



Town of North Stonington  
Planning and Zoning Commission

# Application for Commission Approval

**received**

Application Number: 22-010      Receipt Date: 3/1/22      Fee: 310 #11298

SPL   
 SPP   
 MP   
 TX/MP AM   
 ZC   
 CU   
 EXP   
 MOD SPL   
 MOD SPP

**Applicant Information:**

Name: North Stonington Bible Church Inc.  
Mailing Address: Attn: Mr. Steven E. Masalin  
PO Box 28; North Stonington, CT 06359

Contact Info: Phone: 860-912-8266      E-mail: masalin@snet.net

**Owner of Record:**

Name: North Stonington Bible Church Inc.  
Mailing Address: Attn: Mr. Steven E. Masalin  
PO Box 28; North Stonington, CT 06359

Contact Info: Phone: 860-912-8266      E-mail: masalin@snet.net

Property Location: 100B Jeremy Hill Road; North Stonington CT 06359

Assessor Parcel Information:      Map: 115      Lot: 0343

Zoning District of Property: R-60      Restrictive Overlay Area: N/A  
R-40 - R60 - R80 - C - HC - I - ED - RC      N/A - VPO - WSPO - SUO - APOA  
(See Chapter 7)

Specific Use as Listed under Specific Zoning District in Regulations: Church (Existing Use)

Detail of Use Requested: Modification to Site Plan for a 1-Story 6136 SF wood-framed addition to existing 1-Story 5717 SF Church Building. New Addition to contain additional classrooms, mtg hall & kitchen facility. Provide new parking for 42 paved spaces & 47 gravel surface over-flow spaces ~ Total Parking = 89 Spaces.

2/24/22  
Date

Steven E. Masalin  
Signature (Applicant)

2/24/22  
Date

Steven E. Masalin  
Signature (Property Owner of Record)

The applicant and property owner above are applying for a Site Plan Approval as specified above and in accordance with the Zoning Regulations of the Town of North Stonington.

**For Office Use Only:** Disposition and action taken by the Inland Wetlands Commission or Insignificant and Rights of Use Permits by the Inland Wetlands Officer. (Wetlands Permit is valid for 5 years from date of issuance as long as work has commenced)

Signature of IWC Chairman or WEO: \_\_\_\_\_ Date: \_\_\_\_\_

**ZONING PERMIT (FOR OFFICE USE ONLY)**

<b>Site Plan Application #</b> _____ <b>is hereby certified to ( ) comply ( ) not comply with the Town of North Stonington Zoning regulations.</b>	
<b>Date</b> _____	<b>Signature (Zoning Enforcement Officer)</b> _____
<b>Conditions:</b> _____	
_____	
_____	
_____	

**Site Plan Modification**

Proposed modifications to approved site plans shall be submitted to the Zoning Enforcement Officer for review and such proposed modifications may be:

- a. approved by the Zoning Enforcement Officer if minor in nature; or
- b. submitted to the Commission for additional review if they propose major changes (i.e., additional building floor area, alteration of building location, access, drainage infrastructure, parking etc.)

**Expiration**

Any Site Plan application under which no work is commenced (a structural portion of a building has not been erected) within twelve (12) months from the date of approval, shall expire unless the Commission shall provide for a longer time period not to exceed twenty-four (24) months from the date of approval.

All work in connection with a site plan shall be completed within five (5) years after the date of approval of the plan and failure to complete all work within such five-year period shall result in automatic expiration of the approval of such site plan unless the Commission shall have granted an extension of the time to complete work in connection with such site plan.

The Commission may grant one (1) or more extensions of the time to complete all or part of the work in connection with the site plan provided the total extension or extensions shall not exceed ten (10) years from the date of approval of such site plan

**Certificate of Zoning Compliance (As-built)**

No building, structure, land or premises shall be occupied for use or converted to a new use until a certificate of zoning compliance has been issued by the Zoning Enforcement Officer or his designee. An application for a Certificate of Zoning Compliance shall be accompanied by plans and/or other information that comply with the requirements set forth on the Certificate of Zoning Compliance Check Sheet.

**Surety**

Any required surety/bond shall not be released by the Commission until:

- a. the release has been requested, in writing, by the applicant;
- b. the Town Engineer has submitted a letter stating that all required improvements have been satisfactorily completed and that all conditions and requirements of the Commission's approval have been satisfied; and
- c. the applicant's engineer or surveyor has certified to the Commission, through submission of a set of detailed "Record" plans on mylar, that all improvements and other work are in accordance with submitted site plans.

# Edward H. Wenke III, PE

CIVIL-STRUCTURAL ENGINEER

PO Box 544

Mukwonago, WI 53149

Licensed in Connecticut, Rhode Island, Massachusetts, Maine, New York, Maryland, Pennsylvania, Wisconsin & California

Telephone (860) 460.1606

[ewenke@comcast.net](mailto:ewenke@comcast.net)

## **LETTER OF TRANSMITTAL**

To: Cheryl Konsavitch  
Company: Town of North Stonington Land Use Dept.  
40 Main Street; North Stonington, CT 06359  
Tel. No.: (860) 535-2877 X4

Date: 01 March 2022  
Ship via: Hand Deliver

Project No: 10924  
RE: **MODIFIED SITE PERMIT APPLICATION**  
**North Stonington Bible Church Expansion; 100C Jeremy Hill Rd; N.Stonington, CT**  
From: **Edward H. Wenke III, P.E.**

### **ITEMS ENCLOSED:**

- (3) 24x36 Print sets –Rev-A – 02/25/22 – (16) shts
- (10) 11x17 reduced Print sets –Rev-A – 02/25/22 (16 shts)
- (10) Copies – Site Permit Application including:
  - Abuttor List; Property Cards; Assessor Map; Site Permit Checklist;
  - Engineer Report – 02/25/22

Cheryl: Per our discussion, I am submitting these documents for Formal Acceptance at the next regular scheduled 3/3/2022 PZC meeting. The original Site Permit Application with signature & \$310.00 fee will be dropped off separately by the Church reps. Please let me know that you have received all you require for acceptance.

Please contact me at this office if you have any questions or require any additional information.  
Thank you for your time.

Regards,

Edward H. Wenke III, PE  
**Civil-Structural Engineer**  
Tel. 860.460.1606  
Email: [ewenke@comcast.net](mailto:ewenke@comcast.net)



Town of North Stonington  
Planning and Zoning Commission

# Application for Commission Approval

Application Number: <input type="text"/>	Receipt Date: <input type="text"/>	Fee: <input type="text"/>
--	------------------------------------	---------------------------

<input type="checkbox"/> SPL	<input type="checkbox"/> SPP	<input type="checkbox"/> MP	<input type="checkbox"/> TX/MP AM	<input type="checkbox"/> ZC	<input type="checkbox"/> CU	<input type="checkbox"/> EXP	<input type="checkbox"/> MOD SPL	<input type="checkbox"/> MOD SPP
------------------------------	------------------------------	-----------------------------	-----------------------------------	-----------------------------	-----------------------------	------------------------------	----------------------------------	----------------------------------

**Applicant Information:**

Name: North Stonington Bible Church Inc.  
Mailing Address: Attn: Mr. Steven E. Masalin  
PO Box 28; North Stonington, CT 06359

Contact Info: Phone: 860-912-8266 E-mail: masalin@snet.net

**Owner of Record:**

Name: North Stonington Bible Church Inc.  
Mailing Address: Attn: Mr. Steven E. Masalin  
PO Box 28; North Stonington, CT 06359

Contact Info: Phone: 860-912-8266 E-mail: masalin@snet.net

Property Location: 100C Jeremy Hill Road; North Stonington CT 06359

Assessor Parcel Information: Map:  Lot:

Zoning District of Property:  Restrictive Overlay Area:   
R40 - R60 - R80 - C - HC - I - ED - RC      N/A - VPO - WSPO - SUO - APOA

(See Chapter 7)

**Specific Use as Listed under Specific Zoning**

District in Regulations:

Detail of Use Requested: Modification to Site Plan for a 1-Story 6136 SF wood-framed addition to existing 1-Story 5717 SF Church Building. New Addition to contain additional classrooms, mtg hall & kitchen facility. Provide new parking for 42 paved spaces & 47 gravel surface over-flow spaces ~ Total Parking = 89 Spaces.

2/24/22  
Date

Steven E. Masalin  
Signature (Applicant)

2/24/22  
Date

Steven E. Masalin  
Signature (Property Owner of Record)

The applicant and property owner above are applying for a Site Plan Approval as specified above and in accordance with the Zoning Regulations of the Town of North Stonington.

**For Office Use Only:** Disposition and action taken by the Inland Wetlands Commission or Insignificant and Rights of Use Permits by the Inland Wetlands Officer. (Wetlands Permit is valid for 5 years from date of issuance as long as work has commenced)

\_\_\_\_\_

Signature of IWC Chairman or WEO: \_\_\_\_\_ Date: \_\_\_\_\_

**ADJOINING PROPERTY OWNERS WITHIN 100' OF  
100C JEREMY HILL ROAD - No. STONINGTON CT 06359**

Date Updated: 02/25/2022

<b>Name</b>	<b>Parcel # &amp; M/B/L</b>	<b>Parcel Address</b>	<b>Mailing Address</b>	<b>Zone</b>
Erik L. & Patricia L. Taylor	MBL 114-3715	54 Jeremy Hill Road; N. Stonington CT 06359	54 Jeremy Hill Road; N. Stonington CT 06359	R-60
Nicholas D. & Daniel C. Damato	MBL 115-4798	92 Jeremy Hill Road; N. Stonington CT 06359	92 Jeremy Hill Road; N. Stonington CT 06359	R-60
Aaron T. Warren	MBL 115-1988	100A Jeremy Hill Road; N. Stonington CT 06359	100A Jeremy Hill Road; N. Stonington CT 06359	R-60
Erik L. & Patricia L. Taylor	MBL 115-7823	Jeremy Hill Road; N. Stonington CT 06359	54 Jeremy Hill Road; N. Stonington CT 06359	R-60
Town of North Stonington	MBL 115-6147	Jeremy Hill Road; N. Stonington CT 06359	40 Main Street; N. Stonington CT 06359	R-60
N/A	MBL 115-3345	101 Jeremy Hill Road; N. Stonington CT 06359	101 Jeremy Hill Road; N. Stonington CT 06359	R-60
Donald C. & Sharon E. Banker	MBL 115-2565	97 Jeremy Hill Road; N. Stonington CT 06359	97 Jeremy Hill Road; N. Stonington CT 06359	R-60



App No. _____
Check No. _____
Receipt No. _____
<b>REVIEW FEE: \$25.00</b>
w/site visit or soil test: \$50.00
Make check to LLHD or pay online
at <a href="http://www.LLHD.org">www.LLHD.org</a> rev 4/30/17

Promoting  
healthy  
communities

## B100a: Application for Building Addition, Change in Use, Accessory Structure, or Lot Line Change

**Note: Please include the following with your application:**

1. A scaled site plan of your property showing property lines, existing buildings, septic system (s), water line (s)/ well (s), and proposed building addition or accessory structure.
2. For additions of living space: existing and proposed floor plans.
3. Soil testing information, if available.

Date: 02/25/22 Property Address: 100C Jeremy Hill Road Town: North Stonington CT

Applicant Name: North Stonington Bible Church Inc. Phone: 860-812-8266 (Attn. Steve Masalin)

Email: masalin@snet.net

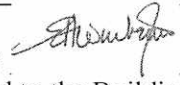
Applicant Address (if different from above): PO Box 28; North Stonington, CT 06359

Property Water Supply:  Well (s)  Public Water  Both

Type of Application:  
 Building Addition (e.g., adding rooms or 2nd floor, finishing attic or basement); additional bedrooms N/A  
 Building Change in Use or Conversion (e.g., office or retail to food service; home winterization)  
 Accessory Structure (Garage, Shed, Deck, Pool, etc.)  
 Lot Line Change

Please provide a brief description of the proposed project: Installing a previously approved 1-story expansion of existing church; Existing as-built septic system was permitted & constructed 2009.

It was designed, sized & constructed for the current proposed Church expansion. No Change in San ADF.

Signed:  Edward H. Wenke III PE  
Project Engineer \* Applicant attests that project information is the same as that supplied to the Building Department (if applicable).

Reviewed by: \_\_\_\_\_ Title: \_\_\_\_\_  Approved  Denied

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

# Town of North Stonington, CT

## Property Listing Report

Map Block Lot 115 0343

Building # 1 Unique Identifier B0035000

### Property Information

Property Location	100B JEREMY HL
Mailing Address	P O BOX 28 NORTH STONINGTON CT 063590028
Land Use	Church - Sanctuary (Chapel)
Zoning Code	R60
Neighborhood	C90

Owner	NO STON BIBLE CHURCH INC
Co-Owner	
Book / Page	0053/0267
Land Class	Commercial
Census Tract	7071
Acreage	7.46

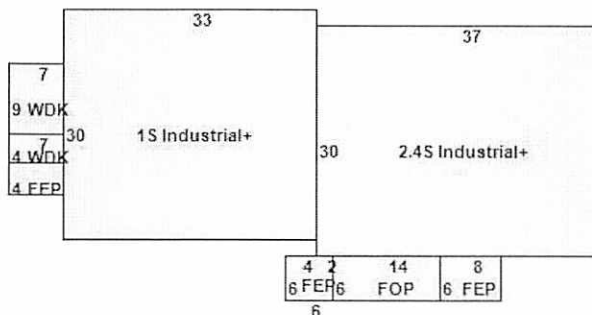
### Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	2284000	1598800
Outbuildings	14400	10080
Land	144800	101360
<b>Total</b>	<b>2443200</b>	<b>1710240</b>

### Utility Information

Electric	NA
Gas	NA
Sewer	NA
Public Water	NA
Well	NA



### Primary Construction Details

Year Built	1898
Building Desc.	Commercial
Building Style	
Stories	2.4
Exterior Walls	Wood Shingles
Exterior Walls 2	
Interior Walls	Drywall
Interior Walls 2	Panel
Interior Floors 1	Carpet
Interior Floors 2	

Heating Fuel	Other
Heating Type	Forced Hot Air
AC Type	None
Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	0
Bath Style	NA
Kitchen Style	
Occupancy	0

Building Use	Church - Sanctuary
Building Condition	Good/Very Good
Frame Type	C+
Fireplaces	0
Bsmt Gar	0
Fin Bsmt Area	2100
Fin Bsmt Quality	Average Quality
Building Grade	0
Roof Style	Gambrel
Roof Cover	Asphalt

Report Created On

9/24/2021

# Town of North Stonington, CT

Property Listing Report

Map Block Lot 115 0343

Building # 1 Unique Identifier B0035000

## Detached Outbuildings

Type	Description	Area (sq ft)	Condition	Year Built
Other	Lights in W/PL	2	Good	2000
Shed	Frame	120	Average/Good	2000
Barn	1 Story Barn	1144	Fair	2000
Barn	1 Story Barn	544	Average	2000
Patio	Patio	220	Good	2000

## Attached Extra Features

Type	Description	Area (sq ft)	Condition	Year Built
Porch	Enclosed	48	Average	1898
Porch	Enclosed	36	Average	1898
Porch	Enclosed	28	Average	1898
Porch	Open	84	Average	1898
Deck	Wood	63	Average	1898
Deck	Wood	28	Average	1898

## Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
NO STON BIBLE CHURCH INC	0053_0267	11/6/1978	0



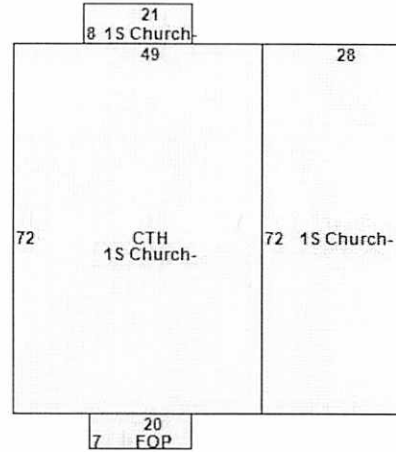
# Town of North Stonington, CT

Property Listing Report

Map Block Lot 115 0343

Building # 2

Unique Identifier B0035000



## Primary Construction Details

Year Built	2010
Building Desc.	Church - Sanctuary (Chapel)
Building Style	
Stories	1
Exterior Walls	Vinyl Siding
Exterior Walls 2	
Interior Walls	Drywall
Interior Walls 2	
Interior Floors 1	Concrete
Interior Floors 2	

Heating Fuel	Propane Gas
Heating Type	Forced Hot Air
AC Type	Central
Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	0
Bath Style	NA
Kitchen Style	
Occupancy	0

Building Use	Commercial
Building Condition	Average
Frame Type	B
Fireplaces	0
Bsmt Gar	0
Fin Bsmt Area	0
Fin Bsmt Quality	
Building Grade	0
Roof Style	Gable
Roof Cover	Metal

## Attached Extra Features

Type	Description	Area (sq ft)	Condition	Year Built
Cathedral/Loft	Cathedral	3528	Average	2010
Porch	Open	140	Average	2010

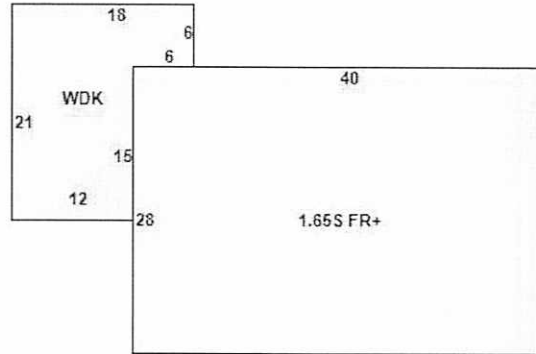
# Town of North Stonington, CT

Property Listing Report

Map Block Lot 115 0343

Building # 3

Unique Identifier B0035000



## Primary Construction Details

Year Built	1981
Building Desc.	Single Family
Building Style	Cape
Stories	1.75
Exterior Walls	Wood Shingles
Exterior Walls 2	
Interior Walls	Drywall
Interior Walls 2	
Interior Floors 1	Hardwood
Interior Floors 2	

Heating Fuel	Oil
Heating Type	Hot Water
AC Type	Central
Bedrooms	5
Full Bathrooms	2
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	8
Bath Style	NA
Kitchen Style	Typical
Occupancy	1

Building Use	Residential
Building Condition	Good
Frame Type	Wood Frame
Fireplaces	1
Bsmt Gar	0
Fin Bsmt Area	796
Fin Bsmt Quality	Average Quality
Building Grade	0
Roof Style	Gable
Roof Cover	Asphalt

## Attached Extra Features

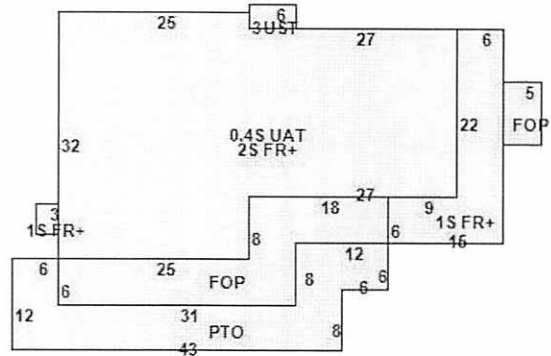
Type	Description	Area (sq ft)	Condition	Year Built
Deck	Wood	288	Good	1981

# Town of North Stonington, CT

Property Listing Report

Map Block Lot 115 0343

Building # 4 Unique Identifier B0035000



## Primary Construction Details

Year Built	1898
Building Desc.	Single Family
Building Style	Conventional
Stories	2.4
Exterior Walls	Clapboards
Exterior Walls 2	Wood Shingles
Interior Walls	Plaster
Interior Walls 2	
Interior Floors 1	Hardwood
Interior Floors 2	

Heating Fuel	Oil
Heating Type	Hot Water
AC Type	None
Bedrooms	6
Full Bathrooms	1
Half Bathrooms	1
Extra Fixtures	0
Total Rooms	10
Bath Style	NA
Kitchen Style	Typical
Occupancy	1

Building Use	Residential
Building Condition	Good
Frame Type	Wood Frame
Fireplaces	1
Bsmt Gar	0
Fin Bsmt Area	0
Fin Bsmt Quality	
Building Grade	0
Roof Style	Gable
Roof Cover	Asphalt

## Attached Extra Features

Type	Description	Area (sq ft)	Condition	Year Built
Porch	Open	306	Good	1898
Utility	Storage	18	Good	1898
Porch	Open	40	Good	1898
Patio	Patio	378	Good	1898
Unfin Attic	Unfinished Attic	558	Good	1898

## Appendix D

### SITE PLAN CHECK SHEET

**Standard Elements of the Site Plan.** As indicated in Section 1302 of the Zoning Regulations, the following information is usually required with any application for Site Plan approval. However, the Commission may approve or modify and approve a Site Plan application that does not include all such information if it finds that such information is not needed to assure that the proposed use or uses will be in compliance with the substantive provisions of these Regulations. The Commission may also require additional information if necessary to determine compliance. For modifications to Site Plans produced prior to 1996, additional boundary information may be required.

The following information shall be provided on a 24 x 36 inch plan, with scale of 1" = 40'. Applicant shall submit three full size plans. Ten additional copies of the Site Plan shall be provided on an 11 x 17 (reduced copy) plan.

- ✓ A. Property and applicant information:
  - 1. address of the property;
  - 2. name and address of owner of record; and
  - 3. name of and address of the applicant.
- ✓ B. Names and addresses of current owners of property within 100 feet of the parcel as shown in the Assessor's records, including properties across from any street/road, river, and/or municipal boundary, and properties sharing a driveway with the subject property.
- ✓ C. Zone of site and of all property within 500 feet.
- ✓ D. Copies of the current tax map, property card, and deed associated with the property.
- ✓ E. North arrow (if other than North American Datum (NAD) 83 the applicant shall state why and provide standard for alternative), scale, name(s) of person(s) preparing plan, date of drawing, and any revision dates with description of revisions (revision dates shall appear on each plan sheet that has been revised and shall include a description of the revisions).
- ✓ F. Property boundaries (Class A-2 with dimensions, angles, and area of the parcel and/or parcels subject to the application).
- ✓ G. Existing and proposed street and lot lines and the dimensions of all yards and buildable area, per Chapter 4 of the Regulations.
- ✓ H. A zoning compliance chart or table that indicates the dimensional and use requirements for the property in the Zone and how the proposed structure and uses will comply with the requirements.
- ✓ I. Existing and proposed contour lines. For all areas of the parcel within 100 feet of any proposed work (including construction, excavation, filling, grading, and clearing of vegetation), the contour interval shall be no greater than two (2) feet (T-2 or T-3 accuracy). Topography taken from USGS Quadrangle interpolation shall not be acceptable for such areas, but may be used for other portions of the site. The Commission may require the applicant to submit

## Appendix D

- ✓ design drawing(s), including cross sections and elevation, of all proposed activity. Additional spot elevations may be required where necessary to indicate drainage patterns.
- ✓ J. Locations and specifications of all existing and proposed structures and uses including, but not limited to, buildings, stone walls, fences, sidewalks, driveways, parking and loading areas, exterior storage areas, signs, abutting streets, utility structures, and hydrants. Existing and proposed buildings and structures shall detail the number of bedrooms in each and/or the total number of bathrooms. Renderings of any proposed building, specifying siding materials, should be provided; front, side, and rear elevations shall be shown.
- ✓ K. Locations and descriptions of water supply wells or other water sources and of all sewage disposal facilities, together with percolation and test pit data.
- ✓ L. Location of proposed subsurface sewage disposal systems and reserve fields, showing distances to adjacent land, distances from all wells within 200 feet (on or off the tract), and distance from any manure handling systems.
- ✓ M. Locations of existing and proposed drainage facilities on the site and those off-site that may be affected by the proposed activity, as well as any points of collected drainage discharges (i.e., discharges other than natural sheet flow) onto or off of the site.
- ✓ N. Location of wetlands, watercourses and wetlands buffers, with the live signature of the soil scientist who identified such features. All wetlands shall be field located. In addition to the wetlands delineation all soil types shall be shown per "Soil Survey of New London County, Connecticut."
- ✓ O. Identification of surface and groundwater resources on and around the site, including any public or private domestic users of such waters; the depth to groundwater and description of adjacent soils, and an evaluation of the impact of the proposal on existing and potential surface and ground drinking water supplies. The Commission may require additional information necessary to ensure protection of water resources, and may require that the report be prepared by a hydrogeologist or other qualified professional.
- ✓ P. Identification of any chemicals or potential contaminants to be used, stored or produced on site or discharged on or off the site, and a detailed description of methods and procedures by which any chemicals or potential contaminants on site will be stored, used, applied, discharged, and disposed.

Wetlands  
taken from  
Orig 2004  
Survey Map

- Q. All soil types per "Soil Survey of New London County, Connecticut." Provide signature block for the soil scientist certifying that all wetlands and watercourses have been delineated or that there are none on the property shall be placed on the plans.

N/A

- R. Any existing or proposed easements and deed restrictions affecting the property including Conservation and/or Open Space areas including any areas/easements required by the Inland Wetlands Commission.

N/A

- S. Areas within 100 year flood hazard areas as delineated by the Federal Emergency Management Agency (FEMA) and as shown on the most recently amended maps prepared by FEMA must be shown with a note saying "**Limits of Flood Hazard Zone are approximate and are scaled from the**

## Appendix D

**Federal Flood Hazard maps.**" When a lot does not include land within the 100-year flood hazard area, the map shall include the following notation: "**This lot does not include land areas within the Federal Emergency Management Agency's 100-year flood hazard area.**"

- N/A T. Any boundaries of any sub-regional watersheds that lie within the site, as shown on maps available from the Natural Resources Center of the Department of Energy and Environmental Protection.
- U. A landscape plan in conformance with Section 1103 showing the planting, location and species to be used, the ground cover and surface treatments proposed, and identification of the types and location of existing vegetation to remain in place on the site. The Commission shall require such plans to be prepared by a professional landscape architect (e.g., American Association of Landscape Architects, ASLA).
- N/A V. Sight line information at proposed driveway cut(s), and statement that plans have either been submitted to DOT for review or that DOT review is not required.
- N/A W. Lighting Plan in conformance with Section 1110.
- X. All wooded areas, specimen trees (exceeding 30 inches diameter at breast height (dbh), five feet above the ground), rock outcroppings (greater than 200 square feet surface area) and any unique and fragile natural features.
- N/A Y. The general location of any endangered special and/or species of special concern per DEEP NDDB Map.
- N/A Z. Any stone walls, monuments, and other structures having historical significance.
- N/A AA. Any archaeological sites including but not limited to those known to the State Archaeologist's Office. The Commission may require the Applicant to submit a report from the State Archaeologist's Office.
- N/A BB. Any historic buildings and sites listed on the National Register of Historic Places.
- N/A CC. If required by the Commission, evidence of submission, review and acceptability of plans to other State and Local regulatory agencies with jurisdiction over some or all of the proposed structures and/or uses including but not limited to the following permits: Inland/Wetland permits, Dept. of Transportation Encroachment Permit and/or State Traffic Commission permit, DEEP, Water Diversion Permit Floodway Encroachment Permit.
- DD. Any other information deemed necessary by the Commission to determine compliance with these Regulations. The Commission may require evaluation reports by Commission-approved independent professionals and other experts, including and not limited to: traffic engineers, hydrologists, soil scientists, geologists.

Edward H. Wenke III, PE – Civil/Structural Engineer

Tel 860.460.1606 Email: [ewenke@comcast.net](mailto:ewenke@comcast.net)

Licensed in: Connecticut, Rhode Island, Massachusetts, Maine, New York, Maryland, Pennsylvania, Wisconsin & California

## ENGINEER'S SITE REPORT

February 25, 2022

### **1. GENERAL SITE DESCRIPTION:**

**Project:** Proposed Church Addition Site Plan  
ZR Section 502

**Owner/Applicant:** North Stonington Bible Church Inc.  
**Attn: Mr. Steven E. Masalin**  
PO Box 28; North Stonington, CT 06359 Tel. 860-812-8266

**Location:** MBL 115/0343  
100C Jeremy Hill Road; North Stonington, CT 06359

**Site Area:** Gross Parcel = 346,467+/- SF (7.95+/- Ac)  
Net Parcel (w/o Stem) = 320,722 +/- SF (7.36+/- Ac)

**Zoning Area:** "R-60" Medium Density Residential District

**Wetlands:** 2,353 +/- SF (0.7%) Regulated Freshwater Inland Wetland areas within parcel.  
70,300 +/- SF (20.2%) Regulated 100' Upland Review Area with parcel.

**Frontage:**

- 53.9'+/- along Jeremy Hill Road
- 2-lane – 22' wide; 2-way paved road; running N/S;
- No curbs; No sidewalks either side; Speed Limit – 35 mph at site frontage;
- Regulated by Town of North Stonington

**Special Zones:**

- FEMA Flood Zone "X" (Area of Minimal Flooding)
- Not located within CTDEEP Public Water Supply Watershed
- Not located in Town Aquifer Protection Zone
- Not located within Coastal Area Management (CAM) Zone
- ***Parcel straddles adjacent Town of Stonington municipality:***
  - Parcel Area within North Stonington = 327,654 +/- SF ~ 7.52 Ac (95%)
  - Parcel Area within Stonington = 18,813 +/- SF ~ 0.43Ac (5%)

**Services Available:**

- Existing On-Site Subsurface Sewage Disposal System(s)
- Existing private On-Site Domestic Potable Well(s)
- Gas Service: Private On-Site Abv Grade 1000 Gal LPG Tank
- Electric Service: Eversource - Exist O/H Aerial Elec/Comm Svcs from Jeremy Hill Rd

**ENGINEER'S SITE REPORT**

**Owner/Applicant: NORTH STONINGTON BIBLE CHURCH INC.**

**Proposed Church Addition Site Plan**

**MBL 115/0343; 100C Jeremy Hill Road; Town of North Stonington, CT 06359**

**February 25, 2022 Page 1 of 9**

**Adjacent Uses:** - *North:* Developed – Single-Family Residential – R-60 Zone  
- *West:* Developed – Single-Family Residential – R-60 Zone  
- *South:* Developed – Single-Family Residential – R-60 Zone  
- *East:* Developed – Single-Family Residential – R-60 Zone

**Site Condition:** The Project Site is an existing Developed “Rear Lot”.  
90% of the Site has been previously disturbed/developed. Site currently consists of Five (5) Buildings being operated as Church Use or Church Related Uses as follows:

- 1-Story Wood-Framed 5,717 SF Church Building
- 1 ½ -Story Wood Framed 3-BR 1,675 SF Parsonage Dwelling #1
- 1 ½ -Story Wood Framed 3-BR 1,145 SF Parsonage Dwelling #2
- 2-Story Wood-Framed 3,038 SF Youth Ministry Bldg/Offices
- 1-Story Wood Framed Shed/Outbuilding

Each existing building has an existing separate on-site subsurface sewage disposal system serving it (5 total). The septic system serving the Church Building was originally designed, permitted and constructed based on the full build-out of the site including this proposed Addition.

There are three (3) private on-site potable domestic wells serving all (5) buildings. The well system on this site has been previously permitted by the CTDPH #PWSID CT1020234 Transient Non-Community Water System, on 08/19/2004.

All existing buildings are **conforming** with regard to Front Yard, Side Yard & Rear Yard Setbacks.

The site currently has an existing driveway onto Jeremy Hill Road. The driveway is approx. 28’-30’ wide, with half the width (12’-15’) bituminous paved, and the other half stone chip-sealed. Driveway has no curbs and run-off sheet flows over the edge on each side.

The site is located at the top of its own watershed (no higher ground surrounds it). The majority of the site slopes 3%-4% average west to east. The remaining portion slopes 4%-5% average to the west. No steep slopes greater than 10% exist on the site. Existing 600 LF driveway grade is less than 2% slope.

There are no wooded forest portions on the site. Site is vegetated with mostly grass lawns with interspersed mature hardwood & evergreen trees, bushes and foundation plantings.

Existing Site has 48,838+/- sf (14.1%) Impervious Bit Paved & Chip-Sealed Driveways, Concrete Walks/Pads & Building Roof surfaces.

**ENGINEER’S SITE REPORT**

**Owner/Applicant: NORTH STONINGTON BIBLE CHURCH INC.**

**Proposed Church Addition Site Plan**

**MBL 115/0343; 100C Jeremy Hill Road; Town of North Stonington, CT 06359**

**February 25, 2022 Page 2 of 9**



Edward H. Wenke III, PE – Civil/Structural Engineer

Tel 860.460.1606 Email: [ewenke@comcast.net](mailto:ewenke@comcast.net)

Licensed in: Connecticut, Rhode Island, Massachusetts, Maine, New York, Maryland, Pennsylvania, Wisconsin & California

**NRCS Soil Conditions:**

- #45A - WOODBRIDGE Fine Sandy Loams 0%-3% Slopes
- #45B - WOODBRIDGE Fine Sandy Loams 3%-8% Slopes
- Moderately Well-Drained; HSG C/D; Restrictive 20"-39";
- Depth to GWT: 18"-30"; Ksat: Mod to V. Low 0.0-0.14 in/hr

Test Pits (2004) indicate average: 0"-10" Topsoil; 10"-30" Or-BR Silty Loam; 30"-108" OL-GR Silt; VF Sand ; Mottles at 28"; GWT @ 64"; No Ledge to 108".

**Previous Permits:** The Church Use Expansion on this site was previously approved by the Town PZC on 09/02/2004 as SP#04-158. This permit was extended 5-years by the PZC on 5/18/2009 as SP#09-034. It was further modified and approved by the PZC on 11/10/2009 as SP#09-100.

A Wetlands Permit #04-078 was approved on 06/09/2004 for the Church Expansion Site Plan including driveway & parking area encroachment within the 100' Upland Review area. These encroachments have been constructed. Aside from the proposed 5300 sf re-surfacing of the existing stone chip-sealed driveway (previously approved), No new construction activity falls within the 100' URA. As such, a Wetlands permit would not be required for this project.

This parcel has been the subject of various previous approved permits as follows:

PREVIOUS SITE PERMIT HISTORY:		
DATE APPV'D	PERMIT #	PERMIT DESCRIPTION
4/23/1977	77-025	ZONING PERMIT TO CONSTRUCT 24'X50' RESIDENCE
11/02/80	80-31	SEPTIC SYSTEM PERMIT 3-BR PARSONAGE BLDG
02/25/85	85-5	SEPTIC SYSTEM PERMIT - CHURCH ADDITION/DAYCARE
10/2/1996	96-99	ZONING PERMIT TO CONSTRUCT 10'X24' WOOD DECK
10/2/1996	96-094	BUILDING PERMIT - 12'X21' DECK
7/9/1997	97-13	WETLANDS PERMIT TO CONSTRUCT DRIVEWAY
6/9/2004	04-078	WETLAND PERMIT TO FILL
7/20/2004	VARIANCE 04-06	V0165/P0902 - PARK SPACE SIZE/DRIVEWAY REDUCTION/ELIMINATE CURB REQMTS
8/19/2004	PWSID CT1020234	CTDOH WELL SITE APPROVAL - TRANSIENT NON-COMMUNITY WATER SYSTEM
9/2/2004	SP#04-158	SITE PERMIT FOR EXPANSION OF EXIST CHURCH FACILITY (NEW CHURCH BLDG)
10/7/2004	227458	CT WELL DRILLING PERMIT - CHURCH
11/1/2006		BUILDING PERMIT - RE-SHINGLE PARSONAGE ROOF
11/21/2006	H06-035	BUILDING PERMIT - 120G LPG TANK & PIPING
5/18/2009	09-034	SITE PLAN APPROVAL EXTENSION - 5 YEARS
11/10/2009	09-100	SITE PLAN MINOR MODIFICATION - CHANGES IN CHURCH CONSTRUCTION PHASING
3/3/2010	10-014	ZONING PERMIT TO CONSTRUCT NEW CHURCH
5/3/2010	B10-007	BUILDING PERMIT TO CONSTRUCT CHURCH BUILDING
10/7/2010	H10-035	BUILDING PERMIT - A/G 1000G LPG TANK & PIPING
4/5/2011	S11-004	SEPTIC SYSTEM PERMIT - CHURCH - DESIGN SAN ADF = 1305 GPD
5/19/2011	C.O.	CERTIFICATE OF OCCUPANCY - CHURCH BUILDING
9/23/2019	E19-094	BUILDING PERMIT - NEW 200A ELECTRIC SERVICE & PANEL
6/24/2021	B21-206	BUILDING PERMIT - TEMP WEDDING TENT

**ENGINEER'S SITE REPORT**

Owner/Applicant: NORTH STONINGTON BIBLE CHURCH INC.

Proposed Church Addition Site Plan

MBL 115/0343; 100C Jeremy Hill Road; Town of North Stonington, CT 06359

February 25, 2022 Page 3 of 9

Edward H. Wenke III, PE – Civil/Structural Engineer

Tel 860.460.1606 Email: [ewenke@comcast.net](mailto:ewenke@comcast.net)

Licensed in: Connecticut, Rhode Island, Massachusetts, Maine, New York, Maryland, Pennsylvania, Wisconsin & California

## 2. STATEMENT OF USE:

### Description of Proposed Site Improvements & Land Use:

- This application proposes the construction of a 1-story wood frame slab-on-grade 6,136 sf building addition to the existing 5,717 sf Church Building.
- This improvement will add a main entry vestibule; (4) new classrooms; (2) bathrooms; a 2500 sf “Fellowship Hall”, (1) kitchen facility and storage area.
- The addition will not have any basement or crawlspace.
- New Church Building Base Area = 11,853 sf
- New Church Building Gross Floor Area (incl. Mezzanine) = 12,293 sf
- Existing capacity of Church = 250 seats (No increase in seats is proposed).
- No increase in previously approved Average Daily Sanitary Sewage Flow (ADF)
- Existing installed septic system was originally designed and sized for this expansion.
- No new Potable Well is proposed. Water service will be extended thru the interior of the existing Church Building.
- No new Electric service is proposed. A new sub-panel will be extended off the existing interior Church Building Main panel service.
- No new roof drain infiltration system is proposed. The existing installed roof drain infiltration system was originally designed and sized for this building roof expansion.

### Parking & Site Improvements:

- The existing parking facility for the existing Church Building consist of a gravel surface parking lot. An existing 24’W x 102’L bituminous paved apron currently serves six (6) ADA HC spaces along the front of the existing building at the entry door.
- Parking to be provided for this building expansion has been developed to provide LID measures by minimizing the new impervious pavement surface.
- The required quantities of parking is based on the maximum occupancy of the Church (250 seats / 3 seats per space = 83.3 ~ **84 Spaces required by zoning**).
- Proposed quantity of parking provided includes:
  - o (42) Bit Paved Parking Spaces (incl. (4) ADA HC Spaces)
  - o (47) stone surface Parking Spaces for overflow parking.
  - o **(89) Spaces Total Provided**
- The attendance log of the church for weekly services has an average of (89) attendees per week. Parking required on an average weekly basis = 89 / 3 seats/space = 29.6 ~ 30 spaces required. Therefore, the (42) paved parking spaces provided will be adequate to support average weekly attendance. Any overflow parking generated by holidays or special church events would utilize the gravel overflow parking spaces.
- Existing Impervious Site Area = 48,838 sf (14.1%)  
Proposed Impervious Site Area = 62,499 sf (18.0%)
- A new Screened Dumpster Pad for standard & recyclable dumpsters is proposed
- No Truck Loading Required or Proposed

### ENGINEER’S SITE REPORT

Owner/Applicant: NORTH STONINGTON BIBLE CHURCH INC.

Proposed Church Addition Site Plan

MBL 115/0343; 100C Jeremy Hill Road; Town of North Stonington, CT 06359

February 25, 2022 Page 4 of 9

Edward H. Wenke III, PE – Civil/Structural Engineer

Tel 860.460.1606 Email: [ewenke@comcast.net](mailto:ewenke@comcast.net)

Licensed in: Connecticut, Rhode Island, Massachusetts, Maine, New York, Maryland, Pennsylvania, Wisconsin & California

- A 25' buffer strip is reserved on the west, north & east property lines adjacent to Residential Zoned parcels.
- No fire sprinklers are required/proposed
- No on-site landscape irrigation system is proposed
- No free-standing light poles/fixtures are proposed.
- The existing free-standing non-illuminated sign at the street frontage will remain unchanged. No new free-standing or wall mounted signs are proposed at this time

### Zoning Criteria & Waivers:

- The New Building Addition footprint conforms to all current zoning yard setbacks.
- Entire proposed Site Improvements comply with ALL required Zoning criteria.
- No Zoning Variances or Waivers are required.

### **3. HAZARDOUS MATERIAL:**

The Church Use shall not generate, store, transfer, handle or otherwise create any Hazardous Waste or Materials as defined by the USEPA, or by Sect 3001 of the Resource Conservation & Recovery Act, Connecticut Hazardous Waste Regulations, The Federal Toxic Substance Act, or the Toxic Substance Control Act.

### **4. STORMWATER ANALYSIS & PROJECT HYDROLOGY:**

A Rational Method (NRCS Methodology) hydrologic analysis was performed for the project site to establish peak flow run-off changes for Historic vs. Developed conditions. Historic Site conditions used for this analysis were taken from surveys & plans prepared by others. Historic Site Conditions have also been visually verified. Site-specific Rainfall Intensities & depths were established from the NOAA Atlas 14 database.

All the existing storm run-off emanating from this site is surface sheet flow across the Gravel Parking area. There are no existing storm inlets/piping systems within the site limits. The site is located at the top of its own watershed (no higher ground surrounds it). Most of the project site slopes 3%-4% average west to east. There is a wetland on the adjacent property to the east that receives the easterly surface sheet flows.

The remaining portion of the project site slopes 4%-5% average to the west. The site generated westerly sheet flows across grasses areas & woodlands on the northerly adjoining property. A small portion of the project site sheet flows to the north. This northerly surface run-off flows across grasses areas & woodlands on the northerly adjoining property. There are no surface point discharges within the project site.

#### ENGINEER'S SITE REPORT

Owner/Applicant: NORTH STONINGTON BIBLE CHURCH INC.

Proposed Church Addition Site Plan

MBL 115/0343; 100C Jeremy Hill Road; Town of North Stonington, CT 06359

February 25, 2022 Page 5 of 9

Edward H. Wenke III, PE – Civil/Structural Engineer

Tel 860.460.1606 Email: ewenke@comcast.net

Licensed in: Connecticut, Rhode Island, Massachusetts, Maine, New York, Maryland, Pennsylvania, Wisconsin & California

The existing Church Building Roof discharges run-off via an existing closed pipe system discharging to an existing underground recharge chamber system. This chamber system was design and sized for the full future build-out of the site which includes this current proposed building expansion.

CTDEEP Groundwater Water Quality classification for the site area is Final Aquifer Protection Area (Level A) which will be reclassified as “GAA” in the next watershed map revision. *Class “GAA” are existing or potential public supply of water suitable for drinking without treatment and baseflow for hydraulically connected surface water bodies.”*

The design of this site has incorporated LID measures to address water quantities and quality. The entire building roof will be diverted to the underground infiltration chambers which will recharge the GWT. The parking lot will be converted from a full exposed gravel (bare earth) surface to a partial paved and partial crushed stone surface. In other words, the applicant is only paving the area of the parking lot that will be used on a weekly basis. Any parking beyond the normal weekly traffic will utilize the gravel surface parking spaces.

All surface flow from the parking lot area will remain as sheet flow. No inlets, pipes or point discharges of surface run-off are proposed except for stone filter underdrains. The parking lot has been split into (3) sub-catchments which will each sheet flow over the edge of pavement to a stone filled filter trench. This will capture the lower flow (more frequent storms) and recharge into the ground. Any overflows of these stone filter trenches will continue to run as surface sheet flow to the property lines, as they historically have done.

ON-SITE - GROSS SURFACE CHANGES				02.13.22
SURFACE DESCRIPTION	HISTORIC S.F.	DEVELOPED S.F.	CHANGE S.F.	
GROSS PARCEL AREA (INCL. STEM)	346,467	346,467	0	No Change
NET PARCEL AREA (WITHOUT STEM)	320,722	320,722	0	No Change
IMPERV BIT PAVEMENT	19,167	26,260	7,093	Increase
IMPERV CHIP-SEAL DRIVEWAY	15,100	16,020	920	No Change
IMPERV WALKS/PADS	2,433	1,945	(488)	Decrease
IMPERVIOUS ROOF	12,138	18,274	6,136	Increase
SEMI-PERVIOUS GRAVEL DRIVE/PARKING	54,513	19,220	(35,293)	Decrease
2%-5% SLOPED GRASS LAWN AREA	243,116	258,328	15,212	Decrease
BARK MULCH PLANTING BEDS	0	3,500	3,500	Increase
STONE-LINED STORM FILTER SWALES	0	2,920	2,920	
TOTALS ON-SITE SURFACE AREA:	346,467	346,467		
TOTAL IMPERVIOUS SURFACE AREA:	48,838	62,499	28.0%	% CHANGE
TOTAL % IMPERVIOUS SURFACE:	14.1%	18.0%	20% Max Allowed	

**Design Point #1E (Easterly Flow)** is the site surface flow to the east property line and wetland beyond on the adjacent parcel. DP#1E Watershed Historic Area = 3.38 Acres. Under Developed

**ENGINEER'S SITE REPORT**

Owner/Applicant: NORTH STONINGTON BIBLE CHURCH INC.

Proposed Church Addition Site Plan

MBL 115/0343; 100C Jeremy Hill Road; Town of North Stonington, CT 06359

February 25, 2022 Page 6 of 9

Edward H. Wenke III, PE – Civil/Structural Engineer

Tel 860.460.1606 Email: ewenke@comcast.net

Licensed in: Connecticut, Rhode Island, Massachusetts, Maine, New York, Maryland, Pennsylvania, Wisconsin & California

Conditions, the Watershed Area decreases to 2.88 Acres (-14.69% Decrease). This is due to the paved sub-catchments #1 & #2 being sheet flowed into stone storm filter infiltration trenches. This results in a (-16.79%) Decrease in Storm Peak Flows to the Eastern boundary.

RUNOFF ANALYSIS SUMMARY - Design Point #1E - FLOW TO EAST					
Rainfall Intensities:	NOAA Atlas #14	Developed	Historic	Increase/	% Change
Storm Event	Intensity (In/Hr)	Run-off Rate	Run-off Rate	(Decrease) in	Run-off Rate
MINIMUM Developed Tc (Minutes) Used ~	5.0	"Q" (CFS)	"Q" (CFS)	Run-off (CFS)	(%)
2 year	4.82	6.80	8.18	(1.37)	-16.79%
10 year	7.26	10.25	12.32	(2.07)	-16.79%
25 year	8.77	13.62	16.37	(2.75)	-16.79%
50 year	9.91	16.79	20.18	(3.39)	-16.79%
100 year	11.10	19.59	23.54	(3.95)	-16.79%
Watershed Area Change:					
Watershed Area (Historic):	3.38	Impervious Area (Historic):	1.066 Ac.		
Watershed Area (Developed):	2.88	Impervious Area (Developed):	0.676 Ac.		
Net Change in Watershed Area (Acres):	-0.50	-14.69%	Increase / Decrease:	-0.390 Ac. Impervious Area	

**Design Point #2W (Westerly Flow)** is the site surface flow to the West property line over a grass lawn & wooded area on the adjacent parcel. DP#2W Watershed Historic Area = 3.00 Acres. Under Developed Conditions, the Watershed Area decreases to 2.90 Acres (-3.3% Decrease). This results in a (-9.12%) Decrease in Storm Peak Flows to the Western boundary.

RUNOFF ANALYSIS SUMMARY - Design Point #2W - FLOW TO WEST					
Rainfall Intensities:	NOAA Atlas #14	Developed	Historic	Increase/	% Change
Storm Event	Intensity (In/Hr)	Run-off Rate	Run-off Rate	(Decrease) in	Run-off Rate
MINIMUM Developed Tc (Minutes) Used ~	5.0	"Q" (CFS)	"Q" (CFS)	Run-off (CFS)	(%)
2 year	4.82	6.17	6.79	(0.62)	-9.12%
10 year	7.26	9.30	10.23	(0.93)	-9.12%
25 year	8.77	12.36	13.60	(1.24)	-9.12%
50 year	9.91	15.23	16.76	(1.53)	-9.12%
100 year	11.10	17.77	19.56	(1.78)	-9.12%
Watershed Area Change:					
Watershed Area (Historic):	3.00	Impervious Area (Historic):	0.490 Ac.		
Watershed Area (Developed):	2.90	Impervious Area (Developed):	0.220 Ac.		
Net Change in Watershed Area (Acres):	-0.10	-3.33%	Increase / Decrease:	-0.270 Ac. Impervious Area	

**Design Point #3N (Northerly Flow)** is the site surface flow to the North property line over a grass lawn & wooded area on the adjacent parcel. DP#3N Watershed Historic Area = 0.30 Acres. Under Developed Conditions, the Watershed Area remains at 0.30 Acres (No Change). This results in No Change in Storm Peak Flows to the Northern boundary.

RUNOFF ANALYSIS SUMMARY - Design Point #3N - FLOW TO NORTH					
Rainfall Intensities:	NOAA Atlas #14	Developed	Historic	Increase/	% Change
Storm Event	Intensity (In/Hr)	Run-off Rate	Run-off Rate	(Decrease) in	Run-off Rate
MINIMUM Developed Tc (Minutes) Used ~	5.0	"Q" (CFS)	"Q" (CFS)	Run-off (CFS)	(%)
2 year	4.82	0.64	0.64	0.00	0.00%
10 year	7.26	0.96	0.96	0.00	0.00%
25 year	8.77	1.27	1.27	0.00	0.00%
50 year	9.91	1.57	1.57	0.00	0.00%
100 year	11.10	1.83	1.83	0.00	0.00%
Watershed Area Change:					
Watershed Area (Historic):	0.30	Impervious Area (Historic):	0.040 Ac.		
Watershed Area (Developed):	0.30	Impervious Area (Developed):	0.040 Ac.		
Net Change in Watershed Area (Acres):	0.00	0.00%	Increase / Decrease:	0.000 Ac. Impervious Area	

**ENGINEER'S SITE REPORT**

Owner/Applicant: NORTH STONINGTON BIBLE CHURCH INC.

Proposed Church Addition Site Plan

MBL 115/0343; 100C Jeremy Hill Road; Town of North Stonington, CT 06359

February 25, 2022 Page 7 of 9

Edward H. Wenke III, PE – Civil/Structural Engineer

Tel 860.460.1606 Email: ewenke@comcast.net

Licensed in: Connecticut, Rhode Island, Massachusetts, Maine, New York, Maryland, Pennsylvania, Wisconsin & California

**Design Point #4R (Roof Flow to Existing Recharger Chambers)** is the roof flow to the existing recharger chamber system. DP#4R Watershed Historic Roof Area = 0.13 Acres. Under Developed Conditions, the Roof Area increases to 0.272 Acres (**109% Increase**). This results in **109% Increase** in Roof Peak Flows to the Existing Chamber System, which was previously designed, sized & installed to support this capacity.

RUNOFF ANALYSIS SUMMARY - Design Point #4R: ROOF FLOW TO RECHARGERS					
Rainfall Intensities:	NOAA Atlas #14	Developed	Historic	Increase/	% Change
Storm Event	Intensity (In/Hr)	Run-off Rate	Run-off Rate	(Decrease) in	Run-off Rate
MINIMUM Developed Tc (Minutes) Used ~	5.0	"Q" (CFS)	"Q" (CFS)	Run-off (CFS)	(%)
2 year	4.82	1.25	0.60	0.65	109.23%
10 year	7.26	1.88	0.90	0.98	109.23%
25 year	8.77	2.49	1.19	1.30	109.23%
50 year	9.91	3.07	1.47	1.60	109.23%
100 year	11.10	3.59	1.71	1.87	109.23%
Watershed Area Change:					
Watershed Area (Historic):	0.13	Impervious Area (Historic):	0.130 Ac.		
Watershed Area (Developed):	0.27	Impervious Area (Developed):	0.272 Ac.		
Net Change in Watershed Area (Acres):	0.14	109.23%	Increase / Decrease:	0.142 Ac. Impervious Area	

### Summary of Stormwater Peak Flows:

Due to the implementation of reduction in pavement surfaces and stone lined infiltration chambers, in addition to the existing roof drainage recharger chamber infiltration system, this project achieves a reduction in off-site peak flows & volumes on all sides.

### 5. STORMWATER QUALITY MANAGEMENT PLAN:

The stormwater quality is a prime consideration in the selection of LID's in the design approach. As a general comment, the use of this parking area is limited to personal automobiles only once or twice per week. The duration of parking usually lasts up to 3 hours (+/-) at a time. This is not a long-term high volume parking area and will have minimal use during most of the week. That being said, the potential for excessive sediments, drippings or other unsuitable constituents within the first flush of the storm run-off would be minimal to begin with.

The additional roof run-off is considered a "clean" run-off and is being 100% discharged and recharged into the ground. The stone filter infiltration trenches in the paved parking area have been developed to accept smaller portions of paved areas and recharge into the ground. All other remaining storm run-off generated is mostly vegetated lawn. With no point discharge storm outlets, this minimizes point sources of pollution. The edge of impervious pavement is more than 150' from the limit of regulated wetlands on the easterly adjoiner.

### ENGINEER'S SITE REPORT

Owner/Applicant: NORTH STONINGTON BIBLE CHURCH INC.

Proposed Church Addition Site Plan

MBL 115/0343; 100C Jeremy Hill Road; Town of North Stonington, CT 06359

February 25, 2022 Page 8 of 9

**Edward H. Wenke III, PE – Civil/Structural Engineer**

**Tel 860.460.1606      Email: [ewenke@comcast.net](mailto:ewenke@comcast.net)**

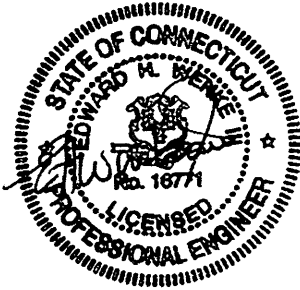
Licensed in: Connecticut, Rhode Island, Massachusetts, Maine, New York, Maryland, Pennsylvania, Wisconsin & California

Use of de-icing salt will be prohibited on this site. Additionally, the Owner shall physically clean and sweep the paved parking area on a *bi-monthly basis*, removing any debris that could enter and clog the stone filter infiltration trenches. as well as any sand/sediments on the pavement surface. No underground storage tanks are proposed on this site for this project.

*Prepared by:*

**Edward H. Wenke III, PE**

**Conn. PE #16771**



**ENGINEER'S SITE REPORT**

**Owner/Applicant: NORTH STONINGTON BIBLE CHURCH INC.**

**Proposed Church Addition Site Plan**

**MBL 115/0343; 100C Jeremy Hill Road; Town of North Stonington, CT 06359**

**February 25, 2022      Page 9 of 9**

**Watershed Conditions & Run-off Analysis** Rev-A  
**PROPOSED GRADING & DRAINAGE IMPROVEMENTS** 20-Jan-22  
 N. Stonington Bible Church - 100B Jeremy Hill Road; North Stonington CT 06359 Rational Method EHW, PE

**HISTORIC CONDITIONS - Design Point #1E - FLOW TO EAST**

Watershed Characteristics:				
Surface Description	Area (Acres)	Coeff. "C"	AxC	HSG
Compact Gravel Parking	0.960	0.70	0.67	C/D
Building Roof	0.026	0.95	0.02	C/D
Concrete Walk/Pads	0.020	0.95	0.02	C/D
Impervious Bit Pvmt & Chip-Seal	0.060	0.95	0.06	C/D
Grass Lawn/Planted Area - 3%-6%	2.310	0.40	0.92	C/D
<b>Totals:</b>	<b>3.376</b>	<b>Total AxC =</b>	<b>1.70</b>	

Gross Watershed Area (A<sub>w</sub>) - Sq. Miles = 0.0053 < 0.1 Sq. Mile - Therefore Use NRSC Method\* for T<sub>c</sub> Analysis

**NRSC Method for Time of Concentration:**

T<sub>1</sub> - Overland Sheet Flow (100 LF Max Allowed):  $T_1 = (0.007 \times (L \times n_{ov})^{0.60}) / ((P_2)^{0.50} \times (S)^{0.4})$

T<sub>1</sub> - Shallow Concentrated Flow:  $T_1 = (L) / (3600 \times K \times (S)^{0.5})$

T<sub>1</sub> - Defined Open Channel Flow:  $T_1 = (L) / ((3600 \times (1.49/n) \times (R)^{0.666} \times (S)^{0.5}))$

2-year / 24 hour Rainfall Depth (P<sub>2</sub>): 3.43 inches (New London County - CTDOT Manual)

K Factor (Shallow Conc Flow): 16.13 Unpaved Surface 20.32 Paved Surface

Open Channel X-Sectional Area Flow (A<sub>c</sub>): 1.00 SF

Open Channel Wetted Perimeter (WP): 1.00 LF

Channel Hydraulic Radius = R = A<sub>c</sub>/WP = 1.00

Time Of Concentration:					T <sub>c</sub> *
Reach Description:	Length - "L" (ft)	Mannings "n"	S = % Slope	Velocity (fps)	(Minutes)
Overland Flow -Gravel Parking - 2%	100	0.011	0.020	1.42	1.17
Shallow Concentrated Grass 3%	250	Unpaved	0.032	2.89	1.44
Channelized Flow - RCP Culvert	50	0.012	0.022	18.42	0.05
<b>Totals:</b>	<b>400</b>	<b>LF</b>		<b>T<sub>c</sub> (min.) =</b>	<b>2.61</b>
					<b>Use 5.0 Minutes</b>

Rainfall Intensities:		NOAA Atlas #14	Run-off Rate "Q" (CFS)	Run-off Coefficient Adjustment Factors:	
Storm Event	Intensity (In/Hr)			< 10 years	1.00
<b>MINIMUM Historic T<sub>c</sub> (Minutes) Used ~</b>	<b>5.0</b>			25 Years	1.10
2 year	4.82	8.18	50 Years	1.20	
10 year	7.26	12.32	100 Years	1.25	
25 year	8.77	16.37			
50 year	9.91	20.18			
100 year	11.10	23.54			

**DEVELOPED CONDITIONS - Design Point #1E - FLOW TO EAST - WITH STONE INFILTRATION**

Watershed Characteristics:				
Surface Description	Area (Acres)	Coeff. "C"	AxC	HSG
Stone Parking/Drive	0.320	0.60	0.19	C/D
Building Roof	0.026	0.95	0.02	C/D
Concrete Walk/Pads	0.020	0.95	0.02	C/D
Impervious Bit Pvmt & Chip-Seal	0.310	0.95	0.29	C/D
Grass Lawn/Planted Area - 3%-6%	2.204	0.40	0.88	C/D
<b>Totals:</b>	<b>2.880</b>	<b>Total AxC =</b>	<b>1.41</b>	

Gross Watershed Area (A<sub>w</sub>) - Sq. Miles = 0.0045 < 0.1 Sq. Mile - Therefore Use NRSC Method\* for T<sub>c</sub> Analysis

Time Of Concentration:					T <sub>c</sub> *
Reach Description:	Length - "L" (ft)	Mannings "n"	S = % Slope	Velocity (fps)	(Minutes)
Overland Flow -Pavement	100	0.014	0.030	1.38	1.21
Shallow Concentrated - Grass	275		0.030	2.79	1.64
Channelized Flow	0	0.01	0.000	#DIV/0!	#DIV/0!
<b>Totals:</b>	<b>375</b>	<b>LF</b>		<b>T<sub>c</sub> (min.) =</b>	<b>2.85</b>

**RUNOFF ANALYSIS SUMMARY - Design Point #1E - FLOW TO EAST**

Rainfall Intensities:	NOAA Atlas #14	Developed	Historic	Increase/	% Change
Storm Event	Intensity (In/Hr)	Run-off Rate	Run-off Rate	(Decrease) in	Run-off Rate
<b>MINIMUM Developed T<sub>c</sub> (Minutes) Used ~</b>	<b>5.0</b>	<b>"Q" (CFS)</b>	<b>"Q" (CFS)</b>	<b>Run-off (CFS)</b>	<b>(%)</b>
2 year	4.82	6.80	8.18	(1.37)	-16.79%
10 year	7.26	10.25	12.32	(2.07)	-16.79%
25 year	8.77	13.62	16.37	(2.75)	-16.79%
50 year	9.91	16.79	20.18	(3.39)	-16.79%
100 year	11.10	19.59	23.54	(3.95)	-16.79%

Watershed Area Change:			
Watershed Area (Historic):	3.38	Impervious Area (Historic):	1.066 Ac.
Watershed Area (Developed):	2.88	Impervious Area (Developed):	0.676 Ac.
Net Change in Watershed Area (Acres):	-0.50	Increase / Decrease:	-0.390 Ac. Impervious Area
Time of Concentration (Historic):	5.00	Minutes	
Time of Concentration (Developed):	5.00	Minutes	
Net Change in Time of Concentration:	0.00	Minutes Faster (No Change)	



**Watershed Conditions & Run-off Analysis**  
**PROPOSED GRADING & DRAINAGE IMPROVEMENTS**

Rev-A

20-Jan-22

N. Stonington Bible Church - 100B Jeremy Hill Road; North Stonington CT 06359

Rational Method

EHW, PE

**HISTORIC CONDITIONS - Design Point #2W - FLOW TO WEST**

Watershed Characteristics:				
Surface Description	Area (Acres)	Coef. "C"	AxC	HSG
Compact Gravel Parking	0.240	0.70	0.17	C/D
Building Roof	0.120	0.95	0.11	C/D
Concrete Walk/Pads	0.030	0.95	0.03	C/D
Impervious Bit Pvmnt & Chip-Seal	0.100	0.95	0.10	C/D
Grass Lawn/Planted Area - 2%-4%	2.510	0.40	1.00	C/D
<b>Totals:</b>	<b>3.000</b>	<b>Total AxC =</b>	<b>1.41</b>	

Gross Watershed Area ( $A_w$ ) - Sq. Miles = 0.0047 < 0.1 Sq. Mile - Therefore Use **NRSC Method\*** for  $T_c$  Analysis

**NRSC Method for Time of Concentration:**

$T_1$  - Overland Sheet Flow (100 LF Max Allowed):  $T_1 = (0.007 \times (L \times n_{ol})^{0.80}) / ((P_2)^{0.50} \times (S)^{0.4})$

$T_1$  - Shallow Concentrated Flow:  $T_1 = (L) / (3600 \times K \times (S)^{0.5})$

$T_1$  - Defined Open Channel Flow:  $T_1 = (L) / ((3600 \times (1.49/n) \times (R)^{0.666} \times (S)^{0.5}))$

2-year / 24 hour Rainfall Depth ( $P_2$ ): 3.43 inches (New London County - CT DOT Manual)

K Factor (Shallow Conc Flow): 16.13 Unpaved Surface 20.32 Paved Surface

Open Channel X-Sectional Area Flow ( $A_c$ ): 1.00 SF

Open Channel Wetted Perimeter (WP): 1.00 LF

Channel Hydraulic Radius =  $R = A_c / WP = 1.00$

Time of Concentration:					$T_c^*$
Reach Description:	Length - "L" (ft)	Mannings "n"	S = % Slope	Velocity (fps)	(Minutes)
Overland Flow - Gravel Parking - 2%	100	0.011	0.030	1.67	1.00
Shallow Concentrated Grass 3%	80	Unpaved	0.030	2.79	0.48
Channelized Flow - RCP Culvert	0	0.012	0.022	#DIV/0!	0.00
<b>Totals:</b>	<b>180</b>	<b>LF</b>		<b><math>T_c</math> (min.) =</b>	<b>1.47</b>
					<b>Use 5.0 Minutes</b>

Rainfall Intensities:		NOAA Atlas #14	Dev Swale	Run-off Coefficient Adjustment Factors:	
Storm Event	Intensity (In/Hr)	Run-off Rate	"Q" (CFS)	< 10 years	1.00
<b>MINIMUM Historic <math>T_c</math> (Minutes) Used ~</b>	<b>5.0</b>			25 Years	1.10
2 year	4.82		6.79	50 Years	1.20
10 year	7.26		10.23	100 Years	1.25
25 year	8.77		13.60		
50 year	9.91		16.76		
100 year	11.10		19.56		

**DEVELOPED CONDITIONS - Design Point #2W - FLOW TO WEST**

Watershed Characteristics:				
Surface Description	Area (Acres)	Coef. "C"	AxC	HSG
Stone Parking/Drive	0.000	0.60	0.00	C/D
Building Roof	0.120	0.95	0.11	C/D
Concrete Walk/Pads	0.030	0.95	0.03	C/D
Impervious Bit Pvmnt & Chip-Seal	0.070	0.95	0.07	C/D
Grass Lawn/Planted Area - 2%-4%	2.680	0.40	1.07	C/D
<b>Totals:</b>	<b>2.900</b>	<b>Total AxC =</b>	<b>1.28</b>	

Gross Watershed Area ( $A_w$ ) - Sq. Miles = 0.0045 < 0.1 Sq. Mile - Therefore Use **NRSC Method\*** for  $T_c$  Analysis

Time of Concentration:					$T_c^*$
Reach Description:	Length - "L" (ft)	Mannings "n"	S = % Slope	Velocity (fps)	(Minutes)
Overland Flow - Flat Lawn	100	0.24	0.020	0.12	13.78
Shallow Concentrated - Pavement	225		0.020	2.28	1.64
Channelized Flow	0	0.01	0.000	#DIV/0!	#DIV/0!
<b>Totals:</b>	<b>325</b>	<b>LF</b>		<b><math>T_c</math> (min.) =</b>	<b>Use 5.0 Minutes</b>

**RUNOFF ANALYSIS SUMMARY - Design Point #2W - FLOW TO WEST**

Rainfall Intensities:	NOAA Atlas #14	Developed	Historic	Increase/	% Change
Storm Event	Intensity (In/Hr)	Run-off Rate	Run-off Rate	(Decrease) in	Run-off Rate
<b>MINIMUM Developed <math>T_c</math> (Minutes) Used ~</b>	<b>5.0</b>	<b>"Q" (CFS)</b>	<b>"Q" (CFS)</b>	<b>Run-off (CFS)</b>	<b>(%)</b>
2 year	4.82	6.17	6.79	(0.62)	-9.12%
10 year	7.26	9.30	10.23	(0.93)	-9.12%
25 year	8.77	12.36	13.60	(1.24)	-9.12%
50 year	9.91	15.23	16.76	(1.53)	-9.12%
100 year	11.10	17.77	19.56	(1.78)	-9.12%

Watershed Area Change:			
Watershed Area (Historic):	3.00	Impervious Area (Historic):	0.490 Ac.
Watershed Area (Developed):	2.90	Impervious Area (Developed):	0.220 Ac.
<b>Net Change in Watershed Area (Acres):</b>	<b>-0.10</b>	<b>-3.33%</b>	<b>Increase / Decrease</b>
Time of Concentration (Historic):	5.00	Minutes	
Time of Concentration (Developed):	5.00	Minutes	
<b>Net Change in Time of Concentration:</b>	<b>0.00</b>	<b>Minutes: Faster (No Change)</b>	

**Watershed Conditions & Run-off Analysis** Rev-A  
**PROPOSED GRADING & DRAINAGE IMPROVEMENTS** 20-Jan-22  
 N. Stonington Bible Church - 100B Jeremy Hill Road; North Stonington CT 06359 Rational Method EHW, PE

**HISTORIC CONDITIONS - Design Point #3N - FLOW TO NORTH**

Watershed Characteristics:				
Surface Description	Area (Acres)	Coeff. "C"	AxC	HSG
Gravel Parking/Drive	0.040	0.70	0.03	C/D
Building Roof	0.000	0.95	0.00	C/D
Concrete Walk/Pads	0.000	0.95	0.00	C/D
Impervious Pavement	0.000	0.95	0.00	C/D
Grass Lawn/Planted Area - 3%-6%	0.260	0.40	0.10	C/D
<b>Totals:</b>	<b>0.300</b>	<b>Total AxC =</b>	<b>0.13</b>	

Gross Watershed Area (A<sub>w</sub>) - Sq. Miles = 0.0005 < 0.1 Sq. Mile - Therefore Use NRSC Method\* for T<sub>c</sub> Analysis

**NRSC Method for Time of Concentration:**

T<sub>1</sub> - Overland Sheet Flow (100 LF Max Allowed):  $T_1 = (0.007 \times (L \times n_{ad})^{0.60}) / ((P_2)^{0.50} \times (S)^{0.4})$

T<sub>1</sub> - Shallow Concentrated Flow:  $T_1 = (L) / (3600 \times K \times (S)^{0.5})$

T<sub>1</sub> - Defined Open Channel Flow:  $T_1 = (L) / ((3600 \times (1.49/n) \times (R)^{0.666} \times (S)^{0.5}))$

2-year / 24 hour Rainfall Depth (P<sub>2</sub>): 3.43 inches (New London County - CTDOT Manual)

K Factor (Shallow Conc Flow): 16.13 Unpaved Surface 20.32 Paved Surface

Open Channel X-Sectional Area Flow (A<sub>c</sub>): 1.00 SF

Open Channel Wetted Perimeter (WP): 1.00 LF

Channel Hydraulic Radius = R = A<sub>c</sub>/WP = 1.00

Time Of Concentration:					T <sub>c</sub> *
Reach Description:	Length - "L" (ft)	Mannings "n"	S = % Slope	Velocity (fps)	(Minutes)
Overland Flow - Grass - 5%	100	0.150	0.060	0.27	6.10
Shallow Concentrated Grass 3%	0	Unpaved	0.030	#DIV/0!	0.00
Channelized Flow - RCP Culvert	0	0.012	0.022	#DIV/0!	0.00
<b>Totals:</b>	<b>100</b>	<b>LF</b>		<b>T<sub>c</sub> (min.) =</b>	<b>6.10</b>

Use 5.0 Minutes

Rainfall Intensities:		NOAA Atlas #14	Dev Swale	Run-off Coefficient Adjustment Factors:	
Storm Event	Intensity (In/Hr)	Run-off Rate	"Q" (CFS)	< 10 years	1.00
<b>MINIMUM Historic T<sub>c</sub> (Minutes) Used ~</b>	<b>5.0</b>			25 Years	1.10
2 year	4.82	0.64		50 Years	1.20
10 year	7.26	0.96		100 Years	1.25
25 year	8.77	1.27			
50 year	9.91	1.57			
100 year	11.10	1.83			

**DEVELOPED CONDITIONS - Design Point #3N - FLOW TO NORTH**

Watershed Characteristics:				
Surface Description	Area (Acres)	Coeff. "C"	AxC	HSG
Gravel Parking/Drive	0.040	0.70	0.03	C/D
Building Roof	0.000	0.95	0.00	C/D
Concrete Walk/Pads	0.000	0.95	0.00	C/D
Impervious Pavement	0.000	0.95	0.00	C/D
Grass Lawn/Planted Area - 3%-6%	0.260	0.40	0.10	C/D
<b>Totals:</b>	<b>0.300</b>	<b>Total AxC =</b>	<b>0.13</b>	

Gross Watershed Area (A<sub>w</sub>) - Sq. Miles = 0.0005 < 0.1 Sq. Mile - Therefore Use NRSC Method\* for T<sub>c</sub> Analysis

Time Of Concentration:					T <sub>c</sub> *
Reach Description:	Length - "L" (ft)	Mannings "n"	S = % Slope	Velocity (fps)	(Minutes)
Overland Flow - Flat Lawn	100	0.24	0.020	0.12	13.78
Shallow Concentrated - Pavement	225		0.020	2.28	1.64
Channelized Flow	0	0.01	0.000	#DIV/0!	#DIV/0!
<b>Totals:</b>	<b>325</b>	<b>LF</b>		<b>T<sub>c</sub> (min.) =</b>	<b>15.43</b>

**RUNOFF ANALYSIS SUMMARY - Design Point #3N - FLOW TO NORTH**

Rainfall Intensities:		NOAA Atlas #14	Developed	Historic	Increase/	% Change
Storm Event	Intensity (In/Hr)	Run-off Rate	Run-off Rate	Run-off Rate	(Decrease) in	Run-off Rate
<b>MINIMUM Developed T<sub>c</sub> (Minutes) Used ~</b>	<b>5.0</b>	<b>"Q" (CFS)</b>	<b>"Q" (CFS)</b>	<b>"Q" (CFS)</b>	<b>Run-off (CFS)</b>	<b>(%)</b>
2 year	4.82	0.64	0.64	0.64	0.00	0.00%
10 year	7.26	0.96	0.96	0.96	0.00	0.00%
25 year	8.77	1.27	1.27	1.27	0.00	0.00%
50 year	9.91	1.57	1.57	1.57	0.00	0.00%
100 year	11.10	1.83	1.83	1.83	0.00	0.00%

Watershed Area Change:			
Watershed Area (Historic):	0.30	Impervious Area (Historic):	0.040 Ac.
Watershed Area (Developed):	0.30	Impervious Area (Developed):	0.040 Ac.
Net Change in Watershed Area (Acres):	0.00	0.00%	Increase / Decrease: 0.000 Ac; Impervious Area:
Time of Concentration (Historic):	5.00	Minutes	
Time of Concentration (Developed):	5.00	Minutes	
Net Change in Time of Concentration:	0.00	Minutes Faster (No Change)	

**Watershed Conditions & Run-off Analysis** Rev-A  
**PROPOSED GRADING & DRAINAGE IMPROVEMENTS** 20-Jan-22  
 N. Stonington Bible Church - 100B Jeremy Hill Road; North Stonington CT 06359 Rational Method EHW, PE

**HISTORIC CONDITIONS - Design Point #4R - ROOF FLOW TO RECHARGERS**

Watershed Characteristics:				
Surface Description	Area (Acres)	Coeff. "C"	AxC	HSG
Stone/Gravel Parking/Drive	0.000	0.70	0.00	C/D
Building Roof	0.130	0.95	0.12	C/D
Concrete Walk/Pads	0.000	0.95	0.00	C/D
Impervious Pavement	0.000	0.95	0.00	C/D
Grass Lawn/Planted Area - 3%-6%	0.000	0.40	0.00	C/D
<b>Totals:</b>	<b>0.130</b>	<b>Total AxC =</b>	<b>0.12</b>	

Gross Watershed Area (A<sub>w</sub>) - Sq. Miles = 0.0002 < 0.1 Sq. Mile - Therefore Use **NRSC Method\*** for T<sub>c</sub> Analysis

**NRSC Method for Time of Concentration:**

T<sub>1</sub> - Overland Sheet Flow (100 LF Max Allowed):  $T_1 = (0.007 \times (L \times n \times a)^{0.80}) / ((P_2)^{0.50} \times (S)^{0.4})$

T<sub>1</sub> - Shallow Concentrated Flow:  $T_1 = (L) / (3600 \times K \times (S)^{0.5})$

T<sub>1</sub> - Defined Open Channel Flow:  $T_1 = (L) / ((3600 \times (1.49/n) \times (R)^{0.566} \times (S)^{0.5}))$

2-year / 24 hour Rainfall Depth (P<sub>2</sub>): 3.43 inches (New London County - CTDOT Manual)

K Factor (Shallow Conc Flow): 16.13 Unpaved Surface 20.32 Paved Surface

Open Channel X-Sectional Area Flow (A<sub>c</sub>): 1.00 SF

Open Channel Wetted Perimeter (WP): 1.00 LF

Channel Hydraulic Radius = R = A<sub>c</sub>/WP = 1.00

Time of Concentration:					T <sub>c</sub> *
Reach Description:	Length - "L" (ft)	Mannings "n"	S = % Slope	Velocity (fps)	(Minutes)
Overland Flow - Grass - 5%	0	0.150	0.060	#DIV/0!	0.00
Shallow Concentrated Grass 3%	0	Unpaved	0.030	#DIV/0!	0.00
Channelized Flow - RCP Culvert	0	0.012	0.022	#DIV/0!	0.00
<b>Totals:</b>	<b>0</b>	<b>LF</b>		<b>T<sub>c</sub> (min.) =</b>	<b>0.00</b>

*Use 5.0 Minutes*

Rainfall Intensities:		NOAA Atlas #14	Dev Swale	Run-off Coefficient Adjustment Factors:	
Storm Event	Intensity (In/Hr)	Run-off Rate	"Q" (CFS)	< 10 years	1.00
<b>MINIMUM Historic T<sub>c</sub> (Minutes) Used ~</b>	<b>5.0</b>			25 Years	1.10
2 year	4.82	0.60		50 Years	1.20
10 year	7.26	0.90		100 Years	1.25
25 year	8.77	1.19			
50 year	9.91	1.47			
100 year	11.10	1.71			

**DEVELOPED CONDITIONS - Design Point #4R - ROOF FLOW TO RECHARGERS**

Watershed Characteristics:				
Surface Description	Area (Acres)	Coeff. "C"	AxC	HSG
Stone/Gravel Parking/Drive	0.000	0.70	0.00	C/D
Building Roof	0.272	0.95	0.26	C/D
Concrete Walk/Pads	0.000	0.95	0.00	C/D
Impervious Pavement	0.000	0.95	0.00	C/D
Grass Lawn/Planted Area - 3%-6%	0.000	0.40	0.00	C/D
<b>Totals:</b>	<b>0.272</b>	<b>Total AxC =</b>	<b>0.26</b>	

Gross Watershed Area (A<sub>w</sub>) - Sq. Miles = 0.0004 < 0.1 Sq. Mile - Therefore Use **NRSC Method\*** for T<sub>c</sub> Analysis

Time of Concentration:					T <sub>c</sub> *
Reach Description:	Length - "L" (ft)	Mannings "n"	S = % Slope	Velocity (fps)	(Minutes)
Overland Flow - Flat Lawn	0	0.24	0.020	#DIV/0!	0.00
Shallow Concentrated - Pavement	0		0.020	#DIV/0!	0.00
Channelized Flow	0	0.01	0.000	#DIV/0!	#DIV/0!
<b>Totals:</b>	<b>0</b>	<b>LF</b>		<b>T<sub>c</sub> (min.) =</b>	<b>0.00</b>

**RUNOFF ANALYSIS SUMMARY - Design Point #4R - ROOF FLOW TO RECHARGERS**

Rainfall Intensities:		NOAA Atlas #14	Developed	Historic	Increase/	% Change
Storm Event	Intensity (In/Hr)	Run-off Rate	Run-off Rate	Run-off Rate	(Decrease) in	Run-off Rate
<b>MINIMUM Developed T<sub>c</sub> (Minutes) Used ~</b>	<b>5.0</b>	<b>"Q" (CFS)</b>	<b>"Q" (CFS)</b>	<b>"Q" (CFS)</b>	<b>Run-off (CFS)</b>	<b>(%)</b>
2 year	4.82	1.25	0.60	0.65	0.65	109.23%
10 year	7.26	1.88	0.90	0.98	0.98	109.23%
25 year	8.77	2.49	1.19	1.30	1.30	109.23%
50 year	9.91	3.07	1.47	1.60	1.60	109.23%
100 year	11.10	3.59	1.71	1.87	1.87	109.23%

Watershed Area Change:			
Watershed Area (Historic):	0.13	Impervious Area (Historic):	0.130 Ac.
Watershed Area (Developed):	0.27	Impervious Area (Developed):	0.272 Ac.
<b>Net Change in Watershed Area (Acres):</b>	<b>0.14</b>	<b>109.23%</b>	<b>Increase / Decrease: 0.142 Ac. Impervious Area</b>
Time of Concentration (Historic):	5.00	Minutes	
Time of Concentration (Developed):	5.00	Minutes	
<b>Net Change in Time of Concentration:</b>	<b>0.00</b>	<b>Minutes Faster (No Change)</b>	

# Town of North Stonington

Geographic Information System (GIS)



Date Printed: 9/24/2021



### MAP DISCLAIMER - NOTICE OF LIABILITY

This map is for assessment purposes only. It is not for legal description or conveyances. All information is subject to verification by any user. The Town of North Stonington and its mapping contractors assume no legal responsibility for the information contained herein.

Approximate Scale: 1 inch = 150 feet

