SEBAGO TECHNICS

CIVIL ENGINEERING • SURVEYING • LANDSCAPE ARCHITECTURE

TOWN OF WINDHAM
MAJOR SITE PLAN AND SUBDIVISION AMENDMENT APPLICATION

Prepared for:

WDCJCS Subdivision
Former John A. Andrew School Site Redevelopment
55 High Street
Windham, ME 04062

Prepared for:

Great Falls Construction
20 Mechanic Street
Gorham, ME 04038

and

Westbrook Development Corp.
30 Liza Harmon Drive
Westbrook, ME 04092

Prepared by:

Sebago Technics, Inc.
75 John Roberts Road, Suite 4A
South Portland, Maine 04106

March 2025

240577-01

Major Site Plan & Subdivision Amendment Application
Table of Contents

Cover Letter

Section 1	**Application Forms & Agent Authorization**
Section 2	**Location & Resource Maps**
Section 3	**Abutters Information**
Section 4	**Right, Title, or Interest**
Section 5	**Financial & Technical Capacity**
Section 6	**Traffic Information**
Section 7	**Utilities**
Section 8	**Stormwater Management**
Section 9	**Performance Standards & Approval Criteria**
Section 10	**Soils Information**
Section 11	**Architecturals & Elevations**
Section 12	**Lighting Information**

ATTACHED: **Plan Set**

March 3, 2025
240577

Steve Puleo, Planning Director
Town of Windham, ME Planning Department
8 School Road
Windham, Maine 04062

Re: Major Site Plan & Major Subdivision Amendment Application
0 Academy Street/55 High Street; MBLU: 37-24

Dear Steve,

On behalf of Great Falls Construction, Inc., and Westbrook Development Corporation, Sebago Technics, Inc. has prepared this letter, the enclosed application materials, and attached plans for a Major Site Plan and Major Subdivision Amendment Application for the redevelopment of the former John A. Andrew school property. This site is located at 55 High Street in the Town of Windham, and can further be identified on the Town Tax Map 37 as Lot 24.

Existing Conditions: The property subject to this application is the site of the former John A. Andrew school building. The site is approximately 2.39 acres in size, and is zoned under the Windham Village Commercial District. The site is largely surrounded by undeveloped, wooded areas to the east, and residential development to the north, south and west across High Street.

The topography of the site is described as sloping upwards from High Street, relatively level in the middle (where the school building is located), and sloping back downwards towards the rear. The site also contains a small wetland area located along the northeastern border of the parcel.

Prior Approvals: The Town of Windham Planning Board approved a previous Major Site Plan and Major Subdivision application on this site at their October 28, 2024, meeting. This approval permitted the construction of a mixed-income development with eighteen (18) affordable senior housing (55+) apartment units contained within four (4) buildings.

Project Description: This amendment application proposes to continue the mixed-income development into the site and construct an additional seventeen (17) market-rate apartments. This would bring a new total of thirty-five (35) units onto the subject property. Also included under the scope of this application is the construction of associated parking areas, internal vehicular drive aisles, pedestrian pathways, subsurface stormwater treatment measures, and the completion of the centralized open space area.

Utilities: This project is proposed to be served by available public utilities currently located along High Street. Water and sewer service will be accomplished through connecting to the Portland Water District (PWD) mains within High Street, and will be extended interior to the site to serve

each building. The project will also connect to the existing natural gas line in High Street. Similarly, this development will connect to the existing overhead electric service and continue power underground throughout the site.

We appreciate your attention to this project, and we look forward to its successful completion. Upon your review, please contact me if you have any questions or require additional information at absegal@sebagotechnics.com or by phone at (207) 200-2055. Thank you for your time and consideration.

Sincerely,

SEBAGO TECHNICS, INC.



Amy Bell Segal, RLA
Senior Project Manager & Landscape Architect
Maine Licensed Landscape Architect

Section 1

Application Forms

Town of Windham
Planning Department:
8 School Road
Windham, Maine 04062
Tel: (207) 894-5960 ext. 2
Fax: (207) 892-1916 -
www.windhammaine.us

MAJOR SITE PLAN REVIEW APPLICATION

FEES FOR MAJOR SITE PLAN REVIEW	**APPLICATION FEE:** (No Bldg.) (W/Bldg.: $25/1,000 SF up to 5,000 SF) **REVIEW ESCROW: (GFA)** 2,000 SF - 5,000 SF = $2,000 5,000 SF - 15,000 SF = $3,000 15,000 SF - 35,000 SF = $4,000 Over 35,000 SF = $5,000 No Building = $2,000	☐ $1,3000.00 ☐ $_____ ☐ $_____ ☐ $_____ ☐ $_____ ☐ $_____ ☐ $_____	**TOTAL AMOUNT PAID:** $_____ DATE: _____ *Office Use:*	*Office Stamp:*	
☐ Amended Site Plan – (Each Revision)	AMENDED APPLICATION FEE: AMENDED REVIEW ESCROW:	☐ $350.00 ☐ $250.00			

PROPERTY DESCRIPTION	Parcel Information:	Map(s):		Lot(s):		Zoning District(s):	Size of the Parcel in SF:
	Total Disturbance. >1Ac	☐ Y ☐ N	Estimated. Building SF:		IF NO BUILDING; Estimated SF of Total Development:		
	Physical Address:				Watershed:		
PROPERTY OWNER'S INFORMATION	Name:				Name of the Business:		
	Phone:				Mailing Address:		
	Fax or Cell:						
	Email:						
APPLICANT'S INFORMATION (*IF DIFFERENT FROM OWNER*)	Name:				Name of Business:		
	Phone				Mailing Address:		
	Fax or Cell						
	Email:						
APPLICANT'S AGENT INFORMATION	Name:				Name of Business:		
	Phone:				Mailing Address:		
	Fax or Cell:						
	Email:						

PROJECT INFORMATION

Existing Land Use *(Use extra paper, if necessary)*:

Provide a narrative description of the Proposed Project *(Use extra paper, if necessary)*:

Provide a narrative description of construction constraints (wetlands, shoreland zone, flood plain, non-conformance, etc.):

MAJOR SITE PLAN REVIEW APPLICATION REQUIREMENTS

Section 120-811 of the Land Use Ordinance

The submission shall contain five (5) copies of the following information, including full plan sets. Along with one (1) electronic version of the entire submission, unless waiver of a submission requirement is granted, and one (1) complete plan set.

The Major Plan document/map:

A) Plan size: 24" X 36"
B) Plan Scale: No greater 1":100'
C) Title block: Applicant's name, project name, and address

- Name of the preparer of plans with professional information
- Parcel's tax map identification (map and lot) and street address, if available

- Complete application submission deadline: three (3) weeks (21-days) before the desired Planning Board meeting.
  - Five copies of the application and plans
  - Application Payment and Review Escrow
- A pre-submission meeting with the Town staff is required.
- Contact information:
  Windham Planning Department (207) 894-5960, ext. 2
  Steve Puleo, Town Planner sjpuleo@windhammaine.us
  Amanda Lessard, Planning Director allessard@windhammaine.us

APPLICANT/PLANNER'S CHECKLIST FOR MAJOR SITE PLAN REVIEW

SUBMITTALS THAT THE TOWN PLANNER DEEMS SUFFICIENTLY LACKING IN CONTENT WILL NOT BE SCHEDULED FOR PLANNING BOARD REVIEW.

The following checklist includes items generally required for development by the Town of Windham's LAND USE ORDINANCE, Sections 120-811, 120-812, 120-813 & 120-814. Due to projects specifics, the applicant is required to provide a complete and accurate set of plans, reports, and supporting documentation (as listed in the checklist below).

IT IS THE RESPONSIBILITY OF THE APPLICANT TO PRESENT A CLEAR UNDERSTANDING OF THE PROJECT.

Column #1.			Column #2.		
1. Final Plan -Major Site Plan: Submission Requirements	**Applicant**	**Staff**	**Plan Requirements – Existing Conditions (Continued):**	**Applicant**	**Staff**
A. Completed Major Site Plan Application form	☐	☐	vii. Zoning classification(s), including overlay and/or subdistricts, of the property and the location of zoning district boundaries if the property is located in 2 or more districts or abuts a different district	☐	☐
B. Evidence of Payment of application & escrow fees	☐	☐	viii. Bearings and lengths of all property lines of the property to be developed, and the stamp of the surveyor that performed the survey	☐	☐
C. Written information – submitted in a **bounded and tabbed** report			ix. Existing topography of the site at 2-foot contour intervals.	☐	☐
1. A narrative describing the proposed use or activity.	☐	☐	x. Location and size of any existing sewer and water mains, culverts and drains, on-site sewage disposal systems, wells, underground tanks or installations, and power and telephone lines and poles on the property and on abutting streets or land that may serve the development.	☐	☐
2. Name, address, & phone number of record owner, and applicant if different (see Agent Autorotation form).	☐	☐	xi. Location, names, and present widths of existing public and/or private streets and rights-of-way within or adjacent to the proposed development.	☐	☐
3. Names and addresses of all abutting property owners	☐	☐	xii. Location, dimensions, and ground floor elevation of all existing buildings.	☐	☐
4. Documentation demonstrating right, title, or interest in the property	☐	☐	xiii. Location and dimensions of existing driveways, parking and loading areas, walkways, and sidewalks on or adjacent to the site.	☐	☐
5. Copies of existing proposed covenants or deed restrictions.	☐	☐	xiv. Location of intersecting roads or driveways within 200 feet of the site.	☐	☐
6. Copies of existing or proposed easements on the property.	☐	☐	xv. Location of the following		
7. Name, registration number, and seal of the licensed professional who prepared the plan, if applicable.	☐	☐	a. Open drainage courses	☐	☐
8. Evidence of applicant's technical capability to carry out the project.	☐	☐	b. Wetlands	☐	☐
			c. Stone walls	☐	☐
9. Assessment of the adequacy of any existing sewer and water mains, culverts and drains, on-site sewage disposal systems, wells, underground tanks or installations, and power and telephone lines and poles on the property.	☐	☐	d. Graveyards	☐	☐

Continued from Column #1. (Page 2)			Continued from Column #2. (Page 2)		
10. Estimated demands for water and sewage disposal.	☐	☐	e. Fences	☐	☐
			f. Stands of trees or treeline, and	☐	☐
			g. Other important or unique natural areas and site features, including but not limited to, floodplains, deer wintering areas, significant wildlife habitats, fisheries, scenic areas, habitat for rare and endangered plants and animals, unique natural communities and natural areas, sand and gravel aquifers, and historic and/or archaeological resources.	☐	☐
11. Provisions for handling all solid wastes, including hazardous and special wastes.	☐	☐	xvi. Direction of existing surface water drainage across the site	☐	☐
12. Detail sheets of proposed light fixtures.	☐	☐	xvii. Location, front view, dimensions, & lighting of exsiting signs.	☐	☐
13. Listing of proposed trees or shrubs to be used for landscaping	☐	☐			
14. Estimate weekday AM and PM and Saturday peak hours and daily traffic to be generated by the project.	☐	☐	xviii. Location & dimensions of existing easements that encumber or benefit the site.	☐	☐
15. Description of important or unique natural areas and site features, including floodplains, deer wintering areas, significant wildlife habitats, fisheries, scenic areas, habitat for rare and endangered plants and	☐	☐	xix. Location of the nearest fire hydrant, dry hydrant, or other water supply.	☐	☐
16. If the project requires a stormwater permit from MaineDEP or if the Planning Board or if the Staff Review Committee determines that such information is required, submit the following.			**E. Plan Requirements - Proposed Development Activity**		
			i. Location and dimensions of all provisions for water supply and wastewater disposal, and evidence of their adequacy for the proposed use, including soils test pit data if on-site sewage disposal is proposed	☐	☐
a. stormwater calculations.	☐	☐	ii. Grading plan showing the proposed topography of the site at 2-foot contour intervals	☐	☐
b. erosion and sedimentation control measures.	☐	☐	iii. The direction of proposed surface water drainage across the site and from the site, with an assessment of impacts on downstream properties.	☐	☐
c. water quality and/or phosphorous export management provisions.	☐	☐	iv. Location and proposed screening of any on-site collection or storage facilities	☐	☐
17. If public water or sewerage will be utilized, provide a statement from the utility district regarding the adequacy of water supply in terms of quantity and pressure for both domestic and fire flows, and the capacity of the sewer system to accommodate additional wastewater.	☐	☐	v. Location, dimensions, and materials to be used in the construction of proposed driveways, parking, and loading areas, and walkways, and any changes in traffic flow onto or off-site	☐	☐
18. Financial Capacity			vi. Proposed landscaping and buffering	☐	☐
i. Estimated costs of development and itemize estimated major expenses.	☐	☐	vii. Location, dimensions, and ground floor elevation of all buildings or expansions	☐	☐
ii. Financing (submit one of the following)			viii. Location, front view, materials, and dimensions of proposed signs together with a method for securing sign	☐	☐
a. Letter of commitment to fund	☐	☐	ix. Location and type of exterior lighting. Photometric plan to demonstrate the coverage area of all lighting may be required by the Planning Board.	☐	☐
b. Self-financing	☐	☐	x. Location of all utilities, including fire protection systems	☐	☐
1. Annual corporate report	☐	☐	xi. Approval block: Provide space on the plan drawing for the following words, "Approved: Town of Windham Planning Board" along with space for signatures and date	☐	☐
2. Bank Statement	☐	☐	**2. Major Final Site Plan Requirements as Exhibits to the Application**		
c. Other			a. Narrative and/or plan describing how the proposed development plan relates to the sketch plan.	☐	☐
1. Cash equity commitment of 20% of the total cost of development	☐	☐	b. Stormwater drainage and erosion control program shows:		
2. Financial plan for remaining financing.	☐	☐	1. The existing and proposed method of handling stormwater runoff	☐	☐

Continued from Column #1. (Page 3)			Continued from Column #2. (Page 3)		
3. Letter from institution indicating intent to finance.	☐	☐	2. The direction of the flow of the runoff, through the use of arrows and a description of the type of flow (e.g., sheet flow, concentrated flow, etc.)	☐	☐
iii. If a registered corporation a Certificate of Good Standing from:			3. Location, elevation, and size of all catch basins, dry wells, drainage ditches, swales, retention basins, and storm sewers	☐	☐
- Secretary of State, or	☐	☐	4. Engineering calculations were used to determine drainage requirements based on the 25-year, 24-hour storm frequency.	☐	☐
- the statement signed by a corporate officer	☐	☐	5. Methods of minimizing erosion and controlling sedimentation during and after construction.	☐	☐
19. Technical Capacity (address both).			c. A groundwater impact analysis prepared by a groundwater hydrologist for projects involving on-site water supply or sewage disposal facilities with a capacity of 2,000 gallons or more per day	☐	☐
i. Prior experience relating to developments in the Town.	☐	☐	d. Name, registration number, and seal of the Maine Licensed Professional Architect, Engineer, Surveyor, Landscape Architect, and/or similar professional who prepared the plan.	☐	☐
ii. Personnel resumes or documents showing experience and qualification of development designers	☐	☐	e. A utility plan showing, in addition to provisions for water supply and wastewater disposal, the location and nature of electrical, telephone, cable TV, and any other utility services to be installed on the site.	☐	☐
D. Plan Requirements – Existing Conditions			f. A planting schedule keyed to the site plan indicating the general varieties and sizes of trees, shrubs, and other vegetation to be planted on the site, as well as information of provisions that will be made to retain and protect existing trees, shrubs, and other vegetation.	☐	☐
i. Location Map adequate to locate project within the municipality	☐	☐			
ii. Vicinity Plan. Drawn to a scale of not over 400 feet to the inch, and showing area within 250 feet of the property line, and shall show the following:	☐	☐	g. Digital transfer of any site plan data to the town (GIS format)	☐	☐
a. Approximate location of all property lines and acreage of the parcel(s).	☐	☐			
b. Locations, widths, and names of existing, filed, or proposed streets, easements, or building footprints.	☐	☐			
c. Location and designations of any public spaces.	☐	☐	h. A traffic impact study if the project expansion will generate 50 or more trips during the AM or PM peak hour, or if required by the Planning Board)	☐	☐
d. Outline of the proposed site plan, together with its street system and an indication of the future probable street system of the remaining portion of the tract.	☐	☐			
iii. North Arrow identifying Grid North; Magnetic North with the declination between Grid and Magnetic; and whether Magnetic or Grid bearings were used.	☐	☐			
iv. Location of all required building setbacks, yards, and buffers.	☐	☐			
v. Boundaries of all contiguous property under the total or partial control of the owner or applicant.	☐	☐			
vi. Tax map and lot number of the parcel(s) on which the project is located	☐	☐	**PDF\Electronic Submission.**	☐	☐

The undersigned *hereby makes an application to the Town of Windham for approval of the proposed project and declares the foregoing to be true and accurate to the best of his/her knowledge.*

APPLICANT OR AGENT'S SIGNATURE	DATE

PLEASE TYPE OR PRINT NAME

Town of Windham
Planning Department:
8 School Road
Windham, Maine 04062
Tel: (207) 894-5960 ext. 2
Fax: (207) 892-1916 -
www.windhammaine.us

MAJOR SUBDIVISION – FINAL PLAN - REVIEW APPLICATION

FEES FOR MAJOR SUBDIVISION FINAL PLAN REVIEW	**APPLICATION FEE:**	☐ **$350.00**	**AMOUNT PAID:** $_____ DATE: _____		
	AMENDED APPLICATION FEE:	☐ **$350.00**			
☐**Amended Major Subdivision Each Lot / Revision**	**REVIEW ESCROW:**	☐ **$250.00**	*Office Use:*	*Office Stamp:*	
	AMENDED REVIEW ESCROW:	☐ **$250.00**			

PROPERTY DESCRIPTION	**Parcel ID**	**Map(s) #**		**Lot(s) #**		**Zoning District(s)**	**Total Land Area SF:**
	# Lots/dwelling units:		**Total Distr. >1Ac.**	☐ **Y** ☐ **N**			**Est. Road Length(ft):**
	Physical Address:					**Watershed:**	
PROPERTY OWNER'S INFORMATION	**Name:**					**Name of Business:**	
	Phone:					**Mailing Address:**	
	Fax or Cell:						
	Email:						
APPLICANT'S INFORMATION (*IF DIFFERENT FROM OWNER*)	**Name:**					**Name of Business:**	
	Phone:					**Mailing Address:**	
	Fax or Cell:						
	Email:						
APPLICANT'S AGENT INFORMATION	**Name:**					**Name of Business:**	
	Phone:					**Mailing Address:**	
	Fax or Cell:						
	Email:						

PROJECT INFORMATION

Existing Land Use *(Use extra paper, if necessary)*:

Provide a narrative description of the Proposed Project *(Use extra paper, if necessary)*:

Provide a narrative description of construction constraints (wetlands, shoreland zone, flood plain, non-conformance, etc.):

MAJOR SUBDIVISION - FINAL PLAN - REVIEW APPLICATION REQUIREMENTS

Section 910 of the Land Use Ordinance

The submission shall contain, five (5) copies of the following information, including full plan sets. Along with one (1) electronic version of the entire submission unless a waiver of a submission requirement is granted.

The Major Plan document/map:

A) Plan size: 24" X 36"
B) Plan Scale: No greater 1":100'
C) Title block: Applicant's name and address

- Name of the preparer of plans with professional information
- Parcel's tax map identification (map and lot) and street address, if available

- Complete application submission deadline: three (3) weeks prior to the desired Staff Review Committee meeting.
  - Five copies of the application and plans
  - Application Payment and Review Escrow
- A pre-submission meeting with the Town staff is required.
- Contact information:
  Windham Planning Department (207) 894-5960, ext. 2
  Steve Puleo, Town Planner sjpuleo@windhammaine.us
  Amanda Lessard, Planning Director allessard@windhammaine.us

APPLICANT/PLANNER'S CHECKLIST FOR MAJOR SUBDIVISION REVIEW

SUBMITTALS THAT THE TOWN PLANNER DEEMS SUFFICIENTLY LACKING IN CONTENT WILL NOT BE SCHEDULED FOR PLANNING BOARD REVIEW.

The following checklist includes items generally required for development by the Town of Windham's LAND USE ORDINANCE, Sections 907.B., 910.C., & 911. Due to projects specifics, are required to provide a complete and accurate set of plans, reports, and supporting documentation (as listed in the checklist below).

IT IS THE RESPONSIBILITY OF THE APPLICANT TO PRESENT A CLEAR UNDERSTANDING OF THE PROJECT.

Final Plan - Major Subdivision - Submission Requirements:	**Applicant**	**Staff**	**B. Mandatory Plan Information**	**Applicant**	**Staff**
A. Written information – submitted in a bound report.					
1. A fully executed application form.	☐	☐	1. All information presented on the Preliminary Plan, and any amendments suggested or required by the Board.	☐	☐
2. Evidence that the escrow account balance is greater than 25% of the initial Preliminary Plan deposit.	☐	☐	2. Map and lot numbers for all lots as assigned by the Town of Windham Assessing Department.	☐	☐
3. If public open space is to be provided, written offers of cession to the Town of Windham shall be provided.	☐	☐	3. Seal of the Maine Licensed Professional who prepared the plan.	☐	☐
4. If the subdivider reserves title to spaces within the subdivision, provide copies of agreements or other documents.	☐	☐	4. All public open spaces for which offers of cession are made by the subdivider and those spaces to which title is reserved by the subdivider.	☐	☐
5. Copies of any outside agency approvals.	☐	☐	5. Location of all permanent monuments.	☐	☐
6. Statement from the Maine Inland Fisheries & Wildlife that no significant wildlife habitat exists on the site.	☐	☐	**PDF\Electronic Submission.**	☐	☐
7. Digital transfer of subdivision plan data (GIS format).	☐	☐			

The undersigned *hereby makes an application to the Town of Windham for approval of the proposed project and declares the foregoing to be true and accurate to the best of his/her knowledge.*

APPLICANT OR AGENT'S SIGNATURE DATE PLEASE TYPE OR PRINT THE NAME

Section 2

Location & Resource Maps

Section 2 – Location & Resource Maps

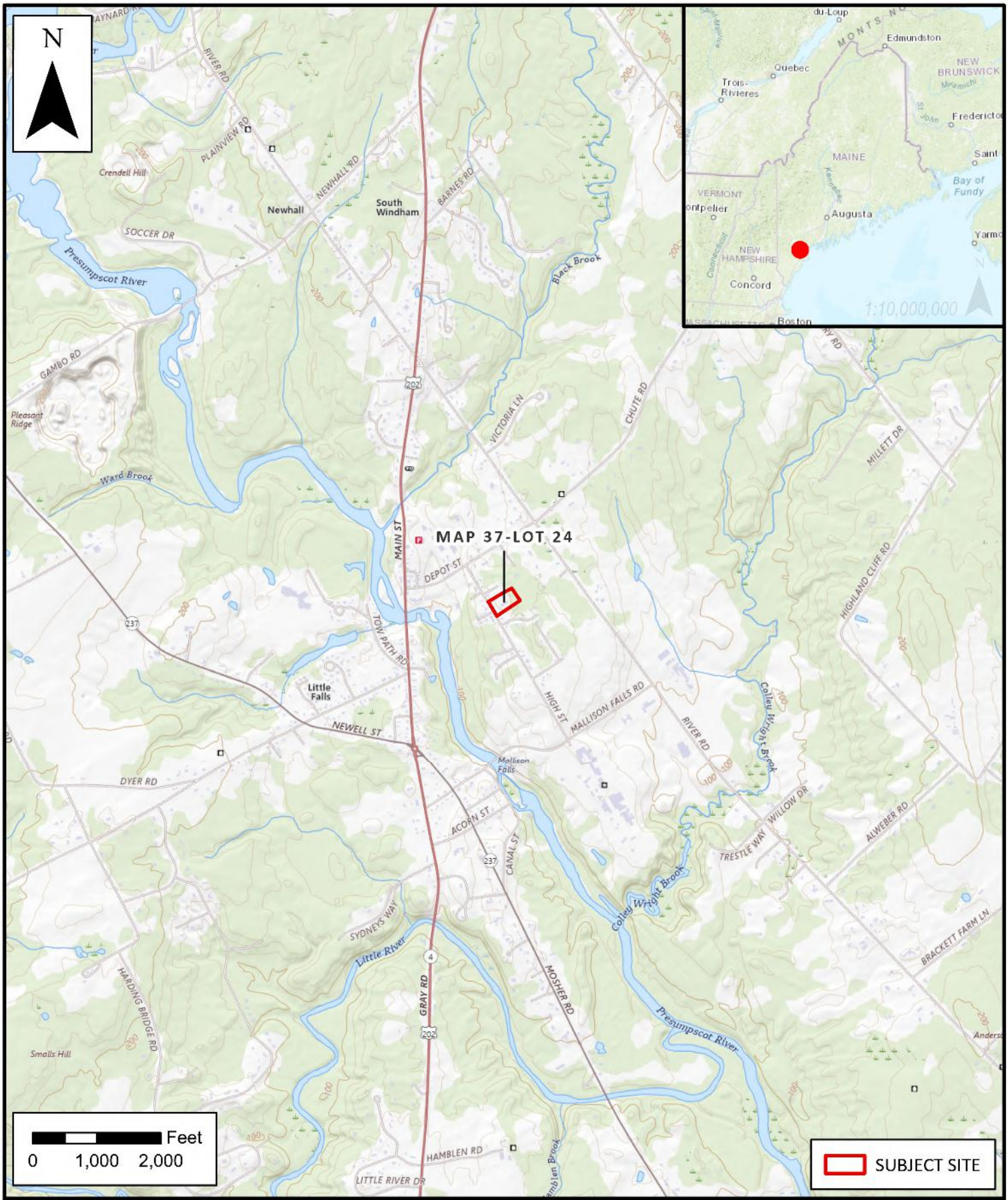
Location Map: Enclosed within this Section is a Location Map, a mapped excerpt from the USGS quadrangle showing the site's location for identification purposes. The project site is located at 55 High Street in the Town of Windham, Maine.

Tax Map: The site can further be identified on the Town of Windham's Tax Map 37 as Lot 24. The referenced Tax Map is also enclosed within this Section with a leader identifying the site.

Zoning Map: For reference, a Zoning Map is also enclosed within this Section. This map details the subject property is located within the Village Commercial (VC) Zoning District, and is abutting the Residential Medium (RM) district to the south and the Village Residential (VR) district to the northwest.

Flood Map: The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panel 23005C0656F, effective June 20, 2024, shows that the site is wholly located within an area of minimal flooding. A copy of this map is also enclosed within this Section.

Resource Maps: There are two (2) additional maps enclosed within this Section that identify resources on and around the project site. The first is a Wetlands & Waterbodies map, that shows nearby wetlands and rivers in proximity to the site. The second map is a Plant & Animal Habitat Map, using data sourced from the Maine Department of Inland Fisheries & Wildlife (MDIFW) Beginning with Habitat data. This map shows that there are not any areas on or around the site that contain high value plant or animal habitats, water resources, or riparian habitats.



SEBAGO TECHNICS

WWW.SEBAGOTECHNICS.COM
75 John Roberts Rd. - Suite 4A
South Portland, ME 04106
Tel. 207-200-2100

LOCATION MAP

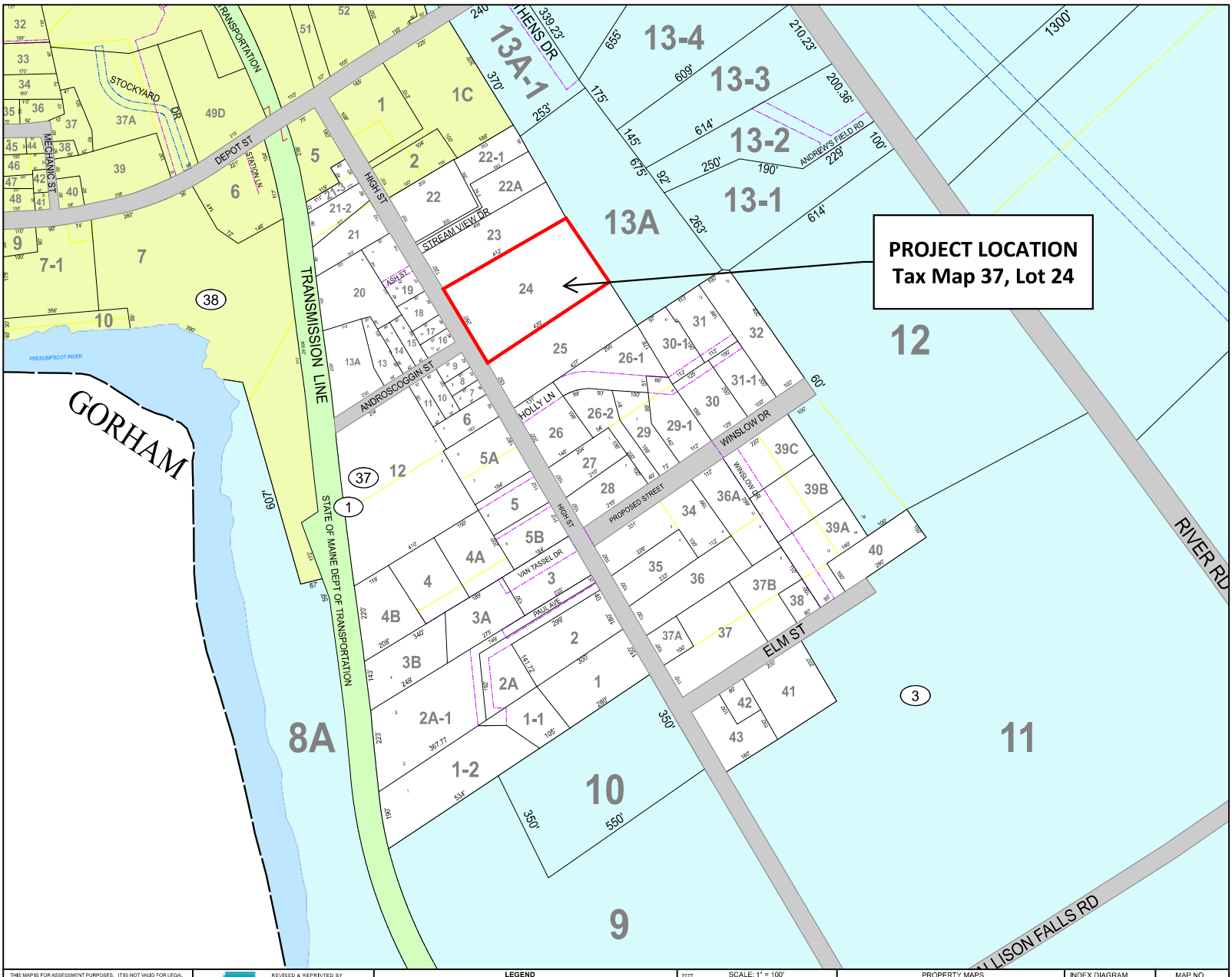
JOHN A. ANDREW SCHOOL - SITE REDEVELOPMENT

SCALE: 1:24,000

DATE: 8/28/2024

LOCATION:
55 HIGH ST
WINDHAM, ME

INFORMATION:
MAINE GEOLIBRARY
USGS QUADRANGLE



THIS MAP IS FOR ASSESSMENT PURPOSES. IT IS NOT VALID FOR LEGAL DESCRIPTION OR CONVEYANCE.

THE HORIZONTAL DATUM IS THE MAINE STATE PLANE COORDINATE SYSTEM, NAD 83.

ORIGINAL MAPPING BY JAMES W. SEWALL COMPANY, OLD TOWN, MAINE

REVISED & REPRINTED BY CAI Technologies

LEGEND

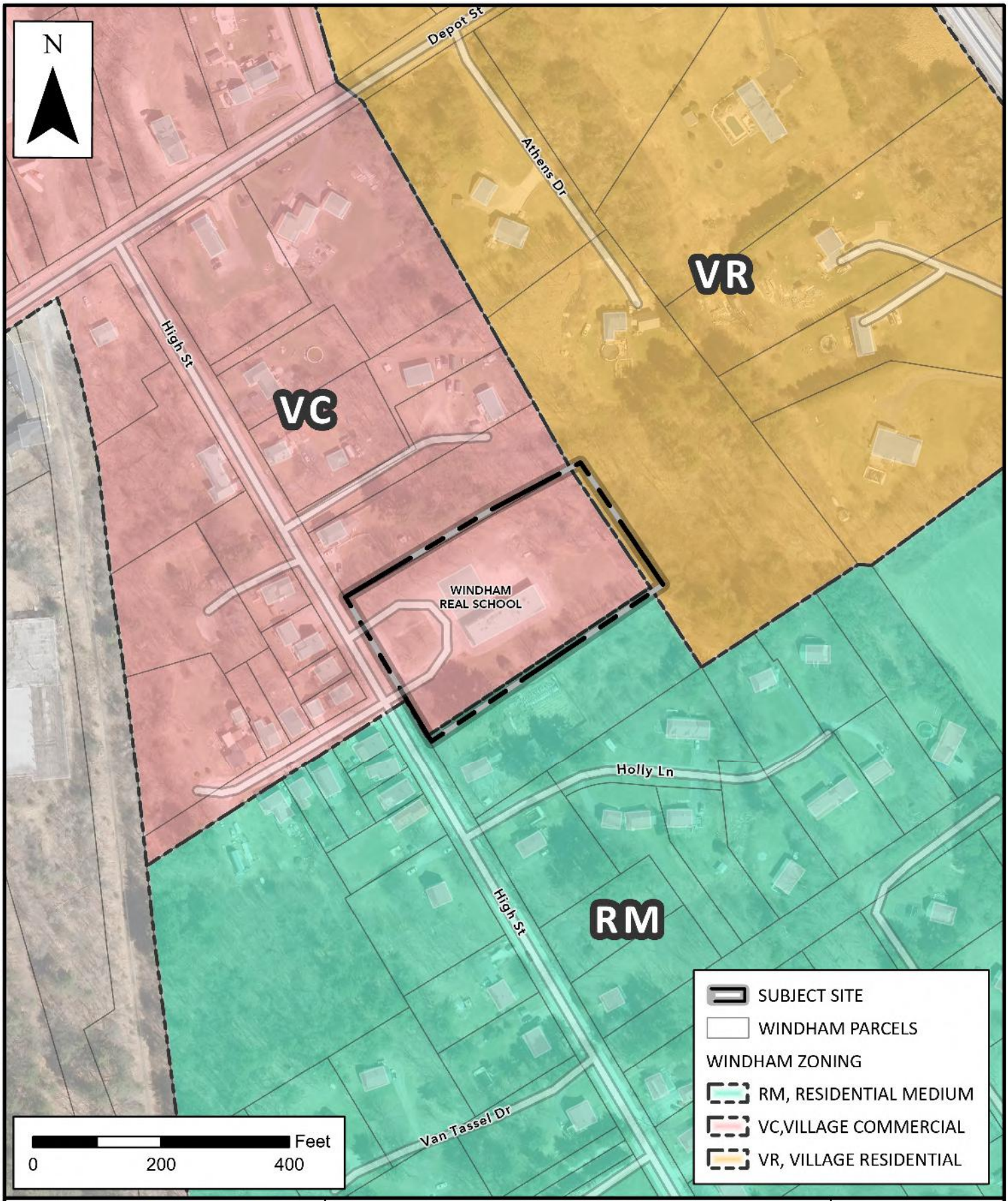
SCALE: 1" = 100'

REVISED TO: APRIL 1, 2023

PROPERTY MAPS
WINDHAM
MAINE

INDEX DIAGRAM

MAP NO.
37



SEBAGO TECHNICS
WWW.SEBAGOTECHNICS.COM
75 John Roberts Rd. - Suite 4A
South Portland, ME 04106
Tel. 207-200-2100

ZONING MAP

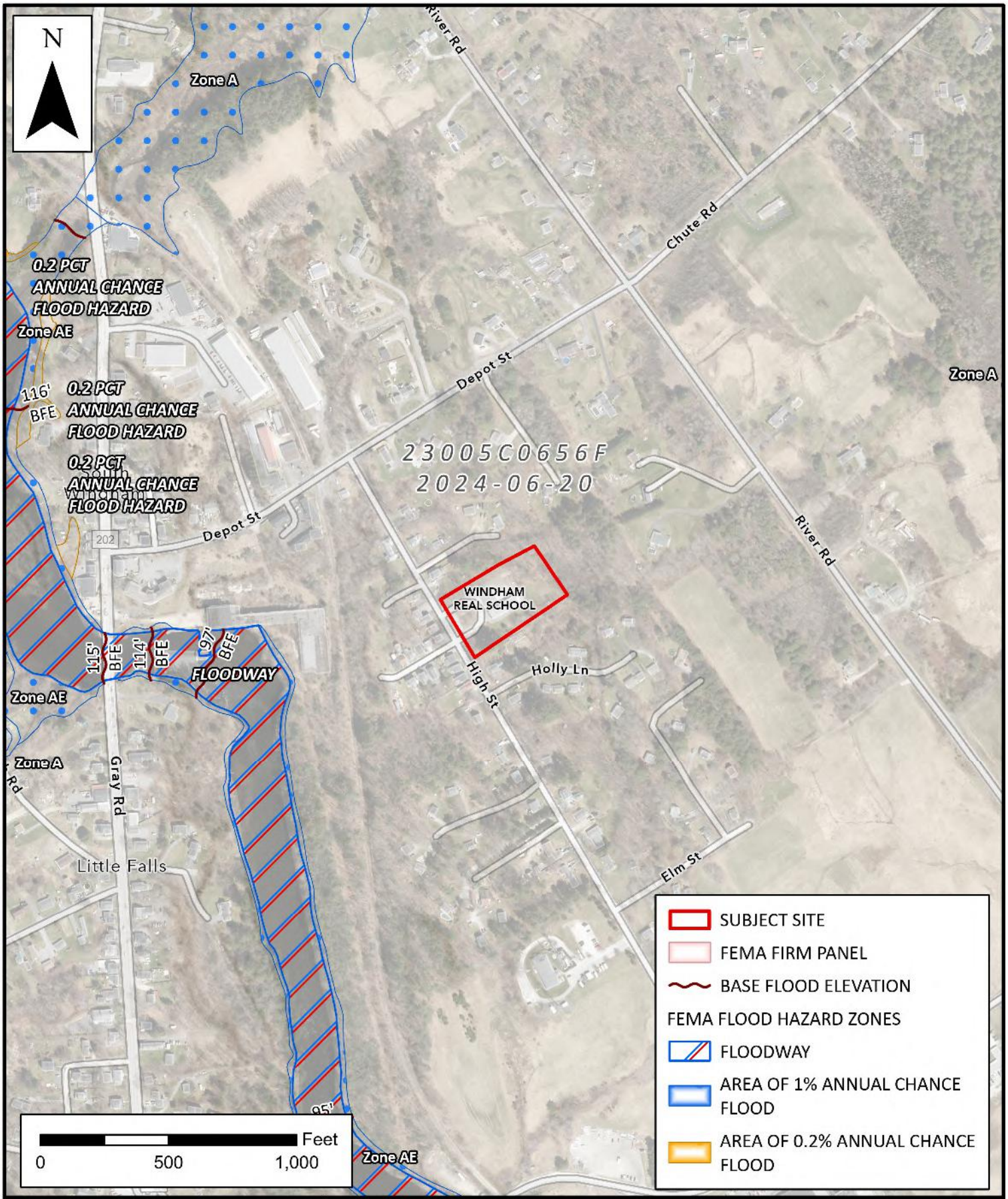
JOHN A. ANDREW SCHOOL - SITE REDEVELOPMENT

SCALE: 1:2,400

DATE: 8/28/2024

LOCATION:
55 HIGH ST
WINDHAM, ME

INFORMATION:
WINDHAM MAINE ZONING MAP
LAST UPDATED 2024-05-08



SEBAGO TECHNICS

WWW.SEBAGOTECHNICS.COM
75 John Roberts Rd. - Suite 4A
South Portland, ME 04106
Tel. 207-200-2100

FEMA NATIONAL FLOOD HAZARDS

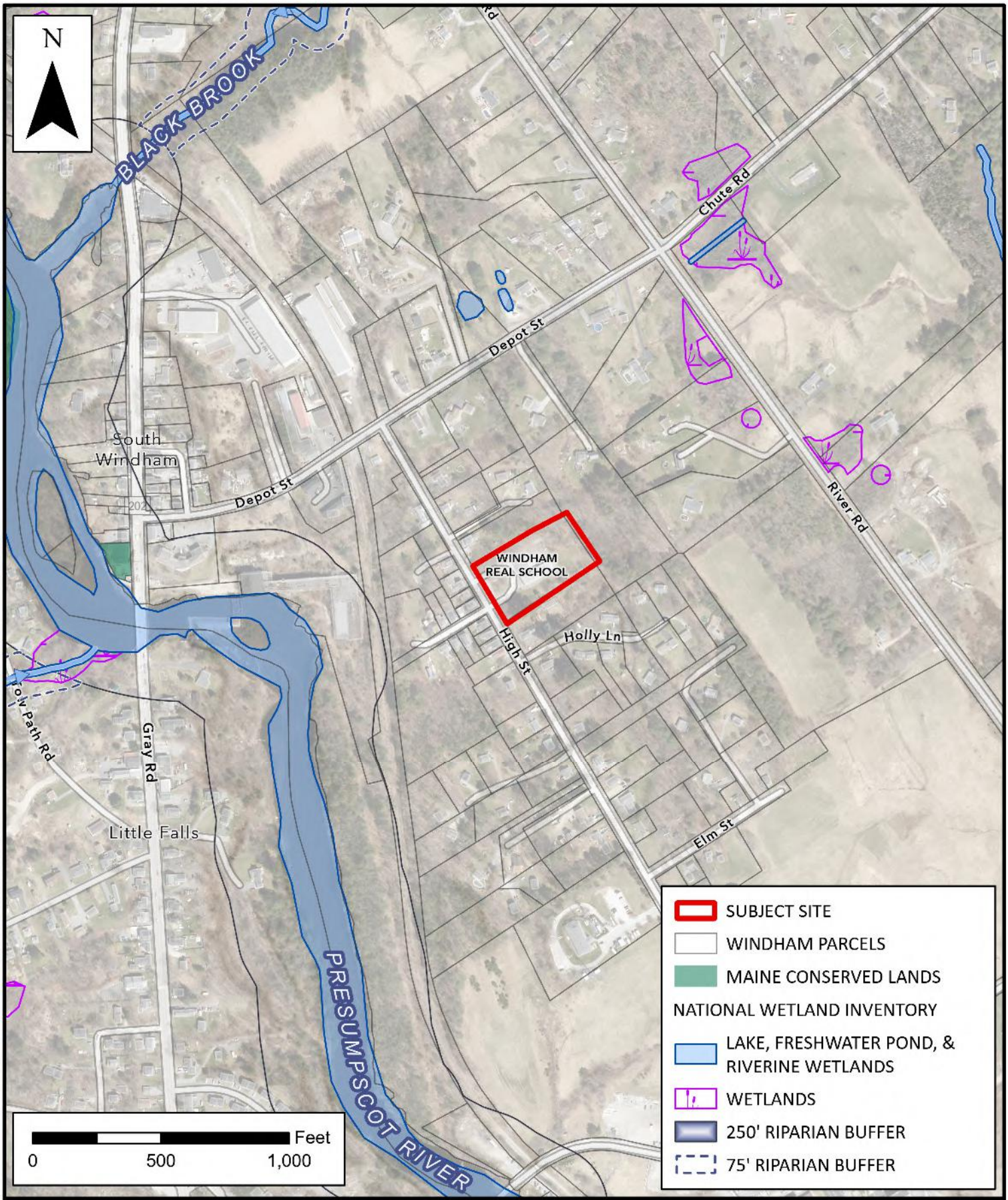
JOHN A. ANDREW SCHOOL - SITE REDEVELOPMENT

SCALE: 1:6,000

DATE: 8/28/2024

LOCATION:
55 HIGH ST
WINDHAM, ME

INFORMATION:
MAINE GEOLIBRARY
FEMA NFHL 2024-07-17



SEBAGO TECHNICS

WWW.SEBAGOTECHNICS.COM
75 John Roberts Rd. - Suite 4A
South Portland, ME 04106
Tel. 207-200-2100

WETLANDS & WATERBODIES

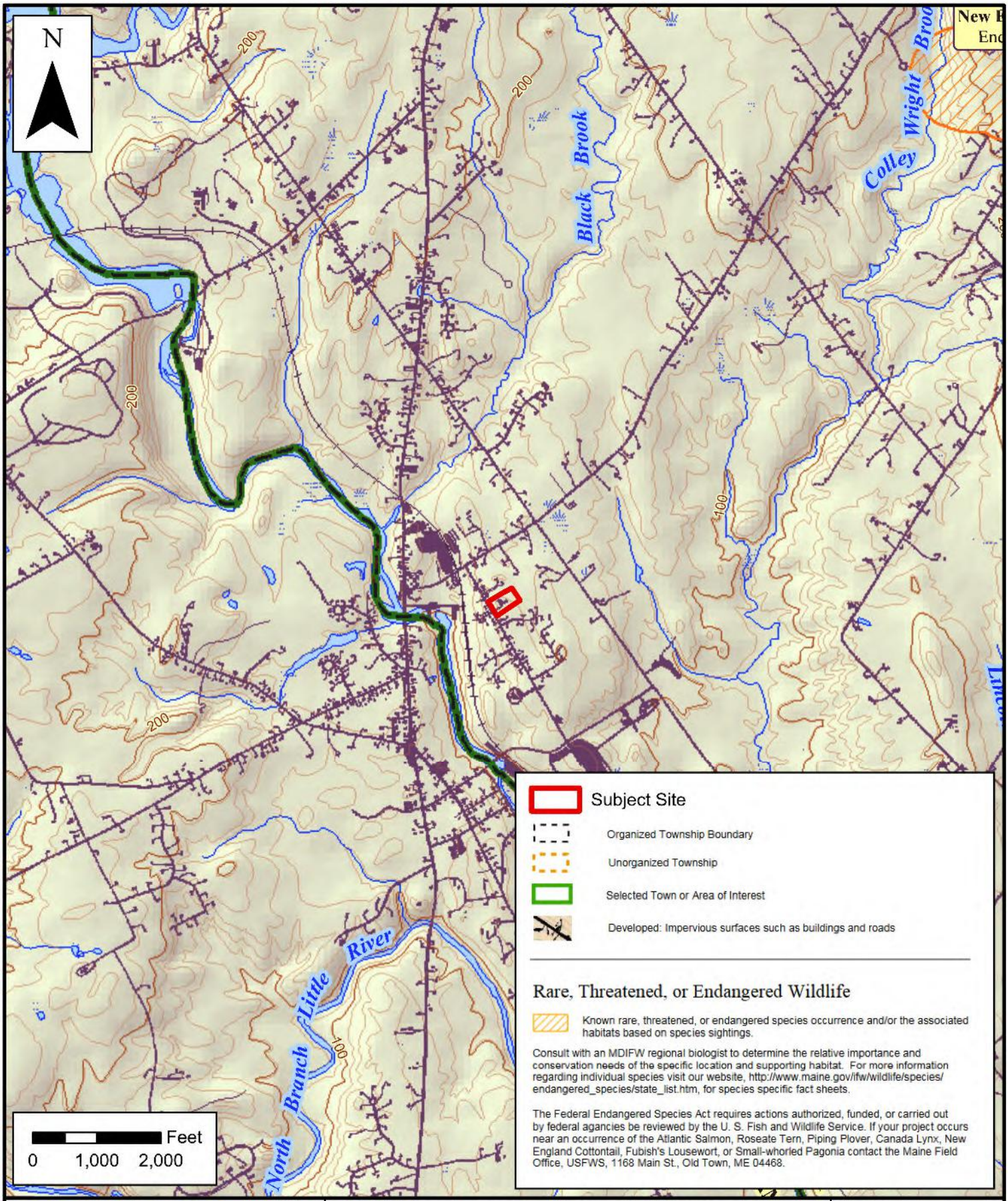
JOHN A. ANDREW SCHOOL - SITE REDEVELOPMENT

SCALE: 1:6,000

DATE: 8/29/2024

LOCATION:
55 HIGH ST
WINDHAM, ME

INFORMATION:
MAINE GEOLIBRARY
NATIONAL WETLAND INVENTORY



SEBAGO TECHNICS
WWW.SEBAGOTECHNICS.COM
75 John Roberts Rd. - Suite 4A
South Portland, ME 04106
Tel. 207-200-2100

HIGH VALUE PLANT & ANIMAL HABITAT

JOHN A. ANDREW SCHOOL - SITE REDEVELOPMENT

SCALE: 1:24,000

DATE: 8/29/2024

LOCATION:
55 HIGH ST
WINDHAM, ME

INFORMATION:
MDIFW BEGINNING WITH HABITAT
HIGH VALUE PLANT & ANIMAL HABITATS - APR. 2016

Section 3

Abutters Information

Section 3 – Abutters Information

For reference, we have included information pertaining to the abutters within a one hundred (100) ft. buffer around the project site. This list includes the map-lot number, location, and property owner. Please see the referenced list enclosed within this Section.

100 feet Abutters List Report

Windham, ME
February 25, 2025

Subject Property:

Parcel Number:	037024000000	Mailing Address:	TOWN OF WINDHAM JOHN A ANDREW SCHOOL 8 SCHOOL ROAD WINDHAM, ME 04062
CAMA Number:	037-024-000-000		
Property Address:	ACADEMY ST		

Abutters:

Parcel Number:	003013A00000	Mailing Address:	REED HOLLY A 11 ATHENS DRIVE WINDHAM, ME 04062
CAMA Number:	003-013-A00-000		
Property Address:	11 ATHENS DR		
Parcel Number:	037006000000	Mailing Address:	SEARS THOMAS SEARS JENELL 44 HIGH ST WINDHAM, ME 04062
CAMA Number:	037-006-000-000		
Property Address:	44 HIGH ST		
Parcel Number:	037007000000	Mailing Address:	HIGGINS EOIN P & SILLS ROBIN MARIE 46 HIGH ST WINDHAM, ME 04062
CAMA Number:	037-007-000-000		
Property Address:	46 HIGH ST		
Parcel Number:	037008000000	Mailing Address:	BUTTS TYLER W & MONTIMURRO SARAH A 48 HIGH STREET WINDHAM, ME 04062
CAMA Number:	037-008-000-000		
Property Address:	48 HIGH ST		
Parcel Number:	037009000000	Mailing Address:	MATTSON DOREEN 50 HIGH ST WINDHAM, ME 04062
CAMA Number:	037-009-000-000		
Property Address:	50 HIGH ST		
Parcel Number:	037016000000	Mailing Address:	SMUTZ CYNTHIA L 54 HIGH ST WINDHAM, ME 04062
CAMA Number:	037-016-000-000		
Property Address:	54 HIGH ST		
Parcel Number:	037017000000	Mailing Address:	HO CHARLIE HO TIMMY 56 HIGH ST WINDHAM, ME 04062
CAMA Number:	037-017-000-000		
Property Address:	56 HIGH ST		
Parcel Number:	037018000000	Mailing Address:	VILLACCI TERRI 58 HIGH STREET WINDHAM, ME 04062
CAMA Number:	037-018-000-000		
Property Address:	58 HIGH ST		
Parcel Number:	037019000000	Mailing Address:	RANDALL ARNOLD P & RANDALL PATRICIA A - RTDD 60 HIGH STREET WINDHAM, ME 04062
CAMA Number:	037-019-000-000		
Property Address:	60 HIGH ST		
Parcel Number:	037023000000	Mailing Address:	JACKSON SARAH 59 HIGH ST WINDHAM, ME 04062
CAMA Number:	037-023-000-000		
Property Address:	59 HIGH ST		

100 feet Abutters List Report

Windham, ME
February 25, 2025

Parcel Number:	037025000000	Mailing Address:	DAMON PAUL L & MARIE A & DAMON GREGORY L 43 HIGH STREET WINDHAM, ME 04062
CAMA Number:	037-025-000-000		
Property Address:	43 HIGH ST		

Section 4

Right, Title, or Interest

Section 4 – Right, Title, or Interest

The current owner of the subject property is the Town of Windham, in accordance with the deed recorded at the Cumberland County Registry of Deeds in Book 40367, Page 18, dated September 18, 2023. The referenced deed and the Purchase and Sale Agreement with the Town/Applicants are enclosed within this Section.

DLN: 1002340249390

Quitclaim Deed without Covenant

REGIONAL SCHOOL UNIT NO. 14, a Maine regional school unit with a mailing address of 228 Windham Center Road, Windham, ME 04062 ("RSU") for consideration paid, hereby grants to **TOWN OF WINDHAM**, a Maine municipality with a mailing address of 8 School Road, Windham, ME 04062 ("Town") RSU's right, title, and interest in and to that certain real property, together with any buildings and improvements thereon, known as the John H. Andrews School, situated at 55 High Street in the Town of Windham, County of Cumberland, and State of Maine, more particularly described in **Exhibit A**, attached hereto and made a part hereof.

See attached Exhibit A

For source of title, reference may be had to that certain deed from the Town to the RSU, dated October 1, 2012 and recorded in the Cumberland County Registry of Deeds in Book 30002, Page 222.

[Signature page follows.]

IN WITNESS WHEREOF, the authorized representative of the RSU has caused this instrument to be executed this 9/18 day of 2023.

WITNESS

REGIONAL SCHOOL UNIT NO. 14

Christopher Howell, Superintendent

STATE OF MAINE
COUNTY OF Cumberland, SS

Then personally appeared before me the above named Christopher Howell, Superintendent of Regional School Unit No. 14 and acknowledged the foregoing instrument to be his free act and deed and the free act and deed of said entity.

Before me:

~~Notary Public~~ / Attorney at Law 6086
Print Name: Laura Hartz
Commission Expiry: N/A

DOC :33264 BK:40367 PG:20
RECEIVED - RECORDED, CUMBERLAND COUNTY REGISTER OF DEEDS
09/18/2023, 02:29:50P
Register of Deeds Jessica M. Spaulding E-RECORDED

EXHIBIT A

A certain lot or parcel of land, together with the buildings and improvements to realty thereon, situated in the Town of Windham, County of Cumberland and State of Maine, commonly known as the John Andrews School Property and being more particularly described as follows:

The premises described in the following deeds as recorded in the Cumberland County Registry of Deeds (the "Registry"):

a) Warranty Deed from Samuel Bragdon to the Inhabitants of School District No. 2 dated September 23, 1886 and recorded in the Registry at Book 574, Page 281;
b) Warranty Deed from Philip L. Ames to the Town of Windham dated May 5, 1953 and recorded in the Registry at Book 2118, Page 459; and
c) Warranty Deed from Edna A. Murch to the Town of Windham dated April 29, 1953 and recorded in the Registry at Book 2127, Page 447.

Also conveying, to the extent not included in the foregoing deeds, all of the Grantor's right, title and interest in and to any other real estate comprising the John Andrews School premises, so-called. Reference is made to Town of Windham Property Tax Map 37, Lot 24, revised as of April 1, 2010.

Being a portion of the premises conveyed by Quitclaim Deed without Covenant from the Inhabitants of the Town of Windham, a/k/a Inhabitants of Windham, a/k/a the Inhabitants of the Municipality of Windham, a/k/a the Town of Windham to Regional School Unit No. 14 dated October 1, 2012 and recorded in the Cumberland County Registry of Deeds in Book 30002, Page 222.

PURCHASE AND SALE AGREEMENT

This PURCHASE AND SALE AGREEMENT (the "Agreement") is made this 23rd day of October, 2024 (the "Effective Date") by and between the **TOWN OF WINDHAM**, a municipal corporation and body politic incorporated under the laws of the State of Maine with a place of business at and address of 8 School Road, Windham, ME 04062 (the "Town") and **WESTBROOK DEVELOPMENT CORPORATION**, a Maine Title 13-B non-profit corporation with a place of business at and mailing address of 30 Liza Harmon Drive, Westbrook, ME 04092 ("WDC"), and **GREAT FALLS BUILDERS, INC. D/B/A GREAT FALLS CONSTRUCTION** a Maine corporation with a place of business at and mailing address of 20 Mechanic Street, Gorham, ME 04038 ("GFB" and collectively with WDC, the "Purchaser").

1. **Property**. The Town agrees to sell and convey to Purchaser, and Purchaser agrees to purchase and acquire from the Town, a certain parcel of land and all improvements thereon located at 55 High Street, located in Windham, Cumberland County, Maine, and being further generally depicted on the Town of Windham Tax Map 37, Lot 24, and as described in a deed dated September 18, 2023 and recorded in the Cumberland County Registry of Deeds in Book 40367, Page 18 a copy of which is attached hereto as **Exhibit A** (the "Property"), together with, and subject to, all easements of record.

2. **Purchase Price**. [redacted]

   a. Within three (3) business days of the execution of this Agreement, as security for the Purchaser's agreement to perform its obligations hereunder, the Purchaser shall pay to Town's counsel, Jensen Baird, as Escrow Agent, th[redacted] The Deposit shall be paid to the Town at Closing, as defined in Paragraph 3 below, or otherwise shall be applied in accordance with the terms of this Agreement.

   b. At Closing, the Purchaser shall pay the Town the balance of the Purchase Price by bank check or confirmed wire transfer.

3. **Closing**. The closing (the "Closing" or "Closing Date") shall occur, except as may otherwise be provided herein, no less than thirty (30) days' after written notice from the Purchaser to the Seller of the construction loan closing for the Affordable Housing Project (as defined in Section 15 herein), [redacted] from the Effective Date (the "Outside Closing Date"), at the offices of the Town's Counsel, or such other time or place as mutually agreed to by the Town and the Purchaser. In order to facilitate the Affordable Housing Project, if one or both of the Purchaser's have received a notice to proceed or commitment letter for financing the construction and development of the Affordable Housing Project (the "Financing Commitment") and Purchaser is diligently pursuing all necessary requirements for Closing in accordance with the terms of this Agreement, then the Purchaser shall have the option to request

in writing, and so long as the Financing Commitment has not expired as of the date of the request, [redacted]

The following shall occur at the Closing, each being a condition precedent to the others and all being considered as occurring simultaneously:

(i) the Town shall execute, have acknowledged and deliver to Purchaser, the Deed (defined below);

(ii) the Town shall deliver an executed title insurance affidavit solely as to mechanics and materialmen's liens and parties in possession. In no event shall the Town be required to provide a survey affidavit;

(iii) the Town shall deliver an affidavit indicating that the Town is not a foreign person and that the transaction is exempt from the requirements of 26 U.S.C. § 1445, or in lieu thereof, Purchaser shall be entitled to withhold and account for a portion of the Purchase Price as required by such statute and corresponding regulations;

(iv) the Town shall deliver an affidavit indicating that the Town is a Maine resident, or in lieu thereof or of another applicable exemption, Purchaser shall be entitled to withhold and account for a portion of the Purchase Price as required by 33 M.R.S. §5250-A;

(v) the Town and Purchaser shall execute a settlement statement satisfactory to both parties itemizing the various payments and prorations contemplated hereby.

4. **Conveyance; Title**. At the Closing, the Town shall execute and deliver to the Purchaser a good and sufficient Release Deed (the "Deed") conveying the Property in fee simple, with good and insurable title thereto, free and clear of all liens and encumbrances, except for: (a) real estate taxes which are not yet due or payable, if applicable; (b) zoning restrictions and land use matters, including without limitation, all terms and conditions of local, state and federal ordinances or regulations and permits relating to the Property, (c) those encumbrances or easements of record.

At Closing, the Town shall be entitled to use any portion of the Purchase Price to satisfy and discharge any monetary encumbrances affecting the Property.

5. **Prorations and Adjustments at Closing; Closing Costs**.

a. Prorations. Current real estate taxes (if applicable) based on the municipality's fiscal year shall be prorated as of the date of Closing. The Town is responsible for paying any unpaid real estate and personal property taxes, including accrued interest, costs and fees, accrued prior to the Closing.

b. Closing Costs. The Purchaser, at its sole cost and expense, shall be responsible to obtain and pay for all title insurance premiums attributable to the acquisition of the Property, and the recording of the Deed, and any mortgage or other instrument related to Purchaser's financing, if any. The Town and the Purchaser will each pay their share of the transfer tax as required by the State of Maine. Each of the Town and the Purchaser shall be responsible for their own attorneys' fees.

6. **Contingencies to the Purchaser's Obligations**. The Purchaser's obligations under this Agreement shall be contingent upon the following:

a. Property Information. Within **fifteen (15) business days** after the Effective Date, the Town shall provide Purchaser with all surveys, title policies, environmental reports, in its or its agents' possession including without limitation copies of any surveys of the Premises within the Town's or Town's agents' possession, and also agrees to promptly provide any updates or amendments to the foregoing within five (5) business days of the town's receipt of the same.

b. Title to Property. The Purchaser's approval within ninety (90) days from the Effective Date of this Agreement, of a commitment of title insurance issued by a title insurance company of the Purchaser's choosing, with liability in the amount of the Purchase Price, showing title to the Property to be vested in the Purchaser, subject only to the Permitted Exceptions, as well as those exceptions approved by the Purchaser (the "Title Period"). If the Purchaser is not satisfied, in its sole discretion, with the results of its title review for any reason except the Permitted Exceptions, then the Purchaser shall have the right, by notice given to the Town on or before 5:00 P.M. on the last day of the Title Period, to either (i) terminate this Agreement and receive the return of its Deposit, in which case each party hereto shall be released from their obligations hereunder, or (ii) specify those matters in title that are not acceptable to the Purchaser, except for any mortgage, tax lien, mechanic's lien, judgment lien or other monetary lien or encumbrance for which no objection is required ("Title Defect Notice"). To exercise such termination right, the Purchaser shall give written notice of termination to the Town on or before 5:00 P.M. (EST) on the last day of the Title Period. If the Purchaser elects to give to the Town the Title Defect Notice on or before said deadline, then the Town shall notify the Purchaser, within ten (10) business days after the Town's receipt of the Title Defect Notice, whether the Town will attempt to cure such title defects. If such defect is not removed by the Town prior to Closing, the Purchaser may either (a) terminate this Agreement and receive the return of its Deposit, in which case each party hereto shall be released from their obligations hereunder; or (b) consummate the purchase of the Property in accordance with this Agreement, with no reduction in the Purchase Price.

c. General Due Diligence. Purchaser shall have ninety (90) days from the Effective Date of this Agreement (the "Due Diligence Period") to conduct general due

diligence, which may include without limitation, general building and site assessment and inspection, financing, surveys (ALTA/NSPS land title survey), geotechnical and environmental assessments (Phase I and, if necessary Phase II Environmental Site Assessment), an investigation of any zoning or other conditions affecting the Premises, and any other investigations Buyer may elect to perform (the "Inspections"). If in the sole discretion of Purchaser, it is dissatisfied with the results of its Inspections, then Purchaser may cancel this Agreement by written notice to the Town at any time prior to the expiration of the Due Diligence Period, and receive the return of the Deposit, in which case each party hereto shall be released from their obligations hereunder. Notwithstanding the foregoing, and solely with respect to the environmental assessment, in the event the Phase I Environmental Site Assessment returns results which require the additional investigation of a Phase II Environmental Site Assessment ("Phase II"), the Due Diligence Period shall be extended until a date that is sixty (60) days after the receipt of the final Phase II from a qualified environmental engineer; provided, however, that notwithstanding anything to the contrary, such sixty (60) day period for review and approval of the Phase II shall not extend beyond the date that is five (5) business days prior to the Outside Closing Date

During the Due Diligence Period, Purchaser and its agents shall have the right to enter, inspect and survey the Premises for the foregoing purposes and otherwise to make, or cause to be made, such surveys, tests, inspections, and investigations, including taking soil borings and other environmental analyses and studies of the Premises, and the Buyer further agrees to restore the Premises to substantially the same condition prior to such surveys, tests, inspections and investigations in the event that Buyer should not proceed with the acquisition of the Premises.

Purchaser shall indemnify and hold the Town harmless from any liens, claims or liability that may arise out of Purchaser and/or Purchaser's agent's entry on the Property and after any such activities Purchaser shall ensure that the Property is left in substantially the same condition as before the activities were conducted. Purchaser agrees to provide copies of written reports or analyses of the Inspections to the Town.

d. Financing Contingency. The Purchaser and the Town's obligation to Close is contingent upon the receipt of a notice to proceed or commitment letter for financing of the Affordable Housing Project (the "Financing Contingency"). Subject to any extensions herein, in the event that the Financing Contingency is not achieved by at least five (5) business days prior to the Outside Closing Date, Purchaser may terminate this Agreement by delivering written notice to the Town at least five (5) business days prior to the Outside Closing Date, in which case the deposit shall be returned to the Purchaser, and neither party shall have any further obligation hereunder.

e. Environmental Approvals. To the extent required by the Affordable Housing

Project lender, the Purchaser's obligation to close in contingent on receipt and approval of an updated Environmental Site Assessment (Phase I and II), and a Maine Department of Environmental Protection Voluntary Response Action enrollment, satisfactory to the Affordable Housing Project lender in its reasonable discretion (the "Environmental Contingency"). Subject to any extensions herein, in the event that the Environmental Contingency is not achieved by at least five (5) business days prior to the Outside Closing Date, Purchaser may terminate this Agreement by delivering written notice to the Town at least five (5) business days prior to the Outside Closing Date, in which case the deposit shall be returned to the Purchaser, and neither party shall have any further obligation hereunder.

f. WDC Board Approval. WDC's obligation to close is further conditioned upon the approval of its Board of Directors of the acquisition of the Property in accordance with the terms of this Agreement. WDC shall seek Board of Director Approval at the first regularly scheduled meeting following the Effective Date, which shall be not later than sixty (60) days from the Effective Date, and promptly notify the Town if the Board of Directors approved the acquisition contemplated herein. In the event that the WDC Board approval is not achieved, Purchaser may terminate this Agreement by delivering written notice to the Town at least five (5) business days prior to the Outside Closing Date, in which case the deposit shall be returned to the Purchaser, and neither party shall have any further obligation hereunder.

7. **Acceptance of Deed**. The acceptance of the Deed by Purchaser at the Closing shall be deemed to be the full performance and discharge of every agreement, obligation and representation made on the part of the Town, except as expressly set forth herein or in the Deed. No provisions, agreements or representations herein shall survive the Closing except as specifically stated herein. The Property is being sold and will be conveyed in "as is" condition with all faults and defects, known or unknown as of the date of this Agreement, and specifically and expressly without any representation or warranties, either express or implied, as to habitability, merchantability, fitness, condition or otherwise. The Town shall maintain the Property consistent with the manner it has been maintained prior to this Agreement and shall not mortgage, encumber or alter the use of the Property prior to closing without the prior consent of the Purchaser. Neither party is relying upon any statements or representations not embodied in this Agreement.

8. **Possession**. Possession shall be given to the Purchaser, free of all tenants or parties in possession, at Closing.

9. **Risk of Loss/Damage to Property**. The risk of loss or damage to the Property by fire or other casualty prior to the transfer of title at Closing shall remain with the Town. In the event of material loss or taking by condemnation or eminent domain prior to Closing, the Purchaser, at its sole option, shall have the right to cancel this Agreement by giving written notice to the Town, whereupon the Deposit shall be returned to Purchaser, whereupon this Agreement shall be null and void and of no further force and effect. If the Purchaser does not elect to cancel this Agreement, this Agreement shall remain in full force and effect and the Town shall pay over

or assign to the Purchaser at the Closing any insurance or condemnation proceeds, rights or awards receivable or received as a result of such loss or taking.

10. **Real Estate Broker**. The Town and the Purchaser each hereby represent and warrant to the other that no real estate commission is due to any person or brokerage. The Town shall indemnify and hold the Purchaser harmless from and against the claims, including attorneys' fees, and all other costs and expenses incurred as a result of claims arising out of or by reason of the assertion by any other person of a claim for a real estate brokerage commission in this transaction, if the claim is based upon conversations, telephone calls, communications or dealings of any kind with the Town. The Purchaser shall indemnify and hold the Town harmless from and against the claims, including attorneys' fees, and all other costs and expenses incurred as a result of claims arising out of or by reason of the assertion by any other person of a claim for a real estate brokerage commission in this transaction, if the claim is based upon conversations, telephone calls, communications or dealings of any kind with the Purchaser. Notwithstanding the foregoing, the indemnity provided under this Paragraph shall not be construed as a waiver of the Town's right to assert any and all defenses in response to claims made against the Town, its officers, agents, or employees pursuant to the Maine Tort Claims Act or any other privileges or immunities as may be provided by law. The provisions of this Paragraph shall survive the expiration or termination of this Agreement.

11. **Default**. In the event of default by the Purchaser which is not cured upon thirty (30) days written notice from the Town to the Purchaser, and if the Town has fully performed the Town's obligations hereunder, the Town may terminate this Agreement and receive the Deposit as liquidated damages. In the event of default by the Town which is not cured upon thirty (30) days written notice from the Purchaser to the Town, and if the Purchaser has fully performed the Purchaser's obligations hereunder, the Purchaser, as its sole remedy hereunder, may elect any of the following. (i) enforce specific performance of the Town's obligations under this Agreement if the nature of the Town's default has not rendered specific performance unavailable, (ii) waive the breach, or default or other closing condition and proceed to consummate the transaction contemplated hereby without any adjustment of the Purchase Price in accordance with the provisions of this Agreement; or (iii) terminate this Agreement, whereupon Purchaser shall receive a return of the entire Deposit.

12. **Mediation**. In the event of any dispute, claim, question, or disagreement arising from or relating to this Agreement or the breach thereof, the parties hereto shall use their best efforts to settle the dispute, claim, question, or disagreement. To this effect, they shall consult and negotiate with each other in good faith and, recognizing their mutual interests, attempt to reach a just and equitable solution satisfactory to both parties which at the election of either party shall include non-binding mediation utilizing the American Arbitration Association's Commercial Mediation Procedures before resorting to arbitration, litigation, or some other dispute resolution procedure.

13. **Duties and Responsibilities of Escrow Agent**. Escrow Agent shall deliver the

Deposit to the Town or the Purchaser promptly after receiving a joint written notice from the Town and the Purchaser directing the disbursement of the same, such disbursement to be made in accordance with such direction. If Escrow Agent receives written notice from the Town or the Purchaser that the party giving such notice is entitled to the Deposit, which notice shall describe with reasonable specificity the reasons for such entitlement, then Escrow Agent shall (i) promptly give notice to the other party of Escrow Agent's receipt of such notice and enclosing a copy of such notice and (ii) subject to the provisions of the following paragraph which shall apply if a conflict arises, on the fourteenth (14^{th}) calendar day after the giving of the notice referred to in clause (i) above, deliver the Deposit to the party claiming the right to receive it.

In the event that Escrow Agent shall be uncertain as to its duties or actions hereunder or shall receive instructions or a notice from the Town or the Purchaser which are in conflict with instructions or a notice from the other party or which, in the reasonable option of Escrow Agent, are in conflict with any of the provisions of this Agreement, it shall be entitled to take any of the following courses of action:

(a) Hold the Deposit as provided in this Agreement and decline to take any further action until Escrow Agent receives a joint written direction from the Town and the Purchaser or any order of a court of competent jurisdiction directing the disbursement of the Deposit, in which case Escrow Agent shall then disburse the Deposit in accordance with such direction;

(b) In the event of litigation between the Town and the Purchaser, Escrow Agent may deliver the Deposit to the clerk of any court in which such litigation is pending; or

(c) Escrow Agent may deliver the Deposit to a court of competent jurisdiction and therein commence an action for interpleader, the cost thereof to Escrow Agent to be borne by whichever of the Town or the Purchaser does not prevail in the litigation.

Escrow Agent shall not be liable for any action taken or omitted in good faith and believed by it to be authorized or within the rights or powers conferred upon it by this Agreement and it may rely, and shall be protected in acting or refraining from acting in reliance upon an opinion of counsel and upon any directions, instructions, notice, certificate, instrument, request, paper or other documents believed by it to be genuine and to have been made, sent, signed or presented by the proper party or parties. In no event shall Escrow Agent's liability hereunder exceed the aggregate amount of the Deposit. Escrow Agent shall be under no obligation to take any legal action in connection with the Deposit or this Agreement or to appear in, prosecute or defend any action or legal proceedings which would or might, in its sole opinion, involve it in cost, expense, loss or liability unless, in advance, and as often as reasonably required by it, Escrow Agent shall be furnished with such security and indemnity as it finds reasonably satisfactory against all such costs, expense, loss or liability. Notwithstanding any other provision of this Agreement, the Town and the Purchaser jointly indemnify and hold harmless Escrow Agent against any loss, liability or expense incurred without bad faith on its part and arising out of or in connection with its services under the terms of this Agreement, including the cost and expense of defending itself against any

claim of liability.

Escrow Agent shall not be bound by any modification of this Agreement, unless the same is in writing and signed by the Town, the Purchaser and Escrow Agent. From time to time on or after the date hereof, the Town and the Purchaser shall deliver or cause to be delivered to Escrow Agent such further documents and instruments that fall due, or cause to be done such further acts as Escrow Agent may reasonably request (it being understood that the Escrow Agent shall have no obligation to make any such request) to carry out more effectively the provisions and purposes of this Agreement, to evidence compliance with this Agreement or to assure itself that it is protected in acting hereunder.

Escrow Agent shall be entitled to reimbursement for expenses incurred hereunder, which expenses shall be paid and borne equally by the Town and the Purchaser, unless such expenses are associated with litigation between the Town and the Purchaser, in which event they shall be borne by the party that does not prevail in the litigation. Escrow Agent executes this Agreement solely for the purpose of consent to and agreeing to be bound by the applicable provisions of this Agreement.

14. **Proposed Housing Units.** The parties acknowledge and agree that the Property is being conveyed to the Purchaser based upon the Purchaser's response to a request for proposal dated July 25, 2024 (the "RFP") which was for the development of no less than 18 units of affordable housing for seniors (consistent with applicable federal and state fair housing laws) (the "Affordable Housing Units") and no less than 17 units of market rate housing (the "Market Rate Units"), a copy of the RFP is attached hereto as **Exhibit B**. Both the Town and the Purchaser's obligation to Close on the Property is contingent upon receipt of financing or funding for the construction of either the Affordable Housing Units or the Market Rate Units, allowing construction of either Units to proceed independently as necessary. Provided that the Closing occurs, Purchaser shall diligently pursue and complete construction of the Affordable Housing Units and Market Rate Units.

15. **General.**

a. Authority. Each party hereto represents and warrants that it has full authority to execute this Agreement and perform all obligations contained herein. All such actions have been properly authorized by any required votes and the party signing on behalf of each party hereto is duly appointed to so act in said capacity to make this Agreement binding upon such party.

b. Notices. Any demand or notice required or permitted hereunder, shall be given by either (A) personal delivery, (B) same-day or overnight delivery by independent courier, or (C) electronic mail addressed to the electronic mail address set forth in this Section for the party to be notified with a confirmation copy delivered by another method permitted by this Section 15. Notices may be sent and/or signed by a party's attorney. Notice to the Purchaser shall be delivered simultaneous to WDC and GFC. Notice given in accordance herewith for all permitted forms of notice,

shall be effective upon the earlier to occur of actual delivery to the address of the addressee or refusal of receipt by the addressee (even if such addressee refuses delivery thereof); provided, however, that in the case of notice by electronic mail, if such notice is received after 5:00 PM eastern time, it shall be deemed to have been received on the next business day.

All notices required to be given, or which may be given hereunder, shall be in writing and if mailed, shall be sent by U.S. mail or overnight delivery by independent courier to the party to be notified as follows:

To the Town:

Town of Windham
8 School Street
Windham, ME 04062
Attn: Barry Tibbetts, Town Manager
batibbetts@windhammaine.us

With a copy to:

Jensen Baird
Ten Free Street, 4th Floor
P.O. Box 4510
Portland, ME 04112-4510
Attn: Charles M. Katz-Leacy, Esq.
ckatzleavy@jensenbaird.com

To the Purchaser:

Westbrook Development Corporation
30 Liza Harmon Drive
Westbrook, Maine 04092
Attn: Tyler Norod, Development Director
tnorod@westbrookdevelopmentcorpdc.org

Great Falls Construction
20 Mechanic Street
Gorham, ME 04038
Attn:Julie Curran
jcurran@greatfallsinc.com

With copies to:

Drummond Woodsum
84 Marginal Way, Suite 600
Portland, Maine 04101

Attn: Robert Liscord, Esq.
rliscord@dwmlaw.com

or to such other addresses as one party may from time to time hereafter designate by like notice to the other.

c. Assignment. The rights and obligations of either WDC or GFC under this Agreement may be assigned by either WDC or GFC to one or more entities formed by WDC or GFC for the purpose of acquiring title to the Property and carrying out their respective housing projects at the Property without the consent of the Town provided that (i) such assignee assumes all obligations of WDC or GFC or both hereunder and (ii) the Purchaser demonstrates to the Town's reasonable satisfaction that assignee is or will be capable of constructing the Affordable Housing Units and Market Rate Units.

d. Waiver. The waiver of any provision of this Agreement shall be invalid unless evidenced by a writing signed by the party to be charged with it. The waiver of, or failure to enforce, any provision of this Agreement shall not be a waiver of any further breach of such provision or of any other provision of this Agreement. The waiver by either or both parties of the time for performing an act shall not be a waiver of the time for performing any other act required under this Agreement.

e. Modifications. No change or addition to this Agreement or any part of it shall be valid unless in writing and signed by each of the parties.

f. Successors and Assigns. This Agreement shall inure to the benefit of and be binding on the permitted successors and assigns of the respective parties.

g. Governing Law. This Agreement shall be governed by the laws of the State of Maine.

h. Headings. The headings in this Agreement are for convenience only and shall not be used to interpret this Agreement.

i. Further Acts. Each party agrees to take such further action and to execute and deliver such further documents as may be necessary to carry out the purposes of this Agreement.

j. Attorney Fees. Each party shall bear their own attorneys' fees incurred to enforce this Agreement or related to a breach of this Agreement by the other party unless otherwise ordered by a court of competent jurisdiction.

k. Liability Limitation. Notwithstanding anything in this Agreement to the contrary, the Town's obligations under this Agreement are subject to and limited by the

defenses, immunities, and limitations of liability or damages available to the Town under the Maine Tort Claims Act, other Maine statutory law, judicial precedent, common law, or any other defenses, immunities or limitations of liability available to the Town.

l. Time. Time is of the essence of this Agreement.

m. Faxed or Electronic Signatures. The parties agree that faxed or electronic signatures may be used to expedite the transaction contemplated by this agreement. Each party intends to be bound by its faxed or electronic signature and each is aware that the other will rely on the faxed or electronic signature and each acknowledges such reliance and waives any defenses to the enforcement of the documents effecting the transaction contemplated by this Agreement based on a faxed or electronic signature.

[NO FURTHER TEXT ON THIS PAGE]
[SIGNATURE PAGE TO FOLLOW]

IN WITNESS WHEREOF, the parties hereto, hereunto duly authorized, have executed and delivered this Agreement as of the Effective Date.

WITNESS:

TOWN:

TOWN OF WINDHAM,
a Maine municipal corporation

By: _____
Barry A. Tibbetts
Title: Town Manager

Date: 10/23, 2024

PURCHASER:

WESTBROOK DEVELOPMENT CORPORATION

By: _____
Name: CHRISTOPHER LAROCHE
Its: AUTHORIZED AGENT

Date: 10/19, 2024

GREAT FALLS BUILDERS. INC.
DBA GREAT FALLS CONSTRUCTION

By: _____
Name: JULIE CURRAN
Its: AUTHORIZED SIGNER

Date: 10/22, 2024

EXHIBIT A

DLN: 1002340249390

Quitclaim Deed without Covenant

REGIONAL SCHOOL UNIT NO. 14, a Maine regional school unit with a mailing address of 228 Windham Center Road, Windham, ME 04062 ("RSU") for consideration paid, hereby grants to **TOWN OF WINDHAM**, a Maine municipality with a mailing address of 8 School Road, Windham, ME 04062 ("Town") RSU's right, title, and interest in and to that certain real property, together with any buildings and improvements thereon, known as the John H. Andrews School, situated at 55 High Street in the Town of Windham, County of Cumberland, and State of Maine, more particularly described in **Exhibit A**, attached hereto and made a part hereof.

See attached Exhibit A

For source of title, reference may be had to that certain deed from the Town to the RSU, dated October 1, 2012 and recorded in the Cumberland County Registry of Deeds in Book 30002, Page 222.

[Signature page follows.]

IN WITNESS WHEREOF, the authorized representative of the RSU has caused this instrument to be executed this 9/18 day of 2023.

WITNESS

REGIONAL SCHOOL UNIT NO. 14

Christopher Howell, Superintendent

STATE OF MAINE
COUNTY OF Cumberland, SS

Then personally appeared before me the above named Christopher Howell, Superintendent of Regional School Unit No. 14 and acknowledged the foregoing instrument to be his free act and deed and the free act and deed of said entity.

Before me:

~~Notary Public~~ / Attorney at Law 6086
Print Name: Lara Hartz
Commission Expiry: N/A

DOC :33264 BK:40367 PG:20
RECEIVED - RECORDED, CUMBERLAND COUNTY REGISTER OF DEEDS
09/18/2023, 02:29:50P
Register of Deeds Jessica M. Spaulding E-RECORDED

EXHIBIT A

A certain lot or parcel of land, together with the buildings and improvements to realty thereon, situated in the Town of Windham, County of Cumberland and State of Maine, commonly known as the John Andrews School Property and being more particularly described as follows:

The premises described in the following deeds as recorded in the Cumberland County Registry of Deeds (the "Registry"):

a) Warranty Deed from Samuel Bragdon to the Inhabitants of School District No. 2 dated September 23, 1886 and recorded in the Registry at Book 574, Page 281;
b) Warranty Deed from Philip L. Ames to the Town of Windham dated May 5, 1953 and recorded in the Registry at Book 2118, Page 459; and
c) Warranty Deed from Edna A. Murch to the Town of Windham dated April 29, 1953 and recorded in the Registry at Book 2127, Page 447.

Also conveying, to the extent not included in the foregoing deeds, all of the Grantor's right, title and interest in and to any other real estate comprising the John Andrews School premises, so-called. Reference is made to Town of Windham Property Tax Map 37, Lot 24, revised as of April 1, 2010.

Being a portion of the premises conveyed by Quitclaim Deed without Covenant from the Inhabitants of the Town of Windham, a/k/a Inhabitants of Windham, a/k/a the Inhabitants of the Municipality of Windham, a/k/a the Town of Windham to Regional School Unit No. 14 dated October 1, 2012 and recorded in the Cumberland County Registry of Deeds in Book 30002, Page 222.

Section 5

Financial & Technical Capacity

Section 5 – Financial & Technical Capacity

Financial Capacity:

Please see the enclosed letters from the Kennebunk Savings Bank and Gorham Savings Bank. These are the financial lenders for Great Falls Construction, Inc. and Westbrook Development Corporation, respectively. In the enclosed letters, each Bank states their standing with each Applicant, and that they each have the financial capacity to support and successfully complete the proposed project.

Technical Capacity:

The following professional teams have been assembled for the overall design and development of this proposed project. The project team consists of Applicants Westbrook Development Corporation and Great Falls Construction, Inc., with Archetype Architects and Sebago Technics, Inc. working on the building and site design. Please see a brief description of each firm below and their respective attachments enclosed within this Section.

Great Falls Construction, Inc. (GFC) is one of Northern New England's premier construction management, design build, and general contacting firms. They are widely respected throughout the industry for meticulous craftsmanship, with a diverse portfolio of project throughout several industries. GFC will be responsible for the site development and building construction of the additional proposed seventeen (17) market-rate units.

The Westbrook Development Corporation (WDC) is committed to the long-term growth of affordable housing throughout the Greater Portland area and Southern Maine region. They develop quality affordable housing to assist low- and middle-income individuals and families to encourage independence within a supportive community. WDC will be responsible for the building development and overall management of the proposed eighteen (18) affordable senior housing units.

Archetype Architects has decades of real-world experience, designing buildings of all types for clients throughout New England for over 20 years. These range from large scale office spaces, affordable and market rate housing, commercial retail spaces, and mixed-use developments.

Sebago Technics, Inc. is a multi-disciplinary engineering firm that offers a wide range of services specializing in land development, planning, permitting, and engineering design services. Sebago maintains a staff of professionals to provide services in the areas of general civil engineering, road and utility design, construction management, permitting, landscape architecture, environmental services, and soil and wetlands science. Resumes of key personnel at Sebago are also enclosed within this Section.

Kennebunk Savings
PURPOSE DRIVEN.

August 23, 2024

Stephen Puleo - Planner
Town of Windham, ME
8 School Street
Windham, ME 04062

RE: Andrews School Site Redevelopment Project – 55 High St. Windham, ME

Stephen:

Jonathan and Cynthia Smith, through their construction company Great Falls Builders and various other real estate entities, have been commercial customers of Kennebunk Savings Bank for more than twenty years. The Bank has extensive lending experience with this customer and long standing confidence in both their financial strength and construction management expertise completing commercial and residential projects.

It is the opinion of Kennebunk Savings Bank that Great Falls Builders has the technical and financial capacity to successfully undertake the above referenced project As such - this letter is confirmation of Kennebunk Savings Bank's "intent to fund" the portion of the 55 High St. project as proposed by Great Falls Construction. Please forward this letter to any Town or State agencies that require this document as part of the project approval process.

Full funding approval of the project is expected upon receipt of the final project plans, specs, estimates and projections to be provided by the borrower upon final Town approval.

Please do not hesitate to contact me directly at (603-334-1021) with any questions or concerns.

Sincerely,

Christopher Kehl
Executive Vice President

Gorham Savings Bank

August 26, 2024

Town of Windham
Attn: Planning Board
8 School Street
Windham, ME 04062

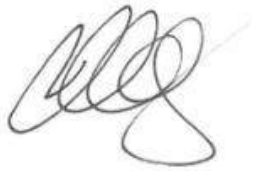
RE: New Project on High Street

To Whom It May Concern:

We have been working with Westbrook Development Corporation on their application to build 18, 1 Bedroom affordable housing apartments spread over four new buildings. The project will be located on the former Andrew School site located on High Street in Windham. The total development cost is approximately $6,500,000.00. Westbrook Development Corporation is an established and valued customer of Gorham Savings Bank. They have ample liquid funds and a long history of banking and lending with Gorham Savings Bank. Please be advised they have the cash resources, financial capacity, and track record to successfully complete this project.

Please feel free to contact me with any questions.

Sincerely,



Matthew W. Early
Senior Vice President
207-222-1493

MWE/JRS

MAINE
Department of the Secretary of State
Bureau of Corporations, Elections and Commissions

Corporate Name Search

Information Summary

Subscriber activity report

This record contains information from the CEC database and is accurate as of: Tue Aug 27 2024 15:33:14. Please print or save for your records.

Legal Name	Charter Number	Filing Type	Status
GREAT FALLS BUILDERS, INC.	19941225 D	BUSINESS CORPORATION	GOOD STANDING

Filing Date	Expiration Date	Jurisdiction
12/28/1993	N/A	MAINE

Other Names	(A=Assumed ; F=Former)
GREAT FALLS CONSTRUCTION	A
GREAT FALL BUILDERS, INC.	F

Principal Home Office Address

Physical	Mailing
20 MECHANIC STREET	20 MECHANIC STREET
GORHAM, ME 04038	GORHAM, ME 04038

Clerk/Registered Agent

Physical	Mailing
PAUL F. DRISCOLL TWO CANAL PLAZA	PAUL F. DRISCOLL P.O. BOX 4600
PORTLAND, ME 04101	PORTLAND, ME 04112-4600

New Search

Click on a link to obtain additional information.

List of Filings — View list of filings

Obtain additional information:



Corporate Name Search

Information Summary

Subscriber activity report

This record contains information from the CEC database and is accurate as of: Tue Aug 27 2024 15:30:05. Please print or save for your records.

Legal Name	Charter Number	Filing Type	Status
WESTBROOK DEVELOPMENT CORPORATION	19870463ND	NON-PROFIT CORPORATION (UNDER TITLE 13-B)	GOOD STANDING

Filing Date	Expiration Date	Jurisdiction
04/22/1987	N/A	MAINE

Other Names **(A=Assumed ; F=Former)**

NONE

Principal Home Office Address

Physical	Mailing
30 LIZA HARMON DRIVE	30 LIZA HARMON DRIVE
WESTBROOK, ME 04092	WESTBROOK, ME 04092

Clerk/Registered Agent

Physical	Mailing
GARY D. VOGEL 84 MARGINAL WAY, SUITE 600	GARY D. VOGEL 84 MARGINAL WAY, SUITE 600
PORTLAND, ME 04101-2480	PORTLAND, ME 04101-2480

New Search

Click on a link to obtain additional information.

List of Filings View list of filings

Obtain additional information:



Spring Crossing, 19 Ash Street, Westbrook, ME
A WDC project, General Contracted by GFC,
Designed by Archetype Architects, 2010-2011
34 Units of Affordable Senior Housing

Sketch Plan Application: Relevant Experiences 08/26/24

THE WDC/GFC CO-DEVELOPMENT TEAM'S RELEVANT EXPERIENCES/ DEMONSTRATED CAPACITY

Great Falls CONSTRUCTION WDC

Westbrook Development Corporation – Portfolio



Spring Crossing

Nestled on the scenic banks of the Presumpscot River in the heart of downtown Westbrook, Spring Crossing is conveniently located off Ash Street, surrounded by a plethora of dining options, financial institutions, and other daily essentials. This four-story apartment building comprises 34 affordable units that cater to seniors. In addition to providing heat and hot water, residents also have access to on-site laundry facilities, a fitness room, and a computer room.



Golder Apartments

Located off Lincoln Street in downtown Westbrook, Golder Apartments spans four-stories while offering 26-units of affordable apartments for families. The property is managed by Westbrook Housing Authority, which provides tenants with the added convenience of heat and hot water as part of their rent. Despite the challenges of being constructed on a small urban infill lot, Golder Commons has managed to emerge as a thriving and attractive member of the community, thanks to its quality design and modern amenities.

Robert L. Harnois Apartments



Designed to address the need for affordable senior housing, the Robert L. Harnois Apartments were completed in 2020. The building presents a unique challenge due to its location on a tight site, nestled within a granite hillside at the Westbrook Housing Authority's campus. Although not visible from the front due to grade changes along the rear of the site, this building includes a fifth story of apartments at the back of the building. In addition to the much-needed affordable housing, the Robert L. Harnois Apartments offer several amenities, including a community room, a library, exercise facilities, an on-site laundry, and a walking trail that runs alongside the property.

Lewis H. Emery Apartments



In 2021, the Lewis H. Emery Apartments were completed as a counterpart to the Robert L. Harnois apartments. This building comprises 30 low-income senior apartments, bringing the total number of new affordable apartments to 91 for both developments. The location of this site proved to be a challenge as it is situated near an old granite quarry, making access and construction difficult. The project relied primarily on 4% low-income housing tax credits for funding. As a fully ADA-compliant building, the Lewis H. Emery Apartments cater to a diverse range of residents.

Stroudwater Apartments



Commencing construction in June 2023, Stroudwater Apartments is set to provide 55 units of affordable housing for seniors. Working in collaboration with the City, WDC is transforming the former municipal lot located across from Westbrook High School. As part of this development, WDC has partnered with Portland Trails to extend trail access throughout the site for the benefit of the community. Along with offering much-needed housing, WDC plans to install new pedestrian infrastructure, public trails, and allocate funds towards the construction of a new public ice rink in the city.

Stacy M. Symbol Apartments



WDC recently broke ground on the Stacy M. Symbol Apartments, situated on the former Rivermeadow Golf Course, off Lincoln Street in Westbrook. This upcoming development will bring 60 units of affordable senior housing to the community upon completion. The project is just one component of a larger multi-phased endeavor spanning over 90 acres. The overall development encompasses 358 new housing units, presenting a mix of market-rate homeownership single-family homes and rental apartments.

An exciting aspect of this project is the dedication of over 40 acres of the proposed site to conservation land. This protected area will be managed by the Presumpscot Regional Land Trust, fostering environmental preservation and creating vital connectivity for segments of the Sebago to Sea Trail network. With a thoughtful blend of affordable senior housing and conservation efforts, the Stacy M. Symbol Apartments and the larger development project promise to make a meaningful and positive impact on the community and the environment.

References

Joshua J. Reny – Assistant City Manager, South Portland
jreny@southportland.org
(207) 767-7606

While at Avesta, Tyler teamed up with Kaplan Thompson Architects to work on a mixed-use development known as West End Apartments I & II. Prior to completing plans for the site, Tyler worked with the City on the West End Neighborhood Master Plan that envisioned a new urban village along Westbrook Street between Redbank and Brick Hill. The plan can be found here: https://www.southportland.org/files/3016/7725/3132/West_End_Neighborhood_Plan_08.21.2017.pdf

Tyler and Josh worked together to ensure that Avesta's development acted as a catalyst for the City's vision of creating a new mixed-use neighborhood center. Phase I of West End Apartments includes space for a new market, restaurant, community meeting space, and new office for Opportunity Alliance's Resource Hub. Phase II continued active uses along its ground floor with outdoor public seating options, community space, and new office space. The project was recently recognized with the Exemplary Smart Growth Development award by GrowSmart Maine at its 2023 annual conference.

Julia Morgan – Director of Community Investments, Evernorth
jmorgan@evernorthus.org
(603) 801-6377

Evernorth is a non-profit organization that provides affordable housing and community investments in Maine, New Hampshire, and Vermont. Evernorth has raised and deployed more than $1 billion in equity capital for affordable housing and built more than 15,000 affordable homes for low- and moderate-income people across northern New England.

As the Director of Community Investments, Julia has primary responsibility for overseeing and leading the underwriting of Low-Income Housing Tax Credit (LIHTC) and New Markets Tax Credit (NMTC) investments, performing a critical role in the adherence to investor driven expectations. Julia has over 20 years of experience in the finance industry, holding positions such as a securities trader, various analyst roles, and prior to joining Evernorth, as an underwriter in the low-income multi-family industry. Julia holds both a bachelor's degree and an MBA from Southern New Hampshire University, as well as a New Hampshire real estate license.

Tyler and Julia have worked together on several complex affordable housing projects across Maine and New Hampshire. Evernorth has been a key partner with Westbrook Development Corporation on several deals and is currently helping to finance WDC's Stacy M. Symbol and Stroudwater Apartments projects and the 100 unit occupied rehab of the Millbrook Apartments in Westbrook.

Dan Stevenson – Economic Development Director, City of Westbrook
dstevenson@westbrook.me.us
(207) 205-3808

Dan Stevenson leads Westbrook's economic development initiatives fostering continued sustainable growth for Maine's 8th largest city. Tyler and Dan have worked closely on several development projects including most recently, Stroudwater Apartments. This 60-unit affordable housing complex for seniors stands as a testament to their partnership, leveraging municipal-owned land identified by the City as pivotal in tackling Westbrook's housing challenges. Through collaborative efforts with Westbrook Development Corporation (WDC), city staff, the City Council, and Planning Board, a visionary concept emerged. Beyond addressing critical housing needs, the project encompassed extensive public benefits. These included enhancements to local trail networks, bolstered pedestrian infrastructure, and funding earmarked for relocating and constructing a new public outdoor ice rink—a testament to their commitment to enhancing community life through thoughtful development.

RELEVANT PROJECTS

Included within this section are relevant project experiences are similar to this project at hand. Our team has delineated its experience in both developing and constructing appropriate mixed use urban center facilities, focal space building design, and historically influenced designs. Throughout this section, you will become more familiar with the recent projects the GFC team has successfully developed, designed, and/or constructed and completed. Below are the "before and afters" followed by these similar project expanded upon in greater detail with photos. References are included at the end of this section.

AFTER



BEFORE



Station Square: a mixed-use Village center facility
7 Railroad Ave, Gorham, ME | Mixed Use Facility (33-apartments and 6-commercial units) | 70,000 SF facility
This was a design build project | Mike Richman, Custom Concepts, Inc. Architecture was the architect
Project construction timeline was 14 months with a June 2019 completion for residential and November 2019 for commercial fitups

AFTER



BEFORE



109 Main Street Redevelopment: a Village center prominent commercial facility
109 Main Street, Gorham, ME | Commercial Facility (4-first floor commercial offerings) | 10,000 SF facility
This was a design build project | Evan Carroll of Bild Architecture was the architect
Project construction timeline was 12 months with a completion in November 2015

RELEVANT PROJECTS CONTINUED

AFTER





BEFORE





Perennial Place: a renovation of historic school into multi-unit housing
7 North Gorham Road, Gorham, ME | Renovation of former school into residential units (12-first floor residential units)
11,360SF facility
This was a design build project | Bruce Macleod of Macleod was the designer
Project construction timeline was 12 months with a completion in January 2015

AFTER



BEFORE



Red City Ale: a renovation of an old and abandoned fire station currently being redeveloped into a restaurant space
8 Main Street, Windham, ME | Renovated ~6,800SF building from a fire station into a restaurant.
This was a design build project | Ryan Senatore of RSA Architecture was the architect & Sebago Technics is the Civil Designer
Project construction took 10 months with a completion in Spring 2023

AFTER



BEFORE



12 Sullivan Street, Berwick: a renovation of an old and abandoned mill building for 8-commercial units.
12 Sullivan Street, Berwick, ME | Renovated ~20,000SF building.
This was a design build project | Ryan Senatore of RSA Architecture was the architect & Sebago Technics is the Civil Designer
Project construction timeline was 12 months with a completion in Summer 2022

RELEVANT PROJECTS CONTINUED





8 Main Street, Berwick, ME: a mixed-use new construction with ten 1-bedroom apartements and two commercial units. This building is a ~9,860SF design build project | Ryan Senatore of RSA Architecture was the architect & Sebago Technics is the Civil Designer





3 School Street, Berwick, ME: a mixed-use new construction with 7 apartment units (four 2-beds, three 1-beds) and 2 commercial units. The building is a ~7,400SF design build project | Isaak Design is the architect & Sebago Technics is the Civil Designer





16-18 Sullivan Street, Berwick, ME: Currently under construction with anticipated completion Q4 2024-Q1 2025. Two 12-unit, 2 bedroom apartment buildings. Each building will be a ~12,400SF design build project. | Isaak Design is the architect & Sebago Technics is the Civil Designer

AMY BELL SEGAL, RLA

Senior Project Manager/Senior Landscape Architect



In the course of her 30 year career, Amy has worked on a great variety of projects in the public and private sectors across Maine and New England. Her work has included site planning, permitting and construction management for residential, commercial, institutional, and industrial properties as well as recreation, trail, and community planning. She has earned a wonderful reputation through great work, relationships and communication.

EXPERIENCE

- **Portland Harbor Common Lot (Phase 1) Portland, ME:** Part of design team working with City staff and community working group to transform an oceanfront parking lot between Ocean Gateway and Maine State Pier into a park amenity for residents and visitors.
- **Portland Tree Canopy Project, Portland, ME**: Working with Parks and Forestry Staff to plan and implement tree planting strategies to increase the canopy within Bayside and Downtown neighborhoods.
- **Acadia Hospital, Northern Light Health, Bangor, ME**: Design of children, adolescent, and adult outdoor courtyard spaces to promote mental and physical well being in a safe environment. *With Lavallee Brensinger*
- **Shore Road Improvement Project, Cape Elizabeth, ME:** Working with transportation engineers and town staff to provide pedestrian and bicyclist amenities within road reconstruction design. Prepared visualizations from key locations for public outreach.
- **Deering Corner Roundabout, Portland, ME:** Designed pedestrian and landscape amenities adjacent to roundabout and within stormwater infrastructure. Collaboration with Metro and University of Southern Maine gateway planning. Worked with artist on sculpture placement and lighting. *Designed at TJD&A with Ransom Engineering, oversaw implementation at Sebago*
- **Lakeside Norway, ME.** Working with Left Turn Enterprises to develop a 6-acre four season event and recreation center and new brewery for Norway Brewing Company on Lake Pennesseewassee within the Downtown Gateway Area.
- **Arthur P. Girard Columbarium Garden,Westbrook, ME:** Conceptual design through construction documentation for a 400 niche columbarium garden in Woodlawn Cemetery. The Garden includes public and veterans sections, extensive landscaping, and a pergola for outdoor funeral services.
- **Red Cross Park Renovation, Greenville, ME:** Master Plan for renovation of 6-acre park on Moosehead Lake that provides swimming and boating access. Plan includes shoreland stabilization, improved parking, accessibility, playspace, trails, and a pump track. Park applying for funding through the Land & Water Conservation Fund Grant program.
- **Evergreen Cemetery Expansion, Rangeley, ME:** Master Plan for a multi generation expansion for Town-owned cemetery. Highlights of initial phases include a 500 in ground plots, 250 cremains plots, columbarium niche walls and a gathering space that overlooks Rangeley Lake and the western mountains.
- **Bonney Park, Androscoggin Riverwalk, Riverpark, Moulton Park Rail Trail, and Little Andy Park, Auburn, ME:** A series of linked open spaces along the Androscoggin River. Design, permitting, and construction management. *With TJD&A*

EDUCATION

BSLA, Cornell University
Denmark International Study, 1992

REGISTRATIONS

Maine Licensed Landscape Architect #2265
CLARB Certified
Maine DOT LPA Certified 2019 - 2023

SPECIAL TRAINING

MeDEP Low Impact Development Stormwater BMP training
Courses in ADA standards, Complete Streets, Sustainable Sites (ASLA LEED equiv)

PROFESSIONAL EMPLOYMENT

2020 - Present: Sebago Technics, Inc.
South Portland, ME

1992 - 2020: TJD&A
Landscape Architects & Planners
Yarmouth, ME

1988 - 1992: Bell & Spina Architects
Camillus, NY

SEBAGO TECHNICS

207.200.2055 ABSEGAL@SEBAGOTECHNICS.COM

MARGO BARAJAS, RLA

Landscape Architect



Ms. Barajas joined Sebago Technics, Inc., (STI) in January of 2023. Margo is a highly qualified Landscape Architect with a Master of Landscape Architecture degree from the University of Oregon. She has over 4 years of experience in the field and holds a Maine license as a Landscape Architect. She currently works as a part of the Project Delivery Team at Sebago Technics, bringing her extensive design and project management skills to the company.

EXPERIENCE

Narragansett School Playground - Gorham, ME: Conducted outreach with school staff, designed preschool playground, and guided construction documents. To be constructed Summer 2023.

Prior to her employment at Sebago Technics, Margo's experience includes:

Mercy Hospital Mixed-Use Redevelopment - Portland, ME: Co-lead design, construction documents, and construction administration of West End redevelopment project. Under Construction.

Homeless Services Center - Portland, ME: Worked with City of Portland, Developers, and extensive project team on the site and amenity space design at the recently completed HSC. Project completed April 2023.

Raise-Op Housing - Lewiston, ME: Designed and lead construction documentation for two affordable, family-focused housing projects on Blake and Walnut Streets in downtown Lewiston.

Jackson Labs Workforce Housing - Bar Harbor, ME: Twenty-four unit workforce housing project with tenant amenity space, including a playground.

Woodfords Family Services - New Gloucester, ME: Designed upgrades to a playground at a daycare center.

PROFESSIONAL EXPERIENCE

ACETO LANDSCAPE ARCHITECTURE (ALA) - *PROJECT MANAGER*
November 2020 - September 2022, Portland, ME

CARROLL & ASSOCIATES - *LANDSCAPE DESIGNER*
May 2019 - October 2020, Portland, ME

THE CULTURAL LANDSCAPE FOUNDATION - *BOASBERG FELLOW*
Summer 2017, Washington, D.C.

EDUCATION

University of Oregon, College of Design
Master of Landscape Architecture, 2018
Master's Project: *"Designing for Sea Level Rise: Back Cove, Portland, Maine."*

Boston University,
College of Communication
B.S. Journalism, 2009
London Internship Program, 2008

REGISTRATIONS

Maine Licensed Landscape Architect: #5544

MEMBERSHIPS

American Society of Landscape Architects,
Member of Maine Section 2018 - Present

Oregon State University, Extension Service,
Master Gardener, 2015 - 2016
Corvallis, Oregon

AWARDS

American Society of Landscape Architects
Honor Award for Communications
What's Out There: Cultural Landscapes Guides,
The Cultural Landscape Foundation

SEBAGO TECHNICS

207.200.2119 MBARAJAS@SEBAGOTECHNICS.COM

KELSEY WEIR, EI

Civil Engineer



Kelsey joined Sebago Technics, Inc. (Sebago) in February of 2024 as a Civil Engineer. Hailing from Ohio, Kelsey graduated from the University of Maine with a degree in Civil Engineering. Prior to her employment at Sebago, she had been working for a local civil engineering firm with experience in coastal permitting and design projects. While in college, Kelsey had internships with experience in research for the United States Army Corps of Engineers (USACE), teaching assistant roles, and worked on transportation projects for a national transportation engineering firm. Kelsey is proficient in Civil 3D, HydroCAD and Microstation.

EXPERIENCE

Cascades Subdivision – Saco, Maine
Design engineer for stormwater for a 195-unit residential subdivision. Assisted in site development plans.

Fairway Commons Subdivision – Gorham, Maine
Design engineer for a 14-unit residential subdivision. Provided site grading, stormwater treatment and design, and utility layout.

Private Residence – Cape Elizabeth, Maine
Assisted in the preliminary site development concepts for a sand dune restoration for a residence in Cape Elizabeth.

Prior to her employment at Sebago Technics, Kelsey's experience includes:

- Working on coastal shoreline stabilization projects in Peaks Island, Kennebunkport, and York, Maine
- Design riprap revetments with Civil-3D and Excel using Army Corp of Engineers Design Standards for residential and commercial properties.
- Permitted shoreline stabilization projects with the Department of Environmental Protection, Army Corp of Engineers, and local municipalities.
- Coordinated, scheduled, and communicated with private clients and surveying subconsultants.
- Performed stormwater drainage design and analysis for subdivisions utilizing Hydro-CAD software.
- Drafted residential and commercial stormwater drainage design, shoreline stabilization, and wetland delineation.
- Permitted SLODA stormwater permits with the Department of Environmental Protection for subdivisions.
- Coordinated and compiled Army Corp of Engineers permits for a multi marina dredge project.

EDUCATION

University of Maine - Orono, ME
B.S., Civil Engineering
Concentration: Structures
Minor: Marine and Ocean Engineering

CERTIFICATIONS

Engineering Intern (EI)

OSHA 10

MEMBERSHIPS

Society of Women Engineers

American Society of Civil Engineers (ASCE)

SEBAGO TECHNICS

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GRIFFIN R. STEINMAN, EI

Traffic Engineer



Mr. Steinman joined Sebago Technics, Inc., (STI) in April of 2021 as a Traffic Engineer within the Transportation Team. In this position, he conducts traffic studies and permitting for site development projects. He also provides support to our traffic signal design and operations practice. A Maine native, Mr. Steinman graduated from the University of Maine with a degree in Civil Engineering. He served in transportation intern roles with both the Maine Department of Transportation and City of Portland. In these roles, he gained experience in highway/bridge construction, parking inventory/demand, traffic counts and bike/ped planning. Since graduation, Griffin has worked as a Project Engineer/Estimator with a regional traffic signal equipment/services provider. In this role, he has gained technical knowledge regarding the design, operations, and installation of traffic signals and signal systems.

EXPERIENCE

186 Main Street – Auburn, Maine: Served as the Lead Engineer to provide traffic engineering permitting services for new infill multi-use development in Downtown Auburn. Worked with the City of Auburn to obtain a traffic movement permit (TMP) for the site as the City has Delegated Review Authority for TMPs from MaineDOT. Analysis included trip generation and assignments, safety analysis, and review of pedestrian infrastructure. Additional planning level efforts were coordinated with the City for long-term downtown improvements as a part of the permitting coordination.

Route 236 Traffic Study – South Berwick, Maine: Project responsibilities included modeling existing conditions and over ten proposed alternatives in Synchro SimTraffic for a major planning study along Route 236/Route 4 (Main Street) in South Berwick. The study focused on improving vehicular and pedestrian mobility along a commuter-heavy corridor that had significant existing capacity constraints.

Route 202 at Route 35 Traffic Signal Improvements – Hollis, Maine: Part of the design team in the creation of a new traffic signal plan, including a span wire layout, advanced signage plan, and strain pole cross-section loadings at the intersection of Route 202 and 35 in Hollis. The project is in conjunction with the MaineDOT to improve intersection safety.

Route 1 Traffic Signal Replacements – Kittery, Maine: Part of the design team including existing conditions modeling and preliminary design efforts for the ongoing MaineDOT projects 25433.00 and 25435.00 that include replacing existing signalized intersections along Route 1 in Kittery.

Rock Row Traffic Permitting and Off-Site Improvements – Westbrook/Portland, Maine: Project responsibilities include traffic impact studies to assess and permit the phased build-out of mixed-use development. Design efforts include the simulation modeling of existing and proposed traffic conditions and the monitoring/optimization of traffic signal timings. Work also included the creation of mast arm cross-section plans for a concept traffic signal design.

385 Congress Street – Portland, Maine: Traffic Impact Study to assess and permit the hotel, residential, and commercial mixed-use development. The study included an alternative analysis of proposed traffic configurations using Synchro/SimTraffic modeling software.

Bath Road Brunswick Apartments – Brunswick, Maine: Creation of traffic signal plan set including traffic signal notes, pavement marking plans, and the traffic signal plan sheets.

EDUCATION

University of Maine - Orono, ME
B.S., Civil Engineering, 2019
Concentration: Transportation Engineering

CERTIFICATIONS

Engineering Intern #7821

MaineDOT
Local Project Administration Certification

SEBAGO TECHNICS

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BRETT WIEMKEN

Planning Consultant



Mr. Wiemken joined Sebago Technics in September 2023 as Permitting Specialist / Project Coordinator. He holds a degree in City and Regional Planning from Ohio State University, underscoring his profound understanding of zoning and development projects. As a member of our Entitlements Group within Project Delivery, Brett plays an important role in orchestrating seamless permitting processes and ensuring regulatory compliance for our diverse projects.

Brett is the lead planner for many projects, from leading policy research, to public engagement design, and document development. His mastery of Adobe Creative Suite and extensive graphic design background enables him to create compelling visual communications and enhance project presentations. Having relocated from Central Ohio to Maine, Brett uses his prior educational background and public sector experience to produce visual graphics from public input, coordinate with external entities in gathering document data, and structure the document's overall strategy.

EXPERIENCE

Town of Raymond Planning Services
Lead Planning Consultant managing Planning Board application reviews and site/subdivision project processing for the growing community. Coordinates comprehensive ordinance revisions and maintains regular office hours providing planning assistance to town officials and residents. Analyzes development proposals, prepares detailed staff reports, and presents recommendations to the Planning Board. Works closely with developers and property owners to ensure compliance with local ordinances while facilitating project advancement.

Bibber Memorial Land Use Text Amendment - Wells, ME
Led successful text amendment process for non-conforming use expansion in a complex regulatory environment. Conducted extensive comparative analysis of municipal codes across multiple jurisdictions to establish benchmarks for definitions and parking standards. Developed comprehensive application materials presenting research findings to Planning Board, Board of Selectmen, and residents. Facilitated numerous public meetings and stakeholder engagement sessions throughout the amendment process, addressing community concerns and incorporating feedback into final recommendations.

Prior to his employment at Sebago Technics, Brett's experiences includes the following:

Orange Township Zoning Department - Delaware County, OH
Served as Senior Zoning Officer for rapidly growing community of 35,000 residents. Spearheaded implementation of innovative New Urbanism community development and transportation corridor overlay district. Led comprehensive Zoning Code rewrite initiative, including extensive public engagement and contemporary planning policy review. Managed Board of Zoning Appeals processes, overseeing variance requests and special permits while maintaining detailed documentation of decisions. Administered township GIS database, creating specialized maps and analyses for planning initiatives. Contributed significantly to Active Transportation Plan adoption and 10-year Parks Master Plan development, focusing on connectivity and accessibility. Coordinated Comprehensive Plan implementation with township staff while preserving 40% open space allocation, balancing development pressures with environmental conservation goals.

EDUCATION

The Ohio State University
Columbus, OH
City & Regional Planning
Minor: Architectural Studies
2021

Columbus State Community College
Columbus, OH
Architectural CAD Drafting Certificate
2022

LEADERSHIP

Delaware Leadership, 2022
Delaware County Chamber of Commerce

SKILLS

Proficient in Adobe Creative Suite (InDesign, Illustrator, Photoshop), ArcGIS, SketchUp, & Microsoft Office Suite

SEBAGO TECHNICS

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Section 6

Traffic Information

Section 6 – Traffic Information

Please see the *Traffic Memorandum* prepared for this project enclosed within this Section. This memo includes estimated trip generations for the proposed seventeen (17) market-rate units with the previously approved eighteen (18) affordable senior housing units. As demonstrated in the memo, the total development is anticipated to generate approximately thirteen (13) trips, fifteen (15) trips, and thirteen (13) trips during the AM, PM, and Saturday peak hour periods of the generator, respectively. This level of trip generation is below the threshold set by the Maine Department of Transportation (Maine DOT) and does not require a Traffic Movement Permit (TMP).

Additionally, the Town of Windham's Subdivision Ordinance Section 120-910 Submission Requirement require developments that exceed 140 vehicular trips per day to provide a full Traffic Impact Analysis. The Applicant respectfully requests a wavier from this standard, given that the proposed project has a low calculation of peak hour trip generation, safe site access, lower overall traffic volume, and that the development is not anticipated to have an adverse impact on adjacent roadways. Please see the enclosed memorandum for additional information.

Sight distance on High Street exceeds the required minimum for a 25 miles per hour (mph) roadway, as defined by the Town of Windham's sight distance standards. Please see the enclosed Traffic Memorandum for additional information.

Memorandum

240577-01

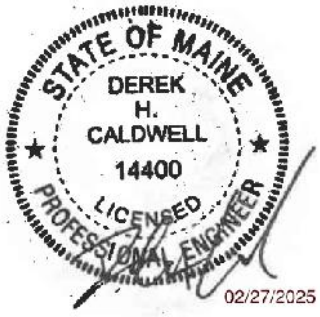
To: Amy Bell Segal, Sebago Technics

From: Derek Caldwell, PE, Sebago Technics

Griffin Steinman, EI, Sebago Technics

Date: February 27, 2025

Subject: Traffic Impact Assessment
Andrew's School Redevelopment
55 High Street, Windham, Maine



Introduction

The purpose of this memorandum is to provide a Traffic Impact Assessment (TIA) for an amended site redevelopment located at 55 High Street in Windham, Maine. The previously approved Site Plan included the conversion of the former Andrew's School into 18 units of multifamily affordable senior housing. This proposed Amended Site Plan includes an additional 17 multifamily apartment units across two buildings. Access to the site is proposed via reconstructed access across from Androscoggin Street. This development previously included the removal of the existing access approximately 115 feet north of Androscoggin Street.

As such, this memorandum details an updated trip generation calculation for both the previously approved and subject proposed residential units. It also provides a crash data review for roadways in the vicinity of the site, and reviews sight distance for the proposed access.

Trip Generation

Trip generation was completed utilizing the 11th Edition of the Institute of Transportation Engineers (ITE), *Trip Generation Manual.* Types of vehicles expected include typical passenger cars.

Previously Approved Site Plan

As calculated in the previous traffic impact assessment for the previously approved Site Plan, Land use code (LUC) 252 – Senior Adult Housing – Multifamily was utilized based on 18 dwelling units. ITE defines LUC 252 as "independent living developments that are called various names including retirement communities, age-restricted housing, and active adult communities. The development has a specific age

restriction for its residents, typically a minimum of 55 years of age for at least one resident of the household." Estimated trip generation for the previously approved Site Plan is outlined in Table 1.

Table 1 – Previously Approved Site Plan ITE Trip Generation
Land Use Code 252 – Senior Adult Housing – Multifamily
18 Dwelling Units

Time Period	*Average Rate per Dwelling Unit*	*Trips*	*Entering*	*Exiting*
Weekday	3.24	58	29 (50%)	29 (50%)
AM Peak Hour – Adjacent Street (7 – 9 AM)	0.20	4	1 (34%)	3 (66%)
AM Peak Hour – Generator	0.29	5	2 (45%)	3 (55%)
PM Peak Hour – Adjacent Street (4 – 6 PM)	0.25	5	3 (56%)	2 (44%)
PM Peak Hour – Generator	0.30	5	3 (54%)	2 (46%)
Saturday Peak Hour	0.32	6	3 (54%)	3 (46%)

As demonstrated in Table 1, the previously approved Site Plan was estimated to generate a total of five (5) trips, five (5) trips, and six (6) trips during the AM, PM, and Saturday peak hour periods of the generator, respectively.

Proposed Amended Site Plan

For the proposed Amended Site Plan, LUC 220 – Multifamily Housing (Low-Rise) was utilized based on the proposed total of 17 dwelling units. LUC 220 is described as "townhouses and condominiums located within the same building with at least three other dwelling units and that have two or three floors (levels)." Trip generation for the additional units is shown in Table 2.

Table 2 – Proposed Amended Site Plan ITE Trip Generation
Land Use Code 220 – Multifamily Housing (Low-Rise)
17 Dwelling Units

Time Period	*Average Rate per Dwelling Unit*	*Trips*	*Entering*	*Exiting*
Weekday	6.74	116	58 (50%)	58 (50%)
AM Peak Hour – Adjacent Street (7 – 9 AM)	0.40	7	2 (24%)	5 (76%)
AM Peak Hour – Generator	0.47	8	2 (24%)	6 (76%)
PM Peak Hour – Adjacent Street (4 – 6 PM)	0.51	9	6 (63%)	3 (37%)
PM Peak Hour – Generator	0.57	10	6 (62%)	4 (38%)
Saturday Peak Hour	0.41	7	N/A*	N/A*

*Distribution not provided

As demonstrated in Table 2, the additional units in the Amended Site Plan are estimated to generate a total of eight (8) trips, ten (10) trips, and seven (7) trips during the AM, PM, and Saturday peak hour periods of the generator, respectively.

Total trip generation for the development summarizing both the previously approved and amended Site Plans is shown in Table 3.

Table 3 – Total ITE Trip Generation

Time Period	*Previously Approved Site Plan*	*Amended Site Plan*	*Total*
Weekday	58	+116	174
AM Peak Hour – Adjacent Street (7 – 9 AM)	4	+7	11
AM Peak Hour – Generator	5	+8	13
PM Peak Hour – Adjacent Street (4 – 6 PM)	5	+9	14
PM Peak Hour – Generator	5	+10	15
Saturday Peak Hour	6	+7	13

As demonstrated in Table 3, the combined development is estimated to generate a total of 13 trips, 15 trips, and 13 trips during the AM, PM, and Saturday peak hour periods of the generator, respectively. Given this level of trip generation, a Traffic Movement Permit (TMP) is not required from the Maine Department of Transportation (MaineDOT) as project trip generation does not exceed the 100-trip threshold during a peak hour period.

Additionally, the Town of Windham *Subdivision Ordinance Section 120-910 Submission Requirements* may require developments that exceed 140 vehicle trips per day to provide a full Traffic Impact Analysis. It is our understanding that a waiver can be requested for this requirement. Given the low calculated peak hour trip generation, safe site access as discussed in the following sections, low traffic volume and posted speed limit of High Street, and the surrounding existing residential land use, the development is not expected to have an adverse impact on the area roadways. Additionally, the site is estimated to generate less than 50 trips per peak hour, the threshold for traffic impact studies required for major site plan review by the Town of Windham.

Crash Data

The MaineDOT Public Map Viewer was utilized to determine if there are any high crash locations (HCL) within the immediate vicinity of the site. An intersection or section of roadway is deemed an HCL if two criteria are met: a Critical Rate Factor (CRF) greater than 1.0 and a minimum of eight (8) crashes in a three-year period.

High Street from Depot Street was reviewed for the three-year study period from 2021 to 2023. No high crash locations are located within the immediate vicinity of the site.

Sight Distance Analysis

Sight distance was reviewed in the field on August 29, 2024, at the proposed site access location on High Street opposite Androscoggin Street.

The measurements were completed in accordance with the standards set forth by the Town of Windham *Land Use Ordinance*. Measurements were conducted from a point ten (10) feet behind the edge of the travel way. The edge was determined by offsetting 11 feet from the centerline of High Street, as no shoulder striping currently exists on High Street. Sight distance requirements are summarized in Table 4.

Table 4 – Sight Distance Requirements

Posted Speed (MPH)	*Minimum Sight Distance (feet)*
20	155’
25	200’
30	250’
35	305’
40	360’
45	425’
50	495’
55	570’

According to the MaineDOT Public Map Viewer, the posted speed limit on High Street in the vicinity of the site is 25 MPH. This was confirmed by signage in the field, thus corresponding to a required sight distance of 200 feet per the Town of Windham’s standards. Sight distance was measured to be 270 feet looking to the left as shown in Image 1, before obstructed by overgrown vegetation along High Street. Sight distance to the right was measured to exceed 700 feet as shown in Image 2. As such, sight distance on High Street exceeds the required minimum for a 25 MPH roadway.



Image 1: Sight Distance Looking Left



Image 2: Sight Distance Looking Right

Conclusion

Sebago Technics, Inc. has completed the traffic impact assessment for the combined redevelopment of the Andrew's School in Windham, Maine and provides the following conclusions:

- The proposed redevelopment consisting of 18 units of multifamily senior housing and 17 units of traditional multifamily housing for a total of 35 dwelling units is estimated to generate a total of 13 trips, 15 trips, and 13 trips during the AM, PM, and Saturday peak hour periods, respectively. As such, a TMP is not required by MaineDOT.

- The segment of High Street in the immediate vicinity of the site is not classified as a high crash location.

- Sight distance from the proposed access on High Street meets the Town of Windham minimum requirement for a 25 MPH.

- The Town of Windham *Subdivision Ordinance* may require developments that exceed 140 vehicle trips per day to provide a full Traffic Impact Analysis. Given the low estimated peak hour trip generation of the development, provided safe access, low traffic volume and posted speed limit on High Street, similar surrounding residential land uses, the development is not expected to have an adverse impact on the surrounding area roadway. Therefore, it is our understanding a waiver will be requested from this requirement.

Section 7

Utilities

Section 7 – Utilities

Water:

There is an existing water main located along High Street, operated by the Portland Water District (PWD). This project is proposing to connect to the available water main, and draw water service interior to the site near the site's proposed entrance. From there, this line will connect to a meter pit for oversight of total water usage within the development. From the meter pit, water will continue interior to the site and branch off to serve each of the proposed buildings. Each building will have submeters for oversight of each unit's water usage. An Ability to Serve letter was requested from PWD on September 16, 2024, and is enclosed within this Section. Please also see the *Grading & Utility Plan* within the Plan Set.

Sewer:

Similar to water service, there is an existing sewer main located along High Street, also operated by the Portland Water District (PWD). This development is proposing to connect to the available sewer main, and connect to the internal sewer infrastructure, as detailed on the *Grading & Utility Plan*. The proposed system is gravity-fed with no pumps. An Ability to Serve letter for water and sewer is enclosed within this Section.

Electrical:

Central Maine Power currently has existing electrical service through overhead power lines running along High Street. One of these poles is directly adjacent to the site's access. This project will receive power by dropping power down onto the site and continuing via underground electrical lines. A total of two (2) transformers are proposed, which provide service to each residential unit. Please see the *Grading & Utility Plan* enclosed within the Plan Set for additional information.

Natural Gas:

This proposed development will connect to the existing natural gas line within High Street. This new connection will conform with the applicable Maine Natural Gas Standards. Please see the *Grading & Utility Plan* for additional information.

Portland Water District
From Sebago Lake to Casco Bay

October 29, 2024

Kelsey Weir, EI
Civil Engineer
Sebago Technics

Re: 55 High ST, WI
Ability to Serve with PWD Water

Dear Mrs. Weir:

The Portland Water District has received your request for an Ability to Serve Determination for the noted site submitted on September 17, 2024. Based on the information provided per plans dated October 29, 2024, we can confirm that the District will be able to serve the proposed project as further described in this letter. **Please note that this letter constitutes approval of the water system as currently designed and is valid for eighteen (18) months after the date of issue. Any changes affecting the approved water system will require further review and approval by PWD.**

Conditions of Service

The following conditions of service apply:

- A new 4-inch domestic service with a 2-inch meter may be installed from the water main in High Street. The service should enter through the property's frontage on High Street at least 10 feet from any side property lines. An approved Testable Double Check Valve Assembly (**DCVA**) backflow prevention device must be installed on the domestic service line directly after the meter, outside of the meter pit prior to service activation.

- A new 6-inch fire service may be installed from the water main in High Street. The service should enter through the property's frontage on High Street at least 10-feet from any side property lines.An approved Testable Double Check Valve Assessmbly (**DCVA**) backflow prevention device must be installed on the fire service line in each building prior to service activation. Please refer to the PWD website for more information on cross-connection control policies.

- Since the single service will provide water demand to multiple buildings, a meter pit will be required. The meter pit shall be located on private property within 10-20 feet of the property line at High Street unless otherwise approved by PWD. Please note that PWD's Terms and Conditions require that a service to one parcel cannot serve another parcel. If in the future this parcel is subdivided, a separate service will be required.

- A new connection to The Portland Water District managed sewer in the High Street is approved. PWD requires a minimum of 72-hours notification before the work.

- The Portland Water District does not have record of any other existing infrastructure in public road and recommends a survey and test pitting be performed by the development team prior to construction. Any conflicts that arise during construction are at the risk of the developer and may result in job shutdown until new plans are submitted by the developer and reviewed and approved by PWD.

Prior to construction, the owner or contractor will need to complete a Service Application and pay all necessary fees for each proposed service. When the project is ready for construction, an Application for each service can be requested by contacting the MEANS Group at MEANS@pwd.org or 207-774-5961 ext. 3199. Once a completed Application has been submitted with payment, please allow seven (7) days for processing.

Existing Site Service
According to District records, the project site does not currently have existing water service.

Water System Characteristics
According to District records, there is a 12-inch diameter Ductile Iron water main in High Street and a public fire hydrant located approximately 235 feet from the site. The estimated static pressure in the area is 98 psi.

Public Fire Protection
The installation of new public hydrants to be accepted into the District water system will most likely not be required. It is your responsibility to contact the Town of Windham fire Department to ensure that this project is adequately served by existing and/or proposed hydrants.

Domestic Water Needs
The data noted above indicates there should be adequate pressure and volume of water to serve the domestic water needs of your proposed project. Based on the high-water pressure in this area, we recommend that you consider the installation of pressure reducing devices that comply with state plumbing codes.

Private Fire Protection Water Needs
You have indicated that this project will require water service to provide private fire protection to the site. Please note that the District does not guarantee any quantity of water or pressure through a fire protection service.

Should you disagree with this determination, you may request a review by the District's Internal Review Team. Your request for review must be in writing and state the reason for your disagreement with the determination. The request must be sent to MEANS@PWD.org or mailed to 225 Douglass Street, Portland Maine, 04104 c/o MEANS. The Internal Review Team will undertake review as requested within 2 weeks of receipt of a request for review.

If the District can be of further assistance in this matter, please let us know.

Sincerely,
Portland Water District



Robert A. Bartels, P.E.
Senior Project Engineer

Section 8

Stormwater Management

Section 8 – Stormwater Management

Please see the *Stormwater Management Report* enclosed within this Section that has been prepared for this proposed development.

SEBAGO TECHNICS

CIVIL ENGINEERING • SURVEYING • LANDSCAPE ARCHITECTURE

Stormwater Management Report

For

WDCJCS Subdivision
Former Andrews School Site
Redevelopment

Prepared for:

Great Falls Construction
20 Mechanic Street
Gorham, ME 04038
and
Westbrook Development Corp.
30 Liza Harmon Drive
Westbrook, ME 04092

Prepared by:

Sebago Technics, Inc.
75 John Roberts Rd, Suite 4A
South Portland, ME 04106

Feburary, 2025

Table of Contents

Contents

1. Introduction 1
2. Existing Conditions 1
3. Soils 1
4. Proposed Site Improvements 2
5. Methodology 2
6. Existing Conditions Model 2
7. Proposed Conditions Model 3
8. Stormwater Management 4

Basic Standard - Chapter 500, Section 4(B) 4

General Standard- Chapter 500, Section 4(C) 4

Flooding Standard – Chapter 500, Section 4(F) 4

9. Summary 5

Appendices

Appendix 1: Stormwater Quality Calculations
Appendix 2A: Hydrologic Modeling– Existing Conditions (HydroCAD)Summary
Appendix 2B: Hydrologic Modeling – Proposed Conditions (HydroCAD) Summary
Appendix 3: Inspection, Maintenance and Housekeeping Plan
Appendix 4: Subsurface Soil Investigations
Appendix 5: Stormwater Management Plans

STORMWATER MANAGEMENT REPORT
WDCJCS SUBDIVISION

1. Introduction

This Stormwater Management Plan Report has been prepared to present analyses performed to address the potential impacts associated with the project due to proposed modifications in stormwater runoff characteristics and land cover changes. The stormwater management controls that are outlined in this report have been designed to suit the proposed development and to comply with applicable regulatory requirements.

2. Existing Conditions

The subject parcel is approximately 2.39 acres in size and is shown as Lot 24 on the Town of Windham Assessor's Tax Map 37. The parcel is presently developed and previously operated as the John A Andrew School. One of the two structures remains on-site, with portions of the parcel still occupied by bituminous parking and access ways, as well as gravel backfill within the previously razed building footprint. The parcel is bounded by residential developments, with High Street located at the southwest of the parcel. Topography onsite ranges from relatively flat around the existing buildings to moderately steep (10-15%) at the perimeter of the site. There is a ridge line within the central portion of the site, which runs north-south, thereby sending half the parcel drainage towards High Street to the southwest and the other half of the parcel to the abutting land to the northeast.

The parcel is located within the watershed of the Presumpscot River, with the northerly half discharging to Colley Wright Brook before feeding into the Presumpscot River. Neither Colley Wright Brook or the Presumpscot River are listed as Urban Impaired Streams or otherwise threatened watershed by MaineDEP, Chapter 502. The subject parcel is not located within an identified flood zone per the FEMA Flood Insurance Rate Map Number 23005C0656F, effective date June 20, 2024.

3. Soils

Soil information for the site was obtained via the USDS United States Department of Agriculture and Natural Resource Conservation Services (NRCS) Web Soil Survey. The Hydrologic Soil Groups (HSG) of the soils on site as classified by the Soil Conservation Service are delineated on the stormwater management plans and are as follows:

Soil Map Symbol	Soil Name	Slope (%)	HSG
BgB	Nicholville, very fine sandy loam	0-8	C
EmB	Elmwood, fine sandy loam	0-8	B
PbB	Paxton, fine sandy loam	3-8	C

A copy of the Class D (Medium Intensity) NRCS Web Soil Survey is included in Appendix 4.

4. Proposed Site Improvements

The project proposes razing the existing structure and pavement and redeveloping the site as partially affordable housing and the other part market price housing. The affordable housing will be a total of eighteen (18) apartment units contained withing four (4) buildings. Three of the buildings will contain 4 apartment units each and the fourth building will contain 6 apartment units. The market price housing will include 17 units contained into two (2) buildings. One of the buildings will include 12 apartment units while the other building will contain 5 apartment units. The apartment units are supported by a 24-foot wide access way from High Street, pedestrian sidewalks throughout the site connecting to High Street and resident open space.

As the site is presently developed, the stormwater management has been designed utilizing the Redevelopment Standard contained within MaineDEP Chapter 500, Section 4.C.(2)(d), where the required level of stormwater treatment is scaled backed based on the net change in pollutant discharge associated with the parcel. The net change in pollutant ranking associated with redeveloping the site requires a 60% treatment level associated with the site's proposed developed footprint. Calculations for the Redevelopment Standard are contained in Appendix 1.

5. Methodology

Stormwater runoff analyses were developed using "HydroCAD" computer modeling software, which incorporates the TR-55 and TR-20 methodologies as provided by the Soil Conservation Service of the U.S. Department of Agriculture.

The estimated peak runoff rates were calculated using a 24-hour duration storm event with a Type III rainfall distribution. The rainfall amounts for Cumberland (SE) County for the 2-year, 10-year and 25-year storm events are as follows:

Storm Frequency	24-hr Duration Rainfall (in.)
2-yr	3.1
10-yr	4.6
25-yr	5.8

6. Existing Conditions Model

The existing conditions stormwater model consists of three subcatchments, labeled 1S thru 3S and three Points of Analysis (POA) labeled POA-1 thru POA-3.

POA-1 is represents the site's discharge of runoff into High Street and the associated storm drain collection system within High Street. Sub-catchment 1S is the only sub-catchment that is tributary to POA-1 and consists of the southwesterly half of the site from the center ridge

line to High Street. Stormwater runoff from drainage area drains to High Street overland flow as there are presently no storm drain collection within the site. Sub-catchment consists of approximately 1.3 acres.
POA-2, located along the northwesterly property line where a small section of the stie drains via overland flow across the property line and onto the abutting parcel. Sub-catchment 2S is tributary to POA-2 and consists of approximately 0.35 acres of land area.

POA-3 is located along the rear (northeast portion of the site) property line where the back half of the site, from the central ridge line, drainage via overland flow onto the abutting parcel. Sub-catchment 3S is tributary to POA-3 and is approximately 1.05 acres in size.

HydroCAD modeling outputs are contained in Appendix 2A and the Existing Conditions Stormwater Plan is contained in Appendix 5.

7. Proposed Conditions Model

The proposed condition sub-catchment areas consist of the same overall area as the existing conditions plan; however, the existing conditions sub-catchments have had their areas altered because of the proposed development. POA-1, POA-2, and POA-3 remain as the three analysis points for comparing peak runoff rates.

POA-1 represents the site's discharge of runoff into High Street and the associated storm drain collection system within High Street. Sub-catchment 1S - 5S, 7S – 16S, and 18S are tributary to POA-1. These subcatchments are the majority of the site and any area collected by the proposed drainage network. Sub-catchments 7S – 16S and 18S are treated through a subsurface chamber sand filter BMP, while subcatchments 1S-4S are treated by roof drip edges. The collected and treated stormwater is discharged to a storm drain line which ties into the existing storm drain system within High Street. The Point of Analysis consists of approximately 2.33 acres.

POA-2, located along the northwesterly property line where a small section of the site drains via overland flow across the property line and onto the abutting parcel. Sub-catchment 6S is tributary to POA-2 and consists of approximately 0.09 acres of land area.

POA-3 is located along the rear (northeast portion of the site) property line, where the small area in the northeast of the site drains via overland flow onto the abutting parcel. Sub-catchment 17S is tributary to POA-3 and is approximately 0.26 acres in size.

The proposed subsurface chamber sand filter and roof drip edge filters have been designed to meet the standards set forth in the Maine DEP's Best Management Practices (BMP) Manual. Sizing Calculations can be found in Appendix 1.

8. Stormwater Management

Basic Standard - Chapter 500, Section 4(B)

Since the project will disturb more than one (1) acre of land area, MDEP Basic Standards apply, requiring that grading or other construction activities on the site do not impede or otherwise alter drainage ways to have an unreasonable adverse impact. We have avoided adverse impacts by providing an Erosion & Sedimentation Control Plan, and an Inspection, Maintenance and Housekeeping Plan (Appendix 3) to be implemented during construction and post-construction stabilization of the site. These construction requirements have been developed following Best Management Practice guidelines.

General Standard- Chapter 500, Section 4(C)

The project will result in the creation of one (1) acre or more of impervious surface and, therefore, trigger a Stormwater Management Permit through the MaineDEP, which requires the site to meet the General Standards. As mentioned previously, the site is considered a redevelopment project and will utilize the redevelopment standard as contained within MaineDEP Chapter 500 which scales base the level of stormwater treatment based on the net change in pollutant discharge associated with the parcel. The pollutant ranking analysis, contained in Appendix 1, results in a required treatment level of 60% of the sites proposed developed area.

To mitigate the changes in hydrologic patterns due to the redevelopment of this project, a subsurface chamber sand filter is proposed, which will provide both water quality and quantity treatment. The subsurface chamber sand filter has been sized according to MaineDEP standards with calculations provided in Appendix 1.

The proposed subsurface chamber sand filter provides treatment of 93.7% of the site's redeveloped impervious area and 69.6% of the site's redeveloped area, which exceeds the redevelopment requirement of 60% of the site's redeveloped area.

Flooding Standard – Chapter 500, Section 4(F)

Since the planned project will not create more than three (3) acres of impervious surface or five (5) acres of disturbed area, MDEP Flooding Standards do not apply. However, the site is required to provide stormwater mitigation, peak runoff control, and water quality through the Town of Windham per Chapter 201 – Stormwater Management Ordinance. As such, a runoff evaluation was performed using the methodology outlined in the USDA Soil Conservation Service's "Urban Hydrology for Small Watersheds - Technical Release #55 (TR-55)". HydroCAD computer software was utilized to perform the calculations.

The following table presents the results of the peak runoff calculations at the analysis point for the existing and proposed conditions.

Peak Runoff Rate Summary Table			
Analysis Point	**Storm Event**	**Existing Conditions (cfs)**	**Proposed Conditions (cfs)**
POA-1	2-Year	1.4	1.3
	10-Year	3.1	3.1
	25-Year	4.6	4.3
POA-2	2-Year	0.1	0.0
	10-Year	0.4	0.1
	25-Year	0.7	0.1
POA-3	2-Year	0.6	0.1
	10-Year	1.8	0.4
	25-Year	2.9	0.6

The model predicts that the peak runoff rates in the proposed condition at all Points of Analysis are at or below the existing condition runoff rates for the 2, 10, and 25-year storm events with the implementation of the proposed BMP. Please refer to Appendix 2A and Appendix 2B for existing and proposed conditions stormwater modeling as well as Appendix 5 for the Stormwater Management Plans.

9. Summary

The proposed development has been designed to manage stormwater runoff through Best Management Practices approved by MDEP. The Stormwater BMPs provide treatment to 93.7% of the site's impervious area and 69.6% of the site's developed area. Peak rates of stormwater runoff discharging from the site will be at or below pre-development peak runoff rates for the 2, 10, and 25-year storm events at the identified points of analysis. Additionally, erosion and sedimentation controls, along with associated maintenance and housekeeping procedures, have been outlined to prevent unreasonable impacts on the site and to the surrounding environment.

Prepared by:
SEBAGO TECHNICS, INC.

Daniel Riley, PE, CFM
Senior Vice President

Appendix 1

Stormwater Quality Calculations

Table 1: MDEP GENERAL STANDARD CALCULATIONS

Job # 240577

AREA ID	WATERSHED SIZE (S.F.)	ONSITE IMPERVIOUS AREA (S.F.)	ONSITE LANDSCAPED AREA (S.F.)	NET EXISTING DEVELOPED AREAS (S.F.)	TREATMENT PROVIDED?	IMPERVIOUS AREA TREATED (S.F.)	LANDSCAPED AREA TREATED (S.F.)	DEVELOPED AREA TREATED (S.F.)	TREATMENT BMP
1	2400	2,400	0	2,400	YES	2,400	0	2,400	DE
2	2400	2,400	0	2,400	YES	2,400	0	2,400	DE
3	2400	2,400	0	2,400	YES	2,400	0	2,400	DE
4	3475	3,475	0	3,475	YES	3,475	0	3,475	DE
5	22540	3,239	14,910	18,149	NO	0	0	0	
6	4195	0	4,195	4,195	NO	0	0	0	
7	5435	3,500	1,935	5,435	YES	3,500	1,935	5,435	Chambers
8	10415	6,771	3,644	10,415	YES	6,771	3,644	10,415	Chambers
9	6355	3,542	2,813	6,355	YES	3,542	2,813	6,355	Chambers
10	11240	3,589	1,511	5,100	YES	3,589	1,511	5,100	Chambers
11	1905	0	1,258	1,258	YES	0	1,258	1,258	Chambers
12	6705	3,926	1,726	5,652	YES	3,926	1,726	5,652	Chambers
13	10425	6,982	3,443	10,425	YES	6,982	3,443	10,425	Chambers
14	6015	4,278	1,737	6,015	YES	4,278	1,737	6,015	Chambers
15	3465	3,465	0	3,465	YES	3,465	0	3,465	Chambers
16	2010	1,479	531	2,010	YES	1,479	531	2,010	Chambers
17	11409	290	8,446	8,736	NO	0	0	0	
18	4535	4,535	0	4,535	YES	4,535	0	4,535	Chambers
TOTAL (S.F.)	**117,324**	**56,271**	**46,149**	**102,420**		**52,742**	**18,598**	**71,340**	

TOTAL IMPERVIOUS AREA (S.F.)	**56,271**	**TOTAL DEVELOPED AREA (S.F.)**	**102,420**
TOTAL IMPERVIOUS AREA RECEIVING TREATMENT (S.F.)	**52,742**	**TOTAL AREA RECEIVING TREATMENT (S.F.)**	**71,340**
% OF IMPERVIOUS AREA RECEIVING TREATMENT	**93.73%**	**% OF AREA RECEIVING TREATMENT**	**69.65%**

Table 2: MDEP REDEVELOPMENT STANDARD CALCULATIONS: Former Andrews School, 55 High Street Windham

Existing Areas by Pollutant Ranking (S.F.)							Proposed Areas by Pollutant Ranking (S.F.)						
0	1	2	3	4	5	SUM	0	1	2	3	4	5	SUM
40,016	0	46,274	0	20,515	0	106,805	1,540	0	72,265	0	33,000	0	106,805

Existing Areas by Pollutant Ranking (acres)							Proposed Areas by Pollutant Ranking (acres)						
0	1	2	3	4	5	SUM	0	1	2	3	4	5	SUM
0.919	0.000	1.062	0.000	0.471	0.000	2.452	0.035	0.000	1.659	0.000	0.758	0.000	2.452

Existing Weighted Average (Item A)	Proposed Weighted Average (Item B)
4.008	**6.348**

Existing Ranked Impact (Item C)	Proposed Ranked Impact (Item D)
1.635	**2.589**

Ranked Impact Change Due to Redevelopment (Item E)
0.954

Treatment Levels for Redevelopment Projects	
Ranked Impact Change Due to Redevelopment (Item E)	**Percentage of Developed Area that Must be Treated**
0.0 or less	**0% (Stormwater projects)** **50% (Site projects)**
≤ 0.0 to ≥ 1.0	60%
> 1.0 to ≥ 2.0	**70%**
> 2.0 to ≥ 3.0	**80%**
> 3.0	**Same treatment level as for new development**

Land Use	Pollutant Ranking
Roads where idling may occur periodically High use parking lots	5
Other roads; Medium use parking lots	4
Other parking lots and driveways; Flat asphalt rooftops; Roofs on an industrial facility	3
Other rooftops; Bikeways; Grassed areas mowed more than twice per year; Walkways/foot traffic-only pavement	2
Non-grass landscaped areas; Stormwater treatment/storage systems (except buffers)	1
Forest; Meadow mowed no more than twice per year;	0

Table 2: MDEP REDEVELOPMENT STANDARD CALCULATIONS: Former Andrews School, 55 High Street Windham

Existing Areas by Pollutant Ranking (S.F.)							Proposed Areas by Pollutant Ranking (S.F.)						
0	1	2	3	4	5	SUM	0	1	2	3	4	5	SUM
40,016	0	46,274	0	20,515	0	106,805	1,540	0	72,265	0	33,000	0	106,805

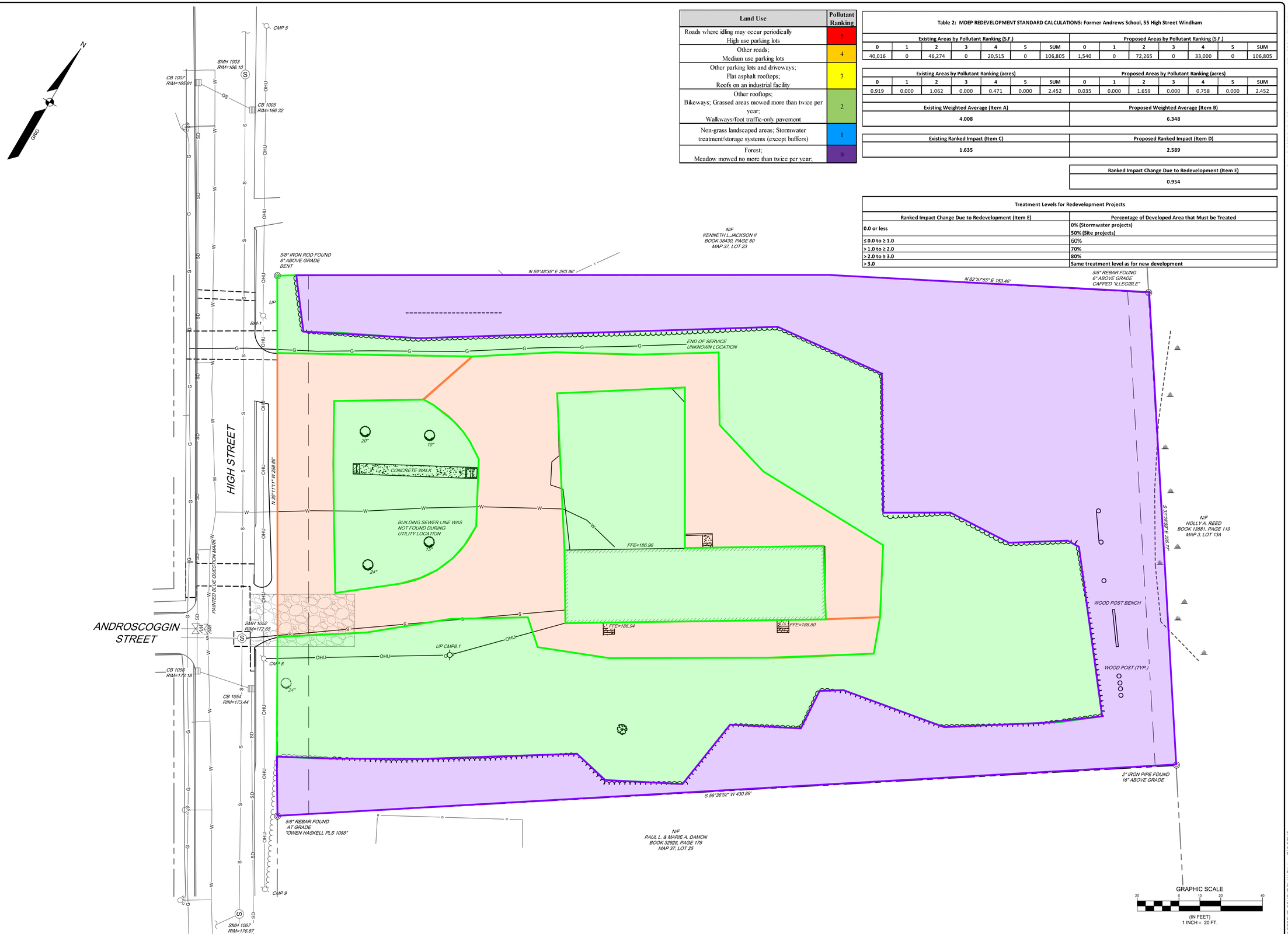
Existing Areas by Pollutant Ranking (acres)							Proposed Areas by Pollutant Ranking (acres)						
0	1	2	3	4	5	SUM	0	1	2	3	4	5	SUM
0.919	0.000	1.062	0.000	0.471	0.000	2.452	0.035	0.000	1.659	0.000	0.758	0.000	2.452

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> 1.0 to ≥ 2.0	70%
> 2.0 to ≥ 3.0	80%
> 3.0	Same treatment level as for new development



AMY BELL SEGAL, RLA 2305

PAUL D OSTROVSKI, PE 11175

REV	BY	DATE	STATUS
A	KEW	2-18-25	SUBMISSION TO MDEP FOR STORM WATER MANAGEMENT LAW

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South Portland, Bridgton, Sanford and Bath

DEMO PLAN
OF:
WDCJCS SUBDIVISION
55 HIGH STREET
WINDHAM, ME 04062
FOR:
GREAT FALLS CONSTRUCTION &
WESTBROOK DEVELOPMENT CORPORATION
20 MECHANIC STREET GORHAM, ME 04038

DESIGNED	MRB/KEW
DRAWN	MRS
CHECKED	ABS
DATE	08-26-2024
SCALE	1" = 20'
PROJECT	240577

SHEET C-001

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240577 REDEVELOPMENT PLAN EX.dwg, TAB:DEMO

Land Use	Pollutant Ranking
Roads where idling may occur periodically High use parking lots	5
Other roads; Medium use parking lots	4
Other parking lots and driveways; Flat asphalt rooftops; Roofs on an industrial facility	3
Other rooftops; Bikeways; Grassed areas mowed more than twice per year; Walkways/foot traffic-only pavement	2
Non-grass landscaped areas; Stormwater treatment/storage systems (except buffers)	1
Forest; Meadow mowed no more than twice per year;	0

Table 2: MDEP REDEVELOPMENT STANDARD CALCULATIONS: Former Andrews School, 55 High Street Windham

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40,016	0	46,274	0	20,515	0	106,805	1,540	0	72,265	0	33,000	0	106,805

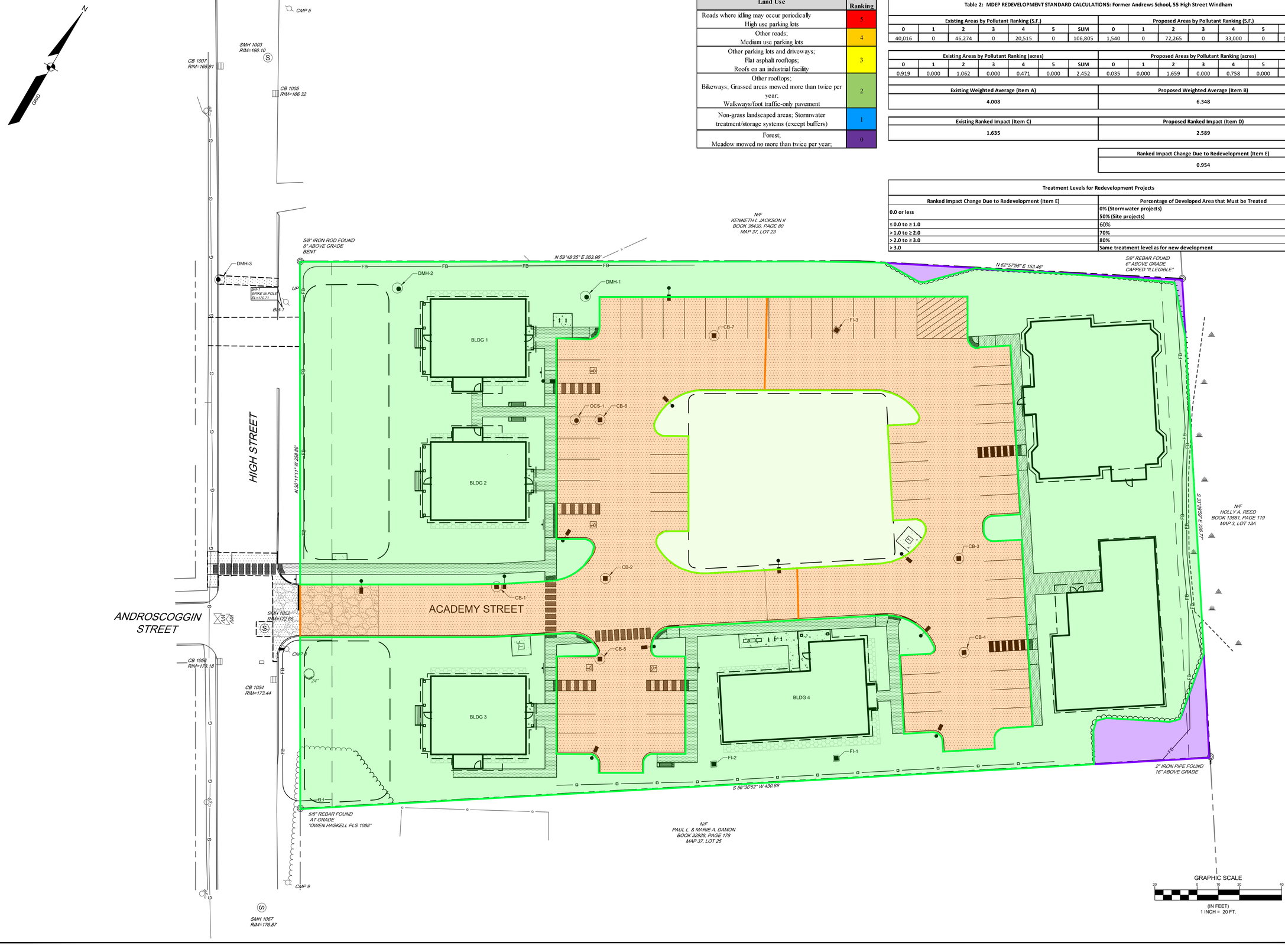
Existing Areas by Pollutant Ranking (acres)							Proposed Areas by Pollutant Ranking (acres)						
0	1	2	3	4	5	SUM	0	1	2	3	4	5	SUM
0.919	0.000	1.062	0.000	0.471	0.000	2.452	0.035	0.000	1.659	0.000	0.758	0.000	2.452

Existing Weighted Average (Item A)	Proposed Weighted Average (Item B)
4.008	6.348

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Treatment Levels for Redevelopment Projects	
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0.0 or less	0% (Stormwater projects) 50% (Site projects)
≤ 0.0 to ≥ 1.0	60%
> 1.0 to ≥ 2.0	70%
> 2.0 to ≥ 3.0	80%
> 3.0	Same treatment level as for new development



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240577 REDEVELOPMENT PLAN PR.dwg, TAB-Proposed Conditions Redevelopment Plan

CHRISTOPHER D. LAMOTTE, PLS 2391

PAUL D OSTROVSKI, PE 11175

REV.	BY	DATE	STATUS
A	KEW	2-18-25	SUBMISSION TO MDEP FOR STORM WATER MANAGEMENT LAW

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South Portland, Bridgton, Sanford and Bath

SITE PLAN & SUBDIVISION PLAN
OF:
WDCJCS SUBDIVISION
55 HIGH STREET
WINDHAM, ME 04062
FOR:
GREAT FALLS CONSTRUCTION &
WESTBROOK DEVELOPMENT CORPORATION
20 MECHANIC STREET GORHAM, ME 04038

DESIGNED	MRB/KEW
DRAWN	MRS
CHECKED	ABS
DATE	08-26-2024
SCALE	1" = 20'
PROJECT	240577

SHEET C-101

SEBAGO TECHNICS, INC.
75 John Roberts Road Suite 4A
South Portland, Maine 04106
Tel. (207) 200-2100

JOB	WDCJCS Subdivision		
SHEET NO.	1	OF	1
CALCULATED BY	KEW	DATE	9/1/2024
FILE NAME	240577 WQC_full buildout.xlsx	PRNT DATE	2/18/2025

UNDERDRAINED SUBSURFACE SAND FILTER

Task: Calculate water quality volume per MDEP chapter 500 regulations

References
1. Maine DEP Chapter 500, Section 4.C.(3)(b)
"must detain a runoff volume equal to 1.0 inch times the subcatchment's impervious area plus 0.4 inch times the subcatchment's landscaped area"

2. Maine DEP Best Management Practices Stormwater Manual, Section 7.3.2
   a. "detain runoff volume equal to 1.0 inch times the subcatchment's impervious area plus 0.4 inch times the subcatchment's landscaped area"
   b. "surface area of the sand filter bed and chamber system must be at least equal to 5% of the impervious area draining to it and 2% of the landscaped area."
   c. "treatment flow rate for the Stormtech Isolator Row is the projected one year peak flow rate for the drainage area feeding the Isolator Row"

Flow rates:		
SC-310	0.10	cfs/chamber
SC-740	0.20	cfs/chamber
DC-780	0.20	cfs/chamber
MC-3500	0.30	cfs/chamber

   d. Inspection ports to the underdrain gravel layer should be provided with at least one port per 500 square-feet of subsurface filter area.

Tributary to Subsurface Sand Filter: Chambers

Landscaped Area	18,598.00	SF
Impervious Area	37,532.00	SF

Minimum Surface Area for sand filter and chamber system

Required (2% X Landscaped + 5%" X Impervious)

Total Landscaped Area	18,598.00	SF	Area	372.0	SF			
Total Impervious Area	37,532.00	SF	Area	1,876.6	SF			
Required Minimum Surface Area				2,248.6	SF			
							Required	No. of Inspection Ports
Provided Surface Area				4,367.0	SF		9	

Treatment Volume

Required (0.4" X Landscaped + 1.0" X Impervious)

Landscaped Area	18,598.00	SF	Volume	619.9				
Impervious Area	37,532.00	SF	Volume	3,127.7				
Treatment Volume Required				3,747.6	CF	0.086	AF	
Provided Treatment Volume				5,531.0	CF			

Sediment Pre-Treatment

Per Reference 2.c above

One year flow rate out put from Hydrocad:		0.80	cfs
ISO Row sizing for:	**SC-310**	**0.1**	cfs
Total number of Isolator Row Chambers required:		8	

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JOB	WDCJCS Subdivision		
SHEET NO.	1	OF	1
CALCULATED BY	KEW	DATE	
CHECKED BY	PDO		
FILE NAME		PRINT DATE	2/18/2025

Treatment Calculations for Proposed Roof Drip Edge Unit 1-3						
WQV Calculation						
(WQV = Water Quality Volume)						
Total Impervious Area =	2,400	sf				
WQV (MDEP)= 1" x Impervious Area =		200.0	cf =	0.005	acre-ft	
Length of Trench=		65.0	ft.			
Width of Trench=		4.0	ft.			
Depth of Stone		16.0	in.	40% porosity		
Depth of Sand Media=		15.0	in.	20% porosity		
WQV Provided = Area of Trench * (Depth of stone*stone porosity + Depth of sand*sand porosity)						
WQV for first 1" =	138.7					
Additional WQV Provided =	65.0	cf				
Total WQV Provided =	**203.7**	**cf**				

The stone reservoir volume for the drip edge filter was designed to provide the storage required to convey the water quality storm (storm that generates 1" of runoff over the roof) through the filter media under the stone. Additonal water quality is provided in the porosity of the underdrain sand.

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JOB	WDCJCS Subdivision		
SHEET NO.	1	OF	1
CALCULATED BY	KEW	DATE	
CHECKED BY	PDO		
FILE NAME		PRINT DATE	2/18/2025

Treatment Calculations for Proposed Roof Drip Edge Unit 4						
WQV Calculation						
(WQV = Water Quality Volume)						
Total Impervious Area =	3,475	sf				
WQV (MDEP)= 1" x Impervious Area =		289.6	cf =	0.007	acre-ft	
Length of Trench=		155.0	ft.			
Width of Trench=		4.0	ft.			
Depth of Stone		12.0	in.	40% porosity		
Depth of Sand Media=		12.0	in.	20% porosity		
WQV Provided = Area of Trench * (Depth of stone*stone porosity + Depth of sand*sand porosity)						
WQV for first 1" =	248.0					
Additional WQV Provided =	124.0	cf				
Total WQV Provided =	**372.0**	**cf**				

The stone reservoir volume for the drip edge filter was designed to provide the storage required to convey the water quality storm (storm that generates 1" of runoff over the roof) through the filter media under the stone. Additonal water quality is provided in the porosity of the underdrain sand.

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JOB	240557		
SHEET NO.	1	OF	1
CALCULATED BY	KEW	DATE	9/1/2024
CHECKED BY	PDO		
FILE NAME	240577 WQC	PRINT DATE	2/18/2025

ORIFICE SIZING CALCULATION

Stormwater BMP: Chamber System

Orifice Equation $Q = CA\sqrt{(2gh)}$

Q = Rate of Discharge (cfs)
A = Orifice Area (sf)
G = Gravitational Constant (32.2 ft/s^2)
h = Depth of water above the flow line (center) of the orifice (ft)
C = 0.6 Orifice coefficient (usually assumed = 0.6)

Average discharge rate required to drawdown the treatment volume in a desired amount of time is:

$$Q = \frac{WQv}{Tcf}$$

TV = Treatment Volume (cf)
T = Target Drain Time (Hours)
cf = Conversion Factor = 3600 sec/hr

TV = 5,531 cf
t = 36 hr

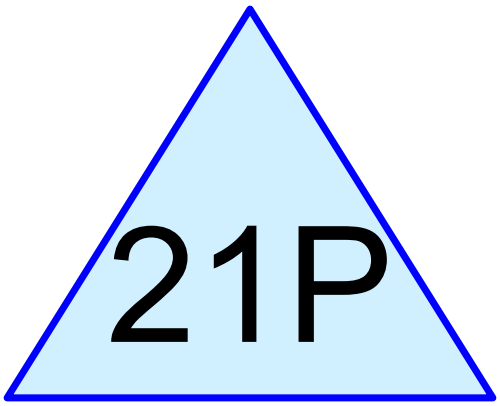
$Q = \frac{TV}{tCF}$ = 0.04 cfs Target Rate for 36 hour discharge

surface area of filter = 4,367 SF

hmax = 1.27 ft h/2= 0.63 ft

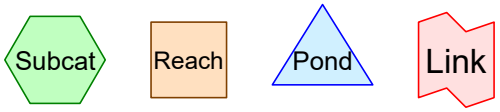
$A = \frac{Q}{C\sqrt{(2gh)}}$ A = 0.011 sf = 1.60 sq. in.

Diam =	1.43	in



ADS SC-310

Draw Down Period for Water Quality Storm Event - Detention Basin Draining in 24 - 48 Hours



Routing Diagram for 240577.01 Post Dev full buildout
Prepared by Sebago Technics, Printed 2/13/2025
HydroCAD® 10.20-5c s/n 00643 © 2023 HydroCAD Software Solutions LLC

Summary for Pond 21P: ADS SC-310

Inflow Area = 68,505 sf, 61.41% Impervious, Inflow Depth = 0.66" for wqv event
Inflow = 1.0 cfs @ 12.11 hrs, Volume= 3,782 cf
Outflow = 0.1 cfs @ 15.41 hrs, Volume= 3,782 cf, Atten= 94%, Lag= 198.2 min
Primary = 0.1 cfs @ 15.41 hrs, Volume= 3,782 cf
Routed to Link POA-1 : POA-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 174.52' @ 15.41 hrs Surf.Area= 11,864 sf Storage= 1,973 cf
Flood Elev= 180.70' Surf.Area= 11,864 sf Storage= 7,606 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 429.0 min (1,266.1 - 837.1)

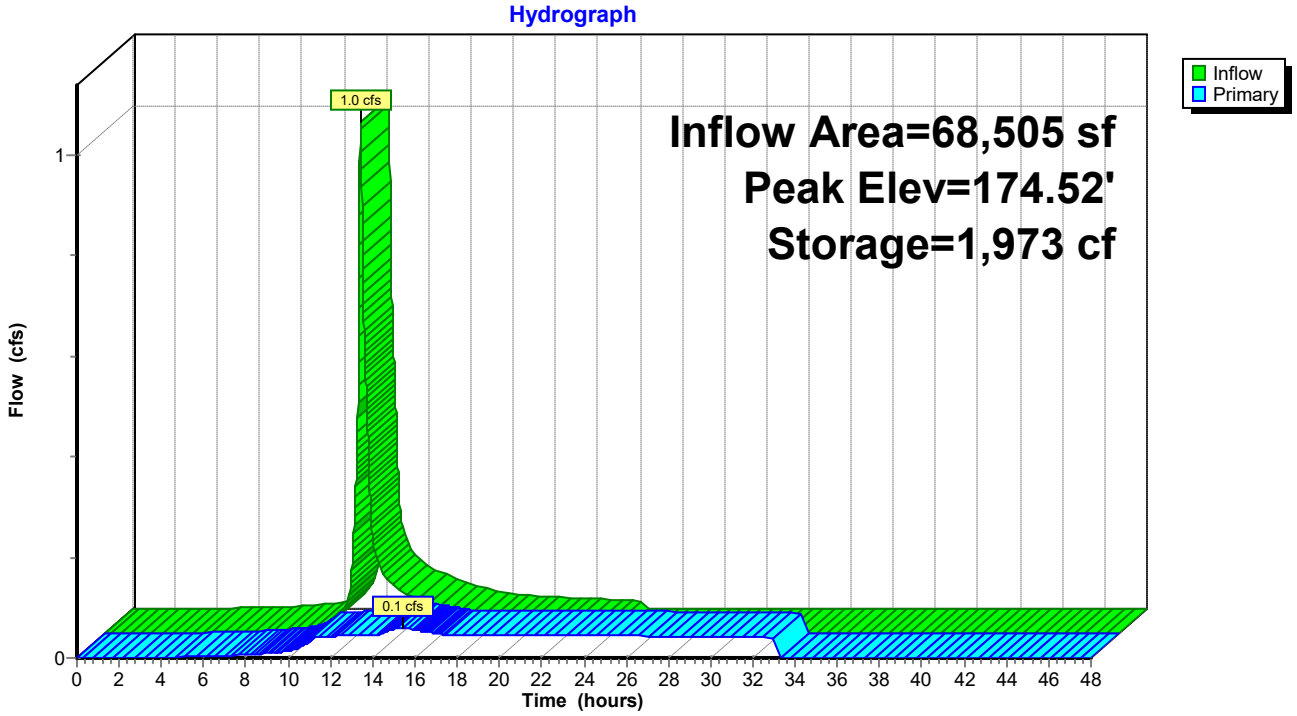
Volume	Invert	Avail.Storage	Storage Description
#1	171.35'	0 cf	**88.17'W x 67.28'L x 2.50'H Prismatoid** 14,830 cf Overall x 0.0% Voids
#2A	173.85'	4,157 cf	**88.17'W x 67.28'L x 2.33'H Field A** 13,841 cf Overall - 3,450 cf Embedded = 10,391 cf x 40.0% Voids
#3A	174.35'	3,450 cf	**ADS_StormTech SC-310 +Cap** x 234 Inside #2 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 234 Chambers in 26 Rows
		7,606 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	171.35'	**15.0" Round Culvert** L= 62.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 171.35' / 170.73' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	171.45'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	174.50'	**26.0" W x 2.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	176.50'	**5.0' long x 1.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.1 cfs @ 15.41 hrs HW=174.52' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.1 cfs of 7.4 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.0 cfs @ 8.37 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 0.0 cfs @ 0.40 fps)
  └─**4=Sharp-Crested Rectangular Weir** (Controls 0.0 cfs)

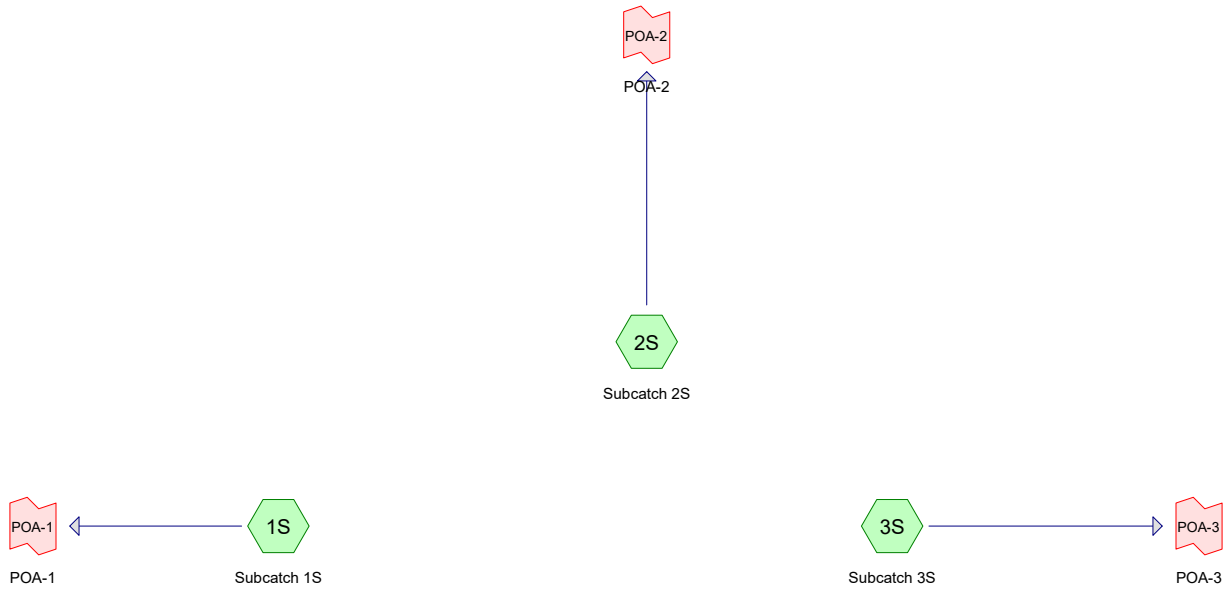
Pond 21P: ADS SC-310



Water Quality Volume
Drains in 25 hrs

Appendix 2A

Existing Conditions HydroCAD Summary



Subcat Reach Pond Link

Routing Diagram for 240577 Pre Dev
Prepared by Sebago Technics, Printed 2/13/2025
HydroCAD® 10.20-5c s/n 00643 © 2023 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
33,600	61	>75% Grass cover, Good, HSG B (1S, 2S, 3S)
3,605	74	>75% Grass cover, Good, HSG C (1S)
4,555	96	Gravel surface (1S, 2S, 3S)
20,785	98	Paved parking (1S, 2S, 3S)
4,390	98	Roof (3S)
38,354	55	Woods, Good, HSG B (1S, 2S, 3S)
12,035	70	Woods, Good, HSG C (1S, 2S, 3S)
117,324	**70**	**TOTAL AREA**

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Subcatch 1S Runoff Area=56,129 sf 26.28% Impervious Runoff Depth=0.97"
Flow Length=195' Tc=6.0 min CN=74 Runoff=1.4 cfs 4,548 cf

Subcatchment 2S: Subcatch 2S Runoff Area=15,475 sf 7.21% Impervious Runoff Depth=0.40"
Flow Length=100' Tc=6.0 min CN=61 Runoff=0.1 cfs 521 cf

Subcatchment 3S: Subcatch 3S Runoff Area=45,720 sf 20.36% Impervious Runoff Depth=0.64"
Flow Length=250' Tc=6.0 min CN=67 Runoff=0.6 cfs 2,421 cf

Link POA-1: POA-1 Inflow=1.4 cfs 4,548 cf
Primary=1.4 cfs 4,548 cf

Link POA-2: POA-2 Inflow=0.1 cfs 521 cf
Primary=0.1 cfs 521 cf

Link POA-3: POA-3 Inflow=0.6 cfs 2,421 cf
Primary=0.6 cfs 2,421 cf

Total Runoff Area = 117,324 sf Runoff Volume = 7,489 cf Average Runoff Depth = 0.77"
78.54% Pervious = 92,149 sf 21.46% Impervious = 25,175 sf

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Subcatch 1S Runoff Area=56,129 sf 26.28% Impervious Runoff Depth=2.05"
Flow Length=195' Tc=6.0 min CN=74 Runoff=3.1 cfs 9,587 cf

Subcatchment 2S: Subcatch 2S Runoff Area=15,475 sf 7.21% Impervious Runoff Depth=1.14"
Flow Length=100' Tc=6.0 min CN=61 Runoff=0.4 cfs 1,464 cf

Subcatchment 3S: Subcatch 3S Runoff Area=45,720 sf 20.36% Impervious Runoff Depth=1.53"
Flow Length=250' Tc=6.0 min CN=67 Runoff=1.8 cfs 5,830 cf

Link POA-1: POA-1 Inflow=3.1 cfs 9,587 cf
Primary=3.1 cfs 9,587 cf

Link POA-2: POA-2 Inflow=0.4 cfs 1,464 cf
Primary=0.4 cfs 1,464 cf

Link POA-3: POA-3 Inflow=1.8 cfs 5,830 cf
Primary=1.8 cfs 5,830 cf

Total Runoff Area = 117,324 sf Runoff Volume = 16,881 cf Average Runoff Depth = 1.73"
78.54% Pervious = 92,149 sf 21.46% Impervious = 25,175 sf

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Subcatch 1S Runoff Area=56,129 sf 26.28% Impervious Runoff Depth=3.02"
Flow Length=195' Tc=6.0 min CN=74 Runoff=4.6 cfs 14,114 cf

Subcatchment 2S: Subcatch 2S Runoff Area=15,475 sf 7.21% Impervious Runoff Depth=1.87"
Flow Length=100' Tc=6.0 min CN=61 Runoff=0.7 cfs 2,415 cf

Subcatchment 3S: Subcatch 3S Runoff Area=45,720 sf 20.36% Impervious Runoff Depth=2.38"
Flow Length=250' Tc=6.0 min CN=67 Runoff=2.9 cfs 9,068 cf

Link POA-1: POA-1 Inflow=4.6 cfs 14,114 cf
Primary=4.6 cfs 14,114 cf

Link POA-2: POA-2 Inflow=0.7 cfs 2,415 cf
Primary=0.7 cfs 2,415 cf

Link POA-3: POA-3 Inflow=2.9 cfs 9,068 cf
Primary=2.9 cfs 9,068 cf

Total Runoff Area = 117,324 sf Runoff Volume = 25,597 cf Average Runoff Depth = 2.62"
78.54% Pervious = 92,149 sf 21.46% Impervious = 25,175 sf

Summary for Subcatchment 1S: Subcatch 1S

Runoff = 4.6 cfs @ 12.09 hrs, Volume= 14,114 cf, Depth= 3.02"
Routed to Link POA-1 : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	14,750	98	Paved parking
*	4,000	96	Gravel surface
	17,015	61	>75% Grass cover, Good, HSG B
	3,605	74	>75% Grass cover, Good, HSG C
	9,039	55	Woods, Good, HSG B
	7,720	70	Woods, Good, HSG C
	56,129	74	Weighted Average
	41,379		73.72% Pervious Area
	14,750		26.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.89		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.10"
0.3	40	0.0750	1.91		**Sheet Flow, B-C** Smooth surfaces n= 0.011 P2= 3.10"
0.5	70	0.1200	2.42		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
0.1	35	0.1000	6.42		**Shallow Concentrated Flow, D-E** Paved Kv= 20.3 fps
4.2					**Direct Entry, MIN TIME**
6.0	195	Total			

Summary for Subcatchment 2S: Subcatch 2S

Runoff = 0.7 cfs @ 12.10 hrs, Volume= 2,415 cf, Depth= 1.87"
Routed to Link POA-2 : POA-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	1,115	98	Paved parking
*	40	96	Gravel surface
	2,055	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	9,870	55	Woods, Good, HSG B
	2,395	70	Woods, Good, HSG C
	15,475	61	Weighted Average
	14,360		92.79% Pervious Area
	1,115		7.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	20	0.0220	1.02		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.10"
0.1	10	0.1000	2.21		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.7	70	0.1200	1.73		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
4.9					**Direct Entry, MIN TIME**
6.0	100	Total			

Summary for Subcatchment 3S: Subcatch 3S

Runoff = 2.9 cfs @ 12.09 hrs, Volume= 9,068 cf, Depth= 2.38"
Routed to Link POA-3 : POA-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	4,920	98	Paved parking
*	515	96	Gravel surface
	14,530	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	19,445	55	Woods, Good, HSG B
	1,920	70	Woods, Good, HSG C
*	4,390	98	Roof
	45,720	67	Weighted Average
	36,410		79.64% Pervious Area
	9,310		20.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	95	0.0110	1.06		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.10"
0.4	50	0.0900	2.10		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.7	65	0.0530	1.61		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.5	40	0.0700	1.32		**Shallow Concentrated Flow, D-E** Woodland Kv= 5.0 fps
2.9					**Direct Entry, MIN TIME**
6.0	250	Total			

Summary for Link POA-1: POA-1

Inflow Area = 56,129 sf, 26.28% Impervious, Inflow Depth = 3.02" for 25 event
Inflow = 4.6 cfs @ 12.09 hrs, Volume= 14,114 cf
Primary = 4.6 cfs @ 12.09 hrs, Volume= 14,114 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link POA-2: POA-2

Inflow Area = 15,475 sf, 7.21% Impervious, Inflow Depth = 1.87" for 25 event
Inflow = 0.7 cfs @ 12.10 hrs, Volume= 2,415 cf
Primary = 0.7 cfs @ 12.10 hrs, Volume= 2,415 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

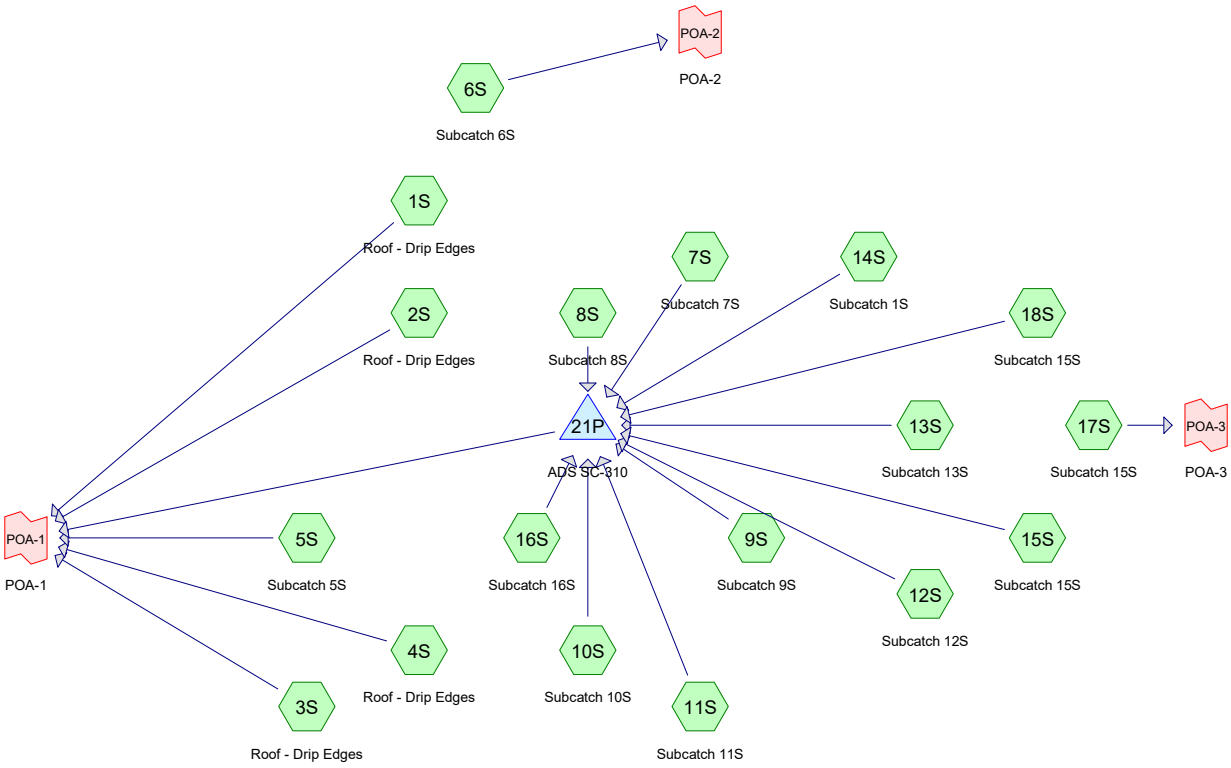
Summary for Link POA-3: POA-3

Inflow Area = 45,720 sf, 20.36% Impervious, Inflow Depth = 2.38" for 25 event
Inflow = 2.9 cfs @ 12.09 hrs, Volume= 9,068 cf
Primary = 2.9 cfs @ 12.09 hrs, Volume= 9,068 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Appendix 2B

Proposed Conditions
HydroCAD Summary



Subcat Reach Pond Link

Routing Diagram for 240577.01 Post Dev full buildout
Prepared by Sebago Technics, Printed 2/18/2025
HydroCAD® 10.20-5c s/n 00643 © 2023 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
38,661	61	>75% Grass cover, Good, HSG B (5S, 6S, 7S, 8S, 9S, 10S, 11S, 12S, 13S, 14S, 16S, 17S)
7,488	74	>75% Grass cover, Good, HSG C (5S, 17S)
37,596	98	Paved parking (5S, 7S, 8S, 9S, 10S, 12S, 13S, 14S, 16S, 17S)
18,675	98	Roofs (1S, 2S, 3S, 4S, 15S, 18S)
9,352	55	Woods, Good, HSG B (5S, 10S, 11S, 12S, 17S)
5,552	70	Woods, Good, HSG C (5S, 10S, 17S)
117,324	**80**	**TOTAL AREA**

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Roof - Drip Edges Runoff Area=2,400 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.2 cfs 574 cf

Subcatchment 2S: Roof - Drip Edges Runoff Area=2,400 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.2 cfs 574 cf

Subcatchment 3S: Roof - Drip Edges Runoff Area=2,400 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.2 cfs 574 cf

Subcatchment 4S: Roof - Drip Edges Runoff Area=3,475 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.2 cfs 830 cf

Subcatchment 5S: Subcatch 5S Runoff Area=22,540 sf 14.37% Impervious Runoff Depth=0.77"
Flow Length=110' Tc=9.8 min CN=70 Runoff=0.4 cfs 1,447 cf

Subcatchment 6S: Subcatch 6S Runoff Area=4,195 sf 0.00% Impervious Runoff Depth=0.40"
Flow Length=85' Slope=0.0100 '/' Tc=16.8 min CN=61 Runoff=0.0 cfs 141 cf

Subcatchment 7S: Subcatch 7S Runoff Area=5,435 sf 64.40% Impervious Runoff Depth=1.67"
Flow Length=54' Tc=6.0 min CN=85 Runoff=0.2 cfs 758 cf

Subcatchment 8S: Subcatch 8S Runoff Area=10,415 sf 65.01% Impervious Runoff Depth=1.67"
Flow Length=104' Slope=0.0200 '/' Tc=9.4 min CN=85 Runoff=0.4 cfs 1,452 cf

Subcatchment 9S: Subcatch 9S Runoff Area=6,355 sf 55.74% Impervious Runoff Depth=1.46"
Flow Length=108' Tc=10.5 min CN=82 Runoff=0.2 cfs 772 cf

Subcatchment 10S: Subcatch 10S Runoff Area=11,240 sf 31.93% Impervious Runoff Depth=0.82"
Flow Length=150' Tc=16.2 min CN=71 Runoff=0.2 cfs 767 cf

Subcatchment 11S: Subcatch 11S Runoff Area=1,905 sf 0.00% Impervious Runoff Depth=0.34"
Flow Length=30' Slope=0.1000 '/' Tc=6.0 min CN=59 Runoff=0.0 cfs 54 cf

Subcatchment 12S: Subcatch 12S Runoff Area=6,705 sf 58.55% Impervious Runoff Depth=1.46"
Flow Length=97' Tc=9.3 min CN=82 Runoff=0.2 cfs 815 cf

Subcatchment 13S: Subcatch 13S Runoff Area=10,425 sf 66.97% Impervious Runoff Depth=1.75"
Flow Length=89' Tc=7.5 min CN=86 Runoff=0.5 cfs 1,519 cf

Subcatchment 14S: Subcatch 1S Runoff Area=6,015 sf 71.12% Impervious Runoff Depth=1.83"
Flow Length=70' Tc=6.0 min CN=87 Runoff=0.3 cfs 916 cf

Subcatchment 15S: Subcatch 15S Runoff Area=3,465 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.2 cfs 828 cf

Subcatchment 16S: Subcatch 16S Runoff Area=2,010 sf 73.58% Impervious Runoff Depth=1.91"
Tc=6.0 min CN=88 Runoff=0.1 cfs 319 cf

Subcatchment 17S: Subcatch 15S Runoff Area=11,409 sf 2.54% Impervious Runoff Depth=0.51"
Flow Length=70' Tc=6.0 min CN=64 Runoff=0.1 cfs 488 cf

Subcatchment 18S: Subcatch 15S Runoff Area=4,535 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.3 cfs 1,084 cf

Pond 21P: ADS SC-310 Peak Elev=174.81' Storage=3,301 cf Inflow=2.5 cfs 9,283 cf
Outflow=0.9 cfs 9,283 cf

Link POA-1: POA-1 Inflow=1.3 cfs 13,281 cf
Primary=1.3 cfs 13,281 cf

Link POA-2: POA-2 Inflow=0.0 cfs 141 cf
Primary=0.0 cfs 141 cf

Link POA-3: POA-3 Inflow=0.1 cfs 488 cf
Primary=0.1 cfs 488 cf

Total Runoff Area = 117,324 sf Runoff Volume = 13,910 cf Average Runoff Depth = 1.42"
52.04% Pervious = 61,053 sf 47.96% Impervious = 56,271 sf

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Roof - Drip Edges Runoff Area=2,400 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=0.2 cfs 873 cf

Subcatchment 2S: Roof - Drip Edges Runoff Area=2,400 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=0.2 cfs 873 cf

Subcatchment 3S: Roof - Drip Edges Runoff Area=2,400 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=0.2 cfs 873 cf

Subcatchment 4S: Roof - Drip Edges Runoff Area=3,475 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=0.4 cfs 1,264 cf

Subcatchment 5S: Subcatch 5S Runoff Area=22,540 sf 14.37% Impervious Runoff Depth=1.74"
Flow Length=110' Tc=9.8 min CN=70 Runoff=0.9 cfs 3,277 cf

Subcatchment 6S: Subcatch 6S Runoff Area=4,195 sf 0.00% Impervious Runoff Depth=1.14"
Flow Length=85' Slope=0.0100 '/' Tc=16.8 min CN=61 Runoff=0.1 cfs 397 cf

Subcatchment 7S: Subcatch 7S Runoff Area=5,435 sf 64.40% Impervious Runoff Depth=3.00"
Flow Length=54' Tc=6.0 min CN=85 Runoff=0.4 cfs 1,359 cf

Subcatchment 8S: Subcatch 8S Runoff Area=10,415 sf 65.01% Impervious Runoff Depth=3.00"
Flow Length=104' Slope=0.0200 '/' Tc=9.4 min CN=85 Runoff=0.7 cfs 2,604 cf

Subcatchment 9S: Subcatch 9S Runoff Area=6,355 sf 55.74% Impervious Runoff Depth=2.72"
Flow Length=108' Tc=10.5 min CN=82 Runoff=0.4 cfs 1,443 cf

Subcatchment 10S: Subcatch 10S Runoff Area=11,240 sf 31.93% Impervious Runoff Depth=1.82"
Flow Length=150' Tc=16.2 min CN=71 Runoff=0.4 cfs 1,704 cf

Subcatchment 11S: Subcatch 11S Runoff Area=1,905 sf 0.00% Impervious Runoff Depth=1.01"
Flow Length=30' Slope=0.1000 '/' Tc=6.0 min CN=59 Runoff=0.0 cfs 161 cf

Subcatchment 12S: Subcatch 12S Runoff Area=6,705 sf 58.55% Impervious Runoff Depth=2.72"
Flow Length=97' Tc=9.3 min CN=82 Runoff=0.4 cfs 1,522 cf

Subcatchment 13S: Subcatch 13S Runoff Area=10,425 sf 66.97% Impervious Runoff Depth=3.10"
Flow Length=89' Tc=7.5 min CN=86 Runoff=0.8 cfs 2,689 cf

Subcatchment 14S: Subcatch 1S Runoff Area=6,015 sf 71.12% Impervious Runoff Depth=3.19"
Flow Length=70' Tc=6.0 min CN=87 Runoff=0.5 cfs 1,600 cf

Subcatchment 15S: Subcatch 15S Runoff Area=3,465 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=0.4 cfs 1,260 cf

Subcatchment 16S: Subcatch 16S Runoff Area=2,010 sf 73.58% Impervious Runoff Depth=3.29"
Tc=6.0 min CN=88 Runoff=0.2 cfs 551 cf

Subcatchment 17S: Subcatch 15S Runoff Area=11,409 sf 2.54% Impervious Runoff Depth=1.33"
Flow Length=70' Tc=6.0 min CN=64 Runoff=0.4 cfs 1,262 cf

Subcatchment 18S: Subcatch 15S Runoff Area=4,535 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=0.5 cfs 1,649 cf

Pond 21P: ADS SC-310 Peak Elev=175.42' Storage=5,721 cf Inflow=4.5 cfs 16,542 cf
Outflow=1.6 cfs 16,542 cf

Link POA-1: POA-1 Inflow=3.1 cfs 23,702 cf
Primary=3.1 cfs 23,702 cf

Link POA-2: POA-2 Inflow=0.1 cfs 397 cf
Primary=0.1 cfs 397 cf

Link POA-3: POA-3 Inflow=0.4 cfs 1,262 cf
Primary=0.4 cfs 1,262 cf

Total Runoff Area = 117,324 sf Runoff Volume = 25,360 cf Average Runoff Depth = 2.59"
52.04% Pervious = 61,053 sf 47.96% Impervious = 56,271 sf

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Roof - Drip Edges Runoff Area=2,400 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=0.3 cfs 1,112 cf

Subcatchment 2S: Roof - Drip Edges Runoff Area=2,400 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=0.3 cfs 1,112 cf

Subcatchment 3S: Roof - Drip Edges Runoff Area=2,400 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=0.3 cfs 1,112 cf

Subcatchment 4S: Roof - Drip Edges Runoff Area=3,475 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=0.5 cfs 1,611 cf

Subcatchment 5S: Subcatch 5S Runoff Area=22,540 sf 14.37% Impervious Runoff Depth=2.65"
Flow Length=110' Tc=9.8 min CN=70 Runoff=1.4 cfs 4,973 cf

Subcatchment 6S: Subcatch 6S Runoff Area=4,195 sf 0.00% Impervious Runoff Depth=1.87"
Flow Length=85' Slope=0.0100 '/' Tc=16.8 min CN=61 Runoff=0.1 cfs 655 cf

Subcatchment 7S: Subcatch 7S Runoff Area=5,435 sf 64.40% Impervious Runoff Depth=4.11"
Flow Length=54' Tc=6.0 min CN=85 Runoff=0.6 cfs 1,863 cf

Subcatchment 8S: Subcatch 8S Runoff Area=10,415 sf 65.01% Impervious Runoff Depth=4.11"
Flow Length=104' Slope=0.0200 '/' Tc=9.4 min CN=85 Runoff=1.0 cfs 3,571 cf

Subcatchment 9S: Subcatch 9S Runoff Area=6,355 sf 55.74% Impervious Runoff Depth=3.80"
Flow Length=108' Tc=10.5 min CN=82 Runoff=0.6 cfs 2,014 cf

Subcatchment 10S: Subcatch 10S Runoff Area=11,240 sf 31.93% Impervious Runoff Depth=2.74"
Flow Length=150' Tc=16.2 min CN=71 Runoff=0.6 cfs 2,565 cf

Subcatchment 11S: Subcatch 11S Runoff Area=1,905 sf 0.00% Impervious Runoff Depth=1.71"
Flow Length=30' Slope=0.1000 '/' Tc=6.0 min CN=59 Runoff=0.1 cfs 272 cf

Subcatchment 12S: Subcatch 12S Runoff Area=6,705 sf 58.55% Impervious Runoff Depth=3.80"
Flow Length=97' Tc=9.3 min CN=82 Runoff=0.6 cfs 2,125 cf

Subcatchment 13S: Subcatch 13S Runoff Area=10,425 sf 66.97% Impervious Runoff Depth=4.22"
Flow Length=89' Tc=7.5 min CN=86 Runoff=1.1 cfs 3,666 cf

Subcatchment 14S: Subcatch 1S Runoff Area=6,015 sf 71.12% Impervious Runoff Depth=4.33"
Flow Length=70' Tc=6.0 min CN=87 Runoff=0.7 cfs 2,168 cf

Subcatchment 15S: Subcatch 15S Runoff Area=3,465 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=0.5 cfs 1,606 cf

Subcatchment 16S: Subcatch 16S Runoff Area=2,010 sf 73.58% Impervious Runoff Depth=4.43"
Tc=6.0 min CN=88 Runoff=0.2 cfs 743 cf

Subcatchment 17S: Subcatch 15S Runoff Area=11,409 sf 2.54% Impervious Runoff Depth=2.12"
Flow Length=70' Tc=6.0 min CN=64 Runoff=0.6 cfs 2,017 cf

Subcatchment 18S: Subcatch 15S Runoff Area=4,535 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=0.6 cfs 2,102 cf

Pond 21P: ADS SC-310 Peak Elev=176.59' Storage=7,606 cf Inflow=6.2 cfs 22,695 cf
Outflow=2.8 cfs 22,696 cf

Link POA-1: POA-1 Inflow=4.3 cfs 32,617 cf
Primary=4.3 cfs 32,617 cf

Link POA-2: POA-2 Inflow=0.1 cfs 655 cf
Primary=0.1 cfs 655 cf

Link POA-3: POA-3 Inflow=0.6 cfs 2,017 cf
Primary=0.6 cfs 2,017 cf

Total Runoff Area = 117,324 sf Runoff Volume = 35,288 cf Average Runoff Depth = 3.61"
52.04% Pervious = 61,053 sf 47.96% Impervious = 56,271 sf

Summary for Subcatchment 1S: Roof - Drip Edges

Runoff = 0.3 cfs @ 12.08 hrs, Volume= 1,112 cf, Depth= 5.56"
Routed to Link POA-1 : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	2,400	98	Roofs
*	0	98	Paved parking
	0	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	0	55	Woods, Good, HSG B
	0	70	Woods, Good, HSG C
	2,400	98	Weighted Average
	2,400		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Roof - Direct Entry**

Summary for Subcatchment 2S: Roof - Drip Edges

Runoff = 0.3 cfs @ 12.08 hrs, Volume= 1,112 cf, Depth= 5.56"
Routed to Link POA-1 : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	2,400	98	Roofs
*	0	98	Paved parking
	0	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	0	55	Woods, Good, HSG B
	0	70	Woods, Good, HSG C
	2,400	98	Weighted Average
	2,400		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Roof -MIN TIME**

Summary for Subcatchment 3S: Roof - Drip Edges

Runoff = 0.3 cfs @ 12.08 hrs, Volume= 1,112 cf, Depth= 5.56"
Routed to Link POA-1 : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	2,400	98	Roofs
*	0	98	Paved parking
	0	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	0	55	Woods, Good, HSG B
	0	70	Woods, Good, HSG C
	2,400	98	Weighted Average
	2,400		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Roof -MIN TIME**

Summary for Subcatchment 4S: Roof - Drip Edges

Runoff = 0.5 cfs @ 12.08 hrs, Volume= 1,611 cf, Depth= 5.56"
Routed to Link POA-1 : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	3,475	98	Roofs
*	0	98	Paved parking
	0	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	0	55	Woods, Good, HSG B
	0	70	Woods, Good, HSG C
	3,475	98	Weighted Average
	3,475		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Roof - MIN TIME**

Summary for Subcatchment 5S: Subcatch 5S

Runoff = 1.4 cfs @ 12.14 hrs, Volume= 4,973 cf, Depth= 2.65"
Routed to Link POA-1 : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	0	98	Roofs
*	3,239	98	Paved parking
	10,679	61	>75% Grass cover, Good, HSG B
	4,231	74	>75% Grass cover, Good, HSG C
	303	55	Woods, Good, HSG B
	4,088	70	Woods, Good, HSG C
	22,540	70	Weighted Average
	19,301		85.63% Pervious Area
	3,239		14.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	70	0.0280	0.12		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"
0.3	40	0.1300	2.52		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
9.8	110	Total			

Summary for Subcatchment 6S: Subcatch 6S

Runoff = 0.1 cfs @ 12.25 hrs, Volume= 655 cf, Depth= 1.87"
Routed to Link POA-2 : POA-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	0	98	Roofs
*	0	98	Paved parking
	4,195	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	0	55	Woods, Good, HSG B
	0	70	Woods, Good, HSG C
	4,195	61	Weighted Average
	4,195		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.8	85	0.0100	0.08		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"

Summary for Subcatchment 7S: Subcatch 7S

Runoff = 0.6 cfs @ 12.09 hrs, Volume= 1,863 cf, Depth= 4.11"
Routed to Pond 21P : ADS SC-310

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	0	98	Roofs
*	3,500	98	Paved parking
	1,935	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	0	55	Woods, Good, HSG B
	0	70	Woods, Good, HSG C
	5,435	85	Weighted Average
	1,935		35.60% Pervious Area
	3,500		64.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	22	0.0100	0.06		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"
0.2	32	0.0300	3.52		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.1					**Direct Entry, MIN TIME**
6.0	54	Total			

Summary for Subcatchment 8S: Subcatch 8S

Runoff = 1.0 cfs @ 12.13 hrs, Volume= 3,571 cf, Depth= 4.11"
Routed to Pond 21P : ADS SC-310

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	0	98	Roofs
*	6,771	98	Paved parking
	3,644	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	0	55	Woods, Good, HSG B
	0	70	Woods, Good, HSG C
	10,415	85	Weighted Average
	3,644		34.99% Pervious Area
	6,771		65.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	56	0.0200	0.10		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"
0.3	48	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
9.4	104	Total			

Summary for Subcatchment 9S: Subcatch 9S

Runoff = 0.6 cfs @ 12.14 hrs, Volume= 2,014 cf, Depth= 3.80"
Routed to Pond 21P : ADS SC-310

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	0	98	Roofs
*	3,542	98	Paved parking
	2,813	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	0	55	Woods, Good, HSG B
	0	70	Woods, Good, HSG C
	6,355	82	Weighted Average
	2,813		44.26% Pervious Area
	3,542		55.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	80	0.0300	0.13		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"
0.2	28	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
10.5	108	Total			

Summary for Subcatchment 10S: Subcatch 10S

Runoff = 0.6 cfs @ 12.22 hrs, Volume= 2,565 cf, Depth= 2.74"
Routed to Pond 21P : ADS SC-310

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	0	98	Roofs
*	3,589	98	Paved parking
	1,511	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	4,862	55	Woods, Good, HSG B
	1,278	70	Woods, Good, HSG C
	11,240	71	Weighted Average
	7,651		68.07% Pervious Area
	3,589		31.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.6	86	0.0340	0.09		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.10"
0.4	21	0.0200	0.99		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.2	43	0.0200	2.87		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
16.2	150	Total			

Summary for Subcatchment 11S: Subcatch 11S

Runoff = 0.1 cfs @ 12.10 hrs, Volume= 272 cf, Depth= 1.71"
Routed to Pond 21P : ADS SC-310

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	0	98	Roofs
*	0	98	Paved parking
	1,258	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	647	55	Woods, Good, HSG B
	0	70	Woods, Good, HSG C
	1,905	59	Weighted Average
	1,905		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	15	0.1000	0.10		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.10"
0.1	15	0.1000	2.21		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
3.4					**Direct Entry, MIN TIME**
6.0	30	Total			

Summary for Subcatchment 12S: Subcatch 12S

Runoff = 0.6 cfs @ 12.13 hrs, Volume= 2,125 cf, Depth= 3.80"
Routed to Pond 21P : ADS SC-310

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	0	98	Roofs
*	3,926	98	Paved parking
	1,726	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	1,053	55	Woods, Good, HSG B
	0	70	Woods, Good, HSG C
	6,705	82	Weighted Average
	2,779		41.45% Pervious Area
	3,926		58.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	45	0.0400	0.09		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.10"
0.2	7	0.0100	0.70		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.4	45	0.0100	2.03		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
9.3	97	Total			

Summary for Subcatchment 13S: Subcatch 13S

Runoff = 1.1 cfs @ 12.11 hrs, Volume= 3,666 cf, Depth= 4.22"
Routed to Pond 21P : ADS SC-310

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	0	98	Roofs
*	6,982	98	Paved parking
	3,443	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	0	55	Woods, Good, HSG B
	0	70	Woods, Good, HSG C
	10,425	86	Weighted Average
	3,443		33.03% Pervious Area
	6,982		66.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	35	0.0140	0.08		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"
0.3	54	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
7.5	89	Total			

Summary for Subcatchment 14S: Subcatch 1S

Runoff = 0.7 cfs @ 12.09 hrs, Volume= 2,168 cf, Depth= 4.33"
Routed to Pond 21P : ADS SC-310

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	0	98	Roofs
*	4,278	98	Paved parking
	1,737	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	0	55	Woods, Good, HSG B
	0	70	Woods, Good, HSG C
	6,015	87	Weighted Average
	1,737		28.88% Pervious Area
	4,278		71.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	15	0.2330	0.21		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"
0.3	55	0.0200	2.87		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
4.5					**Direct Entry, MIN TIME**
6.0	70	Total			

Summary for Subcatchment 15S: Subcatch 15S

Runoff = 0.5 cfs @ 12.08 hrs, Volume= 1,606 cf, Depth= 5.56"
Routed to Pond 21P : ADS SC-310

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	3,465	98	Roofs
*	0	98	Paved parking
	0	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	0	55	Woods, Good, HSG B
	0	70	Woods, Good, HSG C
	3,465	98	Weighted Average
	3,465		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, MIN TIME**

Summary for Subcatchment 16S: Subcatch 16S

Runoff = 0.2 cfs @ 12.09 hrs, Volume= 743 cf, Depth= 4.43"
Routed to Pond 21P : ADS SC-310

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	0	98	Roofs
*	1,479	98	Paved parking
	531	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	0	55	Woods, Good, HSG B
	0	70	Woods, Good, HSG C
	2,010	88	Weighted Average
	531		26.42% Pervious Area
	1,479		73.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Pavement -MIN TIME**

Summary for Subcatchment 17S: Subcatch 15S

Runoff = 0.6 cfs @ 12.09 hrs, Volume= 2,017 cf, Depth= 2.12"
Routed to Link POA-3 : POA-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	0	98	Roofs
*	290	98	Paved parking
	5,189	61	>75% Grass cover, Good, HSG B
	3,257	74	>75% Grass cover, Good, HSG C
	2,487	55	Woods, Good, HSG B
	186	70	Woods, Good, HSG C
	11,409	64	Weighted Average
	11,119		97.46% Pervious Area
	290		2.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.9	57	0.1000	0.20		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"
0.1	13	0.3300	2.87		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
1.0					**Direct Entry, MIN TIME**
6.0	70	Total			

Summary for Subcatchment 18S: Subcatch 15S

Runoff = 0.6 cfs @ 12.08 hrs, Volume= 2,102 cf, Depth= 5.56"
Routed to Pond 21P : ADS SC-310

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
*	4,535	98	Roofs
*	0	98	Paved parking
	0	61	>75% Grass cover, Good, HSG B
	0	74	>75% Grass cover, Good, HSG C
	0	55	Woods, Good, HSG B
	0	70	Woods, Good, HSG C
	4,535	98	Weighted Average
	4,535		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, MIN TIME**

Summary for Pond 21P: ADS SC-310

Inflow Area = 68,505 sf, 61.41% Impervious, Inflow Depth = 3.98" for 25 event
Inflow = 6.2 cfs @ 12.11 hrs, Volume= 22,695 cf
Outflow = 2.8 cfs @ 12.39 hrs, Volume= 22,696 cf, Atten= 54%, Lag= 17.1 min
Primary = 2.8 cfs @ 12.39 hrs, Volume= 22,696 cf
Routed to Link POA-1 : POA-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 176.59' @ 12.39 hrs Surf.Area= 11,864 sf Storage= 7,606 cf
Flood Elev= 180.70' Surf.Area= 11,864 sf Storage= 7,606 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 132.8 min (933.0 - 800.1)

Volume	Invert	Avail.Storage	Storage Description
#1	171.35'	0 cf	**88.17'W x 67.28'L x 2.50'H Prismatoid** 14,830 cf Overall x 0.0% Voids
#2A	173.85'	4,157 cf	**88.17'W x 67.28'L x 2.33'H Field A** 13,841 cf Overall - 3,450 cf Embedded = 10,391 cf x 40.0% Voids
#3A	174.35'	3,450 cf	**ADS_StormTech SC-310 +Cap** x 234 Inside #2 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 234 Chambers in 26 Rows
		7,606 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	171.35'	**15.0" Round Culvert** L= 62.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 171.35' / 170.73' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	171.45'	**1.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	174.50'	**26.0" W x 2.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	176.50'	**5.0' long x 1.00' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=2.7 cfs @ 12.39 hrs HW=176.56' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 2.7 cfs of 10.0 cfs potential flow)
  - **2=Orifice/Grate** (Orifice Controls 0.1 cfs @ 10.84 fps)
  - **3=Orifice/Grate** (Orifice Controls 2.4 cfs @ 6.76 fps)
  - **4=Sharp-Crested Rectangular Weir** (Weir Controls 0.2 cfs @ 0.78 fps)

Summary for Link POA-1: POA-1

Inflow Area = 101,720 sf, 55.03% Impervious, Inflow Depth = 3.85" for 25 event
Inflow = 4.3 cfs @ 12.13 hrs, Volume= 32,617 cf
Primary = 4.3 cfs @ 12.13 hrs, Volume= 32,617 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link POA-2: POA-2

Inflow Area = 4,195 sf, 0.00% Impervious, Inflow Depth = 1.87" for 25 event
Inflow = 0.1 cfs @ 12.25 hrs, Volume= 655 cf
Primary = 0.1 cfs @ 12.25 hrs, Volume= 655 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link POA-3: POA-3

Inflow Area = 11,409 sf, 2.54% Impervious, Inflow Depth = 2.12" for 25 event
Inflow = 0.6 cfs @ 12.09 hrs, Volume= 2,017 cf
Primary = 0.6 cfs @ 12.09 hrs, Volume= 2,017 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Appendix 3

Inspection, Maintenance and Housekeeping Plan

INSPECTION, MAINTENANCE, AND HOUSEKEEPING PLAN
WDCJCS Subdivision

By:
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75 John Roberts Road, Suite 4A
South Portland, Maine

Introduction

The following plan outlines the anticipated inspection and maintenance procedures for the erosion and sedimentation control measures as well as stormwater management facilities for the project. This plan also outlines several housekeeping requirements that shall be followed during and after construction. These procedures shall be followed in order to ensure the intended function of the designed measures and to prevent unreasonably adverse impacts to the surrounding environment.

The procedures outlined in this Inspection, Maintenance and Housekeeping Plan are provided as an overview of the anticipated practices to be used on this site. In some instances, additional measures may be required due to unexpected conditions. For additional detail on any of the erosion and sedimentation control measures or stormwater management devices to be utilized on this project, refer to the most recently revised edition of the "Maine Erosion and Sedimentation Control BMP" manual and/or the "Stormwater Management for Maine: Best Management Practices" manual as published by the Maine Department of Environmental Protection (MDEP).

During Construction

1. **Inspection:** During the construction process, it is the Contractor's responsibility to comply with the inspection and maintenance procedures outlined in this section. These responsibilities include inspecting disturbed and impervious areas, erosion control measures, materials storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. These areas shall be inspected at least once a week as well as before and after a storm event of 0.5" of rainfall in a 24-hour period, and prior to completing permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards and conditions in any applicable permits, shall conduct the inspections.

2. **Maintenance:** All measures shall be maintained in an effective operating condition until areas are permanently stabilized. If Best Management Practices (BMPs) need to be maintained or modified, additional BMPs are necessary, or other corrective action is needed, implementation must be completed within 7 calendar days and prior to any storm event (0.5" of rainfall).

3. **Documentation:** A log summarizing the inspections and any corrective action taken must be maintained on-site. The log must include the name(s) and qualifications of the person making the inspections, the date(s) of the inspections, and major observations about the operation and maintenance of erosion and sedimentation controls, material storage areas, and vehicle access points to the site. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and locations where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the log the corrective action taken and when it was taken. The log must be made accessible to the appropriate regulatory agency upon request. The permittee shall retain a copy of the log for a period of at least three years from the completion of permanent stabilization.

4. **Specific Inspection and Maintenance Tasks:** The following is a list of erosion control and stormwater management measures and the specific inspection and maintenance tasks to be performed during construction.

   A. <u>Sediment Barriers:</u>

   - Hay bale barriers, silt fences, and filter berms shall be inspected immediately after each rainfall and at least daily during prolonged rainfall.
   - If the fabric on a silt fence or filter barrier should decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, it shall be replaced.
   - Sediment deposits should be removed after each storm event (0.5" of rainfall). They must be removed before deposits reach approximately one-half the height of the barrier.
   - Filter berms shall be reshaped as needed.
   - Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required should be dressed to conform to the existing grade, prepared, and seeded.

   B. <u>Riprap Materials:</u>

   - Once a riprap installation has been completed, it should require very little maintenance. It shall, however, be inspected periodically to determine if high flows have caused scour beneath the riprap or dislodged any of the stone.

   C. <u>Erosion Control Blankets:</u>

   - Inspect these reinforced areas semi-annually and after significant rainfall events for slumping, sliding, seepage, and scour. Pay close attention to unreinforced areas adjacent to the erosion control blankets, which may experience accelerated erosion.

- Review all applicable inspection and maintenance procedures recommended by the specific blanket manufacturer. These tasks shall be included in addition to the requirements of this plan.

D. Stabilized Construction Entrances/Exits:

- The exit shall be maintained in a condition that will prevent tracking of sediment onto public rights-of-way.
- When the control pad becomes ineffective, the stone shall be removed along with the collected soil material. The entrance should then be reconstructed.
- Areas that have received mud-tracking or sediment deposits shall be swept or washed. Washing shall be done on an area stabilized with aggregate, which drains into an approved sediment-trapping device (not into storm drains, ditches, or waterways).

E. Temporary Seed and Mulch:

- Mulched areas should be inspected after rain events to check for rill erosion.
- If less than 90% of the soil surface is covered by mulch, additional mulch shall be applied in bare areas.
- In applications where seeding and mulch have been applied in conjunction with erosion control blankets, the blankets must be inspected after rain events for dislocation or undercutting.
- Mulch shall continue to be reapplied until 95% of the soil surface has established temporary vegetative cover.

F. Stabilized Temporary Drainage Swales:

- Sediment accumulation in the swale shall be removed once the cross section of the swale is reduced by 25%.
- The swales shall be inspected after rainfall events. Any evidence of sloughing of the side slopes or channel erosion shall be repaired and corrective action should be taken to prevent reoccurrence of the problem.
- In addition to the stabilized lining of the channel (i.e. erosion control blankets), stone check dams may be needed to further reduce channel velocity.

5. **Housekeeping:** The following general performance standards apply to the proposed project.

A. Spill prevention: Controls must be used to prevent pollutants from being discharged from materials on-site, including storage practices to minimize exposure of the materials to stormwater, and appropriate spill prevention, containment, and response planning and implementation.

B. Groundwater protection: During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled in areas of the site draining to an infiltration area. An "infiltration area" is any area of the site that by design or as a result of soils, topography and other relevant factors, accumulates runoff that infiltrates into the soil. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials.

C. Fugitive sediment and dust: Actions must be taken to ensure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil may not be used for dust control.

D. Debris and other materials: Litter, construction debris, and chemicals exposed to stormwater must be prevented from becoming a pollutant source.

E. Trench or foundation dewatering: Trench dewatering is the removal of water from trenches, foundations, cofferdams, ponds, and other areas within the construction area that retain water after excavation. In most cases, the collected water is heavily silted and hinders correct and safe construction practices. The collected water must be removed from the ponded area, either through gravity or pumping, and must be spread through natural wooded buffers or removed to areas that are specifically designed to collect the maximum amount of sediment possible, like a cofferdam sedimentation basin. Avoid allowing the water to flow over disturbed areas of the site. Equivalent measures may be taken if approved.

Post-Construction

1. **Inspection:** After construction, it is the responsibility of the owner or assigned heirs to comply with the inspection and maintenance procedures outlined in this section. All measures must be maintained in effective operating condition. The owner shall inspect and maintain the BMPs, including but not limited to any parking areas, catch basins, drainage swales, detention basins and ponds, pipes and related structures, in accordance with all municipal and state inspection, cleaning and maintenance requirements of the approved post-construction stormwater management plan.

2. **Specific Inspection and Maintenance Tasks:** The following is a list of permanent erosion control and stormwater management measures and the inspection and maintenance tasks to be performed after construction. If the BMP requires maintenance, repair or replacement to function as intended by the approved post-construction stormwater management plan, the owner or operator of the BMP shall take corrective action(s) to address the deficiency or deficiencies as soon as possible after the deficiency is discovered and shall provide a record of the deficiency and corrective action(s) to the local municipality in the annual report.

A. Vegetated Areas:

- Inspect vegetated areas, particularly slopes and embankments, early in the growing season or after heavy rains (>0.5") to identify active or potential erosion problems.
- Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows.

B. Ditches, Swales and Other Open Channels:

- Inspect ditches, swales, level spreaders and other open stormwater channels in the spring, in the late fall, and after heavy rains to remove any obstructions to flow. Remove accumulated sediments and debris, remove woody vegetative growth that could obstruct flow, and repair any erosion of the ditch lining.
- Vegetated ditches must be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity.
- Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable.
- If the ditch has a riprap lining, replace riprap in areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged.

C. Culverts:

- Inspect culverts in the spring, in the late fall, and after heavy rains (>0.5") to remove any obstructions to flow.
- Remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit.
- Inspect and repair any erosion damage at the culvert's inlet and outlet.

D. Removal of Winter Sand:

- Clear accumulations of winter sand in parking lots and along roadways at least once a year, preferably in the spring.
- Accumulations on pavement may be removed by pavement sweeping.
- Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader or other acceptable method.

E. Catch Basins:

- Inspect and, if required, clean out basins bi-annually starting in early

spring in preferred.

- Cleaning of catch basins will be required when sediment of at least 6-inches has accumulated within the sump.
- Cleanout must include the removal and legal disposal of accumulated sediments and debris at the bottom of the basin, at any inlets grates, and any inflow channels to the basin, and at any pipes between basins.

F. Roof Drip Edges:

- These structures may not be paved over or altered in anyway. No gutter may be installed on the roof line.
- Debris and sediment buildup shall be removed as needed. Any bare area or erosion rills shall be repaired with new stone.
- See inspection log within Attachment 1 of this document for the inspection requirements of this BMP.

G. Subsurface Sand Filter:

- Follow Operation & Maintenance procedures per manufacturer.
- Inspect the site monthly for the first few months after construction. Then inspections can occur on an annual basis, preferably after rain events when clogging will be obvious.
- Make any repairs necessary to ensure the measure is operating properly.
- Regular maintenance is necessary to remove surface sediment, trash, debris,
  and leaf litter.
- Outlets and chambers need to be cleaned/repaired when drawdown times in
  the filter exceeds 36 hours.

G. Outlet Control Structures:

- Inspect outlet structures two times per year (preferably in spring and fall) to ensure that the outlet structures are working in their intended fashion and that they are free of debris.
- Clean structures when sediment depths reach 6 inches from invert of outlet.
- At a minimum, remove floating debris at the time of the inspection.

3. Documentation:

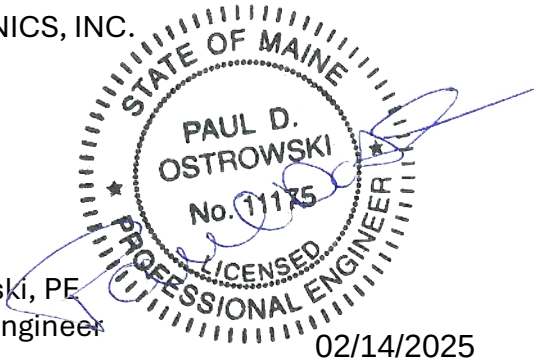
A. The owner or operator of a BMP or a qualified post-construction stormwater inspector hired by that person, shall, as required by the local municipality, provide a completed and signed certification on a form provided by the local municipality, certifying that the person has inspected the BMP(s) and that they

are adequately maintained and functioning as intended by the approved post-construction stormwater management plan, or that they required maintenance or repair, including the record of the deficiency and corrective action(s) taken.

B. A log summarizing the inspections and any corrective action taken must be maintained. The log must include the name(s) and qualifications of the person making the inspections, the date(s) of the inspections, and major observations about the operation and maintenance of controls. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and locations where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the log the corrective action taken and when it was taken. The log must be made accessible to the appropriate regulatory agency upon request. A sample "Stormwater Inspection and Maintenance Form" has been included as Attachment 1 of this Inspection, Maintenance, and Housekeeping Plan.

4. Duration of Maintenance: Perform maintenance as described and required for any associated permits unless and until the system is formally accepted by a municipality or quasi-municipal district, or is placed under the jurisdiction of a legally created association that will be responsible for the maintenance of the system. If a municipality or quasi-municipal district chooses to accept a stormwater management system, or a component of a stormwater system, it must provide a letter to the MDEP stating that it assumes responsibility for the system. The letter must specify the components of the system for which the municipality or district will assume responsibility, and that the municipality or district agrees to maintain those components of the system in compliance with MDEP standards. Upon such assumption of responsibility, and approval by the MDEP, the municipality, quasi-municipal district, or association becomes a co-permittee for this purpose only and must comply with all terms and conditions of the permit.

Prepared by:
SEBAGO TECHNICS, INC.



Paul D. Ostrowski, PE
Senior Project Engineer

02/14/2025

Attachment 1

Sample Post-Construction Inspection Form

ATTACHMENT 1 – STORMWATER INSPECTION AND MAINTENANCE LOG

WDCJCS Subdivision
Windham, Maine

This log is intended to accompany the Inspection, Maintenance, and Housekeeping Plan for WDCJCS Subdivision located at 55 High Street in Windham, Maine. The following items shall be checked, cleaned, and maintained on a regular basis as specified in the Maintenance Plan and as described in the sections below. This log shall be kept on file for a minimum of five (5) years and shall be available for review by the Town of Windham. Qualified personnel familiar with drainage systems and soils shall perform all inspections.

This form shall be submitted to the Town of Windham along with the Annual Stormwater Management Facilities Certification form, contained in Attachment 2, on or before June 1 of each year.

INSPECTION MAINTENANCE AND HOUSEKEEPING FORM			
General Information			
Project Name:		**Inspection Date:**	
Project Location:		**Current Weather:**	
		Date / Amount Last Precip:	
BMP Owner:		**Company conducting inspection:**	
Owner Mailing Address:		**Company Mailing Address**	
Owner Phone #:		**Company Phone #:**	
Owner Email:		**Inspector Name:**	
		Inspector Email:	
Site Element	**Suggested Maintenance (recm'd frequency)**	**Observations**	**Inspection Notes/Recommended Action**
Vegetated Areas	Inspect Slopes/Embankments for erosion (annually)		
	Replant bare areas or areas of sparse growth (annually)		
Ditches/Swales	Remove obstructions/debris/sediment (monthly)		
	Inspect for erosion/repair as needed (annually)		
	Remove woody vegetation (annually)		
	Mow vegetated ditches (annually)		
Catch Basins	Remove sediment/debris from sump (annually)		
	Remove accumulated debris from inlet grate		
Culverts	Remove sediment/debris from inlet/outlet aprons (annually)		
	Inspect inlet/outlet aprons for erosion, repair as needed (annually)		
	Inspect, repair as needed, riprap aprons for dislodged/sparse coverage (annually)		
Pipe Outlets	Remove sediment/debris from outlet aprons (annually)		
	Inspect outlet aprons for erosion, repair as needed (annually)		
	Inspect, repair as needed, riprap aprons for dislodged/sparse coverage (annually)		
Additional Notes/Observations:			

Subsurface Sand Filter

INSPECTION MAINTENANCE AND HOUSEKEEPING FORM			
General Information			
Project Name:		**Inspection Date:**	
Project Location:		**Current Weather:**	
		Date / Amount Last Precip:	
BMP Owner:		**Company conducting inspection:**	
Owner Mailing Address:		**Company Mailing Address**	
Owner Phone #:		**Company Phone #:**	
Owner Email:		**Inspector Name:**	
		Inspector Email:	

BMP Element	Suggested Maintenance	Observations	Inspection Notes/Recommended Action
Pretreatment			
	Sediment Depth/Removal (Annually)		
Outlet Control Structure			
	Sediment Depth (Annually)		
	Floatables/Debris (Annually)		
Discharge Pipe			
	Ground Stabilized (>1" rain, Annually)		
Subsurface Chambers			
	Sediment Depth/Removal (Annually)		

Additional Notes/Observations:

Roof Drip Edge Filter

INSPECTION MAINTENANCE AND HOUSEKEEPING FORM			
General Information			
Project Name:		**Inspection Date:**	
Project Location:		**Current Weather:**	
		Date / Amount Last Precip:	
BMP Owner:		**Company conducting inspection:**	
Owner Mailing Address:		**Company Mailing Address**	
Owner Phone #:		**Company Phone #:**	
Owner Email:		**Inspector Name:**	
		Inspector Email:	

BMP Element	Suggested Maintenance (recm'd frequency)	Observations	Inspection Notes/Recommended Action
Pretreatment	Sediment/Debris Removal (Annually)		
	Inspect for bare areas or rill erosion (Annually)		
Downstream Structure	Sediment Depth (Annually)		
	Floatables/Debris (Annually)		
Discharge Pipe	Ground Stabilized (>1" rain, Annually)		
Embankments	Review for signs of erosion (Twice Annually)		
Stone	Trim overgrown vegetation with string trimmer (annually)		
	Review trench for evidence of vehicular traffic or storage of snow within footprint (annually)		
	Confirm no excessive ponding of water (annually)		

Additional Notes/Observations:

Attachment 2

Town of Windham Annual Stormwater Management Facilities Certification

201 Attachment 1

Town of Windham

Appendix 1

Annual Stormwater Management Facilities Certification
(to be sent to Municipal Enforcement Authority)

I,_____ (print or type name), certify the following:

1. I am making this annual stormwater management facilities certification for the following property:_____ (print or type name of subdivision, condominium or other development) located at _____ (print or type address), (the "property");

2. The owner, operator, tenant, lessee or homeowners' association of the property is: _____ [name(s) of owner, operator, tenant, lessee, homeowners' association or other party having control over the property];

3. I am the owner, operator, tenant, lessee or president of the homeowners' association, or am a qualified third-party inspector hired by the same (circle one);

4. I have knowledge of erosion and stormwater control and have reviewed the approved post-construction stormwater management plan for the property;

5. On_____, 20_____, I inspected or had inspected by _____, a qualified third-party inspector, the stormwater management facilities, including but not limited to parking areas, catch basins, drainage swales, detention basins and ponds, pipes and related structures required by the approved post-construction stormwater management plan for the property;

6. At the time of my inspection of the stormwater management facilities on the property, I or the qualified third-party inspector identified the following need(s) for routine maintenance or deficiencies in the stormwater management facilities:
   _____
   _____
   _____
   _____
   _____

7. On_____, 20__, I took or had taken the following routine maintenance or the following corrective action(s) to address the deficiencies in the stormwater management facilities stated in 6 above:
   _____
   _____
   _____
   _____

8. As of the date of this certification, the stormwater management facilities are functioning as intended by the approved post-construction stormwater management plan for the property

Date:_____, 20_____ By:_____
Signature

_____
Print Name

STATE OF MAINE
_____, ss _____, 20_____

Personally appeared the above-named _____, the _____ of _____, and acknowledged the foregoing annual certification to be said person's free act and deed in said capacity.

Before me,

_____
Notary Public/Attorney at Law

Print Name: _____

Mail this certification to the Town of Windham at the following address:

Office of Code Enforcement
Town of Windham
8 School Road
Windham, ME 04062

Appendix 4

Subsurface Soil Investigations

United States Department of Agriculture

Natural Resources Conservation Service

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

Custom Soil Resource Report for Cumberland County and Part of Oxford County, Maine



August 29, 2024

Preface

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

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

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

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

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

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

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Preface.....2
How Soil Surveys Are Made.....5
Soil Map.....8
Soil Map.....9
Legend.....10
Map Unit Legend.....12
Map Unit Descriptions.....12
Cumberland County and Part of Oxford County, Maine.....14
BgB—Nicholville very fine sandy loam, 0 to 8 percent slopes.....14
EmB—Elmwood fine sandy loam, 0 to 8 percent slopes.....15
PbB—Paxton fine sandy loam, 3 to 8 percent slopes.....16
References.....17

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Map

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

Custom Soil Resource Report
Soil Map



Map Scale: 1:1,120 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 15 30 60 90

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

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

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

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

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

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

Soil Survey Area: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 20, Sep 5, 2023

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

Date(s) aerial images were photographed: Jul 22, 2021—Oct 7, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND	MAP INFORMATION
	imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BgB	Nicholville very fine sandy loam, 0 to 8 percent slopes	0.2	6.8%
EmB	Elmwood fine sandy loam, 0 to 8 percent slopes	2.2	88.7%
PbB	Paxton fine sandy loam, 3 to 8 percent slopes	0.1	4.5%
Totals for Area of Interest		**2.4**	**100.0%**

Map Unit Descriptions

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

Cumberland County and Part of Oxford County, Maine

BgB—Nicholville very fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2yjg5
Elevation: 20 to 2,300 feet
Mean annual precipitation: 34 to 50 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Nicholville and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nicholville

Setting

Landform: Lakebeds (relict)
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-silty glaciomarine deposits

Typical profile

Ap - 0 to 7 inches: very fine sandy loam
Bs - 7 to 19 inches: very fine sandy loam
BC - 19 to 30 inches: very fine sandy loam
C - 30 to 65 inches: loamy very fine sand

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 1.42 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

EmB—Elmwood fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: blh8
Elevation: 10 to 900 feet
Mean annual precipitation: 38 to 55 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 130 to 195 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Elmwood and similar soils: 88 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Elmwood

Setting

Landform: Stream terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy glaciolacustrine deposits

Typical profile

H1 - 0 to 8 inches: fine sandy loam
H2 - 8 to 25 inches: sandy loam
H3 - 25 to 65 inches: silty clay loam

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B
Ecological site: F144BY402ME - Clay Hills
Hydric soil rating: No

PbB—Paxton fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: bljf
Elevation: 0 to 930 feet
Mean annual precipitation: 48 to 50 inches
Mean annual air temperature: 45 to 46 degrees F
Frost-free period: 145 to 155 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Paxton and similar soils: 87 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Paxton

Setting

Landform: Drumlinoid ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy lodgment till derived from mica schist

Typical profile

H1 - 0 to 8 inches: fine sandy loam
H2 - 8 to 20 inches: fine sandy loam
H3 - 20 to 65 inches: fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 18 to 40 inches to densic material
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 30 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

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Appendix 5

Stormwater Management Plans

SOIL LEGEND:

SOIL INFORMATION OBTAINED VIA THE UNITED STATES DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCES CONSERVATION SERVICE'S WEB SOIL SURVEY

SYMBOL	SOIL SERIES	PHASE	HSG	DRAINAGE CLASS
BgB	NICHOLVILLE, 0-8%	VER FINE SANDY LOAM	C	MODERATELY WELL DRAINED
EmB	ELMWOOD, 0-8%	FINE SANDY LOAM	B	MODERATELY WELL DRAINED
PbB	PAXTON, 3-8%	FINE SANDY LOAM	C	WELL DRAINED

EXISTING CONDITIONS LEGEND

- WATERSHED BOUNDARY
- TIME OF CONCENTRATION (A — B)
- REACH
- 1.0S — SUBCATCHMENT LABEL
- 1R — REACH
- POA-1 — POINT OF ANALYSIS
- 1P — STORMWATER TREATMENT/ DETENTION POND
- HSG # / HSG # — SOILS BOUNDARY

HIGH STREET

ANDROSCOGGIN STREET

SMH 1003 RIM=166.10

CB 1005 RIM=166.32

CB 1056 RIM=173.18

CB 1054 RIM=173.44

SMH 1052 RIM=172.65

SMH 1067 RIM=176.87

CMP 8

CMP 9

BM-1 SPIKE IN POLE EL=170.71

5/8" IRON ROD FOUND 8" ABOVE GRADE BENT

5/8" REBAR FOUND 6" ABOVE GRADE CAPPED "ILLEGIBLE"

2" IRON PIPE FOUND FLUSH GRADE

5/8" REBAR FOUND FLUSH GRADE "STEPHEN HASKELL PLS 1088"

N/F KENNETH L JACKSON II BOOK 38430, PAGE 80 MAP 37, LOT 23

N/F HOLLY A. REED BOOK 13581, PAGE 119 MAP 3, LOT 7

N/F PAUL L & MARIE A. DAMON BOOK 32928, PAGE 172 MAP 37, LOT 25

N 59°48'35" E 263.96'

N 62°57'55" E 153.46'

S 56°36'52" W 430.89'

N 30°11'11" W 284.96'

S 31°06'41" E 287.17'

POA-1 POA-2 POA-3

1S 2S 3S

1P

FFE=186.96

FFE=186.94

FFE=186.80

WOOD POST BENCH

WOOD POST (TYP.)

CONCRETE WALK

PAINTED PENTAGON STROM MARK

BgB

EmB

PbB

GRAPHIC SCALE

20 0 10 20 40

(IN FEET)
1 INCH = 20 FT.

PAUL D OSTROWSKI, PE 11175

STATE OF MAINE — PAUL D. OSTROWSKI No. 11175 — REGISTERED PROFESSIONAL ENGINEER — 10/10/2024

REV.	BY	DATE:	STATUS
A.	KEW	9-16-24	SUBMISSION TO TOWN FOR PRELIMINARY SITE/SUBDIVISION
B.	KEW	10-10-24	SUBMISSION TO TOWN FOR FINAL SITE/SUBDIVISION

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SEBAGO TECHNICS

SEBAGOTECHNICS.COM
75 JOHN ROBERTS ROAD, SUITE 4A
South Portland, ME 04106
207-200-2100

South Portland, Bridgton, Sanford and Bath

EXISTING CONDITIONS STORMWATER PLAN
OF:
WDCJCS SUBDIVISION
55 HIGH STREET
WINDHAM, ME 04062
FOR:
GREAT FALLS CONSTRUCTION & WESTBROOK DEVELOPMENT CORPORATION
20 MECHANIC STREET GORHAM, ME 04038

DESIGNED	MRB/KEW
DRAWN	MRS
CHECKED	ABS
DATE	08-26-2024
SCALE	1" = 20'
PROJECT	240577

SHEET 1 OF 2

240577 SW PRE.dwg, TAB:EXISTING CONDITIONS STORMWATER PLAN

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SOIL LEGEND:

SOIL INFORMATION OBTAINED VIA THE UNITED STATES DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCES CONSERVATION SERVICE'S WEB SOIL SURVEY

SYMBOL	SOIL SERIES	PHASE	HSG	DRAINAGE CLASS
BgB	NICHOLVILLE, 0-8%	VER FINE SANDY LOAM	C	MODERATELY WELL DRAINED
EmB	ELMWOOD, 0-8%	FINE SANDY LOAM	B	MODERATELY WELL DRAINED
PbB	PAXTON, 3-8%	FINE SANDY LOAM	C	WELL DRAINED

PROPOSED CONDITIONS LEGEND

- WATERSHED BOUNDARY
- TIME OF CONCENTRATION (A — B)
- REACH
- 10.0S — SUBCATCHMENT LABEL
- 10R — REACH
- POA-1 — POINT OF ANALYSIS
- 10P — STORMWATER TREATMENT/DETENTION POND
- HSG # / HSG # — SOILS BOUNDARY

HIGH STREET

POA-1

POA-2

POA-3

N/F KENNETH L JACKSON II BOOK 38436, PAGE 80 MAP 37, LOT 23

N/F HOLLY A. REED BOOK 13581, PAGE 119 MAP 3, LOT 13A

N/F PAUL L. & MARIE A. DAMON BOOK 32928, PAGE 178 MAP 37, LOT 25

SMH 1003 RIM=166.10

CB 1007 RIM=165.91

CB 1005 RIM=166.32

DMH-3 RIM: 168.75

DMH-2 RIM: 180.48

DMH-1 RIM: 179.00

5/8" IRON ROD FOUND 8" ABOVE GRADE BENT

5/8" REBAR FOUND 6" ABOVE GRADE CAPPED "ILLEGIBLE"

BB-1 SPIKE IN POLE ELEV=170.71

STAIRS (2) 6" RISERS

BLDG 1

BLDG 4

1S 2S 3S 4S 5S 6S 7S 8S 9S 10S 11S 12S 13S 14S 15S 16S 17S 18S 21P

CB-8 RIM: 180.80

CATCH BASIN INLET PROTECTION, TYP.

OCS-1 RIM: 180.70

CB-7 RIM: 180.63

SUBSURFACE CHAMBER SYSTEM FOOTPRINT, SEE UTILITY PLAN

CB-9 RIM: 181.00

SMH-6 RIM: 181.94

CB-2 RIM: 177.33

CB-1 RIM: 177.15

CB-3 RIM: 180.25

SMH-5 RIM: 180.78

SMH-1 RIM: 182.69

CB-5 RIM: 179.33

CB-4 RIM: 179.95

CB-6 RIM: 181.10

FI-1 RIM: 181.10

SMH-2 RIM: 174.25

SMH 1052 RIM=172.65

CB 1056 RIM=170.18

CB 1054 RIM=173.44

SMH 1067 RIM=176.67

PROTECT EXISTING TREE, SEE DETAIL

MATCH EXISTING GRADE

PAINTED BLUE QUESTION

ROSCOGGIN STREET

5/8" REBAR FOUND AT GRADE "OWEN HASKELL PLS 1088"

3/4" IRON PIPE FOUND 1" ABOVE GRADE

TP 1 TP 2 TP 3 TP 4 TP 5 TP 6 TP 7 TP 8 TP 9 TP 10 TP 11 TP 12

CMP 8 CMP 9

BgB EmB

GRAPHIC SCALE

20 0 10 20 40

(IN FEET) 1 INCH = 20 FT.

AMY BELL SEGAL, RLA 2265

REV.	BY	DATE	STATUS
A	KEW	2-18-25	SUBMISSION TO MDEP FOR STORM WATER MANAGEMENT LAW

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South Portland, ME 04106
207-200-2100

South Portland, Bridgton, Sanford and Bath

PROPOSED CONDITIONS STORMWATER PLAN

OF:

WDC.ICS SUBDIVISION
55 HIGH STREET
WINDHAM, ME 04062

FOR:

GREAT FALLS CONSTRUCTION & WESTBROOK DEVELOPMENT CORPORATION
20 MECHANIC STREET GORHAM, ME 04038

DESIGNED	MRB/KEW
DRAWN	MRS
CHECKED	ABS
DATE	08-26-2024
SCALE	1" = 20'
PROJECT	240577

SHEET 2 OF 2

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240577 SW POST.dwg, TAB:PROPOSED CONDITIONS STORMWATER PLAN

Section 9

Performance Standards & Approval Criteria

Section 9 – Performance Standards & Approval Criteria

This application is subject to review by several articles as defined within the Town of Windham's Land Use Ordinance (Chapter 120). Below, we offer the following narrative to directly address the applicable articles subject to this application:

ARTICLE 3 – DEFINITIONS:

Dwelling, Multifamily: A building containing three or more dwelling units. A multifamily dwelling may be attached to a nonresidential use.

The proposed project meets the definition of a multifamily dwelling development. There are eighteen (18) previously approved affordable senior housing units, and a newly proposed additional seventeen (17) market-rate units.

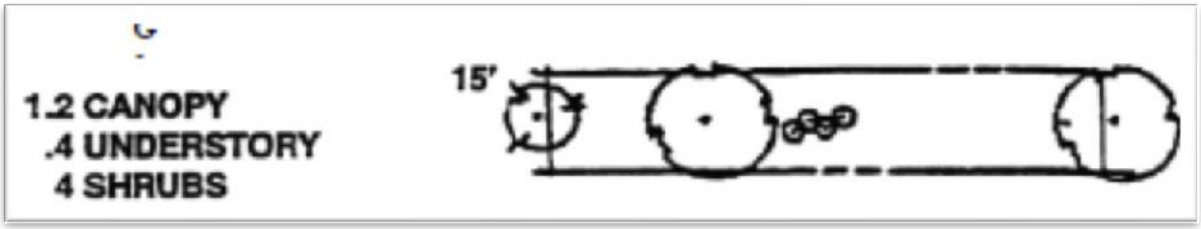
ARTICLE 4 – ZONING DISTRICTS:

(§120-415.B. – Village Commercial District (VC)): Permitted Uses – Dwelling, multifamily.

As defined above, the proposed multifamily dwelling development is a permitted use within the Village Commercial (VC) zoning district. The proposed site is identified on the Town's Tax Map 37 as Lot 24, and is also identified on the Town of Windham Land Use Map as being zoned within the VC District (Council approved, dated April 9, 2024).

ARTICLE 5 – PERFORMANCE STANDARDS

(§120-511.C.3.b. – Buffer Yard: Buffers Along Streets): Commercial Districts (C-1, C-2, C-3, C-4, VC, & WC Districts): Use Buffer Yard G.



The project site has approximately 260 linear feet of street frontage along High Street. As such, calculated below are the applicable Buffer Yard "G" standards:

	Required	*Proposed*
2.6 (frontage) x 1.2 =	*3.12 Canopy Trees*	*9 Canopy Trees (5 deciduous and 4 evergreen)*
2.6 (frontage) x 0.4 =	*1.04 Understory Trees*	*1 Understory Tree*
2.6 (frontage) x 4.0 =	*10 Shrubs*	*14 Shrubs (8 deciduous and 6 evergreen)*

The proposed trees and shrubs comply with the above standards, as the project is not required to round up from partial decimals. The proposed plantings use native species, as encouraged.

ARTICLE 8 – SITE PLAN REVIEW

This application is subject to the Site Plan Review criteria, as defined within the Town of Windham's Land Use Ordinance, §120-812 Major Site Performance Standards & Approval Criteria. As such, listed below are each of the applicable standards and how they relate to this proposed project.

§120-812.A. Utilization of the Site: *The property subject to this application is the site of the former John A. Andrew school building located at 55 High Street. The site is approximately 2.4 acres in size and is zoned under the Windham Village Commercial (VC) zoning district. The site generally slopes upwards from High Street, is relatively level in the middle (where the former school building was located), and slopes back downwards towards the rear. The site also contains a small wetland area located along the northeastern border of the parcel. No wetland impacts are proposed under the scope of this application, and the proposed development reflects the natural capabilities of the site.*

§120-812.B. Vehicular Traffic: *The site's design includes one (1) access drive off of High Street, which is shown on the project plans as Academy Street. This private, internal drive was named during the previous approval of the eighteen (18) affordable senior housing development's review. This project is proposing to extend the vehicle drive aisles into a loop within the site to provide sufficient maneuverability for both general traffic and emergency vehicles. Additionally, all proposed drives will be designed to meet the applicable private road standards.*

§120-812.C. Parking & Loading Requirements: *The proposed development is designed to include a total of eighty (80) vehicular parking spaces. The parking sequence provides an adequate amount of parking for both the senior housing and market-rate uses, and complies with the minimum parking standard of a 1.5:1 ratio of parking spaces to dwelling units. In addition, the parcel is within the Town of Windham's Growth Zone as depicted in the 2024 Comprehensive Plan. As such, under State Housing Legislation LD 2003, the parking requirements for sites providing 51% or more of the units as affordable only are required to maintain a parking ratio of 0.66 spaces per residential unit.*

§120-812.D. Pedestrian Traffic: *The proposed development incorporates a network of sidewalks that provide both internal connectivity and link externally to the existing sidewalk on the west side of High Street. Please see the plan information submitted for specific locations and details of the proposed layout.*

§120-812.E. Stormwater Management: *A Stormwater Management Report has been prepared for this proposed project, and is included in the enclosed Section 8 – Stormwater Management.*

§120-812.F. Erosion Control: *An Erosion & Sedimentation Control Plan has been developed for this project and is enclosed within the Plan Set.*

§120-812.G. Water Supply Provisions: *This proposed residential development will connect to existing public water infrastructure that is available along High Street. Please see the enclosed*

Section 7 – Utilities for the Ability to Serve request correspondence with the Portland Water District (PWD).

§120-812.H. Sewage Disposal Provisions: *This proposed residential development will connect to existing public sewer infrastructure that is available along High Street. Please see the enclosed Section 7 – Utilities for the Ability to Serve request correspondence with the Portland Water District (PWD).*

§120-812.I. Utilities: *This proposed development includes utility connections for electrical, water, and sewer services. There is also a natural gas service line existing along High Street. The applicant has not determined whether or not it will require connection to natural gas for any of its HVAC systems and reserves the right to do so as necessary in the future as construction plans are further refined. All proposed utilities are located underground, including the electrical service which is accomplished from connecting to the existing overhead lines along High Street, then drawn underground near the site's frontage. Please see the Grading & Utility Plan within the Plan Set.*

§120-812.J. Groundwater Protection: *This proposed development will connect to available water supply provided by the Portland Water District (PWD) that has an existing main along High Street. The scale of this development is not anticipated to adversely impact the overall quality or quantity of available water supply.*

§120-812.K. Water Quality Protection: *The project site is located within the Upper Presumpscot River Watershed, which is <u>not</u> an At-Risk Lake Watershed or an Urban Impaired Stream Watershed, as defined by the Maine Department of Environmental Protection (MDEP). This project will utilize available public water supply from the existing connection along High Street and will incorporate a stormwater management system to provide treatment of runoff. Day-to-day operations do not require hazardous substances such as fuels, industrial chemicals, or wastes.*

§120-812.L. Hazardous, Special, & Radioactive Materials: *There are no anticipated sources or generators that may produce hazardous, special, or radioactive materials within the scope of the proposed development. Additionally, there are no flammable or explosive liquids, solids, or gases that will be stored in bulk above-ground within the project site.*

§120-812.M. Shoreland Relationship: *The project site is not located within the Shoreland Zoning District. The successful completion of this proposed development will not result in any adverse impacts to available water quality or quantity.*

§120-812.N. Technical & Financial Capacity: *Please see the enclosed Section 5 – Financial & Technical Capacity demonstrating that the Applicants have sufficient financial resources to construct, operate, and maintain all aspect of the proposed development. Additionally, Section 5 contains supplemental information related to the project team assembled and their history, qualifications, and evidence of prior experience.*

§120-812.O. Solid Waste Management: *The proposed development will handle and process solid waste privately through a licensed solid waste contractor. Internally, each of the proposed units will contain private bins to collect generated waste and the selected contractor will haul to a licensed facility.*

§120-812.P. Historical & Archaeological Resources: *The property subject to this application is a previously developed site, which contained the recently demolished John A. Andrew school building and its associated developed area. Upon our review of the National Register of Historic Places, the Town's Comprehensive Plan, and available local historical archives, there are no portions of the subject property or surrounding properties that are of significant historical or archaeological significance. A review request letter, dated September 13, 2024, was sent to the Maine Historic Preservation Commission (MHPC), seeking their respected consultation. A determination by MHPC was received on October 28, 2024, stated that the proposed undertaking will not impact any historic properties, as defined by Section 106 of the National Historic Preservation Act. For reference, we have included this determination within this Section.*

§120-812.Q. Floodplain Management*: Please see the information provided within the enclosed Section 2 – Location & Resource Maps. The project site is not located within the mapped Federal Emergency Management Agency (FEMA) 100-year Floodplain hazard area.*

§120-812.R. Exterior Lighting: *Photometrics and supplementary lighting details are provided within Section 12 – Lighting Information.*

§120-812.S. Noise: *The proposed development is not anticipated to generate an unreasonable amount of noise detectable at property lines. This project is subject to the limitations regarding the timing of construction activities and will comply with the 10:00 p.m. – 6:00 a.m. restrictions.*

§120-812.T. Storage of Materials (Landscape Plan): *A Landscape Plan has been developed for this proposed residential development and is enclosed within the Plan Set. This project does not contain any exposed storage areas, machinery, or areas used for the storage or collection of automobile parts.*

This application is also subject to the criteria defined within the Town of Windham's Land Use Ordinance, §120-814 Multifamily Development Standards. As such, listed below are each of the applicable standards and how they relate to this proposed project.

§120-814.A. Building Architecture:

1. **Architectural Variety:** *Architectural renderings and designs for each structure are included within the enclosed Section 11. These renderings demonstrate that the proposed structures offer a variety in materials and design that satisfy the standards of this Section.*
2. **Façade:** *Facades of all proposed structures are included within the enclosed Section 11 that detail the horizontal and vertical definitions, with architectural articulation that create visual interest. The additional two (2) buildings for the seventeen (17) market-rate*

units does not have frontage along High Street, thus the 25% fenestration requirement does not apply.

3. **Orientation:** *Proposed buildings are oriented in a way that provides their respective entrances facing towards the internal private drives. The facades of the additional two (2) buildings are oriented to face the internal drive aisle, as required.*

§120-814.B. Site Design:

1. **Parking:** *The proposed development incorporates parking areas directly off the internal private vehicular drives. A total of eighty (80) parking spaces are proposed to sufficiently serve the total thirty-five (35) units.*
2. **Screening:** *This development proposes tree clearing along the High Street frontage and the northern and southern property lines. A landscape buffer will be reestablished along High Street with a combination of deciduous canopy trees, evergreen trees, understory trees and shrubs. Evergreen and deciduous plantings are proposed along the northern property line and a combination of fencing and evergreen trees proposed along the southern property line. Existing vegetation near the frontage on the southwest corner of the parcel will be preserved. Trash totes/bins will be stored within a shed-like structure attached to each building. Above ground utilities will also be screened, as detailed on the Landscape Plan.*
3. **Bicycle/Pedestrian:** *The site's design incorporates internal walkways that connect the entrances of each building to the sidewalk network. The design also offers a connection to the existing sidewalk located along the western side of High Street. A total of (9) bike racks are located within the site, which provide parking for up to eighteen (18) bicycles.*
4. **Recreation & Open Space:** *This proposed development offers an area designated for open space within the central portion of the site. Please see the Open Space requirements table listed on the Site Plan within the Plan Set.*
5. **Landscape/Lighting:** *A Landscape Plan is included within this submission. The landscape design provides a mixture of hardy deciduous and evergreen species to promote seasonal interest, provide shade, and accent building entrances. A lighting Plan (Photometric Plan) and lighting specifications are also included within Section 12 of this application binder.*
6. **Access Drive Standards:** *This proposed development will retain one (1) of the existing access points off High Street, which will provide the framework for the proposed private internal drive that will service this project. This access drive will remain private and shall not be maintained by the Town of Windham.*

ARTICLE 9

This application is subject to the Subdivision regulations defined within the Town of Windham's Land Use Ordinance, §120-911 Performance & Design Standards. As such, listed below are each of the applicable standards and how they relate to this proposed project.

§120-911.A. Basic Subdivision Layout: *This proposed project includes development on one (1) parcel, with eighteen (18) affordable senior housing units and seventeen (17) market-rate units. The total amount of thirty-five (35) units conforms with the applicable density requirements of*

§120-541 Net Residential Area or Acreage. The proposed site will utilize subsurface utilities (water, sewer, electrical) that are located along High Street, as indicated on the Grading & Utility Plan. Proposed locations of monuments are also shown within the Plan Set.

§120-911.B. Sufficient Water; Water Supply: *This proposed residential development will connect to existing and available public water infrastructure along High Street. Please see the enclosed Section 7 – Utilities for the Ability to Serve request correspondence with the Portland Water District (PWD). The overall scale of this development is not anticipated to adversely impact the overall quality or quantity of available water supply. Each proposed structure will also be sprinklered.*

§120-911.C. Erosion & Sedimentation Control: *An Erosion & Sedimentation Control Plan has been developed for this project and is enclosed within the Plan Set.*

§120-911.D. Sewage Disposal: *This proposed residential development will connect to existing public sewer infrastructure that is available along High Street. Please see the enclosed Section 7 – Utilities for the Ability to Serve request correspondence with the Portland Water District (PWD).*

§120-911.E. Impact on Natural Beauty, Aesthetics, Historic Sites, Wildlife Habitat, Rare Natural Areas, or Public Access to the Shoreline: *The proposed project is primarily located over existing developed area that has been cleared for the former John A. Andrew school building, and utilizes an existing driveway into the site for access. Tree clearing is required for this project, the resulting decrease in buffer will be mitigated with proposed plantings. The Subdivision Plan details which areas of trees will be cleared and others that will be protected for a period of at least five (5) years unless the site plan is formally amended with the Town. This development also incorporates street trees into the overall design. These street trees are planted at locations which conform with the fifty (50) ft. minimum spacing standard. One existing street tree will remain.*

A Landscape Plan has been developed for this application. On this plan, a centralized open green space is proposed within the center of the site. This space will provide an adequate common area for internal users of the site. This designated open space will be owned and operated by the owners of the property and will not be used for any future buildings or lots.

§120-911.F. Conformance with Land Use Ordinances: *The proposed project meets the goals of the Town of Windham's 2017 Comprehensive Plan, and meets the applicable dimensional and performance standards within the Town of Windham's Land Use Ordinance.*

§120-911.G. Financial & Technical Capacity: *Please see the enclosed Section 5 – Financial & Technical Capacity demonstrating that the Applicants have sufficient financial resources to construct, operate, and maintain all aspect of the proposed development. Additionally, Section 5 contains supplemental information related to the project team assembled and their relevant history, prior experience, and qualifications for evidence that they have proficient technical knowledge to complete this project.*

§120-911.H. Impact on Groundwater Quality or Quantity: *This proposed development will connect to available water supply provided by the Portland Water District (PWD) that has an existing main along High Street. The scale of this development is not anticipated to adversely impact the overall quality or quantity of available water supply.*

§120-911.I. Floodplain Management: *Please see the information provided within the enclosed Section 2 – Location & Resource Maps. The project site is not located within a mapped special flood hazard area, as defined by the Federal Emergency Management Agency (FEMA).*

§120-911.J. Stormwater Management: *A Stormwater Management Report has been prepared for this project and is included within the enclose Section 8 - Stormwater Management. This project will require a Stormwater Management Law permit approval from the Maine Department of Environmental Protection (MDEP). This permit was submitted on February 20, 2025. A receipt of approval from MDEP will be included within our Final Plan submission.*

§120-911.K. Conservation Subdivisions: *This Section is not applicable to this proposed project, as this development is not a conservation subdivision.*

§120-911.L. Compliance with Timber Harvesting Rules: *There is not any timber harvesting activity proposed under the scope of this application. As such, this Section is not applicable to this proposed project.*

§120-911.M. Traffic Conditions & Streets: *A Traffic Memorandum has been prepared for this project and is enclosed within Section 6 – Traffic Information. This memo includes estimated trip generations for this proposed affordable senior housing project. As detailed within the Memo, this development is estimated to generate five (5), five (5), and six (6) trips during the AM, PM, and Saturday peak hours of the generator, respectively. Given this level of trip generation, a Traffic Movement Permit (TMP) is not required from the Maine Department of Transportation (MDOT), as this development does not exceed the one hundred (100) trip threshold during a peak hour period. Additionally, sight distance on High Street exceeds the required minimum for a 25 miles per hour (mph) roadway, as defined by the Town of Windham's sight distance standards. Please see the Traffic Memorandum for additional information.*

§120-911.N. Maintenance of Common Elements: *Maintenance of the common elements will be managed by the Condominium Association, which will be formed at the time of financial close and prior to the start of construction. The Condominium Association and its members have experienced Property Management and Maintenance teams. The following items will be included within the maintenance plan for the common elements and professionally managed through the Condominium Association: All seasons landscape, roadway and walkway maintenance, asphalt maintenance, trash and recycling management, stormwater system management, common lighting element management, and any other common site element management.*

SEBAGO TECHNICS

October 8, 2024
240577

Megan M. Rideout
Maine Historic Preservation Commission
65 State House Station
Augusta, ME 04333

RECEIVED
OCT 09 2024
By 1683-24

Email Submission: megan.m.rideout@maine.gov

RE: Former John A. Andrew School – Site Redevelopment
55 High Street, Windham; MBLU: 37-24
MHPC Project #1683-24

Dear Ms. Rideout,

On behalf of our client, Sebago Technics, Inc. is pleased to provide this response letter and the attached supplementary documentation in response to the consultation letter from Maine Historic Preservation Commission (MHPC), dated September 25, 2024. This consultation letter is provided within the attached documentation as ***Exhibit A***. This consultation was initiated as part of the proposed site redevelopment for the construction of eighteen (18) affordable senior housing residential units.

Property Description: The subject site is located at 55 High Street in the Town of Windham, Maine. The site can further be identified on the Town's Tax Map 37 as Lot 24. The site is approximately 2.40 acres in size, and contains a portion of an educational school building. For reference, ***Exhibit B*** is the property card for the site, pulled from available Town resources.

Site History: The subject property is the location of the former John A. Andrew school building. From available historical information, this site previously contained an older schoolhouse building, named the 2nd John A. Andrew school building. This clapboarded structure burned down in 1925.

However, another school building, named the 3rd John A. Andrew School, was constructed in 1926 at this same location. This 1926 building was designed for eight grades contained within four rooms. An addition to this 3rd school building was constructed around 1953, providing another "wing" to the school's operations. Primary and elementary classes at the site ended in 1990. A reunion of staff and alumni were organized, where previous attendees reminisced about their educational experience.

Eventually, the school's roof was deemed beyond repair, leading to the demolition of the larger school building in 2016. To-date, the remaining "addition" is used for storage. Please see pre-, during, and post-demolition photographs below of the performed work. Please also see the enclosed ***Exhibit C*** for additional photographs.

Project Description: The proposed project located on this property is the result of a Request for Proposals (RFP) from the Town of Windham's Economic Development Corporation. Our clients, Great Falls Construction and Westbrook Development Corporation, were selected by the Town of Windham to develop the site for residential use. As of the date of this letter, there is an active application with the Town of Windham for review for the construction of eighteen (18) affordable senior housing residential units on the front portion of the property. Please see the attached ***Exhibit D*** for a Site Plan that details the proposed work.

We are hopeful that this letter and the enclosed information is sufficient to complete a review by the Maine Historic Preservation Commission. Upon your review, please contact me at (207) 482-6323 or by email at bwiemken@sebagotechnics.com if you have any questions or require additional information. Thank you for your time, and I look forward to hearing from you.

Sincerely,

SEBAGO TECHNICS, INC.

Brett Wiemken

Brett Wiemken
Permitting Specialist/Project Coordinator

Enc.

Based on the information submitted, I have concluded that there will be no historic properties affected by the proposed undertaking, as defined by Section 106 of the National Historic Preservation Act. Consequently, pursuant to 36 CFR 800.4(d)(1), no further Section 106 consultation is required unless additional resources are discovered during project implementation pursuant to 36 CFR 800.13.

Kirk F. Mohney

10/28/24

Kirk F. Mohney,
State Historic Preservation Officer
Maine Historic Preservation Commission

Date

MHPC #1683-24

Section 10

Soils Information

Section 10 – Soils Information

Enclosed within this section is a custom Soil Resource Report derived from the Natural Resources Conservation Service (NRCS) Web Soil Survey (WSS) online tool. This report was generated by specifying an approximate area of interest that contains the entire subject parcel area. This report also includes a Soil Map, detailing the project boundary in accordance with the existing soil classifications within and around the property.

Also enclosed within this Section is a Geotechnical Report performed by S.W. Cole to obtain subsurface information at the project site. This work consisted of test borings explorations, soils laboratory testing, a geotechnical analysis of the subsurface findings, and the preparation of the attached report.



SEBAGO TECHNICS

WWW.SEBAGOTECHNICS.COM
75 John Roberts Rd. - Suite 4A
South Portland, ME 04106
Tel. 207-200-2100

NRCS SOIL SURVEY MAP

JOHN A. ANDREW SCHOOL - SITE REDEVELOPMENT

SCALE:	1:2,400
DATE:	8/29/2024

LOCATION:
55 HIGH ST
WINDHAM, ME

INFORMATION:
MAINE GEOLIBRARY
USDA NRCS SOIL SURVEY 2020

United States Department of Agriculture

Natural Resources Conservation Service

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

Custom Soil Resource Report for Cumberland County and Part of Oxford County, Maine



August 29, 2024

Preface

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

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

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

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

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

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

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Preface.....2
How Soil Surveys Are Made.....5
Soil Map.....8
Soil Map.....9
Legend.....10
Map Unit Legend.....12
Map Unit Descriptions.....12
Cumberland County and Part of Oxford County, Maine.....14
BgB—Nicholville very fine sandy loam, 0 to 8 percent slopes.....14
EmB—Elmwood fine sandy loam, 0 to 8 percent slopes.....15
PbB—Paxton fine sandy loam, 3 to 8 percent slopes.....16
References.....17

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Map

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

Custom Soil Resource Report
Soil Map



Map Scale: 1:1,120 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 15 30 60 90

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

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

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

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

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

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

Soil Survey Area: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 20, Sep 5, 2023

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

Date(s) aerial images were photographed: Jul 22, 2021—Oct 7, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND	MAP INFORMATION
	imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BgB	Nicholville very fine sandy loam, 0 to 8 percent slopes	0.2	6.8%
EmB	Elmwood fine sandy loam, 0 to 8 percent slopes	2.2	88.7%
PbB	Paxton fine sandy loam, 3 to 8 percent slopes	0.1	4.5%
Totals for Area of Interest		**2.4**	**100.0%**

Map Unit Descriptions

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

Cumberland County and Part of Oxford County, Maine

BgB—Nicholville very fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2yjg5
Elevation: 20 to 2,300 feet
Mean annual precipitation: 34 to 50 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Nicholville and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nicholville

Setting

Landform: Lakebeds (relict)
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-silty glaciomarine deposits

Typical profile

Ap - 0 to 7 inches: very fine sandy loam
Bs - 7 to 19 inches: very fine sandy loam
BC - 19 to 30 inches: very fine sandy loam
C - 30 to 65 inches: loamy very fine sand

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 1.42 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

EmB—Elmwood fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: blh8
Elevation: 10 to 900 feet
Mean annual precipitation: 38 to 55 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 130 to 195 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Elmwood and similar soils: 88 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Elmwood

Setting

Landform: Stream terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy glaciolacustrine deposits

Typical profile

H1 - 0 to 8 inches: fine sandy loam
H2 - 8 to 25 inches: sandy loam
H3 - 25 to 65 inches: silty clay loam

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B
Ecological site: F144BY402ME - Clay Hills
Hydric soil rating: No

PbB—Paxton fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: bljf
Elevation: 0 to 930 feet
Mean annual precipitation: 48 to 50 inches
Mean annual air temperature: 45 to 46 degrees F
Frost-free period: 145 to 155 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Paxton and similar soils: 87 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Paxton

Setting

Landform: Drumlinoid ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy lodgment till derived from mica schist

Typical profile

H1 - 0 to 8 inches: fine sandy loam
H2 - 8 to 20 inches: fine sandy loam
H3 - 20 to 65 inches: fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 18 to 40 inches to densic material
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 30 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

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REPORT

24-1695 S

October 1, 2024

Explorations and Geotechnical Engineering Services

Proposed Andrew School Housing Development
55 High Street
Windham, Maine

Prepared For:
Great Falls Construction, Inc.
Attention: Julie Curran
20 Mechanic Street
Gorham, ME 04038

Westbrook Development Corporation
Attention: Tyler Norod
30 Liza Harmon Drive
Westbrook, ME 04092

Prepared By:
S. W. Cole Engineering, Inc.
286 Portland Road
Gray, ME 04039
T: 207-657-2866

TABLE OF CONTENTS

1.0 INTRODUCTION 1
1.1 Scope and Purpose 1
1.2 Site and Proposed Construction 2
2.0 EXPLORATION AND TESTING 2
2.1 Explorations 2
2.2 Testing 3
3.0 SUBSURFACE CONDITIONS 3
3.1 Soil and Bedrock 3
3.2 Groundwater 4
4.0 EVALUATION AND RECOMMENDATIONS 4
4.1 General Findings 4
4.2 Site and Subgrade Preparation 5
4.3 Excavation and Dewatering 6
4.4 Foundations 7
4.5 Foundation Drainage 7
4.6 Slab-On-Grade 8
4.7 Entrance Slabs and Sidewalks 8
4.8 Fill, Backfill and Compaction 9
4.9 Weather Considerations 10
4.10 Design Review and Construction Testing 10
5.0 CLOSURE 11

Appendix A Limitations
Appendix B Figures
Appendix C Exploration Logs & Key

24-1695 S

October 1, 2024

Great Falls Construction
Attention: Julie Curran
20 Mechanic Street
Gorham, ME 04038

Westbrook Development Corporation
Attention: Tyler Norod
30 Liza Harmon Drive
Westbrook, ME 04092

Subject: Explorations and Geotechnical Engineering Services
Proposed Andrew School Housing Development
55 High Street
Windham, Maine

Dear Julie & Tyler:

In accordance with our Proposal, dated August 28, 2024, we have observed subsurface explorations for the subject project. This report summarizes our findings and geotechnical recommendations and its contents are subject to the limitations set forth in Appendix A.

1.0 INTRODUCTION

1.1 Scope and Purpose

The purpose of our services was to obtain subsurface information at the site in order to develop geotechnical recommendations relative to foundations and earthwork associated with the proposed construction. Our scope of services included observation of test pit explorations, a geotechnical analysis of the subsurface findings, and preparation of this report.

1.2 Site and Proposed Construction

The site is located at the former Andrew School at 55 High Street in Windham, Maine. The site is currently occupied by a single-story school building with associated gravel, paved, lawn, and wooded areas. Existing grades are relatively flat around the existing building, but slope down on each side, ranging from approximately elevation to 170 to 186 feet (project datum).

We understand development plans call for demolition of the existing building and site improvements for construction of:

- Three, four-unit, two-story, on-grade residential buildings on the westerly side of the site;
- One, six-unit, two-story, on-grade residential building on the southerly side of the site;
- One, five-unit, two-story, on-grade townhouses on the easterly side of the site, and;
- One, twelve-unit, three-story, on-grade residential building on the easterly side of the site.
- New access drive off High Street and associated paved areas

We understand the proposed new buildings will be on-grade structures with no basements. Proposed finish grades are unavailable at this time; however, we anticipate finish grades to be within about 5 feet of existing grades.

Proposed and existing site features are shown on the “Exploration Location Plan” attached in Appendix B.

2.0 EXPLORATION AND TESTING

2.1 Explorations

Thirteen test pits (TP-1 through TP-13) were made at the site on September 9, 2024 by Great Falls Construction. The exploration locations were selected by S. W. Cole Engineering, Inc. (S.W.COLE) and established in the field by Great Falls Construction. The completed test pits were located by Sebago Technics using a mapping grade GPS. The approximate exploration locations are shown on the “Exploration Location Plan”

attached in Appendix B. Logs of the explorations and a key to the notes and symbols used on the logs are attached in Appendix C. The elevations shown on the logs were estimated based on topographic information shown on the "Exploration Location Plan".

2.2 Testing

The soils encountered in the test pits were visually classified in the field. Pocket Penetrometer Tests (PPT) were performed where stiffer silts and clays were encountered in the test pits. PPT results are shown on the logs.

3.0 SUBSURFACE CONDITIONS

3.1 Soil and Bedrock

Underlying a surficial layer of topsoil or pavement, the test pits encountered a subsurface profile generally consisting of uncontrolled fill and buried relic topsoil, overlying native glaciomarine and glacial till deposits, overlying refusal surfaces (probable bedrock). The principal soils encountered at the explorations are summarized below. Not all of the strata were encountered at each exploration; refer to the attached boring logs for more detailed subsurface information.

Uncontrolled Fill and Buried Relic Topsoil: Underlying a surficial layer of topsoil or pavement, several of the test pits encountered uncontrolled fill extending to depths ranging from about 1 to 3 feet below existing ground surface (bgs). The fill consisted of brown sand with varying portions of silt, gravel, organics, and debris including coal ash and slag and concrete blocks.

Underlying the uncontrolled fill, test pits TP-10 and TP-11 encountered buried relic topsoil up to about 1-foot thick.

Glaciomarine Soils: Underlying the uncontrolled fill and buried relic topsoil, where present, several test pits encountered layered glaciomarine soil deposits consisting of silty sand, silt and sand, and silty clay.

Glacial Till: Underlying the uncontrolled fill, buried relic topsoil, and glaciomarine soils, where present, several test pits encountered glacial till consisting of brown and gray-brown sand with varying portions of silt, gravel, and cobbles.

Refusal Surfaces: Underlying the glaciomarine or glacial till soils, where present, test pits TP-4, TP-5, TP-6, TP-7, TP-9, TP-10, TP-11, TP-12 and TP-13, encountered refusal surfaces (probable bedrock) at depths ranging from about 3.3 to 9 feet bgs. Up to about 2 feet of probable weathered bedrock was penetrated by the excavator before encountering refusal in certain test pits.

3.2 Groundwater

The soils encountered in the test pits were generally damp to moist from the ground surface. Saturated soils and groundwater were not observed in the test pits. Groundwater likely becomes perched on the relatively impervious silt and clay layers in the glaciomarine soils, as well as the glacial till, and refusal surfaces encountered in the test pits. Long term groundwater information is not available. It should be anticipated that groundwater levels will fluctuate, particularly in response to periods of snowmelt and precipitation, as well as changes in site use.

4.0 EVALUATION AND RECOMMENDATIONS

4.1 General Findings

Based on the subsurface findings, the proposed construction appears feasible from a geotechnical standpoint. The principle geotechnical considerations include:

- The test pits encountered layers of uncontrolled fill and buried relic topsoil which are unsuitable for support of the proposed buildings. We recommend all existing uncontrolled fill, buried relic topsoil, organics, pavement, structures, utilities, and foundations be completely removed from beneath the proposed buildings (including foundations, floor slabs, and entrance slabs) and backfilled with compacted Granular Borrow.

- Following removal and replacement of the unsuitable soils, spread footing foundations and a slab-on-grade floors bearing on properly prepared subgrades appear suitable for the proposed building. Footings should bear on at least 6-inches of compacted Crushed Stone overlying undisturbed native non-organic soils. On-grade floor slabs should bear on at least 12-inches of compacted Crushed Stone overlying properly prepared subgrades.

- Relatively shallow refusal surfaces (probable bedrock) were encountered at several of the test pits. Depending on final proposed finish grades, bedrock removal be required for construction. If blasting is used, overblasting must be limited so foundation bearing conditions are not compromised.

- Beneath paved and hardscaped areas, we recommend the existing fills be proof-rolled and densified. Areas that become soft or yielding after proof-rolling must be removed and replaced with compacted Granular Borrow prior to installing pavement subbase or hardscape base materials.

- Subgrades in portions of the site will consist of sensitive silts and clays. Earthwork and grading activities should occur during drier, non-freezing weather of Spring, Summer and Fall. Rubber tired construction equipment should not operate directly on the native silt and clay when wet. Excavation of bearing surfaces should be completed with a smooth-edged bucket to lessen subgrade disturbance.

- The coal ash and slag encountered in certain test pits likely has special handling and disposal requirements. We recommend consulting an environmental professional to further investigate and provide guidance on handling and disposal of these materials.

4.2 Site and Subgrade Preparation

We recommend that site preparation begin with the construction of an erosion control system to protect adjacent drainage ways and areas outside the construction limits. Surficial organics, roots and topsoil should be completely removed from areas of proposed fill and construction. As much vegetation and pavement as possible should remain outside the construction areas to lessen the potential for erosion and site disturbance.

Building Pad and Footings: As discussed, the site is currently developed and the test pits encountered layers of uncontrolled fill and buried relic topsoil which are unsuitable for support of the proposed buildings. We recommend all existing uncontrolled fill, buried relic topsoil, organics, pavement, structures, utilities, and foundations be completely removed from beneath the proposed buildings (including foundations, floor slabs, and entrance slabs) to expose undisturbed, non-organic native soils or sound intact bedrock. The extent of removal should extend 1 foot laterally outward from outside edge of perimeter footings

for every 1-foot of excavation depth (1H:1V bearing splay). Overexcavations should be backfilled with compacted Granular Borrow.

We recommend that footings be excavated using a smooth-edged bucket and that footings be underlain by at least 6 inches of compacted Crushed Stone. Where overlying bedrock subgrades, the Crushed Stone should be compacted and worked into the bedrock surface to choke off voids and fractures.

If blasting is used, overblasting must be limited so foundation bearing conditions are not compromised. All loose and overblasted bedrock should be removed and backfilled with compacted Structural Fill.

Paved Areas: Existing fills should be proof-rolled and densified beneath proposed paved areas. Areas that become soft or continue to yield after densification, as well as any organics or deleterious material exposed at pavement subgrade elevation, should be removed and replaced with compacted Granular Borrow.

4.3 Excavation and Dewatering

Excavation work will generally encounter uncontrolled fills, buried relic organics, glaciomarine sands, silts, and clays, glacial till, and potentially bedrock. Care must be exercised during construction to limit disturbance of the bearing soils. Earthwork and grading activities should occur during drier, non-freezing weather of Spring, Summer and Fall. Rubber tired construction equipment should not operate directly on the native soils, when wet. Final cuts to subgrade should be performed with a smooth-edged bucket to help reduce strength loss from soil disturbance.

Based on the subsurface findings, we anticipate bedrock removal may be required for construction. If blasting is used, we recommend a licensed blasting contractor be engaged to provide bedrock removal. Pre-blast surveys should be completed on surrounding structures, water supply wells and infrastructure prior to commencing blasting activities.

Vibrations from construction should be controlled below threshold limits of 0.5 in/sec for structures, water supply wells and infrastructure within 500 feet of the project site. More restrictive vibration limits may be warranted in specific cases with sensitive equipment, historic structures or artifacts on-site or within close proximity.

Sumping and pumping dewatering techniques should be adequate to control groundwater in excavations. Controlling the water levels to at least one foot below planned excavation depths will help stabilize subgrades during construction. Excavations must be properly shored or sloped in accordance with OSHA Regulations to prevent sloughing and caving of the sidewalls during construction. Care must be taken to preclude undermining adjacent structures, utilities and roadways. The design and planning of excavations, excavation support systems, and dewatering is the responsibility of the contractor.

4.4 Foundations

We recommend the proposed buildings be supported on spread footings founded on at least 6-inches of compacted Crushed Stone overlying undisturbed, non-organic soils or overlying compacted Granular Borrow used to backfill overexcavations down to undisturbed, non-organic, native soils. For foundations bearing on properly prepared subgrades, we recommend the following geotechnical parameters for design consideration:

Geotechnical Parameters for Spread Footings and Foundation Walls	
Design Frost Depth (100 year AFI)	4.5 feet
Net Allowable Soil Bearing Pressure	2.0 ksf
Base Friction Factor	0.35
Total Unit Weight of Backfill	125 pcf
At-Rest Lateral Earth Pressure Coefficient	0.5
Internal Friction Angle of Backfill	30°
Seismic Soil Site Class	D (IBC 2015)
Estimated Total Settlement	1-inch
Differential Settlement	½-inch

4.5 Foundation Drainage

We recommend an underdrain system be installed on the outside edge perimeter footings. The underdrain pipe should consist of 4-inch diameter, perforated SDR-35 foundation drain pipe bedded in Crushed Stone and wrapped in non-woven geotextile fabric. The underdrain pipe must have a positive gravity outlet protected from freezing, clogging and

backflow. Surface grades should be sloped away from the building for positive surface water drainage. General underdrain details are illustrated on the "Foundation Detail Sketch" attached in Appendix B.

4.6 Slab-On-Grade

On-grade floor slabs in heated areas may be designed using a subgrade reaction modulus of 100 pci (pounds per cubic inch) provided the slab is underlain by at least 12-inches of compacted Crushed Stone placed over properly prepared subgrades. The structural engineer or concrete consultant must design steel reinforcing and joint spacing appropriate to slab thickness and function, as well as to prevent cracking and curling.

We recommend a sub-slab vapor retarder and radon venting system be installed beneath on-grade floor slabs. The vapor retarder must have a permeance that is less than the floor cover or surface treatment that is applied to the slab. The vapor retarder must have sufficient durability to withstand direct contact with the sub-slab base material and construction activity. The vapor retarder material should be placed according to the manufacturer's recommended method, including the taping and lapping of all joints and wall connections. The architect and/or flooring consultant should select the vapor retarder products compatible with flooring and adhesive materials.

The floor slab should be appropriately cured using moisture retention methods after casting. Typical floor slab curing methods should be used for at least 7 days. The architect or flooring consultant should assign curing methods consistent with current applicable American Concrete Institute (ACI) procedures with consideration of curing method compatibility to proposed surface treatments, flooring and adhesive materials.

4.7 Entrance Slabs and Sidewalks

Entrance slabs and sidewalks adjacent to the building must be designed to reduce the effects of differential frost action between adjacent pavement, doorways, and entrances. We recommend that non-frost susceptible Structural Fill be provided to a depth of at least 4.5 feet below the top of entrance slabs. This thickness of Structural Fill should extend the full footprint of the entrance slab, thereafter transitioning up to the bottom of the adjacent sidewalk or pavement gravels at a 3H:1V or flatter slope. General details of this frost transition zone are shown on the "Foundation Detail Sketch" attached in Appendix B.

4.8 Fill, Backfill and Compaction

We recommend the following fill and backfill materials: recycled products must also be tested in accordance with applicable environmental regulations and approved by a qualified environmental consultant.

Common Borrow: Fill to raise grades in landscape areas should be non-organic compactable earth meeting the requirements of 2020 MaineDOT Standard Specification 703.18 Common Borrow.

Granular Borrow: Fill to raise grades in building and paved areas should be sand meeting the requirements of 2020 MaineDOT Standard Specification 703.19 Granular Borrow.

Structural Fill: Backfill for foundations and material below exterior entrances slabs should be clean, non-frost susceptible sand and gravel meeting the gradation requirements for Structural Fill as given below:

Structural Fill	
Sieve Size	**Percent Finer by Weight**
4 inch	100
3 inch	90 to 100
¼ inch	25 to 90
No. 40	0 to 30
No. 200	0 to 6

Crushed Stone: Crushed Stone, used beneath foundations and for underdrain aggregate, should be washed ¾-inch crushed stone meeting the requirements of 2020 MaineDOT Standard Specification 703.13 Crushed Stone ¾-Inch.

Reuse of Site Soils: The on-site soils are unsuitable for reuse in building and paved areas, but may be suitable for reuse as Common Borrow in landscape areas provided they are free of organics and deleterious materials and are at a compactable moisture content at the time of reuse.

Placement and Compaction: Fill should be placed in horizontal lifts and compacted such that the desired density is achieved throughout the lift thickness with 3 to 5 passes of the compaction equipment. Loose lift thicknesses for grading, fill and backfill activities should not exceed 12 inches. We recommend that fill and backfill in building and paved areas be compacted to at least 95 percent of its maximum dry density as determined by ASTM D-1557. Crushed Stone should be compacted with 3 to 5 passes of a vibratory plate compactor having a static weight of at least 500 pounds.

4.9 Weather Considerations

Construction activity should be limited during wet and freezing weather and the site soils may require drying or thawing before construction activities may continue. The contractor should anticipate the need for water to temper fills in order to facilitate compaction during dry weather. If construction takes place during cold weather, subgrades, foundations and floor slabs must be protected during freezing conditions. Concrete and fill must not be placed on frozen soil; and once placed, the concrete and soil beneath the structure must be protected from freezing.

4.10 Design Review and Construction Testing

S.W.COLE should be retained to review the construction documents prior to bidding to determine that our earthwork and foundation recommendations have been properly interpreted and implemented.

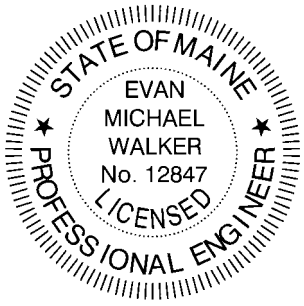
A construction materials testing and quality assurance program should be implemented during construction to observe compliance with the design concepts, plans, and specifications. S.W.COLE is available to observe earthwork activities, the preparation of foundation bearing surfaces and pavement subgrades, as well as to provide testing and IBC Special Inspection services for soils, concrete, steel, spray-applied fireproofing, structural masonry, and asphalt construction materials.

5.0 CLOSURE

It has been a pleasure to be of assistance to you with this phase of your project. We look forward to working with you during the construction phase of the project.

Sincerely,

S. W. Cole Engineering, Inc.



Evan M. Walker, P.E.
Senior Geotechnical Engineer

EMW:tjb

APPENDIX A

Limitations

This report has been prepared for the exclusive use of Great Falls Construction and Westbrook Development Corporation for specific application to the proposed Andrew School Housing Development at 55 High Street in Windham, Maine. S. W. Cole Engineering, Inc. (S.W.COLE) has endeavored to conduct our services in accordance with generally accepted soil and foundation engineering practices. No warranty, expressed or implied, is made.

The soil profiles described in the report are intended to convey general trends in subsurface conditions. The boundaries between strata are approximate and are based upon interpretation of exploration data and samples.

The analyses performed during this investigation and recommendations presented in this report are based in part upon the data obtained from subsurface explorations made at the site. Variations in subsurface conditions may occur between explorations and may not become evident until construction. If variations in subsurface conditions become evident after submission of this report, it will be necessary to evaluate their nature and to review the recommendations of this report.

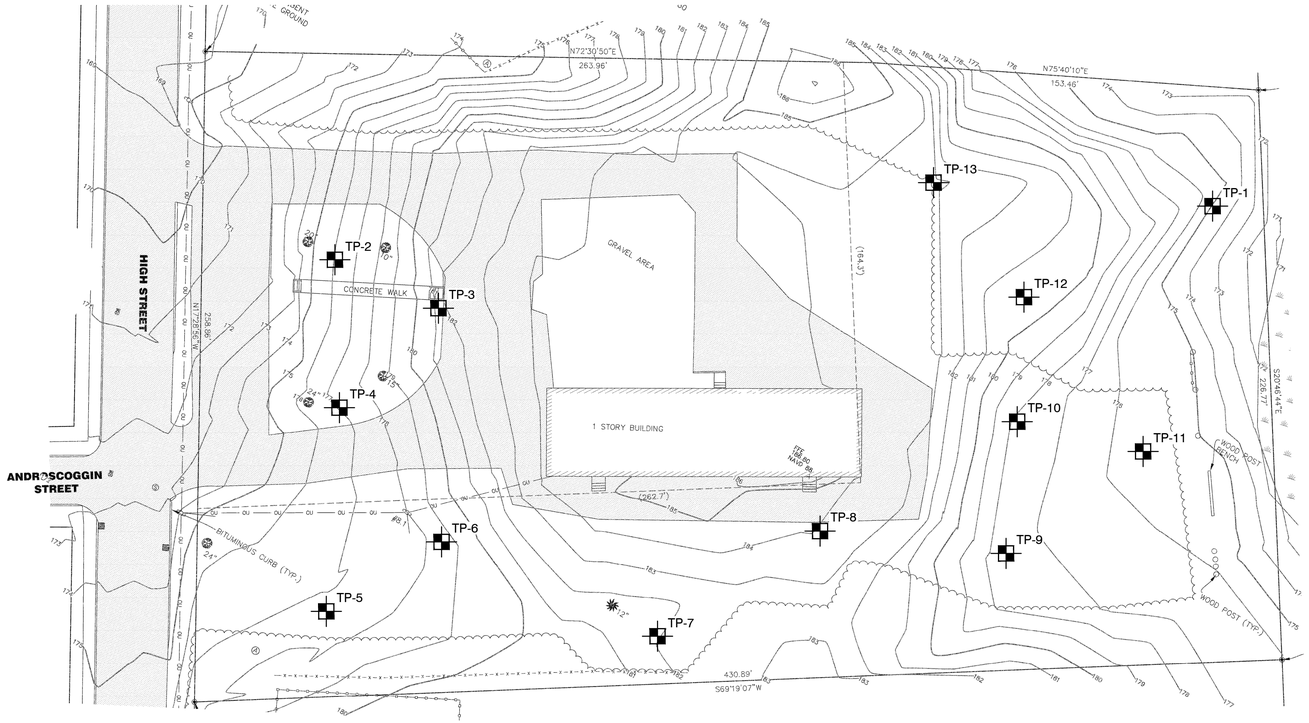
Observations have been made during exploration work to assess site groundwater levels. Fluctuations in water levels will occur due to variations in rainfall, temperature, and other factors.

S.W.COLE's scope of services has not included the investigation, detection, or prevention of any Biological Pollutants at the project site or in any existing or proposed structure at the site. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria, and viruses, and the byproducts of any such biological organisms.

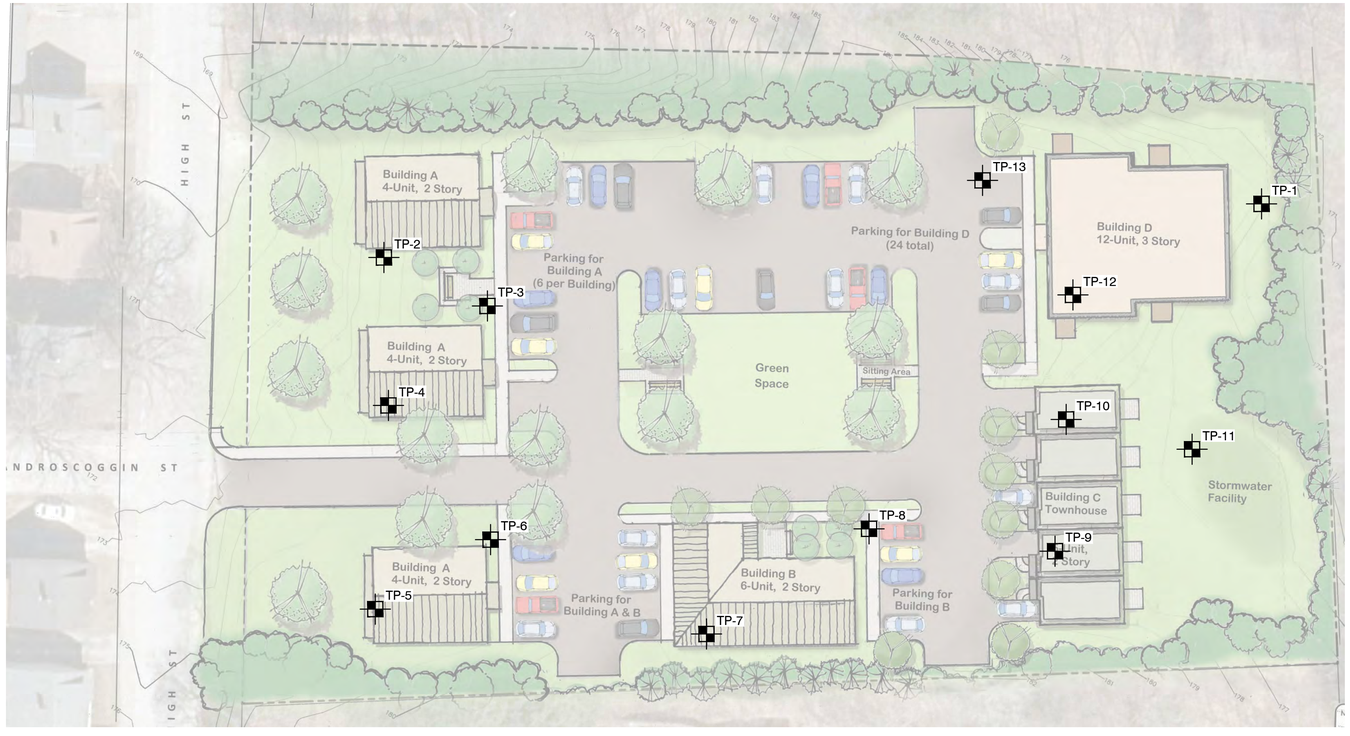
Recommendations contained in this report are based substantially upon information provided by others regarding the proposed project. In the event that any changes are made in the design, nature, or location of the proposed project, S.W.COLE should review such changes as they relate to analyses associated with this report. Recommendations contained in this report shall not be considered valid unless the changes are reviewed by S.W.COLE.

APPENDIX B

Figures



EXISTING CONDITIONS / EXPLORATION LOCATION PLAN



CONCEPT / EXPLORATION LOCATION PLAN

LEGEND:

APPROXIMATE TEST PIT LOCATION

NOTES:

1. EXPLORATION LOCATION PLAN WAS PREPARED FROM A 1"=20' SCALE PLAN OF THE SITE TITLED "STANDARD BOUNDARY SURVEY," PREPARED BY MAIN-LAND DEVELOPMENT CONSULTANTS, INC., DATED 5/1/2023 AND A 1"=20' SCALE CONCEPT PLAN OF THE SITE TITLED "DRAFT PRELIMINARY SITE PLAN," PREPARED BY SEBAGO TECHNICS.
2. THE TEST PITS WERE LOCATED IN THE FIELD BY SEBAGO TECHNICS USING GPS AND PROVIDED ON A GEOREFERENCED CAD FILE, RECEIVED 9/9/2024.
3. THIS PLAN SHOULD BE USED IN CONJUNCTION WITH THE ASSOCIATED S. W. COLE ENGINEERING, INC. GEOTECHNICAL REPORT.
4. THE PURPOSE OF THIS PLAN IS ONLY TO DEPICT THE LOCATION OF THE EXPLORATIONS IN RELATION TO THE EXISTING CONDITIONS AND PROPOSED CONSTRUCTION AND IS NOT TO BE USED FOR CONSTRUCTION.

0 30 60 Feet

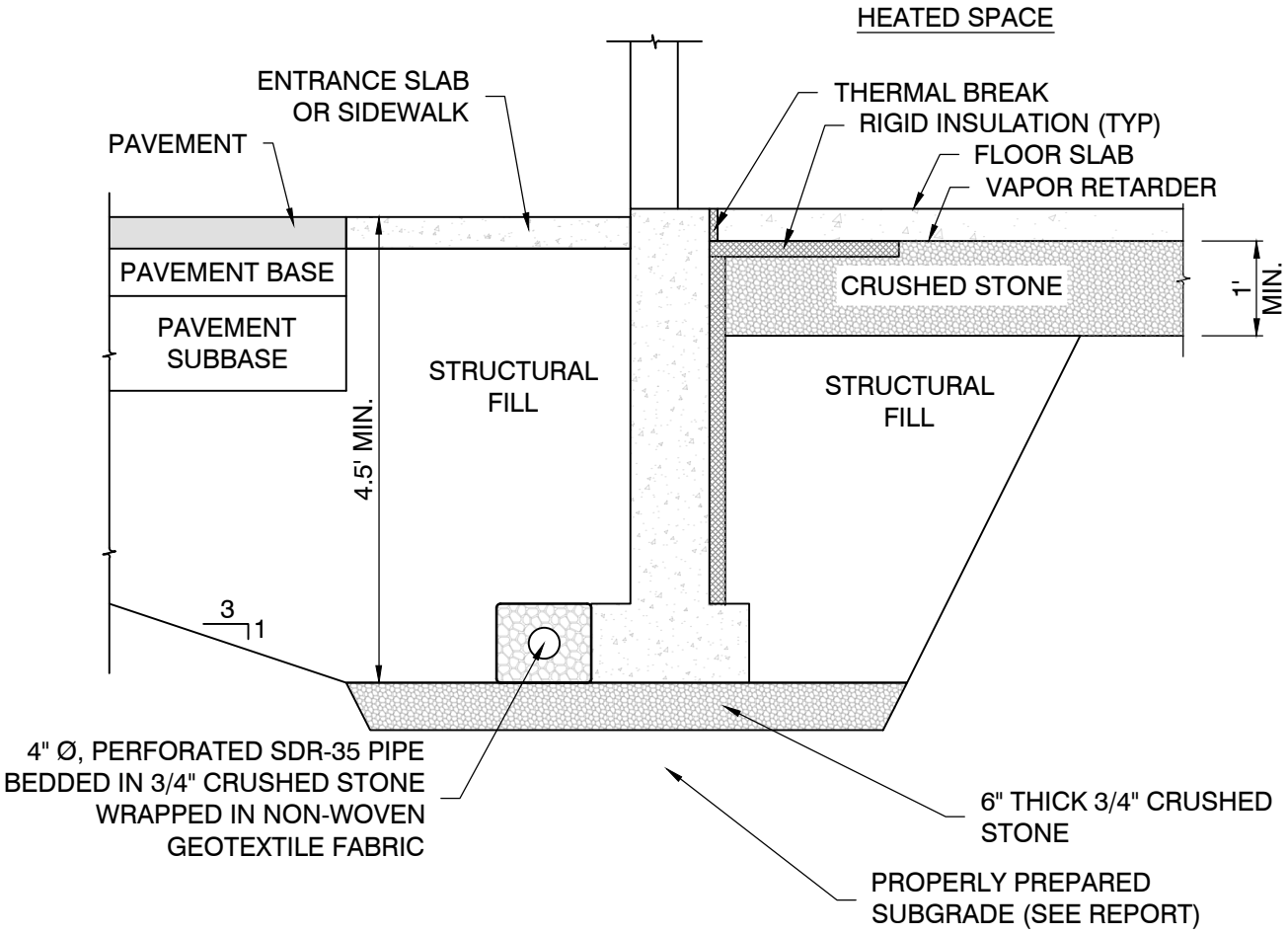
S.W.COLE ENGINEERING, INC.

GREAT FALLS CONSTRUCTION, INC. & WESTBROOK DEVELOPMENT CORPORATION

EXPLORATION LOCATION PLAN

PROPOSED ANDREW SCHOOL HOUSING DEVELOPMENT
55 HIGH STREET, WINDHAM, MAINE

Job No.:	24-1695	Scale:	1" = 20'
Date :	09/12/2024	Sheet:	1



NOTE:

1. UNDERDRAIN INSTALLATION AND MATERIAL GRADATION RECOMMENDATIONS ARE CONTAINED WITHIN THIS REPORT.
2. DETAIL IS PROVIDED FOR ILLUSTRATIVE PURPOSES ONLY, NOT FOR CONSTRUCTION.

S.W.COLE ENGINEERING, INC.

GREAT FALLS CONSTRUCTION, INC. & WESTBROOK DEVELOPMENT CORPORATION

FOUNDATION DETAIL SKETCH

PROPOSED ANDREW SCHOOL HOUSING DEVELOPMENT
55 HIGH STREET, WINDHAM, MAINE

Job No.:	24-1695	Scale:	Not to Scale
Date :	10/01/2024	Sheet:	2

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APPENDIX C

Exploration Logs and Key

TEST PIT LOGS

CLIENT: Great Falls Construction, Inc. & Westbrook Development Corporation
PROJECT: Proposed Andrew School Housing Development
LOCATION: 55 High Street, Windham, ME

PROJECT NO.: 24-1695
LOGGED BY: Evan Walker
CONTRACTOR: Great Falls Construction, Inc.
EQUIPMENT: Takeuchi TB290

TEST PIT TP- 1

DATE: 9/9/2024 **LOCATION:** See Exploration Location Plan **SURFACE ELEVATION (FT):** 175' +/- **COMPLETION DEPTH (FT):** 7.5
WATER LEVEL DEPTHS (FT): No Free Water Observed **REMARKS:**

Depth (feet)	Graphic Log	Stratum Description	H_20 Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		0.2 Forest Duff / Topsoil (FILL)					
		Brown, layered, silty SAND, and clayey SILT					
		4.0 Very stiff, brown, silty CLAY					
5						5-5.5	q_P=6 ksf
		7.1 Gray-brown, gravelly SILT AND SAND, with cobbles (Till)					

Bottom of Exploration at 7.5 feet

TEST PIT TP- 2

DATE: 9/9/2024 **LOCATION:** See Exploration Location Plan **SURFACE ELEVATION (FT):** 176' +/- **COMPLETION DEPTH (FT):** 6.5
WATER LEVEL DEPTHS (FT): No Free Water Observed **REMARKS:**

Depth (feet)	Graphic Log	Stratum Description	H_20 Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		0.3 Vegetation / Topsoil (FILL)					
		Brown and dark brown, silty SAND, some gravel (FILL)					
		1.5 Black, coal ash and slag (FILL)					
		2.5 Brown, SILT AND SAND					
5							

Bottom of Exploration at 6.5 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

KEY TO NOTES AND SYMBOLS:

Water Level
▽ At time of Digging
▼ At Completion of Digging
▼ After Digging

q_p = Pocket Penetrometer Strength, kips/sq.ft.

TEST PIT LOGS

CLIENT: Great Falls Construction, Inc. & Westbrook Development Corporation
PROJECT: Proposed Andrew School Housing Development
LOCATION: 55 High Street, Windham, ME

PROJECT NO.: 24-1695
LOGGED BY: Evan Walker
CONTRACTOR: Great Falls Construction, Inc.
EQUIPMENT: Takeuchi TB290

TEST PIT TP- 3

DATE: 9/9/2024 **LOCATION:** See Exploration Location Plan **SURFACE ELEVATION (FT):** 181' +/- **COMPLETION DEPTH (FT):** 6.7
WATER LEVEL DEPTHS (FT): No Free Water Observed **REMARKS:**

Depth (feet)	Graphic Log	Stratum Description	H_20 Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Vegetation / Topsoil (FILL)					
		0.5 Dark brown, silty SAND, some gravel, with concrete blocks, roots, and organics (FILL)					
		2.5 Orange-brown to gray-brown, layered, silty SAND and silty CLAY					
5							

Bottom of Exploration at 6.7 feet

TEST PIT TP- 4

DATE: 9/9/2024 **LOCATION:** See Exploration Location Plan **SURFACE ELEVATION (FT):** 177' +/- **COMPLETION DEPTH (FT):** 4.0
WATER LEVEL DEPTHS (FT): No Free Water Observed **REMARKS:**

Depth (feet)	Graphic Log	Stratum Description	H_20 Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Vegetation / Topsoil (FILL)					
		0.3 Dark brown, silty SAND, with roots and organics (FILL)					
		1.0 Gray-brown, SILT AND SAND					

Refusal at 4.0 feet
Probable Bedrock

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

KEY TO NOTES AND SYMBOLS:

Water Level
▽ At time of Digging
▼ At Completion of Digging
▼ After Digging

q_p = Pocket Penetrometer Strength, kips/sq.ft.

TEST PIT LOGS

CLIENT: Great Falls Construction, Inc. & Westbrook Development Corporation
PROJECT: Proposed Andrew School Housing Development
LOCATION: 55 High Street, Windham, ME

PROJECT NO.: 24-1695
LOGGED BY: Evan Walker
CONTRACTOR: Great Falls Construction, Inc.
EQUIPMENT: Takeuchi TB290

TEST PIT TP- 5

DATE: 9/9/2024 **LOCATION:** See Exploration Location Plan **SURFACE ELEVATION (FT):** 177' +/- **COMPLETION DEPTH (FT):** 3.5
WATER LEVEL DEPTHS (FT): No Free Water Observed **REMARKS:**

Depth (feet)	Graphic Log	Stratum Description	H_20 Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		0.3 Vegetation / Topsoil (FILL)					
		Brown, silty SAND, some gravel, with roots and organics					
		1.2 Weathered Bedrock					

Refusal at 3.5 feet
Probable Bedrock

TEST PIT TP- 6

DATE: 9/9/2024 **LOCATION:** See Exploration Location Plan **SURFACE ELEVATION (FT):** 179' +/- **COMPLETION DEPTH (FT):** 3.3
WATER LEVEL DEPTHS (FT): No Free Water Observed **REMARKS:**

Depth (feet)	Graphic Log	Stratum Description	H_20 Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Vegetation / Topsoil (FILL)					
		1.2 Brown, silty SAND, some gravel (Till)					
		3.0 Weathered Bedrock					

Refusal at 3.3 feet
Probable Bedrock

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

KEY TO NOTES AND SYMBOLS:

Water Level
▽ At time of Digging
▼ At Completion of Digging
▼ After Digging

q_p = Pocket Penetrometer Strength, kips/sq.ft.

TEST PIT LOGS

CLIENT: Great Falls Construction, Inc. & Westbrook Development Corporation
PROJECT: Proposed Andrew School Housing Development
LOCATION: 55 High Street, Windham, ME

PROJECT NO.: 24-1695
LOGGED BY: Evan Walker
CONTRACTOR: Great Falls Construction, Inc.
EQUIPMENT: Takeuchi TB290

TEST PIT TP- 7

DATE: 9/9/2024 **LOCATION:** See Exploration Location Plan **SURFACE ELEVATION (FT):** 182' +/- **COMPLETION DEPTH (FT):** 6.2
WATER LEVEL DEPTHS (FT): No Free Water Observed **REMARKS:**

Depth (feet)	Graphic Log	Stratum Description	H_20 Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Vegetation / Topsoil (FILL)					
		0.5 Brown, silty SAND, trace gravel, with roots (FILL)					
		1.5 Brown, SILT AND SAND					
		4.0 Hard, brown, silty CLAY					
5						5-5.5	q_P=9 ksf

Refusal at 6.2 feet
Probable Bedrock

TEST PIT TP- 8

DATE: 9/9/2024 **LOCATION:** See Exploration Location Plan **SURFACE ELEVATION (FT):** 184' +/- **COMPLETION DEPTH (FT):** 9.0
WATER LEVEL DEPTHS (FT): No Free Water Observed **REMARKS:**

Depth (feet)	Graphic Log	Stratum Description	H_20 Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Vegetation / Topsoil (FILL)					
		0.5 Brown, silty SAND, some gravel, with roots (FILL)					
		1.5 Brown, gravelly silty SAND, with cobbles, boulders, and bedrock fragments (Till)					
5							

Bottom of Exploration at 9.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

KEY TO NOTES AND SYMBOLS:
Water Level
▽ At time of Digging
▼ At Completion of Digging
▼ After Digging

q_p = Pocket Penetrometer Strength, kips/sq.ft.

TEST PIT LOGS

CLIENT: Great Falls Construction, Inc. & Westbrook Development Corporation
PROJECT: Proposed Andrew School Housing Development
LOCATION: 55 High Street, Windham, ME

PROJECT NO.: 24-1695
LOGGED BY: Evan Walker
CONTRACTOR: Great Falls Construction, Inc.
EQUIPMENT: Takeuchi TB290

TEST PIT TP- 9

DATE: 9/9/2024 **LOCATION:** See Exploration Location Plan **SURFACE ELEVATION (FT):** 178' +/- **COMPLETION DEPTH (FT):** 5.2
WATER LEVEL DEPTHS (FT): No Free Water Observed **REMARKS:**

Depth (feet)	Graphic Log	Stratum Description	H_20 Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Vegetation / Topsoil (FILL)					
		0.5 Brown, SILT AND SAND, with roots (FILL)					
		2.3 Brown, silty SAND					
		3.7 Brown, gravelly silty SAND (Till)					
5							
		Refusal at 5.2 feet Probable Bedrock					

TEST PIT TP-10

DATE: 9/9/2024 **LOCATION:** See Exploration Location Plan **SURFACE ELEVATION (FT):** 178' +/- **COMPLETION DEPTH (FT):** 9.0
WATER LEVEL DEPTHS (FT): No Free Water Observed **REMARKS:**

Depth (feet)	Graphic Log	Stratum Description	H_20 Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Vegetation / Topsoil (FILL)					
		0.8 Brown, SAND, some silt (FILL)					
		3.0 Dark gray-brown, clayey SILT, some sand, with roots and organics (RELIC TOPSOIL)					
		3.5 Gray-brown, silty CLAY					
5							
		Refusal at 9.0 feet Probable Bedrock					

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

KEY TO NOTES AND SYMBOLS:

Water Level
▽ At time of Digging
▼ At Completion of Digging
▼ After Digging

q_p = Pocket Penetrometer Strength, kips/sq.ft.

TEST PIT LOGS

CLIENT: Great Falls Construction, Inc. & Westbrook Development Corporation
PROJECT: Proposed Andrew School Housing Development
LOCATION: 55 High Street, Windham, ME

PROJECT NO.: 24-1695
LOGGED BY: Evan Walker
CONTRACTOR: Great Falls Construction, Inc.
EQUIPMENT: Takeuchi TB290

TEST PIT TP-11

DATE: 9/9/2024 **LOCATION:** See Exploration Location Plan **SURFACE ELEVATION (FT):** 176' +/- **COMPLETION DEPTH (FT):** 4.0
WATER LEVEL DEPTHS (FT): No Free Water Observed **REMARKS:**

Depth (feet)	Graphic Log	Stratum Description	H_20 Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Vegetation / Topsoil (FILL)					
		0.5 Brown, silty SAND, some gravel, with roots (FILL)					
		2.0 Dark brown, SILT AND SAND, with root sand organics (RELIC TOPSOIL)					
		2.8 Gray-brown, clayey SILT AND SAND					
		Refusal at 4.0 feet Probable Bedrock				5-6	q_p=8-9 ksf

TEST PIT TP-12

DATE: 9/9/2024 **LOCATION:** See Exploration Location Plan **SURFACE ELEVATION (FT):** 180.5' +/- **COMPLETION DEPTH (FT):** 5.5
WATER LEVEL DEPTHS (FT): No Free Water Observed **REMARKS:**

Depth (feet)	Graphic Log	Stratum Description	H_20 Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		Forest Duff / Topsoil (FILL)					
		0.5 Brown, silty SAND, with roots (FILL)					
		2.0 Brown, silty CLAY					
5		Bottom of Exploration at 5.5 feet					

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

KEY TO NOTES AND SYMBOLS:
Water Level
▽ At time of Digging
▼ At Completion of Digging
▼ After Digging

q_p = Pocket Penetrometer Strength, kips/sq.ft.

TEST PIT LOGS

CLIENT: Great Falls Construction, Inc. & Westbrook Development Corporation
PROJECT: Proposed Andrew School Housing Development
LOCATION: 55 High Street, Windham, ME

PROJECT NO.: 24-1695
LOGGED BY: Evan Walker
CONTRACTOR: Great Falls Construction, Inc.
EQUIPMENT: Takeuchi TB290

TEST PIT TP-13

DATE: 9/9/2024 **LOCATION:** See Exploration Location Plan **SURFACE ELEVATION (FT):** 183' +/- **COMPLETION DEPTH (FT):** 4.5
WATER LEVEL DEPTHS (FT): No Free Water Observed **REMARKS:**

Depth (feet)	Graphic Log	Stratum Description	H_20 Depth	Sample No.	Type	Sample Depth (ft)	Field / Lab Test Data
		0.2 Brown, silty SAND, with organics (FILL)					
		0.4 Asphalt Pavement					
		Brown, SAND, some silt, some gravel, with roots (FILL)					
		2.0 Brown, silty SAND, some gravel					

Refusal at 4.5 feet
Probable Boulder or Bedrock

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

KEY TO NOTES AND SYMBOLS:

Water Level
▽ At time of Digging
▼ At Completion of Digging
▼ After Digging

q_p = Pocket Penetrometer Strength, kips/sq.ft.

TEST PIT 24-1695.GPJ SWCE TEMPLATE.GDT 9/26/24

KEY TO NOTES & SYMBOLS

Test Boring and Test Pit Explorations

Stratification lines represent the approximate boundary between soil types and the transition may be gradual.

Key to Symbols Used:

w	-	water content, percent (dry weight basis)
q_u	-	unconfined compressive strength, kips/sq. ft. - laboratory test
S_v	-	field vane shear strength, kips/sq. ft.
L_v	-	lab vane shear strength, kips/sq. ft.
q_p	-	unconfined compressive strength, kips/sq. ft. – pocket penetrometer test
O	-	organic content, percent (dry weight basis)
W_L	-	liquid limit - Atterberg test
W_P	-	plastic limit - Atterberg test
WOH	-	advance by weight of hammer
WOM	-	advance by weight of man
WOR	-	advance by weight of rods
HYD	-	advance by force of hydraulic piston on drill
RQD	-	Rock Quality Designator - an index of the quality of a rock mass.
γ_T	-	total soil weight
γ_B	-	buoyant soil weight

Description of Proportions:

Trace:	0 to 5%
Some:	5 to 12%
"Y"	12 to 35%
And	35+%
With	Undifferentiated

Description of Stratified Soils

Parting:	0 to 1/16" thickness
Seam:	1/16" to 1/2" thickness
Layer:	½" to 12" thickness
Varved:	Alternating seams or layers
Occasional:	one or less per foot of thickness
Frequent:	more than one per foot of thickness

REFUSAL: **Test Boring Explorations** - Refusal depth indicates that depth at which, in the drill foreman's opinion, sufficient resistance to the advance of the casing, auger, probe rod or sampler was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

REFUSAL: **Test Pit Explorations** - Refusal depth indicates that depth at which sufficient resistance to the advance of the backhoe bucket was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

Although refusal may indicate the encountering of the bedrock surface, it may indicate the striking of large cobbles, boulders, very dense or cemented soil, or other buried natural or man-made objects or it may indicate the encountering of a harder zone after penetrating a considerable depth through a weathered or disintegrated zone of the bedrock.

Section 11

Architecturals & Elevations

Section 12

Lighting Information

Section 12 – Lighting Information

The site lighting has been designed to provide safety and security by illuminating the driveway, parking lot, sidewalks, pedestrian areas, building entrances, and service areas. There are a total of twelve (12) lights mounted on 15 ft. tall poles, sited to avoid conflicts with landscaping, three (3) building mounted lights near service areas, and a total of sixteen (16) canopy lights over porches at building entrances. Please see the attached Photometric Plan and specifications for all proposed lighting fixtures.

Project		Catalog #		Type	
Prepared by		Notes		Date	



HALO Commercial

HC4 | HM4 | 41/41PS

4-inch LED downlight and wall wash

Typical Applications

Office • Healthcare • Hospitality • Institutional • Mixed-Use/Retail

Interactive Menu

- Order Information page 2
- Product Specifications page 4
- Photometric Data page 5
- Energy & Performance Data page 8
- Connected Systems page 10
- Product Warranty

Product Certification

ENERGY STAR · Efficiency Standards T24 Can be used to comply with California Title 24 Non-Residential · wet location · Chicago Plenum Approved · FC · RoHS Compliant · UL Certified

Product Features

QS Quick Spec · Showerlight

Control Compatibility

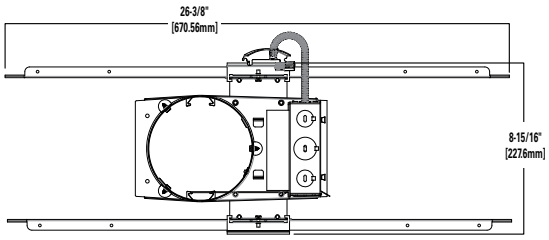
WaveLinx LITE · WaveLinx PRO

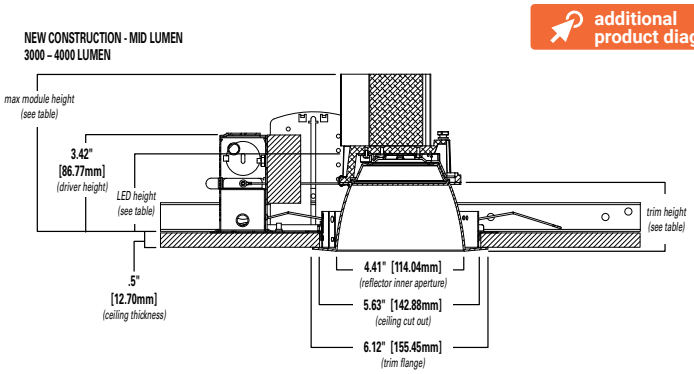
Top Product Features

- New construction/remodel series; 500 to 6,000 lumens
- Narrow, Medium and Wide distributions; Wall wash with rotatable linear spread lens
- 2700K, 3000K, 3500K, 4000K and 5000K CCT; 80 or 90 CRI
- Universal voltage 120V-277V; Standard 0-10V driver dims to 1%
- Mounting frame converts to remodel that installs from below the ceiling
- Quick Spec emergency backup mounting frames - fast delivery option

Dimensional and Mounting Details

additional product diagrams





Mid Lumen (3000 – 4000 Lumens)

Distribution	Max. Module Height	Trim Height	LED Height
Narrow	5.6"	2.5"	2.9"
Medium	5.7"	2.6"	3.0"
Wide	5.5"	2.4"	2.8"
Baffle	5.5"	2.4"	2.8"

Mounting Frame Order Information

Sample Number : HC420D010REM7 - HM40525930 - 41MDC

A complete luminaire consists of a housing frame, LED module, and reflector (ordered separately)

Mounting Frame	Lumens	Driver Options	Factory Installed Emergency & Connected Lighting Options	Accessories (Order & Install Separately)
HC4 = 4" new construction downlight housing **HC4CP** = 4" new construction housing, Chicago Plenum - CCEA compliant	**05** = 500 lm **07** = 750 lm **10** = 1000 lm **15** = 1500 lm **20** = 2000 lm **25** = 2500 lm **30** = 3000 lm **35** = 3500 lm **40** = 4000 lm **45** = 4500 lm (7) **50** = 5000 lm (7) **55** = 5500 lm (7) **60** = 6000 lm (7)	**D010**=UNV 120-277V, 50/60Hz, 0-10V 1%-100% dimming at 120-277V on 0-10V controls **Canada Option 500-5000 lumens:** **D010347** = 347VAC 50/60Hz 0-10V 1%-100% dimming. For 500, 750, 1000, 1500, 2000, 2500, 3000, 3500, 4000, 4500, 5000lm models only (1) **Canada Option 5500-6000 lumens:** **D010X347** = step down transformer factory installed (with standard "D010" 120V-277V LED driver). For 5500, 6000lm models only (1)	**REM7** = 7 watt emergency battery pack with remote test / indicator light, use with D010 only (1) (2) (6) **REM14** = 14 watt emergency battery pack with remote test / indicator light, use with D010 only (1) (2) (6) **IEM7** = 7 watt emergency battery pack with integral test / indicator light, use with D010 only (1) (2) (6) (10) **IEM14** = 14 watt emergency battery pack with integral test / indicator light, use with D010 only (1) (2) (6) (10) **BOD7ST** = 7.5 watt Bodine self-test emergency battery pack with remote test / indicator light, use with D010 only (1) (2) (6) **WTA** = Factory WaveLinx PRO Tilemount Sensor Kit (4) **WTK** = Factory WaveLinx LITE Tilemount Sensor Kit (5) **WPN** = WaveLinx PRO Wireless Node without Sensor (11) **WLN** = WaveLinx LITE Wireless Node without Sensor (12)	**HB128APK** = L channel hanger bar, 26", pair (replacement) **RMB22** = Adjustable wood joist mounting bars, pair, extend to 22" long **H347** = 347 to 120V step down transformer, 75VA **H347200** = 347 to 120V step down transformer, 200VA **WTA** = Field WaveLinx PRO Tilemount Sensor Kit (4) **WTK** = Field WaveLinx LITE Tilemount Sensor Kit (5)
		DLV = Distributed Low Voltage dimming driver 1%-100%, 1000-4000 lumens only. For use with DLVP system only, refer to DLVP specifications for details. (1)	**REMV7** = 7 watt emergency battery pack with remote test / indicator light, use with DLV only (1) (2) (3) (6) **REMV14** = 14 watt emergency battery pack with remote test / indicator light, use with DLV only (1) (2) (3) (6) **IEMV7** = 7 watt emergency battery pack with integral test / indicator light, use with DLV only (1) (2) (3) (6) (10) **IEMV14** = 14 watt emergency battery pack with integral test / indicator light, use with DLV only (1) (2) (3) (6) (12)	
Notes	**Notes**	**Notes**	**Notes**	**Notes**
	(7) Marked Spacing: Center to Center of Adjacent Luminaires = 36" Center of Luminaire to Building Member = 18" Minimum overhead = 0.5	(1) Not available with CP models	(1) Not available with CP models (2) Not available with D010347 (347V models) (3) ULus for U.S. only (4) WTA = WaveLinx PRO tilemount sensor kit for daylight dimming, PIR motion sensing, and optional RLTS - Real Time Location Services, use with D010 only (Refer to WaveLinx specifications) (5) WTK = WaveLinx LITE tilemount sensor kit for daylight dimming, PIR motion sensing, use with D010 only (Refer to WaveLinx LITE specifications) (6) Emergency battery backup options are Non-IC only, and rated for a minimum starting temperature of 0°C (10) IEM option requires compatible IEM reflector or baffle trim. See Trim Ordering below. (11) WPN = WaveLinx PRO wireless node provides luminaire-level control with scene and zone configuration without an integrated sensor; Connects wirelessly with daylight dimming sensor and PIR motion sensor if desired. Use with 0-10V driver only. Not compatible with 347V or Chicago plenum. (Refer to WaveLinx PRO specifications.) (12) WLN = WaveLinx LITE wireless node provides luminaire-level control with scene and zone configuration without an integrated sensor; Connects wirelessly with daylight dimming sensor and PIR motion sensor if desired. Use with 0-10V driver only. Not compatible with 347V or Chicago plenum. (Refer to WaveLinx LITE specifications.)	(4) WTA = WaveLinx PRO tilemount sensor kit for daylight dimming, PIR motion sensing, and optional RLTS - Real Time Location Services, use with D010 only. (Refer to WaveLinx PRO specifications.) (5) WTK = WaveLinx LITE tilemount sensor kit for daylight dimming, PIR motion sensing, use with D010 only. (Refer to WaveLinx LITE specifications.)

Quick Spec Emergency Mounting Frame Order Information

Sample Number :

Quick Spec Emergency Mounting Frame: RR-HC420D010REM7

LED module and reflectors are ordered separately.

Order separately: LED Module: HM40525835 | Reflector: 41MDC

Select from the Quick Spec Mounting Frame ordering information to receive the *Fast Delivery* option for the frame.

Quick Spec Code	Mounting Frame	Lumens	Driver Options	Factory Installed Emergency Options	Accessories (Order & Install Separately)
RR = East Region **BRR** = West Region	**HC4** = 4" new construction downlight housing	**10** = 1000 lm **15** = 1500 lm **20** = 2000 lm **30** = 3000 lm **40** = 4000 lm	**D010**=UNV 120-277V, 50/60Hz, 0-10V 1%-100% dimming at 120-277V on 0-10V controls	**REM7** = 7 watt emergency battery pack with remote test / indicator light, use with D010 only (2) (6) **REM14** = 14 watt emergency battery pack with remote test / indicator light, use with D010 only (2) (6) **IEM7** = 7 watt emergency battery pack with integral test / indicator light, use with D010 only (2) (6) (10) **IEM14** = 14 watt emergency battery pack with integral test / indicator light, use with D010 only (2) (6) (10)	**HB128APK** = L channel hanger bar, 26", pair (replacement) **RMB22** = Adjustable wood joist mounting bars, pair, extend to 22" long
	Notes	**Notes**	**Notes**	**Notes**	**Notes**
				(2) Not available with D010347 (347V models) (6) Emergency battery backup options are Non-IC only, and rated for a minimum starting temperature of 0°C (10) IEM option requires compatible IEM reflector or baffle trim. See Trim Ordering below.	

LED Module Order Information

LED Module	Lumens	CRI/CCT	
HM4 = 4" LED module	**0525** = 500 - 2500 lumen **3040** = 3000-4000 lumen **4560** = 4500-6000 lumen	**827** = 80CRI, 2700K **830** = 80CRI, 3000K **835** = 80CRI, 3500K **840** = 80CRI, 4000K **850** = 80CRI, 5000K	**927** = 90CRI, 2700K **930** = 90CRI, 3000K **935** = 90CRI, 3500K **940** = 90CRI, 4000K **950** = 90CRI, 5000K
Notes	**Notes**	**Notes**	

Trim Order Information

Reflector	Distribution[8]	Finish	Flange	Accessories
41 = 4" conical reflector	**ND** = narrow 50° beam angle 0.84 SC (nominal) **MD** = medium 60° beam angle 1.00 SC (nominal) **WD** = wide 75° beam angle 1.24 SC (nominal) **RWW** = rotatable wall wash with linear spread lens	**C** = Specular clear **H** = Semi-specular clear **W** = White	**Blank** = Polished flange standard with C & H reflectors **Blank** = White flange standard with W reflector **WF** = White flange option available with C & H reflectors	**41RWWPK** = Replacement part kit - wall wash lens insert - for use with 41RWW* only.
Notes	**Notes**	**Notes**	**Notes**	**Notes**
	(8) Values are nominal for white reflector, others may vary.			

Baffle	Distribution[8]	Finish	Flange	Accessories
41 = 4" baffle reflector	**WD** = wide 75° beam angle 1.24 SC (nominal) **RWW** = rotatable wall wash with linear spread lens	**BB** = Black baffle **WB** = White baffle	**Blank** = White flange standard with BB, & WB **BF** = Black flange option available with BB	**41RWWPK** = Replacement part kit - wall wash lens insert - for use with 41RWW* only.
Notes	**Notes**	**Notes**	**Notes**	**Notes**
	(8) Values are nominal for white reflector, others may vary.			

Reflector	Distribution[8]	Finish	Flange
41PS = 4" non-conductive polymer 'dead front' conical reflector [9]	**MD** = medium 60° beam angle 1.00 SC (nominal)	**W** = White	**Blank** = White flange standard with W reflector
Notes	**Notes**	**Notes**	**Notes**
(9) 41PS* is 1000-3000 lumens Non-IC rated. 500 & 750 lumens IC rated. 41PS is not for use over 3000 lumens in Non-IC or over 750 lumens in IC.	(8) Values are nominal for white reflector, others may vary.		

IEM Reflector	Distribution[8]	Finish	Flange	Integral Emergency
41 = 4" conical reflector for integral emergency only	**ND** = narrow 50° beam angle 0.84 SC (nominal) **MD** = medium 60° beam angle 1.00 SC (nominal) **WD** = wide 75° beam angle 1.24 SC (nominal)	**C** = Specular clear **H** = Semi-specular clear **W** = White	**Blank** = Polished flange standard with C & H reflectors **Blank** = White flange standard with W reflector **WF** = White flange option available with C & H reflectors	**IEM** = Reflector for use with integral emergency housings only. Provides access hole for integral emergency test switch.
Notes	**Notes**	**Notes**	**Notes**	**Notes**
	(8) Values are nominal for white reflector, others may vary.			

IEM Baffle	Distribution[8]	Finish	Flange	Integral Emergency
41 = 4" baffle reflector for integral emergency only	**WD** = wide 75° beam angle 1.24 SC (nominal)	**BB** = Black baffle **WB** = White baffle	**Blank** = White flange standard with BB, & WB **BF** = Black flange option with BB	**IEM** = Reflector for use with integral emergency housings only. Provides access hole for integral emergency test switch.
Notes	**Notes**	**Notes**	**Notes**	**Notes**
	(8) Values are nominal for white reflector, others may vary.			

Product Specifications

Housing Frame
- Boat shaped galvanized steel plaster frame with adjustable plaster lip
- Accommodates 1/2" to 1-1/2" thick ceilings
- Installs in new construction or from below the finished ceiling (non-accessible) for remodeling
- Provided with two remodel clips to secure the frame to the ceiling

Universal Mounting Bracket
- Adjusts 2" vertically from above and below the ceiling
- Use with the included mounting bars or with 1/2" Electric Metallic Tube (EMT)
- Removable to facilitate remodeling installation from below the finished ceiling

Mounting Bars
- Captive pre-installed No Fuss™ mounting bars lock to T-grid with screwdriver or pliers
- Centering detents allow for consistent positioning of fixtures

LED Module
- Proximity phosphors over chip on board LEDs provide a uniform source with high efficiency and no pixilation
- Available in 80 or 90 color rendering index (CRI)
- Color accuracy within 3 SDCM provides color consistency and uniformity
- 90 CRI option: R9>50 (refer to chromaticity information for details)
- Available in 2700K, 3000K, 3500K, 4000K and 5000K correlated color temperature (CCT)
- Lumen options include 500, 750, 1000, 1500, 2000, 2500, 3000, 3500, 4000, 4500, 5000, 5500, 6000 lumens (nominal)
- Passive thermal management achieves 60,000 hours at 70% lumen maintenance (L70) in insulated ceilings (IC) and non-IC applications
- Integral diffuse lens provides visual shielding
- Integral connector allows quick connection to housing flex

Reflector
- Self-flanged aluminum reflectors available in narrow, medium or wide distribution patterns
- Medium distribution polymer non-conductive matte white reflector may be used to meet local codes for 'dead front' applications (500 & 750 lumen max. in IC and 3000 lumen max. in Non-IC)
- Wall wash reflector features a rotatable linear spread lens for alignment of vertical illumination
- Reflectors attach to LED module with three speed clamps
- Available in multiple painted or plated finishes

Reflector/Module Retention
- Reflector/module assembly is securely retained in the housing with two torsion springs

Driver
- Field-replaceable constant current driver provides low noise operation
- Universal 120-277VAC 50/60Hz input standard
- Continuous, 1% to 100% dimming with 0-10V analog control
- Optional low-voltage DC driver for use with Distributed Low Voltage Power (DLVP) system
- Distributed Low Voltage Power (DLVP) system combines power, lighting and controls with ease of installation (refer to DLVP Design Guide at www.cooperlighting.com for details)

Canada Options
- 347VAC 50/60Hz; 1% dimming on 0 -10V analog control, for 500, 750, 1000, 1500, 2000, 2500, 3000, 3500, 4000, 4500, 5000 lumen models only
- 347V step down transformer factory installed with the standard "D010" 120V-277V, LED driver on 5500, 6000 lumen models only

Emergency Option
- Provides 90 minutes of standby lighting, meeting most life safety codes for egress lighting
- Available with integral or remote charge indicator and test switch
- Available Self-Test (self-diagnostic) with remote charge indicator and test switch
- Quick Spec emergency ordering option for quick-turn projects

Connected Lighting System
Two WaveLinx connected solutions to choose from. Refer to WaveLinx system specifications and application guides for details.

WaveLinx PRO Tilemount Sensor Kit
- WaveLinx PRO WTA tilemount sensor kit offers daylight dimming, PIR motion sensing, scene and zone configuration, automatic commissioning; and optional RLTS - Real Time Location Services available.

WaveLinx PRO Wireless Node
- WaveLinx PRO WPN wireless node provides luminaire-level control with scene and zone configuration without an integrated sensor; Connects wirelessly with daylight dimming sensor and PIR motion sensor if desired. Use with 0-10V driver only. **Note:** Not compatible with 347V or Chicago plenum.

WaveLinx LITE Tilemount Sensor Kit
- WaveLinx LITE WTK tilemount sensor kit offers daylight dimming and PIR motion sensing, scene and grouping configuration.

WaveLinx LITE Wireless Node
- WaveLinx LITE WLN wireless node provides luminaire level control with scene and zone configuration without an integrated sensor; Connects wirelessly with daylight dimming sensor and PIR motion sensor if desired. Use with 0-10V driver only. **Note:** Not compatible with 347V or Chicago plenum.

WaveLinx Tilemount Sensor Kits Application
- The WTA and WTK tilemount sensor kits include a control module mounted on the luminaire junction box via 1/2" knock-out, and a tilemount sensor on 54-inch whip; for ceiling installation by direct-mount spring clips or via mounting bracket in octagon ceiling boxes.
- The WTA and WTK tilemount sensor kits may be ordered as factory installed on the luminaire, or ordered separately as a field installed accessory kit.
- **Note: WaveLinx PRO devices are only compatible with the WaveLinx PRO system.**
- **Note: WaveLinx LITE devices are only compatible with the WaveLinx LITE system.**

Junction Box
- Galvanized steel junction box
- 20 in^3 internal volume excluding voltage barrier
- 25 in^3 internal total volume
- Voltage barrier for 0-10V dimming wires (occupies one 1/2" pry-out space)
- Listed for eight #12 AWG (four in, four out) 90˚C conductors and feed-thru branch wiring
- Three 1/2" and two 3/4" trade size pry-outs available
- Three 4-port push wire nuts for mains voltage with 1-port for fixture connection

Compliance
- cULus Certified to UL 1598 / C22.2 No. 250.0, suitable for damp locations and wet locations in covered ceilings only
- Emergency options provided with UL Listed emergency drivers to UL 924 / C22.2 No. 141, suitable for indoor/damp locations
- IP20 - Above finished ceiling; IP64 - Below finished ceiling
- Non-Insulated ceiling (Non-IC) rated for 2000, 2500, 3000, 3500, 4000, 4500, 5000, 5500, 6000 lumen models (insulation must be kept 3" from top and sides)
- Insulated ceiling (IC) rated for 500, 750, 1000, 1500 lumen models and suitable for direct contact with air permeable insulation* (IC models are also suitable for Non-IC installations)
- Non-IC marked spacing required for 4500, 5000, 5500, 6000 lumen models
  - Marked Spacing Center to Center of Adjacent Luminaires = 36"
  - Center of Luminaire to Building Member = 18"
  - Minimum overhead = 0.5"
- Airtight per ASTM-E283-04
- Suitable for use in clothes closets when installed in accordance with the NEC 410.16 spacing requirements
- EMI/RFI emissions FCC CFR Title 47 Part 15 Class A at 120/277V
- Contains no mercury or lead and RoHS compliant
- Photometric testing completed in accordance of IES LM-79-08
- Lumen maintenance projection in accordance of IES LM-80-08 and TM-21-11
- 1,000 and 1,500 lumen, 90 CRI, ICAT models may be used to comply with State of California Title 24 residential code, per JA8 certification standards
- May be used to comply with State of California Title 24 non-residential code as a dimmable LED luminaire
- ENERGY STAR® certified, reference certified light fixtures database

*Not for use in direct contact with spray foam insulation, consult NEMA LSD57-2013

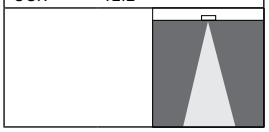
Warranty
- Five year limited warranty, consult website for details. www.cooperlighting.com/legal

Photometric Data

View IES files

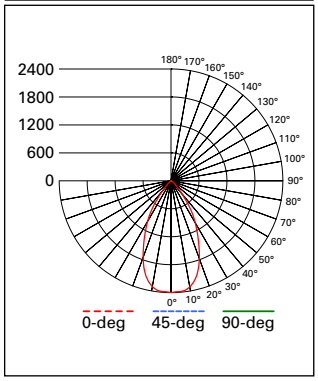
NARROW DISTRIBUTION - SPECULAR CLEAR FINISH, 2000 LUMEN MODEL, 80 CRI, 3500K

NARROW (50° BEAM*)	
Test Number	P571728
Housing	HC420D010
Module	HM40525835
Reflector	41NDC
Lumens	2010 Lm
Efficacy	100.5 Lm/W
SC	0.84
UGR	12.2

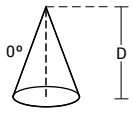


CANDLEPOWER DISTRIBUTION

Downlight



CONE OF LIGHT



MH	FC	L	W
5.5'	79.3	4.6	4.6
7'	49	5.8	5.8
8'	37.5	6.6	6.6
9'	29.6	7.4	7.4
10'	24	8.4	8.4
12'	16.7	10	10

CANDELA TABLE

Degrees Vertical	Candela
0	2400
5	2387
15	2110
25	1368
35	676
45	152
55	23
65	5
75	1
85	0
90	0

ZONAL LUMEN SUMMARY

Zone	Lumens	% Fixture
0-30	1436	71.5
0-40	1848	92
0-60	2002	99.6
0-90	2010	100
90-180	0	0
0-180	2010	100

LUMINANCE

Average Candela Degrees	Average 0° Luminance
45	26514
55	4968
65	1576
75	667
85	0

*Value are nominal for specular clear reflectors, other may vary.
SC = Spacing Criteria
UGR = Unified Glare Rating

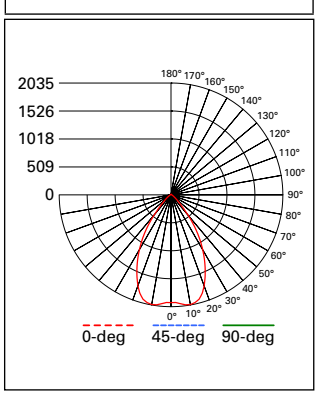
MEDIUM DISTRIBUTION - SPECULAR CLEAR FINISH, 2000 LUMEN MODEL, 80 CRI, 3500K

MEDIUM (60° BEAM*)	
Test Number	P571727
Housing	HC420D010
Module	HM40525835
Reflector	41MDC
Lumens	2096 Lm
Efficacy	104.8 Lm/W
SC	1.0
UGR	13.6

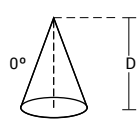


CANDLEPOWER DISTRIBUTION

Downlight



CONE OF LIGHT



MH	FC	L	W
5.5'	65.3	5.4	5.4
7'	40.3	6.8	6.8
8'	30.9	7.8	7.8
9'	24.4	8.8	8.8
10'	19.8	9.8	9.8
12'	13.7	11.8	11.8

CANDELA TABLE

Degrees Vertical	Candela
0	1969
5	1997
15	1974
25	1467
35	800
45	192
55	26
65	4
75	1
85	0
90	0

ZONAL LUMEN SUMMARY

Zone	Lumens	% Fixture
0-30	1408	67.1
0-40	1899	90.6
0-60	2091	99.7
0-90	2096	100
90-180	0	0
0-180	2096	100

LUMINANCE

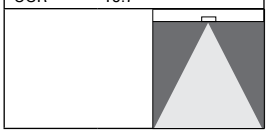
Average Candela Degrees	Average 0° Luminance
45	33405
55	5548
65	1197
75	667
85	0

*Value are nominal for specular clear reflectors, other may vary.
SC = Spacing Criteria
UGR = Unified Glare Rating

Note: Refer to IES files for more product data.

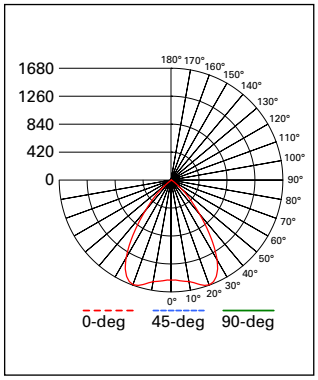
WIDE DISTRIBUTION - SPECULAR CLEAR FINISH, 2000 LUMEN MODEL, 80 CRI, 3500K

WIDE (75° BEAM*)	
Test Number	P571730
Housing	HC420D010
Module	HM40525835
Reflector	41WDC
Lumens	2304 Lm
Efficacy	115.2 Lm/W
SC	1.25
UGR	15.7

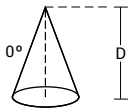


CANDLEPOWER DISTRIBUTION

Downlight



CONE OF LIGHT



MH	FC	L	W
5.5'	49.9	6.8	6.8
7'	30.8	8.6	8.6
8'	23.6	9.8	9.8
9'	18.6	11.2	11.2
10'	15.1	12.4	12.4
12'	10.5	14.8	14.8

CANDELA TABLE

Degrees Vertical	Candela
0	1509
5	1525
15	1630
25	1603
35	1012
45	369
55	44
65	5
75	1
85	0
90	0

ZONAL LUMEN SUMMARY

Zone	Lumens	% Fixture
0-30	1334	57.9
0-40	1960	85.1
0-60	2296	99.7
0-90	2304	100
90-180	0	0
0-180	2304	100

LUMINANCE

Average Candela Degrees	Average 0° Luminance
45	64437
55	9355
65	1576
75	667
85	0

*Value are nominal for specular clear reflectors, other may vary.
SC = Spacing Criteria
UGR = Unified Glare Rating

Photometric Multipliers (Nominal Lumen Values)

500 Lumen	750 Lumen	1000 Lumen	1500 Lumen	2000 Lumen	2500 Lumen	3000 Lumen	3500 Lumen
0.33	0.44	0.54	0.74	1.00	1.24	1.54	1.85

4000 Lumen	4500 Lumen	5000 Lumen	5500 Lumen	6000 Lumen
2.15	2.28	2.44	2.52	2.62

Multipliers for relative lumen values with other series models.

Color Finish Multipliers

Finish code	C	H	W/WB	BB
Finish	Specular Clear	Semi-Specular	Matte White White Baffle	Black Baffle
Multiplier	1.00	0.94	0.88	0.76

Multipliers for relative lumen values with other color finishes.

CCT Multipliers – 80CRI

2700K	3000K	3500K	4000K	5000K
0.89	0.96	1.00	1.03	1.03

Multipliers for relative lumen values with other series color temperatures.

CCT Multipliers – 90CRI

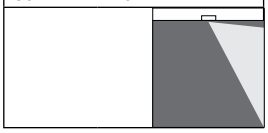
2700K	3000K	3500K	4000K	5000K
0.76	0.85	0.89	0.93	0.93

Multipliers for relative lumen values with other series color temperatures.

Note: Refer to IES files for more product data.

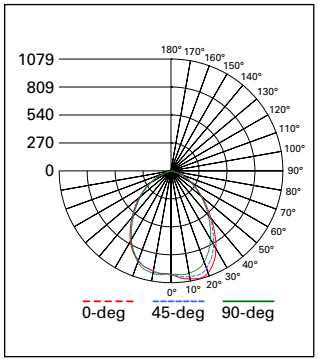
WALL WASH DISTRIBUTION - SPECULAR CLEAR FINISH, 2000 LUMEN MODEL, 80 CRI, 3500K

WALL WASH	
Test Number	P571729
Housing	HC420D010
Module	HM40525835
Reflector	41RWWC
Lumens	2094 Lm
Efficacy	104.7 Lm/W
SC	1.15



CANDLEPOWER DISTRIBUTION

Downlight



CANDELA TABLE	
Degrees Vertical	Candela
0	1005
5	1041
15	1079
25	980
35	743
45	494
55	312
65	180
75	80
85	10
90	0

ZONAL LUMEN SUMMARY		
Zone	Lumens	% Fixture
0-30	789	37.7
0-40	1221	58.3
0-60	1872	89.4
0-90	2094	100
90-180	0	0
0-180	2094	100

LUMINANCE	
Average Candela Degrees	Average 0° Luminance
45	86207
55	67159
65	52681
75	38173
85	13445

SC = Spacing Criteria, nominal for specular clear reflector, other may vary.

SINGLE UNIT FOOTCANDLES

	2.5' from wall (distance from fixture along wall)						
1	18.7	13.6	6.1	2.3	0.8	0.3	0.1
2	28.4	22.3	12.2	5.7	2.6	1.2	0.6
3	25.9	21.4	13.3	7.2	3.8	2	1.1
4	19.6	16.9	11.6	7	4.1	2.4	1.4
5	13.6	12.3	9.2	6.2	3.9	2.5	1.5
6	9.3	8.6	7	5.1	3.5	2.3	1.6
7	6.4	6.1	5.2	4.1	3	2.1	1.5
8	4.6	4.4	3.9	3.2	2.5	1.8	1.3
9	3.3	3.2	2.9	2.5	2	1.6	1.2
10	2.5	2.4	2.2	2	1.7	1.4	1.1

MULTIPLE UNIT FOOTCANDLES

	2.5' from wall (Distance from fixture along wall) 3			2.5' from wall (Distance from fixture along wall) 4		
1	21	18.8	21	19.5	12.1	19.5
2	34.1	34.1	34.1	31	24.4	31
3	33.1	34.4	33.1	29.7	26.5	29.7
4	26.7	28.7	26.7	23.7	23.3	23.7
5	19.8	21.7	19.8	17.5	18.5	17.5
6	14.4	15.8	14.4	12.8	14	12.8
7	10.5	11.4	10.5	9.4	10.4	9.4
8	7.8	8.3	7.8	7	7.7	7
9	5.8	6.2	5.8	5.4	5.9	5.4
10	4.4	4.7	4.4	4.1	4.5	4.1

Photometric Multipliers (Nominal Lumen Values)

500 Lumen	750 Lumen	1000 Lumen	1500 Lumen	2000 Lumen	2500 Lumen	3000 Lumen	3500 Lumen
0.33	0.44	0.54	0.74	1.00	1.24	1.54	1.85

4000 Lumen	4500 Lumen	5000 Lumen	5500 Lumen	6000 Lumen
2.15	2.28	2.44	2.52	2.62

Multipliers for relative lumen values with other series models.

Color Finish Multipliers

Finish code	C	H	W/WB	BB
Finish	Specular Clear	Semi-Specular	Matte White White Baffle	Black Baffle
Multiplier	1.00	0.94	0.88	0.76

Multipliers for relative lumen values with other color finishes.

CCT Multipliers – 80CRI

2700K	3000K	3500K	4000K	5000K
0.89	0.96	1.00	1.03	1.03

Multipliers for relative lumen values with other series color temperatures.

CCT Multipliers – 90CRI

2700K	3000K	3500K	4000K	5000K
0.76	0.85	0.89	0.93	0.93

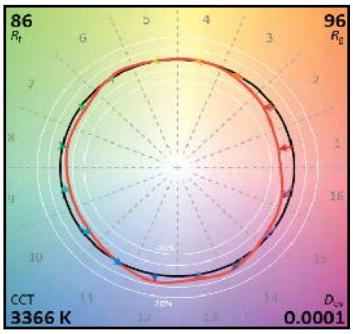
Multipliers for relative lumen values with other series color temperatures.

Note: Refer to IES files for more product data.

Energy & Performance Data

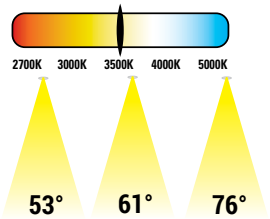
COLOR METRICS - TM-30-15 & CRI/CIE (3500K)

80 CRI Color Metric Summary - 3500K*

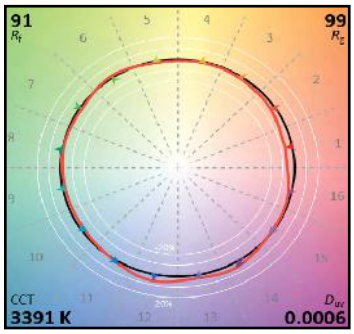


Reference Illuminant — Test Source

TM-30-15	Rf = 86
	Rg = 95.5
CRI/CIE	Ra = 83.8
	R9 = 10.3

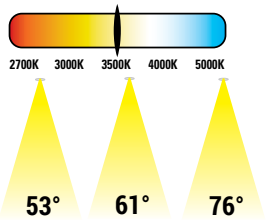


90 CRI Color Metric Summary - 3500K*



Reference Illuminant — Test Source

TM-30-15	Rf = 91.1
	Rg = 99
CRI/CIE	Ra = 92.4
	R9 = 55.1



* Color values are based on 61WDWB reflector, other finishes and field results may vary.

ENERGY DATA

Series	500 lumen		750 lumen		1000 lumen		1500 lumen		2000 lumen	
Input Voltage 120-277VAC	120V	277V	120V	277V	120V	277V	120V	277V	120V	277V
Input Current (A)	0.051	0.026	0.067	0.036	0.083	0.039	0.119	0.053	0.171	0.077
Input Power (W)	6.1	6.5	7.9	8.3	10	10.4	14.5	14.5	20.9	20.6
In-rush (A)	1.9	8.4	2	8.4	2.2	8.5	2.7	8.5	2.1	9.7
Inrush duration (µs)	251	135	237	133	250	134	250	139	245	131
THD (%)	6.2	13.5	7.4	8.8	5.4	10.3	10	6.7	6.5	7.9
PF	≥ 0.99	≥ 0.9	≥ 0.98	≥ 0.92	≥ 0.99	≥ 0.95	≥ 0.99	≥ 0.97	≥ 0.99	≥ 0.96

Series	2500 lumen		3000 lumen		3500 lumen		4000 lumen		4500 lumen	
Input Voltage 120-277VAC	120V	277V	120V	277V	120V	277V	120V	277V	120V	277V
Input Current (A)	0.23	0.103	0.24	0.107	0.292	0.152	0.351	0.159	0.384	0.172
Input Power (W)	27.5	27.5	28.6	28.5	34.6	35.1	42.1	42.1	45.9	45.6
In-rush (A)	2.5	5.6	2.5	11.6	3.4	13.9	3.1	14.7	3.1	14.8
Inrush duration (µs)	232	123	216	111	183	95	200	98	202	100
THD (%)	6.5	8.1	7.8	8.3	5.6	10	4.1	9.5	4.5	8.5
PF	≥ 0.99	≥ 0.96	≥ 0.99	≥ 0.96	≥ 0.99	≥ 0.93	≥ 0.99	≥ 0.94	≥ 0.99	≥ 0.95

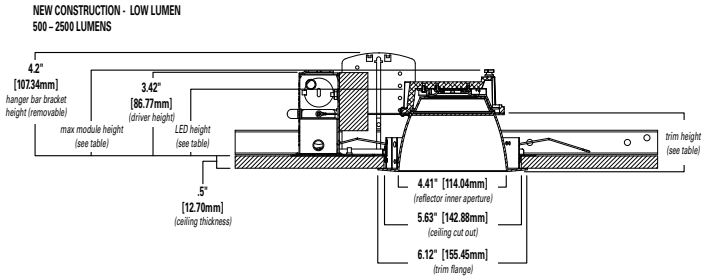
Series	5000 lumen		5500 lumen		6000 lumen	
Input Voltage 120-277VAC	120V	277V	120V	277V	120V	277V
Input Current (A)	0.419	0.186	0.457	0.201	0.489	0.214
Input Power (W)	50.1	49.5	54.6	53.7	58.4	57.4
In-rush (A)	3.1	15	3.2	14.8	3.4	14.8
Inrush duration (µs)	202	117	196	131	192	121
THD (%)	5.5	7.6	7	7.2	8.1	7.2
PF	≥ 0.99	≥ 0.96	≥ 0.99	≥ 0.96	≥ 0.99	≥ 0.97

Minimum starting temperature -30°C (-22°F)* (Nominal input 120-277VAC & 100% of rated output power)
Sound Rating: Class A standards

Notes:
* Emergency Battery packs are rated for a minimum starting temperature of 0°C.

Dimensional and Mounting Details

NEW CONSTRUCTIONS - LOW LUMEN 500 – 2500 LUMENS



Low Lumen (500 – 2500 Lumens)*

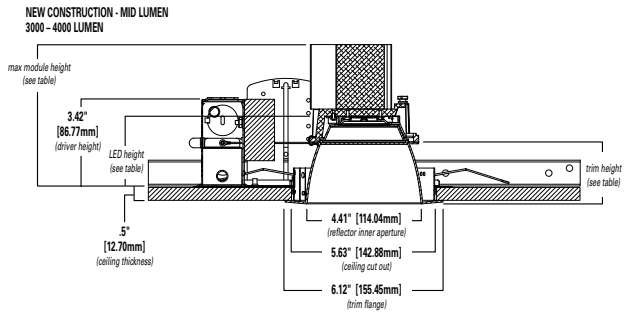
Distribution	Max. Module Height	Trim Height	LED Height
Narrow	3.6"	2.5"	2.7"
Medium	3.7"	2.6"	2.8"
Wide	3.5"	2.4"	2.6"
Baffle	3.1"	2.4"	2.6"

*Max. height w/removable hanger bar bracket 4.2"



Low Lumen Module

NEW CONSTRUCTIONS - MID LUMEN 3000 – 4000 LUMENS



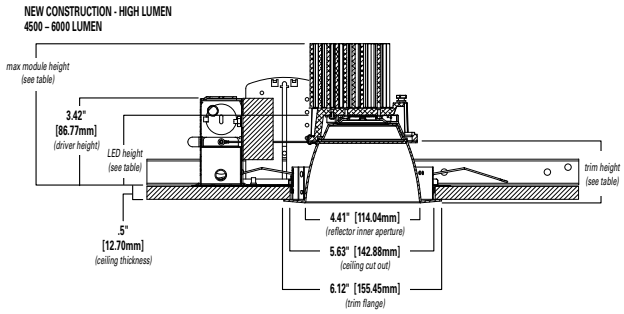
Mid Lumen (3000 – 4000 Lumens)

Distribution	Max. Module Height	Trim Height	LED Height
Narrow	5.6"	2.5"	2.9"
Medium	5.7"	2.6"	3.0"
Wide	5.5"	2.4"	2.8"
Baffle	5.5"	2.4"	2.8"



Mid Lumen Module

NEW CONSTRUCTIONS - HIGH LUMEN 4500 – 6000 LUMENS



High Lumen (4500 – 6000 Lumens)

Distribution	Max. Module Height	Trim Height	LED Height
Narrow	5.9"	2.5"	2.9"
Medium	6.0"	2.6"	3.0"
Wide	5.8"	2.4"	2.8"
Baffle	5.8"	2.4"	2.8"



High Lumen Module

Connected Solutions



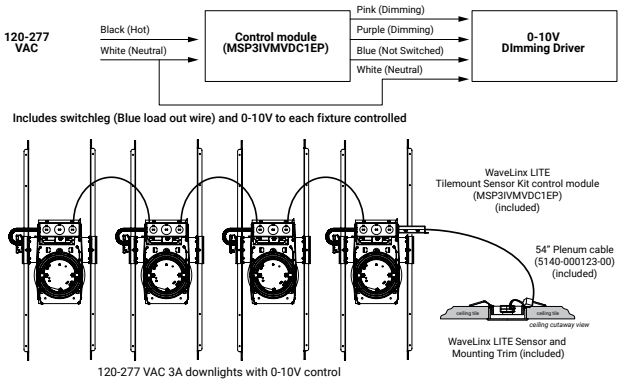
WaveLinx LITE - WTK Tilemount Sensor

WaveLinx LITE devices only compatible with the WaveLinx LITE system.

- Intuitive Android™ or Apple® iOS® app for basic system code compliant set up and configuration via Bluetooth
- Up to 28 unique areas per project site (WaveLinx LITE Bluetooth network)
- Up to 50 devices for an area, any one of 16 control zones, up to 6 occupancy sets, and custom lighting scenes
- Automatic occupancy or vacancy, sensor sensitivity, daylight dimming, etc. configurable through the app
- Refer to the WaveLinx system specifications for details

Device Security | Manual Dimmer | Occupancy Sensor | Daylighting Control | Manually Switched ON/OFF | Tuning Control | Lumen Maintenance Control | Scenes

WaveLinx LITE WTK Tilemount Wiring Diagram



WaveLinx LITE Bluetooth Enabled System





WaveLinx PRO – WTA Tilemount Sensor

WaveLinx PRO devices only compatible with the WaveLinx PRO system.

- WaveLinx PRO tilemount functionality configures zones and customizes settings from one secure mobile app
- Automatic code commissioning that meets the strictest codes
- Fixtures and sensors integrate with Wireless Area Controller, Wall Stations, and Control Devices
- Stand-Alone Offices or Entire Building Network Installations



Downlights with tilemount sensor wireless communication
Highly efficient LED fixtures



WaveLinx Area Controller
Provides centralized coordination of multiple area control options



Wireless Wall Station/Receptacle
Provides customized wireless control of each area



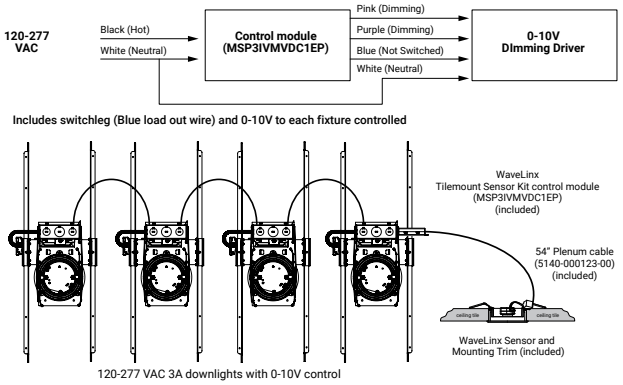
Mobile Applications
Provides personalized, local control from a tablet or smartphone

WaveLinx mobile app settings

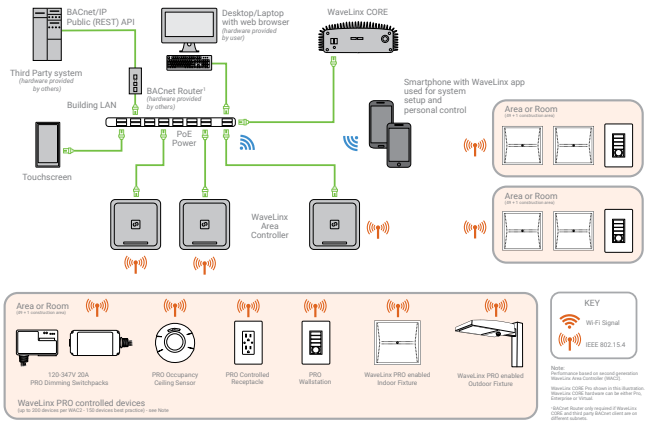
Manual Dimmer | Occupancy Sensor | Lumen Maintenance Control | Daylighting Control

Receptacle Control | Tuning Control | Scheduling | Manually Switched ON/OFF | Demand Response

WaveLinx WTA Tilemount Wiring Diagram



WaveLinx CORE Building Management Integration



Connected Solutions



WaveLinx LITE Wireless Node - WLN

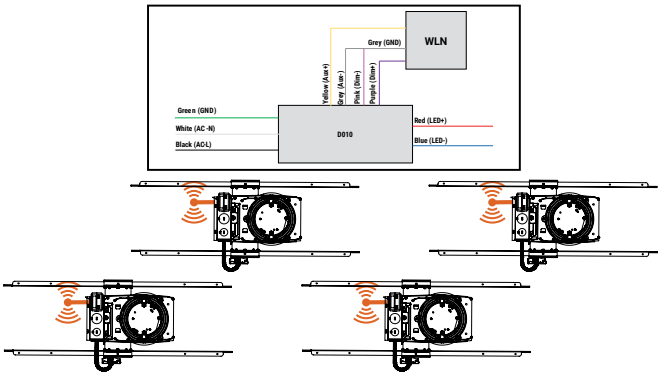
WaveLinx LITE devices only compatible with the WaveLinx LITE system.

- Intuitive Android™ or Apple® iOS® app for basic system code compliant set up and configuration via Bluetooth
- Up to 28 unique areas per project site (WaveLinx LITE Bluetooth network)
- Up to 50 devices for an area, any one of 16 control zones, up to 6 occupancy sets, and custom lighting scenes
- Refer to the WaveLinx system specifications for details

WaveLinx mobile app settings

Device Security · Manual Dimmer · Occupancy Sensor · Daylighting Control · Manually Switched ON/OFF · Tuning Control · Lumen Maintenance Control · Scenes

WaveLinx LITE Wireless Node (WLN) Wiring Diagram



WaveLinx LITE Bluetooth Enabled System





WaveLinx PRO Wireless Node - WPN

WaveLinx PRO devices only compatible with the WaveLinx PRO system.

- WaveLinx Wireless functionality configures zones and customizes settings from one secure mobile app
- Automatic code commissioning that meets the strictest codes
- Fixtures and sensors integrate with WaveLinx Area Controller, Wall Stations, and Control Devices
- Stand-Alone Offices or Entire Building Network Installations



Downlights with wireless communication
Highly efficient LED fixtures



WaveLinx Area Controller
Provides centralized coordination of multiple area control options



Wireless Wall Station/Receptacle
Provides customized wireless control of each area

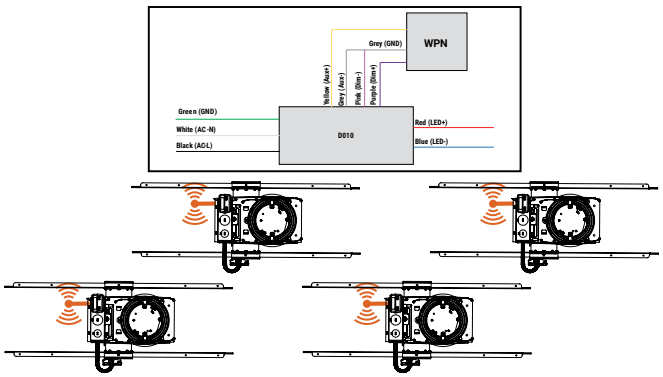


Mobile Applications
Provides personalized, local control from a tablet or smartphone

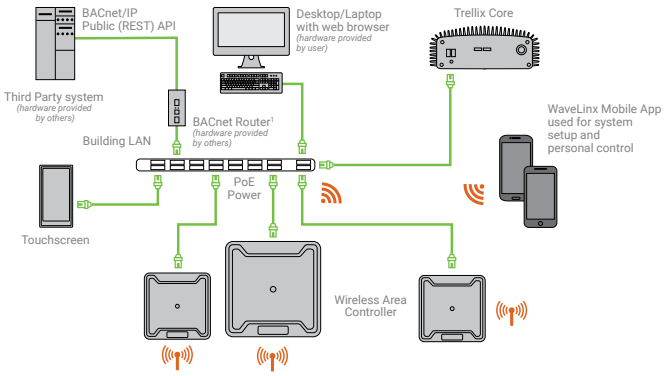
WaveLinx mobile app settings

Manual Dimmer · Occupancy Sensor · Lumen Maintenance Control · Daylighting Control · Receptacle Control · Tuning Control · Scheduling · Manually Switched ON/OFF · Demand Response

WaveLinx PRO Wireless Node (WPN) Wiring Diagram



WaveLinx CORE Building Management Integration



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Peachtree City, GA 30269
P: 770-486-4800
www.cooperlighting.com

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Specifications and dimensions subject to change without notice.

NV-1

AREA, SITE & ROADWAY



LED WATTAGE CHART

Drive Current	16L	32L	48L	64L
400 milliamps	21w	-	-	-
530 milliamps	28w	-	-	-
700 milliamps	36w-37w	71w	104w-105w	136w-139w
1050 milliamps	55w-56w	106w-107w	156w 157w	200w-207w

FORM AND FUNCTION

- Sleek, low profile housing
- Spec grade performance
- Engineered for optimum thermal management
- Low depreciation rate
- Reduces energy consumption and costs up to 65%
- Exceeds IES foot candle levels utilizing the least number of poles and fixtures per project
- Optical system designed for:
  - Parking Lots
  - Auto Dealerships
  - General Area Lighting

CONSTRUCTION

- Die Cast Aluminum
- External cooling fins
- Corrosion resistant external hardware
- One-piece silicone gasket ensures IP65 seal for electronics compartment
- One-piece Optics Plate™ mounting silicone Micro Optics
- Two-piece silicone Micro Optic system ensures IP67 level seal around each PCB
- Grade 2 Clear Anodized Optics Plate™ standard

FINISH

- 3-5 mils electrostatic powder coat.
- NLS' standard high-quality finishes prevent corrosion, protects against extreme environmental conditions

WARRANTY

Five-year limited warranty for drivers and LEDs.

BUY AMERICAN

To ensure the latest BAA/TAA/BABA Standards are being met, please select BAA, TAA, or BABA in the options section. Please contact the factory before placing an order for any NLS products requesting BAA (Buy American Act), TAA (Trade American Act), or BABA (Build America, Buy America).

Project Name:	Type:

NV-1 ORDERING GUIDE

Cat#	Light Dist.	# of LEDs	Drive Current	CCT	Voltage
NV-1 **(NV-1)**	Type 2 **(T2)**	16 **(16L)**	400 **(40)**	Amber 586-600nM **(AMBER)** [10, 12, 13]	120-277 **(UNV)**
	Type 3 **(T3)**		530 **(53)**	2700K, 70 CRI **(27K7)** [6]	347-480 **(HV)**
	Type 4 **(T4)**		700 **(7)**	2700K, 80 CRI **(27K8)** [1, 6]	
	Type 4 Forward Throw Wide **(T4FTW)**[12]		1050 **(1)**	3000K, 70 CRI **(30K7)** [6]	
	Type 5 **(T5)**	32 **(32L)** [15]	700 **(7)**	3000K, 80 CRI **(30K8)** [1, 6]	
	Type 5 Wide **(T5W)**		1050 **(1)**	3500K, 80 CRI **(35K8)** [1]	
	Nema 3 30º Narrow Beam **(N3)**	48 **(48L)** [15]	700 **(7)**	4000K, 70 CRI **(40K7)**	
	Corner Distribution Left **(CDL)**[19]		1050 **(1)**	4000K, 80 CRI **(40K8)** [1]	
	Corner Distribution Right **(CDR)**[19]	64 **(64L)** [15]	350 **(35)** [20]	5000K, 70 CRI **(50K7)**	
			530 **(53)**	5000K, 80 CRI **(50K8)** [1]	
			700 **(7)**		
			1050 **(1)**		
			Custom Drive Current **(CUS-MA-***)**[21] Specify		

Mounting	Color	Controls Options	Options	Lens Options
Architectural Sweep Arm **(ASA)**	Bronze Textured **(BRZ)**	Photocell + Receptacle **(PCR)**	Bird Spikes **(BS)**	Glass Lens **(GL)** [7, 14]
Direct Pole 3" Arm Single D180 **(DPS3)** [2]	White Textured **(WHT)**	Nema 7-Pin Receptacle **(PE7)**	Marine Grade Finish **(MGF)**	HAL Lens **(HAL)** [8, 14]
Direct Pole 7" Arm D180, D90, T90, T120, Quad **(DPS7)** [2]	Smooth White Gloss **(SWT)**	Receptacle + Shorting Cap **(PER)**	Optic Plate Painted to Match Fixture **(OPP)**	
Knuckle Mount **(KM)**	Silver Metallic **(SVR)**	**FSP-211 w/Motion Sensor/Photocell (120/277VAC, 230-240VAC)** 9'-20' Heights **(FSP-20)** [4, 16]	ASA Round Pole Adaptor 3"-4" Pole **(RPA-ASA-4)**	
Wall Mount **(WM)**	Black Textured **(BLK)**	21'-40' Heights **(FSP-40)** [4, 16]	ASA Round Pole Adaptor 5"-6" Pole **(RPA-ASA-5)**	
Trunnion Mount **(TM)** [3]	Smooth Black Gloss **(SBK)**	**FSP-221 w/Motion Sensor/Photocell (100/347VAC, 208/ 230/480VAC)** 9'-20' Heights **(FSP-HV-20)** [17]	Round Pole Adaptor 3"-4" Pole **(RPA4)**	
Tennis Arm Mount **(TA)**	Graphite Textured **(GPH)**	21'-40' Heights **(FSP-HV-40)** [17]	Round Pole Adaptor 5"-6" Pole **(RPA5)**	
Mast Arm Mount **(MA)**	Grey Textured **(GRY)**	Custom Controls Integration **(CCI)** [9]	Rotated Optic Left **(ROL)**	
Quick Mount Bracket **(QMB)**	Green Textured **(GRN)**	Button Type Photocell **(PC)** [4]	Rotated Optic Right **(ROR)**	
Retrofit Mount Bracket **(RQMB)**	Hunter Green Textured **(HGN)**	FSP Remote **(FSIR)** [18]	Automotive House Side Shield **(AHS)**	
	Custom **(CS)**		House Side Shield **(HSS)** [5]	
			Black Optic Frame **(BOF)**	
			Buy American Act **(BAA)** [11]	
			Trade Agreement Act **(TAA)** [11]	
			Build America Buy American **(BABA)** [11]	

NOTES:

1. Consult Factory for Lead Time. Consult Factory for 90 CRI Requests.
2. For Round Pole Specify RPA4 or RPA5
3. Standard finish is stainless steel. Can be painted to match fixture.
4. Universal Voltage 120-277
5. HSS not applicable with Nema 2.
6. 3000K or lower, with fixed mounting options only, must be selected to meet International Dark-Sky Association certification.
7. Glass Lens: Low iron glass, fully tempered per ANSI C1047 (QCH-2201-37)
8. HAL Lens: Yellow Polycarbonate Lens – less than 2% Blue Light Content
9. Please contact Factory for Custom Control Integration requests (nLight, NX, WaveLinx, Crestron, DMX/RDM, Synapse, Casambi, Dali II, Avi-On, or other control systems)
10. Turtle Safe
11. Consult factory for all BAA/TAA/BABA requests
12. Consult Factory for Lead Time and estimated performance data.
13. Not Available above 700mA
14. Contact Factory
15. Available only in 700mA and 1050mA
16. FSP-211, 120V/277V, 230-240VAC (single phase), 50/60Hz
17. FSP-221, 100–347VAC (single phase) or 208/230/480VAC (phase-to-phase)
18. Projects with sensors require Qty. 1 FSIR per project
19. 64L ONLY
20. 16L ONLY
21. See estimated scaling chart for multiplier values to estimate lumen output. Please contact Factory to verify the estimated performance data.

PRODUCT SPECIFICATIONS

ELECTRICAL

- 120-277 Volts (UNV) or 347-480 Volts (HV)
- 0-10V dimming driver
- Driver power factor at maximum load is ≥ .95, THD maximum load is 15%
- LED Drivers Ambient Temp. Min is -40°C and Ambient Temp. Max ranges from 50°C to 55°C. Consult the factory for revalidation by providing the fixture catalog string before quoting and specifying it
- All internal wiring UL certified for 600 VAC and 105°C
- All drivers, controls, and sensors housed in enclosed IP65 compartment
- CRI 70, 80 or 90 (Contact factory for 90 CRI)
- Color temperatures: Amber, 2700K, 3000K, 3500K, 4000K, 5000K
- Surge Protection: 20KVA supplied as standard

CONSTRUCTION

- Die Cast Aluminum
- External cooling fins
- Corrosion resistant external hardware
- One-piece silicone gasket ensures IP65 seal for electronics compartment
- One-piece Optics Plate™ mounting silicone Micro Optics
- Two-piece silicone Micro Optic system ensures IP67 level seal around each PCB
- Grade 2 Clear Anodized Optics Plate™ standard

OPTIONS

- BIRD SPIKES (BS) - Offers a practical and humane deterrent for larger bird species and provides a cost-effective long-term solution to nuisance bird infestations and protects your property
- MARINE GRADE FINISH (MGF) - A multi-step process creating protective finishing coat against harsh environments. Chemically washed in a 5 stage cleaning system. Pre-baked, Powder coated 3-5 mils of Zinc Rich Super Durable Polyester Primer. Oven Baked. Finished Powder Coating of Super Durable Polyester Powder Coat 3-5 mil thickness
- OPTIC PLATE PAINTED TO MATCH FIXTURE (OPP) - Optic plate is clear anodized as standard. The optic plate can be powder coated to match the finish of the fixture.
- QUICK MOUNT BRACKET (QMB) - Optional Cast Aluminum Bracket designed for quick mounting on Direct Square or Round Poles. Cleat mounts directly to pole for easily hung fixtures. Has a 2"x4" Drill Pattern
- RETROFIT MOUNT BRACKET - Optional Cast Aluminum Bracket designed for quick mounting on Direct Square or Round Poles. Cleat mounts directly to pole for easily hung fixtures. Drill Pattern is adjustable from 2"x4" to 2"x6"
- ROUND POLE ADAPTER (RPA) - When using round poles, specify Round Pole Adapter (RPA). Specify RPA4 when installing on 3"-4" round poles, and RPA5 when installing on 5"-6" round poles
- ROTATED OPTICS (ROL) (ROR) - Rotated optics are designed for perimeter lighting for auto dealerships
- HOUSE SIDE SHIELD (HSS) Designed for full property line cut-off
- BLACK OPTIC FRAME (BOF) - Optional black optic frame. (includes black hardware) Standard is white
- GLASS LENS (GL) - Low Iron Glass, fully tempered
- HAL LENS (HAL) - High Performance Yellow Polycarbonate Lens – less than 2% Blue Light Content

CONTROL OPTIONS

- **FSP-211 w/Motion Sensor/Photocell (120/277VAC, 230-240VAC)**
  (FSP-X) - Passive infrared (PIR) sensor providing multi-level control based on motion/daylight contribution.
- **FSP-221 w/Motion Sensor/Photocell (100-347VAC, 208/230/480VAC)**
  (FSP-HV-X) - Passive infrared (PIR) sensor providing multi-level control based on motion/daylight contribution.
- All control parameters adjustable via wireless configuration remote storing and transmitting sensor profiles
- FSP-8 mounting heights 8 feet and below
- FSP-20 mounting heights 9-20 feet
- FSP-40 mounting heights 21-40 feet
- Includes 5 dimming event cycles, 0-10V dimming with motion sensing, re-programmable in the field
- FSIR-100 commissioning remote is required to change sensor settings. Please contact factory for ordering
- NEMA 7-PIN RECEPTACLE (PE7)—An ANSI C136.41-2013 receptacle provides electrical and mechanical interconnection between photo control cell and luminaire. Dimming receptacle available two or four dimming contacts supports 0-10 VDC dimming methods or Digital Addressable Lighting Interface (DALI), providing reliable power interconnect
- PHOTOCELL + RECEPTACLE (PCR)–7-Pin Receptacle and Electronic Twist Lock Photocell for dusk to dawn operation
- RECEPTACLE + SHORTING CAP (PER)–7-Pin Receptacle and Shorting Cap
- Controls Agnostic: Please contact factory for your preferred controls option. (nLight, NX, WaveLinx, Crestron, DMX/RDM, Synapse, Casambi, DALI II, Avi-On, or other control systems)

FINISH

- 3-5 mils electrostatic powder coat
- NLS Light's standard high-quality finishes prevent corrosion protects against and extreme environmental conditions

WARRANTY

Five-year limited warranty for drivers and LEDs.

OPTICS

Silicone optics high thermal stability and light output provide higher powered LEDs with minimized lumen depreciation. UV stability with scratch resistance increases exterior application durability. Silicone optics do not yellow, crack or brittle over time

LISTINGS

- UL Listed in compliance with UL 1598, the Standard for Safety of Luminaires, including the applicable wet location requirements
- Compliant with UL 8750 LED driver design and test safety standards
- CSA C22.2 No. 250.0
- DesignLights Consortium® (DLC)
- DesignLights Consortium Premium® (DLCP)
- IP65/ IP67 Rated
- 3G Vibration Rated per ANSI C136.31-2010
- IDA Dark Sky Approved
- IK10 Rated

BUY AMERICAN OPTION

While all of the NLS Lighting products listed in this document qualify for the Buy America(n) Act of 1933, we reserve the right to change our listings without notice.

The information provided above is for general informational purposes only. We encourage you to consult legal professionals for advice particular to your projects concerning BAA, TAA, BABA or Buy America.

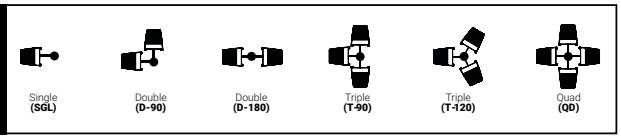
Additional NLS Products that meet BAA, TAA standards can be found at the following link:

https://nlslighting.com/buy-american/

The information and specifications on this document are subject to change without any notification. All values are design, nominal, typical or prorated values when measured under internal and external laboratory conditions.

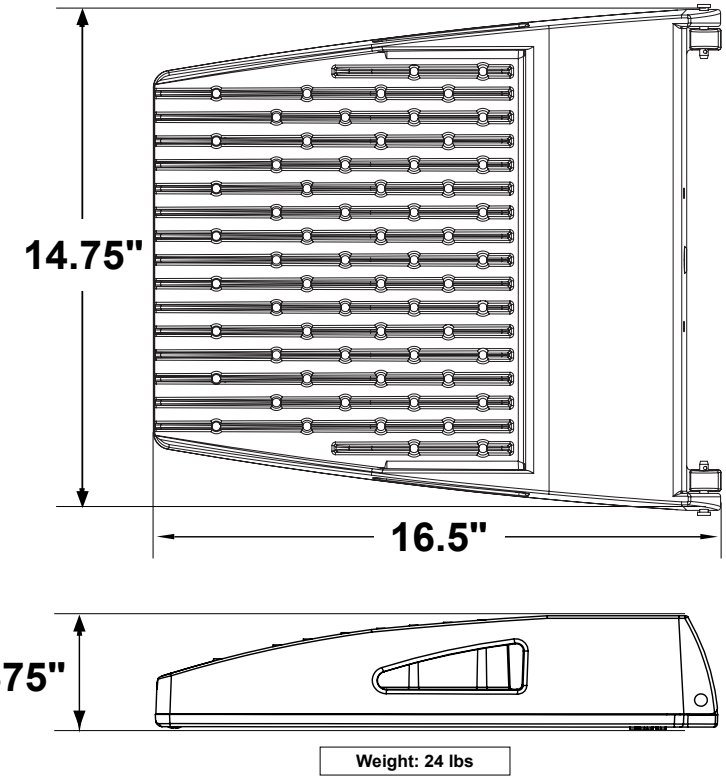
PRODUCT SPECIFICATIONS

MOUNTING CONFIGURATION



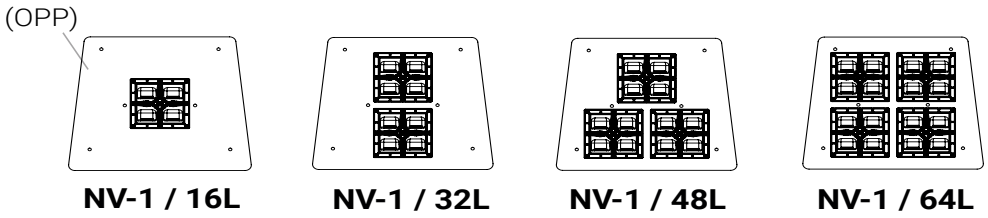
EPA

EPA	SGL	D90	D180	T90	T120	QD
NV-1-DP3	0.46	-	0.92	-	-	-
NV-1-DP7	-	1.14	1.05	1.34	1.37	1.34
NV-1-KM	0.54	N/A	1.08	N/A	N/A	N/A
NV-1-ASA	0.75	1.29	1.50	1.99	2.05	1.99



OPTICAL CONFIGURATIONS

Rotatable Optics (ROR) Rotated Right, (ROL) Rotated Left options available. Optics field and factory rotatable.

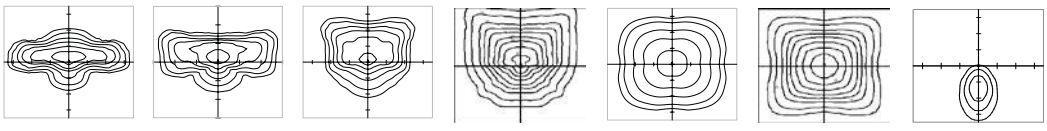


* OPTIC PLATE PAINTED TO MATCH FIXTURE FINISH (OPP)– Optic Plate standard clear anodized, Grade 2. When (OPP) specified, Optic Plate finish will match fixture finish.

OPTICS

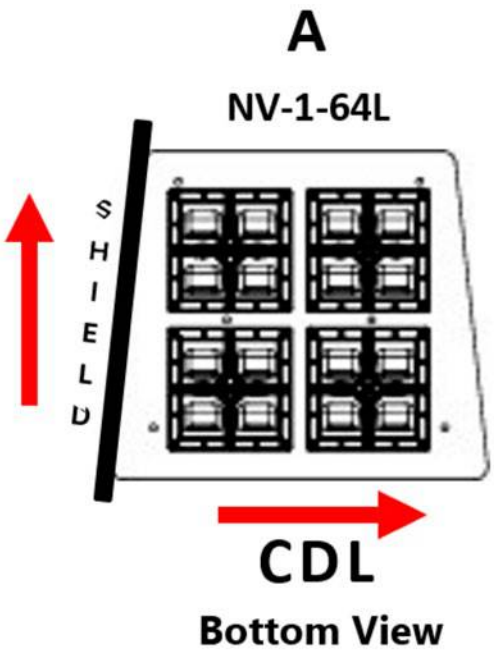
Silicone optics high photothermal stability and light output provides higher powered LEDs with minimized lumen depreciation LED life. UV and thermal stability with scratch resistance increases exterior application durability.

IES Types

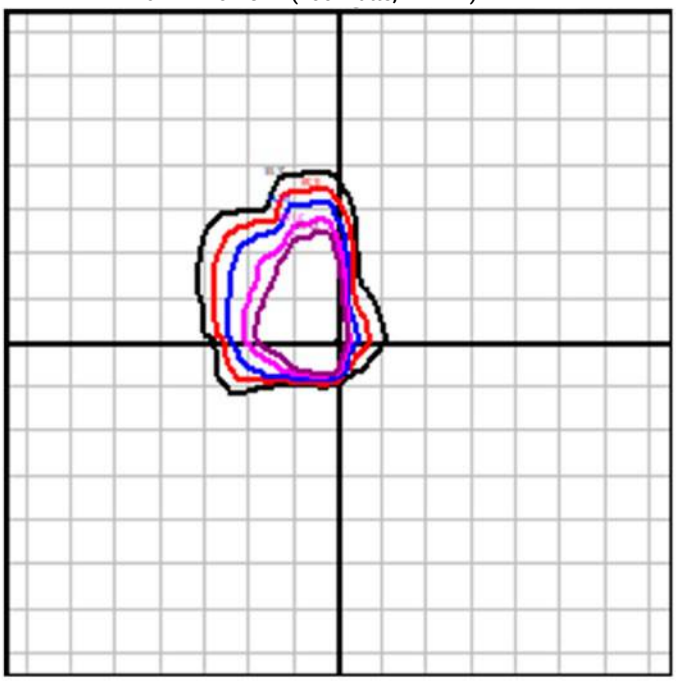


OPTICAL CONFIGURATIONS (CONTINUED) - Corner Optics (CDL/CDR)

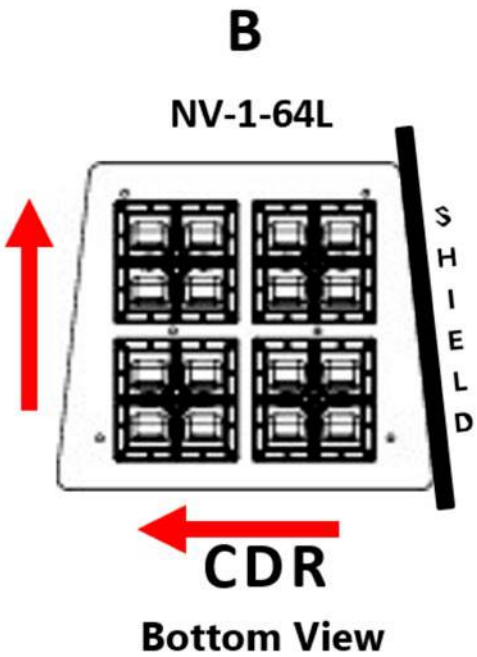
Blended optical distributions include a HSS over the optic and are aimed forward. Fixtures also feature an external side mounted shield.



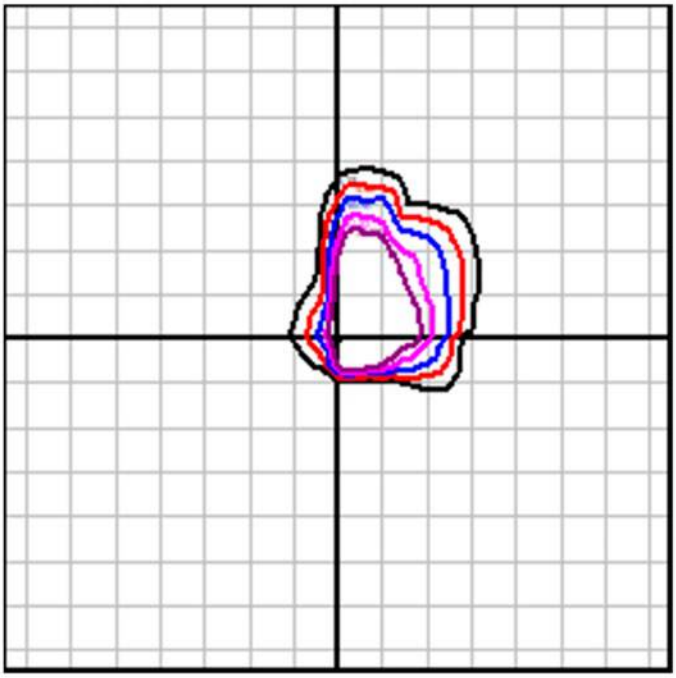
NV-64L-1-40K-CDL (205 Watts, 49LPW)



Mounting Height is 15ft, each sq equals 1 mounting height.

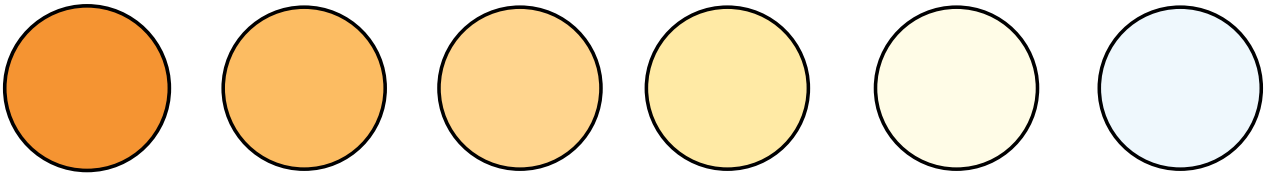


NV-64L-1-40K-CDR (205 Watts, 49LPW)



Mounting Height is 15ft, each sq equals 1 mounting height.

LED KELVIN RANGE



AMBER
585-600 nm

2700K 70 CRI

3000K 70 CRI

3500K 80 CRI

4000K 70 CRI

5000K 70 CRI

Color	Dominant or Peak Wavelength Range (nm)	
	Minimum	Maximum
Amber	585	600

LUMEN MAINTENANCE DATA							
Ambient Temperature	Drive Current	L90 Hours*	L70 Hours**	30,000 Hours*	50,000 Hours*	60,00 Hours*	100,000 Hours**
25°C	Up to 700mA	58,000	173,000	95.7%	91.6%	89.6%	82.1%
	1050mA	48,000	143,000	94.3%	89.5%	87.2%	78.5%
*Reported extrapolations per IESNA TM-21				**Projected extrapolations per IESNA TM-21			

MULTIPLIERS FOR 70/80/90 CRI (Scaling Factor from 5000K 70 CRI)			
CCT	**70 CRI**	**80 CRI**	**90 CRI**
2700K	0.840	0.737	0.609
3000K	0.975	0.776	0.640
3500K	0.890	0.800	0.659
4000K	1.000	0.815	0.679
5000K	1.000	0.830	0.710

LUMEN CHARTS - STANDARD OPTICS

LUMEN CHART STANDARD SILICONE OPTICS											
PART NUMBER	N3	LPW	T2	LPW	T3	LPW	T4	LPW	T5	LPW	WATTS
NV-1-16L-40-27K7	1749	83	2324	111	2342	112	2307	110	2360	112	21
NV-1-16L-40-30K7	2037	97	2333	111	2532	121	2316	110	2552	122	21
NV-1-16L-40-40K7	2436	116	2715	129	2736	130	2695	128	2757	131	21
NV-1-16L-40-50K7	2520	120	2715	129	2736	130	2695	128	2757	131	21
NV-1-16L-53-27K7	2543	91	2588	92	3015	108	2920	104	3041	109	28
NV-1-16L-53-30K7	3136	112	3192	114	3220	115	3119	111	3248	116	28
NV-1-16L-53-40K7	3248	116	3472	124	3472	124	3444	123	3500	125	28
NV-1-16L-53-50K7	3360	120	3612	129	3640	130	3584	128	3668	131	28
NV-1-16L-7-27K7	3269	91	3327	92	3876	108	3755	104	3910	109	36
NV-1-16L-7-30K7	4032	112	3960	110	3960	110	3973	110	3996	111	36
NV-1-16L-7-40K7	4176	116	4428	123	4284	119	4212	117	4320	120	36
NV-1-16L-7-50K7	4320	120	4644	129	4500	125	4428	123	4500	125	36
NV-1-16L-1-27K7	5085	91	5176	92	6030	108	5841	104	6082	109	56
NV-1-16L-1-30K7	6272	112	6160	110	6384	114	6232	111	6440	115	56
NV-1-16L-1-40K7	6496	116	6832	122	6888	123	6776	121	6944	124	56
NV-1-16L-1-50K7	6720	120	7168	128	7224	129	7112	127	7280	130	56
NV-1-32L-7-27K7	6447	91	7313	103	7313	103	7246	102	7379	104	71
NV-1-32L-7-30K7	7952	112	7810	110	7810	110	7739	109	7881	111	71
NV-1-32L-7-40K7	8236	116	9017	127	8449	119	8307	117	8520	120	71
NV-1-32L-7-50K7	8520	120	9159	129	8875	125	8733	123	8946	126	71
NV-1-32L-1-27K7	11116	105	10917	103	11314	107	11067	104	11414	108	106
NV-1-32L-1-30K7	11872	112	11660	110	12084	114	11820	112	12190	115	106
NV-1-32L-1-40K7	12296	116	12932	122	13038	123	12826	121	13144	124	106
NV-1-32L-1-50K7	12720	120	13568	128	13674	129	13462	127	13780	130	106
NV-1-48L-7-27K7	10906	105	10711	103	10711	103	10614	102	10809	104	104
NV-1-48L-7-30K7	11648	112	11440	110	11440	110	11336	109	11544	111	104
NV-1-48L-7-40K7	12064	116	13208	127	12376	119	12168	117	12480	120	104
NV-1-48L-7-50K7	12480	120	13520	130	13000	125	12792	123	13104	126	104
NV-1-48L-1-27K7	16359	105	16067	103	16651	107	16359	105	16798	108	156
NV-1-48L-1-30K7	17472	112	17160	110	17784	114	17472	112	17940	115	156
NV-1-48L-1-40K7	18096	116	19032	122	19188	123	18876	121	19344	124	156
NV-1-48L-1-50K7	18720	120	19968	128	20124	129	19812	127	20280	130	156
NV-1-64L-7-27K7	14262	105	14007	103	14007	103	13880	102	14135	104	136
NV-1-64L-7-30K7	15232	112	14960	110	14960	110	14824	109	15096	111	136
NV-1-64L-7-40K7	15776	116	17272	127	16184	119	15912	117	16320	120	136
NV-1-64L-7-50K7	16320	120	17680	130	17000	125	16728	123	17136	126	136
NV-1-64L-1-27K7	21252	106	21114	106	21882	109	21498	107	22074	110	200
NV-1-64L-1-30K7	22960	115	22550	113	23370	117	22960	115	23575	118	200
NV-1-64L-1-40K7	23780	119	25010	125	25215	126	24805	124	25420	127	200
NV-1-64L-1-50K7	24600	123	26240	131	26445	132	26035	130	26650	133	200

LUMEN CHART T4FTW OPTIMIZED SILICONE OPTICS			
PART NUMBER	T4FTW	LM/W	WATTAGE
NV-1-16L-40-27K7	2247	107	21
NV-1-16L-40-30K7	2429	116	21
NV-1-16L-40-40K7	2625	125	21
NV-1-16L-40-50K7	2625	125	21
NV-1-16L-53-27K7	2660	95	28
NV-1-16L-53-30K7	2876	103	28
NV-1-16L-53-40K7	3248	116	28
NV-1-16L-53-50K7	3248	116	28
NV-1-16L-7-27K7	3297	92	36
NV-1-16L-7-30K7	3565	99	36
NV-1-16L-7-40K7	3852	107	36
NV-1-16L-7-50K7	3852	107	36
NV-1-16L-1-27K7	5038	90	56
NV-1-16L-1-30K7	5447	97	56
NV-1-16L-1-40K7	5886	105	56
NV-1-16L-1-50K7	5886	105	56
NV-1-32L-7-27K7	6442	91	71
NV-1-32L-7-30K7	6965	98	71
NV-1-32L-7-40K7	7526	106	71
NV-1-32L-7-50K7	7526	106	71
NV-1-32L-1-27K7	9462	88	107
NV-1-32L-1-30K7	10230	95	107
NV-1-32L-1-40K7	11054	103	107
NV-1-32L-1-50K7	11054	103	107
NV-1-48L-7-27K7	9793	94	104
NV-1-48L-7-30K7	10588	102	104
NV-1-48L-7-40K7	11440	110	104
NV-1-48L-7-50K7	11440	110	104
NV-1-48L-1-27K7	14416	93	155
NV-1-48L-1-30K7	15586	101	155
NV-1-48L-1-40K7	16841	109	155
NV-1-48L-1-50K7	16841	109	155

LUMEN CHART T5W OPTIMIZED SILICONE OPTICS			
PART NUMBER	T5W	LM/W	WATTAGE
NV-1-16L-40-27K7	2489	119	21
NV-1-16L-40-30K7	2788	133	21
NV-1-16L-40-40K7	2908	138	21
NV-1-16L-40-50K7	2908	138	21
NV-1-16L-53-27K7	3427	122	28
NV-1-16L-53-30K7	3706	132	28
NV-1-16L-53-40K7	4004	143	28
NV-1-16L-53-50K7	4004	143	28
NV-1-16L-7-27K7	4376	122	36
NV-1-16L-7-30K7	4731	131	36
NV-1-16L-7-40K7	5112	142	36
NV-1-16L-7-50K7	5112	142	36
NV-1-16L-1-27K7	6061	108	56
NV-1-16L-1-30K7	6553	117	56
NV-1-16L-1-40K7	7081	126	56
NV-1-16L-1-50K7	7081	126	56
NV-1-32L-7-27K7	8873	125	71
NV-1-32L-7-30K7	9594	135	71
NV-1-32L-7-40K7	10366	146	71
NV-1-32L-7-50K7	10366	146	71
NV-1-32L-1-27K7	11794	110	107
NV-1-32L-1-30K7	12752	119	107
NV-1-32L-1-40K7	13778	129	107
NV-1-32L-1-50K7	13778	129	107
NV-1-48L-7-27K7	12730	122	104
NV-1-48L-7-30K7	13764	132	104
NV-1-48L-7-40K7	14872	143	104
NV-1-48L-7-50K7	14872	143	104
NV-1-48L-1-27K7	16981	108	157
NV-1-48L-1-30K7	18360	117	157
NV-1-48L-1-40K7	19838	126	157
NV-1-48L-1-50K7	19838	126	157

LUMEN CHART T4FTW OPTIMIZED SILICONE OPTICS			
PART NUMBER	T4FTW	LPW	WATTS
NV-1-64L-35-27K7	8133	120	68
NV-1-64L-35-30K7	8793	129	68
NV-1-64L-35-40K7	9501	140	68
NV-1-64L-35-50K7	9501	140	68
NV-1-64L-53-27K7	11462	111	103
NV-1-64L-53-30K7	12392	120	103
NV-1-64L-53-40K7	13390	130	103
NV-1-64L-53-50K7	13390	130	103
NV-1-64L-7-27K7	14293	103	139
NV-1-64L-7-30K7	15453	111	139
NV-1-64L-7-40K7	16697	120	139
NV-1-64L-7-50K7	16697	120	139
NV-1-64L-1-27K7	20931	101	207
NV-1-64L-1-30K7	22630	109	207
NV-1-64L-1-40K7	24452	118	207
NV-1-64L-1-50K7	24452	118	207

LUMEN CHART T5W OPTIMIZED SILICONE OPTICS			
PART NUMBER	T5W	LPW	WATTS
NV-1-64L-35-27K7	8526	125	68
NV-1-64L-35-30K7	9218	136	68
NV-1-64L-35-40K7	9960	146	68
NV-1-64L-35-50K7	9960	146	68
NV-1-64L-53-27K7	12745	124	103
NV-1-64L-53-30K7	13780	134	103
NV-1-64L-53-40K7	14890	145	103
NV-1-64L-53-50K7	14890	145	103
NV-1-64L-7-27K7	17061	122	139
NV-1-64L-7-30K7	18446	132	139
NV-1-64L-7-40K7	19931	143	139
NV-1-64L-7-50K7	19931	143	139
NV-1-64L-1-27K7	22567	109	207
NV-1-64L-1-30K7	24399	118	207
NV-1-64L-1-40K7	26363	127	207
NV-1-64L-1-50K7	26363	127	207

BUG RATINGS - STANDARD OPTICS

BUG RATING CHART STANDARD SILICONE OPTICS					
PART NUMBER	N3	T2	T3	T4	T5
NV-1-16L-40-27K7	B3-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G0
NV-1-16L-40-30K7	B3-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G0
NV-1-16L-40-40K7	B3-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G1
NV-1-16L-40-50K7	B3-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G1
NV-1-16L-53-27K7	B3-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G1
NV-1-16L-53-30K7	B3-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G1
NV-1-16L-53-40K7	B3-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G1
NV-1-16L-53-50K7	B3-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B2-U0-G1
NV-1-16L-7-27K7	B3-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B3-U0-G1
NV-1-16L-7-30K7	B3-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B3-U0-G1
NV-1-16L-7-40K7	B3-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B3-U0-G1
NV-1-16L-7-50K7	B3-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B3-U0-G1
NV-1-16L-1-27K7	B3-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B3-U0-G1
NV-1-16L-1-30K7	B3-U0-G1	B1-U0-G1	B1-U0-G1	B1-U0-G1	B3-U0-G1
NV-1-16L-1-40K7	B3-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G2
NV-1-16L-1-50K7	B3-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G2
NV-1-32L-7-27K7	B4-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G2
NV-1-32L-7-30K7	B4-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G2
NV-1-32L-7-40K7	B4-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G2
NV-1-32L-7-50K7	B4-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G2
NV-1-32L-1-27K7	B4-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2	B4-U0-G2
NV-1-32L-1-30K7	B4-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2	B4-U0-G2
NV-1-32L-1-40K7	B4-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G2	B4-U0-G2
NV-1-32L-1-50K7	B4-U0-G1	B2-U0-G2	B3-U0-G3	B3-U0-G3	B4-U0-G2
NV-1-48L-7-27K7	B4-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2	B4-U0-G2
NV-1-48L-7-30K7	B4-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2	B4-U0-G2
NV-1-48L-7-40K7	B4-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G2	B4-U0-G2
NV-1-48L-7-50K7	B4-U0-G1	B2-U0-G2	B3-U0-G3	B3-U0-G3	B4-U0-G2
NV-1-48L-1-27K7	B5-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B4-U0-G2
NV-1-48L-1-30K7	B5-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B4-U0-G2
NV-1-48L-1-40K7	B5-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B5-U0-G3
NV-1-48L-1-50K7	B5-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B5-U0-G3
NV-1-64L-7-27K7	B4-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B4-U0-G2
NV-1-64L-7-30K7	B4-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B4-U0-G2
NV-1-64L-7-40K7	B5-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B4-U0-G2
NV-1-64L-7-50K7	B5-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B4-U0-G2
NV-1-64L-1-27K7	B5-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B5-U0-G3
NV-1-64L-1-30K7	B5-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B5-U0-G3
NV-1-64L-1-40K7	B5-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B5-U0-G3
NV-1-64L-1-50K7	B5-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B5-U0-G3

BUG RATING CHART T4FTW & T5W OPTIMIZED OPTICS		
PART NUMBER	T4FTW	T5W
NV-1-16L-40-27K7	B1-U0-G2	B2-U0-G1
NV-1-16L-40-30K7	B1-U0-G2	B2-U0-G1
NV-1-16L-40-40K7	B1-U0-G2	B2-U0-G1
NV-1-16L-40-50K7	B1-U0-G2	B2-U0-G1
NV-1-16L-53-27K7	B1-U0-G2	B3-U0-G1
NV-1-16L-53-30K7	B1-U0-G2	B3-U0-G1
NV-1-16L-53-40K7	B1-U0-G2	B3-U0-G2
NV-1-16L-53-50K7	B1-U0-G2	B3-U0-G2
NV-1-16L-7-27K7	B1-U0-G2	B3-U0-G2
NV-1-16L-7-30K7	B1-U0-G2	B3-U0-G2
NV-1-16L-7-40K7	B1-U0-G2	B3-U0-G2
NV-1-16L-7-50K7	B1-U0-G2	B3-U0-G2
NV-1-16L-1-27K7	B1-U0-G2	B3-U0-G2
NV-1-16L-1-30K7	B1-U0-G2	B3-U0-G2
NV-1-16L-1-40K7	B1-U0-G2	B3-U0-G2
NV-1-16L-1-50K7	B1-U0-G2	B3-U0-G2
NV-1-32L-7-27K7	B2-U0-G3	B4-U0-G2
NV-1-32L-7-30K7	B2-U0-G3	B4-U0-G2
NV-1-32L-7-40K7	B2-U0-G3	B4-U0-G2
NV-1-32L-7-50K7	B2-U0-G3	B4-U0-G2
NV-1-32L-1-27K7	B2-U0-G3	B4-U0-G3
NV-1-32L-1-30K7	B2-U0-G3	B4-U0-G3
NV-1-32L-1-40K7	B2-U0-G3	B4-U0-G3
NV-1-32L-1-50K7	B2-U0-G3	B4-U0-G3
NV-1-48L-7-27K7	B2-U0-G3	B4-U0-G3
NV-1-48L-7-30K7	B2-U0-G3	B4-U0-G3
NV-1-48L-7-40K7	B3-U0-G4	B4-U0-G3
NV-1-48L-7-50K7	B3-U0-G4	B4-U0-G3
NV-1-48L-1-27K7	B3-U0-G4	B4-U0-G3
NV-1-48L-1-30K7	B3-U0-G4	B5-U0-G3
NV-1-48L-1-40K7	B3-U0-G4	B5-U0-G3
NV-1-48L-1-50K7	B3-U0-G4	B5-U0-G3
NV-1-64L-7-27K7	B3-U0-G4	B4-U0-G3
NV-1-64L-7-30K7	B3-U0-G4	B5-U0-G3
NV-1-64L-7-40K7	B3-U0-G4	B5-U0-G3
NV-1-64L-7-50K7	B3-U0-G4	B5-U0-G3
NV-1-64L-1-27K7	B3-U0-G4	B5-U0-G3
NV-1-64L-1-30K7	B3-U0-G4	B5-U0-G3
NV-1-64L-1-40K7	B3-U0-G4	B5-U0-G4
NV-1-64L-1-50K7	B3-U0-G4	B5-U0-G4

LUMEN CHARTS - SHIELDED OPTICS

LUMENS											
PART NUMBER	T2 HSS	LM/W	T3 HSS	LM/W	T4 HSS	LM/W	CDL*	LM/W	CDR*	LM/W	WATTAGE
NV-1-16L-40-27K7	1,386	66	1,336	64	1,343	64	-	-	-	-	21
NV-1-16L-40-30K7	1,499	71	1,445	69	1,452	69	-	-	-	-	21
NV-1-16L-40-40K7	1,620	77	1,561	74	1,569	75	-	-	-	-	21
NV-1-16L-40-50K7	1,620	77	1,561	74	1,569	75	-	-	-	-	21
NV-1-16L-53-27K7	1,837	66	1,771	63	1,780	64	-	-	-	-	28
NV-1-16L-53-30K7	1,986	71	1,914	68	1,924	69	-	-	-	-	28
NV-1-16L-53-40K7	2,146	77	2,068	74	2,079	74	-	-	-	-	28
NV-1-16L-53-50K7	2,146	77	2,068	74	2,079	74	-	-	-	-	28
NV-1-16L-7-27K7	2,426	67	2,338	65	2,350	65	-	-	-	-	36
NV-1-16L-7-30K7	2,623	73	2,528	70	2,541	71	-	-	-	-	36
NV-1-16L-7-40K7	2,835	79	2,732	76	2,746	76	-	-	-	-	36
NV-1-16L-7-50K7	2,835	79	2,732	76	2,746	76	-	-	-	-	36
NV-1-16L-1-27K7	3,639	65	3,508	63	3,526	63	-	-	-	-	56
NV-1-16L-1-30K7	3,935	70	3,792	68	3,812	68	-	-	-	-	56
NV-1-16L-1-40K7	4,252	76	4,098	73	4,119	74	-	-	-	-	56
NV-1-16L-1-50K7	4,252	76	4,098	73	4,119	74	-	-	-	-	56
NV-1-32L-7-27K7	4,853	68	4,677	66	4,701	66	-	-	-	-	71
NV-1-32L-7-30K7	5,247	74	5,057	71	5,083	72	-	-	-	-	71
NV-1-32L-7-40K7	5,669	80	5,464	77	5,492	77	-	-	-	-	71
NV-1-32L-7-50K7	5,669	80	5,464	77	5,492	77	-	-	-	-	71
NV-1-32L-1-27K7	7,279	69	7,015	66	7,051	67	-	-	-	-	106
NV-1-32L-1-30K7	7,870	74	7,585	72	7,624	72	-	-	-	-	106
NV-1-32L-1-40K7	8,504	80	8,196	77	8,238	78	-	-	-	-	106
NV-1-32L-1-50K7	8,504	80	8,196	77	8,238	78	-	-	-	-	106
NV-1-48L-7-27K7	7,279	70	7,015	67	7,051	68	-	-	-	-	104
NV-1-48L-7-30K7	7,870	76	7,585	73	7,624	73	-	-	-	-	104
NV-1-48L-7-40K7	8,504	82	8,196	79	8,238	79	-	-	-	-	104
NV-1-48L-7-50K7	8,504	82	8,196	79	8,238	79	-	-	-	-	104
NV-1-48L-1-27K7	10,918	70	10,523	67	10,577	68	-	-	-	-	156
NV-1-48L-1-30K7	11,805	76	11,377	73	11,436	73	-	-	-	-	156
NV-1-48L-1-40K7	12,755	82	12,293	79	12,356	79	-	-	-	-	156
NV-1-48L-1-50K7	12,755	82	12,293	79	12,356	79	-	-	-	-	156
NV-1-64L-7-27K7	9,705	70	9,354	67	9,402	68	5,797	42	5,725	41	139
NV-1-64L-7-30K7	10,493	75	10,113	73	10,165	73	6,191	45	6,190	45	139
NV-1-64L-7-40K7	11,338	82	10,927	79	10,983	79	6,689	48	6,689	48	139
NV-1-64L-7-50K7	11,338	82	10,927	79	10,983	79	7,013	50	6,689	48	139
NV-1-64L-1-27K7	14,558	70	14,031	68	14,103	68	8,695	42	8,588	41	207
NV-1-64L-1-30K7	15,740	76	15,170	73	15,248	74	9,286	45	9,286	45	207
NV-1-64L-1-40K7	17,007	82	16,391	79	16,475	80	10,034	48	10,033	48	207
NV-1-64L-1-50K7	17,007	82	16,391	79	16,475	80	10,519	51	10,033	48	207

***64L Only**

BUG RATINGS - SHIELDED OPTICS

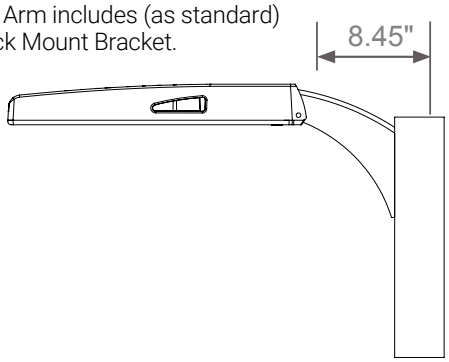
BUG RATING					
PART NUMBER	T2 HSS	T3 HSS	T4 HSS	CDL*	CDR*
NV-1-16L-40-27K7	B0-U0-G0	B0-U0-G0	B0-U0-G0	-	-
NV-1-16L-40-30K7	B0-U0-G0	B0-U0-G0	B0-U0-G0	-	-
NV-1-16L-40-40K7	B0-U0-G0	B0-U0-G0	B0-U0-G0	-	-
NV-1-16L-40-50K7	B0-U0-G0	B0-U0-G0	B0-U0-G0	-	-
NV-1-16L-53-27K7	B0-U0-G0	B0-U0-G0	B0-U0-G1	-	-
NV-1-16L-53-30K7	B0-U0-G0	B0-U0-G1	B0-U0-G1	-	-
NV-1-16L-53-40K7	B0-U0-G0	B0-U0-G1	B0-U0-G1	-	-
NV-1-16L-53-50K7	B0-U0-G0	B0-U0-G1	B0-U0-G1	-	-
NV-1-16L-7-27K7	B0-U0-G1	B0-U0-G1	B0-U0-G1	-	-
NV-1-16L-7-30K7	B0-U0-G1	B0-U0-G1	B0-U0-G1	-	-
NV-1-16L-7-40K7	B0-U0-G1	B0-U0-G1	B0-U0-G1	-	-
NV-1-16L-7-50K7	B0-U0-G1	B0-U0-G1	B0-U0-G1	-	-
NV-1-16L-1-27K7	B0-U0-G1	B0-U0-G1	B0-U0-G1	-	-
NV-1-16L-1-30K7	B1-U0-G1	B0-U0-G1	B0-U0-G1	-	-
NV-1-16L-1-40K7	B1-U0-G1	B0-U0-G1	B0-U0-G1	-	-
NV-1-16L-1-50K7	B1-U0-G1	B0-U0-G1	B0-U0-G1	-	-
NV-1-32L-7-27K7	B1-U0-G1	B0-U0-G1	B0-U0-G1	-	-
NV-1-32L-7-30K7	B1-U0-G1	B0-U0-G1	B1-U0-G2	-	-
NV-1-32L-7-40K7	B1-U0-G1	B0-U0-G2	B1-U0-G2	-	-
NV-1-32L-7-50K7	B1-U0-G1	B0-U0-G2	B1-U0-G2	-	-
NV-1-32L-1-27K7	B1-U0-G2	B1-U0-G2	B1-U0-G2	-	-
NV-1-32L-1-30K7	B1-U0-G2	B1-U0-G2	B1-U0-G2	-	-
NV-1-32L-1-40K7	B1-U0-G2	B1-U0-G2	B1-U0-G2	-	-
NV-1-32L-1-50K7	B1-U0-G2	B1-U0-G2	B1-U0-G2	-	-
NV-1-48L-7-27K7	B1-U0-G2	B1-U0-G2	B1-U0-G2	-	-
NV-1-48L-7-30K7	B1-U0-G2	B1-U0-G2	B1-U0-G2	-	-
NV-1-48L-7-40K7	B1-U0-G2	B1-U0-G2	B1-U0-G2	-	-
NV-1-48L-7-50K7	B1-U0-G2	B1-U0-G2	B1-U0-G2	-	-
NV-1-48L-1-27K7	B1-U0-G2	B1-U0-G2	B1-U0-G2	-	-
NV-1-48L-1-30K7	B1-U0-G2	B1-U0-G2	B1-U0-G2	-	-
NV-1-48L-1-40K7	B1-U0-G2	B1-U0-G2	B1-U0-G2	-	-
NV-1-48L-1-50K7	B1-U0-G2	B1-U0-G2	B1-U0-G2	-	-
NV-1-64L-7-27K7	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G2
NV-1-64L-7-30K7	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G2
NV-1-64L-7-40K7	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G2
NV-1-64L-7-50K7	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G2	B1-U0-G2
NV-1-64L-1-27K7	B1-U0-G2	B1-U0-G2	B1-U0-G3	B1-U0-G2	B1-U0-G2
NV-1-64L-1-30K7	B1-U0-G2	B1-U0-G3	B1-U0-G3	B1-U0-G2	B1-U0-G2
NV-1-64L-1-40K7	B2-U0-G2	B1-U0-G3	B1-U0-G3	B1-U0-G2	B1-U0-G2
NV-1-64L-1-50K7	B2-U0-G2	B1-U0-G3	B1-U0-G3	B1-U0-G2	B1-U0-G2

***64L Only**

MOUNTING OPTIONS

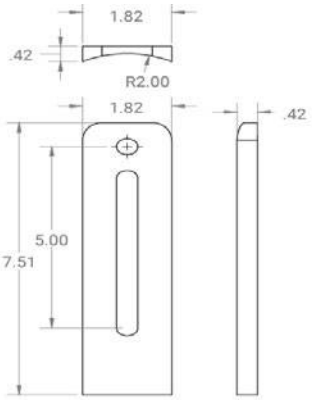
ARCHITECTURAL SWEEP ARM (ASA)

Cast Sweep Arm includes (as standard)
Internal Quick Mount Bracket.

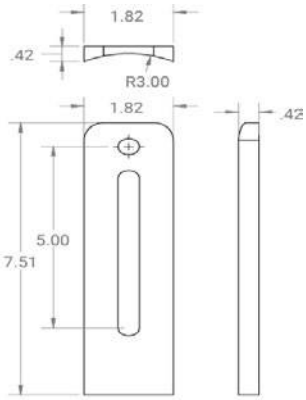


ASA ROUND POLE ADAPTORS

RPA-ASA-4



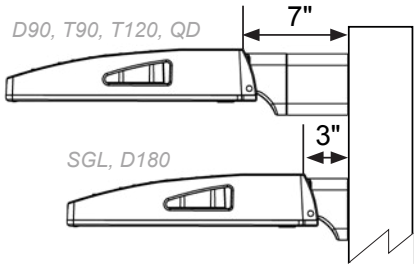
RPA-ASA-5



DIRECT POLE (DP)

Standard mounting arm is extruded aluminum in lengths of 3" and 7".

**Arm lengths may vary depending on configuration*

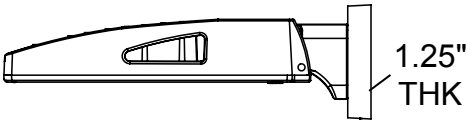


DPX ARM LENGTH

DPX ARM LENGTH	SGL	D90	D180	D180	T90	T120	QD
NV-1	3"	7"	3"	7"	7"	7"	7"

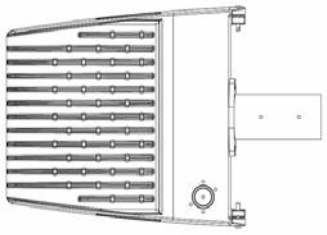
WALL MOUNT (WM)

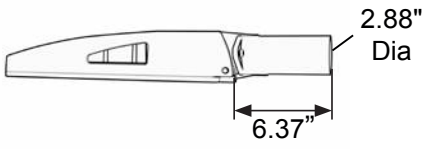
Cast Aluminum Plate for direct wall mount.
3" extruded aluminum arm mounts directly to a cast wall mount box.



MAST ARM MOUNT (MA)

Mast Arm Fitter slips over 2-3/8" OD tenon.

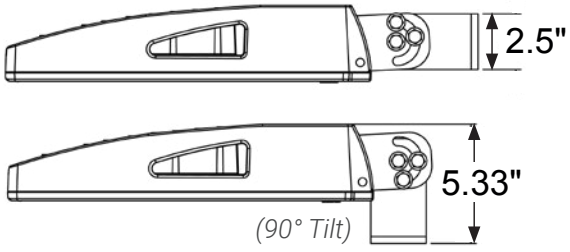




TRUNNION MOUNT (TM)

Steel, bolt-on-mounting for adjustable installation with a maximum uplift of 90 degrees.

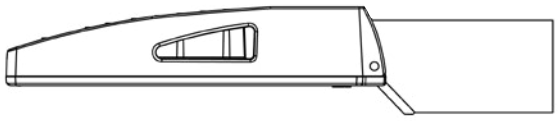
**Unpainted stainless steel is standard*



MOUNTING OPTIONS (CONTINUED)

TENNIS ARM (TA)

Steel fitter slips over 3.5" x 1.5" rectangular arm. *See Tennis Arm Spec Sheet for details

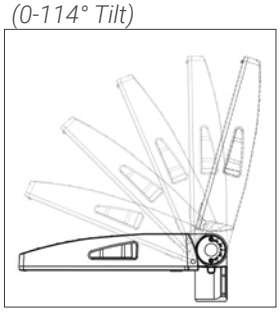


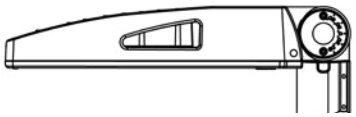
KNUCKLE MOUNT (KM)

Die Cast Knuckle great for adjustable installation on 2-3/8" OD vertical or horizontal tenon.

- Max Up-tilt of 90 degrees
- Adjustable in 6 degree increments
- 1.5G Vibration Rated per ANSI C136.31-2010

(0-114° Tilt)

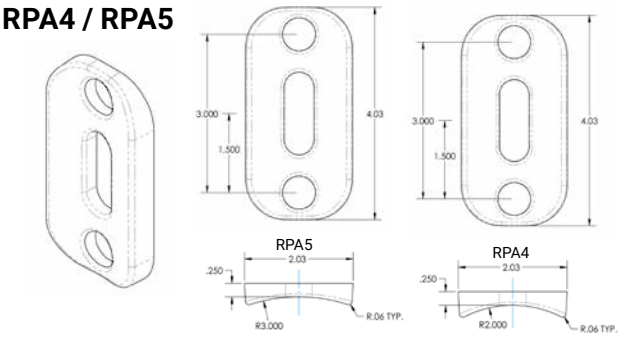




ROUND POLE ADAPTER OPTIONS (RPA4) (RPA5)

When using round poles, specify Round Pole Adapter (RPA). Specify RPA4 when installing on 3”-4” round poles, and RPA5 when installing on 5”-6” round poles.

RPA4 / RPA5



QUICK MOUNT BRACKET (QMB)

Optional Cast Aluminum Bracket designed for quick mounting on Direct Square or Round Poles. Cleat mounts directly to pole for easily hung fixtures. Has a 2”x4” Drill Pattern.



RETROFIT MOUNT BRACKET (RQMB)

Optional Cast Aluminum Bracket designed for quick mounting on Direct Square or Round Poles. Cleat mounts directly to pole for easily hung fixtures. Drill Pattern is adjustable from 2”x4” to 2”x6”.

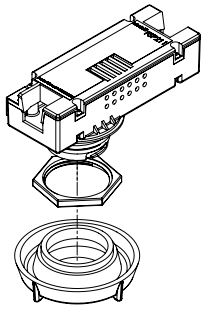


CONTROL OPTIONS

- DIMMING CONTROL (FSP)—Passive infrared (PIR) sensor providing multi-level control based on motion/daylight contribution
- All control parameters adjustable via wireless configuration remote storing and transmitting sensor profiles.
- FSP-8 mounting heights 8 feet and below
- FSP-20 mounting heights 9-20 feet.
- FSP-40 mounting heights 21-40 feet.
- Includes 5 dimming event cycles, 0-10V dimming with motion sensing, re-programmable in the field.

FSP-211 WITH MOTION SENSOR (FSP-XX)

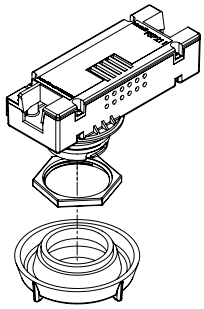
FSP-211



- FSP-211(FSP-X)—Passive infrared (PIR) sensor providing multi-level control based on motion/daylight contribution.
- 120/277VAC, 230-240VAC
- All control parameters adjustable via wireless configuration remote storing and transmitting sensor profiles.
- FSP-8 mounting heights 8 feet and below
- FSP-20 mounting heights 9-20 feet.
- FSP-40 mounting heights 21-40 feet.
- Includes 5 dimming event cycles, 0-10V dimming with motion sensing, re-programmable in the field.

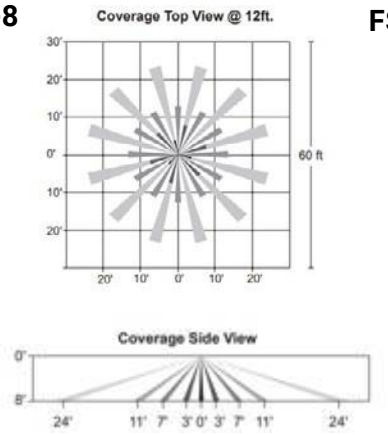
FSP-221 WITH MOTION SENSOR (FSP-HV-XX)

FSP-221

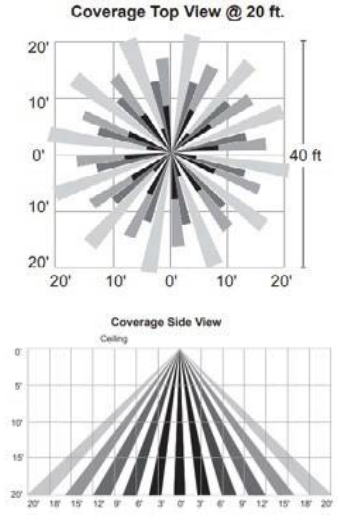


- FSP-221 (FSP-HV-X)—Passive infrared (PIR) sensor providing multi-level control based on motion/daylight contribution.
- 100-347VAC 208/230/480VAC
- All control parameters adjustable via wireless configuration remote storing and transmitting sensor profiles.
- FSP-8 mounting heights 8 feet and below
- FSP-20 mounting heights 9-20 feet.
- FSP-40 mounting heights 21-40 feet.
- Includes 5 dimming event cycles, 0-10V dimming with motion sensing, re-programmable in the field.

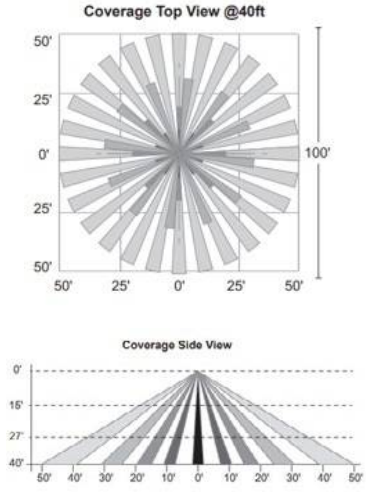
FSP-8



FSP-20

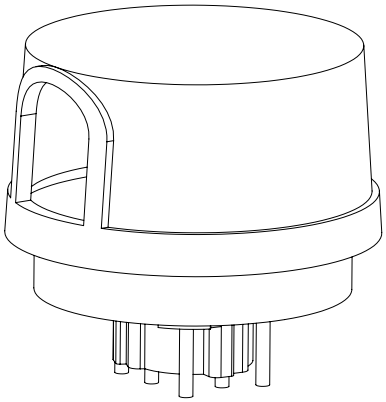


FSP-40



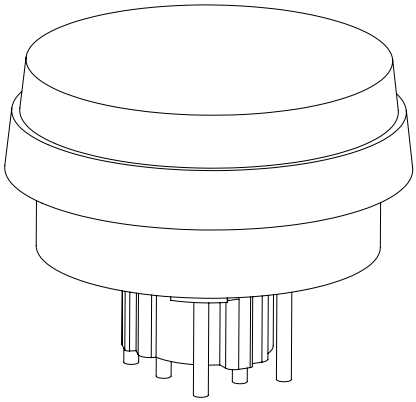
PHOTOCELL + RECEPTACLE (PCR)

7-Pin Receptacle and Electronic Twist Lock Photocell for dusk to dawn operation.



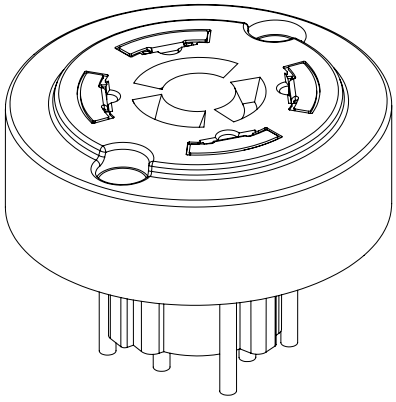
RECEPTACLE + SHORTING CAP (PER)

7-Pin Receptacle and Shorting Cap.



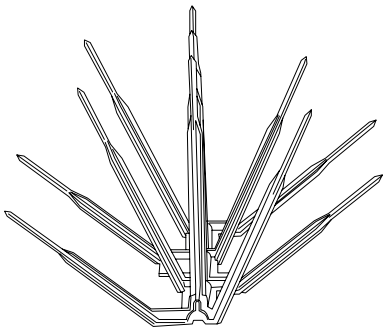
NEMA 7-PIN RECEPTACLE (PE7)

An ANSI C136.41-2013 receptacle provides electrical and mechanical interconnection between photo control cell and luminaire. Dimming receptacle available two or four dimming contacts supports 0-10 VDC dimming methods or Digital Addressable Lighting Interface (DALI), providing reliable power interconnect.



BIRD SPIKES (BS)

Bird Spikes offers effective and humane deterrent for larger bird species and provides cost-effective long-term solution to nuisance bird infestations and protect your property.



MARINE GRADE FINISH (MGF)

The **(MGF)** is a multi step process. Chemically washed in a 5 stage cleaning system. Pre-baked. Powder coated 3-5 mils of Zinc Rich Super Durable Polyester Primer. Oven Baked. Finished Powder Coating of Super Durable Polyester Powder Coat 3-5 mil thickness.



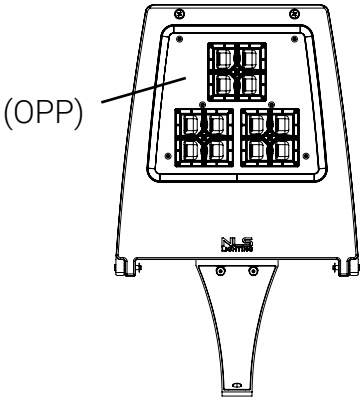
Powder Coat Finish
3-5 mil Powder Coat

Primer Layer
3-5 mil Zinc Rich Super Durable Polyester Primer

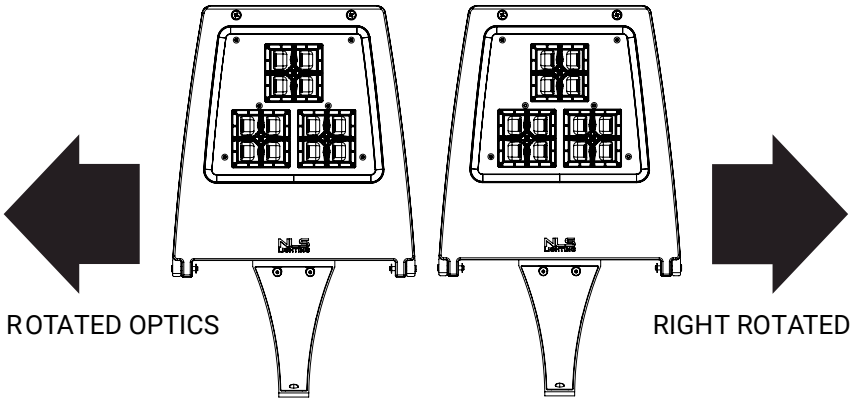
Prepared Casting
Chemically washed in multi Step 5 stage cleaning process

OPTIC PLATE PAINTED TO MATCH (OPP)

Optic plate is clear anodized as standard. The optic plate can be powder coated to match the finish of the fixture.



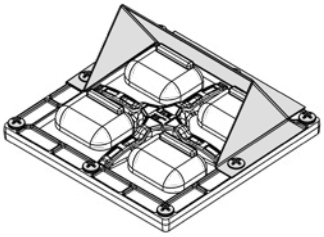
ROTATED OPTICS (ROL) (ROR)



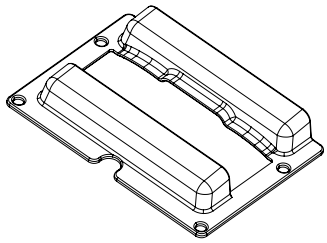
SHIELDING OPTIONS (AHS) (HSS)

SHIELDS (HSS, AHS)—House Side Shield (HSS) is designed for full property line cut-off. Automotive House Side Shield (AHS) is a single-sided shield allowing partial cut-off on either side or front of luminaire.

AUTOMOTIVE HOUSE SIDE SHIELD



HOUSE SIDE SHIELD



BLACK OPTIC FRAME

Optional Black Optic Frame (includes black hardware)Standard Optic Frame is white.



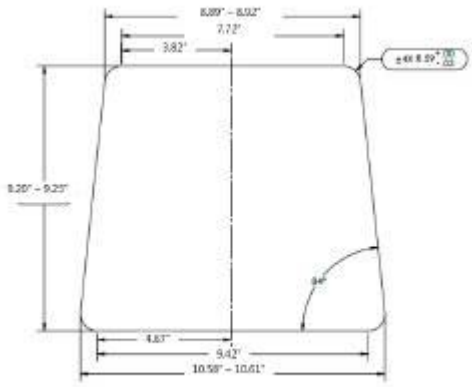
LENS OPTIONS

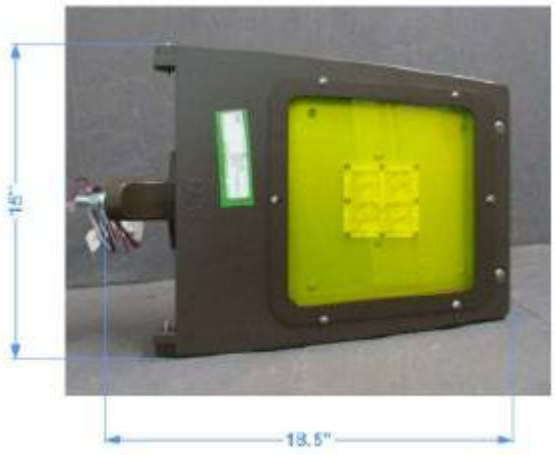
GL LENS (GL)
Low Iron Glass, fully tempered



HAL LENS (HAL)
High Performance Yellow Polycarbonate Lens
(less than 2% Blue Light Content)

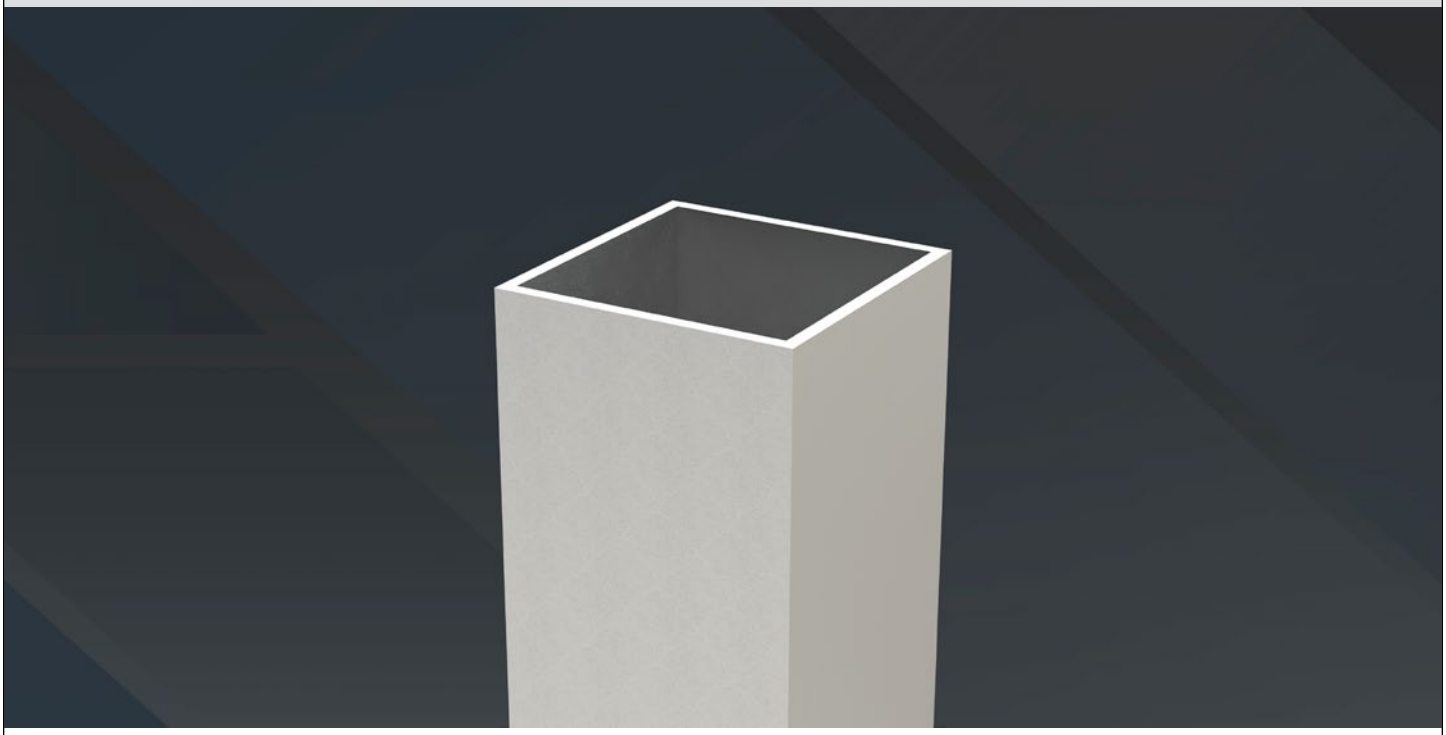






SSSP

SQUARE STRAIGHT STEEL POLE



HEIGHT
10’ - 35’

POLE SHAFT
The pole shaft material is a weldable grade hot rolled commercial quality carbon steel tubing with a minimum yield of 46,000 psi. Conforms to ASTM A500 Grade B Standards. Poles have ground lug welded inside hand-hole opposite side of the hand-hole. Pole shaft is welded to base plate on top and bottom of base plate.

BASE PLATE
The Base Plate is manufactured from structural hot rolled steel that meets or exceeds a minimum yield strength of 36,000 psi, conforms the ASTM–A36 standards. Base Plate vary in size from 1” thick for poles 21 feet and over, 3/4” thick for poles 10 to 20 feet.

ANCHOR BOLTS
All anchor bolts are hot dipped galvanized steel and come with two galvanized nuts and washers per bolt. Minimum yield strength 55,000 psi. Anchor bolts are not included for Custom Bolt Circle.

BASE COVER
All base covers are fabricated two-piece 6063 aluminum and powder coated to match the pole.

HAND-HOLE
A reinforced hand-hole is 12” on center from the base plate and is constructed of 3”x 5” rectangular steel tubing which is welded to pole shaft for added strength. The hand-hole covers are provided with internal bridge support and powder coated to match pole finish.

POLE CAP
All poles come with a removable polymer pole cap installed. All pole caps are black finish. Aluminum Pole Cap option is painted to match pole.

FINISH
All poles are treated with shot blast media for a near white finish, power blasted with 100 psi prior to powder coat application. Electrostatically applied AAMA 2604 polyester powder coat with a 3 to 5 mil thickness for maximum adherence.

MARINE GRADE FINISH
All poles are washed through a 5-stage cleaning system with a deionized rinse, a 3 to 5 mils zinc rich durable polyester primer powder coat, followed by a 3 to 5 mils super durable AAMA 2604 polyester powder coat finish.

Recommended for applications near the coastline or in demanding environments.

GALVANIZED FINISH
All poles are Hot Dipped Galvanized in a multi stage process. Galvanizing Specification, Zinc (Hot Dipped Galvanized) per ASTM A 123/A 123M – 02

Zinc coatings on threaded materials shall conform to specification A 153 /A 153M. The coating shall be continuous and reasonably smooth and uniform in thickness and in weight.

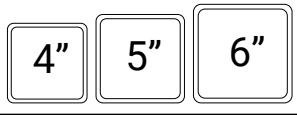
Galvanizing Adherence - The Zinc coating shall withstand handling consistent with the nature and thickness of the coating and normal use of the article without peeling or flaking.

Provides the most protection against the elements in coastal and harsh environments.

GALVANIZED UNDER POWDER
Galvanized Under Powder (GUP) adheres to above galvanized specification, and the second stage is a light sand blast on the outside of the pole, third stage is a 3-5 mils AAMA 2604 polyester powder coat finish for maximum adherence.

VIBRATION DAMPENER
The Vibration Dampener is factory installed and consists of a rugged galvanized chain coated with heavy duty polyester tubing that is factory secured at the bottom 2-3rds of the pole and can optionally be secured in the field by a contractor at the base during installation.

BUY AMERICAN
To ensure the latest BAA/TAA/BABA Standards are being met, please select BAA, TAA, or BABA in the options section. Please contact the factory before placing an order for any NLS products requesting BAA (Buy American Act), TAA (Trade American Act), or BABA (Build America, Buy America).



Project Name:	Type:

SSSP ORDERING GUIDE

Cat#

Square
Straight
Steel Pole
(SSSP)

Height

10′ **(10)**
12′ **(12)**
14′ **(14)**
15′ **(15)**
16′ **(16)**
18′ **(18)**
20′ **(20)**
22′ **(22)**
24′ **(24)**
25′ **(25)**
28′ **(28)**
30′ **(30)**
32′ **(32)**
35′ **(35)**

Pole Dimension

4″ Square
(4S)

5″ Square
(5S)

6″ Square
(6S)❸

Gauge

.120
Wall Thickness
(11G)

.180
Wall Thickness
(7G)

Base Pattern

(10′-20′)
8.187″ – 10.187″
Bolt Circle
(9BC)

(22′-35′)
10″ – 14″
Bolt Circle
(12BC)

Custom
Bolt Circle
(CBC)
** Consult Factory*

Mounting

Single
(SGL)

Double
(D-90)
(D-180)

Triple
(T-90)

Quad
(QD)

No Drill
(ND)
**Tenon Option*

Tenon

2 3/8″ Round **(T2R)**

3″ Round **(T3R)**

3 1/2″ Round **(T312R)**

4 1/2″ Round **(T412R)**

3 1/2″ Square **(T312S)**

4 1/2″ Square **(T412S)**

5 1/2″ Square **(T512S)**

Color

Bronze Textured
(BRZ)

White Textured
(WHT)

Smooth White
Gloss
(SWT)

Silver
(SVR)

Green Textured
(GRN)

Hunter Green Textured
(HGN)

Black Textured
(BLK)

Smooth Black
Gloss
(SBK)

Graphite Textured
(GPH)

Grey Textured
(GRY)

Custom
(CS)

Bolts

3/4″ x 30″
(3430)

1″ x 36″
(136)

Less Anchor
Bolts
(LAB)

Options

GFI Kit
(GFI20A)❹❺
20 Amp
Weather Proof Receptacle

GFI
Provision Only
(PROV)❺

Galvanized
(GLV)

Galvanized
Under Powder
(GUP)

1/2″ Coupling
(COUP)❺
** Specify Location*

Vibration Dampener
(VD)

Extra Hand Hole
(XHH)❺
** Specify Location*

Marine Grade Finish
(MGF)

UL Certified with label
(UL)❶

Aluminum Pole Cap
(APC)❷

Buy American Act
(BAA)❷

Trade Agreement Act
(TAA)❷

Build America Buy American
(BABA)❷

Notes:
❶ Aluminum Pole Cap must be selected for UL Certified Pole Option
❷ Consult Factory
❸ For 6S Pole, minimum bolt circle 10.19″
❹ Standard weatherproof cover comes standard with option.
For lockable cover requests, please contact factory
❺ Specify the Height (in feet) from base and degree orientation from hand hole.

NLS LIGHTING
701 Kingshill Place, Carson, CA 90746
Call Us Today (310) 341-2037
nlslighting.com

PRODUCT SPECIFICATIONS

Max. allowable EPA - SSSP poles (per AASHTO LRFDLTS-1)

Catalog Number	Shaft Length, ft	Wall thick-ness, in.	Shaft dia., in.	Base Plate, in.	Bolt Circle, in.	Bolts	80 mph	Max. wt. (lb)	90 mph	Max. wt. (lb)	100 mph	Max. wt. (lb	110 mph	Max. wt. (lb)	115 mph	Max. wt., lb	120 mph	Max. wt., lb	130 mph	Max. wt., lb	140 mph	Max. wt., lb	150 mph	Max. wt., lb	160 mph	Max. wt., lb	170 mph	Max. wt., lb	180 mph	Max. wt., lb
SSSP-10-4S-11G-9BC-3430	10	0.120	4	9" sq.	9	3/4"x30"	20.0	250	20.0	250	20.0	250	20.0	250	20.0	250	20.0	250	20.0	250	20.0	250	17.8	250	15.6	250	13.2	250	11.4	250
SSSP-12-4S-11G-9BC-3430	12	0.120	4	9" sq.	9	3/4"x30"	20.0	250	20.0	250	20.0	250	20.0	250	20.0	250	20.0	250	19.5	250	16.3	250	13.7	250	11.9	250	10.1	250	8.7	218
SSSP-14-4S-11G-9BC-3430	14	0.120	4	9" sq.	9	3/4"x30"	20.0	250	20.0	250	20.0	250	20.0	250	20.0	250	19.3	250	15.9	250	13.1	250	10.9	250	9.1	227	7.3	183	6.3	158
SSSP-15-4S-7G-9BC-3430	15	0.188	4	9" sq.	9	3/4"x30"	20.0	250	20.0	250	20.0	250	20.0	250	20.0	250	20.0	250	17.7	250	14.7	250	11.9	250	9.9	248	8.3	208	6.9	173
SSSP-16-4S-11G-9BC-3430	16	0.120	4	9" sq.	9	3/4"x30"	20.0	250	20.0	250	20.0	250	18.1	250	16.1	250	14.7	250	11.9	250	9.7	242	7.9	198	6.1	153	5.1	128	4.1	103
SSSP-18-4S-11G-9BC-3430	18	0.120	4	9" sq.	9	3/4"x30"	20.0	250	20.0	250	19.2	250	15.2	250	13.2	250	12.0	250	9.2	230	7.2	180	5.6	140	4.6	115	3.2	80	2.2	60
SSSP-20-4S-11G-9BC-3430	20	0.120	4	9" sq.	9	3/4"x30"	20.0	250	20.0	250	16.1	250	12.3	250	10.7	250	9.7	242	7.1	178	5.3	133	3.9	98	2.7	68	1.7	60	0.9	60
SSSP-20-4S-7G-9BC-3430	20	0.188	4	9" sq.	9	3/4"x30"	20.0	250	20.0	250	20.0	250	15.7	250	14.1	250	12.5	250	9.5	238	7.7	193	5.7	143	4.3	108	3.1	78	2.1	60
SSSP-20-5S-11G-9BC-3430	20	0.120	5	9" sq.	9	3/4"x30"	20.0	250	20.0	250	20.0	250	19.3	250	16.9	250	15.0	250	11.6	250	9.0	226	6.9	172	5.1	128	3.7	92	2.5	63
SSSP-20-5S-7G-9BC-3430	20	0.188	5	9" sq.	9	3/4"x30"	20.0	250	20.0	250	20.0	250	20.0	250	20.0	250	20.0	250	17.9	250	14.4	250	11.6	250	9.3	232	7.4	184	5.8	144
SSSP-22-4S-11G-12BC-136	22	0.120	4	12" sq.	12	1"x36"	20.0	250	16.7	250	12.4	250	9.2	231	7.9	198	6.8	169	4.9	123	3.4	85	2.2	60	1.2	60	0.4	60	0.0	-
SSSP-22-4S-7G-12BC-136	22	0.188	4	12" sq.	12	1"x36"	20.0	250	20.0	250	19.2	250	14.8	250	13.0	250	11.5	250	8.9	223	6.8	171	5.2	130	3.8	96	2.7	68	1.8	60
SSSP-22-5S-11G-12BC-136	22	0.120	5	12" sq.	12	1"x36"	20.0	250	20.0	250	19.3	250	14.6	250	12.7	250	11.0	250	8.2	206	6.0	151	4.2	106	2.8	71	1.6	60	0.6	60
SSSP-22-5S-7G-12BC-136	22	0.188	5	12" sq.	12	1"x36"	20.0	250	20.0	250	20.0	250	20.0	250	20.0	250	20.0	250	15.9	250	12.6	250	10.0	250	7.9	197	6.1	152	4.6	116
SSSP-24-4S-11G-12BC-136	24	0.120	4	12" sq.	12	1"x36"	19.6	250	14.0	250	10.4	250	7.2	180	6.0	150	5.2	130	3.2	80	1.8	60	1.0	60	0.0	-	0.0	-	0.0	-
SSSP-24-4S-7G-12BC-136	24	0.188	4	12" sq.	12	1"x36"	20.0	250	20.0	250	16.4	250	12.4	250	10.8	250	9.4	234	7.0	175	5.1	128	3.6	90	2.4	60	1.4	60	0.5	60
SSSP-24-5S-11G-12BC-136	24	0.120	5	12" sq.	12	1"x36"	20.0	250	20.0	250	16.2	250	11.9	250	10.1	250	8.6	215	6.1	152	4.1	101	2.4	61	1.1	60	0.0	-	0.0	-
SSSP-24-5S-7G-12BC-136	24	0.188	5	12" sq.	12	1"x36"	20.0	250	20.0	250	20.0	250	20.0	250	19.1	250	16.9	250	13.1	250	10.1	250	7.7	192	5.8	144	4.1	103	2.7	68
SSSP-25-4S-11G-12BC-136	25	0.120	4	12" sq.	12	1"x36"	18.2	250	13.2	250	9.4	235	6.6	165	5.4	135	4.4	110	2.8	70	1.2	60	0.4	60	0.0	-	0.0	-	0.0	-
SSSP-25-4S-7G-12BC-136	25	0.188	4	12" sq.	12	1"x36"	20.0	250	20.0	250	15.1	250	11.3	250	9.8	244	8.4	210	6.1	153	4.3	108	2.9	71	1.7	60	0.7	60	0.0	-
SSSP-25-5S-11G-12BC-136	25	0.120	5	12" sq.	12	1"x36"	20.0	250	20.0	250	14.7	250	10.6	250	9.0	224	7.5	188	5.1	127	3.1	78	1.6	60	0.3	60	0.0	-	0.0	-
SSSP-25-5S-7G-12BC-136	25	0.188	5	12" sq.	12	1"x36"	20.0	250	20.0	250	20.0	250	20.0	250	17.6	250	15.4	250	11.8	250	8.9	223	6.7	166	4.7	118	3.2	80	1.9	60
SSSP-26-4S-11G-12BC-136	26	0.120	4	12" sq.	12	1"x36"	17.2	250	11.8	250	8.4	210	5.4	135	4.6	115	3.4	85	1.8	60	0.8	60	0.0	-	0.0	-	0.0	-	0.0	-
SSSP-26-4S-7G-12BC-136	26	0.188	4	12" sq.	12	1"x36"	20.0	250	19.0	250	14.0	250	10.3	250	8.8	220	7.5	187	5.3	133	3.6	89	2.2	60	1.0	60	0.1	60	0.0	-
SSSP-26-5S-11G-12BC-136	26	0.120	5	12" sq.	12	1"x36"	20.0	250	18.8	250	13.4	250	9.5	237	7.8	196	6.5	161	4.1	103	2.3	60	0.8	60	0.0	-	0.0	-	0.0	-
SSSP-26-5S-7G-12BC-136	26	0.188	5	12" sq.	12	1"x36"	20.0	250	20.0	250	20.0	250	18.6	250	16.2	250	14.1	250	10.6	250	7.9	196	5.6	141	3.8	95	2.3	60	1.0	60
SSSP-28-4S-7G-12BC-136	28	0.188	4	12" sq.	12	1"x36"	20.0	250	16.4	250	11.8	250	8.4	210	7.0	175	5.8	144	3.8	94	2.2	60	0.9	60	0.0	-	0.0	-	0.0	-
SSSP-28-5S-11G-12BC-136	28	0.120	5	12" sq.	12	1"x36"	20.0	250	16.0	250	11.0	250	7.3	182	5.8	144	4.5	112	2.3	60	0.6	60	0.0	-	0.0	-	0.0	-	0.0	-
SSSP-28-5S-7G-12BC-136	28	0.188	5	12" sq.	12	1"x36"	20.0	250	20.0	250	20.0	250	15.7	250	13.5	250	11.6	250	8.4	209	5.8	145	3.7	93	2.0	60	0.6	60	0.0	-
SSSP-28-6S-7G-12BC-136	28	0.188	6	12" sq.	12	1"x36"	20.0	250	20.0	250	20.0	250	19.8	250	17.0	250	14.6	250	10.6	250	7.4	185	4.9	121	2.7	68	1.0	60	0.0	-
SSSP-30-5S-11G-12BC-136	30	0.120	5	12" sq.	12	1"x36"	19.9	250	13.4	250	8.7	218	5.3	132	3.9	98	2.7	67	0.6	60	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-
SSSP-30-5S-7G-12BC-136	30	0.188	5	12" sq.	12	1"x36"	20.0	250	20.0	250	18.2	250	13.2	250	11.1	250	9.3	233	6.3	157	3.9	98	2.0	60	0.4	60	0.0	-	0.0	-
SSSP-30-6S-7G-12BC-136	30	0.188	6	12" sq.	12	1"x36"	20.0	250	20.0	250	20.0	250	16.6	250	14.0	250	11.8	250	8.0	201	5.1	126	2.7	66	0.7	60	0.0	-	0.0	-
SSSP-32-5S-7G-12BC-136	32	0.188	5	12" sq.	12	1"x36"	20.0	250	20.0	250	17.5	250	13.0	250	11.2	250	9.6	239	6.9	173	4.8	119	3.1	77	1.7	60	0.6	60	0.0	-
SSSP-32-6S-7G-12BC-136	32	0.188	6	12" sq.	12	1"x36"	20.0	250	20.0	250	20.0	250	16.4	250	14.1	250	12.1	250	8.8	219	6.2	154	4.0	101	2.3	60	0.9	60	0.0	-
SSSP-35-5S-7G-12BC-136	35	0.188	5	12" sq.	12	1"x36"	20.0	250	19.3	250	13.8	250	9.6	240	8.0	199	6.5	162	4.1	102	2.1	60	0.6	60	0.0	-	0.0	-	0.0	-
SSSP-35-6S-7G-12BC-136	35	0.188	6	12" sq.	12	1"x36"	20.0	250	20.0	250	17.3	250	12.2	250	10.1	250	8.3	207	5.3	132	2.9	72	1.0	60	0.0	-	0.0	-	0.0	-
SSSP-40-5S-7G-12BC-136	40	0.188	5	12" sq.	12	1"x36"	20.0	250	13.2	250	8.4	210	4.8	120	3.3	83	2.0	60	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-
SSSP-40-6S-7G-12BC-136	40	0.188	6	12" sq.	12	1"x36"	20.0	250	16.7	250	10.7	250	6.2	155	4.4	110	2.8	70	0.1	60	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-

*Pole Assemblies With EPA>9.0 Require Specific Review

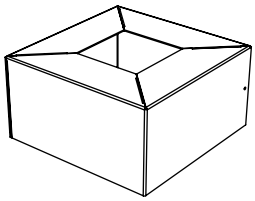
CAUTION: Installation of poles without luminaire(s) will compromise pole strength. Any accessories attached to the pole, or other modifications done in the field, will compromise the pole strength and may result in pole failure. Wind load evaluations and provisions for appendages such as banner arms, signage, cameras, etc., must be evaluated and approved by the factory prior to placing an order. Additional evaluation and approval should be performed by the customer's local structural engineer on the project.

Anchor Bolts are NOT included with Custom Bolt Circle.
Do NOT pour concrete referencing this drawing. Consult Factory.

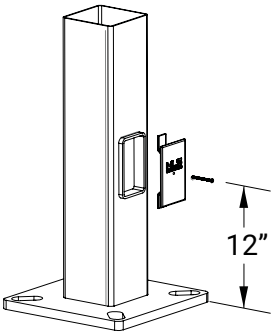
All wind loading calculations are based on sustained wind force plus an additional 1.3 gust.

NLS LIGHTING
701 Kingshill Place, Carson, CA 90746
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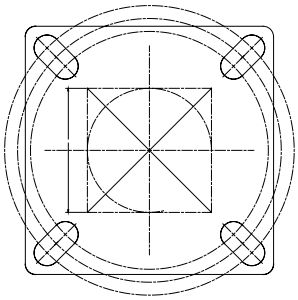
PRODUCT SPECIFICATIONS



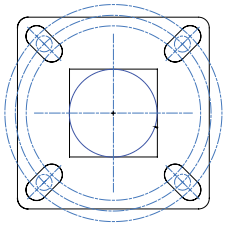
Base Cover



Base Detail



12” Base Detail



9” Base Detail

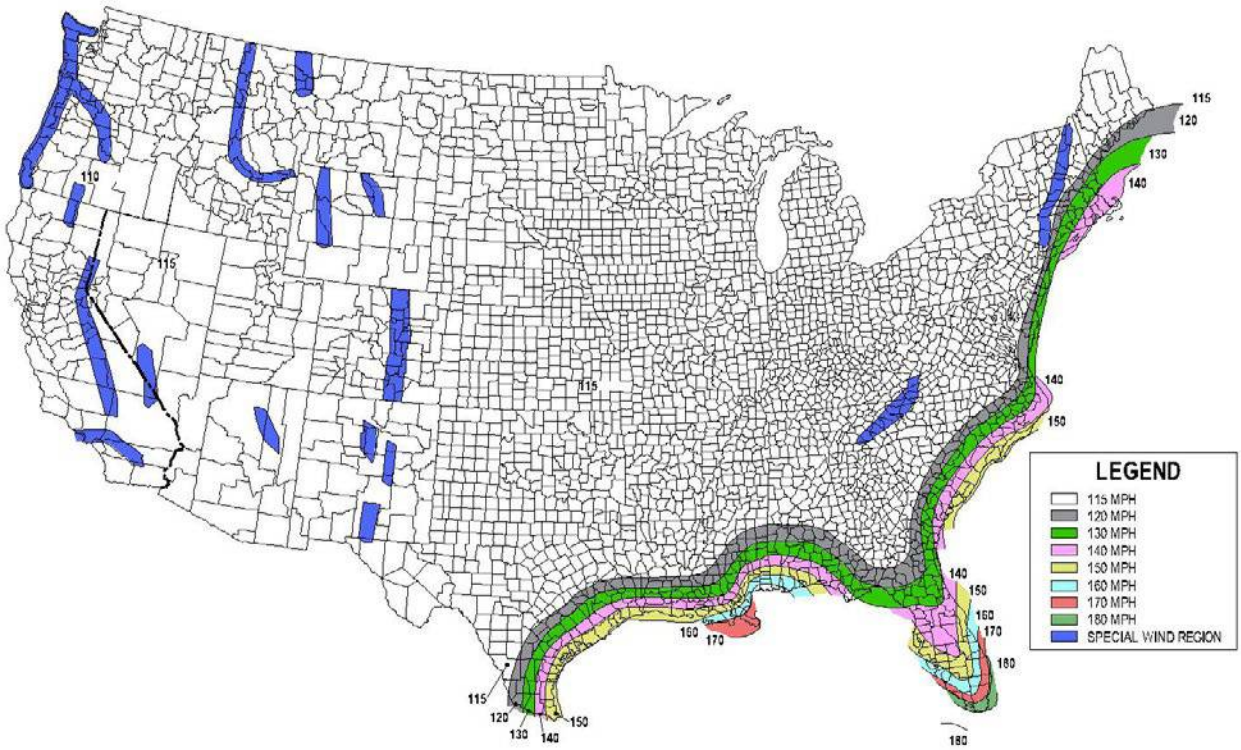


FIG. 3.8-1b - 700-Year MRI Basic Wind Speed, mph (AASHTO LRFDLTS-1)

1) All wind load calculations are based on sustained wind force plus and additional 1.3 gust
2) Wind Map is to be used as a reference only. Please coordinate with local agencies for further review.
3) Wind Map values are based on a 50 year mean recurrence. These values do not account for severe conditions, such as hurricanes, tornadoes, etc…
4) For review of poles with additional configurations (arms, banners, shorter/longer pole lengths, etc…), please contact factory.

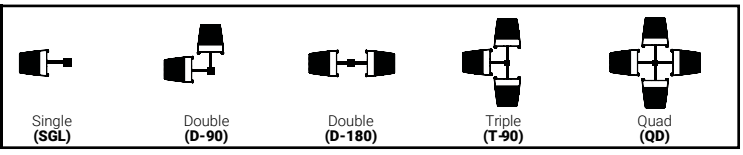
BUY AMERICAN OPTION
While all of the NLS Lighting products listed in this document qualify for the Buy America(n) Act of 1933, we reserve the right to change our listings without notice.

The information provided above is for general informational purposes only. We encourage you to consult legal professionals for advice particular to your projects concerning BAA, TAA, BABA or Buy America.

Additional NLS Products that meet BAA, TAA standards can be found at the following link:

https://nlslighting.com/wp-content/uploads/cs/NLS_BuyAmerica(n).pdf

MOUNTING CONFIGURATION



NLS LIGHTING

TRAC LINEAR ANGLED WALL MOUNT

TWA



LED WATTAGE CHART	
	16L
175 milliamps	10w (1206-1273 Lumens)
400 milliamps	21w (2478-2911 Lumens)
530 milliamps	28w (3508-3776 Lumens)
700 milliamps	36w (4385-4720 Lumens)
1050 milliamps	56w (6022-6482 Lumens)

Form
- 2 Architectural Wall Sconces
- Elegant Rectilinear Extruded Aluminum Housing
- Corrosion Resistant Stainless Steel External Hardware
- Sleek, Low Profile Housing
- Spec Grade Performance
- Engineered For Optimum Thermal Management
- 8 Architectural Finishes Standard, RAL Colors Available

Function
- Micro Optics IES Distributions T2, T3, T4
- 0-10V Dimming Drivers THD @ Max Load < 15% Power factor @ Max Load < 0.95
- Amber, 2700K, 3000K, 3500K, 4000K, or 5000K
- 16L LED Configuration
- 10-56 Watts
- CRI 70, 80, or 90
- Extruded Aluminum Heat Sink
- 5 Mils Powder Coat

Reliability
- Silicone Micro Optics
- 5 Year Standard Warranty
- IP67 Optics
- Reduces Energy Consumption And Costs Up To 65%

BUY AMERICAN

To ensure the latest BAA/TAA/BABA Standards are being met, please select BAA, TAA, or BABA in the options section. Please contact the factory before placing an order for any NLS products requesting BAA (Buy American Act), TAA (Trade American Act), or BABA (Build America, Buy America).

Project Name:	Type:

TWA ORDERING GUIDE

Cat#	Light Dist.	No. of LEDs	Milliamps	Kelvin
Trac Linear Angled Wall Mount **(TWA)**	Type 2 **(T2)** Type 3 **(T3)** Type 4 **(T4)**	16 **(16L)**	175 **(175)** 400 **(40)** 530 **(53)** 700 **(7)** 1050 **(1)**	Amber 585-600nM **(AMBER)**❸ 2700K, 70 CRI **(27K7)** 2700K, 80 CRI **(27K8)**❶ 3000K, 70 CRI **(30K7)** 3000K, 80 CRI **(30K8)**❶ 3500K, 80 CRI **(35K8)** 4000K, 70 CRI **(40K7)** 4000K, 80 CRI **(40K8)**❶ 5000K, 70 CRI **(50K7)** 5000K, 80 CRI **(50K8)**❶

Volts	Mounting	Color	Options
120-277 **(UNV)** 347-480 **(HV)**	Wall Mount **(WM)**	Bronze Textured **(BRZ)** White Textured **(WHT)** Smooth White Gloss **(SWT)** Silver Textured **(SVR)** Black Textured **(BLK)** Smooth Black Gloss **(SBK)** Graphite Textured **(GPH)** Grey **(GRY)** Green **(GRN)** Custom **(CS)**	Button Photo Cell **(PC)** Marine Grade Finish **(MGF)** Emergency Battery 8W **(EM8)** Vanity Plate **(VP)** 20KA Surge Protector **(20KA)** Buy American **(BAA)**❹ Trade American **(TAA)**❹ Build America Buy American **(BABA)**❹ Custom Controls Integration **(CCI)**❷

Notes:

❶ Consult Factory for Lead Time. Consult Factory for 90 CRI Requests.
❷ Please contact Factory for Custom Control Integration requests (nLight, NX, WaveLinx, Crestron, DMX/RDM, Synapse, Casambi, Dali II, Avi-On, or other control systems)
❸ Turtle Safe
❹ Consult factory for all BAA/TAA/BABA requests

PRODUCT SPECIFICATIONS

ELECTRICAL
- 120-277 Volts (UNV) or 347-480 Volts (HV)
- 0-10V dimming driver by Philips Advance
- Driver power factor at maximum load is ≥ .95, THD maximum load is 15%
- LED Drivers Ambient Temp. Min is -40°C and Ambient Temp. Max ranges from 50°C to 55°C and, in some cases, even higher. Consult the factory for revalidation by providing the fixture catalog string before quoting and specifying it.
- All drivers, controls, and sensors housed in enclosed compartment
- Lumileds Luxeon MX LED's
- CRI 70, 80, or 90
- Color temperatures: Amber, 2700K, 3000K, 3500K, 4000K, 5000K
- Surge Protection: 20KA optional.

CONSTRUCTION
- Formed Aluminum
- Internal cooling fins
- Corrosion resistant external hardware
- One-piece silicone gasket ensures water tight seal for electronics compartment
- Two-piece silicone Micro Optic system ensures IP67 seal around each PCB

OPTIONS
- MARINE GRADE FINISH (MGF)—A multi-step process creating protective finishing coat against harsh environments. Chemically washed in a 5 stage cleaning system. Pre-baked, Powder coated 3-5 mils of Zinc Rich Super Durable Polyester Primer. Oven Baked. Finished Powder Coating of Super Durable Polyester Powder Coat 3-5 mil thickness.
- EMERGENCY BATTERY BACKUP 8W (EM8)
- VANITY PLATE (VP)—The Vanity Plate was designed to cover the un-sightly remains on a wall where a larger HID wallpack was removed. The Vanity Plate will be painted to match the finish of the fixture, custom finishes are available, please consult factory. The standard Vanity Plate is 16" x 16".
- 20KA SURGE PROTECTOR (20KA)

CONTROLS
- Button Type Photo Cell (PC)

- Controls Agnostic: Please contact factory for your preferred controls option. (nLight, NX, WaveLinx, Crestron, DMX/RDM, Synapse, Casambi, DALI II, Avi-On, or other control systems)

FINISH
- 3-5 mils electrostatic powder coat.
- NLS Lighting standard high-quality finishes prevent corrosion and protects against extreme environmental conditions

WARRANTY
Five-year limited warranty for drivers and LEDs.

OPTICS
Silicone optics high thermal stability and light output provide higher powered LEDs with minimized lumen depreciation. UV stability with scratch resistance increases exterior application durability. Silicone optics do not yellow, crack or brittle over time

LISTINGS
- Certified to UL 1598
- UL 8750
- CSA C22.2 No. 250.0
- IP67 Rated Optics
- IK10 Rated

BUY AMERICAN OPTION
While all of the NLS Lighting products listed in this document qualify for the Buy America(n) Act of 1933, we reserve the right to change our listings without notice.

The information provided above is for general informational purposes only. We encourage you to consult legal professionals for advice particular to your projects concerning BAA, TAA, BABA or Buy America.

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https://nlslighting.com/buy-american/



The information and specifications on this document are subject to change without any notification. All values are design, nominal, typical or prorated values when measured under internal and external laboratory conditions.

PRODUCT SPECIFICATIONS

TWA LUMEN CHART

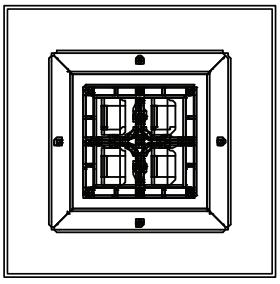
TRAC LUMEN CHART										
PART NUMBER	T2	LM/W	BUG	T3	LM/W	BUG	T4	LM/W	BUG	WATTS
TWA-16L-175-30K7	1,206	121	B0-U0-G0	1,213	121	B0-U0-G0	1,213	121	B0-U0-G1	10
TWA-16L-175-40K7	1,266	127	B0-U0-G0	1,273	127	B0-U0-G0	1,273	127	B0-U0-G1	10
TWA-16L-175-50K7	1,266	127	B0-U0-G0	1,273	127	B0-U0-G0	1,273	127	B0-U0-G1	10
TWA-16L-40-27K7	2478	118		2492	119		2491	119		21
TWA-16L-40-27K8	2320	110		2333	111		2332	111		21
TWA-16L-40-30K8	2488	118		2502	119		2501	119		21
TWA-16L-40-30K7	2679	128		2694	128		2693	128		21
TWA-16L-40-35K8	2488	118		2502	119		2501	119		21
TWA-16L-40-40K8	2679	128		2694	128		2693	128		21
TWA-16L-40-40K7	2895	138		2911	139		2910	139		21
TWA-16L-40-50K8	2679	128		2694	128		2693	128		21
TWA-16L-40-50K7	2895	138		2911	139		2910	139		21
TWA-16L-53-30K7	3,508	125	B1-U0-G1	3,527	126	B1-U0-G1	3,527	126	B1-U0-G1	28
TWA-16L-53-40K7	3,683	132	B1-U0-G1	3,704	132	B1-U0-G1	3,704	132	B1-U0-G1	28
TWA-16L-53-50K7	3,683	132	B1-U0-G1	3,704	132	B1-U0-G1	3,704	132	B1-U0-G1	28
TWA-16L-7-30K7	4,385	122	B1-U0-G1	4,409	122	B1-U0-G1	4,409	122	B1-U0-G1	36
TWA-16L-7-40K7	4,604	128	B1-U0-G1	4,630	129	B1-U0-G1	4,630	129	B1-U0-G1	36
TWA-16L-7-50K7	4,604	128	B1-U0-G1	4,630	129	B1-U0-G1	4,630	129	B1-U0-G1	36
TWA-16L-1-30K7	6,022	108	B1-U0-G1	6,056	108	B1-U0-G1	6,056	108	B1-U0-G1	56
TWA-16L-1-40K7	6,323	113	B1-U0-G1	6,359	114	B1-U0-G1	6,359	114	B1-U0-G1	56
TWA-16L-1-50K7	6,323	113	B1-U0-G1	6,359	114	B1-U0-G1	6,359	114	B1-U0-G2	56

Lumen Maintenance Data							
Ambient Temperature	**Drive Current**	**L90 Hours***	**L70 Hours****	**30,000 Hours***	**50,000 Hours***	**60,00 Hours***	**100,000 Hours****
25°C	Up to 700mA	58,000	173,000	95.7%	91.6%	89.6%	82.1%
	1050mA	48,000	143,000	94.3%	89.5%	87.2%	78.5%
*Reported extrapolations per IESNA TM-21 **Projected extrapolations per IESNA TM-21							

OPTICAL CONFIGURATIONS

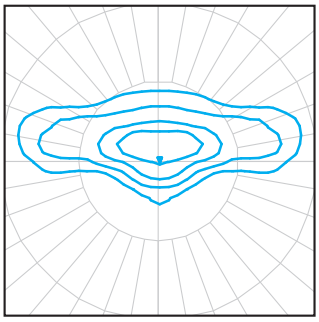
Rotatable Optics (ROR) Rotated Right, (ROL) Rotated Left options available. Optics field and factory rotatable.

TWA / 16L



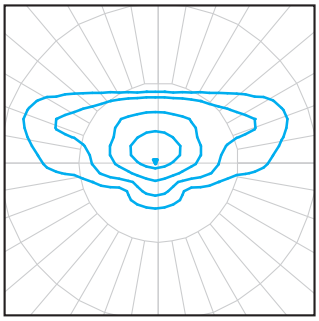
PRODUCT SPECIFICATIONS

IES DISTRIBUTIONS



T2 Optic

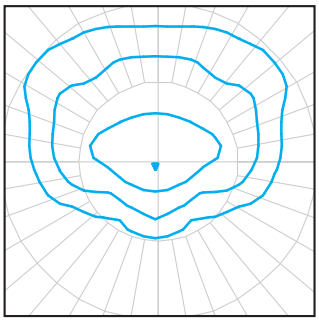
The Type II distribution is used for narrow pathways and trails, narrow entrances of shopping centers, parking lots and office complex's.



T3 Optic

The type III distribution is meant for roadway lighting, general parking areas and other areas where a larger area of lighting is required. Type III lighting needs to be placed to the side of the area, allowing the light to project outward and fill the area. This produces a filling light flow.

Type III light distributions have a preferred lateral width of 40 degrees. This distribution is intended for luminaires mounted at or near the side of medium width roadways or areas, where the width of the roadway or area does not exceed 2.75 times the mounting height.



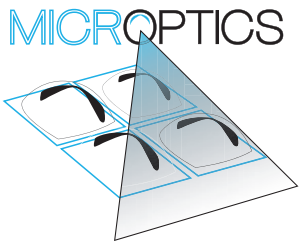
T4 Optic

The type IV distribution produces a semicircular light meant for mounting on the sides of buildings and walls. It's best for illuminating the perimeter of parking areas and businesses. The intensity of the Type IV lighting has the same intensity at angles from 90 degrees to 270 degrees.

Type IV light distributions have a preferred lateral width of 60 degrees. This distribution is intended for side-of-road mounting and is generally used on wide roadways where the roadway width does not exceed 3.7 times the mounting height.

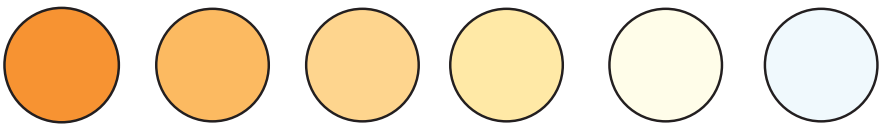
SILICONE OPTICS

NLS Lighting Silicone Micro Optical System technology takes quality and performance to the highest level. Vandal resistant, superior clarity—Micro Optics have become the best and lasting solution in the industry.



BENEFITS
- Produces superior 96% clarity
- Heat resistant to 150° C, 50% higher than acrylic
- Ecologically friendly—no glare
- Vandal-resistant
- Does not brittle, crack, or yellow over time

LED KELVIN RANGE



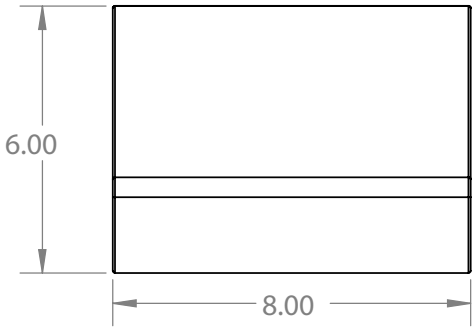
AMBER 585-600 nm | 2700K 70 CRI | 3000K 70 CRI | 3500K 80 CRI | 4000K 70 CRI | 5000K 70 CRI

Color	Dominant or Peak Wavelength Range (nm)	
	Minimum	Maximum
Amber	585	600

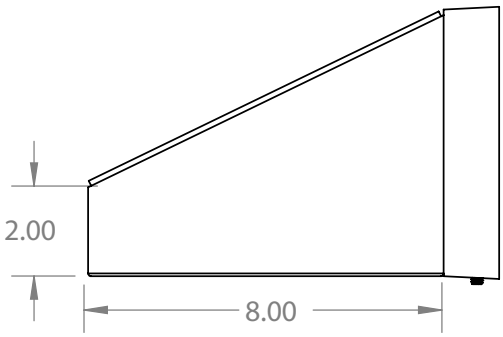
PRODUCT SPECIFICATIONS

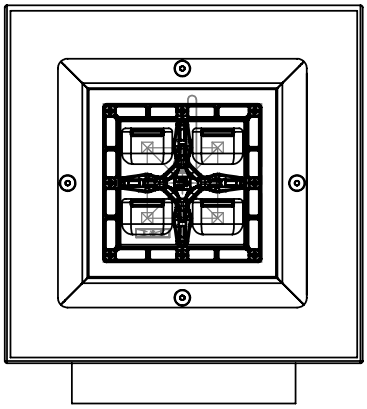
MODEL	WEIGHT
TWA	7.13 LBS

Front View



Side View





Bottom View