ISLAND MOVING COMPANY
newport's contemporary ballet

Organization & Project Overview

Island Moving Company (IMC) is an internationally recognized, non-profit, professional, contemporary ballet company whose mission is to build the cultural, educational and economic vitality of Newport County, RI through dance creation, performance and education.

For 38 years, Island Moving Company (IMC) has been a creative catalyst and educational resource for residents of Newport County, and accessible to all Rhode Islanders. IMC's main-stage and site-specific productions serve as an important cultural asset for residents and a vital attraction for our tourism and community partners. Additionally, IMC provides deeply integrated arts-learning curriculum to Newport County schools, and also provides exposure to classical and contemporary forms of dance education, music and performance to over 5,000 of the county's students annually.

IMC's creative output and educational impact have been well documented in the community. We are committed to Newport County and are working toward a permanent home in Newport; a Regional Center for Dance & Education that can accommodate IMC's growing needs and meet the area's growing demand. Our new home will be located at 435 Broadway, in the heart of the community we serve.

Programs Overview

Bringing people together for shared experiences, and the healing and transformative power of great live dance and world-class dance education experiences is core to IMC's work. IMC has a history of creating responsive programing that offers our community access to live professional dance, but also to sources that are relevant to their well-being as well as ways to connect to each other.

The Newport Academy of Ballet (NAB) was founded by Miki Ohlsen forty-two years ago. NAB has been providing dance education of the highest quality to children and adults from all over Rhode Island. The academy was purchased by IMC in 2017 as part of the strategic plan to develop a permanent home and bring the school under the auspices of the professional, non-profit dance company.

With the Academy's strong emphasis on classical ballet, the school has provided countless hours of joy to those dancing for the sheer love of it and has trained many dancers who have gone on to professional careers. The school is committed to giving each student the best dance experience possible. **Currently, NAB hosts forty-two (42) classes per week and operates from 9:00am until 8:00pm Mon-Fri and from 9:00am -2:00pm on Saturdays.**

The need for IMC to Create a Regional Center for Dance & Education.

The former Triplett School on Broadway in Newport was identified as an ideal property that meets all of IMC's key criteria for furthering our mission and vision, settles IMC in the heart of the community we serve and represent, and relies on a financing structure that is within the means and resources of the Company. Furthermore, it will allow IMC to grow revenue streams that are limited by our current facilities.

IMC has entered into a three-agent arrangement – public, private, and non-profit; another example of IMC's culture of collaboration – to redevelop the Triplett School property. The facility has sat vacant since 2013. IMC and the City have agreed to a purchase price of $900,000, and to the participation of a third, for-profit partner: real estate developer Teri Degnan.

The City Planning Board has approved a provisional master plan whereby IMC will transfer one-half of the property to Degnan for 45 percent of the total sale costs, who will develop four single family homes for sale, and IMC will erect a purpose-built structure on the remaining land.

IMC's project proposes to take an underutilized property on Broadway and develop a permanent home for the company – A Center for Dance and Education - that will also serve to improve the conditions of, and create access to the current land fronting Broadway, for the creation of public green space & amenities desired by residents and neighbors.

Community development goals of the project are to:

- **Improve** an underutilized property that currently is not maintained nor optimized to serve as a community asset
- **Create** a public green space/Pocket Park fronting Broadway with appropriate landscaping and amenities to offer refuge for neighbors' enjoyment/contemplation, linkage with community walking and bike paths, and provides additional plantings, adding to the beautification of the streetscape and contributing to improved livability of the neighborhood
- **Return vibrancy** to the Broadway Neighborhood by providing a new community gathering spot for neighbors, pet lovers, and visitors alike

State of the Art Facilities:

IMC's new home will:

- **Achieve financial sustainability** for IMC by generating more earned revenue
- **Add cultural arts value** in our community
- **Attract and retain high-quality artistic staff and dancers** for the company
- **Create greater equity** & community participation in the art and practice of dance
- **Enable** professional dancers and students to train in a state-of- the-art space
- **Generate positive economic impact** for the community & City of Newport
- **Increase Newport's visibility** as a cultural destination
- **Meet growing demand** by accommodating more students and classes
- **Provide increased access** to programs for underserved populations & neighbors
- **Serve local arts groups** needs for affordable rehearsal & performance rental space

The new facility will address a host of current limitations, including insufficient HVAC and parking, poor dressing facilities, and inadequate meeting, storage and studio spaces. It will allow IMC to provide amenities including concessions, ample restrooms and comfortable common areas for audience and parents of Academy parents. It will also have much-needed onsite storage, parking and will be universally accessible. **Current hours & days of operations will remain for the foreseeable future.** Public performances produced by IMC in the flex/theatre space are currently envisioned to include a total of 20 performances annually divided across 5 weekends-(2 in spring/2 in fall/1-in summer). IMC anticipates rentals of the space to account for @ 15 additional performances annually from groups such as Newport Children's Theatre & Newport Strings. **All evening performances would be concluded by 10:00pm**

Vision!

IMC's Center for Dance & Education will: provide.

IMC's Center for Dance & Education will also house the administrative, educational and production arms of the company. A breakout out of uses/spaces by function incudes:

Administrative Functions:

- Executive Office spaces for Artistic & Executive Directors
- Board & Conference meeting spaces
- Office spaces for Associate Artistic Director & Company Manager
- Administrative workspaces for Advancement, Finance, Marketing & Production teams
- Offices for School Director & Registrar
- Staff kitchen & breakroom
- Patron, ticketing, & FOH offices
- Reception & lobby spaces
- Public restrooms
- Administrative storage

Education Functions:

- Dance class & rehearsal studios (2 convert to Flex Theatre Space)
- Practice studio & rooms
- Multi-purpose/flex studio
- Video/Audio studio & storage
- School reception
- Student dressing rooms
- Student restrooms
- Company dressing, shower & restroom facilities
- Public restrooms
- Educational equipment storage

Production Functions:

- Flex Theatre Space
- Lobby & Ticketing window
- Production office & Control Booth
- Lighting & AV/Storage
- Dancers' chorus room
- Design & Wardrobe studio/offices
- Costume Storage
- Costume Laundry & repair
- Café/Concessions space & storage
- Public restrooms
- Lobby, gallery & pre-function space

The proposed facility has a footprint of approximately 8,600 square feet, and, including a second story and a partially finished basement, contains approximately 14,000 total square feet.

Conceptual Rendering looking from the southwest Broadway corner

APPLICATION FOR DIMENSIONAL VARIANCE AND A SPECIAL USE PERMIT

CITY OF NEWPORT, RI
ZONING BOARD OF REVIEW

ZBR AUG-15

RECEIVED
$400.-
JUL 22 2019
CK# 37624

DATE: July 22, 2019

Board members:

The undersigned hereby petitions the Zoning Board of Review for a variance and a Special Use Permit in the application of the provisions or regulations of the Zoning Ordinance affecting the following described premises in the manner and on the grounds hereinafter set forth.

Location of premises

Street & No.: 435 Broadway/Princeton Street/Ledyard Street

Tax Assessor's Plat 6 **Lot** 11

Petitioner Information

Applicant: Island Moving Company ("IMC") **Address** c/o Turner C. Scott 122 Touro Street Newport, RI 02840

Owner: City of Newport **Address** same as applicant

Lessee: N/A **Address** same as applicant

Property Characteristics

Dimensions of lot-frontage varies see site plans **depth** varies see site plans **area** ~79376 **sq. ft.**

Zoning District in which premises is located R-10

How long have you owned above premises? At various times, most recently since 1991

Are there buildings on the premises at present? Yes

Total square footage of the footprint of existing buildings: ~ 18,284 sq. ft. (23%)

Total square footage of the footprint of proposed buildings:

Lot 11 (41,939 s.f.)	~8,444 sq. ft. School of Limited Instruction (20%)
Lot 11A (10,250 s.f.)	< 20%
Lot 11B (9,058 s.f.)	< 20%
Lot 11C (9,124 s.f.)	< 20%
Lot 11D (9,003 s.f.)	< 20%

Present use of premises: Defunct office building and defunct school building.

Proposed use of premises: Demolition of existing structures, in accordance with Planning Board approval received June 3, 2019, and subdivision of existing lot, in accordance with Planning Board approval received July 1, 2019, into five separate parcels; one school for limited instruction and four single-family residential lots. See attached subdivision plan.

All of the following information and questions must be filled in and answered completely.

Zoning Characteristics Matrix

	Existing	Required/Allowed	Proposed*
Lot Size (sq. ft.)	79,376	10,000	41,939 (Lot 11) 10,250 (Lot 11A) 9,056 (Lot 11B) 9,124 (Lot 11C) 9,003 (Lot 11D)
Lot Coverage (%)	23%	20%	20% (Lot 11) < 20% (Lot 11A) < 20% (Lot 11B) < 20% (Lot 11C) < 20% (Lot 11D)
Dwelling Units	0	2	0 (Lot 11) 1(Lot 11A) 1(Lot 11B) 1(Lot 11C) 1(Lot 11D)
Parking	>2	35 2 2 2 2	>35 (Lot 11) 2 (Lot 11A) 2 (Lot 11B) 2 (Lot 11C) 2 (Lot 11D)
Front Setback	>15'	15'	97' (Lot 11) >15' (Lot 11A) >15' (Lot 11B) >15' (Lot 11C) >15' (Lot 11D)

Side Setbacks	<10 (North) >10 (South)	10'	10' (North)(Lot 11) 5' (South) (Lot 11)** >10' (Lot 11A) >10' (Lot 11B) >10' (Lot 11C) >10' (Lot 11D)
Rear Setback	>20	20'	65.6' (Lot 11) > 20' (Lot 11A) > 20' (Lot 11B) > 20' (Lot 11C) > 20' (Lot 11D)
Height	<30'	30'	<30' (All structures)

***Proposed calculations based on new subdivided lots**
**** 17.100.200A**

What special conditions and circumstances exist which are peculiar to the land, structure or building involved and which are not applicable to other lands, structures or buildings in the same district?

The property as it currently exists at 435 Broadway is a conforming lot of record with more than 79,000 sq. ft. in the R-10 zone. The property fronts on Broadway, Princeton Street, and Ledyard Street, providing access and egress to support the approved subdivision and proposed improvements and uses outlined in this application.

The size and shape of the subject lot provides the requisite space for the proposed use and development with only minimum variances and relief necessary. The surrounding district is characterized by many multi-family residences on substandard lots, while the subject property and proposed subdivided lots will provide more square footage per parcel than is typical in this neighborhood.

Following the subdivision, Lot 11 will contain 41,939 sq. feet, maintain access to and from Broadway, and be the new site of IMC's school and dance studio. The shape and size of the lot offers sufficient space for the proposed improvements and required parking. While the City requires 35 parking spaces for the proposed School of Limited Instruction, the applicant's priority is to exceed the minimum requirement and support additional parking. In order to achieve parking lot navigability, fire code compliance, and safe student pick-up/drop-off, the proposed use for Lot 11 requires a reduced parking setback, from 10' to 5'. While the lot size and proposed coverage leave room for 35 parking spaces without a variance, the objective is to surpass the minimum parking requirements to alleviate any possible congestion. The proposed dance school and studio space, as well as the lot upon which they will sit, can easily meet the minimum requirements under the zoning ordinance. In an effort to maximize the proposed use benefits and eliminate any potential neighborhood disruption, the applicant seeks to modestly reduce the parking setback along the southern boundary and include more parking and increased parking lot maneuverability.

The four proposed residential lots, identified as Lots 11A, 11B, 11C, and 11D, will each contain more than 9,000 sq. ft. per parcel. Lot 11A will conform to the required lot size with 10, 250 sq. ft. Lots 11A, 11B, and 11C will have access to and from Princeton Street by way of a private lane. This lane, requiring a minor curb cut on Princeton Street, will result in the loss of only one on-street parking space in the neighborhood. These three lots will each acquire 14.66' of frontage on Princeton Street. Lot 11D will be accessible by Ledyard Street to the south, with egress onto Brooks Street Extension. This fourth residential lot will feature 41.07 feet of frontage. Each subdivided residential lot requires a minimum variance for frontage and Lots 11B, 11C, and 11D require a minimum variance for lot size; however, in all other respects these four lots will conform to the zoning code. In contrast to the surrounding neighborhood, Lots 11A, 11B, 11C, and 11D will have an average lot size of 9,367 sq. ft. The average size of abutting properties is 6,129 sq. ft.

The scheme of the improvements and new structures has been thoughtfully considered to be sympathetic to, coordinated with, and in architectural harmony with the surrounding neighborhood. The applicant seeks to provide cohesive, reinvigorated, and complimentary uses of the existing lot, which is in serious disrepair. The existing Lot 11 features the type of accessibility, square footage, and configuration to support the proposed uses and improvements. And, more specifically, the proposed subdivision will yield parcels that are either in conformance or as close to conformance with the zoning code as possible. Other properties in the surrounding R-10 district fail to conform in many areas to zoning requirements and minimums. 435 Broadway is unique in this district in size, shape, and accessibility, which makes it the ideal candidate parcel for the proposed dance studio space and single-family residences.

What provisions of the Comprehensive Land Use Plan are applicable to this project?

Land Use Element Goal LU-1
Economic Development Goal ED-1
Housing Element Goals H-1 and H-3
Community Service & Facilities Goal CFS-4
Open Space and Recreation Goal OSR-1
Transportation and Circulation Goal T-1
Historical and Cultural Resource Goal HC-3

What provisions or regulations of the Zoning Ordinance are applicable?

17.20.020 B Use Regulations
17.20.030 A Dimensional Requirements - Minimum Lot Area
17.20.030 B Dimensional Requirements - Minimum Lot Width
17.100.200 A Off-Street Parking Setback Requirements

Explain how the literal interpretation of this Zoning Code would deprive the applicant of rights commonly enjoyed by other property owners in the same district under the same provisions of this Zoning Code.

Parking Setback Variance - For the proposed School of Limited Instruction, the Zoning Ordinance requires that "all off-street parking and loading zone spaces must conform to the setback requirements for an accessory structure or accessory use for the district in which the project is located." A literal interpretation of this provision would hinder the applicant's efforts to provide more than the minimum required 35 parking spaces. Obtaining a minimal variance to reduce the setback from 10' to 5' is a small consequence of providing the additional parking spaces. The additional spaces, however, will achieve

a substantial benefit and alleviate any potential parking congestion.

Lot Size Variance - Three of the four residential lots will fall slightly below the required square footage for parcels in the district. Most other properties and owners in this district, however, enjoy considerably smaller lots, well below the 10,000 sq. ft required. Many of these properties are non-conforming in terms of lot coverage, lot size, and frontage. In contrast, the proposed Lots 11B, 11C, and 11D are close to 3,000 square feet larger than the average lot size of directly abutting properties. The applicant is motivated to develop the rear portion of the existing lot to enhance the neighborhood with single-family housing stock and the proposed development has undergone many iterations. This application reflects the most cohesive and complimentary orientation and development plan possible. Abutting parcels within 200 feet that satisfy the required lot size for this district are few and far between.

Lot Frontage Variance - Following diligent consideration of all available options for the proposed improvements and uses, IMC's dance school and studios are best located at the front of the existing parcel and the four single-family residences are more suitably placed toward the rear. The resulting configuration provides IMC with conforming frontage on Broadway, which will remain largely unchanged from the existing driveway. In order to access Lots 11A, 11B, and 11C, a small curb cut (one parking space's length) will be made on Princeton Street to reopen a former driveway. The three lots will share the frontage on Princeton Street with each single-family home obtaining 14.66 feet of frontage. These homes will each have their own individual parking areas and garages adjacent to the house and the improvements on the lots themselves will satisfy coverage, setback, height, and parking requirements under the Zoning Ordinance. Lot 11D will have access from Ledyard Street and to Brook Street Extension to the south and feature 41.07 feet of frontage.
Because the surrounding neighborhood contains many non-conforming lots, substandard frontage is a common element among parcels in the district. With concerted efforts to redevelop the existing lot and improve its affects on the neighborhood, depriving the applicant the variance for lot frontage will deprive it of a benefit enjoyed by many nearby property owners.

Explain why this is the minimum variance that will make possible the reasonable use of the land, building or structure.

Special conditions and circumstances exist which are particular to the land; a literal interpretation of the provisions would deprive the owner of rights commonly enjoyed by other owners in the same district; this is the minimum variance necessary that will make possible the reasonable use of the property; and there is no other reasonable alternative to the owner to enjoy this legally permitted use. All other "by right" uses which could utilize the area would require at least some variances from the Zoning Ordinance as the ordinance relates to lot size, coverage, setbacks, frontage, and parking. Granting the variance will not be injurious to the neighborhood and, instead, will be invigorating and beneficial to both neighboring properties and the City as a whole. The proposed variances for parking setback, lot frontage, and lot size are the minimum variances necessary to bring the existing parcel into pleasant conformance with the surrounding area and to accommodate the lot's unique features.

Because this project incorporates the needs for both demolition and subdivision, successful master plan applications have already been made to the Newport Planning Board. The applications were unanimously approved with a finding that the demolition and subdivision, as well as the proposed development, are in compliance with the City of Newport Comprehensive Plan.

State grounds for a Special Exception in this case.

Re-purposing and redeveloping the existing lot at 435 Broadway will include a use permitted by Special Use Permit in the district and residential use permitted by right. As the parcel exists today, hazardous conditions and deteriorating structures cast a pall on the neighboring homes. The proposed School for Limited Instruction and four single-family homes are reasonable uses for this property and can be made possible with a Special Use Permit and the requested minimum variances.

As this City-owned property continues to deteriorate, IMC seeks to serve a dual function by way of this application. In the first place, IMC aims to purchase this property and remove the hazardous structures located on the lot, thereby returning the property to contributing lot featuring a conscientiously-designed dance school and studio and subdividing the remaining land into four single-family residential lots. In a second capacity, IMC wishes to expand programming, community arts influence, and cultural resources in the City. In using the site of the former George H. Triplett School, IMC will make a use compatible with the property's historic use but at a less intense level. IMC's dance company and school is in need of increased space and modernized facilities to support its mission to bring contemporary dance to the City's residents, and the existing lot is in need of care and maintenance that this project proposes.

To the extent that the proposed use has been reviewed by the Planning Board, it has been met with approval and support. Given the goals contained in the Comprehensive Plan, IMC's proposed School of Limited Instruction is a use of precisely the character and quality that the City wishes to encourage.

The Zoning Board's Role

Special use permits shall be granted only where the zoning board of review finds that the proposed use or the proposed extension or alteration of an existing use is in accord with the public convenience and welfare, after taking into account, where appropriate:

1. The nature of the proposed site, including its size and shape and the proposed size, shape and arrangement of the structure;
2. The resulting traffic patterns and adequacy of proposed off-street parking and loading;
3. The nature of the surrounding area and the extent to which the proposed use or feature will be in harmony with the surrounding area;
4. The proximity of dwellings, churches, schools, public buildings and other places of public gathering;
5. The fire hazard resulting from the nature of the proposed buildings and uses and the proximity of existing buildings and uses;
6. All standards contained in this zoning code;
7. The comprehensive plan for the city.

The burden of proof in a special-use permit application is on the applicant. This means that if the applicant fails to present adequate competent evidence to prove the applicable standard for issuing a special-use permit has been met, the board must deny the application.

In granting a variance, the zoning board of review shall ***require*** that evidence of the following standards shall be entered into the record of the proceedings:

a. That the reasons set forth in the application justify the granting of the variance and that the

variance, if granted, is the minimum variance that will make possible the reasonable use of the land, building or structure;

b. That the variance will not be injurious to the neighborhood or otherwise detrimental to the public welfare, and will not impair the intent or purpose of the zoning code or the comprehensive plan upon which this zoning code is based;

c. That the hardship from which the applicant seeks relief is due to the unique characteristics of the subject land or structure and not to the general characteristics of the surrounding area; and is not due to a physical or economic disability of the applicant; and

d. That the hardship is not the result of any prior action of the applicant and does not result primarily from the desire of the applicant to realize greater financial gain.

e. That the hardship that will be suffered by the owner of the subject property if the dimensional variance is not granted shall amount to more than a mere inconvenience. The fact that a use may be more profitable or that a structure may be more valuable after the relief is granted shall not be grounds for relief;

By signing below, I hereby attest that the information provided is accurate and truthful. I also attest that I have read the section entitled "The Zoning Board's Role".

Applicant's Signature
c/o Turner C. Scott
401-847-7500/862-5003

Owner's Signature
c/o Turner C. Scott
401-847-7500/862-5003

TRIPLETT SCHOOL REDEVELOPMENT
3/14/2019 NEIGHBORHOOD MEETING

PROJECT TEAM:

FRONT SITE REDEVELOPMENT:
ISLAND MOVING COMPANY HEADQUARTERS

ISLAND MOVING COMPANY:
ARTISTIC DIRECTOR
MIKI OHLSEN

EXECUTIVE DIRECTOR
EDWARD MCPHERSON

ATTORNEY:
TURNER C. SCOTT
MILLER SCOTT HOLBROOK
& JACKSON

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ANDREA BARANYK, AIA, LEED
PRINCIPAL, NORTHEAST
COLLABORATIVE ARCHITECTS

NCA
NORTHEAST COLLABORATIVE ARCHITECTS

REAR SITE REDEVELOPMENT:
FOUR SINGLE FAMILY RESIDENCES

DEVELOPER:
TERI DEGNAN

ATTORNEY:
PETER REGAN
SAYER REGAN & THAYER LLP

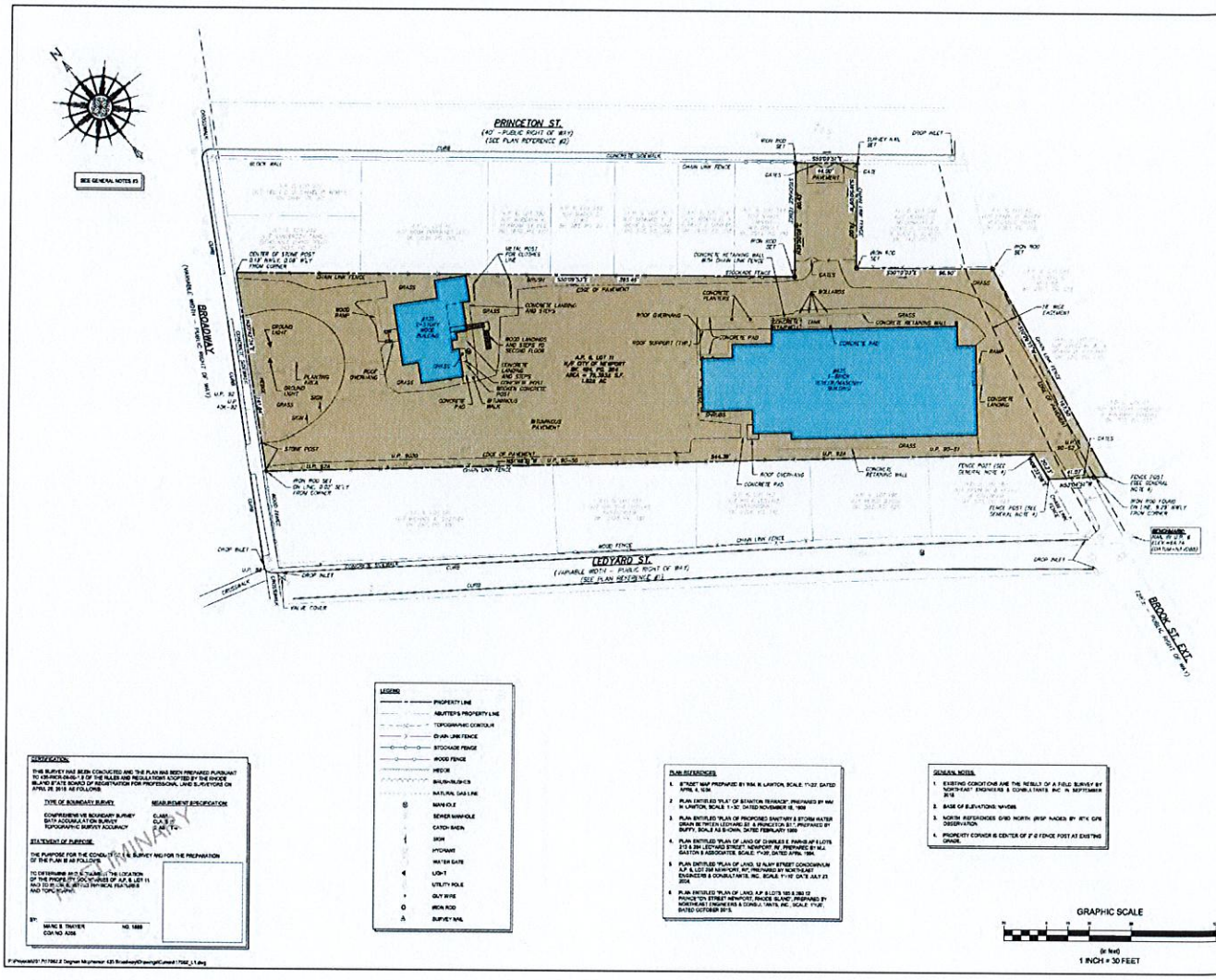
Sayer Regan & Thayer, LLP
ATTORNEYS AND COUNSELLORS AT LAW

ARCHITECT:
DANIEL HERCHENROETHER,
AIA, LEED
HERKWORKS ARCHITECTURE

HERK WORKS

INTERIOR ARCHITECT:
JEFF MONIZ
PARTNER, 2 HANDS STUDIO

2HANDS STUDIO



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SEE GENERAL NOTES #3

LEGEND

- PROPERTY LINE
- ABUTTER'S PROPERTY LINE
- TOPOGRAPHIC CONTOUR
- CHAIN LINK FENCE
- STOCKADE FENCE
- WOOD FENCE
- HEDGE
- RAILROAD TRACKS
- NATURAL GAS LINE
- MANHOLE
- SEWER MANHOLE
- CATCH BASIN
- SIGN
- HYDRANT
- WATER GATE
- LIGHT
- UTILITY POLE
- GUY WIRE
- IRON ROD
- SURVEY NAIL

PLAN REFERENCES

1. STREET MAP PREPARED BY WM. R. LAWTON, SCALE: 1"=20' DATED APRIL 4, 1936
2. PLAN ENTITLED "PLAT OF BENNETON TERRACE" PREPARED BY WM. R. LAWTON, SCALE: 1"=30' DATED NOVEMBER 16, 1959
3. PLAN ENTITLED "PLAN OF PROPOSED SANITARY & STORM WATER DRAIN BETWEEN LEDYARD ST. & PRINCETON ST." PREPARED BY DUFFY, SCALE N.S.H.OWN, DATED FEBRUARY 1989
4. PLAN ENTITLED "PLAN OF LAND OF CHARLES F. PARIS AP 6 LOTS 212 & 284 LEDYARD STREET, NEWPORT RI." PREPARED BY M.J. GASTON & ASSOCIATES, SCALE: 1"=20', DATED APRIL 1994
5. PLAN ENTITLED "PLAN OF LAND, 12 ALMY STREET CONDOMINIUM A.P. 6, LOT 284 NEWPORT, RI." PREPARED BY NORTHEAST ENGINEERS & CONSULTANTS, INC. SCALE: 1"=10' DATE JULY 23, 2014
6. PLAN ENTITLED "PLAN OF LAND, A.P. 6 LOTS 185 & 280 12 PRINCETON STREET NEWPORT, RHODE ISLAND" PREPARED BY NORTHEAST ENGINEERS & CONSULTANTS INC. SCALE: 1"=20' DATED OCTOBER 2015

GENERAL NOTES

1. EXISTING CONDITIONS ARE THE RESULTS OF A FIELD SURVEY BY "NORTHEAST" ENGINEERS & CONSULTANTS INC. IN SEPTEMBER 2016
2. BASIS OF ELEVATIONS: NAVD88.
3. NORTH REFERENCED G/MD NORTH (IRSP NADB3) BY RTK GPS OBSERVATION.
4. PROPERTY CORNER IS CENTER OF 3' ø FENCE POST AT EXISTING GRADE.

GRAPHIC SCALE

(in feet)

1 INCH = 30 FEET

NOTIFICATION

THIS SURVEY WAS BEEN CONDUCTED AND THE PLAN WAS BEEN PREPARED PURSUANT TO 4.30-RICR-09-00-1 OF THE RULES AND REGULATIONS ADOPTED BY THE RHODE ISLAND STATE BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS ON APRIL 25, 2018 AS FOLLOWS:

TYPE OF BOUNDARY SURVEY	MEASUREMENT SPECIFICATION
COMPREHENSIVE/VE BOUNDARY SURVEY	CLASS
DATA ACCUMULATION SURVEY	CLASS 2
TOPOGRAPHIC SURVEY ACCURACY	C.M. T=2'

STATEMENT OF PURPOSE

THE PURPOSE FOR THE CONDUCTING OF A SURVEY AND FOR THE PREPARATION OF THE PLAN IS AS FOLLOWS:

TO DETERMINE AND ESTABLISH THE LOCATION OF THE PROPERTY BOUNDARIES OF A.P. 6, LOT 11 AND TO DEPICT CERTAIN PHYSICAL FEATURES AND TOPOGRAPHY.

BY:

MARC S. THAYER NO. 1888
CERTIFICATE NO.

PRELIMINARY

No.	Revision	Date	App.

Designed By:		Drawn by: VAL	Checked by: MST
Scale: 1"=30'		Date: 11OCT2018	

Project Title:

FORMER TRIPPLET SCHOOL
A.P. 6, LOT 11
435 BROADWAY
NEWPORT, RHODE ISLAND

Client/Owner:

EDWARD MCPHERSON
ISLAND MOVING COMPANY
PO BOX 748 NEWPORT, RI 02840

Issued for:

Drawing Title:

COMPREHENSIVE BOUNDARY SURVEY
WITH EXISTING CONDITIONS AND TOPOGRAPHY

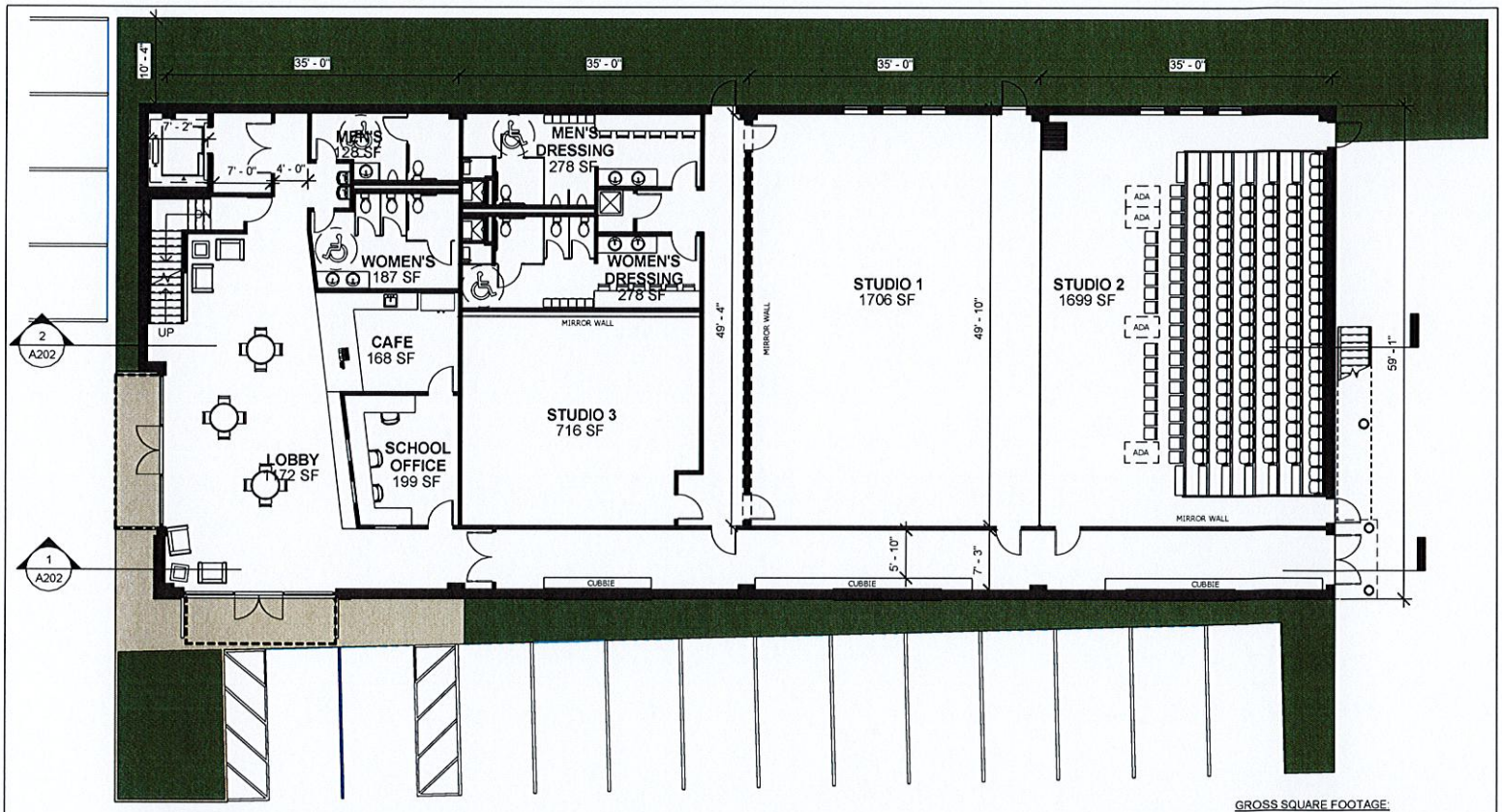
Drawing Number:	L-1
Sheet:	1 of 1
Project Number:	17062.2
Survey Initial:	14 - 6 - 11

P:\Projects\2017\17062.2 Degnan Mcpherson 435 Broadway\Drawings\Current\17062_L1.dwg


Curl Up and Dye Salon
Broadway
Union St
Jordan S. Shell
Memorial Funeral Home
Google

ISLAND MOVING COMPANY

3 DANCE STUDIOS
DRESSING ROOMS/LOBBY CAFE/OFFICES
8,610 FOOTPRINT
35 OFF STREET PARKING SPACES REQUIRED



1 Level 1
3/32" = 1'-0"

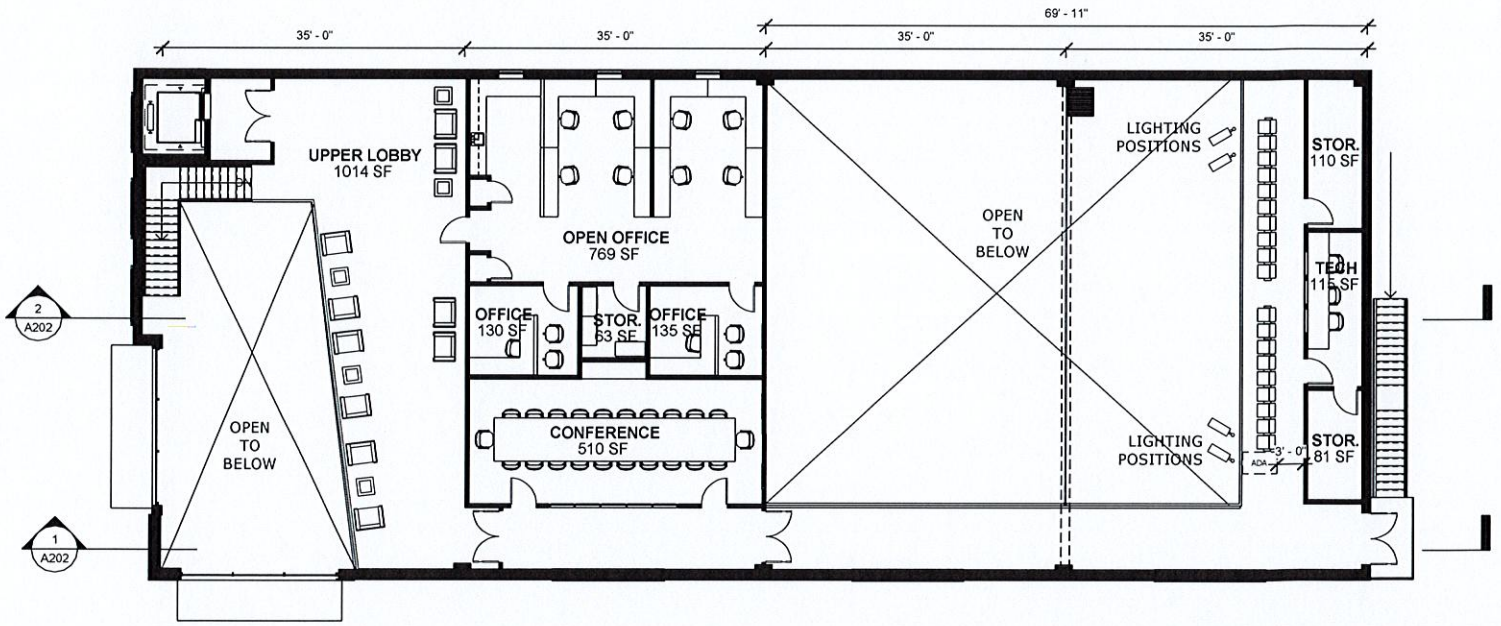
GROSS SQUARE FOOTAGE:

FIRST FLOOR COVERED AREA - 8610 sq ft

NCA
NORTHEAST COLLABORATIVE ARCHITECTS

2 Marlborough Street
Newport RI, 02840
www.ncarchitects.com
t. 401.846.9580
f. 401.846.9808

ISLAND MOVING COMPANY | FIRST LEVEL | A101

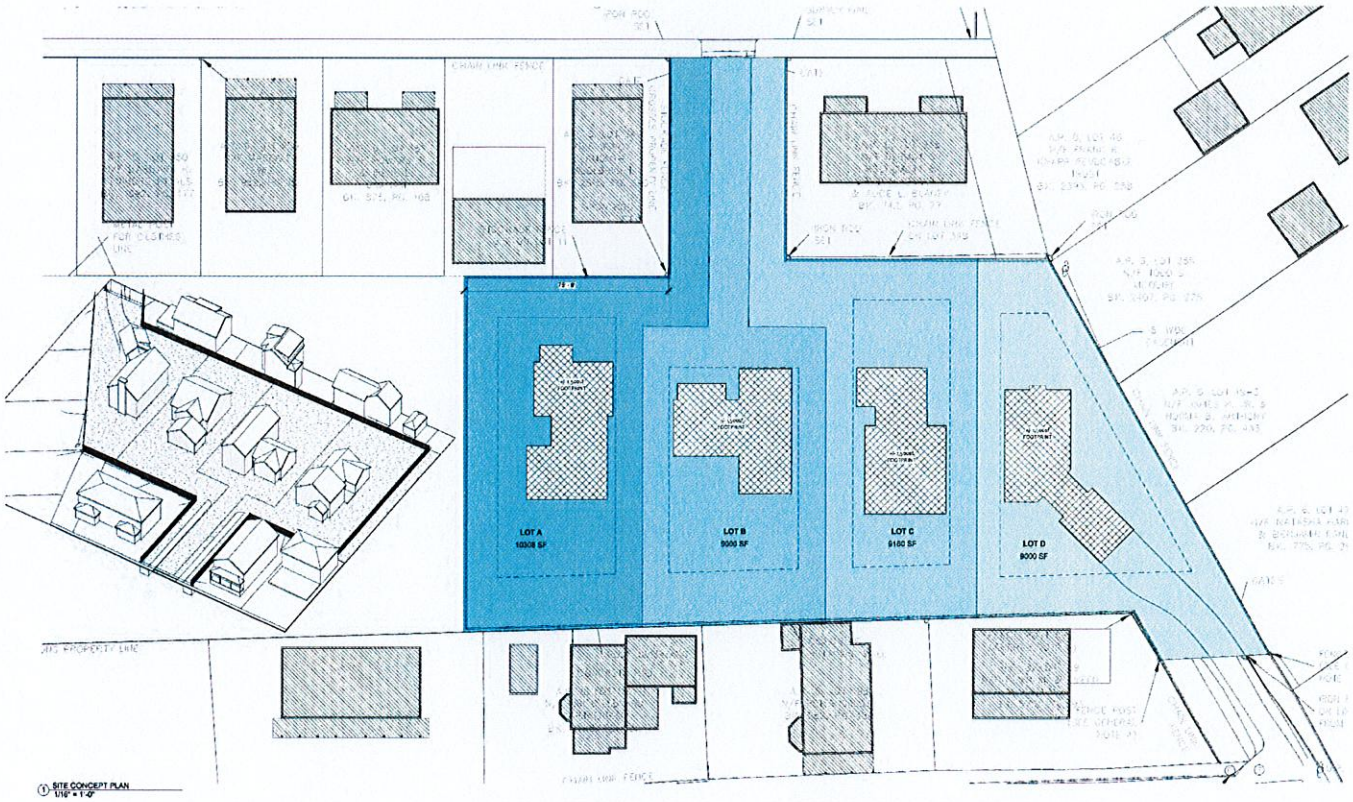


1 Level 2
3/32" = 1'-0"

NCA
NORTHEAST COLLABORATIVE ARCHITECTS

2 Marlborough Street
Newport RI, 02840
www.ncarchitects.com
t 401 846 9583
f 401 846 9808

ISLAND MOVING COMPANY | SECOND LEVEL | A111



1 SITE CONCEPT PLAN
1/16" = 1'-0"

HERK WORKS

2HANDS

Architectural Stamp:

TRIPPLET SUBDIVISON

NEWPORT, RI

REVISIONS:

No.	Description	Date

PERMIT SET

TITLE: CONCEPTUAL SITE PLAN - OPTION 1

DATE: 07/09/2018

JOB NO.: XXX

DRAWING NO.:

CP-100

LOT SIZE & DENSITY SUMMARY

EXISTING	PROPOSED
AVG. LOT SIZE 6,219 SQUARE FEET	PROPOSED AVG. LOT SIZE 9,367 SQUARE FEET
AVG. UNITS PER LOT 2.27	PROPOSED UNITS PER LOT 1
AVG. DENSITY 1 UNIT FOR EVERY 3,791 SF	PROPOSED AVG. DENSITY 1 UNIT FOR EVERY 9,367 SF


Union
Ledyard St
Ledyard St


Ledyard St


Union

City of Newport
Department of Zoning and Inspections
43 Broadway, Newport, RI 02840

Application Fee: $ 750.00

Development Plan Review Application

Instructions

Development Plan review is required for qualifying projects, as described in Chapter 17.88 of the City of Newport Code of Ordinances. The Applicant shall submit one digital and six (6) full-size paper copies of all required documents, as described in Section 17.88.040. Each applicant will be required to meet with the Department of Utilities prior to submittal of an application to determine submittal requirements to satisfy subsection 17.88.040(T). The City has standards which must be adhered to for stormwater control, in addition to state regulations. The City requires all stormwater to be treated on site, including on redeveloped land. This may reduce the developable area of your land. Substantial new construction will require the submittal of architectural plans and elevations.

The application shall not be processed until it is determined that all required documents have been submitted and all required fees have been paid. Development Plan Review is a prerequisite for a Building Permit. Construction shall be completed in accordance with the approved Development Plan Review. It is strongly suggested that all applicants request informal preliminary review to the City Planner prior to submittal of an application, let alone the commencement of serious design work by consultants.

Basic Information

Subject Property Address on file with City Engineer

435 Broadway
Street

Tax Assessor's Plat and Lot

6 , 11
Plat Lot

Property Owner's Contact Information

City of Newport
Name

43 Broadway Newport RI 02840
Mailing Address

JNICHOLSON@CityofNewport.com
Email

401 845 5430
Phone

Applicant's Contact Information (only complete if different)

Francis J. Spinella
Name

135 Pelham Street Newport RI 02840
Mailing Address

frank@fjsLtd.com
Email

401 848 5470
Phone

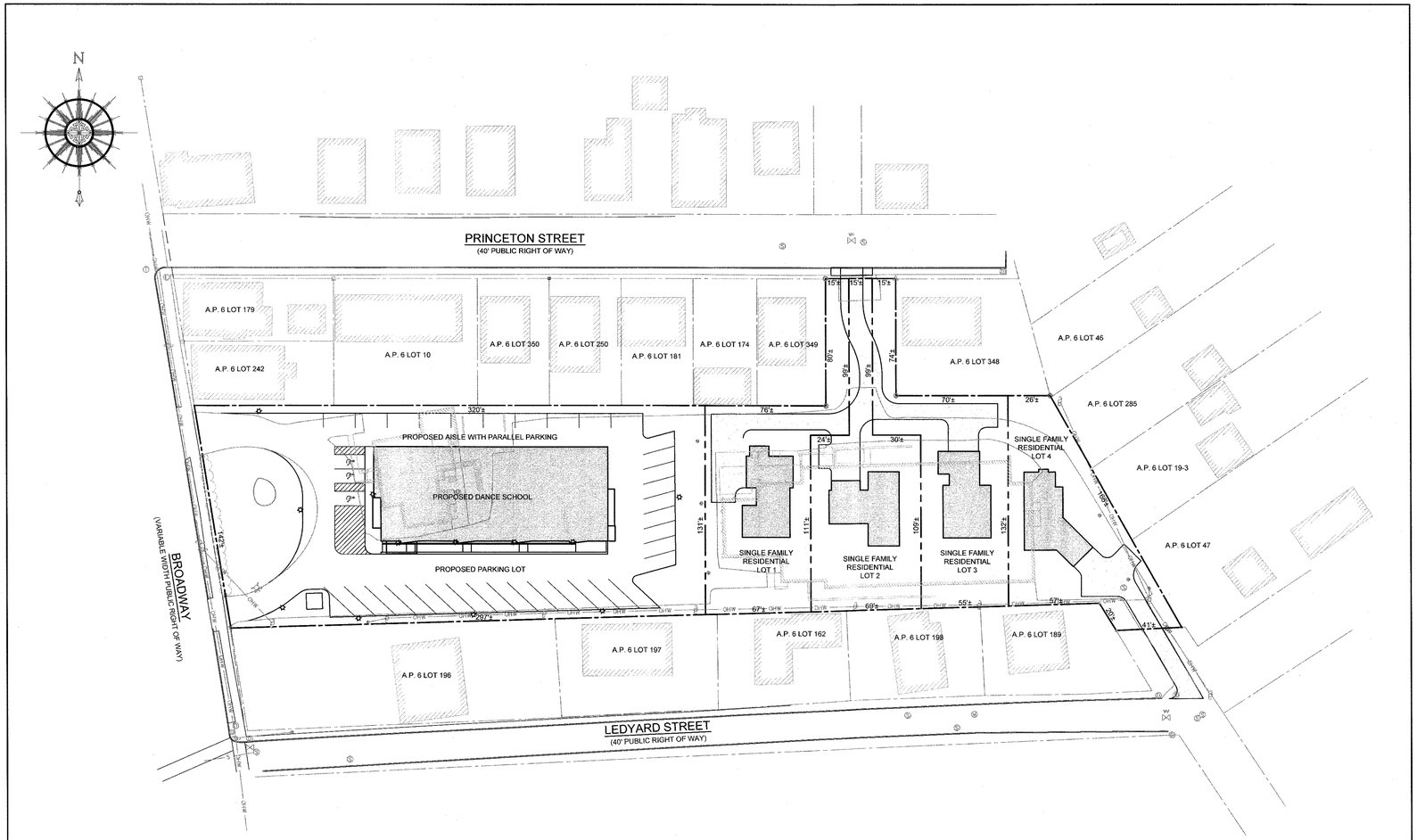
Property owner's signature authorizing submission of this application and certifying under possible penalty of perjury under the laws of this jurisdiction that the preceding information is true and correct.

Signature of Property Owner

Please provide contact information for any attorneys and/or design consultants retained. For properties with two owners, complete two forms. For developments on multiple properties, complete one form for each property owner.

PROPOSED DANCE SCHOOL AND RESIDENTIAL SUBDIVISION

ASSESSOR'S PLAT 6 LOT 11
435 BROADWAY
NEWPORT, RHODE ISLAND



SITE PLAN

SCALE = 1"=40'

CIVIL ENGINEER: NORTHEAST ENGINEERS & CONSULTANTS, INC.

SITE/CIVIL
LAND PLANNING
WATERFRONT
SURVEYING
GEOTECHNICAL
ENVIRONMENTAL
TRANSPORTATION
STRUCTURAL
MATERIALS TESTING

A KNOWLEDGE CORPORATION

6 VALLEY ROAD MIDDLETOWN RI 02842
PHONE (401) 849-0810 FAX (401) 846-4169
WWW.NORTHEASTENGINEERS.COM

JEREMY J. ROSA
No. 9826
9.15.20
REGISTERED PROFESSIONAL ENGINEER
CIVIL

ENGINEER CERTIFICATION

OWNER:

ISLAND MOVING COMPANY
PO BOX 746
NEWPORT, RI 02840

LANDSCAPE ARCHITECT:

VERDE DESIGN & HORTICULTURE
89 DR. MARCUS WHEATLAND BLVD
NEWPORT, RI 02840

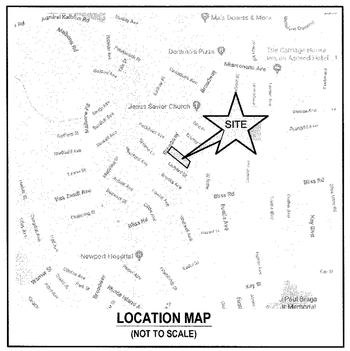
JULY 14, 2020 PERMIT SET

PLAN INDEX

SITE/CIVIL ENGINEERING PLANS

PLANS BY OTHERS

STATE MAP
(NOT TO SCALE)



LOCATION MAP
(NOT TO SCALE)

SUBMISSION AND REVISION SUMMARY

AGENCY OR REVISION	DATE:	COMMENTS:
CITY OF NEWPORT	DEC 9, 2019	DEVELOPMENT PLAN REVIEW
CITY OF NEWPORT	FEB 4, 2020	DEVELOPMENT PLAN REVIEW
CITY OF NEWPORT	APR 24, 2020	DEVELOPMENT PLAN REVIEW
CITY OF NEWPORT	JUL 14, 2020	DEVELOPMENT PLAN REVIEW

GENERAL NOTES

1. EXISTING CONDITIONS AND PROPERTY LINE INFORMATION TAKEN FROM PLAN ENTITLED "FORMER TRIPPLET SCHOOL, A.P. 6 LOT 11, 435 BROADWAY, NEWPORT, RI, COMPREHENSIVE BOUNDARY SURVEY WITH EXISTING CONDITIONS AND TOPOGRAPHY", DATED OCT. 15, 2018, A CLASS I PLAN OF SURVEY PREPARED BY NE&C.
2. BASE OF ELEVATIONS: NAVD88.
3. PROPERTIES ARE ZONED R10 (HIGH DENSITY RESIDENTIAL), ABUTTERS PROPERTIES ARE ZONED R10 (HIGH DENSITY RESIDENTIAL).
4. NORTH REFERENCES GRID NORTH (RISP NAD83) BY RTK GPS OBSERVATION.
5. SOIL EVALUATION PERFORMED BY A LICENSED CLASS IV EVALUATOR ON AUGUST 16, 2019. SOIL INFORMATION SHOWN WAS TAKEN FROM THE USDA NATURAL RESOURCES CONSERVATION SERVICE SOIL SURVEY.
6. PROPERTY IS LOCATED WITH IN A FEMA ZONE "X" PER FEMA FIRM 44005C0093J, MAP EFFECTIVE SEPTEMBER 4, 2013.
7. THE CONTRACTOR SHALL VERIFY THE PROPOSED LAYOUT AND DETAILS WITH THEIR RELATIONSHIP TO THE EXISTING SITE SURVEY. CONTRACTOR SHALL ALSO VERIFY ALL DIMENSIONS, SITE CONDITIONS AND MATERIAL SPECIFICATIONS AND SHALL NOTIFY THE OWNER AND ENGINEER OF ANY ERRORS, OMISSIONS OR DISCREPANCIES BEFORE COMMENCING WORK.
8. THE UNDERGROUND UTILITIES KNOWN TO EXIST BY THE ENGINEER FROM HIS SEARCH OF RECORDS ARE INDICATED ON THE PLANS. CONTRACTOR SHALL VERIFY THE LOCATIONS AND DEPTHS OF THE FACILITIES AND EXERCISE PROPER CARE IN EXCAVATING IN THE AREA. ALL DAMAGED PORTIONS SHALL BE REPLACED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE AFFECTED UTILITY COMPANY AND SHALL BE THE CONTRACTOR'S RESPONSIBILITY. PERSONAL INJURY RESULTING FROM CONTACT WITH EXISTING UTILITIES SHALL BE THE CONTRACTOR'S RESPONSIBILITY. WHEREVER CONNECTION OF NEW UTILITIES TO EXISTING UTILITIES ARE SHOWN ON THE PLANS, THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES AT THE PROPOSED CONNECTIONS TO VERIFY THEIR LOCATIONS AND DEPTHS PRIOR TO EXCAVATION FOR NEW LINES. (PLEASE CALL DIG SAFE PRIOR TO CONSTRUCTION AT 1-888-DIG-SAFE AND ALL LOCAL UTILITY COMPANIES.)
9. THE CONTRACTOR SHALL NOTIFY ALL AGENCIES TO VERIFY THE ACTUAL LOCATIONS OF ALL UTILITIES IN THE PROJECT AREA PRIOR TO EXCAVATING.
10. THE CONTRACTOR SHALL RESTORE TO THEIR ORIGINAL CONDITION OR BETTER, ALL IMPROVEMENTS DAMAGED AS A RESULT OF THE CONSTRUCTION, INCLUDING PAVEMENTS, EMBANKMENTS, CURBS, SIGNS, LANDSCAPING, STRUCTURES, UTILITIES, WALLS, FENCES, ETC. UNLESS PROVIDED FOR SPECIFICALLY IN THE PROPOSAL.
11. CONTRACTOR SHALL EXERCISE EXTREME CAUTION TO PRESERVE STREET MONUMENTS.
12. STREET MONUMENTS THAT ARE DISTURBED SHALL BE RESTORED UNDER THE LICENSED LAND SURVEYOR'S DIRECTION. ANY NEW DATA SUCH AS ELEVATIONS SHALL BE CERTIFIED BY THE SURVEYOR, AND SUBMITTED TO THE TOWN OF MIDDLETOWN OR THE CITY OF NEWPORT AS APPROPRIATE.
13. DEVIATIONS OR CHANGES FROM THESE PLANS WILL NOT BE ALLOWED UNLESS APPROVED BY THE PROJECT ENGINEER, APPROPRIATE AGENCY AND OWNER.
14. RELOCATION OF ANY UTILITIES SHALL BE AT THE OWNERS EXPENSE AND BE COMPLETED WITH THE UTILITY WORK. THE OWNER SHALL BE NOTIFIED AS TO THE RELOCATION REQUIRED PRIOR TO THE START OF CONSTRUCTION.
15. AN APPROVED SET OF PLANS AND ALL APPLICABLE PERMITS MUST BE AVAILABLE AT THE CONSTRUCTION SITE AT ALL TIMES.
16. CONTRACTOR AGREES THAT HE/SHE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF THE CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT TO BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND THE ENGINEERS HARMLESS FROM ANY AND ALL LIABILITY, REAL AND ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM "THE SOLE NEGLIGENCE OF THE OWNER OR PROJECT ENGINEER."
17. ALL TRAFFIC CONTROL SHALL CONFORM TO THE MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES LATEST EDITION INCLUDING ALL REVISIONS.
18. THE PROPOSED DEVELOPMENT DOES NOT LIE IN ANY OF THE FOLLOWING AREAS:
    - NATURAL HERITAGE AREAS (RIDEM)
    - SPECIAL AREA MANAGEMENT PLAN (CRMC)
    - GROUNDWATER AQUIFERS, STATE DESIGNATED "GROUNDWATER RESERVOIRS", RECHARGE AREAS, OR WELLHEAD PROTECTION AREAS
    - STATE, REGIONAL OR LOCAL GREENWAYS, OR GREENSPACE PRIORITIES
19. ALL WORK WITHIN THE CITY RIGHT OF WAYS WILL CONFORM TO THE CITY OF NEWPORT SPECIFICATIONS.

GRADING NOTES

1. ADEQUATE PROVISIONS SHALL BE MADE TO PREVENT SURFACE WATERS FROM DAMAGING THE CUT FACE OF AN EXCAVATION OR THE SLOPED SURFACES OF A FILL. FURTHERMORE, ADEQUATE PROVISIONS SHALL BE MADE TO PREVENT SEDIMENT RUNOFF FROM LEAVING THE SITE.
2. ALL GRADED AREAS SHALL BE SODDED OR PLANTED IMMEDIATELY AFTER THE GRUBBING WORK HAS BEEN COMPLETED.
3. THE CITY SHALL BE INFORMED OF THE LOCATION OF THE DISPOSAL SITE, IF ANY, FOR THE PROJECT.
4. NO GRADING WORK SHALL BE DONE ON SATURDAYS, SUNDAYS AND HOLIDAYS AT ANY TIME WITHOUT PRIOR NOTICE TO THE MUNICIPALITY, PROVIDED SUCH GRADING WORK IS ALSO IN CONFORMANCE WITH THE COMMUNITY NOISE CONTROL STANDARDS.
5. THE LIMITS OF DISTURBANCE SHALL BE FLAGGED BEFORE THE COMMENCEMENT OF THE GRADING WORK.
6. ALL GRADING OPERATIONS SHALL BE PERFORMED IN CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE DEPARTMENT OF ENVIRONMENTAL MANAGEMENT AND THE MUNICIPALITY.
7. WHERE APPLICABLE AND FEASIBLE THE MEASURES TO CONTROL EROSION AND OTHER POLLUTANTS SHALL BE IN PLACE BEFORE GRADING WORK IS INITIATED.
8. TEMPORARY EROSION CONTROLS SHALL NOT BE REMOVED BEFORE PERMANENT EROSION CONTROLS ARE IN-PLACE AND ESTABLISHED.
9. IF THE GRADING WORK INVOLVES CONTAMINATED SOIL, THEN ALL GRADING WORK SHALL BE DONE IN CONFORMANCE WITH APPLICABLE STATE AND FEDERAL REQUIREMENTS.
10. NONCOMPLIANCE TO ANY OF THE ABOVE REQUIREMENTS SHALL MEAN IMMEDIATE SUSPENSION OF ALL WORK, AND REMEDIAL WORK SHALL COMMENCE IMMEDIATELY. ALL COSTS INCURRED SHALL BE BILLED TO THE VIOLATOR. FURTHERMORE, VIOLATORS SHALL BE SUBJECTED TO ADMINISTRATIVE, CIVIL AND/OR CRIMINAL PENALTIES.

UTILITY NOTES

1. THE LOCATIONS OF PROPOSED ELECTRICAL CONNECTION TO THE EXISTING OVERHEAD LINES RUNNING ALONG THE SOUTH PROPERTY LINE ARE PRELIMINARY. FINAL DESIGN OF THE ELECTRICAL SERVICE IS SUBJECT TO DESIGN REVIEW AND APPROVAL OF NATIONAL GRID.
2. THE EXISTING WATER SERVICE SHALL BE RE-USED FOR THE PROPOSED SCHOOL WITH PERMISSION FROM THE NEWPORT WATER DEPARTMENT. ALL NEW CONNECTIONS FOR THE RESIDENCES WILL REQUIRE WATER SERVICE APPLICATIONS TO THE NEWPORT DPU.
3. NEW ELECTRIC, TELEPHONE AND CABLE SERVICES SHALL BE INSTALLED UNDERGROUND.
4. THE EXISTING SEWER SERVICE SHALL BE RE-USED FOR THE DANCE STUDIO WITH PERMISSION FROM THE CITY OF NEWPORT DEPARTMENT OF UTILITIES. ALL NEW CONNECTIONS WILL REQUIRE SEWER SERVICE APPLICATIONS TO THE NEWPORT DPU.
5. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL ASSUMPTIONS, DEDUCTIONS, OR CONCLUSIONS HE/SHE MAY MAKE OR DERIVE FROM THE SUBSURFACE INFORMATION OR DATA FURNISHED ON THE PLANS. THE CONTRACTOR MUST SATISFY HIMSELF/HERSELF THROUGH HIS/HER OWN INVESTIGATIONS AS TO WHAT SUBSURFACE CONDITIONS ARE TO BE ENCOUNTERED.
6. IF THE CONTRACTOR ELECTS NOT TO EXPOSE AND VERIFY ALL EXISTING UNDERGROUND UTILITIES AND STRUCTURES AT CROSSINGS PRIOR TO PIPELINE EXCAVATION, HE/SHE FORFEITS HIS/HER RIGHTS FOR ANY CLAIMS FOR COMPENSATION CAUSED BY ANY CONFLICTS WITH EXISTING UTILITIES AND STRUCTURES.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER DISPOSAL OF ALL EFFLUENT ASSOCIATED WITH THE CONSTRUCTION ACTIVITY AND THE DISINFECTION AND HYDROTESTING OPERATIONS TO SAFEGUARD PUBLIC HEALTH AND SAFETY IN ACCORDANCE WITH APPLICABLE DEPARTMENT OF HEALTH REQUIREMENTS. ALL PERMITS AND LICENSES FOR CONSTRUCTION WATER DISPOSAL, INCLUDING ALL APPLICATIONS, CHARGES, FEES, AND TAXES, ARE THE RESPONSIBILITY OF THE CONTRACTOR.

DRAINAGE NOTES

1. ALL DRAIN PIPES ON SITE SHALL BE ADS-N12 TYPE IB OR SCH40 PVC UNLESS OTHERWISE NOTED ON THIS PLAN.
2. ALL DRAIN MANHOLES AND DRAIN INLETS SHALL BE ADS NYLOPLAST DRAIN BASINS .
3. DANCE STUDIO ROOFTOP SHALL BE DIRECTLY CONNECTED INTO THE PROPOSED UNDERGROUND INFILTRATION DRAINAGE PIPING SYSTEM AS SHOWN ON THE PLANS. THESE CONNECTIONS SHALL HAVE OVERFLOWS TO GRADE PER DETAILS PROVIDED.
4. INDIVIDUAL RESIDENCE ROOFS SHALL BE DIRECTLY CONNECTED INTO THE PROPOSED UNDERGROUND INFILTRATION DRAINAGE PIPING SYSTEMS AS SHOWN ON THE PLANS. THESE CONNECTIONS SHALL HAVE OVERFLOWS TO GRADE PER DETAILS PROVIDED,

PUBLIC HEALTH SAFETY AND CONVENIENCE NOTES

1. CONTRACTOR SHALL OBSERVE AND COMPLY WITH ALL FEDERAL, STATE, AND LOCAL LAWS REQUIRED FOR THE PROTECTION OF PUBLIC HEALTH, SAFETY AND ENVIRONMENTAL QUALITY.
2. THE CONTRACTOR AT HIS/HER EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM RUBBISH, DUST, NOISE, EROSION, ETC. THE WORK SHALL BE DONE IN CONFORMANCE WITH THE AIR AND WATER POLLUTION CONTROL STANDARDS AND REGULATIONS OF ALL APPLICABLE FEDERAL, STATE AND LOCAL AGENCIES.
3. NO CONTRACTOR SHALL PERFORM ANY CONSTRUCTION OPERATION SO AS TO CAUSE FALLING ROCKS, SILT OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW ONTO ADJOINING PROPERTIES, STREETS OR NATURAL WATERCOURSES. SHOULD SUCH VIOLATIONS OCCUR, THE CONTRACTOR MAY BE CITED AND THE CONTRACTOR SHALL IMMEDIATELY MAKE ALL REMEDIAL ACTIONS AS NECESSARY.
4. THE CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN ALL NECESSARY SIGNS, LIGHTS, FLARES, BARRICADES, MARKERS, CONES, AND OTHER PROTECTIVE FACILITIES AND SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE PROTECTION, CONVENIENCE AND SAFETY OF THE PUBLIC.

SOIL EROSION AND SEDIMENT CONTROL NOTES

1. CONSTRUCTION SEQUENCE:

A. DO NOT BEGIN CONSTRUCTION UNTIL ALL LOCAL, STATE, AND FEDERAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED.

B. ALL CONSTRUCTION VEHICLES SHALL ENTER AND LEAVE THE SITE VIA ONE OF THE PAVED ACCESS POINTS. SHOULD THIS NO LONGER BE POSSIBLE AT ANY POINT DURING CONSTRUCTION, THE CONTRACTOR SHALL CONSTRUCT A SUPPLEMENTAL STABILIZED CONSTRUCTION ENTRANCE CONFORMING TO THE DETAIL PROVIDED.

C. INSTALL SILT SACKS AND STRAW WATTLE AS INDICATED ON THE DRAWINGS TO CONTROL EROSION AND PREVENT SEDIMENT CONTAMINATION OF DOWNSTREAM AREAS PRIOR TO ANY EARTH MOVING ACTIVITIES.

D. CONTRACTOR TO LOCATE EXISTING SEWER AND WATER SERVICES TO EXISTING STRUCTURES. SERVICES SHALL BE DISCONNECTED AND MARKED IN THE FIELD FOR POTENTIAL LATER USE.

E. DEMOLISH EXISTING STRUCTURES, WALLS, AND EXISTING PAVEMENT WITH THE EXCEPTION OF THE PAVED CONSTRUCTION ENTRANCE. REMOVE AND DISPOSE OF ALL MATERIAL AT A LICENSED OFF-SITE FACILITY.

F. REMOVE VEGETATION ONLY WHERE NECESSARY. ANY STUMPS TO BE GROUND OR DISPOSED OF OFF SITE.

G. EXCAVATE SAND FILTER AREA IN ACCORDANCE WITH THE PLANS AND ESTABLISH A TEMPORARY VEGETATIVE GROWTH THAT MEETS THE APPROVAL OF THE CITY ENGINEER. THIS DEPRESSION SHALL BE USED AS A DEWATERING AREA SHOULD ONE BE REQUIRED DURING CONSTRUCTION.

H. ROUGH GRADE SITE AND DANCE STUDIO BUILDING PAD PER GRADING PLAN.

I. CONSTRUCT DANCE SCHOOL. INSTALL DRAINAGE SYSTEM AND CONVEYANCE.

J. FINAL GRADE SITE AND INSTALL BINDER PAVEMENT COURSE. INSTALL CURBING PER DETAIL PROVIDED.

K. REMOVE SEDIMENTS FROM SAND FILTER EXCAVATION, EXCAVATE AND INSTALL LINER, UNDERDRAIN, AND SAND MEDIA. COMPLETE SAND FILTER CONSTRUCTION.

L. EXCAVATE FOR AND INSTALL INFILTRATION SYSTEM. OVERDIG AND BACKFILL WITH WASHED 3/4 CRUSHED STONE IF COMPACTION HAS OCCURRED DURING CONSTRUCTION. ENSURE THAT ROOFTOP DRAINAGE SYSTEM FUNCTIONS AS NOTED ON DRAINAGE PLAN.

M. TOP PAVEMENT COURSE AND MAINTAIN SITE IN ACCORDANCE WITH THE MAINTENANCE NOTES.

N. RESIDENTIAL LOT CONSTRUCTION SHALL BE COMPLETED PER SCHEDULE PROVIDED ON INDIVIDUAL PERMITTING SETS.

2. NOTES:

A. DURING CONSTRUCTION AND THEREAFTER, EROSION CONTROL MEASURES ARE TO BE IMPLEMENTED AS NOTED. ONLY THE SMALLEST PRACTICAL AREA OF LAND SHOULD BE EXPOSED AT ANY ONE TIME DURING DEVELOPMENT. WHEN LAND IS EXPOSED DURING DEVELOPMENT, THE EXPOSURE SHOULD BE KEPT TO THE SHORTEST PRACTICAL PERIOD OF TIME.

B. AREA OF PROPOSED INFILTRATION SYSTEM SHALL NOT BE USED FOR STOCKPILES OR STORAGE OF MATERIALS OR EQUIPMENT.

C. ANY DISTURBED AREAS WHICH ARE TO BE LEFT TEMPORARILY AND WHICH WILL BE REGRADED LATER DURING CONSTRUCTION SHALL BE STABILIZED WITHIN FOURTEEN DAYS IN ACCORDANCE WITH TEMPORARY MEASURES IN THE VEGETATIVE PRACTICE NOTES.

D. AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOP SOIL TO REMOVE VEGETATION, ROOTS, AND ANY OTHER OBJECTIONABLE MATERIAL.

E. ALL FILL SHALL BE COMPACTED TO 95% MAX. DENSITY TO REDUCE EROSION, SLIPPAGE, SETTLEMENT SUBSIDENCE, OR OTHER RELATED PROBLEMS.

F. FILL INTENDED TO SUPPORT BUILDING STRUCTURES AND CONDUITS, ETC., SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL CODES AND SPECIFICATIONS.

G. ALL FILL SHALL BE PLACED AND COMPACTED TO 95% MAX. DENSITY IN LAYERS NOT TO EXCEED 12" IN THICKNESS FILLS.

H. FILL MATERIAL SHALL BE FREE OF BRUSH, RUBBISH, ROCKS, LOGS, STUMPS, BUILDING DEBRIS, AND OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.

I. FROZEN, SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIAL SHALL NOT BE INCORPORATED INTO FILLS.

J. FILL SHALL NOT BE PLACED ON A FROZEN FOUNDATION SUBGRADE.

K. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE BROUGHT TO THE ATTENTION OF THE DESIGN ENGINEER.

L. ALL DISTURBED AREAS SHALL BE STABILIZED WITHIN 14 DAYS OF FINISH GRADING IN ACCORDANCE WITH THE VEGETATIVE PRACTICE NOTES.

M. REMOVE TEMPORARY EROSION CONTROL MEASURES ONCE UPSLOPE AREAS HAVE BEEN PERMANENTLY STABILIZED AND VEGETATED AREAS HAVE RECEIVED TWO MOWINGS.

3. VEGETATIVE PRACTICE:

PERMANENT MEASURES:

A. SLOPES SHALL NOT BE STEEPER THAN 1 VERTICAL TO 3 HORIZONTAL UNLESS OTHERWISE SPECIFIED.
B. LOAM AND SEED REQUIREMENTS ARE SPECIFIED IN RIDOT L.01 & L.02.
C. A MINIMUM OF 4 INCHES OF LOAM SHALL BE INSTALLED. THE LOAM SHALL BE GRADED TO A SMOOTH CONDITION AND STONES AND OTHER OBJECTS LARGER THAN 2 INCHES SHALL BE REMOVED.

TEMPORARY MEASURES (FOR TEMPORARY PROTECTION OF DISTURBED AREAS)

D. LIMESTONE AND FERTILIZER SHALL BE APPLIED AT THE FOLLOWING RATE:
  D.1. LIMESTONE: 3 TONS/ACRE
  D.2. FERTILIZER: (10-10-10): 600 LBS/ACRE
E. SEED SHALL BE APPLIED AT THE FOLLOWING RATE:
  E.1. WINTER RYE: 100 LB/ACRE
F. STRAW MULCH SHALL BE APPLIED AT THE RATE OF 1.5 TONS/ACRE.

4. MAINTENANCE

DURING THE PERIOD OF CONSTRUCTION AND/OR UNTIL LONG TERM VEGETATION IS ESTABLISHED, THE EROSION CONTROL MEASURES SHALL BE INSPECTED.

A. AT A MINIMUM THE STRAW WATTLE EROSION CONTROL BARRIERS SHALL BE INSPECTED AND REPAIRED ONCE A WEEK AND / OR IMMEDIATELY FOLLOWING A SIGNIFICANT RAINFALL OR SNOWMELT. SEDIMENT TRAPPED BEHIND THE BARRIERS SHALL BE EXCAVATED WHEN IT REACHES A DEPTH OF 6" AND REGRADED ON THE SITE.

B. EROSION CONTROL BLANKETS SHALL BE INSPECTED ON A WEEKLY BASIS.

C. SILT SACKS SHALL BE INSPECTED AND REPAIRED ONCE A WEEK AND / OR IMMEDIATELY FOLLOWING A SIGNIFICANT RAINFALL OR SNOWMELT. DURING HEAVY RAIN EVENT, IT MAY BE NECESSARY TO TEMPORARILY REMOVE SACKS IN ORDER TO PREVENT FLOODING. SEDIMENT TRAPPED WITHIN SACKS SHALL BE DISPOSED OF OFF SITE AT A LICENSED FACILITY OR REGRADED ON THE SITE.

D. STONE RIPRAP SHALL BE INSPECTED MONTHLY FOR EXCESSIVE ACCUMULATION OF SEDIMENT. IT MAY BE NECESSARY TO REMOVE STONES, EXCAVATE SEDIMENT, AND REPLACE STONES.

E. IF INSTALLED, THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE REMOVED PRIOR TO PAVING. DURING CONSTRUCTION THE ENTRANCE SHALL BE INSPECTED WEEKLY, AND RE-ESTABLISHED AS NECESSARY.

F. SEEDED AREAS WILL BE FERTILIZED AND RESEEDED AS NECESSARY TO INSURE ESTABLISHMENT OF A VEGETATIVE GROWTH THAT MEETS THE APPROVAL OF THE CITY ENGINEER.

STORMWATER MAINTENANCE NOTES

1. UNDERGROUND CHAMBER MAINTENANCE:
   a. GENERAL INSPECTIONS SHOULD BE CONDUCTED AT LEAST ANNUALLY AND AFTER STORM EVENTS GREATER THAN OR EQUAL TO THE 1-YEAR, 24-HOUR TYPE III PRECIPITATION EVENT (2.8 INCHES). THE MAINTENANCE OBJECTIVES FOR THESE PRACTICES INCLUDE PRESERVING THE STRUCTURAL INTEGRITY OF THE BASIN. THESE INSPECTIONS TO INCLUDE:

      i. SURSURFACE INFILTRATION CHAMBERS SHALL BE INSPECTED VIA INSPECTION PORTS OR MANHOLES TO GRADE ANNUALLY FOR THE PRESENCE OF SEDIMENTS, OR EVERY SIX (6) MONTHS FOR THE FIRST YEAR OF OPERATION. SHOULD THE AVERAGE DEPTH OF SEDIMENT EXCEED 3 INCHES WITHIN THE INLET CHAMBER, CLEAN OUT SHOULD BE PERFORMED. THIS SHOULD BE ACCOMPLISHED BY VACUUM TRUCK.

      ii. STORMWATER INLETS STRUCTURES SHALL BE INSPECTED ON A YEARLY BASIS. SHOULD ACCUMULATED SEDIMENTS AND DEBRIS EXCEED 50% OF THE STRUCTURE SUMPS, MATERIAL SHALL BE REMOVED AND DISPOSED OF OFF SITE AT A LICENSED FACILITY. STRUCTURAL FAULTS SHALL BE REPAIRED AND GRATES INSPECTED FOR BLOCKAGE.

2. SAND FILTER MAINTENANCE:
   a. GRASSES AND/OR SPECIFIED VEGETATION SHALL BE PLANTED AROUND AND WITHIN THE SAND FILTER IMMEDIATELY FOLLOWING CONSTRUCTION TO STABILIZE SLOPES AND PREVENT EROSION.
   b. THE FILTER SHOULD BE INSPECTED FOLLOWING AT LEAST THE FIRST TWO PRECIPITATION EVENTS OF AT LEAST 1.0 INCH TO ENSURE THAT THE SYSTEM IS FUNCTIONING PROPERLY. THEREAFTER, THE FILTER SHOULD BE INSPECTED AT LEAST ANNUALLY AND AFTER STORM EVENTS OF GREATER THAN OR EQUAL THE 1-YEAR, 24-HOUR TYPE III PRECIPITATION EVENT (2.8 INCHES). SEDIMENTS COLLECTED WITHIN THE TOP STRATA OF THE FILTER SHALL BE GRASSES AND/OR SPECIFIED VEGETATION SHALL BE PLANTED AROUND AND WITHIN THE SAND FILTER IMMEDIATELY FOLLOWING CONSTRUCTION TO STABILIZE SLOPES AND PREVENT EROSION.
   c. THE FOLLOWING SHALL ALSO BE COMPLETED ON AN ANNUAL BASIS:
      i. THE SLOPES OF THE FILTER SHOULD BE INSPECTED FOR EROSION AND GULLYING.
      ii. REINFORCE ANY EXISTING RIPRAP IF IT IS FOUND TO BE DEFICIENT, EROSION IS PRESENT AT THE OUTLET STRUCTURES, OR ANY EXISTING RIPRAP HAS BEEN COMPROMISED.
      iii. THE UNDERDRAIN RISER OR OVERFLOW OUTLET STRUCTURE SHALL BE INSPECTED FOR LEAKY JOINTS OR CRUSHED LINES. UNDERDRAIN AND OUTLET PIPE SHALL BE CLEAN AND FREE OF MATERIALS THAT CAN REDUCE FLOW.
      iv. ANY AREAS WITHIN THE EXTENTS OF THE FILTER THAT ARE SUBJECT TO EROSION OR GULLYING SHOULD BE REPLENISHED WITH THE ORIGINAL DESIGN MATERIAL AND RE-VEGETATED ACCORDING TO DESIGN DRAWINGS. SLOPE PROTECTION MATERIAL SHOULD BE PLACED IN AREAS PRONE TO EROSION. EMBANKMENT STABILITY SHOULD BE INSPECTED FOR SEEPAGE AND BURROWING ANIMALS.
      v. MOW THE GRASS AROUND THE PERIMETER OF AND WITHIN THE FILTER, SEED BARE AREAS, AND REMOVE LITTER AND DEBRIS AT LEAST THREE TIMES PER GROWING SEASON TO MAINTAIN MAXIMUM GRASS HEIGHTS LESS THAN TWELVE INCHES. REMOVE ANY INVASIVE VEGETATION WITHIN THE EXTENTS OF THE FILTER. ANY INVASIVE VEGETATION ENCROACHING UPON THE PERIMETER OF THE FILTER SHOULD BE PRUNED OR REMOVED IF IT IS PROHIBITING ACCESS TO THE FILTERS, COMPROMISING SIGHT VISIBILITY, AND/OR COMPROMISING THE ORIGINAL DESIGN INTENT. IF DEAD OR DYING GRASS ON THE BOTTOM IS OBSERVED, CHECK TO ENSURE THAT WATER INFILTRATES WITHIN TWO DAYS FOLLOWING STORMS.
      vi. SILT/SEDIMENT SHOULD BE REMOVED FROM THE FILTER BED ANNUALLY, WHEN ACCUMULATION EXCEEDS 1 INCH, OR WHEN THE FILTERING CAPACITY DIMINISHES SUBSTANTIALLY. IF STANDING WATER IS OBSERVED MORE THAN 48 HOURS AFTER A STORM EVENT, THEN THE TOP 6 INCHES OF SAND SHOULD BE REMOVED AND REPLACED. IF DISCOLORED OR CONTAMINATED MATERIAL IS FOUND BELOW THIS REMOVED SURFACE THEN THAT MATERIAL SHOULD ALSO BE REMOVED AND REPLACED UNTIL ALL CONTAMINATED SAND HAS BEEN REMOVED FROM THE FILTER MEDIA. THE SAND SHOULD BE DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.

3. CONVEYANCE STRUCTURE MAINTENANCE:
   a. ALL INLET / OUTFLOW PIPES ARE TO BE INSPECTED AT LEAST THREE TIMES IN THE FIRST SIX MONTHS OF OPERATION. EVIDENCE OF CLOGGING, OR RAPID RELEASE OF FLOW SHALL BE REPORTED TO THE PROJECT ENGINEER AND REMEDIED IMMEDIATELY.
   b. CONVEYANCE PIPES SHOULD BE INSPECTED BIANNUALLY. ANY STRUCTURAL FAULTS SHOULD BE REPAIRED AS NECESSARY FOR PROPER FUNCTION OF THE STRUCTURE.
   c. ROOF RUNOFF STRUCTURES SUCH AS GUTTERS AND DOWNSPOUTS SHOULD BE CLEAN AND FREE OF OBSTRUCTIONS THAT REDUCE FLOW. A REGISTERED PROFESSIONAL ENGINEER SHOULD BE CONSULTED IF NECESSARY TO DETERMINE WHETHER A STRUCTURE HAS BEEN COMPROMISED.

5. MAINTENANCE OF THE STORMWATER SYSTEM DURING CONSTRUCTION OF THE PROJECT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

6. UPON COMPLETION OF THE CONSTRUCTION, MAINTENANCE OF THE STORMWATER SYSTEM SHALL BECOME THE RESPONSIBILITY OF THE OWNERS.

ABBREVIATIONS

AC	ASPHALT PAVEMENT
ADJ	ADJACENT
AP	ASSESSOR'S PLAT
ACCESS	ACCESSIBLE
ARCH	ARCHITECT
BC	BOTTOM OF CURB
BH	BORING HOLE
BIT	BITUMINOUS
CLR	CLEARANCE
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CONC	CONCRETE
CONN	CONNECT
COTG	CLEAN OUT TO GRADE
CF	CUBIC FOOT
DEMO	DEMOLISH
DI	DRAIN INLET
DIA	DIAMETER
DMH	DRAIN MANHOLE
dp	DROP PIPE
DS	DOWN SPOUT
DWG	DRAWING
E	ELECTRIC
ELEV/EL	ELEVATION
EMH	ELECTRIC MANHOLE
EOP	EDGE OF PAVEMENT
EQ	EQUAL
EXIST	EXISTING
EXP	EXPANSION
FFE	FINISH FLOOR ELEVATION
FG	FINISHED GRADE
FH	FIRE HYDRANT
FT	FEET
G	GAS
GAL	GALLON
GV	GATE VALVE
INV	INVERT
JT	JOINT
L	LENGTH
LAND	LANDSCAPE
NTS	NOT TO SCALE
MAX	MAXIMUM
MECH	MECHANICAL
MIN	MINIMUM
PAV'T	PAVEMENT
PVC	POLYVYNILCHLORIDE
R	RADIUS
RC	REINFORCED CONCRETE
RECONN	RECONNECT
RIHB	RHODE ISLAND HIGHWAY BOUND
RIDOT	RHODE ISLAND DEPARTMENT OF TRANSPORTATION
ROW	RIGHT OF WAY
S	SLOPE, SEWER
SF	SQUARE FEET
SHT	SHEET
SMH	SEWER MANHOLE
STA	STATION
STRUCT	STRUCTURAL
TC	TOP OF CURB
TOP	TOP OF SURFACE
UGT	UNDERGROUND TELEPHONE
TYP	TYPICAL
W	WATER
W/	WITH
WWM	WELDED WIRE MESH

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No.	Revision	Date	App.
2	REVISED SESC NOTES	24APR20	
1	REVISED DRAINAGE AND MAINT. NOTES	04FEB20	

Designed By: | Drawn by: JJR | Checked by: GES
Scale: N/A | Date: 09DEC19

Project Title:

PROPOSED DANCE SCHOOL AND RESIDENTIAL SUBDIVISION

A.P. 6 LOT 11
435 BROADWAY
NEWPORT, RHODE ISLAND

Client/Owner:

ISLAND MOVING COMPANY
P.O. BOX 746
NEWPORT, RI 02840

Issued for:

PERMITTING

Drawing Title:

PROJECT NOTES

JEREMY J. ROSA
No. 9826
REGISTERED PROFESSIONAL ENGINEER
CIVIL
1.15.20

Drawing Number: C-2
Sheet 2 of 10
Project Number: 17062.2
Survey Index: 14 - 6 - 11

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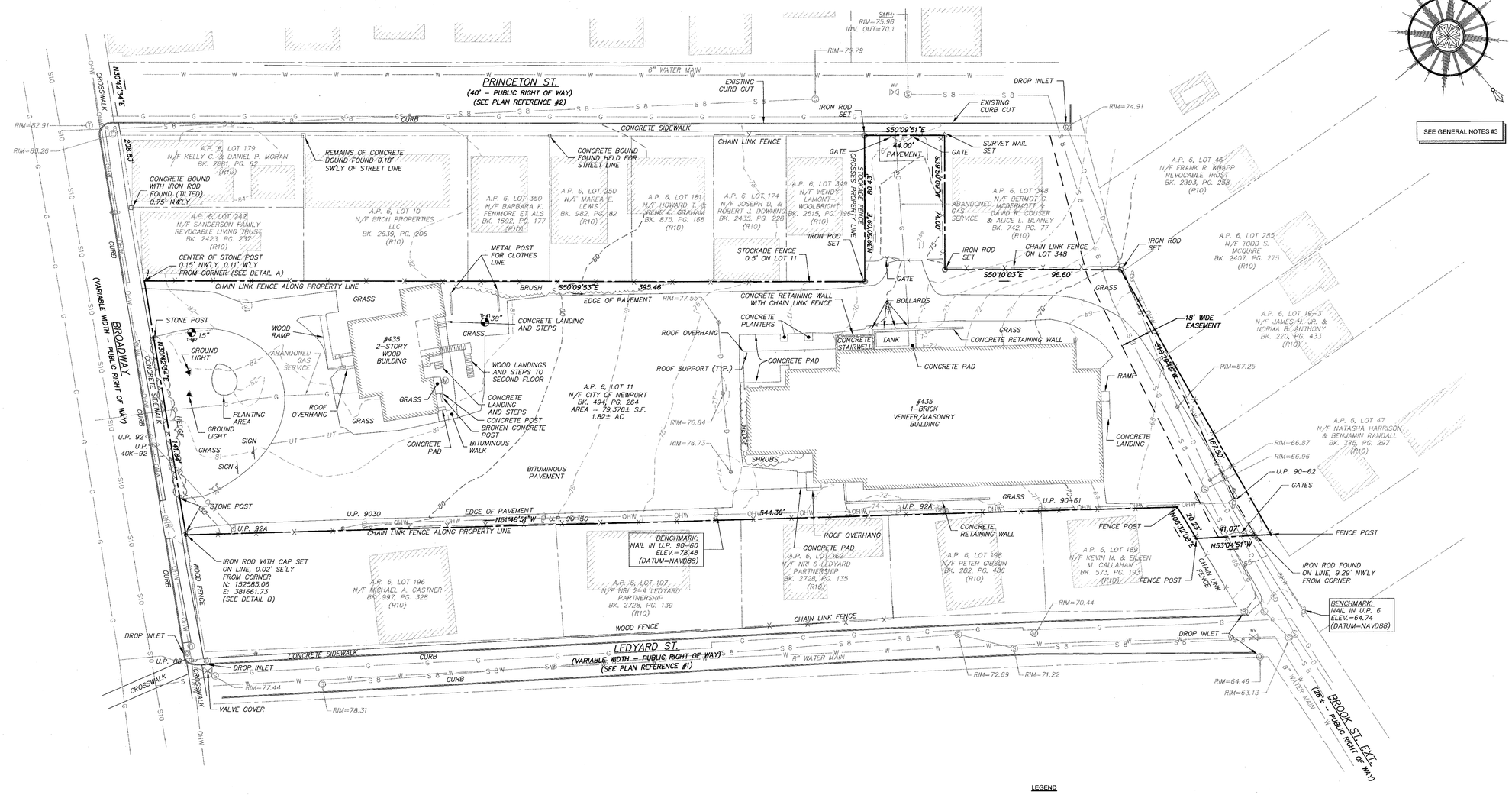

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LEGEND

- PROPERTY LINE
- ABUTTER'S PROPERTY LINE
- 80 TOPOGRAPHIC CONTOUR
- CHAIN LINK FENCE
- STOCKADE FENCE
- WOOD FENCE
- HEDGE
- BRUSH/BUSHES
- NATURAL GAS LINE
- MANHOLE
- SEWER MANHOLE
- CATCH BASIN
- SIGN
- HYDRANT
- WATER GATE
- LIGHT
- UTILITY POLE
- GUY WIRE
- IRON ROD
- SURVEY NAIL

GENERAL NOTES:

1. EXISTING CONDITIONS AND PROPERTY LINE INFORMATION TAKEN FROM PLAN ENTITLED "FORMER TRIPPLET SCHOOL, A.P. 6 LOT 11, 435 BROADWAY, NEWPORT, RI. COMPREHENSIVE BOUNDARY SURVEY WITH EXISTING CONDITIONS AND TOPOGRAPHY", DATED OCT. 15, 2018, A CLASS I PLAN OF SURVEY PREPARED BY NE&C.
2. BASE OF ELEVATIONS: NAVD88.
3. NORTH REFERENCES GRID NORTH (RISP NAD83) BY RTK GPS OBSERVATION.
4. PROPERTY CORNER IS CENTER OF 2" Ø FENCE POST AT EXISTING GRADE.

GRAPHIC SCALE

30 0 15 30 60 120

(in feet)
1 inch = 30 feet

No.	Revision	Date	App.

Designed By: | Drawn by: JJR | Checked by: GES
Scale: 1"=30' | Date: 09DEC19

Project Title:

PROPOSED DANCE SCHOOL AND RESIDENTIAL SUBDIVISION

A.P. 6 LOT 11
435 BROADWAY
NEWPORT, RHODE ISLAND

Client/Owner:

ISLAND MOVING COMPANY
P.O. BOX 746
NEWPORT, RI 02840

Issued for:

PERMITTING

Drawing Title:

EXISTING CONDITIONS

JEREMY J. ROSA
No. 9826
REGISTERED PROFESSIONAL ENGINEER
CIVIL
10.15.19

Drawing Number: C-3
Sheet 3 of 10
Project Number: 17062.2
Survey Index: 14 - 6 - 11

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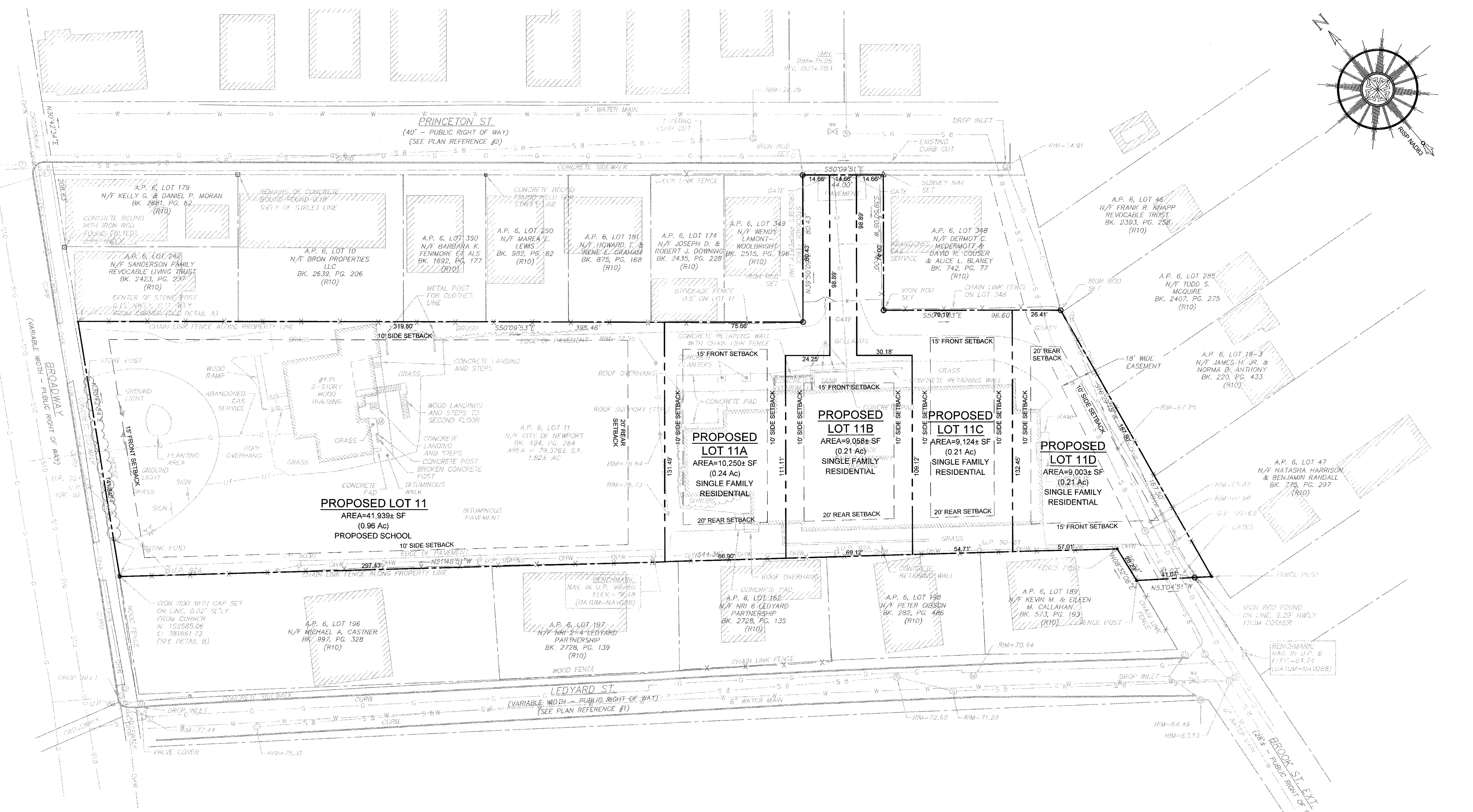

LEGEND

- PROPERTY LINE
- ABUTTER'S PROPERTY LINE
- CHAIN LINK FENCE
- STOCKADE FENCE
- WOOD FENCE
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- NATURAL GAS LINE
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- CATCH BASIN
- SIGN
- HYDRANT
- WATER GATE
- LIGHT
- UTILITY POLE
- GUY WIRE
- IRON ROD
- SURVEY NAIL
- PROPOSED SUBDIVISION LINE
- PROPOSED BUILDING SETBACK

GENERAL NOTES:

1. EXISTING CONDITIONS ARE THE RESULT OF A FIELD SURVEY BY NORTHEAST ENGINEERS & CONSULTANTS, INC (NE&C). IN SEPTEMBER 2018. PROPERTY LINE INFORMATION TAKEN FROM A CLASS I COMPREHENSIVE BOUNDARY SURVEY PREPARED BY NE&C DATED NOVEMBER 7, 2018.
2. BASE OF ELEVATIONS: NAVD88.
3. NORTH REFERENCES GRID NORTH (RISP NAD83) BY RTK GPS OBSERVATION.
4. SUBJECT PROPERTY AND ALL ABUTTING PROPERTIES ARE ZONED R-10 (HIGH DENSITY RESIDENTIAL).
5. STRUCTURES ON ABUTTING PROPERTIES SCALED FROM ARCHITECTURAL RENDERINGS AND SHOULD BE CONSIDERED APPROXIMATE.

ZONING DATA: R-10

	REQUIRED
MINIMUM LOT AREA:	10,000 SF
MINIMUM LOT WIDTH:	80 FT
BUILDING SETBACKS:	
FRONT	15 FT
SIDE	10 FT
REAR	20 FT
MAXIMUM BUILDING HEIGHT:	30 FT
MAXIMUM LOT COVERAGE:	20%

GRAPHIC SCALE

30 0 15 30 60 120

(in feet)
1 inch = 30 feet

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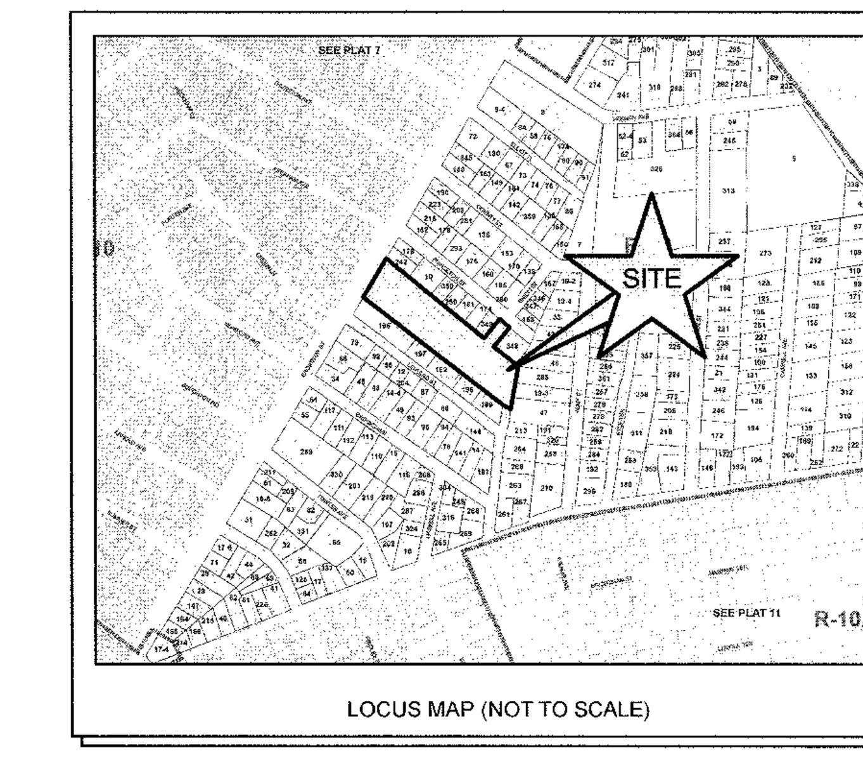

LOCUS MAP (NOT TO SCALE)

No.	Revision	Date	App.

Designed By:	Drawn by: JJR	Checked by: GES
Scale: 1"=30'	Date: 09DEC19	

Project Title:

PROPOSED DANCE SCHOOL AND RESIDENTIAL SUBDIVISION

A.P. 6 LOT 11
435 BROADWAY
NEWPORT, RHODE ISLAND

Client/Owner:

ISLAND MOVING COMPANY
P.O. BOX 746
NEWPORT, RI 02840

Issued for:

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Drawing Title:

PROPOSED SUBDIVISION PLAN

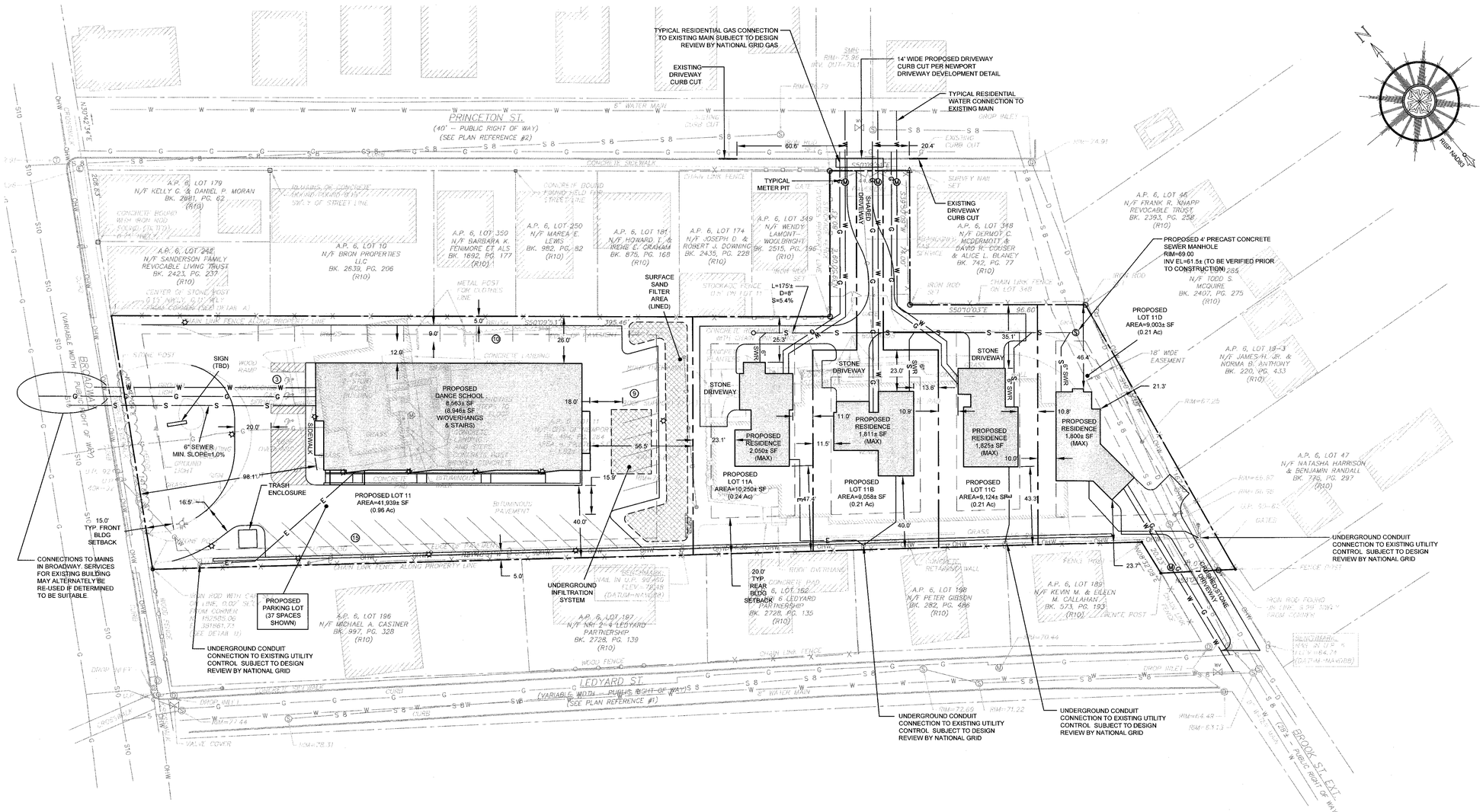
JEREMY J. ROSA
No. 9826
REGISTERED PROFESSIONAL ENGINEER CIVIL

Drawing Number: C-4

Sheet 4 of 10

Project Number: 17062.2

Survey Index: 14 - 6 - 11



LEGEND

- PROPERTY LINE
- ABUTTER'S PROPERTY LINE
- CHAIN LINK FENCE
- STOCKADE FENCE
- WOOD FENCE
- HEDGE
- BRUSH/BUSHES
- NATURAL GAS LINE
- MANHOLE
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- SIGN
- HYDRANT
- WATER GATE
- LIGHT
- UTILITY POLE
- GUY WIRE
- IRON ROD
- SURVEY NAIL
- PROPOSED SUBDIVISION LINE
- PROPOSED BUILDING SETBACK
- PROPOSED SEWER SERVICE
- PROPOSED WATER SERVICE
- PROPOSED GAS SERVICE
- PROPOSED ELECTRICAL SERVICE
- PROPOSED LIGHTING

GENERAL NOTES:

1. EXISTING CONDITIONS ARE THE RESULT OF A FIELD SURVEY BY NORTHEAST ENGINEERS & CONSULTANTS, INC (NE&C) IN SEPTEMBER 2018. PROPERTY LINE INFORMATION TAKEN FROM A CLASS I COMPREHENSIVE BOUNDARY SURVEY PREPARED BY NE&C DATED NOVEMBER 7, 2018.
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4. SUBJECT PROPERTY AND ALL ABUTTING PROPERTIES ARE ZONED R-10 (HIGH DENSITY RESIDENTIAL).
5. STRUCTURES ON ABUTTING PROPERTIES SCALED FROM AERIAL PHOTOGRAPHY AND SHOULD BE CONSIDERED APPROXIMATE.
6. RESIDENCE FOOTPRINT AREAS INDICATED REPRESENT MAXIMUMS ALLOWED BY ZONING ORDINANCE.

PARKING REQUIREMENTS:

1. PARKING REQUIRED FOR LOT 11 PER ZONING OFFICER: 35 SPACES
2. PARKING PROPOSED: 37 SPACES

ZONING DATA (R10):

	REQUIRED	LOT 11	LOT 11A	LOT 11B	LOT 11C	LOT 11D
MINIMUM LOT AREA:	10,000 SF	41,939 SF	10,250 SF	9,058 SF	9,124 SF	9,003 SF
MINIMUM LOT WIDTH:	80 FT	141.84 FT	66.1 FT	69.1 FT	84.9 FT	91.0 FT
BUILDING SETBACKS:						
FRONT	15 FT	98.1 FT	25.3 FT	23.0 FT	35.1 FT	23.7 FT
SIDE	10 FT	40.0 / 26.0 FT	23.1 / 11.0 FT	11.5 / 13.6 FT	10.9 / 10.8 FT	10.0 / 21.3 FT
REAR	20 FT	56.5 FT	47.4 FT	40.0 FT	43.3 FT	46.4 FT
MAXIMUM BUILDING HEIGHT:	30 FT	30 FT MAX	30 FT MAX	30 FT MAX	30 FT MAX	30 FT MAX
MAXIMUM LOT COVERAGE:	20%	21.3%	20.0%	20.0%	20.0%	20.0%

GRAPHIC SCALE

30 0 15 30 60 120

(in feet)

1 inch = 30 feet

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STRUCTURAL

No.	Revision	Date	App.
3	REVISED LAYOUT	14JUL20	
2	REVISED SEWER LOCATION	14APR20	
1	REVISED RESIDENCE LOCATIONS, SIZES	04FEB20	

Designed By: | Drawn by: JJR | Checked by: GES
Scale: 1"=30' | Date: 09DEC19

Project Title:

PROPOSED DANCE SCHOOL AND RESIDENTIAL SUBDIVISION

A.P. 6 LOT 11
435 BROADWAY
NEWPORT, RHODE ISLAND

Client/Owner:

ISLAND MOVING COMPANY
P.O. BOX 746
NEWPORT, RI 02840

Issued for:

PERMITTING

Drawing Title:

PROPOSED LAYOUT AND UTILITY PLAN

JEREMY J. ROSA
No. 9826
REGISTERED PROFESSIONAL ENGINEER
CIVIL

Drawing Number: C-5
Sheet 5 of 10
Project Number: 17062.2
Survey Index: 14 - 6 - 11

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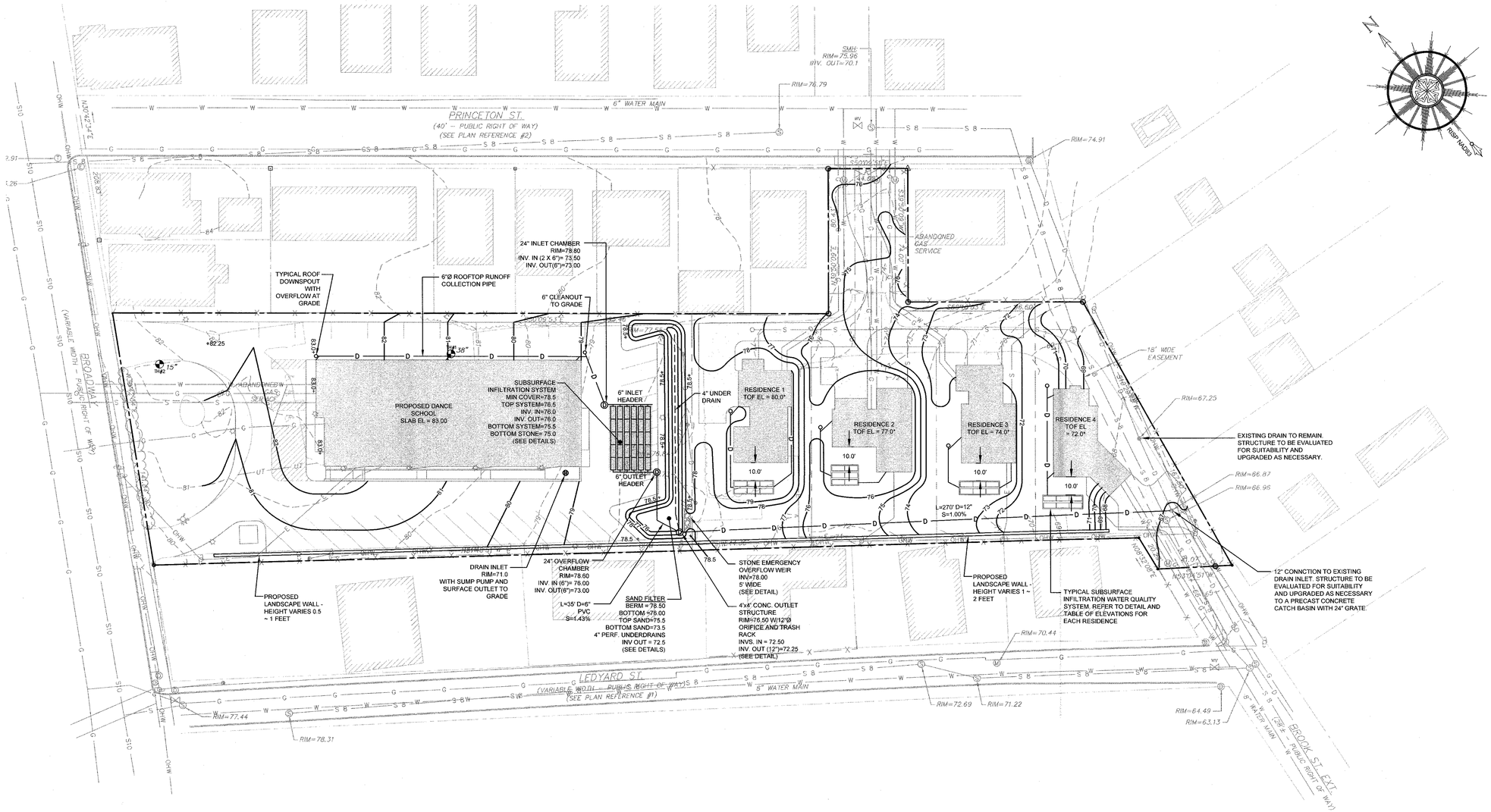

LEGEND

- PROPERTY LINE
- ABUTTER'S PROPERTY LINE
- 80 TOPOGRAPHIC CONTOUR
- X CHAIN LINK FENCE
- STOCKADE FENCE
- WOOD FENCE
- HEDGE
- BRUSH/BUSHES
- G NATURAL GAS LINE
- MANHOLE
- SEWER MANHOLE
- CATCH BASIN
- SIGN
- HYDRANT
- WATER GATE
- LIGHT
- UTILITY POLE
- GUY WIRE
- IRON ROD
- SURVEY NAIL
- 70 PROPOSED TOPOGRAPHY
- S PROPOSED SEWER SERVICE
- W PROPOSED WATER SERVICE
- C PROPOSED GAS SERVICE
- E PROPOSED ELECTRICAL SERVICE
- PROPOSED LIGHTING
- D PROPOSED DRAIN LINE
- PROPOSED DRAIN STRUCTURE

GENERAL NOTES:

1. EXISTING CONDITIONS ARE THE RESULT OF A FIELD SURVEY BY NORTHEAST ENGINEERS & CONSULTANTS, INC (NE&C). IN SEPTEMBER 2018. PROPERTY LINE INFORMATION TAKEN FROM A CLASS I COMPREHENSIVE BOUNDARY SURVEY PREPARED BY NE&C DATED NOVEMBER 7, 2018.
2. BASE OF ELEVATIONS: NAVD88.
3. NORTH REFERENCES GRID NORTH (RISP NAD83) BY RTK GPS OBSERVATION.
4. SUBJECT PROPERTY AND ALL ABUTTING PROPERTIES ARE ZONED R-10 (HIGH DENSITY RESIDENTIAL).
5. STRUCTURES ON ABUTTING PROPERTIES SCALED FROM ARCHITECTURAL RENDERINGS AND SHOULD BE CONSIDERED APPROXIMATE.
6. TOF OF FOUNDATION ELEVATIONS SHOWN FOR RESIDENCES ARE SUBJECT TO CHANGE BASED ON FINAL RESIDENCE DESIGNS.
7. PROPOSED RESIDENCE WATER QUALITY SYSTEMS SHOWN BASED ON MAXIMUM LOT DENSITY PER ZONING CODE.

GRAPHIC SCALE

30 0 15 30 60 120

(in feet)

1 inch = 30 feet

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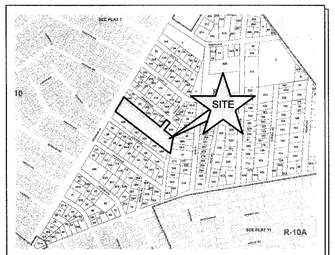


LOCUS MAP (NOT TO SCALE)

No.	Revision	Date	App.
4	REVISED LAYOUT	14JUL20	
3	REVISED GRADING	27MAY20	
2	REVISED GRADING AND DRAINAGE	24APR20	
1	REVISED GRADING AND DRAINAGE	04FEB20	

Designed By:	Drawn by: JJR	Checked by:	GES
Scale: 1"=30'	Date: 09DEC19		

Project Title:

PROPOSED DANCE SCHOOL AND RESIDENTIAL SUBDIVISION

A.P. 6 LOT 11
435 BROADWAY
NEWPORT, RHODE ISLAND

Client/Owner:

ISLAND MOVING COMPANY
P.O. BOX 746
NEWPORT, RI 02840

Issued for:

PERMITTING

Drawing Title:

PROPOSED GRADING AND DRAINAGE PLAN

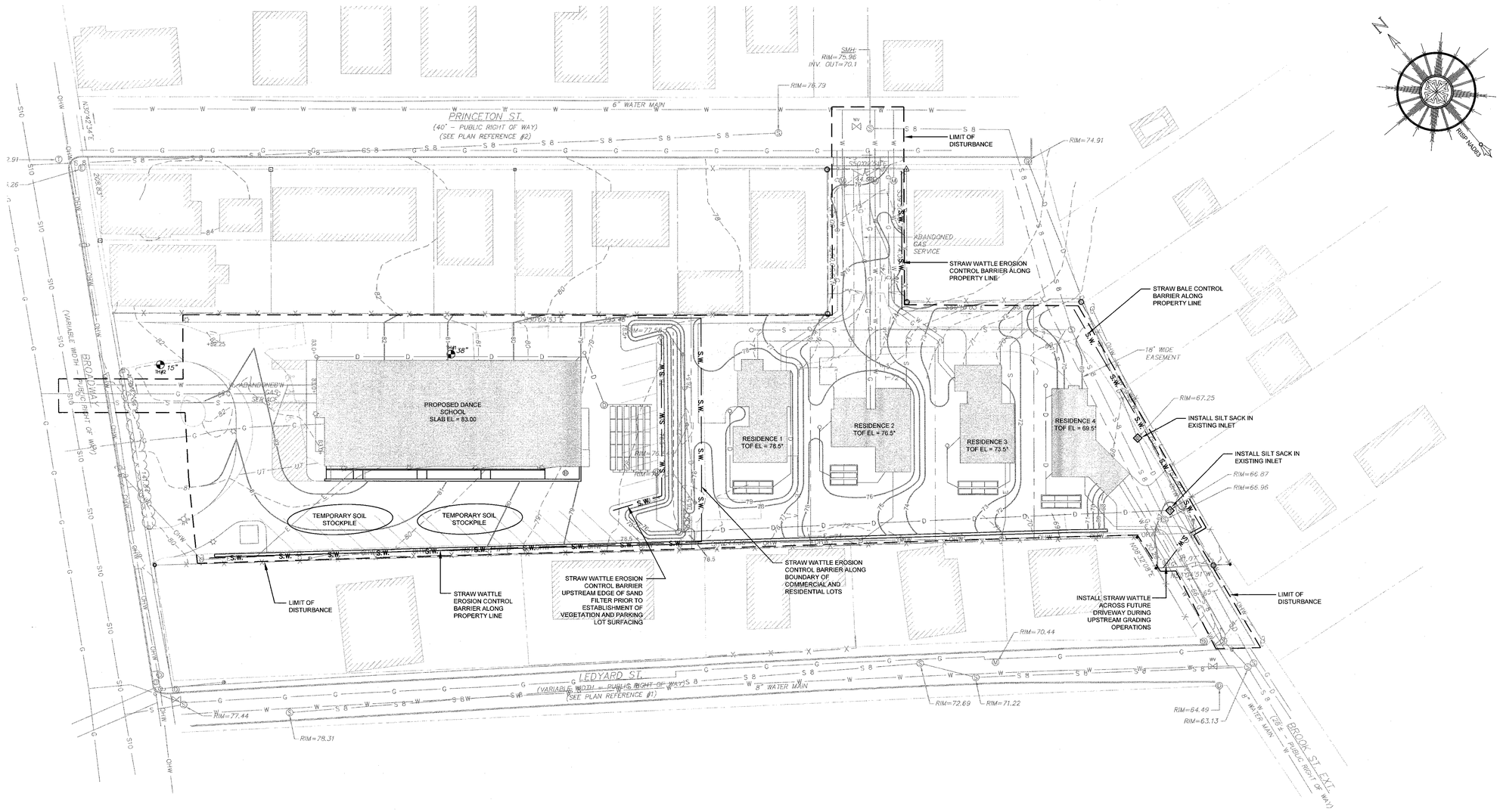
JEREMY J. ROSA
No. 9826
9.15.20
REGISTERED PROFESSIONAL ENGINEER
CIVIL

Drawing Number: C-6

Sheet 6 of 10

Project Number: 17062.2

Survey Index: 14 - 6 - 11



LEGEND

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- GUY WIRE
- IRON ROD
- SURVEY NAIL
- PROPOSED TOPOGRAPHY
- PROPOSED SEWER SERVICE
- PROPOSED WATER SERVICE
- PROPOSED GAS SERVICE
- PROPOSED ELECTRICAL SERVICE
- PROPOSED LIGHTING
- PROPOSED DRAIN LINE
- PROPOSED DRAIN STRUCTURE
- S.W. — PROPOSED STRAW WATTLE
- PROPOSED LIMIT OF DISTURBANCE

GENERAL NOTES:

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GRAPHIC SCALE

30 0 15 30 60 120

(in feet)

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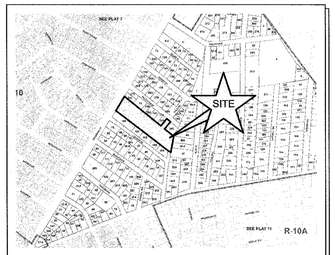


LOCUS MAP (NOT TO SCALE)

No.	Revision	Date	App.
3	REVISED LAYOUT	14JUL20	
2	REVISED GRADING, DRAINAGE, SESC MEASURES	24APR20	
1	REVISED GRADING AND DRAINAGE	04FEB20	

Designed By:	Drawn by: JJR	Checked by:	GES
Scale: 1"=30'	Date:	09DEC19	

Project Title:

PROPOSED DANCE SCHOOL AND RESIDENTIAL SUBDIVISION

A.P. 6 LOT 11
435 BROADWAY
NEWPORT, RHODE ISLAND

Client/Owner:

ISLAND MOVING COMPANY
P.O. BOX 746
NEWPORT, RI 02840

Issued for:

PERMITTING

Drawing Title:

PROPOSED SOIL EROSION AND SEDIMENT CONTROL PLAN

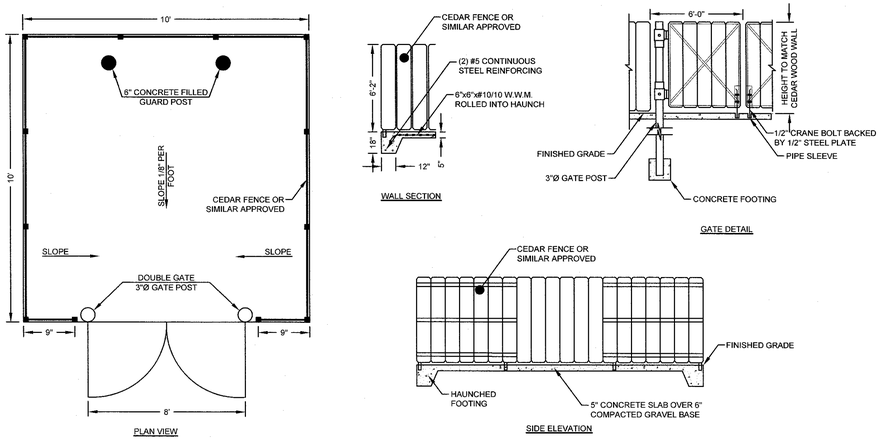
JEREMY J. ROSA
No. 9826
REGISTERED PROFESSIONAL ENGINEER
CIVIL
1.15.20

Drawing Number: C-7

Sheet 7 of 10

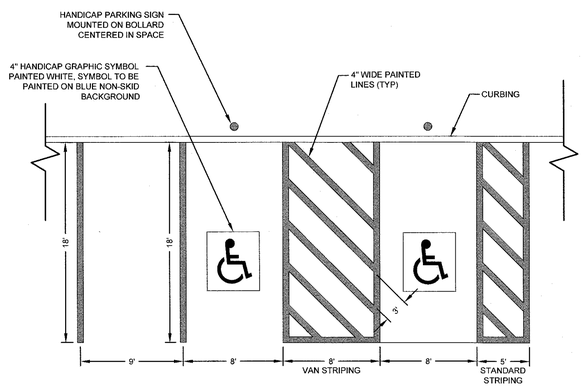
Project Number: 17062.2

Survey Index: 14 - 6 - 11



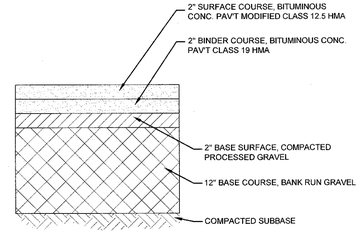
TYPICAL TRASH ENCLOSURE

ARCHITECT MAY PROVIDE ALTERNATE DESIGN
SCALE: NOT TO SCALE



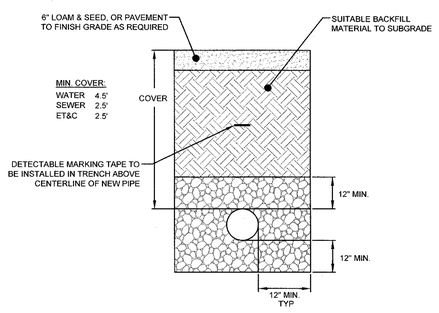
PARKING STALL STRIPING

SCALE: NOT TO SCALE



TYPICAL BITUMINOUS PAVEMENT SECTION

SCALE: NOT TO SCALE



UTILITY TRENCH DETAIL

SCALE:NOT TO SCALE

NOTES:

1. UNSUITABLE MATERIAL SHALL BE EXCAVATED TO A MINIMUM DEPTH OF 12-INCHES BELOW THE DESIGN INVERT ELEVATION.

2. TRENCH PROTECTION SHALL BE REQUIRED IN ACCORDANCE WITH OSHA REGULATIONS, AND AS OTHERWISE REQUIRED TO PROTECT UTILITIES, ROADWAYS, AND ADJACENT STRUCTURES.

3. SEWER AND DRAIN PIPES SHALL BE LAID BEGINNING AT THE DOWNSTREAM END OF THE PIPE LINE.

4. ALL PVC SEWER PIPES SHALL BE IPEX RING-TITE SDR 35, OR SIMILAR APPROVED.

5. ALL DRAIN PIPES SHALL BE ADS N-12 TYPE IB (SOILTIGHT) UNLESS OTHERWISE INDICATED.

6. ALL SEWER PIPE AND GASKETS SHALL CONFORM TO ASTM 3034 AND ASTM F679.

7. ALL NEW SEWER MANHOLES SHALL HAVE KOR-N-SEAL CONNECTIONS, TYPICAL OR EQUAL.

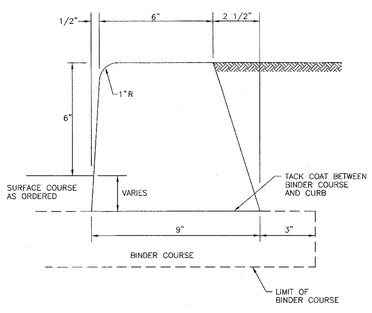
8. BACKFILL MATERIAL SHALL BE PLACED IN LAYERS NOT TO EXCEED 12" IN HEIGHT WHEN INSTALLED UNDER LANDSCAPED AREAS ONLY. INSTALLATIONS UNDER PAVEMENT REQUIRE BACKFILL MATERIAL TO BE PLACED IN LAYERS NOT TO EXCEED 6" IN HEIGHT. THESE LAYERS SHALL BE COMPACTED TO 95% MAXIMUM DENSITY (AASHTO T180). SUITABLE BACKFILL SHALL BE FREE OF LOAM, CLAY, ORGANIC MATTER AND PARTICLES LARGER THAN 2 INCHES IN DIAMETER.

8. SEWER AND DRAINAGE PIPE TRENCHES SHALL BE BEDDED WITH CRUSHED STONE OR SCREENED GRAVEL, THESE MATERIALS MUST CONFORM TO RIDOT STANDARD M.01.09 TYPE II MATERIAL.

9. WATER PIPE TRENCHES MUST BE BEDDED WITH SAND CONTAINING NO PARTICLES LARGER THAT 3/8". THIS MATERIAL MUST CONFORM TO AASHTO M6 REQUIREMENTS.

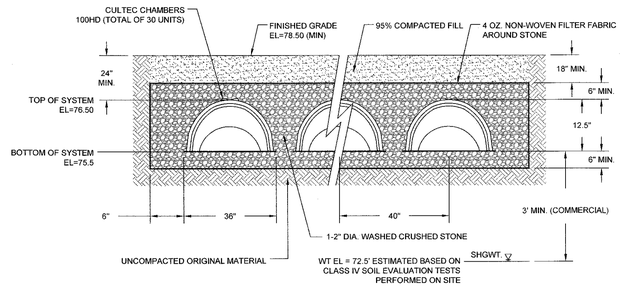
10. UTILITY INSTALLATIONS SHALL CONFORM TO ALL REQUIREMENTS OF THE TOWN OF MIDDLETOWN PUBLIC WORKS DEPARTMENT AND NEWPORT WATER RULES AND REGULATIONS.

11. WHEN TRENCH EXCAVATION IS ADJACENT TO OR UNDER EXISTING STRUCTURES OR FACILITIES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY SHEETING AND BRACING THE EXCAVATION AND STABILIZING THE EXISTING GROUND TO RENDER IT SAFE AND SECURE FROM POSSIBLE SLIDES, CAVE-INS AND SETTLEMENT AND FOR PROPERLY SUPPORTING EXISTING STRUCTURES AND FACILITIES WITH BEAMS, STRUTS OR UNDERPINNING TO FULLY PROTECT THEM FROM DAMAGE.



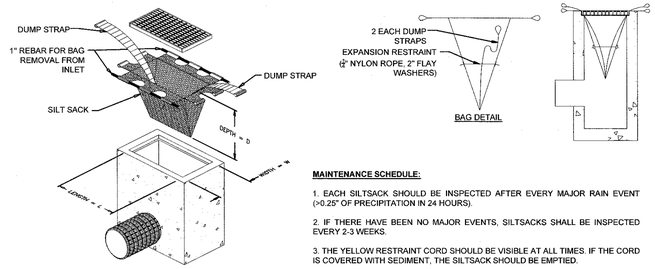
BITUMINOUS CURBING (RIDOT 7.5.0)

SCALE:NOT TO SCALE



SCHOOL CULTEC 100HD INFILTRATION CHAMBER CROSS SECTION

SCALE: NOT TO SCALE
REFER TO SECTION ON SHEET C-9 FOR RESIDENTIAL SYSTEMS



MAINTENANCE SCHEDULE:

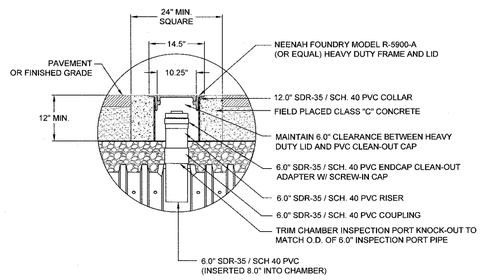
1. EACH SILTSACK SHOULD BE INSPECTED AFTER EVERY MAJOR RAIN EVENT (>0.25" OF PRECIPITATION IN 24 HOURS).

2. IF THERE HAVE BEEN NO MAJOR EVENTS, SILTSACKS SHALL BE INSPECTED EVERY 2-3 WEEKS.

3. THE YELLOW RESTRAINT CORD SHOULD BE VISIBLE AT ALL TIMES. IF THE CORD IS COVERED WITH SEDIMENT, THE SILTSACK SHOULD BE EMPTIED.

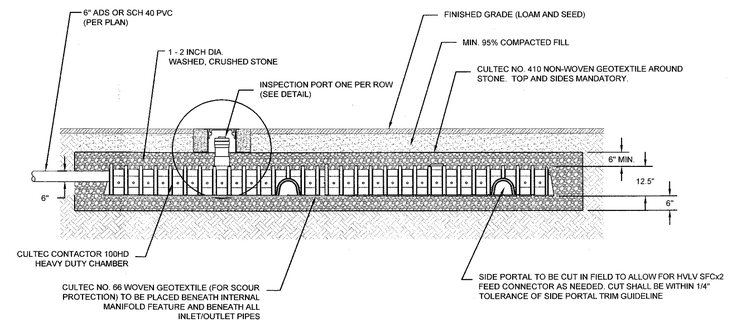
SILT SACK DETAIL

SCALE: NOT TO SCALE



INSPECTION PORT (PAVED APPLICATION)

SCALE: NOT TO SCALE
(APPLICABLE TO DANCE SCHOOL SYSTEM)



TYPICAL CULTEC 100HD INFILTRATION CHAMBER PROFILE

SCALE: NOT TO SCALE
APPLICABLE TO THE DANCE SCHOOL SYSTEM AND THE RESIDENTIAL SYSTEMS

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No.	Revision	Date	App.
1	REVISED INFILTRATION DETAILS	04FEB20	

Designed By:	Drawn by: JJR	Checked by:	GES
Scale: AS SHOWN	Date:	09DEC19	

Project Title:

PROPOSED DANCE SCHOOL AND RESIDENTIAL SUBDIVISION

A.P. 6 LOT 11
435 BROADWAY
NEWPORT, RHODE ISLAND

Client/Owner:

ISLAND MOVING COMPANY
P.O. BOX 746
NEWPORT, RI 02840

Issued for:

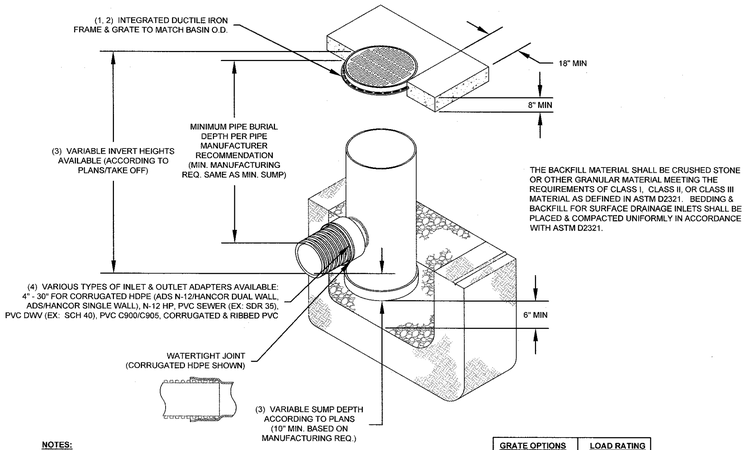
PERMITTING

Drawing Title:

PROPOSED DETAIL SHEET 1

JEREMY J. ROSA
No. 9826
REGISTERED PROFESSIONAL ENGINEER
CIVIL

Drawing Number: C-8
Sheet 8 of 10
Project Number: 17062.2
Survey Index: 14 - 6 - 11

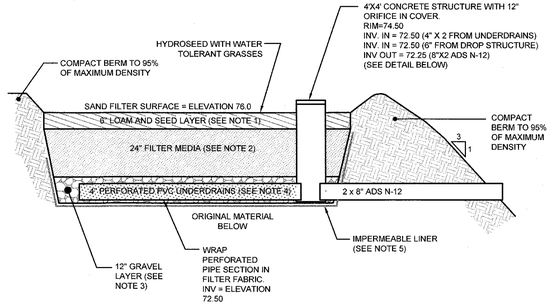


NOTES:

1. GRATES/SOLID COVER SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
2. FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
3. DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTRICTIONS.
4. DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL), N-12 HP, & PVC SEWER (4" - 24").

GRATE OPTIONS	LOAD RATING
PEDESTRIAN	H-20
STANDARD	H-20
SOLID COVER	H-20
DOME	N/A

24" ADS DRAIN BASIN DETAIL (W/ CONCRETE SURROUND)
SCALE: NOT TO SCALE



SAND FILTER NOTES:

1. SAND FILTER SHALL BE PLANTED WITH NEW ENGLAND WETMIX (WETLAND SEED MIX) BY NEW ENGLAND WETLAND PLANTS, INC. OR APPROVED EQUAL.

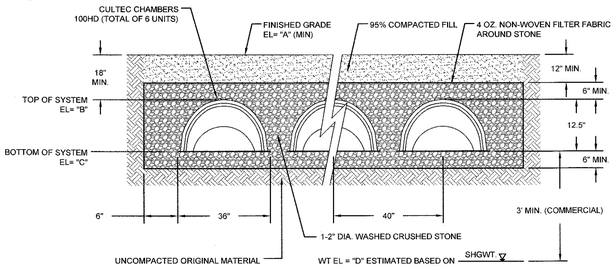
2. SAND FILTER SAND TO BE CLEAN AASHTO M-6 OR ASTM C-33 CONCRETE SAND (0.02" TO 0.04"). SAND SUBSTITUTIONS SUCH AS DIABASE AND GRAYSTONE #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATED OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO ROCK DUST CAN BE USED AS SAND.

3. UNDERDRAIN GRAVEL SHALL CONFORM TO AASHTO M-43, 0.25" TO 0.75". MATERIAL MUST BE WASHED CLEAN GRAVEL.

4. UNDERDRAIN SHALL BE SCHEDULE 40 PVC PIPE CONFORMING TO ASTM D-1785 OR AASHTO M-278. PERFORATIONS SHALL BE 3/8" @ 6" ON CENTER. PIPE SHALL HAVE 3" OF GRAVEL OVER PIPE. PIPE TO BE WRAPPED IN GEOTEXTILE FABRIC CONFORMING TO FLOWRATE INDICATED IN NOTE 5.

5. IMPERMEABLE LINER MAY BE ONE OF THE FOLLOWING: (A) MIN. OF 6 INCHES OF CLAYSOIL (MINIMUM 15% PASSING THE #200 SIEVE AND A MAXIMUM PERMEABILITY OF 1 X 10^-5 CM/SEC), (B) A 30 MIL POLY-LINER (C) BENTONITE

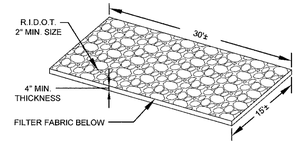
LINED SAND FILTER CROSS SECTION
SCALE: NOT TO SCALE



SUBSURFACE INFILTRATION SYSTEM ELEVATION TABLE

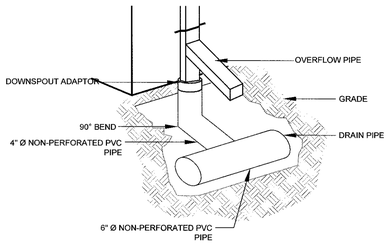
LOT NUMBER	ELEVATION "A" COVER	ELEVATION "B" TOP CHAMBER	ELEVATION "C" BOTTOM CHAMBER	ELEVATION "D" ESHGWT
1	79.50	78.05	77.00	75.00
2	76.50	75.05	74.00	72.00
3	73.50	72.05	71.00	69.00
4	4	4	4	67.00

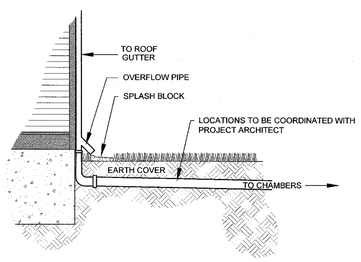
RESIDENTIAL CULTEC 100HD INFILTRATION CHAMBER CROSS SECTION
SCALE: NOT TO SCALE
REFER TO SECTION ON SHEET C-8 FOR DANCE SCHOOL SYSTEM



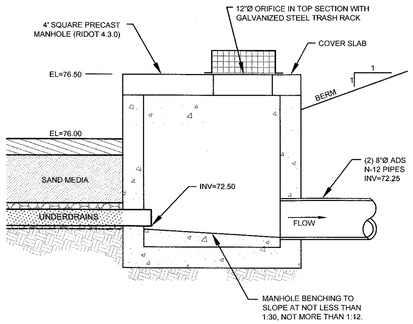
NOTE: CONSTRUCTION ENTRANCE SHALL BE INSTALLED PER DETAIL PROVIDED IF THE EXISTING PAVED ENTRANCE IS REMOVED OR UNAVAILABLE.

CONSTRUCTION ENTRANCE
SCALE:NOT TO SCALE

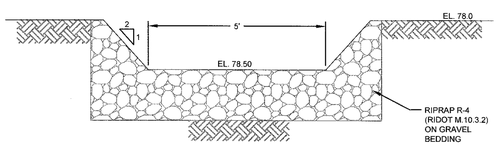


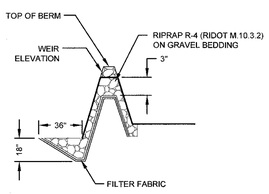


ROOF DOWNSPOUT DETAIL
SCALE: NOT TO SCALE

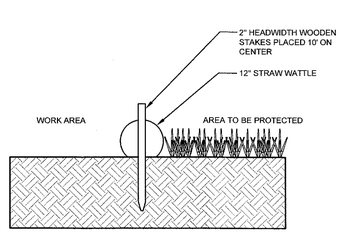


SAND FILTER OUTLET STRUCTURE DETAIL
SCALE: NOT TO SCALE

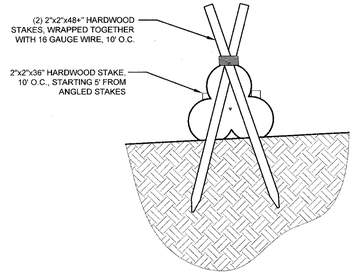




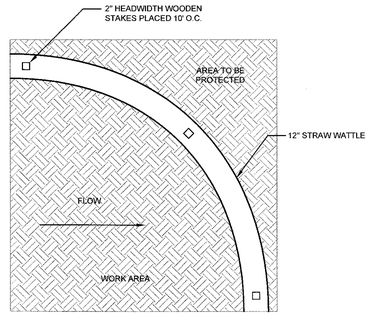
EMERGENCY OVERFLOW STONE WEIR DETAIL
SCALE: NOT TO SCALE



SECTION VIEW



PYRAMID SECTION VIEW (FOR HIGH FLOW CONDITIONS)



TOP VIEW

STRAW WATTLE DETAIL
SCALE: NOT TO SCALE

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No.	Revision	Date	App.
2	REVISED SESC DETAILS	24APR20	
1	REVISED INFILTRATION DETAILS	04FEB20	

Designed By: | Drawn by: JJR | Checked by: GES
Scale: AS SHOWN | Date: 09DEC19

Project Title:

PROPOSED DANCE SCHOOL AND RESIDENTIAL SUBDIVISION
A.P. 6 LOT 11
435 BROADWAY
NEWPORT, RHODE ISLAND

Client/Owner:
ISLAND MOVING COMPANY
PO BOX 746
NEWPORT, RI 02840

Issued for:
PERMITTING

Drawing Title:
PROPOSED DETAIL SHEET 2

JEREMY J. ROSA
No. 9826
REGISTERED PROFESSIONAL ENGINEER
CIVIL

Drawing Number: C-9
Sheet 9 of 10
Project Number: 17062.2
Survey Index: 14 - 6 - 11

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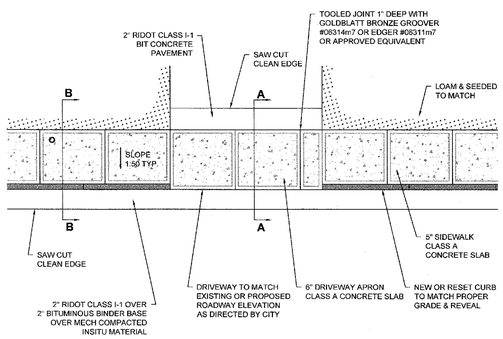
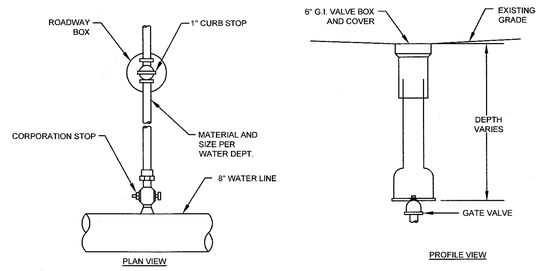


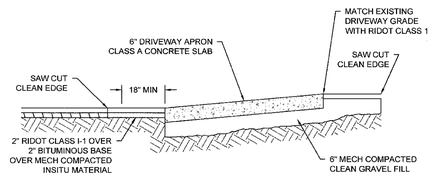
CONCRETE SIDEWALK AND DRIVEWAY DEVELOPMENT

SCALE: 1"=5'

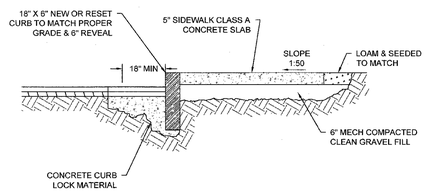


WATER GATE VALVE/SERVICE CURB STOP

SCALE: NOT TO SCALE



CONCRETE DRIVEWAY APRON A-A



CONCRETE SIDEWALK B-B

CONCRETE SIDEWALK CROSS SECTION DETAIL

SCALE: 1"=2'

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No.	Revision	Date	App.

Designed By:		Drawn by: JJR	Checked by: GES
Scale: AS SHOWN		Date: 09DEC19	

Project Title:

PROPOSED DANCE SCHOOL AND RESIDENTIAL SUBDIVISION

A.P. 6 LOT 11
435 BROADWAY
NEWPORT, RHODE ISLAND

Client/Owner:

ISLAND MOVING COMPANY
PO BOX 746
NEWPORT, RI 02840

Issued for:

PERMITTING

Drawing Title:

PROPOSED DETAIL SHEET 3

JEREMY J. ROSA
No. 9826
REGISTERED PROFESSIONAL ENGINEER
CIVIL
11.15.19

Drawing Number: C-10
Sheet 10 of 10
Project Number: 17062.2
Survey Index: 14 - 6 - 11

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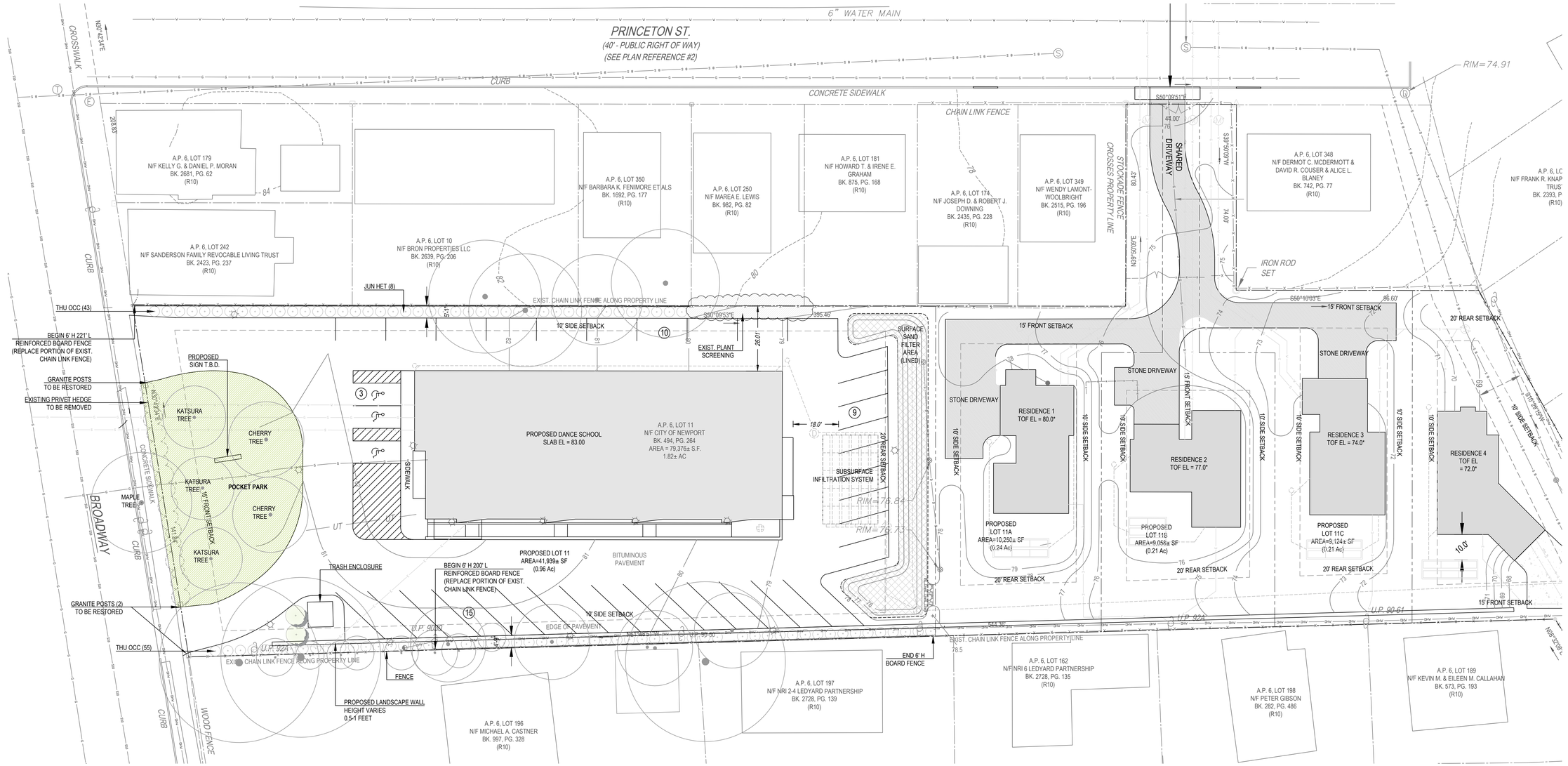


LOCUS MAP

PLANTING NOTES

1. LANDSCAPE CONTRACTOR SHALL VISIT SITE PRIOR TO SUBMITTING BID TO BECOME COMPLETELY FAMILIAR WITH SITE CONDITIONS.
2. NO PLANTING WILL BE INSTALLED UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
3. CONTRACTOR TO VERIFY ALL UTILITIES ON PROPERTY AND TO PROTECT ALL UTILITIES DURING EXCAVATION.
4. IF THERE IS A DISCREPANCY BETWEEN THE NUMBER OF PLANTS SHOWN ON THE PLAN AND THE NUMBER OF PLANTS SHOWN IN THE PLANT LIST, THE NUMBER OF PLANTS SHOWN ON THE LIST WILL TAKE PRECEDENCE.
5. ALL CONTAINER MATERIAL TO BE GROWN IN CONTAINER A MINIMUM OF SIX MONTHS.
6. ALL MATERIAL SHALL COMPLY WITH THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, ACCORDING TO THE AMERICAN ASSOCIATION OF NURSERYMEN.
7. CONTRACTOR SHALL REPAIR ALL DAMAGE TO PROPERTY FROM PLANTING OPERATIONS AT NO COST TO THE OWNER.
8. CONTRACTOR SHALL GUARANTEE NEW PLANT MATERIAL THROUGH ONE CALENDAR YEAR FROM TIME OF PROVISIONAL ACCEPTANCE.
9. ALL PROPOSED PLANTS SHALL BE LOCATED CAREFULLY AS SHOWN ON THE PLANS AND THE PLACEMENT SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT BEFORE THE INSTALLATION.
10. ALL DISTURBED AREAS NOT TO BE PAVED OR PLANTED SHALL BE LOAMED AND SEEDED AS SHOWN. SEE SPECIFICATIONS FOR SOIL PREPARATION AND SEED MIX.
11. TWO INCH (2") DEEP, FINELY SHREDDED BARK MULCH WILL BE INSTALLED AROUND ALL TREES AND SHRUBS THAT ARE ISOLATED FROM GROUNDCOVER AREAS AND GENERAL SHRUB MASSES.
12. ALL PLANT MATERIAL SHALL BE INSPECTED BY THE LANDSCAPE ARCHITECT ON SITE PRIOR TO INSTALLATION. THE LANDSCAPE ARCHITECT WILL TAG ALL TREES AT THE NURSERY AND INSPECT THEM AFTER DELIVERY TO THE SITE. SEE SPECIFICATIONS FOR TAGGING, INSPECTION, AND ACCEPTANCE OF PLANT MATERIAL.
13. LANDSCAPE ARCHITECT SHALL CONFIRM PLANT LIST AND APPROVE SUBSTITUTIONS OF PLANT VARIETIES PRIOR TO ORDERING OF MATERIAL.
14. SOIL MIX: 1/3 PEAT MOSS, 1/3 SCREENED LOAM, 1/3 DEHYDRATED MANURE.
15. THE OWNER RESERVES THE RIGHT TO SUBSTITUTE PLANT SELECTIONS WITH PLANTS OF SIMILAR CHARACTERISTICS IF THE SPECIFIED PLANTS ARE NOT AVAILABLE IN ACCEPTABLE QUANTITIES OR CONDITIONS.

GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND UTILITIES AND REPORT ANY DISCREPANCIES TO THE LANDSCAPE ARCHITECT.
2. IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY THE LOCATION OF ALL UTILITIES BY NOTIFYING DIG-SAFE AT 1-800-322-4844 AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION.
3. THE CONTRACTOR SHALL CONDUCT PRELIMINARY INVESTIGATIONS INCLUDING ALL NECESSARY EXCAVATION TO DETERMINE IF THE WORK CAN BE DONE AS SHOWN ON THE PLANS. CHANGES MAY BE MADE AS REQUIRED BY FIELD CONDITIONS AND AS DIRECTED BY THE LANDSCAPE ARCHITECT.
4. ALL EXISTING UTILITIES MAY NOT BE SHOWN ON THE DRAWING. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE OF ALL UNDERGROUND UTILITIES AND FOR PROTECTING ALL LINES DURING CONSTRUCTION.
5. ALL WORK SHALL COMPLY WITH ALL APPLICABLE STATE AND LOCAL REGULATIONS.

PLANTING LEGEND

SYMBOL	BOTANICAL NAME	COMMON NAME	QTY	SIZE
JUN HET	JUNIPERUS CHIN. 'HETZII COLUMNARIS'	HETZ COLUMNAR JUNIPER	2	6/7' B&B
THU OCC	THUJA OCCIDENTALIS 'EMERALD GREEN'	ARBORVITAE	98	6/7' B&B
		TOTAL	100	

EXISTING EVERGREENS TO BE REMOVED

EXISTING TREES TO REMAIN

0 20 40 100 N

verde

VERDE DESIGN + HORTICULTURE
89 DR MARCUS WHEATLAND BLVD
NEWPORT RI 02840

O. 401 619-0562
verdegardenri@gmail.com

CIVIL ENGINEER
NORTHEAST ENGINEERS & CONSULTANTS, INC.
AQUIDNECK CORPORATE PARK
55 JOHN CLARKE ROAD
MIDDLETOWN, RI 02842

ISLAND MOVING COMPANY

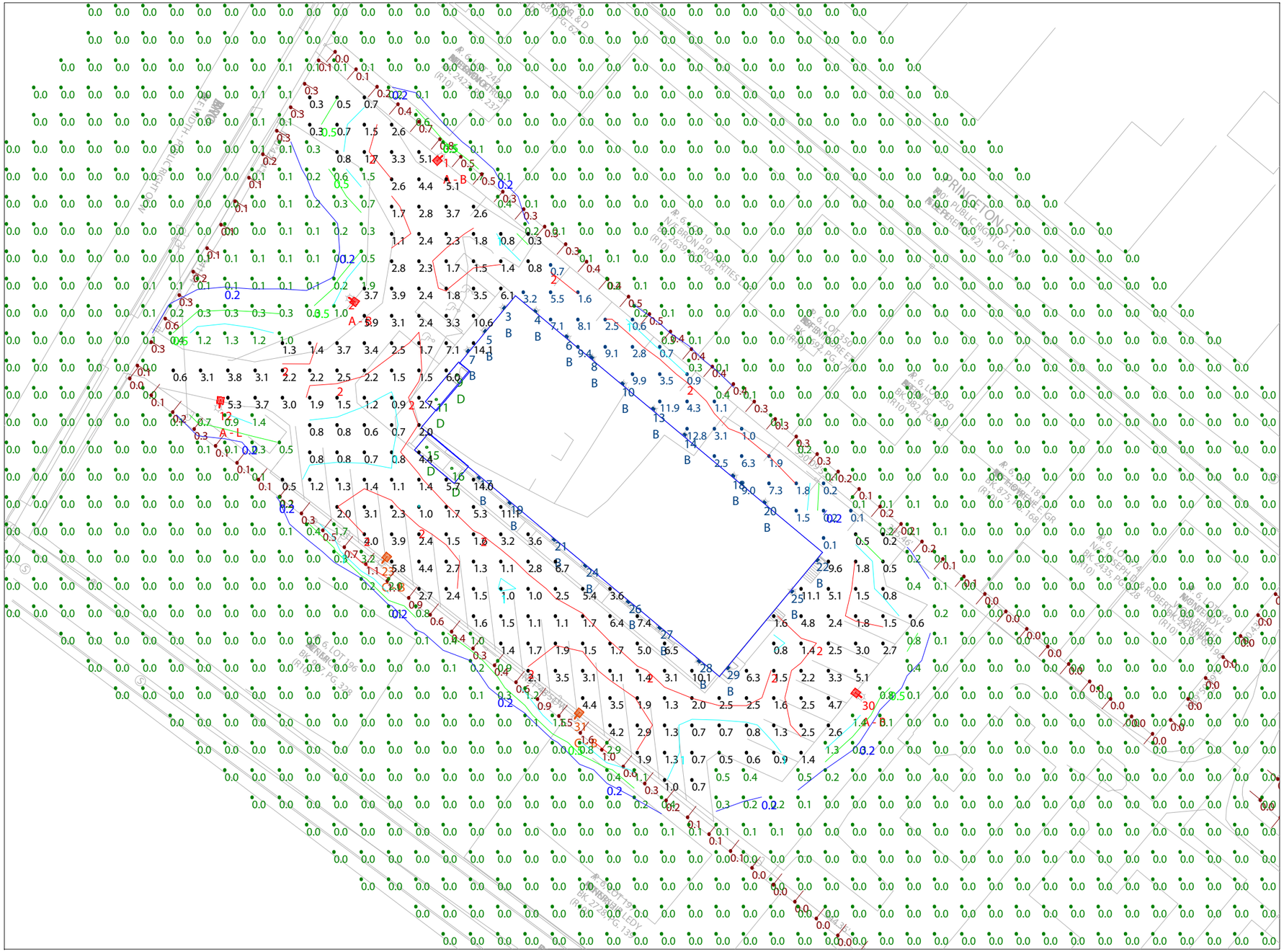
435 BROADWAY
NEWPORT, RI

REGISTERED PROFESSIONAL LANDSCAPE ARCHITECT
PAMELA S. RICCIARDI
NO. 628

PROJECT NUMBER:	19.122
DRAWN BY:	PSR
CHECKED BY:	PSR
SCALE:	1:20
DATE:	12.03.2019
REVISIONS:	07.24.2020
	11.13.2020

PERMIT SET

LANDSCAPE PLAN



Scale: 1 inch= 40 Ft.

RAB®

170 Ludlow Avenue, Northvale, NJ 07647
888 722-1000 • rablighting.com

Prepared For:

Holbrook Associated
35 Reservoir Park Drive
Rockland, MA 02370
Tel: 781-871-0011

Job Name:

Island Dance Company (former Triplet School)
Lighting Layout
Version C

Scale: as noted	PROJECT # : 134435
Date:10/5/2020	CASE # : 00509503
Filename: Island Dance Company 00509503C.AGI	
Drawn By: K. Gonzales, LC	

Filename: D:\Island Dance Company\Working Files\AGI\Island Dance Company 00509503C.AGI

Calculation Summary											
Label	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Avg/Min**	**Max/Min**	**Description**	**PtSpcLr**	**PtSpcTb**	**Meter Type**
Parking	Illuminance	Fc	2.71	14.1	0.2	13.55	70.50	readings taken at grade	10	10	Horizontal
Parking - Behind Bldg	Illuminance	Fc	4.08	12.8	0.1	40.80	128.00	readings taken at grade	10	10	Horizontal
Property Line	Illuminance	Fc	0.17	1.6	0.0	N.A.	N.A.	readings taken 5'-0" aff	10	N.A.	Vert-PerpCCW
Site	Illuminance	Fc	0.03	3.2	0.0	N.A.	N.A.	readings taken at grade	10	10	Horizontal

Luminaire Schedule			All quotes/orders generated from this layout must be forwarded to the Local Rep Agency				
Symbol	**Qty**	**Tag**	**Label**	**Arrangement**	**LLF**	**Description**	**BUG Rating**
	3	A - B	ALED3T50Y-SS-B	SINGLE	1.000	Pole Mounted (Type III) + ALED150SS (BACK SIDE SHIELD)	B1-U0-G2
	1	A - L	ALED3T50Y-SS-L	SINGLE	1.000	Pole Mounted (Type III) + ALED150SS (LEFT SIDE SHIELD)	B1-U0-G1
	21	B	SLIM12Y	SINGLE	1.000	Wall Mounted	B1-U0-G0
	2	C - B	ALED2T50Y-SS-B	SINGLE	1.000	Pole Mounted (Type II) + ALED150SS (BACK SIDE SHIELD)	B1-U0-G2
	4	D	C6R12930UNVW	SINGLE	1.000	Recessed Mount	N.A.

Expanded Luminaire Location Summary					
LumNo	**Tag**	**X**	**Y**	**MTG HT**	**Orient**
1	A - B	381776.167	152665.712	15	223.781
2	A - B	381743.71	152613.864	15	323.783
3	B	381799.771	152610.694	8.5	139.805
4	B	381810.921	152609.425	8.5	51.571
5	B	381792.771	152602.194	8.5	139.805
6	B	381822.421	152600.175	8.5	51.571
7	B	381786.521	152594.944	8.5	139.805
8	B	381831.671	152592.425	8.5	51.571
9	D	381782.25	152586.25	9.9	0
10	B	381842.921	152582.925	8.5	51.571
11	D	381774.75	152577.25	9.9	0
12	A - L	381695.461	152575.485	15	81.928
13	B	381854.171	152573.675	8.5	51.571
14	B	381865.671	152564.175	8.5	51.571
15	D	381771.25	152559.75	9.9	0
16	D	381780.434	152552.027	9.9	0
17	B	381790.47	152548.774	8.5	228.888
18	B	381883.421	152549.175	8.5	51.571
19	B	381801.72	152539.524	8.5	228.888
20	B	381894.921	152539.425	8.5	51.571
21	B	381817.97	152526.024	8.5	228.888
22	B	381914.223	152518.55	8.5	318.145
23	C - B	381755.691	152518.419	15	51.17
24	B	381829.386	152516.524	8.5	228.888
25	B	381904.973	152507.05	8.5	318.145
26	B	381845.136	152503.274	8.5	228.888
27	B	381856.636	152493.774	8.5	228.888
28	B	381871.053	152481.524	8.5	228.888
29	B	381881.473	152479.05	8.5	318.145
30	A - B	381929.56	152468.913	15	142.49
31	C - B	381826.21	152461.386	15	51.17
Total Quantity: 31					

Luminaire Tag Summary	
Tag	**Qty**
A - B	3
A - L	1
B	21
C - B	2
D	4

NOTES:
* The light loss factor (LLF) is a product of many variables, only lamp lumen depreciation (LLD) has been applied to the calculated results unless otherwise noted. The LLD is the result (quotient) of mean lumens / initial lumens per lamp manufacturers' specifications.

* Illumination values shown (in footcandles) are the predicted results for planes of calculation either horizontal, vertical or inclined as designated in the calculation summary. Meter orientation is normal to the plane of calculation.

* The calculated results of this lighting simulation represent an anticipated prediction of system performance. Actual measured results may vary from the anticipated performance and are subject to means and methods which are beyond the control of RAB Lighting Inc.

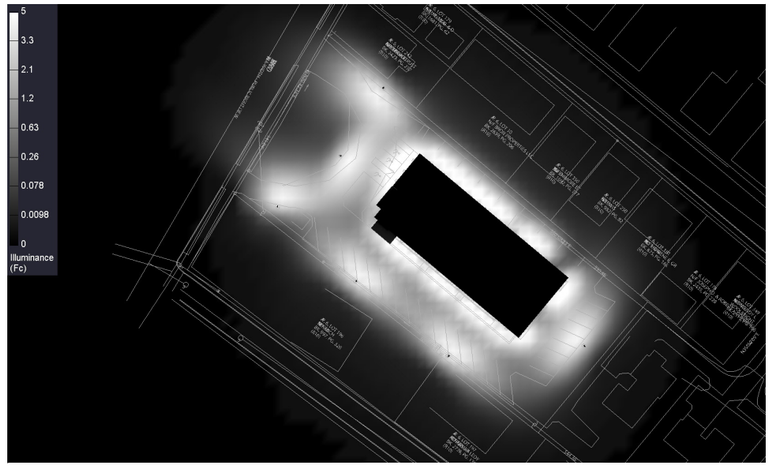
* Mounting height determination is job site specific, our lighting simulations assume a mounting height (insertion point of the luminaire symbol) to be taken at the top of the symbol for ceiling mounted luminaires and at the bottom of the symbol for all other luminaire mounting configurations.

* It is the Owner's responsibility to confirm the suitability of the existing or proposed poles and bases to support the proposed fixtures, based on the weight and EPA of the proposed fixtures and the owner's site soil conditions and wind zone. It is recommended that a professional engineer licensed to practice in the state the site is located be engaged to assist in this determination.

* The landscape material shown hereon is conceptual, and is not intended to be an accurate representation of any particular plant, shrub, bush, or tree, as these materials are living objects, and subject to constant change. The conceptual objects shown are for illustrative purposes only. The actual illumination values measured in the field will vary.

* Photometric model elements such as buildings, rooms, plants, furnishings or any architectural details which impact the dispersion of light must be detailed by the customer documents for inclusion in the RAB lighting design model. RAB is not responsible for any inaccuracies caused by incomplete information on the part of the customer, and reserves the right to use best judgement when translating customer requests into photometric studies.

* RAB Lighting Inc. luminaire and product designs are protected under U.S. and International intellectual property laws. Patents issued or pending apply.



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Prepared For:

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Job Name:

Island Dance Company (former Triplet School)
Lighting Layout
Version C

Scale: as noted	PROJECT # : 134435
Date:10/5/2020	CASE # : 00509503
Filename: Island Dance Company 00509503C.AGI	
Drawn By: K. Gonzales, LC	

Filename: D:\Island Dance Company\Working Files\AGI\Island Dance Company 00509503C.AGI

ALED3T50Y

Color: Bronze

Weight: 32.0 lbs

Project:	Type:
Prepared By:	**Date:**

Driver Info

Type	Constant Current
120V	0.46A
208V	0.27A
240V	0.23A
277V	0.20A
Input Watts	54.60W

LED Info

Watts	50W
Color Temp	3000K (Warm)
Color Accuracy	71 CRI
L70 Lifespan	100,000
Lumens	6,500
Efficacy	119 lm/W

Technical Specifications

Listings

UL Listed:

Suitable for wet locations as a downlight

DLC Listed:

This product is on the Design Lights Consortium (DLC) Qualified Products List and is eligible for rebates from DLC Member Utilities. DLC Product Code: P0000178T

IESNA LM-79 & IESNA LM-80 Testing:

RAB LED luminaires and LED components have been tested by an independent laboratory in accordance with IESNA LM-79 and LM-80.

Dark Sky Conformance:

Conforms to (allows for conformance to) the requirements for the IDA's "Fixture Seal of Approval" as of March 1, 2016.

LED Characteristics

Lifespan:

100,000-hour LED lifespan based on IES LM-80 results and TM-21 calculations

LEDs:

Multi-chip, high-output, long-life LEDs

Color Consistency:

3-step MacAdam Ellipse binning to achieve consistent fixture-to-fixture color

Color Stability:

LED color temperature is warrantied to shift no more than 200K in color temperature over a 5-year period

Color Uniformity:

RAB's range of Correlated Color Temperature follows the guidelines of the American National Standard for Specifications for the Chromaticity of Solid State Lighting (SSL) Products, ANSI C78.377-2017.

Construction

IES Classification:

The Type III distribution is ideal for roadway, general parking and other area lighting applications where a larger pool of lighting is required. It is intended to be located near the side of the area, allowing the light to project outward and fill the area.

IP Rating:

Ingress Protection rating of IP66 for dust and water

Ambient Temperature:

Suitable For use in 40°C (104°F)

Cold Weather Starting:

Minimum starting temperature is -40°C (-40°F)

Thermal Management:

Superior thermal management design with external Air-Flow fins provides maximum operational life, even in high ambient temperature environments

Technical Specifications (continued)

Construction

Effective Projected Area:

EPA = 0.75

Housing:

Die-cast aluminum housing, lens frame and mounting arm

Mounting:

Universal mounting arm compatible for hole spacing patterns from 1" to 5 1/2" center to center. Round Pole Adaptor plate included as a standard. Easy slide and lock to mount fixture with ease. Round pole diameter must be >4" to mount fixtures at 90° orientation.

Reflector:

Specular vacuum-metallized polycarbonate

Gaskets:

High-temperature silicone gaskets

Finish:

Formulated for high durability and long-lasting color

Green Technology:

Mercury and UV free. RoHS-compliant components.

Electrical

Driver:

Constant Current, Class 2, 1400mA, 100-277V, 50-60Hz, 0.8A, Power Factor 99%

THD:

6.1% at 120V, 9.4% at 277V

Power Factor:

99.6% at 120V, 96% at 277V

Surge Protection:

6kV surge suppression protection tested in accordance with IEEE/ANSI C62.41.2.

Other

Patents:

The ALED™ design is protected by patents pending in the U.S., Canada, China, Taiwan and Mexico.

BAA Compliance:

Click here for BAA compliance.

Warranty:

RAB warrants that our LED products will be free from defects in materials and workmanship for a period of five (5) years from the date of delivery to the end user, including coverage of light output, color stability, driver performance and fixture finish. RAB's warranty is subject to all terms and conditions found at rablighting.com/warranty.

Equivalency:

Replaces 200W Metal Halide

Buy American Act Compliance:

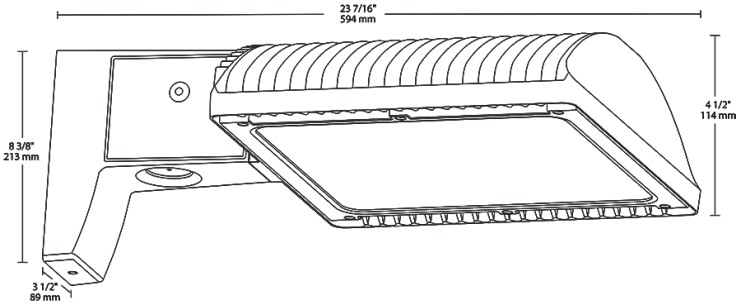
RAB values USA manufacturing! Upon request, RAB may be able to manufacture this product to be compliant with the Buy American Act (BAA). Please contact customer service to request a quote for the product to be made BAA compliant.

Optical

BUG Rating:

B0 U0 G1

Dimensions



Features

- 66% energy cost savings vs. HID
- 100,000-hour LED lifespan
- 5-Year, No-Compromise Warranty

ALED3T50Y

RAB

Ordering Matrix

Family	Optics	Wattage	Mounting	Color Temp	Finish	Driver Options	Options	Other Options
ALED	3T	50		Y				
	4T = Type IV **3T =** Type III **2T =** Type II	**50 =** 50W **78 =** 78W **105 =** 105W **125 =** 125W **150 =** 150W	**Blank =** Pole mount **SF =** Slipfitter	**Blank =** 5000K (Cool) **N =** 4000K (Neutral) **Y =** 3000K (Warm)	**Blank =** Bronze **RG =** Roadway Gray **W =** White **K =** Black	**Blank =** 120-277V **/480 =** 480V **/BL =** Bi-Level **/D10 =** 0-10V Dimming	**Blank =** No Option **/LC =** Lightcloud® Controller **/PCS =** 120V Swivel Photocell **/PCS2 =** 277V Swivel Photocell **/PCT =** 120-277V Twistlock Photocell **/PCS4 =** 480V Swivel Photocell **/PCT4 =** 480V Twistlock Photocell **/WS =** Multi-Level Motion Sensor **/WS2 =** Multi-Level Motion Sensor 20 ft. **/WS4 =** Multi-Level Motion Sensor 40 ft.	**Blank =** Standard **USA =** BAA Compliant

SLIM12Y

12, 18 and 26 Watt SLIM wall packs are ultra efficient and deliver impressive light distribution with a compact low-profile design that's super easy to install as a downlight or uplight.

Color: Bronze

Weight: 4.5 lbs

Project:	**Type:**
Prepared By:	**Date:**

Driver Info

Type	Constant Current
120V	0.12A
208V	0.08A
240V	0.07A
277V	0.06A
Input Watts	15.9W

LED Info

Watts	12W
Color Temp	3000K (Warm)
Color Accuracy	71 CRI
L70 Lifespan	100,000
Lumens	1,922
Efficacy	120.9 lm/W

Technical Specifications

Listings

UL Listed:

Suitable for wet locations. Suitable for mounting within 1.2m (4ft) of the ground.

ADA Compliant:

SLIM™ is ADA Compliant

IESNA LM-79 & LM-80 Testing:

RAB LED luminaires and LED components have been tested by an independent laboratory in accordance with IESNA LM-79 and LM-80.

DLC Listed:

This product is on the Design Lights Consortium (DLC) Qualified Products List and is eligible for rebates from DLC Member Utilities. DLC Product Code: P0000171L

Construction

IP Rating:

Ingress Protection rating of IP66 for dust and water

Cold Weather Starting:

Minimum starting temperature is -40°C (-40°F)

Maximum Ambient Temperature:

Suitable for use in 40°C (104°F)

Housing:

Precision die-cast aluminum housing

Mounting:

Heavy-duty mounting bracket with hinged housing for easy installation

Recommended Mounting Height:

Up to 8 ft

Lens:

Tempered glass lens

Reflector:

Specular thermoplastic

Gaskets:

High-temperature silicone

Finish:

Formulated for high durability and long-lasting color

Technical Specifications (continued)

Construction

Green Technology:

Mercury and UV free. RoHS-compliant components.

LED Characteristics

LED:

Multi-chip, long-life LED

Lifespan:

100,000-hour LED lifespan based on IES LM-80 results and TM-21 calculations

Color Consistency:

3-step MacAdam Ellipse binning to achieve consistent fixture-to-fixture color

Color Stability:

LED color temperature is warrantied to shift no more than 200K in color temperature over a 5-year period

Color Uniformity:

RAB's range of Correlated Color Temperature follows the guidelines for the American National Standard for Specifications for the Chromaticity of Solid State Lighting (SSL) Products, ANSI C78.377-2017.

Other

Equivalency:

Equivalent to 70W Metal Halide

Patents:

The design of the SLIM™ is protected by patents in U.S. Pat D681,864, and pending patents in Canada, China, Taiwan and Mexico.

HID Replacement Range:

Replaces 70W Metal Halide

Warranty:

RAB warrants that our LED products will be free from defects in materials and workmanship for a period of five (5) years from the date of delivery to the end user, including coverage of light output, color stability, driver performance and fixture finish. RAB's warranty is subject to all terms and conditions found at rablighting.com/warranty.

Buy American Act Compliance:

RAB values USA manufacturing! Upon request, RAB may be able to manufacture this product to be compliant with the Buy American Act (BAA). Please contact customer service to request a quote for the product to be made BAA compliant.

Optical

BUG Rating:

B1 U1 G0

Electrical

Driver:

Constant Current, Class 2, 100-277V, 50/60 Hz., 4KV surge protection, 120V: 0.14A, 208V: 0.08A, 240V: 0.07A, 277V: 0.06A

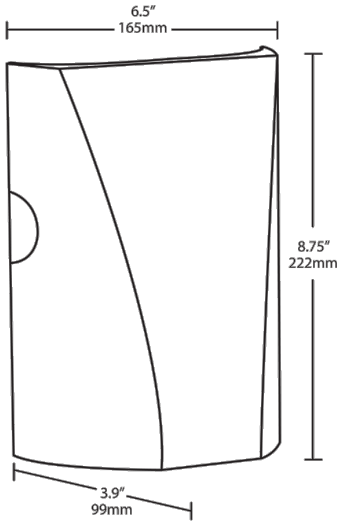
THD:

7.7% at 120V, 13.3% at 277V

Power Factor:

99.4% at 120V, 95.4% at 277V

Dimensions



Features

- Full cutoff, fully shielded LED wall pack
- Can be used as a downlight or uplight
- Contractor friendly features for easy installation
- 100,000-hour LED Life
- 5-Year, No-Compromise Warranty

SLIM12Y

Ordering Matrix

Family	Wattage	Color Temp	Finish	Driver	Options
SLIM	12	Y			
	12 = 12W **18 =** 18W **26 =** 26W	**Blank =** 5000K (Cool) **N =** 4000K (Neutral) **Y =** 3000K (Warm)	**Blank =** Bronze **W =** White	**Blank =** Standard (120-277V) **/D10 =** Dimmable	**Blank =** No Option **/PC =** 120V Button **/PC2 =** 277V Button **/LC =** Lightcloud® Controller

ALED2T50Y

Color: Bronze

Weight: 32.0 lbs

Project:	Type:
Prepared By:	**Date:**

Driver Info

Type	Constant Current
120V	0.46A
208V	0.27A
240V	0.23A
277V	0.20A
Input Watts	55.44W

LED Info

Watts	50W
Color Temp	3000K (Warm)
Color Accuracy	71 CRI
L70 Lifespan	100,000
Lumens	6,703
Efficacy	120.9 lm/W

Technical Specifications

Listings

UL Listed:

Suitable for wet locations as a downlight

DLC Listed:

This product is on the Design Lights Consortium (DLC) Qualified Products List and is eligible for rebates from DLC Member Utilities. DLC Product Code: P0000178Q

IESNA LM-79 & IESNA LM-80 Testing:

RAB LED luminaires and LED components have been tested by an independent laboratory in accordance with IESNA LM-79 and LM-80.

Dark Sky Conformance:

Conforms to (allows for conformance to) the requirements for the IDA's "Fixture Seal of Approval" as of March 1, 2016.

LED Characteristics

Lifespan:

100,000-hour LED lifespan based on IES LM-80 results and TM-21 calculations

LEDs:

Multi-chip, high-output, long-life LEDs

Color Consistency:

3-step MacAdam Ellipse binning to achieve consistent fixture-to-fixture color

Color Stability:

LED color temperature is warrantied to shift no more than 200K in color temperature over a 5-year period

Color Uniformity:

RAB's range of Correlated Color Temperature follows the guidelines of the American National Standard for Specifications for the Chromaticity of Solid State Lighting (SSL) Products, ANSI C78.377-2017.

Construction

IES Classification:

The Type II distribution is ideal for wide walkways, on ramps and entrance roadways, bike paths and other long and narrow lighting applications. This type is meant for lighting larger areas and usually is located near the roadside. This type of lighting is commonly found on smaller side streets or jogging paths.

Effective Projected Area:

EPA = 0.75

IP Rating:

Ingress Protection rating of IP66 for dust and water

Ambient Temperature:

Suitable For use in 40°C (104°F)

Cold Weather Starting:

Minimum starting temperature is -40°C (-40°F)

Technical Specifications (continued)

Construction

Thermal Management:

Superior thermal management design with external Air-Flow fins provides maximum operational life, even in high ambient temperature environments

Housing:

Die-cast aluminum housing, lens frame and mounting arm

Mounting:

Universal mounting arm compatible for hole spacing patterns from 1" to 5 1/2" center to center. Round Pole Adaptor plate included as a standard. Easy slide and lock to mount fixture with ease. Round pole diameter must be >4" to mount fixtures at 90° orientation.

Reflector:

Specular vacuum-metallized polycarbonate

Gaskets:

High-temperature silicone gaskets

Finish:

Formulated for high durability and long-lasting color

Green Technology:

Mercury and UV free. RoHS-compliant components.

Electrical

Driver:

Constant Current, Class 2, 1400mA, 100-277V, 50-60Hz, 0.8A, Power Factor 99%

THD:

6.1% at 120V, 9.4% at 277V

Power Factor:

99.6% at 120V, 96% at 277V

Surge Protection:

6kV surge suppression protection tested in accordance with IEEE/ANSI C62.41.2.

Other

Patents:

The ALED™ design is protected by patents pending in the U.S., Canada, China, Taiwan and Mexico.

Warranty:

RAB warrants that our LED products will be free from defects in materials and workmanship for a period of five (5) years from the date of delivery to the end user, including coverage of light output, color stability, driver performance and fixture finish. RAB's warranty is subject to all terms and conditions found at rablighting.com/warranty.

Equivalency:

Replaces 200W Metal Halide

Buy American Act Compliance:

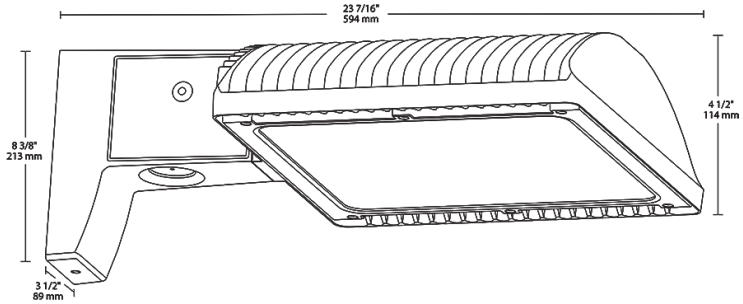
RAB values USA manufacturing! Upon request, RAB may be able to manufacture this product to be compliant with the Buy American Act (BAA). Please contact customer service to request a quote for the product to be made BAA compliant.

Optical

BUG Rating:

B1 U0 G1

Dimensions



Features

- 66% energy cost savings vs. HID
- 100,000-hour LED lifespan
- 5-Year, No-Compromise Warranty

ALED2T50Y

RAB

Ordering Matrix

Family	Optics	Wattage	Mounting	Color Temp	Finish	Driver Options	Options	Other Options
ALED	2T	50		Y				
	4T = Type IV **3T =** Type III **2T =** Type II	**50 =** 50W **78 =** 78W **105 =** 105W **125 =** 125W **150 =** 150W	**Blank =** Pole mount **SF =** Slipfitter	**Blank =** 5000K (Cool) **N =** 4000K (Neutral) **Y =** 3000K (Warm)	**Blank =** Bronze **RG =** Roadway Gray **W =** White **K =** Black	**Blank =** 120-277V **/480 =** 480V **/BL =** Bi-Level **/D10 =** 0-10V Dimming	**Blank =** No Option **/LC =** Lightcloud® Controller **/PCS =** 120V Swivel Photocell **/PCS2 =** 277V Swivel Photocell **/PCT =** 120-277V Twistlock Photocell **/PCS4 =** 480V Swivel Photocell **/PCT4 =** 480V Twistlock Photocell **/WS =** Multi-Level Motion Sensor **/WS2 =** Multi-Level Motion Sensor 20 ft. **/WS4 =** Multi-Level Motion Sensor 40 ft.	**Blank =** Standard **USA =** BAA Compliant

C6R12930UNVW

UPC: 019813511276

Color: White

Weight: 1.3 lbs

Project:	Type:
Prepared By:	Date:

Driver Info

Type	Constant Current
120V	0.11A
208V	0.065A
240V	0.055A
277V	0.045A
Input Watts	10.20W

LED Info

Watts	12W
Color Temp	3000K (Warm)
Color Accuracy	90 CRI
L70 Lifespan	50,000
Lumens	934
Efficacy	91.6 lm/W

Technical Specifications

Listings

UL Listed & UL Classified:

Suitable for wet locations

ENERGY STAR V2.2:

This product is ENERGY STAR® Version 2.2 Certified.

Energy Star Model Number:

DLC0014

Energy Star ID:

2350052

California Title 24:

Can be used to conform with the requirements of California Title 24 Part 6.

Electrical

Dimming Driver:

Driver includes dimming control wiring for 0-10V dimming systems. Requires separate 0-10V DC dimming circuit. Dims as low as 10%.

THDi:

Produces less than 20% THD

PF:

≥0.9

Input Voltage:

120V through 277V

Operating Frequency (Hz):

50/60Hz

LED Characteristics

Lifespan:

50,000-hour LED lifespan based on IES LM-80 results and TM-21 calculations

LEDs:

Long-life, high-efficacy, surface-mount LEDs

Wattage Equivalency:

18W CFL

R9 Value:

High color performance with R9 greater than or equal to 50

Technical Specifications (continued)

LED Characteristics

Flicker:

Silent and flicker free operations of less than 30%

Construction

IC Rated:

Suitable for direct contact with insulation.
Type IC inherently protected, suitable for direct contact to air permeable insulation and cULus listed for damp locations.
Not for use in direct contact with spray foam insulation, consult NEMA LSD57-2013.

Air Tight:

Housing certified Air Tight as per ASTM E283

Housing:

Made from precision die-cast aluminum construction, dissipates heat from electrical components

Cold Weather Starting:

The minimum starting temperature is -30°C (-22°F)

Maximum Ambient Temperature:

Suitable for use in 40°C (104°F)

Green Technology:

Mercury and UV free. RoHS-compliant components.

Mounting:

Robust retention clips spring loaded tabs ensure the fixture is securely installed. Can be installed in 1/4" to 1 1/2" thick ceilings.

Lens:

Diffuse Polystyrene lens produces smooth uniform light that is glare free

Finish:

Matte White

Optical

Beam Angle:

90°±10°

Other

Template:

Template included for easy ceiling cut out

Warranty:

RAB warrants that our LED products will be free from defects in materials and workmanship for a period of five (5) years from the date of delivery to the end user, including coverage of light output, color stability, driver performance and fixture finish. RAB's warranty is subject to all terms and conditions found at rablighting.com/warranty.

Accessories:

DLPLATE/T: New Construction or Remodel Plate for T-Grid ceilings for use with 6" and 8" Models
DLPLATE/SJ: New Construction Plate for Stud/Joist mounting for use with 6" and 8" Models
DL6-8GOOF/R/P: 8" Goof Ring for 6" Commercial Downlight

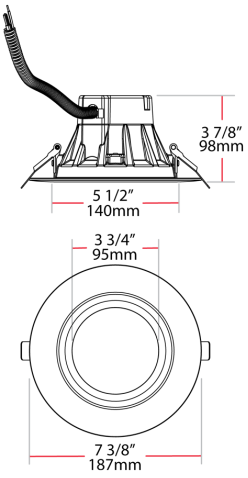
Buy American Act Compliance:

RAB values USA manufacturing! Upon request, RAB may be able to manufacture this product to be compliant with the Buy American Act (BAA). Please contact customer service to request a quote for the product to be made BAA compliant.

Case and Pallet Dimensions

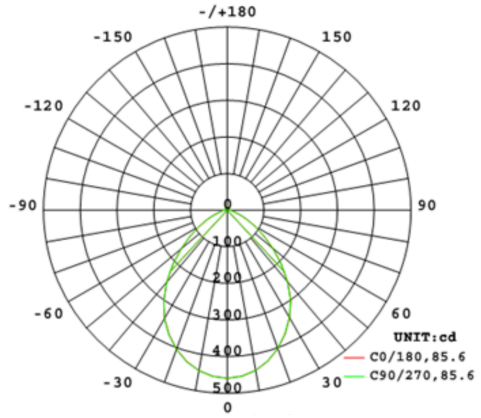
	QTY	LENGTH (in)	WIDTH (in)	HEIGHT (in)
CASE	4	16.12	10.04	8.21
PALLET	400	7.75	7.75	85.04

Dimension



C6R12930UNVW

Light Distribution



Features

- High Performance LEDs for commercial applications
- Replacement for traditional compact fluorescent recessed downlights
- Compatible with new construction or retrofit installations
- UL wet and Energy Star rated
- Meets air-tight requirements
- Matte white smooth trim finish
- Available in 3 color temperatures: 3000K, 3500K, 4000K
- 0 - 10V dimmable
- Spring loaded retention clips
- 25-inch Flexible conduit
- 5-Year, No-Compromise Warranty

Ordering Matrix

Family	Size	Shape	Wattage	CRI/Color Temp	Voltage	Finish
C	6	R	12	930	UNV	W
	6 = 6" **8 =** 8"	**R =** Round	**12 =** 900lm-1050lm **18 =** 1500lm-1700lm **24 =** 2000lm-2300lm **33 =** 3000lm-3500lm	**940 =** 90 CRI, 4000K (Neutral) **935 =** 90 CRI, 3500K (Warm Neutral) **930 =** 90 CRI, 3000K (Warm) **840 =** 80 CRI, 4000K (Neutral) **835 =** 80 CRI, 3500K (Warm Neutral) **830 =** 80 CRI, 3000K (Warm)	**UNV =** 120-277V (0-10V Dimming)	**W =** White

ALED150SS

Weight: 0.0 lbs

Project:	Type:
Prepared By:	**Date:**

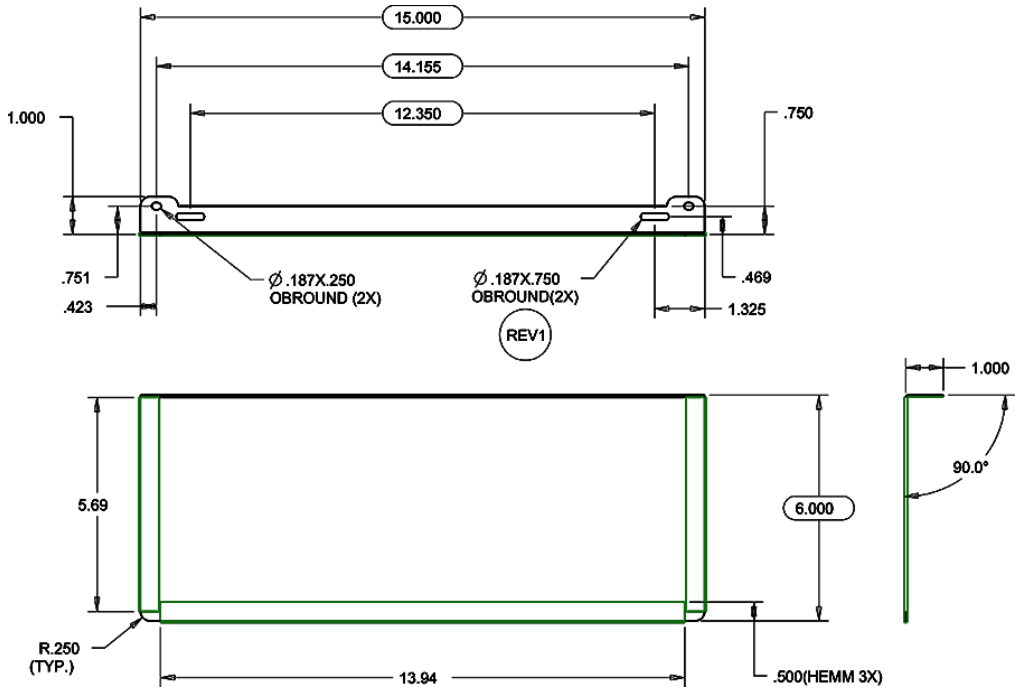
Technical Specifications

Other

Buy American Act Compliance:

RAB values USA manufacturing! Upon request, RAB may be able to manufacture this product to be compliant with the Buy American Act (BAA). Please contact customer service to request a quote for the product to be made BAA compliant.

Dimensions



PR4-11-15D2

Color: Bronze

Weight: 91.0 lbs

Project:	Type:
Prepared By:	**Date:**

Technical Specifications

Listings

CSA Listed:

Suitable for wet locations

Construction

Description:

Steel pole 4" round 11 gauge 15 foot drilled two sides square base

Shaft:

46,000 p.s.i. minimum yield.

Hand Holes:

Reinforced with grounding lug and removable cover

Base Plates:

Slotted base plates 36,000 p.s.i.

Color:

Bronze powder coating

Height:

15 FT

Gauge:

11

Wall Thickness:

1/8"

Shaft Size:

4"

Anchor Bolt Templates:

WARNING Template must be printed on 11" x 17" sheet for actual size. CHECK SCALE BEFORE USING. Templates shipped with anchor bolts and available online.

Max EPA's/Max Weights:

70MPH 11.7 ft./650 lb.
80MPH 8.5 ft./595 lb.
90MPH 6.2 ft./530 lb.
100MPH 4.6 ft./430 lb.
110MPH 3.4 ft./325 lb.
120MPH 2.5 ft./295lb.
130MPH 1.8 ft./220 lb.
140MPH 1.3 ft./200 lb.
150MPH 0.8 ft./165 lb

Accessories:

Base/Cap: BCK-R4
Anchor Bolts: BOLT4/11

Other

Terms of Sale:

Pole Terms of Sale is available online.

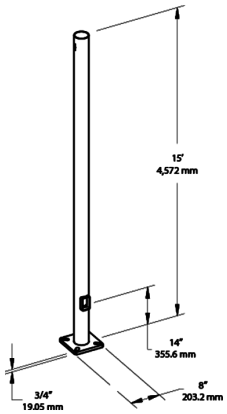
Technical Specifications (continued)

Other

Buy American Act Compliance:

RAB values USA manufacturing! Upon request, RAB may be able to manufacture this product to be compliant with the Buy American Act (BAA). Please contact customer service to request a quote for the product to be made BAA compliant.

Dimensions

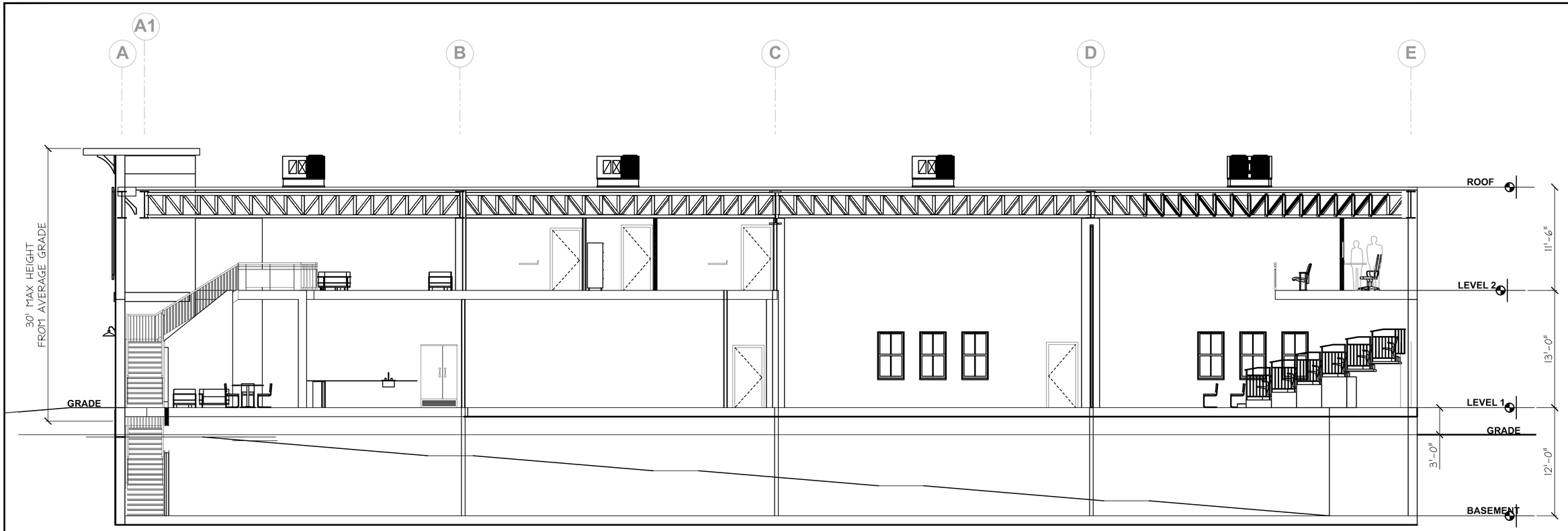


Features

- Designed for ground mounting
- Heavy duty TGIC polyester coating
- Reinforced hand holes with grounding lug and removable cover for easy wiring access
- Pole caps, base covers & bolts are sold separately
- Custom manufactured for each application

Ordering Matrix

Family	Shape	Size	Gauge	Height	Drilled/Welded Tenon
P	R	4	11	15	D2
	R = Round **TR =** Taped Round	**4 =** 4" **5 =** 5" **6 =** 6" **7 =** 7" **8 =** 8"	**7 =** 7 **11 =** 11	**10 =** 10' **15 =** 15' **20 =** 20' **25 =** 25' **30 =** 30'	**D2 =** Drilled **WT =** Welded Tenon



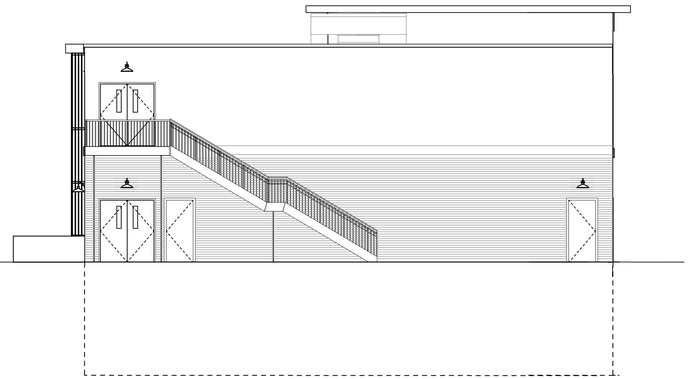
SECTION THRU BUILDING

nca
Newport Collaborative Architects
2 Marlborough Street
Newport, RI 02840
Phone: (401) 466-7900
Web Site: newportcollaborativearchitects.com

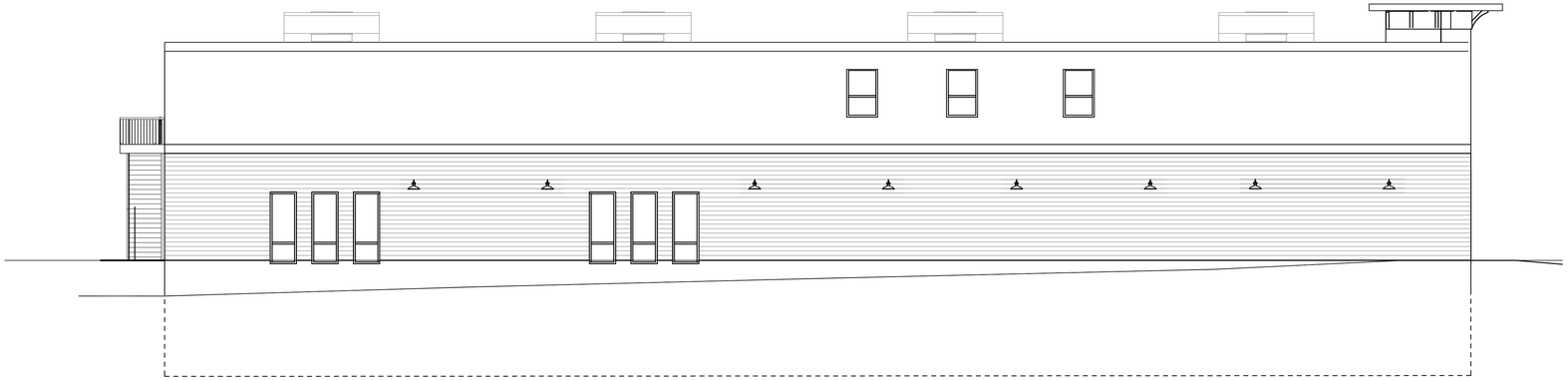
ISLAND MOVING COMPANY

SCHEMATIC DESIGN

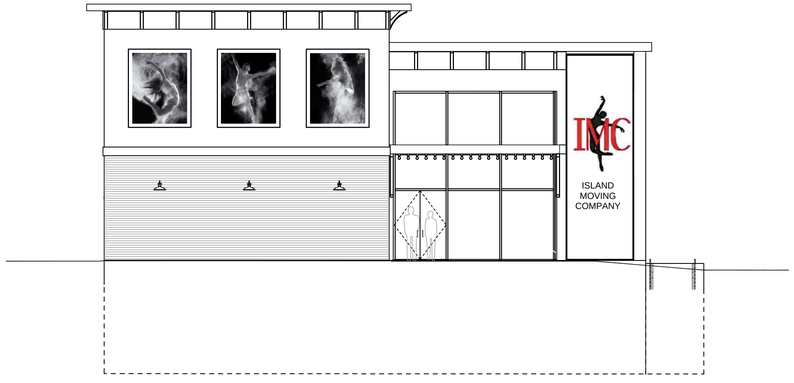
30 - SEPT-2020



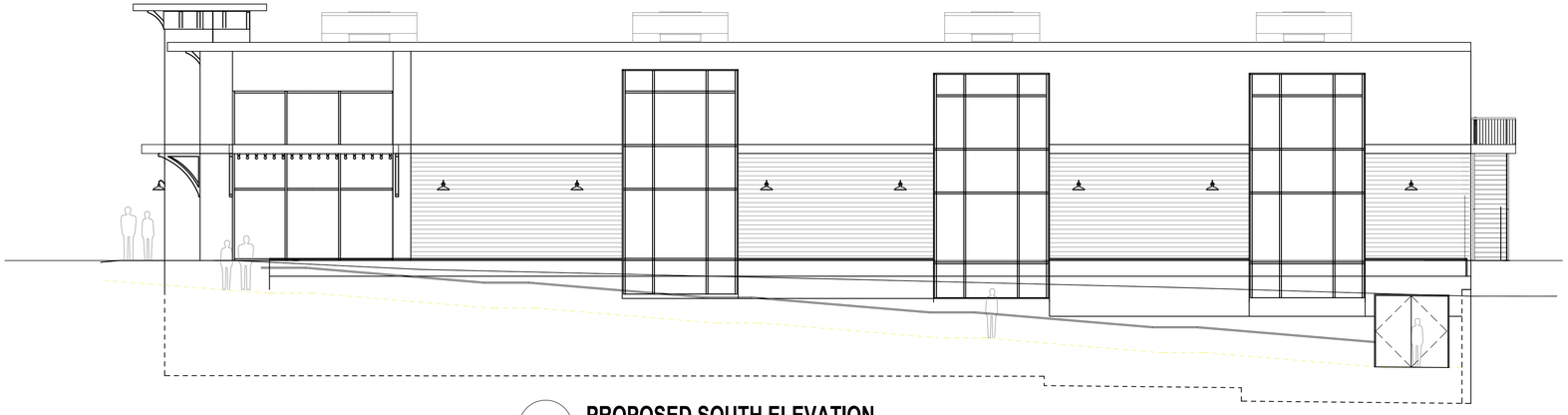
PROPOSED EAST ELEVATION



PROPOSED NORTH ELEVATION



PROPOSED WEST ELEVATION



PROPOSED SOUTH ELEVATION

nca
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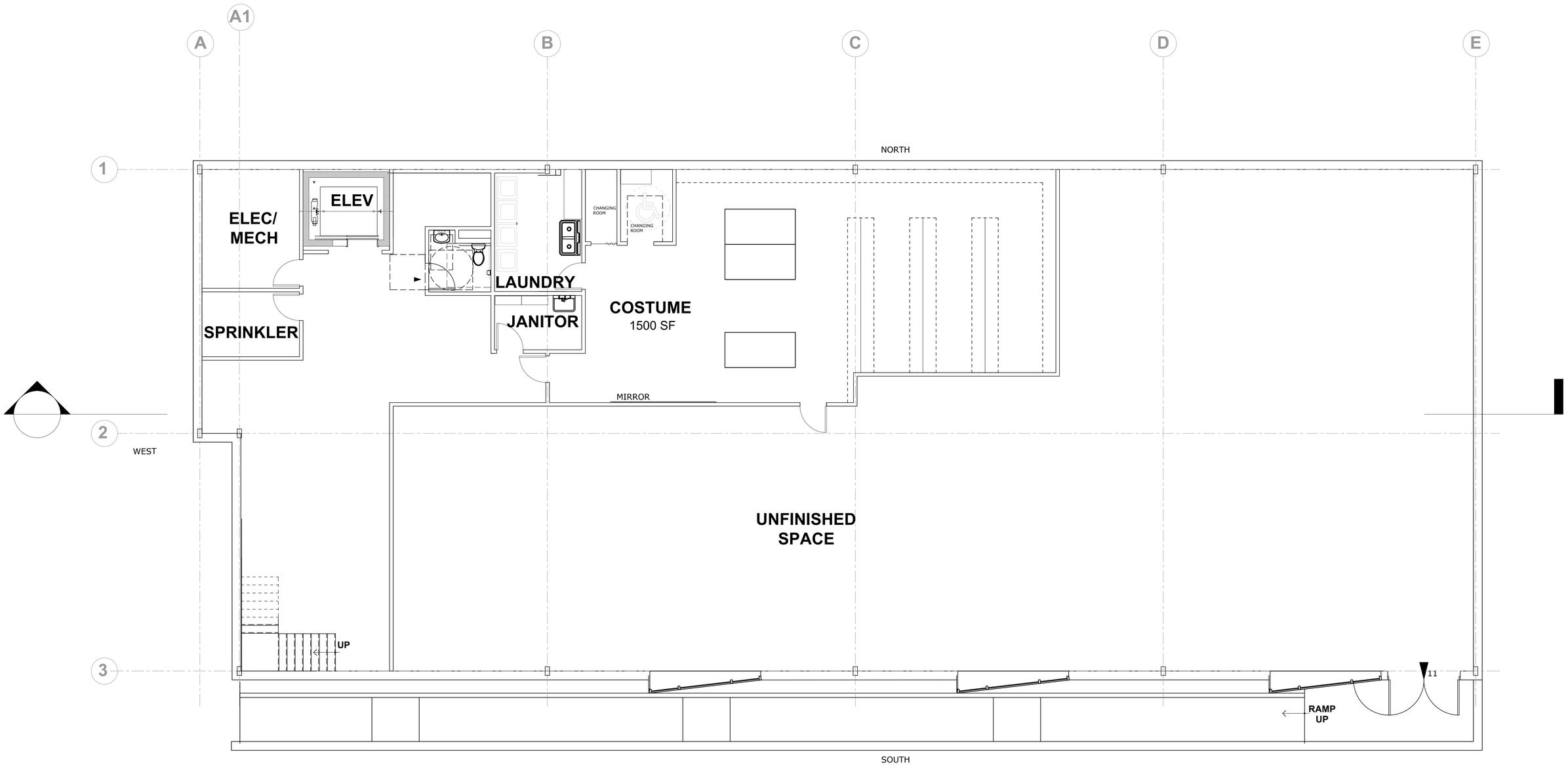

BASEMENT LEVEL FLOOR PLAN

SCALE: 3/16" = 1'-0"

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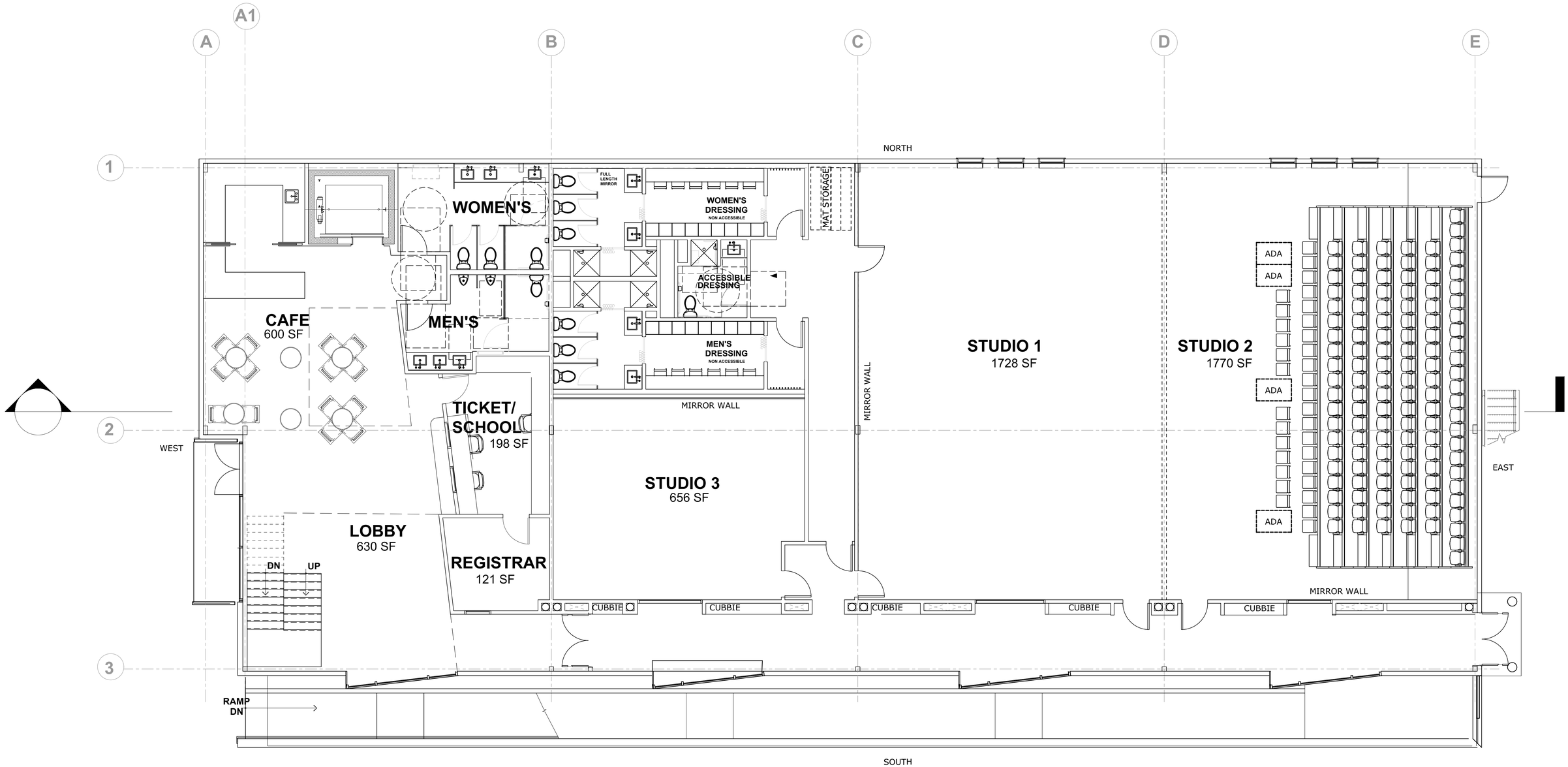
SCHEMATIC
DESIGN

30 - SEPT-
2020



LEVEL 1 FLOOR PLAN

SCALE: 3/16" = 1'-0"

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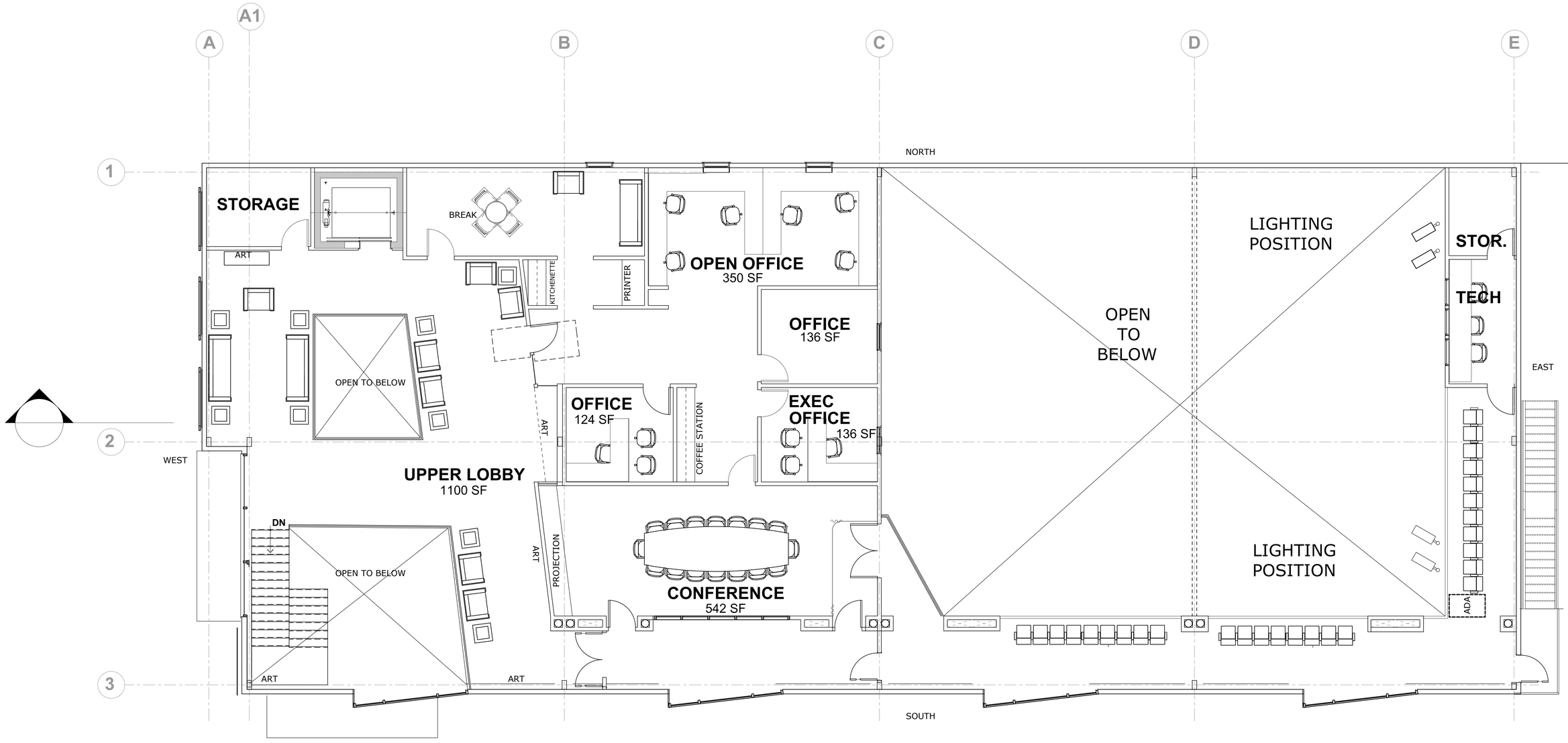

LEVEL 2 FLOOR PLAN

SCALE: 3/16" = 1'-0"

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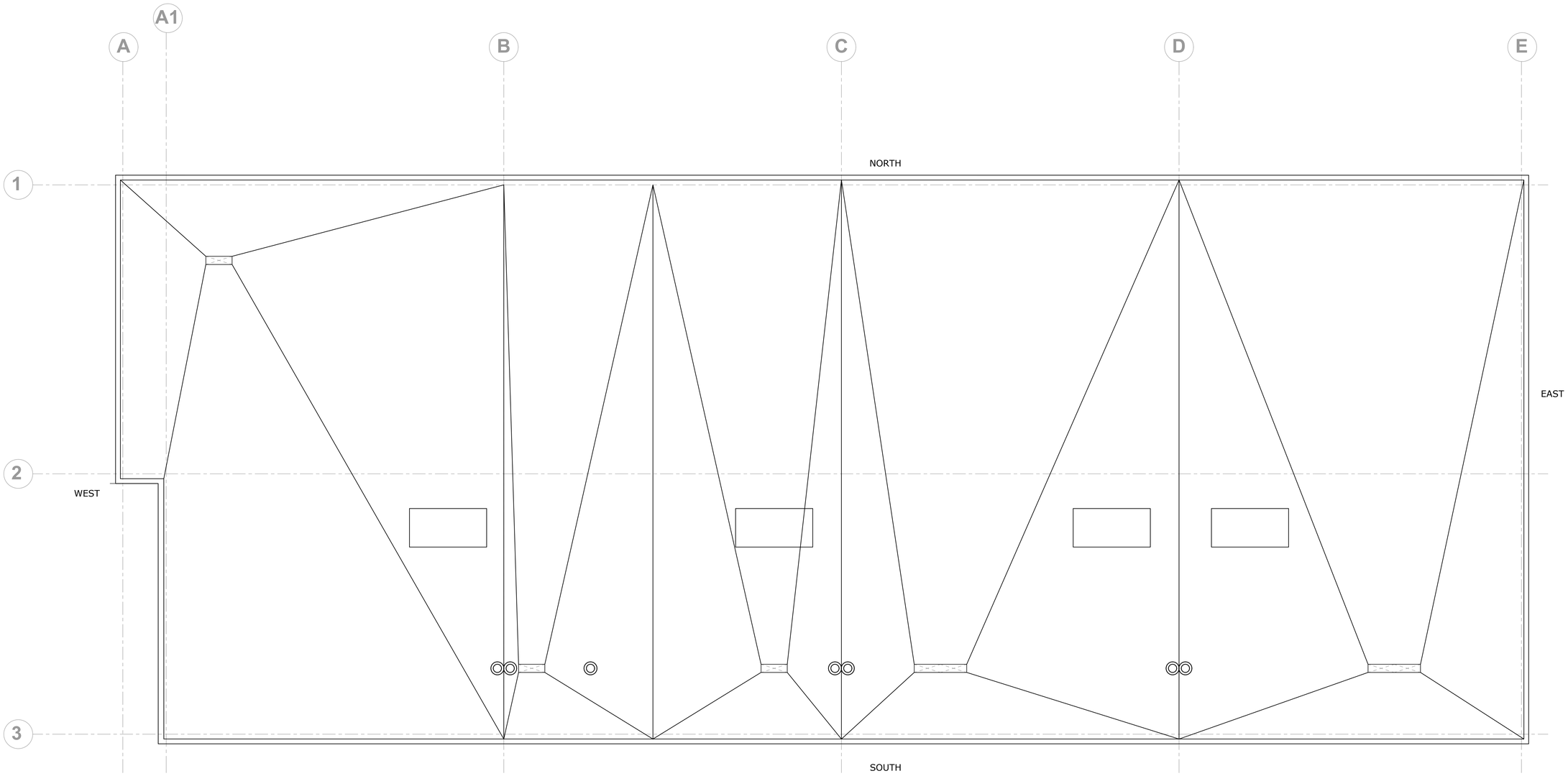
30 - SEPT- 2020



ROOF PLAN

SCALE: 3/16" = 1'-0"

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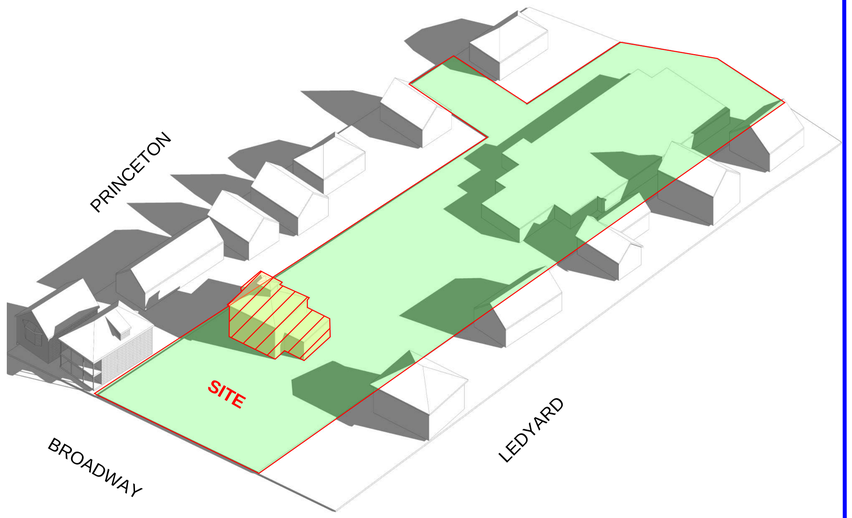
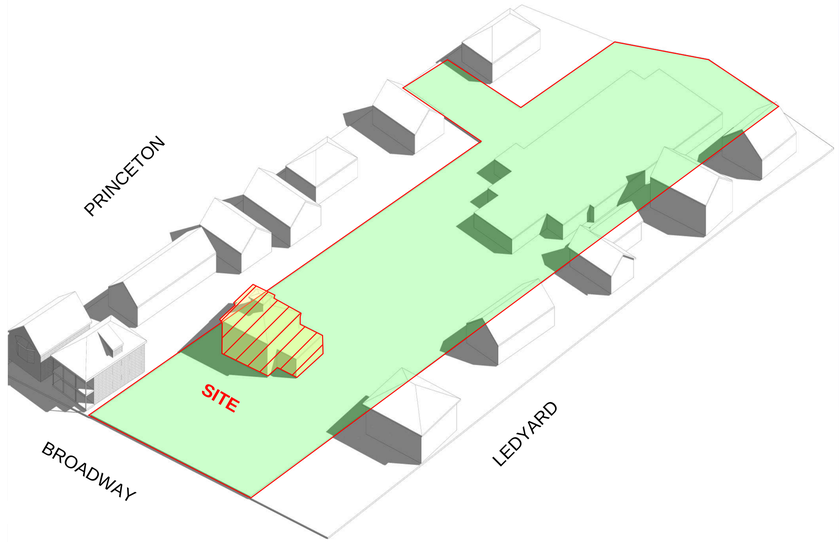
ISLAND MOVING COMPANY

SCHEMATIC DESIGN

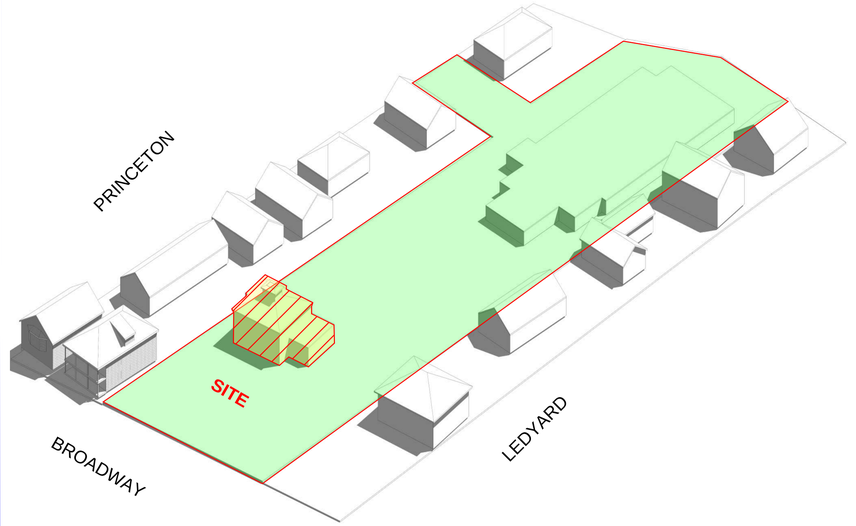
30 - SEPT-2020



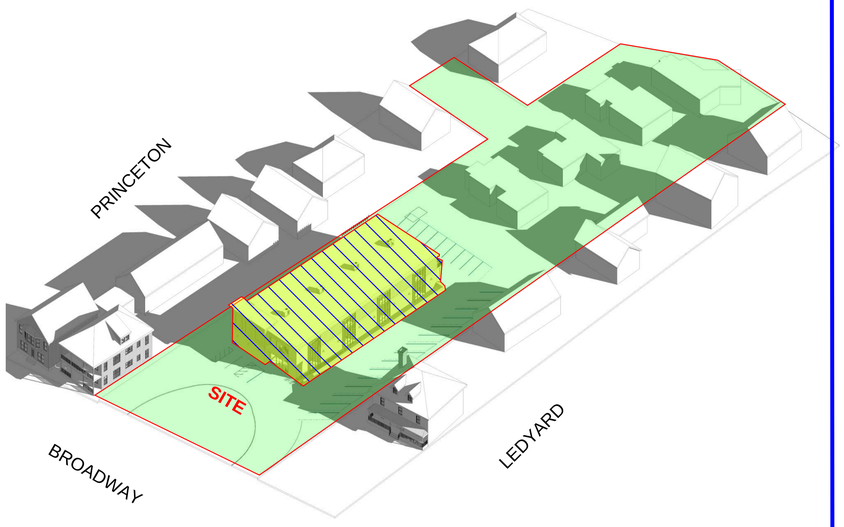
EXISTING BUILDINGS
WINTER SUN STUDY



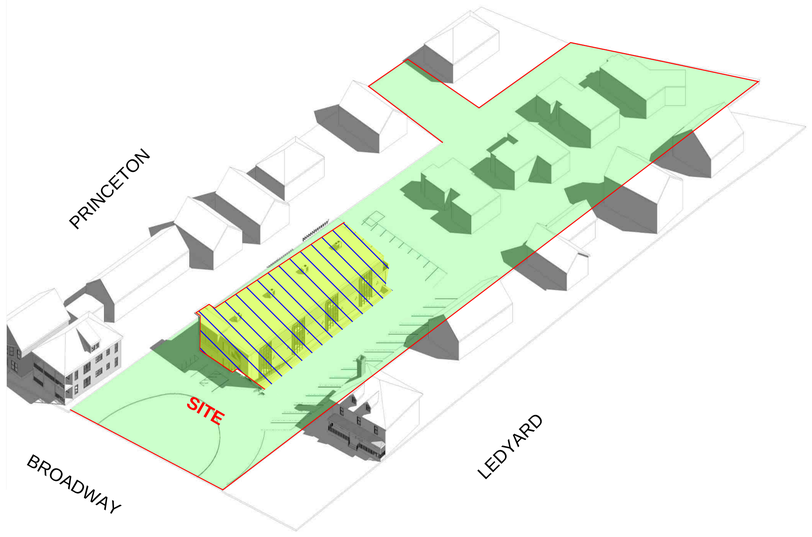
EXISTING BUILDINGS
EQUINOX SUN STUDY



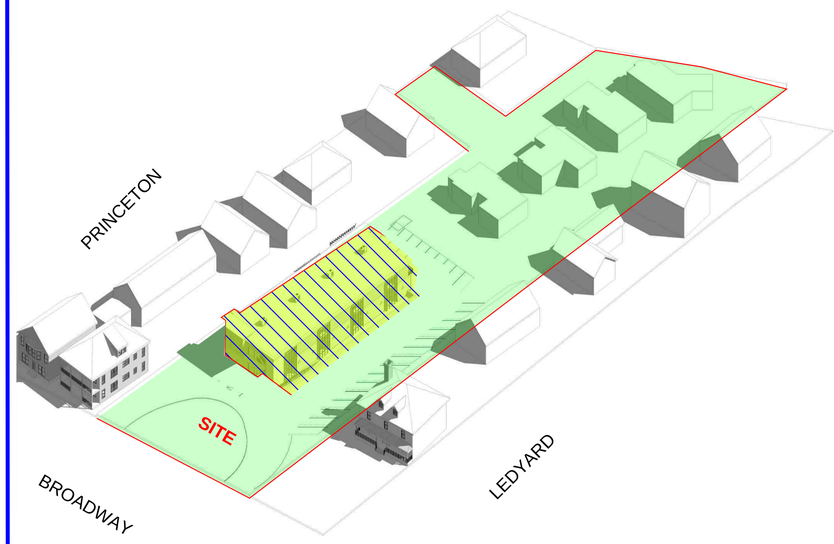
EXISTING BUILDINGS
SUMMER SUN STUDY



PROPOSED BUILDING
WINTER SUN STUDY



PROPOSED BUILDING
EQUINOX SUN STUDY



PROPOSED BUILDING
SUMMER SUN STUDY

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ISLAND MOVING COMPANY

SCHEMATIC DESIGN

18 - NOV - 2020

NORTHEAST ENGINEERS & CONSULTANTS, INC.

Stormwater Runoff Analysis

Proposed Dance School and Residential Subdivision

Assessor's Map 6, Lot 11
Broadway and Princeton Street
Newport, RI

Prepared For
Island Dance Studio
P.O. Box 746
Newport, RI 02840

Rev. July 2020

6 Valley Road • Middletown, RI 02842 • p. 401.849.0810 • f. 401.846.4169 • northeastengineers.com
Civil • Site • Land Development • Waterfront • Coastal Engineering • Environmental • Geotechnical • Structural • Renewable • Surveying

TABLE OF CONTENTS

1.0 PROJECT NARRATIVE

1.1 SITE INFORMATION

City / Town:	Newport, Rhode Island
Adjacent Roadways:	(435) Broadway, Princeton Street and Ledyard Street
Lot(s) identification:	A.P. 6 Lot 11
Zoning District:	R-10
Current Use:	Former School (disused)
Site Area:	1.82 Acres
FEMA Zone and Map:	Zone "X" (Panel 44005C0093J)

1.2 EXISTING IMPROVEMENTS AND SITE CONDITIONS

The existing property contains a two-story wood building and a single 13,000+/- square foot story brick building formerly used as the "Tripplet School". The larger facility is located at the rear of the parcel away from Broadway while the smaller structure fronts on this roadway. The remainder of the property is primarily occupied by paved parking areas and access travel ways. A small area of landscaping is present at the Broadway frontage. The site can be accessed from the rear via a narrow, paved, right of way connecting to the intersection of Ledyard Street and Brook Street Extension. The parcel also has narrow frontage on Princeton Street, though there is no curb cut on the municipal sidewalk. The property is surrounded on all sides by high density residential uses. The structures are served by municipal sewer and water. Overhead electric and communication lines run along the southwest side of lot. Surface drainage inlets are located at the center of the property and at the rear along the southeast property line. These drains connect to the municipal drainage system. There are no private water quality or water retentions systems located on-site.

1.3 PROTECTED FEATURES

There are no wetlands or other features protected by the state present on site. The site does not lie within any coastal or freshwater wetland jurisdiction. No natural vegetation exists on site and landscaping is limited to the northwest side of the property fronting Broadway.

1.4 SITE TERRAIN AND SOILS

In general, the site slopes from the northwest towards single family properties to the southeast and to Brook Street Extension. The soil type on site is Np (Newport silt loam) as designated by the USDA Natural Resource Conservation Service. This is generally a type C hydrologic soil common to this area of Aquidneck Island. Class IV soil evaluations performed on site revealed loams with a 15 to 38-inch water table, increasing as the property slopes to the southeast.

1.5 PROPOSED IMPROVEMENTS

The owner intends to demolish all existing structures and the majority of the pavement. The paved access from Broadway is to remain. The owner then intends to construct an 8,444+/- square foot dance school at the northwest end of the property with associated paved parking. A portion of this parking shall be pervious. The remainder of the lot is to be subdivided to create four new single-family properties. Three of these proposed lots are to be accessed from a new shared curb cut on Princeton Street. The final lot is to be accessed from the existing site rear access to Ledyard Street and Brook Street Extension. Each of the new residential lots will be provided with land area conforming to the R10 zoning. These new properties will be served my municipal water and sewer. The new dance school will also be provided with municipal services, either by the existing services lines or by new services tapped with permission from Newport Department of Utilities. Electrical and communications are proposed from the overhead lines running along the southwest boundary; however, these services are subject to design review by the providing entities.

In general, the total amount of impervious surfaces across the site will be reduced. Stormwater controls for this development include an underground infiltration system for the dance school rooftop, a surface sand filter for parking lot water quality, and subsurface infiltration systems for each of the single-family residences. Surface flow for this property will continue to be collected in the municipal surface located at the east end of the site. Additionally, discharge stormwater from the school drainage system will be directly connected to this municipal infrastructure.

2.0 PROPOSED ALTERATIONS AND STORMWATER CONSIDERATIONS

2.1 STORMWATER SYSTEM OBJECTIVES

The objectives of the project stormwater system are to accomplish the following:

- **Provide water quality treatment for stormwater runoff in accordance with the Rhode Island Stormwater Design and Installation Standards Manual**
- **Reduce or maintain the peak rate of runoff to all design points for the 1, 10, and 100-Year Type III 24-hour storm events.**
- **Maintain the overall drainage patterns from the site to the extent practicable.**
- **Reduce peak runoff and stormwater impact to the downstream abutters.**

2.2 REDEVELOPMENT SITE

As the existing site lot coverage consists of more than 40% impervious and more than 10,000 square feet of this impervious surface is to be developed, this project qualify as a "redevelopment site" per section 3.2.6 of the RISDISM. Per this section of the Manual, only Standards, 2, 3, and 7-11 must be addressed. Specifically, recharge and stormwater quality shall be managed in accordance with one of the following techniques:

- Reduce existing impervious area by at least 50% of the redevelopment area;
- Implement other LID techniques to the maximum extent practicable to provide recharge and water quality management for at least 50% of the redevelopment area;
- Use on-site structural BMPs to provide recharge and water quality management for at least 50% of the redevelopment area; or
- Any combination of these techniques.

2.3 MINIMUM STORMWATER MANAGEMENT STANDARDS

2.3.1 MINIMUM STANDARD 1: LID SITE PLANNING AND DESIGN STRATEGIES

The proposed development utilizes LID designs conforming to the RISDISM. These elements are located immediately downstream of the new improvements and will directly treat the newly generated runoff with minimal interception of clean runoff. This standard is not required for qualifying redevelopment sites per section 3.2.6 of the RISDISM.

2.3.2 MINIMUM STANDARD 2: GROUNDWATER RECHARGE

This majority of this standard shall be met by reducing the area of post construction impervious surfaces via the redevelopment standard. A total of **4,382** square feet of impervious surfaces require groundwater recharge. This equates to a total of **91** cubic feet of recharge volume based on the underlying hydrologic soil type. This recharge volume will be addressed by a rooftop infiltration system for the dance school. Based on the HydroCAD analysis for the water quality storm, a total of **305** cubic feet of recharge is provided. Refer to Appendix F for recharge calculations. Refer to Appendix E for the water quality storm

analysis. It should be noted that each of the residential infiltration systems will provide additional recharge.

2.3.3 MINIMUM STANDARD 3: WATER QUALITY

This majority of this standard shall be met by reducing the area of post construction impervious surfaces via the redevelopment standard. A total of **4,382** square feet of impervious surfaces require water quality treatment. This equates to a total of **365** cubic feet of water quality treatment. This will be addressed by a surface sand filter providing treatment for the paved dance school parking lot. Based on the sizing of the device, a total of **1,510** cubic feet of water quality volume is provided. Refer to Appendix F for design calculations. Refer to Appendix E for the water quality storm analysis. It should be noted that each of the residential infiltration systems will provide additional water quality. Each system will provide sufficient water quality volume to treat the residential rooftops.

2.3.4 MINIMUM STANDARD 4: CONVEYANCE AND NATURAL CHANNEL PROTECTION

This standard is not required for qualifying redevelopment sites per section 3.2.6 of the RISDISM.

2.3.5 MINIMUM STANDARD 5: OVERBANK FLOOD PROTECTION

The TR-20 HydroCAD model demonstrates that the proposed system will successfully mitigate the 100-year storm event. In these calculations, all pre-development land was characterized as "good condition" as required by this standard. A small off-site component of runoff passes through the development area, which was also modeled as "good condition". The modeling also demonstrates that the structures and stormwater devices will safely pass the 100-year storm event without flooding or breaching. While this standard has been met, it is not required for qualifying redevelopment sites per section 3.2.6 of the RISDISM.

2.3.6 MINIMUM STANDARD 6: REDEVELOPMENT AND INFILL PROJECTS

As stated in section 2.2 above, this project qualifies as a development project. The site is comprised of **1.82** acres of which **1.26** acres are existing impervious surfaces. This equates to approximately 69%. Only 40% is required to qualify as a redevelopment site.

2.3.7 MINIMUM STANDARD 7: POLLUTION PREVENTION

Source controls and pollution prevention measures will be present during all phases of construction. A separate stormwater pollution prevention plan (Soil Erosion and Sediment Control Narrative) will be prepared and provided upon request.

2.3.8 MINIMUM STANDARD 8: LAND USES WITH HIGHER POTENTIAL POLLUTANT LOADS

The use of this property does not quality as a LUHPPL and does not require any specific source controls, limited BMPs, or and additional state permitting.

2.3.9 MINIMUM STANDARD 9: ILLICIT DISCHARGES

Neither the using use nor any proposed uses will include any discharges considered to be "illicit" per this section of the Manual.

2.3.10 MINIMUM STANDARD 10: SOILS EROSION AND SEDIMENT CONTROL

Soil erosion and sediment control measures will be implemented during all phases of construction. A SESC plan has been provided in the permitting plan set and a separate Soil Erosion and Sediment Control Narrative will be provided upon request.

2.3.11 MINIMUM STANDARD 11: STORMWATER MANAGEMENT OPERATIONS AND MAINTENANCE

An Operations and Maintenance (O&M) Document will be prepared and submitted in addition to this narrative. This document satisfies the minimum requirements of this standard.

2.4 OVERALL STORMWATER DESIGN FUNCTION

The overall design of the stormwater system is to provide reduction in peak rate of runoff, reduction in total volume runoff, and water quality volume through the provision of new pervious surfaces, a surface sand filter and a subsurface infiltration system. These devices are to be situated downstream of the proposed improvements and upstream of the existing receiving point for the runoff from this catchment. The existing drainage patterns across the site will be minimally impacted. There will be no negative impact to the receiving municipal drainage system.

3.0 DESIGN MODELING METHODOLOGY

Runoff and routing calculations have been performed for the watershed areas affected by the proposed development under existing and proposed development conditions scenarios. Time of concentration and runoff curve number calculations have been performed using the method described in NRCS Technical Release 55 – Urban Hydrology for Small Watersheds. The TR-20 based HydroCAD modeling software has been utilized to perform the more complex runoff and routing calculations, most of which are beyond the scope of the TR-55 method.

Design rainfall events have been modeled using the Soil Conservation Service (SCS) Type III hydrograph for 24-hour duration storms. The rainfall depth for each return period is taken from the RISDISM. This guidance document splits the state into five regions for rainfall frequency based on county. The project site is located in the Washington County region defined in the RISDISM. The rainfall frequency values recommended by RIDEM and used in this drainage analysis are listed in the table below.

Rainfall Frequency Values for **Newport County** Rhode Island with 24-Hour Storm Duration					
RIDEM *Stormwater Design and Installation Standards manual* 3/15					
Frequency	1-Yr	2-Yr	10-Yr	25-Yr	100-Yr
Inches of Rainfall	2.8	3.3	4.9	6.1	8.6

The existing and proposed conditions runoff calculations were analyzed and the proposed stormwater devices were designed to mitigate the peak runoff for the 1, 10, and 100-year 24-hour design storms. The resulting design effectively mitigates and treats runoff from newly developed areas of the site before allowing it to discharge in a non-erosive manner to downstream areas in accordance with the RISDISM.

3.1 ANALYSIS DESIGN POINTS AND OFF-SITE CONTRIBUTIONS

The proposed development contributes stormwater runoff to the following design points. These design points provide a direct comparison for pre-construction and post-construction runoff flows and runoff volumes.

1. Broadway
2. Brook Street Extension drainage system via existing inlets

The following off-site areas contribute surface stormwater runoff to these design points. This runoff either drains through the project area or contributes in some manner which directly affects the design of the stormwater system and has been included in the design calculations. These areas are:

1. Small residential properties to the northeast which front on Princeton Street.

Watershed maps for both the existing and proposed conditions can be found in Appendix B. These maps demonstrate the areas of the site which contribute to each of the design points and indicate the general pattern of surface or piped runoff flow.

3.2 PROPOSED RESIDENTIAL STRUCTURES

The exact sizes of the proposed residences have yet to be determined. For the purposes of the stormwater design calculations, the residences have been assumed to be maximum size allowed by the zoning ordinance (20% of the total lot area). These building footprints have also been used to determine the required volumes of the individual infiltration systems. Please note that the infiltration systems for the residences have not been included in the HydroCAD model. These systems will provide attenuation and volume reduction beyond that shown in the hydrodynamic model.

3.3 RESIDENCE BASEMENT SUMP PUMP DISCHARGE

Each of the four (4) proposed residences may be provided with a sump pump with a surface discharge. The potential groundwater volume intercepted from these pumps during a 24-hour storm event was calculated based on a 24-inch water table. This value was estimated at the rear of the site based on the soil evaluations performed. In actuality, the intercepted volume will likely be less, particularly during the dry seasons. The groundwater flow collected and discharged to the surface was calculated. These full calculations can be found in Appendix F.

The estimated groundwater flow intercepted by a residence sump pump was determined to be approximately **0.00065 cfs** or **57 cubic feet** during a 24-hour storm event **(0.001 af)**. This equates to a total of **0.0026 cfs** and **228 cubic feet** for all four residences. The actual flow will be less for residences downstream of other residences, due to the interruption in groundwater flow. For the following stormwater runoff summaries, these values have been added to the output from the HydroCAD model.

4.0 STORMWATER RUNOFF COMPARISONS

Analysis of the existing and proposed runoff during design storms demonstrates that there will no increase in the peak runoff and total volume runoff to the downstream design points as a result of the development.

Comparisons of the runoff at the design points are given below in. The runoff volumes given have been evaluated over a 24-hour period. All of the HydroCAD modeling worksheets are attached in Appendix C and D. ***The values in the following tables have been adjusted from the HydroCAD worksheets based on the groundwater interception calculations indicated in Section 3.3 above***.

4.1 SUMMARY OF STORMWATER CALCULATIONS

Table 4.1.1 Comparison of Runoff Values at the Design Point (101 vs. 201) (Broadway)

Storm Return Period	Existing Conditions Peak Runoff (cfs)	Proposed Conditions Peak Runoff (cfs)	Existing Conditions Volume Runoff (af)	Proposed Conditions Volume 24 hr Runoff (af)
1-year	0.20	0.17	0.014	0.012
10-year	0.51	0.44	0.035	0.030
100-year	1.08	0.95	0.075	0.067

Table 4.1.2 Comparison of Runoff Values at the Design Point (102 vs. 202) (Brook Street Extension)

Storm Return Period	Existing Conditions Peak Runoff (cfs)	Proposed Conditions Peak Runoff (cfs)	Existing Conditions Volume Runoff (af)	Proposed Conditions Volume 24 hr Runoff (af)
1-year	3.24	1.85	0.314	0.275
10-year	6.77	6.38	0.672	0.644
100-year	12.95	12.19	1.330	1.343

5.0 STORMWATER BMPS

5.1 SAND FILTER

Description

A Sand Filter is designed to capture and temporarily store the water quality storm runoff volume and pass it through a sand media layer. In areas of shallow water tables or poorly draining soils, the media is lined with an impermeable membrane and the filtered runoff is collected by an underdrain. This treated runoff is then discharged downgradient. In areas of deeper water tables and well-draining soils, the filtered stormwater is infiltrated into the undisturbed strata below the filter. High flow runoff to a sand filter typically passes over an overflow weir to a volume control device. Sand filters are not intended to have permanent pools and should drain within 24 hours. The filter beds are planted with water tolerant grasses selected from the Rhode Island Coastal Plant Guide or Appendix B of the RIDISM.

The stormwater design for this development includes the following sand filters.

1. Device ID (HydroCAD): SF1
   Location: Southeast of Dance School
   Subwatershed treated: 202A
   Lined or Unlined: Lined
   Discharge location: Swale and Link 202

5.2 CONVEYANCE STRUCTURES

Description

Conveyance structures include all man-made subsurface structures which collect and convey stormwater surface runoff across the site, typically to stormwater treatment or control devices. These structures include catch basins, curb inlets, drain manholes, culverts, and pipes. These structures are typically made of concrete or high-density plastics. In smaller scale projects, these conveyance structures consist of roof leaders and downspouts.

5.3 INFILTRATION CHAMBERS

Description

Subsurface infiltration chambers allow for temporary storage and infiltration into underlying soil, effectively providing water quality and groundwater recharge. An outlet structure meters outlet flow from the subsurface chambers to relieve pressure within the system and regulates peak runoff.

The stormwater design for this development includes the following infiltrating subsurface chambers:

1. Location: Under parking lot southeast of dance school
   Subwatershed served: 202B
   Chamber type: Cultec 100HD
   Number of chambers: 30
   Pretreatment device: None
   Infiltration rate and determination: 0.27 in/hr based on soil type (silt loam)
   Separation to groundwater: 12" (not a water quality device, recharge only)

2. Location(s): Adjacent to each proposed residence
   Subwatershed served: 202B
   Chamber type: Cultec 100HD
   Number of chambers: 6 per residence
   Pretreatment device: None
   Infiltration rate and determination: 0.27 in/hr based on soil type (silt loam)
   Separation to groundwater: 24"

6.0 CONSTRUCTION STORMWATER MAINTENANCE PLAN

During the period of construction and/or until long term vegetation is established, the erosion control measures shall be inspected.

A. Straw wattle shall be inspected as indicated in the plan details. At a minimum these devices shall be inspected and repaired once a week and/or immediately following a significant rainfall or snowmelt. Sediment trapped behind these barriers shall be excavated when it reaches a depth of 6" and regraded on the site.

B. Any erosion control blankets employed throughout the site shall be inspected on a weekly basis.

C. Any stone construction entrance(s) shall be inspected weekly, and re-established or repaired as necessary. These devices shall be inspected monthly for excessive accumulation of sediment. It may be necessary to remove stones, excavate sediment, and replace stones. If existing paved entrances are utilized to remove construction sediment from vehicle tires, these areas shall be swept on a similar basis. The stabilized construction entrance(s) shall be removed prior to final surfacing.

D. Seeded areas shall be fertilized and reseeded as necessary to ensure establishment of a vegetative growth that meets the approval of reviewing entities.

E. Maintenance of the stormwater system during construction shall be the responsibility of the site contractor. Once construction of the site is complete, maintenance of the system shall be the responsibility of the owner(s).

7.0 LIMITATIONS AND SPECIAL TERMS AND CONDITIONS

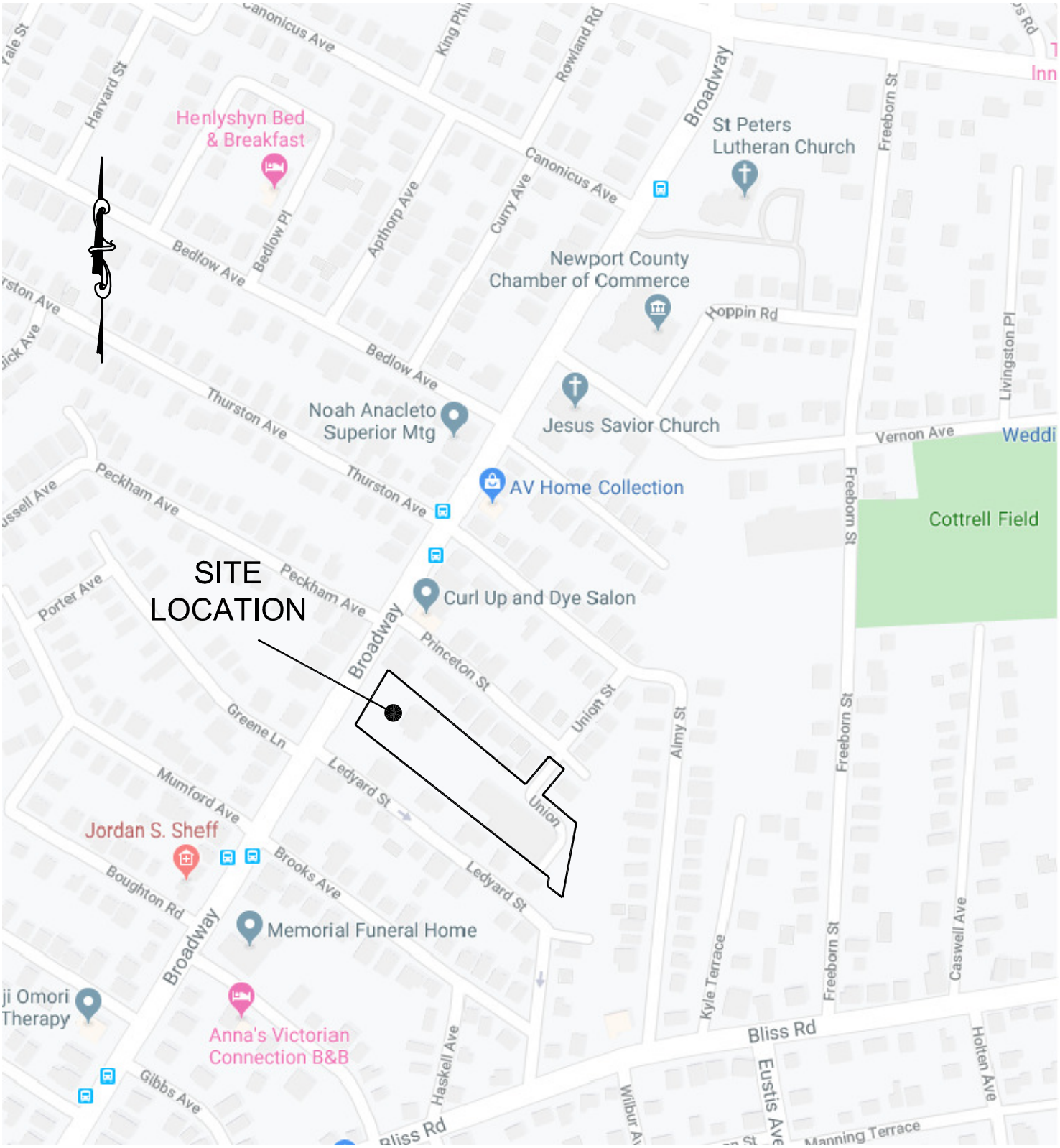
1. NE&C's evaluation was performed in accordance with generally accepted practices of other consultants undertaking similar studies at the same time and in the same geographical area, and NE&C observed the degree of care and skill generally exercised by other consultants under similar circumstances and conditions. No warrantee expressed or implied is made.

2. Any additional research conducted should be reviewed by Northeast Engineers & Consultants, Inc., such that the conclusions presented herein may be modified.

3. All observations documented in this report were performed under the existing conditions at the time of the assessment.

4. This report has been prepared on the behalf of and is for the exclusive use of the Client. This report and findings contained herein shall not, in whole or in part be disseminated or conveyed to any party, nor used by any other party in whole or in part, without the written consent of NE&C.

APPENDIX A FIGURES



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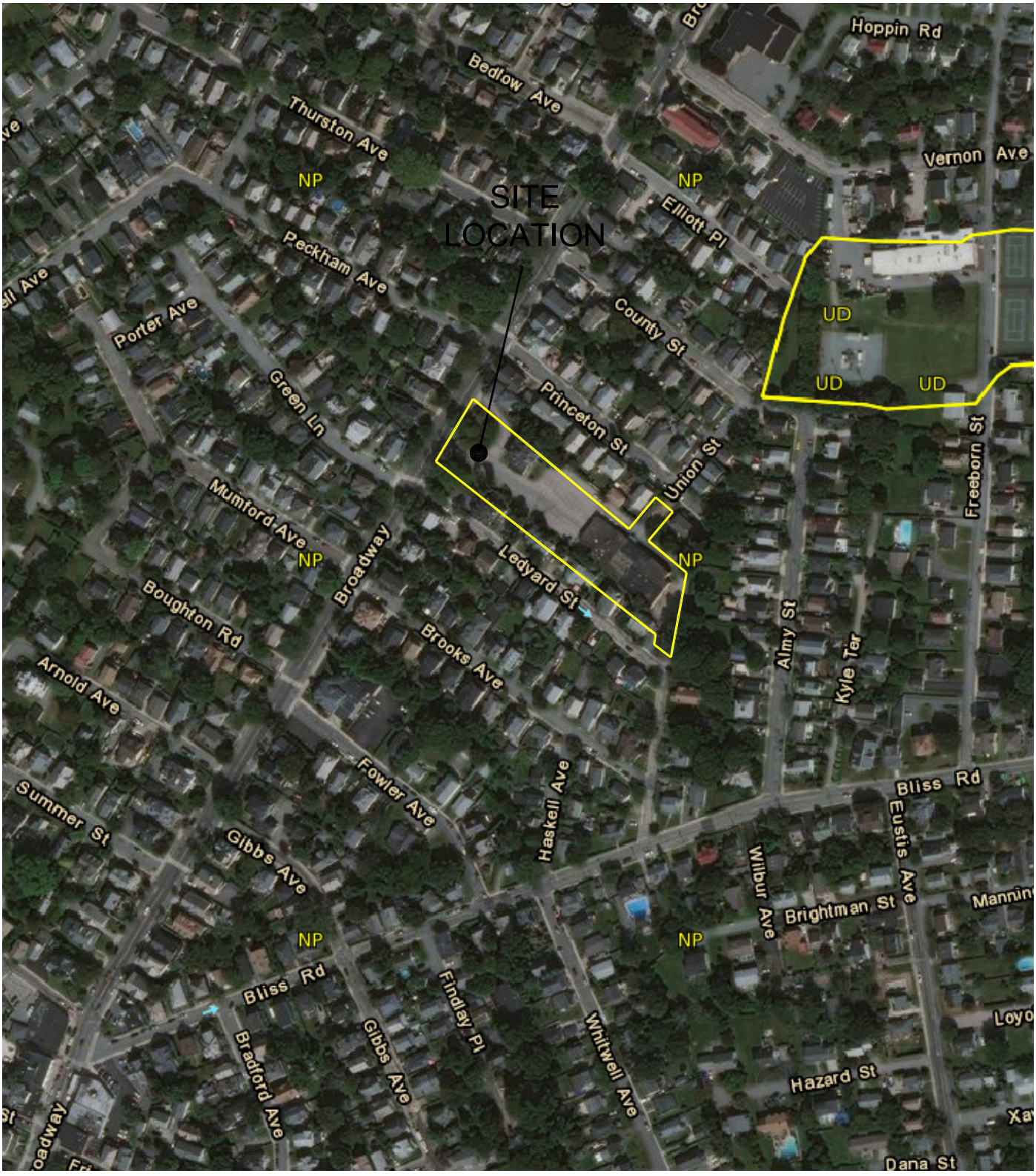
Issued for: PERMITTING		Drawing Number: F-1	Project Number: 17062.0	



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Issued for: PERMITTING		Drawing Number: F-2	Project Number: 17062.0	

Scale: NTS	Date: 09DEC19	Designed By:	Drawn By:	Checked By:
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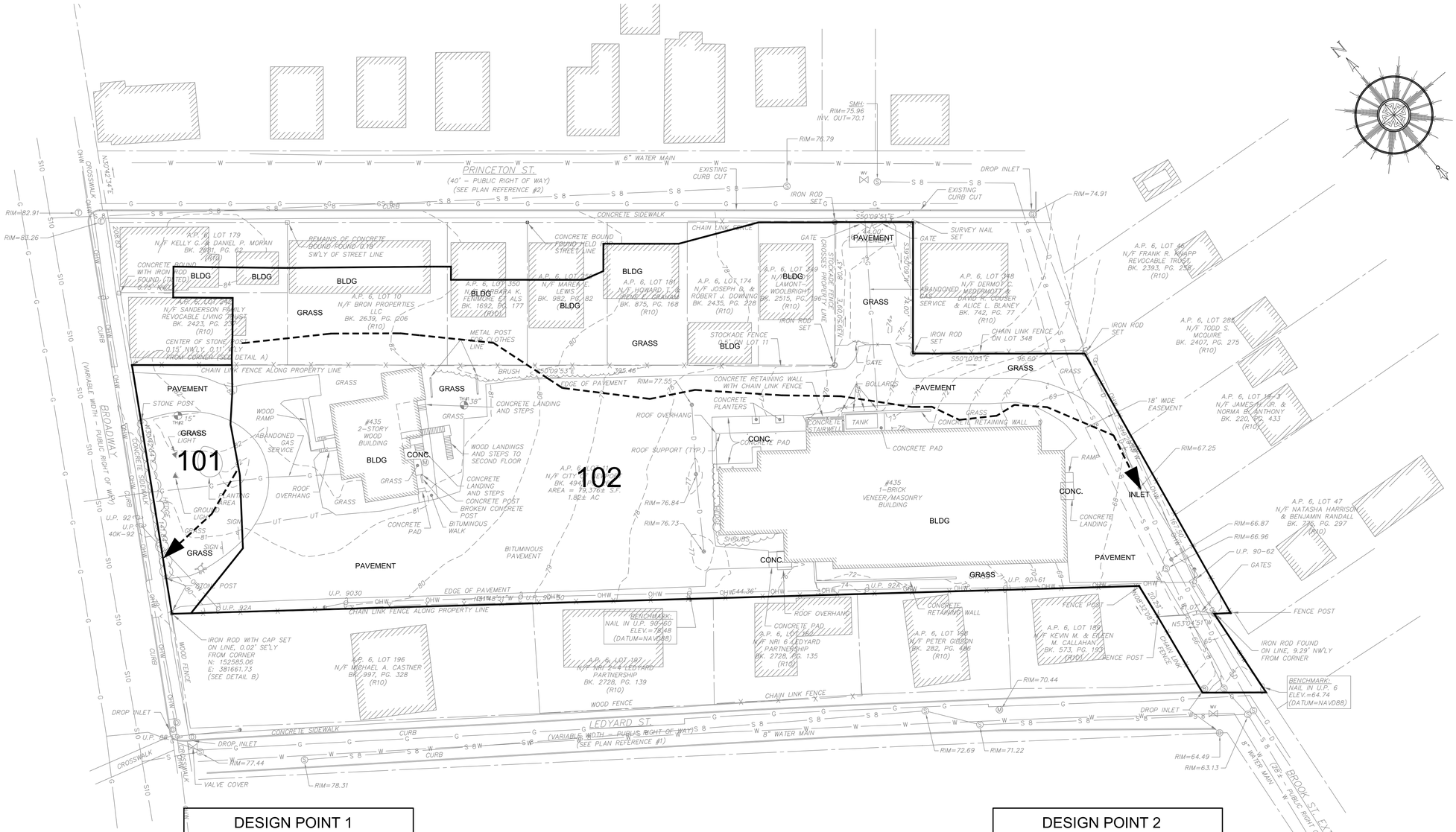
Issued for: PERMITTING		Drawing Number: F-3	Project Number: 17062.0	

APPENDIX B WATERSHED MAPS



DESIGN POINT 1

BROADWAY

STORM	PEAK (cfs)	VOL (af)
1-YEAR	0.20	0.014
10-YEAR	0.51	0.035
100-YEAR	1.08	0.075

DESIGN POINT 2

BROOK STREET EXT.

STORM	PEAK (cfs)	VOL (af)
1-YEAR	3.24	0.314
10-YEAR	6.77	0.672
100-YEAR	12.95	1.330

GRAPHIC SCALE

30 0 15 30 60 120

(in feet)

1 inch = 30 feet

NORTHEAST ENGINEERS & CONSULTANTS, INC.

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SITE/CIVIL
LAND PLANNING
WATERFRONT
SURVEYING
GEOTECHNICAL
ENVIRONMENTAL
TRANSPORTATION
STRUCTURAL

No.	Revision	Date	App.

Designed By:	Drawn by: JJR	Checked by:	GES
Scale: 1"=30'	Date:	12FEB20	

Project Title:

PROPOSED DANCE SCHOOL AND RESIDENTIAL SUBDIVISION

A.P. 6 LOT 11
435 BROADWAY
NEWPORT, RHODE ISLAND

Client/Owner:

ISLAND MOVING COMPANY
P.O. BOX 746
NEWPORT, RI 02840

Issued for:

PERMITTING

Drawing Title:

EXISTING WATERSHED PLAN

Drawing Number: W-1

Sheet 1 of 1

Project Number: 17062.2

Survey Index: 14 - 6 - 11

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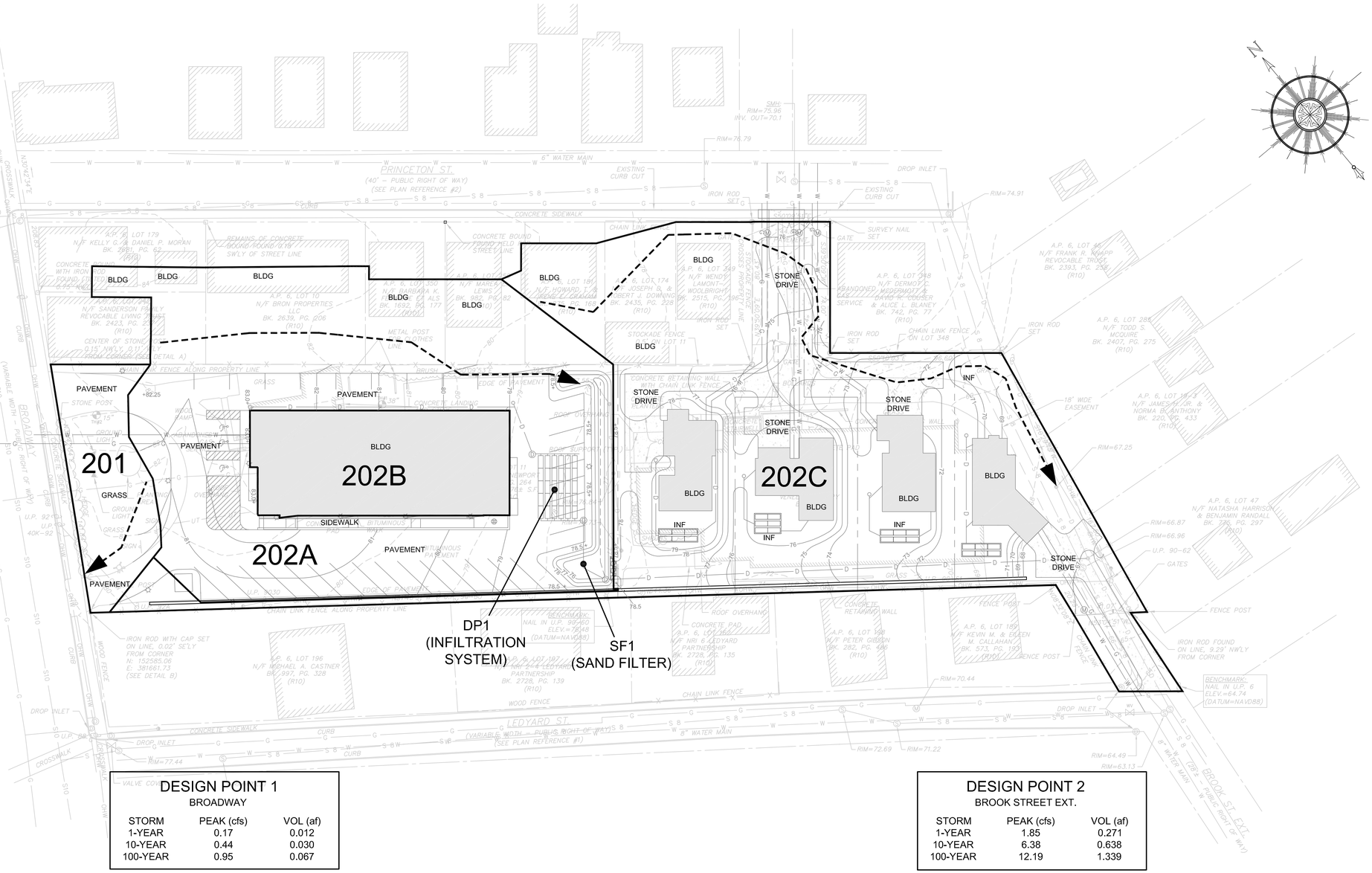

DESIGN POINT 1
BROADWAY

STORM	PEAK (cfs)	VOL (af)
1-YEAR	0.17	0.012
10-YEAR	0.44	0.030
100-YEAR	0.95	0.067

DESIGN POINT 2
BROOK STREET EXT.

STORM	PEAK (cfs)	VOL (af)
1-YEAR	1.85	0.271
10-YEAR	6.38	0.638
100-YEAR	12.19	1.339

GRAPHIC SCALE

30 0 15 30 60 120

(in feet)

1 inch = 30 feet

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No.	Revision	Date	App.
1	BUILDING LOCATION AND PARKING	07JUL20	

Designed By:	Drawn by: JJR	Checked by:	GES
Scale:	1"=30'	Date:	12FEB20

Project Title:

PROPOSED DANCE SCHOOL AND RESIDENTIAL SUBDIVISION

A.P. 6 LOT 11
435 BROADWAY
NEWPORT, RHODE ISLAND

Client/Owner:

ISLAND MOVING COMPANY
P.O. BOX 746
NEWPORT, RI 02840

Issued for:

PERMITTING

Drawing Title:

PROPOSED WATERSHED PLAN

Drawing Number: W-2

Sheet 1 of 1

Project Number: 17062.2

Survey Index: 14 - 6 - 11

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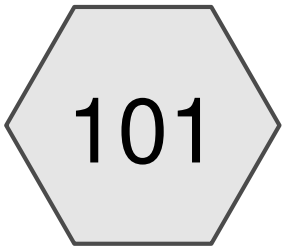
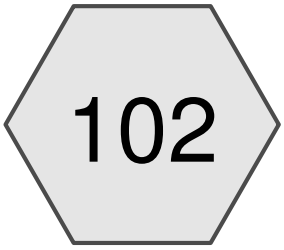
APPENDIX C EXISTING CONDITIONS HYDROCAD (1, 10, 100-YEAR)



To Broadway



To Brook St.

Subcat Reach Pond Link

Drainage Diagram for 2020-07-06 17062.2 Max Lot Coverage
Prepared by Northeast Engineers & Consultants, Inc., Printed 7/15/2020

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.913	74	>75% Grass cover, Good, HSG C (101, 102)
0.526	98	Buildings (102)
0.043	98	Concrete (102)
0.860	98	Pavement (101, 102)
2.342		**TOTAL AREA**

Summary for Subcatchment 101: To Broadway

Runoff = 0.20 cfs @ 12.08 hrs, Volume= 0.014 af, Depth> 1.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.80"

	Area (sf)	CN	Description
*	1,695	98	Pavement
	4,559	74	>75% Grass cover, Good, HSG C
	6,254	81	Weighted Average
	4,559		72.90% Pervious Area
	1,695		27.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Minimum**

Summary for Subcatchment 102: To Brook St.

Runoff = 3.24 cfs @ 12.23 hrs, Volume= 0.314 af, Depth> 1.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.80"

	Area (sf)	CN	Description
*	22,932	98	Buildings
*	35,756	98	Pavement
*	1,886	98	Concrete
	35,198	74	>75% Grass cover, Good, HSG C
	95,772	89	Weighted Average
	35,198		36.75% Pervious Area
	60,574		63.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	100	0.0080	0.12		**Sheet Flow, Lawns**
					Grass: Short n= 0.150 P2= 3.30"
0.5	78	0.0256	2.40		**Shallow Concentrated Flow, Lawns**
					Grassed Waterway Kv= 15.0 fps
2.0	360	0.0360	3.05		**Shallow Concentrated Flow, Pavement**
					Unpaved Kv= 16.1 fps
16.4	538	Total			

Summary for Subcatchment 101: To Broadway

Runoff = 0.51 cfs @ 12.07 hrs, Volume= 0.035 af, Depth> 2.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.90"

	Area (sf)	CN	Description
*	1,695	98	Pavement
	4,559	74	>75% Grass cover, Good, HSG C
	6,254	81	Weighted Average
	4,559		72.90% Pervious Area
	1,695		27.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Minimum**

Summary for Subcatchment 102: To Brook St.

Runoff = 6.77 cfs @ 12.22 hrs, Volume= 0.672 af, Depth> 3.67"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.90"

	Area (sf)	CN	Description
*	22,932	98	Buildings
*	35,756	98	Pavement
*	1,886	98	Concrete
	35,198	74	>75% Grass cover, Good, HSG C
	95,772	89	Weighted Average
	35,198		36.75% Pervious Area
	60,574		63.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	100	0.0080	0.12		**Sheet Flow, Lawns** Grass: Short n= 0.150 P2= 3.30"
0.5	78	0.0256	2.40		**Shallow Concentrated Flow, Lawns** Grassed Waterway Kv= 15.0 fps
2.0	360	0.0360	3.05		**Shallow Concentrated Flow, Pavement** Unpaved Kv= 16.1 fps
16.4	538	Total			

Summary for Subcatchment 101: To Broadway

Runoff = 1.08 cfs @ 12.07 hrs, Volume= 0.075 af, Depth> 6.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.60"

	Area (sf)	CN	Description
*	1,695	98	Pavement
	4,559	74	>75% Grass cover, Good, HSG C
	6,254	81	Weighted Average
	4,559		72.90% Pervious Area
	1,695		27.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Minimum**

Summary for Subcatchment 102: To Brook St.

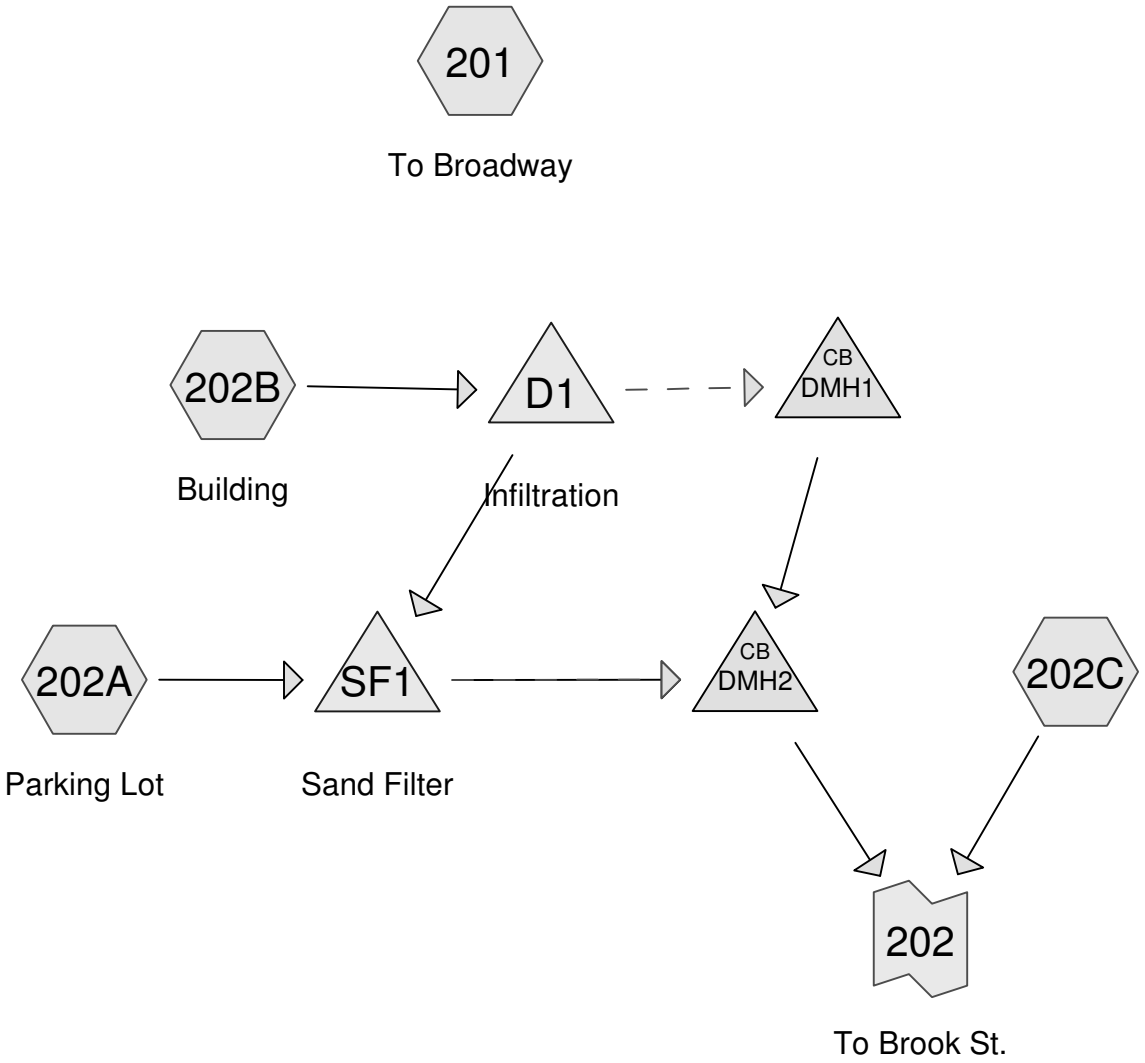
Runoff = 12.95 cfs @ 12.22 hrs, Volume= 1.330 af, Depth> 7.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.60"

	Area (sf)	CN	Description
*	22,932	98	Buildings
*	35,756	98	Pavement
*	1,886	98	Concrete
	35,198	74	>75% Grass cover, Good, HSG C
	95,772	89	Weighted Average
	35,198		36.75% Pervious Area
	60,574		63.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	100	0.0080	0.12		**Sheet Flow, Lawns**
					Grass: Short n= 0.150 P2= 3.30"
0.5	78	0.0256	2.40		**Shallow Concentrated Flow, Lawns**
					Grassed Waterway Kv= 15.0 fps
2.0	360	0.0360	3.05		**Shallow Concentrated Flow, Pavement**
					Unpaved Kv= 16.1 fps
16.4	538	Total			

APPENDIX D PROPOSED CONDITIONS HYDROCAD (1, 10, 100-YEAR)



Subcat Reach Pond Link

Drainage Diagram for 2020-07-06 17062.2 Max Lot Coverage
Prepared by Northeast Engineers & Consultants, Inc., Printed 7/15/2020

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.338	74	>75% Grass cover, Good, HSG C (201, 202A, 202C)
0.144	85	Gravel & Crushed Stone (202C)
0.368	98	Buildings (202B, 202C)
0.038	98	Concrete (202A)
0.029	98	Lined Filter (202A)
0.073	98	Offsite Building (202A)
0.078	98	Offsite Buildings (202C)
0.472	98	Pavement (201, 202A, 202C)
2.539		**TOTAL AREA**

Summary for Subcatchment 201: To Broadway

Runoff = 0.17 cfs @ 12.08 hrs, Volume= 0.012 af, Depth> 1.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.80"

	Area (sf)	CN	Description
*	1,504	98	Pavement
	4,120	74	>75% Grass cover, Good, HSG C
	5,624	80	Weighted Average
	4,120		73.26% Pervious Area
	1,504		26.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Minimum**

Summary for Subcatchment 202A: Parking Lot

Runoff = 1.49 cfs @ 12.20 hrs, Volume= 0.139 af, Depth> 1.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.80"

	Area (sf)	CN	Description
*	3,169	98	Offsite Building
*	18,814	98	Pavement
*	1,650	98	Concrete
	21,774	74	>75% Grass cover, Good, HSG C
*	1,243	98	Lined Filter
	46,650	87	Weighted Average
	21,774		46.68% Pervious Area
	24,876		53.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	100	0.0080	0.12		**Sheet Flow, Lawns**
					Grass: Short n= 0.150 P2= 3.30"
1.0	138	0.0217	2.37		**Shallow Concentrated Flow, Lawns**
					Unpaved Kv= 16.1 fps
14.9	238	Total			

Summary for Subcatchment 202B: Building

Runoff = 0.55 cfs @ 12.07 hrs, Volume= 0.042 af, Depth> 2.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.80"

	Area (sf)	CN	Description
*	8,555	98	Buildings
	8,555		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Minimum**

Summary for Subcatchment 202C:

Runoff = 1.30 cfs @ 12.16 hrs, Volume= 0.110 af, Depth> 1.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-Year Rainfall=2.80"

	Area (sf)	CN	Description
*	3,404	98	Offsite Buildings
*	6,252	85	Gravel & Crushed Stone
*	7,480	98	Buildings
	32,379	74	>75% Grass cover, Good, HSG C
*	236	98	Pavement
	49,751	81	Weighted Average
	38,631		77.65% Pervious Area
	11,120		22.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	100	0.0225	0.18		**Sheet Flow, Lawns**
					Grass: Short n= 0.150 P2= 3.30"
1.7	300	0.0350	3.01		**Shallow Concentrated Flow, Lawns & Drive**
					Unpaved Kv= 16.1 fps
10.9	400	Total			

Summary for Pond D1: Infiltration

Inflow Area = 0.196 ac,100.00% Impervious, Inflow Depth > 2.57" for 1-Year event
Inflow = 0.55 cfs @ 12.07 hrs, Volume= 0.042 af
Outflow = 0.32 cfs @ 12.17 hrs, Volume= 0.030 af, Atten= 42%, Lag= 6.0 min
Discarded = 0.01 cfs @ 6.36 hrs, Volume= 0.009 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Secondary = 0.31 cfs @ 12.17 hrs, Volume= 0.022 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 76.39' @ 12.17 hrs Surf.Area= 856 sf Storage= 725 cf

Plug-Flow detention time= 156.3 min calculated for 0.030 af (72% of inflow)
Center-of-Mass det. time= 66.7 min (824.6 - 757.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	75.00'	531 cf	**21.67'W x 39.50'L x 2.04'H Field A**
			1,747 cf Overall - 419 cf Embedded = 1,328 cf x 40.0% Voids
#2A	75.50'	419 cf	**Cultec C-100** x 30 Inside #1
			Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf
			Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap
#3	75.00'	16 cf	**2.00'D x 5.00'H Riser** -Impervious
		966 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	75.00'	**0.270 in/hr Exfiltration over Surface area**
#2	Primary	79.50'	**4.0" W x 3.0" H Vert. Overflows at building X 6.00** C= 0.600
#3	Secondary	76.00'	**6.0" Round 6" Overflow to drop structure** L= 5.0' Ke= 0.500
			Outlet Invert= 75.90' S= 0.0200 '/' Cc= 0.900 n= 0.012

Discarded OutFlow Max=0.01 cfs @ 6.36 hrs HW=75.05' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=75.00' (Free Discharge)
2=Overflows at building (Controls 0.00 cfs)

Secondary OutFlow Max=0.31 cfs @ 12.17 hrs HW=76.39' (Free Discharge)
3=6" Overflow to drop structure (Barrel Controls 0.31 cfs @ 2.65 fps)

Summary for Pond DMH1:

Inflow = 0.31 cfs @ 12.17 hrs, Volume= 0.022 af
Outflow = 0.31 cfs @ 12.17 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
Primary = 0.31 cfs @ 12.17 hrs, Volume= 0.022 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 73.36' @ 12.17 hrs
Flood Elev= 78.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.00'	**6.0" Round 6" PVC** L= 40.0' Ke= 0.500 Outlet Invert= 72.50' S= 0.0125 '/' Cc= 0.900 n= 0.010

Primary OutFlow Max=0.31 cfs @ 12.17 hrs HW=73.36' (Free Discharge)
1=6" PVC (Inlet Controls 0.31 cfs @ 2.05 fps)

Summary for Pond DMH2:

Inflow Area = 1.267 ac, 60.56% Impervious, Inflow Depth > 1.52" for 1-Year event
Inflow = 0.58 cfs @ 12.37 hrs, Volume= 0.160 af
Outflow = 0.58 cfs @ 12.37 hrs, Volume= 0.160 af, Atten= 0%, Lag= 0.0 min
Primary = 0.58 cfs @ 12.37 hrs, Volume= 0.160 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 72.55' @ 12.37 hrs
Flood Elev= 78.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	72.25'	**8.0" Round (2) 8" ADS N-12 X 2.00** L= 195.0' Ke= 0.500 Outlet Invert= 70.00' S= 0.0115 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.58 cfs @ 12.37 hrs HW=72.55' (Free Discharge)
1=(2) 8" ADS N-12 (Inlet Controls 0.58 cfs @ 1.88 fps)

Summary for Pond SF1: Sand Filter

Inflow Area = 1.267 ac, 60.56% Impervious, Inflow Depth > 1.32" for 1-Year event
Inflow = 1.49 cfs @ 12.20 hrs, Volume= 0.139 af
Outflow = 0.45 cfs @ 12.66 hrs, Volume= 0.139 af, Atten= 70%, Lag= 27.2 min
Primary = 0.42 cfs @ 12.66 hrs, Volume= 0.138 af
Secondary = 0.04 cfs @ 12.66 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 76.52' @ 12.66 hrs Surf.Area= 2,177 sf Storage= 1,835 cf
Flood Elev= 78.50' Surf.Area= 3,135 sf Storage= 3,923 cf

Plug-Flow detention time= 48.2 min calculated for 0.139 af (100% of inflow)
Center-of-Mass det. time= 45.5 min (876.5 - 831.0)

Volume	Invert	Avail.Storage	Storage Description
#1	76.00'	2,487 cf	**SF Basin (Prismatic)** Listed below (Recalc)
#2	72.50'	1,436 cf	**Sand Media (Prismatic)** Listed below (Recalc)
			4,351 cf Overall x 33.0% Voids
		3,923 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
76.00	596	0	0
77.00	1,243	920	920
78.00	1,892	1,568	2,487

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
72.50	1,243	0	0
76.00	1,243	4,351	4,351

Device	Routing	Invert	Outlet Devices
#1	Device 2	72.50'	**8.270 in/hr Filtration through Sand to Drain over Surface area**
#2	Primary	72.50'	**4.0" Vert. 4" Underdrains X 2.00** C= 0.600
#3	Secondary	76.50'	**12.0" Horiz. 10" top orifice** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.42 cfs @ 12.66 hrs HW=76.52' (Free Discharge)
↑—**2=4" Underdrains** (Passes 0.42 cfs of 1.65 cfs potential flow)
↑—**1=Filtration through Sand to Drain** (Exfiltration Controls 0.42 cfs)

Secondary OutFlow Max=0.03 cfs @ 12.66 hrs HW=76.52' (Free Discharge)
↑—**3=10" top orifice** (Weir Controls 0.03 cfs @ 0.48 fps)

Summary for Link 202: To Brook St.

Inflow Area = 2.409 ac, 42.45% Impervious, Inflow Depth > 1.35" for 1-Year event
Inflow = 1.85 cfs @ 12.16 hrs, Volume= 0.271 af
Primary = 1.85 cfs @ 12.16 hrs, Volume= 0.271 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 201: To Broadway

Runoff = 0.44 cfs @ 12.07 hrs, Volume= 0.030 af, Depth> 2.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.90"

	Area (sf)	CN	Description
*	1,504	98	Pavement
	4,120	74	>75% Grass cover, Good, HSG C
	5,624	80	Weighted Average
	4,120		73.26% Pervious Area
	1,504		26.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Minimum**

Summary for Subcatchment 202A: Parking Lot

Runoff = 3.27 cfs @ 12.20 hrs, Volume= 0.309 af, Depth> 3.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.90"

	Area (sf)	CN	Description
*	3,169	98	Offsite Building
*	18,814	98	Pavement
*	1,650	98	Concrete
	21,774	74	>75% Grass cover, Good, HSG C
*	1,243	98	Lined Filter
	46,650	87	Weighted Average
	21,774		46.68% Pervious Area
	24,876		53.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	100	0.0080	0.12		**Sheet Flow, Lawns**
					Grass: Short n= 0.150 P2= 3.30"
1.0	138	0.0217	2.37		**Shallow Concentrated Flow, Lawns**
					Unpaved Kv= 16.1 fps
14.9	238	Total			

Summary for Subcatchment 202B: Building

Runoff = 0.98 cfs @ 12.07 hrs, Volume= 0.076 af, Depth> 4.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.90"

	Area (sf)	CN	Description
*	8,555	98	Buildings
	8,555		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Minimum**

Summary for Subcatchment 202C:

Runoff = 3.30 cfs @ 12.15 hrs, Volume= 0.275 af, Depth> 2.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.90"

	Area (sf)	CN	Description
*	3,404	98	Offsite Buildings
*	6,252	85	Gravel & Crushed Stone
*	7,480	98	Buildings
	32,379	74	>75% Grass cover, Good, HSG C
*	236	98	Pavement
	49,751	81	Weighted Average
	38,631		77.65% Pervious Area
	11,120		22.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	100	0.0225	0.18		**Sheet Flow, Lawns**
					Grass: Short n= 0.150 P2= 3.30"
1.7	300	0.0350	3.01		**Shallow Concentrated Flow, Lawns & Drive**
					Unpaved Kv= 16.1 fps
10.9	400	Total			

Summary for Pond D1: Infiltration

Inflow Area = 0.196 ac,100.00% Impervious, Inflow Depth > 4.66" for 10-Year event
Inflow = 0.98 cfs @ 12.07 hrs, Volume= 0.076 af
Outflow = 0.72 cfs @ 12.14 hrs, Volume= 0.064 af, Atten= 26%, Lag= 3.9 min
Discarded = 0.01 cfs @ 3.54 hrs, Volume= 0.010 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Secondary = 0.72 cfs @ 12.14 hrs, Volume= 0.055 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 76.83' @ 12.14 hrs Surf.Area= 856 sf Storage= 883 cf

Plug-Flow detention time= 122.3 min calculated for 0.064 af (84% of inflow)
Center-of-Mass det. time= 55.4 min (802.3 - 747.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	75.00'	531 cf	**21.67'W x 39.50'L x 2.04'H Field A**
			1,747 cf Overall - 419 cf Embedded = 1,328 cf x 40.0% Voids
#2A	75.50'	419 cf	**Cultec C-100** x 30 Inside #1
			Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf
			Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap
#3	75.00'	16 cf	**2.00'D x 5.00'H Riser** -Impervious
		966 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	75.00'	**0.270 in/hr Exfiltration over Surface area**
#2	Primary	79.50'	**4.0" W x 3.0" H Vert. Overflows at building X 6.00** C= 0.600
#3	Secondary	76.00'	**6.0" Round 6" Overflow to drop structure** L= 5.0' Ke= 0.500
			Outlet Invert= 75.90' S= 0.0200 '/' Cc= 0.900 n= 0.012

Discarded OutFlow Max=0.01 cfs @ 3.54 hrs HW=75.05' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=75.00' (Free Discharge)
2=Overflows at building (Controls 0.00 cfs)

Secondary OutFlow Max=0.72 cfs @ 12.14 hrs HW=76.83' (Free Discharge)
3=6" Overflow to drop structure (Inlet Controls 0.72 cfs @ 3.66 fps)

Summary for Pond DMH1:

Inflow = 0.72 cfs @ 12.14 hrs, Volume= 0.055 af
Outflow = 0.72 cfs @ 12.14 hrs, Volume= 0.055 af, Atten= 0%, Lag= 0.0 min
Primary = 0.72 cfs @ 12.14 hrs, Volume= 0.055 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 73.83' @ 12.14 hrs
Flood Elev= 78.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.00'	**6.0" Round 6" PVC** L= 40.0' Ke= 0.500 Outlet Invert= 72.50' S= 0.0125 '/' Cc= 0.900 n= 0.010

Primary OutFlow Max=0.72 cfs @ 12.14 hrs HW=73.83' (Free Discharge)
1=6" PVC (Inlet Controls 0.72 cfs @ 3.66 fps)

Summary for Pond DMH2:

Inflow Area = 1.267 ac, 60.56% Impervious, Inflow Depth > 3.44" for 10-Year event
Inflow = 3.51 cfs @ 12.25 hrs, Volume= 0.363 af
Outflow = 3.51 cfs @ 12.25 hrs, Volume= 0.363 af, Atten= 0%, Lag= 0.0 min
Primary = 3.51 cfs @ 12.25 hrs, Volume= 0.363 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 74.76' @ 12.25 hrs
Flood Elev= 78.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	72.25'	**8.0" Round (2) 8" ADS N-12 X 2.00** L= 195.0' Ke= 0.500 Outlet Invert= 70.00' S= 0.0115 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=3.51 cfs @ 12.25 hrs HW=74.76' (Free Discharge)
1=(2) 8" ADS N-12 (Barrel Controls 3.51 cfs @ 5.02 fps)

Summary for Pond SF1: Sand Filter

Inflow Area = 1.267 ac, 60.56% Impervious, Inflow Depth > 2.93" for 10-Year event
Inflow = 3.27 cfs @ 12.20 hrs, Volume= 0.309 af
Outflow = 2.93 cfs @ 12.27 hrs, Volume= 0.308 af, Atten= 10%, Lag= 4.3 min
Primary = 0.47 cfs @ 12.27 hrs, Volume= 0.228 af
Secondary = 2.47 cfs @ 12.27 hrs, Volume= 0.080 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 76.93' @ 12.27 hrs Surf.Area= 2,438 sf Storage= 2,265 cf
Flood Elev= 78.50' Surf.Area= 3,135 sf Storage= 3,923 cf

Plug-Flow detention time= 38.0 min calculated for 0.308 af (100% of inflow)
Center-of-Mass det. time= 36.2 min (844.8 - 808.6)

Volume	Invert	Avail.Storage	Storage Description
#1	76.00'	2,487 cf	**SF Basin (Prismatic)** Listed below (Recalc)
#2	72.50'	1,436 cf	**Sand Media (Prismatic)** Listed below (Recalc)
			4,351 cf Overall x 33.0% Voids
		3,923 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
76.00	596	0	0
77.00	1,243	920	920
78.00	1,892	1,568	2,487

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
72.50	1,243	0	0
76.00	1,243	4,351	4,351

Device	Routing	Invert	Outlet Devices
#1	Device 2	72.50'	**8.270 in/hr Filtration through Sand to Drain over Surface area**
#2	Primary	72.50'	**4.0" Vert. 4" Underdrains X 2.00** C= 0.600
#3	Secondary	76.50'	**12.0" Horiz. 10" top orifice** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.47 cfs @ 12.27 hrs HW=76.93' (Free Discharge)
↑—**2=4" Underdrains** (Passes 0.47 cfs of 1.73 cfs potential flow)
↑—**1=Filtration through Sand to Drain** (Exfiltration Controls 0.47 cfs)

Secondary OutFlow Max=2.47 cfs @ 12.27 hrs HW=76.93' (Free Discharge)
↑—**3=10" top orifice** (Orifice Controls 2.47 cfs @ 3.14 fps)

Summary for Link 202: To Brook St.

Inflow Area = 2.409 ac, 42.45% Impervious, Inflow Depth > 3.18" for 10-Year event
Inflow = 6.38 cfs @ 12.21 hrs, Volume= 0.638 af
Primary = 6.38 cfs @ 12.21 hrs, Volume= 0.638 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 201: To Broadway

Runoff = 0.95 cfs @ 12.07 hrs, Volume= 0.067 af, Depth> 6.18"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.60"

	Area (sf)	CN	Description
*	1,504	98	Pavement
	4,120	74	>75% Grass cover, Good, HSG C
	5,624	80	Weighted Average
	4,120		73.26% Pervious Area
	1,504		26.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Minimum**

Summary for Subcatchment 202A: Parking Lot

Runoff = 6.41 cfs @ 12.20 hrs, Volume= 0.626 af, Depth> 7.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.60"

	Area (sf)	CN	Description
*	3,169	98	Offsite Building
*	18,814	98	Pavement
*	1,650	98	Concrete
	21,774	74	>75% Grass cover, Good, HSG C
*	1,243	98	Lined Filter
	46,650	87	Weighted Average
	21,774		46.68% Pervious Area
	24,876		53.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	100	0.0080	0.12		**Sheet Flow, Lawns**
					Grass: Short n= 0.150 P2= 3.30"
1.0	138	0.0217	2.37		**Shallow Concentrated Flow, Lawns**
					Unpaved Kv= 16.1 fps
14.9	238	Total			

Summary for Subcatchment 202B: Building

Runoff = 1.72 cfs @ 12.07 hrs, Volume= 0.137 af, Depth> 8.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.60"

	Area (sf)	CN	Description
*	8,555	98	Buildings
	8,555		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Minimum**

Summary for Subcatchment 202C:

Runoff = 7.04 cfs @ 12.15 hrs, Volume= 0.600 af, Depth> 6.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=8.60"

	Area (sf)	CN	Description
*	3,404	98	Offsite Buildings
*	6,252	85	Gravel & Crushed Stone
*	7,480	98	Buildings
	32,379	74	>75% Grass cover, Good, HSG C
*	236	98	Pavement
	49,751	81	Weighted Average
	38,631		77.65% Pervious Area
	11,120		22.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	100	0.0225	0.18		**Sheet Flow, Lawns** Grass: Short n= 0.150 P2= 3.30"
1.7	300	0.0350	3.01		**Shallow Concentrated Flow, Lawns & Drive** Unpaved Kv= 16.1 fps
10.9	400	Total			

Summary for Pond D1: Infiltration

Inflow Area = 0.196 ac,100.00% Impervious, Inflow Depth > 8.35" for 100-Year event
Inflow = 1.72 cfs @ 12.07 hrs, Volume= 0.137 af
Outflow = 1.78 cfs @ 12.05 hrs, Volume= 0.124 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.01 cfs @ 1.84 hrs, Volume= 0.010 af
Primary = 0.06 cfs @ 12.05 hrs, Volume= 0.000 af
Secondary = 1.71 cfs @ 12.05 hrs, Volume= 0.114 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 79.54' @ 12.05 hrs Surf.Area= 856 sf Storage= 964 cf

Plug-Flow detention time= 92.6 min calculated for 0.124 af (91% of inflow)
Center-of-Mass det. time= 45.7 min (784.7 - 739.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	75.00'	531 cf	**21.67'W x 39.50'L x 2.04'H Field A** 1,747 cf Overall - 419 cf Embedded = 1,328 cf x 40.0% Voids
#2A	75.50'	419 cf	**Cultec C-100** x 30 Inside #1 Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap
#3	75.00'	16 cf	**2.00'D x 5.00'H Riser** -Impervious
		966 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	75.00'	**0.270 in/hr Exfiltration over Surface area**
#2	Primary	79.50'	**4.0" W x 3.0" H Vert. Overflows at building X 6.00** C= 0.600
#3	Secondary	76.00'	**6.0" Round 6" Overflow to drop structure** L= 5.0' Ke= 0.500 Outlet Invert= 75.90' S= 0.0200 '/' Cc= 0.900 n= 0.012

Discarded OutFlow Max=0.01 cfs @ 1.84 hrs HW=75.05' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.05 cfs @ 12.05 hrs HW=79.54' (Free Discharge)
2=Overflows at building (Orifice Controls 0.05 cfs @ 0.64 fps)

Secondary OutFlow Max=1.71 cfs @ 12.05 hrs HW=79.54' (Free Discharge)
3=6" Overflow to drop structure (Inlet Controls 1.71 cfs @ 8.73 fps)

Summary for Pond DMH1:

Inflow = 1.71 cfs @ 12.05 hrs, Volume= 0.114 af
Outflow = 1.71 cfs @ 12.05 hrs, Volume= 0.114 af, Atten= 0%, Lag= 0.0 min
Primary = 1.71 cfs @ 12.05 hrs, Volume= 0.114 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 76.99' @ 12.05 hrs
Flood Elev= 78.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.00'	**6.0" Round 6" PVC** L= 40.0' Ke= 0.500 Outlet Invert= 72.50' S= 0.0125 '/' Cc= 0.900 n= 0.010

Primary OutFlow Max=1.71 cfs @ 12.05 hrs HW=76.99' (Free Discharge)
1=6" PVC (Barrel Controls 1.71 cfs @ 8.73 fps)

Summary for Pond DMH2:

Inflow Area = 1.267 ac, 60.56% Impervious, Inflow Depth > 7.00" for 100-Year event
Inflow = 5.72 cfs @ 12.30 hrs, Volume= 0.739 af
Outflow = 5.72 cfs @ 12.30 hrs, Volume= 0.739 af, Atten= 0%, Lag= 0.0 min
Primary = 5.72 cfs @ 12.30 hrs, Volume= 0.739 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 81.58' @ 12.30 hrs
Flood Elev= 78.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	72.25'	**8.0" Round (2) 8" ADS N-12 X 2.00** L= 195.0' Ke= 0.500 Outlet Invert= 70.00' S= 0.0115 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=5.72 cfs @ 12.30 hrs HW=81.58' (Free Discharge)
1=(2) 8" ADS N-12 (Barrel Controls 5.72 cfs @ 8.20 fps)

Summary for Pond SF1: Sand Filter

Inflow Area = 1.267 ac, 60.56% Impervious, Inflow Depth > 5.93" for 100-Year event
Inflow = 6.41 cfs @ 12.20 hrs, Volume= 0.626 af
Outflow = 4.96 cfs @ 12.32 hrs, Volume= 0.625 af, Atten= 23%, Lag= 7.3 min
Primary = 0.58 cfs @ 12.32 hrs, Volume= 0.356 af
Secondary = 4.38 cfs @ 12.32 hrs, Volume= 0.269 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 77.84' @ 12.32 hrs Surf.Area= 3,030 sf Storage= 3,626 cf
Flood Elev= 78.50' Surf.Area= 3,135 sf Storage= 3,923 cf

Plug-Flow detention time= 32.6 min calculated for 0.625 af (100% of inflow)
Center-of-Mass det. time= 31.3 min (820.7 - 789.4)

Volume	Invert	Avail.Storage	Storage Description
#1	76.00'	2,487 cf	**SF Basin (Prismatic)** Listed below (Recalc)
#2	72.50'	1,436 cf	**Sand Media (Prismatic)** Listed below (Recalc)
			4,351 cf Overall x 33.0% Voids
		3,923 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
76.00	596	0	0
77.00	1,243	920	920
78.00	1,892	1,568	2,487

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
72.50	1,243	0	0
76.00	1,243	4,351	4,351

Device	Routing	Invert	Outlet Devices
#1	Device 2	72.50'	**8.270 in/hr Filtration through Sand to Drain over Surface area**
#2	Primary	72.50'	**4.0" Vert. 4" Underdrains X 2.00** C= 0.600
#3	Secondary	76.50'	**12.0" Horiz. 10" top orifice** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.58 cfs @ 12.32 hrs HW=77.84' (Free Discharge)
↑—**2=4" Underdrains** (Passes 0.58 cfs of 1.91 cfs potential flow)
↑—**1=Filtration through Sand to Drain** (Exfiltration Controls 0.58 cfs)

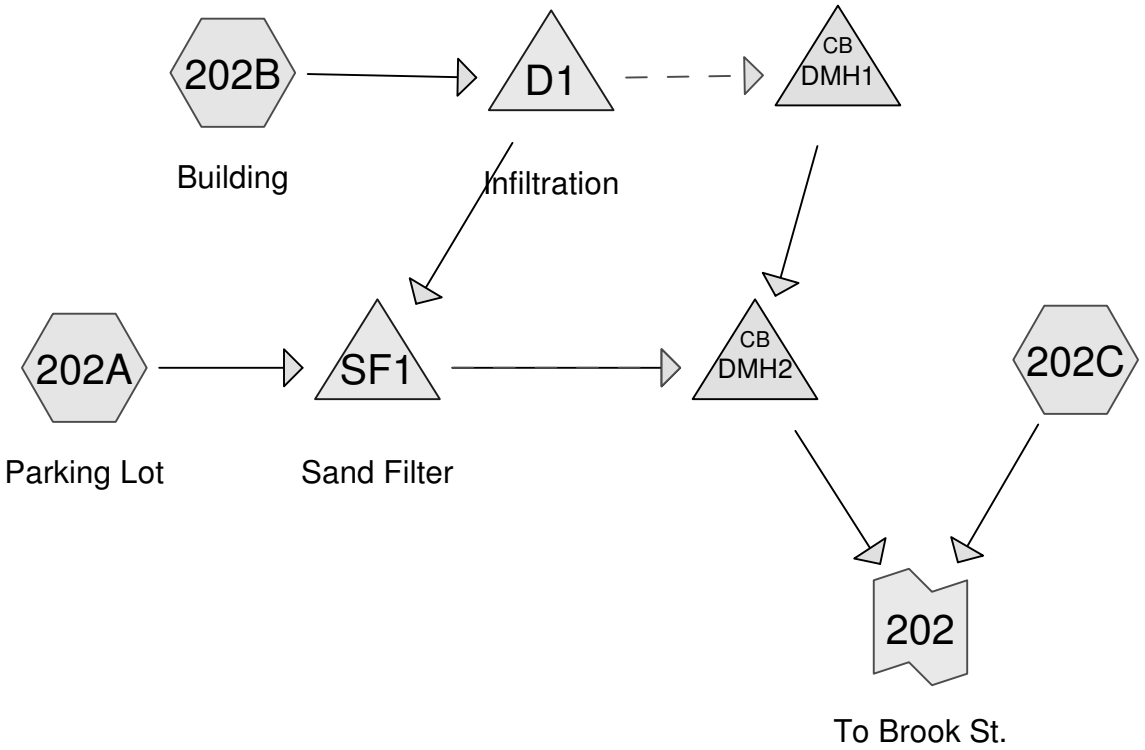
Secondary OutFlow Max=4.38 cfs @ 12.32 hrs HW=77.84' (Free Discharge)
↑—**3=10" top orifice** (Orifice Controls 4.38 cfs @ 5.57 fps)

Summary for Link 202: To Brook St.

Inflow Area = 2.409 ac, 42.45% Impervious, Inflow Depth > 6.67" for 100-Year event
Inflow = 12.19 cfs @ 12.15 hrs, Volume= 1.339 af
Primary = 12.19 cfs @ 12.15 hrs, Volume= 1.339 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

APPENDIX E PROPOSED WQ STORM (SPLIT PERVIOUS IMPERVIOUS METHOD)



Subcat Reach Pond Link

Drainage Diagram for 2020-07-06 17062.2 Max Lot Coverage
Prepared by Northeast Engineers & Consultants, Inc., Printed 7/15/2020

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.243	74	>75% Grass cover, Good, HSG C (202A, 202C)
0.144	85	Gravel & Crushed Stone (202C)
0.368	98	Buildings (202B, 202C)
0.038	98	Concrete (202A)
0.029	98	Lined Filter (202A)
0.073	98	Offsite Building (202A)
0.078	98	Offsite Buildings (202C)
0.437	98	Pavement (202A, 202C)
2.409		**TOTAL AREA**

Summary for Subcatchment 202A: Parking Lot

Runoff = 0.48 cfs @ 12.20 hrs, Volume= 0.049 af, Depth> 0.55"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Rainfall=1.20"

	Area (sf)	CN	Description
*	3,169	98	Offsite Building
*	18,814	98	Pavement
*	1,650	98	Concrete
	21,774	74	>75% Grass cover, Good, HSG C
*	1,243	98	Lined Filter
	46,650	87	Weighted Average
	21,774	74	46.68% Pervious Area
	24,876	98	53.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.9	100	0.0080	0.12		**Sheet Flow, Lawns** Grass: Short n= 0.150 P2= 3.30"
1.0	138	0.0217	2.37		**Shallow Concentrated Flow, Lawns** Unpaved Kv= 16.1 fps
14.9	238	Total			

Summary for Subcatchment 202B: Building

Runoff = 0.22 cfs @ 12.07 hrs, Volume= 0.016 af, Depth> 0.98"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Rainfall=1.20"

	Area (sf)	CN	Description
*	8,555	98	Buildings
	8,555	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Minimum**

Summary for Subcatchment 202C:

Runoff = 0.24 cfs @ 12.15 hrs, Volume= 0.027 af, Depth> 0.29"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr WQ Rainfall=1.20"

	Area (sf)	CN	Description
*	3,404	98	Offsite Buildings
*	6,252	85	Gravel & Crushed Stone
*	7,480	98	Buildings
	32,379	74	>75% Grass cover, Good, HSG C
*	236	98	Pavement
	49,751	81	Weighted Average
	38,631	76	77.65% Pervious Area
	11,120	98	22.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	100	0.0225	0.18		**Sheet Flow, Lawns**
					Grass: Short n= 0.150 P2= 3.30"
1.7	300	0.0350	3.01		**Shallow Concentrated Flow, Lawns & Drive**
					Unpaved Kv= 16.1 fps
10.9	400	Total			

Summary for Pond D1: Infiltration

Inflow Area = 0.196 ac,100.00% Impervious, Inflow Depth > 0.98" for WQ event
Inflow = 0.22 cfs @ 12.07 hrs, Volume= 0.016 af
Outflow = 0.01 cfs @ 9.74 hrs, Volume= 0.007 af, Atten= 98%, Lag= 0.0 min
Discarded = 0.01 cfs @ 9.74 hrs, Volume= 0.007 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 75.91' @ 16.65 hrs Surf.Area= 856 sf Storage= 450 cf

Plug-Flow detention time= 293.4 min calculated for 0.007 af (44% of inflow)
Center-of-Mass det. time= 170.8 min (951.4 - 780.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	75.00'	531 cf	**21.67'W x 39.50'L x 2.04'H Field A**
			1,747 cf Overall - 419 cf Embedded = 1,328 cf x 40.0% Voids
#2A	75.50'	419 cf	**Cultec C-100** x 30 Inside #1
			Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf
			Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap
#3	75.00'	16 cf	**2.00'D x 5.00'H Riser** -Impervious
		966 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	75.00'	**0.270 in/hr Exfiltration over Surface area**
#2	Primary	79.50'	**4.0" W x 3.0" H Vert. Overflows at building X 6.00** C= 0.600
#3	Secondary	76.00'	**6.0" Round 6" Overflow to drop structure** L= 5.0' Ke= 0.500
			Outlet Invert= 75.90' S= 0.0200 '/' Cc= 0.900 n= 0.012

Discarded OutFlow Max=0.01 cfs @ 9.74 hrs HW=75.05' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=75.00' (Free Discharge)
↑**2=Overflows at building** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=75.00' (Free Discharge)
↑**3=6" Overflow to drop structure** (Controls 0.00 cfs)

Summary for Pond DMH1:

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 73.00' @ 0.00 hrs
Flood Elev= 78.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.00'	**6.0" Round 6" PVC** L= 40.0' Ke= 0.500

Outlet Invert= 72.50' S= 0.0125 '/' Cc= 0.900 n= 0.010

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=73.00' (Free Discharge)
1=6" PVC (Controls 0.00 cfs)

Summary for Pond DMH2:

Inflow Area = 1.267 ac, 60.56% Impervious, Inflow Depth > 0.46" for WQ event
Inflow = 0.24 cfs @ 12.12 hrs, Volume= 0.049 af
Outflow = 0.24 cfs @ 12.12 hrs, Volume= 0.049 af, Atten= 0%, Lag= 0.0 min
Primary = 0.24 cfs @ 12.12 hrs, Volume= 0.049 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 72.44' @ 12.12 hrs
Flood Elev= 78.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	72.25'	**8.0" Round (2) 8" ADS N-12 X 2.00** L= 195.0' Ke= 0.500 Outlet Invert= 70.00' S= 0.0115 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.24 cfs @ 12.12 hrs HW=72.44' (Free Discharge)
1=(2) 8" ADS N-12 (Inlet Controls 0.24 cfs @ 1.48 fps)

Summary for Pond SF1: Sand Filter

Inflow Area = 1.267 ac, 60.56% Impervious, Inflow Depth > 0.47" for WQ event
Inflow = 0.48 cfs @ 12.20 hrs, Volume= 0.049 af
Outflow = 0.24 cfs @ 12.12 hrs, Volume= 0.049 af, Atten= 50%, Lag= 0.0 min
Primary = 0.24 cfs @ 12.12 hrs, Volume= 0.049 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 73.25' @ 12.49 hrs Surf.Area= 1,243 sf Storage= 308 cf
Flood Elev= 78.50' Surf.Area= 3,135 sf Storage= 3,923 cf

Plug-Flow detention time= 16.5 min calculated for 0.049 af (100% of inflow)
Center-of-Mass det. time= 13.5 min (812.8 - 799.3)

Volume	Invert	Avail.Storage	Storage Description
#1	76.00'	2,487 cf	**SF Basin (Prismatic)** Listed below (Recalc)
#2	72.50'	1,436 cf	**Sand Media (Prismatic)** Listed below (Recalc) 4,351 cf Overall x 33.0% Voids
		3,923 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
76.00	596	0	0
77.00	1,243	920	920
78.00	1,892	1,568	2,487

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
72.50	1,243	0	0
76.00	1,243	4,351	4,351

Device	Routing	Invert	Outlet Devices
#1	Device 2	72.50'	**8.270 in/hr Filtration through Sand to Drain over Surface area**
#2	Primary	72.50'	**4.0" Vert. 4" Underdrains X 2.00** C= 0.600
#3	Secondary	76.50'	**12.0" Horiz. 10" top orifice** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.24 cfs @ 12.12 hrs HW=72.80' (Free Discharge)
└─**2=4" Underdrains** (Passes 0.24 cfs of 0.31 cfs potential flow)
└─**1=Filtration through Sand to Drain** (Exfiltration Controls 0.24 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=72.50' (Free Discharge)
└─**3=10" top orifice** (Controls 0.00 cfs)

Summary for Link 202: To Brook St.

Inflow Area = 2.409 ac, 42.45% Impervious, Inflow Depth > 0.38" for WQ event
Inflow = 0.48 cfs @ 12.15 hrs, Volume= 0.076 af
Primary = 0.48 cfs @ 12.15 hrs, Volume= 0.076 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

APPENDIX F SUPPLEMENTARY CALCULATIONS

Northeast Engineers & Consultants, Inc.
A Knowledge Corporation®
6 Valley Road, Middletown, RI 02842
www.northeastengineers.com

SF-1: Lined Surface Sand Filter

Project: 17062.0 Proposed Dance School and Residential Subdivision

Water Quality Volume Calculation (RIDEM Minimum Standard 3):

Pavement =	4,382	*(Area remaining after applying new pervious credit)*			
Buildings =	0		**Min. WQ_R:**	0	cf
Impervious Area:	4,382	sf	**WQ_R:**	365	cf
Total Disturbed Area:	0	sf	**$WQ_{R75\%}$:**	274	cf

A =	Surface area of filter bed (ft^2)	1,190	ft^2
d_f =	Filter bed depth (ft)	2	ft
V_R=	media void ratio	33%	

Storage Volume in Media:

1,190	X	2	X	33%	=	**785 cf**

Total System Volume Calculation:

Per the RISDISM, the storage volume of the system must accommodate 75% of the WQ volume (including pretreatment). The total provided area is this area, plus the storage in the mulch layer plus the area under the outlet.

V_M =	storage volume in media	785	cf
A =	Surface area of filter bed (ft^2)	1,190	ft^2
d_M =	depth of mulch	0.33	ft
h_o =	storage height below outlet	0.50	ft
V_{FB} =	Volume of pretreatment	0	cf

Total Storage provided by this BMP:

WQ_V = $V_M + (A \times d_M \times V_R) + (A \times h_o) + V_{FB}$ = **1,510** cf

Minimum Area Calculation:

Drain time in an lined filter is limited by the underdrain capacity:

t_f = Determined by HydroCAD Analysis for (2) 4" pipes

t_f = 0.13 days

The minimum area of the filter, according to RISDISM, is calculated using the following equation:

A_R = $(WQ_V) \times (d_f) / [(k) \times (h_f + d_f) \times (t_f)]$

Where,

WQ_V =	Total Required Water Quality Volume	365	cf
d_f =	Filter bed depth (ft)	2	ft
k =	Coefficient of permeability of filter media (ft/day)	3.5	ft/day
h_f =	Average height of water above surface of media	0.415	ft
t_f =	Design filter bed drain time (days)	0.13	

Therefore, the minimum surface areas is:

A_R =	**691 sf**	
A =	**1,190 sf**	Area is greater and therefore satisfactory.

Northeast Engineers
& Consultants, Inc.

Groundwater Recharge Calculations

Project: 17062.0 Proposed Dance School and Residential Subdivision

Impervious Area*: 4,382 sf

Water Recharge Volume Calculations:

HSG	Recharge Factor (F)
A	0.60
B	0.35
C	0.25
D	0.10

Impervious Area: 4,382 sf **F =** 0.25

$WRec_V$ = (Impervious Area) / 12 X F

$WRec_V$ = **91** cf

Volume of Infiltration for a WQ storm:** **305** **cf**

* Remaining Area not addressed by redevelopment standards

** As shown in the HydroCAD analysis for the WQ storm

Date: January 2020
Project: 17062.2 Proposed Dance School and Residential Subdivision

Determination of Groundwater Volume Contributions from Residences

Each of the proposed residences may be provided with a sump pump with a surface discharge. The potential groundwater volume intercepted from these pumps during a 24-hour storm event has been calculated based on a 24-inch water table. This value was estimated at the rear of the site based on the soil evaluations performed. In actuality, the intercepted volume will likely be less, particularly during the dry seasons. The groundwater flow collected and discharged to the surface has been calculated based on the following formula.

Q = K i A where;

K = saturated hydraulic conductivity of the soil; taken as 15 µm/sec for these calculations. This corresponds to a K_{SAT} of sandy loams provided by the USDA NRCS selected based on the soil category revealed in the soil evaluations. 15 µm/sec = 4.92 $x10^{-5}$ ft/sec
i = hydraulic gradient; taken as the maximum ground surface gradient in the area
A = cross sectional area of the groundwater intercepted; taken perpendicular to the hydraulic gradient. Residences were assumed to have a full 10 ft deep basement for the determination of each cross section.

The resulting flow was multiplied over the duration of the 24-hour storm event to produce the total volume.

Determination of Hydraulic Gradient (i):

Average minimum distance between existing 1-foot contours observed under a proposed residence footprint = **25 feet**

Approximate surface gradient change (i): 1 foot / 25 feet = **0.04 ft/ft**

Determination of cross sectional area (A):

Average face of any proposed residence perpendicular to hydraulic gradient: **55 feet**

Assumed depth of residence basement below the water table: **6 feet**

Cross Section (A) = 55 feet X 6 feet = **330 square feet**

The estimated groundwater flow intercepted by a residence sump pump was estimated by **Q = K i A** as being **0.00065 cfs** (4.92 $x10^{-5}$ ft/sec X 0.04 ft/ft X 330 sf) per residence. This equates to approximately **57 cubic feet** during a 24-hour storm event **(0.001 af)**. The actual flow will be less for residences downstream of other residences, due to the interruption in groundwater flow.

6 Valley Road ● Middletown, RI 02842 ● p. 401.849.0810 ● f. 401.846.4169 ● northeastengineers.com
Civil ● Site ● Land Development ● Waterfront ● Coastal Engineering ● Environmental ● Geotechnical ● Structural ● Transportation ● Surveying

APPENDIX G SOIL EVALUATIONS

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
Department of Environmental Management
Office of Water Resources
Onsite Wastewater Treatment Systems Program

Site Evaluation Form
Part A – Soil Profile Description Application Number DRAINAGE THs

Property Owner: ISLAND MOVING COMPANY (EDWARD MCPHERSON)
Property Location: 435 BROADWAY, NEWPORT (A.P. 6, LOT 11)
Date of Test Hole: AUGUST 16, 2019
Soil Evaluator: DANIEL WELCH License Number: D4094
Weather: CLOUDY, 65°F Shaded: Yes ☒ No ☐ Time: 7:30AM

TH 1 Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox	Texture	Structure	Consistence	Soil Category
		Dist	Topo	Matrix	Re-Dox Features	Ab. S. Contr.				
HTM	38-Ø"	g	w	—	—	—	—	—	—	—
Bw	Ø-6"	c	w	5Y 4/2	10YR 4/6	c, m, p	fsl	1msbk	fr	4
cd	6-58"	—	—	5Y 5/3	10YR 4/6	m, c, p	fsl	Ø-m	vfi	9

TH 2 Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox	Texture	Structure	Consistence	Soil Category
		Dist	Topo	Matrix	Re-Dox Features	Ab. S. Contr.				
HTM	26-Ø"	c	w	—	@15"	—	—	—	—	—
Cd	Ø-70"	—	—	5Y 4/4	10YR 5/4	m, m, d	fsl	Ø-m	vfj	9

TH 1 Soil Class A Total Depth 96" Impervious/Limiting Layer Depth N/A (og) GW Seepage Depth N/A SHWT Ø" (og)
TH 2 Soil Class A Total Depth 96" Impervious/Limiting Layer Depth N/A (og) GW Seepage Depth N/A SHWT Ø" (og)
Comments: WATER TABLE WITHIN FILL LAYER OF TH # 2. WT @ 15" BELOW GRADE.

Part B

Site Evaluation – to be completed by Soil Evaluator or Class II or III Designer

Please use the area below to locate:

1. Test holes and bedrock test holes,
2. Approximate direction of due north,
3. Offsets from all test holes to fixed points such as street, utility pole, or other permanent, marked object.*

***OFFSETS MUST BE SHOWN**

Key:
- Approximate location of test holes
- Approximate location of bedrock test holes
- x% → Estimated gradient and direction of slope
- N ↑ Approximate direction of due north

SEE EXISTING CONDITIONS PLAN

Bedrock THs	
TH	Depth

1. Relief and Slope: 0-4%
2. Presence of any watercourse, wetlands or surface water bodies, within 200 feet of test holes? If yes, locate on above sketch. NO ☒ YES ☐
3. Restrictive Layer or Bedrock within 4' below original ground within 25 feet of test hole? Provide all test hole locations & depths above. NO ☒ YES ☐
4. Presence of existing or proposed private drinking water wells within 200 feet of test holes? If yes, locate on above sketch. NO ☒ YES ☐
5. Public drinking water wells within 500 feet of test holes? If yes, locate on above sketch. NO ☒ YES ☐
6. Is site within the watershed of a public drinking water reservoir or other critical area defined in Rule 6.42? NO ☒ YES ☐
7. Has soil been excavated from or fill deposited on site? If yes, locate on above sketch. NO ☐ YES ☒
8. Site's potential for flooding or ponding: NONE ☒ SLIGHT ☐ MODERATE ☐ SEVERE ☐
9. Landscape position: SUMMIT
10. Vegetation: GRASS LAWN
11. Indicate approximate location of property lines and roadways.
12. Additional comments, site constraints or additional information regarding site: _____

Certification

The undersigned hereby certifies that all information on this application and accompanying forms, submittals and sketches are true and accurate and that I have been authorized by the owner(s) to conduct these necessary field investigations and submit this request.

Part A prepared by: Daniel Welch (Signature) D4094 (License #) Part B prepared by: Daniel Welch (Signature) D4094 (License #)

DO NOT WRITE IN THIS SPACE

Witnessed Soil Evaluation Decision: Concur ☐ Inconclusive ☐ Disclaim ☐

Unwitnessed Soil Evaluations Decision: Accept ☐ Inconclusive ☐ Disclaim ☐

Wet Season Determination required ☐ **Additional Field Review Required** ☐

Explanation: _____

Signature Authorized Agent _____ Date _____

APPENDIX H RISDISM STORMWATER CHECKLIST (APPENDIX A)

APPENDIX A: STORMWATER MANAGEMENT CHECKLIST AND LID PLANNING REPORT

PROJECT NAME:	**Dance School and Residential Subdivision**	(RIDEM USE ONLY)
CONTACT:	**Jeremy Rosa, PE**	
PHONE NUMBER:	**401-849-0810**	
EMAIL ADDRESS:	**jrosa@northeastengineers.com**	
BRIEF PROJECT DESCRIPTION:	**School and 4 lot res. subdivision**	DATE RECEIVED

STORMWATER MANAGEMENT PLAN ELEMENTS

APPENDIX A: STORMWATER MANAGEMENT CHECKLIST	**STORMWATER ANALYSIS AND DRAINAGE REPORT**	**SOIL EROSION AND SEDIMENT CONTROL PLAN**	**OPERATIONS AND MAINTENANCE PLAN**
PART 1: PROJECT AND SITE INFORMATION **MINIMUM STANDARDS:** 6. REDEVELOPMENT 8. LUHHPL IDENTIFICATION **PART 2.** **MINIMUM STANDARD:** 1. LID SITE PLANNING **PART 3.** SUMMARY OF REMAINING STANDARDS **PART 4.** SUBWATERSHED MAPPING SITE PLAN DETAILS	ADDRESSES MINIMUM STANDARDS: 2. GROUNDWATER RECHARGE 3. WATER QUALITY VOLUME 4. CONVEYANCE & NATURAL CHANNEL PROTECTION 5. OVERBANK AND FLOOD PROTECTION 9. ILLICIT DISCHARGE DETECTION AND ELIM.	ADDRESSES MINIMUM STANDARDS: 7. POLLUTION PREVENTION DURING CONSTRUCTION 10. CONSTRUCTION EROSION AND SEDIMENTATION CONTROL	ADDRESSES MINIMUM STANDARDS: 7. POLLUTION PREVENTION AFTER CONSTRUCTION 11. OPERATIONS AND MAINTENANCE

Note: **All** stormwater construction projects **must submit** a Stormwater Management Plan (SMP). However, not every element listed below (see the Stormwater Management Plan Table) is required per the RISDISM and the RIPDES Construction General Permit (CGP). This checklist will help you identify the elements of the stormwater plan you are required to submit with your permit application.

PART 1. PROJECT AND SITE INFORMATION

PROJECT TYPE (Check all that apply)

☒ RESIDENTIAL	☒ COMMERCIAL	☐ FEDERAL	☐ RETROFIT	☐ RESTORATION
☐ ROAD	☐ UTILITY	☐ FILL	☐ DREDGE	☐ MINE

☐ OTHER: (please explain)

SITE INFORMATION

☒ VICINITY MAP

☒ EXISTING ZONING

DISCHARGE LOCATION: The WQv discharges to: (you may choose more than one answer if there are several discharge points on the project) (Guidance to identify receiving waters)

☐ GROUNDWATER	GROUNDWATER ☐ GAA ☐ GA ☒ GB
☐ SURFACE WATER	☐ ISOLATED WETLAND ☐ NAMED WATERBODY ☐ UNNAMED WATERBODY CONNECTED TO NAMED WATERBDY
☒ MS4	☐ RIDOT ☐ RIDOT ALTERATION PERMIT IS APPROVED ☒ TOWN ☐ OTHER:_____

RECEIVING WATER INFORMATION: (check all that apply and *repeat* this row for each waterbody)

THE WATER QUALITY VOLUME DISCHARGES TO: ☐ N/A (discharges to: CSO, Disconnected wetland or Groundwater) WATERBODY NAME: South Easton Pond WATERBODY ID: RI0007035L-04 IMPAIRMENTS:Total Phosphorous, Total Organic Carbon ☐ TMDL FOR: ☐ CONTRIBUTES TO A PRIORITY OUTFALL LISTED IN THE TMDL	☒ IMPAIRED (303(d) LIST) ☐ SRPW ☐ COLDWATER ☒ WARMWATER ☐ UNASSESSED ☐ 4TH ORDER STREAM ☒ POND OF 50 ACRES OR MORE ☐ KNOWN HISTORY OF REPETITIVE FLOODING (i.e. Pocassett River) ☐ CONTRIBUTES STORMWATER TO A PUBLIC BEACH ☐ CONTRIBUTES TO SHELLFISHING GROUNDS

PROJECT HISTORY:

☐ PRE-APPLICATION MEETING DATE: _____	☐ MINUTES ARE ATTACHED

☐ RIDEM GRANT FUNDING INVOLVED	GRANT SOURCE:_____
☐ TOWN MASTER PLAN APPROVAL DATE:	☐ MINUTES ARE ATTACHED
☐ SUBDIVISION SUITABILITY REQUIRED	APPROVAL #: _____
☐ PREVIOUS ENFORCEMENT ACTION HAS BEEN TAKEN ON THIS PROPERTY	ENFORCEMENT # _____
FRESHWATER WETLANDS JURISDICTION: ☒ **FEMA FLOODPLAIN FIRMETTE HAS BEEN REVIEWED** ☐ CALCULATIONS ARE PROVIDED FOR CUT/FILL PROPOSED ANYWHERE WITHIN THE 100-YR FLOODPLAIN ☐ RESTRICTIONS OR MODIFICATIONS ARE PROPOSED TO THE FLOWPATH OR VELOCITIES IN A FLOODWAY. ☐ FLOODPLAIN STORAGE CAPACITY IS IMPACTED	AMOUNT OF FILL: _____600__(CY) AMOUNT OF CUT: _____172__(CY)
CRMC JURISDICTION ☐ THIS PROJECT REQUIRES A CRMC PERMIT ☐ THE PROPERTY IS SUBJECT TO A SPECIAL AREA MANAGEMENT PLAN ☐ SEA LEVEL RISE MITIGATION WAS DESIGNED INTO THIS PROJECT	
MINUMUM STANDARD 8: LUHHPL IDENTIFICATION	
OFFICE OF WASTE MANAGEMENT (OWM) ☐ THERE ARE KNOWN OR SUSPECTED RELEASES OF HAZARDOUS MATERIAL AT THE SITE ☐ THIS SITE IS ON THE LIST OF CERCLA and STATE SITES in RI	OWM CONTACT: _____ ☐ SITE ID#:_____
STORMWATER INDUSTRIAL PERMITTING ☐ THERE ARE EXISTING OR PROPOSED ACTIVITIES THAT ARE CONSIDERED LAND USES WITH HIGHER POTENTIAL POLLUTANT LOADS (LUHPPLS) (see Table 3-2) ☐ CONSTRUCTION IS PROPOSED ON A SITE THAT IS SUBJECT TO THE MULTI-SECTOR GENERAL PERMIT (MSGP) UNDER RULE 31(B)15 OF THE RIPDES REGULATIONS. ☐ ADDITIONAL STORMWATER TREATMENT IS REQUIRED BY THE MSGP	ACTIVITIES: _____ SECTOR: _____ MSGP PERMIT #: _____ EXPLAIN ADDITIONAL TREATMENT: ____ _____

MINIMUM STANDARD 6. REDEVELOPMENT (*Required calculation for all construction projects)		
☒ PRE-CONSTRUCTION IMPERVIOUS AREA = 1.26 Acres		TOTAL IMPERVIOUS AREA **(TIA)** = 1.26 Acres
☒ CALCULATE THE SITE SIZE SITE SIZE **(SS) = (TSA) – (JW) – (CL)** = **1.82 Acres**		TOTAL SITE AREA **(TSA)** = 1.82 Acres JURISDICTIONAL WETLANDS **(JW):** 0.0 Acres CONSERVATION LAND **(CL)** = 0.0 Acres
(TIA)/(SS) = **0.69**	**(TIA)/(SS)** IS **>** 0.4) ☒ YES (REDEVELOPMENT) (address minimum standards 3 and 7-11)	**(TIA)/(SS)** IS **<** 0.4) ☐ NO (NEW DEVELOPMENT) (all standards must be addressed)

PART 2: MINIMUM STANDARD 1

LOW IMPACT DEVELOPMENT ASSESSMENT

(**NOT REQUIRED FOR REDEVELOPMENT OR RETROFITS**) – You may delete this section if it is not required

State Law requires the use of low impact-design techniques as the primary method of stormwater control to the maximum extent practicable. LID is intended to maintain or replicate predevelopment hydrology through the use of site planning, source control, and small-scale practices integrated throughout the site to prevent, infiltrate, and manage runoff as close to its source as possible. Non-structural LID techniques to Avoid and Reduce the stormwater impacts of development shall be explored as a first priority before LID structural practices are planned to Manage stormwater as part of a comprehensive LID approach.

The applicant must document specific LID Site Planning and Design Strategies applied for the project (see Manual Chapter Four and the *RI Low Impact Development (LID) Site Planning and Design Guidance Manual* for more details regarding each strategy). This checklist is designed to guide the required documentation of the site planning process, and to ensure that the proposed project is consistent with and taking advantage of LID strategies required or allowed in the municipality where the project is proposed. Included within this checklist are specific LID techniques (and practices) taken from the *RI Low Impact Development (LID) Site Planning and Design Guidance Manual* that a municipality may require or allow.

If a particular strategy is not used or not applicable, a written description of why a certain method is not used or applicable at the site must be provided. Appropriate answers may include such statements as:

- Town requires XXX (state the specific local requirement)
- Meets Town's dimensional requirement of XXXXX.
- Not practical for site because XXXXXX.
- Applying for waiver/variance to achieve this (pending; was approved; was denied)
- Applying for wavier/variance to seek relief from this (pending; approved; denied)

A) PRESERVATION OF UNDISTURBED AREAS, BUFFERS AND FLOODPLAINS ☒ Sensitive resource areas and site constraints are identified (required) ☒ Local development regulations have been reviewed (required) ☒ All vegetated buffers and coastal and freshwater wetlands have been designed to be protected during and after construction ☐ Conservation Development or other site design technique to protect open space and pre-development hydrology; [NOTE: If this technique has been used, check box and skip to **c**.] ☒ Maintain as much natural vegetation and pre-development hydrology as possible	**There are no natural areas and minimal vegetation of any kind on site. There are no areas that are protected by the state or would qualify for conservation.**
B) LOCATE DEVELOPMENT IN LESS SENSITIVE AREAS AND WORK WITH THE NATURAL LANDSCAPE CONDITIONS, HYDROLOGY, AND SOILS ☐ Building envelopes/ development sites directed away from wetlands/waterbodies ☐ Development and stormwater systems are located in areas with greatest infiltration capacity (e.g., soil groups A and B. ☐ Plans show measures to prevent soil compaction in areas designated as Qualified Pervious Areas (QPA's) ☐ Building envelopes/ development sites are directed away from floodplains ☐ Site designed to locate buildings, roadways and parking to avoid impacts to surface water features. ☒ Building envelopes/ development sites directed away from steep slopes (≥15%) ☐ Other:	**There are no type A or B soils on site. There are no areas that could qualify as QPAs on the property.** **There are no floodplains on or adjacent to site.** **No significant steep slopes are present on site.**
C) MINIMIZE CLEARING AND GRADING ☐ Site clearing restricted to <u>minimum area needed</u> for building footprints, development activities, construction access and safety. ☐ Site designed to locate buildings, roadways and parking to minimize grading (cut and fill quantities) ☐ Protection for stands of trees and individual trees and their root zones to be preserved is specified and such protection extends at least to the drip line ☐ Notes on plan specify that public trees that are removed or damaged during construction shall be replaced with equivalent.	**Site is previously disturbed.** **Minimization of clearing not applicable.**

D) REDUCE IMPERVIOUS COVER ☐ Reduce roadway widths (≤22 feet for ADT ≤ 400; ≤ 26 feet for ADT 400-2,000) ☐ Reduce driveway areas (length minimized via reduced ROW width (≤ 45 ft.) and/or reduced (or absolute minimum) front yard setback; width minimized to ≤ 9 ft. wide one lane; ≤ 18 ft. wide two lanes; shared driveways; pervious surface) ☐ Reduced building footprint: Explain approach ☐ Reduce sidewalk area (≤ 4 ft. wide; one side of the street; unpaved path; pervious surface) ☐ Reduce cul-de-sacs (radius < 45 ft; vegetated island; alternative turn-around) ☐ Reduced parking lot area: Explain approach ☒ Pervious surfaces (driveways, sidewalks, parking areas/overflow parking area) ☐ Maximum Impervious Surface (project meets or is less than the maximum specified by the Zoning Ordinance ☐ Other (describe):	**As a result of development, the impervious cover on site will be reduced by almost 30%.** **Pervious and semi-pervious materials have been specified for overflow parking areas.**
E) DISCONNECT IMPERVIOUS AREA ☒ Impervious surfaces have been disconnected and runoff has been diverted to QPAs to the maximum extent possible ☐ Residential street edges allow side-of-the-road drainage into vegetated open swales ☐ Parking lot landscaping breaks up impervious expanse AND accepts runoff ☐ Other:	**No areas on site qualify as QPAs.**
F) MITIGATE RUNOFF AT THE POINT OF GENERATION ☐ Small-scale BMPs have been designated to treat runoff as close as possible to the source	**Surface sand filter will directly treat parking lot runoff at the point of generation.**
G) PROVIDE LOW-MAINTENANCE NATIVE VEGETATION ☐ Low-maintenance landscaping is proposed using native species and cultivars ☐ Plantings of native trees and shrubs in areas previously cleared of native vegetation are shown on the site plan ☐ Lawn areas have been limited and/or minimized and yards have been kept undisturbed to the maximum extent on residential lots	**Vegetation proposed per City ordinance.**

H) RESTORE STREAMS/WETLANDS ☐ Historic drainage patterns have been restored by removing closed drainage systems, daylighting buried streams, and/or restoring degraded stream channels and/or wetlands. ☐ Removal of invasive species ☐ Other	**Drainage patterns will not be altered except to minimize impacts to downstream development. No stream channels or wetlands require restoration. No invasive species are present on site.**

PART 3: SUMMARY OF REMAINING STANDARDS

Minimum Standard 2: Groundwater Recharge

☒ YES ☐ NO The project has been designed to meet the groundwater recharge standard.

If No, please explain the justification for groundwater recharge criterion waiver (i.e. threat of groundwater contamination, or physical limitation), if applicable (see Section 3.3.2);

Please describe your waiver request:

☐ YES ☒ NO Is this site listed as a CERCLA or contaminated site?, if yes?

☐ YES ☐ NO Has any part of the site been approved for infiltration by the Office of Waste Management? (see Subsurface Contamination Guidance)

☐ YES ☒ NO Is there an ELUR on the property?

TABLE 2-1: Summary of Recharge (see Manual section 3.3.2)

Subwatershed	Total Re_v Required (Acre-ft)	LID Stormwater Credits (Manual see Section 4.6.1)		Recharge Required by Remaining BMPs (acre-ft)	Recharge Provided by BMPs (acre-ft)
		Impervious volume directed to a QPA (acre-ft)	Recharge Credit Applied (acre-ft)		
All	0.002	0	0	0.002	0.019
Totals		**0**	**0**	**0.002**	**0.019**

**Note: Only BMPs listed in Manual Table 3-5, List of BMPs Acceptable for Recharge may be used to meet the recharge requirement.*

☐ Indicate below where the pertinent calculations and/or information for the above items are provided (i.e. name of report/document, page numbers);

Appendix F Stormwater Runoff Analysis

Minimum Standard 3: Water Quality

☒ YES ☐ NO Does this project meet or exceed the required water quality volume WQv (see section 3.3.3)?

☒ YES ☐ NO Is the proposed final impervious cover is greater than 20% of the disturbed area (see section 3.3.3)?

☐ If yes, the Spit Pervious/Impervious method in Hydro-Cad was used to calculate WQv, or

☒ If yes, TR-55 or TR-20 was used to calculate WQv, and

☐ If no, the project meets the minimum WQv of 0.2 watershed inches over the entire disturbed area.

☒ YES ☐ NO Does this project meet or exceed the ability to treat required water quality flow WQf(see section 3.3.3.2)?

☐ YES ☒ NO Is there an increase of impervious cover to a receiving water body with impairments?

If yes, please indicate below the method that was used to address the water quality requirements of no further degradation to low quality water.

☐ RISDISM section H.3 Pollutant Loading Analysis

☐ The Water Quality Guidance Document (Water Quality Goals and Pollutant Loading Analysis Guidance for Discharges to Impaired Waters)

☒ YES ☐ NO BMPs are proposed that are on the approved technology list if yes, please provide all of the required worksheets from the manufacturer.

☐ YES ☒ NO Additional pollutant-specific requirements and/or pollutant removal efficiencies are applicable to the site as the result of a TMDL, SAMP or other watershed-specific requirements; If yes, please describe:

_____

_____

_____

TABLE 3-1: Summary of Water Quality (see Manual section 3.3.3)

Subwatershed	Total WQ_v Required (Acre-ft)	LID Stormwater Credits (Manual see Section 4.6.1)		Water Quality Treatment Remaining (acre-ft)	Water Quality Provided by BMPs (acre-ft)
		Impervious volume directed to a QPA (acre-ft)	Water Quality Credit Applied (acre-ft)		
202A	0.0083	0.0	0.0	0.0083	0.0176
Totals					

**Note: Only BMPs listed in Chapter 5 of the Manual or the Approved Technologies List of BMPs is Acceptable for Water Quality treatment.*

☒ YES ☐ NO This project has met the setback requirements for each BMP. If no, please explain

_____
_____
_____
_____

☒ Indicate below where the pertinent calculations and/or information for the above items are provided (i.e. name of report/document, page numbers);

Stormwater Runoff Analysis, Supporting Calculations, Appendix F

Minimum Standard 4: Conveyance and Natural Channel Protection (3.3.4)

☒ YES ☐ NO Is this standard waived? If yes, please indicate one or more of the reasons below:

☒ The project directs discharge to a large river (i.e., 4th-order stream or larger. See Appendix I for state-wide list and map of stream order), bodies of water >50.0 acres in surface area (i.e., lakes, ponds, reservoirs), or tidal waters.

☒ The project directs is a small facility with impervious cover of less than or equal to 1 acre.

☒ The project has a post-development peak discharge rate from the facility that is less than 2 cfs for the 1-year, 24-hour Type III design storm event (prior to any attenuation). (**NOTE:** *LID design strategies can greatly reduce the peak discharge rate)*

☐ YES ☒ NO Conveyance and natural channel protection for the site have been met.

If no, explain why _____
_____

TABLE 4-1: Summary of Channel Protection Volumes (see Manual section 3.3.4)

Drainage Point	Receiving Water Body Name	Coldwater Fishery? Y/N	Total CPv Required (acre-ft)	Total CPv Provided (acre-ft)	Release Rate Modeled in the 1-yr storm (cfs)
Totals:					

☐ YES ☒ NO The CPv is released at roughly a uniform rate over a 24-hour duration (see example sizing calculations in Appendix D of the RISDISM).

☐ YES ☒ NO Do additional design restrictions apply resulting from any discharge to cold water fisheries;

If yes, please indicate restrictions and solutions.

_____

_____

☐ Indicate below where the pertinent calculations and/or information for the above items are provided (i.e. name of report/document, page numbers);

Minimum Standard 5: Overbank Flood Protection (3.3.5) (and other potential high flows)

☐ YES ☒ NO Is this standard waived? If yes, please Indicate one or more of the reasons below:

☒ The project directs discharge to a large river (i.e., 4th-order stream or larger. See Appendix I for State-wide list and map of stream order), bodies of water >50.0 acres in surface area (i.e., lakes, ponds, reservoirs), or tidal waters.

☐ A Downstream Analysis (see section 3.3.6), indicates that peak discharge control would not be beneficial or would exacerbate peak flows in a downstream tributary of a particular site (i.e. through coincident peaks)

☒ YES ☐ NO Does the project flow to an MS4 system? If yes, indicate below:

☐ RIDOT ☒ Other: Newport Storm drains

(**NOTE**: *your project could be approved by RIDEM but not meet RIDOT or Town standards. RIDOT's regulations indicate that post-volumes must be **less** than pre-volumes for the 10-yr storm at the design point entering the RIDOT system)*. If you have not already received approval for the discharge to an MS4, please explain your strategy to comply with RIDEM and the MS4.

_____

_____

_____

☒ YES ☐ NO Did you use a model for your analysis, if yes, indicate below

☐ TR-55 ☐ TR-20 ☒ Hydrocad ☐ Other _____

☒ YES ☐ NO Does the hydrologic model demonstrate that flows from the 100-year event will be safely conveyed to a control practice designed to manage the 100-year event? If no, please explain

_____

_____

☒ YES ☐ NO Do off-site areas contribute to the subwatersheds and design points? If yes,

☒ YES ☐ NO Are the areas modeled as "present condition" for both pre- and post-development analysis

☒ YES ☐ NO Are the off-site areas are shown on the subwatershed maps

☒ YES ☐ NO Does the hydrologic model confirm safe passage of the 100-year flow through the site for off-site runoff;

☐ YES ☒ NO Is a Downstream Analysis required? (see Manual Section 3.3.6):

Please calculate the following:

Area of disturbance within the sub-watershed (areas): **1.60 Acres**

Impervious cover (%): **80%**

☐ YES ☒ NO Is a dam breach analysis required (earthen embankments over six (6) feet in height, or a capacity of 15 acre-feet or more, and contributes to a significant or high hazard dam?

☒ YES ☐ NO Does this project meet the overbank flood protection standard?

Table 5-1 Hydraulic Analysis Summary

Subwatershed (design point)	1.2" Peak Flow		1-yr Peak Flow		10-yr Peak Flow		100-yr Peak Flow	
	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)
DP-1	0.02	0.01	0.20	0.17	0.51	0.44	1.08	0.95
DP-2	0.74	0.36	3.24	1.93	6.77	4.65	12.95	12.70

☒ Indicate below where the pertinent calculations and/or information for the above items are provided (i.e. name of report/document, page numbers);

- Existing condition analysis for each subwatershed, including (curve numbers, times of concentration, runoff rates, volumes, and water surface elevations showing methodologies used and supporting calculations);

  Stormwater Runoff Analysis, Appendix B & C

- Proposed condition analysis for each subwatershed, including (curve numbers, times of concentration, runoff rates, volumes, water surface elevations, and routing showing the methodologies used and supporting calculations);

  Stormwater Runoff Analysis, Appendix B & D

- Final sizing calculations for structural stormwater BMPs including, contributing drainage area, storage, and outlet configuration;

  Stormwater Runoff Analysis, Appendix F

☐ Stage-storage, inflow and outflow hydrographs for storage facilities (e.g., detention, retention, or infiltration facilities);

Stormwater Runoff Analysis, Appendix D

Table 5-2 Summary of Best Management Practices

DP No.	BMP ID.	BMP Type (i.e. bioretention or tree filter)	BMP Functions (acre-ft)				Overbank Flood Reduction	Internal Bypass	Horizontal Setback Criteria Met	
			Pre-treatment (volume)	Re_v	WQ_v	CP_v	Y/N	Y/N	Distance (ft)	From constraint (i.e. private well or foundation)
2	SF-1	Sand Filter	N/A	N/A	0.018	N/A	N	N	None (lined)	
		TOTAL:								

Table 5-3 Summary of Soils to evaluate each BMP

DP No.	BMP ID.	BMP Type (i.e. bioretention or tree filter)	Soils Analysis for Each BMP						
			Primary Test Pit ID #	Secondary	Bottom Sys Elevation (ft)	SHWT Elevation (ft)	Separation Distance (ft)	Hydrologic Soil Group A,B,C or D	Exfiltration Rate Applied (in/hr)
202B	D1	**Infiltration chambers**	TH#1		75.5	72.5	3	C	0.27
		TOTAL:							

Minimum Standard 7: (questions are now asked in Minimum Standard 10 and 11)

Minimum Standard 8: Land Uses with Higher Potential Pollutant Loads (LUHPPLs)

☐ YES ☒ NO Are there any existing activities or land uses proposed that would be considered LUHPPLs (see Manual Table 3-2)? If yes, please describe. If no, you may continue on to Minimum Standard 9:

_____

_____

☐ YES ☒ NO Are these activities already covered under an MSGP? If, no please explain if you have applied for an MSGP, or intend to do so?

_____

_____

☐ YES ☐ NO ☐ List the specific BMPs that are proposed for this project that receive stormwater from LUHPPL drainage areas. These BMP types must be listed in Manual Table 3-3, "Acceptable BMPs for Use at LUHPPLs";

Please list BMPs

☐ Additional BMPs, or additional pretreatment BMP's if any, that meet RIPDES MSGP requirements;

Please list BMPs _____

☐ Indicate below where the pertinent calculations and/or information for the above items are provided (i.e. name of report/document, page numbers);_____

_____

Minimum Standard 9: Illicit Discharges

☒ YES ☐ NO Have you checked for illicit discharges?

☐ YES ☒ NO Have any been found and/or corrected? If yes, please identify

_____

☒ YES ☐ NO Does your report explain preventative measures that keep non-stormwater discharges out of the Waters of the State (during and after construction)?

Minimum Standard 10 Soil Erosion and Sediment Control

☒ YES ☐ NO Have you included a Soil Erosion and Sediment Control Plan Set and/or Complete Construction Plan Set?

☒ YES ☐ NO Did you provide a separately bound document based upon the SESC Template? If yes, proceed to Minimum Standard 11 (the following items can be assumed to be addressed). If no, include a document with your submittal that addresses the following:

Elements of a SESC Plan:

☒ Soil Erosion and Sediment Control Plan project narrative including a description of how the fifteen (15) Performance Criteria have been met:

☒ Provide Natural Buffers and Maintain Existing Vegetation;

☒ Minimize Area of Disturbance;

☒ Minimize the Disturbance of Steep Slopes;

☒ Preserve Topsoil;

☒ Stabilize Soils;

☒ Protect Storm Drain Inlets;

☒ Protect Storm Drain Outlets;

☒ Establish Temporary Controls for the Protection of Post-Construction Stormwater Control Measures;

☒ Establish Perimeter Controls and Sediment Barriers;

☒ Divert or Manage Run-On from Up-Gradient Areas;

☒ Properly Design Constructed Stormwater Conveyance Channels;

☒ Retain Sediment On-Site;

☒ Control Temporary Increases in Stormwater Velocity, Volume, and Peak Flows;

☒ Apply construction Activity Pollution Prevention Control Measures;

☒ Install, Inspect, and Maintain Control Measures and Take Corrective Actions.

☒ Qualified SESC plan preparer's information and certification;

☒ Operator's information and certification; if not known at the time of application the operator must certify the SESC Plan upon selection and prior to initiating site activities;

☒ Description of control measures such as temporary sediment trapping and conveyance practices, including design calculations and supporting documentation, as required.

Minimum Standard 7 & 11: Stormwater Management System Operation, Maintenance and Pollution Prevention Plan (See section 3.2.11 and Appendices G and E for guidance)

☒YES ☐ NO Have you minimized all sources of pollutant contact with stormwater runoff, to the maximum extent practicable?

☒ YES ☐ NO Have you provided a separately bound **Operations, Maintenance and Pollution Prevention Manual** for the site and for all of the BMPs?

The (O&M and PP Plan Contains):

☒ YES ☐ NO Contact name, address, and phone number of the responsible party for maintenance;

☒ YES ☐ NO 8.5" x 11" map indicating the location of all of the proposed stormwater BMPs that will require maintenance;

☒ YES ☐ NO Description of routine and non-routine maintenance tasks and their frequency for required elements for each BMP;

☒ YES ☐ NO A description and delineation of public safety features;

☐ YES ☒ NO An estimated operations and maintenance budget;

☐ YES ☒ NO Minimum vegetative cover requirements;

☒ YES ☐ NO Access and safety for maintenance?

☒YES ☐ NO Lawn, Garden and Landscape Management meet the requirements of section G.7? If not, why not?

_____
_____

☒ YES ☐ NO Is the property owner or homeowners association is responsible for the stormwater maintenance of all BMP's?

If no, you must provide a legally binding and enforceable maintenance agreement (see Appendix E-page 26) that identifies the entity that will be responsible for maintenance of the stormwater. Please indicate where this agreement can be found in your report:_____

☒YES ☐ NO Do you anticipate that you will need legal agreements related to the stormwater structures? (e.g. off-site easements, deed restrictions, and covenants).
If yes, have you obtained them? Or please explain your plan to obtain them:

Necessary agreements will be drafted by project attorney and recorded after approvals have been received.

☐ YES ☒ NO Is stormwater being directed from public areas to private property? If yes, *(***NOTE***: this is not allowed unless there is a funding mechanism in place to provide the finances for the long-term maintenance of the BMP and drainage unless there is a funding mechanism is demonstrated that can guarantee the long-term maintenance of a stormwater BMP by an individual homeowner*)

_____
_____

Pollution Prevention Section Contains:

☐ YES ☒ NO Designated snow stockpile locations?

☐ YES ☒ NO Trash racks to prevent floatables, trash and debris from discharging to waters of the state?

☒YES ☐ NO Asphalt only based sealants?

☐ YES ☒ NO Pet waste stations? (**NOTE:** *if a receiving water has a bacterial impairment and the project involves housing units, this could be an important part your pollution prevention plan*)

☒ YES ☐ NO Regular sweeping? Please describe _____

☐ YES ☒NO Deicing specifications in accordance with Appendix G of the Manual. (**NOTE***: if the groundwater is GAA or this area contributes to a drinking water supply, this could be an important part of your pollution prevention plan (see Appendix G):* _____

☒ YES ☐ NO A prohibition of phosphate based fertilizers? (**NOTE**: *if the site discharges to a phosphorus impaired waterbody, this could be an important part of your pollution prevention plan*)?

PART 3: SUBWATERSHED MAPPING AND SITE PLAN DETAILS

Existing and Proposed Subwatershed Mapping (REQUIRED)

☒ Existing and proposed drainage area delineations

- Locations, cross sections, and profiles of all streams and drainage swales and their method of stabilization;
- Drainage flow paths, mapped according to the DEM *Guidance for Preparation of Drainage Area Maps* (included in Appendix K).
- Complete drainage area boundaries; include off-site areas in both mapping and analyses, as applicable;
- Logs of borings and/or test pit investigations along with supporting soils/geotechnical report.

☒ Mapped seasonal high water table,

☒ Mapped locations of the site-specific borings and/or test pits and soils information from the test pits at the locations of the BMPs

☒ Mapped locations of the BMPs with the BMPs consistently identified on the Site Construction Plans

☐ Mapping bedrock within 3' of any BMP

☒ YES ☐ NO Soils were logged by a:

☒ DEM-licensed Class IV soil evaluator Name: _____

☐ RI-registered PE. Name; _____

Subwatershed Summary

Subwatershed (acres to each design point)	First Receiving Water ID or MS4	Area Disturbed (acres)	Existing Impervious (acres)	Proposed Impervious (acres)
DP-1	**Newport MS4**	Varies	0.039	0.035
DP-2	**Newport MS4**	Varies	1.39	0.883
Totals:			**1.429**	**0.918**

Site Construction Plans (the following applicable specifications are provided)

- Existing and proposed plans (scale not greater than 1" = 40') with North arrow
- Existing and proposed site topography (with 1 or 2-foot contours). 10-foot contours accepted for off-site areas
- Boundaries of existing predominant vegetation and proposed limits of clearing;
- Site Location clarification

- ☐ Location and field-verified boundaries of resource protection areas such as:
  - freshwater and coastal wetlands, lakes, ponds,
  - coastal shoreline features
  - Perennial and intermittent streams, in addition to areas subject to storm flowage (ASSFs);
- ☐ All required setbacks (e.g., buffers, water supply wells, septic systems);
- ☐ Representative cross-section and profile drawings, notes and details of structural stormwater management practices and conveyances (i.e., storm drains, open channels, swales, etc.), which include:
  - Location and size of the stormwater treatment practices (type of practice, depth, area). Stormwater treatment practices (BMPs) must have labels that correspond to table 5-2;
  - Design water surface elevations (applicable storms);
  - Structural details of outlet structures, embankments, spillways, stilling basins, grade control structures, conveyance channels, etc.;
  - Existing and proposed structural elevations (e.g., invert of pipes, manholes, etc.);
  - Location of floodplain and, if applicable, floodway limits and relationship of site to upstream and downstream properties or drainage that could be affected by work in the floodplain;
  - Planting plans for structural stormwater BMPs, including species, size, planting methods, and maintenance requirements of proposed planting;
  - Logs of borings and/or test pit investigations along with supporting soils/geotechnical report and corresponding water tables.
- ☐ Mapping of any OWM approved activities related to current/former site use areas for any known contamination and/or remedial clean-up efforts.
- ☐ Location of existing and proposed roads, buildings, and other structures including limits of disturbance;
  - Existing and proposed utilities (e.g., water, sewer, gas, electric) and easements;
  - Location of existing and proposed conveyance systems such as grass channels, swales, and storm drains, as well as location(s) of final discharge point (wetland, waterbody);
  - Cross sections of roadways, with edge details such as curbs and sidewalks;
  - Location and dimensions of channel modifications, such as bridge or culvert crossings;
  - Locations, cross sections, and profiles of all stream or wetland crossings and their method of stabilization

NORTHEAST ENGINEERS & CONSULTANTS, INC.

STORMWATER SYSTEM
OPERATIONS AND MAINTENANCE PLAN

Proposed Dance School
(Former Tripplet School)
Assessor's Map 6, Lot 11
Broadway and Princeton Street
Newport, RI

Prepared For
Island Dance Studio
P.O. Box 746
Newport, RI 02840

April 2020

6 Valley Road ● Middletown, RI 02842 ● p. 401.849.0810 ● f. 401.846.4169 ● northeastengineers.com
Civil ● Site ● Land Development ● Waterfront ● Coastal Engineering ● Environmental ● Geotechnical ● Structural ● Transportation ● Surveying

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 SITE INFORMATION

City / Town:	Newport, Rhode Island
Adjacent Roadways:	(435) Broadway, Princeton Street and Ledyard Street
Lot(s) identification:	A.P. 6 Lot 11
Zoning District:	R-10
Current Use:	Former School (disused)
Site Area:	1.82 Acres
FEMA Zone and Map:	Zone "X" (Panel 44005C0093J)

1.2 SITE CONDITIONS

The development includes a 8,444+/- square foot dance school located on the site of the former Tripplet School. The site is accessed from Broadway via a semicircle looping paved entrance. A paved parking area is provided along the south side of the property. A portion of this parking at the rear of the site is to be pervious. The remainder of the former school property is to be subdivided off into four (4) residential properties. The new dance school will be provided with municipal utility services, either by the existing services stubs or by new services tapped with permission from Newport Department of Utilities. Electrical and communications are proposed from the overhead lines running along the southwest boundary.

In general, the total amount of impervious surfaces across the site will be reduced as part of development. Stormwater controls include a subsurface infiltration system for the dance school rooftop and a surface sand filter for parking lot water quality treatment. The main outflow from the drainage system is to be connected to a municipal storm drain at the eastern end of the residential properties. An easement for this drain line connection through the residential parcels shall be required.

The focus of this Operations and Maintenance document shall be the stormwater system that supports the dance school. The responsibility of the individual stormwater systems for each of the residences shall be the responsibility of the respective owners. As the stormwater systems for each of the residences include subsurface infiltration chambers, the maintenance objectes for these devices described herein may also be applied by the homeowners.

1.3 PROTECTED FEATURES

There are no wetlands or other features protected by the state present on site. The site does not lie within any coastal or freshwater wetland jurisdiction. Minimal vegetation is proposed on site and landscaping is limited to the northwest side of the property fronting Broadway and along the property lines.

ADMINISTRATION

1.4 RESPONSIBLE PARTIES

The Owner and party responsible for the operation and maintenance of the dance school stormwater management system is:

Island Dance Studio
P.O. Box 746
Newport, RI 02840

The Owner intends that this Plan shall run with the land and be binding upon the Owner and the Owner's successors and assigns. A copy of this Plan shall be provided to any future property owners. This Section shall be amended as necessary. The Owner is solely responsible for the operation and maintenance of the dance school drainage system. Care of the stormwater systems for each of the new subdivision residences shall be the responsibility of the individual homeowners.

1.5 O&M EXPENSES

It is anticipated that the Operation and Maintenance budget will be incorporated into the operating budget of the property. The stormwater facilities will require continual maintenance to operate at peak efficiency. It is anticipated that small equipment and hand labor will typically be required to operate and maintain the system. A vacuum truck will be required for more intensive maintenance. Operation and Maintenance activities and equipment will be funded by the Owner.

1.6 PUBLIC SAFETY FEATURES

Public safety is provided for in the development design. The surface stormwater devices are less than 2 feet in depth with manageable side slopes.

2.0 GENERAL INSPECTION AND MAINTENANCE

This section contains a general overview of O&M guidelines and documentation procedures. Specific guidance is described in Section 4.0. Appendix A contains applicable Operation, Maintenance and Management Inspection Checklists. Appendix B contains a location map of stormwater features to be maintained and details of the devices which may be referenced during maintenance.

2.1 INSPECTION

All stormwater management facilities shall be periodically inspected by a qualified individual. Inspections shall be conducted by a registered professional engineer where the structural or hydraulic integrity of the system is in question. Inspections shall follow the inspection guidelines found in the checklists included in Appendix A. The minimum inspection schedule is summarized in the following table.

Table 1: Summary of Minimum Inspection Schedule

Item	*Annually*	*After Major Storms*	*Biannually*
Infiltration Chambers	✓	✓	
Surface Sand Filter	✓	✓	
Conveyance Structures		✓	✓
Overall Function	✓		

Note: "Major Storm" refers to a storm with 2.8 inches of rain over a 24-hour period

2.2 MAINTENANCE

Maintenance activities are described in three categories based upon the magnitude and type of the maintenance activities performed. A description of each category follows.

2.2.1 PREVENTATIVE MAINTENANCE

The most effective way to maintain the stormwater system is to prevent the pollutants from entering them in the first place. Common pollutants include sediment, trash and debris, chemicals, runoff from stored materials, and illicit discharges. The Owner shall implement the following measures to address these potential contaminants, which will minimize expenses and time investments in the long term.

- Educate employees and guests of how their actions impact water quality, and how they can help reduce maintenance costs;
- Keep the property free of trash and debris;
- Ensure the proper disposal of hazardous wastes and chemicals;
- Plan landscaping care to minimize the use of fertilizers, herbicides, and pesticides;
- Sweep paved surfaces and dispose of sweepings properly;
- Be aware of automobiles leaking fluids. Use absorbents to soak up drippings – dispose of properly;
- Re-vegetate disturbed and bare areas to maintain vegetative stabilization; and

- Protect landscaping care and other chemicals stored outdoors from stormwater.

2.2.2 ROUTINE AND MINOR MAINTENANCE

Routine maintenance work to be undertaken by the Owner shall include activities normally performed throughout the year, such as:

- Mowing and weed control,
- Trash and debris removal, and
- Parking lot sweeping / vacuuming

Such minor maintenance consists of isolated or small-scale maintenance/operational problems. Most of this work can be completed by a small crew with hand tools, and small equipment.

2.2.3 MAJOR MAINTENANCE

This work consists of more complex maintenance/operational problems and system failures. Some of this work may require consultation with the Design Engineer and/or the City of Newport. This work may also require more specialized maintenance equipment, design/details, surveying, or assistance through private contractors and consultants.

3.0 LAWN, GARDEN, AND LANDSCAPE MANAGEMENT

Grasses require more water and attention than alternative groundcovers, flowers, shrubs, or trees. Alternatives to turf are especially recommended for problem areas such as lawn edges, frost pockets, shady spots, steep slopes, and soggy areas.

3.1 GRASS

Grass seed is available in a wide range of cultivated varieties. The Owner should consult a landscape expert to choose the grass type that matches the site conditions, and is consistent with the Owner's desired level of maintenance.

3.2 MOWING AND MANAGEMENT

To prevent insects and weed problems, the Owner should mow high, mow frequently, and keep mower blades sharp. Lawns should not be cut shorter than 2 to 3 inches, because weeds can grow more easily in short grasses. Grass can be cut lower in the spring and fall to stimulate root growth, but not shorter than 1 ½ inches.

3.3 FERTILIZATION

If fertilizing is desired, consider the following points:

- Most lawns require little or no fertilizer to remain healthy. Fertilize no more than twice a year - once in May-June, and once in September-October;
- Fertilizers are rated on their labeling by three numbers (e.g., 10-10-10 or 12-4-8), which refer to their Nitrogen (N) – Phosphorus (P) – Potassium (K) concentrations. Fertilize at a rate of no more than ½ pound of nitrogen per 1000 square feet, which can be determined by dividing 50 by the percentage of nitrogen in the fertilizer;
- Apply fertilizer carefully to avoid spreading on impervious surfaces such as paved walkways, patios, driveways, etc., where the nutrient can be easily washed into storm drains or directly into surface waters;
- To encourage more complete uptake, use slow-release fertilizers that is those that contain 50 percent or more water-insoluble nitrogen (WIN);
- Grass blades retain 30-40 percent of nutrients applied in fertilizers. Reduce fertilizer applications by 30 percent, or eliminate the spring application of fertilizer and leave clippings on the lawn where they will degrade and release stored nutrients back to the soil; and
- Fertilizer should not be applied when rain is expected. Not only does the rain decrease fertilizer effectiveness, it also increases the risk of surface and ground water contamination.

3.4 WEED MANAGEMENT

The Owner must decide how many weeds can be tolerated before action is taken to eradicate them. To the extent practicable, weeds should be dug or pulled out. If patches of weeds are present, they can be covered for a few days with a black plastic sheet. This process kills the weeds while leaving the grass intact. If weeds blanket a large enough area, the patch can be covered with clear plastic for several weeks, effectively "cooking" the weeds and their seeds. The bare area left behind after weeding should be reseeded to prevent weeds from growing back. As a last resort, the Owner may use chemical herbicides to spot treat weeds.

3.5 PEST MANAGEMENT

Effective pest management begins with maintenance of a healthy, vigorous lawn that is naturally disease resistant. The Owner shall monitor plants for obvious damage and check for the presence of pest organisms. Learn to distinguish beneficial insects and arachnids, such as green lacewings, ladybugs, and most spiders, from ones that will damage plants.

When damage is detected or when harmful organisms are present, the property manager shall determine the level of damage the plant is able to tolerate. No action should be taken if the plant can maintain growth and fertility. If controls are needed, there are a variety of low-impact pest management controls and practices to choose from, including the following:

- Visible insects can be removed by hand (with gloves or tweezers) and placed in soapy water or vegetable oil. Alternatively, insects can be sprayed off a plant with water, or in some cases vacuumed off of larger plants;
- Store-bought traps, such as species- specific, pheromone-based traps or colored sticky cards, can be used;
- Sprinkling the ground surface with abrasive diatomaceous earth can prevent infestations by soft-bodied insects and slugs. Slugs can also be trapped by falling or crawling into small cups set in the ground flush with the surface and filled with beer;
- In cases where microscopic parasites, such as bacteria and fungi, are causing damage to plants, the affected plant material can be removed and disposed of. (Pruning equipment should be disinfected with bleach to prevent spreading the disease organism);
- Small mammals and birds can be excluded using fences, netting, tree trunk guards, and, as a last resort, trapping. (In some areas trapping is illegal. Property owners should check local codes if this type of action is desired); and
- The Owner can encourage/attract beneficial organisms, such as bats, birds, green lacewings, ladybugs, praying mantis, ground beetles, parasitic nematodes, trichogramma wasps, seedhead weevils, and spiders that prey on detrimental pest species. These desirable organisms can be introduced directly or can be attracted to the area by providing food and/or habitat.

If chemical pesticides are used, the Owner shall try to select the least toxic, water soluble and volatile pesticides possible. All selected pesticides should be screened for their potential to harm water resources. When possible, pesticides that pose the least risk to human health and the environment should be chosen. A list of popular pesticides, along with their uses, their toxicity to humans and wildlife, EPA's toxicity rating,

and alternatives to the listed chemicals, is available from *The Audubon Guide to Home Pesticides*, (http://www.audubon.org/bird/pesticides/).

3.6 SENSIBLE IRRIGATION

Established lawns need no more than one inch of water per week (including precipitation) to prevent dormancy in dry periods. Watering at this rate should wet soil to approximately 4-6 inches and will encourage analogous root growth. If possible, use timers to water before 9:00 a.m., preferably in the early morning to avoid evaporative loss. Use drought-resistant grasses (see "grass selection" above) and cut grass at 2-3 inches to encourage deeper rooting and heartier lawns.

4.0 STORMWATER BMPS

4.1 SAND FILTER

Description

A Sand Filter is designed to capture and temporarily store the water quality storm runoff volume and pass it through a sand media layer. In areas of shallow water tables or poorly draining soils, the media is lined with an impermeable membrane and the filtered runoff is collected by an underdrain. This treated runoff is then discharged downgradient. In areas of deeper water tables and well-draining soils, the filtered stormwater is infiltrated into the undisturbed strata below the filter. High flow runoff to a sand filter typically passes over an overflow weir to a volume control device. Sand filters are not intended to have permanent pools and should drain within 24 hours. The filter beds are planted with water tolerant grasses selected from the Rhode Island Coastal Plant Guide or Appendix B of the RIDISM.

The stormwater design for this development includes the following sand filters.

1. Device ID: SF1
   Location: Southeast of Dance School
   Lined or Unlined: Lined

Required Maintenance

Sand filters shall be inspected following at least the first two precipitation events of at least 1.0 inch to ensure that the system is functioning properly. Thereafter, a filter should be inspected at least annually and after storm events of greater than or equal to the 1-year, 24-hour Type III precipitation event (2.8 inches). These maintenance objectives are focused on preserving the hydraulic and removal efficiency and maintaining structural integrity and include the following:

1. The slopes of a sand filter shall be inspected for erosion and gullying. Inlet areas shall be reinforced if they are found to be deficient or erosion is present at the overflow outlet. All material, including any trash and/or debris from all areas within the extents of the filter shall be disposed of in accordance with all applicable regulations. The overflow weir shall be inspected for structural faults.

2. Any areas within the extents of a sand filter that are subject to erosion or gullying shall be replenished with the original design material and re-vegetated according to the design drawings. Slope protection material shall be placed in areas prone to erosion. Embankment stability shall be verified by inspecting for seepage and burrowing animals.

The following maintenance tasks shall be completed on an annual basis.

1. Silt/sediment shall be removed from the sand filter bed annually, when accumulation exceeds one inch, or when the filtering capacity of the device diminishes substantially. This material shall be disposed of in accordance with all applicable regulations.

2. Mow the grass around the perimeter of and within the sand filter, seed bare areas, and remove litter and debris at least three times per growing season to maintain maximum grass heights less than twelve inches.

3. Remove any invasive vegetation within the extents of the sand filter. Any invasive vegetation encroaching upon the perimeter of the filter shall be pruned or removed if it is prohibiting access to the device, compromising sight visibility, and/or compromising the original design intent.

If dead or dying grass on the bottom is observed, check to ensure that water drains down within two days following storms. If standing water is observed more than 48 hours after a storm event, then the top six (6) inches of sand shall be removed and replaced in kind. If discolored or contaminated material is found below this removed material, then that material shall also be removed and replaced in kind until all contaminated sand has been removed from the filter media. The sand shall be disposed of in accordance with all applicable regulations.

4.2 CONVEYANCE STRUCTURES

Description

Conveyance structures include all man-made subsurface structures which collect and convey stormwater surface runoff across the site, typically to stormwater treatment or control devices. These structures include roof downspouts, cleanouts, drain basins, and pipes. These structures are typically made of concrete or high-density plastics. In smaller scale projects, these conveyance structures consist of roof leaders and downspouts.

Required Maintenance:

All conveyance structures are to be inspected at least three times in the first six months of operation. Additionally, these structures shall be inspected semi-annually (twice a year). The inspection objectives are as follows:

1. Any structural faults shall be repaired as necessary for proper function.

2. Pipes and roof runoff conveyances such as gutters and downspouts shall be clean and free of obstructions that reduce flow.

3. A registered professional engineer shall be consulted if necessary, to determine whether a structure has been compromised.

4.3 INFILTRATION CHAMBERS

Description

Subsurface infiltration chambers allow for temporary storage and infiltration into underlying soil, effectively providing water quality and groundwater recharge. An outlet structure meters outlet flow from the subsurface chambers to relieve pressure within the system and regulates peak runoff.

The stormwater design for this development includes the following infiltrating subsurface chambers:

1. Location: Under parking lot southeast of dance school
   Chamber type: Cultec 100HD
   Number of chambers: 30

Required Maintenance

After every storm event of greater than or equal to the 1-year, 24-hour type III precipitation event (2.8 inches), in the first six months after construction, then annually, a record shall be kept of the time to drain the system completely after a storm event. The chambers should drain completely within 72-hours. If the chambers remain undrained after 72-hours, the chambers should be excavated, the area beneath the system tilled to a depth of twelve (12) inches below the stone bedding, and the filter fabric beneath the system replaced. All stone bedding shall be washed or replaced and the chambers re-installed.

General inspections should be conducted at least annually and after storm events greater than or equal to the 1-year, 24-hour type III precipitation event (2.8 inches). The maintenance objectives for these devices are focused on preserving the structural integrity of the system and removal of sediment. These inspections are to include:

1. Subsurface infiltration chambers shall be inspected via inspection ports or manholes to grade for the presence of sediments. Should the average depth of sediment exceed 3 inches within the inlet chamber or row, clean out of the system should be performed. This should be accomplished by vacuum truck.

Stormwater structures shall also be inspected for accumulated sediments and debris semi-annually. Material shall be removed and disposed of off-site at a licensed facility. Structural faults shall be repaired and outlet pipes inspected for blockage.

5.0 APPENDICES

APPENDIX A OPERATION AND MAINTENANCE CHECKLISTS

Operation, Maintenance, and Management Inspection Checklist
For Drainage Conveyance System Structure:_____
To be used in Conjunction with Operation and Maintenance Document

Date of Inspection:

Date of Last Inspection:

Time:

Type of Inspection: □ Semi **-** Annual □ Other (indicate in comments)

Inspector:

General Upkeep:

1. Owner should consult an RI registered professional engineer with questions.
2. Inspection of conveyance pipes will require the removal of grates, covers and cleanout caps.

SEMI - ANNUAL MAINTENANCE		
MAINTENANCE ITEM	**ACTION IF DEFICIENT**	**COMMENTS**
Clogging of pipes	Pipes should be cleaned out with a high pressure water jet.	
Grate or cover broken or missing	Repair or replace.	
Cracked or broken inlet and outlet pipes	Repair or replace.	
Damaged or missing flared end sections	Repair or replace.	
Sediment and debris exceed 50% of sump (if present)	Remove and dispose in accordance with state regulations.	
Oil or other contamination present	Remove and dispose in accordance with state regulations.	

Additional Notes:

Operation, Maintenance, and Management Inspection Checklist
For Sand Filter:_____

To be used in Conjunction with Operation and Maintenance Document

Date of Inspection:

Date of Last Inspection:

Time:

Type of Inspection: □ Annual □ Major Storm □ Biannual □ Other

Inspector:

General Upkeep Notes:

1. Fertilizer and pesticides shall not be applied to grasses within sand filter.

ANNUAL AND MAJOR STORM MAINTENANCE		
MAINTENANCE ITEM	**ACTION IF DEFICIENT**	**COMMENTS**
Filter side slopes eroding or gullying	Eroded areas be replenished with the original design material and re-vegetated.	
Inspect area around filter inlets	Eroded areas be replenished with the original design material and re-vegetated.	
Trash and debris in filter	Remove and dispose in accordance with state regulations.	
Sediments on filter surface exceeds one (1) inch in depth	Remove and dispose in accordance with state regulations.	
Invasive or unauthorized vegetation in extents of filter.	Prune and remove.	
Overflow weir blocked	Remove blockage and inspect for damage to structure.	

BIANNUAL MAINTENANCE		
MAINTENANCE ITEM	**ACTION IF DEFICIENT**	**COMMENTS**
Vegetative Coverage less than 50%	Reinforcement grasses in accordance with original planting plan	
Dead or Dying Vegetation	Replace loam top layer in areas of dying vegetation and re-seed.	

OTHER		
MAINTENANCE ITEM	**ACTION IF DEFICIENT**	**COMMENTS**
Water ponds on filter surface for more than 48 hours	The top six (6) inches of sand media shall be excavated and replaced with clean sand. Replace loam layer and re-seed. Discarded material dispose in accordance with state regulations.	

Operation, Maintenance, and Management Inspection Checklist
For Subsurface Chambers: _____

To be used in Conjunction with Operation and Maintenance Document

Date of Inspection:

Date of Last Inspection:

Time:

Type of Inspection: □ Annual □ Major Storm

Inspector:

General Upkeep Notes:

1. Annual maintenance of subsurface chambers will require the use of a vacuum truck.

ANNUAL MAINTENANCE		
MAINTENANCE ITEM	**ACTION IF DEFICIENT**	**COMMENTS**
Average depth of sediments in inlet chamber exceeds three (3) inches.	Remove sediments using a vacuum truck.	
Sediments in header pipes.	Remove sediments using a vacuum truck.	
Inspect structures via manhole covers and inspection ports for structural damage or collapse.	Consult professional engineer.	

AFTER MAJOR STORM MAINTENANCE		
MAINTENANCE ITEM	**ACTION IF DEFICIENT**	**COMMENTS**
Record drain down time and ensure complete drain down in 72 hours. (minimum once per year)	Consult professional engineer.	

Additional Notes:

APPENDIX B DRAWINGS

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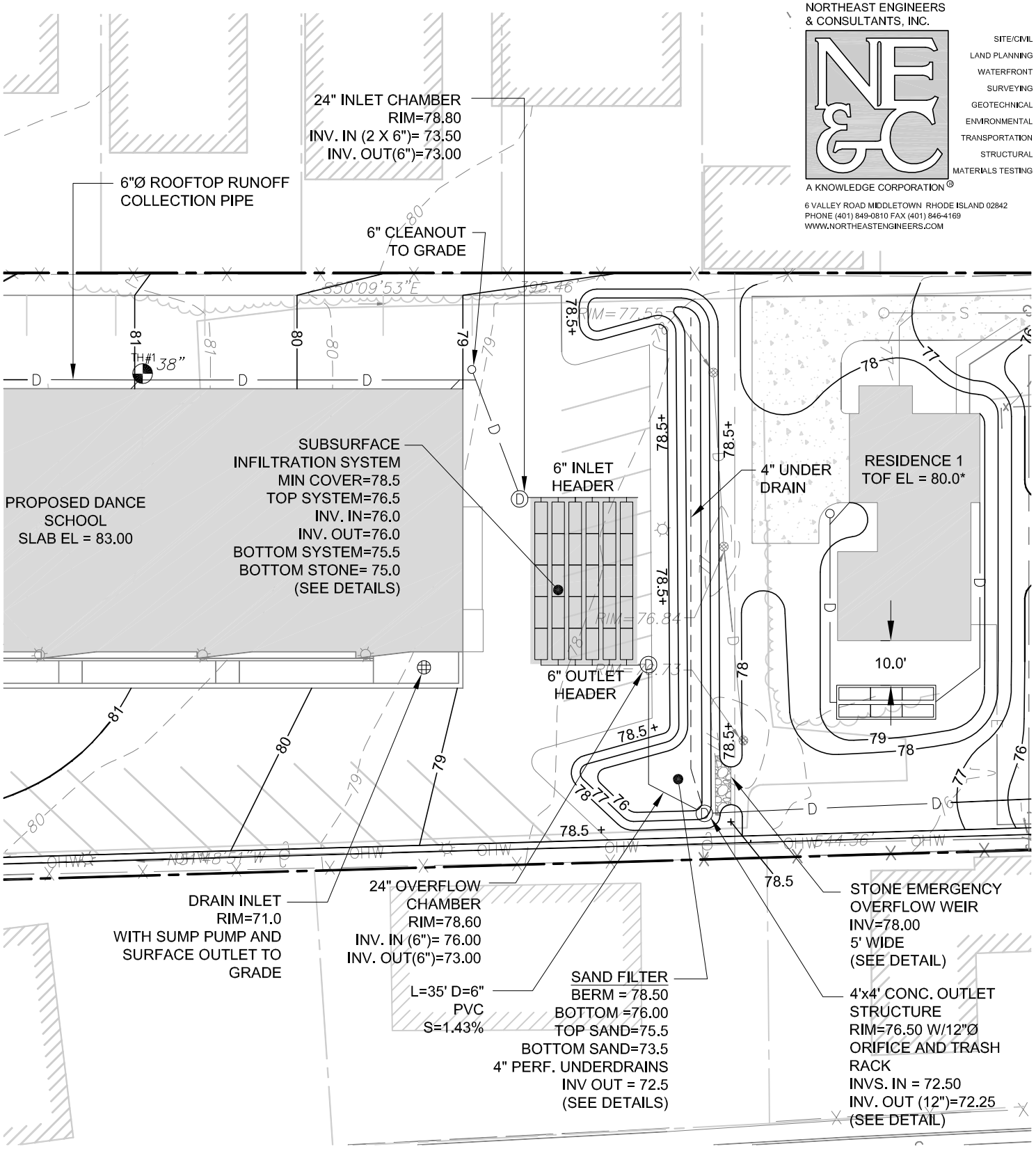

Scale: 1"=30'	Date: 28APR20	Designed By: JJR	Drawn By: JJR	Checked By: GES

Project Title:	Drawing Title:
PROPOSED DANCE SCHOOL 435 BROADWAY, NEWPORT, RI	STORMWATER LOCATION MAP

Issued for:	Drawing Number:	Project Number:
OPERATION AND MAINTENANCE DOCUMENT	17062.2	M-1

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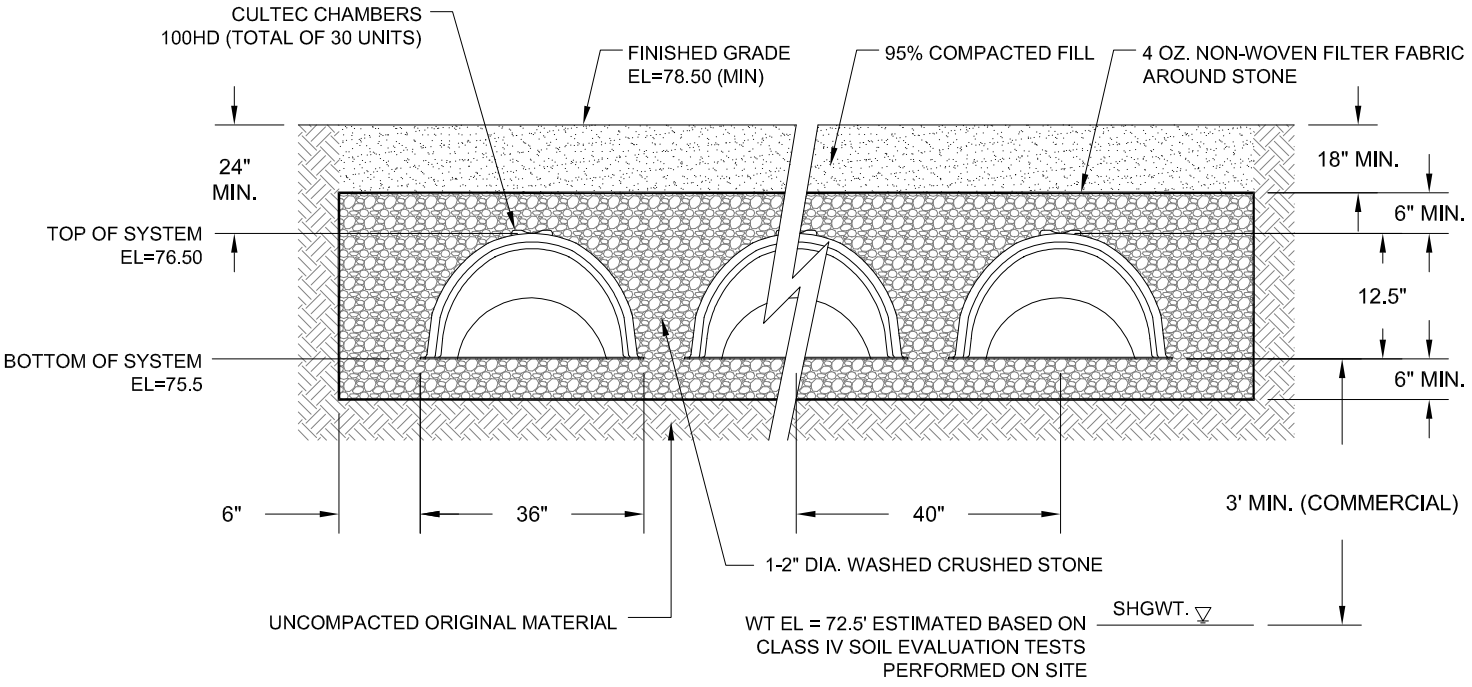

Scale: NA	Date: 28APR20	Designed By: JJR	Drawn By: JJR	Checked By: GES

Project Title:	Drawing Title:	
PROPOSED DANCE SCHOOL 435 BROADWAY, NEWPORT, RI	INFILTRATION SYSTEM CROSS SECTION	
Issued for: OPERATION AND MAINTENANCE DOCUMENT	Drawing Number: 17062.2	Project Number: M-2

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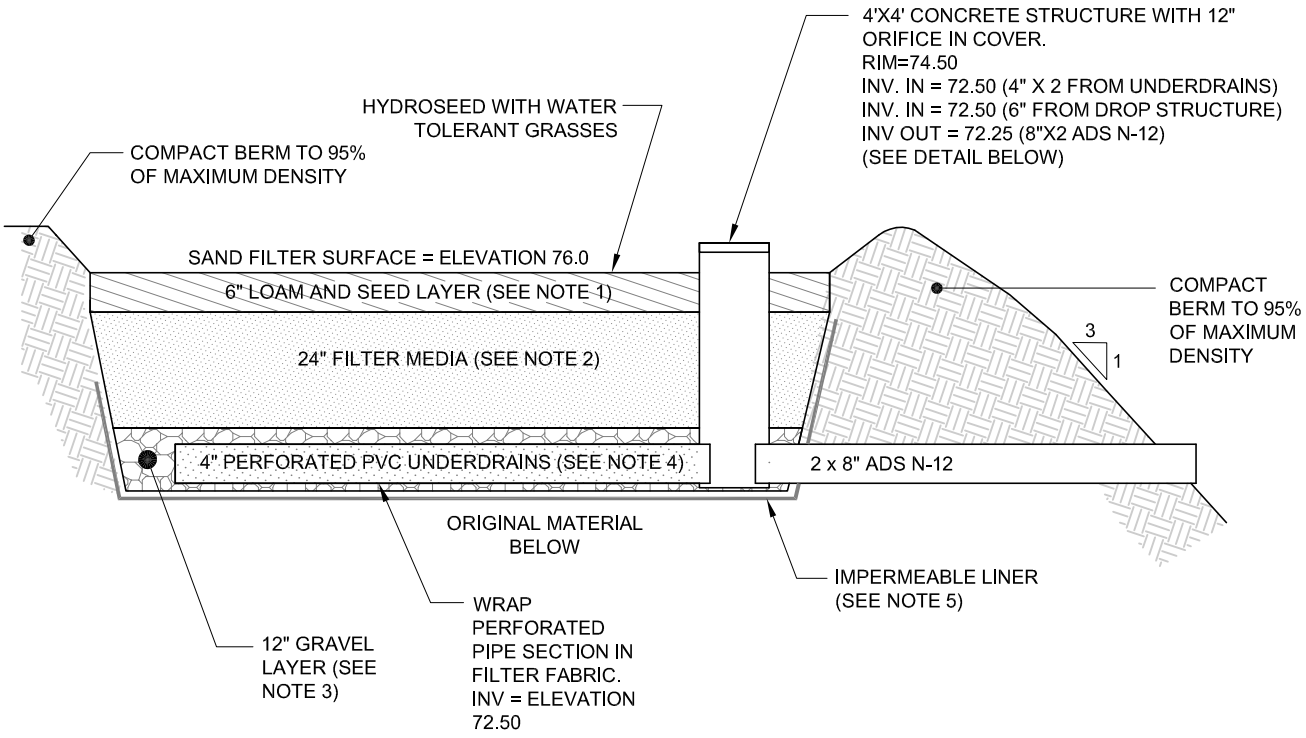

SAND FILTER NOTES:

1. SAND FILTER SHALL BE PLANTED WITH NEW ENGLAND WETMIX (WETLAND SEED MIX) BY NEW ENGLAND WETLAND PLANTS, INC. OR APPROVED EQUAL.

2. SAND FILTER SAND TO BE CLEAN AASHTO M-6 OR ASTM C-33 CONCRETE SAND (0.02" TO 0.04"). SAND SUBSTITUTIONS SUCH AS DIABASE AND GRAYSTONE #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATED OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO ROCK DUST CAN BE USED AS SAND.

3. UNDERDRAIN GRAVEL SHALL CONFORM TO AASHTO M-43, 0.25" TO 0.75". MATERIAL MUST BE WASHED CLEAN GRAVEL.

4. UNDERDRAIN SHALL BE SCHEDULE 40 PVC PIPE CONFORMING TO ASTM D-1785 OR AASHTO M-278. PERFORATIONS SHALL BE 3/8" @ 6" ON CENTER. PIPE SHALL HAVE 3" OF GRAVEL OVER PIPE. PIPE TO BE WRAPPED IN GEOTEXTILE FABRIC CONFORMING TO FLOWRATE INDICATED IN NOTE 5.

5. IMPERMEABLE LINER MAY BE ONE OF THE FOLLOWING: (A) MIN. OF 6 INCHES OF CLAYSOIL (MINIMUM 15% PASSING THE #200 SIEVE AND A MAXIMUM PERMEABILITY OF 1 X 10^-5 CM/SEC), (B) A 30 MIL POLY-LINER (C) BENTONITE

Scale: NA	Date: 28APR20	Designed By: JJR	Drawn By: JJR	Checked By: GES

Project Title:	Drawing Title:	
PROPOSED DANCE SCHOOL 435 BROADWAY, NEWPORT, RI	SAND FILTER CROSS SECTION	
Issued for: OPERATION AND MAINTENANCE DOCUMENT	Drawing Number: 17062.2	Project Number: M-3

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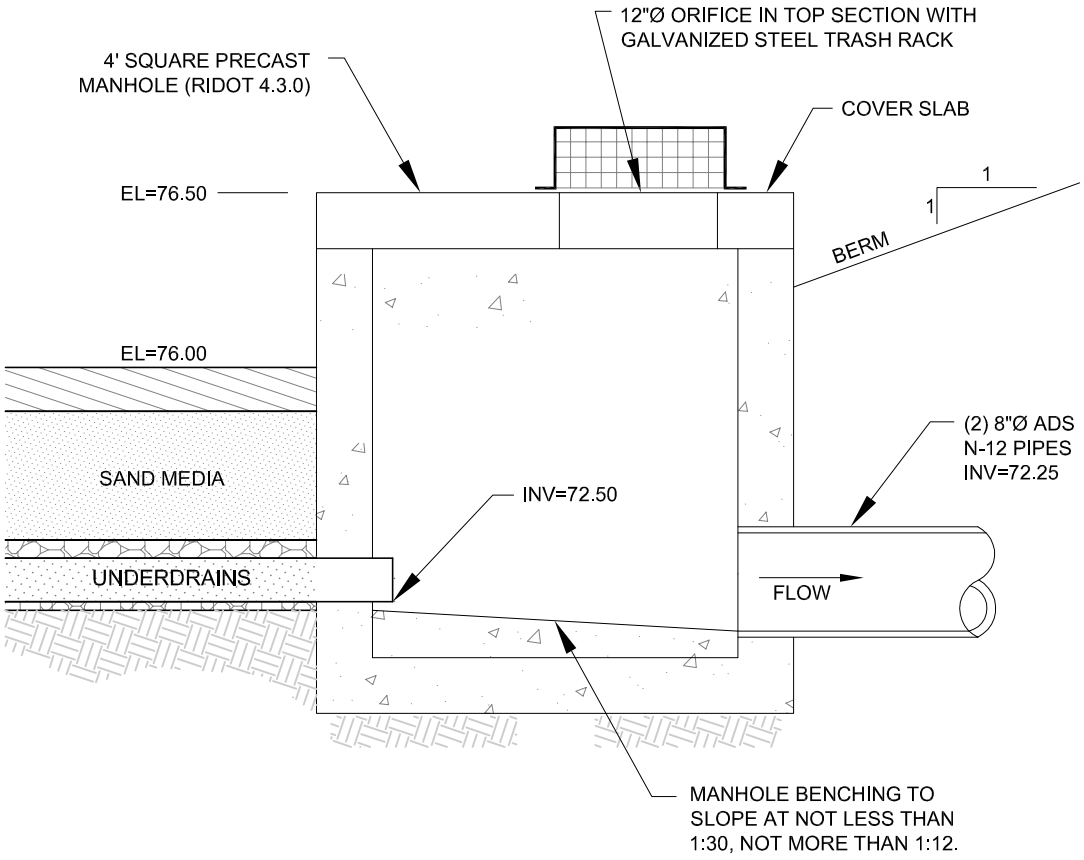

Scale: NA	Date: 28APR20	Designed By: JJR	Drawn By: JJR	Checked By: GES

Project Title:	Drawing Title:	
PROPOSED DANCE SCHOOL 435 BROADWAY, NEWPORT, RI	SAND FILTER OUTLET STRUCTURE	
Issued for: OPERATION AND MAINTENANCE DOCUMENT	Drawing Number: 17062.2	Project Number: M-4

ESTIMATED Sewer Flow Calculations
Dance School and Residential Subdivision (former Tripplet School)
Newport, Rhode Island

Projected Sewer Flow

The following calculation determines the estimated maximum hourly sewer flow for the residential portion of the development using the method provided in the International Plumbing Code (2015). The development consists of four (4) single family residences. Counts below are estimated based on typical architectural designs. These units will discharge flow to the sewer main in Brook Street Extension. The proposed school shall be connected to the sewer in Broadway.

Fixture	No.	Water-Supply Fixture Unit Value (WSFU)	Total
Bathroom Group (private)	8	3.6	28.8
Bathtub (private)	8	1.4	11.2
Dishwasher	4	1.4	5.6
Kitchen Sink	4	1.4	5.6
Laundry (private)	4	1.4	5.6
Water closet (private)	4	2.2	8.8
		Total =	**65.6 WSFU**

(Taken from Table E103.3 (2))

The maximum water demand (taken from Table E103.3 (3)) is approximately equal to:

65.6 WSFU = 33.5 gpm

Maximum Water Demand (MWD) = 33.5 gpm x 60 = 2,010 gallons per hour
= 24,120 gpd (12-hour average schedule)

Average Day Water Demand (ADD_{OS}) = MWD /2.5

ADD_{OS} = 24,120 gpd /2.5 = 9,648 gpd

Average Day Water Demand (Annualized) (ADD_{OS}) = ADD = 9,648 gpd

Peak Day Water Demand = ADD X 1.6 = 9,648 X 1.6 = 15,437 gpd

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Sewer Flow

The existing 8-inch sewer main in Brook Street Extension has the following capacity. The typical manning's roughness coefficient has been selected.

Q = 1.49 x A x R^(2/3) x S^(1/2) / n

Q = 1.49 x (0.35) x (0.479) x (0.171) / 0.014

Q = 3.05 cfs

The max peak hourly discharge flow is **0.0746 cfs** (33.5 gallons per minute). This is approximately **2.4%** of the existing sewer main capacity.