fine sandy loam
Bw1 - 7 to 19 inches: fine sandy loam
Bw2 - 19 to 27 inches: sandy loam
C1 - 27 to 41 inches: gravelly sandy loam
C2 - 41 to 62 inches: gravelly sandy loam

Properties and qualities

Slope: 2 to 15 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 12 to 27 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Moderate (about 8.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B/D
Ecological site: F144AY008CT - Moist Till Uplands
Hydric soil rating: No

Minor Components

Woodbridge, extremely stony

Percent of map unit: 7 percent
Landform: Drumlins, hills, ground moraines
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Side slope

Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Charlton, extremely stony
Percent of map unit: 5 percent
Landform: Hills, ground moraines, ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Hydric soil rating: No

Canton, extremely stony
Percent of map unit: 5 percent
Landform: Hills, moraines, ridges
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Hydric soil rating: No

Leicester, extremely stony
Percent of map unit: 3 percent
Landform: Depressions, hills, drainageways, ground moraines
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Concave
Hydric soil rating: Yes

62C—Canton and Charlton fine sandy loams, 3 to 15 percent slopes, extremely stony

Map Unit Setting
National map unit symbol: 2wks7
Elevation: 0 to 1,310 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition
Canton, extremely stony, and similar soils: 50 percent
Charlton, extremely stony, and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton, Extremely Stony

Setting

Landform: Ridges, hills, moraines
Landform position (two-dimensional): Shoulder, backslope, summit
Landform position (three-dimensional): Side slope, crest, nose slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 5 inches: fine sandy loam
Bw1 - 5 to 16 inches: fine sandy loam
Bw2 - 16 to 22 inches: gravelly fine sandy loam
2C - 22 to 67 inches: gravelly loamy sand

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Charlton, Extremely Stony

Setting

Landform: Hills, ground moraines, ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 4 inches: fine sandy loam
Bw - 4 to 27 inches: gravelly fine sandy loam
C - 27 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Leicester, extremely stony

Percent of map unit: 5 percent
Landform: Depressions, drainageways, hills, ground moraines
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Concave
Hydric soil rating: Yes

Sutton, extremely stony

Percent of map unit: 5 percent
Landform: Ground moraines, hills
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Chatfield, extremely stony

Percent of map unit: 5 percent
Landform: Hills, ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

62D—Canton and Charlton fine sandy loams, 15 to 35 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2w81r
Elevation: 0 to 1,640 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Canton, extremely stony, and similar soils: 55 percent
Charlton, extremely stony, and similar soils: 30 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton, Extremely Stony

Setting

Landform: Ridges, hills, moraines
Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Side slope, crest, nose slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy over sandy melt-out till derived from gneiss, granite, and/or schist

Typical profile

Oi - 0 to 2 inches: slightly decomposed plant material
A - 2 to 5 inches: fine sandy loam
Bw1 - 5 to 16 inches: fine sandy loam
Bw2 - 16 to 22 inches: gravelly fine sandy loam
2C - 22 to 67 inches: gravelly loamy sand

Properties and qualities

Slope: 15 to 35 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 19 to 39 inches to strongly contrasting textural stratification
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water capacity: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Charlton, Extremely Stony

Setting

Landform: Hills, ground moraines, ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 4 inches: fine sandy loam
Bw - 4 to 27 inches: gravelly fine sandy loam
C - 27 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 15 to 35 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Chatfield, extremely stony

Percent of map unit: 5 percent
Landform: Hills, ridges
Landform position (two-dimensional): Summit, backslope, shoulder
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Hollis, extremely stony

Percent of map unit: 5 percent
Landform: Hills, ridges
Landform position (two-dimensional): Shoulder, backslope, summit
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Sutton, extremely stony

Percent of map unit: 5 percent
Landform: Hills, ground moraines
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

73C—Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky

Map Unit Setting

National map unit symbol: 2w698
Elevation: 0 to 1,550 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Charlton, very stony, and similar soils: 50 percent
Chatfield, very stony, and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Charlton, Very Stony

Setting

Landform: Hills, ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 4 inches: fine sandy loam
Bw - 4 to 27 inches: gravelly fine sandy loam

C - 27 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Chatfield, Very Stony

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 2 inches: fine sandy loam
Bw - 2 to 30 inches: gravelly fine sandy loam
2R - 30 to 40 inches: bedrock

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 20 to 41 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s

Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Sutton, very stony
Percent of map unit: 5 percent
Landform: Ground moraines, hills
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Rock outcrop
Percent of map unit: 5 percent
Hydric soil rating: No

Hollis, very stony
Percent of map unit: 5 percent
Landform: Ridges, hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Leicester, very stony
Percent of map unit: 5 percent
Landform: Drainageways, depressions
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: Yes

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

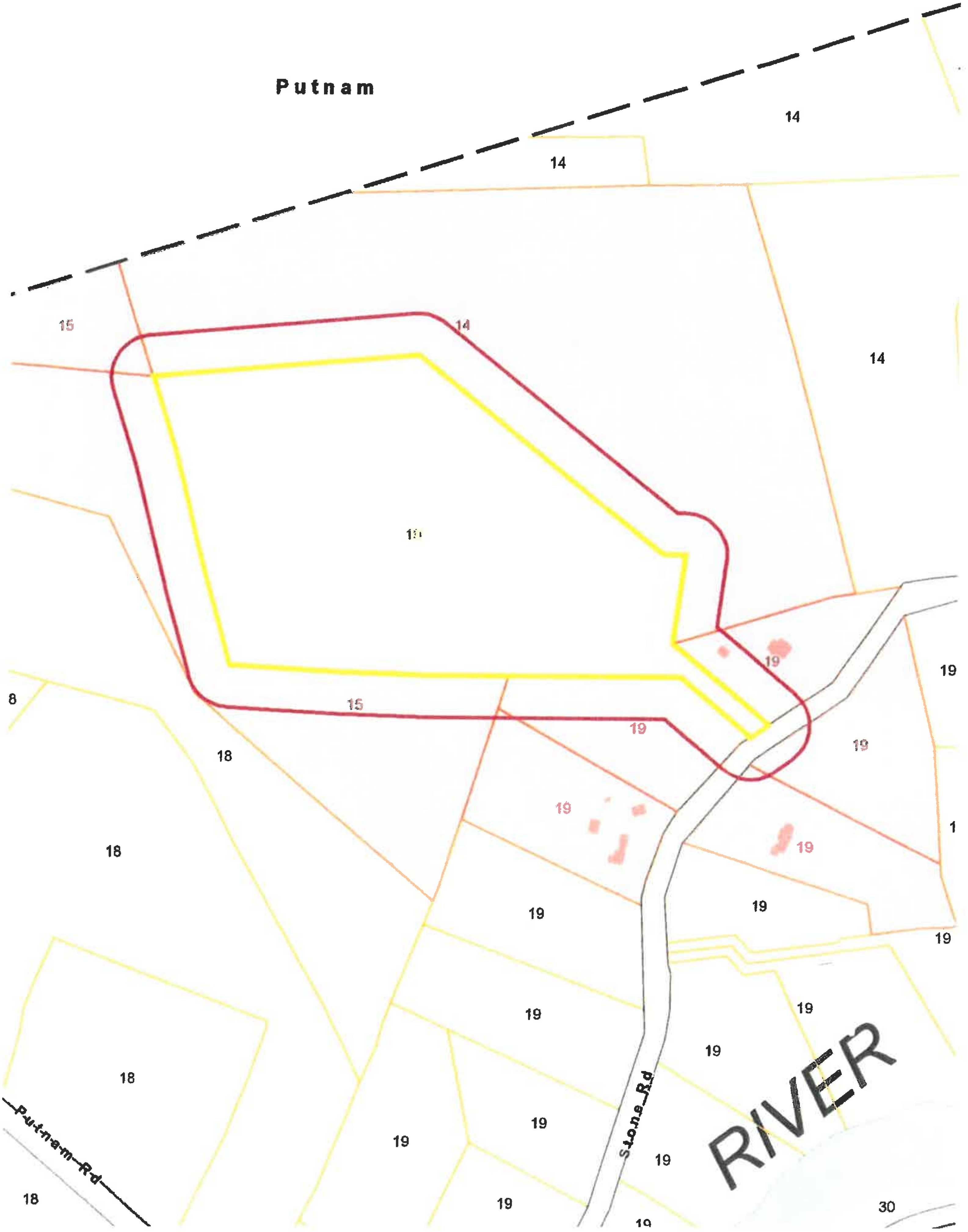
United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf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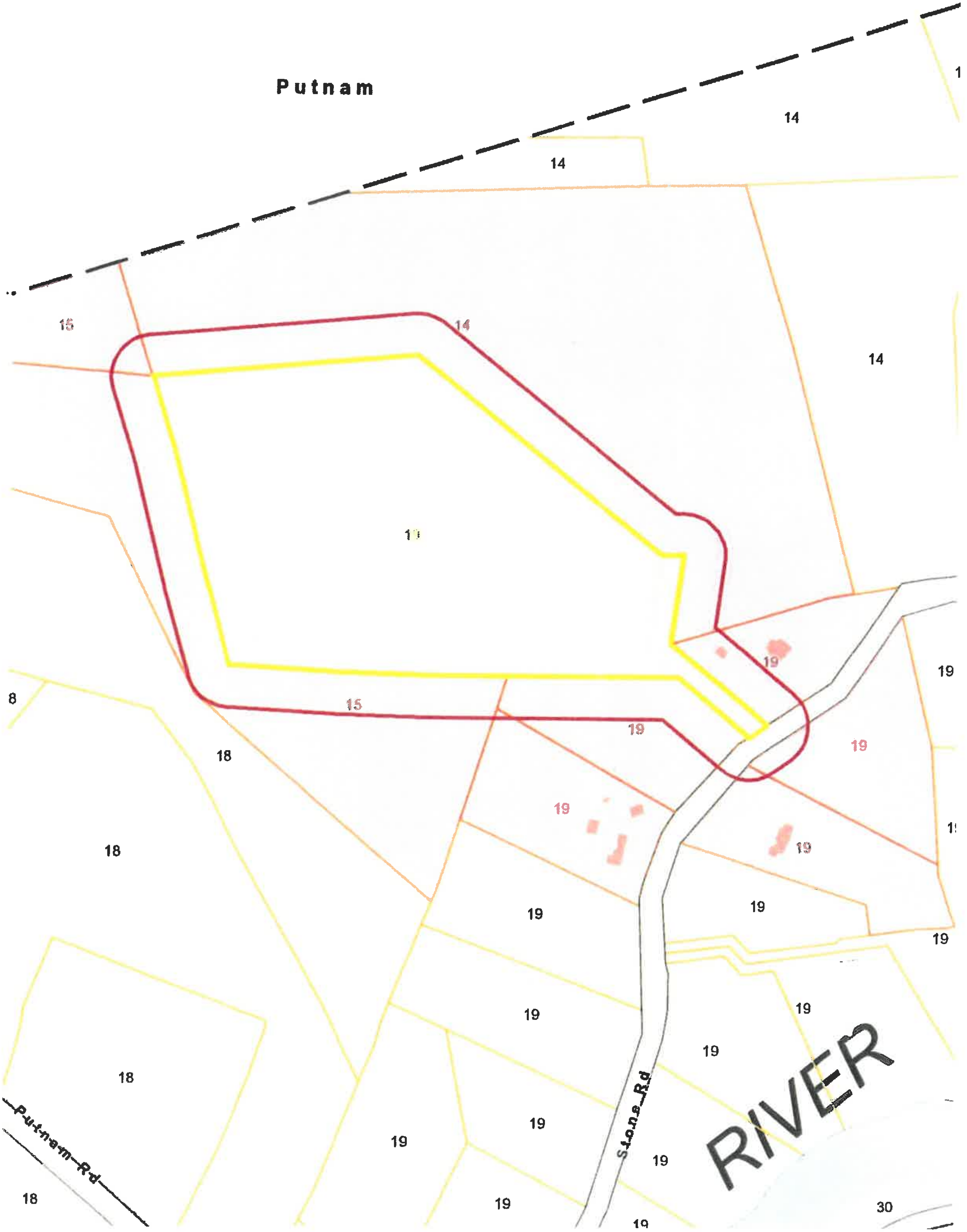

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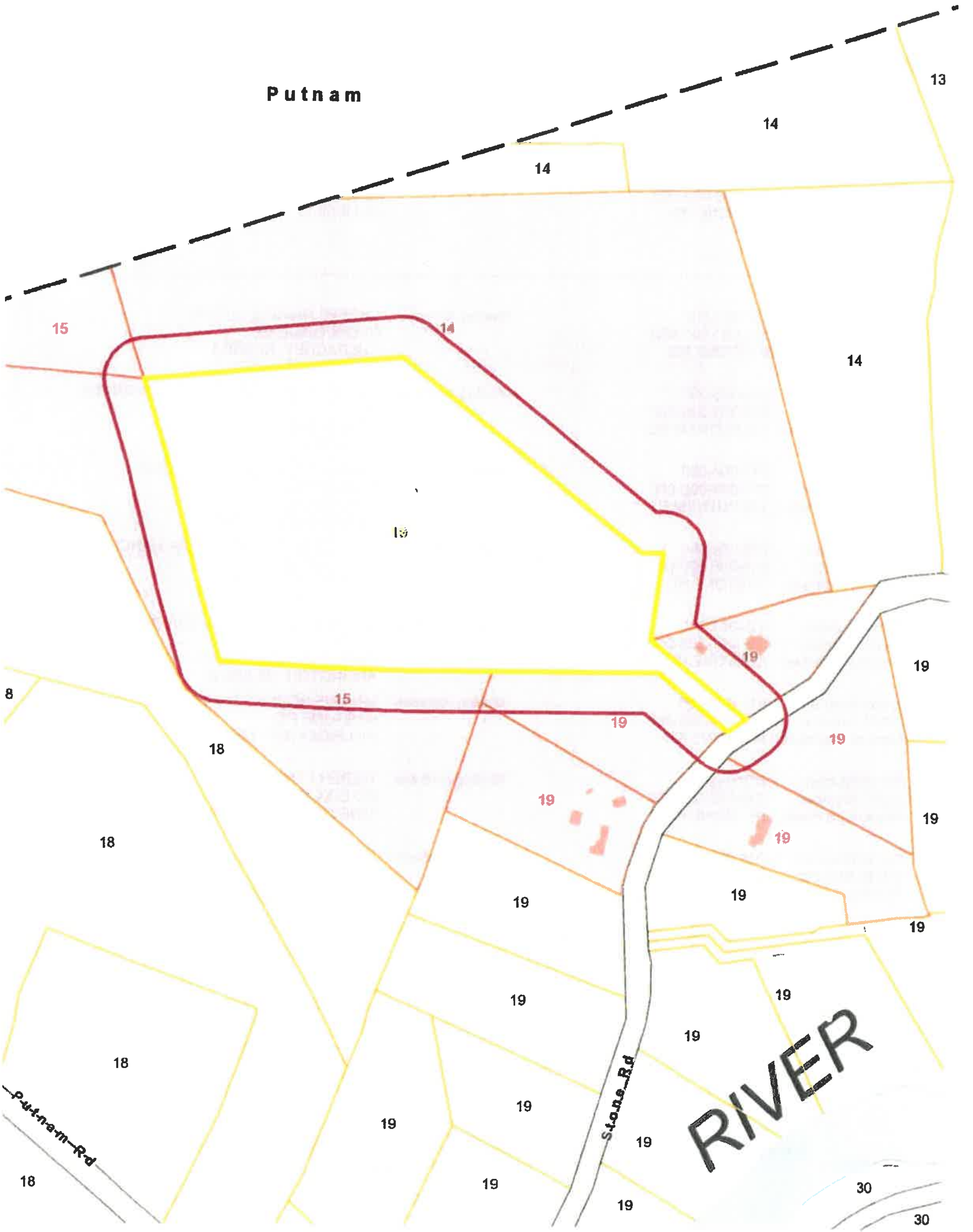
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100 foot Abutters List Report

Killingly, CT
June 28, 2021

Subject Property:

Parcel Number: 019-008-000
CAMA Number: 019-008-000-000
Property Address: 88 STONE RD

Mailing Address: ROBIN STEPHEN E & ALEXANDRA L
22 MAYHEW DR
KILLINGLY, CT 06241

Abutters:

Parcel Number: 014-001-000
CAMA Number: 014-001-000-000
Property Address: 90 STONE RD

Mailing Address: OKEEFE DAVID & SUSAN
61 GOLOSKIE RD
CHEPACHET, RI 02814

Parcel Number: 015-003-000
CAMA Number: 015-003-000-000
Property Address: 134 PUTNAM RD

Mailing Address: VAN DER SWAAGH DANA M & PATRICIA R
PO BOX 388
KILLINGLY, CT 06241

Parcel Number: 015-004-000
CAMA Number: 015-004-000-000
Property Address: 140 PUTNAM RD

Mailing Address: CORDEN FRANCIS L JR & JULIE DAGOSTINO
4 SHORE DR
WOODSTOCK, CT 06281

Parcel Number: 019-006-000
CAMA Number: 019-006-000-000
Property Address: 74 STONE RD

Mailing Address: ELLIOTT BURT W & GARCIA MARCEL
74 STONE RD
KILLINGLY, CT 06241

Parcel Number: 019-007-000
CAMA Number: 019-007-000-000
Property Address: 82 STONE RD

Mailing Address: NGUYEN THIEN-NGA & CHANG WEN-RUEY
406 NO LIVINGSTON ST
ARLINGTON, VA 22203

Parcel Number: 019-009-000
CAMA Number: 019-009-000-000
Property Address: 94 STONE RD

Mailing Address: MORRIS ROBERT M & LAURA J
94 STONE RD
KILLINGLY, CT 06241

Parcel Number: 019-012-000
CAMA Number: 019-012-000-000
Property Address: 95 STONE RD

Mailing Address: WEBER LYNN S
PO BOX 4767
VINEYARD HAVEN, MA 02568

Parcel Number: 019-013-000
CAMA Number: 019-013-000-000
Property Address: 79 STONE RD

Mailing Address: WANDYES WAYNE & SUSAN
79 STONE RD
KILLINGLY, CT 06241

DECLARATION OF COMMON DRIVEWAY AND UTILITY EASEMENT

WHEREAS, RIVER INVESTMENT COMPANY, INC., a Connecticut corporation having an office in Pomfret, Connecticut, and acting herein by its duly authorized President, Richard J. Schad, (hereinafter the "Declarant") is the owner of two (2) certain pieces or parcels of land located on the northerly side of Stone Road, in the Town of Killingly, Connecticut, which certain pieces or parcels of land are known as combined Lots 19-8, and 14-1, on a certain plan to be filed herewith in the Killingly Town Clerk's Office entitled, "Survey Plan Prepared for RIVER INVESTMENT COMPANY & RICHARD SCHAD, Stone Road, Killingly, Connecticut, Scale: 1" = 100', Dated: 3/22/2004, Revised to: 9/10/2015, KWP Associates, Surveying and Engineering Site Planning ", (the "Plan") and to which further reference may be had; and

WHEREAS, the Declarant wishes to establish certain common driveway access and maintenance easement rights and obligations for the future owners of said Lots 19-8, and 14-1 (the "Property Owners"), and certain easement rights for the placement and maintenance of utilities, with the Areas as depicted as a fifty (50') foot wide 'Right of Way' on said Plan, (the "Easement Area"),

NOW, THEREFORE, the Declarant hereby declares the following Easements:

1. **Common Driveway Easement.** There is hereby created a perpetual easement over the Easement Area, as shown on said Plan, in favor or, and for the benefit of the Property Owner of Lot 14-1 for the use, maintenance, and enjoyment; in common with the Property Owner of Lot 19-8; of the driveway to be constructed across Lot 19-8 within said Easement Area, for purposes of ingress and egress from Stone Road. This easement shall bind the Property Owners, and their respective successors and assigns in title. Construction of the Common Driveway, and installation of utilities within said Easement Area shall be in conformance with the applicable provisions of the Town of Killingly Subdivision Regulations.

2. **Use and Maintenance of the Common Driveway.** Said Easement Area shall not be used by the Property Owners in a manner that will obstruct or interfere with the mutual use thereof for ingress and egress. No vehicles or equipment shall be parked or stored in the driveway area to be established within the Easement Area. The Property Owners shall be equally responsible for the costs of improvement, maintenance and repair of said driveway within the Easement Area, including snow removal. The costs for the installation of the common driveway in said Easement Area shall be shared equally by the owners of Lot 14-1 and Lot 19-8, and shall take place when either Property Owner commences home construction. The first Property Owner to begin home construction shall be solely responsible for snow removal until such time as the other Property Owner begins home construction All improvements, repairs and maintenance of the common driveway within the Easement Areas shall be decided upon mutually by the Property Owners, provided, however, that the owners of both parcels shall be obligated at all times to:

   a. Maintain the surface of the common driveway reasonably flat and smooth; and

   b. Keep the common driveway cleared of dangerous accumulations of ice and snow (which, for purposes of this agreement, shall be considered to be 3 inches or more of accumulation) by plowing and/or sanding as is necessary; and

   c. Keep the common driveway free from all kinds of obstacles so that persons legally entitled to use it, including emergency vehicles, are free to do so.

3. **Utility Easement.** The Property Owner of Lot 14-1 shall also have easement rights, within the Easement Area, to install and maintain all necessary and desirable utilities to serve any residence constructed on Lot 14-1. These easement rights shall be perpetual and non-exclusive and any utilities installed shall be generally located in an area outside of the location of any established driveway within the Easement Area. Included within these utility easement rights, is the right, in favor of the Property Owner of Lot 14-1, to convey and grant such utility easements to third party utility service providers, and any third party mortgages granted by the Property Owner of Lot 19-8 will be subordinate and subject to these easement rights in favor of the Property Owner of Lot 14-1. **The Property Owner of Lot 19-8 shall sign any and all documents necessary to grant utility easements to third party utility providers. Both Property Owners of Lot 14-1 and Lot 19-8 shall install the underground utilities before, or at the same time as, installation of the common driveway, at their sole cost, respectively.**

4. **Indemnification.** The Property Owners shall be deemed to hold one another free and harmless from any claim for loss or injury to person or property suffered or incurred in connection with the use of the driveway within the Easement Area, or any of their agents or invitees on the respective parcels, save for any such loss or injury resulting from the wanton or willful misconduct on the part of either Property Owner. A Property Owner incurring the costs or expenses of any improvement, maintenance or repair of the common driveway in accordance with this Declaration in excess of their respective share shall be entitled to prompt reimbursement from the non-contributing Property Owner, including, but not limited to, attorney's fees and costs incurred in any civil proceedings instituted to recover the same, plus interest at the statutory rate, from such non-contributing Property Owner.

4. **Enforceability.** The rights, privileges and easements herein set forth shall run with the land, and shall inure the benefit of, and be binding upon and be enforceable by, the Property Owners and their respective heirs, successors and assigns.

   If either Property Owner fails to carry out its obligations under this Declaration of Common Driveway and Utility Easement, that Property Owner shall be considered in "default", and the defaulting Property Owner shall be subject to enforcement action by the non-defaulting Property Owner, including a right to reimbursement for all attorney fees and costs relating to said enforcement action.

IN WITNESS WHEREOF, I have hereunto set my hand and seal this day of October, 2018.

River Investment Company, Inc.

Edwin C. Higgins, III

By: Richard J. Schad, President

STATE OF CONNECTICUT)

) ss Putnam

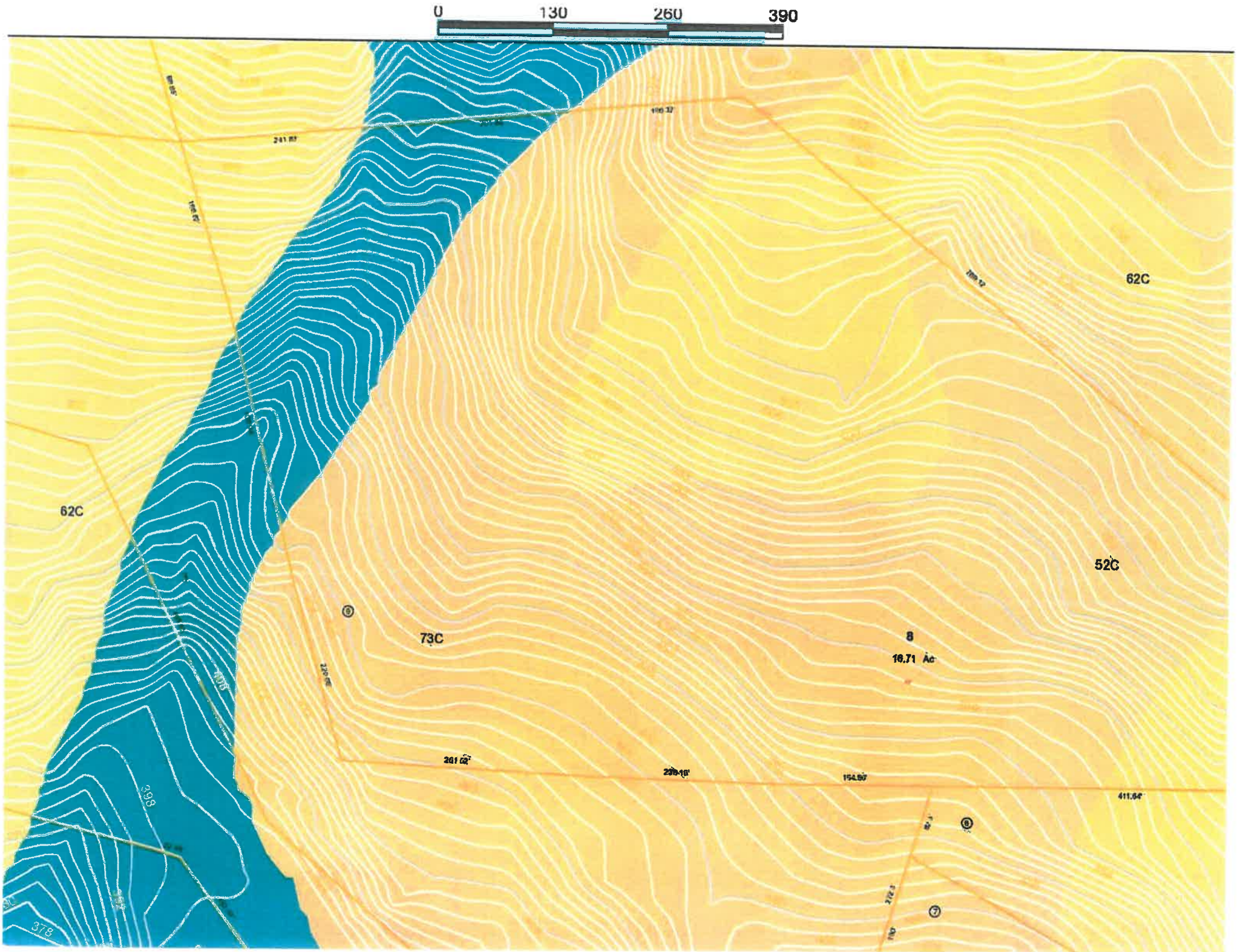
COUNTY OF WINDHAM)

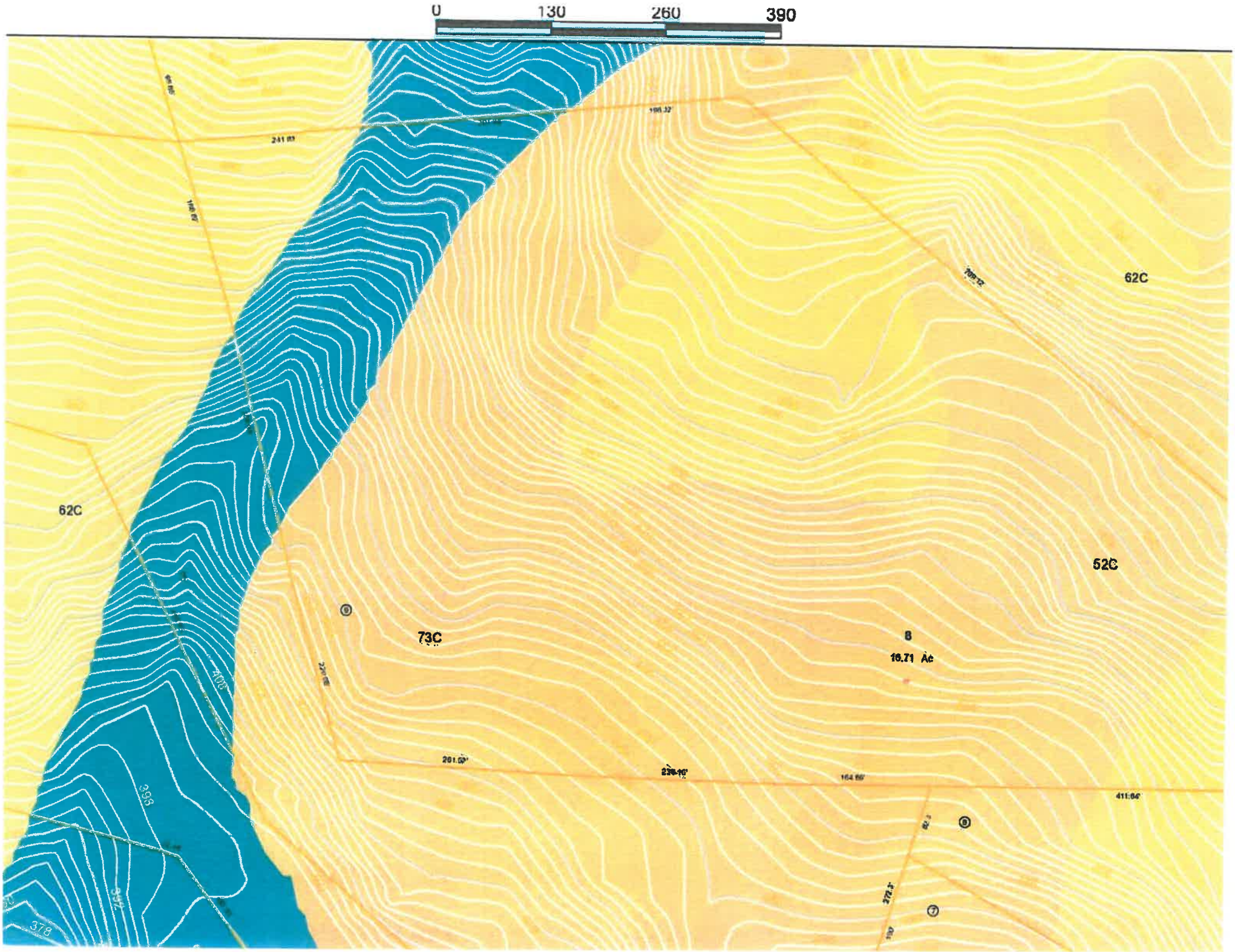
On this the day of October 2018, before me, Edwin C. Higgins, III, the undersigned officer, personally appeared Richard J. Schad, who acknowledged himself to be the President of River Investment Company, Inc., and that he as such officer, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the Corporation by himself as such Officer

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

Edwin C. Higgins, III

Commissioner of the Superior Court


0
130
260
390
62C
62C
52C
73C
8
16.71 Ac
398
378


0
130
260
390
62C
62C
52C
73C
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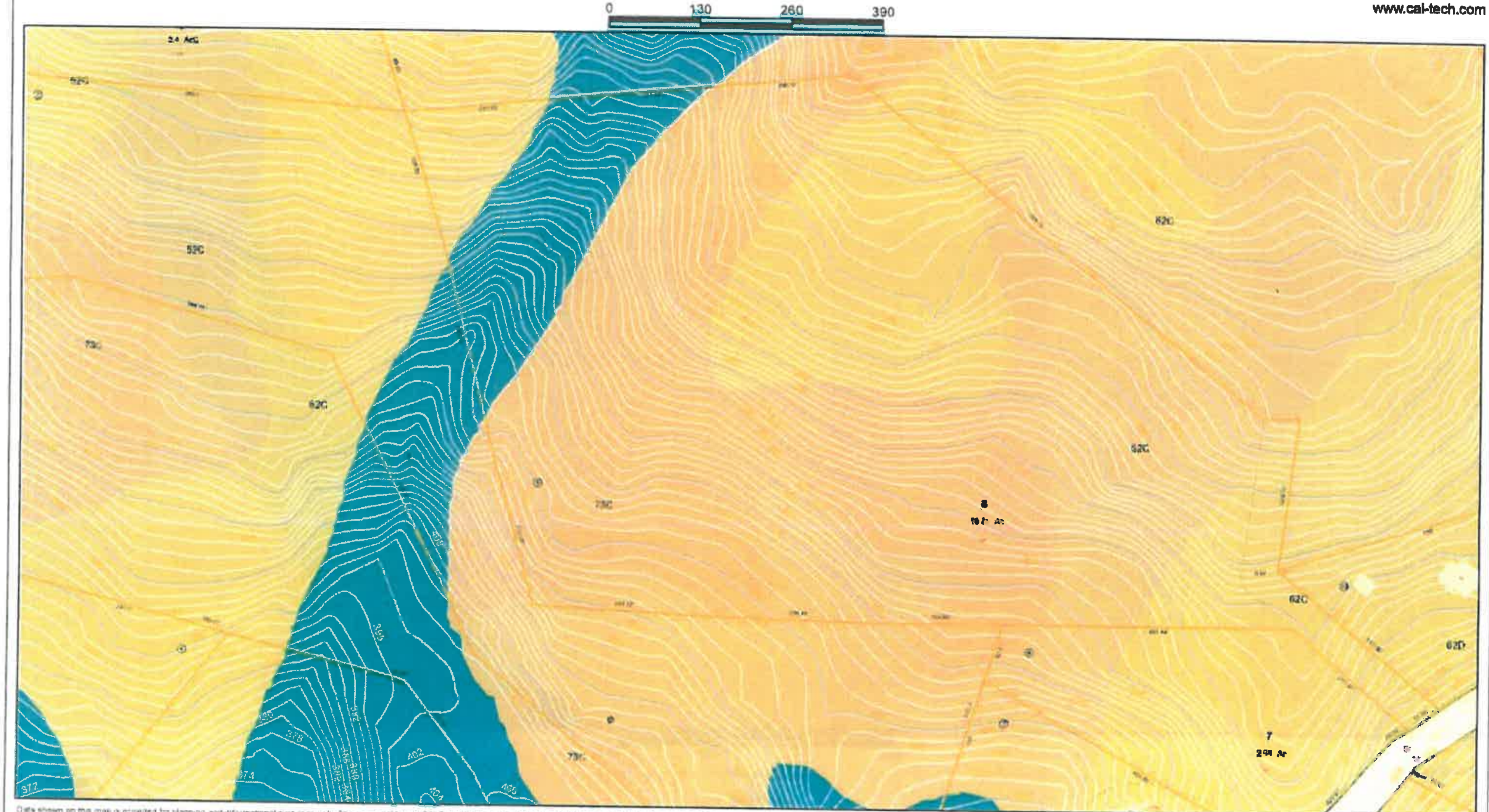
16.71 Ac
400
393
392
378

June 16, 2021

Killingly, CT

1 inch = 130 Feet

www.cai-tech.com



Data shown on this map is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this map.

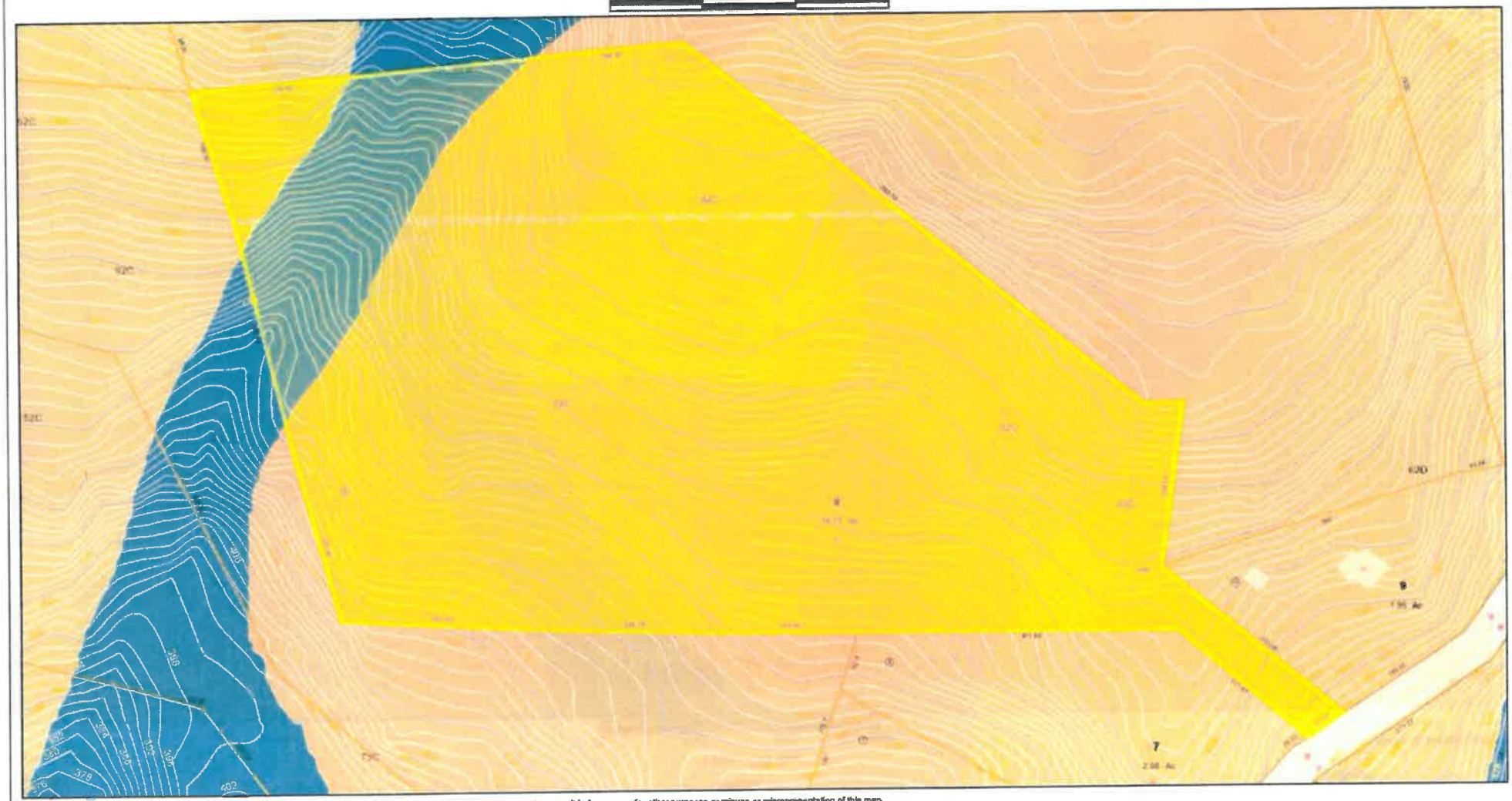
Killingly, CT

1 Inch = 120 Feet

0 120 240 360

June 16, 2021

www.cai-tech.com



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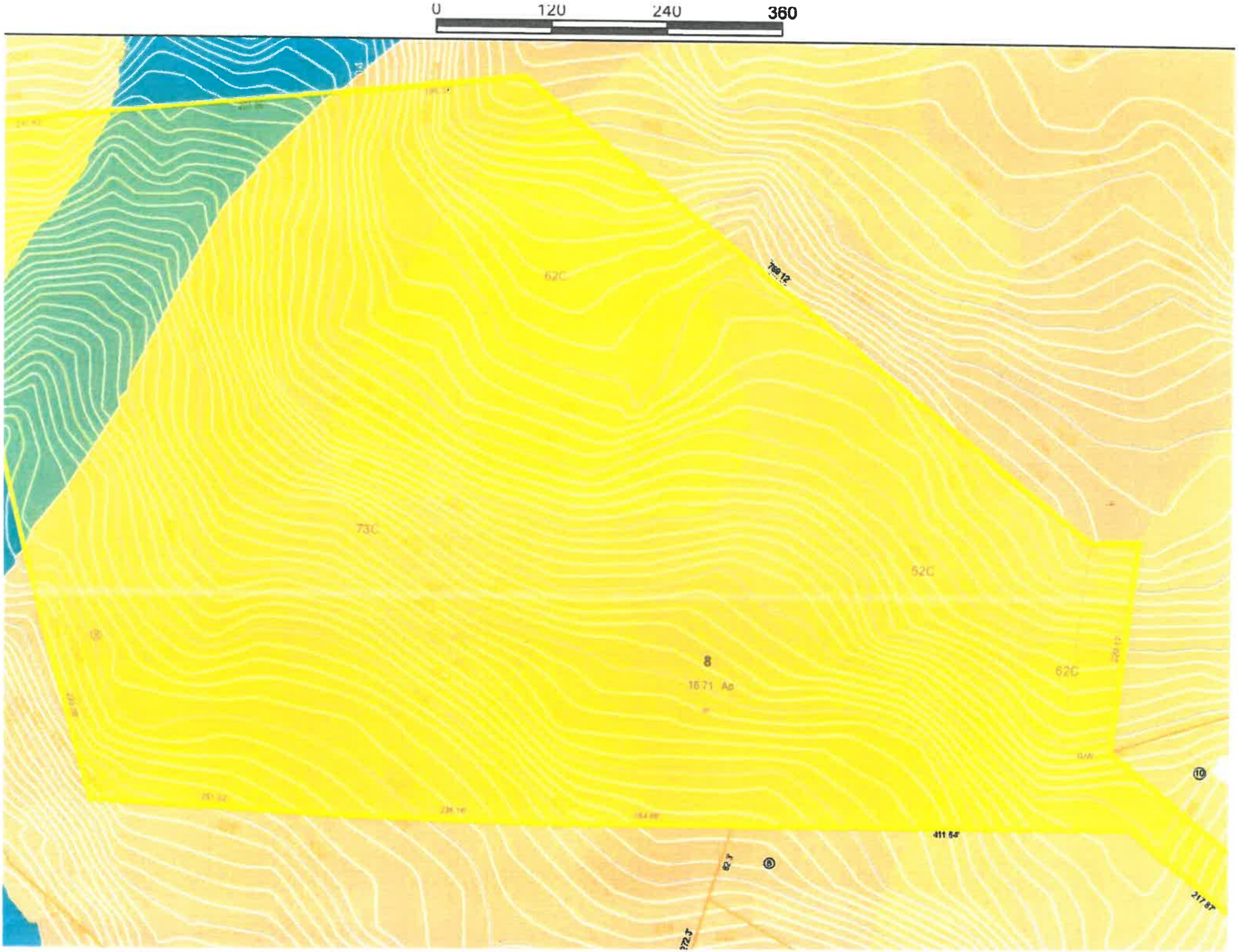
0
120
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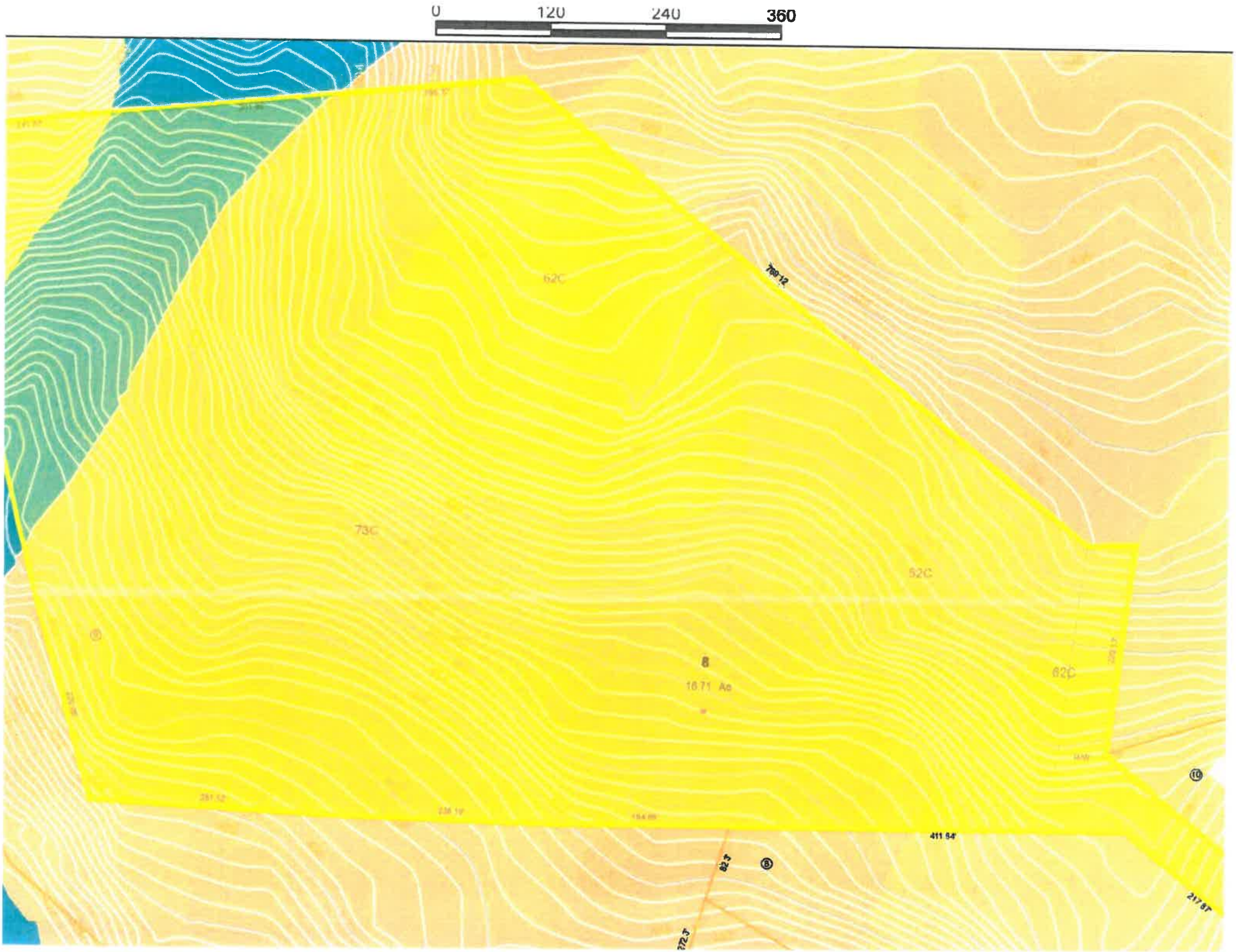
62C
73C
52C
62C
8
16.71 Ac
411.54'
217.87'


0
120
240
360
769.12
62C
73C
52C
62C
8
16.71 Ac
411.64'
62.3'
217.81'
372.3'

05218

DECLARATION OF RESTRICTIONS AND COVENANT

PART A PREAMBLE

WHEREAS, Patten Auction and Land Corporation, a Massachusetts Corporation with its principal place of business in the Town of Brooklyn, County of Windham, and State of Connecticut, is the owner of lots Nos. "N/F Howard", 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, C, D, inclusive, on a map entitled "Subdivision Plan Prepared for Patten Corporation-Putnam Road, Stone Road & River road-Killingly, Connecticut-Scale 1"=100'-8/18/87, Revised to 10/12/1988-Kleityka, Woodis & Pike, land Surveyors", which maps are on file in the Killingly Town Clerk's Office, to which maps reference is hereby made and may be had for a more particular description and location of said premises; and

PART B. AREA OF APPLICATION

The residential area covenants in Part C shall apply in their entirely to lots Nos. "N/F Howard", 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, C, D, inclusive, as shown on said map.

PART C. RESIDENTIAL AREA COVENANTS

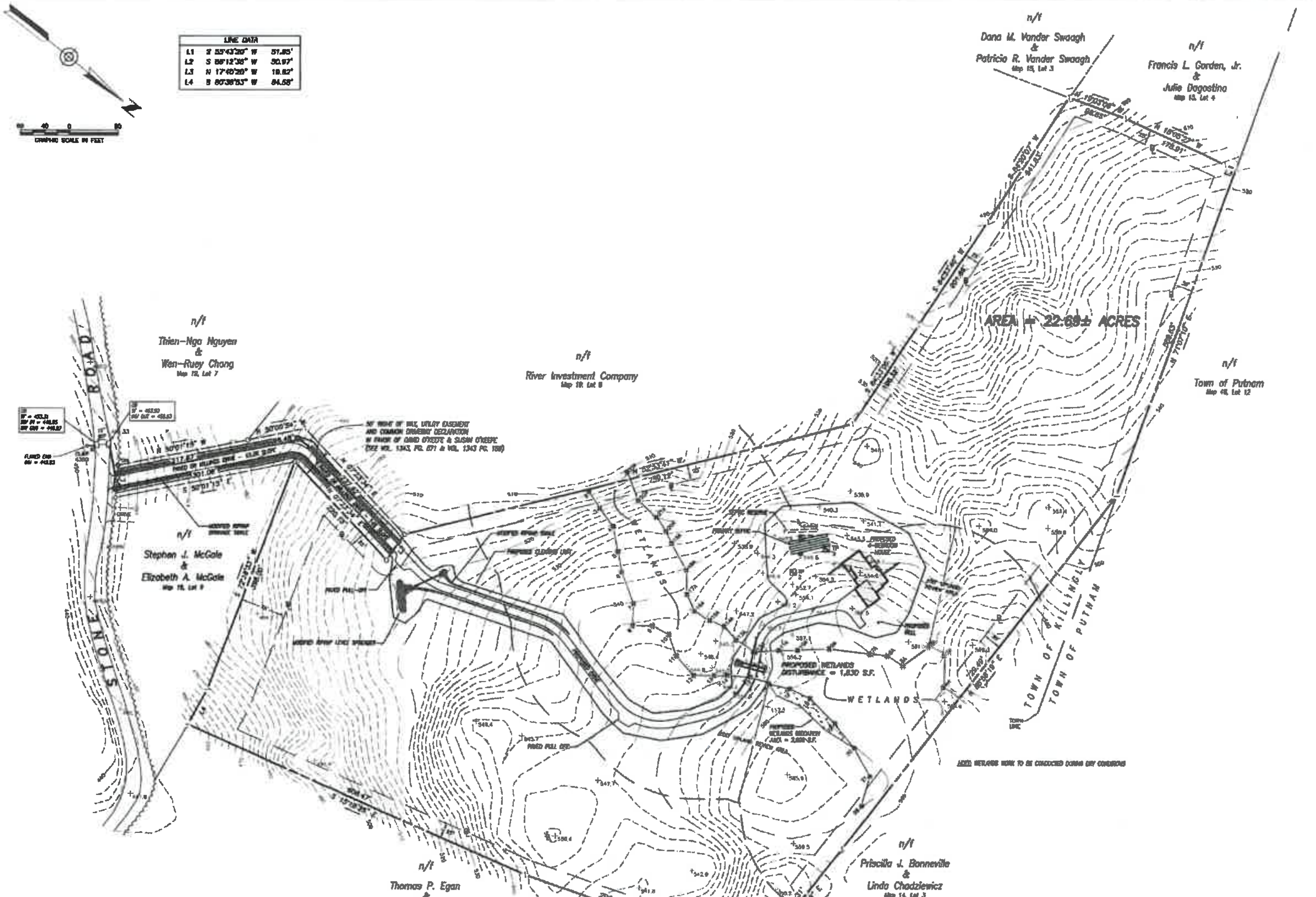
C-1 All of said parcels shall be known and described as residential lots. One (1) single-family dwelling is permitted per parcel. Such dwelling shall be constructed of wood, brick or stone and shall be of either an unrefined, earthy color or white. Construction with man-made synthetic material is prohibited.

C-2 No dwelling shall be permitted on any parcel unless its living area is One Thousand Eight Hundred (1,800) square feet or larger.

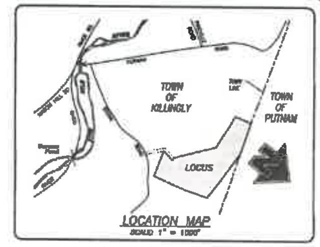
C-3 No noxious or offensive trade or activity shall be carried out upon any parcel nor shall anything be done thereon which may be or become an annoyance or nuisance to the neighborhood.

C-4 Without limiting the generality thereof, no mobile homes or structures in the nature thereof shall be allowed to be placed or remain on any of the lots.

C-5 No poultry of any kind shall be raised, bred or kept on any parcel, except that dogs, cats or other household pets may be kept, provided that they are not kept, bred or maintained for any commercial purposes. No farm animals shall be permitted to be kept on any parcel.



LINE DATA			
L1	S 53°43'20" W	51.85'	
L2	S 58°12'36" W	50.97'	
L3	N 17°40'20" W	19.82'	
L4	N 60°38'53" W	84.58'	



LOCATION MAP
SCALE 1" = 1000'

NOTES:

1. This survey has been prepared pursuant to the Regulations of Connecticut State Agencies Sections 20-300b-1 through 20-300b-20 and the "Standards for Surveys and Maps in the State of Connecticut" as adopted by the Connecticut Association of Land Surveyors, Inc. on September 26, 1996;

   This map was prepared from record research, other maps, limited field measurements and other sources, it is not to be construed as a Property/Boundary or Limited Property /Boundary Survey and is subject to such facts as said surveys may disclose.

   - This survey conforms to a Class "C" horizontal accuracy.
   - Topographic features conform to a Class "T-2", "V-2" vertical accuracy.
   - Survey Type: General Location Survey.

2. Zone = RD.
3. Owner of record: David O'Keefe & Susan O'Keefe
   61 Goloskie Road
   Chepachet, RI 02814
4. Parcel is shown as Lot #1 on Assessors Map #14.
5. Elevations shown are based on North American Vertical Datum of 1988 (NAVD 88). Contours taken from the Town of Killingly's GIS data and supplemented with actual field survey. Contour interval = 2'.
6. North orientation, bearings and coordinate values shown are based on North American Datum of 1983 (NAD 83) and are taken from GPS observations.
7. Test Pit data taken from NDDH file number 4003850.
8. Wetlands shown were delineated in the field by Joseph Theroux, Certified Soil Scientist, in April 2019.
9. Parcel lies within Flood Hazard Zone 'C' (areas of minimal flooding) as shown on FIRM Map #090136 Panel 0006B Effective Date: January 3, 1985.
10. Before any construction is to commence contact "CALL BEFORE YOU DIG" at 1-800-922-4455 or 811.

MAP REFERENCE:

"Survey Plan – Prepared for – River Investment Company & Richard J. Schad – Stone Road – Killingly, Connecticut – Scale: 1" = 100' – Date: 3/22/2004 – Revised to: 12/5/2015 – Sheet 1 of 1 – Prepared by: KWP Associates." On file in the Killingly Land Records as Map #7055.

DATE	DESCRIPTION
10/07/2019	PER FIRE MARSHAL
9/30/2019	PER ENGINEERING REVIEW
8/13/2019	FINAL PLAN REVIEW

REVISIONS

GENERAL LOCATION SURVEY
OVERALL SITE PLAN
PREPARED FOR

DAVID O'KEEFE & SUSAN O'KEEFE

90 STONE ROAD
KILLINGLY, CONNECTICUT

Killingly Engineering Associates
Civil Engineering & Surveying
114 Westcott Road
P.O. Box 421
Killingly, Connecticut 06241
(860) 779-7299
www.killinglyengineering.com

DATE: 7/03/2019	DRAWN: AMR
SCALE: 1" = 80'	DESIGN: NET
SHEET: 1 OF 5	CHK BY: GG
DWG. No: CLIENT FILE	JOB No: 19031

TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

GREG A. GLAUDE, L.S. LIC. NO. 70191 10-07-2019 DATE

NO CERTIFICATION IS EXPRESSED OR IMPLIED UNLESS THIS MAP BEARS THE ORIGINAL SEAL AND SIGNATURE OF THE LAND SURVEYOR.

NORMAND THIBEAULT, JR., P.E. No. 22834 10/7/19 DATE

APPROVED BY THE TOWN OF KILLINGLY INLAND WETLANDS COMMISSION

CHAIRMAN DATE

ANY CHANGES TO THESE PLANS WITHIN 200' OF WETLANDS OR WATERCOURSES MUST BE RESUBMITTED TO THE KILLINGLY INLAND WETLANDS AND WATERCOURSES COMMISSION FOR ITS APPROVAL.

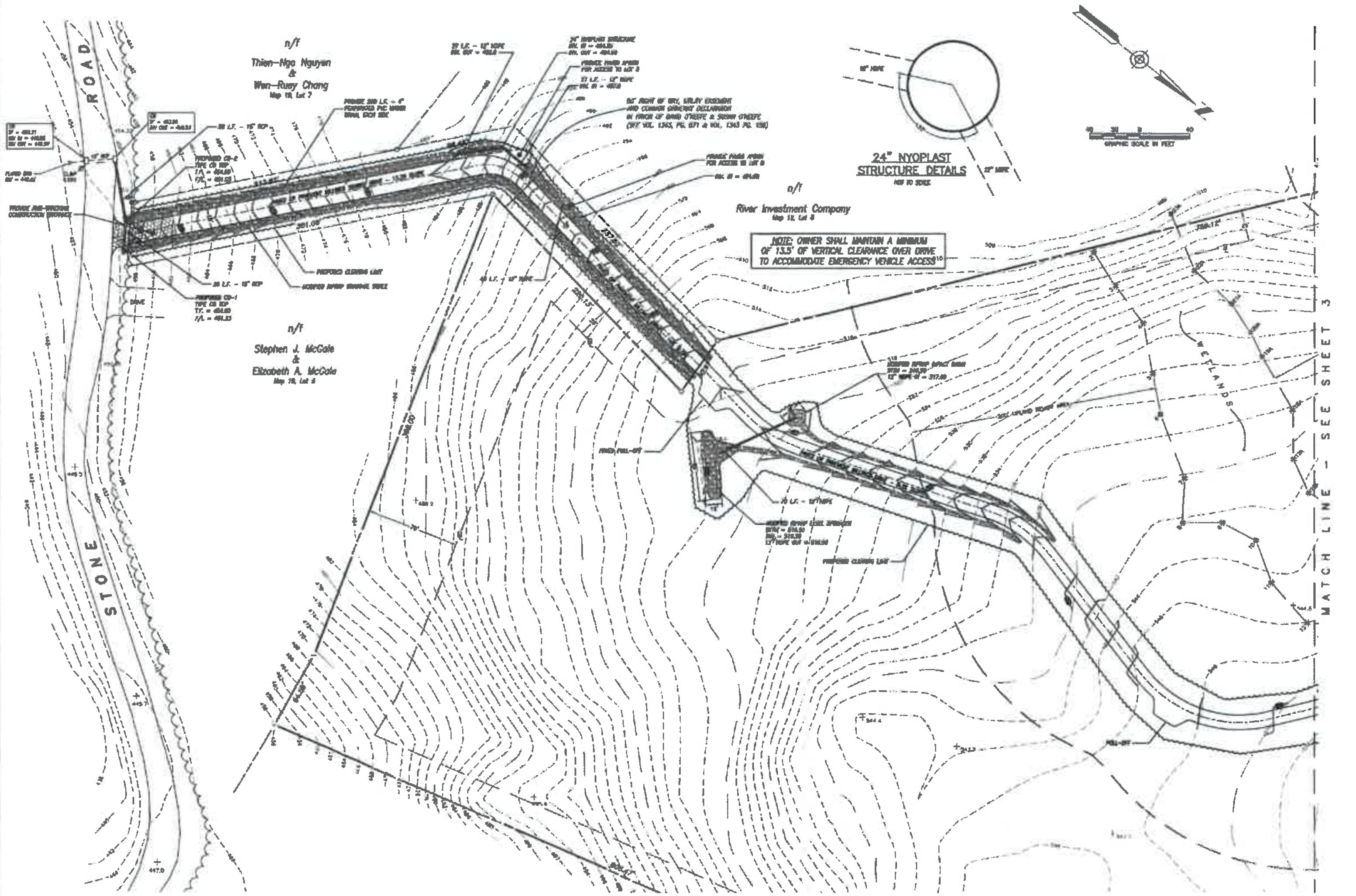
THE APPLICANT WILL CONTACT THE KILLINGLY INLAND WETLANDS AND WATERCOURSES COMMISSION'S AGENT AFTER ALL EROSION AND SEDIMENT CONTROL MEASURES ARE INSTALLED, PRIOR TO ANY CONSTRUCTION OR EXCAVATION ON THE PROPERTY.

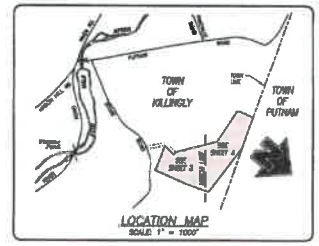
LEGEND

- IRON PIN FOUND
- DRILL HOLE FOUND
- UTILITY POLE
- CATCH BASIN
- PERCOLATION TEST HOLE
- TEST HOLE
- EXISTING CONTOURS
- PROPOSED CONTOURS
- INLAND WETLANDS FLAG
- BUILDING SETBACK LINE
- SILT FENCE

I HAVE REVIEWED THE FLAGGED INLAND WETLANDS LOCATION SHOWN ON THIS PLAN AND THEY APPEAR TO BE SUBSTANTIALLY CORRECT.

Certified Soil Scientist Date





1. This survey has been prepared pursuant to the Regulations of Connecticut State Agencies Sections 20-300b-1 through 20-300b-20 and the "Standards for Surveys and Maps in the State of Connecticut" as adopted by the Connecticut Association of Land Surveyors, Inc. on September 26, 1996;

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   - Survey Type: General Location Survey.

2. Zone = RD.
3. Owner of record: David O'Keefe & Susan O'Keefe
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7. Test Pit data taken from NDDH file number 4003850.
8. Wetlands shown were delineated in the field by Joseph Theroux, Certified Soil Scientist, in April 2019.
9. Parcel lies within Flood Hazard Zone 'C' (areas of minimal flooding) as shown on FIRM Map #090138 Panel 0006B Effective Date: January 3, 1985.
10. Before any construction is to commence contact "CALL BEFORE YOU DIG" at 1-800-922-4455 or 811.

MAP REFERENCE:

"Survey Plan – Prepared for – River Investment Company & Richard J. Schad – Stone Road – Killingly, Connecticut – Scale: 1" = 100' – Date: 3/22/2004 – Revised to: 12/5/2015 – Sheet 1 of 1 – Prepared by: KWP Associates." On file in the Killingly Land Records as Map #7056.

DATE	DESCRIPTION
10/02/2019	FOR FIRE MARSHAL
8/23/2019	PER ENGINEERING REVIEW
8/13/2019	FINAL PLAN REVIEW

REVISIONS

GENERAL LOCATION SURVEY
SITE PLAN No. 1
PREPARED FOR

DAVID O'KEEFE & SUSAN O'KEEFE

90 STONE ROAD
KILLINGLY, CONNECTICUT

Killingly Engineering Associates
Civil Engineering & Surveying

DATE: 7/01/2019	DRAWN: AMR
SCALE: 1" = 40'	DESIGN: NET
SHEET: 2 OF 5	CHK BY: GG
DWG. No: CLIENT FILE	JOB No: 19031

APPROVED BY THE TOWN OF KILLINGLY INLAND WETLANDS COMMISSION

CHAIRMAN DATE

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LEGEND

- IRON PIN FOUND
- DRILL HOLE FOUND
- UTILITY POLE
- CATCH BASIN
- PERCOLATION TEST HOLE
- TEST HOLE
- EXISTING CONTOURS
- PROPOSED CONTOURS
- INLAND WETLANDS FLAG
- BUILDING SETBACK LINE
- SILT FENCE

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Certified Soil Scientist Date

NORMAND THIBEAULT, JR., P.E. No. 22834 10/7/19 DATE

TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

GREG A. GLAUDE L.S. LIC. NO. 70191 10 02 2019 DATE

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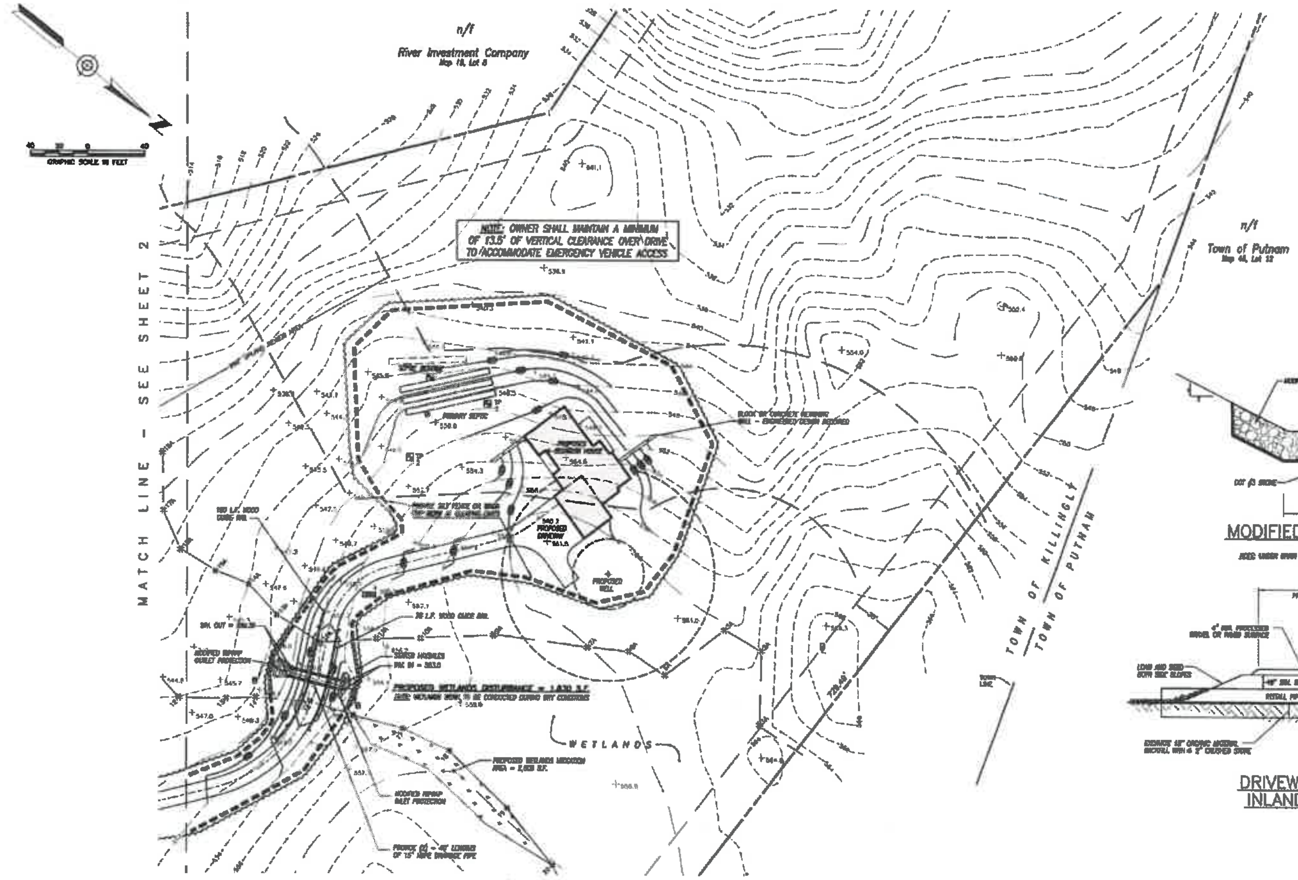

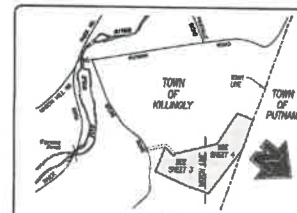

LOCATION MAP
SCALE: 1" = 1000'

NOTES:

1. This survey has been prepared pursuant to the Regulations of Connecticut State Agencies Sections 20-300b-1 through 20-300b-20 and the "Standards for Surveys and Maps in the State of Connecticut" as adopted by the Connecticut Association of Land Surveyors, Inc. on September 26, 1996;

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   - Survey Type: General Location Survey.

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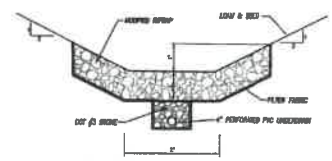
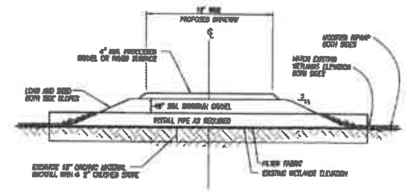
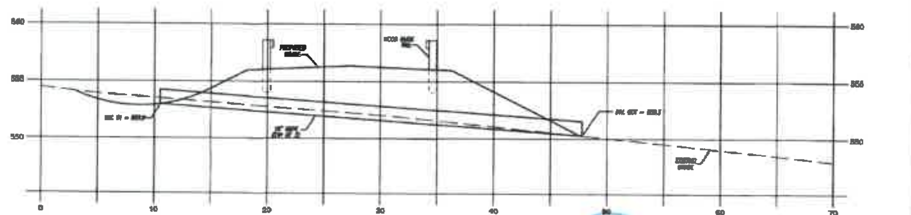


MODIFIED RIPRAP SWALE
NOT TO SCALE



DRIVEWAY THROUGH INLAND WETLANDS
NOT TO SCALE



CROSS SECTION "B-B"
SCALE: 1" = 5'

DATE	DESCRIPTION
10/07/2019	[illegible]
8/30/2019	[illegible]
8/13/2019	[illegible]

REVISIONS

GENERAL LOCATION SURVEY
SITE PLAN No. 2
PREPARED FOR

DAVID O'KEEFE & SUSAN O'KEEFE

90 STONE ROAD
KILLINGLY, CONNECTICUT

Killingly Engineering Associates
Civil Engineering & Surveying

DATE: 7/31/2019	DRAWN: AMR
SCALE: 1" = 40'	DESIGN: NET
SHEET: 3 OF 5	CHK BY: GG
DWG. No: CLIENT FILE	JOB No: 19031

TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

GREG A. GLAUDE, L.S. LIC. NO. 70191 10-07-2019 DATE

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APPROVED BY THE TOWN OF KILLINGLY INLAND WETLANDS COMMISSION

CHAIRMAN DATE

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LEGEND

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- DRILL HOLE FOUND
- UTILITY POLE
- CATCH BASIN
- PERCOLATION TEST HOLE
- TEST HOLE
- EXISTING CONTOURS
- PROPOSED CONTOURS
- INLAND WETLANDS FLAG
- BUILDING SETBACK LINE
- SILT FENCE

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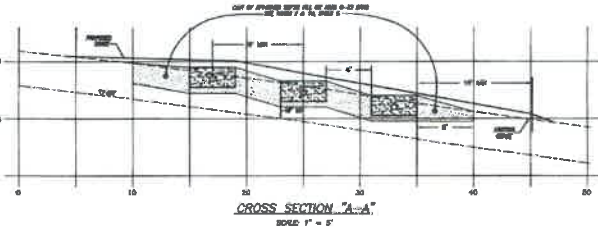
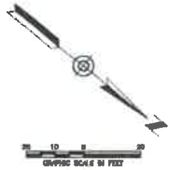
Certified Soil Scientist Date





TEST HOLE DATA – June 12, 2019
Northeast District Department of Health

TEST PIT	DEPTH	PROFILE
1	0"– 4"	Topsoil/Organics
	4"– 19"	Red/Brown Fine Loamy Sand
	19"– 40"	Tan Loamy Sand w/Large Rocks
	40"– 78"	Gray/White Sandy Pan Tight Mottled
	Ledge	N/A
	GWT	N/A
	Mottling	42"
	Restrictive	40"
2	Hole not read/Large Rocks/Over Dug	
3	0"– 4"	Topsoil/Organics
	4"– 18"	Red/Brown Fine Loamy Sand
	18"– 39"	Tan Loamy Sand w/Large Rocks
	39"– 80"	Gray/White Tight Sandy Pan Mottled
	Ledge	N/A
	GWT	N/A
	Mottling	39"
	Restrictive	39"

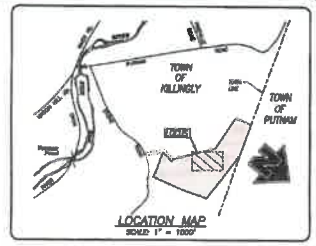
SEPTIC SYSTEM DESIGN DATA

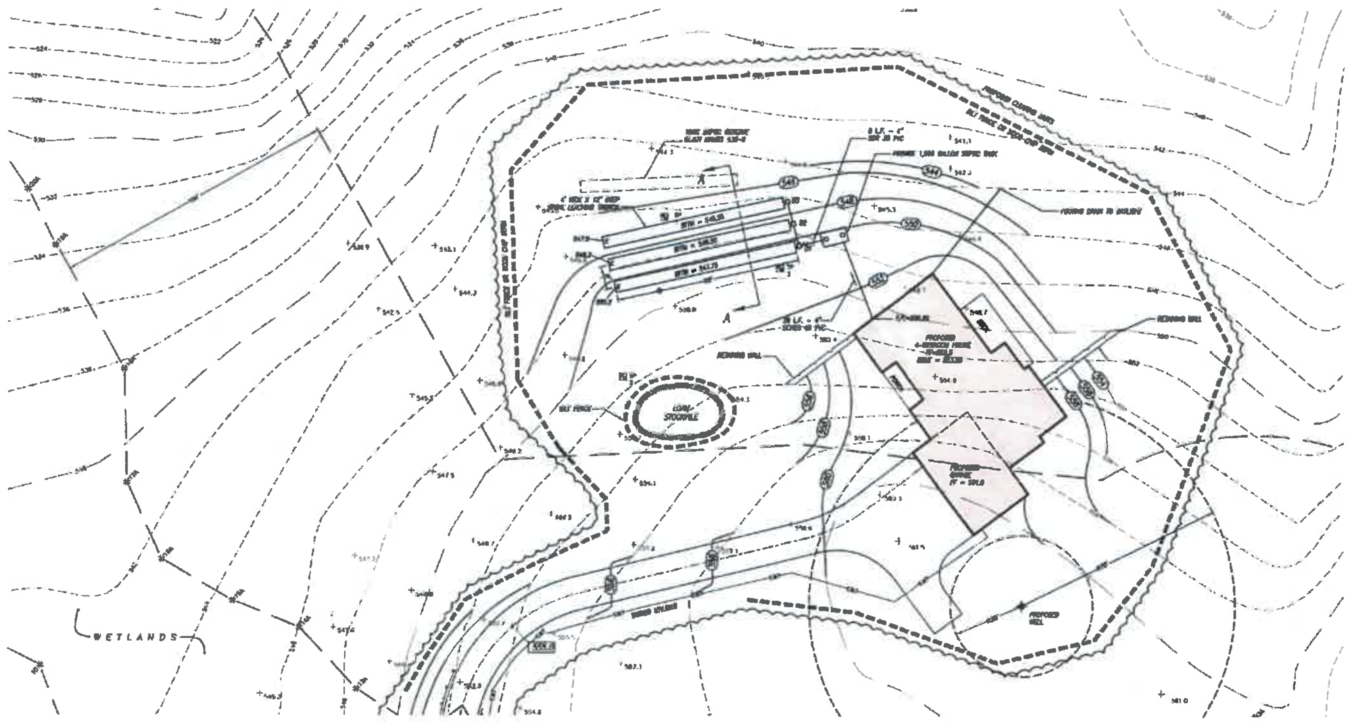
Percolation Rate	= 5 min. / in.
4 bedroom house requires	= 577.5 s.f. effective leaching area
Effective Leaching area	= 3 s.f. / l.f. of trench
Length Required	= 577.5/3 = 192.5 l.f.
Length Provided	= 3 (65') = 195 l.f.
Min. Leaching System Spread (MLSS)	= 18 x 1.75 x 1.0 = 31.5'
MLSS Provided	= 65'

LEACHING FIELD

3 Trenches @ 65 l.f. each

Maximum depth into existing grade = 21"





SURVEYOR SHALL SET A BENCH MARK IN THE AREA OF THE SEPTIC SYSTEM AT THE TIME OF CONSTRUCTION STAKE-OUT.

SEPTIC TANK
1500 GALLON TWO COMPARTMENT F/L IN = 549.05 F/L OUT = 548.80
DISTRIBUTION BOXES
D-1 (OVERFLOW) F/L IN = 548.42 F/L OUT = 548.25 OVERFLOW = 548.50
D-2 (OVERFLOW) F/L IN = 547.17 F/L OUT = 547.00 OVERFLOW = 547.25
D-3 (STANDARD) F/L IN = 545.92 F/L OUT = 545.75

NOTES:

1. This survey has been prepared pursuant to the Regulations of Connecticut State Agencies Sections 20-300b-1 through 20-300b-20 and the "Standards for Surveys and Maps in the State of Connecticut" as adopted by the Connecticut Association of Land Surveyors, Inc. on September 26, 1996;

   This map was prepared from record research, other maps, limited field measurements and other sources. It is not to be construed as a Property/Boundary or Limited Property /Boundary Survey and is subject to such facts as said surveys may disclose.

   – This survey conforms to a Class "C" horizontal accuracy.

   – Topographic features conform to a Class "T-2", "V-2" vertical accuracy.

   – Survey Type: General Location Survey.
2. Zone = RD.
3. Owner of record: David O'Keefe & Susan O'Keefe
   61 Gelaskie Road
   Chepachet, RI 02814
4. Parcel is shown as Lot #1 on Assessors Map #14.
5. Elevations shown are based on North American Vertical Datum of 1988 (NAVD 88). Contours taken from the Town of Killingly's GIS data and supplemented with actual field survey. Contour interval = 2'.
6. North orientation, bearings and coordinate values shown are based on North American Datum of 1983 (NAD 83) and are taken from GPS observations.
7. Test Pit data taken from NDDH file number 4003850.
8. Wetlands shown were delineated in the field by Joseph Theroux, Certified Soil Scientist, in April 2019.
9. Parcel lies within Flood Hazard Zone 'C' (areas of minimal flooding) as shown on FIRM Map #090138 Panel 0006B Effective Date: January 3, 1985.
10. Before any construction is to commence contact "CALL BEFORE YOU DIG" at 1-800-922-4455 or 811.

MAP REFERENCE:

"Survey Plan -- Prepared for -- River Investment Company & Richard J. Sohod -- Stone Road -- Killingly, Connecticut -- Scale: 1" = 100' -- Date: 3/22/2004 -- Revised to: 12/5/2015 -- Sheet 1 of 1 -- Prepared by: KWP Associates." On file in the Killingly Land Records as Map #7066.

DATE	DESCRIPTION
10/07/2019	[illegible]
9/30/2019	[illegible]
8/13/2019	[illegible]

REVISIONS

LEGEND

	IRON PIN FOUND
	DRILL HOLE FOUND
	UTILITY POLE
	CATCH BASIN
	PERCOLATION TEST HOLE
	TEST HOLE
---100---	EXISTING CONTOURS
	PROPOSED CONTOURS
	INLAND WETLANDS FLAG
	BUILDING SETBACK LINE
	SILT FENCE

APPROVED BY THE TOWN OF KILLINGLY INLAND WETLANDS COMMISSION

CHAIRMAN	DATE

ANY CHANGES TO THESE PLANS WITHIN 200' OF WETLANDS OR WATERCOURSES MUST BE RESUBMITTED TO THE KILLINGLY INLAND WETLANDS AND WATERCOURSES COMMISSION FOR ITS APPROVAL.

THE APPLICANT WILL CONTACT THE KILLINGLY INLAND WETLANDS AND WATERCOURSES COMMISSION'S AGENT AFTER ALL EROSION AND SEDIMENT CONTROL MEASURES ARE INSTALLED, PRIOR TO ANY CONSTRUCTION OR EXCAVATION ON THE PROPERTY.

GENERAL LOCATION SURVEY
SEPTIC SYSTEM DESIGN PLAN
PREPARED FOR

DAVID O'KEEFE & SUSAN O'KEEFE

90 STONE ROAD
KILLINGLY, CONNECTICUT

Killingly Engineering Associates
Civil Engineering & Surveying

DATE: 7/30/2019	DRAWN: AMR
SCALE: 1" = 20'	DESIGN: NET
SHEET: 4 OF 5	CHK BY: GG
DWG. No: CLIENT FILE	JOB No: 19031

EROSION AND SEDIMENT CONTROL NARRATIVE:

PRINCIPLES OF EROSION AND SEDIMENT CONTROL

The primary function of erosion and sediment controls is to absorb erosional energies and reduce runoff velocities that force the detachment and transport of soil and/or encourage the deposition of eroded soil particles before they reach any sensitive area.

KEEP LAND DISTURBANCE TO A MINIMUM

The more land that is in vegetative cover, the more surface water will infiltrate into the soil, thus minimizing stormwater runoff and potential erosion. Keeping land disturbance to a minimum not only involves minimizing the extent of exposure at any one time, but also the duration of exposure. Phasing, sequencing and construction scheduling are interrelated. Phasing divides a large project into distinct sections where construction work over a specific area occurs over distinct periods of time and each phase is not dependent upon a subsequent phase in order to be functional. A sequence is the order in which construction activities are to occur during any particular phase. A sequence should be developed on the premise of "first things first" and "last things last" with proper attention given to the inclusion of adequate erosion and sediment control measures. A construction schedule is a sequence with time lines applied to it and should address the potential overlap of actions in a sequence which may be in conflict with each other.

- Limit areas of clearing and grading. Protect natural vegetation from construction equipment with fencing, tree armoring, and retaining walls or tree wells.
- Route traffic patterns within the site to avoid existing or newly planted vegetation.
- Phase construction so that areas which are actively being developed at any one time are minimized and only that area under construction is exposed. Clear only those areas essential for construction.
- Sequence the construction of storm drainage systems so that they are operational as soon as possible during construction. Ensure all outlets are stable before outletting storm drainage flow into them.
- Schedule construction so that final grading and stabilization is completed as soon as possible.

SLOW THE FLOW

Detachment and transport of eroded soil must be kept to a minimum by absorbing and reducing the erosive energy of water. The erosive energy of water increases as the volume and velocity of runoff increases. The volume and velocity of runoff increases during development as a result of reduced infiltration rates caused by the removal of existing vegetation, removal of topsoil, compaction of soil and the construction of impervious surfaces.

- Use diversions, stone dikes, silt fences and similar measures to break flow lines and dissipate storm water energy.
- Avoid diverting one drainage system into another without calculating the potential for downstream flooding or erosion.

KEEP CLEAN RUNOFF SEPARATED

Clean runoff should be kept separated from sediment laden water and should not be directed over disturbed areas without additional controls. Additionally, prevent the mixing of clean off-site generated runoff with sediment laden runoff generated on-site until after adequate filtration of on-site waters has occurred.

- Segregate construction waters from clean water.
- Divert site runoff to keep it isolated from wetlands, watercourses and drainage ways that flow through or near the development until the sediment in that runoff is trapped or detained.

REDUCE ON SITE POTENTIAL INTERNALLY AND INSTALL PERIMETER CONTROLS

While it may seem less complicated to collect all waters to one point of discharge for treatment and just install a perimeter control, it can be more effective to apply internal controls to many small sub-drainage basins within the site. By reducing sediment loading from within the site, the chance of perimeter control failure and the potential off-site damage that it can cause is reduced. It is generally more expensive to correct off-site damage than it is to install proper internal controls.

- Control erosion and sedimentation in the smallest drainage area possible. It is easier to control erosion than to contend with sediment after it has been carried downstream and deposited in unwanted areas.
- Direct runoff from small disturbed areas to adjoining undisturbed vegetated areas to reduce the potential for concentrated flows and increase settlement and filtering of sediments.
- Concentrated runoff from development should be safely conveyed to stable outlets using rip rapped channels, waterways, diversions, storm drains or similar measures.
- Determine the need for sediment basins. Sediment basins are required on larger developments where major grading is planned and where it is impossible or impractical to control erosion at the source. Sediment basins are needed on large and small sites when sensitive areas such as wetlands, watercourses, and streets would be impacted by off-site sediment deposition. Do not locate sediment basins in wetlands or permanent or intermittent watercourses. Sediment basins should be located to intercept runoff prior to its entry into the wetland or watercourse.

APPROVED BY THE TOWN OF KILLINGLY INLAND WETLANDS COMMISSION

CHAIRMAN — DATE

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SEPTIC SYSTEM CONSTRUCTION NOTES

1. The building, septic system and well shall be accurately staked in the field by a licensed Land Surveyor in the State of Connecticut, prior to construction.
2. Topsoil shall be removed and in the area of the primary leaching field scarified, prior to placement of septic fill. Septic fill specifications are as follows:
   - Max. percent of gravel (material between No. 4 & 3 inch sieve) = 45%

   GRADATION OF FILL (MINUS GRAVEL)

SIEVE SIZE	PERCENT PASSING (WET SIEVE)	PERCENT PASSING (DRY SIEVE)
No. 4	100%	100%
No. 10	70% - 100%	70% - 100%
No. 40	10% - 50%	10% - 75%
No. 100	0% - 20%	0% - 5%
No. 200	0% - 5%	0% - 2.5%

   Fill material shall be approved by the sanitarian prior to placement. It shall be compacted in 6" lifts and shall extend a minimum of five feet (5') around the perimeter of the system. Common fill shall extend an additional five feet (5') down gradient of the system (10' total) before tapering off at a maximum slope of 2H:1V.
3. Septic tank shall be two compartment precast 1500 gallon tank with gas deflector and outlet filter as manufactured by Jolley Precast, Inc. or equal.
4. Distribution boxes shall be 4 hole precast concrete as manufactured by Jolley Precast, Inc. or equal.
5. All precast structures such as septic tanks, distribution boxes, etc. shall be set level on six inches (6") of compacted gravel base at the elevations specified on the plans.
6. Solid distribution pipe shall be 4" diameter PVC meeting ASTM D-3034 SDR 35 with compression gasket joints. It shall be laid true to the lines and grades shown on the plans and in no case have a slope less than 0.125 inches per foot.
7. Perforated distribution pipe shall be 4" diameter PVC meeting ASTM D-3034 or ASTM F1760 for SDR 35, or ASTM F810 for SDR 35.
8. Sewer pipe from the foundation wall to the septic tank shall be schedule 40 PVC meeting ASTM D 1785. It shall be laid true to the grades shown on the plans and in no case shall have a slope less than 0.25 inches per foot.
9. Solid footing drain outlet pipe shall be 4" Diameter PVC meeting ASTM D 3034, SDR 35 with compression gasketed joints. Footing drain outlet pipe shall not be backfilled with free draining material, such as gravel, broken stone, rock fragments, etc.
10. Septic sand shall meet the requirements of ASTM C-33 with less than 10% passing a 100 sieve and less than 5% passing a 200 sieve

SIEVE SIZE	% PASSING
0.375	100
#4	95-100
#8	80-100
#16	50-85
#30	25-60
#50	10-30
#100	<10
#200	<5

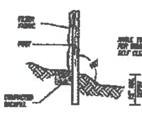
WETLAND SEED MIX FOR WETLANDS MITIGATION

The New England Wetmix (Wetland Seed Mix) contains a wide variety of native seeds that are suitable for most wetland restoration sites that are not permanently flooded. All species are best suited to moist ground as found in most wet meadows, scrub shrub, or forested wetland restoration areas. The mix is well suited for detention basin borders and the bottom of detention basins not generally under standing water. The seeds will not germinate under inundated conditions. If planted during the fall months, the seed mix will germinate the following spring. During the first season of growth, several species will produce seeds while other species will produce seeds after the second growing season. Not all species will grow in all wetland situations. This mix is comprised of the wetland species most likely to grow in created/restored wetlands and should produce more than 75% ground cover in two full growing seasons.

The wetland seeds in this mix can be sown by hand, with a hand-held spreader, or hydro-seeded on large or hard to reach sites. Lightly rake to insure good seed-to-soil contact. Seeding can take place on frozen soil, as the freezing and thawing weather of late fall and late winter will work the seed into the soil. If spring conditions are drier than usual watering may be required. If sowing during the summer months supplemental watering will likely be required until germination. A light mulch of clean, weed free straw is recommended.

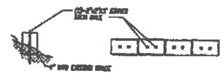
APPLICATION RATE: 1 LB/2500 sq. ft

SPECIES: Fox Sedge, (Carex vulpinoidea), Lurid Sedge, (Carex lurida), Blunt Broom Sedge, (Carex scoparia), Sensitive Fern, (Onoclea sensibilis), Blue Vervain, (Verbena hastata), Hop Sedge, (Carex lupulina), Green Bulrush, (Scirpus atrovirens), Nodding Bur Marigold, (Bidens cer-nua), Bristly Sedge, (Carex comosa), Fringed Sedge, (Carex crinita), American Mannagrass, (Glyceria grandis), Wool Grass, (Scirpus cyperinus), Soft Rush, (Juncus effusus), Spotted Joe Pye Weed, (Eupatorium maculatum), Boneset, (Eupatorium perfoliatum), Mud Plantain, (Alisma subcordatum), New England Aster, (Aster novae-angliae), Rattlesnake Grass, (Glyceria canadensis), Purplestem aster (Aster puniceus), Soft Stem Bulrush, (Scirpus validus), Blueflag (Iris versicolor), Swamp Milkweed, (Asclepias incarnata), Monkey Flower, (Mimulus ringens). The functionality of each mix will remain unchanged, although mix composition may vary during the year.



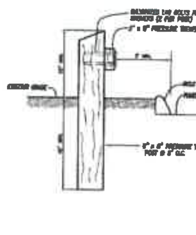
SILT FENCE

NOT TO SCALE



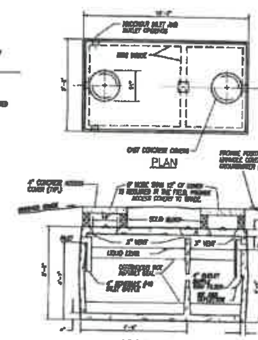
HAYBALE BARRIER

NOT TO SCALE



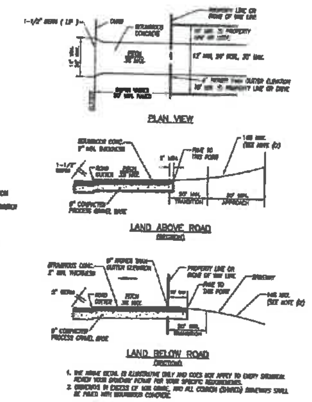
WOOD GUIDE RAIL

NOT TO SCALE



1500 GALLON 2 COMPARTMENT SEPTIC TANK

NOT TO SCALE



STANDARD DRIVE DETAIL

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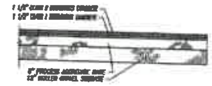
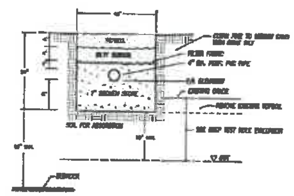


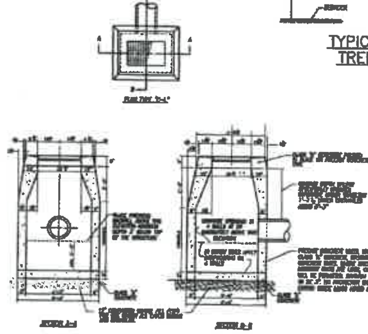
BITUMINOUS CONCRETE PAVEMENT

NOT TO SCALE



TYPICAL LEACHING TRENCH SECTION

NOT TO SCALE



TYPE 'C-L' CATCH BASIN DETAIL

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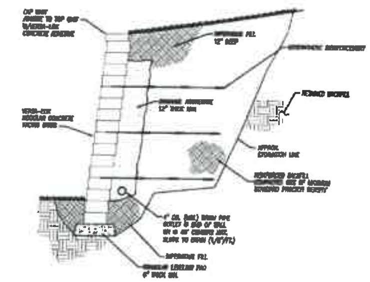
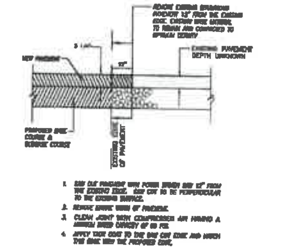


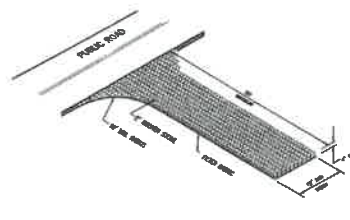
TYPICAL SECTION–REINFORCED RETAINING WALL

NOT TO SCALE



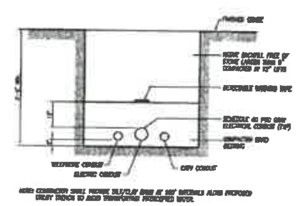
TYPICAL CROSS SECTION FOR MATCHING EXISTING AND PROPOSED PAVEMENT

NOT TO SCALE



ANTI–TRACKING PAD

NOT TO SCALE



UNDERGROUND UTILITY TRENCH

NOT TO SCALE

DATE	DESCRIPTION
10/07/2019	FOR PERMIT APPROVAL
9/26/2019	FOR ENGINEERING REVIEW
8/13/2019	FINAL PLAN REVIEW

REVISIONS

DETAIL SHEET

PREPARED FOR

DAVID O'KEEFE & SUSAN O'KEEFE

90 STONE ROAD

KILLINGLY, CONNECTICUT

Killingly Engineering Associates

Civil Engineering & Surveying

DATE: 7/03/2019	DRAWN: AMR
SCALE: NOT TO SCALE	DESIGN: NET
SHEET: 5 OF 5	CHK BY: CG
DWG. No: CLIENT FILE	JOB No: 19031