

Burlington Design Advisory Board

645 Pine Street
Burlington, VT 05401
www.burlingtonvt.gov/DPI/DAB
Phone: (802) 865-7188

Ron Wanamaker
Emily Morse
Jay White
Jack Qualey
Gabriel Stadecker
Kathleen Ryan, Alt
Michael Alvanos, Alt



DESIGN ADVISORY BOARD Tuesday, June 27, 2023 3:00 PM

Remote and In Person (at 645 Pine Street) Meeting

Please click the link below to join the webinar:

<https://us02web.zoom.us/j/87155655137?pwd=ZEdGaGhxeFpRNDJQcFJRNWkvb1Vudz09>

Webinar ID: 871 5565 5137

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Agenda

Session I – 3:00 PM – 3:30 PM

ZP-23-253; 453 Pine Street (E-LM, Ward 5S) Derrick Davis / Kelley DesRoches
Construction of 30,000 square foot health club (spa/bathhouse) and 12,400 square foot retail/commercial buildings with associated site improvements. (Project Manager, Mary O’Neil)

Session II – 3:30 PM – 4:00 PM

ZP-23-249; 288 Maple Street (I, Ward 6S) Donna Carpenter / David Marshall
Renovation of both the single-family home and ADU. (Project Manager, Scott Gustin)

Session III – 4:00 PM – 4:30 PM

Historic Preservation Review Committee

Revisit Guidance for Replacement Windows in Historic Structures document.

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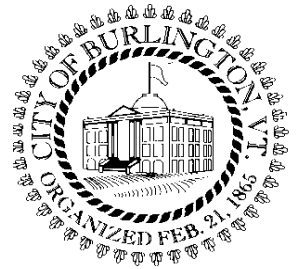
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Department of Permitting and Inspections

Zoning Division
645 Pine Street
Burlington, VT 05401
www.burlingtonvt.gov/pz
Phone: (802) 865-7188
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*William Ward, Director
Scott Gustin, AICP, CFM, Principal Planner
Mary O'Neil, AICP, Principal Planner
Garret King, Associate Planner
Joseph Cava, Planning Technician
Theodore Miles, Code Compliance Officer
Ted Boylan, DPI Administrator*



MEMORANDUM

To: The Design Advisory Board
From: Scott Gustin
RE: ZP-23-249, 288 Maple Street
Date: June 27, 2023

File: ZP-23-249
Location: 288 Maple Street
Zone: I Ward: 6S
Parking District: Neighborhood
Date application accepted: June 12, 2023
Applicant/ Owner: David Marshall / The Donna G. Carpenter Marital Trust
Request: Renovation of both the single family home and ADU.

Overview: The primary residence and associated carriage barn at 288 Main Street are historically significant buildings dating to circa 1865. As such, the standards of Section 5.4.8 apply. The primary residence retains much of its original character, finishes, and detailing. The carriage barn has seen more changed over time but retains much of its original form and character. It presently serves as a permitted accessory dwelling unit (ADU) and will continue to do so following this proposed renovation.

Modifications to the primary residence are fairly limited and are concentrated on the northern (back) end of the building. Related site work is also concentrated behind the building. While much of the carriage barn will remain intact, a significant expansion to that structure is also proposed. While not typically part of the Design Advisory Board's review, it bears mentioning that the proposed expansion of the carriage barn entails significant expansion in the degree of setback nonconformity and cannot be approved. Specifically, the existing rear yard setback is 2.9,' whereas, a setback of 41.5' is required. The proposed additions would also be set back 2.9' from the rear property line. Doing so would entail a significant increase in the building volume within the rear yard setback and is prohibited. A less substantial rear yard setback may be possible. Sec. 5.2.5 (b) 5 enables a 5' rear and side yard setback for accessory structures of less than 15' tall. The existing accessory structure is taller; however, the proposed additions are less than 15' tall. By its nature, an accessory dwelling unit is necessarily accessory to the primary structure. While the existing building is clearly nonconforming as to rear yard setback, there is a reasonable argument that the proposed additions to this accessory building, at less than 15' tall, may observe a 5' rear and side yard setback. Although the proposed 2.9' rear yard setback is not permissible, a modest adjustment to 5' from the rear property line could be permitted. The proposed side yard setbacks appear to comply with the 5' minimum.

As this application pertains to a single family home and related ADU, the application will be processed administratively following DAB review.

Part 1: Land Division Design Standards

Not applicable.

Part 2: Site Plan Design Standards

Sec. 6.2.2 Review Standards

(a) Protection of Important Natural Features:

No significant natural features as identified in the natural resources overlay map are located within the property.

(b) Topographical Alterations:

The property is located on a hill that slopes down from east to west. The property, in its existing condition, is graded mostly flat. Essentially, it will stay that way; however some excavation is proposed behind the primary residence to create a sunken outdoor patio area with walk-out access from the residence.

(c) Protection of Important Public Views:

Public views down Maple Street across the lake and towards the Adirondacks will remain unaffected by this project.

(d) Protection of Important Cultural Resources:

Burlington's architectural and cultural heritage shall be protected through sensitive and respectful redevelopment, rehabilitation, and infill. Archeological sites likely to yield information important to the city's or the region's pre-history or history shall be evaluated, documented, and avoided whenever feasible. Where the proposed development involves sites listed or eligible for listing on a state or national register of historic places, the applicant shall meet the applicable development and design standards pursuant to Sec. 5.4.8(b).

See Section 5.4.8, below.

(e) Supporting the Use of Renewable Energy Resources:

A solar array is proposed atop the flat roof of the carriage barn. As with all residential additions, compliance with current energy efficiency standards will be required.

(f) Brownfield Sites:

Not applicable.

(g) Provide for nature's events:

Special attention shall be accorded to stormwater runoff so that neighboring properties and/or the public stormwater drainage system are not adversely affected. All development and site disturbance shall follow applicable city and state erosion and stormwater management guidelines in accordance with the requirements of Art 5, Sec 5.5.3.

Design features which address the effects of rain, snow, and ice at building entrances, and to provisions for snow and ice removal or storage from circulation areas shall also be incorporated.

Existing covered porches on the primary residence will remain. A projecting roof feature will be installed on the carriage barn to provide shelter for its main entry. Adjacent green space remains alongside the driveway for seasonal snow storage.

Given the amount of earthwork proposed, an erosion prevention and sediment control plan will be required. Erosion control information is included in the project plans and will be subject to review and approval by the city's stormwater program staff.

(h) Building Location and Orientation:

No change is proposed to the location or orientation of the primary or accessory buildings.

(i) Vehicular Access:

A private driveway presently serves the primary residence and ADU. It will continue to do so, albeit in somewhat modified form.

(j) Pedestrian Access:

The front walkway connecting the front entry of the primary residence to the public sidewalk will remain unchanged. Access to the ADU will be improved with a new interior (within the site) walkway to the front door.

(k) Accessibility for the Handicapped:

Not applicable.

(l) Parking and Circulation:

Parking and circulation will be reworked somewhat. The driveway will remain largely as is, but will be pulled away from the home's foundation. A front gate will be installed to limit access. Confirmation of acceptability of this feature from the fire marshal is needed. Parking will remain behind the primary residence. A 2-car garage will be attached to the carriage barn, and the driveway contains room for 2 additional vehicles. The project plans label the garage as a "car port;" however, the space appears to be fully enclosed. The proposed driveway configuration includes a rear turn-around spot.

(m) Landscaping, Fences, and Retaining Walls:

Significant landscaping is included in this proposal and includes a variety of trees, shrubs, and perennials. New plantings will enhance existing building entries, help define outdoor spaces within the property, and provide screening and privacy for the occupants.

New wooden privacy fencing and metal rail fencing will replace existing fencing along the side and rear property lines.

New stone retaining walls will hold back the grade around the recessed patio to be installed at the rear of the primary residence. These are located relatively far from the property lines. The western, eastern, and northern ends of the proposed addition are enclosed with tall stone-clad

walls. The application asserts that these walls may project into side and rear yard setbacks. This assertion is incorrect. Freestanding walls, such as stone walls, may project into side and rear yard setbacks. These proposed walls are part of the building addition and must comply with applicable setbacks. As noted above, 5' minimum rear and side yard setbacks must be observed.

(n) Public Plazas and Open Space:

Not applicable.

(o) Outdoor Lighting:

Limited new outdoor lighting is included in this project. Lighting specification sheets, illumination, and locational details have been provided. Proposed fixtures will illuminate outdoor spaces within the back yard and accent certain landscape features. The proposed lights are acceptable low-level fixtures appropriate for residential application.

(p) Integrate infrastructure into the design:

Exterior storage areas, machinery and equipment installations, service and loading areas, utility meters and structures, mailboxes, and similar accessory structures shall utilize setbacks, plantings, enclosures and other mitigation or screening methods to minimize their auditory and visual impact on the public street and neighboring properties to the extent practicable.

Utility and service enclosures and screening shall be coordinated with the design of the principal building, and should be grouped in a service court away from public view. On-site utilities shall be placed underground whenever practicable. Trash and recycling bins and dumpsters shall be located, within preferably, or behind buildings, enclosed on all four (4) sides to prevent blowing trash, and screened from public view.

Any development involving the installation of machinery or equipment which emits heat, vapor, fumes, vibration, or noise shall minimize, insofar as practicable, any adverse impact on neighboring properties and the environment pursuant to the requirements of Article 5, Part 4 Performance Standards.

Several new condensers are proposed along the western side of the residence. They will be screened from view by the home and by nearby landscaping. A single rooftop condenser is proposed atop the garage addition to the ADU.

Part 3: Architectural Design Standards

Sec. 6.3.2 Review Standards

See Sec. 5.4.8.

Sec. 5.4.8 Historic Buildings and Sites

The City seeks to preserve, maintain, and enhance those aspects of the city having historical, architectural, archaeological, and cultural merit. Specifically, these regulations seek to achieve the following goals:

To preserve, maintain and enhance Burlington's historic character, scale, architectural integrity, and cultural resources;

To foster the preservation of Burlington's historic and cultural resources as part of an attractive, vibrant, and livable community in which to live, work and visit;

To promote a sense of community based on understanding the city's historic growth and development, and maintaining the city's sense of place by protecting its historic and cultural resources; and,

To promote the adaptive re-use of historic buildings and sites.

(a) Applicability:

These regulations shall apply to all buildings and sites in the city that are listed, or eligible for listing, on the State or National Register of Historic Places.

(b) Standards and Guidelines:

The following development standards, following the Secretary of the Interior's Standards for the Treatment of Historic Properties, shall be used in the review of all applications involving historic buildings and sites subject to the provisions of this section and the requirements for Design Review in Art 3, Part 4. The Secretary of the Interior's Standards are basic principles created to help preserve the distinctive character of a historic building and its site. They are a series of concepts about maintaining, repairing and replacing historic features, as well as designing new additions or making alterations. These Standards are intended to be applied in a reasonable manner, taking into consideration economic and technical feasibility.

- 1. A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.*

The primary structure at 288 Maple Street was constructed as a residence. It will continue to serve as such. The carriage barn was permitted to become an ADU some time ago. It will continue to serve this purpose.

- 2. The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.*

The structures at this property are well-preserved and retain much of their original integrity. The original roofing on the primary structure is gone. It is presently membrane material and asphalt shingles. Copper roofing is proposed. The membrane roofing on the carriage barn will remain and will presumably be replaced with new. No removal of distinctive materials or features is included in this proposal.

- 3. Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.*

No conjectural features or false restoration is proposed. The original hayloft door on the carriage barn was replaced with a window in the 1980's. That window will be replaced with a new door simulating the appearance of the hayloft door.

- 4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.*

None identified.

5. *Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.*

The primary structure, in the Italianate style, is rather ornate. Exterior detailing will be retained and repaired as needed. The outbuilding is substantially less ornate but does incorporate some design elements from the primary structure such as window trim and roof brackets. As with the primary structure, the detailing on the outbuilding will be retained.

6. *Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials recognizing that new technologies may provide an appropriate alternative in order to adapt to ever changing conditions and provide for an efficient contemporary use. Replacement of missing features will be substantiated by documentary and physical evidence.*

Existing historic features will be retained or repaired as needed throughout.

7. *Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.*

Not applicable.

8. *Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.*

There are no known archaeological resources at this site.

9. *New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work shall be differentiated from the old and will be compatible with the historic materials, features, size, scale, and proportion, and massing to protect the integrity of the property and its environment.*

Alterations to the primary building are fairly minimal and are focused on the back side of the structure. They include some window rearrangement, installation of an upper story balcony, and rear entry alteration. New roofing is proposed as noted above, as is a related gutter system. Also as noted previously, a new sunken patio and walk-out entry is proposed.

Significant expansion of the carriage barn is proposed. That said, the existing building will be retained largely as is. Changes to the existing building focus on the front-facing ground level where the original doors were changed and rearranged to include two separate overhead garage doors some years ago. New living space is proposed to the west of the existing building, and an attached garage space is proposed to the west. Abundant south-facing glazing ties this revamped and expanded ground level together. It is framed by tall stone walls on three sides. Although the proposed addition is sizeable, it leaves the original carriage barn largely intact and readily apparent.

10. *New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.*

As noted above, significant alterations are limited to the carriage barn. As they are proposed, they leave the original carriage barn largely intact. These new appendages could be removed and leave the carriage barn essentially as it is today.

Recommended Motion:

Approval of the application with the following conditions:

1. Adjust the proposed ADU additions to comply with 5' side and rear yard setbacks.
2. Confirm acceptability of the driveway gate with the Burlington fire marshal.
3. Obtain approval of the EPSC plan from the city's stormwater program staff.
4. Comply with current residential energy efficiency standards.
5. Standard conditions 1-15.

PROJECT INTRODUCTION

288 Maple St, Burlington, VT

June 2023

BIRDSEYE

EXISTING CONDITIONS



NEIGHBORHOOD // Satellite imagery of site



ORIGINAL 2-STORY 2X2 BAY STRUCTURE WITH ELL

MODERN EPDM MEMBRANE ROOF

BRICK CHIMNEY WITH LINER FOR GAS INSERT

ASPHALT SHINGLE ROOF

2-STORY 1X2 BAY STRUCTURE WITH 1-STORY ELL

NORTHWEST PORCH WITH ASPHALT SHINGLE ROOF

EXISTING BASEMENT WALKOUT

6FT WOOD PRIVACY FENCE



AERIAL VIEW FROM NORTHWEST

EXISTING SITE PHOTOS // Main House Details

BURLINGTON DAB MEETING
288 MAPLE STREET



HIPPED ROOF CUPOLA W/ PROJECTING GABLETS

INCISED FRIEZE AND PAIRED BRACKETS

INCISED, ROUNDED CORNER ARCHITRAVES & DEEP DRIP MOULDINGS

PAIRED BRACKETS

BULL'S EYE MOTIFS

WOOD CLAPBOARDS

2/2 BAY WINDOWS WITH ARCHED HEADS & WOOD KEYSTONES

QUEEN ANNE STYLE PORCH WITH TURNED POSTS & BALUSTERS, LATTICE SKIRT, & SPINDLE VALANCE

DRIVEWAY ENTRY FROM MAPLE STREET

EXISTING SITE PHOTOS // Main House Details

BURLINGTON DAB MEETING
288 MAPLE STREET



NORTHWEST PORCH



SOUTH FACADE ON MAPLE STREET



NORTHWEST PORCH

EXISTING SITE PHOTOS // Main House - 1989 renovations



NORTH FACADE



SEALANT FAILURE



UNINSULATED COUNTERWEIGHT CAVITY



SEALANT FAILURE, SINGLE PANE



SEALANT FAILURE, FOUNDATION RE-POINTING NEEDED

EXISTING SITE PHOTOS // Main House - Window conditions



TRIM REPLACEMENT & REPAINTING NEEDED



DOWNSPOUT & HORIZONTAL TRIM
 EXISTING SITE PHOTOS // Main House - Trim & Gutter Downspout conditions



SOFFIT, BRACKETS & INTERNAL DOWNSPOUT



UPPER EPDM ROOF WITH INTEGRATED GUTTERS

PAIRED BRACKETS & PROJECTING CORNICE

ORIGINAL SMALL 2/2 WINDOWS

FORMER HAYLOFT DOOR

HIPPED ROOFLET

MODERN ROLL-UP GARAGE DOORS

6FT PRIVACY FENCE & STONE RETAINING WALL



SOUTHEAST CORNER

EXISTING SITE PHOTOS // Carriage Barn Details

BURLINGTON DAB MEETING
288 MAPLE STREET

EPDM MEMBRANE SHED ROOF WITH PARAPET

WOOD CLAPBOARD SIDING

CONCRETE BLOCK FOUNDATION

6FT WOOD PRIVACY FENCE



SOUTHWEST CORNER

EXISTING SITE PHOTOS // Carriage Barn Details

BURLINGTON DAB MEETING
288 MAPLE STREET



SHED ROOF DRIP EDGE

WOOD CLAPBOARD SIDING

6' WOOD PRIVACY FENCE

NEIGHBORING CONCRETE BLOCK RETAINING
WALL & PARKING LOT

APPROXIMATE PROPERTY LINE

WOOD BASE TRIM & CAP

BLOCK FOUNDATION

NORTH FACADE

EXISTING SITE PHOTOS // Carriage Barn Details

BURLINGTON DAB MEETING
288 MAPLE STREET

NEIGHBORING EDMUNDS SCHOOL PARKING LOT

SHED ROOF WITH MODERN EPDM MEMBRANE &
METAL CAPPED PARAPETS

STONE RETAINING WALL & 6FT WOOD PRIVACY
FENCE

NEIGHBORING RESIDENTIAL PARKING LOT

6FT WOOD PRIVACY FENCE

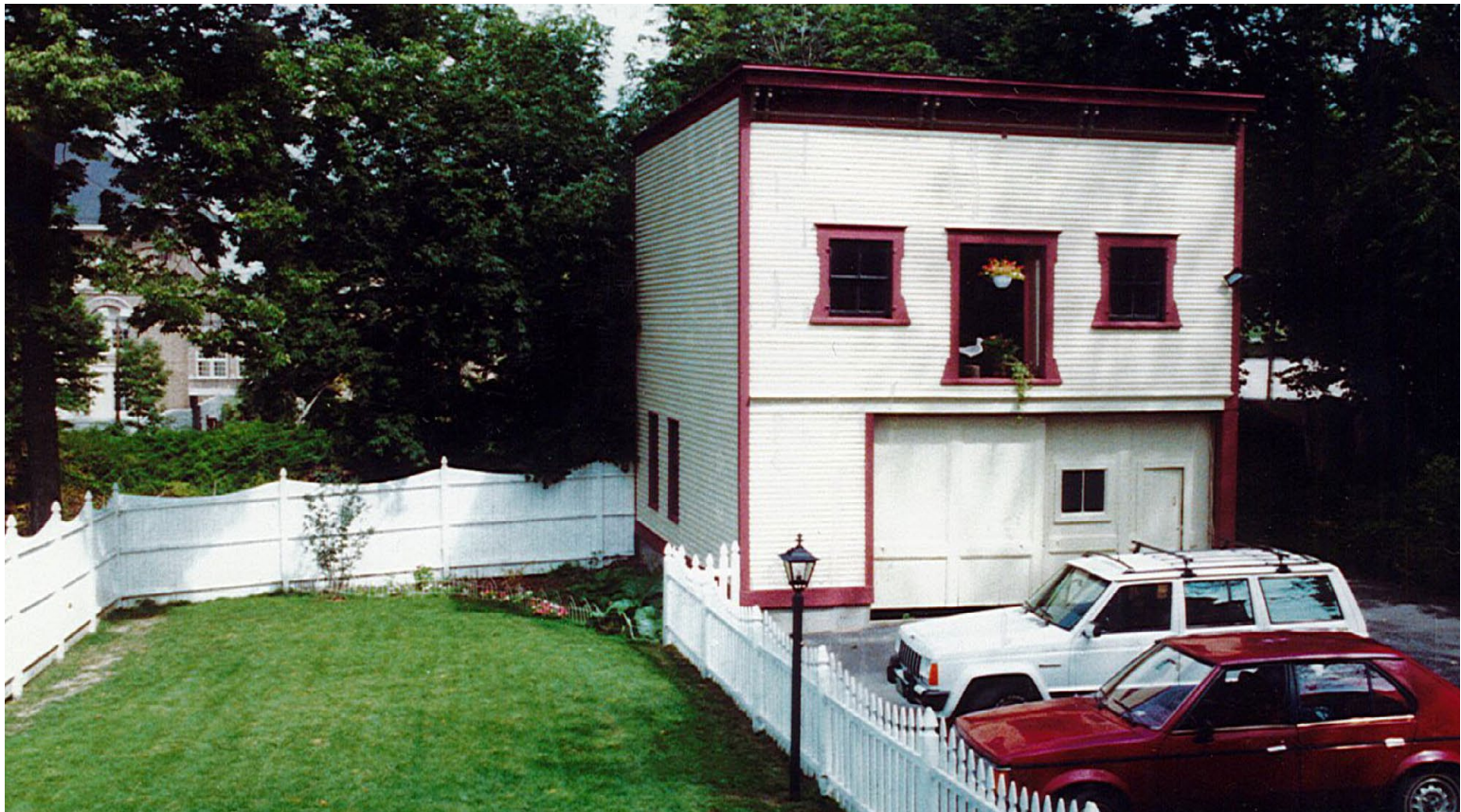
NEIGHBORING RESIDENTIAL PARKING LOT



NORTH FACADE



SOUTH FACADE - PRIOR TO 1989 RENOVATION
 EXISTING SITE PHOTOS // Carriage Barn - Historical imagery



SOUTH FACADE- AFTER 1989 RENOVATIONS



SOUTH FACADE - PRESENT DAY

PROPOSED RENDERINGS



- A PROPOSED CURB CUT MODIFICATIONS (BEYOND)
- B PROPOSED ACCESS GATE
- C PROPOSED LANDSCAPING
- D RELOCATE WINDOW
- E PROPOSED COPPER ROOF, GUTTER, AND DOWNSPOUTS

PROPOSED RENDERINGS // Main House - Maple St Entry



- A PROPOSED FENCE & PERGOLA REPLACEMENT
- B PROPOSED BALCONY W/ STEEL FRAMED GLASS DOORS & WINDOW
- C PROPOSED WINDOW RECONFIGURATION
- D PROPOSED BASEMENT WALKOUT
- E PROPOSED ROOF REPLACEMENT
- F PROPOSED CHIMNEY REBUILD

PROPOSED RENDERINGS // Main House - Northwest Corner

BURLINGTON DAB MEETING
288 MAPLE STREET





- A PROPOSED BALCONY W/ STEEL FRAMED GLASS DOORS & WINDOW
- B PROPOSED WINDOW RECONFIGURATION
- C PROPOSED BASEMENT WALKOUT
- D PROPOSED PLANTINGS PER LANDSCAPE
- E PROPOSED PATIO PER LANDSCAPE

PROPOSED RENDERINGS // Main House - North Facade



- A PROPOSED WINDOW RECONFIGURATION
- B PROPOSED BASEMENT WALKOUT
- C PROPOSED PLANTINGS PER LANDSCAPE
- D PROPOSED BALCONY

PROPOSED RENDERINGS // Main House - Northeast corner



- A PROPOSED WINDOW RECONFIGURATION
- B PROPOSED BASEMENT WALKOUT WITH HOT TUB & COLD PLUNGE
- C PROPOSED PLANTINGS PER LANDSCAPE
- D PROPOSED PATIO PER LANDSCAPE



- A PROPOSED ROOF, TRIM, & GUTTER EXTENSION
- B PROPOSED WINDOWS
- C PROPOSED ENTRY EXPANSION
- D EXISTING HISTORICAL 'ICE DELIVERY' DOOR
- E PROPOSED LANDSCAPING

PROPOSED RENDERINGS // Main House - East Entry



PRE 1989



POST 1989



PRESENT DAY



- A PROPOSED FENCE & PERGOLA REPLACEMENT
- B PROPOSED CARPORT WITH STEEL FRAMED GLASS DOORS
- C PROPOSED LIVING SPACE WITH STEEL FRAMED GLASS DOORS
- D EXISTING CARRIAGE BARN UPPER LEVEL. ORIGINAL WINDOWS AND CORNICE DETAILING TO REMAIN, MODERN WINDOWS REMOVED
- E PROPOSED PLANTINGS, PER LANDSCAPE
- F PROPOSED COBBLESTONE DRIVE, PER LANDSCAPE

- G PROPOSED STONE EXTERIOR WALL
- H PROPOSED GREEN ROOF & OVERHANG

PROPOSED RENDERINGS // Carriage Barn - South Facade & Driveway

BURLINGTON DAB MEETING
288 MAPLE STREET



- A PROPOSED CARPORT WITH STEEL FRAMED GLASS DOORS
- B PROPOSED LIVING SPACE WITH STEEL FRAMED GLASS DOORS
- C EXISTING CARRIAGE BARN UPPER LEVEL. ORIGINAL WINDOWS AND CORNICE DETAILING TO REMAIN, MODERN WINDOWS REMOVED
- D PROPOSED STONE EXTERIOR WALL

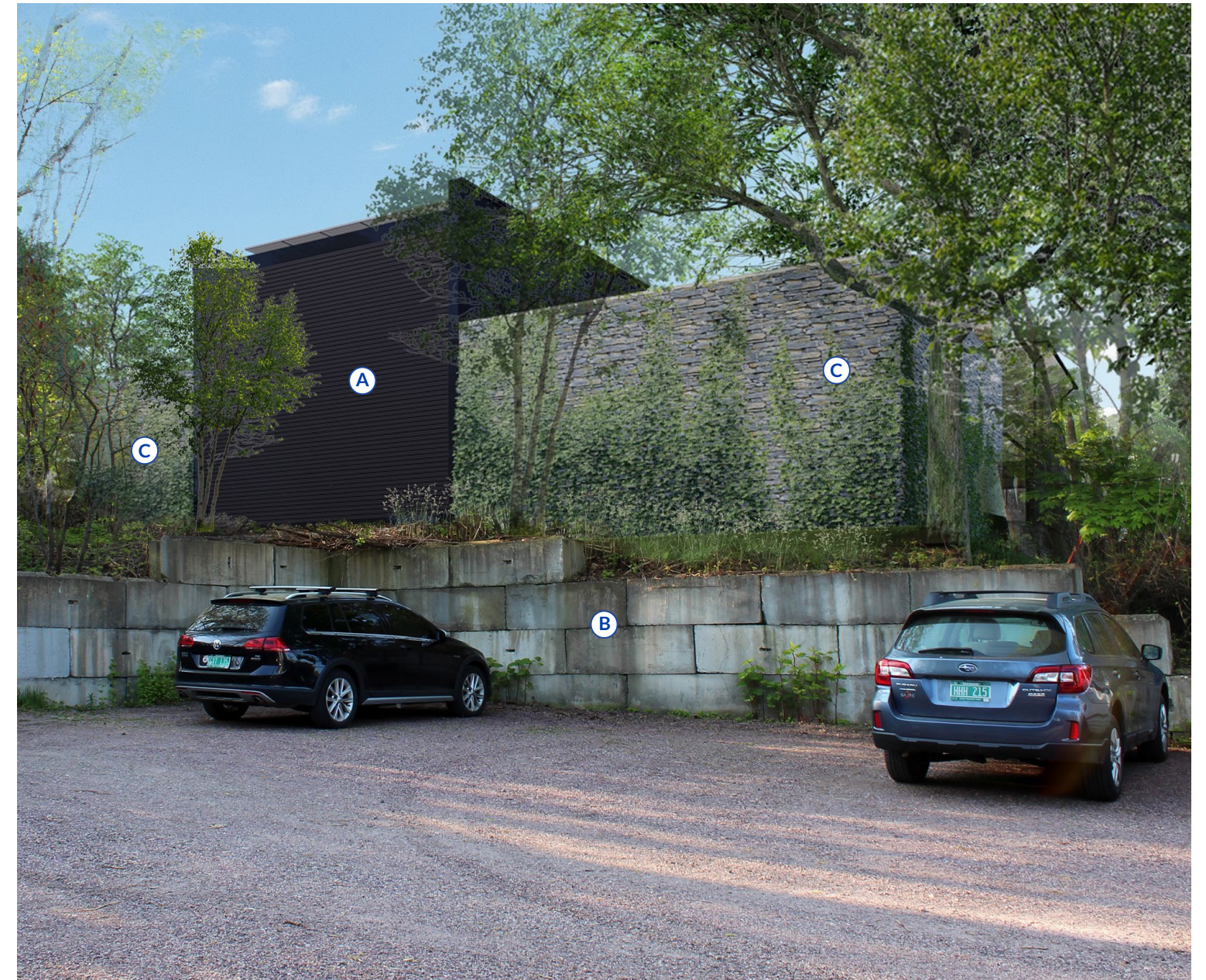
- E PROPOSED GREEN ROOF WITH OVERHANG
- F PROPOSED WOOD RAILING

PROPOSED RENDERINGS // Carriage Barn - South Facade & Yard



- A EXISTING WINDOWS, CORNICE AND BRACKETS OF CARRIAGE BARN, REPAINTED
- B PROPOSED GREEN ROOF
- C PROPOSED STONE-CLAD WALL REPLACING EXISTING 6FT PRIVACY FENCE AND STONE RETAINING WALL
- D PROPOSED SOLAR ARRAY
- E PROPOSED ROOF DECK
- F PROPOSED SKYLIGHT

PROPOSED RENDERINGS // Carriage Barn - Aerial/South Facade



- A EXISTING NORTH FACADE OF CARRIAGE BARN, REPAINTED
- B NEIGHBORING BLOCK RETAINING WALL
- C PROPOSED STONE-CLAD WALL, REPLACING EXISTING 6FT PRIVACY FENCE



- A EXISTING NORTH FACADE OF CARRIAGE BARN, REPAINTED
- B NEIGHBORING CHAIN LINK FENCE
- C PROPOSED STONE-CLAD WALL WITH GREEN ROOF BEYOND, REPLACING EXISTING 6FT PRIVACY FENCE AND STONE RETAINING WALL

DESIGN NARRATIVE

Project: 288 Maple St
Burlington, VT 05401

Date: June 2023

ARCHITECTURAL DESIGN

- **Main House – circa 1865**

- The house is an “extensively detailed” and “fine example of the Italianate style.” Our proposal seeks to preserve and restore the building to highlight its historic value while improving its function and performance, especially in areas with less historic significance.
- The historic registry description from 1988 notes that *“the majority of the detail occurs on the main 2-story 2x2 bay, 2-story polygonal ell, hip-roofed cupola, and southeast and northwest porches [...and that] both the 2-story, hipped roof, 1x2 bay rear wing and it’s 1-story ell are less fully detailed than the main block.” ... “the most complete detailing appears at the entrance and windows.”*
- We proposed minimal changes to the main 2-story structure and attached ell, adding new metal roofing to replace the modern EPDM membrane, rebuilding the brick chimney to convert the fireplace back to its original wood burning function, and relocating a small window on the southeast porch. All other modifications are focused on the newer, less detailed north wing which has received numerous modifications over the years, especially in the 1989 renovation, as seen in the attached photos.
- The modifications on the north façade primarily affect window units added or modified during the 1989 renovation, and the proposed large openings will utilize steel-framed window and door units that are intended to complement the historic structure in scale and materiality, while differentiating themselves from the original detailing.
- Modifications on the west façade involve removing windows added during the 1989 renovation, and modifying windows and exterior doors at the northwest porch for improved use and flow on the interiors.
- Modifications on the east façade focus on adding functionality, light, and airflow to interior spaces by adding windows, expanding and covering the recessed side entry, and integrating these alterations with existing wood detailing.
- Any deteriorated wood detailing will be repaired if possible and replaced in kind where appropriate.
- Per the recommendation of our energy modeling consultants, CX Associates, the historic wood windows are proposed to be reglazed or replaced in kind with matching wood units in order to improve thermal performance and energy consumption.

- **Carriage Barn – circa 1865**

- Our proposed changes are intended to adaptively reuse the structure as an accessory dwelling unit, preserving the historic character and details of the original building and maintaining the spatial relationship with the larger site while expanding its use capacity.
- The brief historic registry description from 1988 illustrates many building elements that have been removed or modified over the building’s lifetime. Our intent is to preserve all of those elements that still remain and to emphasize and evoke the original building form in the proposed addition. These are the elements mentioned within the US Department of the Interior’s National Register of Historic Places description in 1988
 - *“Shed roof”* – This remains and is proposed to remain
 - *“Wide, paneled, sliding doors, one with a pedestrian entrance”* – These have been removed and replaced with modern overhead garage doors. Our proposal references the original asymmetrical form with the placement of the front entry door and adjacent car port doors

- *"Small hayloft door with molded head"* – This has been removed and replaced with a 2/2 double hung window. Our proposal is to remove the window and reintroduce vertical wood paneling originally seen on the hay loft door.
- *"Two small, square, four-paned windows"* – These remain and are proposed to remain.
- *"Paired brackets support the projecting cornice"* – These remain and are proposed to remain.
- Modern windows and doors to the east and west added after the 1989 renovations are proposed to be removed.
- A stone clad wall wraps the addition on the west, north and east sides, replacing the existing 6ft privacy fence which separates the property from adjoining parking lots to the north and keeps openings focused on the improved green space to the south. This retains the existing relationship with the primary structure and surrounding context.
- Proposed contemporary openings will utilize steel-framed window and door units that are intended to complement the historic structure in scale and materiality, while differentiating themselves from the original detailing.
- The wood entry door placement references the original building form while differentiating itself with contemporary detailing
- The proposal seeks to repaint the building as a means of differentiating from the principal structure and complementing proposed additions in a cohesive manner. The building has undergone a number of color changes through the years (see attached photos) and we feel it's appropriate to carry on that process of reimagining the structure through this new phase of development

LANDSCAPE DESIGN

- The landscape plan proposes new plantings, hardscape, and landscape amenities surrounding the main residence and carriage barn.
 - On the south, Maple Street-facing side, new plantings, and stone steps to the front walk are proposed to complement the main entrance. A new entry gate is proposed at the driveway, and attached to the entry gate a new fence runs along the east side of the property.
 - The north end of the driveway will be reconfigured to decrease the area of impervious surfaces. Evergreen plantings are proposed for screening from neighbors on the east side of the drive.
 - North of the main house a new lower-level stone terrace enclosed by low retaining walls and a fence is proposed with a small hot tub and cold plunge.
 - To the west, the existing main terrace at grade will be replaced with new stone paving and a new pergola. An outdoor built-in grill and gas fire pit is proposed at the main terrace.
 - In front of the carriage barn there is a proposed stone apron and adjacent lawn, plantings, and trees.
 - The existing retaining wall along the west side of the property will be replaced with an improved new retaining wall and privacy fence to match the new pergola.
 - The west side of the main house consists of the extension of the new privacy fence, hedge planting, and perennial gardens accessible via a lawn path.
 - New low output landscape lighting is proposed where required for wayfinding and lighting outdoor spaces.

5/23/2023 11:42:50 AM



AERIAL LOOKING EAST

SHEET #	TITLE	05.23.23 - PERMIT
00. GENERAL		
G000	TITLE SHEET	X
01. CIVIL		
C1.0	EXISTING CONDITIONS PLAN	X
C2.0	PROPOSED CONDITIONS SITE PLAN	X
C2.1	PROPOSED UTILITY PLAN	X
C3.0	EPSC SITE PLAN	X
C3.1	EPSC DETAILS AND NOTES	X
C4.0	SITE DETAILS	X
C5.0	SPECIFICATIONS	X
C5.1	SPECIFICATIONS	X
C5.2	SPECIFICATIONS	X
02. LANDSCAPE		
L100	LAYOUT & MATERIALS OVERALL	X
L101	LAYOUT & MATERIALS - NORTH	X
L102	LAYOUT & MATERIALS - SORTH	X
L200	PLANTING	X
04. ARCHITECTURAL		
A200	MAIN HOUSE - SOUTH EXTERIOR ELEVATION	X
A201	MAIN HOUSE - NORTH EXTERIOR ELEVATION	X
A202	MAIN HOUSE - EAST EXTERIOR ELEVATION	X
A203	MAIN HOUSE - WEST EXTERIOR ELEVATION	X
A204	CARRIAGE BARN - ELEVATIONS	X
A205	CARRIAGE BARN - ELEVATIONS	X

SHEET #	TITLE	05.23.23 - PERMIT
A310	BUILDING WALL SECTIONS	X
A311	BUILDING WALL SECTIONS	X
A900	EXISTING PHOTOS - CARRIAGE BARN	X
A901	EXISTING PHOTOS - MAIN HOUSE	X
A902	RENDERINGS	X

SHEET LIST

RENOVATION & ADDITION

288 MAPLE ST
BURLINGTON, VT 05401

PERMITTING PACKAGE

05.23.2023

NOT FOR CONSTRUCTION

ARCHITECT

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(o) 802.434.3160

GENERAL CONTRACTOR

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ENERGY MODELING & ENGINEERING

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802.434.2112
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RENOVATION & ADDITION
288 MAPLE ST, BURLINGTON, VT 05401

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Issue / Revision Log
05.23.23 PERMITTING PACKAGE

FOR PERMIT

Title
TITLE SHEET

Sheet Number

G000

CONSULTANT LIST

NOTES

1. UTILITIES SHOWN DO NOT PURPORT TO CONSTITUTE OR REPRESENT ALL UTILITIES LOCATED UPON OR ADJACENT TO THE SURVEYED PREMISES. EXISTING UTILITY LOCATIONS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL FIELD VERIFY ALL UTILITY CONFLICTS. ALL DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER. THE CONTRACTOR SHALL CONTACT DIG SAFE (888-344-7233) PRIOR TO ANY CONSTRUCTION.
2. PROPERTY LINE INFORMATION IS BASED ON INFORMATION ABSTRACTED FROM THE CITY OF BURLINGTON LAND RECORDS AND A PLAN ENTITLED "SORREL CONSTRUCTION 288 MAPLE STREET BURLINGTON SITE PLAN" PREPARED BY LAMOUREUX & DICKINSON DATED 06/16/06 LAST REVISED 07/07/06. THIS PLAN IS NOT A BOUNDARY SURVEY AND IS NOT INTENDED TO BE USED AS ONE. MONUMENTATION RECOVERED IS CONSISTENT WITH RECORDED DOCUMENTS.
3. SITE INFORMATION IS BASED ON A FIELD SURVEY PERFORMED BY CIVIL ENGINEERING ASSOCIATES, INC. JANUARY 2023. CIVIL ENGINEERING ASSOCIATES, INC. SURVEY ORIENTATION IS "GRID NORTH", VERMONT COORDINATE SYSTEM OF 1983 (HORIZONTAL) AND NAVD88 (VERTICAL) ESTABLISHED FROM GPS OBSERVATIONS ON SITE.
6. ADJACENT PROPERTY BUILDINGS ARE BASED ON ORTHOMETRIC PHOTOGRAPHY AND ADJACENT PROPERTY CONTOUR INFORMATION IS BASED UPON LIDAR DATA FROM VERMONT CENTER FOR GEOGRAPHIC INFORMATION STATE WIDE 1' CONTOURS. HORIZONTAL AND VERTICAL DATUM BASED ON VCS NAD 83 AND NAVD 88.

LEGEND

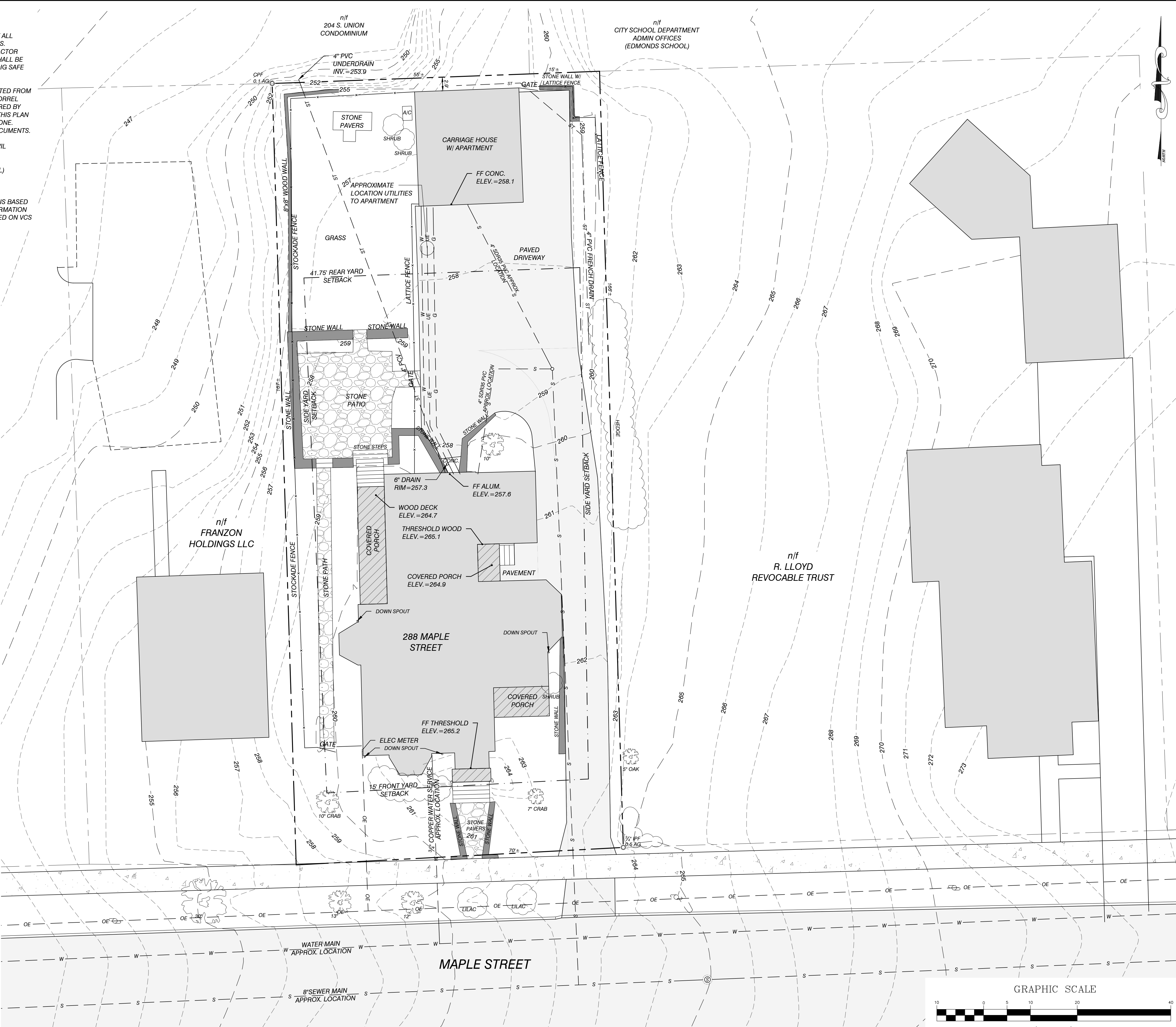
- APPROXIMATE PROPERTY LINE
--- APPROXIMATE SETBACK LINE
--- 100 --- EXISTING CONTOUR
--- EXISTING CURB
--- X --- EXISTING FENCE
--- EXISTING PAVEMENT
--- OE --- EXISTING OVERHEAD ELECTRIC
--- UE --- EXISTING UNDERGROUND ELECTRIC
--- G --- EXISTING GAS
--- ST --- EXISTING STORM
--- S --- EXISTING GRAVITY SEWER
--- W --- EXISTING WATER
--- EXISTING SEWER MANHOLE
--- EXISTING UTILITY POLE
--- EXISTING DECIDUOUS TREE
--- EDGE OF BRUSH/WOODS
--- IRON ROD/PIPE FOUND
--- ABOVE GRADE / BELOW GRADE

ZONING REQUIREMENTS:

ZONING DISTRICT: INSTITUTIONAL (I)

CATEGORY	ZONING	EXISTING
MAX. INTENSITY	20 du/ac**	11,649 ± S.F.
COVERAGE		
LOT	40%	59%
SETBACKS		
FRONT YARD	15'	18' ±
SIDE YARD	10% Lot Width*	11' ±
REAR YARD	25% Lot Depth*	2.9' ±
MAX. HEIGHT	35'	

* SIDE YARD SETBACK: MIN. 5' MAX. 20'
* REAR YARD SETBACK: MIN. 20' MAX. 75'
** 24 du/ac with inclusionary req.



SITE ENGINEER:



CIVIL ENGINEERING ASSOCIATES, INC.
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P: 802-864-2323 FAX: 802-864-2271 web: www.cea-vt.com

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DSM

CLIENT:

BIRDSEYE BUILDING

3104 HUNTINGTON ROAD
RICHMOND VERMONT 05477

PROJECT:

288 MAPLE
STREET

288 MAPLE STREET
BURLINGTON, VT



LOCATION MAP

1" = 1000'

DATE	CHECKED	REVISION
05/23/23	DSM	PERMITTING PACKAGE

EXISTING
CONDITIONS
PLAN

DATE
05/23/2023

SCALE
1" = 10'

PROJ. NO.
23105

DRAWING NUMBER

C1.0

GENERAL NOTES

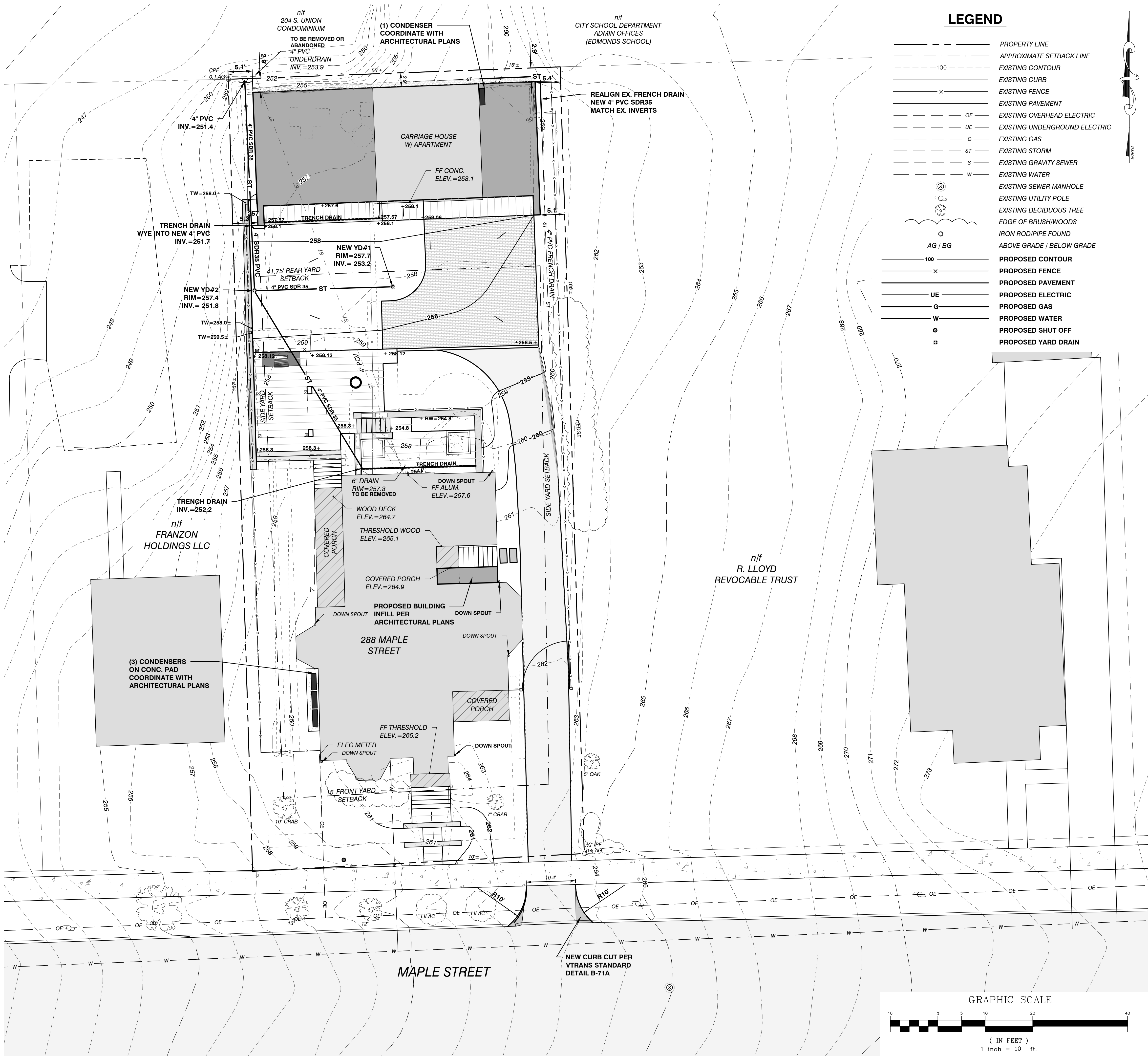
1. UTILITIES SHOWN DO NOT PURPORT TO CONSTITUTE OR REPRESENT ALL UTILITIES LOCATED UPON OR ADJACENT TO THE SURVEYED PREMISES. EXISTING UTILITY LOCATIONS ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL FIELD VERIFY ALL UTILITY CONFLICTS. ALL DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER. THE CONTRACTOR SHALL CONTACT DIG SAFE (888-344-7233) PRIOR TO ANY CONSTRUCTION. IN ADDITION, THE CONTRACTOR SHALL HIRE A PRIVATE UTILITY LOCATING FIRM TO LOCATE OWNER OWNED UNDERGROUND UTILITIES PRIOR TO START OF ANY EXCAVATION.
2. ALL EXISTING UTILITIES NOT INCORPORATED INTO THE FINAL DESIGN SHALL BE REMOVED OR ABANDONED AS INDICATED ON THE PLANS OR DIRECTED BY THE ENGINEER.
3. THE CONTRACTOR SHALL MAINTAIN AS-BUILT PLANS (WITH TIES) FOR ALL UNDERGROUND UTILITIES. THOSE PLANS SHALL BE SUBMITTED TO THE OWNER AT THE COMPLETION OF THE PROJECT.
4. THE CONTRACTOR SHALL REPAIR/RESTORE ALL DISTURBED AREAS (ON OR OFF THE SITE) AS A DIRECT OR INDIRECT RESULT OF THE CONSTRUCTION.
5. ALL GRASSED AREAS SHALL BE MAINTAINED UNTIL FULL VEGETATION IS ESTABLISHED.
6. MAINTAIN ALL TREES OUTSIDE OF CONSTRUCTION LIMITS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK NECESSARY FOR COMPLETE AND OPERABLE FACILITIES AND UTILITIES.
8. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ALL ITEMS AND MATERIALS INCORPORATED INTO THE SITE WORK. WORK SHALL NOT BEGIN ON ANY ITEM UNTIL SHOP DRAWING APPROVAL IS GRANTED.
9. IN ADDITION TO THE REQUIREMENTS SET IN THESE PLANS AND SPECIFICATIONS, THE CONTRACTOR SHALL COMPLETE THE WORK IN ACCORDANCE WITH ALL PERMIT CONDITIONS AND ANY LOCAL PUBLIC WORKS STANDARDS.
10. THE TOLERANCE FOR FINISH GRADES FOR ALL PAVEMENT, WALKWAYS AND LAWN AREAS SHALL BE 0.1 FEET. UNLESS NOTED OTHERWISE, ALL EXISTING MANHOLE COVERS, VALVES, CURB STOPS AND OTHER ITEMS TO REMAIN SHALL BE ADJUSTED TO THE NEW FINISH GRADE.
11. ANY DEWATERING NECESSARY FOR THE COMPLETION OF THE SITEWORK SHALL BE CONSIDERED AS PART OF THE CONTRACT AND SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
12. THE CONTRACTOR SHALL COORDINATE ALL WORK WITHIN TOWN ROAD R.O.W. WITH TOWN AUTHORITIES.
13. THE CONTRACTOR SHALL INSTALL THE ELECTRICAL, CABLE AND TELEPHONE SERVICES IN ACCORDANCE WITH THE UTILITY COMPANIES REQUIREMENTS.
14. EXISTING PAVEMENT AND TREE STUMPS TO BE REMOVED SHALL BE DISPOSED OF AT AN APPROVED OFF-SITE LOCATION. ALL PAVEMENT CUTS SHALL BE MADE WITH A PAVEMENT SAW.
15. IF THERE ARE ANY CONFLICTS OR INCONSISTENCIES WITH THE PLANS OR SPECIFICATIONS, THE CONTRACTOR SHALL CONTACT THE ENGINEER FOR VERIFICATION BEFORE WORK CONTINUES ON THE ITEM IN QUESTION.
16. PROPERTY LINE INFORMATION IS BASED ON INFORMATION ABSTRACTED FROM THE CITY OF BURLINGTON LAND RECORDS AND A PLAN ENTITLED 'SORREL CONSTRUCTION 288 MAPLE STREET BURLINGTON SITE PLAN' PREPARED BY LAMOUREUX & DICKINSON DATED 06/16/06 LAST REVISED 07/07/06. THIS PLAN IS NOT A BOUNDARY SURVEY AND IS NOT INTENDED TO BE USED AS ONE.
17. IF THE BUILDING IS TO BE SPRINKLERED, BACKFLOW PREVENTION SHALL BE PROVIDED IN ACCORDANCE WITH AWWA M14. THE SITE CONTRACTOR SHALL CONSTRUCT THE WATER LINE TO TWO FEET ABOVE THE FINISHED FLOOR. SEE MECHANICAL PLANS FOR RISER DETAIL.
18. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING TESTING AND INSPECTION SERVICES INDICATED IN THE CONTRACT DOCUMENTS, TYPICAL FOR CONCRETE AND SOIL TESTING.
19. THE CONTRACTOR IS RESPONSIBLE FOR ALL LAYOUT AND FIELD ENGINEERING REQUIRED FOR COMPLETION OF THE PROJECT. CIVIL ENGINEERING ASSOCIATES WILL PROVIDE AN AUTOCAD FILE WHERE APPLICABLE.
20. THE OWNER SHALL BE RESPONSIBLE FOR THE INSTALLATION OF ANY AND ALL SAFETY FENCES OR RAILS ABOVE EXISTING AND PROPOSED WALLS. THE OWNER SHALL VERIFY LOCAL, STATE AND INSURANCE REQUIREMENT GUIDELINES FOR THE INSTALLATION AND VERIFY ANY AND ALL PERMITTING REQUIREMENTS.

ZONING REQUIREMENTS:

ZONING DISTRICT: INSTITUTIONAL (I)

CATEGORY	ZONING	EXISTING	PROPOSED
MAX. INTENSITY	20 du/ac**	11,649± S.F.	11,649± S.F.
COVERAGE			
LOT	40%	59%	58%
SETBACKS			
FRONT YARD	15'	18'±	18'±
SIDE YARD	10% Lot Width*	11'±	5.1'±
REAR YARD	25% Lot Depth*	2.9'±	2.9'±
MAX. HEIGHT	35'		

* SIDE YARD SETBACK: MIN. 5' MAX. 20'
* REAR YARD SETBACK: MIN. 20' MAX. 75'
** 24 du/ac with inclusionary req.



LEGEND

- PROPERTY LINE
APPROXIMATE SETBACK LINE
EXISTING CONTOUR
EXISTING CURB
EXISTING FENCE
EXISTING PAVEMENT
EXISTING OVERHEAD ELECTRIC
EXISTING UNDERGROUND ELECTRIC
EXISTING GAS
EXISTING STORM
EXISTING GRAVITY SEWER
EXISTING WATER
EXISTING SEWER MANHOLE
EXISTING UTILITY POLE
EXISTING DECIDUOUS TREE
EDGE OF BRUSHWOODS
IRON ROD/PIPE FOUND
ABOVE GRADE / BELOW GRADE
PROPOSED CONTOUR
PROPOSED FENCE
PROPOSED PAVEMENT
PROPOSED ELECTRIC
PROPOSED GAS
PROPOSED WATER
PROPOSED SHUT OFF
PROPOSED YARD DRAIN

SITE ENGINEER:



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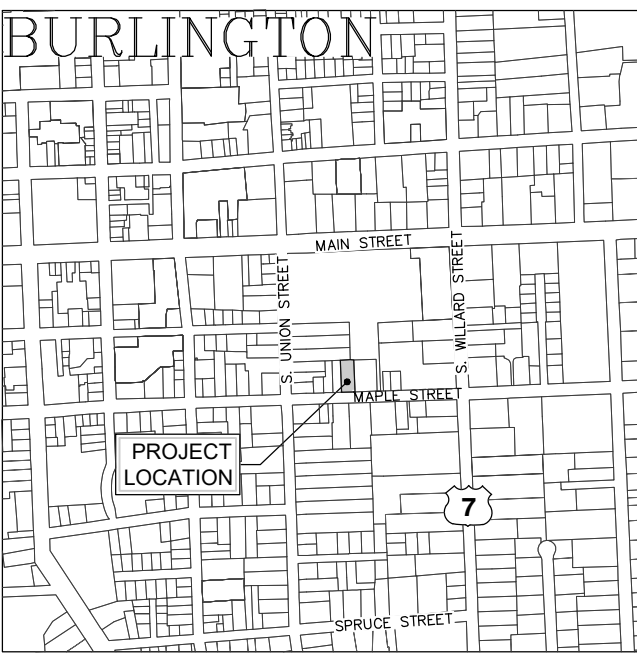
BIRDSEYE BUILDING

3104 HUNTINGTON ROAD
RICHMOND VERMONT 05477

PROJECT:

288 MAPLE
STREET

288 MAPLE STREET
BURLINGTON, VT



LOCATION MAP

1" = 2000'

DATE	CHECKED	REVISION
05/23/23	DSM	PERMITTING PACKAGE

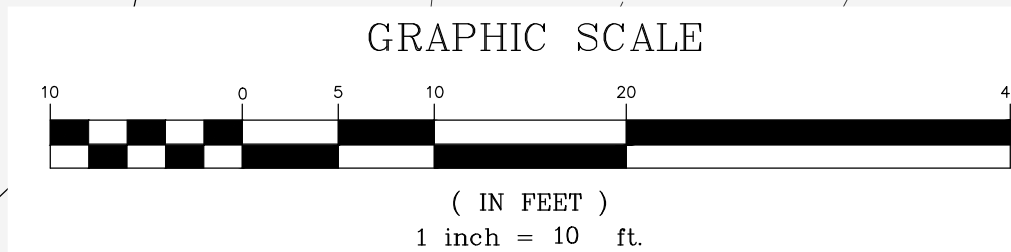
PROPOSED
CONDITIONS SITE
PLAN

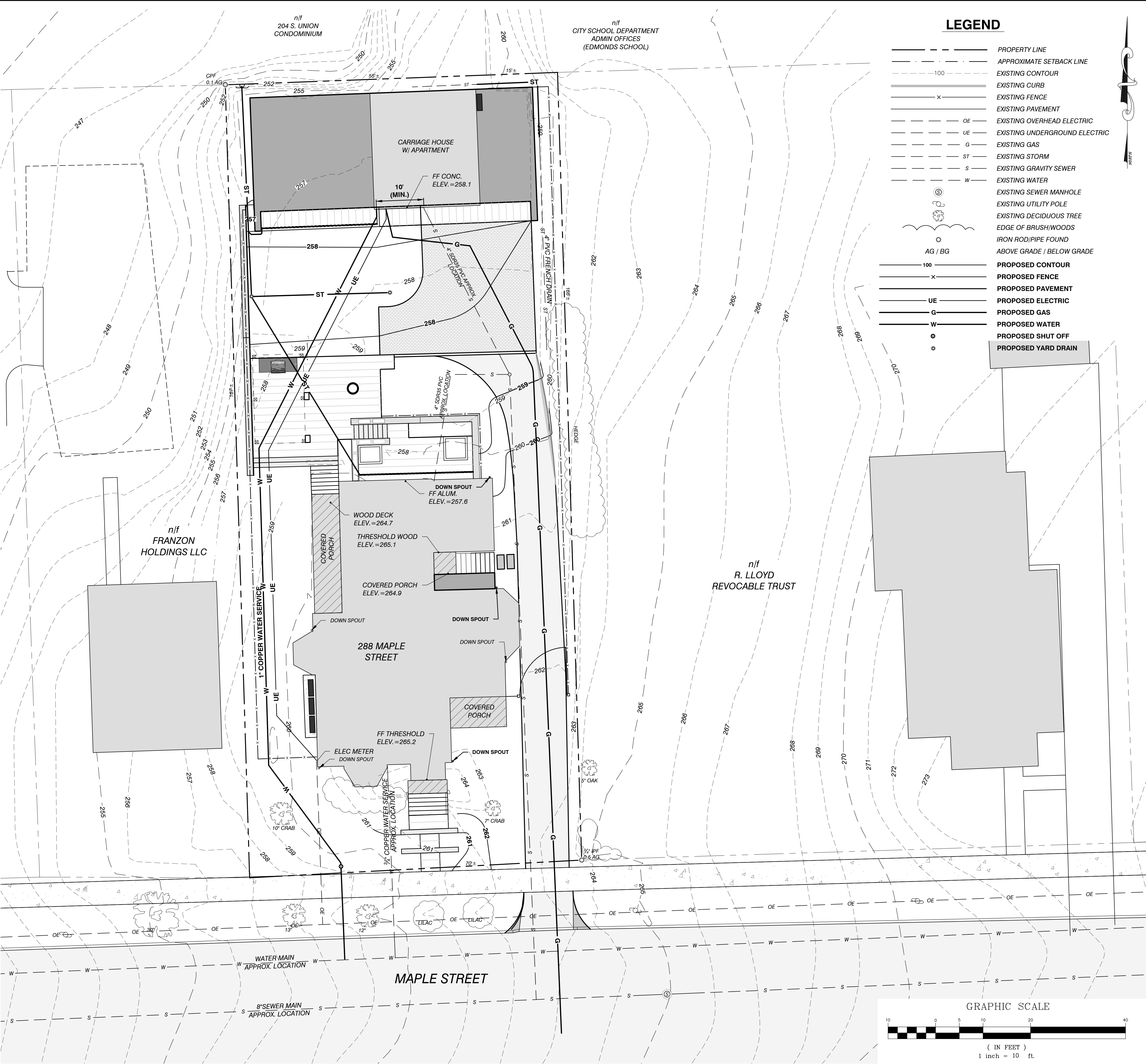
DATE
05/23/2023

SCALE
1" = 10'
PROJ. NO.
23105

DRAWING NUMBER

C2.0





LEGEND

- PROPERTY LINE
- APPROXIMATE SETBACK LINE
- EXISTING CONTOUR
- EXISTING CURB
- EXISTING FENCE
- EXISTING PAVEMENT
- EXISTING OVERHEAD ELECTRIC
- EXISTING UNDERGROUND ELECTRIC
- EXISTING GAS
- EXISTING STORM
- EXISTING GRAVITY SEWER
- EXISTING WATER
- EXISTING SEWER MANHOLE
- EXISTING UTILITY POLE
- EXISTING DECIDUOUS TREE
- EDGE OF BRUSHWOODS
- IRON ROD/PIPE FOUND
- ABOVE GRADE / BELOW GRADE
- PROPOSED CONTOUR
- PROPOSED FENCE
- PROPOSED PAVEMENT
- PROPOSED ELECTRIC
- PROPOSED GAS
- PROPOSED WATER
- PROPOSED SHUT OFF
- PROPOSED YARD DRAIN

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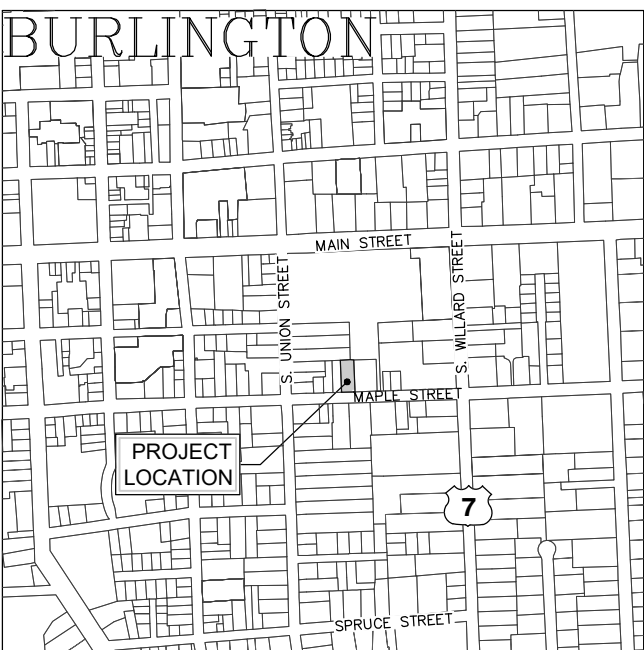
BIRDSEYE BUILDING

3104 HUNTINGTON ROAD
RICHMOND VERMONT 05477

PROJECT:

288 MAPLE STREET

288 MAPLE STREET
BURLINGTON, VT



LOCATION MAP

1" = 2000'

DATE	CHECKED	REVISION
05/23/23	DSM	PERMITTING PACKAGE

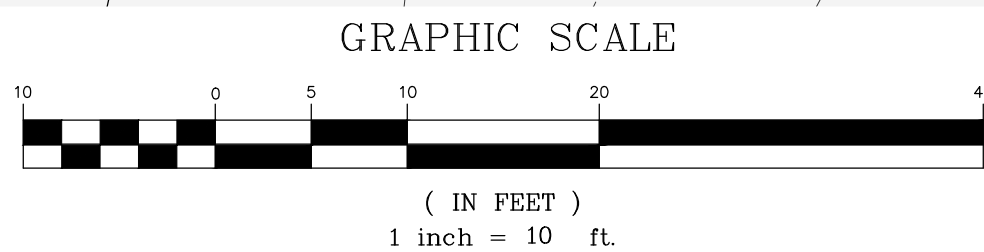
PROPOSED
UTILITY PLAN

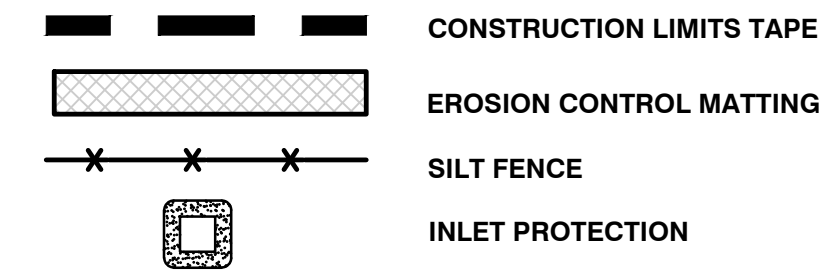
DATE
05/23/2023

SCALE
1" = 10'
PROJ. NO.
23105

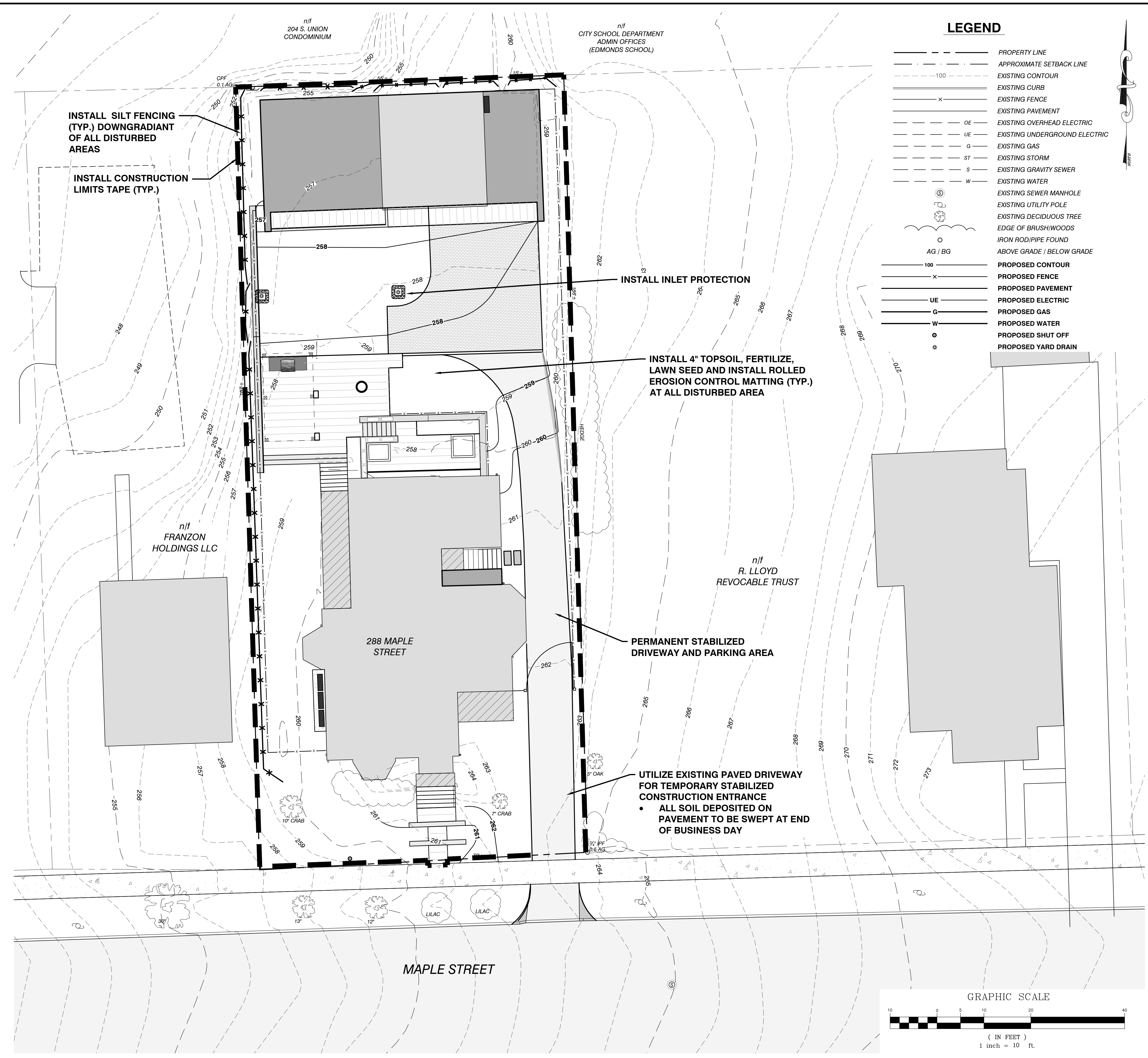
DRAWING NUMBER

C2.1





- NOTES:
1. ALL EROSION AND SEDIMENT CONTROL DEVICES MUST BE INSTALLED AND STABILIZED BEFORE THE START OF CONSTRUCTION.
 2. LOAM, SEED AND MULCH ALL DISTURBED AREAS (TYP.)
 3. INSTALL TEMPORARY STABILIZATION OF DISTURBED SOILS THROUGH THE INSTALLATION OF 1" OF HAY MULCH NO MORE THAN 7 DAYS AFTER WORK HAS CEASED IN A PARTICULAR AREA.
 4. SLOPES >3:1 SHALL RECEIVE EROSION CONTROL MATTING.
 5. MAXIMUM AMOUNT OF DISTURBED SOILS TO BE LIMITED TO NO MORE THAN 2 ACRES.
 6. SILT FENCE CONTRIBUTORY AREA TO BE LIMITED TO ¼ ACRE / 100 L.F.



LEGEND	
	PROPERTY LINE
	APPROXIMATE SETBACK LINE
	EXISTING CONTOUR
	EXISTING CURB
	EXISTING FENCE
	EXISTING PAVEMENT
	EXISTING OVERHEAD ELECTRIC
	EXISTING UNDERGROUND ELECTRIC
	EXISTING GAS
	EXISTING STORM
	EXISTING GRAVITY SEWER
	EXISTING WATER
	EXISTING SEWER MANHOLE
	EXISTING UTILITY POLE
	EXISTING DECIDUOUS TREE
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	PROPOSED GAS
	PROPOSED WATER
	PROPOSED SHUT OFF
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CLIENT:
BIRDSEYE BUILDING

3104 HUNTINGTON ROAD
RICHMOND VERMONT 05477

PROJECT:

288 MAPLE STREET

288 MAPLE STREET
BURLINGTON, VT

BURLINGTON
1" = 2000'

LOCATION MAP

DATE	CHECKED	REVISION
05/23/23	DSM	PERMITTING PACKAGE

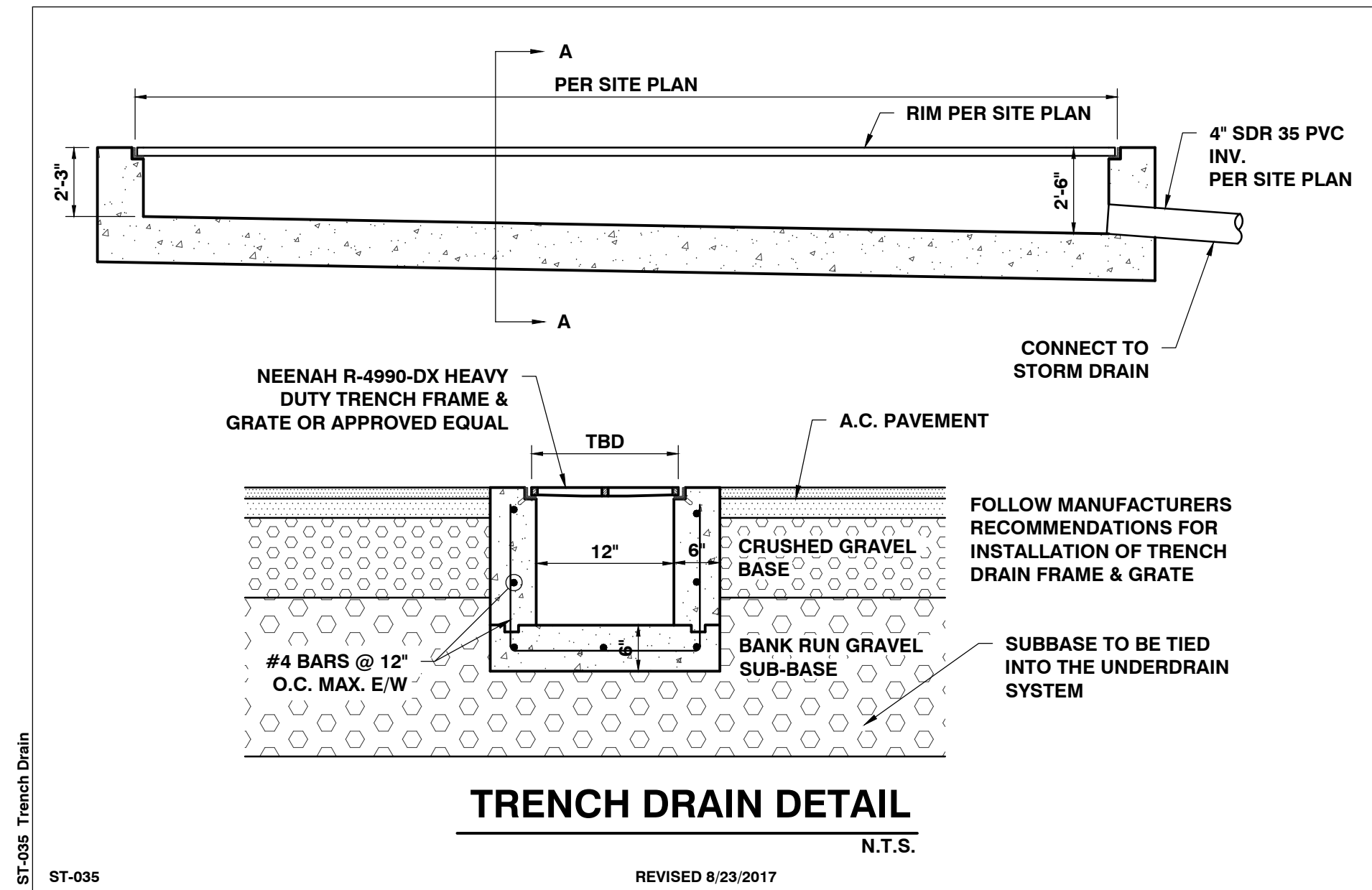
EPSC SITE PLAN

DATE
05/23/2023

SCALE
1" = 10'

PROJ. NO.
23105

DRAWING NUMBER
C3.0



PROJECT COORDINATION

PART 1 – GENERAL

1.01 MEETINGS & PROJECT ACCESS

- A. The Owner shall be notified five (5) days prior to commencement of Work by the Contractor.
- B. The Contractor will coordinate with the Owner to arrange an on-site pre-construction meeting prior to commencement of any work. Job superintendents and subcontractors shall be involved in this meeting.
- C. The Contractor will coordinate all phases of the Work, so as not to interfere with the normal work procedures in the area.
- D. The Contractor shall conduct his work in such a manner as to not interfere with or endanger work or traffic in areas adjacent to the construction area, except as permitted by the Owner. The Contractor shall so arrange his construction operations as to provide access for emergency vehicles and equipment to the work site at all times.

1.02 LABOR

- A. The Contractor and subcontractors will employ mechanics skilled in their respective trades.
- B. All labor will be performed in a neat and workmanlike manner.

1.03 PROTECTION OF PERSONS AND PROPERTY

- A. The Contractor shall be responsible for initiating, maintaining, and supervising all O.S.H.A. safety precautions in connection with the Work.
- B. Fire Protection: The Contractor shall take all necessary precautions to prevent fires adjacent to the Work and shall provide adequate facilities for extinguishing fires. The Contractor shall also prevent fires in project related buildings and shall prevent the spread of fires to areas outside the limits of the Work.
- C. Safety Precautions: Prior to commencement of Work, the Contractor shall be familiar with all safety regulations and practices applicable with construction operations. No additional payments will be made for equipment and procedures necessitated by these safety precautions.

1.04 CORRECTION OF WORK

- A. The Contractor shall promptly correct all Work rejected by the Owner as defective or as failing to conform to the Contract Documents. The Contractor shall bear all cost of correcting such rejected Work.

1.05 WEATHER CONDITIONS

- A. No Work shall be done when, in the opinion of the Owner, the weather is unsuitable. No concrete, earth backfill, embankment, or paving shall be placed upon frozen material. If there is delay or interruption in the Work due to weather conditions, the necessary precautions must be taken to bond new Work to old.
- B. Protection Against Water and Storm: The Contractor shall take all precautions to prevent damage to the Work by storms or by water entering the site of the Work directly or through the ground. In case of damage by storm or water, the Contractor, at his own expense, shall make repairs or replacements or rebuild such parts of the Work as the Engineer may require in order that the finished work may be completed as required by the Drawings and Specifications.

1.06 DISPOSAL OF DEBRIS

- A. All debris and excess materials, other than that which is authorized to be reused, become the property of the Contractor and shall be promptly removed from the property. The Contractor shall receive title to all debris and/or excess material. The Owner will not be responsible for any loss or damage to debris or excess material owned by the Contractor.

1.07 PROJECT LAYOUT

- A. The Contractor shall be responsible for providing all necessary survey staking.
1. Locate and protect control points before starting work on the site.
2. Preserve permanent reference points during progress of the Work.
3. Establish a minimum of two permanent benchmarks on the site, referenced to data established by survey control points.
- a. Record locations, with horizontal and vertical data, on Project Record Documents.

1.08 TESTING

- A. The Contractor is responsible for obtaining testing and inspection services.

SITE EARTHWORK

PART 1 – GENERAL

1.01 SUMMARY

A. Section includes:

1. All excavation (unless covered in other sections of these specifications), removal and stockpile of topsoil, stabilization fabric, and other miscellaneous and appurtenant works.
2. Site filling.
3. Roadway structural sections.

1.02 PROTECTION

- A. Protect bench marks and existing structures.
- B. Protect above or below grade utilities which are to remain.

1.03 SUBMITTALS

- A. Testing laboratory reports indicating that material for backfill meets requirements of this Section.
- B. Field density test reports of site fill in place.
- C. Field density test reports for roadway structural sections in place.
- D. Stabilization Fabric: Submit copies of manufacturer's specifications and installation instructions.

PART 2 – PRODUCTS

2.01 STRUCTURAL FILL – CRUSHED GRAVEL (AOT SPEC. 704.05, FINE)

- A. All materials shall be secured from approved sources. This gravel shall consist of angular and round fragments of hard durable rock of uniform quality throughout, reasonably free from thin elongated pieces, soft or disintegrated stone, dirt, organic or other objectionable matter. This material shall meet the following grading requirements:

Sieve Designation	Percent by Weight Passing Square Mesh Sieve
2"	100
1 1/2"	90 – 100
No. 4	30 – 60
No. 100	0 – 12
No. 200	0 – 6

At least 50% by mass (weight) of the material coarser than the No. 4 sieve shall have at least one fractured face.

2.02 CRUSHED GRAVEL (AOT SPEC. 704.05, COARSE)

- A. All materials shall be secured from approved sources. This gravel shall consist of angular and round fragments of hard durable rock of uniform quality throughout, reasonably free from thin elongated pieces, soft or disintegrated stone, dirt, organic or other objectionable matter. This material shall meet the following grading requirements:

Sieve Designation	Percent by Weight Passing Square Mesh Sieve
4"	95 – 100
No. 4	25 – 50
No. 100	0 – 12
No. 200	0 – 6

At least 50% by mass (weight) of the material coarser than the No. 4 sieve shall have at least one fractured face.

2.03 COMPACTED FILL/GRANULAR BORROW

- A. All materials shall be secured from approved sources. This material shall be free of shale, clay, friable material, debris, and organic matter. This material shall meet the following grading requirements:

Sieve Designation	Percent by Weight Passing Square Mesh Sieve
3"	100
3/4"	75 – 100
No. 4	20 – 100
No. 100	0 – 20
No. 200	0 – 6

2.04 DRAINAGE COURSE (AOT SPEC. 704.16 or 704.02B)

- A. All materials shall be secured from approved sources. Rock for drainage applications shall be produced from natural gravels or crushed quarried rock and shall consist of clean, hard, sound, and durable material. This material shall meet the following grading requirements:

Sieve Designation	Percent by Weight Passing Square Mesh Sieve
1"	100
3/4"	90 – 100
3/8"	20 – 55
No. 4	0 – 10
No. 8	0 – 5

2.05 DENSE GRADED CRUSHED STONE (AOT SPEC. 704.06)

- A. All materials shall be secured from approved sources. Dense Graded Crushed Stone shall consist of clean, hard, uniformly graded, crushed stone. It shall be sufficiently free from dirt, deleterious material, and pieces that are structurally weak. This material shall meet the following grading requirements:

Sieve Designation	Percent Finer by Weight
3 1/2"	100
3"	90 – 100
2"	75 – 100
1"	50 – 80
1/2"	30 – 60
No. 4	15 – 40
No. 200	0 – 6

Source: This material shall be obtained from crushed quarried rock sources. The area from which this material is obtained shall be stripped and cleaned before blasting.

Not more than 30% by mass (weight) of the material coarser than the No. 4 sieve shall consist of thin and/or elongated pieces.

2.06 RECYCLED ASPHALT PAVEMENT (RAP) 1 1/2" MINUS CRUSHED ASPHALT

- A. All materials shall be secured from approved sources. This material shall be free of Portland Cement and approved by the engineer prior to installation. This material shall not be mixed with gravel and shall meet the following grading requirements:

Sieve Designation	Percent by Weight Passing Square Mesh Sieve
2"	100
1 1/2"	90 – 100
No. 4	30 – 60
No. 100	0 – 12
No. 200	0 – 6

2.07 SAND BORROW AND CUSHION (AOT SPEC. 703.03)

- A. All materials shall be secured from approved sources. Sand Borrow shall consist of material reasonably free from silt, loam, clay, or organic matter. This material shall meet the following grading requirements:

Sieve Designation	Percent Finer by Weight
2"	100
1 1/2"	90 – 100
1/2"	70 – 100
No. 4	60 – 100
No. 100	0 – 20
No. 200	0 – 8

2.08 GEOTEXTILE

- A. Subsurface Drainage Geotextile: Nonwoven needle-punched geotextile, manufactured for subsurface drainage applications, made from polyolefins or polyesters; with elongation greater than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:

1. Survivability: Class 3; AASHTO M 288.
2. Grab Tensile Strength: 120 lbf; ASTM D 4632.
3. Tear Strength: 50 lbf; ASTM D 4533.
4. Apparent Opening Size: No. 70 sieve, maximum; ASTM D 4751.
5. Permittivity: 1.7 per second, minimum; ASTM D 4491.
6. UV Stability: 70 percent after 500 hours' exposure; ASTM D 4355.

- B. Separation Geotextile: Woven geotextile fabric, manufactured for separation applications, made from polyolefins or polyesters; with elongation less than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:

1. Survivability: Class 3; AASHTO M 288.
2. Grab Tensile Strength: 200 lbf; ASTM D 4632.
3. Sewn Seam Strength: 222 lbf; ASTM D 4632.
4. Tear Strength: 75 lbf; ASTM D 4533.
5. Puncture Strength: 90 lbf; ASTM D 4833.
6. Apparent Opening Size: No. 40 sieve, maximum; ASTM D 4751.
7. Permittivity: 0.02 per second, minimum; ASTM D 4491.
8. UV Stability: 50 percent after 500 hours' exposure; ASTM D 4355.
9. Weight: 4.0 oz/yd² minimum.

PART 3 – EXECUTION

3.01 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Identify known below grade utilities. Stake and flag locations.
- C. Maintain and protect existing utilities remaining which pass through work area.
- D. Upon discovery of unknown utility or concealed conditions, discontinue affected work; notify Engineer.

3.02 EROSION CONTROL

- A. Erosion control must be installed prior to beginning any earthwork operations.

3.03 TOPSOIL EXCAVATION

- A. Excavate topsoil from areas to be excavated, re-landscaped or regraded and stockpile in areas designated on site or as directed by the Engineer.

- B. Maintain the stockpile in a manner which will not obstruct the natural flow of drainage.

1. Maintain stockpile free from debris and trash.
2. Keep the topsoil damp to prevent dust and drying out.

3.04 SUBSOIL EXCAVATION

- A. Excavate subsoil from areas to be regraded in accordance with plans.
- B. Excavate subsoil required to accommodate site structures, construction operations, roads, and parking areas.
- C. Grade top perimeter of excavation to prevent surface water from draining into excavation.
- D. Notify engineer of unexpected subsurface conditions and discontinue affected work in area until notified to resume work.
- E. Correct areas over-excavated by error as directed by the Engineer.

3.05 DITCHES

- A. Cut accurately to the cross-sections, grades, and elevations shown.
- B. Maintain excavations free from detrimental quantities of leaves, sticks, trash, and other debris until completion of the work.

- C. Dispose of excavated materials as shown on the drawings or directed by the Engineer; except do not, in any case, deposit materials less than three feet from the edge of a ditch.

3.06 ROADWAY EMBANKMENTS AND BERMS

- A. When embankments are to be made on a hillside, the slope of the original ground on which the embankments are to be constructed shall be stepped and properly drained as the fill is constructed so that adverse movements of the slopes do not occur.
- B. Any excavated rock, ledge, boulders, and stone, except where required in the construction of other items or otherwise directed, shall be used in the construction of embankments

to the extent of the project requirements and generally shall be placed so as to form the base of an embankment.

- C. Frozen material shall not be used in the construction of embankments, nor shall the embankments or successive layers of the embankments be placed upon frozen material. Placement of material other than rock shall stop when the sustained air temperature, below 32 degrees Fahrenheit, prohibits the obtaining of the required compaction. If the material is otherwise acceptable, it shall be stockpiled and reserved for future use when its condition is acceptable for use in embankments.

- D. When an embankment is to be constructed across a swamp, muck, or areas of unstable soils, the unsuitable material shall be excavated to reach soils of adequate bearing capacity and the embankment begun. Alternative methods, such as use of a stabilization fabric in place of excavation and backfill, may be utilized only after approval of same by the Engineer.

- E. Material being placed in embankments shall be placed in horizontal layers of uniform thickness across the full width of the embankment. Stumps, trees, rubbish, and other unsuitable material shall not be placed in embankments.

- F. Embankment areas shall be placed in eight-inch maximum lifts. Effective spreading equipment shall be used on each layer to obtain uniform thickness prior to compaction. Each layer shall be kept crowned to shed water to the outside edge of embankment and continuous leveling and manipulating will be required to assure uniform density. The entire area of each layer shall be uniformly compacted to at least the required minimum density by use of compaction equipment consisting of rollers, compactors, or a combination thereof. Earth-moving and other equipment not specifically manufactured for compaction purposes will not be considered as compaction equipment.

- G. All fill material shall be compacted at a moisture content suitable for obtaining the required density. In no case shall the moisture content in each layer under construction be more than three percent above the optimum moisture content and shall be less than that quantity that will cause the embankment to become unstable during compaction. Sponginess, shoving, or other displacement under heavy equipment shall be considered evidence for an engineering determination of lack of stability under this requirement, and further placement of material in the area affected shall be stopped or retarded to allow the material to stabilize.

- H. When the moisture content of the material in the layer under construction is less than the amount necessary to obtain satisfactory compaction by mechanical compaction methods, water shall be added by pressure distributors or other approved equipment. Water may also be added in excavation or borrow pits. The water shall be uniformly and thoroughly incorporated into the soil by disc, harrowing, blading, or by other approved methods. This manipulation may be omitted for sands and gravel. When the moisture content of the material is in excess of three percent above optimum moisture content, dry material shall be thoroughly incorporated into the wet material, or the wet material shall be aerated by disk, harrowing, blading, rotary mixing, or by other approved methods; or compaction of the layer of wet material shall be deferred until the layer has dried to the required moisture content by evaporation.

3.07 COMPACTION REQUIREMENTS

- A. All backfills and fills shall be compacted in even lifts (8" maximum) to attain the required densities as follows:

Location	Modified Proctor ASTM D-1557
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Subgrade and Gravel for Roads and Parking Lots 95%

General Embankments 90%

- B. Testing Agency will test compaction of soils in place according to ASTM D1557, ASTM D2167, ASTM D2922 and ASTM D2937, as applicable. Tests will be performed at the following locations and frequencies:
1. Paved and Building Slab Areas: At subgrade and each compacted fill and backfill layer, at least 1 test for every 2,000 square feet or less of paved area or slab, but in no case fewer than 3 tests.
2. Foundation Wall Backfill: At each compacted backfill layer, at least 1 test for each 100 feet or less of wall length, but no fewer than 2 tests.
3. Trench Backfill: At each compacted initial and final backfill layer, at least 1 test for each 150 feet or less of trench length, but no fewer than 2 tests.

- C. When testing agency reports that subgrades, fills or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

UTILITY TRENCHING AND BACKFILLING

PART 1 – GENERAL

1.01 SUMMARY

A. Section includes:

1. Trench, backfill, and compact as specified herein and as needed for installation of underground utilities.

1.02 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.
- B. Use equipment adequate in size, capacity, and numbers to accomplish the work in a timely manner.
- C. Comply with all requirements of governmental agencies having jurisdiction.

PART 2 – PRODUCTS

2.01 SOIL MATERIALS

A. Fill and backfill materials:

1. Provide backfill materials free from organic matter and deleterious substances, containing no rocks or lumps over 6" in greatest dimension.
2. Fill material is subject to the approval of the Engineer, and is that material removed from excavations or imported from off-site borrow areas, predominantly granular, non-expansive soil free from roots and other deleterious matter.
3. Do not permit rocks having a dimension greater than 2" within 2' of the outside of pipe.
4. Cohesionless material used for backfill: Provide sand free from organic material and other foreign matter, and as approved by the Engineer.

PART 3 – EXECUTION

3.01 PROCEDURES

A. Existing Utilities:

1. Unless shown to be removed, protect active utility lines shown on the drawings or otherwise made known to the Contractor prior to trenching. If damaged, repair or replace at no additional cost to the Owner.
2. When existing underground utilities, which are not scheduled for removal or abandonment, are encountered in the excavation, they shall be adequately supported and protected from damage. Any damage to utilities shall be repaired promptly at no additional cost to the Owner.
3. If the service is interrupted as a result of work under this section, immediately restore service by repairing the damaged utility at no additional cost to the Owner.
4. If existing utilities are found to interfere with the permanent facilities being constructed under this section, immediately notify the Engineer and secure his instructions.
5. Do not proceed with permanent relocation of utilities until written instructions are received from the Engineer.

B. Protection of persons and property:

1. Barricade open holes and depressions occurring as part of the work, and post warning lights on property adjacent to or with public access.
2. Operate warning lights during hours from dusk to dawn each day and as otherwise required.
3. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, washout, and other hazards created by operations under this section.

- C. Dewatering: The Contractor, at all times, shall conduct his operations so as to prevent the accumulation of water, ice, and snow in excavations or in the vicinity of excavated areas, and to prevent water from interfering with the progress of quality of the work. Under no conditions shall water be allowed to rise in open trenches after pipe has been placed.

- D. Accumulated water, ice, and snow shall be promptly removed and disposed of by pumping or other approved means. Disposal shall be carried out in a manner which will not create a hazard to public health, nor cause injury to public or private property, work completed or in progress, or public streets, nor cause any interference in the use of streets and road by the public. Pipes under construction shall not be used for drainage of excavations.
- E. Maintain access to adjacent areas at all time.

3.02 TRENCHING

- A. Care shall be exercised by the Contractor to avoid disrupting the operation of existing facilities without prior written approval of the Engineer.

- B. Provide sheeting and shoring necessary for protection of the work and for the safety of personnel.

1. Sheeting and bracing required for trenches shall be removed to the elevation of the pipe, but no sheeting will be allowed to be pulled, removed, or disturbed below the pipe.

- C. A trench shall be excavated to the required depth and to a width sufficient to allow for joining of the pipe and compaction of the bedding and backfill material under and around the pipe. Where feasible, trench walls shall be vertical.

- D. The completed trench bottom shall be firm for its full length and width.

- E. If indicated on the plans or directed by the Engineer, poor foundation material encountered below the normal grade of the pipe bed shall be removed and replaced with granular backfill.

- F. Where pipes are to be placed in embankment fill, the excavation shall be made after the embankment has been completed to a height of 3 feet plus the diameter of the pipe above the designed grade of the pipe.

- G. Excavating for appurtenances:

1. Excavate for manholes and similar structures to a distance sufficient to leave at least 12" clear between outer surfaces and the embankment or shoring that may be used to hold and protect the banks.

2. Over-depth excavation beyond such appurtenances that has not been directed will be considered unauthorized. Fill with sand, gravel, or lean concrete as directed by the Engineer, and at no additional cost to the Owner.

- H. Excavation shall not interfere with normal 45' bearing splay of foundations.

SITE ENGINEER:



CIVIL ENGINEERING ASSOCIATES, INC.
10 MANSFIELD VIEW LANE, SOUTH BURLINGTON, VT 05403
P: 802-864-2323 FAX: 802-864-2271 web: www.cea-vt.com

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DRAWN

MAB

CHECKED

DSM

APPROVED

DSM

CLIENT:

BIRDSEYE BUILDING

3104 HUNTINGTON ROAD
RICHMOND VERMONT 05477

PROJECT:

288 MAPLE
STREET

288 MAPLE STREET
BURLINGTON, VT

DATE	CHECKED	REVISION
05/23/23	DSM	PERMITTING PACKAGE

SPECIFICATIONS

DATE

05/23/2023

SCALE

AS SHOWN

PROJ. NO.

23105

DRAWING NUMBER

C5.0

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I. All trenching shall be in accordance with the latest OSHA requirements.		A. Materials shall be combined and graded to meet the criteria as defined in the VAOT Standard Specifications, Division 700 for bituminous concrete.		disturbance to rock to remain.		A. Hand trim excavation (where necessary) to required elevations. Correct over-excavations with fill material.		SITE ENGINEER:  CIVIL ENGINEERING ASSOCIATES, INC. 10 MANSFIELD VIEW LANE, SOUTH BURLINGTON, VT 05403 P: 802-864-2323 FAX: 802-864-2271 web: www.cea-vt.com COPYRIGHT © 2023 – ALL RIGHTS RESERVED DRAWN MAB CHECKED DSM APPROVED DSM CLIENT: BIRDSEYE BUILDING 3104 HUNTINGTON ROAD RICHMOND VERMONT 05477 PROJECT: 288 MAPLE STREET STREET 288 MAPLE STREET BURLINGTON, VT
J. Where utility runs traverse public property or are subject to governmental or utility company jurisdiction, provide depth, bedding, cover, and other requirements as set forth by legally constituted authority having jurisdiction, but in no case less than the depth shown in the Contract Documents.		B. Gradation: Materials shall be combined and graded to meet composition limits specified in VAOT Standard Specification, Section 406.03, for the base course and finish course. Unless specifically shown on the Plans, all		3.4 EXCAVATION, GENERAL		B. The slopes shall be graded to match the grade as shown on the plans. Where required, end sections shall be placed and backfilled to prevent undermining.		
K. Where trenching occurs in existing lawns, remove turf in sections and keep damp. Replace turf upon completion of the backfilling.		1. Bituminous concrete pavement shall be designed in conformance with the design criteria for heavy duty bituminous concrete pavement. (75 blows/side) Superpave 65 gyratoin mix is also acceptable.		A. Rock excavation includes removal and disposal of rock. Remove rock to lines and subgrade elevations indicated to permit installation of permanent construction.		C. Remove large stones or other hard matter which could damage drainage structures or impede consistent backfilling or compaction.		
3.03 BEDDING		2. All Asphalt Cement used in the bituminous concrete pavement shall be PG 58–28 (or VTrans approved mix) unless otherwise noted. Superpave 65 gyratoin mix with 58–28 asphalt cement is also acceptable.		3.5 UNAUTHORIZED EXCAVATION		3.04 INSTALLATION OF PIPE		
A. Pipe Bedding Area: Prior to laying pipe, bedding material shall be placed to the limits of the excavation and to a depth beneath the pipe as specified. This material shall be either sand, gravel, or crushed stone and shall not contain large lumps and stones over one inch in diameter. As the pipe is laid, bedding material shall be extended to 6" above the pipe and leveled along the width of the trench.		C. Thickness of paving for drives and parking lots shall be as shown on the plans, consisting of base course and finish course.		A. Fill unauthorized excavations under construction.		A. All pipe and fittings shall be carefully examined for defects and no pipe or fittings shall be laid which are known to be defective. If any defective piece is discovered after laying, it shall be removed and replaced at the Contractor's expense. All pipes and fittings shall be cleaned before they are laid and shall be kept clean until accepted in the completed work.		
3.04 BACKFILLING		D. For pavement reconstruction areas due to trenching, the depth of each course shall be increased by 1/2". Pavement reconstruction caused by trench reopening due to improper placement or non-approved placement shall be performed at no additional cost to the Owner.		1. If rock below grade is shattered by blasting caused by holes drilled too deep, or too heavy charges of explosives, or any other circumstance due to blasting, and if such shattered rock does not provide suitable foundation, the rock shall be removed and the excavation refilled with screened gravel at the expense of the Contractor.		B. The pipe shall be laid to conform to the lines and grades indicated on the drawings or given by the Engineer. Each pipe shall be laid as to form a close joint with the next adjoining pipe and to bring the inverts continuously to the required grade.		
A. Backfilling shall not be done in freezing weather, with frozen materials, or when materials already placed are frozen.		PART 3 – EXECUTION		A. Blasting Plan: For record purposes; approved by authorities having jurisdiction.		C. Unless otherwise permitted by the Engineer, the Contractor shall provide for the temporary diversion of water to permit the installation of the pipe in a reasonably dry trench.		
B. Unless otherwise specified or indicated on the plans, material used for backfilling trenches above the bedding area shall be suitable material which was removed during excavation or obtained from borrow and when compacted shall make a dense stable fill. The material shall not contain vegetation, porous matter, masses of roots, individual roots more than 18 inches long or ½ inch thick, or stones greater than 50 pounds or larger than six inches in the widest dimension.		3.01 INSTALLATION		B. Seismic Survey Report: For record purposes; from seismic survey agency.		D. Where the pipe is to be laid below the existing ground line, a trench shall be excavated to the required depth and to a width sufficient to allow for joining of the pipe and compaction of the bedding and backfill material under and around the pipe.		
C. If additional material is required, it shall be furnished from approved sources.		A. Install in accordance with VAOT Standard Specifications, Section 406.		C. Preexcavation Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by earthwork operations. Submit before earthwork begins.		E. The completed trench bottom shall be firm for its full length and width.		
D. Backfill material shall be evenly spread and compacted in lifts not more than 8 inches thick or as approved by the Engineer. Previously placed or new materials shall be moistened by sprinkling, if required, to ensure proper bond and compaction.		3.02 EXAMINATION		1.2 SUBMITTALS		F. If indicated on the plans or directed by the Engineer, unsuitable foundation material encountered below the normal grade of the pipe bed shall be removed and replaced with Granular Backfill, or other specified or approved material.		
E. Reopen trenches which have been improperly backfilled, to a depth as required for proper compaction. Refill and compact as specified, or otherwise correct to the approval of the Engineer.		A. Verify that compacted granular base is dry and ready to support paving and imposed loads.		A. Blasting: Comply with applicable requirements in NFPA 495, "Explosive Materials Code," and prepare a blasting plan reporting the following:		G. The Contractor shall take all necessary precautions to prevent flotation of the pipe in the trench.		
F. Should any of the work be so enclosed or covered up before it has been approved, uncover all such work and, after approvals have been made, refill and compact as specified, all at no additional cost to the Owner.		B. Verify gradients and elevations of base are correct.		1. Types of explosive and sizes of charge to be used in each area of rock removal, types of blasting mats, sequence of blasting operations, and procedures that will prevent damage to site improvements and structures on Project site and adjacent properties.		H. When pipe laying is not in progress, the open ends of the pipe shall be closed with temporary watertight plugs. If water is in the trench when work is resumed, the plug shall not be removed until all danger of water entering the pipe is eliminated.		
G. Take special care in backfilling and bedding operations to not damage pipe and pipe coatings.		3.03 PREPARATION		2. Seismographic monitoring during blasting operations.		3.05 MANHOLES		
H. No compacting shall be done when the material is too wet to be compacted properly. At such times the work shall be suspended until the previously placed and new materials have dried out sufficiently to permit proper compaction, or such other precautions are taken as may be necessary to obtain proper compaction.		A. Matching Surfaces: When a new pavement is to match an existing bituminous pavement for a roadway or trench, the Contractor shall vertically smooth cut the existing pavement, over the existing gravel base. The smooth cut shall be thoroughly cleaned and coated with Emulsified Asphalt, RS–1, just prior to paving.		3. Explosive Firm: The company specializing in explosives for disintegration of rock with a minimum of five (5) years documented experience.		A. Precast concrete structures:		
I. Backfill material shall be compacted to the following percentages of maximum dry density and the in-place moisture content shall not be more than 2% above the optimum moisture content, as determined by Modified Proctor ASTM D1557.		3.04 PREPARATION – TACK COAT		B. Seismic Survey Agency: An independent testing agency, acceptable to authorities having jurisdiction, experienced in seismic surveys and blasting procedures to perform the following services:		1. Place precast concrete structures and covers as shown on the Drawings.		
1. Around all structures, under roadway paving, shoulder and embankments – 95%.		A. When the bottom course of bituminous concrete pavement is left over the winter, or paving is to be made over an existing bituminous concrete pavement, the existing surface shall be cleaned and Emulsified Asphalt applied before the next course is applied.		1. Report types of explosive and sizes of charge to be used in each area of rock removal, types of blasting mats, sequence of blasting operations, and procedures that will prevent damage to site improvements and structures on Project site and adjacent properties.		2. Where manholes occur in pavement, set tops of frames and covers flush with finish surface.		
2. All other areas – 90%.		B. Also apply to contact surfaces of curbs.		2. Seismographic monitoring during blasting operations.		3. Provide rubber joint gasket complying with ASTM C443.		
<u>BITUMINOUS CONCRETE PAVING</u>		C. Coat surfaces of manhole and catch basin frames with oil to prevent bond with asphalt pavement. Do not tack coat these surfaces.		3. Seismic Survey Firm: The company specializing in seismic surveys with a minimum of five (5) years documented experience.				
<u>PART 1 – GENERAL</u>		3.05 PLACING ASPHALT PAVEMENT		1.4 SCHEDULING		<u>LANDSCAPE GRADING</u>		
1.01 SUMMARY		A. Place to compacted thickness identified on the plans.		A. Drilling operations shall be conducted Monday through Friday, from 7:00 A.M. to 4:00 P.M.		PART 1 – GENERAL		
A. Section includes:		B. Compact pavement by rolling. Do not displace or extrude pavement from position. Hand compact in areas inaccessible to rolling equipment.		B. Blasting operations shall be conducted Monday through Friday, from 8:00 A.M. to 4:00 P.M.		1.01 SUMMARY		
1. Base Courses		C. Develop rolling with consecutive passes to achieve even and smooth finish, without roller marks.		C. Notification: Notify adjacent property owners and residents (within 1,500') a minimum of seven (7) days in advance of all anticipated blasting operations. Explain blasting and seismic operation and schedule.		A. Section includes:		
2. Leveling Courses		3.06 JOINTS		PART 2 – PRODUCTS (Not Applicable)		1. Finish grading; bring rough grade in areas to design elevations as shown on the drawings.		
3. Finish Course		A. Joints between old and new pavements or between successive day's work shall be made so as to insure a thorough and continuous bond between the old and new mixtures. Whenever the spreading process is interrupted long enough for the mixture to attain its initial stability, the paver shall be removed from the mat and a joint constructed.		PART 3 – EXECUTION		2. Topsoil: Work shall consist of furnishing, placing and shaping topsoil, or placing, spreading, and shaping topsoil form stockpiles or stripped areas.		
B. General: This work shall consist of one or more courses of bituminous mixture, constructed on a prepared foundation in accordance with these Specifications and the type of surface being placed, and in conformity with the lines, grades, thicknesses and typical cross sections shown on the plans or established by the Engineer.		B. Butt joints shall be formed by cutting the pavement in a vertical plane at right angles to the centerline where the pavement has a true surface as determined by the use of a straight-edge. The butt joint shall be thoroughly coated with Emulsified Asphalt, Type RS–1, just prior to depositing the paving mixtures.		3.1 EXAMINATION		PART 2 – PRODUCTS		
1.02 QUALITY ASSURANCE		C. Longitudinal joints that have become cold shall be coated with Emulsified Asphalt, Type RS–1, before the adjacent mat is placed. If they have been exposed to traffic, they shall be cut back to a clean vertical edge prior to painting with the emulsion.		A. Pre-Blast Survey and Site Examination:		2.01 TOPSOIL		
A. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.		D. Unless otherwise directed, longitudinal joints shall be offset at least 6" from any joint in the lower courses of pavement. Transverse joints shall not be constructed nearer than one foot from the transverse joints constructed in lower courses.		1. Conduct a pre-blast survey on all adjacent buildings and individual water systems within a distance of 1,500 feet. The survey shall include pictures and notes of all signs of distress in the buildings and verification of quality and quantity of water in all individual water systems.		A. Topsoil shall be loose, friable, reasonably free of admixtures of subsoil, free from refuses, stumps, roots, brush, weeds, rocks, and stones 1 1/4 inch in overall dimensions. The topsoil shall also be free from any material that will prevent the formation of a suitable seedbed or prevent seed germination and plant growth. It shall contain not less than three (3) nor more than twenty (20) percent organic matter. Any material which has become mixed with undue amounts of subsoil during any operation at the source or during placing or spreading will be rejected and shall be replaced by the Contractor with acceptable material.		
B. All materials and installation shall be in accordance with The Asphalt Institute Manual (MS–4) and the VAOT Standard Specifications, (Latest Edition).		3.07 TOLERANCES		2. Verify site conditions and note all subsurface irregularities, which may affect any work requiring blasting.		PART 3 – EXECUTION		
C. Mixing Plant: Conform to State of Vermont Standards.		A. The surface will be tested by the Engineer using a 16 foot straight-edge at selected locations parallel with the centerline. Any variations exceeding 3/16 of an inch between any two contacts shall be satisfactorily eliminated. A 10 foot straight-edge may be used on a vertical curve. The straight-edges shall be provided by the Contractor.		3. Identify required lines, levels, contours and datum.		3.01 SUBGRADE PREPARATION		
D. Obtain materials from same source throughout.		B. Scheduled Compacted Thickness: Within 1/4 inch.		4. Obtain a seismic survey prior to rock excavation to determine maximum charges that can be used without damaging adjacent properties, other work or existing utilities.		A. Clean subgrade of all stumps, stones, roots, trash or other materials which might hinder proper tillage or spreading.		
1.03 PROJECT CONDITIONS		C. Variation from True Elevation: Within 1/2 inch.		3.2 PREPARATION		B. All surfaces on which topsoil is to be placed shall be graded to a reasonably true surface and scarified by raking, discing or other approved means to a minimum depth of two inches before placing topsoil.		
A. Bituminous concrete shall not be placed between November 1 and May 1. Material shall not be placed when the granular subbase is wet or when the air temperature at the paving site in the shade and away from artificial heat is as follows:		3.08 FIELD QUALITY CONTROL		A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, and other hazards created by blasting operations.		3.02 PLACING TOPSOIL		
Air Temperature Degrees Fahrenheit 40 Degrees or below 50 Degrees or below		A. Permit no vehicular traffic on surfaces until thoroughly cool and hard.		B. When ledge rock or boulders are encountered, the material shall be uncovered and the Contractor shall take cross-sections of the ledge rock surface. If the Contractor uncovers ledge but fails to cross section the undisturbed material, the Contractor shall have no right-of-claim to any classification other than that allowed by the Owner.		A. Minimum final depth of topsoil shall be 4 inches.		
Pavement Compacted Depth 1 1/4" or Greater Less than 1 1/4"		3.09 REPAIR OF SUBSIDENCE		3.3 EXPLOSIVES		B. Place topsoil when seeding operations can closely follow spreading operations. Use topsoil in relatively dry state.		
		A. Settlement – Should any pavement settle within one year of completion of the Contract, such pavement shall be repaired at the Contractor's expense. If the Contractor fails to make such repairs promptly upon receipt of notice to do so from the Owner, then the Owner may make such repairs as		A. Explosives: Obtain written permission and all necessary permits from authorities having jurisdiction (local, state and federal) before bringing explosives to Project site or using explosives on Project site.		C. Topsoil shall be spread and shaped to the lines and grades shown on the plans, or as directed by the Engineer. The depth stated in the contract to which the topsoil is to be placed is that required after final rolling of the material has taken place. All stones, roots and debris over 1½ inch in diameter along with any sodding weeds and other undesirable material shall be removed.		
				1. Perform blasting without damaging adjacent structures, property, or site improvements.		D. After shaping and grading, all trucks and other equipment shall be excluded from the topsoiled area to prevent excessive compaction. The Contractor shall perform such work as required to provide a friable surface for seed germination and plant growth prior to seeding.		
				2. Perform blasting without weakening the bearing capacity of rock subgrade and with the least-practicable		E. It shall be the Contractor's responsibility to restore to the		

line, grade and surface all eroded areas with approved material and to keep topsoiled areas in acceptable condition until the completion of the work.

SEEDING

PART 1 – GENERAL

1.1 Section Includes:

A. Seeding.

1. Furnish all labor, materials and equipment to complete all seeding work as shown on the drawings and specified herein.

2. Except where otherwise shown or specified, the Contractor shall seed all areas where new contours are shown on the drawings and all areas where existing ground cover has been disturbed by the Contractor's operations.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

1.3 PROJECT CONDITIONS

A. Planting Restrictions: Seeding and initial fertilizing shall be done between May 1st and September 15th unless otherwise authorized. Seeding shall not be done during windy weather or when the ground is frozen, excessively wet, or otherwise untiltable. If seeding is done during July or August, additional mulch material may be required. Coordinate planting periods with initial maintenance periods to provide required maintenance from date of Substantial Completion.

PART 2 – PRODUCTS

2.1 SEED

A. Conservation Seed Mix:

Kind of Seed	Minimum Purity	Minimum Germination	Lbs/Acre
Creeping Red Fescue	98%	85%	22.5
Tall Fescue	95%	95%	22.5
Red Top	95%	90%	3
Birdsfoot Trefoil	98%	85%	9
Annual Ryegrass	95%	85%	3
TOTAL =			60

2.2 INORGANIC SOIL AMENDMENTS

A. Lime: ASTM C 602, agricultural limestone containing a minimum of 85 percent calcium carbonate equivalent and as follows:

1. Class: T, with a minimum of 99 percent passing through No. 8 sieve and a minimum of 75 percent passing through No. 60 sieve.

2.3 FERTILIZER

A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium.

B. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium.

2.4 MULCHES

A. Mulch: Provide air-dry, clean, mildew- and seed-free, hay or threshed straw of wheat, rye, oats, or barley.

B. Compost Mulch: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1-inch sieve; soluble salt content of 2 to 5 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:

1. Organic Matter Content: 50 to 60 percent of dry weight.

PART 3 – EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.

1. Protect adjacent and adjoining areas from hydroseeding and hydromulching overspray.

2. Protect grade stakes set by others until directed to remove them.

B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

C. Newly Graded Subgrades: Loosen subgrade to a minimum depth of 4 inches. Remove stones larger than 2 inches in any dimension and sticks, roots, rubbish, and other extraneous matter.

1. Apply fertilizer directly to subgrade before loosening.

a. Delay mixing fertilizer with planting soil if planting will not proceed within a few days.

b. Mix lime with dry soil before mixing fertilizer.

D. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus 1 inch of finish elevation. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit finish grading to areas that can be planted in the immediate future.

E. Moisten prepared areas before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

F. Before planting, restore areas if eroded or otherwise disturbed after finish grading.

3.2 APPLICATION RATES

A. When a soil test is not available, the following minimum amounts should be applied:

1. Agricultural limestone: 2 tons/acre.

2. Nitrogen (N): 50 lbs./acre.

3. Phosphate: 100 lbs./acre.

4. Potash: 100 lbs./acre.

a. This is the equivalent of 500 lbs./acre of 10–20–20 fertilizer or 1,000 lbs./acre of 5–10–10.

5. Hay mulch: 2 tons/acre.

3.3 SEEDING

A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.

1. Do not use wet seed or seed that is moldy or otherwise damaged.

2. Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.

B. Rake seed lightly into top 1/8 inch of soil, roll lightly, and water with fine spray.

C. Protect seeded areas with slopes exceeding 1:3 with erosion-control blankets installed and stapled according to manufacturer's written instructions.

D. Protect seeded areas from hot, dry weather or drying winds by applying mulch within 24 hours after completing seeding operations. Soak areas, scatter mulch uniformly to a depth of 3/16 inch, and roll surface smooth.

3.4 HYDROSEEDING

A. Hydroseeding: Mix specified seed, fertilizer, and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.

1. Mix slurry with fiber-mulch manufacturer's recommended tackifier.

2. Apply slurry uniformly to all areas to be seeded in a one-step process. Apply slurry at a rate so that mulch component is deposited at not less than 1500-lb/acre dry weight, and seed component is deposited at not less than the specified seed-sowing rate.

3.5 MAINTENANCE

A. Maintain and establish seeding by watering, fertilizing, weeding, mowing, trimming, replanting, and other operations. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth lawn. Provide materials and installation the same as those used in the original installation.

1. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch and anchor as required to prevent displacement.

2. Begin maintenance immediately after each area is planted and continue until acceptable lawn is established, but for not less than the following periods:

a. Seeded Areas: 90 days from date of Substantial Completion.

b. When initial maintenance period has not elapsed before end of planting season, or if seeding is not fully established, continue maintenance during next planting season.

3.6 SATISFACTORY CONDITIONS

A. Installations shall meet the following criteria as determined by Engineer/Owner:

1. Satisfactory Seeded Area: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 5 by 5 inches.

B. Use specified materials to reestablish area that do not comply with requirements and continue maintenance until areas are satisfactory.

3.7 CLEANUP AND PROTECTION

A. Promptly remove soil and debris, created by work. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.

B. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout initial maintenance period and remove after lawn is established.

C. Remove nondegradable erosion-control measures after grass establishment period.

SITE ENGINEER:



CIVIL ENGINEERING ASSOCIATES, INC.
10 MANSFIELD VIEW LANE, SOUTH BURLINGTON, VT 05403
P: 802-864-2323 FAX: 802-864-2271 web: www.caa-vt.com

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DRAWN
MAB

CHECKED
DSM

APPROVED
DSM

CLIENT:

BIRDSEYE BUILDING

3104 HUNTINGTON ROAD
RICHMOND VERMONT 05477

PROJECT:

288 MAPLE STREET

288 MAPLE STREET
BURLINGTON, VT

DATE	CHECKED	REVISION
05/23/23	DSM	PERMITTING PACKAGE

SPECIFICATIONS

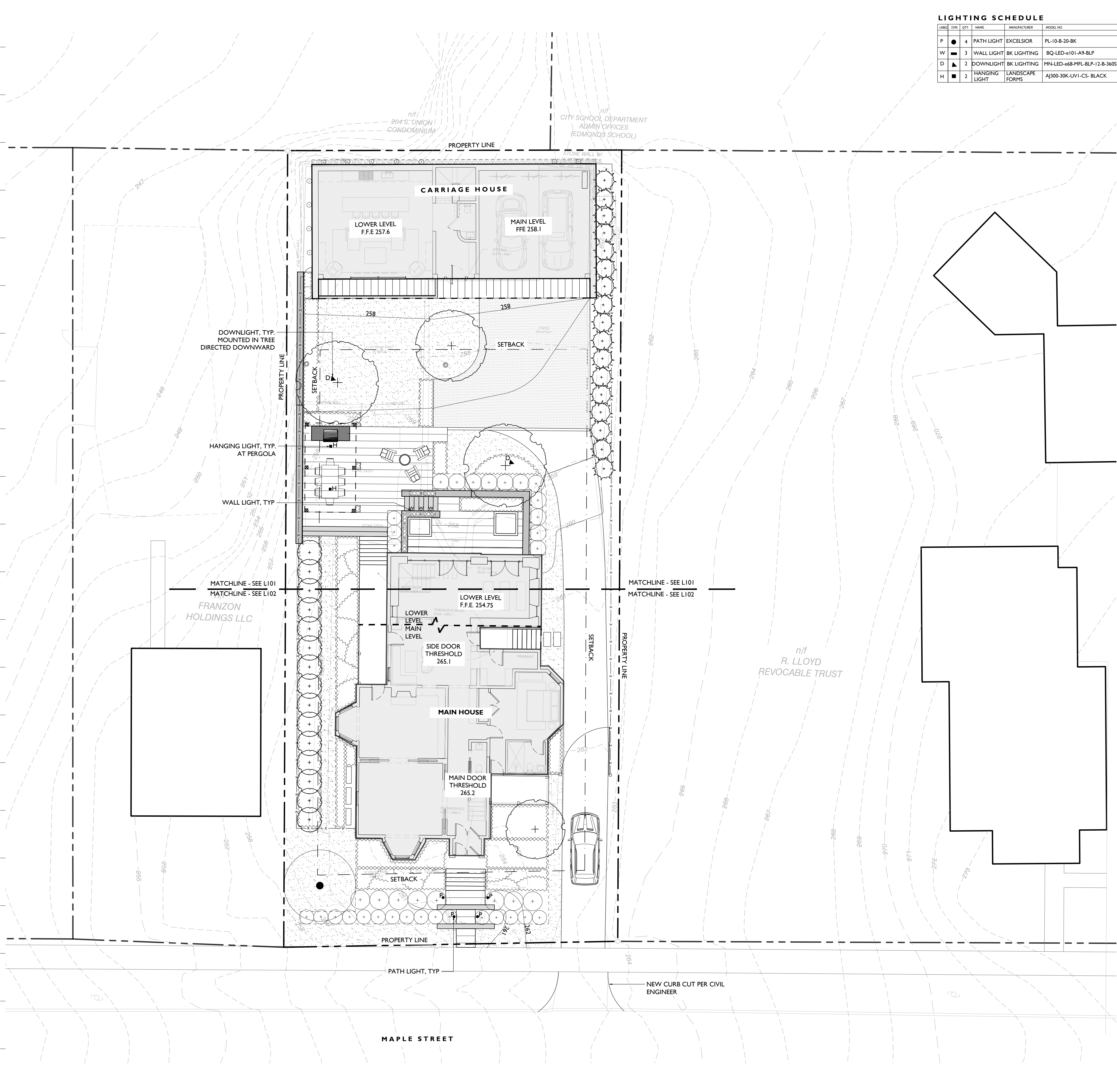
DATE
05/23/2023

SCALE
AS SHOWN

PROJ. NO.
23105

DRAWING NUMBER
C5.2

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LIGHTING SCHEDULE									
LABEL	SYM	QTY	NAME	MANUFACTURER	MODEL NO.	LAMP	COLOR TEMP	FINISH	COMMENTS
P	●	4	PATH LIGHT	EXCELSIOR	PL-10-B-20-BK	LED	3000K	BLACK	MOUNTING HEIGHT APPROX. 20" ABOVE GROUND
W	■	3	WALL LIGHT	BK LIGHTING	BQ-LED-e101-A9-BLP	LED	3000K	BLACK	MOUNTING HEIGHT APPROX. 6" ABOVE TOP OF STEP
D	▲	2	DOWNLIGHT	BK LIGHTING	HN-LED-468-MFL-BLP-12-B-360SL	LED	3000K	BLACK	MOUNTING HEIGHT APPROX. 14'-16" ABOVE GROUND IN TREE, POINTING DOWN
H	■	2	HANGING LIGHT	LANDSCAPE FORMS	AJ300-30K-UV1-CS- BLACK	LED	3000K	BLACK	HANGING FROM PERGOLA, MOUNTING HEIGHT APPROX. 8'-9" ABOVE GROUND

GENERAL NOTES

- Contractor is responsible for all damage due to his operations inside and outside the contract limit line.
- Contractor is responsible for checking spot elevations and verifying proposed grades by providing grade stakes. Grades must be approved by Landscape Architect prior to proceeding.
- Contractor shall blend new work smoothly with existing grades at contract limit line and/or limit of construction line.
- Contractor to verify that subgrades are 6 inches below finished grade prior to spreading top soil for seeded areas.
- All walks shall have 2% cross pitch, and all step treads and wall caps shall have 1% cross pitch unless otherwise noted.
- Light fixture locations may be field adjusted with prior Landscape Architect approval.
- Walkway layout to be approved by Landscape Architect prior to construction.
- Site furniture and wall locations to be verified by Landscape Architect prior to installation.
- General Contractor is responsible for all erosion control measures during construction.
- It is the intent of this contract to avoid any disturbance to existing trees or shrubs on site other than those specifically designated for transplant or removal.
- Liquidated damages for trees damaged by construction operation shall be \$500 per caliper inch. Shrubs shall be \$100 each.
- Base survey prepared by Civil Engineering Associates, Inc.

NOT FOR
CONSTRUCTION

PERMITTING
PACKAGE

DRAFT

NO.	DESCRIPTION	DATE
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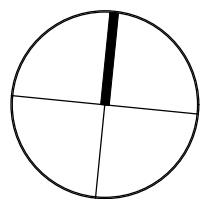
288 MAPLE ST

288 MAPLE STREET
BURLINGTON, VT
05401

LAYOUT AND
MATERIALS: OVERALL

JOB NO. 23-303
SCALE: 1" = 10'
DRAWN BY: ECA
DATE: 05.23.2023

L100



PERMITTING PACKAGE

DRAFT

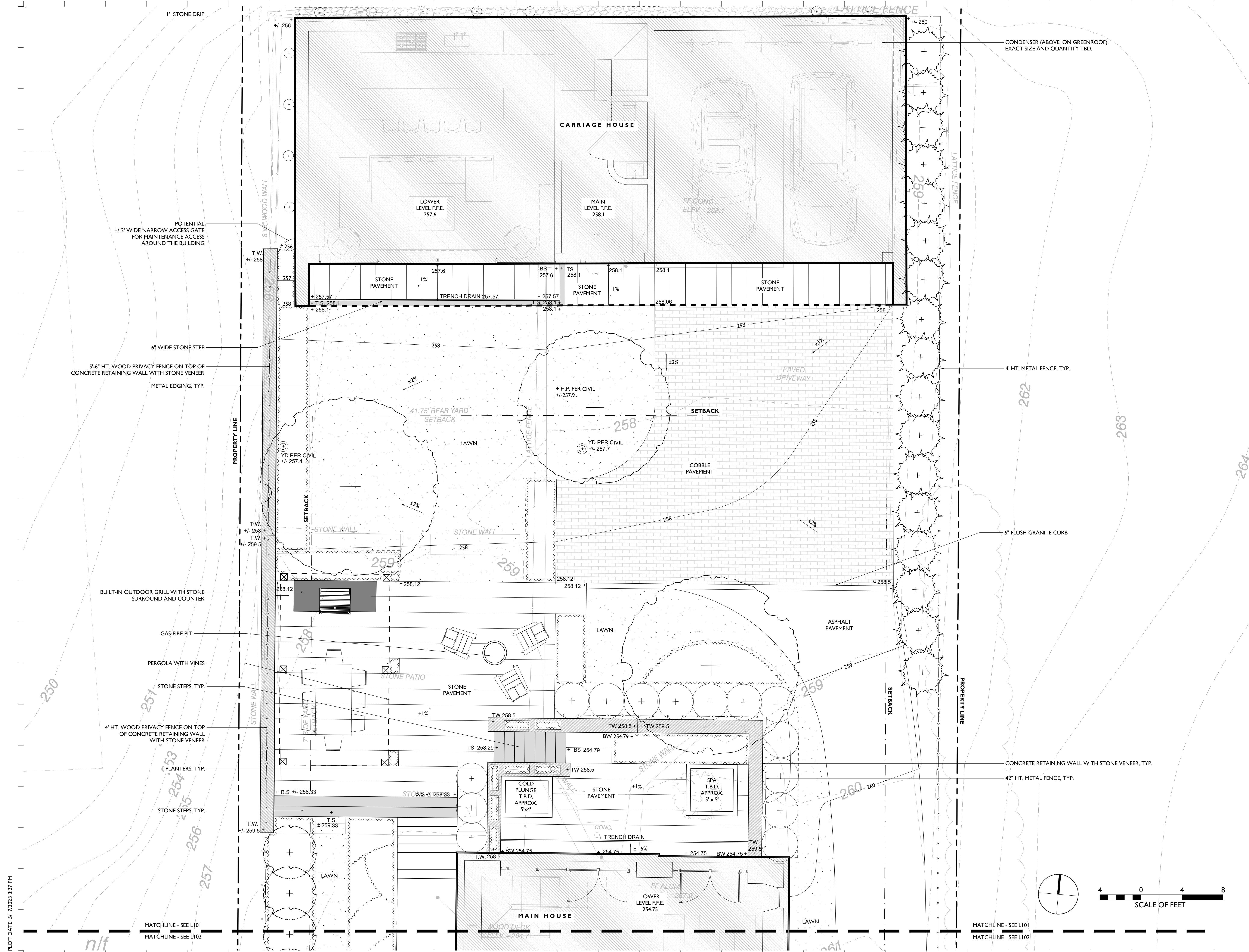
NO.	DESCRIPTION	DATE
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288 MAPLE STREET
BURLINGTON, VT
05401

LAYOUT AND MATERIALS: NORTH

JOB NO. 23-303
SCALE: 1/4" = 1'-0"
DRAWN BY: ECA
DATE: 05.23.2023

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CONSTRUCTION**

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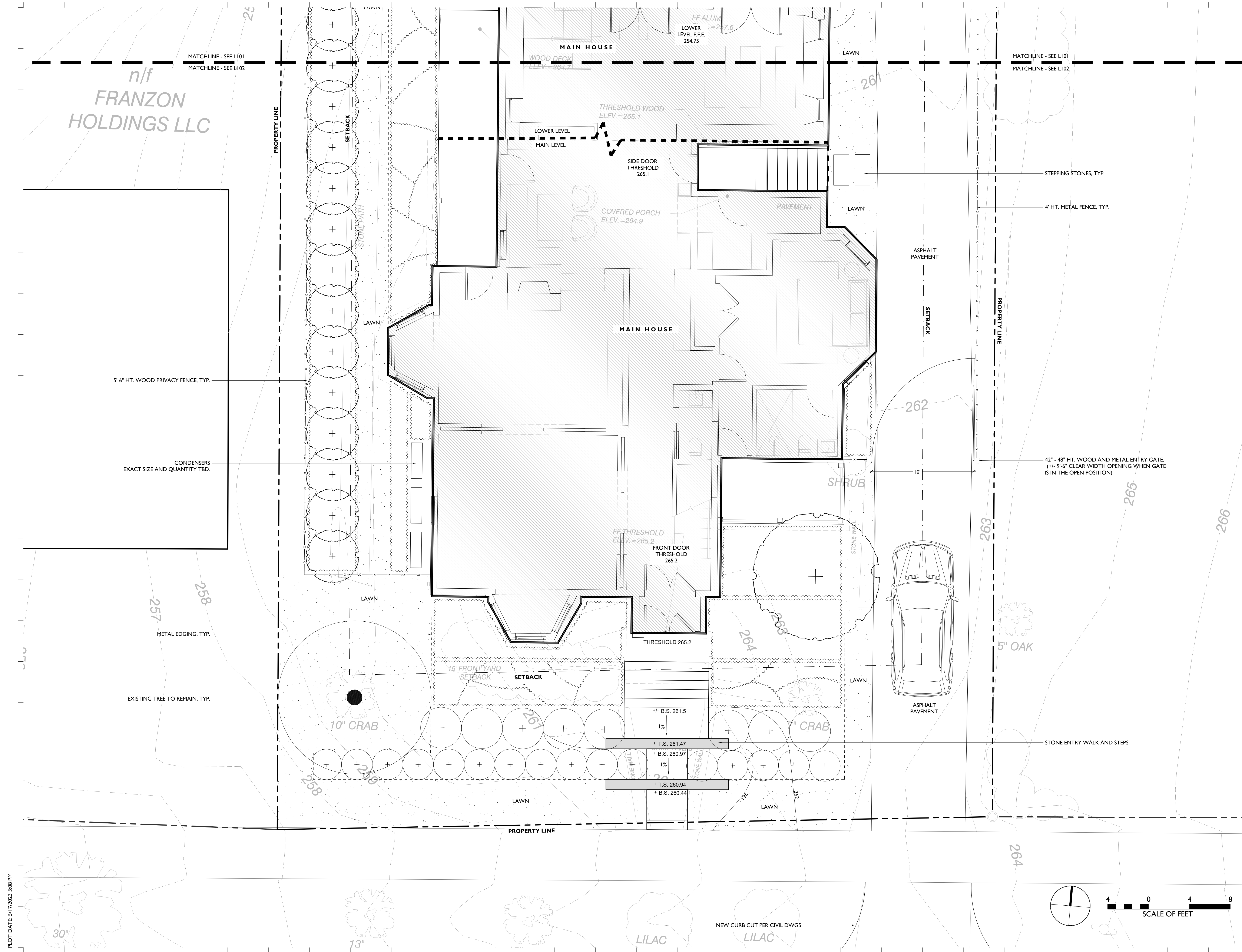
288 MAPLE ST

288 MAPLE STREET
BURLINGTON, VT
05401

LAYOUT AND MATERIALS: SOUTH

JOB NO. 23-303
SCALE: 1/4" = 1'-0"
DRAWN BY: ECA
DATE: 05.23.2023

LI 02



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CONSTRUCTION

PERMITTING
PACKAGE

PLANT SCHEDULE

KEY	QTY.	SCIENTIFIC NAME	COMMON NAME	SIZE	SPACING
DECIDUOUS TREES					
CB	15	Carpinus betulus 'fastigiata'	COLUMNAR EUROPEAN HORNBEAM	12' - 14' HT	AS SHOWN
GT1	1	Gleditsia triacanthos f. inermis 'Shademaster'	SHADEMASTER THRONLESS HONEYLOCUST	5.5" - 6" CAL.	AS SHOWN
GT2	1	Gleditsia triacanthos f. inermis 'Shademaster'	SHADEMASTER THRONLESS HONEYLOCUST	7 - 7.5" CAL.	AS SHOWN
ML	1	Magnolia loebneri 'Leonard Messel'	LEONARD MESSEL MAGNOLIA	4 - 4.5" CAL.	AS SHOWN
SRI	1	Syringa reticulata 'Ivory Silk'	IVORY SILK LILAC TREE	4 - 4.5" CAL.	AS SHOWN

EVERGREEN TREES

TON	17	Thuja occidentalis 'Nigra'	DARK AMERICAN ARBORVITAE	12' - 14' HT.	4' O.C.
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SHRUBS

HAP	3	Hydrangea anomala petiolaris	CLIMBING HYDRANGEA	5 GAL.	AS SHOWN
HPA	11	Hydrangea arborescens 'Annabelle'	ANNABELLE HYDRANGEA	7 GAL.	4' O.C.
HPF	3	Hydrangea paniculata 'Little Quickfire'	LITTLE QUICKFIRE PANICLE HYDRANGEA	7 GAL.	3' O.C.
IC	16	Ilex crenata 'Green Lustre'	GREEN LUSTRE HOLLY	5 GAL.	3' O.C.
SM	8	Syringa meyeri 'Palibin'	DWARF KOREAN LILAC	5 GAL.	4' O.C.

ORNAMENTAL GRASSES

CA	84	Calamagrostis x acutiflora 'Karl Foerster'	KARL FOERSTER FEATHER REED GRASS	1 GAL.	18" O.C.
CP	381	Carex pennsylvanica	OAK SEDGE	1 GAL.	12" O.C.
DC	15	Deschampsia cespitosa 'Goldtau'	GOLDTAU TUFTED HAIR GRASS	1 GAL.	18" O.C.
PV	23	Panicum virgatum 'Shenandoah'	SHENANDOAH SWITCHGRASS	1 GAL.	24" O.C.
SH	17	Sporobolus heterolepis	PRAIRIE DROPSEED	1 GAL.	18" O.C.

PERENNIALS

HH	5	Hosta 'Halcyon'	HALCYON HOSTA	1 GAL.	24" O.C.
PAL	9	Perovskia atriplicifolia 'Little Spire'	LITTLE SPIRE RUSSIAN SAGE	1 GAL.	18" O.C.
PT	11	Parthenocissus tricuspidata	BOSTON IVY	1 GAL.	5' O.C.

PLANTING NOTES

- All plant material in the plant schedule shall be nursery grown in accordance with ANSI in accordance with Z.60.1 Standards for measurement of nursery stock.
- All plants shall be guaranteed by the Contractor for a period of one year from date of receipt of Provisional Acceptance of the completed installation by the Owner.
- Replacement plantings will be required prior to Final Acceptance for any plants which are missing, not true to specifications, have died or are unhealthy or uncharacteristic of the species (due to excessive pruning, dieback or other reasons).
- All plant materials shall be selected and tagged at the nursery by Landscape Architect.
- The Landscape Architect's approval is required for any plant material substitutions.
- The Contractor is responsible for immediately notifying the Landscape Architect if any plant quantity discrepancies exist between the planting plan and the plant list.
- All shrubs and trees will be sprayed with the anti-desiccant "Wilt-Pruf" (or approved equal) prior to the first Winter (no later than November 30).
- The Landscape Contractor shall have the General Contractor locate all underground utilities in areas to be landscaped prior to commencing any excavation. Adjustments to tree locations will be allowed where utility conflicts are clearly a problem and with prior site approval by Landscape Architect.
- All plant bed, shrub and tree location shall be staked in the field by Contractor for Landscape Architects approval prior to installation.
- Adjustments to plant beds shall be approved by Landscape Architect.
- General Contractor is responsible for all erosion control measures during construction.
- All disturbed areas are to be topsoiled and seeded or sodded, as indicated in the planting plan.
- Mulch shall consist of double-shredded hardwood mulch or approved equal and Contractor is responsible for providing samples of mulch to Landscape Architect. Mulch plant materials as shown on plan and details.
- It is the intent of this contract to avoid any disturbance to existing trees or shrubs on site other than those specifically designated for transplant or removal.
- Liquidated damages for trees damaged by construction operation shall be \$500 per caliper inch. Shrubs shall be \$100 each.
- During construction, and until the end of warranty period, existing trees that are showing signs of stress as determined by the Landscape Architect are to be deep root fertilized, two injections per caliper inch per tree at 18" - 24" depth with Peter's 20/20/20 fertilizer or Landscape Architect approved equal.
- Contractor is responsible for verifying and confirming all plant counts as supplied by the Landscape Architect with field conditions as constructed. Any discrepancies shall be reported to Landscape Architect for approval and direction.
- Tree transplanting shall be performed by a suitable hydraulic tree spade, sized as necessary to perform the work.
- Prior to commencement of any construction, all existing trees to remain shall receive tree protection fence at outer edge of dripline whenever possible.

DRAFT

NO.	DESCRIPTION	DATE
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288 MAPLE ST

288 MAPLE STREET
BURLINGTON, VT
05401

PLANTING PLAN

JOB NO. 23-303
SCALE: 1" = 10'
DRAWN BY: ECA
DATE: 05.23.2023

L200

RENOVATION & ADDITION

288 MAPLE ST, BURLINGTON, VT 05401

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Issue / Revision Log
05.23.23 PERMITTING PACKAGE

FOR PERMIT

Title
MAIN HOUSE - SOUTH EXTERIOR
ELEVATION

Sheet Number

A200

- GENERAL NOTES:
- DOORS/WINDOWS TO BE MODIFIED OR REMOVED SHOWN DASHED
 - EXISTING SIDING, TRIM, MOULDING, MOTIFS, ETC. TO REMAIN & REPAIRED/REPLACED IN KIND IF NECESSARY
 - EXTERIOR SIDING AND TRIM TO BE SCRAPPED AND REPAINTED, EXISTING PAINT COLORS TO REMAIN
 - EXISTING WINDOWS TO BE REPLACED IN KIND WITH MATERIALS, PROFILES, AND COLORS TO MATCH EXISTING CONDITIONS
 - EXISTING BUILDING HEIGHT IS TO BE UNCHANGED

EXISTING ASPHALT SHINGLE ROOF TO BE REPLACED WITH COPPER ROOFING

BRICK CHIMNEY TO BE REBUILT

EXISTING MEMBRANE ROOF TO BE REPLACED WITH COPPER ROOFING

REPLACE & RELOCATE EXISTING DOWNSPOUTS WITH COPPER TO MATCH ROOFING

EXISTING PAINTED METAL ROOFS TO BE REPLACED WITH COPPER ROOFING

EXISTING MEMBRANE ROOF TO BE REPLACED WITH COPPER ROOFING

REPLACE EXISTING DOWNSPOUTS WITH COPPER TO MATCH ROOFING

EXISTING PAINTED METAL ROOFS TO BE REPLACED WITH COPPER ROOFING

PROPOSED RECESSED LIGHT, BEYOND

EXISTING EXTERIOR LIGHT TO REMAIN

WINDOW
RELOCATED

HOUSE - SOUTH ELEVATION

3/8" = 1'-0"

1
A100 A200

- GENERAL NOTES:**
- DOORS/WINDOWS TO BE MODIFIED OR REMOVED SHOWN DASHED
 - EXISTING SIDING, TRIM, MOULDING, MOTIFS, ETC. TO REMAIN & REPAIRED/REPLACED IN KIND IF NECESSARY
 - EXTERIOR SIDING AND TRIM TO BE SCRAPPED AND REPAINTED, EXISTING PAINT COLORS TO REMAIN
 - EXISTING WINDOWS TO BE REPLACED IN KIND WITH MATERIALS, PROFILES, AND COLORS TO MATCH EXISTING CONDITIONS
 - EXISTING BUILDING HEIGHT IS TO BE UNCHANGED

EXISTING ASPHALT SHINGLE ROOF TO BE REPLACED WITH COPPER ROOFING

BRICK CHIMNEY TO BE REBUILT

EXISTING MEMBRANE ROOF TO BE REPLACED WITH COPPER ROOFING

EXISTING PAINTED WOOD TRIM TO REMAIN

EXISTING ASPHALT SHINGLE ROOF TO BE REPLACED WITH COPPER ROOFING WITH SNOW GUARDS AS REQUIRED

PROPOSED WOOD SOFFIT, PAINTED

PROPOSED STEEL-FRAMED GLASS DOORS

PROPOSED COPPER GUTTER & DOWNSPOUT

PROPOSED PAINTED WOOD GUARDRAIL, PROFILE TO MATCH BALUSTERS AT NORTHWEST PORCH

PROPOSED CANTILEVERED BALCONY WITH PAINTED WOOD TRIM

PROPOSED HOOD VENT

PROPOSED STEEL-FRAMED GLASS DOORS & WINDOW

PROPOSED STONE STEP, PER LANDSCAPE

PROPOSED LANDSCAPE RETAINING WALL

EXISTING MEMBRANE ROOF TO BE REPLACED WITH COPPER ROOFING

PROPOSED COPPER GUTTER & DOWNSPOUT

EXISTING PAINTED METAL ROOF TO BE REFRAMED & REPLACED WITH COPPER ROOFING

PROPOSED STEEL-FRAMED GLASS DOORS

PROPOSED LANDSCAPE RETAINING WALL

BASEMENT EXCAVATED TO PROPOSED FINISH FLOOR ELEVATION

MODERN WINDOW REMOVED

WINDOW REMOVED

MODERN WINDOW REMOVED

PROPOSED WINDOW

WINDOW RELOCATED

MODERN WINDOW REMOVED

MODERN WINDOW REMOVED

DOOR SWING REVERSED

WINDOW REMOVED

DOOR REMOVED

RENOVATION & ADDITION

288 MAPLE ST, BURLINGTON, VT 05401

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Issue / Revision Log
05.23.23 PERMITTING PACKAGE

FOR PERMIT

Title
MAIN HOUSE - NORTH EXTERIOR ELEVATION

Sheet Number

A201

HOUSE - NORTH ELEVATION

3/8" = 1'-0"

1
A100 A201

- GENERAL NOTES:**
- DOORS/WINDOWS TO BE MODIFIED OR REMOVED SHOWN DASHED
 - EXISTING SIDING, TRIM, MOULDING, MOTIFS, ETC. TO REMAIN & REPAIRED/REPLACED IN KIND IF NECESSARY
 - EXTERIOR SIDING AND TRIM TO BE SCRAPPED AND REPAINTED, EXISTING PAINT COLORS TO REMAIN
 - EXISTING WINDOWS TO BE REPLACED IN KIND WITH MATERIALS, PROFILES, AND COLORS TO MATCH EXISTING CONDITIONS
 - EXISTING BUILDING HEIGHT IS TO BE UNCHANGED



3104 HUNTINGTON ROAD
RICHMOND, VERMONT
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WWW.BIRDSEYEVMT.COM

RENOVATION & ADDITION

288 MAPLE ST, BURLINGTON, VT 05401

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Issue / Revision Log
05.23.23 PERMITTING PACKAGE

FOR PERMIT

Title
MAIN HOUSE - EAST EXTERIOR ELEVATION

Sheet Number

A202



HOUSE - EAST ELEVATION

3/8" = 1'-0"

1
A100 A202

5/23/2023 11:39:44 AM

- GENERAL NOTES:**
- DOORS/WINDOWS TO BE MODIFIED OR REMOVED SHOWN DASHED
 - EXISTING SIDING, TRIM, MOULDING, MOTIFS, ETC. TO REMAIN & REPAIRED/REPLACED IN KIND IF NECESSARY
 - EXTERIOR SIDING AND TRIM TO BE SCRAPPED AND REPAINTED, EXISTING PAINT COLORS TO REMAIN
 - EXISTING WINDOWS TO BE REPLACED IN KIND WITH MATERIALS, PROFILES, AND COLORS TO MATCH EXISTING CONDITIONS
 - EXISTING BUILDING HEIGHT IS TO BE UNCHANGED



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RENOVATION & ADDITION

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Issue / Revision Log
05.23.23 PERMITTING PACKAGE

FOR PERMIT

Title
MAIN HOUSE - WEST EXTERIOR ELEVATION

Sheet Number

A203



HOUSE - WEST ELEVATION

3/8" = 1'-0"

1
A100 A203

5/17/2023, 10:04:12 AM

- EXISTING METAL PARAPET CAP, TO BE REPAIRED & REPAINTED
- PROPOSED SOLAR PANEL ARRAY
- EXISTING EPDM MEMBRANE ROOF
- EXISTING EXTERIOR WALL TO REMAIN, CLAPBOARDS PAINTED WITH PROPOSED COLOR AS SHOWN
- EXISTING WOOD TRIM TO REMAIN, PAINTED WITH PROPOSED COLOR AS SHOWN

- STONE CLAD WALL
- WOOD PRIVACY FENCE TO BE REMOVED
- STONE RETAINING WALL TO BE REMOVED

8'-6"
TO EXISTING PARAPET

13'-0"
TO PROPOSED T.O. WALL

AVG GRADE

- STONE CLAD WALL
- WOOD PRIVACY FENCE TO BE REMOVED
- STONE LANDSCAPE WALL

CH - NORTH ELEVATION

3/8" = 1'-0"

2

A100 A204

- PAINTED WOOD GUARDRAIL
- WOOD-CLAD WALL W/ INTEGRATED PLANTER, BEYOND
- STONE-CLAD WALL
- WOOD TRIM, PAINTED AS SHOWN
- STEEL FRAMED BI-PARTING GLASS DOOR
- WOOD PRIVACY FENCE TO BE REMOVED
- STONE LANDSCAPE WALL

1
A311

- PROPOSED SOLAR PANEL ARRAY
- WOOD PAIRED BRACKETS & PROJECTING CORNICE TO REMAIN, PAINTED AS SHOWN
- UPPER PORTION OF EXISTING CARRIAGE HOUSE TO REMAIN WITH MODIFICATIONS PER ELEVATIONS. PAINTED WITH PROPOSED COLORS AS SHOWN

- CONDENSER, SIZE AND QUANTITY TBD
- GREEN ROOF, SEE LANDSCAPE PLAN

- STONE CLAD WALL
- PAINTED WOOD CLAD PARAPET

- LOWER PORTION OF EXISTING CARRIAGE HOUSE TO BE REMOVED AS SHOWN
- WOOD TRIM, PAINTED AS SHOWN
- STEEL-FRAMED GLASS WINDOW

- AVG GRADE
- OVERHEAD GARAGE DOOR
- SOLID WOOD DOOR

CH - SOUTH ELEVATION

3/8" = 1'-0"

1

A100 A204



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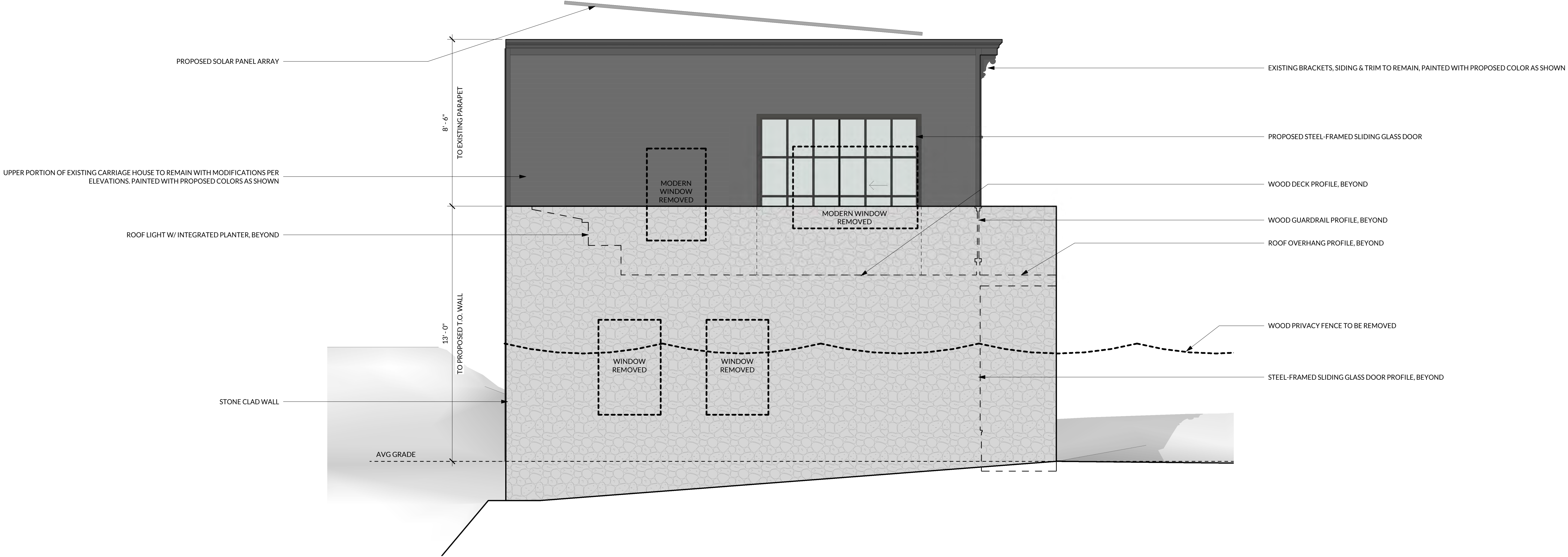
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Title
CARRIAGE BARN - ELEVATIONS

Sheet Number

A204

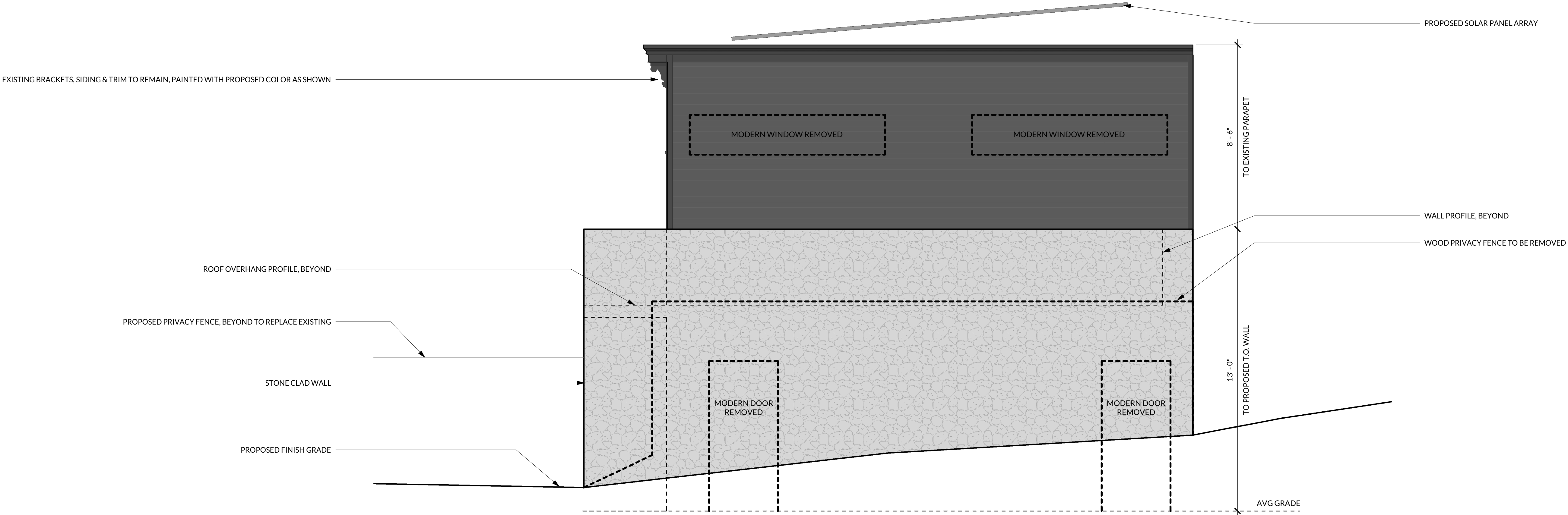
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CH - WEST ELEVATION

3/8" = 1'-0"

2	
A100	A205



CH - EAST ELEVATION

3/8" = 1'-0"

1	
A100	A205



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Title
CARRIAGE BARN - ELEVATIONS

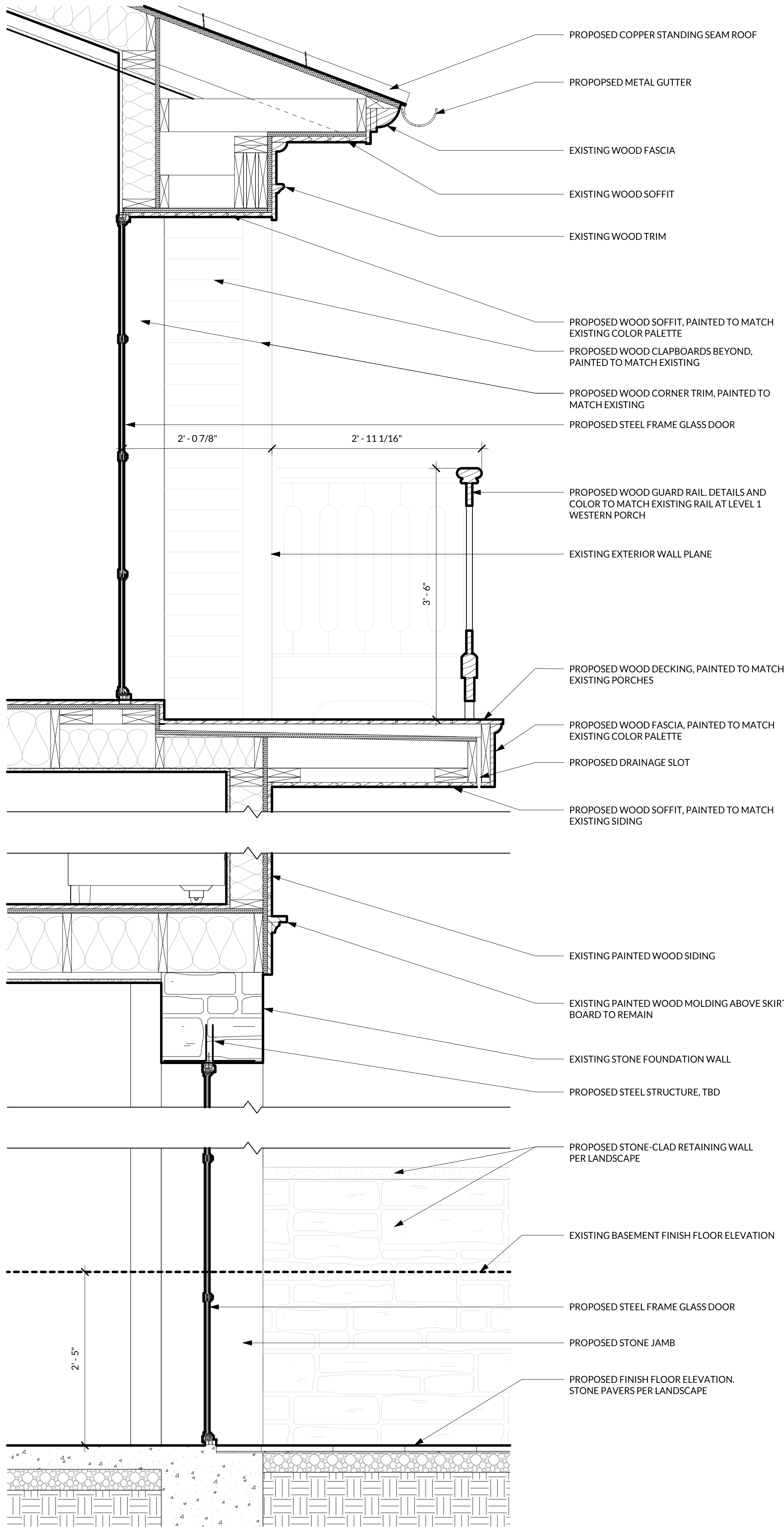
Sheet Number

A205

5/20/2023 11:39:55 AM

GENERAL NOTES:

- EXISTING SIDING, TRIM, MOULDING, MOTIFS, ETC. TO REMAIN & REPAIRED/REPLACED IN KIND IF NECESSARY
- EXTERIOR SIDING AND TRIM TO BE SCRAPPED AND REPAINTED, EXISTING PAINT COLORS TO REMAIN
- EXISTING WINDOWS TO BE REPLACED IN KIND WITH MATERIALS, PROFILES, AND COLORS TO MATCH EXISTING CONDITIONS
- EXISTING BUILDING HEIGHT IS TO BE UNCHANGED



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Title
BUILDING WALL SECTIONS

Sheet Number

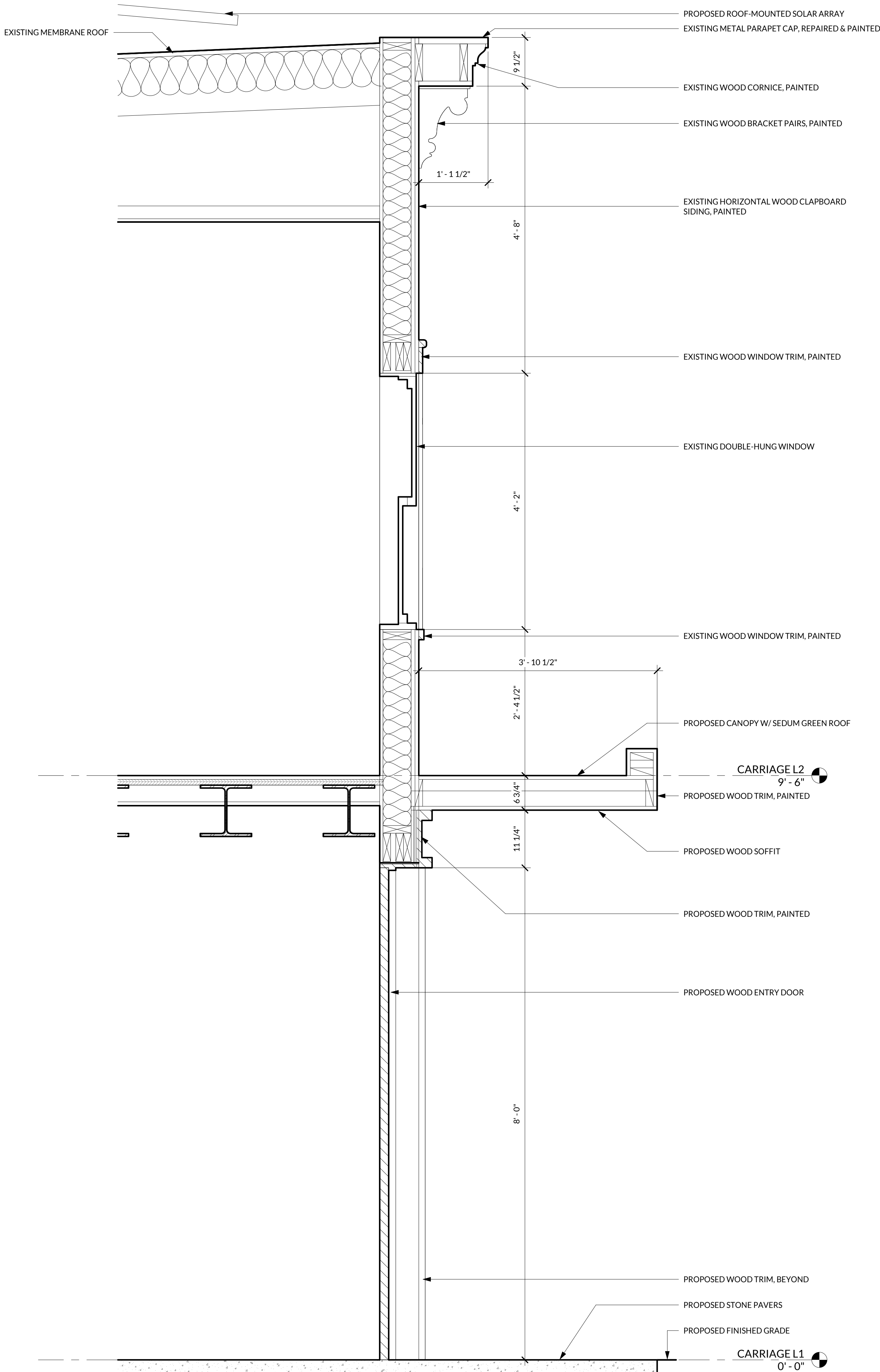
A310

MAIN HOUSE - NORTH WALL SECTION

1" = 1'-0"

1
A100 A310

5/17/2023, 10:02:02 AM



CARRIAGE BARN - SOUTH WALL SECTION

1" = 1'-0"

1
A100 A311



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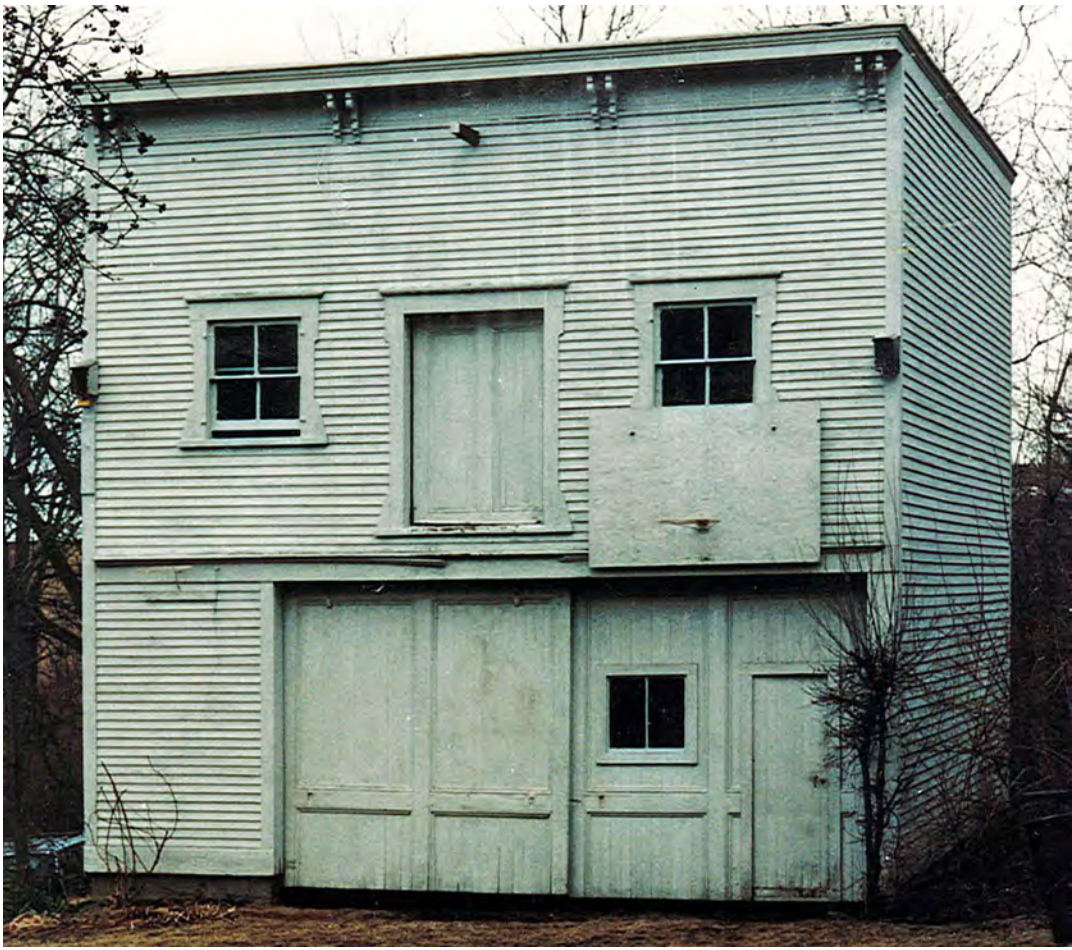
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Title
BUILDING WALL SECTIONS

Sheet Number

A311

5/17/2023 10:51:43 AM



CARRIAGE BARN - EARLY 1989 (LOOKING NORTH)



CARRIAGE BARN - 1990 FOLLOWING RENOVATION (LOOKING NORTH)



CARRIAGE BARN - SOUTH FACADE (LOOKING NORTH)



CARRIAGE BARN - NORTHEAST PROPERTY BOUNDARY (LOOKING SOUTH)



CARRIAGE BARN - NORTH PERIMETER (LOOKING WEST)



CARRIAGE BARN - NORTH PERIMETER (LOOKING EAST)



CARRIAGE BARN - NORTHWEST PROPERTY BOUNDARY (LOOKING SOUTH)



CARRIAGE BARN - NORTHEAST PROPERTY BOUNDARY (LOOKING NORTH)



CARRIAGE BARN - NORTHEAST PERIMETER (LOOKING SOUTH)



CARRIAGE BARN - NORTHWEST PERIMETER (LOOKING SOUTH)



CARRIAGE BARN - SOUTH FACADE/ROOF (LOOKING NORTH)



CARRIAGE BARN - SOUTHWEST FACADE (LOOKING NORTH)



CARRIAGE BARN - EAST FACADE RETAINING WALL & PRIVACY FENCE



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Title
EXISTING PHOTOS - CARRIAGE BARN

Sheet Number

A900

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MAIN HOUSE - SOUTHEAST FACADE (LOOKING NORTHWEST)



MAIN HOUSE - AERIAL VIEW (LOOKING SOUTHEAST)



MAIN HOUSE - NORTHEAST FACADE (LOOKING WEST)



MAPLE STREET CURB CUT (LOOKING SOUTH)



MAIN HOUSE - NORTH FACADE (LOOKING SOUTH)



MAIN HOUSE - SOUTHWEST FACADE (LOOKING NORTHEAST)



MAIN HOUSE - EAST ENTRY (LOOKING WEST)



MAIN HOUSE - NORTH FACADE (LOOKING SOUTH)



MAIN HOUSE - WEST PORCH (LOOKING SOUTH)



MAIN HOUSE - UPPER ROOF (LOOKING NORTH FROM CUPOLA)



MAIN HOUSE - NORTHEAST CORNER (LOOKING WEST)



MAIN HOUSE - SOUTH FACADE MAIN ENTRY (LOOKING NORTH)



MAIN HOUSE - SOUTHWEST GARDEN (LOOKING NORTH)



MAIN HOUSE - TYPICAL CONDITIONS OF GUTTER & TRIM DETAILS



MAIN HOUSE - TYPICAL CONDITIONS OF ORIGINAL WINDOWS



MAIN HOUSE - INTERIORS (DURING ONGOING WATER DAMAGE DEMOLITION)



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Title
EXISTING PHOTOS - MAIN HOUSE

Sheet Number

A901

5/16/2023 3:44:59 PM



FROM MAPLE STREET LOOKING NORTH



ENTRY TO MAIN HOUSE LOOKING WEST



DRIVEWAY LOOKING NORTH TO CARRIAGE BARN



CARRIAGE BARN LOOKING NORTH



CARRIAGE BARN AERIAL LOOKING NORTH



CARRIAGE BARN FROM EDMUNDS PARKING LOT LOOKING SOUTH



MAIN HOUSE NORTH FACADE LOOKING SOUTH



MAIN HOUSE WALKOUT LOOKING SOUTHEAST



MAIN HOUSE AERIAL FROM NORTHWEST



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RENDERINGS

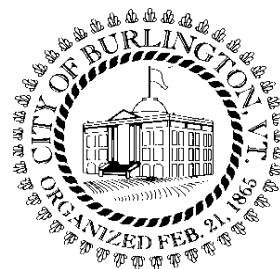
Sheet Number

A902

Department of Permitting and Inspections

Zoning Division
645 Pine Street
Burlington, VT 05401
www.burlingtonvt.gov/pz
Phone: (802) 865-7188
Fax: (802) 865-7195

William Ward, Director
Scott Gustin, AICP, CFM, Principal Planner
Mary O'Neil, AICP, Principal Planner
Garret King, Associate Planner
Joseph Cava, Planning Technician
Ted Boylan, Permit Administrator
Theodore Miles, Zoning Specialist



MEMORANDUM

To: The Design Advisory Board
From: Mary O'Neil, AICP, Principal Planner
RE: ZP-23-253
Location: 453 Pine Street
Date: June 27, 2023

File: ZP-23-253
Location: 453 Pine Street
Zone: E-LM **Ward:** 5S
Parking District: Multi-Modal (first 200' off Pine Street); Shared Use beyond
Date application accepted: May 25, 2023
Applicant/ Owner: Kelley DesRoches, Wiehmann Lamphere / Jovial King
Request: Construction of 30,000 sf health club (spa/bathhouse) and 12,400 sf retail/commercial building with associated site improvements.



Background:

- **Zoning Sketch Plan ZSP-22-10;** Sketch Plan Review of 26,000 sf bowling alley, 4,000 sf commercial building and 20,000 nordic-inspired bathhouse. December, 2022.
- **Zoning Sketch Plan ZSP-21-10;** Sketch Plan Review, new construction of 15,000 sf Silt Bathhouse (“Health Club”) *at 180 Flynn Avenue.* November 2021.
- **Zoning Permit 19-0605CA;** construct driveway, parking lot, and shared path. March 19, 2019. Application withdrawn.
- **Non-applicability of Zoning Permit Requirements;** brush clearing and removal; erection of two post to show front corners of proposed building. January 1999.

Overview: In November 2021 the applicants came before the DRB to ascertain whether the proposed use (Nordic bathhouse) could be interpreted as a Health Club under the definitions of the Comprehensive Development Ordinance. Although the location was different (180 Flynn Avenue), this application assumes the acceptability of the bathhouse as a Health Club in the E-LM zoning district based on that earlier Sketch Plan. Another Sketch Plan Review was held before the DRB in December 2022. The zoning district in which the uses are proposed remains the same: Enterprise – Light Manufacturing.

The earlier inclusion of a bowling alley has been dismissed: The scope of this application is a 30,000 health club (Silt Bathhouse) and 12,400 sf retail/commercial building with associated site improvements. The site is 4.8 acres and is currently enrolled in the State’s Brownfields Economic Revitalization Alliance (BERA) Program. The developers and design team have been working with the Vermont Department of Environmental Conservation, Civil, Environmental and Geotech Engineers on an Evaluation of Corrective Action Alternatives (ECAA) which evaluates the existing site conditions and studies alternative options for remediation and development. Once the ECAA is complete, the project will move into the Corrective Action Plan (CAP) phase.

An imminent zoning amendment to create an overlay district (South End Innovation District) has not at this time advanced to adoption.

Part 1: Land Division Design Standards

No subdivision is proposed. The site is arranged with a network of walkways to connect clients and pedestrians to various buildings, sites, and the the public right-of-way.

Part 2: Site Plan Design Standards**Sec. 6.2.2 Review Standards****(a)Protection of Important Natural Features:**

The site is identified within Burlington’s Open Space Plan as filled land; inventoried with transitional brush cover. Existing trees are identified on Plan C3, the redevelopment will occur east of the treeline.

This is an environmentally sensitive site, with an extensive history of analysis and a current partnership with the state to remediate existing conditions. The applicants have engaged the services of Arrowwood Environmental (AE) to identify and map the natural resources on the site. AE has conducted that work and identified Class II wetlands on the subject parcel and adjoining site at 0 Pine Street, therefore a 50' State wetland's buffer and 100' City Wetland Conservation Zone apply at the 453 Pine Street site. The project does not propose any uses within the 50' State buffer, and no landscape features will be installed here. However, the project is required to have a perimeter fence, and it will be installed outside of the woods edge with helical piles to minimize impacts within the 50' State buffer. No trees will be removed for the installation of the fence.

(b) Topographical Alterations:

Site disturbance is limited due to the nature of the soils. A berm is proposed in front of the Silt Bathhouse, through which entrances are designed.

(c) Protection of Important Public Views:

There are no protected public views from or through this site. The development of this site has opened a conversation about creation of a conservation area at 0 Pine Street with the donation of adjacent property at 501 Pine, which would allow more public accessibility to any future conservation area.

(d) Protection of Important Cultural Resources:

This parcel is just outside the mapped boundaries of the Pine Street Industrial District. Not applicable.

(e) Supporting the Use of Renewable Energy Resources:

There is nothing within the application reflecting the intended use of renewable energy resources.

(f) Brownfield Sites:

The site is 4.8 acres and is currently enrolled in the State's Brownfields Economic Revitalization Alliance (BERA) Program. The developers and design team have been working with the Vermont Department of Environmental Conservation, Civil, Environmental and Geotech Engineers on an Evaluation of Corrective Action Alternatives (ECAA) which evaluates the existing site conditions and studies alternative options for remediation and development. Once the ECAA is complete, the project will move into the Corrective Action Plan (CAP) phase. The applicant shall identify completed or planned remediation necessary to support the intended use.

(g) Provide for nature's events:

Special attention shall be accorded to stormwater runoff so that neighboring properties and/or the public stormwater drainage system are not adversely affected. All development and site disturbance shall follow applicable city and state erosion and stormwater management guidelines in accordance with the requirements of Art 5, Sec 5.5.3.

The site and stormwater systems have been designed to mimic the current drainage patterns at the site to the maximum extent possible to help ensure that hydrology and hydrogeology are not drastically altered.

Stormwater flows east to west across the site and flows to bioretention swales and basins that will be landscaped as gardens. The bioretention swales are designed to function as a level spreader for larger storms so that stormwater will sheet flow across the landscape. Reference is made to Plan C6.

Design features which address the effects of rain, snow, and ice at building entrances, and to provisions for snow and ice removal or storage from circulation areas shall also be incorporated.

The entrances to the Bathhouse are both located within a created berm; structurally providing some shelter from inclement weather. The commercial building has no identified protective canopy to shelter tenants as they enter/exit the building.

Four parking spaces in each of the parking areas are identified for snow storage areas. (See Plan C5.) It is not known if site attributes prevent snow from being simply pushed onto green areas.

(h) Building Location and Orientation:

Both the Nordic Bathhouse and the Commercial building are placed in an orientation to Pine Street, with a pedestrian path between the buildings. The commercial building has three, clearly identifiable entrances facing the street. The Bathhouse provides an entrance both from the sidewalk and the plaza through an earthen berm. The standards states:

Principal buildings shall have their main entrance facing and clearly identifiable from the public street. While the bathhouse entrance is designed to create mystery and curiosity, the addition of



an earthen berm has unfortunately veiled the very entrance that is required to be easily identified.



The commercial building, looking southwest. Building fronts Pine Street.

(i) Vehicular Access:

The primary vehicular entrance is via a re-aligned Maltex Drive.



There is a secondary access on the southerly section of the lot; intending entirely to provide staff parking and a service court for the bathhouse. This standards requires “Curb Cuts shall be arranged and limited in number to reduce congestion and improve traffic safety.” This secondary curb cut will be almost directly across from the access to Dealer, and is likely to introduce additional vehicular delays and turns. (The provided Traffic Analysis does not include any study of trips generated by the Dealer access drive, nor does it include those trips as part of the calculated traffic impacts.) While the Traffic analysis opts for a second right-turn exit lane from the Maltex Drive, and acknowledges that Pine Street north of Lakeside Avenue will experience traffic congestion during peak periods in the future, the plan relies on employing (as yet unidentified) TDM strategies to address the new peak trips introduced by the redevelopment. (145 new PM peak trips anticipated; with a “20 % TDM credit” of -29.)

(j) Pedestrian Access:

The site plan illustrates the proposed development at 100 Walnut Street. Key features include:

- Buildings:** A central building with a "POOL MECHANICAL ROOM" and "MECHANICAL/SPRINKLER ROOM", a "B&T BATHOUSE" (FFE = 109.2'), and a "COMMERCIAL BUILDING" (FFE = 109.0'). Other structures include a "PRIVATE EVENT BUILDING", "GARDENS, POOLS AND WALKWAYS AREA", and a "TRASH ENCLOSURE".
- Parking:** "GENERAL PARKING (59 PARKING SPACES)" and "SERVICE COURT AND STAFF PARKING (18 PARKING SPACES)".
- Landscaping:** "GARDENS, POOLS AND WALKWAYS AREA", "EARTH BERM", and "PROPOSED SNOW STORAGE".
- Access and Easements:** "CITY OF BURLINGTON ROW EASEMENT", "SHARED USE PATH", "FRONT SETBACK REQUIREMENT", "REAR SETBACK REQUIREMENT", and "MALLETS DRIVEWAY".
- Other Features:** "PROPOSED SNOW STORAGE", "TRASH ENCLOSURE", "EARTH BERM 118.5' TO 100'", "EARTH BERM 118.5' TO 111'", "EARTH BERM 118.5' TO 100'", "EARTH BERM 118.5' TO 111'", "EARTH BERM 118.5' TO 100'", "EARTH BERM 118.5' TO 111'", "EARTH BERM 118.5' TO 100'", "EARTH BERM 118.5' TO 111'".

(k) Accessibility for the Handicapped:

Access is at grade for both the Bathhouse and commercial building. An elevator is provided at the bathhouse. 4 ADA parking spaces are illustrated on the parking plan (C5): 1 directly behind the commercial building; 2 north of the bathhouse, and one in the staff parking lot. ADA compliance is under the jurisdiction of the building officials.

(l) Parking and Circulation:

A total of 77 parking spaces are proposed: 59 at the rear lot and 18 for staff parking. Maximum parking limits the total number to 80 spaces. As proposed, the parking does not exceed the maximum allowance.

As noted, parking access is intended through a shared access drive from the Maltex site. Reference is made to the Traffic Impact Assessment.

(m) Landscaping and Fences:

The landscaping plan is complex (see L2.1 and L5.1.) Gardens are individually designed to enhance the specific site features and/or uses: “South Woodland Garden”, “Plaza Gardens”). The Plant schedule includes trees, shrubs and perennials; as well as green roof and berm plantings. “Rooms” are created with walls and water features (L2.1), as well as pergolas, arbors, and awnings (for shade over outdoor dining) connected by heated and unheated paths, terraces, and patios. Perimeter fencing is proposed for both privacy and utility. Benches, fireplaces, hammocks and planters are included.

A specific focus of the planting plan will be management of invasive species, and intended plantings for the 50’ and 100’ wetland buffers. Plan L5.3 defines the schedule for the latter, including the Stormwater garden.

The Conservation Board reviews the plan July 10, 2023.

(n) Public Plazas and Open Space:

While public areas are not required, they are incorporated within the design schedule to support the proposed use. The pedestrian walkway introduces a kind of Plaza between the bathhouse and commercial building.

(o) Outdoor Lighting:

Where exterior lighting is proposed the applicant shall meet the lighting performance standards as per Sec 5.5.2.

The submitted lighting plan is equally complex. There are a few “hot spots” on Plan SL-1 that must be adjusted: Walkway lighting may not exceed 2 footcandles, and there are several areas in conflict: at the rear of the commercial building and around the plaza gardens. Entrance lighting is limited to 5 fc.

Parking lot lighting standards limit maximum footcandle measurement at 4 fc; exceeded at the south/west of the parking lot. A revised photometric reflecting these changes will be required.

The photometric does not reflect any lighting at the staff parking lot. Is none proposed?

Uplighting is prohibited (some of the fixtures within the 59 page lighting documents appear to be just that). Decorative fixtures using low output lamps used for landscaping that do not emit direct illumination or glare are allowed. All lighting fixtures, other than those using only low output lamps and alternatives specifically allowed, shall be “full cut-off”.

The maximum mounting height of pole fixtures shall be 25’.

(p) Integrate infrastructure into the design:

Exterior storage areas, machinery and equipment installations, service and loading areas, utility meters and structures, mailboxes, and similar accessory structures shall utilize setbacks, plantings, enclosures and other mitigation or screening methods to minimize their auditory and visual impact on the public street and neighboring properties to the extent practicable.

Utility and service enclosures and screening shall be coordinated with the design of the principal building, and should be grouped in a service court away from public view. On-site utilities shall be placed underground whenever practicable. Trash and recycling bins and dumpsters shall be located, within preferably, or behind buildings, enclosed on all four (4) sides to prevent blowing trash, and screened from public view.

Any development involving the installation of machinery or equipment which emits heat, vapor, fumes, vibration, or noise shall minimize, insofar as practicable, any adverse impact on neighboring properties and the environment pursuant to the requirements of Article 5, Part 4 Performance Standards.

A dumpster/enclosure is illustrated on the south of the parking lot. No details are included, but it appears to be enclosed on all four sides to prevent blowing trash. New electric utility shall be undergrounded, unless the site conditions specifically prohibit it.

The location and manner of mechanical equipment installation needs to be defined and assessed for the need for screening.

Part 3: Architectural Design Standards

Sec. 6.3.2 Review Standards

(a) Relate development to its environment:

1. Massing, Height and Scale:

While the commercial building is limited to one story, the Nordic bathhouse rises to three stories (the first floor partially within the street grade). Both can find similarities in existing buildings along Pine Street: Arts Riot is one story, Maltex is three stories over a raised basement, 400 Pine (at the corner of Howard) is two stories rising to three, and Dealer is 2 stories.

2. Roofs and Rooflines.

The commercial building is flat roofed, while the bathhouse has a gabled roof that sits atop a flat roofed 2nd story. A square window puncture on the third floor presents a modern dormer in function.



3. Building Openings

The bathhouse has the noted entry within the concrete and earthen berm on the streetfront, with limited vertically oriented windows on the second floor (individual treatment rooms) and the dormer/skylights on the third floor. Executed in a very modern vocabulary, the limited first floor access and sparingly added windows presents an austere face to the public way.

The commercial building is highly glazed, with broad expanses of windows along both the streetfront and west elevation.



(b) Protection of Important Architectural Resources:

Not applicable.

(c) Protection of Important Public Views:

Not applicable.

(d) Provide an active and inviting street edge:

Admittedly the bathhouse is designed for function; outdoor elements of the business plan are evident on the west (rear) of the lot, while the streetscape remains somber and dark. The applicant has defined the intent to create mystery and discovery in the design and plan; however the physical detachment introduced by the earthen berm, the lack of building openings along the streetscape, the raised and set back (i.e.unreachable) second floor with limited openings, dark colors over concrete walls all combine to dampen the invitation to enter or view activities within. Rather than implementing a plan that is open, welcoming, and visibly available to the passers-by, there is little to suggest what is within or that visitors are encouraged to enter.

This standard states:

The use of architectural recesses and articulations at the street-level are particularly important in order to facilitate the flow of pedestrian traffic.

Non-residential buildings should provide visual access into the interior of the building at the street level through the use of large transparent windows and/or window displays in order to create a dynamic and engaging public streetscape.



Although inventive and pioneering, the plan misses the mark for providing an active and inviting streetscape.

(e) Quality of materials:

All development shall maximize the use of highly durable building materials that extend the life cycle of the building, and reduce maintenance, waste, and environmental impacts. Such materials are particularly important in certain highly trafficked locations such as along major streets, sidewalks, loading areas, and driveways. Efforts to incorporate the use of recycled

content materials and building materials and products that are extracted and/or manufactured within the region are highly encouraged.

The bathhouse employs a standing seam metal roof, thermally modified wood siding in a black finish, board form concrete and cast-in-place concrete as well as slatted wood and the planted earthen berm. See Plan A-2.

The commercial building features insulated metal panels, thermally modified wood siding and corten steel.

If the independent rental building is constructed in this phase, it, too will be sheathed in thermally modified wood siding with a standing seam metal roof to match the bathhouse. Reference is made to Plan A-3.

The structural materials are all of acceptable durability for new construction.

(f) Reduce energy utilization:

All new construction is required to meet the Guidelines for Energy Efficient Construction pursuant to the requirements of [Article VI. Energy Conservation, Section 8 of the City of Burlington Code of Ordinances](#). Vermont Commercial Building Energy Standards apply to this project. Compliance with the standards is the Owner's responsibility. For more information, see http://publicservice.vermont.gov/energy_efficiency.

(g) Make advertising features complementary to the site:

Any signage shall require separate sign permits.

(h) Integrate infrastructure into the building design:

See Section 6.2.2. (p), above.

(i) Make spaces secure and safe:

Building entrance points shall be visible and adequately lit. Spaces shall be designed to provide for adequate and secure visibility for persons using and observing such spaces.

Development shall comply with all applicable building and life safety code as defined by the building official(s) and fire marshal.

Items for the Board's consideration:

- The Bathhouse plan fails to provide an active and inviting street edge (Section 6.3.2 (d)); in part due to the earthen berm, the entry through a concrete aperture, no visible access to the first floor, limited to no glazing, and the raised 2nd floor. Revisions will be required to meet this standard.
- The applicants shall define if they intend to request a Phasing schedule to extend their permit timeline.
- Plans for the dumpster enclosure shall be submitted for review.

- As the principal entry to the site is across another parcel, an application shall be submitted from that property owner reflecting the change to the site and concurrence with the shared access plan.
- Uplighting is prohibited. The exception is decorative fixtures using low output lamps used for landscaping that do not emit direct illumination or glare, or cast a shadow onto adjacent property.
- The photometric plan shall be revised to lower light levels along walkways (2 fc max) and within the parking areas (4 fc max.)
- The re-aligned Maltex drive must be acceptable to the Department of Public Works, who are managing the Champlain Parkway improvement project.
- A Transportation Demand Management Plan shall be required to address parking demand. It is highly recommended that the staff parking lot be eliminated as it introduces another curb cut along Pine Street, the parking area is the lone reason for the curb cut (which is not interconnected to the rest of the development), and vehicles using this curb cut will add to traffic congestion and delays on this major roadway. The application does not indicate any methods of discouraging others from using this lot.
- This project is subject to any and all conditions imposed by the Vermont Department of Environmental Conservation, Civil, Environmental and Geotech Engineers within their Evaluation of Corrective Action Alternatives (ECAA) and the ultimate Corrective Action Plan (CAP.)
- Any conditions imposed by the Conservation Board shall be incorporated into the plan.
- The location and manner of mechanical equipment installation needs to be identified and assessed for the need for screening.

SILT BATHHOUSE & 453 PINE STREET

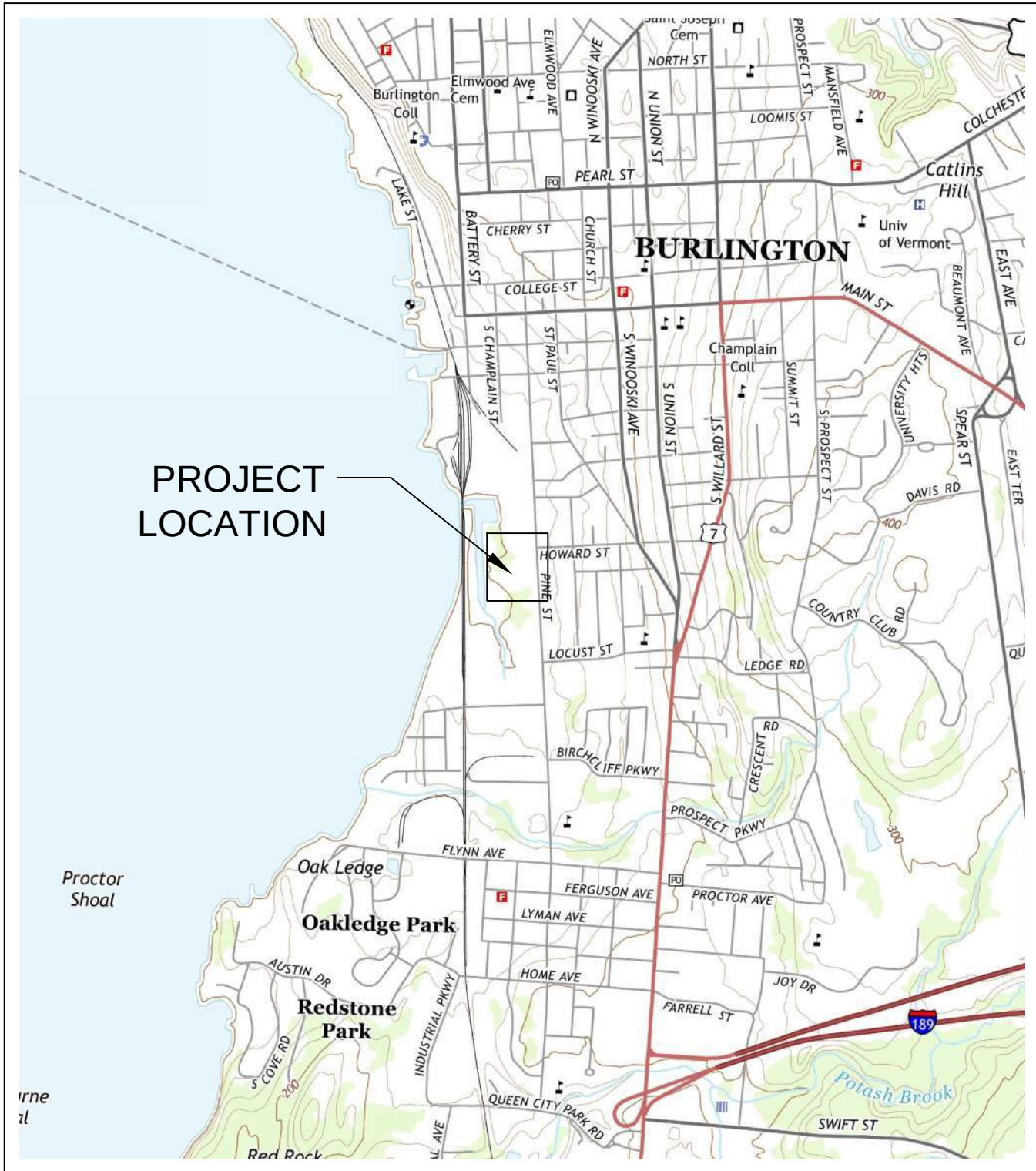
CITY OF BURLINGTON, VERMONT

PREPARED FOR:
453 ENTERPRISES LLC

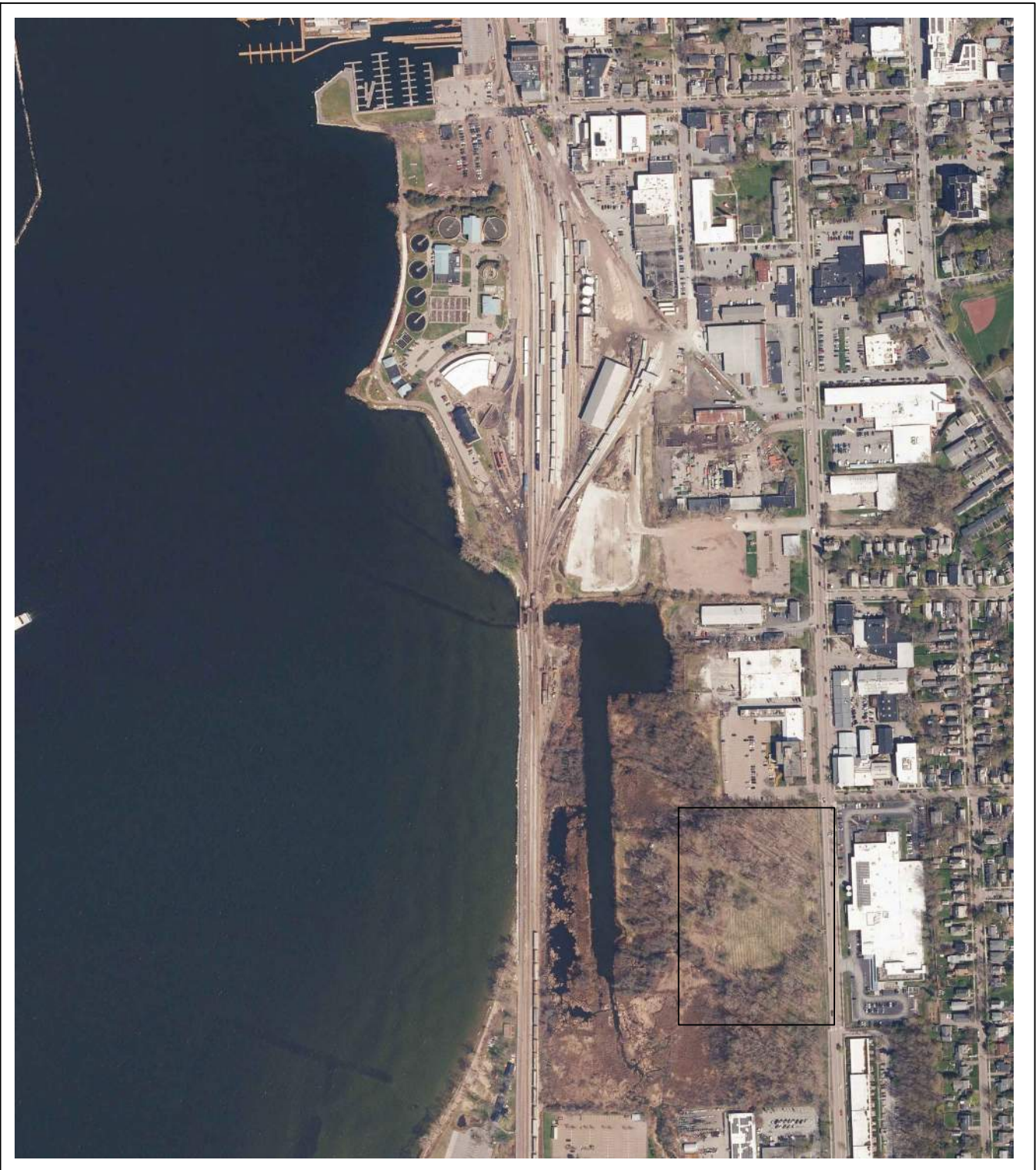
PREPARED BY:
STONE ENVIRONMENTAL, INC.

ISSUED: MAY 22, 2023

FOR: COA LEVEL II ZONING PERMIT & MAJOR
IMPACT APPLICATIONS



PROJECT VICINITY
SCALE: 1" = 2000'



PROJECT LOCATION
SCALE: 1" = 500'

DRAWING INDEX:

SHEET	TITLE
C1	COVER SHEET
C2	GENERAL NOTES
C3	EXISTING CONDITIONS SITE PLAN
C4	PROPOSED CONDITIONS SITE PLAN
C5	ZONING & PARKING SITE PLAN
C6	EROSION PREVENTION & SEDIMENT CONTROL, ACCESS & STAGING PLAN
C7	EROSION PREVENTION & SEDIMENT CONTROL DETAILS
C8	STORMWATER DETAILS
C9	WASTEWATER & WATER SUPPLY DETAILS

NOT FOR CONSTRUCTION

DRAWING CREDITS

DRAWN ON:	05/22/2023
DRAWN BY:	APH
CHECKED ON:	05/22/2023
CHECKED BY:	PCL
PROJECT NO:	2022-1060

REVISIONS

#	DATE	DRWN	CHK'D	APP'D	DESCRIPTION

DRAWING SCALE



STONE ENVIRONMENTAL

535 Stone Cutters Way / Montpelier / VT / 05602 / USA
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SILT BATHHOUSE & 453 PINE STREET

COVER SHEET
BURLINGTON VERMONT

SHEET NO.

C1

GENERAL NOTES:

1.

SPECIFICATIONS FOR DESIGN, MATERIALS AND CONSTRUCTION SHALL MEET OR EXCEED THE FOLLOWING:
- 1.1.

VTRANS - VERMONT AGENCY OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION", 2018, WITH CURRENT STANDARD PLANS AND SUPPLEMENTAL SPECIFICATIONS.
- 1.2.

THIS PLAN SET AND ALL CONDITIONS, SPECIFICATIONS AND SUPPLEMENTS TO STANDARD SPECIFICATIONS CONTAINED WITHIN THE CONTRACT DOCUMENTS.
2.

FINAL RESOLUTION TO CONFLICTS WITHIN THE SPECIFICATIONS OR ANY SUBSTITUTIONS SHALL BE DETERMINED BY THE ENGINEER.
3.

UTILITIES:
- 3.1.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE LOCATION OF ALL UTILITIES PRIOR TO ANY CONSTRUCTION PROCEDURE. THERE ARE NUMEROUS UTILITIES IN THE IMMEDIATE VICINITY OF THE PROJECT. THE CONTRACTOR IS ADVISED THAT EXTREME CAUTION WILL BE REQUIRED IN THE OPERATION OF EQUIPMENT. CONTACT DIG-SAFE AT 1-888-DIG-SAFE, CONTACT CAMELS HUMP MIDDLE SCHOOL, RICHMOND ELEMENTARY SCHOOL, AND TOWN OF RICHMOND FOR MARKING OF THEIR UTILITIES.
- 3.2.

TEMPORARY RELOCATION OF UTILITIES, IF NECESSARY, DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE CONTRACTOR AND CONSIDERED INCIDENTAL TO THE WORK.
- 3.3.

DAMAGE TO ANY UTILITY BY THE CONTRACTOR SHALL BE REPORTED TO THE UTILITY COMPANY. REPAIR OF THE UTILITY SHALL BE PAID FOR BY THE CONTRACTOR.
4.

THE CONTRACTOR SHALL NOT DISTURB ANY EXISTING PROPERTY CORNER, MONUMENT, SURVEY MARKER, OR BENCHMARK WITHOUT FIRST MAKING PROVISIONS FOR ITS REPLACEMENT OR RELOCATION.

SHOP DRAWING APPROVAL PROCESS:

1.

THE FOLLOWING PROCESS WILL BE FOLLOWED REGARDING THE SUBMISSION AND APPROVAL OF SHOP DRAWINGS.
- 1.1.

CONTRACTOR SUBMITS SHOP DRAWING TO ENGINEER FOR REVIEW AND COMMENT.
- 1.2.

FOLLOWING REVIEW, THE ENGINEER SENDS COMMENTS BACK TO THE CONTRACTOR.
- 1.3.

CONTRACTOR SUBMITS REVISED SHOP DRAWINGS (IF NECESSARY) TO ENGINEER; ENGINEER ENSURES COMMENTS ARE INCORPORATED INTO THE REVISED SHOP DRAWINGS.
- 1.4.

IF COMMENTS ARE ADDRESSED APPROPRIATELY, ENGINEER WILL PROVIDE SHOP DRAWING APPROVAL STAMP. DISTRIBUTE COPIES TO APPLICABLE PARTIES, AND STORE APPROVED DOCUMENTS IN PROJECT FILES.
- 1.5.

IF COMMENTS ARE NOT ADDRESSED, REPEAT STEPS 1A THROUGH 1C.
2.

ENGINEER REVIEW AND APPROVAL DOES NOT RELIEVE THE CONTRACTOR OF FULL RESPONSIBILITY FOR ANY NEGLIGENCE IN THE CONSTRUCTION OF THE PROJECT RESULTING FROM SHOP DRAWINGS. ENGINEER REVIEW AND APPROVAL OF SHOP DRAWINGS IS NOT A WARRANTY OF THE ADEQUACY AND CORRECTNESS OF SHOP DRAWINGS; THE CONTRACTOR IS RESPONSIBLE FOR THE CORRECTNESS OF SHOP DRAWINGS AND ALL ASSOCIATED CALCULATIONS.
3.

CONTRACTOR SHALL SUBMIT MATERIALS SPECIFICATIONS AND LABORATORY TEST RESULTS FOR EACH MATERIAL PROPOSED TO BE USED FOR CONSTRUCTION.

PIPE WORK NOTES:

1.

THE CONTRACTOR SHALL MAKE PROVISIONS FOR MAINTAINING FLOW THROUGH EXISTING FORCE MAINS, SEWER LINES, WATER LINES, STORM DRAINS AND CHANNELS WHICH MUST BE INTERRUPTED DURING THE WORK. ONCE WORK IS COMPLETE, ALL FLOWS SHALL BE RESTORED AND TEMPORARY FLOW DIVERSIONS AND ASSOCIATED PIPING SHALL BE REMOVED FROM THE SITE.
2.

THE CONTRACTOR IS REQUIRED TO MANAGE ANY GROUNDWATER ENCOUNTERED AND MAINTAIN STABLE SLOPES DURING EXCAVATION.
3.

EXISTING WATER MAINS ARE UNDER PRESSURE. CONTRACTOR IS ADVISED TO TAKE PRECAUTIONS WHILE EXCAVATING AROUND EXISTING INFRASTRUCTURE. TEMPORARY SHEETING AND/OR BRACING MAY BE REQUIRED.
4.

THE CONTRACTOR SHALL INSTALL MECHANICAL PLUGS IN THE END OF ALL PIPE WORK AT THE COMPLETION OF EACH WORK DAY TO SEAL IT FROM WATER AND SOIL.

GENERAL CONSTRUCTION NOTES:

1.

ALL ITEMS SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN ON THE DRAWINGS. ANY CHANGES REQUIRE APPROVAL BY THE ENGINEER.
2.

PRIOR TO BEGINNING CONSTRUCTION THE FOLLOWING PEOPLE SHALL BE NOTIFIED:
- 2.1.

DIG-SAFE
- 2.2.

CITY OF BURLINGTON
- 2.3.

PROJECT ENGINEER
3.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ENGINEER IMMEDIATELY IF PROBLEMS OR UNFORESEEN CIRCUMSTANCES ARISE DURING CONSTRUCTION.
4.

ALL TESTING SHALL BE ORDERED BY THE ENGINEER AND COORDINATED BY THE CONTRACTOR IN ACCORDANCE WITH VTRANS AND PROJECT SPECIFICATIONS. CONTRACTOR SHALL GIVE THE ENGINEER 24 HOURS ADVANCE NOTICE PRIOR TO PLACING MATERIALS REQUIRING TESTING. TESTING COSTS ARE SUBSIDIARY AND SHALL BE INCLUDED IN THE ITEM UNIT PRICE.
5.

DETERMINATION OF MAXIMUM DENSITIES FOR SAND AND GRAVELS IS THE RESPONSIBILITY OF THE CONTRACTOR. MODIFIED PROCTOR TESTS ORDERED BY THE ENGINEER SHALL BE SAMPLED AND PERFORMED BY AN INDEPENDENT TESTING LABORATORY AND PAID FOR BY THE CONTRACTOR. TESTING COSTS ARE SUBSIDIARY AND SHALL BE INCLUDED IN THE ITEM UNIT PRICE.
6.

ALL SOIL MOVING EQUIPMENT SHALL BE THOROUGHLY CLEANED PRIOR TO BEING DELIVERED TO THE PROJECT SITE TO MAKE IT FREE OF SOIL, NON-NATIVE INVASIVE SPECIES OR OTHER DEBRIS THAT COULD CONTAIN OR HOLD SEEDS. EQUIPMENT SHALL BE CONSIDERED FREE OF NON-NATIVE OR INVASIVE SPECIES AND OTHER SUCH DEBRIS WHEN A VISUAL INSPECTION BY THE ENGINEER, COMPLETED PRIOR TO THE EQUIPMENT BEING MOVED TO THE SITE, DOES NOT DISCLOSE SUCH MATERIAL PRESENT.
7.

WHERE RELEVANT, TOPSOIL SHALL BE STRIPPED AND STOCKPILED TO BE USED TO RESTORE DISTURBED AREAS.
8.

THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ANY REQUIRED TRAFFIC CONTROL INCLUDING, BUT NOT LIMITED TO JERSEY BARRIERS OR OTHER BARRICADES, SIGNAGE AND FLAGGERS.
9.

CONTRACTOR SHALL PROTECT EXISTING FACILITIES AND UTILITY LINES FROM ALL DAMAGE. NOTED AND/OR OBSERVABLE SUBSURFACE IMPROVEMENTS SUCH AS UTILITIES, WATER LINES, AND CULVERTS SHALL BE AVOIDED AND REPAIRED AND/OR REPLACED AS NEEDED. REPAIR OF UNFORESEEN SUBSURFACE IMPROVEMENTS WILL BE NEGOTIATED.
10.

JOB-SITE SAFETY CONDITIONS, INCLUDING BUT NOT LIMITED TO, MOBILIZATION/DEMOBILIZATION, EXCAVATION, STOCKPILING, MATERIAL PLACEMENT, WETLAND CONSTRUCTION, GULLY RESTORATION, AND PAVING SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
11.

LEGALLY DISPOSE OF EXCESS MATERIAL OFF SITE.
12.

BASIC CONSTRUCTION STANDARDS FOR STORAGE OF MATERIALS, SAFETY PROTECTION, PROTECTION OF NEIGHBORING PROPERTIES, AND RECLAMATION OF DISTURBED AREAS SHALL BE FOLLOWED. ALL LANDSCAPING MUST BE RETURNED TO THE ORIGINAL CONDITION OR AS MODIFIED PER THESE PLANS.
13.

CONTRACTOR SHALL CONSTRUCT APPROPRIATE FENCES AND BARRIERS AROUND ALL CONSTRUCTION SITES, STORAGE SITES, AND EXCAVATIONS TO SAFE GUARD THE PUBLIC FROM THE CONSTRUCTION SITE.
14.

DETAILS SHOWN ON ANY DRAWINGS ARE TO BE CONSIDERED TYPICAL FOR ALL SIMILAR CONDITIONS, UNLESS OTHERWISE NOTED.
15.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ANY UTILITIES AND SHALL REPAIR ANY DAMAGE AS QUICKLY AS POSSIBLE AT THEIR OWN EXPENSE. ALL REPAIRS SHALL MEET TOWN STANDARDS AND APPROPRIATE TESTING. REPAIRS SHALL BE INSPECTED BY THE ENGINEER AND THE TOWN PRIOR TO BACKFILL.
16.

ALL EXCAVATION AND BACKFILL SHALL BE COMPLETED AS SOON AS POSSIBLE. OPEN TRENCHES SHALL BE PROPERLY BARRICADED AND WARNED FOR PEDESTRIANS AND VEHICLES.
17.

GRANULAR BACKFILL FOR STRUCTURES SHALL CONSIST OF SATISFACTORILY GRADED, FREE DRAINING GRANULAR MATERIAL REASONABLY FREE FROM LOAM, SILT, CLAY AND ORGANIC MATERIAL IN ACCORDANCE WITH SECTION 704.08 OF THE VT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION.

EROSION PREVENTION & SEDIMENT CONTROL NOTES:

1.

BEFORE ANY CLEARING, GRUBBING, OR DEMOLITION OF THE SITE IS INITIATED, AND DURING ALL EARTHWORK PHASES, EROSION CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED AT THE INLET OF ANY STORM DRAINS, SWALES, AND DITCHES RECEIVING WATER FROM THE PROJECT. SEE TYPICAL DETAILS AND PLANS FOR TYPES AND LOCATIONS.
2.

SILT FENCE OR FIBER ROLL SHALL BE PLACED DOWN GRADIENT OF ALL DISTURBED AREAS. IF THE DISTURBED AREA IS 100' OR LESS FROM THE WATERS OF THE STATE THE SILT FENCE SHALL BE REQUIRED AND SHALL BE WIRE MESH REINFORCED.
3.

ALL STOCKPILED SOIL SHALL BE ENCIRCLED WITH SILT FENCE OR FIBER ROLL, UNLESS AN EXISTING BARRIER WILL ENTRAP ALL EROSION FROM SUCH A STOCKPILE OR THE STOCKPILE IS COMPLETELY COVERED WITH VEGETATION THAT PREVENTS EROSION.
4.

NO MORE THAN 500 FEET OF TRENCH SHALL BE OPEN AT ONE TIME AND EXCAVATED MATERIAL TO BE USED FOR BACKFILL SHALL BE PLACED ON THE UPHILL SIDE OF THE TRENCH. ALL OTHER EXCAVATED MATERIAL SHALL BE DISPOSED OF OFF-SITE AT AN APPROVED LOCATION.
5.

EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER ANY RAIN EVENT WHICH PRODUCES RUNOFF BY THE ON-SITE COORDINATOR, WHO WILL BE RESPONSIBLE FOR RECTIFYING ANY PROBLEMS FOUND. ALL INSPECTION FORMS SHALL BE KEPT ON-SITE AS RECORDS OF THE CONDITION OF THE EROSION CONTROL MEASURES. TEMPORARY EROSION CONTROL MEASURE SHALL BE REMOVE WITH 30 DAYS OF PERMANENT SITE STABILIZATION.
6.

NO MORE THAN 1 ACRE SHALL BE DISTURBED (WITHOUT TEMPORARY OR FINAL STABILIZATION) AT ANY ONE TIME.
7.

BEFORE AND AFTER EVERY STORM ALL STRUCTURAL EROSION CONTROL MEASURES SHALL BE INSPECTED FOR FAILURES OR CLOGGING, AND ANY FAILURE OR CLOGGING SHALL BE RECTIFIED. DURING THE WINTER CONSTRUCTION SEASON SPECIAL ATTENTION SHALL BE PAID TO THE CHANGES IN WEATHER THAT COULD CAUSE SIGNIFICANT SNOW MELT AND RUNOFF.
8.

STONE INLET PROTECTION OR SEDIMENT TRAP CATCH BASIN INSERTS SHALL BE PLACED IN ALL NEW AND EXISTING CATCH BASINS WHICH RECEIVE RUNOFF FROM DISTURBED AREAS. THE PLACING OF THESE TRAPS SHALL BE AS SHOWN ON THE PLANS. MAINTENANCE SHALL BE AS IN #7 ABOVE.
9.

EROSION CONTROL MEASURES INDICATED ON THE PLANS ARE THE MINIMUM NUMBER REQUIRED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO USE ADDITIONAL BARRIERS AS FIELD CONDITIONS DICTATE AND TO ENSURE THAT ANY EROSION CREATED BY THIS PROJECT DOES NOT REACH THE WATERS OF THE STATE OR LEAVE THE SITE.
10.

NEW SWALES AND DITCHES (AND ANY OTHER AREA SUBJECT TO CONCENTRATED STORM RUNOFF) SHALL BE FERTILIZED AND SEEDED WITH AS PER WIEMANN & LAMPHERE LANDSCAPE PLAN L5.1-L5.3 TO AT LEAST TWO (2) FEET ABOVE THE CHANNEL BOTTOM ALONG THE CHANNEL BANKS:
11.

IN ALL SWALES AND DITCHES, AND WHERE SLOPE GRADE EXCEEDS 25 PERCENT (1 ON 4 SLOPE), JUTE MATTING SECURELY ATTACHED TO THE GROUND SHALL BE PLACED OVER MULCH AND MAINTAINED UNTIL A PERMANENT GRASS COVER IS ESTABLISHED.
12.

STONE LINE ALL SWALES AND DITCHES WHERE SLOPE GRADES ARE BETWEEN 5 PERCENT (1 ON 20 SLOPE) AND 10 PERCENT (1 ON 10 SLOPE) WITH 7.5" OF STONE FILL, TYPE I.
13.

STONE LINE ALL SWALES AND DITCHES WHERE SLOPE GRADES EXCEED 10 PERCENT (1 ON 10 SLOPE) WITH 12" OF STONE FILL, TYPE II.
14.

CONTRACTOR SHALL APPLY DUST CONTROL MEASURES AS NECESSARY OR AS DIRECTED BY THE ENGINEER TO PREVENT THE AIR MOVEMENT OF DUST. ACCEPTABLE METHODS OF DUST CONTROL ARE VEGETATIVE COVER, MULCHING, SPRINKLING OF WATER, OR THE USE OF CALCIUM CHLORIDE.
15.

AT THE COMPLETION OF THE PROJECT, ALL STORMWATER DRAINAGE FACILITIES INCLUDING DITCHES, GRASSED SWALES, CATCH BASINS, SUMPS, CULVERTS, STORM DRAINS, STORM MANHOLES, OUTLET STRUCTURES, STORM FILTERS, ETC SHALL BE CLEANED AND FREE OF SILT, SEDIMENT, OR DEBRIS WHICH MIGHT IMPAIR THE PROPER OPERATION OF THE FACILITIES.
16.

ALL DISTURBED TERRAIN AT FINAL GRADE SHALL BE SEEDED AND MULCHED WITHIN 48 HOURS OF COMPLETION, AND BY SEPTEMBER 15TH AT THE LATEST. BEFORE APPLYING FINAL SEEDING A FOUR (4) INCH AVERAGE DEPTH OF TOPSOIL SHALL BE PLACED IN ALL DISTURBED AREAS TO BE SEEDED. FERTILIZER SHALL BE APPLIED TO THE TOP 2-INCHES OF TOPSOIL AT A RATE OF 500 LBS/ACRE. SEED MIXTURES SHALL BE ONE AS SPECIFIED PER WIEMANN & LAMPHERE LANDSCAPE PLAN L5.1-L5.3. IF NO SEED MIXTURE IS SPECIFIED IT SHALL BE ONE OF THE FOLLOWING, AS APPROPRIATE.

EMBANKMENT/SLOPING GROUND	LBS/ACRE
MIXTURE#1	
CREeping RED FESCUE	20
REDTOP	2
BIRDSFOOT TREFOIL	8
OR CROWN VETCH	15
MIXTURE#2	
TALL FESCUE	10
REDTOP	2
FLAT PEA (LATHCO)	30
MIXTURE#3	
CREeping RED FESCUE	15
FLAT PEA (LATHCO)	30

EROSION PREVENTION & SEDIMENT CONTROL NOTES:

- FLAT/LEVEL GROUND

LBS/ACRE
- MIXTURE#1
- KENTUCKY BLUE GRASS

20
- CREeping RED FESCUE

20
- RYE (PERENNIAL), OR REDTOP

5
- MIXTURE#2
- CREeping RED FESCUE

20
- REDTOP

2
- TALL FESCUE

20
17.

ALL NEWLY SEEDED AREAS SHALL BE MULCHED AT A RATE OF TWO (2) TONS PER ACRE OF HAY OR STRAW. DURING WINTER CONSTRUCTION MULCH SHALL BE APPLIED AT A RATE OF 4 TONS PER ACRE. JUTE OR OTHER EQUAL NETTING SHALL BE USED WHERE WIND OR WATER MAY ERODE NEWLY-PLACED SEED OR MULCH OR WHERE GRADE EXCEEDS 25% (1:4). ALL NETTING, WHERE USED, SHALL BE STAKED TO THE GROUND IN COMPLIANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
18.

ALL HAY MULCH SHALL BE TACKED DOWN TO PREVENT WINDTHROW. JUTE MATTING OR EQUIVALENT SHALL BE USED WHERE INDICATED ON PLANS. IN ALL OTHER AREAS MULCHED SHALL BE TRACKED WITH A BULLDOZER. THE CLEATS OF THE BULLDOZER SHALL BE PARALLEL TO THE CONTOURS. DURING THE WINTER CONSTRUCTION SEASON NETTING OR JUTE MATTING SHALL BE USED TO TACK DOWN ALL MULCH.
19.

ALL DISTURBED AREAS NOT AT FINAL GRADE THAT WILL NOT BE DISTURBED AGAIN FOR A PERIOD OF GREATER THAN THIRTY (30) DAYS, SHALL BE SEEDED WITH A TEMPORARY, RAPID-GROWING COVER CROP, SUCH AS RYE GRASS AND MILLET, AND SHALL BE MULCHED. NETTING SHALL ALSO BE APPLIED, AS SPECIFIED IN ITEM 15, TO STABILIZE THE MULCH AND SEED.
20.

ALL DISTURBED AREAS MUST HAVE TEMPORARY OR FINAL STABILIZATION WITHIN 14 DAYS OF THE INITIAL DISTURBANCE. AFTER THIS TIME, ANY DISTURBANCE IN THE AREA MUST BE STABILIZED AT THE END OF EACH WORK DAY. THE FOLLOWING EXCEPTIONS APPLY: I) STABILIZATION IS NOT REQUIRED IF WORK IS TO CONTINUE IN THE AREA IN THE NEXT 24 HOURS AND THERE IS NO PRECIPITATION FORECAST FOR THE NEXT 24 HOURS. II) STABILIZATION IS NOT REQUIRED IF THE WORK IS OCCURRING IN A SELF-CONTAINED EXCAVATION (I.E. NO OUTLET) WITH A DEPTH OF 2-FEET OR GREATER (E.G. FOUNDATION EXCAVATION, UTILITY TRENCHES).

SURVEY NOTES:

1.

BOUNDARY LINES DEVELOPED FROM O'LEARY & BURKE, 2004.
2.

TOPOGRAPHIC INFORMATION DEVELOPED FROM FIELD SURVEYS BY BUTTON PROFESSIONAL LAND SURVEYORS (BPLS) ON FEBRUARY 4 TO MARCH 4, 2016.
3.

ALL EXISTING UTILITIES ARE APPROXIMATE AND BASED UPON THE BEST AVAILABLE INFORMATION AT THE TIME THIS PLAN WAS DEVELOPED AND ARE SUBJECT TO FIELD VERIFICATION.
4.

ALL PROPOSED AND EXISTING BOUNDARY LINES, EASEMENT, SETBACKS, AND LOT AREAS DEPICTED ON THIS PLAN ARE CONSIDERED APPROXIMATE FOR PLANNING REVIEW PURPOSES.
5.

NORTH ORIENTATION IS BASED ON SURVEY GRADE STATIC GPS OBSERVATIONS MADE ON MARCH 4, 2016. THE RESULTANT HORIZONTAL DATUM IS NAD 83. THIS REALIZATION IS CALLED NAD 83(2011) EPOCH 2010.0. THE RESULTING ORTHOMETRIC HEIGHT IS NAVD 88 (GEOID12A).
6.

THE EXISTING FEATURES SHOWN HEREON WERE LOCATED DURING FIELD SURVEYS CONDUCTED BETWEEN FEBRUARY 4, 2016 TO MARCH 4, 2016.
7.

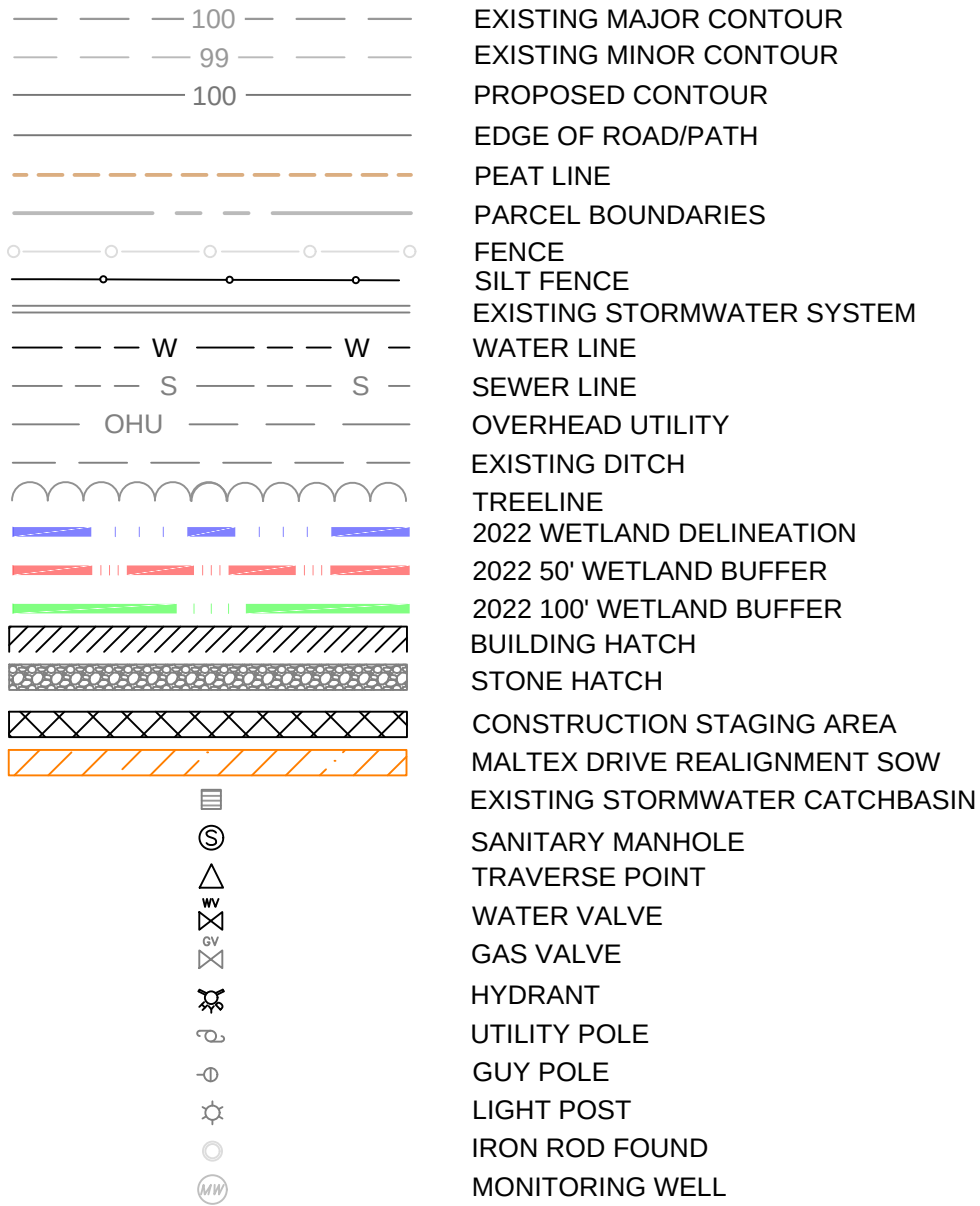
THE PREMISES SHOWN AND DESCRIBED HEREON MAYBE SUBJECT TO EXISTING BURIED UTILITIES, EASEMENTS, RIGHTS-OF-WAY, RESTRICTIONS, COVENANTS, PERMITS, REGULATIONS, AND/OR SETBACK LINES. CLEAR EVIDENCE OF STRUCTURES THAT ARE READILY APPARENT FROM A CASUAL ABOVE GROUND VIEW ARE DELINEATED HEREON. NO LAND RECORD RESEARCH HAS BEEN PERFORMED BY THIS OFFICE IN THE ACQUISITION OF THIS TOPOGRAPHY.
8.

AT THE TIME OF THE FIELD SURVEY IN FEBRUARY 4, 2016, THERE WAS APPROXIMATE SNOW DEPTHS OF 2" TO 4" AND AREAS OF ICE. NO LIABILITY IS ASSUMED FOR ANY UTILITIES, TOPOGRAPHIC FEATURES, OR STRUCTURES THAT MAY HAVE BEEN MISSED DUE TO THE SNOW COVER.
9.

THIS IS NOT A BOUNDARY SURVEY. ANY PROPERTY LINE INFORMATION SHOWN HEREON IS APPROXIMATE. ANY PROPERTY LINES, EASEMENTS, AND/OR OTHER REAL PROPERTY DESCRIPTIONS SHOWN ON THIS PLAN ARE FOR THE USE OF THE OWNER ONLY. THEY DO NOT DEFINE LEGAL RIGHTS OR MEET LEGAL REQUIREMENTS FOR A LAND SURVEY AS DESCRIBED IN 26 V.S.A. SECTION 2502(4), AND SHOULD NOT BE USED IN LIEU OF A BOUNDARY AND/OR EASEMENT SURVEY AS THE BASIS OF ANY LAND TRANSFER OR ESTABLISHMENT OF ANY PROPERTY RIGHT.
10.

SUFFICIENT GROUND MEASUREMENTS WERE COLLECTED TO PRODUCE 1-FOOT CONTOUR INTERVALS OF THE EXISTING GROUND SURFACE, AS SHOWN HEREON. THE CONTOUR PRECISION MEETS THE NATIONAL MAPPING STANDARD OF HALF THE CONTOUR INTERVAL.

LEGEND



DRAWING CREDITS

#	DATE	DRWN	CHK'D	APP'D	DESCRIPTION

DRAWING SCALE



STONE ENVIRONMENTAL

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SILT BATHHOUSE & 453 PINE STREET

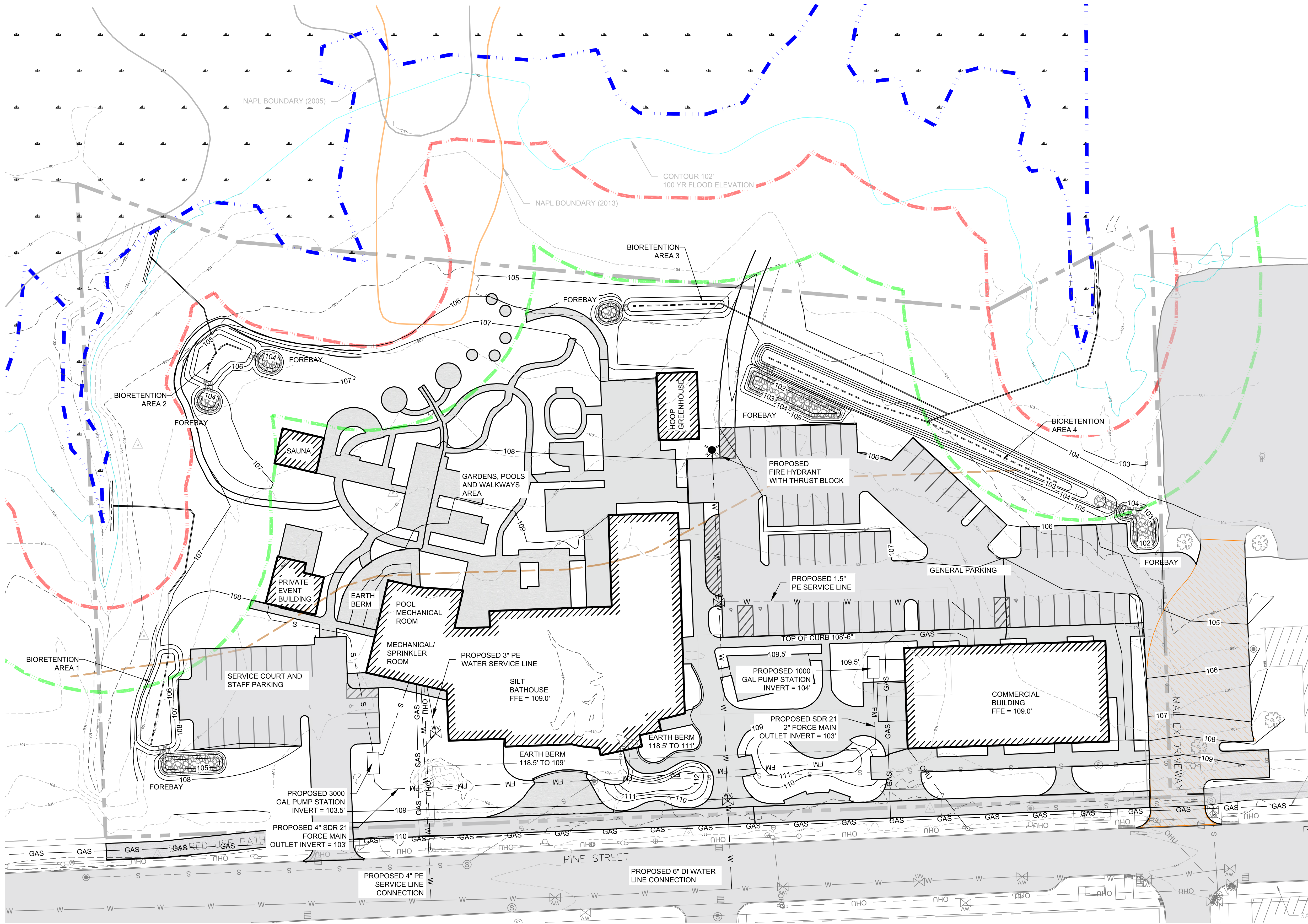
NOTES

BURLINGTON

VERMONT

SHEET NO.

C2



- LEGEND**
- 100 ——— EXISTING MAJOR CONTOUR
 - 99 ——— EXISTING MINOR CONTOUR
 - 100 ——— PROPOSED CONTOUR
 - — — — — EDGE OF ROAD/PATH
 - — — — — PEAT LINE
 - — — — — PARCEL BOUNDARIES
 - — — — — FENCE
 - — — — — EXISTING STORMWATER SYSTEM
 - — — — — WATER LINE
 - — — — — SEWER LINE
 - — — — — OHU
 - — — — — OVERHEAD UTILITY
 - — — — — EXISTING DITCH
 - — — — — TREELINE
 - — — — — 2022 WETLAND DELINEATION
 - — — — — 2022 50' WETLAND BUFFER
 - — — — — 2022 100' WETLAND BUFFER
 - — — — — BUILDING HATCH
 - — — — — STONE HATCH
 - — — — — MALTEX DRIVE REALIGNMENT SOW
 - — — — — EXISTING STORMWATER CATCHBASIN
 - — — — — SANITARY MANHOLE
 - — — — — WATER VALVE
 - — — — — GAS VALVE
 - — — — — HYDRANT
 - — — — — UTILITY POLE
 - — — — — GUY POLE
 - — — — — LIGHT POST

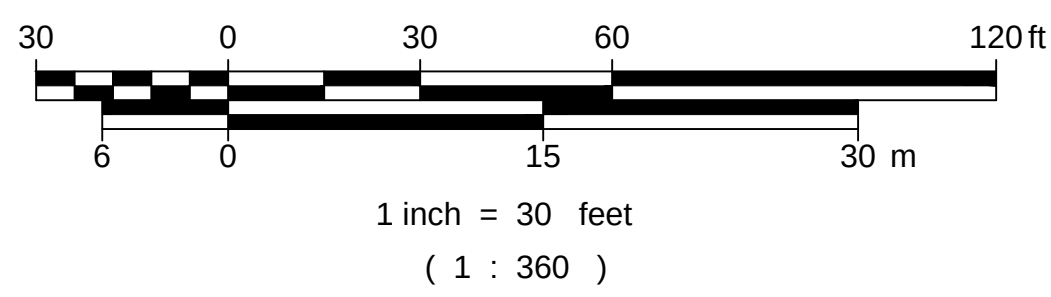
STORMWATER
NO STORMWATER WILL BE ENTERING THE CSO SYSTEM AS A RESULT OF THIS PROJECT. ALL STORMWATER DISCHARGES ARE TREATED FOR WATER QUALITY VOLUME AND DISCHARGED TO THE WEST OF THE PROPERTY.

- BIORETENTION 1
- BIORETENTION 2
- BIORETENTION 3
- BIORETENTION 4

- WATER SUPPLY**
- ONE 4" WATER LINE TAPPED INTO CITY OF BURLINGTON 12" WATER MAIN FOR SPRINKLER SYSTEM AND POTABLE WATER SUPPLY TO THE SILT BATHHOUSE BUILDING. SEPARATE 3" LINE BRANCHES OFF OF 4". WATER LINE TAP SHALL MEET THE SPECIFICATION OF THE CITY OF BURLINGTON DPW ENGINEER.
 - ONE 6" DUCTILE IRON WATER LINE TAPPED INTO CITY OF BURLINGTON 12" WATER MAIN FOR HYDRANT AND 1.5" SERVICE LINE TO 453 PINE COMMERCIAL BUILDING. WATER LINE TAP SHALL MEET THE SPECIFICATION OF THE CITY OF BURLINGTON DPW ENGINEER.

- WASTEWATER**
- WASTEWATER CAPACITY IS REQUESTED FOR 2965 GPD
 - 3000 GALLON PUMPSTATION SERVICING MAIN SILT BATHHOUSE BUILDING AND PRIVATE EVENT BUILDING. THIS WILL INCLUDE 2 PUMPING UNITS AND DISCHARGE TO THE EXISTING SEWER MANHOLE AS SHOWN.
 - 453 PINE COMMERCIAL BUILDING TO BE SERVICED BY A 1000 GAL PUMPSTATION PUMPING TO THE SAME SEWER MANHOLE.
 - BOTH PUMPSTATIONS TO BE OUTFITTED WITH SURCHARGE FLOATS IN DISCHARGE MANHOLE TO SWITCH OFF PUMPING DURING LARGE STORMS PER CITY OF BURLINGTON DPW ENGINEER RECOMMENDATIONS.

DRAWING CREDITS	#	DATE	DRWN	CHK'D	APP'D	DESCRIPTION
DRAWN ON: 05/22/2023						
DRAWN BY: APH						
CHECKED ON: 05/22/2023						
CHECKED BY: PCL						
PROJECT NO: 20221060						



STONE ENVIRONMENTAL

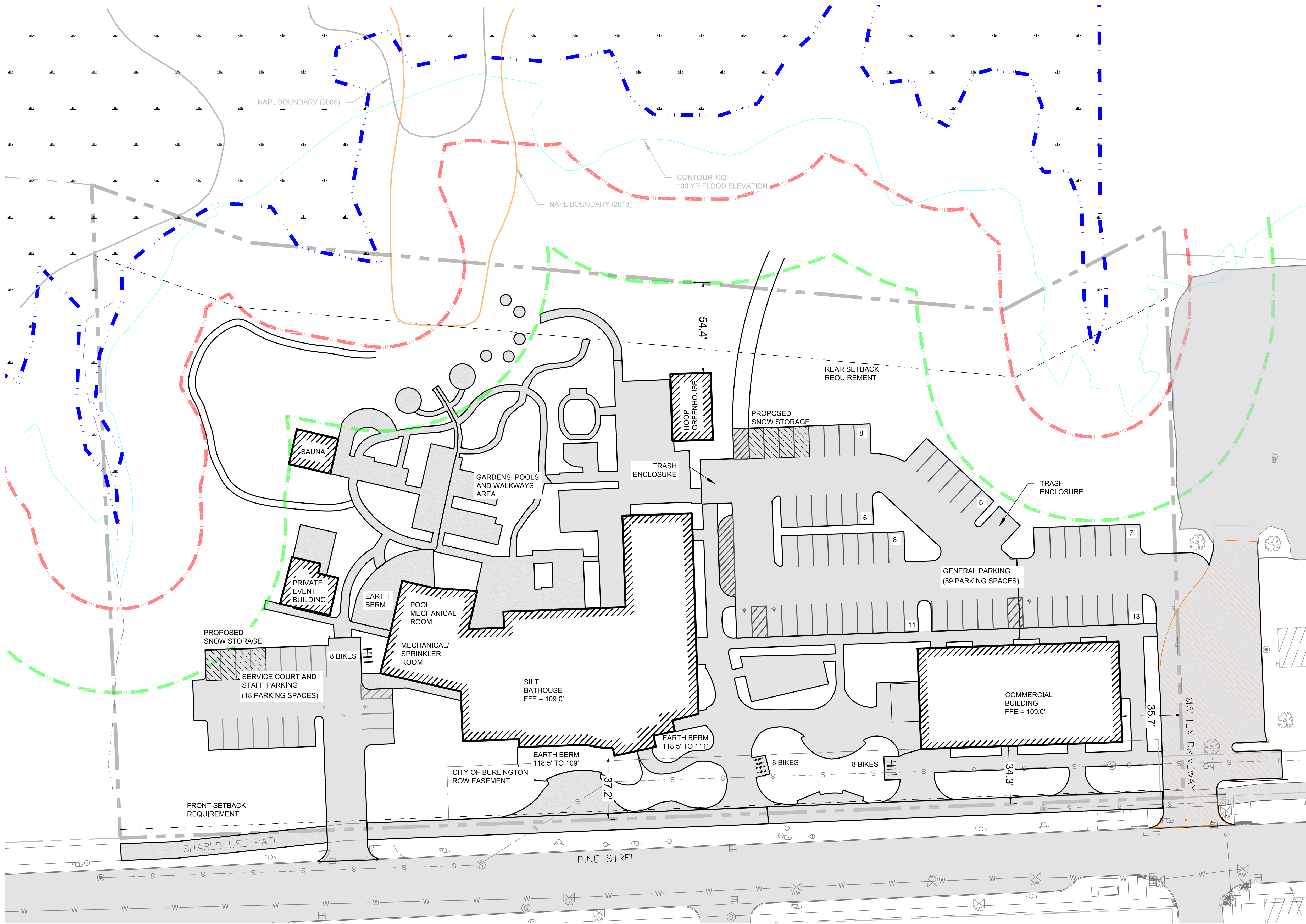
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SILT BATHHOUSE & 453 PINE STREET

PROPOSED CONDITIONS SITE PLAN

BURLINGTON VERMONT

SHEET NO. **C4**



LEGEND

- EDGE OF ROAD/PATH
- PARCEL BOUNDARIES
- EXISTING STORMWATER SYSTEM
- WATER LINE
- SEWER LINE
- OVERHEAD UTILITY
- 2022 WETLAND DELINEATION
- 2022 50' WETLAND BUFFER
- 2022 100' WETLAND BUFFER
- BUILDING HATCH
- MALTEX DRIVE REALIGNMENT SOW
- EXISTING STORMWATER CATCHBASIN
- SANITARY MANHOLE
- TRAVERSE POINT
- WATER VALVE
- GAS VALVE
- HYDRANT
- UTILITY POLE
- GUY POLE
- LIGHT POST

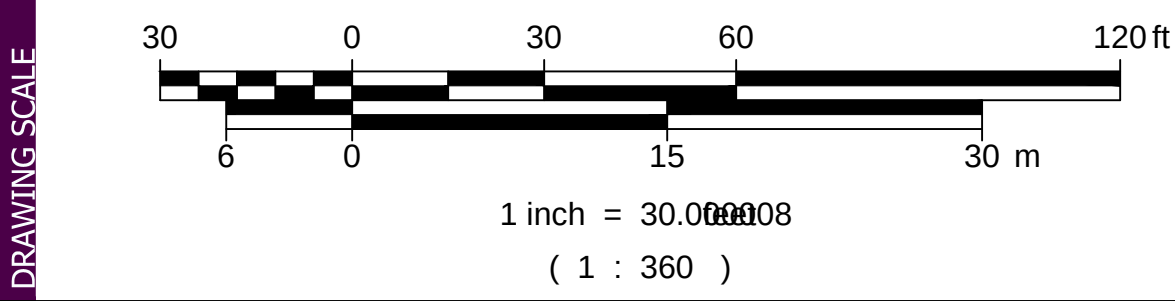
SETBACKS	FRONT (FT)	SIDE (FT)	REAR (FT)
REQUIRED	5.0	0.0	39.0
PROVIDED	34.3	35.7	54.4

NOTE: MINIMUM REQUIRED SETBACKS ARE SOURCED FROM ARTICLE 4 OF THE CITY OF BURLINGTON ZONING AND SUBDIVISION ORDINANCE.

	LOT COVERAGE (%)
MAXIMUM	80
ACTUAL	40

NOTE: MAXIMUM COVERAGE VALUE SOURCED FROM ARTICLES 4 OF THE CITY OF BURLINGTON ZONING AND SUBDIVISION ORDINANCE.

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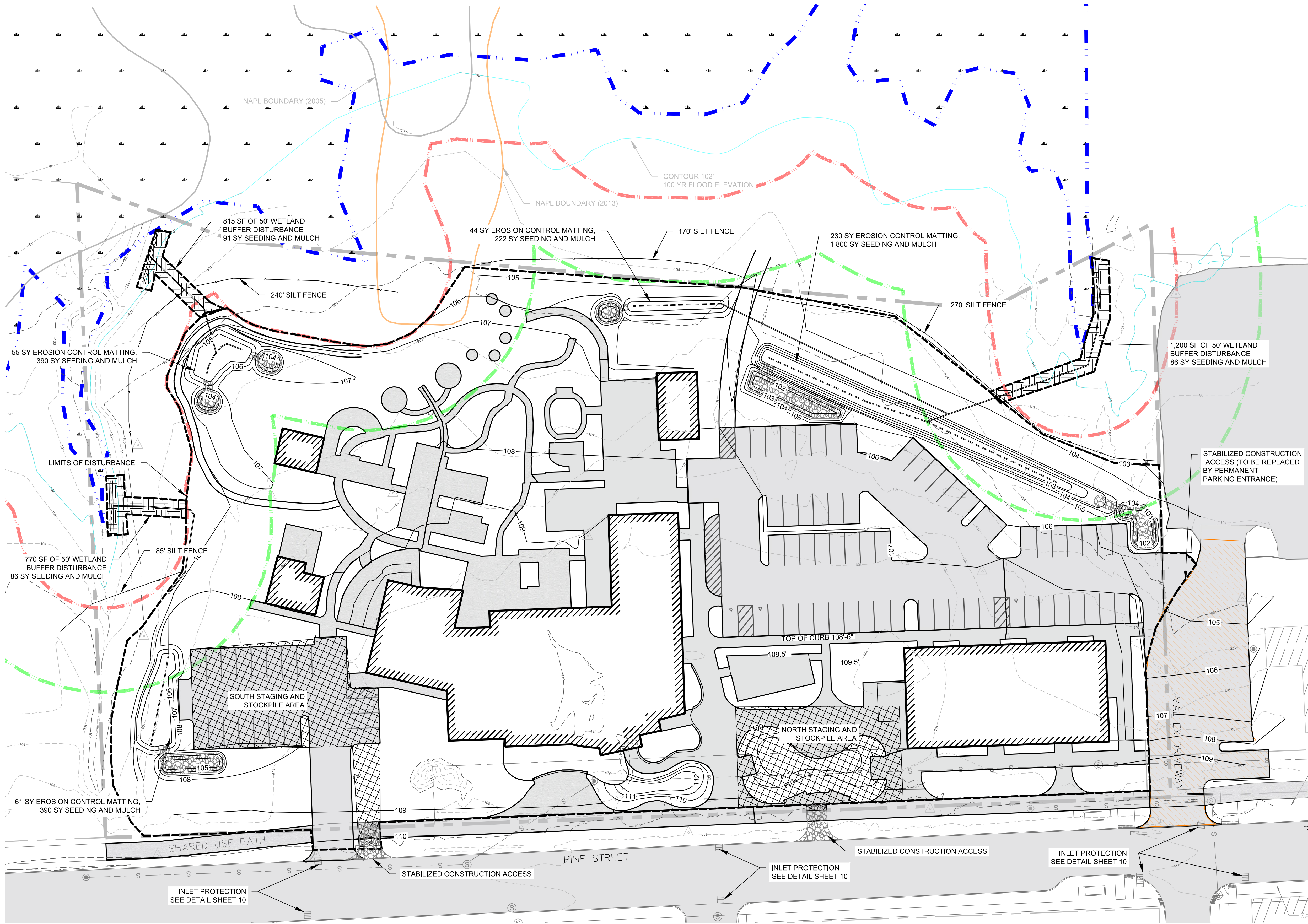
**STONE ENVIRONMENTAL**

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SILT BATHHOUSE & 453 PINE STREET

ZONING & PARKING SITE PLAN

BURLINGTON VERMONT



- LEGEND**
- 100 ——— EXISTING MAJOR CONTOUR
 - 99 ——— EXISTING MINOR CONTOUR
 - 100 - - - - - PROPOSED CONTOUR
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 - — — — — PARCEL BOUNDARIES
 - ——— FENCE
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NOTE:
UNSTABLE CONSTRUCTION SOILS SHALL NOT RUN OFF INTO THE BIORETENTION AREAS. FOREBAYS AND BIORETENTION AREAS SHALL BE DISCONNECTED DURING CONSTRUCTION AND UNSTABLE SOILS MANAGED WITH EROSION CONTROL MEASURES.

TOTAL 50' WETLAND BUFFER DISTURBANCE = 2,790 SF

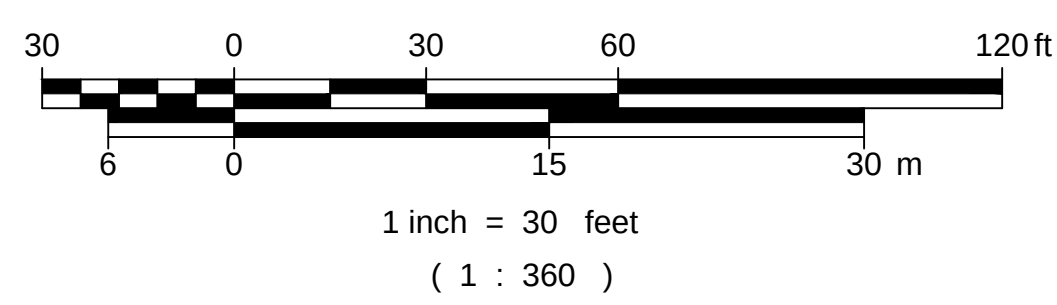
1.98 ACRES OF CLEARING REQUIRED

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REVISIONS

DRAWING SCALE



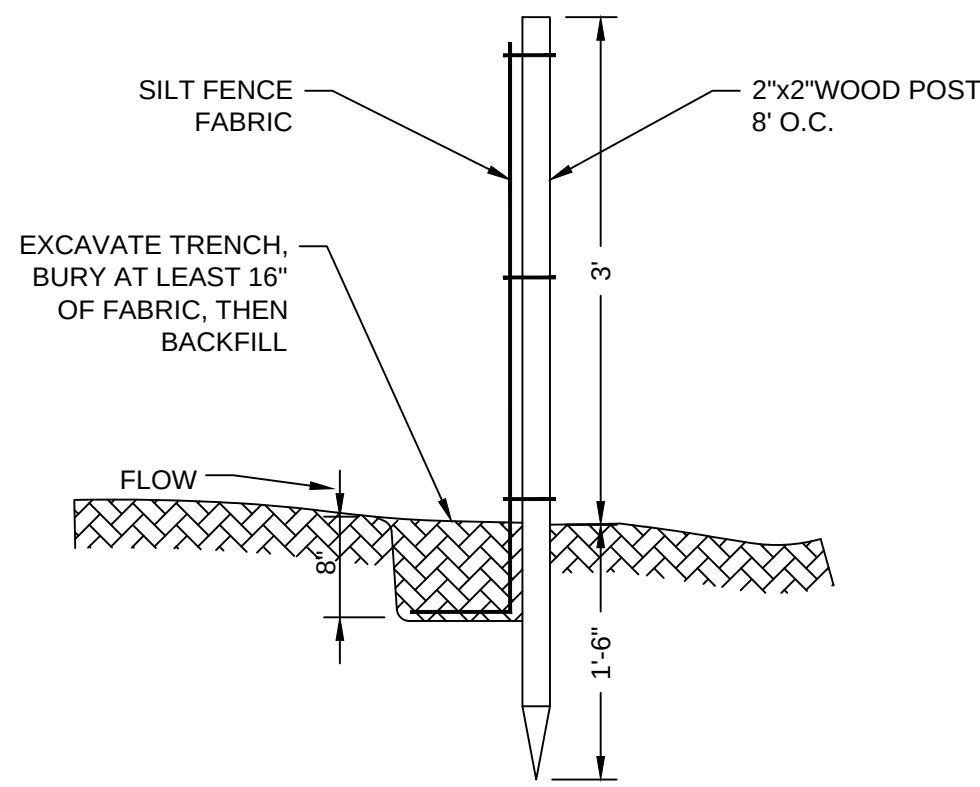
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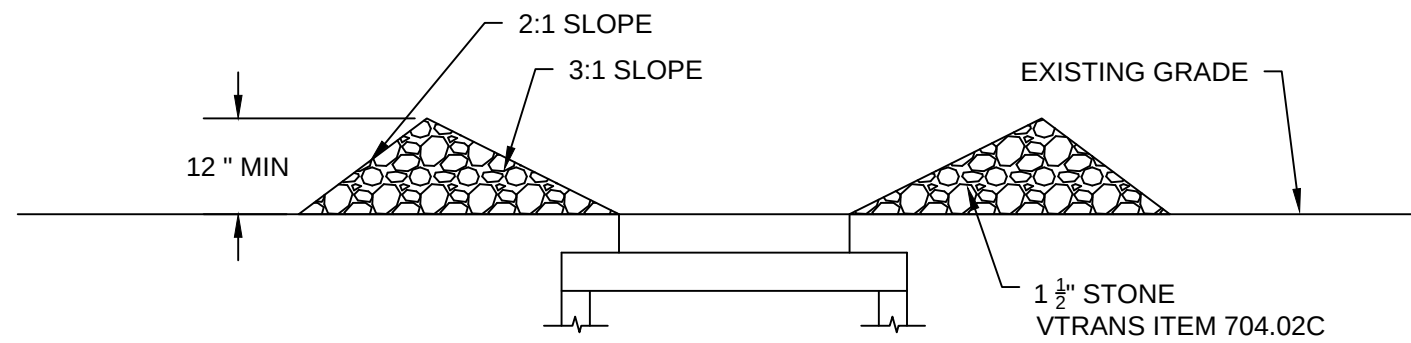
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EROSION PREVENTION & SEDIMENT CONTROL PLAN
BURLINGTON VERMONT

SHEET NO.

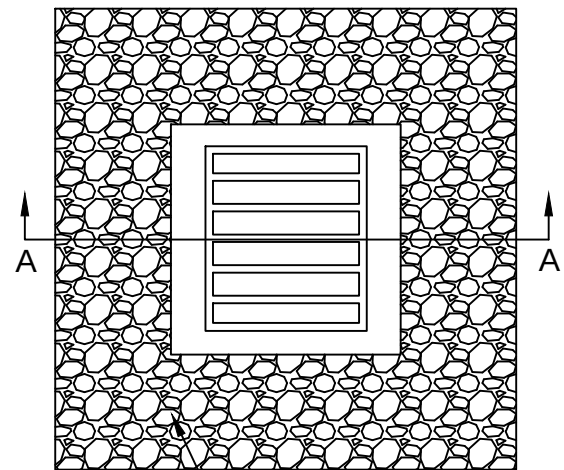
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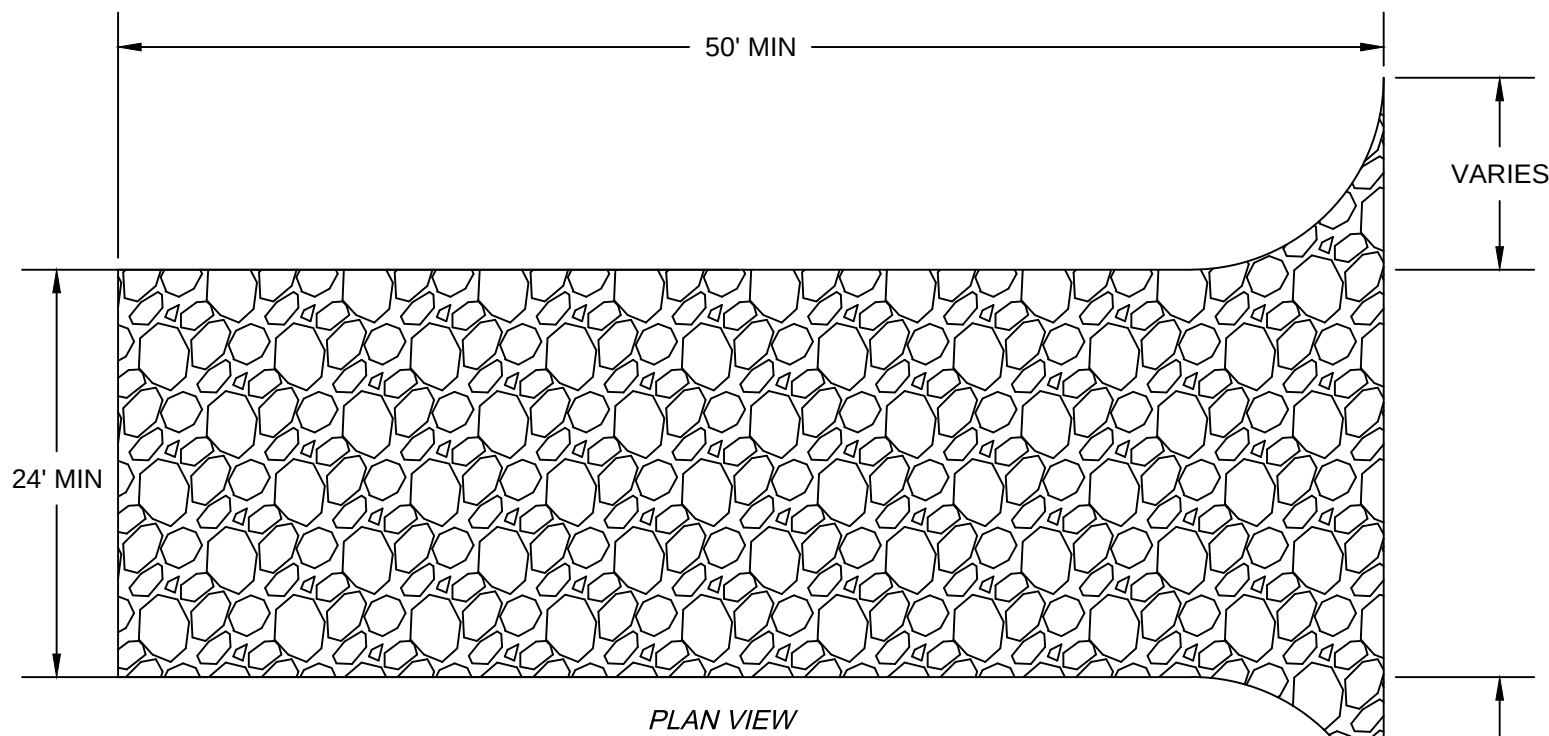
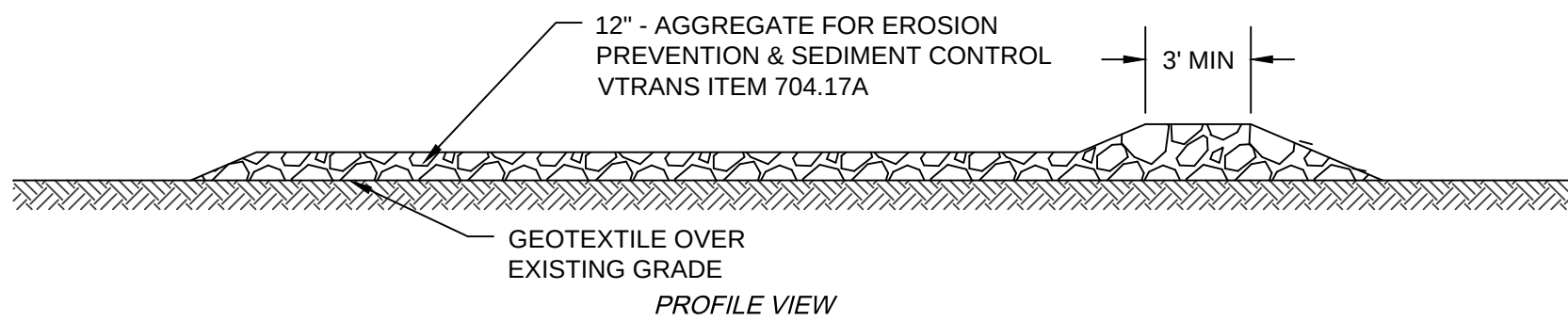
SILT FENCE DETAIL
NOT TO SCALE



SECTION A-A

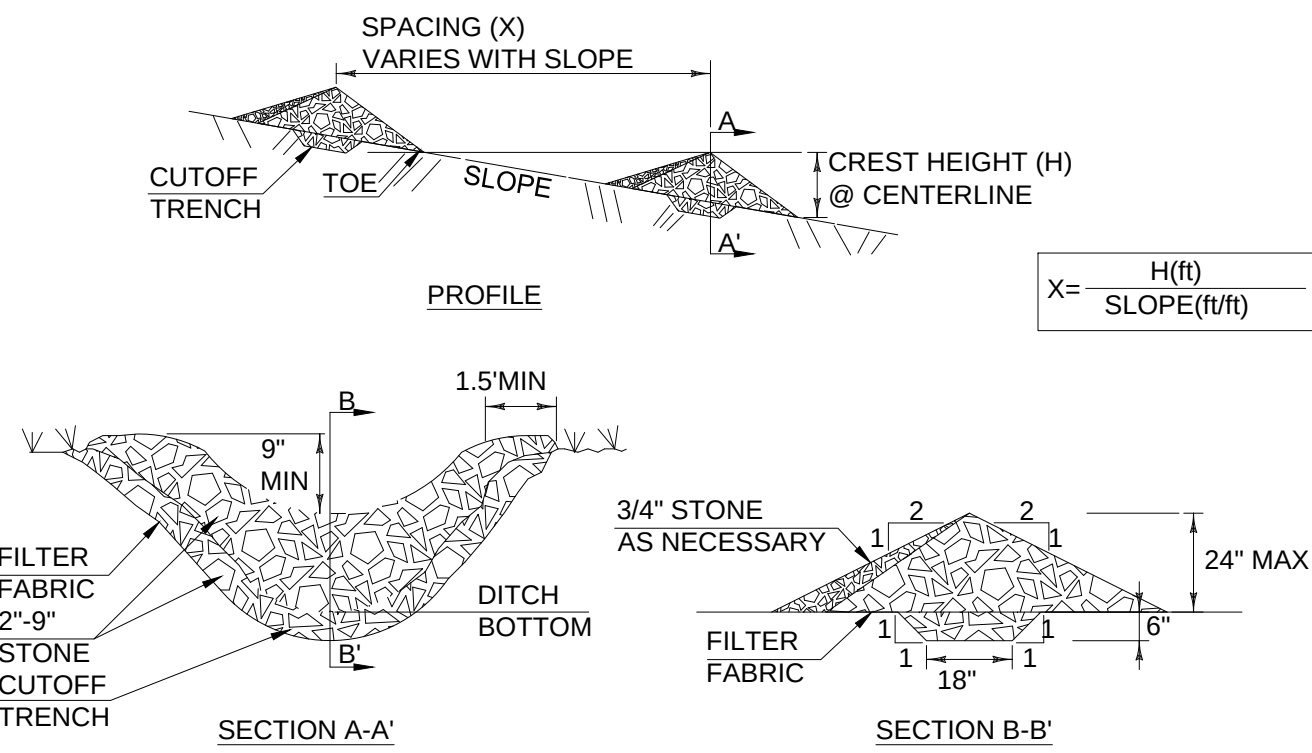


STONE INLET PROTECTION
NOT TO SCALE

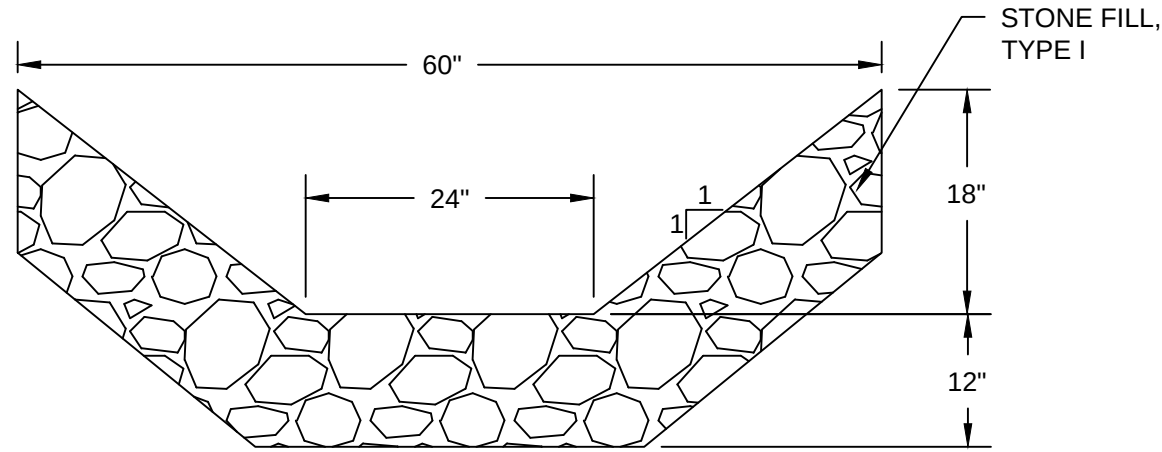


STONE VEHICLE TRACKING PAD
NOT TO SCALE

- NOTES:**
1. TRACKING PAD SHALL BE INSTALLED PRIOR TO SITE DISTURBANCE.
 2. TRACKING PADS WILL REQUIRE PERIODIC CLEANING TO MAINTAIN EFFECTIVENESS, WHICH MAY INCLUDE REMOVAL AND RE-INSTALLATION OF STONE.
 3. STONE SHALL BE REPLACED WHEN STONE BECOMES BURIED OR SEDIMENT IS NOT BEING REMOVED EFFECTIVELY FROM TIRES.
 4. SEDIMENT TRACKED INTO ROADWAYS SHALL BE REMOVED IMMEDIATELY.



TYPICAL CHECK DAM DETAIL
NOT TO SCALE



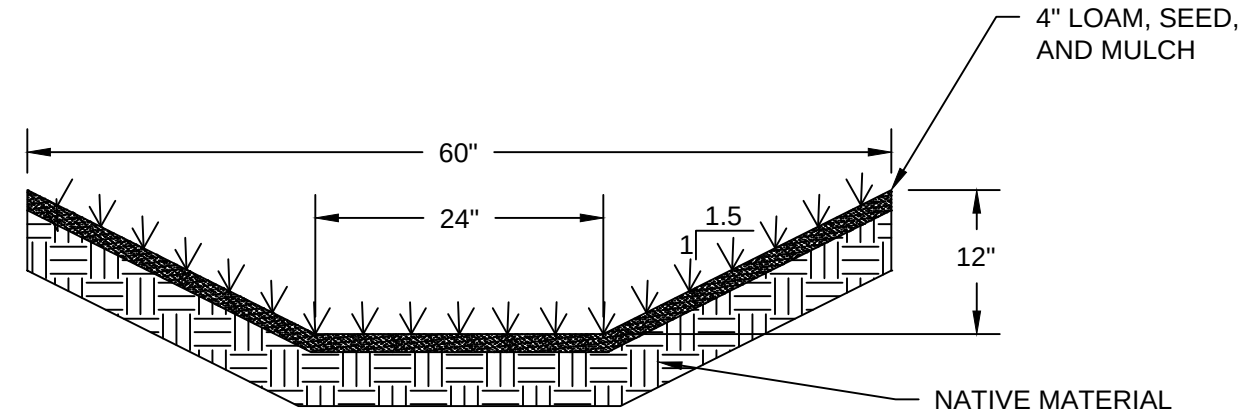
STONE LINED STORMWATER SWALE DETAIL
NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION.
2. CHECK DAMS SHALL BE SPACED SO THAT THE ELEVATION OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION AS THE TOE OF THE UPSTREAM DAM.
3. 3/4" FILTERING STONE MAY BE ADDED TO THE FACE OF THE CHECK DAM AS NECESSARY.
4. EXTEND THE STONE A MINIMUM OF 1.5' BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
5. PROTECT CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
6. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.

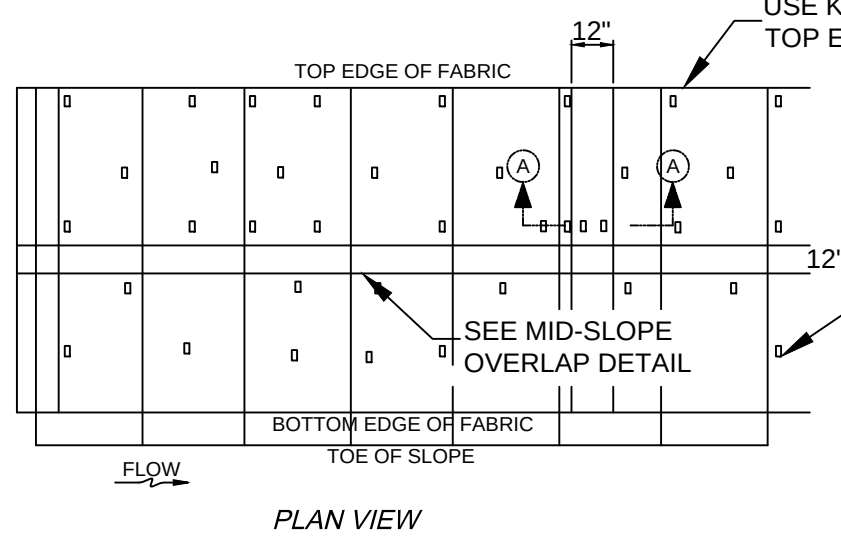
NOTES:

1. REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006-" FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.
2. THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR TEMPORARY STONE CHECK DAM, TYPE I (PAY ITEM 653.25)



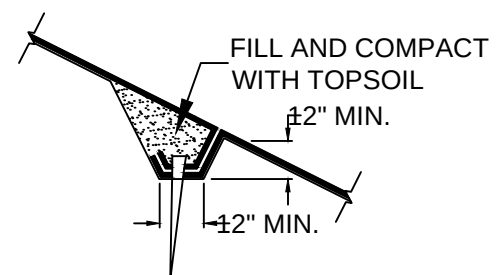
GRASSED STORMWATER SWALE DETAIL
NOT TO SCALE

UPSTREAM FABRIC OVERLAPS DOWNSTREAM FABRIC BY 12 INCHES (SEE OVERLAP DETAIL)

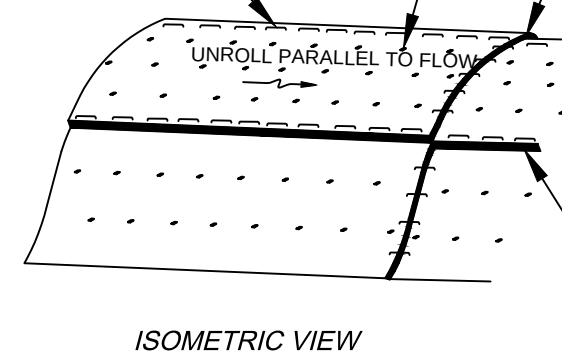


PLAN VIEW

SEE NOTE 3 REGARDING ALTERNATE FASTENING DEVICES

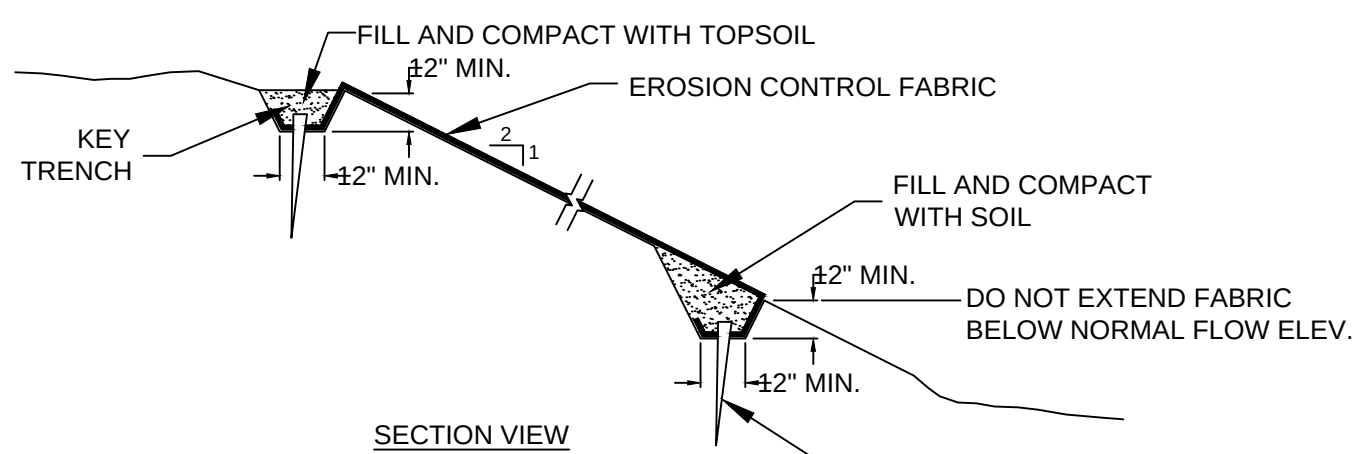


SECTION VIEW



ISOMETRIC VIEW

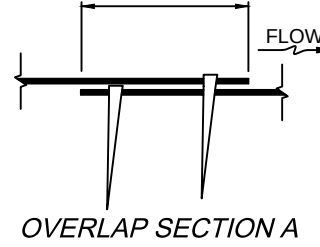
MID-SLOPE OVERLAP DETAIL



SECTION VIEW

SPACE WOOD STAKES EVERY 24-30 INCHES IN A DIAMOND SHAPED PATTERN

UPSTREAM FABRIC OVERLAPS DOWNSTREAM FABRIC BY 12 INCHES



OVERLAP SECTION A



WOOD STAKES

STAKES MAY BE MADE BY SAWING A 2 x 4 DIAGONALLY TO PRODUCE 2 DEAD STOUT STAKES.

NOTES:

1. PREPARE SOIL SURFACE AND INSTALL ACCORDING TO THIS DETAIL AND SPECIFICATIONS.
2. EROSION CONTROL FABRIC MUST BE MADE OF NATURAL, BIODEGRADABLE FIBERS, AND SHOULD NOT INCLUDE MATERIALS OR WELDED PLASTIC OR 'BIODEGRADABLE PLASTIC' NETTING OR THREAD.
3. ALTERNATE FASTENING DEVICES REQUIRE ENGINEER'S APPROVAL BEFORE USE. ALL FASTENERS MUST BE MADE OF WOOD PRODUCTS; PLASTIC OR BIODEGRADABLE COMPOSITE PRODUCTS WILL NOT BE ACCEPTED.

DRAWING CREDITS

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DRAWN BY: APH
CHECKED ON: 05/22/2023
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DRAWING SCALE



STONE ENVIRONMENTAL

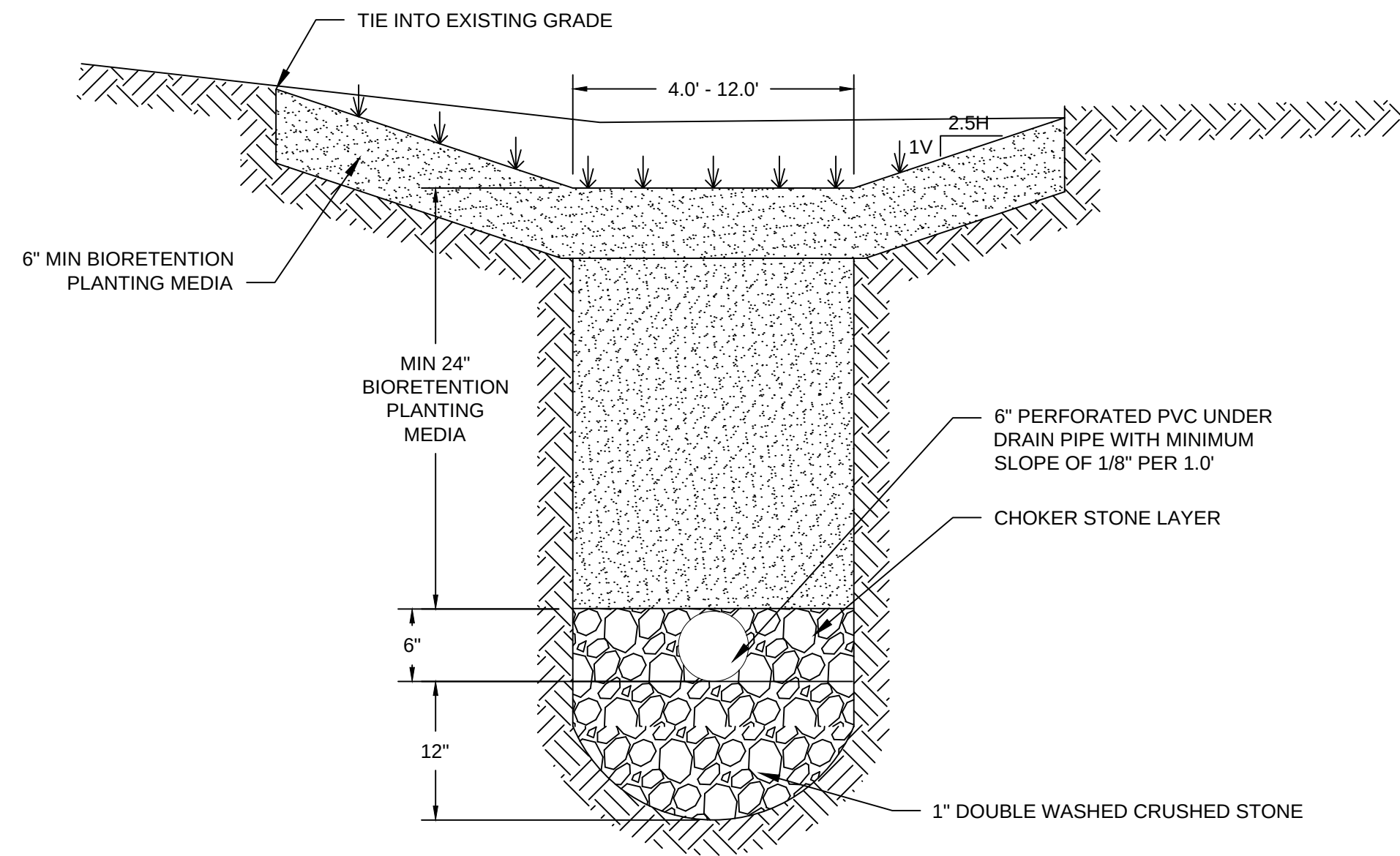
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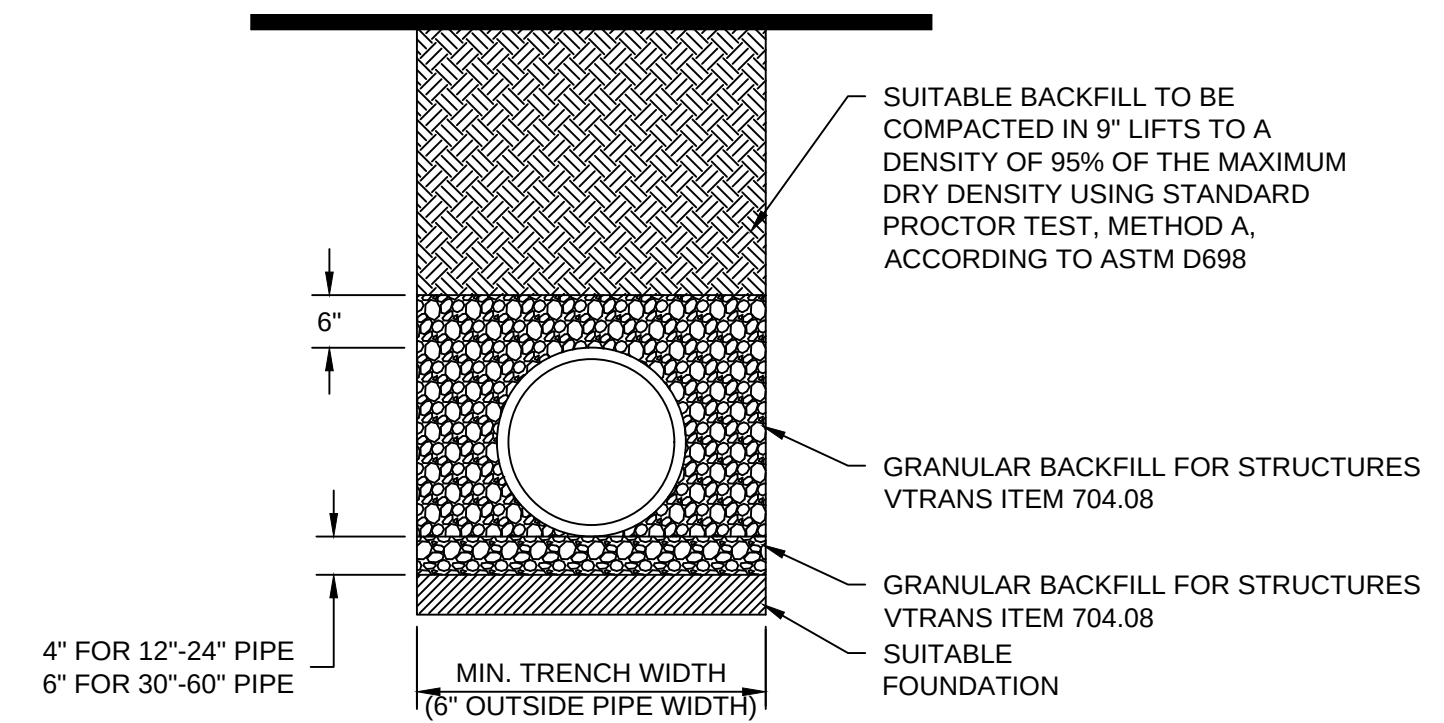
EROSION PREVENTION & SEDIMENT CONTROL DETAILS
BURLINGTON VERMONT

SHEET NO.

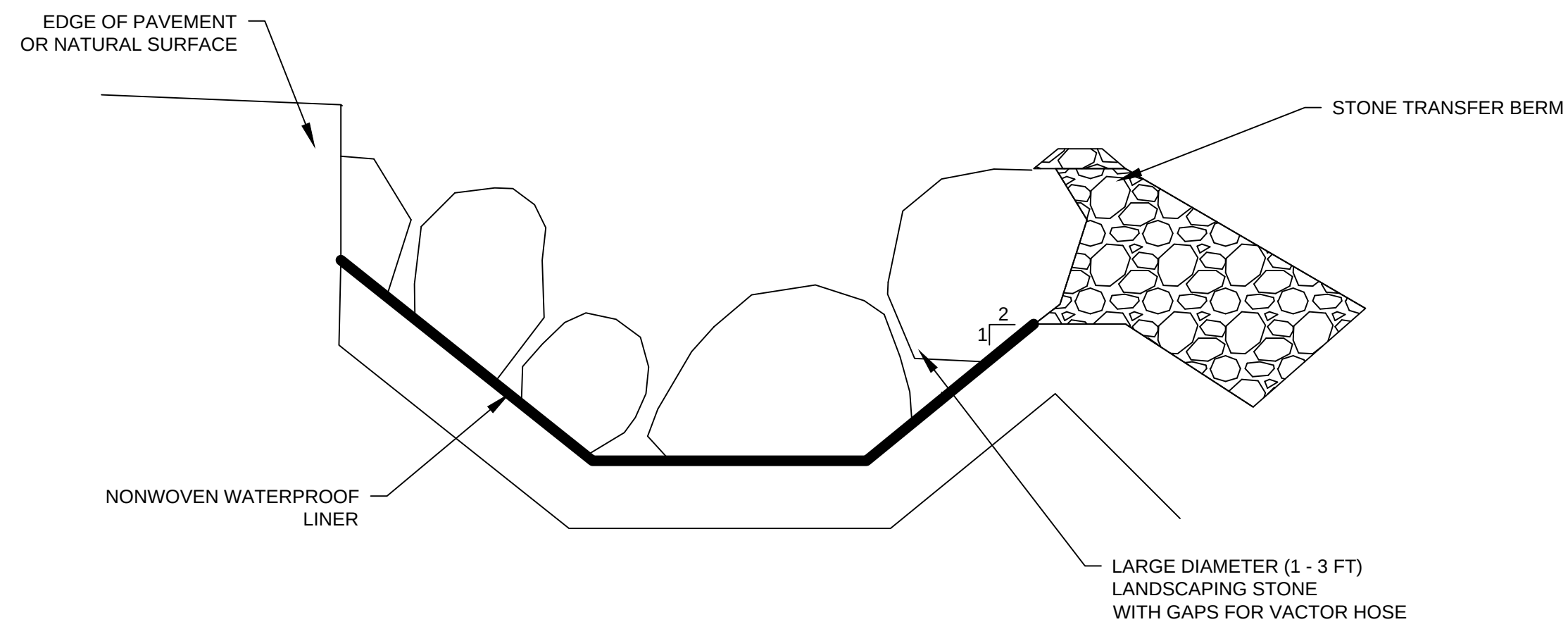
C7



BIORETENTION WITH UNDERDRAIN DETAIL
NOT TO SCALE



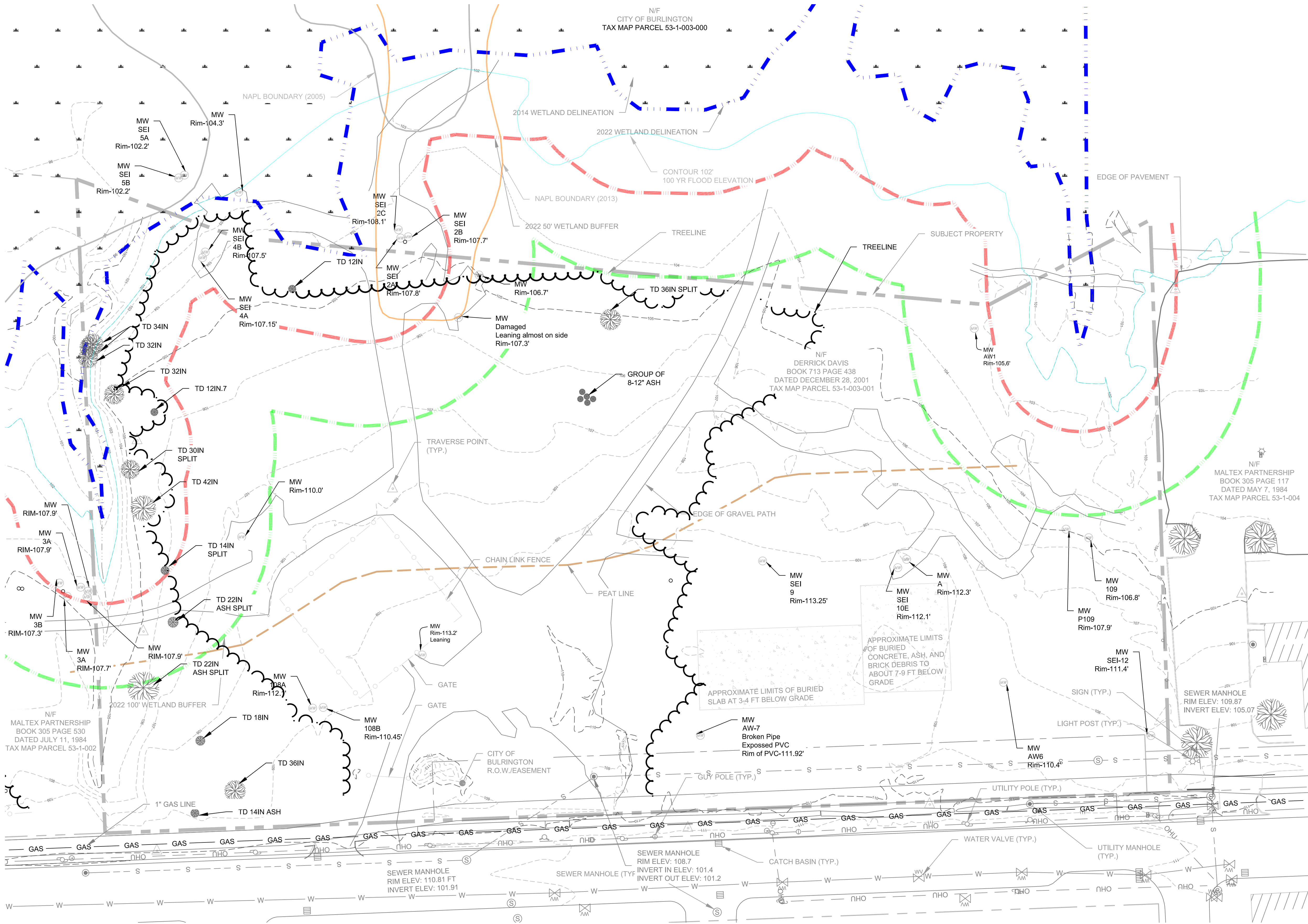
TYPICAL PIPE TRENCH DETAIL
NOT TO SCALE



STONE LINED FOREBAY DETAIL
NOT TO SCALE

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	1					
	2					
	3					
	4					
DRAWING SCALE						

C9



- LEGEND**
- 100 ——— EXISTING MAJOR CONTOUR
 - 99 ——— EXISTING MINOR CONTOUR
 - — — — — EDGE OF ROAD/PATH
 - — — — — PEAT LINE
 - — — — — PARCEL BOUNDARIES
 - — — — — FENCE
 - — — — — EXISTING STORMWATER SYSTEM
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 - — — — — SEWER LINE
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 - — — — — GAS VALVE
 - — — — — HYDRANT
 - — — — — UTILITY POLE
 - — — — — GUY POLE
 - — — — — LIGHT POST
 - — — — — IRON ROD FOUND
 - — — — — MONITORING WELL

LOT INFORMATION:

OWNER: DERRICK DAVIS CHARITABLE REM TRUST
1381 WILLISTON ROAD
SOUTH BURLINGTON, VT

APPLICANT: 453 PINE ENTERPRISES, LLC

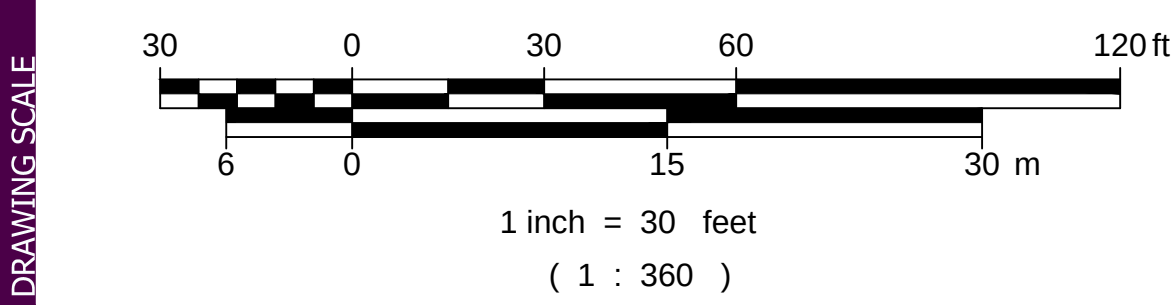
DEED: PART OF BOOK 713, PAGE 438

SPAN #: 114-035-18312

CITY OF BURLINGTON ZONING DISTRICT: ENTERPRISE DISTRICT

EXISTING LOT AREA: 4.8 ACRES±

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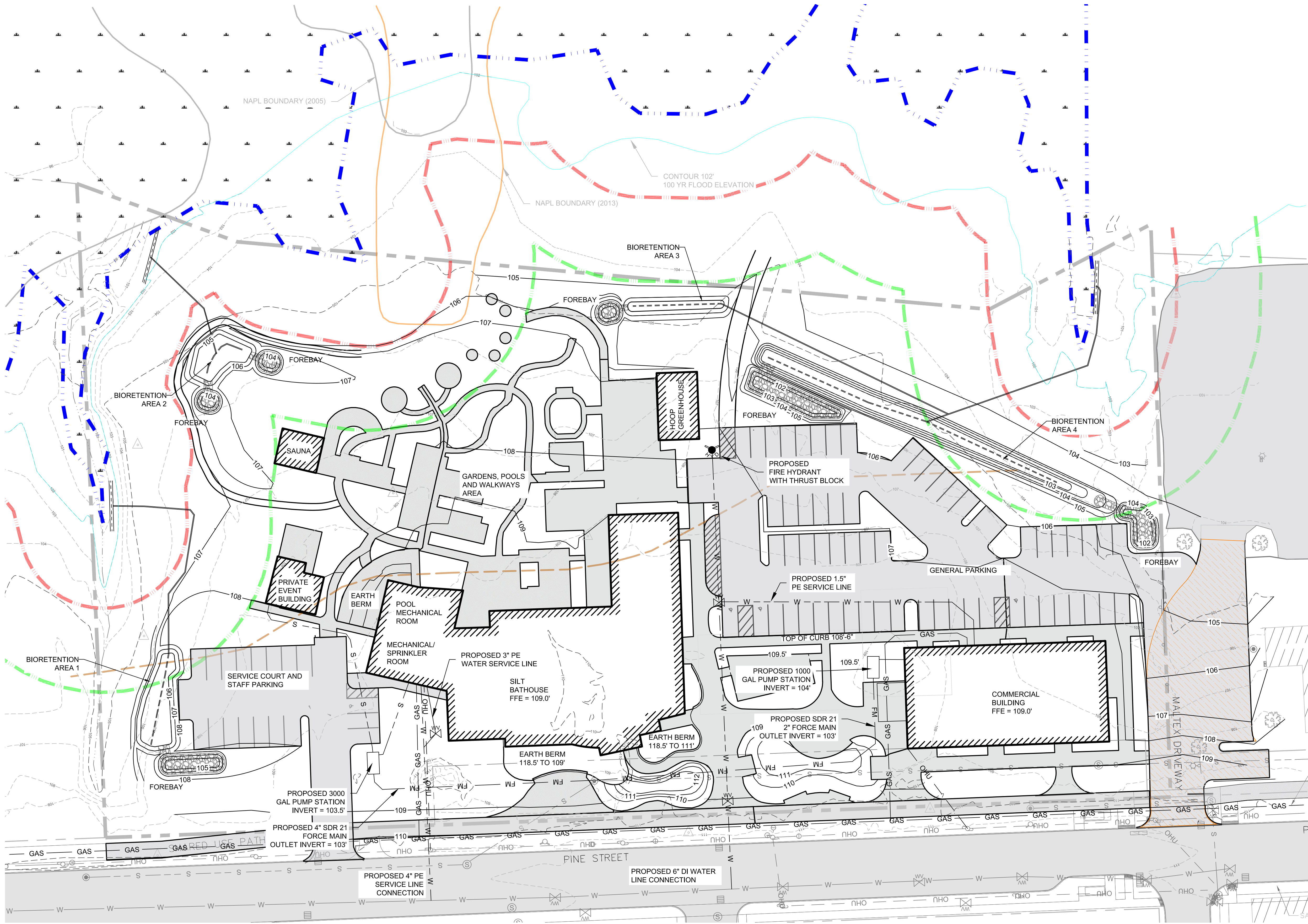
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SILT BATHHOUSE & 453 PINE STREET

EXISTING CONDITIONS SITE PLAN

BURLINGTON VERMONT



- LEGEND**
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 - 99 ——— EXISTING MINOR CONTOUR
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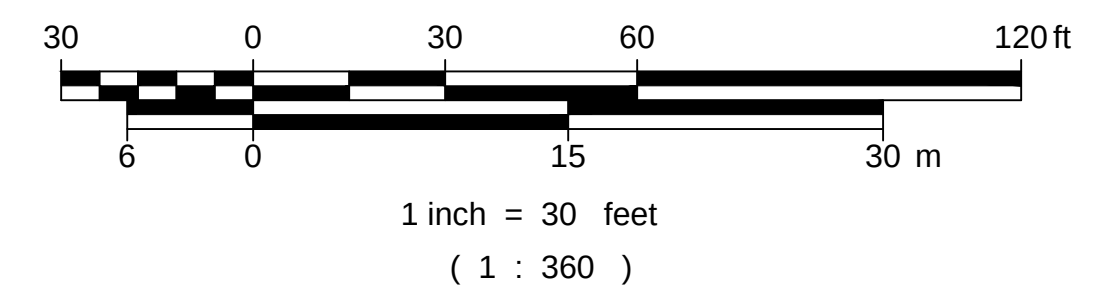
STORMWATER
NO STORMWATER WILL BE ENTERING THE CSO SYSTEM AS A RESULT OF THIS PROJECT. ALL STORMWATER DISCHARGES ARE TREATED FOR WATER QUALITY VOLUME AND DISCHARGED TO THE WEST OF THE PROPERTY.

- BIORETENTION 1
- BIORETENTION 2
- BIORETENTION 3
- BIORETENTION 4

WATER SUPPLY
• ONE 4" WATER LINE TAPPED INTO CITY OF BURLINGTON 12" WATER MAIN FOR SPRINKLER SYSTEM AND POTABLE WATER SUPPLY TO THE SILT BATHHOUSE BUILDING. SEPARATE 3" LINE BRANCHES OFF OF 4". WATER LINE TAP SHALL MEET THE SPECIFICATION OF THE CITY OF BURLINGTON DPW ENGINEER.
• ONE 6" DUCTILE IRON WATER LINE TAPPED INTO CITY OF BURLINGTON 12" WATER MAIN FOR HYDRANT AND 1.5" SERVICE LINE TO 453 PINE COMMERCIAL BUILDING. WATER LINE TAP SHALL MEET THE SPECIFICATION OF THE CITY OF BURLINGTON DPW ENGINEER.

WASTEWATER
• WASTEWATER CAPACITY IS REQUESTED FOR 2965 GPD
• 3000 GALLON PUMPSTATION SERVICING MAIN SILT BATHHOUSE BUILDING AND PRIVATE EVENT BUILDING. THIS WILL INCLUDE 2 PUMPING UNITS AND DISCHARGE TO THE EXISTING SEWER MANHOLE AS SHOWN.
• 453 PINE COMMERCIAL BUILDING TO BE SERVICED BY A 1000 GAL PUMPSTATION PUMPING TO THE SAME SEWER MANHOLE.
• BOTH PUMPSTATIONS TO BE OUTFITTED WITH SURCHARGE FLOATS IN DISCHARGE MANHOLE TO SWITCH OFF PUMPING DURING LARGE STORMS PER CITY OF BURLINGTON DPW ENGINEER RECOMMENDATIONS.

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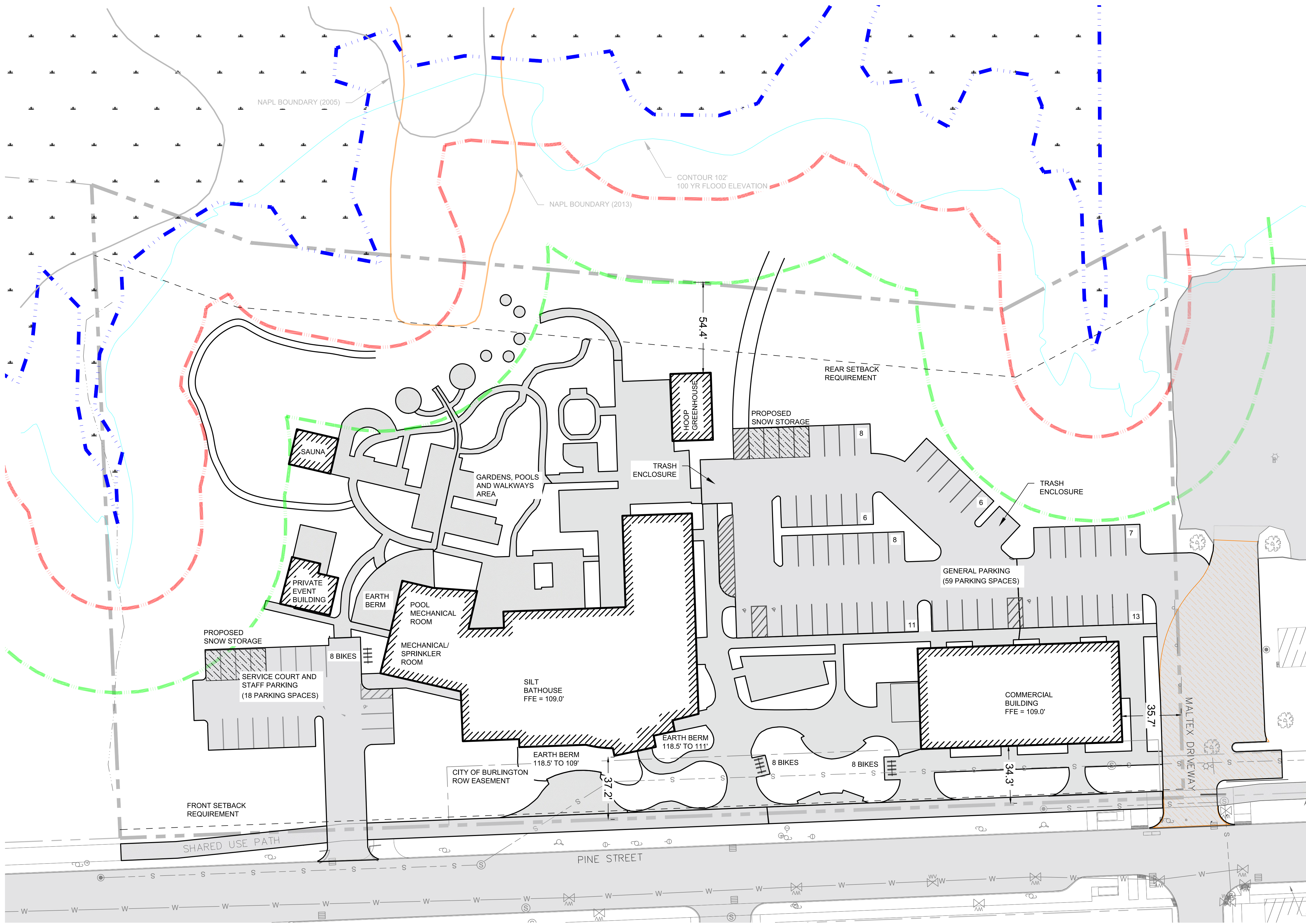
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SILT BATHHOUSE & 453 PINE STREET

PROPOSED CONDITIONS SITE PLAN

BURLINGTON VERMONT

SHEET NO. **C4**



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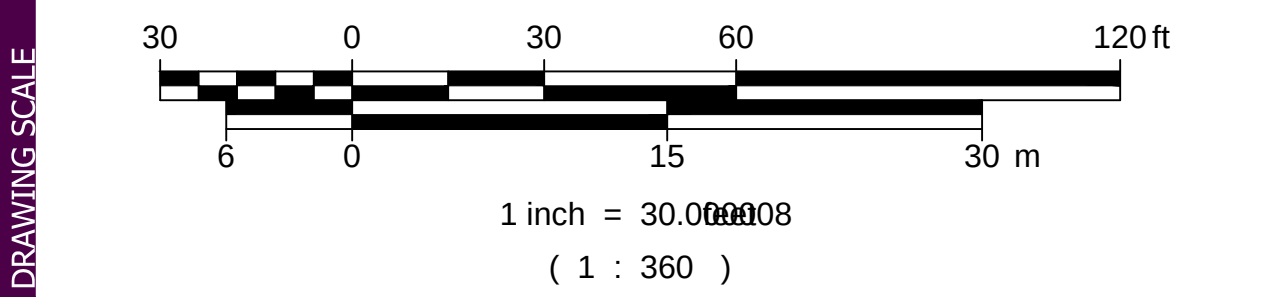
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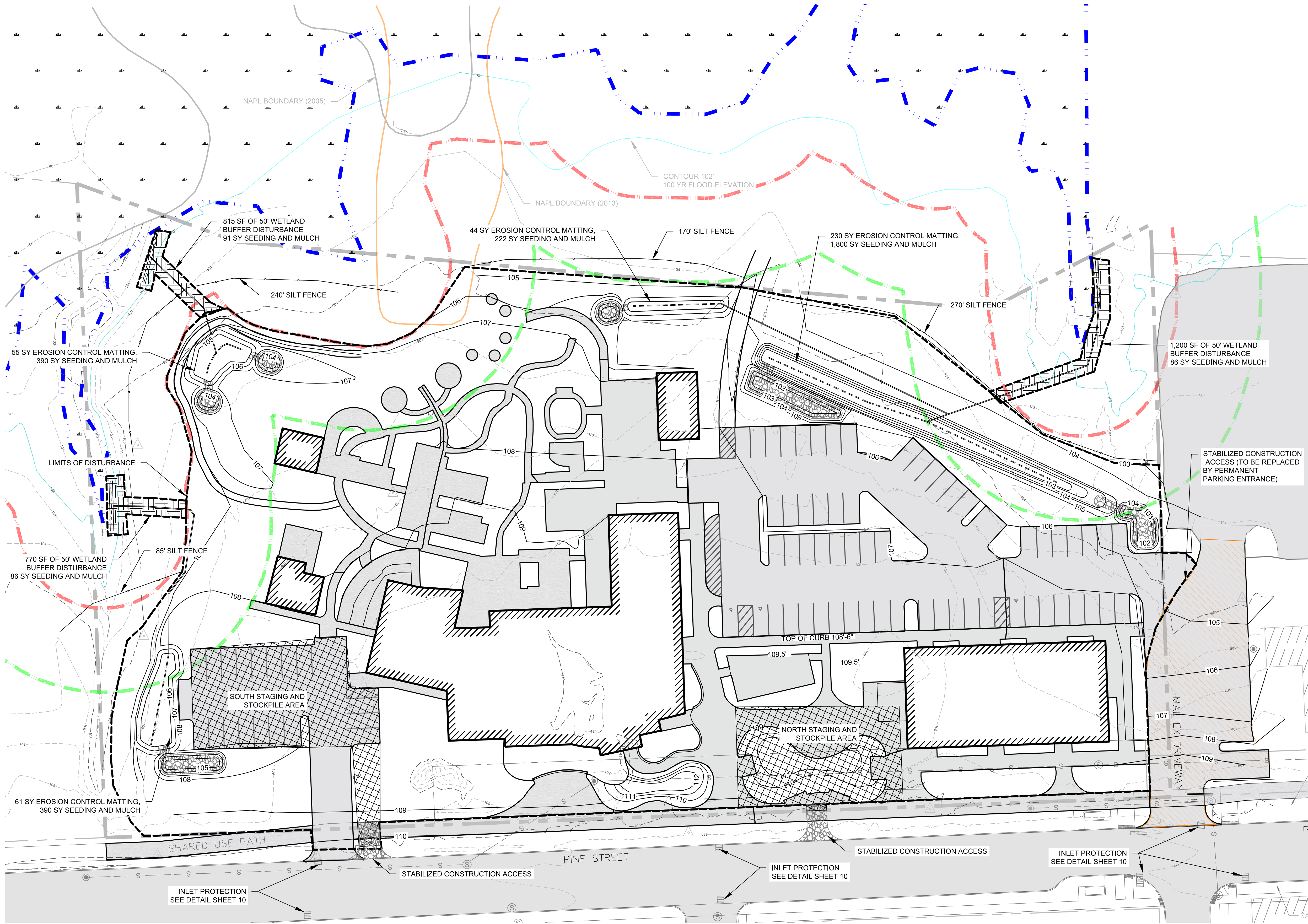
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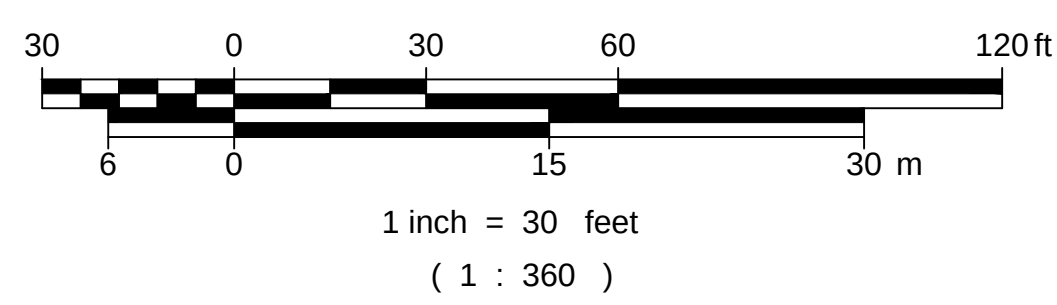
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REVISIONS

DRAWING SCALE



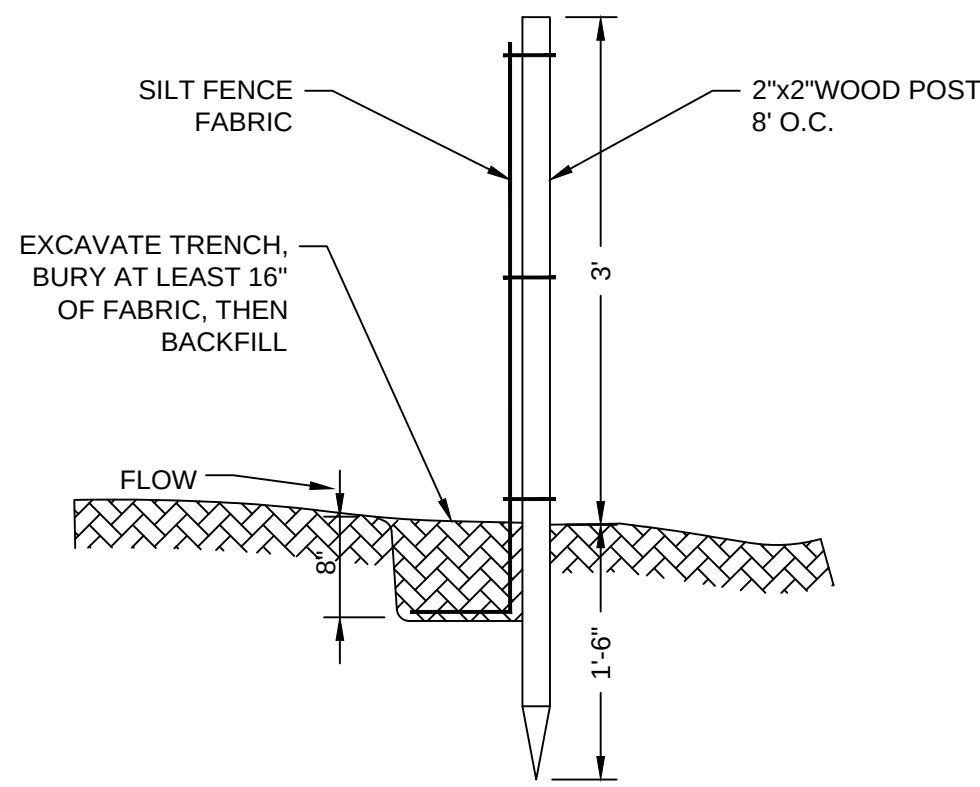
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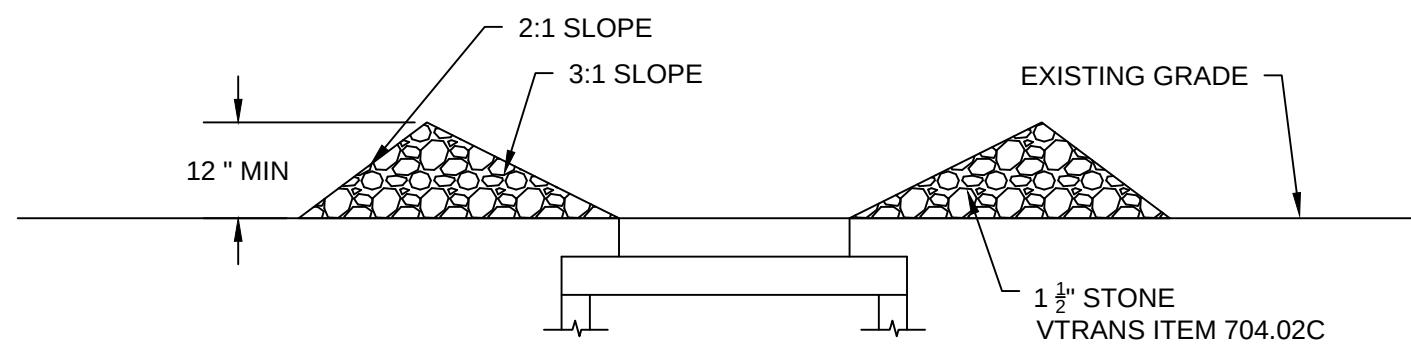
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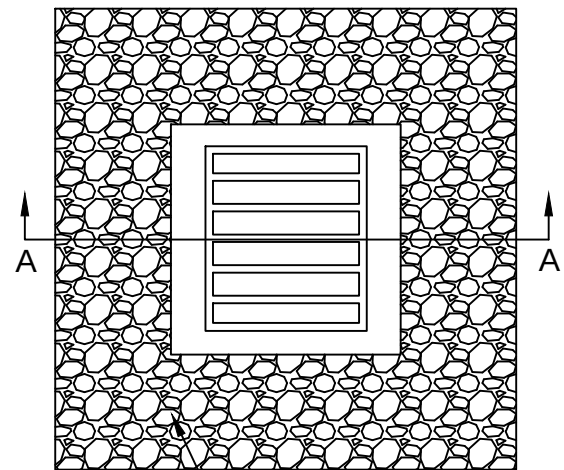
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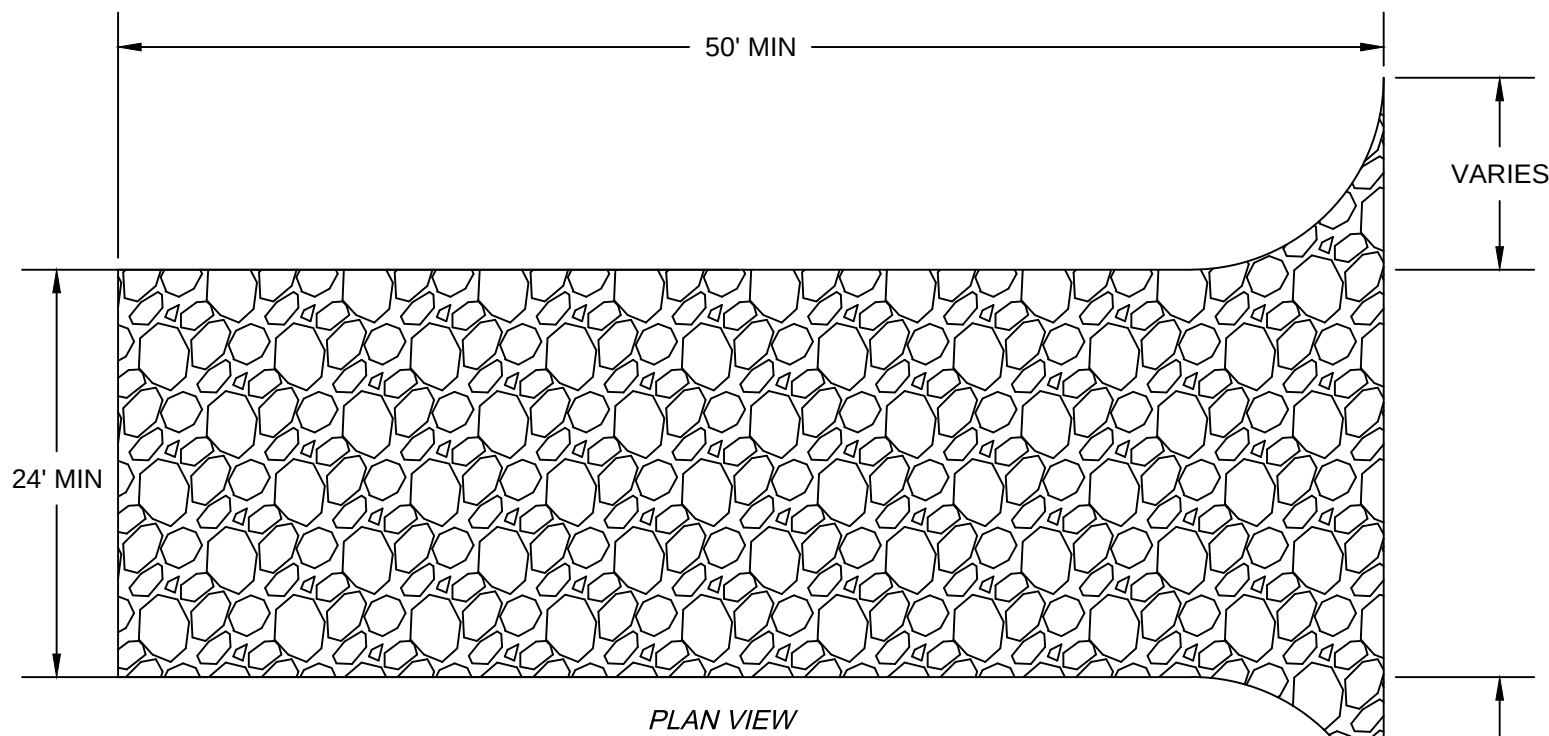
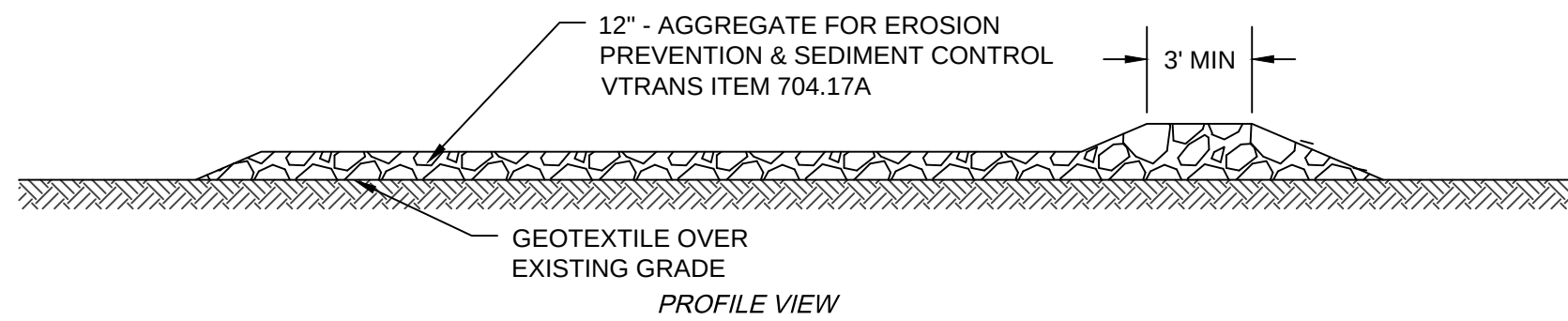
SILT FENCE DETAIL
NOT TO SCALE



SECTION A-A

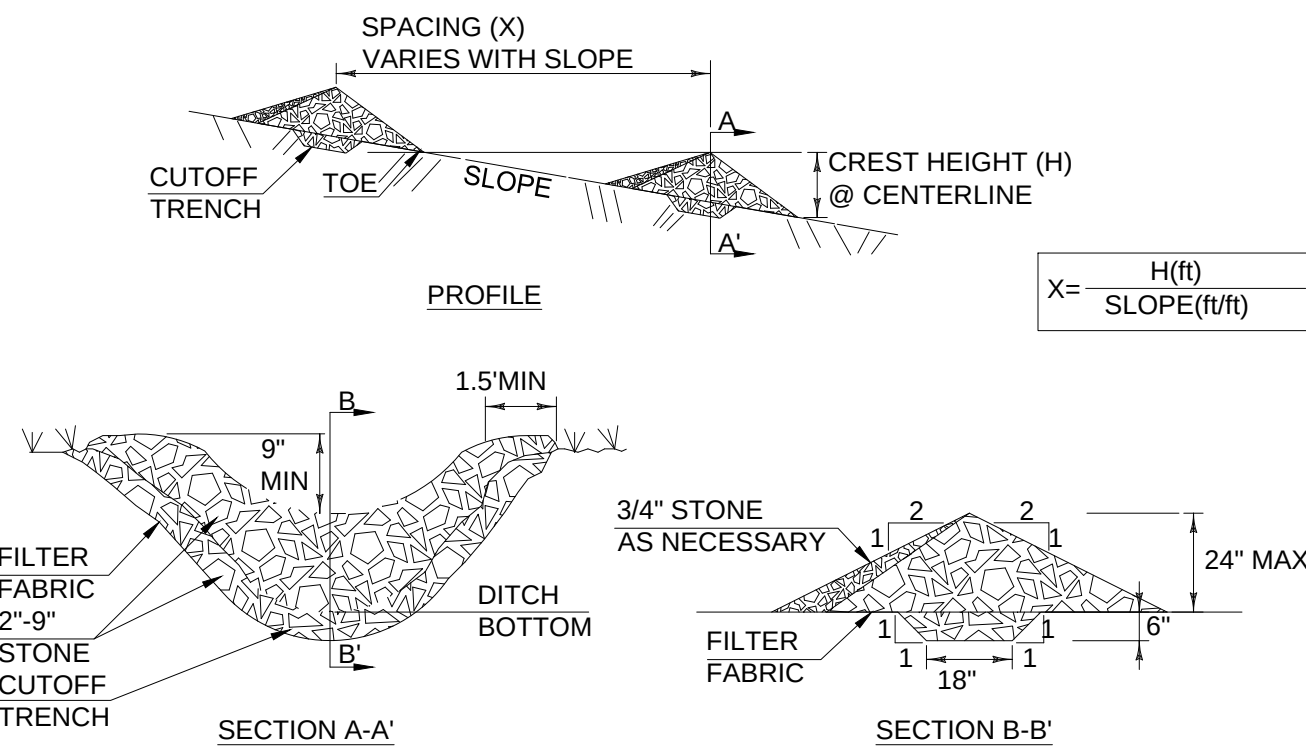


STONE INLET PROTECTION
NOT TO SCALE

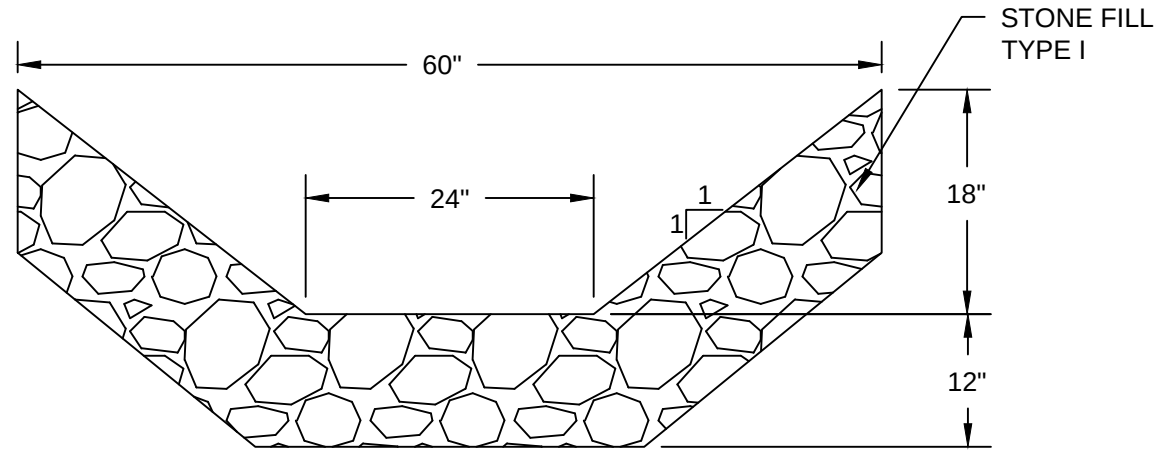


STONE VEHICLE TRACKING PAD
NOT TO SCALE

- NOTES:**
1. TRACKING PAD SHALL BE INSTALLED PRIOR TO SITE DISTURBANCE.
 2. TRACKING PADS WILL REQUIRE PERIODIC CLEANING TO MAINTAIN EFFECTIVENESS, WHICH MAY INCLUDE REMOVAL AND RE-INSTALLATION OF STONE.
 3. STONE SHALL BE REPLACED WHEN STONE BECOMES BURIED OR SEDIMENT IS NOT BEING REMOVED EFFECTIVELY FROM TIRES.
 4. SEDIMENT TRACKED INTO ROADWAYS SHALL BE REMOVED IMMEDIATELY.



TYPICAL CHECK DAM DETAIL
NOT TO SCALE



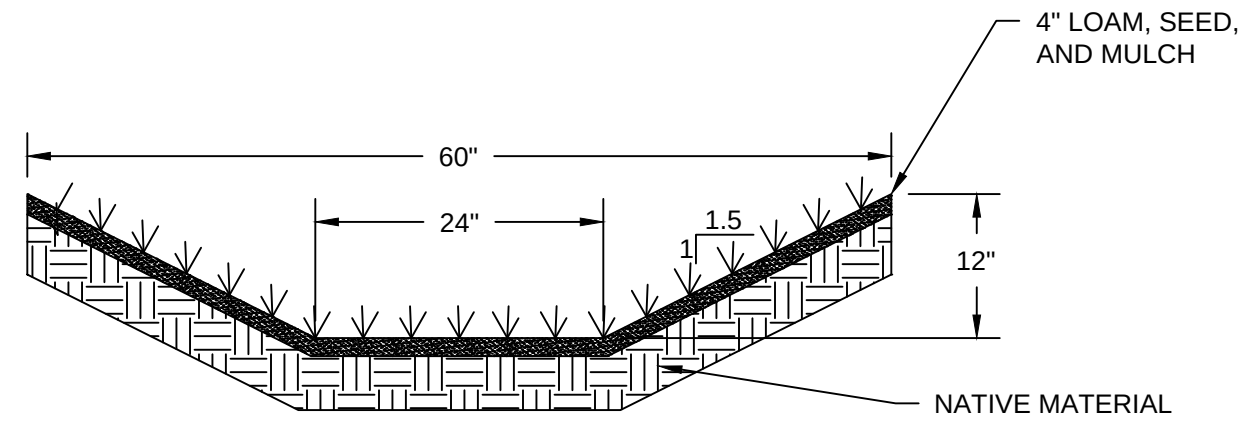
STONE LINED STORMWATER SWALE DETAIL
NOT TO SCALE

CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION.
2. CHECK DAMS SHALL BE SPACED SO THAT THE ELEVATION OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION AS THE TOE OF THE UPSTREAM DAM.
3. 3/4" FILTERING STONE MAY BE ADDED TO THE FACE OF THE CHECK DAM AS NECESSARY.
4. EXTEND THE STONE A MINIMUM OF 1.5' BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
5. PROTECT CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
6. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.

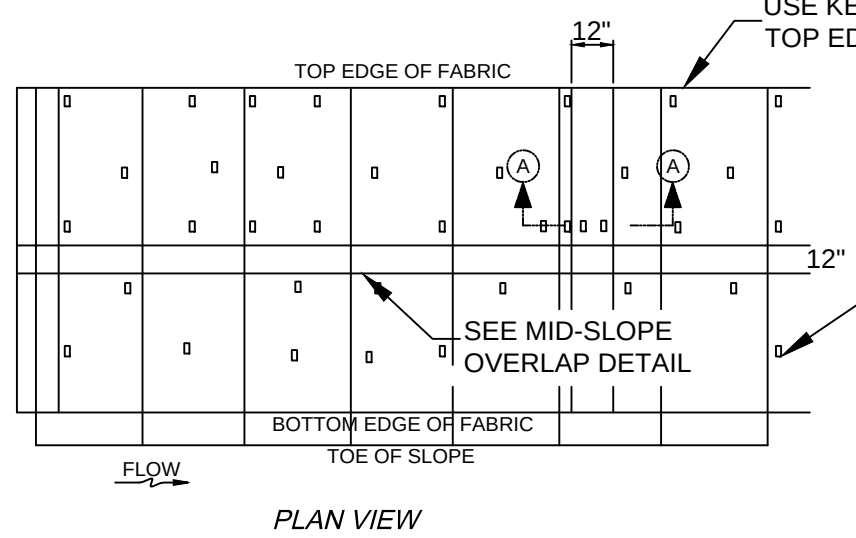
NOTES:

1. REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006-" FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.
2. THIS WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 653 FOR TEMPORARY STONE CHECK DAM, TYPE I (PAY ITEM 653.25)



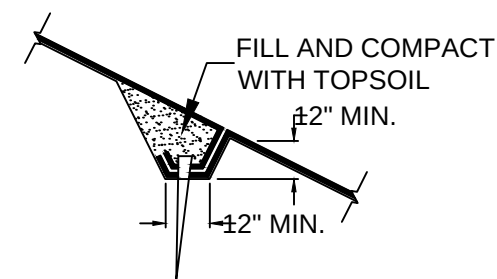
GRASSED STORMWATER SWALE DETAIL
NOT TO SCALE

UPSTREAM FABRIC OVERLAPS DOWNSTREAM FABRIC BY 12 INCHES (SEE OVERLAP DETAIL)

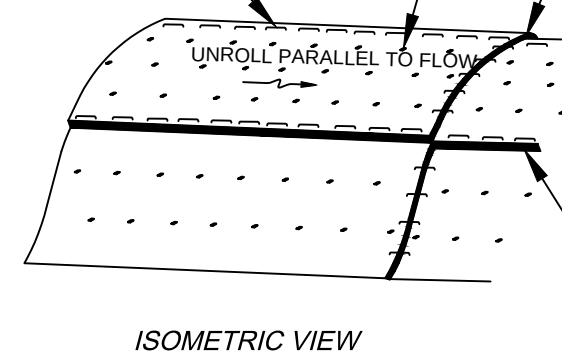


PLAN VIEW

SEE NOTE 3 REGARDING ALTERNATE FASTENING DEVICES

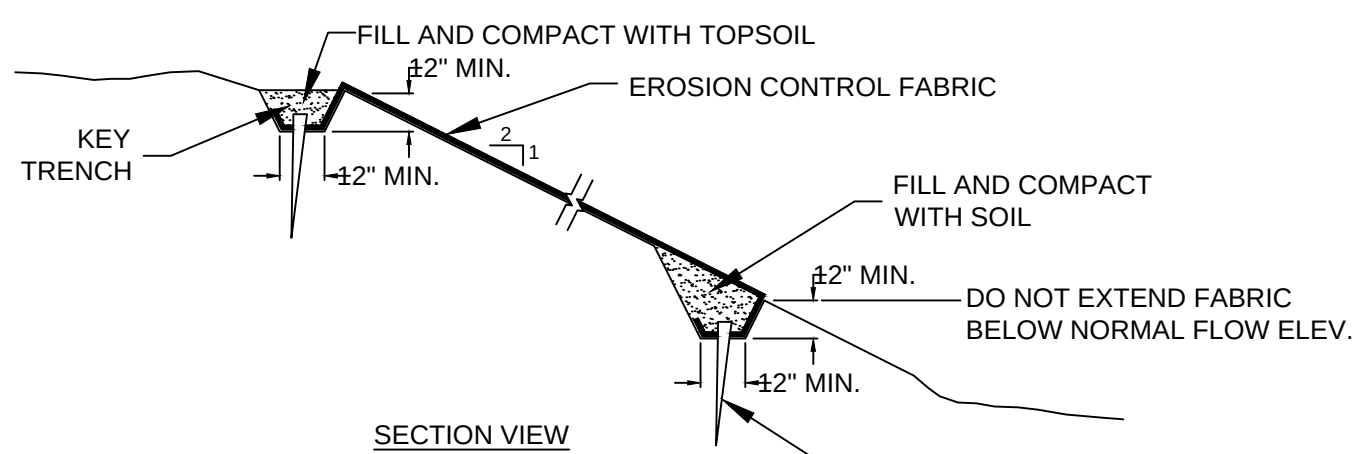


SECTION VIEW



ISOMETRIC VIEW

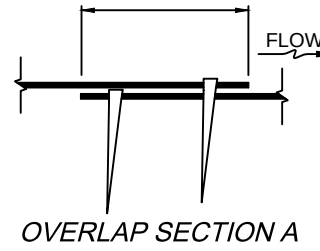
MID-SLOPE OVERLAP DETAIL



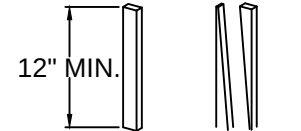
NOTES:

1. PREPARE SOIL SURFACE AND INSTALL ACCORDING TO THIS DETAIL AND SPECIFICATIONS.
2. EROSION CONTROL FABRIC MUST BE MADE OF NATURAL, BIODEGRADABLE FIBERS, AND SHOULD NOT INCLUDE MATERIALS OR WELDED PLASTIC OR 'BIODEGRADABLE PLASTIC' NETTING OR THREAD.
3. ALTERNATE FASTENING DEVICES REQUIRE ENGINEER'S APPROVAL BEFORE USE. ALL FASTENERS MUST BE MADE OF WOOD PRODUCTS; PLASTIC OR BIODEGRADABLE COMPOSITE PRODUCTS WILL NOT BE ACCEPTED.

UPSTREAM FABRIC OVERLAPS DOWNSTREAM FABRIC BY 12 INCHES



OVERLAP SECTION A



WOOD STAKES

DRAWING CREDITS

DRAWN ON: 05/22/2023
DRAWN BY: APH
CHECKED ON: 05/22/2023
CHECKED BY: PCL
PROJECT NO: 20221060

REVISIONS

#	DATE	DRWN	CHK'D	APP'D	DESCRIPTION

DRAWING SCALE



STONE ENVIRONMENTAL

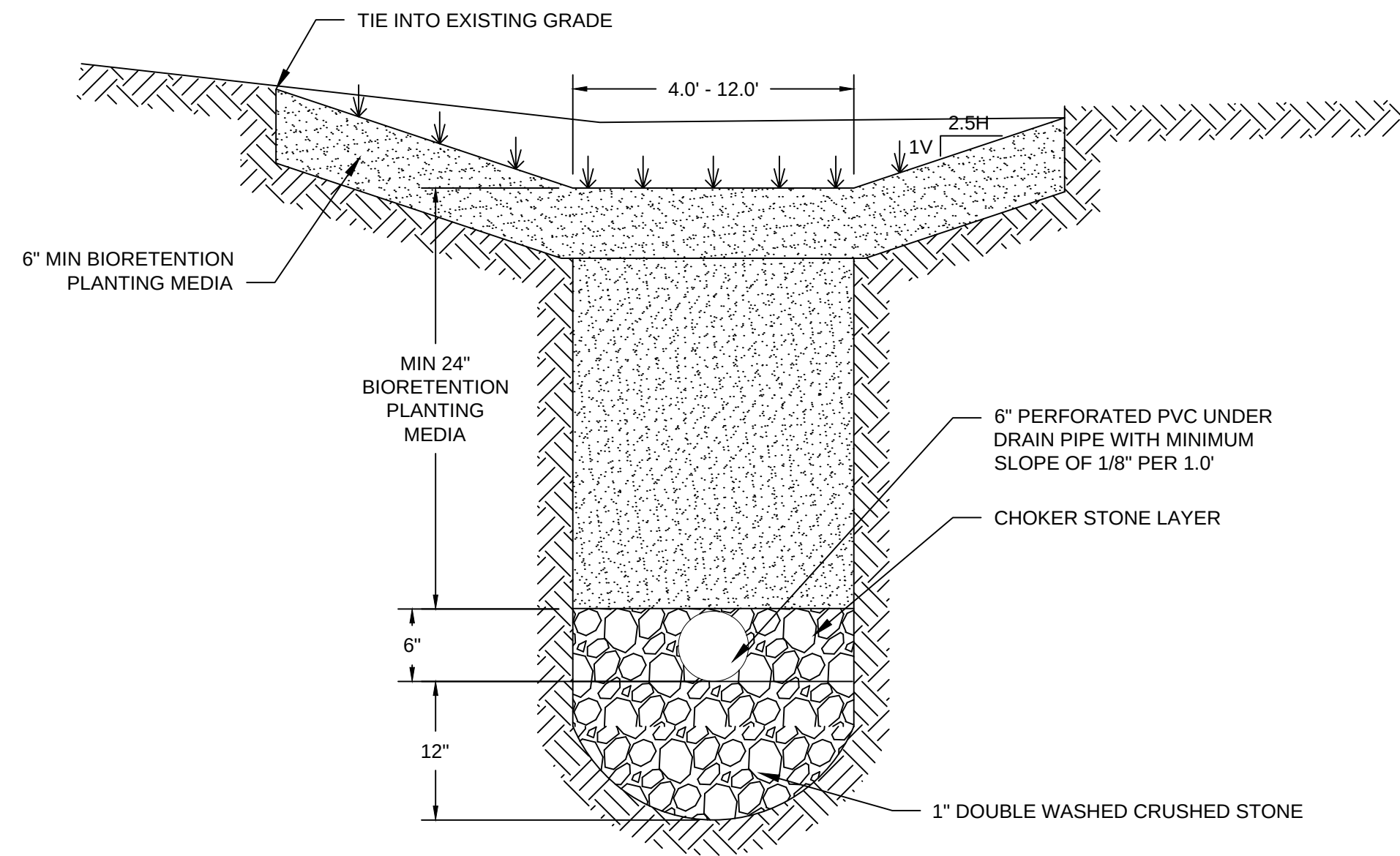
535 Stone Cutters Way / Montpelier / VT / 05602 / USA
802.229.4541 / info@stone-env.com / www.stone-env.com

SILT BATHHOUSE & 453 PINE STREET

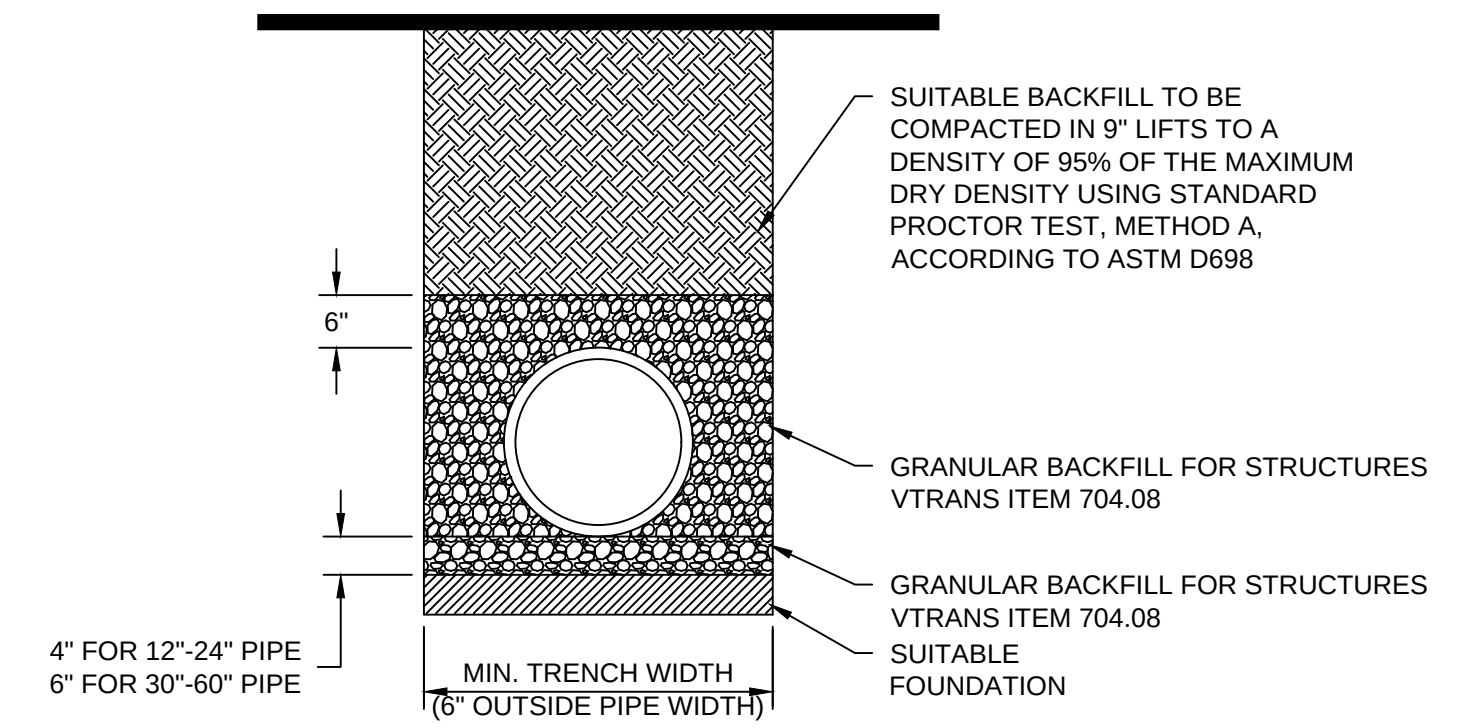
EROSION PREVENTION & SEDIMENT CONTROL DETAILS
BURLINGTON VERMONT

SHEET NO.

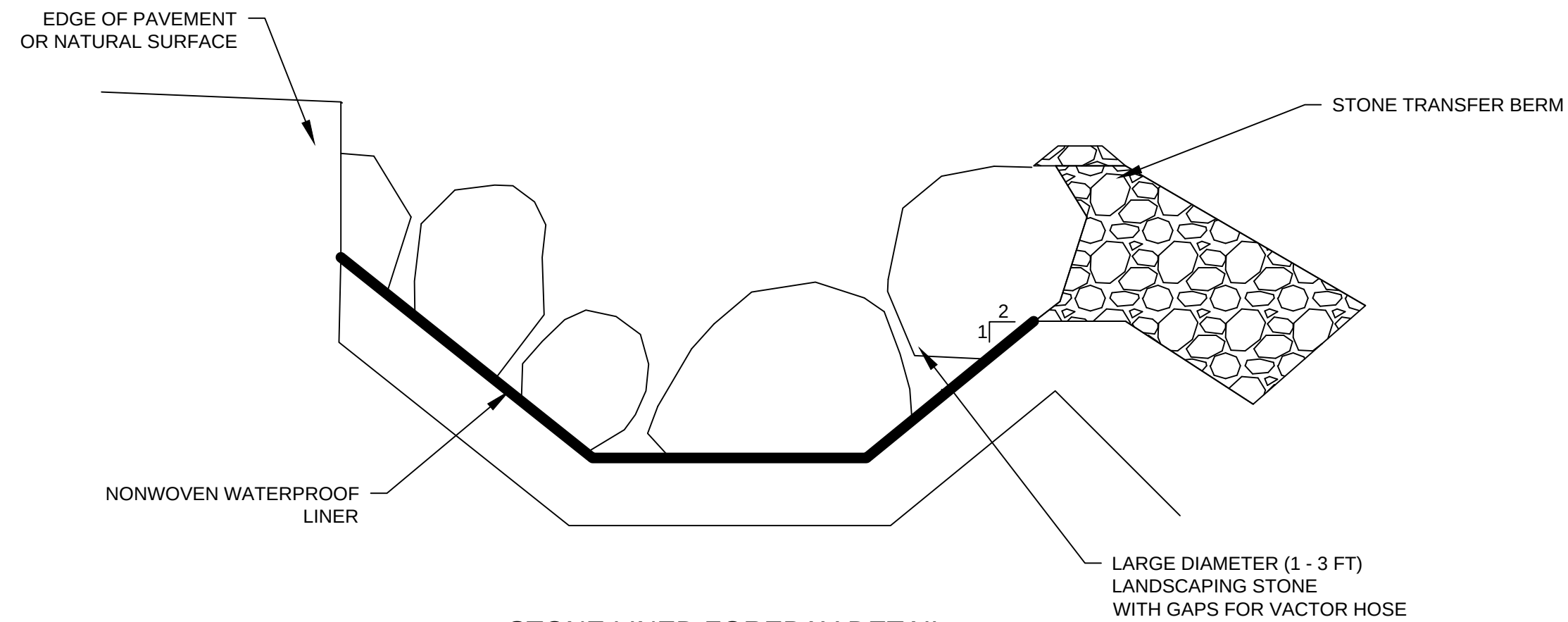
C7



BIORETENTION WITH UNDERDRAIN DETAIL
NOT TO SCALE



TYPICAL PIPE TRENCH DETAIL
NOT TO SCALE



STONE LINED FOREBAY DETAIL
NOT TO SCALE

DRAWING CREDITS	#	DATE	DRWN	CHK'D	APP'D	DESCRIPTION
REVISIONS						
DRAWING SCALE						



STONE ENVIRONMENTAL

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SILT BATHHOUSE & 453 PINE STREET

STORMWATER DETAILS

BURLINGTON

VERMONT

SHEET NO.

C8



L2.1

TREES				
Key	Botanical Name / Common Name	Characteristics	Size	Qty.
BN	Betula nigra / River Birch	40'-70' tall, 40'-50" wide, interesting bark, fall foliage	2.5-3" cal.	10
PG	Picea Glauca / White Spruce	40'-60' tall, 10'-20" wide, evergreen	8-10" hgt.	10
SHRUBS				
Key	Botanical Name / Common Name	Characteristics	Size	Qty.
CS	Cornus sericea 'Bailey' / Red Stemmed Dogwood	spring blooms, fall foliage/berries, yearlong red stems	3 gal	56
RH	Rhododendron viscosum 'Pink and Fragrant' / Deciduous Azalea	Fragrant spring blooms	3 gal	13
RH	Rhododendron 'White Lights' / Deciduous Azalea	Fragrant spring blooms	3 gal	13
PERENNIALS				
KEY		Characteristics	Size	Qty.
CV	Carex vulpinoidea / Fox Sedge	all season grassy groundcover		250
HH	Hemerocallis 'Happy Returns' / Daylily	season long yellow fragrant blooms		250

TREES					
Key	Botanical Name / Common Name	Characteristics	Size	Qty.	
AFA	Acer x freemanni 'Autumn Blaze' / Freeman Maple	40'-60" tall x 30-40" wide, fall foliage	2.5-3' cal.	2	
AFC	Acer x freemanni 'Celebration' / Freeman Maple	45-50' tall x 20-25" wide, fall foliage	2.5-3' cal.	3	
AFS	Acer x freemanni 'Sienna' / Freeman Maple	40" tall x 40" wide, fall foliage	2.5-3' cal.	2	
GC	Caprinus betula 'Fastigata' / Hornbeam	30-40" tall x 20-30" wide, fall foliage	2.5-3' cal.	4	
CC	Cercis canadensis 'Alba' / Redbud	20-30" tall x 20-30" wide, white spring blooms, fall foliage	2.5-3' cal.	2	
CJ	Cercidiphyllum japonicum / Katsuratree	40-50" tall x 25-30" wide, spring blooms, fall foliage	2.5-3' cal.	3	
MM	Magnolia lobeata 'Dr. Merrill' / Magnolia	30-40" tall x 20-30" wide, white spring blooms, fall foliage	2.5-3' cal.	1	
NS	Nyssa sylvatica 'Red Spynlder' / Sweet Gum	40-50" tall x 20-30" wide, fall foliage	2.5-3' cal.	4	
OB	Quercus bicolor / Swamp Oak	40-50" tall x 40-50" wide, interesting bark, fall foliage	2.5-3' cal.	3	
SR	Syringa reticulata 'Ivory Silk' / Tree Lilac	20-25" high x 15" wide, interesting bark, fall foliage	2.5-3' cal.	7	
UT	Ulmus minor 'Trumpy' / Elm Cultivar	50-60" tall x 40-50" wide, interesting shape, fall foliage	2.5-3' cal.	2	

Key	Botanical Name / Common Name	Characteristics	Size	Qty.
	Forsythia x 'Meadowlark' / Forsythia	spring blooms		
	Fothergilla 'Blue Shadow' / Fothergilla	spring fragrant blooms, orange foliage summer and fall		
	Hydrangea panic. 'Candelabra' / Panicle Hydrangea	summer through fall fragrant blooms, yellow fall foliage		
	Hamamelis virginiana / Witchhazel	late fall yellow blooms and fall foliage		
	Ilex verticillata 'Berry Heavy' / Female Winterberry	summer through winter berries, red fall foliage		
	Ilex verticillata 'Jim Dandy' / Male Winterberry	red fall foliage		
	Physocarpus opulifolius 'Diablo' and 'Ginger Wine' / Ninebark	spring blooms, burgundy foliage all season		
	Sambucus canadensis / Elderberry	spring blooms, late season berries		
	Syringa 'Bloomerang' / Compact Lilac	all season fragrant blooms		
	Viburnum nudum 'Winterhur' / Viburnum	spring blooms, red fall foliage and berries		
	Vaccinium corymbosum / Highbush Blueberry	mid season berries, fall foliage		
	TOTAL SHRUBS			85

KEY	Botanical Name / Common Name	Characteristics	Size	Qty.
	Amsonia hubrichtii / Blue Star	spring blue blooms, yellow fall foliage		
	Angelica gigas and 'Ebony' and 'Angelica	white/pink blooms and burgundy foliage		
	Agastache 'Blue Fortune' / Anise hyssop	mid summer through fall pale blue blooms		
	Aster 'Grape Crush' / Aster	late summer through fall deep purple blooms		
	Baptisia 'Carolina Moonlight' / False Indigo	early summer yellow blooms		
	Clematis 'Bernadine' and 'Diamantina' / Clematis Vine	all summer pale blue and blue/purple blooms		
	Echinacea purpurea / Purple Coneflower	mid summer purple blooms		
	Echinacea 'Red Ombre' / Orange Coneflower	mid summer orange blooms		
	Eupatorium 'Gateway' / Joe Pye	late summer mauve blooms		
	Helianthus 'Sunshine Daydream' /	late summer gold blooms		
	Lavendula 'Phenomenal' / Lavender	mid summer lavender blooms		
	Leucanthemum 'Becky' / Shasta Daisy	mid summer white blooms		
	Lupinus perennis / Lupine	early blue blooms		
	Matteuccia struthiopteris / Ostrich Fern	summer through fall fronds		
	Monarda 'Purple Rooster' / Bee Balm	mid to late summer purple blooms		
	Panicum virgatum 'Heavy Metal' / Switch Grass	summer blue leaves, turning red and yellow in fall		
	Schizachyrium scoparium 'Standing Ovation' / Little Bluestem	summer bluish leaves, turning red in fall		
	Verbascum 'Wedding Candles' and 'Arctic Snow' / Mullein	mid to late summer white blooms		
	Veronica 'Magic Show Ever After' and 'Royal Rembrandt' / Speedwell	all summer smokey blue and deep blooms		
	Veronicastrum virginicum 'Album' / Culver's Root	all summer white blooms		
	TOTAL PERENNIALS			1420

KEY	Botanical Name / Common Name	Characteristics	Size	Qty.
	Achillea tomentosa / Yarrow	summer white blooms		
	Aster laevis / Smooth Blue Aster	late summer blue blooms		
	Festuca glauca / Blue Fescue Grass	spring through fall blue leaves		
	Fragaria virginiana / Wild Strawberry	summer fruit		
	Origanum / Oregano	early summer pink blooms		
	Schizachyrium scoparium / Little Bluestem	tall grass		
	Sedum spurnum	sedum leaves and blooms		
	Sedum samentosum	sedum leaves and blooms		
	Sedum kamtschaticum	sedum leaves and blooms		
	Sedum telephium	sedum leaves and blooms		
	Sempenum / Hens and Chicks	sedum leaves and blooms		
	Thymus vulgaris	summer pink bloom		
	TOTAL SQUARE FOOTAGE			SOFT T



L5.1



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Fax (802) 655-7628

Massachusetts
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lnconsulting.com

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for
leisure

One Union Studio

Knauf
LANDSCAPE ARCHITECTURE

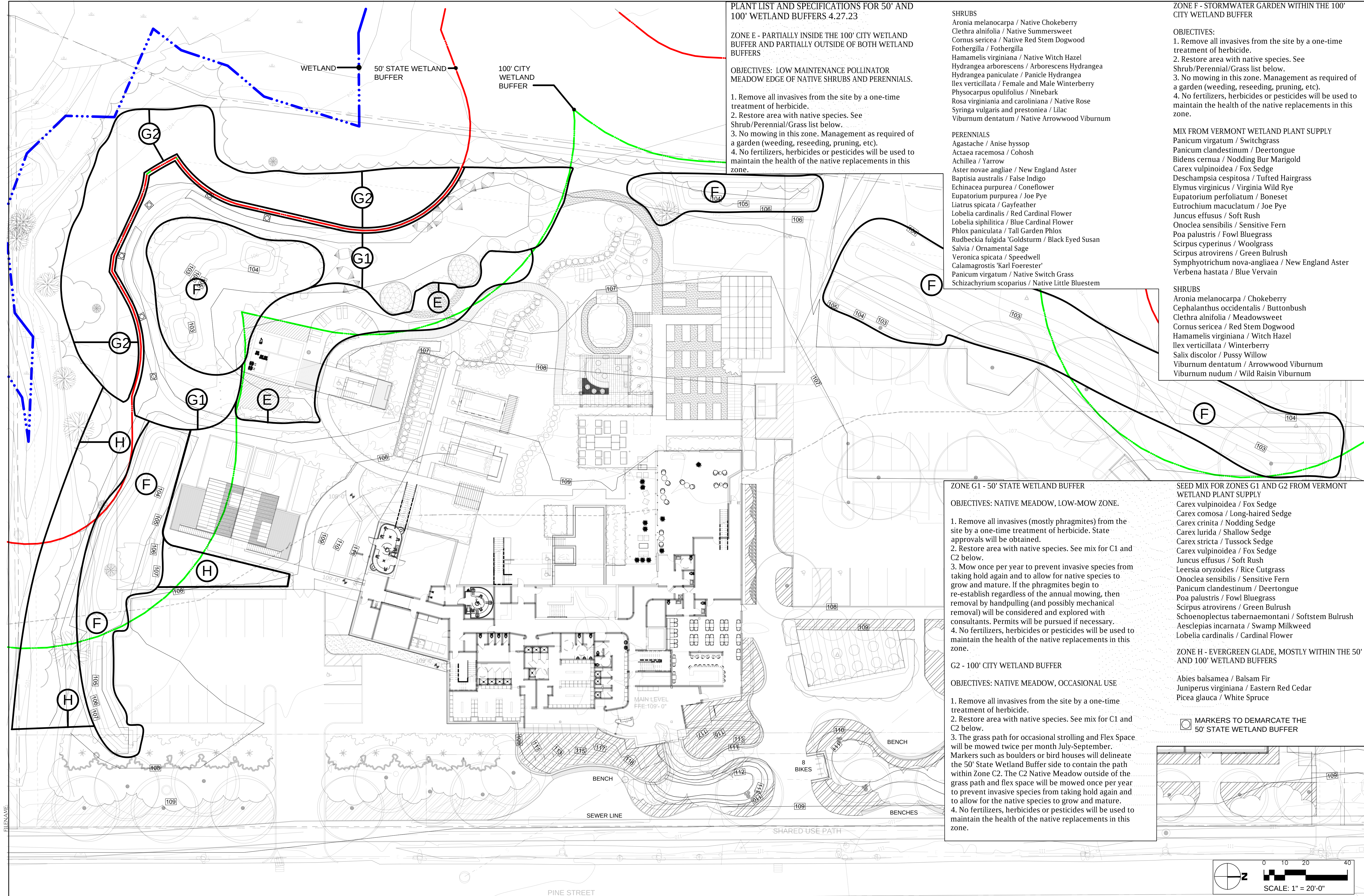
835 HERCULES DRIVE
SUITE 20
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CYNTHIA@CYNTHIAKNAUF.COM
CYNTHIAKNAUF.COM

**Silt Bathhouse and 453 Pine
Street
Streetscape and Parking Lot
Planting Plan**

Burlington Vermont

[illegible]

SHEET NUMBER:



PLANT LIST AND SPECIFICATIONS FOR 50' AND 100' WETLAND BUFFERS 4.27.23

ZONE E - PARTIALLY INSIDE THE 100' CITY WETLAND BUFFER AND PARTIALLY OUTSIDE OF BOTH WETLAND BUFFERS

- OBJECTIVES: LOW MAINTENANCE POLLINATOR MEADOW EDGE OF NATIVE SHRUBS AND PERENNIALS.
1. Remove all invasives from the site by a one-time treatment of herbicide.
 2. Restore area with native species. See Shrub/Perennial/Grass list below.
 3. No mowing in this zone. Management as required of a garden (weeding, reseeding, pruning, etc).
 4. No fertilizers, herbicides or pesticides will be used to maintain the health of the native replacements in this zone.

- SHRUBS
- Aronia melanocarpa / Native Chokeberry
 - Clethra alnifolia / Native Summersweet
 - Cornus sericea / Native Red Stem Dogwood
 - Fothergilla / Fothergilla
 - Hamamelis virginiana / Native Witch Hazel
 - Hydrangea arborescens / Arborescens Hydrangea
 - Hydrangea paniculata / Panicle Hydrangea
 - Ilex verticillata / Female and Male Winterberry
 - Physocarpus opulifolius / Ninebark
 - Rosa virginiana and caroliniana / Native Rose
 - Syringa vulgaris and prestonia / Lilac
 - Viburnum dentatum / Native Arrowwood Viburnum

- PERENNIALS
- Agastache / Anise hyssop
 - Actaea racemosa / Cohosh
 - Achillea / Yarrow
 - Aster novae angliae / New England Aster
 - Baptisia australis / False Indigo
 - Echinacea purpurea / Coneflower
 - Eupatorium purpurea / Joe Pye
 - Liatris spicata / Gayfeather
 - Lobelia cardinalis / Red Cardinal Flower
 - Lobelia siphilitica / Blue Cardinal Flower
 - Phlox paniculata / Tall Garden Phlox
 - Rudbeckia fulgida 'Goldsturm' / Black Eyed Susan
 - Salvia / Ornamental Sage
 - Veronica spicata / Speedwell
 - Calamagrostis 'Karl Foerster'
 - Panicum virgatum / Native Switch Grass
 - Schizachyrium scoparius / Native Little Bluestem

ZONE F - STORMWATER GARDEN WITHIN THE 100' CITY WETLAND BUFFER

- OBJECTIVES:
1. Remove all invasives from the site by a one-time treatment of herbicide.
 2. Restore area with native species. See Shrub/Perennial/Grass list below.
 3. No mowing in this zone. Management as required of a garden (weeding, reseeding, pruning, etc).
 4. No fertilizers, herbicides or pesticides will be used to maintain the health of the native replacements in this zone.

- MIX FROM VERMONT WETLAND PLANT SUPPLY
- Panicum virgatum / Switchgrass
 - Panicum clandestinum / Deertongue
 - Bidens cernua / Nodding Bur Marigold
 - Carex vulpinoidea / Fox Sedge
 - Deschampsia cespitosa / Tufted Hairgrass
 - Elymus virginicus / Virginia Wild Rye
 - Eupatorium perfoliatum / Boneset
 - Eutrochium maculatum / Joe Pye
 - Juncus effusus / Soft Rush
 - Onoclea sensibilis / Sensitive Fern
 - Poa palustris / Fowl Bluegrass
 - Scirpus cyperinus / Woolgrass
 - Scirpus atrovirens / Green Bulrush
 - Symphotrichum nova-angliae / New England Aster
 - Verbena hastata / Blue Vervain

- SHRUBS
- Aronia melanocarpa / Chokeberry
 - Cephalanthus occidentalis / Buttonbush
 - Clethra alnifolia / Meadowsweet
 - Cornus sericea / Red Stem Dogwood
 - Hamamelis virginiana / Witch Hazel
 - Ilex verticillata / Winterberry
 - Salix discolor / Pussy Willow
 - Viburnum dentatum / Arrowwood Viburnum
 - Viburnum nudum / Wild Raisin Viburnum

ZONE G1 - 50' STATE WETLAND BUFFER

- OBJECTIVES: NATIVE MEADOW, LOW-MOW ZONE.

1. Remove all invasives (mostly phragmites) from the site by a one-time treatment of herbicide. State approvals will be obtained.
2. Restore area with native species. See mix for C1 and C2 below.
3. Mow once per year to prevent invasive species from taking hold again and to allow for native species to grow and mature. If the phragmites begin to re-establish regardless of the annual mowing, then removal by handpulling (and possibly mechanical removal) will be considered and explored with consultants. Permits will be pursued if necessary.
4. No fertilizers, herbicides or pesticides will be used to maintain the health of the native replacements in this zone.

G2 - 100' CITY WETLAND BUFFER

- OBJECTIVES: NATIVE MEADOW, OCCASIONAL USE

1. Remove all invasives from the site by a one-time treatment of herbicide.
2. Restore area with native species. See mix for C1 and C2 below.
3. The grass path for occasional strolling and Flex Space will be mowed twice per month July-September. Markers such as boulders or bird houses will delineate the 50' State Wetland Buffer side to contain the path within Zone C2. The C2 Native Meadow outside of the grass path and flex space will be mowed once per year to prevent invasive species from taking hold again and to allow for the native species to grow and mature.
4. No fertilizers, herbicides or pesticides will be used to maintain the health of the native replacements in this zone.

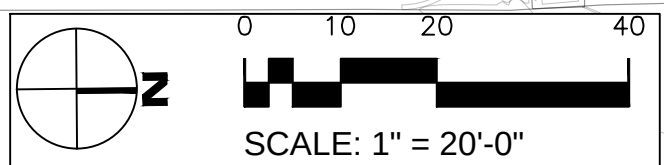
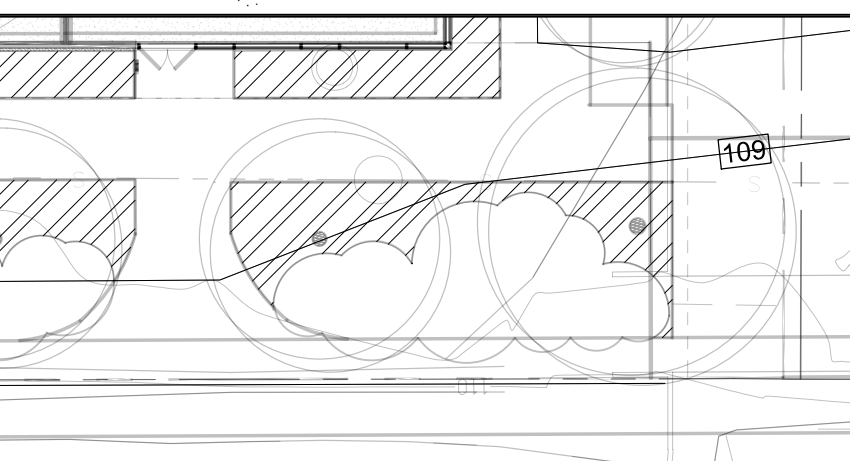
SEED MIX FOR ZONES G1 AND G2 FROM VERMONT WETLAND PLANT SUPPLY

- Carex vulpinoidea / Fox Sedge
- Carex comosa / Long-haired Sedge
- Carex crinita / Nodding Sedge
- Carex lurida / Shallow Sedge
- Carex stricta / Tussock Sedge
- Carex vulpinoidea / Fox Sedge
- Juncus effusus / Soft Rush
- Leersia oryzoides / Rice Cutgrass
- Onoclea sensibilis / Sensitive Fern
- Panicum clandestinum / Deertongue
- Poa palustris / Fowl Bluegrass
- Scirpus atrovirens / Green Bulrush
- Schoenoplectus tabernaemontani / Softstem Bulrush
- Aesclapias incarnata / Swamp Milkweed
- Lobelia cardinalis / Cardinal Flower

ZONE H - EVERGREEN GLADE, MOSTLY WITHIN THE 50' AND 100' WETLAND BUFFERS

- Abies balsamea / Balsam Fir
- Juniperus virginiana / Eastern Red Cedar
- Picea glauca / White Spruce

- MARKERS TO DEMARCAT THE 50' STATE WETLAND BUFFER



PRELIMINARY - NOT FOR CONSTRUCTION

Wiemann
Lamphere



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for
leisure
One Union Studio

Knauf
LANDSCAPE ARCHITECTURE

Silt Bathhouse
Wetland Buffer Planting Plan

Burlington Vermont

#	DATE	REVISION	DESCRIPTION

DATE MAY 22, 2023	SCALE PLAN NORTH As Indicated
DRAWN BY: FRC	CHECKED BY: CK
SHEET TITLE:	

SHEET NUMBER:	
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L5.3



L6.1

- Wiemann
lamphere
- 
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Silt Bathhouse and 453 Pine Street

Streetscape and Parking Lot Lighting Plan

Vermont

Burlington

DATE	REVISION	DESCRIPTION

DATE: MAY 22, 2023

SCALE: AS INDICATED

PROJECT NO.:

CHECKED BY: CK

SCALE: AS INDICATED

PROJECT NO.:

CHECKED BY: CK

[illegible]

DATE:		May 22, 2023	
		SCALE:	1"=30'-0"
		PROJECT NO:	2021085
DRAWN BY:		CHECKED BY:	
AA		KCD	
SHEET TITLE:			

ILLUSTRATIVE
SITE PLAN

SHEET NUMBER:

A-0





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SILT BATHHOUSE

453 PINE ST

BIBLIINGTON

VERMONT

[illegible]

DATE: May 22, 20

SCALE:

PROJECT NO:

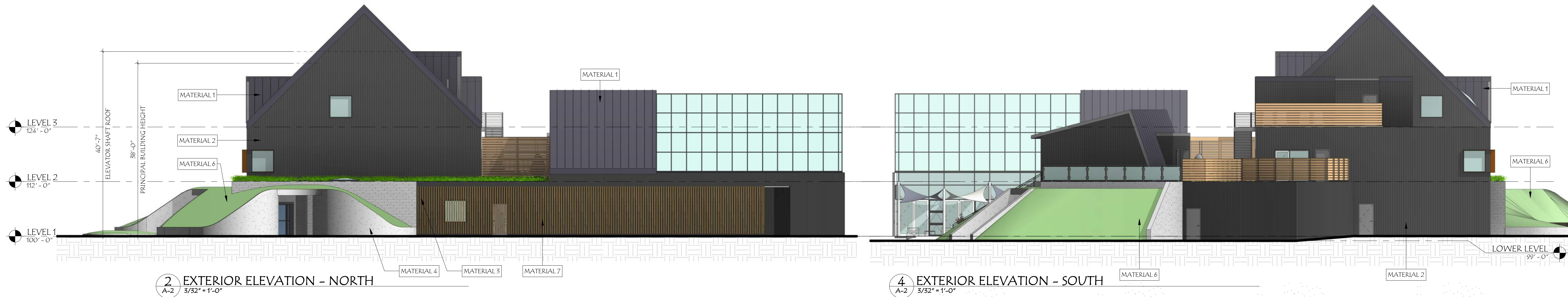
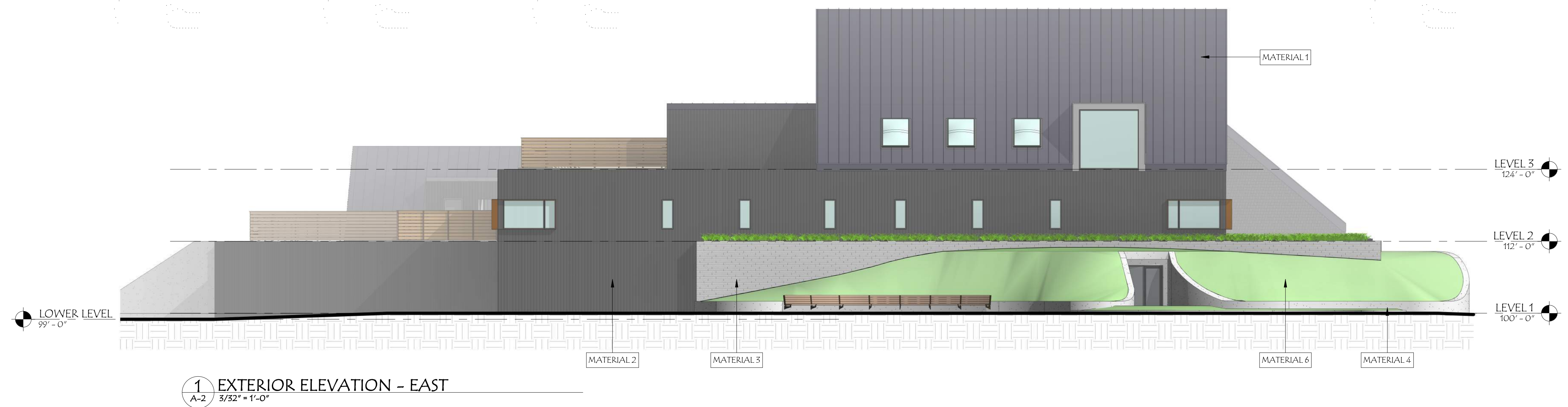
	20210
DRAWN BY: JB/KCD	CHECKED BY: KCD

JB/KCD	KCD
SHEET TITLE:	

EXTERIOR
PERSPECTIVE
VIEWS

SHEET NI/MBER:

A-1



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SILT BATHHOUSE

453 PINE SI

VERMONT

BURLINGTON

[illegible]

DATE:	May 22, 2023
	SCALE:
	3/32" = 1'-0"
	PROJECT NO:
	2021085
DRAWN BY:	CHECKED BY:
BH/KCD	KCD
SHEET TITLE:	

EXTERIOR ELEVATIONS

SHEET NUMBER:

A-2



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BURLINGTON

PRIVATE
RENTAL
BUILDING
ELEVATIONS

A-3

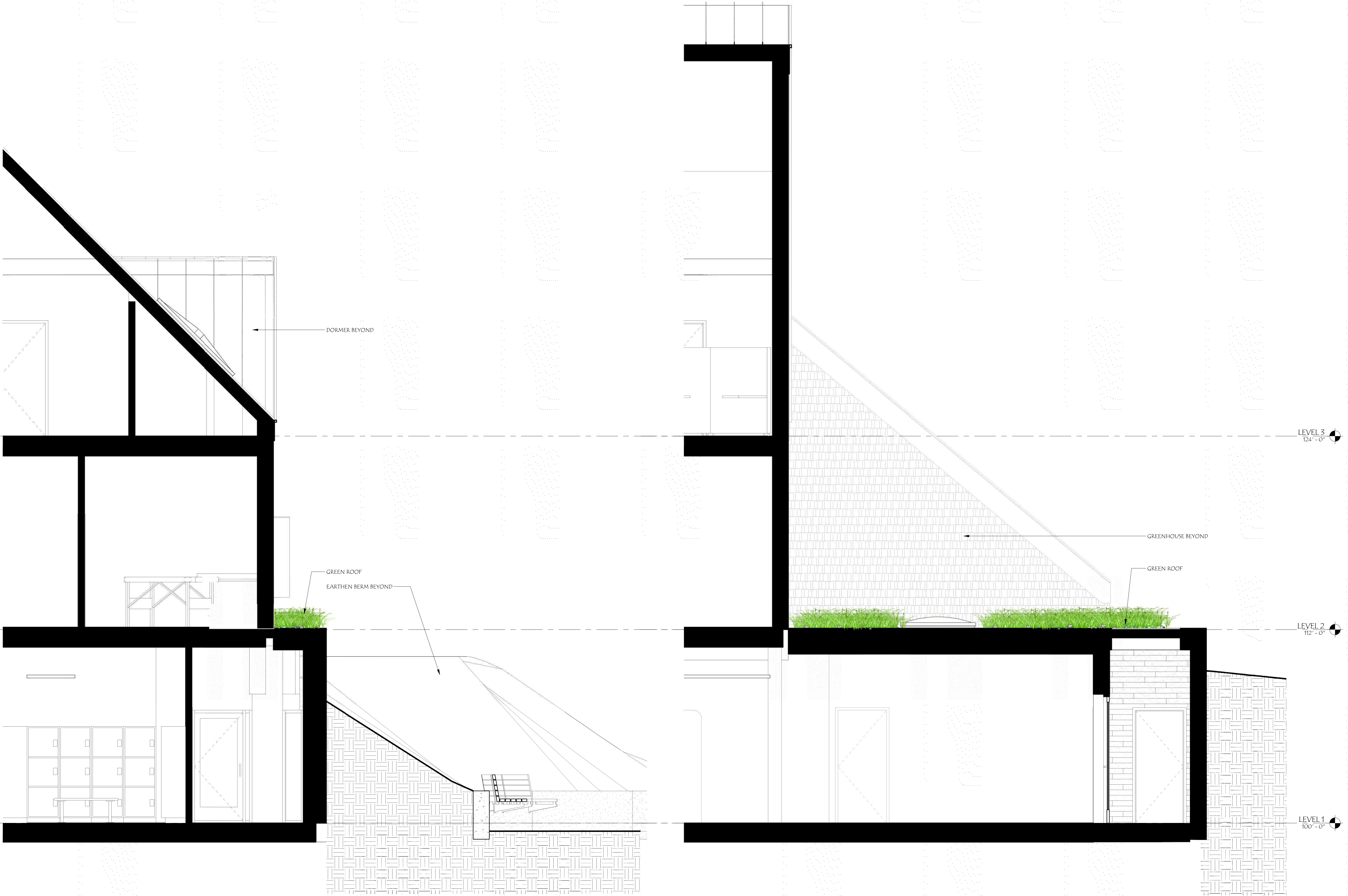
SILT BATHHOUSE
453 PINE ST
BURLINGTON VERMONT

[illegible]

ARCHITECTURAL WALL CROSS-SECTIONS

SHEET NUMBER:

A-4



1 FRONT WALL CROSS-SECTION
A-4 3/8" = 1'-0"

2 SIDE WALL CROSS-SECTION
A-4 $3/8" = 1'-0"$

453 PINE ST

VERMONT

BURLINGTON

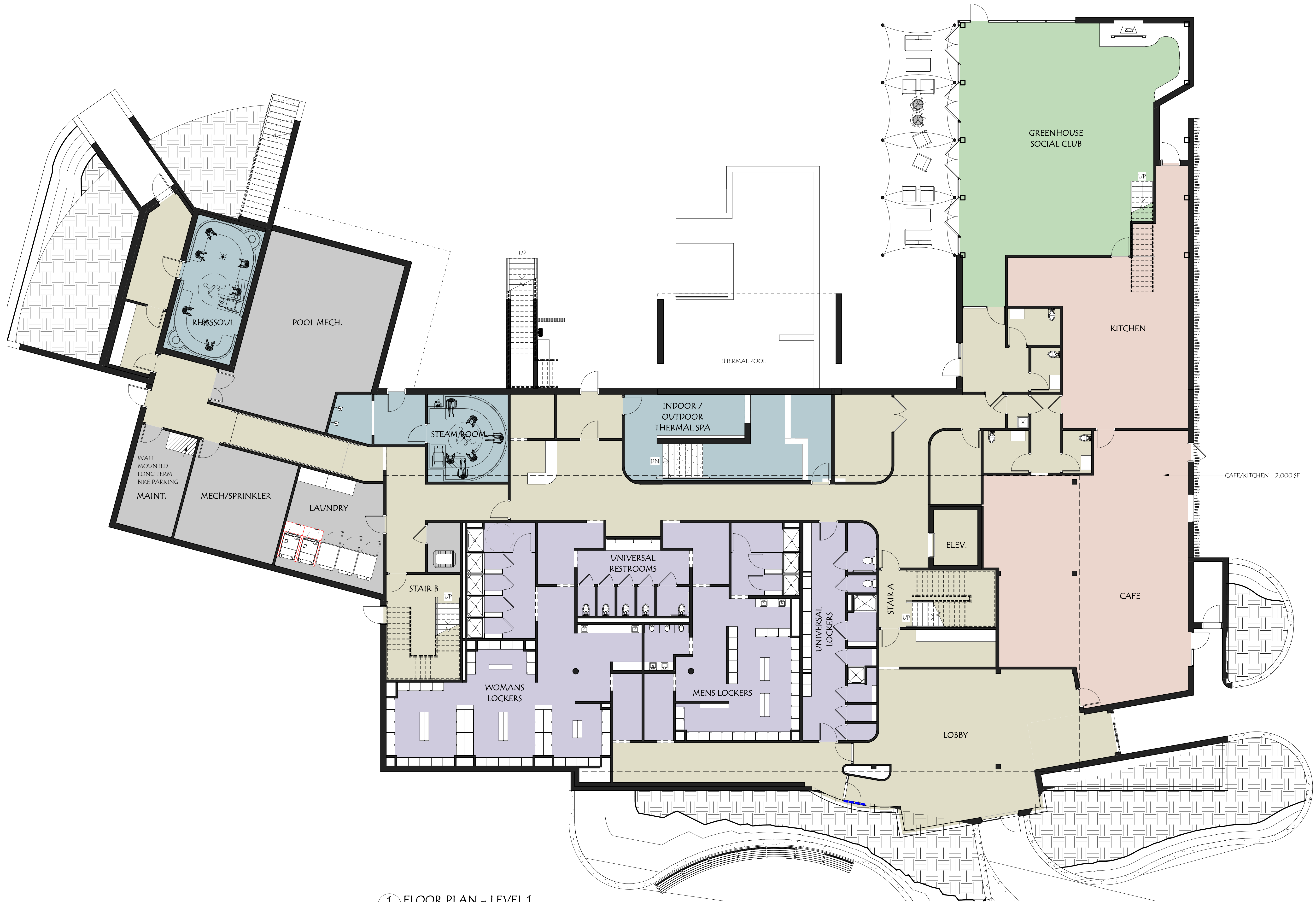
[illegible]

DATE:		May 22, 2023	
		SCALE:	1/8" = 1'-0"
		PROJECT NO:	2021085
DRAWN BY:		CHECKED BY:	
BH/KCD		KCD	
SHEET TITLE:			

LEVEL 1 PLAN

SHEET NUMBER: _____

A-5



1 FLOOR PLAN - LEVEL 1
A-5 1/8" = 1'-0"

453 PINE ST

VERMONT

BURLINGTON

[illegible]

DATE: May 22, 2023

SCALE:	1/8" = 1'-0"
PROJECT NO:	2021085

DRAWN BY: BH/KCD	CHECKED BY: KCD
---------------------	--------------------

SHEET TITLE:

LEVEL 2 PLAN

SHEET NUMBER: _____

A-6



1 FLOOR PLAN - LEVEL 2
A-6 1/8" = 1'-0"

453 PINE ST

VERMONT

BURLINGTON

[illegible]

DATE: May 22, 2023

SCALE:	$1/8" = 1'-0"$
PROJECT NO:	2021085

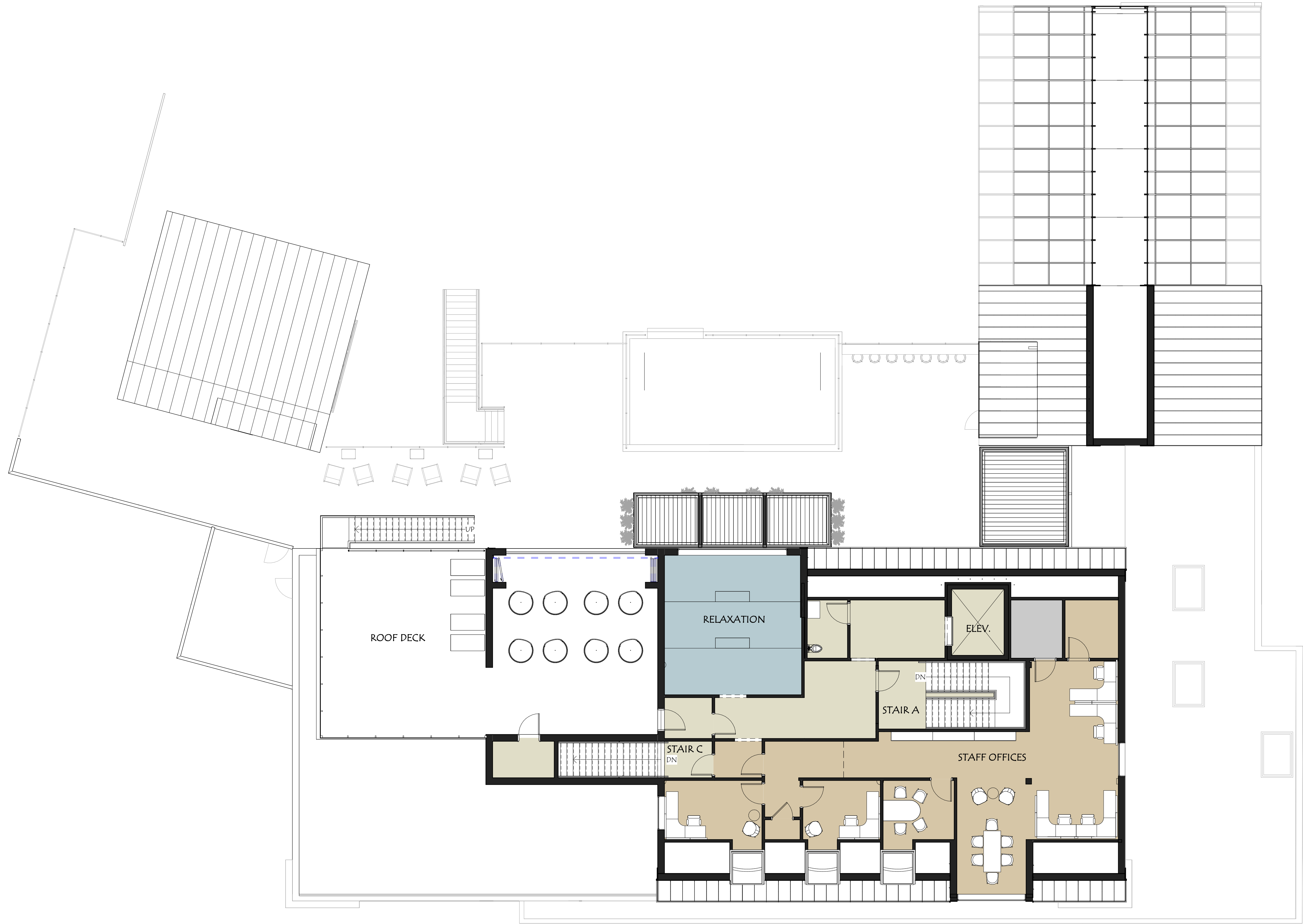
DRAWN BY: BH/KCD	CHECKED BY: KCD
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SHEET TITLE:

LEVEL 3 PLAN

SHEET NUMBER: _____

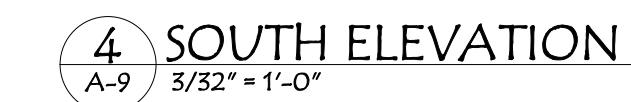
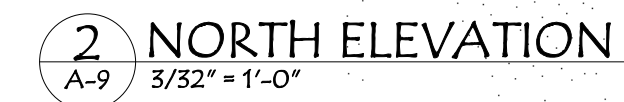
A-7



1 FLOOR PLAN - LEVEL 3
A-7 1/8" = 1'-0"



A-8



525 Hercules Drive
Suite Two
Colchester, VT 05446
802.655.5020
802.622.6567
wiemannlamphere.com

[illegible]

DATE: May 22, 2023

SCALE:	3/32" = 1'-0"
PROJECT NO:	

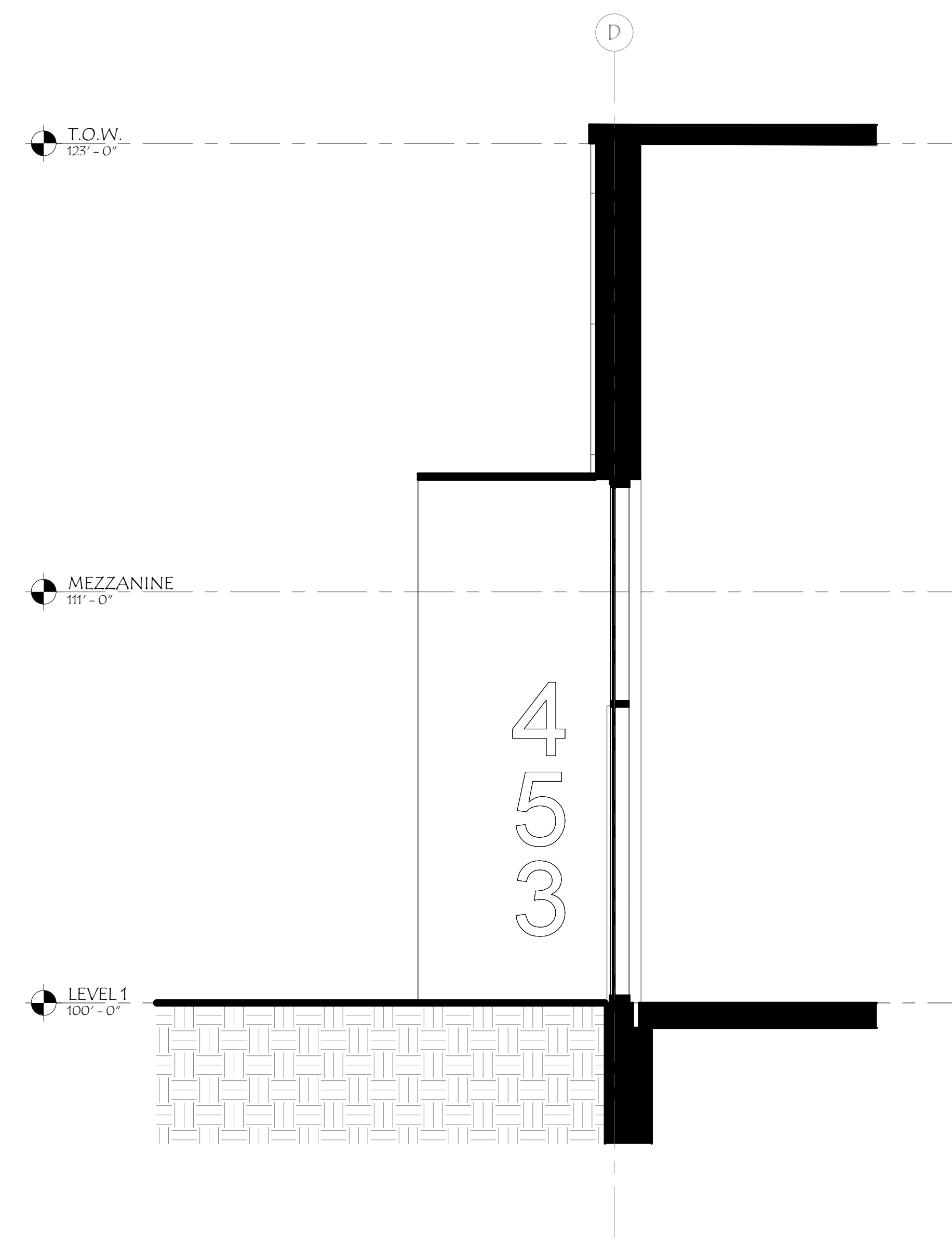
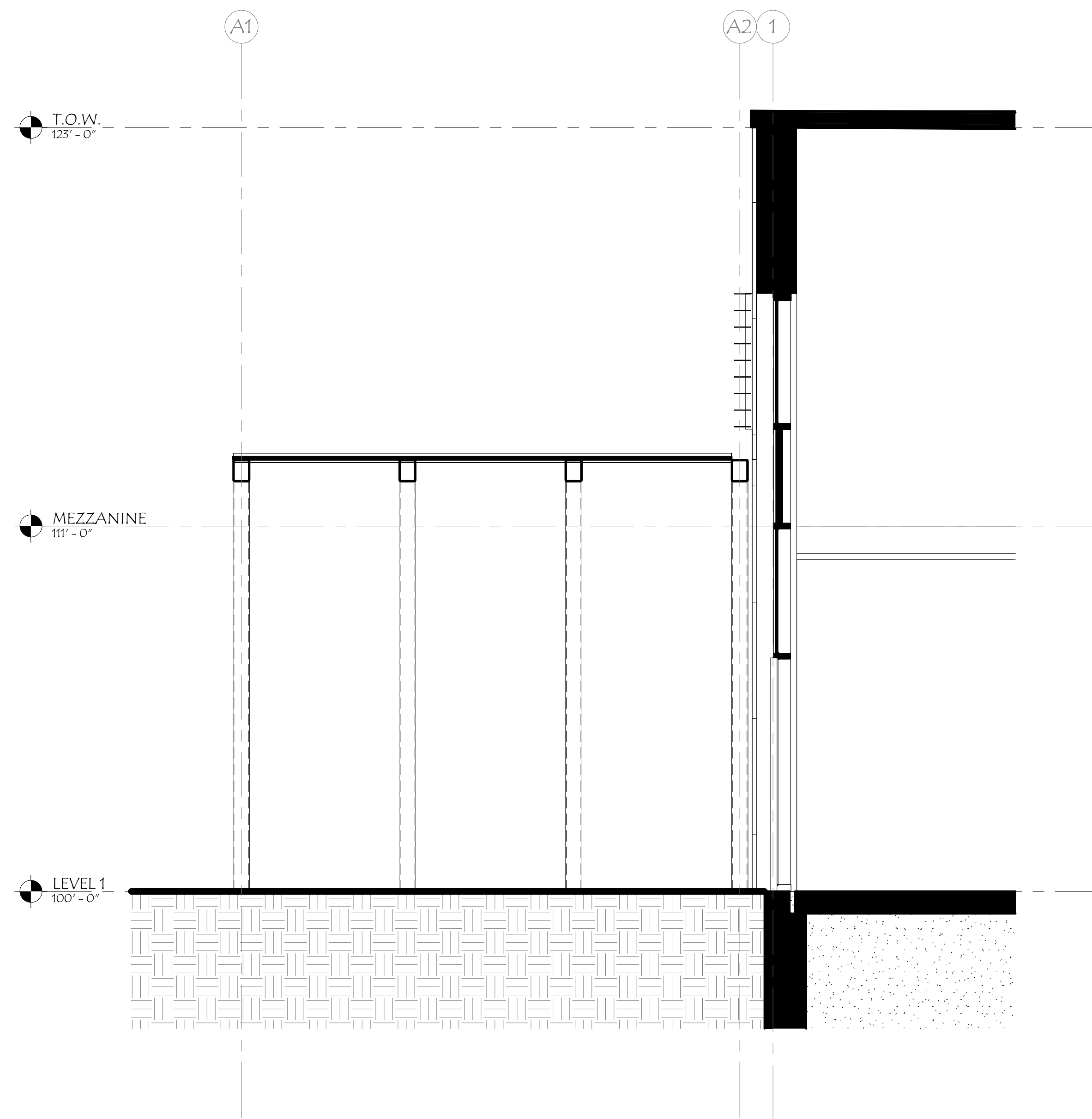
	2023011
DRAWN BY: JPL	CHECKED BY: KCD

MEET TITLE:

EXTERIOR ELEVATIONS

SHEET NUMBER: _____

A-9

[illegible]

DATE: May 22, 2023

SCALE:	$3/8" = 1'-0"$
PROJECT NO:	

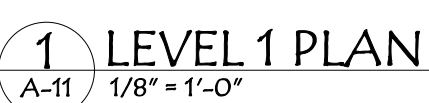
	2023011
DRAWN BY: JPL	CHECKED BY: KCD

SHEET TITLE:

ARCHITECTURAL
WALL
CROSS-SECTIONS

SHEET NUMBER:

A-10



453 Pine St – Burlington, VT

COA Level II & Major Impact Application – Drawing & Exhibit List

5/22/23, 5/30/23 Rev1

DRAWING LIST

Civil

C1 COVER SHEET

C2 GENERAL NOTES

C3 EXISTING CONDITIONS SITE PLAN

C4 PROPOSED CONDITIONS SITE PLAN

C5 ZONING & PARKING SITE PLAN

C6 EROSION PREVENTION & SEDIMENT CONTROL, ACCESS & STAGING PLAN

C7 EROSION PREVENTION & SEDIMENT CONTROL DETAILS

C8 STORMWATER DETAILS

C9 WASTEWATER & WATER SUPPLY DETAILS

Landscape

L2.1 LANDSCAPE PLAN FOR SILT BATHHOUSE AND 453 PINE STREET

L5.1 SILT BATHHOUSE AND 453 PINE STREET STREETScape & PARKING LOT PLANTING PLAN

L5.2 SILT BATHHOUSE WEST LANDSCAPE PLANTING PLAN

L5.3 SILT BATHHOUSE WETLAND BUFFER PLANTING PLAN

L6.1 SILT BOTANICA AND 453 PINE STREET STREETScape AND PARKING LOT LIGHTING PLAN

Architectural

A-0 ILLUSTRATIVE SITE PLAN

Silt Bathhouse

A-1 EXTERIOR PERSPECTIVE VIEWS

A-2 EXTERIOR ELEVATIONS & MATERIALS

A-3 PRIVATE RENTAL BUILDING ELEVATIONS

A-4 ARCHITECTURAL WALL CROSS-SECTIONS

A-5 LEVEL 1 PLAN

A-6 LEVEL 2 PLAN

A-7 LEVEL 3 PLAN

Commercial Building

A-8 EXTERIOR PERSPECTIVE VIEWS

A-9 EXTERIOR ELEVATIONS & MATERIALS

A-10 ARCHITECTURAL WALL CROSS-SECTIONS

A-11 FLOOR PLANS



EXHIBITS

EXHIBIT 1 – ZONING PERMIT RESPONSE SUMMARY & MAJOR IMPACT REVIEW CRITERIA

EXHIBIT 2 – PROPERTY PHOTOS

EXHIBIT 3 – SITE LIGHTING CUT SHEETS & PHOTOMETRIC PLAN

EXHIBIT 4 – TCE TRAFFIC IMPACT ASSESSMENT

EXHIBIT 5 – SITE LOGISTICS PLAN – DURING CONSTRUCTION

EXHIBIT 6 – NEIGHBORHOOD PLANNING ASSEMBLY (NPA) AFFIDAVIT CERTIFICATE

EXHIBIT 7 – CITY DEPARTMENT WRITTEN INPUT (DPW LETTER PENDING)

EXHIBIT 8A – ARROWWOOD RTE PLANTS MEMO

EXHIBIT 8B – ARROWWOOD WILDLIFE MEMO

EXHIBIT 8C – ARROWWOOD BAT MEMO

EXHIBIT 8D – ARROWWOOD WETLAND MEMO

EXHIBIT 9 – DEC WETLANDS IMPACT & RESTORATION EMAIL

453 Pine St – Burlington, VT
COA Level II Application – Project Narrative
5/22/23

We're excited to submit our application for a proposed project at 453 Pine Street. The proposed development includes two separate business entities, Silt Bathhouse, and a Commercial building. The site is 4.8 acres and is currently enrolled in the State's Brownfields Economic Revitalization Alliance (BERA) Program. The developers and design team have been working with the Vermont Department of Environmental Conservation, Civil, Environmental and Geotech Engineers on an Evaluation of Corrective Action Alternatives (ECAA) which evaluates the existing site conditions and studies alternative options for remediation and development. Once the ECAA is complete, the project will move into the Corrective Action Plan (CAP) phase.

The site is within the Enterprise – Light Manufacturing (E-LM) District, Design Review District, Natural Resource Protection District, Shared Use Parking District and Multi-Modal Mixed-Use Corridor. The Commercial building does not have an intended use at this time but will be classified as General Merchandise/Retail which is allowed in the E-LM District. The Bathhouse is being classified as a Health Club and is conditional use. The Silt Bathhouse project was presented at DRB Sketch Plan in November of 2021 for a different location of which the DRB had agreed at the time on the Health Club interpretation since the building use didn't fall under one specific category within the Use Table. The 453 Pine St project was also submitted for Sketch Plan review in November 2022 and at this time it also included a bowling alley, Backside Bowl. Since the Sketch Plan submission, the bowling alley has been omitted from the project.

The total site area is 4.8 acres or 209,088 sf with a FAR of 2.0 in the E-LM district which means the total buildable area allowed is 418,176 sf. Silt Bathhouse main building plus outbuildings total approximately 30,000 gsf and the Commercial building is 12,400 gsf making the proposed project 42,400 sf in total, far under the allowed. Front yard setback requirement is 5'-0" and the buildings are setback approximately 35'-0" from the property line, mainly due to the 35'-0" City of Burlington Right-Of-Way along Pine Street. Reference C5 for additional setback information.

The buildings are oriented along Pine Street with primary vehicular access from the current Maltex Drive which will be moved to align with Howard Street during the forthcoming Champlain Parkway work. The Champlain Parkway work includes a shared use path for pedestrians and bicycles along Pine Street and the proposed development project includes a pedestrian plaza between Silt Bathhouse and the Commercial building. There is currently a bus stop at the corner of the Maltex driveway and Pine Street that is proposed to incorporate a bus shelter within the Champlain Parkway work. There is a secondary curb cut to the south of Silt Bathhouse which will be for service and staff parking. The side yard parking will be screened, and signage will aid in discouraging the public from entering this location and direct visitors in vehicles to the main entrance at the Maltex driveway. The landscape design along Pine Street is intended to provide a pedestrian activated streetscape with pedestrian plaza and café seating that celebrates the spirit of the project and the South End. See landscape narrative further down in this document.

There are a total of 77 parking spaces between 59 parking spaces at the rear lot and 18 spaces at the Silt service court & staff side parking lot. Table 8.1.9-1 Maximum Off-Street Parking Requirements lists the following for the Shared Use and Multimodal Mixed-Use District in the applicable use categories for this Project.

Use	Shared Use District	Multimodal Mixed-Use District
Health Club	3/1,000 sf of gfa	2
Cafe	4/1,000 sf of gfa	3
General Merchandise/Retail	3/1,000 sf of gfa	2

The buildings fall within 200'-0" of Pine Street putting them into the Multimodal Mixed-Use District. The Health Club use total is 30,000 gsf therefore with 2 spaces per 1,000 sf, the maximum parking allowed for this use is 60 spaces. And the General Merchandise/Retail use total is 9,800 gsf therefore with 2 spaces per 1,000 sf, maximum parking is 20 spaces for this use. This totals 80 maximum parking spaces. The proposed site plan shows 77 spaces, under the maximum allowed parking spaces.

Table 8.2.4.1-1 Bicycle Parking Requirements requires the following for the applicable uses:

Use	Long Term Spaces	Short Term Spaces
Office	1/5,000 sf	1/10,000 sf
Retail sales and service	1/12,000 sf	1/2,000 sf

The following are what the project is showing for bike parking based on the table above:
Commercial Building @ 12,400 sf (Retail sales and service)

- 2 long term spaces
- 6 short term spaces

Bicycle parking allocations for the Bathhouse are based on input from the City's Transportation Planner with a suggested count of 10 long- and short-term bike parking spaces.

Total spaces shown on the proposed development are:

- 4 long term (2 @ Commercial Building and 2 @ Bathhouse)
- 24 short term

Site & Stormwater Narrative

The site and stormwater systems have been designed to mimic the current drainage patterns at the site to the maximum extent possible to help ensure that hydrology and hydrogeology are not drastically altered. Stormwater flows east to west across the site and flows to bioretention swales and basins that will be landscaped as gardens. The bioretention swales are designed to function as a level spreader for larger storms so that stormwater will sheet flow across the landscape.

We have engaged the services of Arrowwood Environmental (AE) to identify and map the natural resources on the site. AE has conducted that work and identified Class II wetlands on the subject parcel and adjoining site at 0 Pine Street, therefore a 50' State wetland's buffer and 100' City Wetland Conservation Zone apply at the 453 Pine Street site. The project does not propose any uses within the 50' State buffer, and no landscape features will be installed here. However, the project is required to have a perimeter fence, and it will be installed outside of the woods edge with helical piles to minimize impacts within the 50' State buffer. There will be no trees cut down for the installation of the fence.

There are currently invasive species within the 50' buffer to the wetland and the intention is to remove the invasives and replace them with native plants and vegetative cover indigenous to the conditions of the upland environments on the site. The long term 'maintenance' that will be prescribed for the 50' buffer inside the fence will be 'Low-Mow' or Naturalization as is the current management regime. The buffer will not be cut more than one time per year, allowing the new vegetation to grow and mature.

The proposed project does encroach into the 50'-100' City Wetland Conservation Zone and these items are within the permitted and regulated uses in Article 4.5.4(d). The features proposed within the 50'-100' area of the zone are stormwater treatment areas, some of which will include the installation of plants native to an upland buffer, and (2) geodesic domes as well as mowed walking paths and relaxation zones. The geodesic domes will require a concrete pier foundation. There is also a Phase 2 being proposed which is a private rental building and associated outdoor space that is within the 50'-100' City Wetland Conservation Zone. If the owner decides to proceed with the Phase 2 portion then a separate zoning permit will be required. Due to poor soil conditions on the site, there is limited development use to the west therefore why the Phase 2 building is proposed in the southeast corner, where there are better soils and less impact to the current site conditions.

AE will be preparing a report documenting their work and assessing any project impacts on the functions and values of the wetlands and overall natural area at the site.

Landscape Narrative

The proposed 453 Pine Street landscape is designed to reflect the main intention for the Silt Bath House landscape, which includes an inviting outdoor environment that provides:

- Beauty rich in colors, textures and patterns
- Serenity and relaxation
- Sound and fragrances
- Habitat for pollinators
- Connection to nature

The 453 Pine Street landscape will begin in the south end as a woodland garden that is an extension of the wooded and less developed character of the adjacent 501 Pine Street property. The native trees and shrubs will help to anchor the Silt Bath House into this natural environment. The character of Pine Street becomes more urban as you head north, and so will the landscape as it transitions to paved outdoor spaces in the main plaza surrounded by native tree/shrub/perennial gardens that reflect the intentions for the Bath House landscape. Planted berms embrace the Silt Bath House and mimic the rolling topography of Vermont meadows. Gathering spaces with benches, paths and gentle outdoor lighting will weave throughout the main plaza. The hope is this entire streetscape of 453 Pine will be inviting and interesting, and create a strong connection between the northern, more developed part of Pine Street to the open natural beauty of the southern part.

Silt Botanica Bathhouse Narrative

Silt Botanica is a Nordic bathhouse, offering indoor & outdoor heated pools, cold plunges, steam rooms, saunas, relaxation areas, expansive outdoor botanical gardens, and a four-season greenhouse.

All over the world bathhouses are used as community hubs, bringing people together across boundaries of age, gender, politics, and socioeconomics. They are a place to relax, catch up with your neighbors and get

the news of the day. Our goal is to create an immersive wellness destination for the Burlington community and the many visitors that enjoy Burlington on an annual basis. This will be a state-of-the-art health club offering a place to unwind, focus on self-care and build individual and community health and well-being.

The primary building's exterior design is made up of two simple gable forms hugging the southwest outdoor programmed, landscaped space. There are two entry/exit points, one facing Pine and one facing the pedestrian plaza. The journey to the bathhouse is meant to start at the procession to entry with a sense of calm, mystery, excitement, therefore why both entrances are incorporated into an earthen berm. The main building fronting Pine St houses lobby, locker rooms, treatment spaces and back of house spaces. The secondary form facing the parking lot is the four-season greenhouse which acts as relaxation space and a café for bathhouse visitors. The exterior design is inspired by Scandinavian Design Principles that include function, simple forms, natural light, sustainability, and connection to nature. The simple form allows for a calm façade and a calm guest experience without visual clutter. The earthen berm at the entry connects to nature and emphasizes the ethos of the bathhouse focused on botanicals and extensive gardens. The dark cladding creates a sense of mystery and curiosity. The rear portion of the building to the west has expansive outdoor botanical gardens, hot and cold thermal spas, saunas, and relaxation space within the landscape. There is also an accessory use 2,000 sf Café primarily for bathhouse guests but also available to the public for dining. The principal building height of the main building is approximately 34'-0" high, under the 45' maximum as stated in Table 4.4.3-1. There is also an elevator shaft roof that extends up to 40'-7" high, also under the maximum allowable height.

The facility would be open year-round except for 2-3 holidays/year where it would be closed. Operating hours are planned to be from 9am to 9pm with a possible change to an 11am opening during slower seasons (spring/winter) and an 8am during busier seasons (summer). The estimated number of employees working on-site at one time is 40.

Commercial Building Narrative

The commercial building at the north end of the site will serve as office or retail space. The footprint of the building is 4,200 gsf and is expected to be subdivided into three separate tenant spaces. Each tenant space includes a mezzanine providing a total building area of 12,400 gsf.

The building is to be situated 35' west of the property line and approximately 25'-0" from the northern property line. There are three main storefront entrances to the east facing Pine Street. Secondary entries will be provided at the building west side facing the rear parking lot. Mezzanines will be provided within each of the tenant spaces. The building is a simple rectilinear form with a flat roof. The exterior is clad in dark metal panels to complement Silt Bathhouse and the storefront glazing is picture framed in Corten steel providing an entry canopy at each entrance. Mezzanine level & transom windows facing south & west are planned to have Corten sunshade louvers. There is a small Corten steel pergola structure to the south activating the pedestrian plaza between the buildings and providing opportunity for outdoor use for the most southern tenant.

453 Pine St – Burlington, VT
COA Level II Application – Property Photos
5/22/23



1 – Site Aerial Photo



2 – Site Aerial Photo looking Northwest



3 – Site Aerial Photo looking Southwest



4 – Site Aerial Photo looking Southeast



5 – Site Aerial Photo looking Northeast



6 – Site Street Perspective Photo looking west from Dealer.com south entry drive



7 – Site Street Perspective Photo looking Northwest from east side of Pine St



8 – Site Street Perspective Photo looking west from Dealer.com north entry drive



JOB NAME: 453 PINE ST
APEX LIGHTING SOLUTIONS
WORKPLANE/CALC PLANE: AT FINISH GRADE
MOUNTING HEIGHT: SEE LUMINAIRE SCHEDULE
APPS: LED
SALES: TC
SPECIFIER: WIEMANN LAMPHERE ARCHITECTS

Luminaire Schedule							
Qty	Label	Arrangement	Lumens	Input Watts	LLF	BUG Rating	Description
45	L1	Single	240	8.8	0.900	B0-U0-G0	ZANEEN L9B232-30K
10	L4	Single	119	1	0.900	B0-U1-G0	MPL L01-2-W30H-W-C-0-FINISH / RECESSED IN CONCRETE TUNNEL CEILING @ 9FT AFG
3	P3	Single	6893	55.9	0.900	B2-U0-G2	USAL RZRM-PLED-III-M-24LED-700mA-30K-VOLT-1-FINISH / MOUNTED TO SNTS 154-11-1-FINISH
4	P4	Single	6841	55.9	0.900	B2-U0-G2	USAL RZRM-PLED-IV-24LED-700mA-30K-VOLT-1-FINISH / MOUNTED TO SNTS 154-11-1-FINISH
3	P5	Single	6844	55.9	0.900	B3-U0-G2	USAL RZRM-PLED-VSQ-W-24LED-700mA-30K-VOLT-1-FINISH / MOUNTED TO SNTS 154-11-1-FINISH
7	S	Single	2199	21.4	0.900	B0-U0-G1	USAL RZR-WM1-PLED-IV-FT-20LED-350mA-WW-VOLT-FINISH-HS-PLED / WALL MOUNTED @ 8FT AFG TO BOF

Calculation Summary						
Label	Grid Height	Avg	Max	Min	Avg/Min	Max/Min
CalcPts_1	0	0.24	25.4	0.0	N.A.	N.A.
PARKING LOT	0	1.89	13.4	0.5	3.78	26.80

GENERAL DISCLAIMER:
Calculations have been performed according to IES standards and good practice. Some differences between measured values and calculated results may occur due to tolerances in calculation methods, testing procedures, component performance, measurement techniques and field conditions such as voltage and temperature variations. Input data used to generate the attached calculations such as room dimensions, reflectances, furniture and architectural elements significantly affect the lighting calculations. If the real environment conditions do not match the input data, differences will occur between measured values and calculated values.

* LLF Determined Using Current Published Lamp Data

NOTE TO REVIEWER:
Total Light Loss Factor (LLF) applied at time of design is determined by applying the Lamp Lumen Depreciation (LLD) from current lamp manufacturer's catalog, a Luminaire Dirt Depreciation Factor (LDD) based on IES recommended values and a Ballast Factor (BF) from current ballast specification sheets. Application of an incorrect Light Loss Factor (LLF) will result in forecasts of performance that will not accurately depict actual results.
For proper comparison of photometric layouts, it is essential that you insist all



20-30 BEAVER ROAD, WETHERSFIELD, CT 06109
TELEPHONE 860.632.8766 / WWW.APEXLTG.COM

PROJECT TITLE:
453 PINE ST

DRAWING TITLE:
SITE LIGHTING
PHOTOMETRIC CALCULATION

SCALE : 1"=30'-0"

DATE: 5/22/23

DRAWN BY: LED
SHEET:

SL-1

STICK POST

L9B232-

base number Color
Temperature

1. To build a product code in our configurator select the specify button on the base model # product page
2. To build a manual product code on this datasheet choose from the options listed below in blue font and add the suffix to the base model #

GENERAL
Series: Stick
Brand: Platek
Division: Exterior
Mounting Type: Post
Mounting Location: Above Ground
Subcategory: Bollard

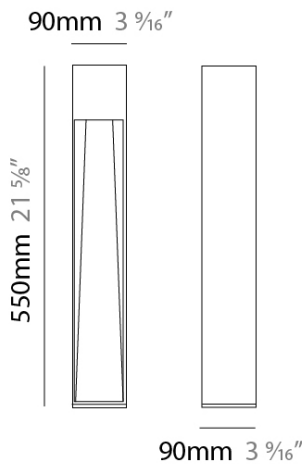
PHYSICAL
Shape: Rectangle
Length (mm): 90
Length (in): 3 5/16
Width (mm): 90
Width (in): 3 5/16
Height (mm): 550
Height (in): 21 5/8
Light Distribution: Direct
Weight (kg): 6.6
Weight (lbs): 14.55
Screws: No visible screws
Diffuser: PMMA
Fixture Finish: GRY
Fixture Material: Concrete

ELECTRICAL
Input Wattage Range: 10 - 19 W
Lamp Type: LED
Input Wattage (W): 9
Total Output Wattage (W): 8.5
Dimming: Non-Dimming / Phase Dimming (120Vac only) / 0-10V Dimming
Driver Included: No
Driver Location: Remote
Driver Type: Constant Current - Universal
Input Voltage (V): 120 / 277
Constant Current (MA): 700

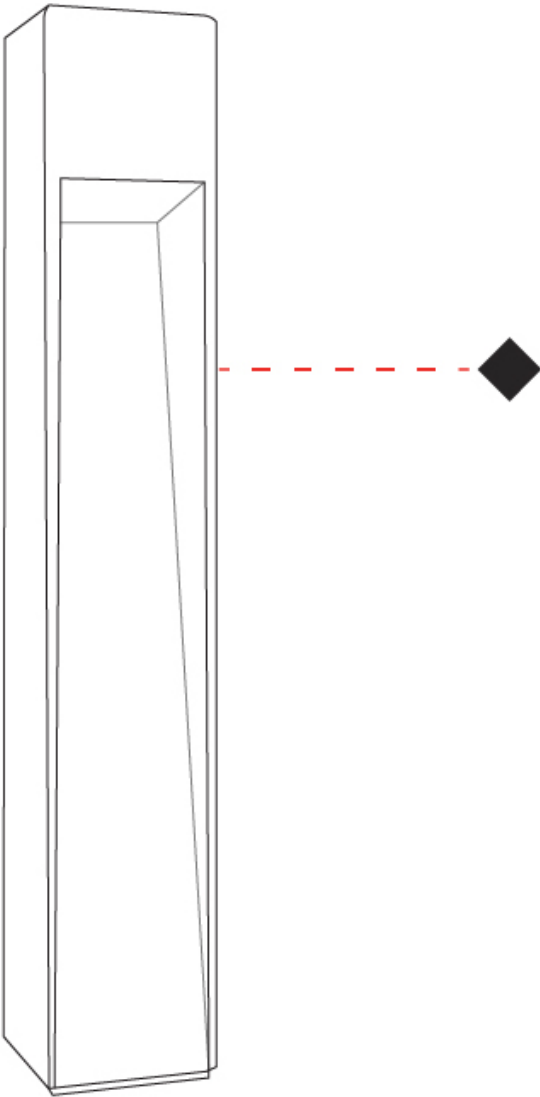
LED
Delivered Lumen Range: 100 - 499 lm
Color Temperature (°K): 3000 / 4000
Max. Delivered Lumen (lm): 305 / 315
Nominal Lumen (lm): 750 / 800
CRI: >80 CRI
Lamp Life (hrs): 60000

RATINGS AND CERTIFICATIONS
Certified By: Certified for North American Standards
IP rating: IP65
IK Rating: IK06

PROJECT
TYPE
SPECIFIER
QUANTITY
DATE



PROJECT
TYPE
SPECIFIER
QUANTITY
DATE



PROJECT
TYPE
SPECIFIER
QUANTITY
DATE

Fixture Finish

Gray - GRY



Digital: Not all screens are calibrated the same, and therefore, colors will appear differently between screens.
Physical: When texture is involved, there will be variations in color, character and tone within a product series and between product families.



LEGEND

	floor-mounted		pivotal		special LED (upon request) RGB, RGBW, tunable, gold+, meat+, art+, fashion+
	wall and ceiling: recessed and surface mounted		rotating		warm dim / natural dimming LED
	ceiling-mounted and wall-mounted		illuminate tilted		rechargeable battery powered
	wall-mounted		color of suspension cable		fixture with natural vivid LED (upon request)
	omni-directional light distribution		length of suspension cable		color rendering index
	direct light distribution		reflector degree selection		color temperature
	direct/indirect light distribution		super spot		lumen (luminous flux)
	indirect light distribution		lens		efficacy (lumens per watt)
	asymmetric light distribution		lens pack		Unified Glare Rating (UGR) range from 5-40
	aura light distribution		shine ring		marine grade (AISI 316 stainless steel)
	round wall or ceiling cut-out		integrated shine ring with diffuser		walk on
	square wall or ceiling cut-out		free individual colors 01-29		drive on
	the supplied jig specifies the cutout dimensions		individual colors: 00 (free of charge), 01-25 (extra charge)		Dark Sky Compliance
	minimum distance (meters) lamp - object		luminaire part to be colored (F1)		Americans with Disabilities Act (less than 4" off the wall located between 27"-84" from floor)
	recessed depth		luminaire part to be colored (F2)		lamp protected against explosion
	ceiling thickness in mm		luminaire part to be colored (F3)		blown glass using traditional methods by master glass blower
	ceiling thickness selection		luminaire part to be colored (F4)		acoustic material
	dimmable DP (phase), DV (0-10V), DD (dali), DS (step-dim)		luminaire part to be colored (F5)		protection class I, protection insulation
	included or excluded LED driver/transformer/control gear		color of 3-circuit adaptor		protection class II, protection insulation
	separately switchable		indirect diffuser		ETL Certified to UL and CSA Standards
	sensor		direct diffuser		UL Certified to UL and CSA Standards
	remote control		ball-proof (upon request)		CSA Certified to UL and CSA Standards
	available upon request		accessory		Certified for North American Standards

IP RATING

	protected against ingress of solid bodies greater than 12.5mm (finger)
	protected against ingress of solid bodies greater than 2.5mm protected against sprays of water up to 60 degrees from the vertical (rain)
	protected against ingress of solid bodies greater than 1mm (wire) no protection against the ingress of moisture
	protected against ingress of solid bodies greater than 1mm (wire) protected against sprays of water up to 60 degrees from the vertical (rain)
	protected against ingress of solid bodies greater than 1mm (wire) protected against water splashed from all directions
	protected against limited ingress of dust (wet rooms/covered outdoor areas) protected against water splashed from all directions
	protected against ingress of dust protected against jets of water
	protected against ingress of dust protected against powerful jets of water or heavy seas
	protected against ingress of dust protected against immersion of water between 15cm - 1m for 30 minutes
	protected against ingress of dust protected against immersion of water under pressure for long periods

IK RATING

	protected against 0.14 joules impact (equivalent to 0.25kg mass dropped from 56mm above the surface)
	protected against 0.2 joules impact (equivalent to 0.25kg mass dropped from 80mm above the surface)
	protected against 0.35 joules impact (equivalent to 0.25kg mass dropped from 140mm above the surface)
	protected against 0.5 joules impact (equivalent to 0.25kg mass dropped from 200mm above the surface)
	protected against 0.7 joules impact (equivalent to 0.25kg mass dropped from 280mm above the surface)
	protected against 1 joules impact (equivalent to 0.25kg mass dropped from 400mm above the surface)
	protected against 2 joules impact (equivalent to 0.5kg mass dropped from 400mm above the surface)
	protected against 5 joules impact (equivalent to 1.7kg mass dropped from 300mm above the surface)
	protected against 10 joules impact (equivalent to 5.0kg mass dropped from 200mm above the surface)
	protected against 20 joules impact (equivalent to 5.0kg mass dropped from 400mm above the surface)

L01

EXTERIOR | INTERIOR

In-grade | For ground, ceilings, walls, and stairs

Wet, Damp, and Dry location



Ordering Information

Clear Form

Date :

Quantity :

Project :

Note :

Type :

Specifications

Luminaire | Example Code: L01-2-W30H-S-C-[]-0-MK3-S-S6

Product	Version	CCT & CRI	Beam Angle ¹	Lens	Accessories ³ (optional)	Internal Angle Bracket ⁴	Mounting Kit ⁵ (optional)	Flange & Back Box ⁶	Trim Finish ⁹
L01									
	1 1W	W22S 2200K 80+	E elliptical 7°+36°	C clear	LM louver, matte anodized	0 no angle	MK1 vertical surface	Octagonal Aluminum	Aluminum Finishes:
	2 2W	W27H 2700K 90+	SS super spot 8°	F frosted	LB louver, black anodized	15 15° angle	MK3 in-ground	Back Box with:	MA matte clear anodized
		W30H 3000K 90+	S spot 12°	A anti-slip ²	HM hex louver, matte anodized	X custom		S standard flange	BA black anodized
		W35H 3500K 90+	N narrow flood 30°		HB hex louver, black anodized			depth: 3-1/2" (89mm)	BZ bronze powder coated
		W41H 4100K 90+	F flood 45°		AB angled louver, black anodized			P paving stone flange	Stainless Steel Finishes:
			W wide flood 120°		SB straight louver, black anodized			depth: 5-1/2" (138mm) ⁷	S6 stainless steel 316
					QB square louver, black anodized			Pipe ⁸ :	BT0 black stainless steel
					RB ring louver, black anodized			PIPE 1-5/8" PVC pipe	Other Materials:
								length: 11-13/16" (300mm)	ABZ antique bronze
								NB no back box or flange	ABR antique brass
									PBR polished brass

System Components (Ordered Separately)

Remote Driver :

Control System :

On/Off | Dimming ELV or 0-10 dimming

Other options (consult factory) TRIAC/MLV, DMX, DALI, Casambi, PoE

Important Notes

- Specification

 - See Light Distribution section for illustration of different combinations of beam angles and angle bracket. Elliptical and Super Spot beam angles are only available with clear lens, and are not available with louver accessories or angle brackets.
 - Anti-slip is only available with Clear lens. Refer to Appendix or MP Lighting website for images and details.
 - Louvers will be below the glass cover. Only available when there is no Internal Angle Bracket.
 - Internal angle bracket is factory set, and cannot be field adjusted. 5° increments to maximum of 20° without accessories. Not applicable for super spot or elliptical options.
- Mounting kit is ordered separately. Please consult factory.
 - For components included, refer to Luminaire Construction section. See pg.3 for back box and flange options.
 - Paving stone flange is also recommended for a better cement/concrete flow.
 - Factory set length of 11-13/16" (300mm). Visit [PIPE-C](#) for details.
 - Different finish options are only applicable to trim ring and not for LED module housing. Refer to Appendix or MP Lighting website for complete look of luminaire with different trim finish options.

Warranty Notes & Disclaimer

Malfunction and damage to product due to incompatible dimming system or misuse will not be covered under warranty. Consult MP Lighting for recommended drivers. If the fixture has an option to be installed with a dimming control system, consult a dimming system manufacturer with minimum load before installing. MP Lighting reserves the right, at its sole discretion, at any time and without notice, to make design changes to any of our products. Consult MP Lighting website for most updated documentation.

L01

EXTERIOR | INTERIOR

In-grade | For ground, ceilings, walls, and stairs

Wet, Damp, and Dry location



Performance

Wattage	Forward Current	Power Consumption Budget per fixture (including driver)	LED output (Source)	Fixture Output (Delivered)
1W	350mA	1.3W	110 lm	27-63 lm
2W	700mA	2.6W	220 lm	49-119 lm

Application

Environment	Wet / Damp / Dry Location approved. IP 68.
Drive Over Rating	9,700 lbs (4,400 kg)
Mounting	Recessed: Designed to be cast into earth, gravel, or concrete or inserted into paving stones or pavers. Included backbox, flange and level for direct burial or casting applications. MK1 mounting kit (optional): Recommended for easy installation on vertical surfaces (e.g. stair risers, walls), and downward-facing surfaces (e.g. ceilings, soffits). See "Mounting Options & Dimensions, " or visit MK1 MK3 mounting kit (optional): Recommended for thicker concrete slab and paving stone in-ground installation. Custom rectangular electrical box option is available for stair riser&wall installation. See "Mounting Options & Dimensions, " or visit MK3

Electrical

Power Supplies	Remote LED drivers (120-277V AC input, constant current output): Fixtures to be wired in series.
Control	On/off control Dimming: ELV or 0-10V dimming with appropriate drivers Other options (consult factory): TRIAC/MLV, DMX, DALI, Casambi, Power over Ethernet

Luminaire Construction

LED Light Source	W22S = CCT: 2200K, CRI (Ra): 80+, Colour Consistency: 3SDCM W27H = CCT: 2700K, CRI (Ra): 90+, Colour Consistency: 2SDCM W30H = CCT: 3000K, CRI (Ra): 90+, Colour Consistency: 2SDCM W35H = CCT: 3500K, CRI (Ra): 90+, Colour Consistency: 2SDCM W41H = CCT: 4100K, CRI (Ra): 90+, Colour Consistency: 3SDCM
Weight	1.8 lbs (0.816 kg). Typical Aluminum Insert & Back Box only.
Material	Fixture: machined marine-grade aluminum, machined brass or machined stainless steel (316) with tempered glass
Supplied with	Standard installation housing: Comes with an octagonal back box, a flange/pipe, an integral leveling device, a plastic cap, gel filled wire nuts, and silicone grease. Cable: 6" (152mm) factory-installed wire lead
Warranty & LED Life	5 years limited warranty. Estimated useful life of LED is 50,000 hours.

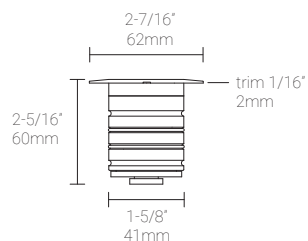
Ordered Separately

System Components	Power supplies: remote driver Please consult factory or visit Recommended Drivers for available driver options. Mounting kits: MK1 or MK3 (custom length rebar in MK3 supplied by contractors) Single Gang Boxes: see Pg.3-5 Mounting Options & Dimensions.
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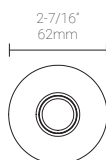
Mounting Options & Dimensions

LED Insert Dimensions

Fixture



Top View



3D View

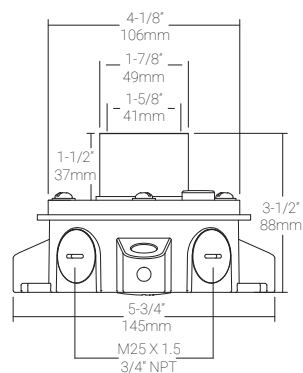


Beam

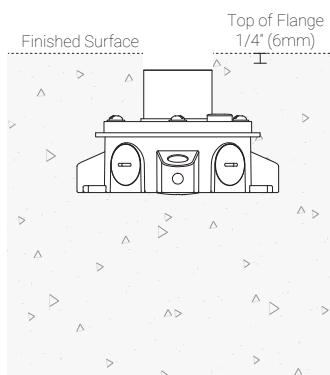


In-ground Installation | Shown with MP Lighting Back Box & Standard Flange (Order Code: **EBX-OCT1-CSMA**)

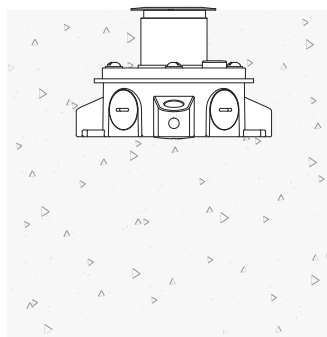
Box with Standard Flange



Box with Standard Flange:
During Concrete Installation

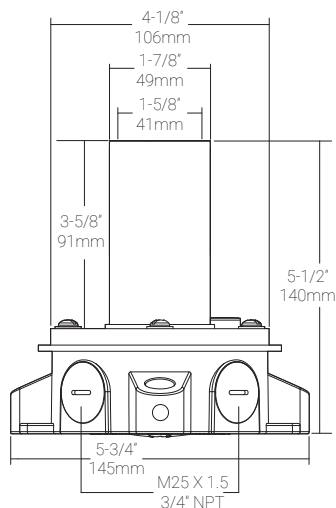


Box with Standard Flange:
Complete Concrete Installation

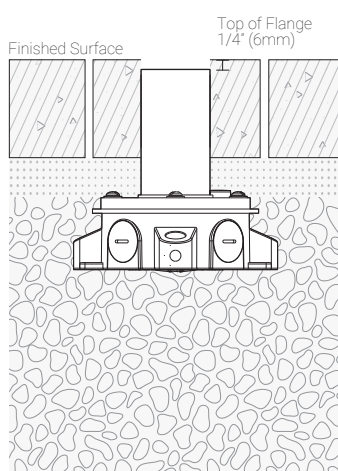


In-ground Installation | Shown with MP Lighting Back Box & Paving Stone Flange (Order Code: **EBX-OCT1-CPMA**)

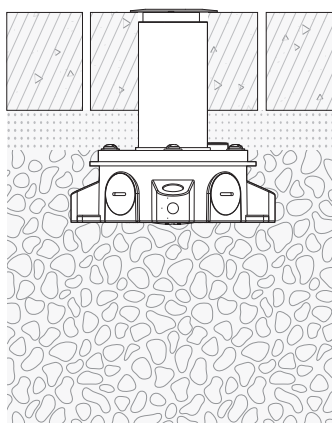
Box with Paving Stone Flange:



Box with Paving Stone Flange:
During Paving Stone Installation



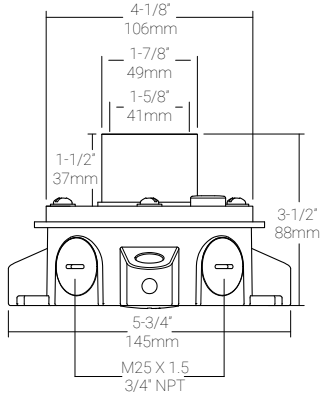
Box with Paving Stone Flange:
Complete Paving Stone Installation



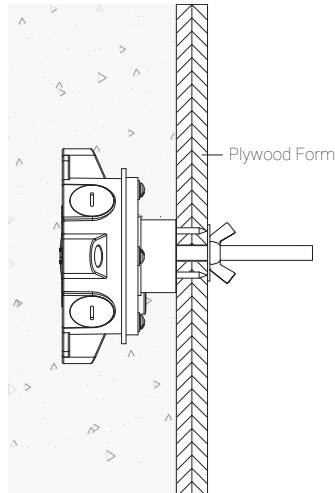
Mounting Kits

MK1(MK1-OCT1-C) : Ceiling, Wall, and Stair Riser Installation | Shown with MP Lighting Back Box (Order Code: **EBX-OCT1-CSMA**)

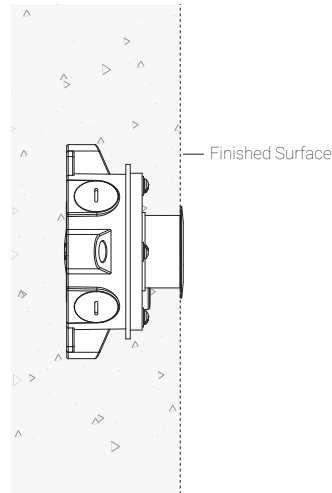
Box with Standard Flange



Box with Standard Flange & MK1:
During Installation



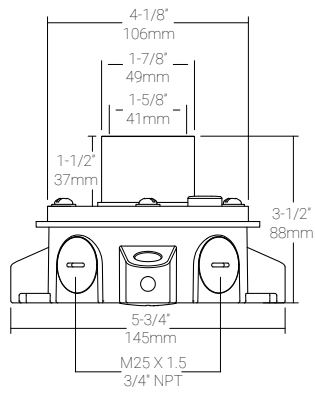
Box with Standard Flange:
Complete Installation



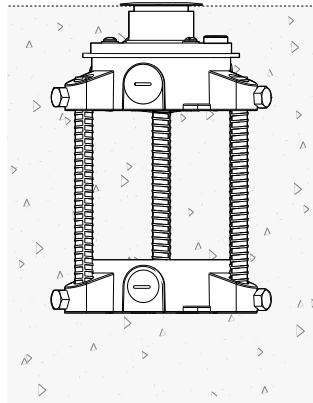
6" (152mm) threaded rod is supplied. Thread size: 3/8"-16

MK3: In-ground Installation | Shown with MP Lighting Back Box (Order Code: **EBX-OCT1-CSMA** or **EBX-OCT1-CPMA**)

Back Box (EBX-OCT1-CSMA)

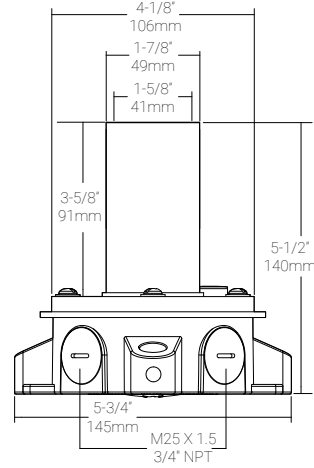


MK3 with Standard Flange and
Back Box

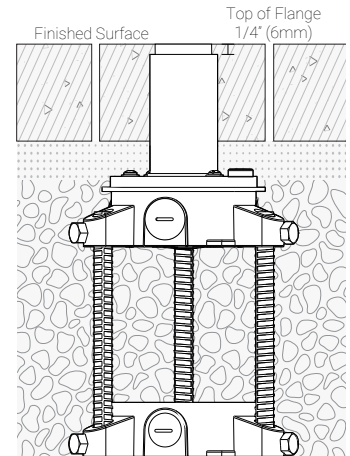


Rebar supplied by others.
Recommended size: Ø1/2"

Back Box (EBX-OCT1-CPMA)



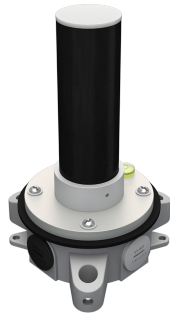
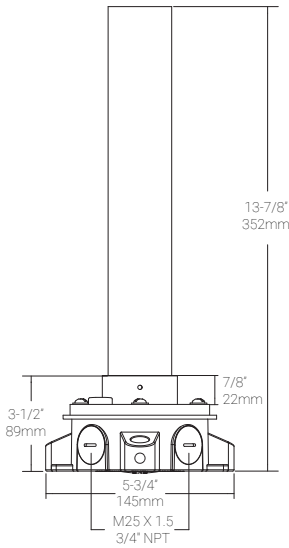
MK3 with Paving Stone Flange
and Back Box



Rebar supplied by others.
Recommended size: Ø1/2"

EBX-OCT1-CPIPE

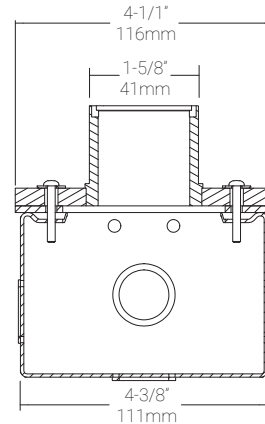
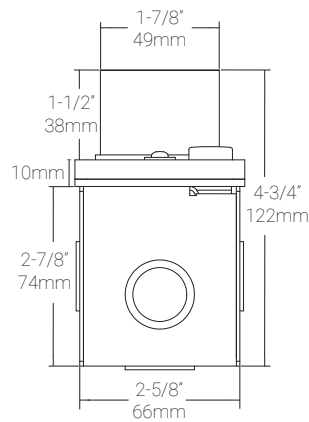
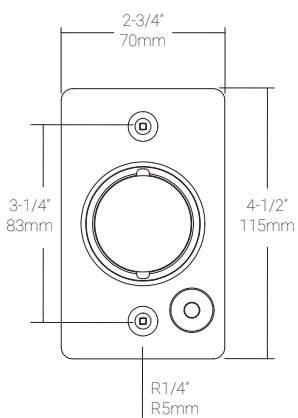
PIPE (PIPE-C) : In-ground/Landscape Installation | Shown with MP Lighting Back Box (Order Code: **EBX-OCT1-CPIPE**)



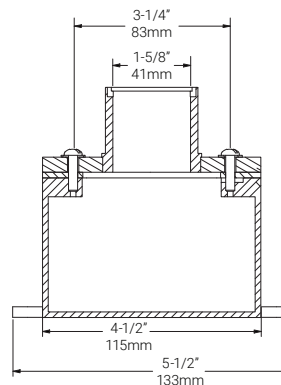
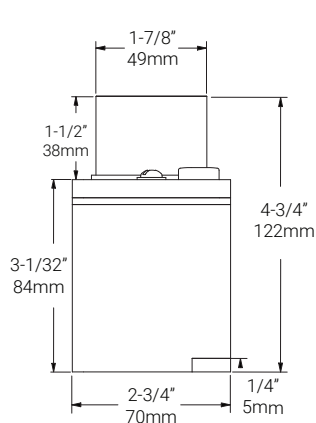
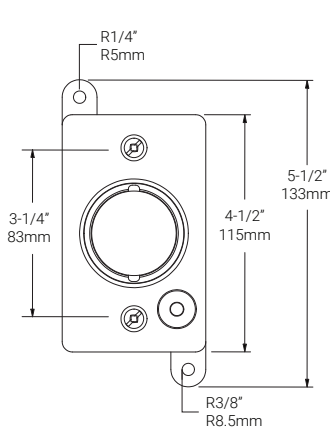
Rectangular Back Box for Wall Installation | shown with standard flange

1. For wall installation, custom rectangular electrical boxes are available as alternative options.

MP Lighting Single Gang Back Box | Order Code: **EBX-SGB1-CSMA**

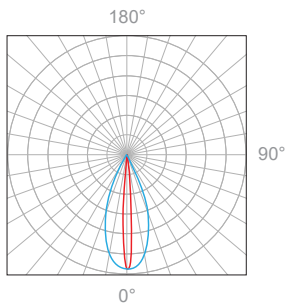


Scepter FD Back box | Order Code: **EBX-SFD-CSMA**

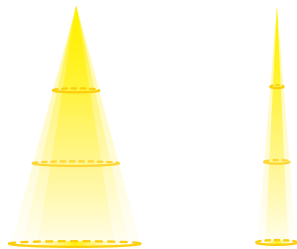


1W, 3000K, 90+ CRI

Polar Candela Distribution



Beam Width: 7° + 36°



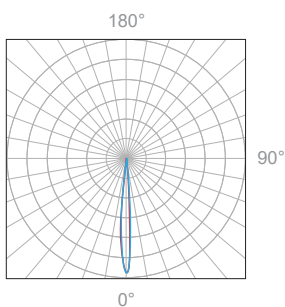
Illuminance at a Distance

Distance		Center Beam fc	Beam Width			
1.5ft	0.46m	92.9fc	1.0ft	0.30m	0.2ft	0.06m
3.0ft	0.91m	23.2fc	2.0ft	0.61m	0.4ft	0.12m
4.5ft	1.37m	10.3fc	2.9ft	0.88m	0.5ft	0.15m
6.0ft	1.83m	5.81fc	3.9ft	1.18m	0.7ft	0.21m
7.5ft	2.29m	3.72fc	4.9ft	1.49m	0.9ft	0.27m
9.0ft	2.74m	2.58fc	5.9ft	1.79m	1.0ft	0.30m

Delivered Lumen: 27 lm

■ Vertical Beam Spread: 36.1°
■ Horizontal Beam Spread: 6.7°

Polar Candela Distribution



Beam Width: 8°



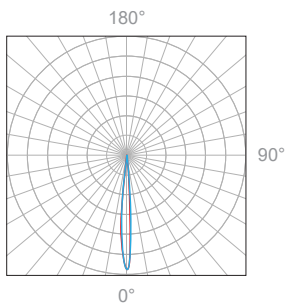
Illuminance at a Distance

Distance		Center Beam fc	Beam Width			
1.5ft	0.46m	537fc	0.2ft	0.06m	0.2ft	0.06m
3.0ft	0.91m	134fc	0.4ft	0.12m	0.5ft	0.15m
4.5ft	1.37m	59.6fc	0.6ft	0.18m	0.7ft	0.21m
6.0ft	1.83m	33.5fc	0.8ft	0.24m	0.9ft	0.27m
7.5ft	2.29m	21.5fc	1.1ft	0.33m	1.2ft	0.36m
9.0ft	2.74m	14.9fc	1.3ft	0.39m	1.4ft	0.42m

Delivered Lumen: 46.2 lm

■ Vertical Beam Spread: 8.1°
■ Horizontal Beam Spread: 8.8°

Polar Candela Distribution



Beam Width: 12°



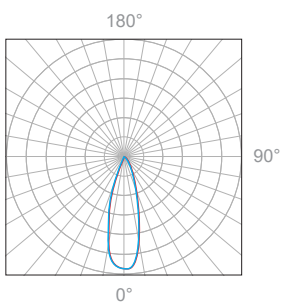
Illuminance at a Distance

Distance		Center Beam fc	Beam Width			
1.5ft	0.46m	424fc	0.3ft	0.09m	0.3ft	0.09m
3.0ft	0.91m	140fc	0.6ft	0.18m	0.6ft	0.18m
4.5ft	1.37m	62fc	0.9ft	0.27m	0.9ft	0.27m
6.0ft	1.83m	35fc	1.3ft	0.39m	1.3ft	0.39m
7.5ft	2.29m	23fc	1.6ft	0.48m	1.6ft	0.48m
9.0ft	2.74m	16fc	1.9ft	0.58m	1.9ft	0.58m

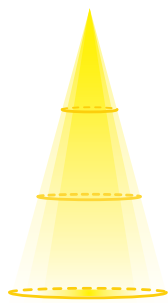
Delivered Lumen: 63.4 lm

■ Vertical Beam Spread: 12°
■ Horizontal Beam Spread: 12°

Polar Candela Distribution



Beam Width: 30°



Illuminance at a Distance

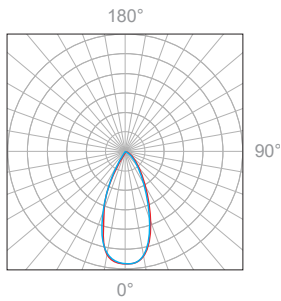
Distance		Center Beam fc	Beam Width			
1.5ft	0.46m	82.3fc	0.8ft	0.24m	0.8ft	0.24m
3.0ft	0.91m	20.6fc	1.6ft	0.49m	1.6ft	0.49m
4.5ft	1.37m	9.14fc	2.4ft	0.73m	2.4ft	0.73m
6.0ft	1.83m	5.14fc	3.2ft	0.98m	3.2ft	0.98m
7.5ft	2.29m	3.29fc	4.0ft	1.22m	4.0ft	1.22m
9.0ft	2.74m	2.29fc	4.7ft	1.43m	4.7ft	1.43m

Delivered Lumen: 65.8 lm

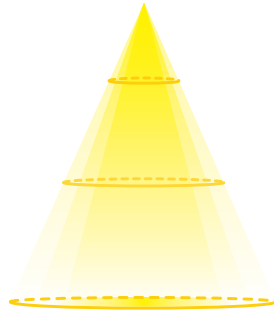
■ Vertical Beam Spread: 29.5°
■ Horizontal Beam Spread: 29.5°

1W, 3000K, 90+ CRI

Polar Candela Distribution



Beam Width: 45°



Illuminance at a Distance

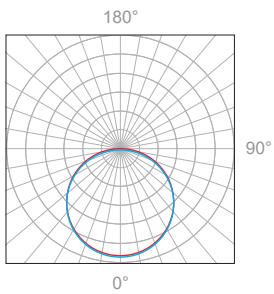
Distance		Center Beam fc	Beam Width			
3.0ft	0.91m	12.1fc	2.6ft	0.79m	2.5ft	0.76m
6.0ft	1.83m	3.04fc	5.1ft	1.55m	5.1ft	1.55m
9.0ft	2.74m	1.35fc	7.7ft	2.34m	7.6ft	2.31m
12.0ft	3.65m	0.76fc	10.2ft	3.10m	10.1ft	3.07m
15.0ft	4.57m	0.49fc	12.8ft	3.90m	12.6ft	3.84m
18.0ft	5.48m	0.34fc	15.4ft	4.69m	15.2ft	4.63m

Delivered Lumen: 77.7 lm

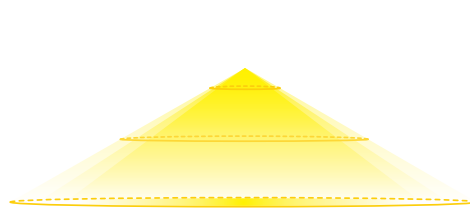
■ Vertical Beam Spread : 46.2°

■ Horizontal Beam Spread : 45.7°

Polar Candela Distribution



Beam Width: 120°



Illuminance at a Distance

Distance		Center Beam fc	Beam Width			
1.5ft	0.46m	11.3fc	4.1ft	1.25m	4.1ft	1.25m
3.0ft	0.91m	2.82fc	8.1ft	2.46m	8.1ft	2.46m
4.5ft	1.37m	1.26fc	12.2ft	3.71m	12.2ft	3.71m
6.0ft	1.83m	0.71fc	16.3ft	4.96m	16.3ft	4.96m
7.5ft	2.29m	0.45fc	20.3ft	6.18m	20.3ft	6.18m
9.0ft	2.74m	0.31fc	24.4ft	7.43m	24.4ft	7.43m

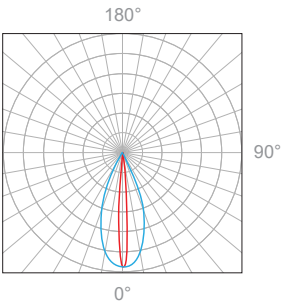
Delivered Lumen: 63 lm

■ Vertical Beam Spread : 107.1°

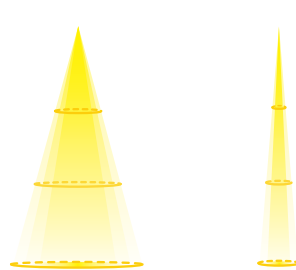
■ Horizontal Beam Spread : 107.1°

2W, 3000K, 90+ CRI

Polar Candela Distribution



Beam Width: 7° + 36°



Illuminance at a Distance

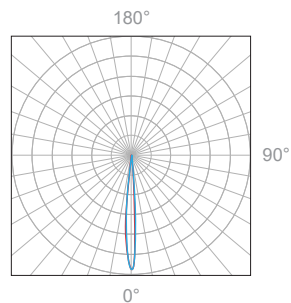
Distance		Center Beam fc	Beam Width			
1.5ft	0.46m	165fc	1.0ft	0.30m	0.2ft	0.06m
3.0ft	0.91m	41.3fc	2.0ft	0.61m	0.4ft	0.12m
4.5ft	1.37m	18.3fc	2.9ft	0.88m	0.5ft	0.15m
6.0ft	1.83m	10.3fc	3.9ft	1.18m	0.7ft	0.21m
7.5ft	2.29m	6.60fc	4.9ft	1.49m	0.9ft	0.27m
9.0ft	2.74m	4.59fc	5.9ft	1.79m	1.1ft	0.33m

Delivered Lumen: 49 lm

■ Vertical Beam Spread: 36.3°

■ Horizontal Beam Spread: 6.8°

Polar Candela Distribution



Beam Width: 8°



Illuminance at a Distance

Distance		Center Beam fc	Beam Width			
1.5ft	0.46m	1,015fc	0.2ft	0.06m	0.2ft	0.06m
3.0ft	0.91m	254fc	0.4ft	0.12m	0.4ft	0.12m
4.5ft	1.37m	113fc	0.7ft	0.21m	0.6ft	0.18m
6.0ft	1.83m	63.4fc	0.9ft	0.27m	0.9ft	0.27m
7.5ft	2.29m	40.6fc	1.1ft	0.33m	1.1ft	0.33m
9.0ft	2.74m	28.2fc	1.3ft	0.39m	1.3ft	0.39m

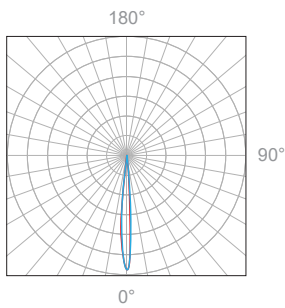
Delivered Lumen: 61.3 lm

■ Vertical Beam Spread: 8.5°

■ Horizontal Beam Spread: 8.2°

2W, 3000K, 90+ CRI

Polar Candela Distribution



Beam Width: 12°



Illuminance at a Distance

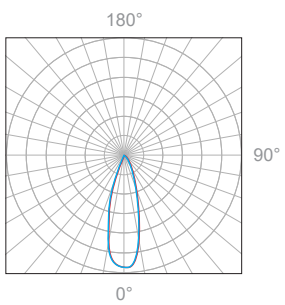
Distance		Center Beam fc	Beam Width			
1.5ft	0.46m	774fc	0.3ft	0.09m	0.3ft	0.09m
3.0ft	0.91m	194fc	0.6ft	0.18m	0.6ft	0.18m
4.5ft	1.37m	86fc	0.9ft	0.27m	0.9ft	0.27m
6.0ft	1.83m	48.4fc	1.3ft	0.39m	1.3ft	0.39m
7.5ft	2.29m	31fc	1.6ft	0.48m	1.6ft	0.48m
9.0ft	2.74m	21.5fc	1.9ft	0.58m	1.9ft	0.58m

Delivered Lumen: 116.8 lm

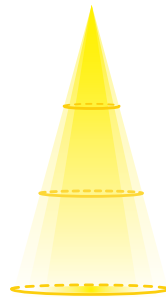
■ Vertical Beam Spread: 12°

■ Horizontal Beam Spread: 12°

Polar Candela Distribution



Beam Width: 30°



Illuminance at a Distance

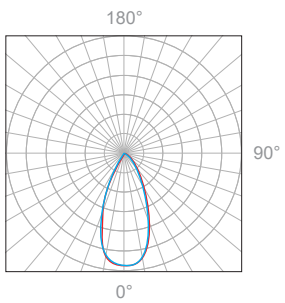
Distance		Center Beam fc	Beam Width			
1.5ft	0.46m	152fc	0.8ft	0.24m	0.8ft	0.24m
3.0ft	0.91m	38fc	1.6ft	0.48m	1.6ft	0.48m
4.5ft	1.37m	16.9fc	2.4ft	0.73m	2.4ft	0.73m
6.0ft	1.83m	9.49fc	3.2ft	0.97m	3.2ft	0.97m
7.5ft	2.29m	6.07fc	4.0ft	1.22m	4.0ft	1.22m
9.0ft	2.74m	4.22fc	4.7ft	1.43m	4.7ft	1.43m

Delivered Lumen: 121 lm

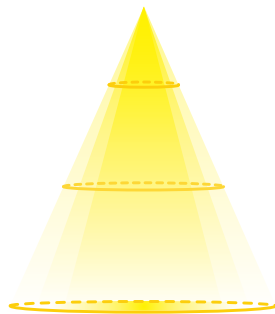
■ Vertical Beam Spread: 29.5°

■ Horizontal Beam Spread: 29.5°

Polar Candela Distribution



Beam Width: 45°



Illuminance at a Distance

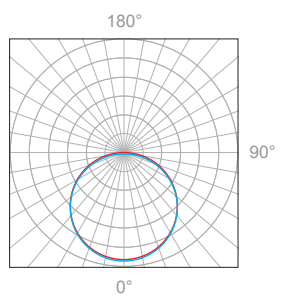
Distance		Center Beam fc	Beam Width			
3.0ft	0.91m	21.8fc	2.6ft	0.79m	2.6ft	0.79m
6.0ft	1.83m	5.45fc	5.2ft	1.58m	5.1ft	1.55m
9.0ft	2.74m	2.42fc	7.7ft	2.34m	7.7ft	2.34m
12.0ft	3.65m	1.36fc	10.3ft	3.13m	10.2ft	3.10m
15.0ft	4.57m	0.87fc	12.9ft	3.93m	12.8ft	3.90m
18.0ft	5.48m	0.61fc	15.5ft	4.72m	15.3ft	4.66m

Delivered Lumen: 139.1 lm

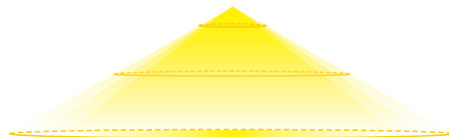
■ Vertical Beam Spread : 46.5°

■ Horizontal Beam Spread : 46.1°

Polar Candela Distribution



Beam Width: 120°



Illuminance at a Distance

Distance		Center Beam fc	Beam Width			
1.5ft	0.46m	21.3fc	4.1ft	1.25m	4.1ft	1.25m
3.0ft	0.91m	5.33fc	8.1ft	2.46m	8.1ft	2.46m
4.5ft	1.37m	2.37fc	12.2ft	3.71m	12.2ft	3.71m
6.0ft	1.83m	1.33fc	16.3ft	4.96m	16.3ft	4.96m
7.5ft	2.29m	0.85fc	20.3ft	6.18m	20.3ft	6.18m
9.0ft	2.74m	0.59fc	24.4ft	7.43m	24.4ft	7.43m

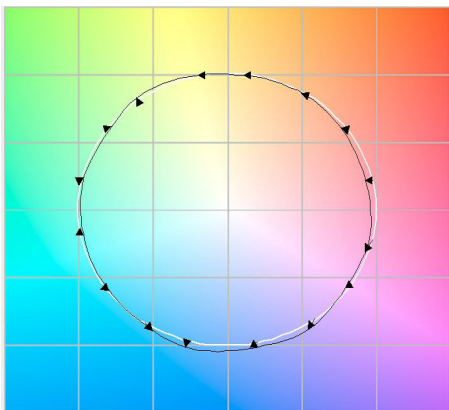
Delivered Lumen: 119 lm

■ Vertical Beam Spread : 107.1°

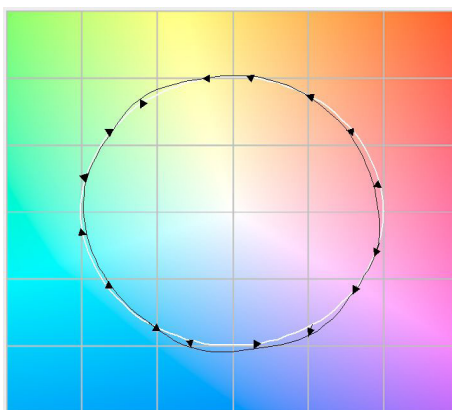
■ Horizontal Beam Spread : 107.1°

TM30 Report

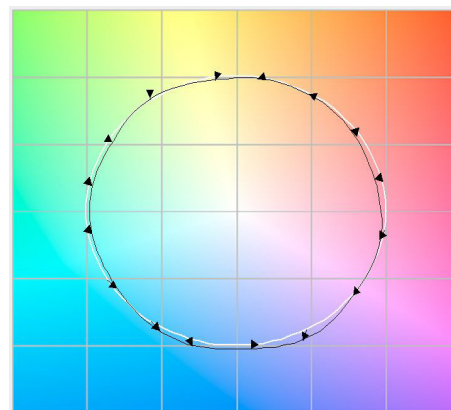
2700K, 90+CRI



3000K, 90+CRI

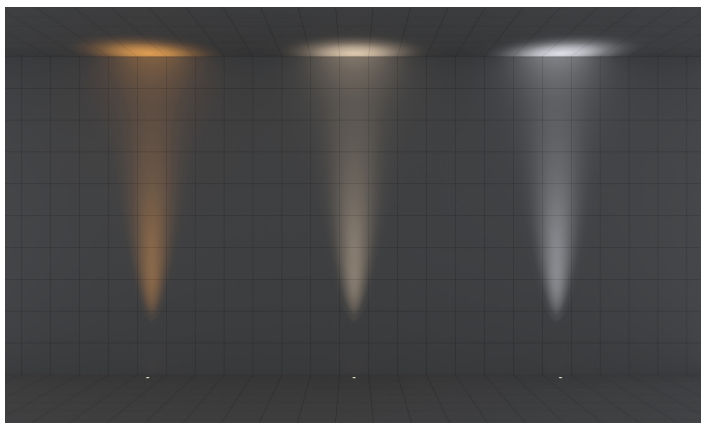


3500K, 90+CRI

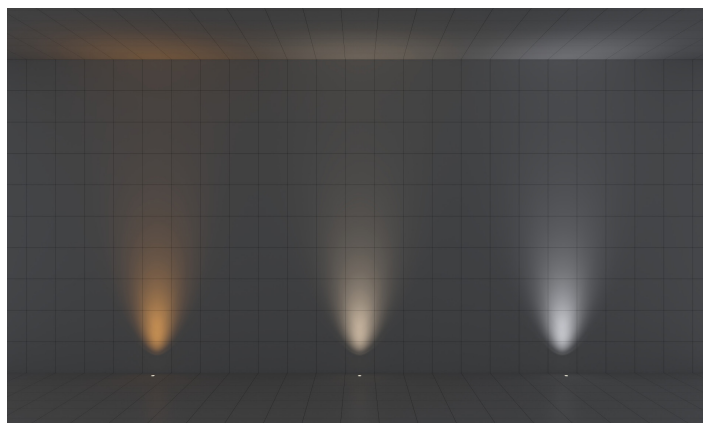


Colour Temperature Comparison | 2200K, 2700K, 3000K

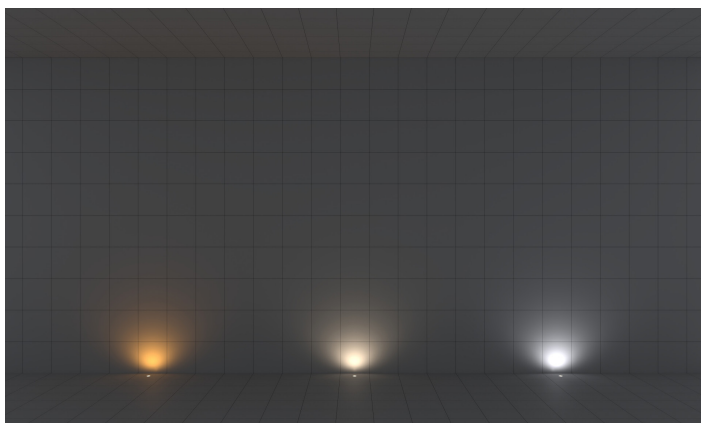
12° | 6" (152mm) Gap | 10ft Wall



30° | 6" (152mm) Gap | 10ft Wall

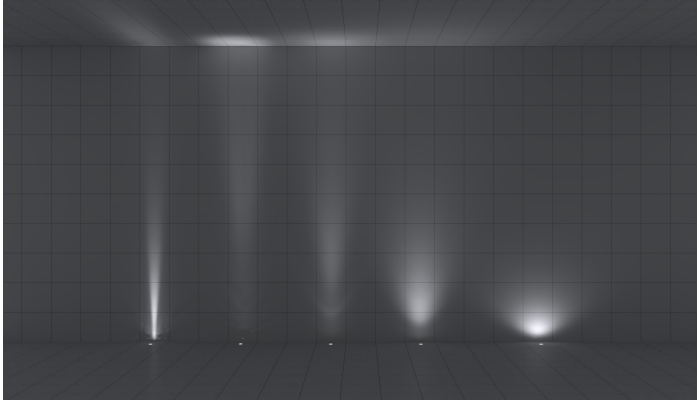


120° | 6" (152mm) Gap | 10ft Wall



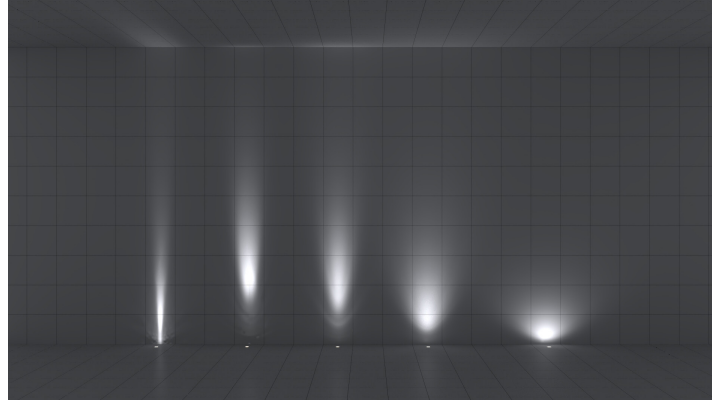
Light Distribution | 10ft Wall | Fixtures installed 6" (152mm) away from the wall

L01 | 1W | 0° angle bracket | 10ft wall | Clear Lens | 3000K



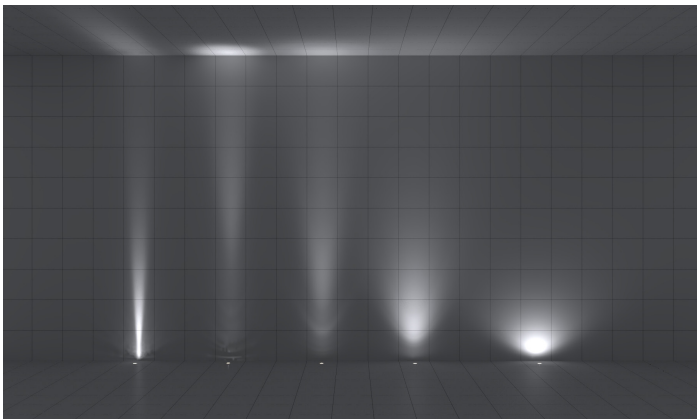
From left to right:
E elliptical 7°+ 36°
SS super spot 8°
S spot 12°
N narrow flood 30°
W wide flood 120°

L01 | 1W | 10° angle bracket | 10ft wall | Clear Lens | 3000K



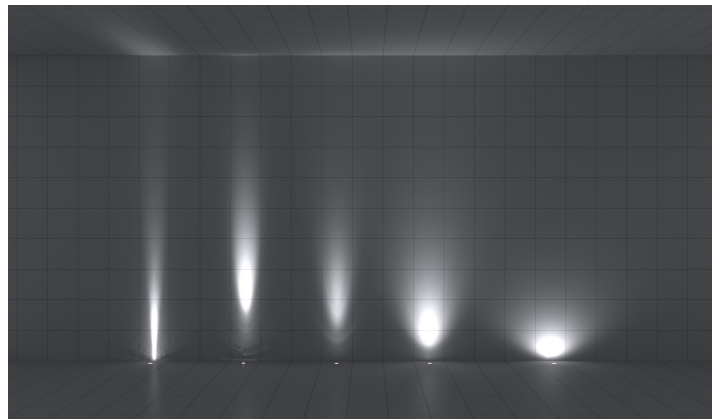
From left to right:
E elliptical 7°+ 36°
SS super spot 8°
S spot 12°
N narrow flood 30°
W wide flood 120°

L01 | 2W | 0° angle bracket | 10ft wall | Clear Lens | 3000K



From left to right:
E elliptical 7°+ 36°
SS super spot 8°
S spot 12°
N narrow flood 30°
W wide flood 120°

L01 | 2W | 10° angle bracket | 10ft wall | Clear Lens | 3000K

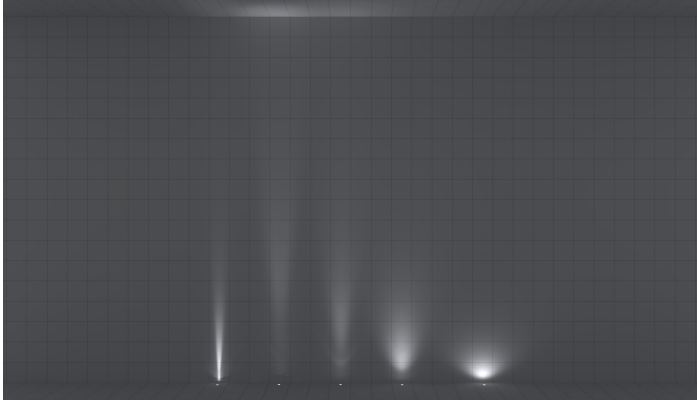


From left to right:
E elliptical 7°+ 36°
SS super spot 8°
S spot 12°
N narrow flood 30°
W wide flood 120°

* Images will appear darker when printed.

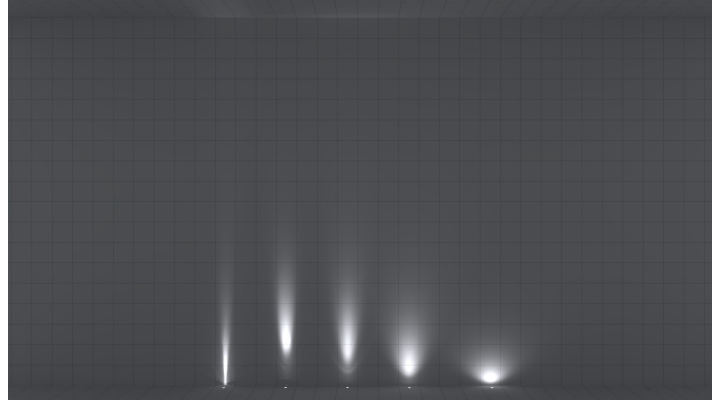
Light Distribution | 18ft Wall | Fixtures installed 6" (152mm) away from the wall

L01 | 1W | 0° angle bracket | 18ft wall | Clear Lens | 3000K



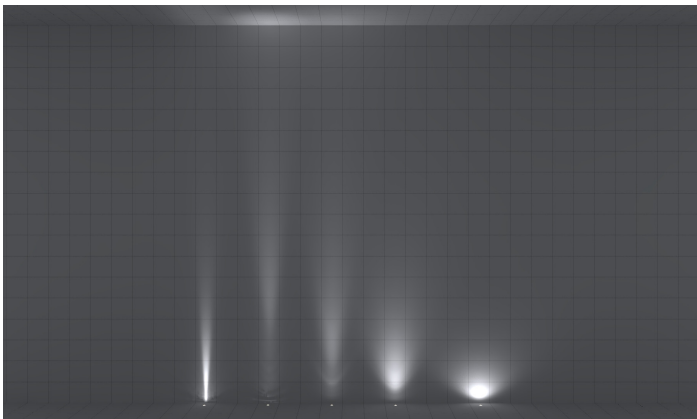
From left to right:
E elliptical 7°+ 36°
SS super spot 8°
S spot 12°
N narrow flood 30°
W wide flood 120°

L01 | 1W | 10° angle bracket | 18ft wall | Clear Lens | 3000K



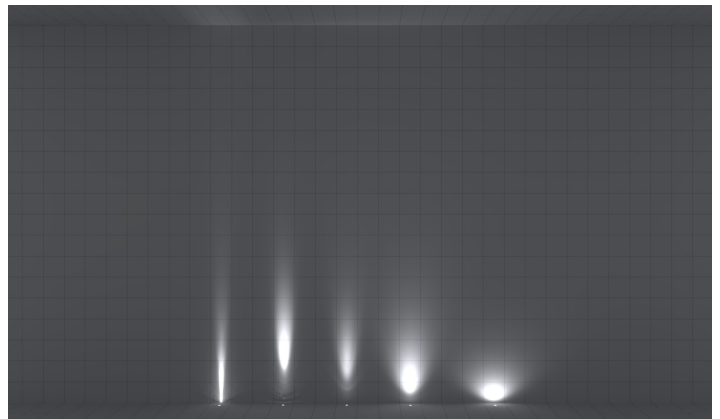
From left to right:
E elliptical 7°+ 36°
SS super spot 8°
S spot 12°
N narrow flood 30°
W wide flood 120°

L01 | 2W | 0° angle bracket | 18ft wall | Clear Lens | 3000K



From left to right:
E elliptical 7°+ 36°
SS super spot 8°
S spot 12°
N narrow flood 30°
W wide flood 120°

L01 | 2W | 10° angle bracket | 18ft wall | Clear Lens | 3000K



From left to right:
E elliptical 7°+ 36°
SS super spot 8°
S spot 12°
N narrow flood 30°
W wide flood 120°

Appendix

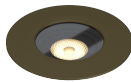
Aluminum Finishes



MA matte clear anodized with anti-slip lens



BA black anodized



BZ bronze

Stainless Steel Finishes

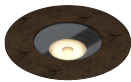


S6 stainless steel 316

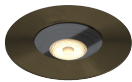


BT0 black stainless steel

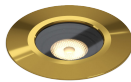
Other Materials



ABZ antique bronze



ABR antique brass



PBR polished brass

Accessories



LM louver, matte clear anodized



LB louver, black anodized



HM hex louver, matte clear anodized



HB hex louver, black anodized



AB angled louver, black anodized



SB straight louver, black anodized



QB square louver, black anodized



RB ring louver, black anodized

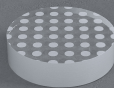
Lens Options



C clear lens



F frosted



A anti-slip

AREA & ROADWAY LIGHTING

RAZAR SERIES - LED LOW PROFILE AREA LUMINAIRE

Optical Housing

Heavy cast, low copper aluminum assembly (A356 alloy, <.2% copper) minimum wall thickness .188". LED Module mounting area is machined to within a 0.002" surface flatness variance for maximum surface contact and thermal conductivity from the LED modules to the radiating fins. Passive radiating fins above the LED Optics provide superior thermal management and long LED life. The optical and electrical compartments are integrated with the support arm to create one assembly. Cast and hinged driver compartment cover allows access to the drivers and wiring.

Electrical Housing w/ Integrated Arm

Heavy cast low copper aluminum (A356 alloy; <.2% copper) assembly with integral cooling ribs surrounding the electrical compartment and a flat surface on the top of the arm to accommodate a photocell receptacle. Solid barrier wall separates optical and electrical compartments. The optical compartment and electrical compartment with the integrated support arm combine to create one assembly. Minimum wall thickness is .188". Cast and hinged driver assembly cover is integrated with wiring compartment cover.

PLED™ Optics

Emitters (LED's) are arrayed on a metal core PCB panel with each emitter located on a copper thermal transfer pad and enclosed by an LED refractor. LED optics completely seal each individual emitter to meet an IP66 rating. In asymmetric distributions, a micro-reflector inside the refractor re-directs the house side emitter output towards the street side and functions as a house side shielding element. Refractors are injection molded H12 acrylic. Each LED refractor is sealed to the PCB over an emitter and all refractors are retained by an aluminum frame. Any one Panel, or group of Panels in a luminaire, have the same optical pattern. LED refractors produce standard site/area distributions. Panels are field replaceable and field rotatable in 90° increments.

LED Driver(s)

Constant current electronic with a power factor of >.90 and a minimum operating temperature of -40°F/-40°C. Driver(s) is/are UL and cUL recognized and mounted directly against the Electrical Housing to facilitate thermal transfer, held down by universal clamps to facilitate easy removal. In-line terminal blocks facilitate wiring between the driver and optical arrays. Drivers accept an input of 120-277V, 50/60Hz or 347V-480V, 50,60Hz. (0-10V dimmable driver is standard. Driver has a minimum of 3KV internal surge protection. Luminaire supplied with 20KV surge protector for field accessible installation.)

LED Emitters

High output LED's are utilized with drive currents ranging from 350mA to 1050mA. 70CRI Minimum. LED's are available in standard Neutral White (4000K), or optional Cool White (5000K) or Warm White (3000K). Consult Factory for other LED options.

Amber LED's

TRA (True Amber) LED's utilize material that emits light in the amber spectral bandwidth only without the use of phosphors.

Finish

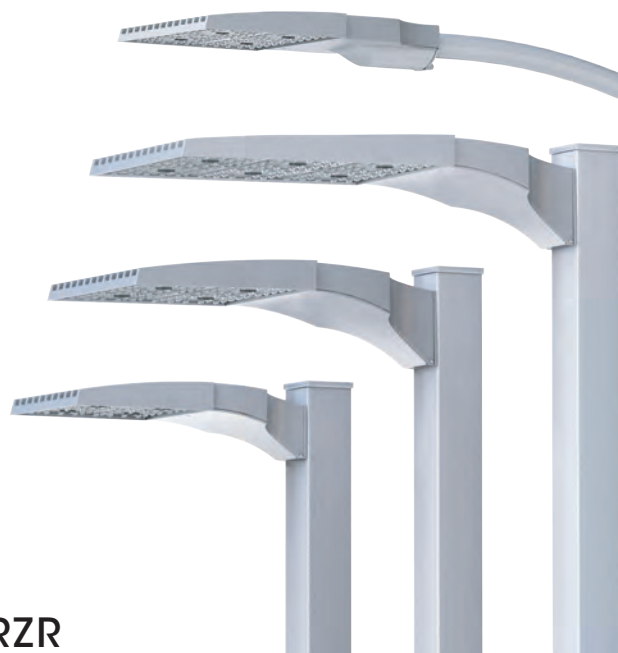
Electrostatically applied TGIC Polyester Powder Coat on substrate prepared with 20 PSI power wash at 140°F. Four step media blast and iron phosphate pretreatment for protection and paint adhesion. 400°F bake for maximum hardness and durability.

Mast Arm Fitter/Electrical Housing

Replaces standard Electrical Housing. Fits standard 2 3/8" O.D. horizontal tenon. Two (2) straps with two (2) bolts each encircle the lower half of the tenon. Upper half of the tenon rests on self-centering steps that position the angle of the luminaire at 0°, +1.5°, +1.5° or +3° up from the horizontal. All hardware is stainless steel.

PROJECT NAME: _____

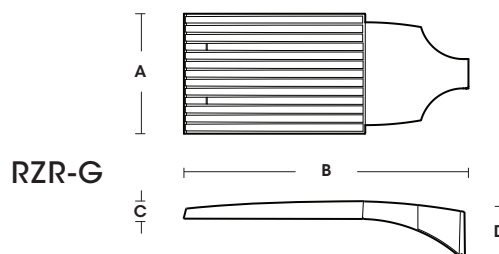
PROJECT TYPE: _____



RZR

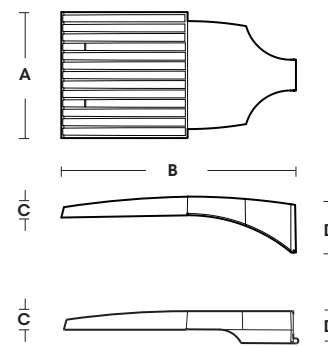
(MODELS: RZRM, RZR, RZR-G & RZR-MAF*)

PATENT PENDING



RZR-G

RZR, RZRM & RZR-MAF*
(Top View)



RZR & RZRM

RZR-MAF*

FIXTURE	A	B	C	D
RZR-G	15" 381mm	36.5" 927mm	3" 76mm	7" 187mm
RZR	14.75" 375mm	28.25" 718mm	2.75" 70mm	6.5" 165mm
RZRM	11.5" 292mm	22" 559mm	2.5" 64mm	5.25" 133mm
RZR-MAF	15" 381mm	28.25" 724mm	2.5" 64mm	4" 102mm

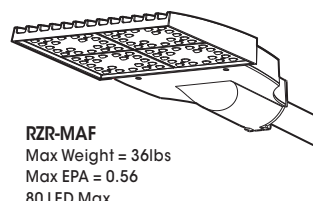
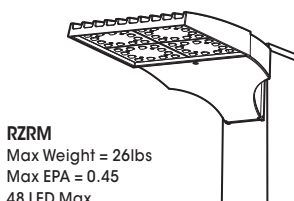
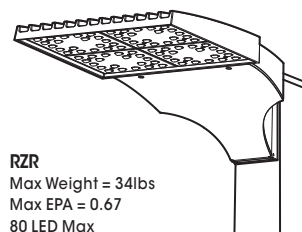
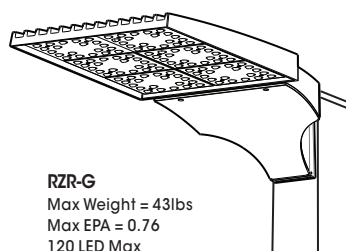
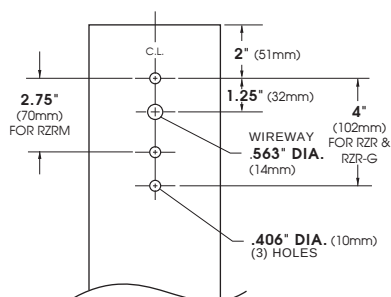


U.L. Listed for
Wet Location

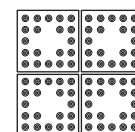
2022158

SPECIFICATIONS

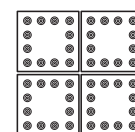
EPA & WEIGHT



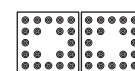
120 LED Module



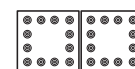
80 LED Module



48 LED Module



40 LED Module



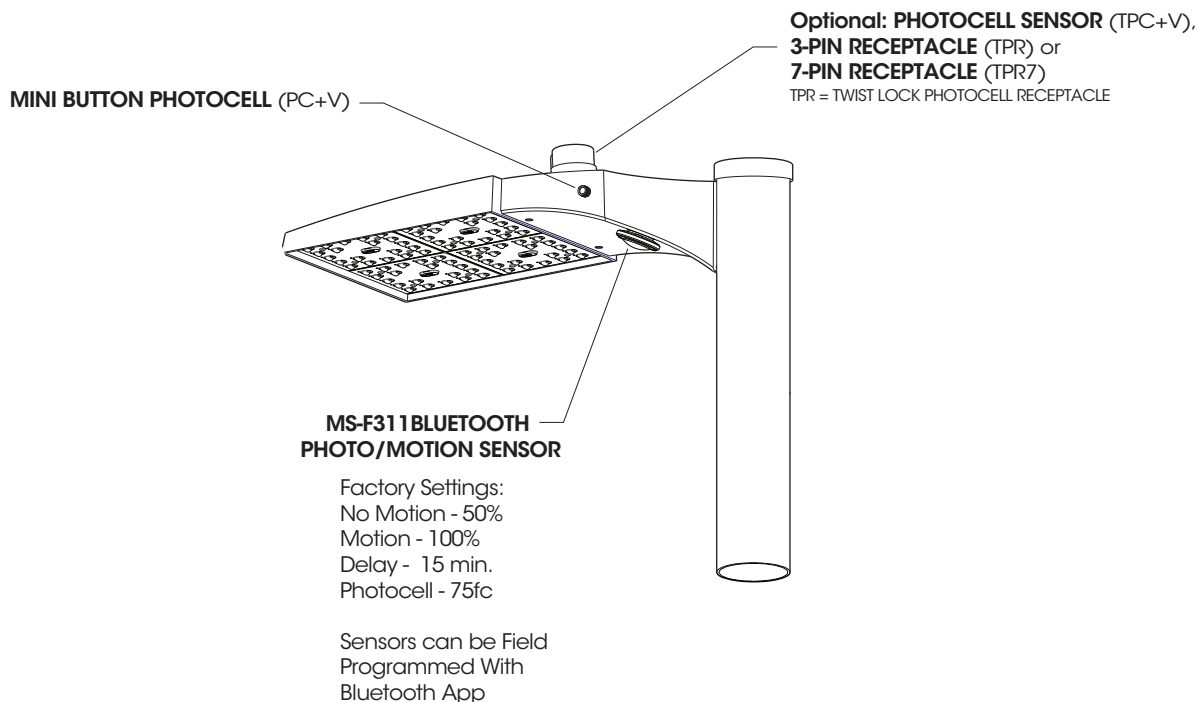
24 LED Module

Spec/Order Example: RZR/PLED-IV/80LED-700mA/CW/277/RAL-8019-S

Luminaire	Optics	LED Mode			Voltage	Mounting	Finish	Options
Luminaire	Optics	LED			Voltage	Mounting	Finish	Options
	PLED™ Distribution Type	# of LEDs	Drive Current	Color Temp - CCT		Arm Mount	Standard Textured Finish	
☐ RZR-G	☐ Type II PLED-II 	☐ 120LED	☐ 1050mA ¹	☐ 27K (2700K)	☐ 120	☐ 1 	☐ Black RAL-9005-T	☐ Internal House Side Shield inc. LED Count (Example: HS-PLED/48) HS-PLED
	☐ Type II Front Row PLED-II-FR 	☐ 80LED	☐ 875mA ¹	☐ 30K (3000K)	☐ 208	☐ 2-180 	☐ White RAL-9003-T	☐ External Glare Shield 4 Sided EGS4
	☐ Type III Median Illuminator PLED-II-MIL 		☐ 700mA ¹	☐ 40K (4000K)	☐ 240	☐ 2-90 	☐ Grey RAL-7004-T	☐ External Glare Shield 3 Sided Rear Wedge EGS3W
☐ RZR	☐ Type III Med. PLED-III 		☐ 525mA	☐ 50K (5000K)	☐ 277	☐ 3-90 	☐ Dark Bronze RAL-8019-T	☐ Round Pole Adapter RPA
☐ RZR-MAF	☐ Type III Wide PLED-III-W 	RZR/RZR-MAF	☐ 350mA	☐ TRA True Amber ²	☐ 347	☐ 3-120 	☐ Green RAL-6005-T	☐ Twist Lock Receptable Only TPR
	☐ Type IV PLED-IV 			Consult Factory for Other LED Color, CCT, & CRI Options	☐ 480	☐ 4-90 	Premium Finishes	☐ 7-Pin Twist Lock Receptable Only TPR7
	☐ Type IV PLED-IV-FIT 							☐ High-Low Dimming for Switch by Others/Select Levels 50/100 or 25/100 (Example: HLSW/25) HLSW
	☐ Type V Narrow PLED-VSQ-N 							☐ Twist Lock Photocell + Voltage (Example: TPC347V) TPC+V
☐ RZRM	☐ Type V Med. PLED-V-SQ-M 	RZRM				Wall Mount	☐ Rust	☐ Photo Cell + Voltage (Example: PC120V) PC+V
	☐ Type V Wide PLED-V-SQ-W 					☐ WM 	☐ Patina Copper PC	☐ Single Fuse (120V, 277V) SF
						WM - Wall Mount provided with mounting bracket and cover.	For smooth finish replace suffix "T" with suffix "S" (Example: RAL-9500-S)	☐ Double Fuse (208V, 240V) DF
							Consult factory for custom colors	☐ Blue-Tooth Programmable Photo/Motion Sensor (Factory - Motion 50/100; Photo 75fc) MS-F311

RZR SERIES - LED

OPTIONS



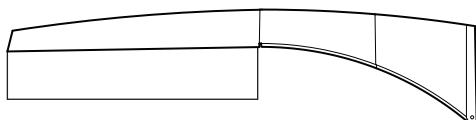
High Low Dimming For Switches (HLSW)

The HLSW is a Small Electronic Switch which Provides High Low Dimming Control Through the LED Driver's 0-10V Control. Switching is Done by Adding a Secondary AC Switched Hot Trigger Line to the HLSW in Addition to the Normal AC Power Line. When the Secondary Trigger Line is Powered, the Fixture will go to 100% Dimming. With no Power to the Trigger, the Fixture will operate at 50% or 25% Dimming. Switches for the Trigger Line can be a Normal AC Switch/Breaker or Timed Switch/Breaker.

Wireless and Other Fixture Controls

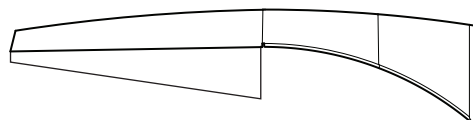
Contact Factory for Wireless and Other Fixture Controls and Recommendations. Most Controls Can be Integrated and Factory Installed.

EXTERNAL GLARE SHIELDS



EGS4 - 4 Sided Shield

Minimum Cutoff = 12°
Average Cutoff = 23°



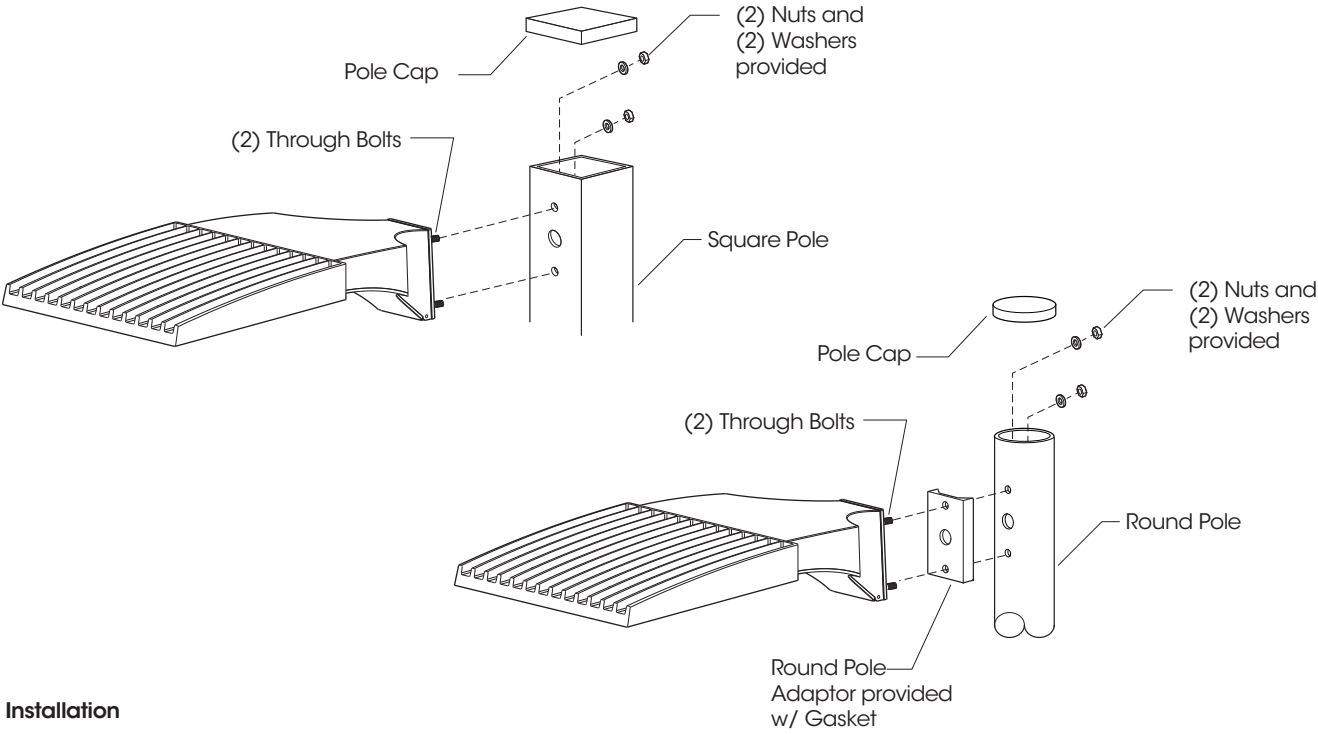
EGS3W - 3 Sided Shield

Minimum Rear Cutoff = 12°
Average Rear Cutoff = 23°
Minimum Side Cutoff = 4°
Average Side Cutoff = 16°

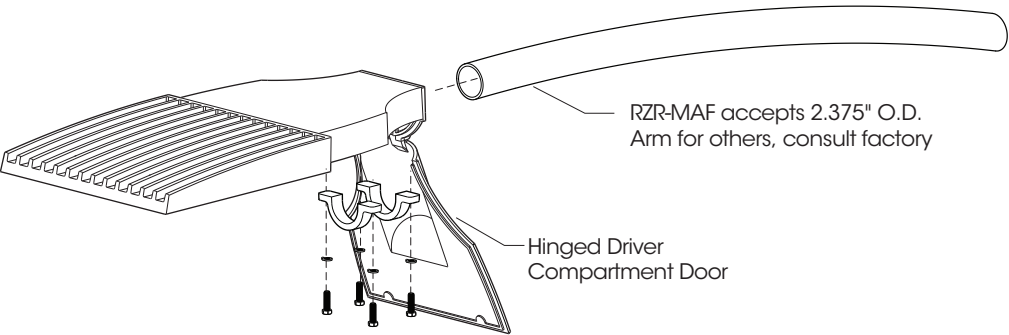
Glare Shields are rotatable on RZR and RZRM. Consult factory for custom applications.

RZR SERIES - LED

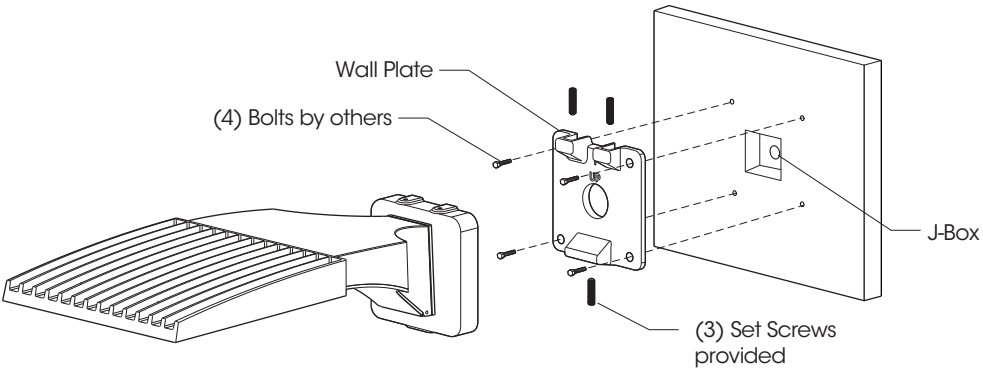
INSTALLATION DETAIL



RZR Installation



RZR-MAF Installation



RZR-WM Installation

RZR SERIES - LED

PHOTOMETRIC DATA GUIDE - LM-80 LUMEN MAINTENANCE

LED Life / Operating Hours	Lumen Depreciation	Lumen Depreciation Scale Factor
60,000 (10x Test Time Calculated)	L94	0.94x
100,000 (Theoretical Calculated)	L92	0.92x
150,000 (Theoretical Calculated)	L89	0.89x

Lumen Depreciation Calculations Done in Accordance With IESNA TM-21 & LM-80 (25°C Ambient)
TM-21 6x Test Time Dictates that L94 > 60,000 Hours.

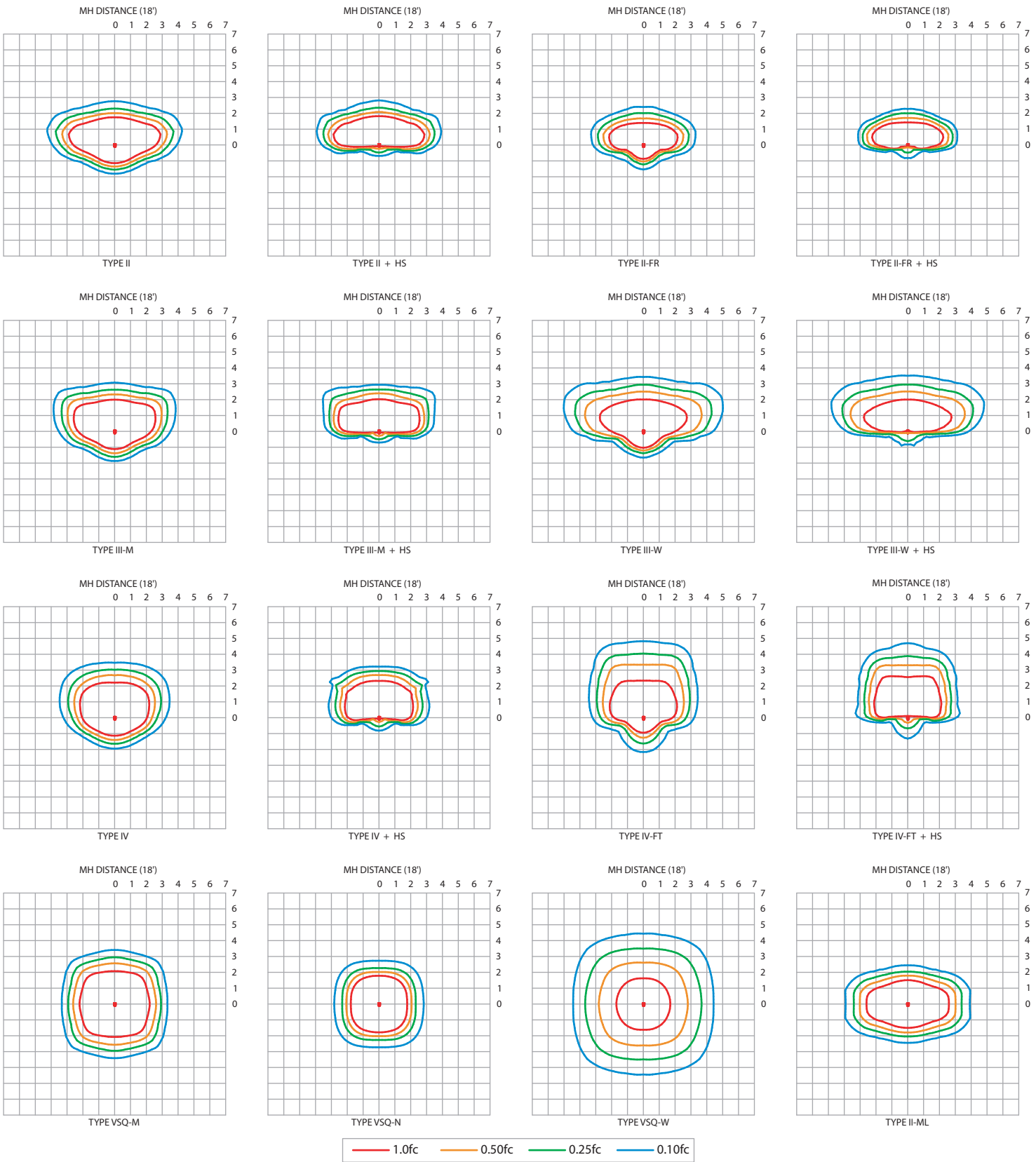
ELECTRICAL DATA GUIDE - AMPERAGE CHARTS

# of LEDs	mA	System Watts	120V	208V	277V	347V	480V
24	350	28	0.24	0.14	0.10	0.08	0.06
24	525	42	0.35	0.20	0.15	0.12	0.09
24	700	56	0.47	0.27	0.20	0.16	0.12
24	875	68	0.57	0.33	0.24	0.20	0.14
24	1050	82	0.68	0.39	0.30	0.24	0.17
48	350	53	0.44	0.25	0.19	0.15	0.11
48	525	79	0.66	0.38	0.29	0.23	0.16
48	700	105	0.88	0.51	0.38	0.30	0.22
48	875	132	1.10	0.63	0.48	0.38	0.27
48	1050	160	1.33	0.77	0.58	0.46	0.33
40	350	43	0.36	0.21	0.15	0.12	0.09
40	525	65	0.54	0.31	0.23	0.19	0.13
40	700	87	0.72	0.42	0.31	0.25	0.18
40	875	108	0.90	0.52	0.39	0.31	0.23
40	1050	128	1.07	0.62	0.46	0.37	0.27
80	350	85	0.71	0.41	0.31	0.25	0.18
80	525	129	1.08	0.62	0.47	0.37	0.27
80	700	174	1.45	0.83	0.63	0.50	0.36
80	875	216	1.80	1.04	0.78	0.62	0.45
80	1050	256	2.14	1.23	0.93	0.74	0.53
120	350	130	1.08	0.63	0.47	0.37	0.27
120	525	192	1.60	0.92	0.69	0.55	0.40
120	700	260	2.17	1.25	0.94	0.75	0.54
120	875	329	2.74	1.58	1.19	0.95	0.69
120	1050	398	3.32	1.91	1.44	1.15	0.83

RZR SERIES - LED

PHOTOMETRIC DATA GUIDE - ISOFOOTCANDLE PLOTS

RZRM-PLED-48LED-700mA-40K - 18' Pole Height

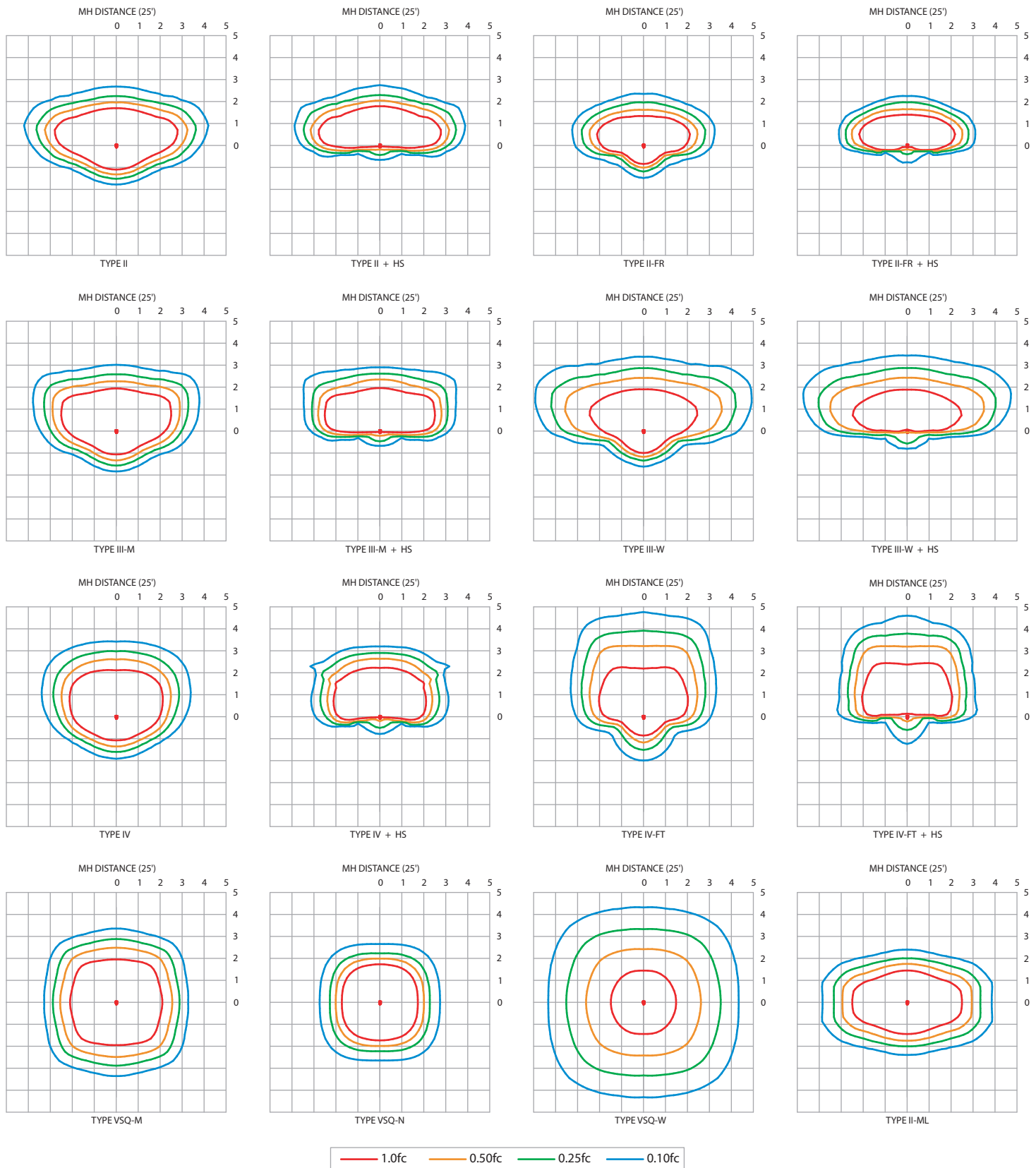


IES File downloads for this product can be found at www.usaltg.com/downloads/asr.html

RZR SERIES - LED

PHOTOMETRIC DATA GUIDE - ISOFOOTCANDLE PLOTS

RZR-PLED-80LED-700mA-40K - 25' Pole Height

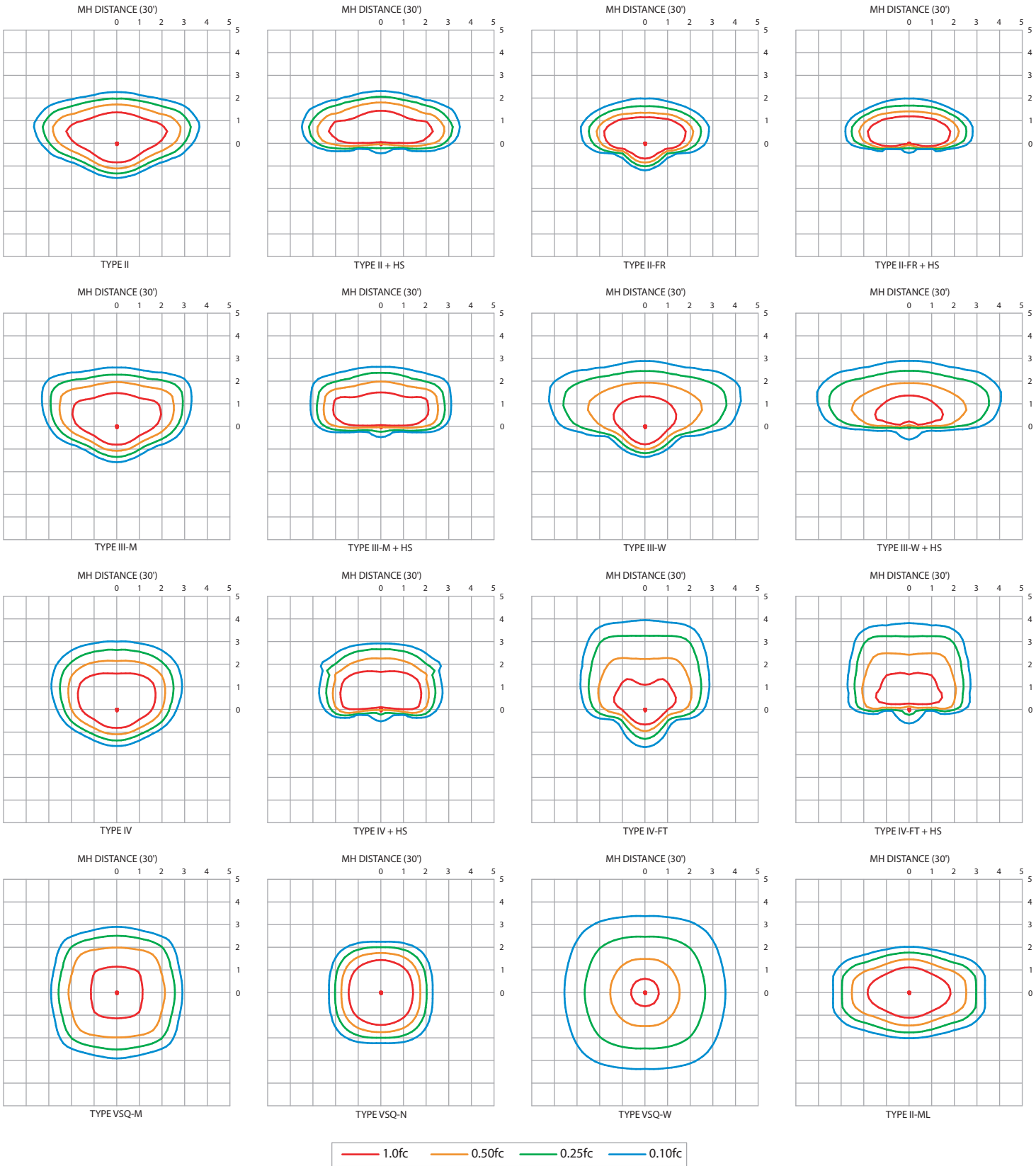


IES File downloads for this product can be found at www.usaltg.com/downloads/asr.html

RZR SERIES - LED

PHOTOMETRIC DATA GUIDE - ISOFOOTCANDLE PLOTS

RZRG-PLED-120LED-700mA-40K 30' Pole Height



RZR SERIES - LED

PHOTOMETRIC DATA GUIDE - LUMEN TABLES (RZR-M-PLD)

RZR-M-PLD																			
LED Count	Drive Current (mA)	System Watts	Dist'n Type	27K (2700K - 70CRI)			30K (3000K - 70CRI)			40K (4000K - 70CRI)			50K (5000K - 70CRI)			System Watts	TRA (590nm)		
				LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING		LUMENS	LPW	BUG RATING
24	350	28.2	II	3436	122	B1-U0-G1	3709	132	B1-U0-G1	3904	138	B1-U0-G1	4100	145	B1-U0-G1	20.0	1363	68	B1-U0-G1
			II-FR	3459	123	B1-U0-G1	3734	132	B1-U0-G1	3930	139	B1-U0-G1	4127	146	B1-U0-G1		1372	69	B1-U0-G0
			II-ML	3436	122	B2-U0-G2	3709	132	B2-U0-G2	3905	138	B2-U0-G2	4100	145	B2-U0-G2		1363	68	B1-U0-G1
			III-M	3496	124	B1-U0-G1	3775	134	B1-U0-G1	3973	141	B1-U0-G1	4172	148	B1-U0-G1		1387	69	B1-U0-G0
			III-W	3246	115	B1-U0-G1	3505	124	B1-U0-G1	3689	131	B1-U0-G1	3873	137	B1-U0-G1		1289	64	B0-U0-G1
			IV	3469	123	B1-U0-G1	3746	133	B1-U0-G1	3943	140	B1-U0-G1	4140	147	B1-U0-G1		1377	69	B1-U0-G1
			IV-FT	3161	112	B1-U0-G1	3412	121	B1-U0-G1	3592	127	B1-U0-G1	3771	134	B1-U0-G1		1254	63	B0-U0-G1
			VSQ-N	3627	129	B2-U0-G0	3915	139	B2-U0-G0	4121	146	B2-U0-G0	4327	153	B2-U0-G1		1439	72	B1-U0-G0
			VSQ-M	3556	126	B2-U0-G1	3838	136	B2-U0-G1	4041	143	B2-U0-G1	4242	150	B3-U0-G1		1410	71	B1-U0-G0
			VSQ-W	3471	123	B3-U0-G1	3748	133	B3-U0-G1	3945	140	B3-U0-G1	4142	147	B3-U0-G1		1377	69	B1-U0-G1
			II-HS	2513	89	B0-U0-G1	2713	96	B0-U0-G1	2856	101	B0-U0-G1	2998	106	B0-U0-G1		997	50	B0-U0-G0
			II-FR-HS	2556	91	B0-U0-G0	2759	98	B0-U0-G0	2905	103	B0-U0-G0	3050	108	B0-U0-G0		1014	51	B0-U0-G0
			III-M-HS	2543	90	B0-U0-G1	2745	97	B0-U0-G1	2889	102	B0-U0-G1	3034	108	B0-U0-G1		1008	50	B0-U0-G0
			III-W-HS	2488	88	B0-U0-G1	2686	95	B0-U0-G1	2827	100	B0-U0-G1	2969	105	B0-U0-G1		987	49	B0-U0-G1
			IV-HS	2626	93	B0-U0-G1	2835	101	B0-U0-G1	2984	106	B0-U0-G1	3133	111	B0-U0-G1		1042	52	B0-U0-G0
			IV-FT-HS	2481	88	B0-U0-G1	2679	95	B0-U0-G1	2820	100	B0-U0-G1	2961	105	B0-U0-G1		985	49	B0-U0-G1
24	525	41.5	II	4908	118	B1-U0-G1	5298	128	B1-U0-G1	5577	134	B1-U0-G1	5856	141	B2-U0-G1	31.0	1586	51	B1-U0-G1
			II-FR	4941	119	B1-U0-G1	5334	129	B1-U0-G1	5614	135	B2-U0-G1	5895	142	B2-U0-G1		1598	52	B1-U0-G0
			II-ML	4908	118	B2-U0-G2	5299	128	B2-U0-G2	5578	134	B2-U0-G2	5856	141	B3-U0-G3		1587	51	B1-U0-G1
			III-M	4994	120	B1-U0-G1	5392	130	B1-U0-G1	5675	137	B1-U0-G1	5959	144	B1-U0-G2		1615	52	B1-U0-G0
			III-W	4637	112	B1-U0-G2	5005	121	B1-U0-G2	5269	127	B1-U0-G2	5533	133	B1-U0-G2		1500	48	B0-U0-G1
			IV	4956	119	B1-U0-G1	5350	129	B1-U0-G1	5632	136	B1-U0-G1	5913	142	B1-U0-G2		1602	52	B1-U0-G1
			IV-FT	4515	109	B1-U0-G2	4875	117	B1-U0-G2	5131	124	B1-U0-G2	5388	130	B1-U0-G2		1460	47	B0-U0-G1
			VSQ-N	5180	125	B2-U0-G1	5592	135	B2-U0-G1	5886	142	B2-U0-G1	6181	149	B2-U0-G1		1676	54	B1-U0-G0
			VSQ-M	5080	122	B3-U0-G1	5484	132	B3-U0-G1	5772	139	B3-U0-G1	6061	146	B3-U0-G1		1643	53	B1-U0-G0
			VSQ-W	4959	119	B3-U0-G2	5353	129	B3-U0-G2	5635	136	B3-U0-G2	5917	143	B3-U0-G2		1603	52	B1-U0-G1
			II-HS	3589	86	B0-U0-G1	3875	93	B0-U0-G1	4079	98	B0-U0-G1	4282	103	B0-U0-G1		1161	37	B0-U0-G0
			II-FR-HS	3652	88	B0-U0-G1	3942	95	B0-U0-G1	4150	100	B0-U0-G1	4357	105	B0-U0-G1		1181	38	B0-U0-G0
			III-M-HS	3631	88	B0-U0-G1	3920	94	B0-U0-G1	4127	99	B0-U0-G1	4333	104	B0-U0-G2		1174	38	B0-U0-G0
			III-W-HS	3555	86	B0-U0-G2	3838	92	B0-U0-G2	4040	97	B0-U0-G2	4242	102	B0-U0-G2		1150	37	B0-U0-G1
			IV-HS	3751	90	B0-U0-G1	4050	98	B0-U0-G1	4263	103	B0-U0-G1	4476	108	B0-U0-G1		1213	39	B0-U0-G0
			IV-FT-HS	3545	85	B0-U0-G2	3827	92	B0-U0-G2	4029	97	B0-U0-G2	4230	102	B0-U0-G2		1146	37	B0-U0-G1
24	700	55.9	II	6275	112	B2-U0-G1	6774	121	B2-U0-G2	7130	128	B2-U0-G2	7487	134	B2-U0-G2	N/A	N/A		
			II-FR	6317	113	B2-U0-G1	6819	122	B2-U0-G1	7178	128	B2-U0-G1	7537	135	B2-U0-G1				
			II-ML	6275	112	B3-U0-G3	6774	121	B3-U0-G3	7130	128	B3-U0-G3	7487	134	B3-U0-G3				
			III-M	6385	114	B2-U0-G2	6893	123	B2-U0-G2	7256	130	B2-U0-G2	7618	136	B2-U0-G2				
			III-W	5928	106	B1-U0-G2	6399	114	B1-U0-G2	6736	121	B1-U0-G2	7073	127	B1-U0-G2				
			IV	6337	113	B2-U0-G2	6841	122	B2-U0-G2	7201	129	B2-U0-G2	7561	135	B2-U0-G2				
			IV-FT	5772	103	B1-U0-G2	6231	111	B1-U0-G2	6559	117	B1-U0-G2	6887	123	B1-U0-G2				
			VSQ-N	6624	118	B2-U0-G1	7151	128	B2-U0-G1	7527	135	B2-U0-G1	7903	141	B3-U0-G1				
			VSQ-M	6494	116	B3-U0-G1	7011	125	B3-U0-G1	7380	132	B3-U0-G1	7749	139	B3-U0-G2				
			VSQ-W	6340	113	B3-U0-G2	6844	122	B3-U0-G2	7204	129	B3-U0-G2	7565	135	B3-U0-G2				
			II-HS	4589	82	B1-U0-G1	4954	89	B1-U0-G2	5215	93	B1-U0-G2	5475	98	B1-U0-G2				
			II-FR-HS	4668	84	B0-U0-G1	5040	90	B0-U0-G1	5305	95	B0-U0-G1	5570	100	B0-U0-G1				
			III-M-HS	4643	83	B0-U0-G2	5012	90	B0-U0-G2	5276	94	B0-U0-G2	5539	99	B0-U0-G2				
			III-W-HS	4544	81	B0-U0-G2	4906	88	B0-U0-G2	5164	92	B0-U0-G2	5422	97	B0-U0-G2				
			IV-HS	4796	86	B0-U0-G2	5177	93	B0-U0-G2	5450	97	B0-U0-G2	5722	102	B0-U0-G2				
			IV-FT-HS	4532	81	B0-U0-G2	4893	88	B0-U0-G2	5150	92	B0-U0-G2	5408	97	B0-U0-G2				
24	875	67.8	II	7406	109	B2-U0-G2	7995	118	B2-U0-G2	8416	124	B2-U0-G2	8837	130	B2-U0-G2	N/A	N/A		
			II-FR	7456	110	B2-U0-G1	8049	119	B2-U0-G1	8473	125	B2-U0-G1	8896	131	B2-U0-G1				
			II-ML	7406	109	B3-U0-G3	7995	118	B3-U0-G3	8416	124	B3-U0-G3	8837	130	B3-U0-G3				
			III-M	7536	111	B2-U0-G2	8135	120	B2-U0-G2	8563	126	B2-U0-G2	8992	133	B2-U0-G2				
			III-W	6997	103	B1-U0-G2	7553	111	B1-U0-G2	7951	117	B2-U0-G2	8348	123	B2-U0-G2				
			IV	7479	110	B2-U0-G2	8073	119	B2-U0-G2	8498	125	B2-U0-G2	8923	132	B2-U0-G2				
			IV-FT	6813	100	B1-U0-G2	7355	108	B2-U0-G2	7742	114	B2-U0-G2	8129	120	B2-U0-G2				
			VSQ-N	7817	115	B2-U0-G1	8439	124	B3-U0-G1	8883	131	B3-U0-G1	9327	138	B3-U0-G1				
			VSQ-M	7665	113	B3-U0-G2	8275	122	B3-U0-G2	8711	128	B3-U0-G2	9146	135	B3-U0-G2				
			VSQ-W	7482	110	B3-U0-G2	8078	119	B3-U0-G2	8503	125	B4-U0-G2	8928	132	B4-U0-G2				
			II-HS	5417	80	B1-U0-G2	5847	86	B1-U0-G2	6155	91	B1-U0-G2	6463	95	B1-U0-G2				
			II-FR-HS	5510	81	B0-U0-G1	5948	88	B1-U0-G1	6261	92	B1-U0-G1	6574	97	B1-U0-G1				
			III-M-HS	5480	81	B0-U0-G2	5916	87	B0-U0-G2	6227	92	B0-U0-G2	6538	96	B0-U0-G2				
			III-W-HS	5363	79	B0-U0-G2	5790	85	B0-U0-G2	6095	90	B0-U0-G2	6399	94	B0-U0-G2				
			IV-HS	5660	83	B0-U0-G2	6110	90	B0-U0-G2	6432	95	B0-U0-G2	6753	100	B0-U0-G2				
			IV-FT-HS	5349	79	B0-U0-G2	5775	85	B0-U0-G2	6078	90	B0-U0-G2	6382	94	B0-U0-G2				
24	1050	82.0	II	8513	104	B2-U0-G2	9190	112	B2-U0-G2	9674	118	B2-U0-G2	10157	124	B2-U0-G2	N/A	N/A		
			II-FR	8570	105	B2-U0-G1	9252	113	B2-U0-G1	9739	119	B2-U0-G1	10225	125	B2-U0-G1				
			II-ML	8513	104	B3-U0-G3	9190	112	B3-U0-G3	9674	118	B3-U0-G3	10157	124	B3-U0-G3				
			III-M	8662	106	B2-U0-G2	9351	114	B2-U0-G2	9843	120	B2-U0-G2	10335	126	B2-U0-G2				
			III-W	8042	98	B2-U0-G2	8682	106	B2-U0-G2	9139	111	B2-U0-G3	9595	117	B2-U0-G3				
			IV	8596	105	B2-U0-G2	9280	113	B2-U0-G2	9768	119	B2-U0-G2	10256	125	B2-U0-G2				
			IV-FT	7831	95	B2-U0-G2	8454	103	B2-U0-G2	8899	109	B2-U0-G3	9344	114	B2-U0-G3				
			VSQ-N	8985	110	B3-U0-G1	9700	118	B3-U0-G1	10210	125	B3-U0-G1	10721	131	B3-U0-G1				
			VSQ-M	8811	107	B3-U0-G2	9512	116	B3-U0-G2	10012	122	B3-U0-G2	10513	128	B3-U0-G2				
			VSQ-W	8601	105	B4-U0-G2	9285	113	B4-U0-G2	9773	119	B4-U0-G3	10262	125	B4-U0-G3				
			II-HS	6226	76	B1-U0-G2	6721	82	B1-U0-G2	7075	86	B1-U0-G2	7429	91	B1-U0-G2				
			II-FR-HS	6333	77	B1-U0-G1	6837	83	B1-U0-G1	7197	88	B1-U0-G1	7557	92	B1-U0-G1				
			III-M-HS	6299	77	B0-U0-G2	6799	83	B0-U0-G2	7158	87	B0-U0-G2	7515	92	B1-U0-G2				
			III-W-HS	6165	75	B0-U0-G2	6655	81	B0-U0-G2	7005	85	B0-U0-G2	7356	90	B0-U0-G2				
			IV-HS	6506	79	B0-U0-G2	7023	86	B0-U0-G2	7393	90	B1-U0-G2	7762	95	B1-U0-G2				
			IV-FT-HS	6148	75	B0-U0-G2	6637	81	B0-U0-G2	6986	85	B1-U0-G3	7336	89	B1-U0-G3				

RZR SERIES - LED

PHOTOMETRIC DATA GUIDE - LUMEN TABLES (RZRM-PLED)

RZR-M-PLED																			
LED Count	Drive Current (mA)	System Watts	Dist'n Type	27K (2700K - 70CRI)			30K (3000K - 70CRI)			40K (4000K - 70CRI)			50K (5000K - 70CRI)			System Watts	TRA (590nm)		
				LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING		LUMENS	LPW	BUG RATING
48	350	52.5	II	6836	130	B2-U0-G2	7380	141	B2-U0-G2	7769	148	B2-U0-G2	8157	155	B2-U0-G2	41.0	2713	66	B1-U0-G1
			II-FR	6882	131	B2-U0-G1	7430	142	B2-U0-G1	7821	149	B2-U0-G1	8212	156	B2-U0-G1		2731	67	B1-U0-G1
			II-ML	6837	130	B3-U0-G3	7380	141	B3-U0-G3	7769	148	B3-U0-G3	8157	155	B3-U0-G3		2713	66	B1-U0-G1
			III-M	6956	132	B2-U0-G2	7509	143	B2-U0-G2	7905	151	B2-U0-G2	8300	158	B2-U0-G2		2760	67	B1-U0-G1
			III-W	6459	123	B1-U0-G2	6972	133	B1-U0-G2	7339	140	B1-U0-G2	7706	147	B1-U0-G2		2563	63	B1-U0-G1
			IV	6903	131	B2-U0-G2	7453	142	B2-U0-G2	7845	149	B2-U0-G2	8237	157	B2-U0-G2		2740	67	B1-U0-G1
			IV-FT	6289	120	B1-U0-G2	6789	129	B1-U0-G2	7146	136	B1-U0-G2	7503	143	B2-U0-G2		2496	61	B1-U0-G1
			VSQ-N	7216	137	B2-U0-G1	7790	148	B2-U0-G1	8200	156	B3-U0-G1	8610	164	B3-U0-G1		2864	70	B1-U0-G0
			VSQ-M	7076	135	B3-U0-G1	7639	146	B3-U0-G2	8041	153	B3-U0-G2	8443	161	B3-U0-G2		2808	68	B2-U0-G1
			VSQ-W	6907	132	B3-U0-G2	7456	142	B3-U0-G2	7849	150	B3-U0-G2	8242	157	B3-U0-G2		2741	67	B2-U0-G1
			II-HS	5000	95	B1-U0-G2	5398	103	B1-U0-G2	5682	108	B1-U0-G2	5966	114	B1-U0-G2		1984	48	B0-U0-G1
			II-FR-HS	5087	97	B0-U0-G1	5491	105	B0-U0-G1	5780	110	B1-U0-G1	6069	116	B1-U0-G1		2018	49	B0-U0-G0
			III-M-HS	5059	96	B0-U0-G2	5461	104	B0-U0-G2	5748	109	B0-U0-G2	6036	115	B0-U0-G2		2007	49	B0-U0-G1
			III-W-HS	4952	94	B0-U0-G2	5345	102	B0-U0-G2	5627	107	B0-U0-G2	5908	113	B0-U0-G2		1965	48	B0-U0-G1
			IV-HS	5224	100	B0-U0-G2	5640	107	B0-U0-G2	5937	113	B0-U0-G2	6234	119	B0-U0-G2		2074	51	B0-U0-G1
			IV-FT-HS	4938	94	B0-U0-G2	5330	102	B0-U0-G2	5611	107	B0-U0-G2	5892	112	B0-U0-G2		1960	48	B0-U0-G1
48	525	79.0	II	9720	123	B2-U0-G2	10493	133	B2-U0-G2	11046	140	B2-U0-G2	11598	147	B2-U0-G2	62.0	3143	51	B1-U0-G1
			II-FR	9785	124	B2-U0-G1	10564	134	B2-U0-G1	11120	141	B2-U0-G1	11676	148	B3-U0-G1		3164	51	B1-U0-G1
			II-ML	9720	123	B3-U0-G3	10494	133	B3-U0-G3	11046	140	B3-U0-G3	11598	147	B3-U0-G3		3143	51	B2-U0-G2
			III-M	9891	125	B2-U0-G2	10677	135	B2-U0-G2	11240	142	B2-U0-G2	11801	149	B2-U0-G2		3198	52	B1-U0-G1
			III-W	9183	116	B2-U0-G3	9914	125	B2-U0-G3	10436	132	B2-U0-G3	10958	139	B2-U0-G3		2969	48	B1-U0-G1
			IV	9816	124	B2-U0-G2	10597	134	B2-U0-G2	11155	141	B2-U0-G2	11712	148	B2-U0-G2		3174	51	B1-U0-G1
			IV-FT	8942	113	B2-U0-G2	9653	122	B2-U0-G3	10161	129	B2-U0-G3	10669	135	B2-U0-G3		2892	47	B1-U0-G1
			VSQ-N	10260	130	B3-U0-G1	11075	140	B3-U0-G1	11659	148	B3-U0-G1	12242	155	B3-U0-G1		3317	54	B2-U0-G0
			VSQ-M	10060	127	B3-U0-G2	10861	137	B4-U0-G2	11432	145	B4-U0-G2	12004	152	B4-U0-G2		3253	52	B2-U0-G1
			VSQ-W	9821	124	B4-U0-G3	10602	134	B4-U0-G3	11160	141	B4-U0-G3	11718	148	B4-U0-G3		3175	51	B2-U0-G1
			II-HS	7110	90	B1-U0-G2	7675	97	B1-U0-G2	8079	102	B1-U0-G2	8483	107	B1-U0-G2		2298	37	B0-U0-G1
			II-FR-HS	7231	92	B1-U0-G1	7806	99	B1-U0-G1	8217	104	B1-U0-G1	8628	109	B1-U0-G1		2339	38	B0-U0-G0
			III-M-HS	7192	91	B0-U0-G2	7764	98	B1-U0-G2	8173	103	B1-U0-G2	8581	109	B1-U0-G2		2325	38	B0-U0-G1
			III-W-HS	7040	89	B0-U0-G2	7600	96	B0-U0-G2	8000	101	B1-U0-G2	8400	106	B1-U0-G2		2276	37	B0-U0-G1
			IV-HS	7429	94	B1-U0-G2	8020	102	B1-U0-G2	8442	107	B1-U0-G2	8864	112	B1-U0-G2		2402	39	B0-U0-G1
			IV-FT-HS	7020	89	B1-U0-G3	7579	96	B1-U0-G3	7978	101	B1-U0-G3	8377	106	B1-U0-G3		2270	37	B0-U0-G1
48	700	105.1	II	12226	116	B2-U0-G2	13199	126	B2-U0-G2	13894	132	B2-U0-G2	14588	139	B3-U0-G2	N/A	N/A		
			II-FR	12308	117	B3-U0-G1	13287	126	B3-U0-G1	13986	133	B3-U0-G1	14686	140	B3-U0-G1				
			II-ML	12227	116	B3-U0-G3	13200	126	B3-U0-G3	13894	132	B3-U0-G3	14589	139	B4-U0-G4				
			III-M	12440	118	B2-U0-G2	13430	128	B2-U0-G2	14137	135	B2-U0-G2	14843	141	B2-U0-G2				
			III-W	11550	110	B2-U0-G3	12468	119	B2-U0-G3	13125	125	B2-U0-G3	13781	131	B2-U0-G3				
			IV	12346	117	B2-U0-G2	13329	127	B2-U0-G2	14030	133	B2-U0-G2	14731	140	B2-U0-G2				
			IV-FT	11247	107	B2-U0-G3	12141	116	B2-U0-G3	12780	122	B2-U0-G3	13419	128	B2-U0-G3				
			VSQ-N	12904	123	B3-U0-G1	13931	133	B3-U0-G1	14663	140	B3-U0-G1	15397	146	B3-U0-G1				
			VSQ-M	12654	120	B4-U0-G2	13660	130	B4-U0-G2	14379	137	B4-U0-G2	15099	144	B4-U0-G2				
			VSQ-W	12352	118	B4-U0-G3	13334	127	B4-U0-G3	14036	134	B4-U0-G3	14738	140	B4-U0-G3				
			II-HS	8942	85	B1-U0-G2	9653	92	B1-U0-G2	10161	97	B1-U0-G2	10669	102	B1-U0-G2				
			II-FR-HS	9095	87	B1-U0-G1	9819	93	B1-U0-G1	10336	98	B1-U0-G1	10852	103	B1-U0-G1				
			III-M-HS	9045	86	B1-U0-G2	9765	93	B1-U0-G2	10279	98	B1-U0-G2	10793	103	B1-U0-G2				
			III-W-HS	8854	84	B1-U0-G2	9558	91	B1-U0-G3	10062	96	B1-U0-G3	10565	101	B1-U0-G3				
			IV-HS	9344	89	B1-U0-G2	10087	96	B1-U0-G2	10618	101	B1-U0-G2	11149	106	B1-U0-G2				
			IV-FT-HS	8831	84	B1-U0-G3	9533	91	B1-U0-G3	10035	95	B1-U0-G3	10537	100	B1-U0-G3				
48	875	131.8	II	14829	113	B3-U0-G2	16008	121	B3-U0-G3	16851	128	B3-U0-G3	17693	134	B3-U0-G3	N/A	N/A		
			II-FR	14928	113	B3-U0-G2	16115	122	B3-U0-G2	16964	129	B3-U0-G2	17812	135	B3-U0-G2				
			II-ML	14829	113	B4-U0-G4	16009	121	B4-U0-G4	16851	128	B4-U0-G4	17694	134	B4-U0-G4				
			III-M	15088	114	B2-U0-G2	16288	124	B3-U0-G3	17145	130	B3-U0-G3	18003	137	B3-U0-G3				
			III-W	14009	106	B2-U0-G3	15123	115	B2-U0-G3	15919	121	B3-U0-G3	16715	127	B3-U0-G3				
			IV	14975	114	B2-U0-G2	16166	123	B3-U0-G2	17017	129	B3-U0-G3	17867	136	B3-U0-G3				
			IV-FT	13641	103	B2-U0-G3	14726	112	B3-U0-G3	15501	118	B3-U0-G3	16276	123	B3-U0-G3				
			VSQ-N	15652	119	B3-U0-G1	16897	128	B4-U0-G2	17786	135	B4-U0-G2	18675	142	B4-U0-G2				
			VSQ-M	15348	116	B4-U0-G2	16568	126	B4-U0-G2	17440	132	B4-U0-G2	18312	139	B4-U0-G2				
			VSQ-W	14981	114	B4-U0-G3	16173	123	B4-U0-G3	17024	129	B5-U0-G3	17876	136	B5-U0-G3				
			II-HS	10845	82	B1-U0-G2	11707	89	B1-U0-G2	12324	94	B1-U0-G2	12940	98	B1-U0-G2				
			II-FR-HS	11032	84	B1-U0-G1	11909	90	B1-U0-G2	12536	95	B1-U0-G2	13162	100	B1-U0-G2				
			III-M-HS	10971	83	B1-U0-G2	11844	90	B1-U0-G3	12467	95	B1-U0-G3	13091	99	B1-U0-G3				
			III-W-HS	10739	81	B1-U0-G3	11594	88	B1-U0-G3	12204	93	B1-U0-G3	12814	97	B1-U0-G3				
			IV-HS	11333	86	B1-U0-G2	12234	93	B1-U0-G2	12878	98	B1-U0-G3	13522	103	B1-U0-G3				
			IV-FT-HS	10711	81	B1-U0-G3	11562	88	B1-U0-G3	12171	92	B1-U0-G3	12779	97	B1-U0-G3				
48	1050	159.6	II	17044	107	B3-U0-G3	18400	115	B3-U0-G3	19369	121	B3-U0-G3	20337	127	B3-U0-G3	N/A	N/A		
			II-FR	17159	108	B3-U0-G2	18523	116	B3-U0-G2	19498	122	B3-U0-G2	20473	128	B3-U0-G2				
			II-ML	17045	107	B4-U0-G4	18401	115	B4-U0-G4	19369	121	B4-U0-G4	20338	127	B4-U0-G4				
			III-M	17342	109	B3-U0-G3	18722	117	B3-U0-G3	19707	123	B3-U0-G3	20692	130	B3-U0-G3				
			III-W	16102	101	B3-U0-G3	17383	109	B3-U0-G3	18298	115	B3-U0-G3	19213	120	B3-U0-G4				
			IV	17212	108	B3-U0-G3	18582	116	B3-U0-G3	19559	123	B3-U0-G3	20537	129	B3-U0-G3				
			IV-FT	15680	98	B3-U0-G3	16927	106	B3-U0-G3	17818	112	B3-U0-G3	18708	117	B3-U0-G4				
			VSQ-N	17990	113	B4-U0-G2	19421	122	B4-U0-G2	20443	128	B4-U0-G2	21466	134	B4-U0-G2				
			VSQ-M	17641	111	B4-U0-G2	19044	119	B4-U0-G2	20046	126	B4-U0-G2	21048	132	B4-U0-G2				
			VSQ-W	17220	108	B5-U0-G3	18590	116	B5-U0-G3	19568	123	B5-U0-G3	20546	129	B5-U0-G3				
			II-HS	12465	78	B1-U0-G2	13457	84	B1-U0-G3	14165	89	B1-U0-G3	14873	93	B1-U0-G3				
			II-FR-HS	12680	79	B1-U0-G2	13688	86	B1-U0-G2	14409	90	B1-U0-G2	15129	95	B1-U0-G2				
			III-M-HS	12611	79	B1-U0-G3	13614	85	B1-U0-G3	14330	90	B1-U0-G3	15047	94	B1-U0-G3				
			III-W-HS	12344	77	B1-U0-G3	13326	83	B1-U0-G3	14027	88	B1-U0-G3	14728	92	B1-U0-G4				
			IV-HS	13026	82	B1-U0-G3	14062	88	B1-U0-G3	14802	93	B1-U0-G3	15542	97	B1-U0-G3				
			IV-FT-HS	12311	77	B1-U0-G3	13290	83	B1-U0-G3	13989	88	B1-U0-G4	14689	92	B1-U0-G4				

RZR SERIES - LED

PHOTOMETRIC DATA GUIDE - LUMEN TABLES (RZR-PLED)

RZR-PLED																			
LED Count	Drive Current (mA)	System Watts	Dist'n Type	27K (2700K - 70CRI)			30K (3000K - 70CRI)			40K (4000K - 70CRI)			50K (5000K - 70CRI)			System Watts	TRA (590nm)		
				LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING		LUMENS	LPW	BUG RATING
40	350	42.7	II	5819	136	B2-U0-G1	6281	147	B2-U0-G1	6612	155	B2-U0-G2	6943	163	B2-U0-G2	33.0	2309	70	B1-U0-G1
			II-FR	5858	137	B2-U0-G1	6324	148	B2-U0-G1	6657	156	B2-U0-G1	6990	164	B2-U0-G1		2325	70	B1-U0-G0
			II-ML	5819	136	B3-U0-G3	6282	147	B3-U0-G3	6612	155	B3-U0-G3	6943	163	B3-U0-G3		2309	70	B1-U0-G1
			III-M	5921	139	B1-U0-G2	6392	150	B2-U0-G2	6728	158	B2-U0-G2	7065	165	B2-U0-G2		2349	71	B1-U0-G1
			III-W	5497	129	B1-U0-G2	5935	139	B1-U0-G2	6247	146	B1-U0-G2	6559	154	B1-U0-G2		2182	66	B1-U0-G1
			IV	5876	138	B1-U0-G2	6344	149	B2-U0-G2	6677	156	B2-U0-G2	7011	164	B2-U0-G2		2332	71	B1-U0-G1
			IV-FT	5353	125	B1-U0-G2	5778	135	B1-U0-G2	6083	142	B1-U0-G2	6387	150	B1-U0-G2		2124	64	B1-U0-G1
			VSQ-N	6141	144	B2-U0-G1	6630	155	B2-U0-G1	6979	163	B2-U0-G1	7328	172	B2-U0-G1		2438	74	B1-U0-G0
			VSQ-M	6023	141	B3-U0-G1	6502	152	B3-U0-G1	6844	160	B3-U0-G1	7186	168	B3-U0-G1		2390	72	B2-U0-G1
			VSQ-W	5879	138	B3-U0-G2	6346	149	B3-U0-G2	6680	156	B3-U0-G2	7015	164	B3-U0-G2		2333	71	B2-U0-G1
			II-HS	4256	100	B0-U0-G1	4594	108	B1-U0-G1	4836	113	B1-U0-G2	5077	119	B1-U0-G2		1689	51	B0-U0-G0
			II-FR-HS	4329	101	B0-U0-G1	4673	109	B0-U0-G1	4919	115	B0-U0-G1	5165	121	B0-U0-G1		1718	52	B0-U0-G0
			III-M-HS	4305	101	B0-U0-G2	4647	109	B0-U0-G2	4892	115	B0-U0-G2	5137	120	B0-U0-G2		1708	52	B0-U0-G1
			III-W-HS	4214	99	B0-U0-G2	4550	107	B0-U0-G2	4789	112	B0-U0-G2	5028	118	B0-U0-G2		1673	51	B0-U0-G1
			IV-HS	4447	104	B0-U0-G1	4801	112	B0-U0-G2	5054	118	B0-U0-G2	5306	124	B0-U0-G2		1764	53	B0-U0-G1
			IV-FT-HS	4203	98	B0-U0-G2	4537	106	B0-U0-G2	4776	112	B0-U0-G2	5015	117	B0-U0-G2		1668	51	B0-U0-G1
40	525	64.7	II	8396	130	B2-U0-G2	9064	140	B2-U0-G2	9541	147	B2-U0-G2	10017	155	B2-U0-G2	51.0	2715	53	B1-U0-G1
			II-FR	8452	131	B2-U0-G1	9125	141	B2-U0-G1	9605	148	B2-U0-G1	10085	156	B2-U0-G1		2733	54	B1-U0-G1
			II-ML	8396	130	B3-U0-G3	9064	140	B3-U0-G3	9541	147	B3-U0-G3	10018	155	B3-U0-G3		2715	53	B1-U0-G1
			III-M	8543	132	B2-U0-G2	9223	143	B2-U0-G2	9708	150	B2-U0-G2	10194	158	B2-U0-G2		2762	54	B1-U0-G1
			III-W	7932	123	B2-U0-G2	8563	132	B2-U0-G2	9013	139	B2-U0-G3	9464	146	B2-U0-G3		2565	50	B1-U0-G1
			IV	8478	131	B2-U0-G2	9152	141	B2-U0-G2	9634	149	B2-U0-G2	10116	156	B2-U0-G2		2742	54	B1-U0-G1
			IV-FT	7724	119	B2-U0-G3	8338	129	B2-U0-G3	8777	136	B2-U0-G3	9216	142	B2-U0-G3		2497	49	B1-U0-G1
			VSQ-N	8861	137	B3-U0-G1	9566	148	B3-U0-G1	10070	156	B3-U0-G1	10574	163	B3-U0-G1		2866	56	B1-U0-G0
			VSQ-M	8690	134	B3-U0-G2	9381	145	B3-U0-G2	9875	153	B3-U0-G2	10369	160	B3-U0-G2		2809	55	B2-U0-G1
			VSQ-W	8483	131	B4-U0-G2	9157	142	B4-U0-G2	9640	149	B4-U0-G3	10122	156	B4-U0-G3		2743	54	B2-U0-G1
			II-HS	6141	95	B1-U0-G2	6629	102	B1-U0-G2	6978	108	B1-U0-G2	7327	113	B1-U0-G2		1985	39	B0-U0-G1
			II-FR-HS	6246	97	B1-U0-G1	6743	104	B1-U0-G1	7098	110	B1-U0-G1	7453	115	B1-U0-G1		2020	40	B0-U0-G0
			III-M-HS	6212	96	B0-U0-G2	6706	104	B0-U0-G2	7060	109	B0-U0-G2	7412	115	B0-U0-G2		2009	39	B0-U0-G1
			III-W-HS	6081	94	B0-U0-G2	6564	101	B0-U0-G2	6910	107	B0-U0-G2	7255	112	B0-U0-G2		1966	39	B0-U0-G1
			IV-HS	6417	99	B0-U0-G2	6927	107	B0-U0-G2	7292	113	B0-U0-G2	7656	118	B1-U0-G2		2075	41	B0-U0-G1
			IV-FT-HS	6064	94	B0-U0-G2	6546	101	B0-U0-G2	6891	107	B1-U0-G2	7235	112	B1-U0-G3		1960	38	B0-U0-G1
40	700	86.8	II	10669	123	B2-U0-G2	11518	133	B2-U0-G2	12124	140	B2-U0-G2	12730	147	B2-U0-G2	N/A	N/A		
			II-FR	10740	124	B2-U0-G1	11594	134	B3-U0-G1	12205	141	B3-U0-G1	12815	148	B3-U0-G1				
			II-ML	10669	123	B3-U0-G3	11518	133	B3-U0-G3	12124	140	B3-U0-G3	12731	147	B3-U0-G3				
			III-M	10856	125	B2-U0-G2	11719	135	B2-U0-G2	12336	142	B2-U0-G2	12953	149	B2-U0-G2				
			III-W	10079	116	B2-U0-G3	10880	125	B2-U0-G3	11453	132	B2-U0-G3	12026	139	B2-U0-G3				
			IV	10774	124	B2-U0-G2	11630	134	B2-U0-G2	12243	141	B2-U0-G2	12855	148	B2-U0-G2				
			IV-FT	9814	113	B2-U0-G3	10595	122	B2-U0-G3	11153	128	B2-U0-G3	11710	135	B2-U0-G3				
			VSQ-N	11260	130	B3-U0-G1	12156	140	B3-U0-G1	12796	147	B3-U0-G1	13435	155	B3-U0-G1				
			VSQ-M	11042	127	B4-U0-G2	11920	137	B4-U0-G2	12548	145	B4-U0-G2	13175	152	B4-U0-G2				
			VSQ-W	10778	124	B4-U0-G3	11636	134	B4-U0-G3	12248	141	B4-U0-G3	12860	148	B4-U0-G3				
			II-HS	7803	90	B1-U0-G2	8423	97	B1-U0-G2	8866	102	B1-U0-G2	9310	107	B1-U0-G2				
			II-FR-HS	7937	91	B1-U0-G1	8568	99	B1-U0-G1	9019	104	B1-U0-G1	9470	109	B1-U0-G1				
			III-M-HS	7893	91	B1-U0-G2	8521	98	B1-U0-G2	8970	103	B1-U0-G2	9418	109	B1-U0-G2				
			III-W-HS	7726	89	B0-U0-G2	8341	96	B1-U0-G2	8780	101	B1-U0-G2	9218	106	B1-U0-G2				
			IV-HS	8153	94	B1-U0-G2	8802	101	B1-U0-G2	9265	107	B1-U0-G2	9728	112	B1-U0-G2				
			IV-FT-HS	7705	89	B1-U0-G3	8318	96	B1-U0-G3	8756	101	B1-U0-G3	9194	106	B1-U0-G3				
40	875	108.0	II	12366	114	B2-U0-G2	13349	124	B2-U0-G2	14052	130	B2-U0-G2	14754	137	B3-U0-G2	N/A	N/A		
			II-FR	12448	115	B3-U0-G1	13439	124	B3-U0-G1	14146	131	B3-U0-G1	14853	138	B3-U0-G2				
			II-ML	12366	115	B3-U0-G3	13349	124	B3-U0-G3	14052	130	B3-U0-G3	14755	137	B4-U0-G4				
			III-M	12581	116	B2-U0-G2	13582	126	B2-U0-G2	14297	132	B2-U0-G2	15012	139	B2-U0-G2				
			III-W	11682	108	B2-U0-G3	12611	117	B2-U0-G3	13275	123	B2-U0-G3	13939	129	B2-U0-G3				
			IV	12487	116	B2-U0-G2	13480	125	B2-U0-G2	14189	131	B2-U0-G2	14899	138	B2-U0-G2				
			IV-FT	11375	105	B2-U0-G3	12280	114	B2-U0-G3	12926	120	B2-U0-G3	13573	126	B2-U0-G3				
			VSQ-N	13051	121	B3-U0-G1	14089	130	B3-U0-G1	14830	137	B3-U0-G1	15572	144	B3-U0-G1				
			VSQ-M	12798	118	B4-U0-G2	13816	128	B4-U0-G2	14543	135	B4-U0-G2	15270	141	B4-U0-G2				
			VSQ-W	12492	116	B4-U0-G3	13486	125	B4-U0-G3	14196	131	B4-U0-G3	14905	138	B4-U0-G3				
			II-HS	9044	84	B1-U0-G2	9763	90	B1-U0-G2	10277	95	B1-U0-G2	10791	100	B1-U0-G2				
			II-FR-HS	9199	85	B1-U0-G1	9930	92	B1-U0-G1	10453	97	B1-U0-G1	10976	102	B1-U0-G1				
			III-M-HS	9149	85	B1-U0-G2	9876	91	B1-U0-G2	10396	96	B1-U0-G2	10916	101	B1-U0-G2				
			III-W-HS	8955	83	B1-U0-G2	9667	90	B1-U0-G3	10176	94	B1-U0-G3	10685	99	B1-U0-G3				
			IV-HS	9450	87	B1-U0-G2	10201	94	B1-U0-G2	10738	99	B1-U0-G2	11275	104	B1-U0-G2				
			IV-FT-HS	8931	83	B1-U0-G3	9641	89	B1-U0-G3	10149	94	B1-U0-G3	10656	99	B1-U0-G3				
40	1050	128.2	II	14213	111	B2-U0-G2	15344	120	B3-U0-G2	16151	126	B3-U0-G3	16959	132	B3-U0-G3	N/A	N/A		
			II-FR	14308	112	B3-U0-G1	15446	120	B3-U0-G2	16259	127	B3-U0-G2	17072	133	B3-U0-G2				
			II-ML	14214	111	B3-U0-G3	15344	120	B4-U0-G4	16152	126	B4-U0-G4	16959	132	B4-U0-G4				
			III-M	14461	113	B2-U0-G2	15612	122	B3-U0-G2	16433	128	B3-U0-G3	17255	135	B3-U0-G3				
			III-W	13427	105	B2-U0-G3	14495	113	B2-U0-G3	15258	119	B2-U0-G3	16021	125	B3-U0-G3				
			IV	14352	112	B2-U0-G2	15494	121	B3-U0-G2	16309	127	B3-U0-G3	17125	134	B3-U0-G3				
			IV-FT	13075	102	B2-U0-G3	14115	110	B2-U0-G3	14858	116	B3-U0-G3	15601	122	B3-U0-G3				
			VSQ-N	15001	117	B3-U0-G1	16194	126	B4-U0-G1	17046	133	B4-U0-G2	17899	140	B4-U0-G2				
			VSQ-M	14710	115	B4-U0-G2	15880	124	B4-U0-G2	16716	130	B4-U0-G2	17552	137	B4-U0-G2				
			VSQ-W	14359	112	B4-U0-G3	15501	121	B4-U0-G3	16317	127	B4-U0-G3	17132	134	B5-U0-G3				
			II-HS	10395	81	B1-U0-G2	11222	88	B1-U0-G2	11813	92	B1-U0-G2	12403	97	B1-U0-G2				
			II-FR-HS	10573	82	B1-U0-G1	11414	89	B1-U0-G2	12015	94	B1-U0-G2	12616	98	B1-U0-G2				
			III-M-HS	10516	82	B1-U0-G2	11352	89	B1-U0-G2	11949	93	B1-U0-G3	12547	98	B1-U0-G3				
			III-W-HS	10293	80	B1-U0-G3	11112	87	B1-U0-G3	11696	91	B1-U0-G3	12281	96	B1-U0-G3				
			IV-HS	10862	85	B1-U0-G2	11726	91	B1-U0-G2	12343	96	B1-U0-G2	12960	101	B1-U0-G3				
			IV-FT-HS	10266	80	B1-U0-G3	11082	86	B1-U0-G3	11665	91	B1-U0-G3	12248	96	B1-U0-G3				

RZR SERIES - LED

PHOTOMETRIC DATA GUIDE - LUMEN TABLES (RZR-PLED)

RZR-PLED																			
LED Count	Drive Current (mA)	System Watts	Dist'n Type	27K (2700K - 70CRI)			30K (3000K - 70CRI)			40K (4000K - 70CRI)			50K (5000K - 70CRI)			System Watts	TRA (590nm)		
				LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING		LUMENS	LPW	BUG RATING
80	350	85.4	II	11277	132	B2-U0-G2	12174	143	B2-U0-G2	12814	150	B2-U0-G2	13455	158	B2-U0-G2	67.0	4475	67	B1-U0-G1
			II-FR	11352	133	B3-U0-G1	12256	144	B3-U0-G1	12901	151	B3-U0-G1	13546	159	B3-U0-G1		4504	67	B1-U0-G1
			II-ML	11277	132	B3-U0-G3	12175	143	B3-U0-G3	12815	150	B3-U0-G3	13456	158	B3-U0-G3		4475	67	B2-U0-G2
			III-M	11474	134	B2-U0-G2	12387	145	B2-U0-G2	13039	153	B2-U0-G2	13691	160	B2-U0-G2		4553	68	B1-U0-G1
			III-W	10654	125	B2-U0-G3	11501	135	B2-U0-G3	12106	142	B2-U0-G3	12712	149	B2-U0-G3		4228	63	B1-U0-G2
			IV	11388	133	B2-U0-G2	12294	144	B2-U0-G2	12941	152	B2-U0-G2	13588	159	B2-U0-G2		4518	67	B1-U0-G1
			IV-FT	10374	121	B2-U0-G3	11199	131	B2-U0-G3	11788	138	B2-U0-G3	12377	145	B2-U0-G3		4117	61	B1-U0-G1
			VSQ-N	11902	139	B3-U0-G1	12849	150	B3-U0-G1	13525	158	B3-U0-G1	14202	166	B3-U0-G1		4723	70	B2-U0-G1
			VSQ-M	11671	137	B4-U0-G2	12600	148	B4-U0-G2	13263	155	B4-U0-G2	13927	163	B4-U0-G2		4631	69	B3-U0-G1
			VSQ-W	11392	133	B4-U0-G3	12299	144	B4-U0-G3	12946	152	B4-U0-G3	13593	159	B4-U0-G3		4520	67	B3-U0-G2
			II-HS	8247	97	B1-U0-G2	8903	104	B1-U0-G2	9372	110	B1-U0-G2	9840	115	B1-U0-G2		3273	49	B0-U0-G1
			II-FR-HS	8389	98	B1-U0-G1	9056	106	B1-U0-G1	9533	112	B1-U0-G1	10009	117	B1-U0-G1		3329	50	B0-U0-G1
			III-M-HS	8344	98	B1-U0-G2	9007	105	B1-U0-G2	9482	111	B1-U0-G2	9956	117	B1-U0-G2		3311	49	B0-U0-G1
			III-W-HS	8167	96	B1-U0-G2	8817	103	B1-U0-G2	9281	109	B1-U0-G2	9745	114	B1-U0-G3		3240	48	B0-U0-G1
			IV-HS	8618	101	B1-U0-G2	9304	109	B1-U0-G2	9793	115	B1-U0-G2	10283	120	B1-U0-G2		3420	51	B0-U0-G1
			IV-FT-HS	8144	95	B1-U0-G3	8792	103	B1-U0-G3	9255	108	B1-U0-G3	9718	114	B1-U0-G3		3232	48	B0-U0-G2
80	525	129.4	II	16239	125	B3-U0-G3	17531	135	B3-U0-G3	18454	143	B3-U0-G3	19377	150	B3-U0-G3	101.0	5251	52	B1-U0-G1
			II-FR	16348	126	B3-U0-G2	17648	136	B3-U0-G2	18577	144	B3-U0-G2	19506	151	B3-U0-G2		5286	52	B1-U0-G1
			II-ML	16240	126	B4-U0-G4	17532	135	B4-U0-G4	18454	143	B4-U0-G4	19377	150	B4-U0-G4		5251	52	B2-U0-G2
			III-M	16523	128	B3-U0-G3	17837	138	B3-U0-G3	18776	145	B3-U0-G3	19715	152	B3-U0-G3		5343	53	B1-U0-G2
			III-W	15341	119	B2-U0-G3	16562	128	B3-U0-G3	17433	135	B3-U0-G3	18305	141	B3-U0-G3		4961	49	B1-U0-G2
			IV	16398	127	B3-U0-G3	17703	137	B3-U0-G3	18635	144	B3-U0-G3	19566	151	B3-U0-G3		5302	52	B1-U0-G1
			IV-FT	14938	115	B3-U0-G3	16127	125	B3-U0-G4	16976	131	B3-U0-G4	17824	138	B3-U0-G4		4830	48	B1-U0-G2
			VSQ-N	17140	132	B4-U0-G2	18504	143	B4-U0-G2	19477	151	B4-U0-G2	20451	158	B4-U0-G2		5542	55	B2-U0-G1
			VSQ-M	16807	130	B4-U0-G2	18144	140	B4-U0-G2	19099	148	B4-U0-G2	20053	155	B4-U0-G2		5434	54	B3-U0-G1
			VSQ-W	16406	127	B4-U0-G3	17711	137	B5-U0-G3	18643	144	B5-U0-G3	19575	151	B5-U0-G3		5304	53	B3-U0-G2
			II-HS	11877	92	B1-U0-G2	12821	99	B1-U0-G2	13496	104	B1-U0-G3	14171	110	B1-U0-G3		3841	38	B0-U0-G1
			II-FR-HS	12081	93	B1-U0-G2	13042	101	B1-U0-G2	13728	106	B1-U0-G2	14414	111	B1-U0-G2		3906	39	B0-U0-G1
			III-M-HS	12016	93	B1-U0-G3	12971	100	B1-U0-G3	13654	106	B1-U0-G3	14337	111	B1-U0-G3		3885	38	B0-U0-G1
			III-W-HS	11760	91	B1-U0-G3	12696	98	B1-U0-G3	13364	103	B1-U0-G3	14032	108	B1-U0-G3		3803	38	B0-U0-G2
			IV-HS	12411	96	B1-U0-G2	13398	104	B1-U0-G3	14103	109	B1-U0-G3	14808	114	B1-U0-G3		4013	40	B0-U0-G1
			IV-FT-HS	11729	91	B1-U0-G3	12662	98	B1-U0-G3	13328	103	B1-U0-G3	13995	108	B1-U0-G4		3792	38	B0-U0-G2
80	700	173.6	II	20595	119	B3-U0-G3	22232	128	B3-U0-G3	23403	135	B3-U0-G3	24573	142	B3-U0-G3	N/A	N/A		
			II-FR	20732	119	B3-U0-G2	22381	129	B3-U0-G2	23559	136	B3-U0-G2	24736	142	B3-U0-G2				
			II-ML	20595	119	B4-U0-G4	22233	128	B4-U0-G4	23403	135	B4-U0-G4	24573	142	B4-U0-G4				
			III-M	20954	121	B3-U0-G3	22621	130	B3-U0-G3	23812	137	B3-U0-G4	25003	144	B3-U0-G4				
			III-W	19456	112	B3-U0-G4	21003	121	B3-U0-G4	22109	127	B3-U0-G4	23214	134	B3-U0-G4				
			IV	20797	120	B3-U0-G3	22451	129	B3-U0-G3	23633	136	B3-U0-G3	24814	143	B3-U0-G4				
			IV-FT	18945	109	B3-U0-G4	20452	118	B3-U0-G4	21528	124	B3-U0-G4	22604	130	B3-U0-G4				
			VSQ-N	21737	125	B4-U0-G2	23466	135	B4-U0-G2	24701	142	B4-U0-G2	25936	149	B4-U0-G2				
			VSQ-M	21314	123	B5-U0-G3	23010	133	B5-U0-G3	24221	140	B5-U0-G3	25432	146	B5-U0-G3				
			VSQ-W	20806	120	B5-U0-G3	22461	129	B5-U0-G4	23643	136	B5-U0-G4	24825	143	B5-U0-G4				
			II-HS	15062	87	B1-U0-G3	16260	94	B1-U0-G3	17115	99	B1-U0-G3	17971	104	B1-U0-G3				
			II-FR-HS	15321	88	B1-U0-G2	16539	95	B1-U0-G2	17410	100	B1-U0-G2	18280	105	B1-U0-G2				
			III-M-HS	15238	88	B1-U0-G3	16450	95	B1-U0-G3	17315	100	B1-U0-G3	18181	105	B1-U0-G4				
			III-W-HS	14915	86	B1-U0-G4	16101	93	B1-U0-G4	16948	98	B1-U0-G4	17796	103	B1-U0-G4				
			IV-HS	15739	91	B1-U0-G3	16991	98	B1-U0-G3	17885	103	B1-U0-G3	18780	108	B1-U0-G3				
			IV-FT-HS	14874	86	B1-U0-G4	16058	92	B1-U0-G4	16903	97	B1-U0-G4	17748	102	B1-U0-G4				
80	875	215.9	II	23798	110	B3-U0-G3	25691	119	B3-U0-G3	27043	125	B3-U0-G4	28395	132	B3-U0-G4	N/A	N/A		
			II-FR	23957	111	B3-U0-G2	25862	120	B3-U0-G2	27223	126	B3-U0-G2	28585	132	B4-U0-G2				
			II-ML	23799	110	B4-U0-G4	25692	119	B4-U0-G4	27044	125	B4-U0-G4	28396	132	B4-U0-G4				
			III-M	24214	112	B3-U0-G4	26140	121	B3-U0-G4	27516	127	B3-U0-G4	28892	134	B3-U0-G4				
			III-W	22482	104	B3-U0-G4	24270	112	B3-U0-G4	25548	118	B3-U0-G4	26825	124	B3-U0-G4				
			IV	24032	111	B3-U0-G3	25943	120	B3-U0-G4	27309	126	B3-U0-G4	28674	133	B3-U0-G4				
			IV-FT	21892	101	B3-U0-G4	23634	109	B3-U0-G5	24877	115	B3-U0-G5	26121	121	B3-U0-G5				
			VSQ-N	25118	116	B4-U0-G2	27116	126	B5-U0-G2	28543	132	B5-U0-G2	29970	139	B5-U0-G2				
			VSQ-M	24630	114	B5-U0-G3	26589	123	B5-U0-G3	27988	130	B5-U0-G3	29387	136	B5-U0-G3				
			VSQ-W	24042	111	B5-U0-G4	25954	120	B5-U0-G4	27321	127	B5-U0-G4	28686	133	B5-U0-G4				
			II-HS	17405	81	B1-U0-G3	18789	87	B1-U0-G3	19778	92	B1-U0-G4	20766	96	B2-U0-G4				
			II-FR-HS	17704	82	B1-U0-G2	19112	89	B1-U0-G2	20118	93	B1-U0-G2	21124	98	B1-U0-G2				
			III-M-HS	17608	82	B1-U0-G4	19008	88	B1-U0-G4	20009	93	B1-U0-G4	21009	97	B1-U0-G4				
			III-W-HS	17234	80	B1-U0-G4	18605	86	B1-U0-G4	19584	91	B1-U0-G4	20564	95	B1-U0-G4				
			IV-HS	18187	84	B1-U0-G3	19634	91	B1-U0-G4	20667	96	B1-U0-G4	21701	101	B1-U0-G4				
			IV-FT-HS	17188	80	B1-U0-G4	18555	86	B1-U0-G4	19532	90	B1-U0-G4	20509	95	B1-U0-G4				
80	1050	256.4	II	27354	107	B3-U0-G4	29530	115	B4-U0-G4	31084	121	B4-U0-G4	32638	127	B4-U0-G4	N/A	N/A		
			II-FR	27536	107	B3-U0-G2	29727	116	B4-U0-G2	31291	122	B4-U0-G2	32856	128	B4-U0-G2				
			II-ML	27355	107	B4-U0-G4	29531	115	B5-U0-G5	31085	121	B5-U0-G5	32639	127	B5-U0-G5				
			III-M	27832	109	B3-U0-G4	30046	117	B3-U0-G4	31627	123	B4-U0-G4	33209	130	B4-U0-G4				
			III-W	25841	101	B3-U0-G4	27897	109	B3-U0-G4	29365	115	B3-U0-G5	30834	120	B3-U0-G5				
			IV	27622	108	B3-U0-G4	29820	116	B3-U0-G4	31389	122	B4-U0-G4	32959	129	B4-U0-G4				
			IV-FT	25163	98	B3-U0-G5	27165	106	B3-U0-G5	28595	112	B3-U0-G5	30024	117	B3-U0-G5				
			VSQ-N	28871	113	B5-U0-G2	31168	122	B5-U0-G2	32808	128	B5-U0-G2	34448	134	B5-U0-G2				
			VSQ-M	28310	110	B5-U0-G3	30561	119	B5-U0-G3	32170	125	B5-U0-G4	33779	132	B5-U0-G4				
			VSQ-W	27634	108	B5-U0-G4	29833	116	B5-U0-G4	31403	122	B5-U0-G5	32973	129	B5-U0-G5				
			II-HS	20005	78	B1-U0-G4	21596	84	B2-U0-G4	22733	89	B2-U0-G4	23870	93	B2-U0-G4				
			II-FR-HS	20349	79	B1-U0-G2	21968	86	B1-U0-G2	23124	90	B1-U0-G2	24280	95	B1-U0-G2				
			III-M-HS	20239	79	B1-U0-G4	21848	85	B1-U0-G4	22998	90	B1-U0-G4	24148	94	B1-U0-G4				
			III-W-HS	19809	77	B1-U0-G4	21385	83	B1-U0-G4	22511	88	B1-U0-G4	23636	92	B1-U0-G5				
			IV-HS	20905	82	B1-U0-G4	22568	88	B1-U0-G4	23756	93	B1-U0-G4	24943	97	B1-U0-G4				
			IV-FT-HS	19756	77	B1-U0-G4	21328	83	B1-U0-G4	22451	88	B1-U0-G5	23573	92	B1-U0-G5				

RZR SERIES - LED

PHOTOMETRIC DATA GUIDE - LUMEN TABLES (RZRG-PLED)

RZR-G-PLED																			
LED Count	Drive Current (mA)	System Watts	Dist'n Type	27K (2700K - 70CRI)			30K (3000K - 70CRI)			40K (4000K - 70CRI)			50K (5000K - 70CRI)			System Watts	TRA (590nm)		
				LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING		LUMENS	LPW	BUG RATING
80	350	87.0	II	11409	131	B2-U0-G2	12317	142	B2-U0-G2	12965	149	B2-U0-G2	13613	156	B2-U0-G2	67.0	4528	68	B1-U0-G1
			II-FR	11485	132	B3-U0-G1	12398	143	B3-U0-G1	13051	150	B3-U0-G1	13703	158	B3-U0-G1		4558	68	B1-U0-G1
			II-ML	11409	131	B3-U0-G3	12317	142	B3-U0-G3	12965	149	B3-U0-G3	13613	156	B3-U0-G3		4528	68	B2-U0-G2
			II-M	11608	133	B2-U0-G2	12531	144	B2-U0-G2	13191	152	B2-U0-G2	13850	159	B2-U0-G2		4553	68	B1-U0-G1
			III-W	10778	124	B2-U0-G3	11635	134	B2-U0-G3	12248	141	B2-U0-G3	12860	148	B2-U0-G3		4276	64	B1-U0-G2
			IV	11520	132	B2-U0-G2	12437	143	B2-U0-G2	13091	150	B2-U0-G2	13746	158	B2-U0-G2		4572	68	B1-U0-G1
			IV-FT	10494	121	B2-U0-G3	11330	130	B2-U0-G3	11926	137	B2-U0-G3	12522	144	B2-U0-G3		4165	62	B1-U0-G1
			VSQ-N	12041	138	B3-U0-G1	12999	149	B3-U0-G1	13683	157	B3-U0-G1	14367	165	B3-U0-G1		4779	71	B2-U0-G1
			VSQ-M	11808	136	B4-U0-G2	12747	147	B4-U0-G2	13418	154	B4-U0-G2	14089	162	B4-U0-G2		4686	70	B3-U0-G1
			VSQ-W	11526	132	B4-U0-G3	12443	143	B4-U0-G3	13097	151	B4-U0-G3	13752	158	B4-U0-G3		4574	68	B3-U0-G2
			II-HS	8464	97	B1-U0-G2	9138	105	B1-U0-G2	9618	111	B1-U0-G2	10099	116	B1-U0-G2		3359	50	B0-U0-G1
			II-FR-HS	8609	99	B1-U0-G1	9294	107	B1-U0-G1	9783	112	B1-U0-G1	10274	118	B1-U0-G1		3417	51	B0-U0-G1
			III-M-HS	8563	98	B1-U0-G2	9244	106	B1-U0-G2	9731	112	B1-U0-G2	10217	117	B1-U0-G2		3398	51	B0-U0-G1
			III-W-HS	8382	96	B1-U0-G2	9048	104	B1-U0-G2	9525	109	B1-U0-G3	10001	115	B1-U0-G3		3326	50	B0-U0-G1
			IV-HS	8845	102	B1-U0-G2	9548	110	B1-U0-G2	10051	116	B1-U0-G2	10553	121	B1-U0-G2		3510	52	B0-U0-G1
			IV-FT-HS	8359	96	B1-U0-G3	9024	104	B1-U0-G3	9499	109	B1-U0-G3	9974	115	B1-U0-G3		3317	50	B0-U0-G2
80	525	129.0	II	16394	127	B3-U0-G3	17698	137	B3-U0-G3	18629	144	B3-U0-G3	19560	152	B3-U0-G3	101.0	5301	52	B1-U0-G1
			II-FR	16503	128	B3-U0-G2	17816	138	B3-U0-G2	18753	145	B3-U0-G2	19691	153	B3-U0-G2		5336	53	B1-U0-G1
			II-ML	16394	127	B4-U0-G4	17698	137	B4-U0-G4	18630	144	B4-U0-G4	19561	152	B4-U0-G4		5302	52	B2-U0-G2
			II-M	16680	129	B3-U0-G3	14740	114	B2-U0-G2	18955	147	B3-U0-G3	19902	154	B3-U0-G3		5343	53	B1-U0-G2
			III-W	15488	120	B2-U0-G3	16720	130	B3-U0-G3	17600	136	B3-U0-G3	18479	143	B3-U0-G4		5008	50	B1-U0-G2
			IV	16555	128	B3-U0-G3	17871	139	B3-U0-G3	18812	146	B3-U0-G3	19753	153	B3-U0-G3		5353	53	B1-U0-G1
			IV-FT	15081	117	B3-U0-G3	16280	126	B3-U0-G3	17137	133	B3-U0-G3	17994	139	B3-U0-G3		4877	48	B1-U0-G2
			VSQ-N	17303	134	B4-U0-G2	18679	145	B4-U0-G2	19663	152	B4-U0-G2	20646	160	B4-U0-G2		5595	55	B2-U0-G1
			VSQ-M	16967	132	B4-U0-G2	18317	142	B4-U0-G2	19281	149	B4-U0-G2	20245	157	B4-U0-G2		5486	54	B3-U0-G1
			VSQ-W	16562	128	B4-U0-G3	17880	139	B5-U0-G3	18821	146	B5-U0-G3	19762	153	B5-U0-G3		5355	53	B3-U0-G2
			II-HS	12089	94	B1-U0-G2	13052	101	B1-U0-G3	13738	106	B1-U0-G3	14425	112	B1-U0-G3		3909	39	B0-U0-G1
			II-FR-HS	12298	95	B1-U0-G2	13276	103	B1-U0-G2	13975	108	B1-U0-G2	14674	114	B1-U0-G2		3977	39	B0-U0-G1
			III-M-HS	12231	95	B1-U0-G3	13204	102	B1-U0-G3	13899	108	B1-U0-G3	14594	113	B1-U0-G3		3954	39	B0-U0-G1
			III-W-HS	11971	93	B1-U0-G3	12924	100	B1-U0-G3	13604	105	B1-U0-G3	14284	111	B1-U0-G3		3871	38	B0-U0-G2
			IV-HS	12633	98	B1-U0-G2	13638	106	B1-U0-G3	14356	111	B1-U0-G3	15074	117	B1-U0-G3		4085	40	B0-U0-G1
			IV-FT-HS	11940	93	B1-U0-G3	12889	100	B1-U0-G3	13568	105	B1-U0-G3	14246	110	B1-U0-G4		3861	38	B0-U0-G2
80	700	174.0	II	20914	120	B3-U0-G3	22578	130	B3-U0-G3	23766	137	B3-U0-G3	24955	143	B3-U0-G3	N/A	N/A		
			II-FR	21054	121	B3-U0-G2	22729	131	B3-U0-G2	23924	137	B3-U0-G2	25121	144	B3-U0-G2				
			II-ML	20915	120	B4-U0-G4	22579	130	B4-U0-G4	23767	137	B4-U0-G4	24955	143	B4-U0-G4				
			II-M	21280	122	B3-U0-G3	22972	132	B3-U0-G3	24182	139	B3-U0-G4	25391	146	B3-U0-G4				
			III-W	19759	114	B3-U0-G4	21330	123	B3-U0-G4	22453	129	B3-U0-G4	23575	135	B3-U0-G4				
			IV	21120	121	B3-U0-G3	22800	131	B3-U0-G3	24000	138	B3-U0-G3	25200	145	B3-U0-G4				
			IV-FT	19239	111	B3-U0-G4	20770	119	B3-U0-G4	21862	126	B3-U0-G4	22956	132	B3-U0-G4				
			VSQ-N	22074	127	B4-U0-G2	23831	137	B4-U0-G2	25084	144	B4-U0-G2	26339	151	B4-U0-G2				
			VSQ-M	21646	124	B5-U0-G3	23367	134	B5-U0-G3	24598	141	B5-U0-G3	25827	148	B5-U0-G3				
			VSQ-W	21129	121	B5-U0-G4	22810	131	B5-U0-G4	24010	138	B5-U0-G4	25212	145	B5-U0-G4				
			II-HS	15363	88	B1-U0-G3	16586	95	B1-U0-G3	17458	100	B1-U0-G3	18332	105	B1-U0-G3				
			II-FR-HS	15628	90	B1-U0-G2	16872	97	B1-U0-G2	17759	102	B1-U0-G2	18647	107	B1-U0-G2				
			III-M-HS	15542	89	B1-U0-G3	16778	96	B1-U0-G3	17662	102	B1-U0-G4	18545	107	B1-U0-G4				
			III-W-HS	15213	87	B1-U0-G4	16423	94	B1-U0-G4	17288	99	B1-U0-G4	18152	104	B1-U0-G4				
			IV-HS	16055	92	B1-U0-G3	17331	100	B1-U0-G3	18244	105	B1-U0-G3	19155	110	B1-U0-G3				
			IV-FT-HS	15172	87	B1-U0-G4	16380	94	B1-U0-G4	17242	99	B1-U0-G4	18104	104	B1-U0-G4				
80	875	219.7	II	25063	114	B3-U0-G3	27057	123	B3-U0-G4	28481	130	B3-U0-G4	29905	136	B4-U0-G4	N/A	N/A		
			II-FR	25230	115	B3-U0-G2	27237	124	B3-U0-G2	28670	130	B4-U0-G2	30104	137	B4-U0-G2				
			II-ML	25064	114	B4-U0-G4	27057	123	B4-U0-G4	28481	130	B4-U0-G4	29906	136	B5-U0-G5				
			III-M	25501	116	B3-U0-G4	27529	125	B3-U0-G4	28978	132	B3-U0-G4	30427	138	B3-U0-G4				
			III-W	23677	108	B3-U0-G4	25560	116	B3-U0-G4	26906	122	B3-U0-G4	28251	129	B3-U0-G4				
			IV	25309	115	B3-U0-G4	27322	124	B3-U0-G4	28760	131	B3-U0-G4	30198	137	B3-U0-G4				
			IV-FT	23056	105	B3-U0-G4	24889	113	B3-U0-G4	26200	119	B3-U0-G4	27509	125	B3-U0-G4				
			VSQ-N	26453	120	B4-U0-G2	28557	130	B5-U0-G2	30060	137	B5-U0-G2	31563	144	B5-U0-G2				
			VSQ-M	25939	118	B5-U0-G3	28002	127	B5-U0-G3	29476	134	B5-U0-G3	30950	141	B5-U0-G3				
			VSQ-W	25320	115	B5-U0-G4	27335	124	B5-U0-G4	28773	131	B5-U0-G4	30212	138	B5-U0-G4				
			II-HS	18330	83	B1-U0-G3	19788	90	B1-U0-G4	20830	95	B2-U0-G4	21871	100	B2-U0-G4				
			II-FR-HS	18645	85	B1-U0-G2	20128	92	B1-U0-G2	21188	96	B1-U0-G2	22247	101	B1-U0-G2				
			III-M-HS	18543	84	B1-U0-G4	20018	91	B1-U0-G4	21072	96	B1-U0-G4	22125	101	B1-U0-G4				
			III-W-HS	18151	83	B1-U0-G4	19594	89	B1-U0-G4	20626	94	B1-U0-G4	21657	99	B1-U0-G4				
			IV-HS	19154	87	B1-U0-G3	20677	94	B1-U0-G4	21766	99	B1-U0-G4	22854	104	B1-U0-G4				
			IV-FT-HS	18102	82	B1-U0-G4	19541	89	B1-U0-G4	20571	94	B1-U0-G4	21599	98	B1-U0-G4				
80	1050	266.0	II	28808	108	B4-U0-G4	31099	117	B4-U0-G4	32736	123	B4-U0-G4	34373	129	B4-U0-G4	N/A	N/A		
			II-FR	29000	109	B4-U0-G2	31306	118	B4-U0-G2	32954	124	B4-U0-G2	34602	130	B4-U0-G2				
			II-ML	28809	108	B5-U0-G5	31100	117	B5-U0-G5	32737	123	B5-U0-G5	34374	129	B5-U0-G5				
			III-M	29311	110	B3-U0-G4	31643	119	B4-U0-G4	33308	125	B4-U0-G4	34974	131	B4-U0-G4				
			III-W	27215	102	B3-U0-G4	29380	110	B3-U0-G5	30926	116	B3-U0-G5	32473	122	B3-U0-G5				
			IV	29091	109	B3-U0-G4	31404	118	B4-U0-G4	33058	124	B4-U0-G4	34710	130	B4-U0-G4				
			IV-FT	26501	100	B3-U0-G4	28608	108	B3-U0-G4	30114	113	B3-U0-G5	31620	119	B3-U0-G5				
			VSQ-N	30405	114	B5-U0-G2	32824	123	B5-U0-G2	34551	130	B5-U0-G2	36279	136	B5-U0-G2				
			VSQ-M	29815	112	B5-U0-G3	32186	121	B5-U0-G4	33880	127	B5-U0-G4	35575	134	B5-U0-G4				
			VSQ-W	29104	109	B5-U0-G4	31419	118	B5-U0-G5	33073	124	B5-U0-G5	34726	131	B5-U0-G5				
			II-HS	21069	79	B2-U0-G4	22745	86	B2-U0-G4	23942	90	B2-U0-G4	25139	95	B2-U0-G4				
			II-FR-HS	21432	81	B1-U0-G2	23136	87	B1-U0-G2	24354	92	B1-U0-G2	25571	96	B2-U0-G2				
			III-M-HS	21314	80	B1-U0-G4	23009	87	B1-U0-G4	24220	91	B1-U0-G4	25431	96	B1-U0-G4				
			III-W-HS	20862	78	B1-U0-G4	22521	85	B1-U0-G4	23708	89	B1-U0-G5	24893	94	B1-U0-G5				
			IV-HS	22016	83	B1-U0-G4	23766	89	B1-U0-G4	25018	94	B1-U0-G4	26268	99	B1-U0-G4				
			IV-FT-HS	20807	78	B1-U0-G4	22461	84	B1-U0-G5	23644	89	B1-U0-G5	24826	93	B1-U0-G5				



RZR SERIES - LED

PHOTOMETRIC DATA GUIDE - LUMEN TABLES (RZRG-PLED)

RZR-G-PLED																			
LED Count	Drive Current (mA)	System Watts	Dist'n Type	27K (2700K - 70CRI)			30K (3000K - 70CRI)			40K (4000K - 70CRI)			50K (5000K - 70CRI)			System Watts	TRA (590nm)		
				LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING		LUMENS	LPW	BUG RATING
120	350	130.0	II	16889	130	B3-U0-G3	18233	140	B3-U0-G3	19192	148	B3-U0-G3	20152	155	B3-U0-G3	100.0	6702	67	B2-U0-G2
			II-FR	17001	131	B3-U0-G2	18354	141	B3-U0-G2	19320	149	B3-U0-G2	20286	156	B3-U0-G2		6747	67	B2-U0-G1
			II-ML	16890	130	B4-U0-G4	18233	140	B4-U0-G4	19193	148	B4-U0-G4	20152	155	B4-U0-G4		6703	67	B3-U0-G3
			II-M	17184	132	B3-U0-G3	18552	143	B3-U0-G3	19527	150	B3-U0-G3	20504	158	B3-U0-G3		6818	68	B2-U0-G2
			III-W	15956	123	B3-U0-G3	17224	132	B3-U0-G3	18131	139	B3-U0-G3	19037	146	B3-U0-G4		6331	63	B1-U0-G2
			IV	17055	131	B3-U0-G3	18411	142	B3-U0-G3	19381	149	B3-U0-G3	20349	157	B3-U0-G3		6768	68	B2-U0-G2
			IV-FT	15537	120	B3-U0-G3	16772	129	B3-U0-G3	17655	136	B3-U0-G3	18538	143	B3-U0-G4		6165	62	B1-U0-G2
			VSQ-N	17825	137	B4-U0-G2	19243	148	B4-U0-G2	20256	156	B4-U0-G2	21269	164	B4-U0-G2		7073	71	B2-U0-G1
			VSQ-M	17480	134	B4-U0-G2	18870	145	B4-U0-G2	19863	153	B4-U0-G2	20857	160	B4-U0-G2		6936	69	B3-U0-G1
			VSQ-W	17062	131	B5-U0-G3	18420	142	B5-U0-G3	19389	149	B5-U0-G3	20358	157	B5-U0-G3		6771	68	B3-U0-G2
			II-HS	12352	95	B1-U0-G2	13334	103	B1-U0-G3	14036	108	B1-U0-G3	14738	113	B1-U0-G3		4901	49	B1-U0-G2
			II-FR-HS	12564	97	B1-U0-G2	13564	104	B1-U0-G2	14277	110	B1-U0-G2	14992	115	B1-U0-G2		4986	50	B0-U0-G1
			III-M-HS	12496	96	B1-U0-G3	13490	104	B1-U0-G3	14199	109	B1-U0-G3	14910	115	B1-U0-G3		4959	50	B0-U0-G2
			III-W-HS	12231	94	B1-U0-G3	13204	102	B1-U0-G3	13899	107	B1-U0-G3	14594	112	B1-U0-G3		4853	49	B0-U0-G2
			IV-HS	12907	99	B1-U0-G3	13934	107	B1-U0-G3	14667	113	B1-U0-G3	15400	118	B1-U0-G3		5122	51	B0-U0-G2
			IV-FT-HS	12198	94	B1-U0-G3	13168	101	B1-U0-G3	13862	107	B1-U0-G4	14555	112	B1-U0-G4		4840	48	B0-U0-G2
120	525	192.0	II	24123	126	B3-U0-G3	26042	136	B3-U0-G3	27413	143	B3-U0-G4	28783	150	B4-U0-G4	152.0	7800	51	B2-U0-G2
			II-FR	24284	126	B3-U0-G2	26216	137	B3-U0-G2	27596	144	B3-U0-G2	28975	151	B4-U0-G2		7853	52	B2-U0-G1
			II-ML	24124	126	B4-U0-G4	26042	136	B4-U0-G4	27414	143	B4-U0-G4	28784	150	B5-U0-G5		7800	51	B3-U0-G3
			II-M	24545	128	B3-U0-G4	26498	138	B3-U0-G4	27892	145	B3-U0-G4	29287	153	B3-U0-G4		7937	52	B2-U0-G2
			III-W	22789	119	B3-U0-G4	24603	128	B3-U0-G4	25897	135	B3-U0-G4	27192	142	B3-U0-G4		7368	48	B1-U0-G2
			IV	24360	127	B3-U0-G4	26298	137	B3-U0-G4	27682	144	B3-U0-G4	29066	151	B3-U0-G4		7876	52	B2-U0-G2
			IV-FT	22191	116	B3-U0-G4	23956	125	B3-U0-G4	25217	131	B3-U0-G4	26478	138	B3-U0-G4		7176	47	B1-U0-G2
			VSQ-N	25461	133	B4-U0-G2	27486	143	B5-U0-G2	28933	151	B5-U0-G2	30379	158	B5-U0-G2		8233	54	B3-U0-G1
			VSQ-M	24967	130	B5-U0-G3	26952	140	B5-U0-G3	28371	148	B5-U0-G3	29789	155	B5-U0-G3		8073	53	B3-U0-G2
			VSQ-W	24371	127	B5-U0-G4	26309	137	B5-U0-G4	27695	144	B5-U0-G4	29079	151	B5-U0-G4		7881	52	B3-U0-G2
			II-HS	17642	92	B1-U0-G3	19046	99	B1-U0-G3	20048	104	B1-U0-G4	21050	110	B2-U0-G4		5704	38	B1-U0-G2
			II-FR-HS	17946	93	B1-U0-G2	19373	101	B1-U0-G2	20393	106	B1-U0-G2	21413	112	B1-U0-G2		5803	38	B1-U0-G1
			III-M-HS	17848	93	B1-U0-G4	19268	100	B1-U0-G4	20282	106	B1-U0-G4	21296	111	B1-U0-G4		5772	38	B0-U0-G2
			III-W-HS	17470	91	B1-U0-G4	18860	98	B1-U0-G4	19852	103	B1-U0-G4	20844	109	B1-U0-G4		5649	37	B0-U0-G2
			IV-HS	18435	96	B1-U0-G3	19902	104	B1-U0-G4	20949	109	B1-U0-G4	21997	115	B1-U0-G4		5961	39	B0-U0-G2
			IV-FT-HS	17423	91	B1-U0-G4	18809	98	B1-U0-G4	19799	103	B1-U0-G4	20789	108	B1-U0-G4		5633	37	B0-U0-G2
120	700	260.0	II	30656	118	B4-U0-G4	33094	127	B4-U0-G4	34836	134	B4-U0-G4	36578	141	B4-U0-G4	N/A	N/A		
			II-FR	30860	119	B4-U0-G2	33315	128	B4-U0-G2	35068	135	B4-U0-G2	36822	142	B4-U0-G2				
			II-ML	30657	118	B5-U0-G5	33095	127	B5-U0-G5	34837	134	B5-U0-G5	36579	141	B5-U0-G5				
			II-M	31191	120	B4-U0-G4	33673	130	B4-U0-G4	35445	136	B4-U0-G4	37217	143	B4-U0-G4				
			III-W	28960	111	B3-U0-G4	31265	120	B3-U0-G5	32909	127	B3-U0-G5	34555	133	B3-U0-G5				
			IV	30956	119	B4-U0-G4	33418	129	B4-U0-G4	35177	135	B4-U0-G4	36936	142	B4-U0-G4				
			IV-FT	28200	108	B3-U0-G4	30444	117	B3-U0-G5	32046	123	B3-U0-G5	33648	129	B3-U0-G5				
			VSQ-N	32356	124	B5-U0-G2	34929	134	B5-U0-G2	36768	141	B5-U0-G2	38606	148	B5-U0-G2				
			VSQ-M	31727	122	B5-U0-G4	34250	132	B5-U0-G4	36054	139	B5-U0-G4	37856	146	B5-U0-G4				
			VSQ-W	30971	119	B5-U0-G4	33434	129	B5-U0-G5	35194	135	B5-U0-G5	36953	142	B5-U0-G5				
			II-HS	22420	86	B2-U0-G4	24203	93	B2-U0-G4	25478	98	B2-U0-G4	26751	103	B2-U0-G4				
			II-FR-HS	22806	88	B1-U0-G2	24619	95	B1-U0-G2	25916	100	B2-U0-G2	27212	105	B2-U0-G2				
			III-M-HS	22682	87	B1-U0-G4	24485	94	B1-U0-G4	25774	99	B1-U0-G4	27063	104	B1-U0-G4				
			III-W-HS	22201	85	B1-U0-G4	23967	92	B1-U0-G5	25228	97	B1-U0-G5	26489	102	B1-U0-G5				
			IV-HS	23428	90	B1-U0-G4	25291	97	B1-U0-G4	26622	102	B1-U0-G4	27953	108	B1-U0-G4				
			IV-FT-HS	22141	85	B1-U0-G5	23902	92	B1-U0-G5	25160	97	B1-U0-G5	26418	102	B1-U0-G5				
120	875	329.0	II	36574	111	B4-U0-G4	39483	120	B4-U0-G4	41561	126	B4-U0-G4	43639	133	B4-U0-G5	N/A	N/A		
			II-FR	36818	112	B4-U0-G2	39746	121	B4-U0-G2	41838	127	B4-U0-G3	43930	134	B4-U0-G3				
			II-ML	36575	111	B5-U0-G5	39485	120	B5-U0-G5	41562	126	B5-U0-G5	43640	133	B5-U0-G5				
			III-M	37213	113	B4-U0-G4	40174	122	B4-U0-G5	42288	129	B4-U0-G5	44402	135	B4-U0-G5				
			III-W	34552	105	B3-U0-G5	37300	113	B3-U0-G5	39263	119	B4-U0-G5	41226	125	B4-U0-G5				
			IV	36932	112	B4-U0-G4	39870	121	B4-U0-G5	41969	128	B4-U0-G5	44067	134	B4-U0-G5				
			IV-FT	33644	102	B3-U0-G5	36321	110	B3-U0-G5	38232	116	B4-U0-G5	40144	122	B4-U0-G5				
			VSQ-N	38602	117	B5-U0-G2	41673	127	B5-U0-G2	43866	133	B5-U0-G2	46060	140	B5-U0-G2				
			VSQ-M	37852	115	B5-U0-G4	40863	124	B5-U0-G4	43014	131	B5-U0-G4	45165	137	B5-U0-G4				
			VSQ-W	36950	112	B5-U0-G5	39888	121	B5-U0-G5	41988	128	B5-U0-G5	44088	134	B5-U0-G5				
			II-HS	26748	81	B2-U0-G4	28876	88	B2-U0-G4	30395	92	B2-U0-G4	31916	97	B2-U0-G5				
			II-FR-HS	27209	83	B2-U0-G2	29373	89	B2-U0-G2	30919	94	B2-U0-G2	32465	99	B2-U0-G3				
			III-M-HS	27060	82	B1-U0-G4	29213	89	B1-U0-G5	30750	93	B1-U0-G5	32287	98	B1-U0-G5				
			III-W-HS	26487	81	B1-U0-G5	28593	87	B1-U0-G5	30098	91	B1-U0-G5	31603	96	B1-U0-G5				
			IV-HS	27951	85	B1-U0-G4	30174	92	B1-U0-G4	31762	97	B1-U0-G5	33350	101	B1-U0-G5				
			IV-FT-HS	26416	80	B1-U0-G5	28517	87	B1-U0-G5	30018	91	B1-U0-G5	31519	96	B2-U0-G5				
120	1050	398.0	II	42039	106	B4-U0-G5	45383	114	B4-U0-G5	47771	120	B4-U0-G5	50160	126	B5-U0-G5	N/A	N/A		
			II-FR	42319	106	B4-U0-G3	45685	115	B4-U0-G3	48089	121	B4-U0-G3	50494	127	B4-U0-G3				
			II-ML	42040	106	B5-U0-G5	45384	114	B5-U0-G5	47773	120	B5-U0-G5	50161	126	B5-U0-G5				
			III-M	42774	107	B4-U0-G5	46177	116	B4-U0-G5	48606	122	B4-U0-G5	51037	128	B4-U0-G5				
			III-W	39714	100	B4-U0-G5	42873	108	B4-U0-G5	45130	113	B4-U0-G5	47387	119	B4-U0-G5				
			IV	42451	107	B4-U0-G5	45828	115	B4-U0-G5	48240	121	B4-U0-G5	50652	127	B4-U0-G5				
			IV-FT	38671	97	B4-U0-G5	41748	105	B4-U0-G5	43945	110	B4-U0-G5	46143	116	B4-U0-G5				
			VSQ-N	44370	111	B5-U0-G2	47899	120	B5-U0-G3	50421	127	B5-U0-G3	52942	133	B5-U0-G3				
			VSQ-M	43508	109	B5-U0-G4	46969	118	B5-U0-G4	49441	124	B5-U0-G4	51914	130	B5-U0-G5				
			VSQ-W	42471	107	B5-U0-G5	45849	115	B5-U0-G5	48262	121	B5-U0-G5	50676	127	B5-U0-G5				
			II-HS	30745	77	B2-U0-G4	33191	83	B2-U0-G5	34938	88	B2-U0-G5	36685	92	B2-U0-G5				
			II-FR-HS	31274	79	B2-U0-G3	33761	85	B2-U0-G3	35539	89	B2-U0-G3	37315	94	B2-U0-G3				
			III-M-HS	31104	78	B1-U0-G5	33578	84	B1-U0-G5	35345	89	B2-U0-G5	37112	93	B2-U0-G5				
			III-W-HS	30444	76	B1-U0-G5	32866	83	B1-U0-G5	34596	87	B1-U0-G5	36325	91	B2-U0-G5				
			IV-HS	32127	81	B1-U0-G5	34683	87	B2-U0-G5	36508	92	B2-U0-G5	38333	96	B2-U0-G5				
			IV-FT-HS	30363	76	B1-U0-G5	32777	82	B2-U0-G5	34504	87	B2-U0-G5	36229	91	B2-U0-G5				

L01

EXTERIOR | INTERIOR

In-grade | For ground, ceilings, walls, and stairs

Wet, Damp, and Dry location



Ordering Information

Clear Form

Date :

Quantity :

Project :

Note :

Type :

Specifications

Luminaire | Example Code: L01-2-W30H-S-C-[]-0-MK3-S-S6

Product	Version	CCT & CRI	Beam Angle ¹	Lens	Accessories ³ (optional)	Internal Angle Bracket ⁴	Mounting Kit ⁵ (optional)	Flange & Back Box ⁶	Trim Finish ⁹
L01									
	1 1W	W22S 2200K 80+	E elliptical 7°+36°	C clear	LM louver, matte anodized	0 no angle	MK1 vertical surface	Octagonal Aluminum	Aluminum Finishes:
	2 2W	W27H 2700K 90+	SS super spot 8°	F frosted	LB louver, black anodized	15 15° angle	MK3 in-ground	Back Box with:	MA matte clear anodized
		W30H 3000K 90+	S spot 12°	A anti-slip ²	HM hex louver, matte anodized	X custom		S standard flange	BA black anodized
		W35H 3500K 90+	N narrow flood 30°		HB hex louver, black anodized			depth: 3-1/2" (89mm)	BZ bronze powder coated
		W41H 4100K 90+	F flood 45°		AB angled louver, black anodized			P paving stone flange	Stainless Steel Finishes:
			W wide flood 120°		SB straight louver, black anodized			depth: 5-1/2" (138mm) ⁷	S6 stainless steel 316
					QB square louver, black anodized			Pipe ⁸ :	BT0 black stainless steel
					RB ring louver, black anodized			PIPE 1-5/8" PVC pipe	Other Materials:
								length: 11-13/16" (300mm)	ABZ antique bronze
								NB no back box or flange	ABR antique brass
									PBR polished brass

System Components (Ordered Separately)

Remote Driver :

Control System :

On/Off | Dimming ELV or 0-10 dimming

Other options (consult factory) TRIAC/MLV, DMX, DALI, Casambi, PoE

Important Notes

Specification

1. See Light Distribution section for illustration of different combinations of beam angles and angle bracket. Elliptical and Super Spot beam angles are only available with clear lens, and are not available with louver accessories or angle brackets.

2. Anti-slip is only available with Clear lens. Refer to Appendix or MP Lighting website for images and details.

3. Louvers will be below the glass cover. Only available when there is no Internal Angle Bracket.

4. Internal angle bracket is factory set, and cannot be field adjusted. 5° increments to maximum of 20° without accessories. Not applicable for super spot or elliptical options.
5. Mounting kit is ordered separately. Please consult factory.

6. For components included, refer to Luminaire Construction section. See pg.3 for back box and flange options.

7. Paving stone flange is also recommended for a better cement/concrete flow.

8. Factory set length of 11-13/16" (300mm). Visit PIPE-C for details.

9. Different finish options are only applicable to trim ring and not for LED module housing. Refer to Appendix or MP Lighting website for complete look of luminaire with different trim finish options.

Warranty Notes & Disclaimer

Malfunction and damage to product due to incompatible dimming system or misuse will not be covered under warranty. Consult MP Lighting for recommended drivers. If the fixture has an option to be installed with a dimming control system, consult a dimming system manufacturer with minimum load before installing. MP Lighting reserves the right, at its sole discretion, at any time and without notice, to make design changes to any of our products. Consult MP Lighting website for most updated documentation.

L01

EXTERIOR | INTERIOR

In-grade | For ground, ceilings, walls, and stairs

Wet, Damp, and Dry location



Performance

Wattage	Forward Current	Power Consumption Budget per fixture (including driver)	LED output (Source)	Fixture Output (Delivered)
1W	350mA	1.3W	110 lm	27-63 lm
2W	700mA	2.6W	220 lm	49-119 lm

Application

Environment	Wet / Damp / Dry Location approved. IP 68.
Drive Over Rating	9,700 lbs (4,400 kg)
Mounting	Recessed: Designed to be cast into earth, gravel, or concrete or inserted into paving stones or pavers. Included backbox, flange and level for direct burial or casting applications. MK1 mounting kit (optional): Recommended for easy installation on vertical surfaces (e.g. stair risers, walls), and downward-facing surfaces (e.g. ceilings, soffits). See "Mounting Options & Dimensions, " or visit MK1 MK3 mounting kit (optional): Recommended for thicker concrete slab and paving stone in-ground installation. Custom rectangular electrical box option is available for stair riser&wall installation. See "Mounting Options & Dimensions, " or visit MK3

Electrical

Power Supplies	Remote LED drivers (120-277V AC input, constant current output): Fixtures to be wired in series.
Control	On/off control Dimming: ELV or 0-10V dimming with appropriate drivers Other options (consult factory): TRIAC/MLV, DMX, DALI, Casambi, Power over Ethernet

Luminaire Construction

LED Light Source	W22S = CCT: 2200K, CRI (Ra): 80+, Colour Consistency: 3SDCM W27H = CCT: 2700K, CRI (Ra): 90+, Colour Consistency: 2SDCM W30H = CCT: 3000K, CRI (Ra): 90+, Colour Consistency: 2SDCM W35H = CCT: 3500K, CRI (Ra): 90+, Colour Consistency: 2SDCM W41H = CCT: 4100K, CRI (Ra): 90+, Colour Consistency: 3SDCM
Weight	1.8 lbs (0.816 kg). Typical Aluminum Insert & Back Box only.
Material	Fixture: machined marine-grade aluminum, machined brass or machined stainless steel (316) with tempered glass
Supplied with	Standard installation housing: Comes with an octagonal back box, a flange/pipe, an integral leveling device, a plastic cap, gel filled wire nuts, and silicone grease. Cable: 6" (152mm) factory-installed wire lead
Warranty & LED Life	5 years limited warranty. Estimated useful life of LED is 50,000 hours.

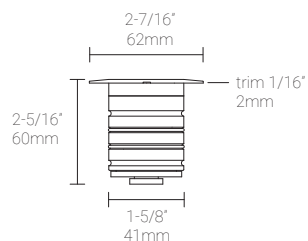
Ordered Separately

System Components	Power supplies: remote driver Please consult factory or visit Recommended Drivers for available driver options. Mounting kits: MK1 or MK3 (custom length rebar in MK3 supplied by contractors) Single Gang Boxes: see Pg.3-5 Mounting Options & Dimensions.
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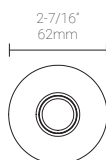
Mounting Options & Dimensions

LED Insert Dimensions

Fixture



Top View



3D View

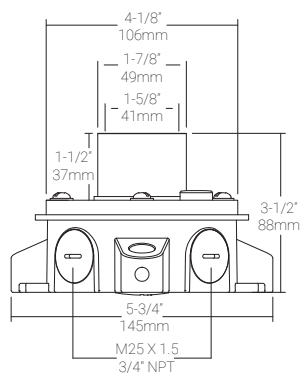


Beam

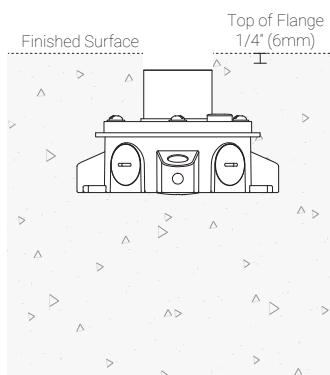


In-ground Installation | Shown with MP Lighting Back Box & Standard Flange (Order Code: **EBX-OCT1-CSMA**)

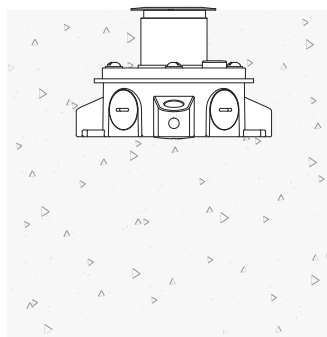
Box with Standard Flange



Box with Standard Flange:
During Concrete Installation

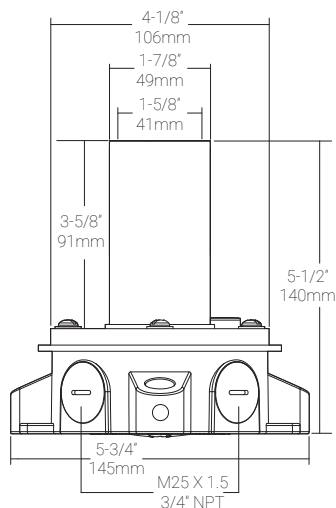


Box with Standard Flange:
Complete Concrete Installation

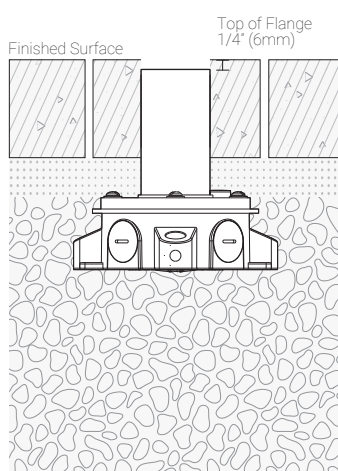


In-ground Installation | Shown with MP Lighting Back Box & Paving Stone Flange (Order Code: **EBX-OCT1-CPMA**)

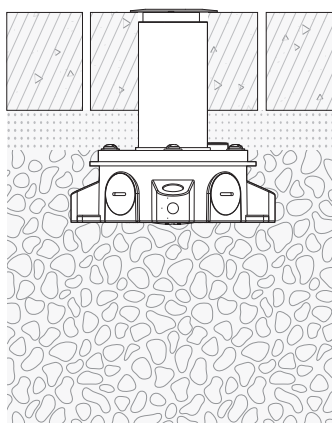
Box with Paving Stone Flange:



Box with Paving Stone Flange:
During Paving Stone Installation



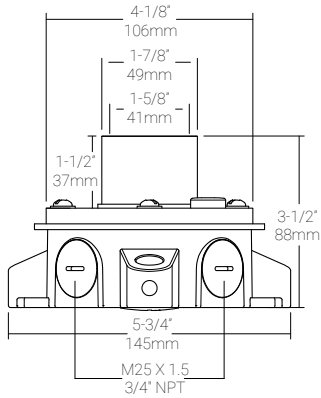
Box with Paving Stone Flange:
Complete Paving Stone Installation



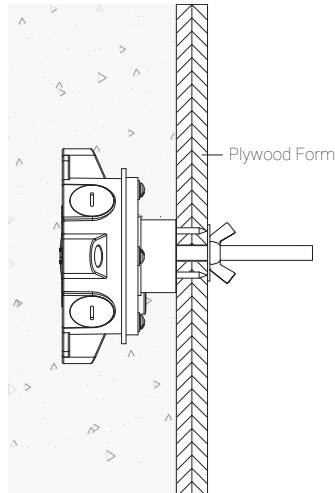
Mounting Kits

MK1(MK1-OCT1-C) : Ceiling, Wall, and Stair Riser Installation | Shown with MP Lighting Back Box (Order Code: **EBX-OCT1-CSMA**)

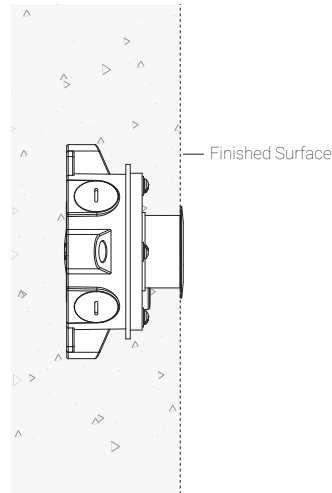
Box with Standard Flange



Box with Standard Flange & MK1:
During Installation



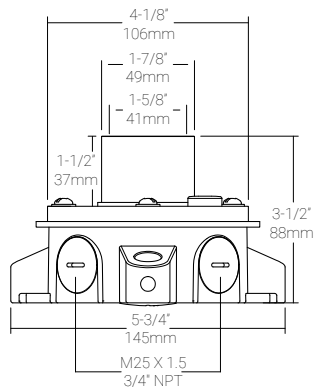
Box with Standard Flange:
Complete Installation



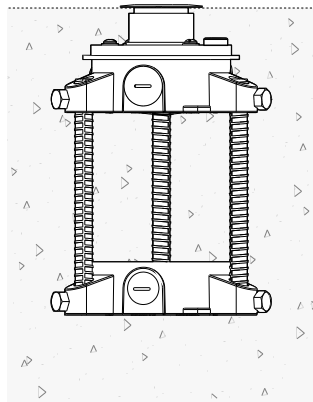
6" (152mm) threaded rod is supplied. Thread size: 3/8"-16

MK3: In-ground Installation | Shown with MP Lighting Back Box (Order Code: **EBX-OCT1-CSMA** or **EBX-OCT1-CPMA**)

Back Box (EBX-OCT1-CSMA)

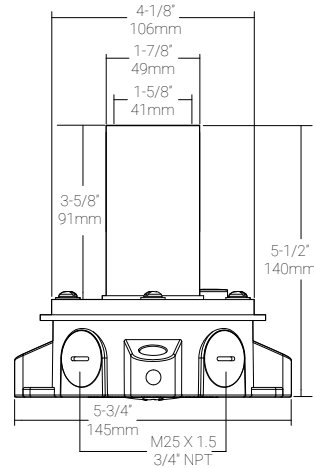


MK3 with Standard Flange and
Back Box

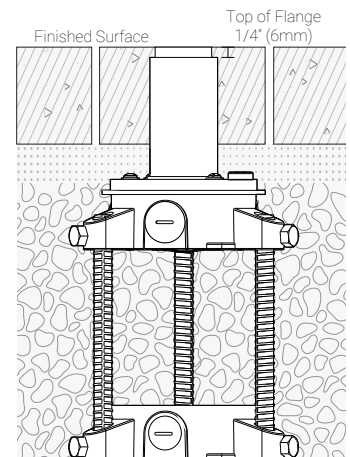


Rebar supplied by others.
Recommended size: Ø1/2"

Back Box (EBX-OCT1-CPMA)



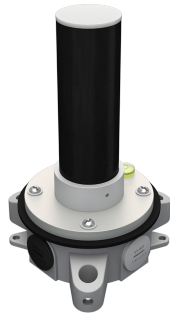
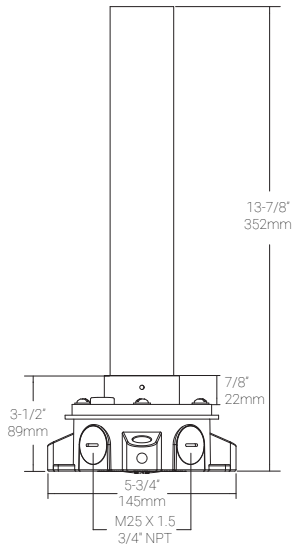
MK3 with Paving Stone Flange
and Back Box



Rebar supplied by others.
Recommended size: Ø1/2"

EBX-OCT1-CPIPE

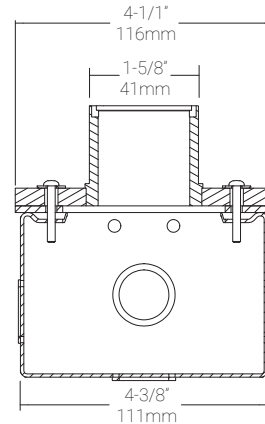
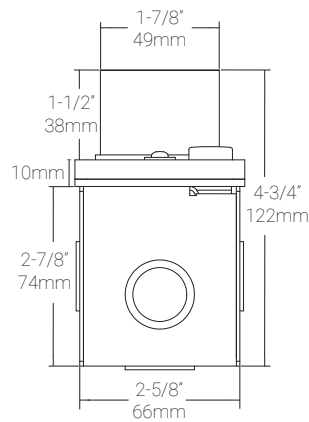
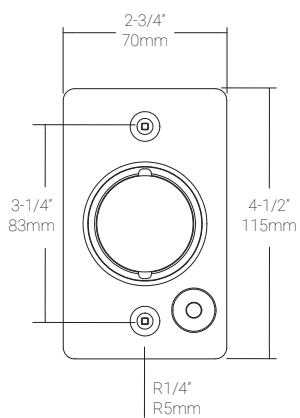
PIPE (PIPE-C) : In-ground/Landscape Installation | Shown with MP Lighting Back Box (Order Code: **EBX-OCT1-CPIPE**)



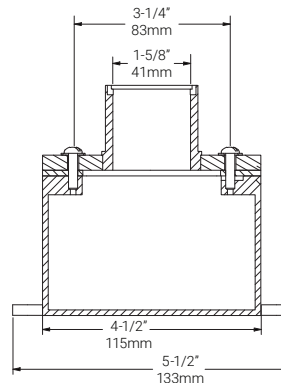
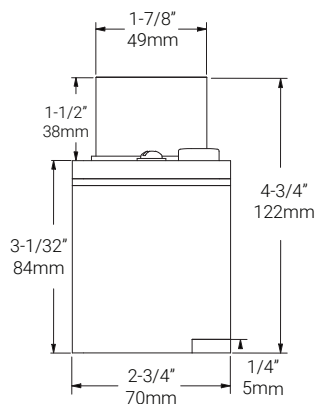
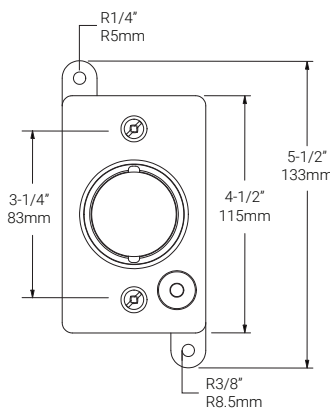
Rectangular Back Box for Wall Installation | shown with standard flange

1. For wall Installation, custom rectangular electrical boxes are available as alternative options.

MP Lighting Single Gang Back Box | Order Code: **EBX-SGB1-CSMA**

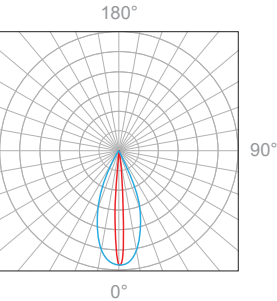


Scepter FD Back box | Order Code: **EBX-SFD-CSMA**

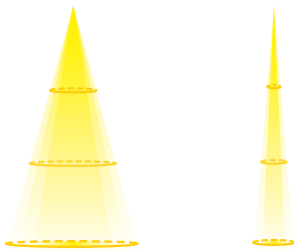


1W, 3000K, 90+ CRI

Polar Candela Distribution



Beam Width: 7° + 36°

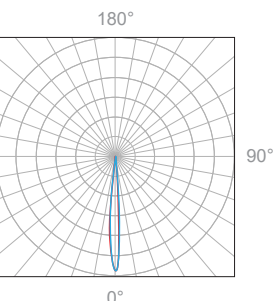


Illuminance at a Distance

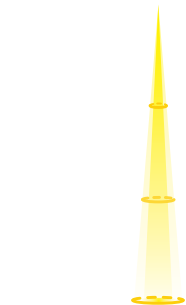
Distance		Center Beam fc	Beam Width			
1.5ft	0.46m	92.9fc	1.0ft	0.30m	0.2ft	0.06m
3.0ft	0.91m	23.2fc	2.0ft	0.61m	0.4ft	0.12m
4.5ft	1.37m	10.3fc	2.9ft	0.88m	0.5ft	0.15m
6.0ft	1.83m	5.81fc	3.9ft	1.18m	0.7ft	0.21m
7.5ft	2.29m	3.72fc	4.9ft	1.49m	0.9ft	0.27m
9.0ft	2.74m	2.58fc	5.9ft	1.79m	1.0ft	0.30m

Delivered Lumen: 27 lm
■ Vertical Beam Spread: 36.1°
■ Horizontal Beam Spread: 6.7°

Polar Candela Distribution



Beam Width: 8°

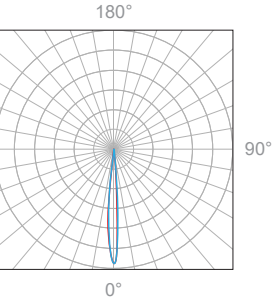


Illuminance at a Distance

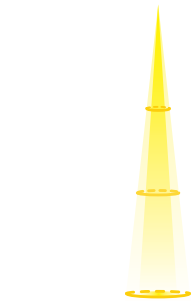
Distance		Center Beam fc	Beam Width			
1.5ft	0.46m	537fc	0.2ft	0.06m	0.2ft	0.06m
3.0ft	0.91m	134fc	0.4ft	0.12m	0.5ft	0.15m
4.5ft	1.37m	59.6fc	0.6ft	0.18m	0.7ft	0.21m
6.0ft	1.83m	33.5fc	0.8ft	0.24m	0.9ft	0.27m
7.5ft	2.29m	21.5fc	1.1ft	0.33m	1.2ft	0.36m
9.0ft	2.74m	14.9fc	1.3ft	0.39m	1.4ft	0.42m

Delivered Lumen: 46.2 lm
■ Vertical Beam Spread: 8.1°
■ Horizontal Beam Spread: 8.8°

Polar Candela Distribution



Beam Width: 12°

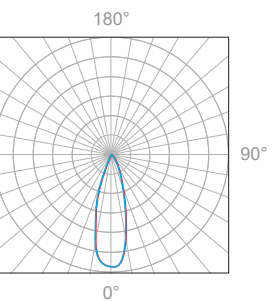


Illuminance at a Distance

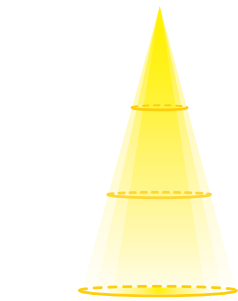
Distance		Center Beam fc	Beam Width			
1.5ft	0.46m	424fc	0.3ft	0.09m	0.3ft	0.09m
3.0ft	0.91m	140fc	0.6ft	0.18m	0.6ft	0.18m
4.5ft	1.37m	62fc	0.9ft	0.27m	0.9ft	0.27m
6.0ft	1.83m	35fc	1.3ft	0.39m	1.3ft	0.39m
7.5ft	2.29m	23fc	1.6ft	0.48m	1.6ft	0.48m
9.0ft	2.74m	16fc	1.9ft	0.58m	1.9ft	0.58m

Delivered Lumen: 63.4 lm
■ Vertical Beam Spread: 12°
■ Horizontal Beam Spread: 12°

Polar Candela Distribution



Beam Width: 30°



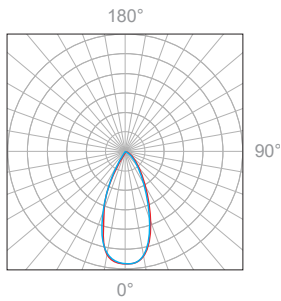
Illuminance at a Distance

Distance		Center Beam fc	Beam Width			
1.5ft	0.46m	82.3fc	0.8ft	0.24m	0.8ft	0.24m
3.0ft	0.91m	20.6fc	1.6ft	0.49m	1.6ft	0.49m
4.5ft	1.37m	9.14fc	2.4ft	0.73m	2.4ft	0.73m
6.0ft	1.83m	5.14fc	3.2ft	0.98m	3.2ft	0.98m
7.5ft	2.29m	3.29fc	4.0ft	1.22m	4.0ft	1.22m
9.0ft	2.74m	2.29fc	4.7ft	1.43m	4.7ft	1.43m

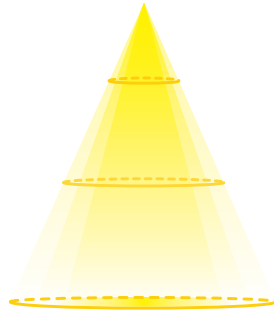
Delivered Lumen: 65.8 lm
■ Vertical Beam Spread: 29.5°
■ Horizontal Beam Spread: 29.5°

1W, 3000K, 90+ CRI

Polar Candela Distribution



Beam Width: 45°



Illuminance at a Distance

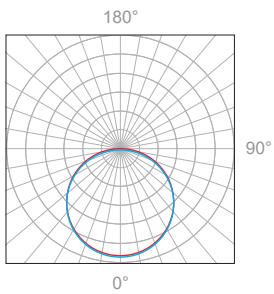
Distance		Center Beam fc	Beam Width			
3.0ft	0.91m	12.1fc	2.6ft	0.79m	2.5ft	0.76m
6.0ft	1.83m	3.04fc	5.1ft	1.55m	5.1ft	1.55m
9.0ft	2.74m	1.35fc	7.7ft	2.34m	7.6ft	2.31m
12.0ft	3.65m	0.76fc	10.2ft	3.10m	10.1ft	3.07m
15.0ft	4.57m	0.49fc	12.8ft	3.90m	12.6ft	3.84m
18.0ft	5.48m	0.34fc	15.4ft	4.69m	15.2ft	4.63m

Delivered Lumen: 77.7 lm

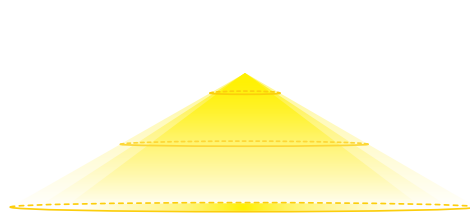
■ Vertical Beam Spread : 46.2°

■ Horizontal Beam Spread : 45.7°

Polar Candela Distribution



Beam Width: 120°



Illuminance at a Distance

Distance		Center Beam fc	Beam Width			
1.5ft	0.46m	11.3fc	4.1ft	1.25m	4.1ft	1.25m
3.0ft	0.91m	2.82fc	8.1ft	2.46m	8.1ft	2.46m
4.5ft	1.37m	1.26fc	12.2ft	3.71m	12.2ft	3.71m
6.0ft	1.83m	0.71fc	16.3ft	4.96m	16.3ft	4.96m
7.5ft	2.29m	0.45fc	20.3ft	6.18m	20.3ft	6.18m
9.0ft	2.74m	0.31fc	24.4ft	7.43m	24.4ft	7.43m

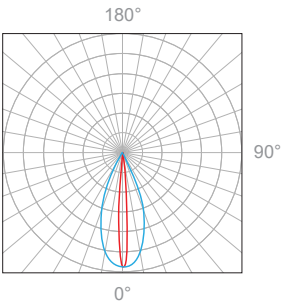
Delivered Lumen: 63 lm

■ Vertical Beam Spread : 107.1°

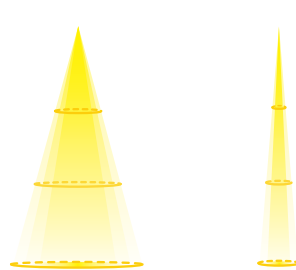
■ Horizontal Beam Spread : 107.1°

2W, 3000K, 90+ CRI

Polar Candela Distribution



Beam Width: 7° + 36°



Illuminance at a Distance

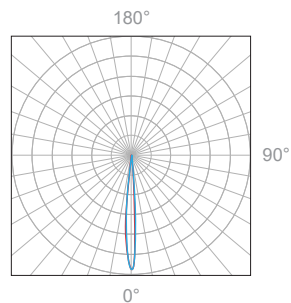
Distance		Center Beam fc	Beam Width			
1.5ft	0.46m	165fc	1.0ft	0.30m	0.2ft	0.06m
3.0ft	0.91m	41.3fc	2.0ft	0.61m	0.4ft	0.12m
4.5ft	1.37m	18.3fc	2.9ft	0.88m	0.5ft	0.15m
6.0ft	1.83m	10.3fc	3.9ft	1.18m	0.7ft	0.21m
7.5ft	2.29m	6.60fc	4.9ft	1.49m	0.9ft	0.27m
9.0ft	2.74m	4.59fc	5.9ft	1.79m	1.1ft	0.33m

Delivered Lumen: 49 lm

■ Vertical Beam Spread: 36.3°

■ Horizontal Beam Spread: 6.8°

Polar Candela Distribution



Beam Width: 8°



Illuminance at a Distance

Distance		Center Beam fc	Beam Width			
1.5ft	0.46m	1,015fc	0.2ft	0.06m	0.2ft	0.06m
3.0ft	0.91m	254fc	0.4ft	0.12m	0.4ft	0.12m
4.5ft	1.37m	113fc	0.7ft	0.21m	0.6ft	0.18m
6.0ft	1.83m	63.4fc	0.9ft	0.27m	0.9ft	0.27m
7.5ft	2.29m	40.6fc	1.1ft	0.33m	1.1ft	0.33m
9.0ft	2.74m	28.2fc	1.3ft	0.39m	1.3ft	0.39m

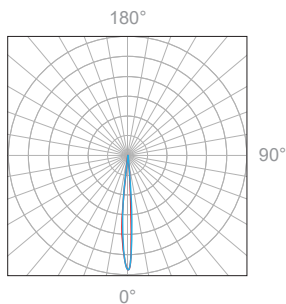
Delivered Lumen: 61.3 lm

■ Vertical Beam Spread: 8.5°

■ Horizontal Beam Spread: 8.2°

2W, 3000K, 90+ CRI

Polar Candela Distribution



Beam Width: 12°

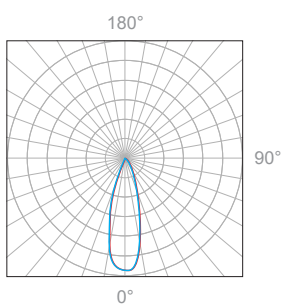


Illuminance at a Distance

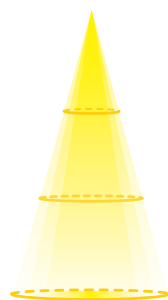
Distance		Center Beam fc	Beam Width			
1.5ft	0.46m	774fc	0.3ft	0.09m	0.3ft	0.09m
3.0ft	0.91m	194fc	0.6ft	0.18m	0.6ft	0.18m
4.5ft	1.37m	86fc	0.9ft	0.27m	0.9ft	0.27m
6.0ft	1.83m	48.4fc	1.3ft	0.39m	1.3ft	0.39m
7.5ft	2.29m	31fc	1.6ft	0.48m	1.6ft	0.48m
9.0ft	2.74m	21.5fc	1.9ft	0.58m	1.9ft	0.58m

Delivered Lumen: 116.8 lm
 ■ Vertical Beam Spread: 12°
 ■ Horizontal Beam Spread: 12°

Polar Candela Distribution



Beam Width: 30°

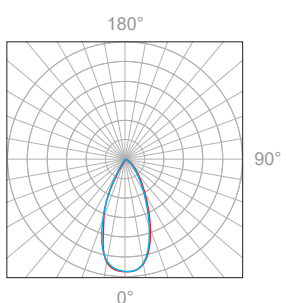


Illuminance at a Distance

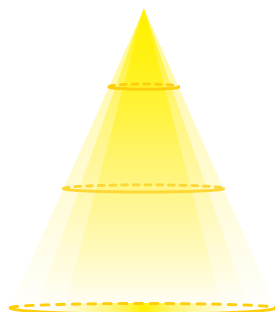
Distance		Center Beam fc	Beam Width			
1.5ft	0.46m	152fc	0.8ft	0.24m	0.8ft	0.24m
3.0ft	0.91m	38fc	1.6ft	0.48m	1.6ft	0.48m
4.5ft	1.37m	16.9fc	2.4ft	0.73m	2.4ft	0.73m
6.0ft	1.83m	9.49fc	3.2ft	0.97m	3.2ft	0.97m
7.5ft	2.29m	6.07fc	4.0ft	1.22m	4.0ft	1.22m
9.0ft	2.74m	4.22fc	4.7ft	1.43m	4.7ft	1.43m

Delivered Lumen: 121 lm
 ■ Vertical Beam Spread: 29.5°
 ■ Horizontal Beam Spread: 29.5°

Polar Candela Distribution



Beam Width: 45°

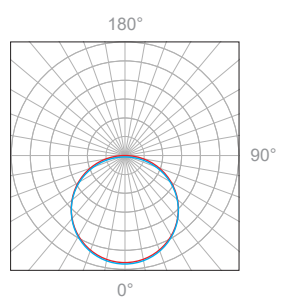


Illuminance at a Distance

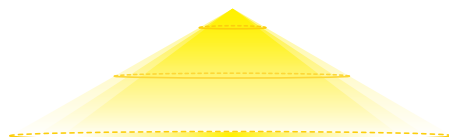
Distance		Center Beam fc	Beam Width			
3.0ft	0.91m	21.8fc	2.6ft	0.79m	2.6ft	0.79m
6.0ft	1.83m	5.45fc	5.2ft	1.58m	5.1ft	1.55m
9.0ft	2.74m	2.42fc	7.7ft	2.34m	7.7ft	2.34m
12.0ft	3.65m	1.36fc	10.3ft	3.13m	10.2ft	3.10m
15.0ft	4.57m	0.87fc	12.9ft	3.93m	12.8ft	3.90m
18.0ft	5.48m	0.61fc	15.5ft	4.72m	15.3ft	4.66m

Delivered Lumen: 139.1 lm
 ■ Vertical Beam Spread : 46.5°
 ■ Horizontal Beam Spread : 46.1°

Polar Candela Distribution



Beam Width: 120°



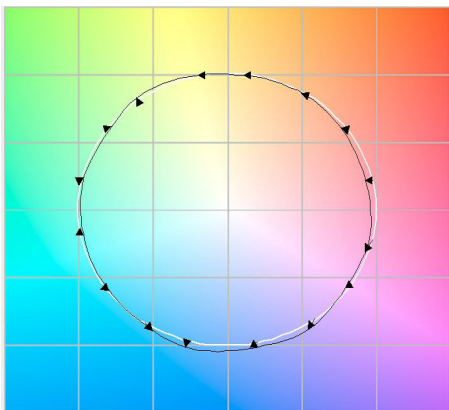
Illuminance at a Distance

Distance		Center Beam fc	Beam Width			
1.5ft	0.46m	21.3fc	4.1ft	1.25m	4.1ft	1.25m
3.0ft	0.91m	5.33fc	8.1ft	2.46m	8.1ft	2.46m
4.5ft	1.37m	2.37fc	12.2ft	3.71m	12.2ft	3.71m
6.0ft	1.83m	1.33fc	16.3ft	4.96m	16.3ft	4.96m
7.5ft	2.29m	0.85fc	20.3ft	6.18m	20.3ft	6.18m
9.0ft	2.74m	0.59fc	24.4ft	7.43m	24.4ft	7.43m

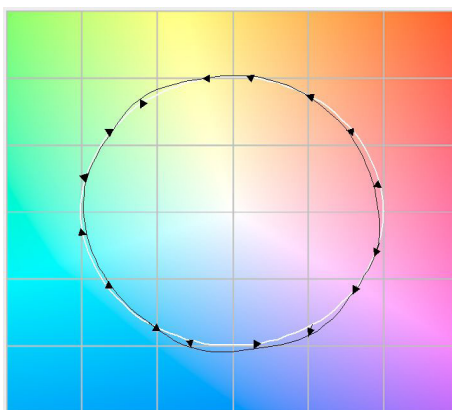
Delivered Lumen: 119 lm
 ■ Vertical Beam Spread : 107.1°
 ■ Horizontal Beam Spread : 107.1°

TM30 Report

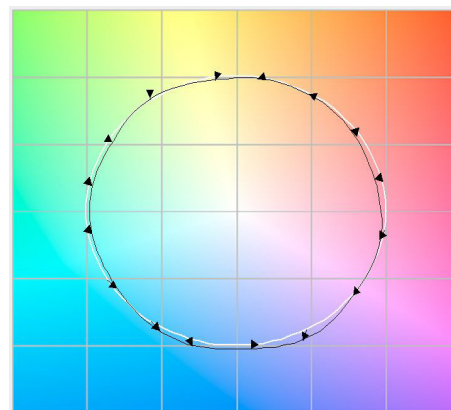
2700K, 90+CRI



3000K, 90+CRI

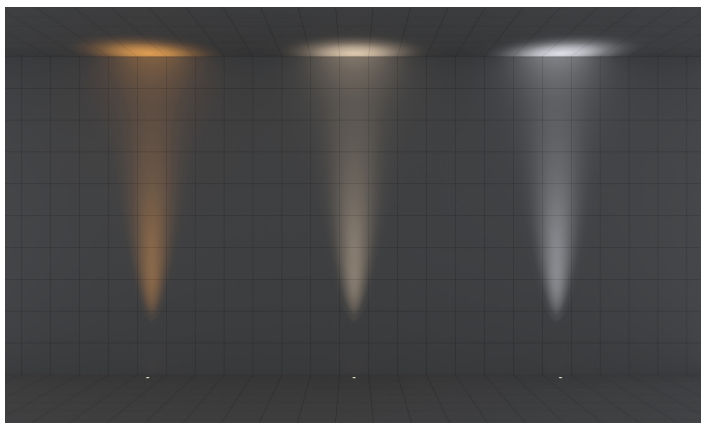


3500K, 90+CRI

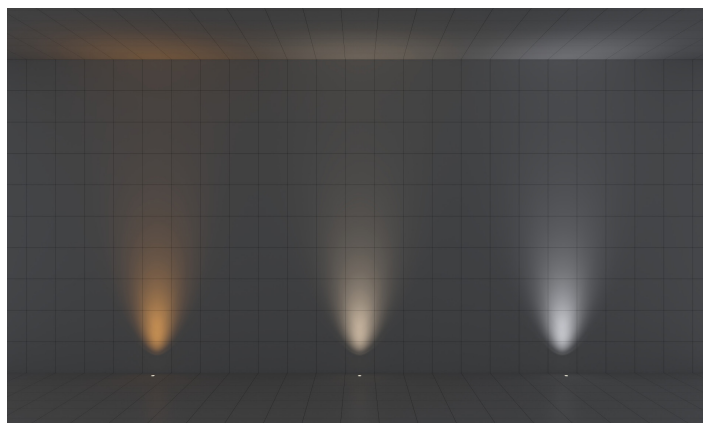


Colour Temperature Comparison | 2200K, 2700K, 3000K

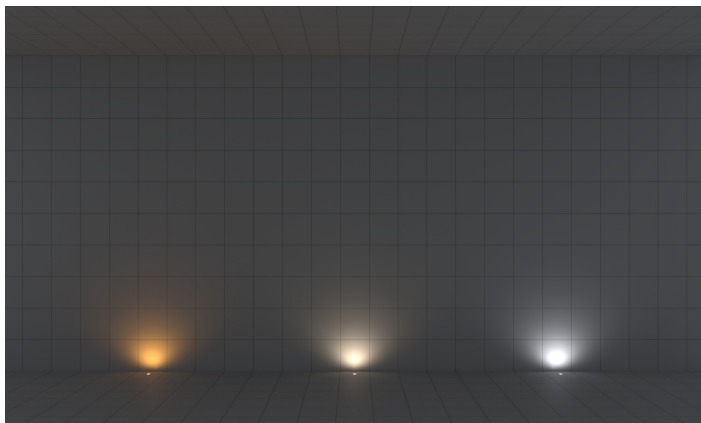
12° | 6" (152mm) Gap | 10ft Wall



30° | 6" (152mm) Gap | 10ft Wall

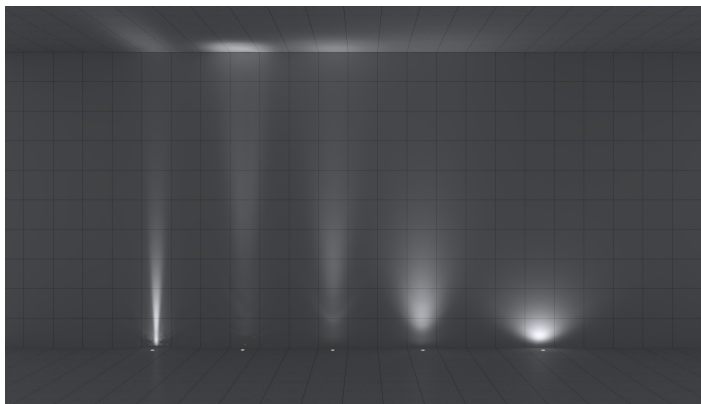


120° | 6" (152mm) Gap | 10ft Wall



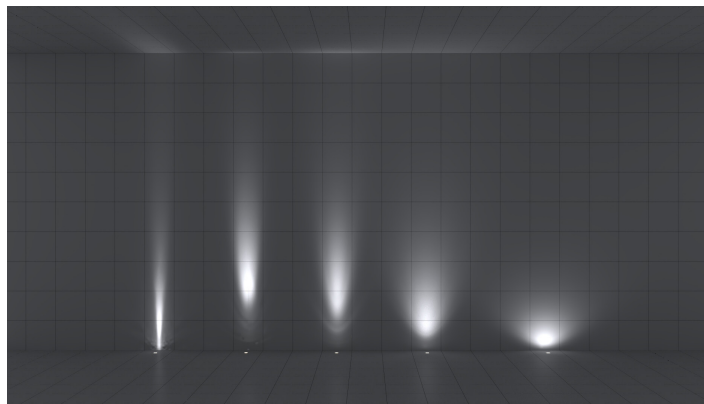
Light Distribution | 10ft Wall | Fixtures installed 6" (152mm) away from the wall

L01 | 1W | 0° angle bracket | 10ft wall | Clear Lens | 3000K



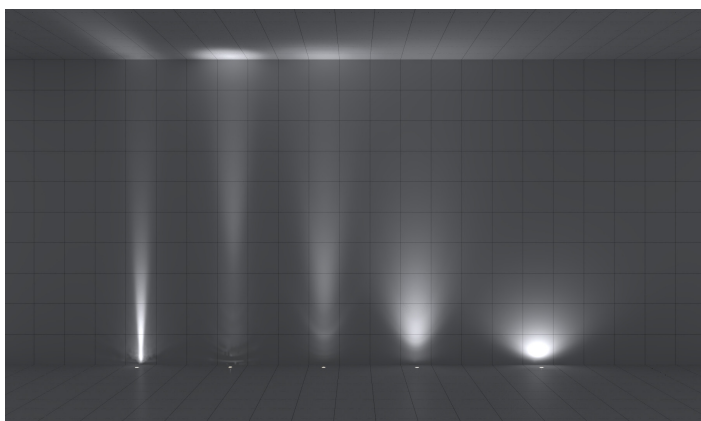
From left to right:
E elliptical 7°+ 36°
SS super spot 8°
S spot 12°
N narrow flood 30°
W wide flood 120°

L01 | 1W | 10° angle bracket | 10ft wall | Clear Lens | 3000K



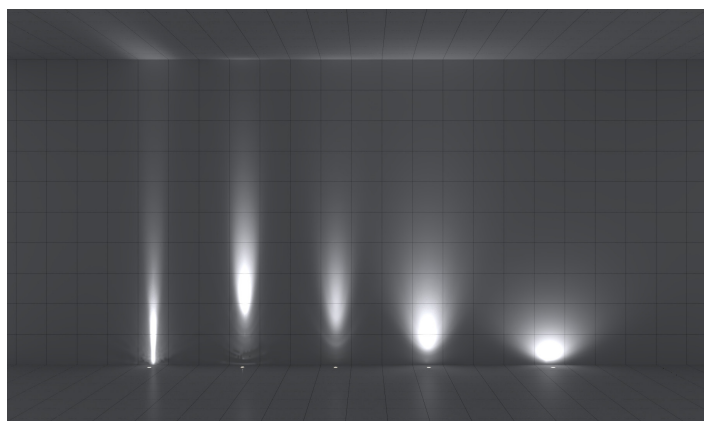
From left to right:
E elliptical 7°+ 36°
SS super spot 8°
S spot 12°
N narrow flood 30°
W wide flood 120°

L01 | 2W | 0° angle bracket | 10ft wall | Clear Lens | 3000K



From left to right:
E elliptical 7°+ 36°
SS super spot 8°
S spot 12°
N narrow flood 30°
W wide flood 120°

L01 | 2W | 10° angle bracket | 10ft wall | Clear Lens | 3000K

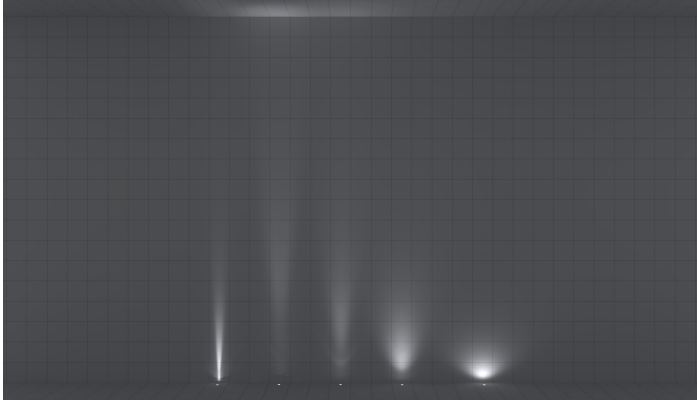


From left to right:
E elliptical 7°+ 36°
SS super spot 8°
S spot 12°
N narrow flood 30°
W wide flood 120°

* Images will appear darker when printed.

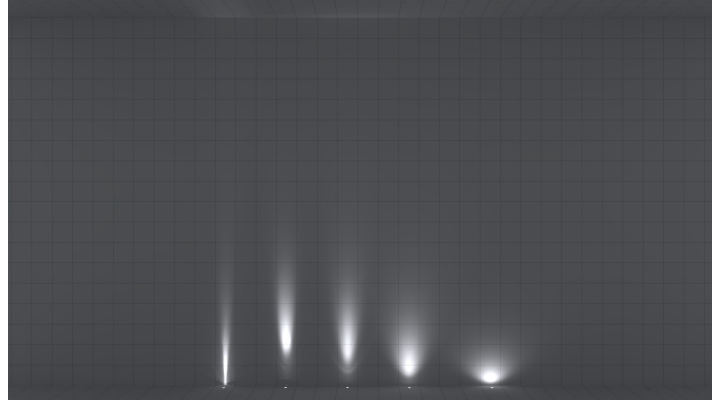
Light Distribution | 18ft Wall | Fixtures installed 6" (152mm) away from the wall

L01 | 1W | 0° angle bracket | 18ft wall | Clear Lens | 3000K



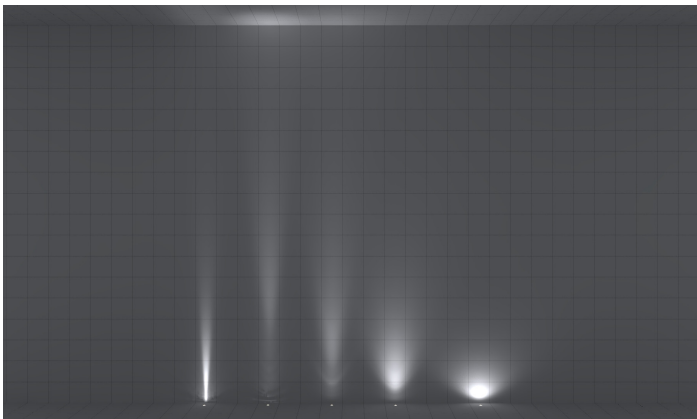
From left to right:
E elliptical 7°+ 36°
SS super spot 8°
S spot 12°
N narrow flood 30°
W wide flood 120°

L01 | 1W | 10° angle bracket | 18ft wall | Clear Lens | 3000K



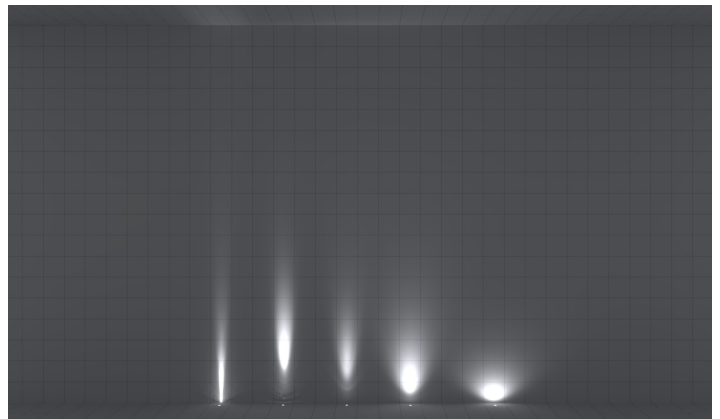
From left to right:
E elliptical 7°+ 36°
SS super spot 8°
S spot 12°
N narrow flood 30°
W wide flood 120°

L01 | 2W | 0° angle bracket | 18ft wall | Clear Lens | 3000K



From left to right:
E elliptical 7°+ 36°
SS super spot 8°
S spot 12°
N narrow flood 30°
W wide flood 120°

L01 | 2W | 10° angle bracket | 18ft wall | Clear Lens | 3000K



From left to right:
E elliptical 7°+ 36°
SS super spot 8°
S spot 12°
N narrow flood 30°
W wide flood 120°

Appendix

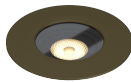
Aluminum Finishes



MA matte clear anodized with anti-slip lens



BA black anodized



BZ bronze

Stainless Steel Finishes

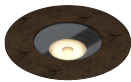


S6 stainless steel 316

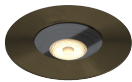


BT0 black stainless steel

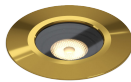
Other Materials



ABZ antique bronze



ABR antique brass



PBR polished brass

Accessories



LM louver, matte clear anodized



LB louver, black anodized



HM hex louver, matte clear anodized



HB hex louver, black anodized



AB angled louver, black anodized



SB straight louver, black anodized



QB square louver, black anodized



RB ring louver, black anodized

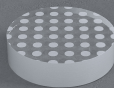
Lens Options



C clear lens



F frosted



A anti-slip

AREA & ROADWAY LIGHTING

RAZAR SERIES - LED LOW PROFILE AREA LUMINAIRE

Optical Housing

Heavy cast, low copper aluminum assembly (A356 alloy, <.2% copper) minimum wall thickness .188". LED Module mounting area is machined to within a 0.002" surface flatness variance for maximum surface contact and thermal conductivity from the LED modules to the radiating fins. Passive radiating fins above the LED Optics provide superior thermal management and long LED life. The optical and electrical compartments are integrated with the support arm to create one assembly. Cast and hinged driver compartment cover allows access to the drivers and wiring.

Electrical Housing w/ Integrated Arm

Heavy cast low copper aluminum (A356 alloy; <.2% copper) assembly with integral cooling ribs surrounding the electrical compartment and a flat surface on the top of the arm to accommodate a photocell receptacle. Solid barrier wall separates optical and electrical compartments. The optical compartment and electrical compartment with the integrated support arm combine to create one assembly. Minimum wall thickness is .188". Cast and hinged driver assembly cover is integrated with wiring compartment cover.

PLED™ Optics

Emitters (LED's) are arrayed on a metal core PCB panel with each emitter located on a copper thermal transfer pad and enclosed by an LED refractor. LED optics completely seal each individual emitter to meet an IP66 rating. In asymmetric distributions, a micro-reflector inside the refractor re-directs the house side emitter output towards the street side and functions as a house side shielding element. Refractors are injection molded H12 acrylic. Each LED refractor is sealed to the PCB over an emitter and all refractors are retained by an aluminum frame. Any one Panel, or group of Panels in a luminaire, have the same optical pattern. LED refractors produce standard site/area distributions. Panels are field replaceable and field rotatable in 90° increments.

LED Driver(s)

Constant current electronic with a power factor of >.90 and a minimum operating temperature of -40°F/-40°C. Driver(s) is/are UL and cUL recognized and mounted directly against the Electrical Housing to facilitate thermal transfer, held down by universal clamps to facilitate easy removal. In-line terminal blocks facilitate wiring between the driver and optical arrays. Drivers accept an input of 120-277V, 50/60Hz or 347V-480V, 50,60Hz. (0-10V dimmable driver is standard. Driver has a minimum of 3KV internal surge protection. Luminaire supplied with 20KV surge protector for field accessible installation.)

LED Emitters

High output LED's are utilized with drive currents ranging from 350mA to 1050mA. 70CRI Minimum. LED's are available in standard Neutral White (4000K), or optional Cool White (5000K) or Warm White (3000K). Consult Factory for other LED options.

Amber LED's

TRA (True Amber) LED's utilize material that emits light in the amber spectral bandwidth only without the use of phosphors.

Finish

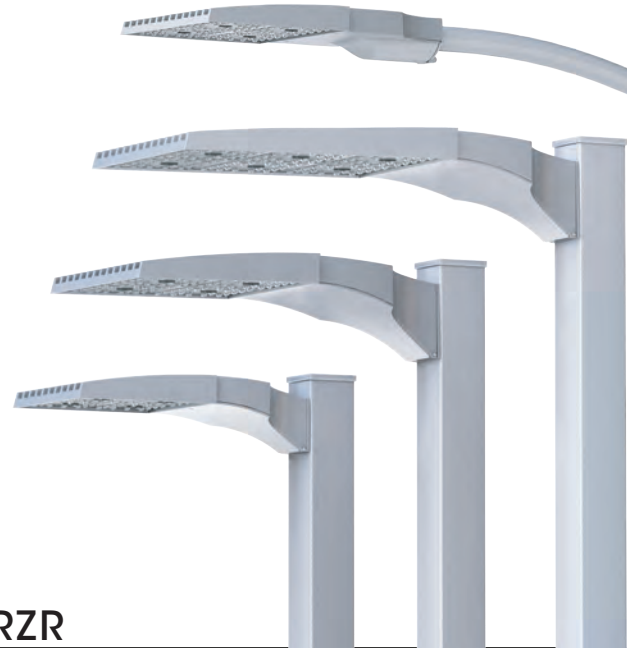
Electrostatically applied TGIC Polyester Powder Coat on substrate prepared with 20 PSI power wash at 140°F. Four step media blast and iron phosphate pretreatment for protection and paint adhesion. 400°F bake for maximum hardness and durability.

Mast Arm Fitter/Electrical Housing

Replaces standard Electrical Housing. Fits standard 2 3/8" O.D. horizontal tenon. Two (2) straps with two (2) bolts each encircle the lower half of the tenon. Upper half of the tenon rests on self-centering steps that position the angle of the luminaire at 0°, +1.5°, +1.5° or +3° up from the horizontal. All hardware is stainless steel.

PROJECT NAME: _____

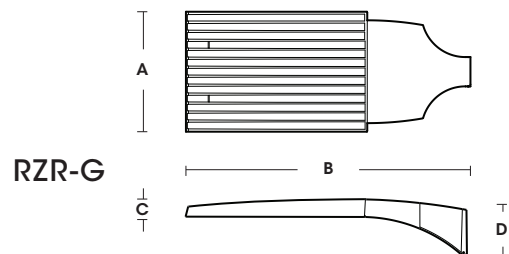
PROJECT TYPE: _____



RZR

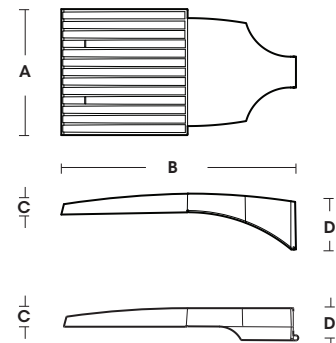
(MODELS: RZRM, RZR, RZR-G & RZR-MAF*)

PATENT PENDING



RZR-G

RZR, RZRM & RZR-MAF*
(Top View)



RZR & RZRM

RZR-MAF*

FIXTURE	A	B	C	D
RZR-G	15" 381mm	36.5" 927mm	3" 76mm	7" 187mm
RZR	14.75" 375mm	28.25" 718mm	2.75" 70mm	6.5" 165mm
RZRM	11.5" 292mm	22" 559mm	2.5" 64mm	5.25" 133mm
RZR-MAF	15" 381mm	28.25" 724mm	2.5" 64mm	4" 102mm



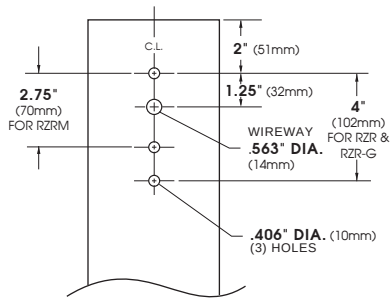
U.L. Listed for
Wet Location

2022158

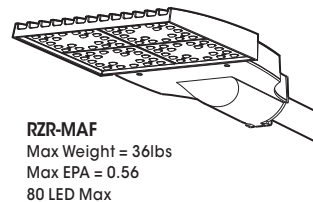
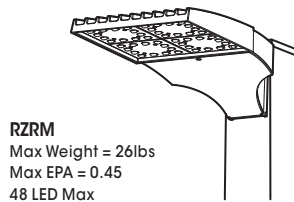
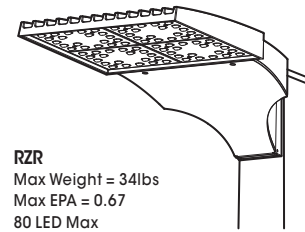
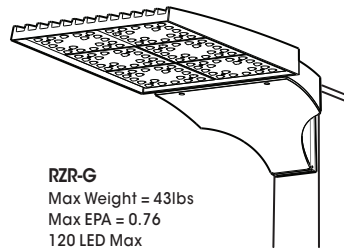
RZR SERIES - LED

SPECIFICATIONS

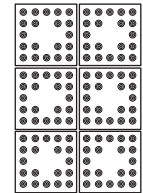
POLE DRILLING TEMPLATE



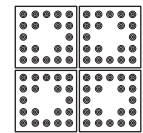
EPA & WEIGHT



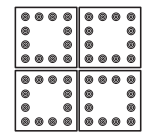
PLED™ MODULES



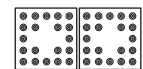
120 LED Module



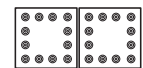
80 LED Module



48 LED Module



40 LED Module



24 LED Module

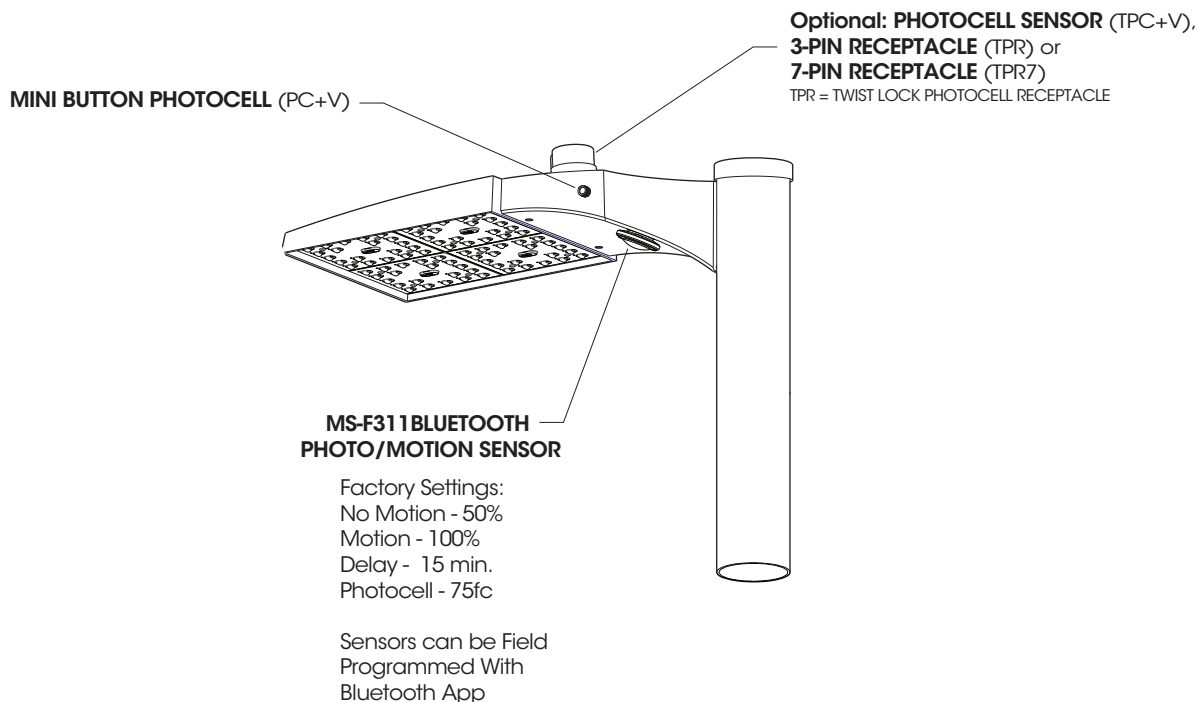
ORDERING INFORMATION

Spec/Order Example: RZR/PLED-IV/80LED-700mA/CW/277/RAL-8019-S

Luminaire	Optics	LED Mode			Voltage	Mounting	Finish	Options
Luminaire	Optics	LED			Voltage	Mounting	Finish	Options
☐ RZR-G	PLED™ Distribution Type ☐ Type II PLED-II ☐ Type II Front Row PLED-II-FR ☐ Type III Median Illuminator PLED-II-MIL ☐ Type III Med. PLED-III ☐ Type III Wide PLED-III-W ☐ Type IV PLED-IV ☐ Type IV PLED-IV-FT ☐ Type V Narrow PLED-VSQ-N ☐ Type V Med. PLED-V-SQ-M ☐ Type V Wide PLED-V-SQ-W	# of LEDs RZR-G ☐ 120LED ☐ 80LED	Drive Current ☐ 1050mA¹ ☐ 875mA¹ ☐ 700mA¹ ☐ 525mA ☐ 350mA	Color Temp - CCT ☐ 27K (2700K) ☐ 30K (3000K) ☐ 40K (4000K) ☐ 50K (5000K) ☐ TRA True Amber² Consult Factory for Other LED Color, CCT, & CRI Options	☐ 120 ☐ 208 ☐ 240 ☐ 277 ☐ 347 ☐ 480	Arm Mount ☐ 1 ☐ 2-180 ☐ 2-90 ☐ 3-90 ☐ 3-120 ☐ 4-90 Wall Mount ☐ WM WM - Wall Mount provided with mounting bracket and cover.	Standard Textured Finish ☐ Black RAL-9005-T ☐ White RAL-9003-T ☐ Grey RAL-7004-T ☐ Dark Bronze RAL-8019-T ☐ Green RAL-6005-T Premium Finishes ☐ Rust ☐ Patina Copper PC For smooth finish replace suffix "T" with suffix "S" (Example: RAL-9500-S) Consult factor for custom colors	☐ Internal House Side Shield inc. LED Count (Example: HS-LED/48) HS-LED ☐ External Glare Shield 4 Sided EGS4 ☐ External Glare Shield 3 Sided Rear Wedge EGS3W ☐ Round Pole Adapter RPA ☐ Twist Lock Receptable Only TPR ☐ 7-Pin Twist Lock Receptable Only TPR7 ☐ High-Low Dimming for Switch by Others/Select Levels 50/100 or 25/100 (Example: HLSW/25) HLSW ☐ Twist Lock Photocell + Voltage (Example: TPC347V) TPC+V ☐ Photo Cell + Voltage (Example: PC120V) PC+V ☐ Single Fuse (120V, 277V) SF ☐ Double Fuse (208V, 240V) DF ☐ Blue-Tooth Programmable Photo/Motion Sensor (Factory - Motion 50/100; Photo 75ic) MS-F311
☐ RZR ☐ RZR-MAF		RZR/RZR-MAF						
☐ RZRM		RZRM ☐ 48LED ☐ 24LED	NOTES: 1 - 700mA and 1050mA not for use with TRA LED's 2 - Available in 350mA & 525mA drive currents only	Consult Factory for Other Drive Currents				

RZR SERIES - LED

OPTIONS



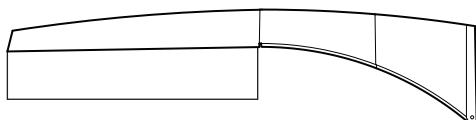
High Low Dimming For Switches (HLSW)

The HLSW is a Small Electronic Switch which Provides High Low Dimming Control Through the LED Driver's 0-10V Control. Switching is Done by Adding a Secondary AC Switched Hot Trigger Line to the HLSW in Addition to the Normal AC Power Line. When the Secondary Trigger Line is Powered, the Fixture will go to 100% Dimming. With no Power to the Trigger, the Fixture will operate at 50% or 25% Dimming. Switches for the Trigger Line can be a Normal AC Switch/Breaker or Timed Switch/Breaker.

Wireless and Other Fixture Controls

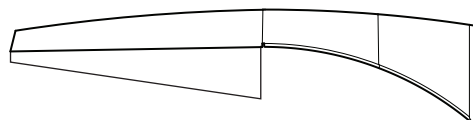
Contact Factory for Wireless and Other Fixture Controls and Recommendations. Most Controls Can be Integrated and Factory Installed.

EXTERNAL GLARE SHIELDS



EGS4 - 4 Sided Shield

Minimum Cutoff = 12°
Average Cutoff = 23°



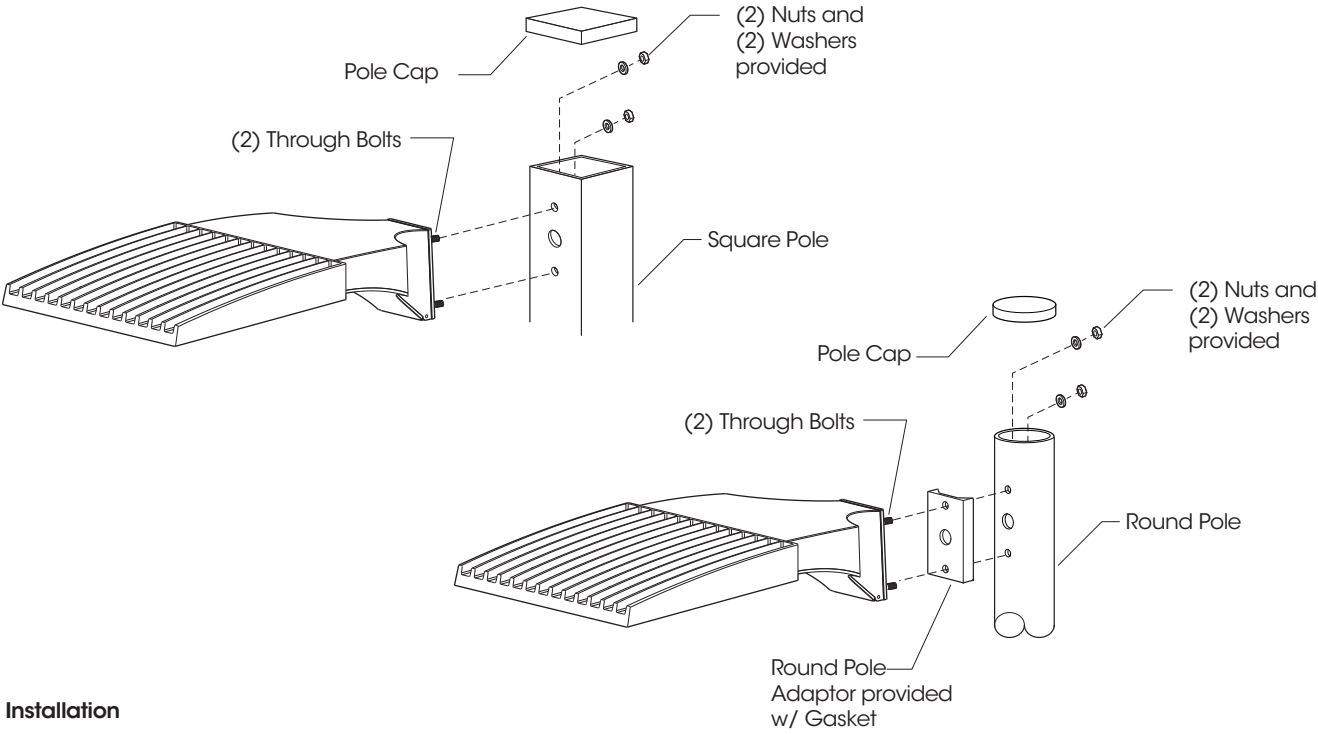
EGS3W - 3 Sided Shield

Minimum Rear Cutoff = 12°
Average Rear Cutoff = 23°
Minimum Side Cutoff = 4°
Average Side Cutoff = 16°

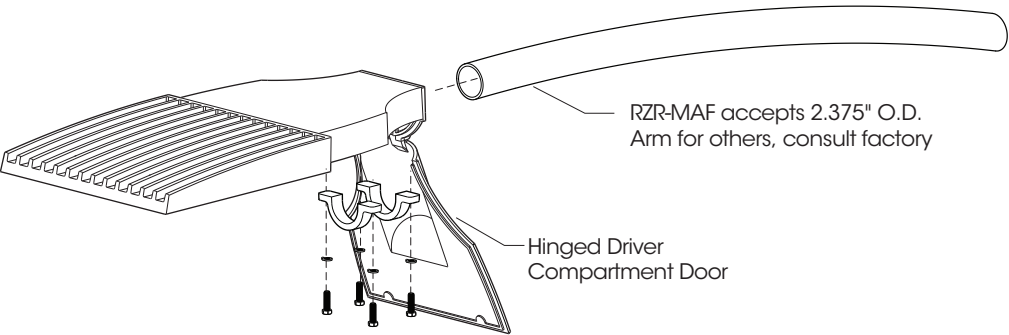
Glare Shields are rotatable on RZR and RZRM. Consult factory for custom applications.

RZR SERIES - LED

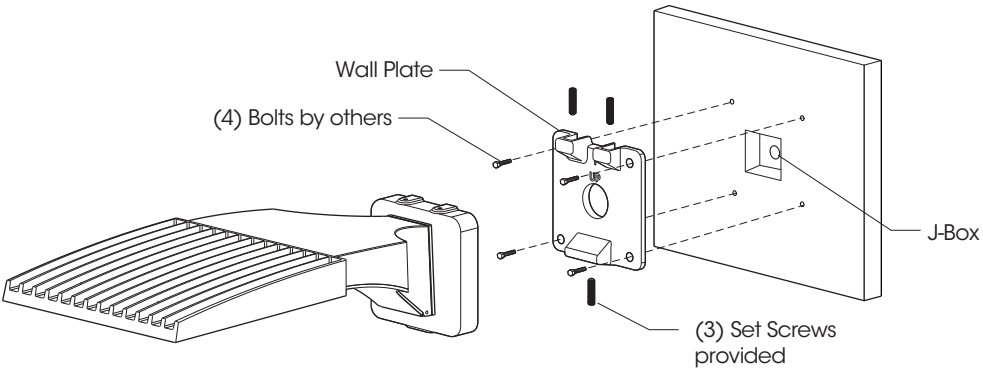
INSTALLATION DETAIL



RZR Installation



RZR-MAF Installation



RZR-WM Installation

RZR SERIES - LED

PHOTOMETRIC DATA GUIDE - LM-80 LUMEN MAINTENANCE

LED Life / Operating Hours	Lumen Depreciation	Lumen Depreciation Scale Factor
60,000 (10x Test Time Calculated)	L94	0.94x
100,000 (Theoretical Calculated)	L92	0.92x
150,000 (Theoretical Calculated)	L89	0.89x

Lumen Depreciation Calculations Done in Accordance With IESNA TM-21 & LM-80 (25°C Ambient)
TM-21 6x Test Time Dictates that L94 > 60,000 Hours.

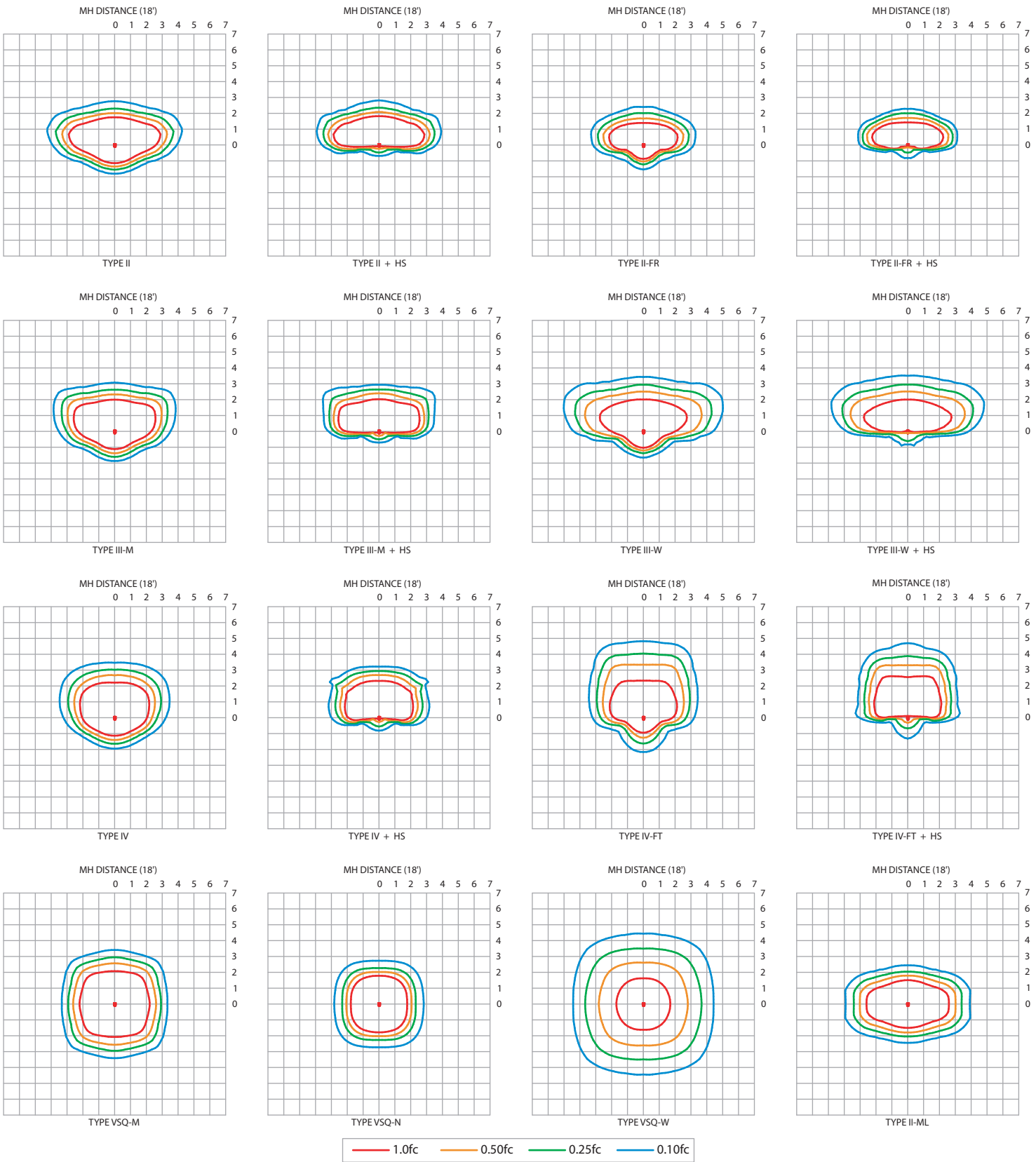
ELECTRICAL DATA GUIDE - AMPERAGE CHARTS

# of LEDs	mA	System Watts	120V	208V	277V	347V	480V
24	350	28	0.24	0.14	0.10	0.08	0.06
24	525	42	0.35	0.20	0.15	0.12	0.09
24	700	56	0.47	0.27	0.20	0.16	0.12
24	875	68	0.57	0.33	0.24	0.20	0.14
24	1050	82	0.68	0.39	0.30	0.24	0.17
48	350	53	0.44	0.25	0.19	0.15	0.11
48	525	79	0.66	0.38	0.29	0.23	0.16
48	700	105	0.88	0.51	0.38	0.30	0.22
48	875	132	1.10	0.63	0.48	0.38	0.27
48	1050	160	1.33	0.77	0.58	0.46	0.33
40	350	43	0.36	0.21	0.15	0.12	0.09
40	525	65	0.54	0.31	0.23	0.19	0.13
40	700	87	0.72	0.42	0.31	0.25	0.18
40	875	108	0.90	0.52	0.39	0.31	0.23
40	1050	128	1.07	0.62	0.46	0.37	0.27
80	350	85	0.71	0.41	0.31	0.25	0.18
80	525	129	1.08	0.62	0.47	0.37	0.27
80	700	174	1.45	0.83	0.63	0.50	0.36
80	875	216	1.80	1.04	0.78	0.62	0.45
80	1050	256	2.14	1.23	0.93	0.74	0.53
120	350	130	1.08	0.63	0.47	0.37	0.27
120	525	192	1.60	0.92	0.69	0.55	0.40
120	700	260	2.17	1.25	0.94	0.75	0.54
120	875	329	2.74	1.58	1.19	0.95	0.69
120	1050	398	3.32	1.91	1.44	1.15	0.83

RZR SERIES - LED

PHOTOMETRIC DATA GUIDE - ISOFOOTCANDLE PLOTS

RZRM-PLED-48LED-700mA-40K - 18' Pole Height

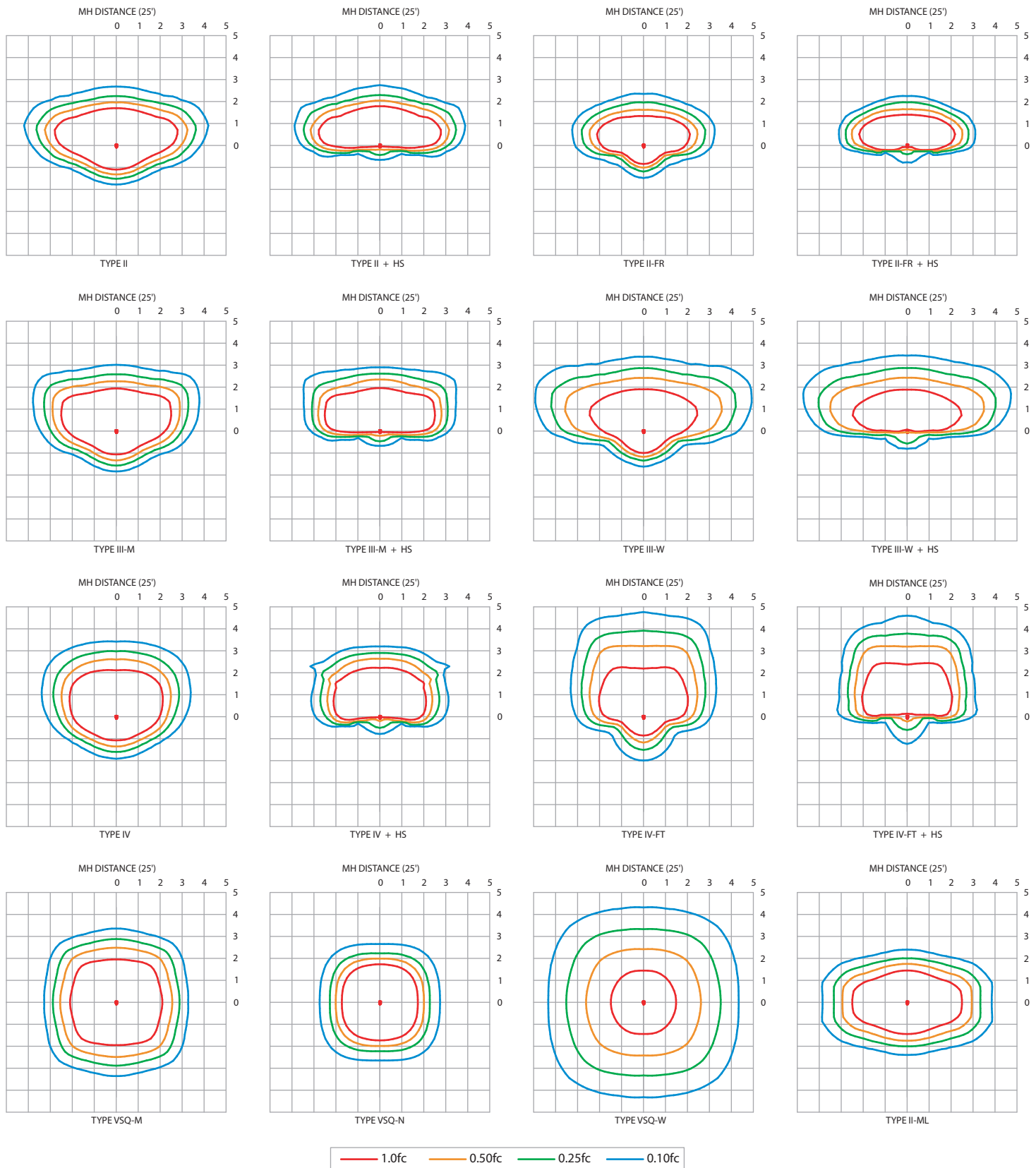


IES File downloads for this product can be found at www.usaltg.com/downloads/asr.html

RZR SERIES - LED

PHOTOMETRIC DATA GUIDE - ISOFOOTCANDLE PLOTS

RZR-PLED-80LED-700mA-40K - 25' Pole Height

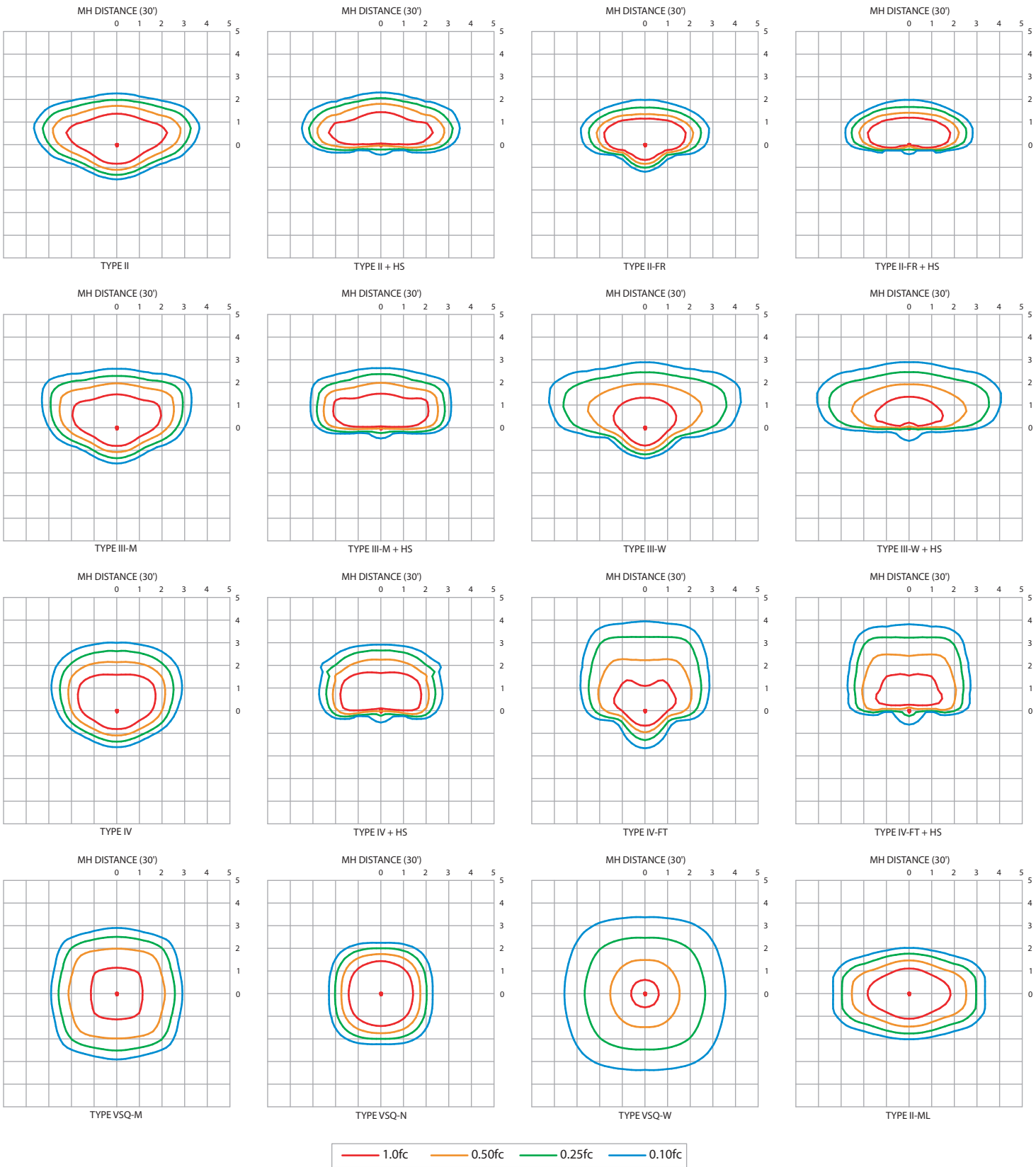


IES File downloads for this product can be found at www.usaltg.com/downloads/asr.html

RZR SERIES - LED

PHOTOMETRIC DATA GUIDE - ISOFOOTCANDLE PLOTS

RZRG-PLED-120LED-700mA-40K 30' Pole Height



IES File downloads for this product can be found at www.usaltg.com/downloads/asr.html

RZR SERIES - LED

PHOTOMETRIC DATA GUIDE - LUMEN TABLES (RZR-M-PLD)

RZR-M-PLD																			
LED Count	Drive Current (mA)	System Watts	Dist'n Type	27K (2700K - 70CRI)			30K (3000K - 70CRI)			40K (4000K - 70CRI)			50K (5000K - 70CRI)			System Watts	TRA (590nm)		
				LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING		LUMENS	LPW	BUG RATING
24	350	28.2	II	3436	122	B1-U0-G1	3709	132	B1-U0-G1	3904	138	B1-U0-G1	4100	145	B1-U0-G1	20.0	1363	68	B1-U0-G1
			II-FR	3459	123	B1-U0-G1	3734	132	B1-U0-G1	3930	139	B1-U0-G1	4127	146	B1-U0-G1		1372	69	B1-U0-G0
			II-ML	3436	122	B2-U0-G2	3709	132	B2-U0-G2	3905	138	B2-U0-G2	4100	145	B2-U0-G2		1363	68	B1-U0-G1
			II-M	3496	124	B1-U0-G1	3775	134	B1-U0-G1	3973	141	B1-U0-G1	4172	148	B1-U0-G1		1387	69	B1-U0-G0
			III-W	3246	115	B1-U0-G1	3505	124	B1-U0-G1	3689	131	B1-U0-G1	3873	137	B1-U0-G1		1289	64	B0-U0-G1
			IV	3469	123	B1-U0-G1	3746	133	B1-U0-G1	3943	140	B1-U0-G1	4140	147	B1-U0-G1		1377	69	B1-U0-G1
			IV-FT	3161	112	B1-U0-G1	3412	121	B1-U0-G1	3592	127	B1-U0-G1	3771	134	B1-U0-G1		1254	63	B0-U0-G1
			VSQ-N	3627	129	B2-U0-G0	3915	139	B2-U0-G0	4121	146	B2-U0-G0	4327	153	B2-U0-G1		1439	72	B1-U0-G0
			VSQ-M	3556	126	B2-U0-G1	3838	136	B2-U0-G1	4041	143	B2-U0-G1	4242	150	B3-U0-G1		1410	71	B1-U0-G0
			VSQ-W	3471	123	B3-U0-G1	3748	133	B3-U0-G1	3945	140	B3-U0-G1	4142	147	B3-U0-G1		1377	69	B1-U0-G1
			II-HS	2513	89	B0-U0-G1	2713	96	B0-U0-G1	2856	101	B0-U0-G1	2998	106	B0-U0-G1		997	50	B0-U0-G0
			II-FR-HS	2556	91	B0-U0-G0	2759	98	B0-U0-G0	2905	103	B0-U0-G0	3050	108	B0-U0-G0		1014	51	B0-U0-G0
			III-M-HS	2543	90	B0-U0-G1	2745	97	B0-U0-G1	2889	102	B0-U0-G1	3034	108	B0-U0-G1		1008	50	B0-U0-G0
			III-W-HS	2488	88	B0-U0-G1	2686	95	B0-U0-G1	2827	100	B0-U0-G1	2969	105	B0-U0-G1		987	49	B0-U0-G1
			IV-HS	2626	93	B0-U0-G1	2835	101	B0-U0-G1	2984	106	B0-U0-G1	3133	111	B0-U0-G1		1042	52	B0-U0-G0
			IV-FT-HS	2481	88	B0-U0-G1	2679	95	B0-U0-G1	2820	100	B0-U0-G1	2961	105	B0-U0-G1		985	49	B0-U0-G1
24	525	41.5	II	4908	118	B1-U0-G1	5298	128	B1-U0-G1	5577	134	B1-U0-G1	5856	141	B2-U0-G1	31.0	1586	51	B1-U0-G1
			II-FR	4941	119	B1-U0-G1	5334	129	B1-U0-G1	5614	135	B2-U0-G1	5895	142	B2-U0-G1		1598	52	B1-U0-G0
			II-ML	4908	118	B2-U0-G2	5299	128	B2-U0-G2	5578	134	B2-U0-G2	5856	141	B3-U0-G3		1587	51	B1-U0-G1
			II-M	4994	120	B1-U0-G1	5392	130	B1-U0-G1	5675	137	B1-U0-G1	5959	144	B1-U0-G2		1615	52	B1-U0-G0
			III-W	4637	112	B1-U0-G2	5005	121	B1-U0-G2	5269	127	B1-U0-G2	5533	133	B1-U0-G2		1500	48	B0-U0-G1
			IV	4956	119	B1-U0-G1	5350	129	B1-U0-G1	5632	136	B1-U0-G1	5913	142	B1-U0-G2		1602	52	B1-U0-G1
			IV-FT	4515	109	B1-U0-G2	4875	117	B1-U0-G2	5131	124	B1-U0-G2	5388	130	B1-U0-G2		1460	47	B0-U0-G1
			VSQ-N	5180	125	B2-U0-G1	5592	135	B2-U0-G1	5886	142	B2-U0-G1	6181	149	B2-U0-G1		1676	54	B1-U0-G0
			VSQ-M	5080	122	B3-U0-G1	5484	132	B3-U0-G1	5772	139	B3-U0-G1	6061	146	B3-U0-G1		1643	53	B1-U0-G0
			VSQ-W	4959	119	B3-U0-G2	5353	129	B3-U0-G2	5635	136	B3-U0-G2	5917	143	B3-U0-G2		1603	52	B1-U0-G1
			II-HS	3589	86	B0-U0-G1	3875	93	B0-U0-G1	4079	98	B0-U0-G1	4282	103	B0-U0-G1		1161	37	B0-U0-G0
			II-FR-HS	3652	88	B0-U0-G1	3942	95	B0-U0-G1	4150	100	B0-U0-G1	4357	105	B0-U0-G1		1181	38	B0-U0-G0
			III-M-HS	3631	88	B0-U0-G1	3920	94	B0-U0-G1	4127	99	B0-U0-G1	4333	104	B0-U0-G2		1174	38	B0-U0-G0
			III-W-HS	3555	86	B0-U0-G2	3838	92	B0-U0-G2	4040	97	B0-U0-G2	4242	102	B0-U0-G2		1150	37	B0-U0-G1
			IV-HS	3751	90	B0-U0-G1	4050	98	B0-U0-G1	4263	103	B0-U0-G1	4476	108	B0-U0-G1		1213	39	B0-U0-G0
			IV-FT-HS	3545	85	B0-U0-G2	3827	92	B0-U0-G2	4029	97	B0-U0-G2	4230	102	B0-U0-G2		1146	37	B0-U0-G1
24	700	55.9	II	6275	112	B2-U0-G1	6774	121	B2-U0-G2	7130	128	B2-U0-G2	7487	134	B2-U0-G2	N/A	N/A		
			II-FR	6317	113	B2-U0-G1	6819	122	B2-U0-G1	7178	128	B2-U0-G1	7537	135	B2-U0-G1				
			II-ML	6275	112	B3-U0-G3	6774	121	B3-U0-G3	7130	128	B3-U0-G3	7487	134	B3-U0-G3				
			II-M	6385	114	B2-U0-G2	6893	123	B2-U0-G2	7256	130	B2-U0-G2	7618	136	B2-U0-G2				
			III-W	5928	106	B1-U0-G2	6399	114	B1-U0-G2	6736	121	B1-U0-G2	7073	127	B1-U0-G2				
			IV	6337	113	B2-U0-G2	6841	122	B2-U0-G2	7201	129	B2-U0-G2	7561	135	B2-U0-G2				
			IV-FT	5772	103	B1-U0-G2	6231	111	B1-U0-G2	6559	117	B1-U0-G2	6887	123	B1-U0-G2				
			VSQ-N	6624	118	B2-U0-G1	7151	128	B2-U0-G1	7527	135	B2-U0-G1	7903	141	B3-U0-G1				
			VSQ-M	6494	116	B3-U0-G1	7011	125	B3-U0-G1	7380	132	B3-U0-G1	7749	139	B3-U0-G2				
			VSQ-W	6340	113	B3-U0-G2	6844	122	B3-U0-G2	7204	129	B3-U0-G2	7565	135	B3-U0-G2				
			II-HS	4589	82	B1-U0-G1	4954	89	B1-U0-G2	5215	93	B1-U0-G2	5475	98	B1-U0-G2				
			II-FR-HS	4668	84	B0-U0-G1	5040	90	B0-U0-G1	5305	95	B0-U0-G1	5570	100	B0-U0-G1				
			III-M-HS	4643	83	B0-U0-G2	5012	90	B0-U0-G2	5276	94	B0-U0-G2	5539	99	B0-U0-G2				
			III-W-HS	4544	81	B0-U0-G2	4906	88	B0-U0-G2	5164	92	B0-U0-G2	5422	97	B0-U0-G2				
			IV-HS	4796	86	B0-U0-G2	5177	93	B0-U0-G2	5450	97	B0-U0-G2	5722	102	B0-U0-G2				
			IV-FT-HS	4532	81	B0-U0-G2	4893	88	B0-U0-G2	5150	92	B0-U0-G2	5408	97	B0-U0-G2				
24	875	67.8	II	7406	109	B2-U0-G2	7995	118	B2-U0-G2	8416	124	B2-U0-G2	8837	130	B2-U0-G2	N/A	N/A		
			II-FR	7456	110	B2-U0-G1	8049	119	B2-U0-G1	8473	125	B2-U0-G1	8896	131	B2-U0-G1				
			II-ML	7406	109	B3-U0-G3	7995	118	B3-U0-G3	8416	124	B3-U0-G3	8837	130	B3-U0-G3				
			III-M	7536	111	B2-U0-G2	8135	120	B2-U0-G2	8563	126	B2-U0-G2	8992	133	B2-U0-G2				
			III-W	6997	103	B1-U0-G2	7553	111	B1-U0-G2	7951	117	B2-U0-G2	8348	123	B2-U0-G2				
			IV	7479	110	B2-U0-G2	8073	119	B2-U0-G2	8498	125	B2-U0-G2	8923	132	B2-U0-G2				
			IV-FT	6813	100	B1-U0-G2	7355	108	B2-U0-G2	7742	114	B2-U0-G2	8129	120	B2-U0-G2				
			VSQ-N	7817	115	B2-U0-G1	8439	124	B3-U0-G1	8883	131	B3-U0-G1	9327	138	B3-U0-G1				
			VSQ-M	7665	113	B3-U0-G2	8275	122	B3-U0-G2	8711	128	B3-U0-G2	9146	135	B3-U0-G2				
			VSQ-W	7482	110	B3-U0-G2	8078	119	B3-U0-G2	8503	125	B4-U0-G2	8928	132	B4-U0-G2				
			II-HS	5417	80	B1-U0-G2	5847	86	B1-U0-G2	6155	91	B1-U0-G2	6463	95	B1-U0-G2				
			II-FR-HS	5510	81	B0-U0-G1	5948	88	B1-U0-G1	6261	92	B1-U0-G1	6574	97	B1-U0-G1				
			III-M-HS	5480	81	B0-U0-G2	5916	87	B0-U0-G2	6227	92	B0-U0-G2	6538	96	B0-U0-G2				
			III-W-HS	5363	79	B0-U0-G2	5790	85	B0-U0-G2	6095	90	B0-U0-G2	6399	94	B0-U0-G2				
			IV-HS	5660	83	B0-U0-G2	6110	90	B0-U0-G2	6432	95	B0-U0-G2	6753	100	B0-U0-G2				
			IV-FT-HS	5349	79	B0-U0-G2	5775	85	B0-U0-G2	6078	90	B0-U0-G2	6382	94	B0-U0-G2				
24	1050	82.0	II	8513	104	B2-U0-G2	9190	112	B2-U0-G2	9674	118	B2-U0-G2	10157	124	B2-U0-G2	N/A	N/A		
			II-FR	8570	105	B2-U0-G1	9252	113	B2-U0-G1	9739	119	B2-U0-G1	10225	125	B2-U0-G1				
			II-ML	8513	104	B3-U0-G3	9190	112	B3-U0-G3	9674	118	B3-U0-G3	10157	124	B3-U0-G3				
			III-M	8662	106	B2-U0-G2	9351	114	B2-U0-G2	9843	120	B2-U0-G2	10335	126	B2-U0-G2				
			III-W	8042	98	B2-U0-G2	8682	106	B2-U0-G2	9139	111	B2-U0-G3	9595	117	B2-U0-G3				
			IV	8596	105	B2-U0-G2	9280	113	B2-U0-G2	9768	119	B2-U0-G2	10256	125	B2-U0-G2				
			IV-FT	7831	95	B2-U0-G2	8454	103	B2-U0-G2	8899	109	B2-U0-G3	9344	114	B2-U0-G3				
			VSQ-N	8985	110	B3-U0-G1	9700	118	B3-U0-G1	10210	125	B3-U0-G1	10721	131	B3-U0-G1				
			VSQ-M	8811	107	B3-U0-G2	9512	116	B3-U0-G2	10012	122	B3-U0-G2	10513	128	B3-U0-G2				
			VSQ-W	8601	105	B4-U0-G2	9285	113	B4-U0-G2	9773	119	B4-U0-G3	10262	125	B4-U0-G3				
			II-HS	6226	76	B1-U0-G2	6721	82	B1-U0-G2	7075	86	B1-U0-G2	7429	91	B1-U0-G2				
			II-FR-HS	6333	77	B1-U0-G1	6837	83	B1-U0-G1	7197	88	B1-U0-G1	7557	92	B1-U0-G1				
			III-M-HS	6299	77	B0-U0-G2	6799	83	B0-U0-G2	7158	87	B0-U0-G2	7515	92	B1-U0-G2				
			III-W-HS	6165	75	B0-U0-G2	6655	81	B0-U0-G2	7005	85	B0-U0-G2	7356	90	B0-U0-G2				
			IV-HS	6506	79	B0-U0-G2	7023	86	B0-U0-G2	7393	90	B1-U0-G2	7762	95	B1-U0-G2				
			IV-FT-HS	6148	75	B0-U0-G2	6637	81	B0-U0-G2	6986	85	B1-U0-G3	7336	89	B1-U0-G3				

RZR SERIES - LED

PHOTOMETRIC DATA GUIDE - LUMEN TABLES (RZRM-PLED)

RZR-M-PLD																										
LED Count	Drive Current (mA)	System Watts	Dist'n Type	27K (2700K - 70CRI)			30K (3000K - 70CRI)			40K (4000K - 70CRI)			50K (5000K - 70CRI)			System Watts	TRA (590nm)									
				LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING		LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING				
48	350	52.5	II	6836	130	B2-U0-G2	7380	141	B2-U0-G2	7769	148	B2-U0-G2	8157	155	B2-U0-G2	41.0	2713	66	B1-U0-G1							
			II-FR	6882	131	B2-U0-G1	7430	142	B2-U0-G1	7821	149	B2-U0-G1	8212	156	B2-U0-G1		2731	67	B1-U0-G1							
			II-ML	6837	130	B3-U0-G3	7380	141	B3-U0-G3	7769	148	B3-U0-G3	8157	155	B3-U0-G3		2713	66	B1-U0-G1							
			III-M	6956	132	B2-U0-G2	7509	143	B2-U0-G2	7905	151	B2-U0-G2	8300	158	B2-U0-G2		2760	67	B1-U0-G1							
			III-W	6459	123	B1-U0-G2	6972	133	B1-U0-G2	7339	140	B1-U0-G2	7706	147	B1-U0-G2		2563	63	B1-U0-G1							
			IV	6903	131	B2-U0-G2	7453	142	B2-U0-G2	7845	149	B2-U0-G2	8237	157	B2-U0-G2		2740	67	B1-U0-G1							
			IV-FT	6289	120	B1-U0-G2	6789	129	B1-U0-G2	7146	136	B1-U0-G2	7503	143	B2-U0-G2		2496	61	B1-U0-G1							
			VSQ-N	7216	137	B2-U0-G1	7790	148	B2-U0-G1	8200	156	B3-U0-G1	8610	164	B3-U0-G1		2864	70	B1-U0-G0							
			VSQ-M	7076	135	B3-U0-G1	7639	146	B3-U0-G2	8041	153	B3-U0-G2	8443	161	B3-U0-G2		2808	68	B2-U0-G1							
			VSQ-W	6907	132	B3-U0-G2	7456	142	B3-U0-G2	7849	150	B3-U0-G2	8242	157	B3-U0-G2		2741	67	B2-U0-G1							
			II-HS	5000	95	B1-U0-G2	5398	103	B1-U0-G2	5682	108	B1-U0-G2	5966	114	B1-U0-G2		1984	48	B0-U0-G1							
			II-FR-HS	5087	97	B0-U0-G1	5491	105	B0-U0-G1	5780	110	B1-U0-G1	6069	116	B1-U0-G1		2018	49	B0-U0-G0							
			III-M-HS	5059	96	B0-U0-G2	5461	104	B0-U0-G2	5748	109	B0-U0-G2	6036	115	B0-U0-G2		2007	49	B0-U0-G1							
			III-W-HS	4952	94	B0-U0-G2	5345	102	B0-U0-G2	5627	107	B0-U0-G2	5908	113	B0-U0-G2		1965	48	B0-U0-G1							
			IV-HS	5224	100	B0-U0-G2	5640	107	B0-U0-G2	5937	113	B0-U0-G2	6234	119	B0-U0-G2		2074	51	B0-U0-G1							
			IV-FT-HS	4938	94	B0-U0-G2	5330	102	B0-U0-G2	5611	107	B0-U0-G2	5892	112	B0-U0-G2		1960	48	B0-U0-G1							
			48	525	79.0	II	9720	123	B2-U0-G2	10493	133	B2-U0-G2	11046	140	B2-U0-G2		11598	147	B2-U0-G2	62.0	3143	51	B1-U0-G1			
						II-FR	9785	124	B2-U0-G1	10564	134	B2-U0-G1	11120	141	B2-U0-G1		11676	148	B3-U0-G1		3164	51	B1-U0-G1			
						II-ML	9720	123	B3-U0-G3	10494	133	B3-U0-G3	11046	140	B3-U0-G3		11598	147	B3-U0-G3		3143	51	B2-U0-G2			
						III-M	9891	125	B2-U0-G2	10677	135	B2-U0-G2	11240	142	B2-U0-G2		11801	149	B2-U0-G2		3198	52	B1-U0-G1			
III-W	9183	116				B2-U0-G3	9914	125	B2-U0-G3	10436	132	B2-U0-G3	10958	139	B2-U0-G3	2969	48	B1-U0-G1								
IV	9816	124				B2-U0-G2	10597	134	B2-U0-G2	11155	141	B2-U0-G2	11712	148	B2-U0-G2	3174	51	B1-U0-G1								
IV-FT	8942	113				B2-U0-G2	9653	122	B2-U0-G3	10161	129	B2-U0-G3	10669	135	B2-U0-G3	2892	47	B1-U0-G1								
VSQ-N	10260	130				B3-U0-G1	11075	140	B3-U0-G1	11659	148	B3-U0-G1	12242	155	B3-U0-G1	3317	54	B2-U0-G0								
VSQ-M	10060	127				B3-U0-G2	10861	137	B4-U0-G2	11432	145	B4-U0-G2	12004	152	B4-U0-G2	3253	52	B2-U0-G1								
VSQ-W	9821	124				B4-U0-G3	10602	134	B4-U0-G3	11160	141	B4-U0-G3	11718	148	B4-U0-G3	3175	51	B2-U0-G1								
II-HS	7110	90				B1-U0-G2	7675	97	B1-U0-G2	8079	102	B1-U0-G2	8483	107	B1-U0-G2	2298	37	B0-U0-G1								
II-FR-HS	7231	92				B1-U0-G1	7806	99	B1-U0-G1	8217	104	B1-U0-G1	8628	109	B1-U0-G1	2339	38	B0-U0-G0								
III-M-HS	7192	91				B0-U0-G2	7764	98	B1-U0-G2	8173	103	B1-U0-G2	8581	109	B1-U0-G2	2325	38	B0-U0-G1								
III-W-HS	7040	89				B0-U0-G2	7600	96	B0-U0-G2	8000	101	B1-U0-G2	8400	106	B1-U0-G2	2276	37	B0-U0-G1								
IV-HS	7429	94				B1-U0-G2	8020	102	B1-U0-G2	8442	107	B1-U0-G2	8864	112	B1-U0-G2	2402	39	B0-U0-G1								
IV-FT-HS	7020	89				B1-U0-G3	7579	96	B1-U0-G3	7978	101	B1-U0-G3	8377	106	B1-U0-G3	2270	37	B0-U0-G1								
48	700	105.1				II	12226	116	B2-U0-G2	13199	126	B2-U0-G2	13894	132	B2-U0-G2	14588	139	B3-U0-G2	N/A		N/A					
						II-FR	12308	117	B3-U0-G1	13287	126	B3-U0-G1	13986	133	B3-U0-G1	14686	140	B3-U0-G1								
						II-ML	12227	116	B3-U0-G3	13200	126	B3-U0-G3	13894	132	B3-U0-G3	14589	139	B4-U0-G4								
						III-M	12440	118	B2-U0-G2	13430	128	B2-U0-G2	14137	135	B2-U0-G2	14843	141	B2-U0-G2								
			III-W	11550	110	B2-U0-G3	12468	119	B2-U0-G3	13125	125	B2-U0-G3	13781	131	B2-U0-G3											
			IV	12346	117	B2-U0-G2	13329	127	B2-U0-G2	14030	133	B2-U0-G2	14731	140	B2-U0-G2											
			IV-FT	11247	107	B2-U0-G3	12141	116	B2-U0-G3	12780	122	B2-U0-G3	13419	128	B2-U0-G3											
			VSQ-N	12904	123	B3-U0-G1	13931	133	B3-U0-G1	14663	140	B3-U0-G1	15397	146	B3-U0-G1											
			VSQ-M	12654	120	B4-U0-G2	13660	130	B4-U0-G2	14379	137	B4-U0-G2	15099	144	B4-U0-G2											
			VSQ-W	12352	118	B4-U0-G3	13334	127	B4-U0-G3	14036	134	B4-U0-G3	14738	140	B4-U0-G3											
			II-HS	8942	85	B1-U0-G2	9653	92	B1-U0-G2	10161	97	B1-U0-G2	10669	102	B1-U0-G2											
			II-FR-HS	9095	87	B1-U0-G1	9819	93	B1-U0-G1	10336	98	B1-U0-G1	10852	103	B1-U0-G1											
			III-M-HS	9045	86	B1-U0-G2	9765	93	B1-U0-G2	10279	98	B1-U0-G2	10793	103	B1-U0-G2											
			III-W-HS	8854	84	B1-U0-G2	9558	91	B1-U0-G3	10062	96	B1-U0-G3	10565	101	B1-U0-G3											
			IV-HS	9344	89	B1-U0-G2	10087	96	B1-U0-G2	10618	101	B1-U0-G2	11149	106	B1-U0-G2											
			IV-FT-HS	8831	84	B1-U0-G3	9533	91	B1-U0-G3	10035	95	B1-U0-G3	10537	100	B1-U0-G3											
			48	875	131.8	II	14829	113	B3-U0-G2	16008	121	B3-U0-G3	16851	128	B3-U0-G3	17693	134	B3-U0-G3		N/A				N/A		
						II-FR	14928	113	B3-U0-G2	16115	122	B3-U0-G2	16964	129	B3-U0-G2	17812	135	B3-U0-G2								
						II-ML	14829	113	B4-U0-G4	16009	121	B4-U0-G4	16851	128	B4-U0-G4	17694	134	B4-U0-G4								
						III-M	15088	114	B2-U0-G2	16288	124	B3-U0-G3	17145	130	B3-U0-G3	18003	137	B3-U0-G3								
III-W	14009	106				B2-U0-G3	15123	115	B2-U0-G3	15919	121	B3-U0-G3	16715	127	B3-U0-G3											
IV	14975	114				B2-U0-G2	16166	123	B3-U0-G2	17017	129	B3-U0-G3	17867	136	B3-U0-G3											
IV-FT	13641	103				B2-U0-G3	14726	112	B3-U0-G3	15501	118	B3-U0-G3	16276	123	B3-U0-G3											
VSQ-N	15652	119				B3-U0-G1	16897	128	B4-U0-G2	17786	135	B4-U0-G2	18675	142	B4-U0-G2											
VSQ-M	15348	116				B4-U0-G2	16568	126	B4-U0-G2	17440	132	B4-U0-G2	18312	139	B4-U0-G2											
VSQ-W	14981	114				B4-U0-G3	16173	123	B4-U0-G3	17024	129	B5-U0-G3	17876	136	B5-U0-G3											
II-HS	10845	82				B1-U0-G2	11707	89	B1-U0-G2	12324	94	B1-U0-G2	12940	98	B1-U0-G2											
II-FR-HS	11032	84				B1-U0-G1	11909	90	B1-U0-G2	12536	95	B1-U0-G2	13162	100	B1-U0-G2											
III-M-HS	10971	83				B1-U0-G2	11844	90	B1-U0-G3	12467	95	B1-U0-G3	13091	99	B1-U0-G3											
III-W-HS	10739	81				B1-U0-G3	11594	88	B1-U0-G3	12204	93	B1-U0-G3	12814	97	B1-U0-G3											
IV-HS	11333	86				B1-U0-G2	12234	93	B1-U0-G2	12878	98	B1-U0-G3	13522	103	B1-U0-G3											
IV-FT-HS	10711	81				B1-U0-G3	11562	88	B1-U0-G3	12171	92	B1-U0-G3	12779	97	B1-U0-G3											
48	1050	159.6				II	17044	107	B3-U0-G3	18400	115	B3-U0-G3	19369	121	B3-U0-G3	20337	127	B3-U0-G3	N/A		N/A					
						II-FR	17159	108	B3-U0-G2	18523	116	B3-U0-G2	19498	122	B3-U0-G2	20473	128	B3-U0-G2								
						II-ML	17045	107	B4-U0-G4	18401	115	B4-U0-G4	19369	121	B4-U0-G4	20338	127	B4-U0-G4								
						III-M	17342	109	B3-U0-G3	18722	117	B3-U0-G3	19707	123	B3-U0-G3	20692	130	B3-U0-G3								
			III-W	16102	101	B3-U0-G3	17383	109	B3-U0-G3	18298	115	B3-U0-G3	19213	120	B3-U0-G4											
			IV	17212	108	B3-U0-G3	18582	116	B3-U0-G3	19559	123	B3-U0-G3	20537	129	B3-U0-G3											
			IV-FT	15680	98	B3-U0-G3	16927	106	B3-U0-G3	17818	112	B3-U0-G3	18708	117	B3-U0-G4											
			VSQ-N	17990	113	B4-U0-G2	19421	122	B4-U0-G2	20443	128	B4-U0-G2	21466	134	B4-U0-G2											
			VSQ-M	17641	111	B4-U0-G2	19044	119	B4-U0-G2	20046	126	B4-U0-G2	21048	132	B4-U0-G2											
			VSQ-W	17220	108	B5-U0-G3	18590	116	B5-U0-G3	19568	123	B5-U0-G3	20546	129	B5-U0-G3											
			II-HS	12465	78	B1-U0-G2	13457	84	B1-U0-G3	14165	89	B1-U0-G3	14873	93	B1-U0-G3											
			II-FR-HS	12680	79	B1-U0-G2	13688	86	B1-U0-G2	14409	90	B1-U0-G2	15129	95	B1-U0-G2											
			III-M-HS	12611	79	B1-U0-G3	13614	85	B1-U0-G3	14330	90	B1-U0-G3	15047	94	B1-U0-G3											
			III-W-HS	12344	77	B1-U0-G3	13326	83	B1-U0-G3	14027	88	B1-U0-G3	14728	92	B1-U0-G4											
			IV-HS	13026	82	B1-U0-G3	14062	88	B1-U0-G3	14802	93	B1-U0-G3	15542	97	B1-U0-G3											
			IV-FT-HS	12311	77	B1-U0-G3	13290	83	B1-U0-G3	13989	88	B1-U0-G4	14689	92	B1-U0-G4											

RZR SERIES - LED

PHOTOMETRIC DATA GUIDE - LUMEN TABLES (RZR-PLED)

RZR-PLED																			
LED Count	Drive Current (mA)	System Watts	Dist'n Type	27K (2700K - 70CRI)			30K (3000K - 70CRI)			40K (4000K - 70CRI)			50K (5000K - 70CRI)			System Watts	TRA (590nm)		
				LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING		LUMENS	LPW	BUG RATING
40	350	42.7	II	5819	136	B2-U0-G1	6281	147	B2-U0-G1	6612	155	B2-U0-G2	6943	163	B2-U0-G2	33.0	2309	70	B1-U0-G1
			II-FR	5858	137	B2-U0-G1	6324	148	B2-U0-G1	6657	156	B2-U0-G1	6990	164	B2-U0-G1		2325	70	B1-U0-G0
			II-ML	5819	136	B3-U0-G3	6282	147	B3-U0-G3	6612	155	B3-U0-G3	6943	163	B3-U0-G3		2309	70	B1-U0-G1
			III-M	5921	139	B1-U0-G2	6392	150	B2-U0-G2	6728	158	B2-U0-G2	7065	165	B2-U0-G2		2349	71	B1-U0-G1
			III-W	5497	129	B1-U0-G2	5935	139	B1-U0-G2	6247	146	B1-U0-G2	6559	154	B1-U0-G2		2182	66	B1-U0-G1
			IV	5876	138	B1-U0-G2	6344	149	B2-U0-G2	6677	156	B2-U0-G2	7011	164	B2-U0-G2		2332	71	B1-U0-G1
			IV-FT	5353	125	B1-U0-G2	5778	135	B1-U0-G2	6083	142	B1-U0-G2	6387	150	B1-U0-G2		2124	64	B1-U0-G1
			VSQ-N	6141	144	B2-U0-G1	6630	155	B2-U0-G1	6979	163	B2-U0-G1	7328	172	B2-U0-G1		2438	74	B1-U0-G0
			VSQ-M	6023	141	B3-U0-G1	6502	152	B3-U0-G1	6844	160	B3-U0-G1	7186	168	B3-U0-G1		2390	72	B2-U0-G1
			VSQ-W	5879	138	B3-U0-G2	6346	149	B3-U0-G2	6680	156	B3-U0-G2	7015	164	B3-U0-G2		2333	71	B2-U0-G1
			II-HS	4256	100	B0-U0-G1	4594	108	B1-U0-G1	4836	113	B1-U0-G2	5077	119	B1-U0-G2		1689	51	B0-U0-G0
			II-FR-HS	4329	101	B0-U0-G1	4673	109	B0-U0-G1	4919	115	B0-U0-G1	5165	121	B0-U0-G1		1718	52	B0-U0-G0
			III-M-HS	4305	101	B0-U0-G2	4647	109	B0-U0-G2	4892	115	B0-U0-G2	5137	120	B0-U0-G2		1708	52	B0-U0-G1
			III-W-HS	4214	99	B0-U0-G2	4550	107	B0-U0-G2	4789	112	B0-U0-G2	5028	118	B0-U0-G2		1673	51	B0-U0-G1
			IV-HS	4447	104	B0-U0-G1	4801	112	B0-U0-G2	5054	118	B0-U0-G2	5306	124	B0-U0-G2		1764	53	B0-U0-G1
			IV-FT-HS	4203	98	B0-U0-G2	4537	106	B0-U0-G2	4776	112	B0-U0-G2	5015	117	B0-U0-G2		1668	51	B0-U0-G1
40	525	64.7	II	8396	130	B2-U0-G2	9064	140	B2-U0-G2	9541	147	B2-U0-G2	10017	155	B2-U0-G2	51.0	2715	53	B1-U0-G1
			II-FR	8452	131	B2-U0-G1	9125	141	B2-U0-G1	9605	148	B2-U0-G1	10085	156	B2-U0-G1		2733	54	B1-U0-G1
			II-ML	8396	130	B3-U0-G3	9064	140	B3-U0-G3	9541	147	B3-U0-G3	10018	155	B3-U0-G3		2715	53	B1-U0-G1
			III-M	8543	132	B2-U0-G2	9223	143	B2-U0-G2	9708	150	B2-U0-G2	10194	158	B2-U0-G2		2762	54	B1-U0-G1
			III-W	7932	123	B2-U0-G2	8563	132	B2-U0-G2	9013	139	B2-U0-G3	9464	146	B2-U0-G3		2565	50	B1-U0-G1
			IV	8478	131	B2-U0-G2	9152	141	B2-U0-G2	9634	149	B2-U0-G2	10116	156	B2-U0-G2		2742	54	B1-U0-G1
			IV-FT	7724	119	B2-U0-G3	8338	129	B2-U0-G3	8777	136	B2-U0-G3	9216	142	B2-U0-G3		2497	49	B1-U0-G1
			VSQ-N	8861	137	B3-U0-G1	9566	148	B3-U0-G1	10070	156	B3-U0-G1	10574	163	B3-U0-G1		2866	56	B1-U0-G0
			VSQ-M	8690	134	B3-U0-G2	9381	145	B3-U0-G2	9875	153	B3-U0-G2	10369	160	B3-U0-G2		2809	55	B2-U0-G1
			VSQ-W	8483	131	B4-U0-G2	9157	142	B4-U0-G2	9640	149	B4-U0-G3	10122	156	B4-U0-G3		2743	54	B2-U0-G1
			II-HS	6141	95	B1-U0-G2	6629	102	B1-U0-G2	6978	108	B1-U0-G2	7327	113	B1-U0-G2		1985	39	B0-U0-G1
			II-FR-HS	6246	97	B1-U0-G1	6743	104	B1-U0-G1	7098	110	B1-U0-G1	7453	115	B1-U0-G1		2020	40	B0-U0-G0
			III-M-HS	6212	96	B0-U0-G2	6706	104	B0-U0-G2	7060	109	B0-U0-G2	7412	115	B0-U0-G2		2009	39	B0-U0-G1
			III-W-HS	6081	94	B0-U0-G2	6564	101	B0-U0-G2	6910	107	B0-U0-G2	7255	112	B0-U0-G2		1966	39	B0-U0-G1
			IV-HS	6417	99	B0-U0-G2	6927	107	B0-U0-G2	7292	113	B0-U0-G2	7656	118	B1-U0-G2		2075	41	B0-U0-G1
			IV-FT-HS	6064	94	B0-U0-G2	6546	101	B0-U0-G2	6891	107	B1-U0-G2	7235	112	B1-U0-G3		1960	38	B0-U0-G1
40	700	86.8	II	10669	123	B2-U0-G2	11518	133	B2-U0-G2	12124	140	B2-U0-G2	12730	147	B2-U0-G2	N/A	N/A		
			II-FR	10740	124	B2-U0-G1	11594	134	B3-U0-G1	12205	141	B3-U0-G1	12815	148	B3-U0-G1				
			II-ML	10669	123	B3-U0-G3	11518	133	B3-U0-G3	12124	140	B3-U0-G3	12731	147	B3-U0-G3				
			III-M	10856	125	B2-U0-G2	11719	135	B2-U0-G2	12336	142	B2-U0-G2	12953	149	B2-U0-G2				
			III-W	10079	116	B2-U0-G3	10880	125	B2-U0-G3	11453	132	B2-U0-G3	12026	139	B2-U0-G3				
			IV	10774	124	B2-U0-G2	11630	134	B2-U0-G2	12243	141	B2-U0-G2	12855	148	B2-U0-G2				
			IV-FT	9814	113	B2-U0-G3	10595	122	B2-U0-G3	11153	128	B2-U0-G3	11710	135	B2-U0-G3				
			VSQ-N	11260	130	B3-U0-G1	12156	140	B3-U0-G1	12796	147	B3-U0-G1	13435	155	B3-U0-G1				
			VSQ-M	11042	127	B4-U0-G2	11920	137	B4-U0-G2	12548	145	B4-U0-G2	13175	152	B4-U0-G2				
			VSQ-W	10778	124	B4-U0-G3	11636	134	B4-U0-G3	12248	141	B4-U0-G3	12860	148	B4-U0-G3				
			II-HS	7803	90	B1-U0-G2	8423	97	B1-U0-G2	8866	102	B1-U0-G2	9310	107	B1-U0-G2				
			II-FR-HS	7937	91	B1-U0-G1	8568	99	B1-U0-G1	9019	104	B1-U0-G1	9470	109	B1-U0-G1				
			III-M-HS	7893	91	B1-U0-G2	8521	98	B1-U0-G2	8970	103	B1-U0-G2	9418	109	B1-U0-G2				
			III-W-HS	7726	89	B0-U0-G2	8341	96	B1-U0-G2	8780	101	B1-U0-G2	9218	106	B1-U0-G2				
			IV-HS	8153	94	B1-U0-G2	8802	101	B1-U0-G2	9265	107	B1-U0-G2	9728	112	B1-U0-G2				
			IV-FT-HS	7705	89	B1-U0-G3	8318	96	B1-U0-G3	8756	101	B1-U0-G3	9194	106	B1-U0-G3				
40	875	108.0	II	12366	114	B2-U0-G2	13349	124	B2-U0-G2	14052	130	B2-U0-G2	14754	137	B3-U0-G2	N/A	N/A		
			II-FR	12448	115	B3-U0-G1	13439	124	B3-U0-G1	14146	131	B3-U0-G1	14853	138	B3-U0-G2				
			II-ML	12366	115	B3-U0-G3	13349	124	B3-U0-G3	14052	130	B3-U0-G3	14755	137	B4-U0-G4				
			III-M	12581	116	B2-U0-G2	13582	126	B2-U0-G2	14297	132	B2-U0-G2	15012	139	B2-U0-G2				
			III-W	11682	108	B2-U0-G3	12611	117	B2-U0-G3	13275	123	B2-U0-G3	13939	129	B2-U0-G3				
			IV	12487	116	B2-U0-G2	13480	125	B2-U0-G2	14189	131	B2-U0-G2	14899	138	B2-U0-G2				
			IV-FT	11375	105	B2-U0-G3	12280	114	B2-U0-G3	12926	120	B2-U0-G3	13573	126	B2-U0-G3				
			VSQ-N	13051	121	B3-U0-G1	14089	130	B3-U0-G1	14830	137	B3-U0-G1	15572	144	B3-U0-G1				
			VSQ-M	12798	118	B4-U0-G2	13816	128	B4-U0-G2	14543	135	B4-U0-G2	15270	141	B4-U0-G2				
			VSQ-W	12492	116	B4-U0-G3	13486	125	B4-U0-G3	14196	131	B4-U0-G3	14905	138	B4-U0-G3				
			II-HS	9044	84	B1-U0-G2	9763	90	B1-U0-G2	10277	95	B1-U0-G2	10791	100	B1-U0-G2				
			II-FR-HS	9199	85	B1-U0-G1	9930	92	B1-U0-G1	10453	97	B1-U0-G1	10976	102	B1-U0-G1				
			III-M-HS	9149	85	B1-U0-G2	9876	91	B1-U0-G2	10396	96	B1-U0-G2	10916	101	B1-U0-G2				
			III-W-HS	8955	83	B1-U0-G2	9667	90	B1-U0-G3	10176	94	B1-U0-G3	10685	99	B1-U0-G3				
			IV-HS	9450	87	B1-U0-G2	10201	94	B1-U0-G2	10738	99	B1-U0-G2	11275	104	B1-U0-G2				
			IV-FT-HS	8931	83	B1-U0-G3	9641	89	B1-U0-G3	10149	94	B1-U0-G3	10656	99	B1-U0-G3				
40	1050	128.2	II	14213	111	B2-U0-G2	15344	120	B3-U0-G2	16151	126	B3-U0-G3	16959	132	B3-U0-G3	N/A	N/A		
			II-FR	14308	112	B3-U0-G1	15446	120	B3-U0-G2	16259	127	B3-U0-G2	17072	133	B3-U0-G2				
			II-ML	14214	111	B3-U0-G3	15344	120	B4-U0-G4	16152	126	B4-U0-G4	16959	132	B4-U0-G4				
			III-M	14461	113	B2-U0-G2	15612	122	B3-U0-G2	16433	128	B3-U0-G3	17255	135	B3-U0-G3				
			III-W	13427	105	B2-U0-G3	14495	113	B2-U0-G3	15258	119	B2-U0-G3	16021	125	B3-U0-G3				
			IV	14352	112	B2-U0-G2	15494	121	B3-U0-G2	16309	127	B3-U0-G3	17125	134	B3-U0-G3				
			IV-FT	13075	102	B2-U0-G3	14115	110	B2-U0-G3	14858	116	B3-U0-G3	15601	122	B3-U0-G3				
			VSQ-N	15001	117	B3-U0-G1	16194	126	B4-U0-G1	17046	133	B4-U0-G2	17899	140	B4-U0-G2				
			VSQ-M	14710	115	B4-U0-G2	15880	124	B4-U0-G2	16716	130	B4-U0-G2	17552	137	B4-U0-G2				
			VSQ-W	14359	112	B4-U0-G3	15501	121	B4-U0-G3	16317	127	B4-U0-G3	17132	134	B5-U0-G3				
			II-HS	10395	81	B1-U0-G2	11222	88	B1-U0-G2	11813	92	B1-U0-G2	12403	97	B1-U0-G2				
			II-FR-HS	10573	82	B1-U0-G1	11414	89	B1-U0-G2	12015	94	B1-U0-G2	12616	98	B1-U0-G2				
			III-M-HS	10516	82	B1-U0-G2	11352	89	B1-U0-G2	11949	93	B1-U0-G3	12547	98	B1-U0-G3				
			III-W-HS	10293	80	B1-U0-G3	11112	87	B1-U0-G3	11696	91	B1-U0-G3	12281	96	B1-U0-G3				
			IV-HS	10862	85	B1-U0-G2	11726	91	B1-U0-G2	12343	96	B1-U0-G2	12960	101	B1-U0-G3				
			IV-FT-HS	10266	80	B1-U0-G3	11082	86	B1-U0-G3	11665	91	B1-U0-G3	12248	96	B1-U0-G3				

RZR SERIES - LED

PHOTOMETRIC DATA GUIDE - LUMEN TABLES (RZR-PLED)

RZR-PLED																			
LED Count	Drive Current (mA)	System Watts	Dist'n Type	27K (2700K - 70CRI)			30K (3000K - 70CRI)			40K (4000K - 70CRI)			50K (5000K - 70CRI)			System Watts	TRA (590nm)		
				LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING		LUMENS	LPW	BUG RATING
80	350	85.4	II	11277	132	B2-U0-G2	12174	143	B2-U0-G2	12814	150	B2-U0-G2	13455	158	B2-U0-G2	67.0	4475	67	B1-U0-G1
			II-FR	11352	133	B3-U0-G1	12256	144	B3-U0-G1	12901	151	B3-U0-G1	13546	159	B3-U0-G1		4504	67	B1-U0-G1
			II-ML	11277	132	B3-U0-G3	12175	143	B3-U0-G3	12815	150	B3-U0-G3	13456	158	B3-U0-G3		4475	67	B2-U0-G2
			III-M	11474	134	B2-U0-G2	12387	145	B2-U0-G2	13039	153	B2-U0-G2	13691	160	B2-U0-G2		4553	68	B1-U0-G1
			III-W	10654	125	B2-U0-G3	11501	135	B2-U0-G3	12106	142	B2-U0-G3	12712	149	B2-U0-G3		4228	63	B1-U0-G2
			IV	11388	133	B2-U0-G2	12294	144	B2-U0-G2	12941	152	B2-U0-G2	13588	159	B2-U0-G2		4518	67	B1-U0-G1
			IV-FT	10374	121	B2-U0-G3	11199	131	B2-U0-G3	11788	138	B2-U0-G3	12377	145	B2-U0-G3		4117	61	B1-U0-G1
			VSQ-N	11902	139	B3-U0-G1	12849	150	B3-U0-G1	13525	158	B3-U0-G1	14202	166	B3-U0-G1		4723	70	B2-U0-G1
			VSQ-M	11671	137	B4-U0-G2	12600	148	B4-U0-G2	13263	155	B4-U0-G2	13927	163	B4-U0-G2		4631	69	B3-U0-G1
			VSQ-W	11392	133	B4-U0-G3	12299	144	B4-U0-G3	12946	152	B4-U0-G3	13593	159	B4-U0-G3		4520	67	B3-U0-G2
			II-HS	8247	97	B1-U0-G2	8903	104	B1-U0-G2	9372	110	B1-U0-G2	9840	115	B1-U0-G2		3273	49	B0-U0-G1
			II-FR-HS	8389	98	B1-U0-G1	9056	106	B1-U0-G1	9533	112	B1-U0-G1	10009	117	B1-U0-G1		3329	50	B0-U0-G1
			III-M-HS	8344	98	B1-U0-G2	9007	105	B1-U0-G2	9482	111	B1-U0-G2	9956	117	B1-U0-G2		3311	49	B0-U0-G1
			III-W-HS	8167	96	B1-U0-G2	8817	103	B1-U0-G2	9281	109	B1-U0-G2	9745	114	B1-U0-G3		3240	48	B0-U0-G1
			IV-HS	8618	101	B1-U0-G2	9304	109	B1-U0-G2	9793	115	B1-U0-G2	10283	120	B1-U0-G2		3420	51	B0-U0-G1
			IV-FT-HS	8144	95	B1-U0-G3	8792	103	B1-U0-G3	9255	108	B1-U0-G3	9718	114	B1-U0-G3		3232	48	B0-U0-G2
80	525	129.4	II	16239	125	B3-U0-G3	17531	135	B3-U0-G3	18454	143	B3-U0-G3	19377	150	B3-U0-G3	101.0	5251	52	B1-U0-G1
			II-FR	16348	126	B3-U0-G2	17648	136	B3-U0-G2	18577	144	B3-U0-G2	19506	151	B3-U0-G2		5286	52	B1-U0-G1
			II-ML	16240	126	B4-U0-G4	17532	135	B4-U0-G4	18454	143	B4-U0-G4	19377	150	B4-U0-G4		5251	52	B2-U0-G2
			III-M	16523	128	B3-U0-G3	17837	138	B3-U0-G3	18776	145	B3-U0-G3	19715	152	B3-U0-G3		5343	53	B1-U0-G2
			III-W	15341	119	B2-U0-G3	16562	128	B3-U0-G3	17433	135	B3-U0-G3	18305	141	B3-U0-G3		4961	49	B1-U0-G2
			IV	16398	127	B3-U0-G3	17703	137	B3-U0-G3	18635	144	B3-U0-G3	19566	151	B3-U0-G3		5302	52	B1-U0-G1
			IV-FT	14938	115	B3-U0-G3	16127	125	B3-U0-G4	16976	131	B3-U0-G4	17824	138	B3-U0-G4		4830	48	B1-U0-G2
			VSQ-N	17140	132	B4-U0-G2	18504	143	B4-U0-G2	19477	151	B4-U0-G2	20451	158	B4-U0-G2		5542	55	B2-U0-G1
			VSQ-M	16807	130	B4-U0-G2	18144	140	B4-U0-G2	19099	148	B4-U0-G2	20053	155	B4-U0-G2		5434	54	B3-U0-G1
			VSQ-W	16406	127	B4-U0-G3	17711	137	B5-U0-G3	18643	144	B5-U0-G3	19575	151	B5-U0-G3		5304	53	B3-U0-G2
			II-HS	11877	92	B1-U0-G2	12821	99	B1-U0-G2	13496	104	B1-U0-G3	14171	110	B1-U0-G3		3841	38	B0-U0-G1
			II-FR-HS	12081	93	B1-U0-G2	13042	101	B1-U0-G2	13728	106	B1-U0-G2	14414	111	B1-U0-G2		3906	39	B0-U0-G1
			III-M-HS	12016	93	B1-U0-G3	12971	100	B1-U0-G3	13654	106	B1-U0-G3	14337	111	B1-U0-G3		3885	38	B0-U0-G1
			III-W-HS	11760	91	B1-U0-G3	12696	98	B1-U0-G3	13364	103	B1-U0-G3	14032	108	B1-U0-G3		3803	38	B0-U0-G2
			IV-HS	12411	96	B1-U0-G2	13398	104	B1-U0-G3	14103	109	B1-U0-G3	14808	114	B1-U0-G3		4013	40	B0-U0-G1
			IV-FT-HS	11729	91	B1-U0-G3	12662	98	B1-U0-G3	13328	103	B1-U0-G3	13995	108	B1-U0-G4		3792	38	B0-U0-G2
80	700	173.6	II	20595	119	B3-U0-G3	22232	128	B3-U0-G3	23403	135	B3-U0-G3	24573	142	B3-U0-G3	N/A	N/A		
			II-FR	20732	119	B3-U0-G2	22381	129	B3-U0-G2	23559	136	B3-U0-G2	24736	142	B3-U0-G2				
			II-ML	20595	119	B4-U0-G4	22233	128	B4-U0-G4	23403	135	B4-U0-G4	24573	142	B4-U0-G4				
			III-M	20954	121	B3-U0-G3	22621	130	B3-U0-G3	23812	137	B3-U0-G4	25003	144	B3-U0-G4				
			III-W	19456	112	B3-U0-G4	21003	121	B3-U0-G4	22109	127	B3-U0-G4	23214	134	B3-U0-G4				
			IV	20797	120	B3-U0-G3	22451	129	B3-U0-G3	23633	136	B3-U0-G3	24814	143	B3-U0-G4				
			IV-FT	18945	109	B3-U0-G4	20452	118	B3-U0-G4	21528	124	B3-U0-G4	22604	130	B3-U0-G4				
			VSQ-N	21737	125	B4-U0-G2	23466	135	B4-U0-G2	24701	142	B4-U0-G2	25936	149	B4-U0-G2				
			VSQ-M	21314	123	B5-U0-G3	23010	133	B5-U0-G3	24221	140	B5-U0-G3	25432	146	B5-U0-G3				
			VSQ-W	20806	120	B5-U0-G3	22461	129	B5-U0-G4	23643	136	B5-U0-G4	24825	143	B5-U0-G4				
			II-HS	15062	87	B1-U0-G3	16260	94	B1-U0-G3	17115	99	B1-U0-G3	17971	104	B1-U0-G3				
			II-FR-HS	15321	88	B1-U0-G2	16539	95	B1-U0-G2	17410	100	B1-U0-G2	18280	105	B1-U0-G2				
			III-M-HS	15238	88	B1-U0-G3	16450	95	B1-U0-G3	17315	100	B1-U0-G3	18181	105	B1-U0-G4				
			III-W-HS	14915	86	B1-U0-G4	16101	93	B1-U0-G4	16948	98	B1-U0-G4	17796	103	B1-U0-G4				
			IV-HS	15739	91	B1-U0-G3	16991	98	B1-U0-G3	17885	103	B1-U0-G3	18780	108	B1-U0-G3				
			IV-FT-HS	14874	86	B1-U0-G4	16058	92	B1-U0-G4	16903	97	B1-U0-G4	17748	102	B1-U0-G4				
80	875	215.9	II	23798	110	B3-U0-G3	25691	119	B3-U0-G3	27043	125	B3-U0-G4	28395	132	B3-U0-G4	N/A	N/A		
			II-FR	23957	111	B3-U0-G2	25862	120	B3-U0-G2	27223	126	B3-U0-G2	28585	132	B4-U0-G2				
			II-ML	23799	110	B4-U0-G4	25692	119	B4-U0-G4	27044	125	B4-U0-G4	28396	132	B4-U0-G4				
			III-M	24214	112	B3-U0-G4	26140	121	B3-U0-G4	27516	127	B3-U0-G4	28892	134	B3-U0-G4				
			III-W	22482	104	B3-U0-G4	24270	112	B3-U0-G4	25548	118	B3-U0-G4	26825	124	B3-U0-G4				
			IV	24032	111	B3-U0-G3	25943	120	B3-U0-G4	27309	126	B3-U0-G4	28674	133	B3-U0-G4				
			IV-FT	21892	101	B3-U0-G4	23634	109	B3-U0-G5	24877	115	B3-U0-G5	26121	121	B3-U0-G5				
			VSQ-N	25118	116	B4-U0-G2	27116	126	B5-U0-G2	28543	132	B5-U0-G2	29970	139	B5-U0-G2				
			VSQ-M	24630	114	B5-U0-G3	26589	123	B5-U0-G3	27988	130	B5-U0-G3	29387	136	B5-U0-G3				
			VSQ-W	24042	111	B5-U0-G4	25954	120	B5-U0-G4	27321	127	B5-U0-G4	28686	133	B5-U0-G4				
			II-HS	17405	81	B1-U0-G3	18789	87	B1-U0-G3	19778	92	B1-U0-G4	20766	96	B2-U0-G4				
			II-FR-HS	17704	82	B1-U0-G2	19112	89	B1-U0-G2	20118	93	B1-U0-G2	21124	98	B1-U0-G2				
			III-M-HS	17608	82	B1-U0-G4	19008	88	B1-U0-G4	20009	93	B1-U0-G4	21009	97	B1-U0-G4				
			III-W-HS	17234	80	B1-U0-G4	18605	86	B1-U0-G4	19584	91	B1-U0-G4	20564	95	B1-U0-G4				
			IV-HS	18187	84	B1-U0-G3	19634	91	B1-U0-G4	20667	96	B1-U0-G4	21701	101	B1-U0-G4				
			IV-FT-HS	17188	80	B1-U0-G4	18555	86	B1-U0-G4	19532	90	B1-U0-G4	20509	95	B1-U0-G4				
80	1050	256.4	II	27354	107	B3-U0-G4	29530	115	B4-U0-G4	31084	121	B4-U0-G4	32638	127	B4-U0-G4	N/A	N/A		
			II-FR	27536	107	B3-U0-G2	29727	116	B4-U0-G2	31291	122	B4-U0-G2	32856	128	B4-U0-G2				
			II-ML	27355	107	B4-U0-G4	29531	115	B5-U0-G5	31085	121	B5-U0-G5	32639	127	B5-U0-G5				
			III-M	27832	109	B3-U0-G4	30046	117	B3-U0-G4	31627	123	B4-U0-G4	33209	130	B4-U0-G4				
			III-W	25841	101	B3-U0-G4	27897	109	B3-U0-G4	29365	115	B3-U0-G5	30834	120	B3-U0-G5				
			IV	27622	108	B3-U0-G4	29820	116	B3-U0-G4	31389	122	B4-U0-G4	32959	129	B4-U0-G4				
			IV-FT	25163	98	B3-U0-G5	27165	106	B3-U0-G5	28595	112	B3-U0-G5	30024	117	B3-U0-G5				
			VSQ-N	28871	113	B5-U0-G2	31168	122	B5-U0-G2	32808	128	B5-U0-G2	34448	134	B5-U0-G2				
			VSQ-M	28310	110	B5-U0-G3	30561	119	B5-U0-G3	32170	125	B5-U0-G4	33779	132	B5-U0-G4				
			VSQ-W	27634	108	B5-U0-G4	29833	116	B5-U0-G4	31403	122	B5-U0-G5	32973	129	B5-U0-G5				
			II-HS	20005	78	B1-U0-G4	21596	84	B2-U0-G4	22733	89	B2-U0-G4	23870	93	B2-U0-G4				
			II-FR-HS	20349	79	B1-U0-G2	21968	86	B1-U0-G2	23124	90	B1-U0-G2	24280	95	B1-U0-G2				
			III-M-HS	20239	79	B1-U0-G4	21848	85	B1-U0-G4	22998	90	B1-U0-G4	24148	94	B1-U0-G4				
			III-W-HS	19809	77	B1-U0-G4	21385	83	B1-U0-G4	22511	88	B1-U0-G4	23636	92	B1-U0-G5				
			IV-HS	20905	82	B1-U0-G4	22568	88	B1-U0-G4	23756	93	B1-U0-G4	24943	97	B1-U0-G4				
			IV-FT-HS	19756	77	B1-U0-G4	21328	83	B1-U0-G4	22451	88	B1-U0-G5	23573	92	B1-U0-G5				

RZR SERIES - LED

PHOTOMETRIC DATA GUIDE - LUMEN TABLES (RZRG-PLED)

RZR-G-PLED																			
LED Count	Drive Current (mA)	System Watts	Dist'n Type	27K (2700K - 70CRI)			30K (3000K - 70CRI)			40K (4000K - 70CRI)			50K (5000K - 70CRI)			System Watts	TRA (590nm)		
				LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING		LUMENS	LPW	BUG RATING
80	350	87.0	II	11409	131	B2-U0-G2	12317	142	B2-U0-G2	12965	149	B2-U0-G2	13613	156	B2-U0-G2	67.0	4528	68	B1-U0-G1
			II-FR	11485	132	B3-U0-G1	12398	143	B3-U0-G1	13051	150	B3-U0-G1	13703	158	B3-U0-G1		4558	68	B1-U0-G1
			II-ML	11409	131	B3-U0-G3	12317	142	B3-U0-G3	12965	149	B3-U0-G3	13613	156	B3-U0-G3		4528	68	B2-U0-G2
			II-M	11608	133	B2-U0-G2	12531	144	B2-U0-G2	13191	152	B2-U0-G2	13850	159	B2-U0-G2		4553	68	B1-U0-G1
			II-W	10778	124	B2-U0-G3	11635	134	B2-U0-G3	12248	141	B2-U0-G3	12860	148	B2-U0-G3		4276	64	B1-U0-G2
			IV	11520	132	B2-U0-G2	12437	143	B2-U0-G2	13091	150	B2-U0-G2	13746	158	B2-U0-G2		4572	68	B1-U0-G1
			IV-FT	10494	121	B2-U0-G3	11330	130	B2-U0-G3	11926	137	B2-U0-G3	12522	144	B2-U0-G3		4165	62	B1-U0-G1
			VSQ-N	12041	138	B3-U0-G1	12999	149	B3-U0-G1	13683	157	B3-U0-G1	14367	165	B3-U0-G1		4779	71	B2-U0-G1
			VSQ-M	11808	136	B4-U0-G2	12747	147	B4-U0-G2	13418	154	B4-U0-G2	14089	162	B4-U0-G2		4686	70	B3-U0-G1
			VSQ-W	11526	132	B4-U0-G3	12443	143	B4-U0-G3	13097	151	B4-U0-G3	13752	158	B4-U0-G3		4574	68	B3-U0-G2
			II-HS	8464	97	B1-U0-G2	9138	105	B1-U0-G2	9618	111	B1-U0-G2	10099	116	B1-U0-G2		3359	50	B0-U0-G1
			II-FR-HS	8609	99	B1-U0-G1	9294	107	B1-U0-G1	9783	112	B1-U0-G1	10274	118	B1-U0-G1		3417	51	B0-U0-G1
			III-M-HS	8563	98	B1-U0-G2	9244	106	B1-U0-G2	9731	112	B1-U0-G2	10217	117	B1-U0-G2		3398	51	B0-U0-G1
			III-W-HS	8382	96	B1-U0-G2	9048	104	B1-U0-G2	9525	109	B1-U0-G3	10001	115	B1-U0-G3		3326	50	B0-U0-G1
			IV-HS	8845	102	B1-U0-G2	9548	110	B1-U0-G2	10051	116	B1-U0-G2	10553	121	B1-U0-G2		3510	52	B0-U0-G1
			IV-FT-HS	8359	96	B1-U0-G3	9024	104	B1-U0-G3	9499	109	B1-U0-G3	9974	115	B1-U0-G3		3317	50	B0-U0-G2
80	525	129.0	II	16394	127	B3-U0-G3	17698	137	B3-U0-G3	18629	144	B3-U0-G3	19560	152	B3-U0-G3	101.0	5301	52	B1-U0-G1
			II-FR	16503	128	B3-U0-G2	17816	138	B3-U0-G2	18753	145	B3-U0-G2	19691	153	B3-U0-G2		5336	53	B1-U0-G1
			II-ML	16394	127	B4-U0-G4	17698	137	B4-U0-G4	18630	144	B4-U0-G4	19561	152	B4-U0-G4		5302	52	B2-U0-G2
			II-M	16680	129	B3-U0-G3	14740	114	B2-U0-G2	18955	147	B3-U0-G3	19902	154	B3-U0-G3		5343	53	B1-U0-G2
			III-W	15488	120	B2-U0-G3	16720	130	B3-U0-G3	17600	136	B3-U0-G3	18479	143	B3-U0-G4		5008	50	B1-U0-G2
			IV	16555	128	B3-U0-G3	17871	139	B3-U0-G3	18812	146	B3-U0-G3	19753	153	B3-U0-G3		5353	53	B1-U0-G1
			IV-FT	15081	117	B3-U0-G3	16280	126	B3-U0-G3	17137	133	B3-U0-G3	17994	139	B3-U0-G3		4877	48	B1-U0-G2
			VSQ-N	17303	134	B4-U0-G2	18679	145	B4-U0-G2	19663	152	B4-U0-G2	20646	160	B4-U0-G2		5595	55	B2-U0-G1
			VSQ-M	16967	132	B4-U0-G2	18317	142	B4-U0-G2	19281	149	B4-U0-G2	20245	157	B4-U0-G2		5486	54	B3-U0-G1
			VSQ-W	16562	128	B4-U0-G3	17880	139	B5-U0-G3	18821	146	B5-U0-G3	19762	153	B5-U0-G3		5355	53	B3-U0-G2
			II-HS	12089	94	B1-U0-G2	13052	101	B1-U0-G3	13738	106	B1-U0-G3	14425	112	B1-U0-G3		3909	39	B0-U0-G1
			II-FR-HS	12298	95	B1-U0-G2	13276	103	B1-U0-G2	13975	108	B1-U0-G2	14674	114	B1-U0-G2		3977	39	B0-U0-G1
			III-M-HS	12231	95	B1-U0-G3	13204	102	B1-U0-G3	13899	108	B1-U0-G3	14594	113	B1-U0-G3		3954	39	B0-U0-G1
			III-W-HS	11971	93	B1-U0-G3	12924	100	B1-U0-G3	13604	105	B1-U0-G3	14284	111	B1-U0-G3		3871	38	B0-U0-G2
			IV-HS	12633	98	B1-U0-G2	13638	106	B1-U0-G3	14356	111	B1-U0-G3	15074	117	B1-U0-G3		4085	40	B0-U0-G1
			IV-FT-HS	11940	93	B1-U0-G3	12889	100	B1-U0-G3	13568	105	B1-U0-G3	14246	110	B1-U0-G4		3861	38	B0-U0-G2
80	700	174.0	II	20914	120	B3-U0-G3	22578	130	B3-U0-G3	23766	137	B3-U0-G3	24955	143	B3-U0-G3	N/A	N/A		
			II-FR	21054	121	B3-U0-G2	22729	131	B3-U0-G2	23924	137	B3-U0-G2	25121	144	B3-U0-G2				
			II-ML	20915	120	B4-U0-G4	22579	130	B4-U0-G4	23767	137	B4-U0-G4	24955	143	B4-U0-G4				
			II-M	21280	122	B3-U0-G3	22972	132	B3-U0-G3	24182	139	B3-U0-G4	25391	146	B3-U0-G4				
			III-W	19759	114	B3-U0-G4	21330	123	B3-U0-G4	22453	129	B3-U0-G4	23575	135	B3-U0-G4				
			IV	21120	121	B3-U0-G3	22800	131	B3-U0-G3	24000	138	B3-U0-G3	25200	145	B3-U0-G4				
			IV-FT	19239	111	B3-U0-G4	20770	119	B3-U0-G4	21862	126	B3-U0-G4	22956	132	B3-U0-G4				
			VSQ-N	22074	127	B4-U0-G2	23831	137	B4-U0-G2	25084	144	B4-U0-G2	26339	151	B4-U0-G2				
			VSQ-M	21646	124	B5-U0-G3	23367	134	B5-U0-G3	24598	141	B5-U0-G3	25827	148	B5-U0-G3				
			VSQ-W	21129	121	B5-U0-G4	22810	131	B5-U0-G4	24010	138	B5-U0-G4	25212	145	B5-U0-G4				
			II-HS	15363	88	B1-U0-G3	16586	95	B1-U0-G3	17458	100	B1-U0-G3	18332	105	B1-U0-G3				
			II-FR-HS	15628	90	B1-U0-G2	16872	97	B1-U0-G2	17759	102	B1-U0-G2	18647	107	B1-U0-G2				
			III-M-HS	15542	89	B1-U0-G3	16778	96	B1-U0-G3	17662	102	B1-U0-G4	18545	107	B1-U0-G4				
			III-W-HS	15213	87	B1-U0-G4	16423	94	B1-U0-G4	17288	99	B1-U0-G4	18152	104	B1-U0-G4				
			IV-HS	16055	92	B1-U0-G3	17331	100	B1-U0-G3	18244	105	B1-U0-G3	19155	110	B1-U0-G3				
			IV-FT-HS	15172	87	B1-U0-G4	16380	94	B1-U0-G4	17242	99	B1-U0-G4	18104	104	B1-U0-G4				
80	875	219.7	II	25063	114	B3-U0-G3	27057	123	B3-U0-G4	28481	130	B3-U0-G4	29905	136	B4-U0-G4	N/A	N/A		
			II-FR	25230	115	B3-U0-G2	27237	124	B3-U0-G2	28670	130	B4-U0-G2	30104	137	B4-U0-G2				
			II-ML	25064	114	B4-U0-G4	27057	123	B4-U0-G4	28481	130	B4-U0-G4	29906	136	B5-U0-G5				
			III-M	25501	116	B3-U0-G4	27529	125	B3-U0-G4	28978	132	B3-U0-G4	30427	138	B3-U0-G4				
			III-W	23677	108	B3-U0-G4	25560	116	B3-U0-G4	26906	122	B3-U0-G4	28251	129	B3-U0-G4				
			IV	25309	115	B3-U0-G4	27322	124	B3-U0-G4	28760	131	B3-U0-G4	30198	137	B3-U0-G4				
			IV-FT	23056	105	B3-U0-G4	24889	113	B3-U0-G4	26200	119	B3-U0-G4	27509	125	B3-U0-G4				
			VSQ-N	26453	120	B4-U0-G2	28557	130	B5-U0-G2	30060	137	B5-U0-G2	31563	144	B5-U0-G2				
			VSQ-M	25939	118	B5-U0-G3	28002	127	B5-U0-G3	29476	134	B5-U0-G3	30950	141	B5-U0-G3				
			VSQ-W	25320	115	B5-U0-G4	27335	124	B5-U0-G4	28773	131	B5-U0-G4	30212	138	B5-U0-G4				
			II-HS	18330	83	B1-U0-G3	19788	90	B1-U0-G4	20830	95	B2-U0-G4	21871	100	B2-U0-G4				
			II-FR-HS	18645	85	B1-U0-G2	20128	92	B1-U0-G2	21188	96	B1-U0-G2	22247	101	B1-U0-G2				
			III-M-HS	18543	84	B1-U0-G4	20018	91	B1-U0-G4	21072	96	B1-U0-G4	22125	101	B1-U0-G4				
			III-W-HS	18151	83	B1-U0-G4	19594	89	B1-U0-G4	20626	94	B1-U0-G4	21657	99	B1-U0-G4				
			IV-HS	19154	87	B1-U0-G3	20677	94	B1-U0-G4	21766	99	B1-U0-G4	22854	104	B1-U0-G4				
			IV-FT-HS	18102	82	B1-U0-G4	19541	89	B1-U0-G4	20571	94	B1-U0-G4	21599	98	B1-U0-G4				
80	1050	266.0	II	28808	108	B4-U0-G4	31099	117	B4-U0-G4	32736	123	B4-U0-G4	34373	129	B4-U0-G4	N/A	N/A		
			II-FR	29000	109	B4-U0-G2	31306	118	B4-U0-G2	32954	124	B4-U0-G2	34602	130	B4-U0-G2				
			II-ML	28809	108	B5-U0-G5	31100	117	B5-U0-G5	32737	123	B5-U0-G5	34374	129	B5-U0-G5				
			III-M	29311	110	B3-U0-G4	31643	119	B4-U0-G4	33308	125	B4-U0-G4	34974	131	B4-U0-G4				
			III-W	27215	102	B3-U0-G4	29380	110	B3-U0-G5	30926	116	B3-U0-G5	32473	122	B3-U0-G5				
			IV	29091	109	B3-U0-G4	31404	118	B4-U0-G4	33058	124	B4-U0-G4	34710	130	B4-U0-G4				
			IV-FT	26501	100	B3-U0-G4	28608	108	B3-U0-G4	30114	113	B3-U0-G5	31620	119	B3-U0-G5				
			VSQ-N	30405	114	B5-U0-G2	32824	123	B5-U0-G2	34551	130	B5-U0-G2	36279	136	B5-U0-G2				
			VSQ-M	29815	112	B5-U0-G3	32186	121	B5-U0-G4	33880	127	B5-U0-G4	35575	134	B5-U0-G4				
			VSQ-W	29104	109	B5-U0-G4	31419	118	B5-U0-G5	33073	124	B5-U0-G5	34726	131	B5-U0-G5				
			II-HS	21069	79	B2-U0-G4	22745	86	B2-U0-G4	23942	90	B2-U0-G4	25139	95	B2-U0-G4				
			II-FR-HS	21432	81	B1-U0-G2	23136	87	B1-U0-G2	24354	92	B1-U0-G2	25571	96	B2-U0-G2				
			III-M-HS	21314	80	B1-U0-G4	23009	87	B1-U0-G4	24220	91	B1-U0-G4	25431	96	B1-U0-G4				
			III-W-HS	20862	78	B1-U0-G4	22521	85	B1-U0-G4	23708	89	B1-U0-G5	24893	94	B1-U0-G5				
			IV-HS	22016	83	B1-U0-G4	23766	89	B1-U0-G4	25018	94	B1-U0-G4	26268	99	B1-U0-G4				
			IV-FT-HS	20807	78	B1-U0-G4	22461	84	B1-U0-G5	23644	89	B1-U0-G5	24826	93	B1-U0-G5				



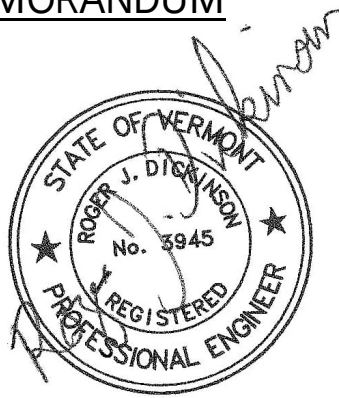
RZR SERIES - LED

PHOTOMETRIC DATA GUIDE - LUMEN TABLES (RZRG-PLED)

RZR-G-PLED																			
LED Count	Drive Current (mA)	System Watts	Dist'n Type	27K (2700K - 70CRI)			30K (3000K - 70CRI)			40K (4000K - 70CRI)			50K (5000K - 70CRI)			System Watts	TRA (590nm)		
				LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING	LUMENS	LPW	BUG RATING		LUMENS	LPW	BUG RATING
120	350	130.0	II	16889	130	B3-U0-G3	18233	140	B3-U0-G3	19192	148	B3-U0-G3	20152	155	B3-U0-G3	100.0	6702	67	B2-U0-G2
			II-FR	17001	131	B3-U0-G2	18354	141	B3-U0-G2	19320	149	B3-U0-G2	20286	156	B3-U0-G2		6747	67	B2-U0-G1
			II-ML	16890	130	B4-U0-G4	18233	140	B4-U0-G4	19193	148	B4-U0-G4	20152	155	B4-U0-G4		6703	67	B3-U0-G3
			II-M	17184	132	B3-U0-G3	18552	143	B3-U0-G3	19527	150	B3-U0-G3	20504	158	B3-U0-G3		6818	68	B2-U0-G2
			III-W	15956	123	B3-U0-G3	17224	132	B3-U0-G3	18131	139	B3-U0-G3	19037	146	B3-U0-G4		6331	63	B1-U0-G2
			IV	17055	131	B3-U0-G3	18411	142	B3-U0-G3	19381	149	B3-U0-G3	20349	157	B3-U0-G3		6768	68	B2-U0-G2
			IV-FT	15537	120	B3-U0-G3	16772	129	B3-U0-G3	17655	136	B3-U0-G3	18538	143	B3-U0-G4		6165	62	B1-U0-G2
			VSQ-N	17825	137	B4-U0-G2	19243	148	B4-U0-G2	20256	156	B4-U0-G2	21269	164	B4-U0-G2		7073	71	B2-U0-G1
			VSQ-M	17480	134	B4-U0-G2	18870	145	B4-U0-G2	19863	153	B4-U0-G2	20857	160	B4-U0-G2		6936	69	B3-U0-G1
			VSQ-W	17062	131	B5-U0-G3	18420	142	B5-U0-G3	19389	149	B5-U0-G3	20358	157	B5-U0-G3		6771	68	B3-U0-G2
			II-HS	12352	95	B1-U0-G2	13334	103	B1-U0-G3	14036	108	B1-U0-G3	14738	113	B1-U0-G3		4901	49	B1-U0-G2
			II-FR-HS	12564	97	B1-U0-G2	13564	104	B1-U0-G2	14277	110	B1-U0-G2	14992	115	B1-U0-G2		4986	50	B0-U0-G1
			III-M-HS	12496	96	B1-U0-G3	13490	104	B1-U0-G3	14199	109	B1-U0-G3	14910	115	B1-U0-G3		4959	50	B0-U0-G2
			III-W-HS	12231	94	B1-U0-G3	13204	102	B1-U0-G3	13899	107	B1-U0-G3	14594	112	B1-U0-G3		4853	49	B0-U0-G2
			IV-HS	12907	99	B1-U0-G3	13934	107	B1-U0-G3	14667	113	B1-U0-G3	15400	118	B1-U0-G3		5122	51	B0-U0-G2
			IV-FT-HS	12198	94	B1-U0-G3	13168	101	B1-U0-G3	13862	107	B1-U0-G4	14555	112	B1-U0-G4		4840	48	B0-U0-G2
120	525	192.0	II	24123	126	B3-U0-G3	26042	136	B3-U0-G3	27413	143	B3-U0-G4	28783	150	B4-U0-G4	152.0	7800	51	B2-U0-G2
			II-FR	24284	126	B3-U0-G2	26216	137	B3-U0-G2	27596	144	B3-U0-G2	28975	151	B4-U0-G2		7853	52	B2-U0-G1
			II-ML	24124	126	B4-U0-G4	26042	136	B4-U0-G4	27414	143	B4-U0-G4	28784	150	B5-U0-G5		7800	51	B3-U0-G3
			II-M	24545	128	B3-U0-G4	26498	138	B3-U0-G4	27892	145	B3-U0-G4	29287	153	B3-U0-G4		7937	52	B2-U0-G2
			III-W	22789	119	B3-U0-G4	24603	128	B3-U0-G4	25897	135	B3-U0-G4	27192	142	B3-U0-G4		7368	48	B1-U0-G2
			IV	24360	127	B3-U0-G4	26298	137	B3-U0-G4	27682	144	B3-U0-G4	29066	151	B3-U0-G4		7876	52	B2-U0-G2
			IV-FT	22191	116	B3-U0-G4	23956	125	B3-U0-G4	25217	131	B3-U0-G4	26478	138	B3-U0-G4		7176	47	B1-U0-G2
			VSQ-N	25461	133	B4-U0-G2	27486	143	B5-U0-G2	28933	151	B5-U0-G2	30379	158	B5-U0-G2		8233	54	B3-U0-G1
			VSQ-M	24967	130	B5-U0-G3	26952	140	B5-U0-G3	28371	148	B5-U0-G3	29789	155	B5-U0-G3		8073	53	B3-U0-G2
			VSQ-W	24371	127	B5-U0-G4	26309	137	B5-U0-G4	27695	144	B5-U0-G4	29079	151	B5-U0-G4		7881	52	B3-U0-G2
			II-HS	17642	92	B1-U0-G3	19046	99	B1-U0-G3	20048	104	B1-U0-G4	21050	110	B2-U0-G4		5704	38	B1-U0-G2
			II-FR-HS	17946	93	B1-U0-G2	19373	101	B1-U0-G2	20393	106	B1-U0-G2	21413	112	B1-U0-G2		5803	38	B1-U0-G1
			III-M-HS	17848	93	B1-U0-G4	19268	100	B1-U0-G4	20282	106	B1-U0-G4	21296	111	B1-U0-G4		5772	38	B0-U0-G2
			III-W-HS	17470	91	B1-U0-G4	18860	98	B1-U0-G4	19852	103	B1-U0-G4	20844	109	B1-U0-G4		5649	37	B0-U0-G2
			IV-HS	18435	96	B1-U0-G3	19902	104	B1-U0-G4	20949	109	B1-U0-G4	21997	115	B1-U0-G4		5961	39	B0-U0-G2
			IV-FT-HS	17423	91	B1-U0-G4	18809	98	B1-U0-G4	19799	103	B1-U0-G4	20789	108	B1-U0-G4		5633	37	B0-U0-G2
120	700	260.0	II	30656	118	B4-U0-G4	33094	127	B4-U0-G4	34836	134	B4-U0-G4	36578	141	B4-U0-G4	N/A	N/A		
			II-FR	30860	119	B4-U0-G2	33315	128	B4-U0-G2	35068	135	B4-U0-G2	36822	142	B4-U0-G2				
			II-ML	30657	118	B5-U0-G5	33095	127	B5-U0-G5	34837	134	B5-U0-G5	36579	141	B5-U0-G5				
			II-M	31191	120	B4-U0-G4	33673	130	B4-U0-G4	35445	136	B4-U0-G4	37217	143	B4-U0-G4				
			III-W	28960	111	B3-U0-G4	31265	120	B3-U0-G5	32909	127	B3-U0-G5	34555	133	B3-U0-G5				
			IV	30956	119	B4-U0-G4	33418	129	B4-U0-G4	35177	135	B4-U0-G4	36936	142	B4-U0-G4				
			IV-FT	28200	108	B3-U0-G4	30444	117	B3-U0-G5	32046	123	B3-U0-G5	33648	129	B3-U0-G5				
			VSQ-N	32356	124	B5-U0-G2	34929	134	B5-U0-G2	36768	141	B5-U0-G2	38606	148	B5-U0-G2				
			VSQ-M	31727	122	B5-U0-G4	34250	132	B5-U0-G4	36054	139	B5-U0-G4	37856	146	B5-U0-G4				
			VSQ-W	30971	119	B5-U0-G4	33434	129	B5-U0-G5	35194	135	B5-U0-G5	36953	142	B5-U0-G5				
			II-HS	22420	86	B2-U0-G4	24203	93	B2-U0-G4	25478	98	B2-U0-G4	26751	103	B2-U0-G4				
			II-FR-HS	22806	88	B1-U0-G2	24619	95	B1-U0-G2	25916	100	B2-U0-G2	27212	105	B2-U0-G2				
			III-M-HS	22682	87	B1-U0-G4	24485	94	B1-U0-G4	25774	99	B1-U0-G4	27063	104	B1-U0-G4				
			III-W-HS	22201	85	B1-U0-G4	23967	92	B1-U0-G5	25228	97	B1-U0-G5	26489	102	B1-U0-G5				
			IV-HS	23428	90	B1-U0-G4	25291	97	B1-U0-G4	26622	102	B1-U0-G4	27953	108	B1-U0-G4				
			IV-FT-HS	22141	85	B1-U0-G5	23902	92	B1-U0-G5	25160	97	B1-U0-G5	26418	102	B1-U0-G5				
120	875	329.0	II	36574	111	B4-U0-G4	39483	120	B4-U0-G4	41561	126	B4-U0-G4	43639	133	B4-U0-G5	N/A	N/A		
			II-FR	36818	112	B4-U0-G2	39746	121	B4-U0-G2	41838	127	B4-U0-G3	43930	134	B4-U0-G3				
			II-ML	36575	111	B5-U0-G5	39485	120	B5-U0-G5	41562	126	B5-U0-G5	43640	133	B5-U0-G5				
			III-M	37213	113	B4-U0-G4	40174	122	B4-U0-G5	42288	129	B4-U0-G5	44402	135	B4-U0-G5				
			III-W	34552	105	B3-U0-G5	37300	113	B3-U0-G5	39263	119	B4-U0-G5	41226	125	B4-U0-G5				
			IV	36932	112	B4-U0-G4	39870	121	B4-U0-G5	41969	128	B4-U0-G5	44067	134	B4-U0-G5				
			IV-FT	33644	102	B3-U0-G5	36321	110	B3-U0-G5	38232	116	B4-U0-G5	40144	122	B4-U0-G5				
			VSQ-N	38602	117	B5-U0-G2	41673	127	B5-U0-G2	43866	133	B5-U0-G2	46060	140	B5-U0-G2				
			VSQ-M	37852	115	B5-U0-G4	40863	124	B5-U0-G4	43014	131	B5-U0-G4	45165	137	B5-U0-G4				
			VSQ-W	36950	112	B5-U0-G5	39888	121	B5-U0-G5	41988	128	B5-U0-G5	44088	134	B5-U0-G5				
			II-HS	26748	81	B2-U0-G4	28876	88	B2-U0-G4	30395	92	B2-U0-G4	31916	97	B2-U0-G5				
			II-FR-HS	27209	83	B2-U0-G2	29373	89	B2-U0-G2	30919	94	B2-U0-G2	32465	99	B2-U0-G3				
			III-M-HS	27060	82	B1-U0-G4	29213	89	B1-U0-G5	30750	93	B1-U0-G5	32287	98	B1-U0-G5				
			III-W-HS	26487	81	B1-U0-G5	28593	87	B1-U0-G5	30098	91	B1-U0-G5	31603	96	B1-U0-G5				
			IV-HS	27951	85	B1-U0-G4	30174	92	B1-U0-G4	31762	97	B1-U0-G5	33350	101	B1-U0-G5				
			IV-FT-HS	26416	80	B1-U0-G5	28517	87	B1-U0-G5	30018	91	B1-U0-G5	31519	96	B2-U0-G5				
120	1050	398.0	II	42039	106	B4-U0-G5	45383	114	B4-U0-G5	47771	120	B4-U0-G5	50160	126	B5-U0-G5	N/A	N/A		
			II-FR	42319	106	B4-U0-G3	45685	115	B4-U0-G3	48089	121	B4-U0-G3	50494	127	B4-U0-G3				
			II-ML	42040	106	B5-U0-G5	45384	114	B5-U0-G5	47773	120	B5-U0-G5	50161	126	B5-U0-G5				
			III-M	42774	107	B4-U0-G5	46177	116	B4-U0-G5	48606	122	B4-U0-G5	51037	128	B4-U0-G5				
			III-W	39714	100	B4-U0-G5	42873	108	B4-U0-G5	45130	113	B4-U0-G5	47387	119	B4-U0-G5				
			IV	42451	107	B4-U0-G5	45828	115	B4-U0-G5	48240	121	B4-U0-G5	50652	127	B4-U0-G5				
			IV-FT	38671	97	B4-U0-G5	41748	105	B4-U0-G5	43945	110	B4-U0-G5	46143	116	B4-U0-G5				
			VSQ-N	44370	111	B5-U0-G2	47899	120	B5-U0-G3	50421	127	B5-U0-G3	52942	133	B5-U0-G3				
			VSQ-M	43508	109	B5-U0-G4	46969	118	B5-U0-G4	49441	124	B5-U0-G4	51914	130	B5-U0-G5				
			VSQ-W	42471	107	B5-U0-G5	45849	115	B5-U0-G5	48262	121	B5-U0-G5	50676	127	B5-U0-G5				
			II-HS	30745	77	B2-U0-G4	33191	83	B2-U0-G5	34938	88	B2-U0-G5	36685	92	B2-U0-G5				
			II-FR-HS	31274	79	B2-U0-G3	33761	85	B2-U0-G3	35539	89	B2-U0-G3	37315	94	B2-U0-G3				
			III-M-HS	31104	78	B1-U0-G5	33578	84	B1-U0-G5	35345	89	B2-U0-G5	37112	93	B2-U0-G5				
			III-W-HS	30444	76	B1-U0-G5	32866	83	B1-U0-G5	34596	87	B1-U0-G5	36325	91	B2-U0-G5				
			IV-HS	32127	81	B1-U0-G5	34683	87	B2-U0-G5	36508	92	B2-U0-G5	38333	96	B2-U0-G5				
			IV-FT-HS	30363	76	B1-U0-G5	32777	82	B2-U0-G5	34504	87	B2-U0-G5	36229	91	B2-U0-G5				

TECHNICAL MEMORANDUM

Project: 453 Pine Street, Burlington
Date: March 24, 2023
By: Roger Dickinson, PE
Subject: Traffic Impact Assessment



Introduction

The 453 Pine development (the "Project") proposes to redevelop the property at 453 Pine St in Burlington with a one-story 7,305 sf commercial building and a three-story 24,000 sf spa / health & fitness facility.

The primary access to the Project will be via a private driveway located opposite Howard St. This driveway presently serves the former Maltex Building located at 431 Pine St. A second service access will be located $\pm 560'$ south on Pine St. New sidewalks will also connect to the City's existing sidewalk and shared-use path network.

This traffic impact assessment (TIA) examines existing and future traffic congestion conditions on the adjacent highway network in the vicinity of this Project, and analyzes the probable impacts that this Project will have on those conditions. The results of the requested analyses are presented in the following sections.

Adjacent Street Network

Pine St in the vicinity of the Project is a two-lane two-way urban street. Sidewalks are provided on both sides of Pine St, however there is gap across the Project's frontage on the west side over which there are presently sections of an old sidewalk and a dirt path. Additionally, an on-street bike lane presently exists on the west side of Pine St for southbound bicyclists. The Howard St intersection is stop-signed controlled on the Howard St approach. There is also a crosswalk and rectangular rapid flashing beacons (RRFB) to facilitate pedestrian travel crossing Pine St on the south side of the Howard St intersection.

Pine St and its intersections north of Lakeside Ave will be rebuilt and upgraded as part of the Champlain Parkway construction presently underway. The anticipated completion date of that work is 2024. When completed, Pine St will remain a two-lane two-way street, with on-street parallel parking on the east side, an off-street shared-use path along the west side, and a sidewalk along the east side. The Pine St / Howard St intersections will also be reconstructed as a raised intersection with crosswalks and RRFB's crossing Pine Street on both the north and south approaches. Lastly, the existing private driveway to the Maltex Building (which is presently offset to the north from Howard St) will be relocated to line up directly opposite Howard St.

Background Traffic Volumes

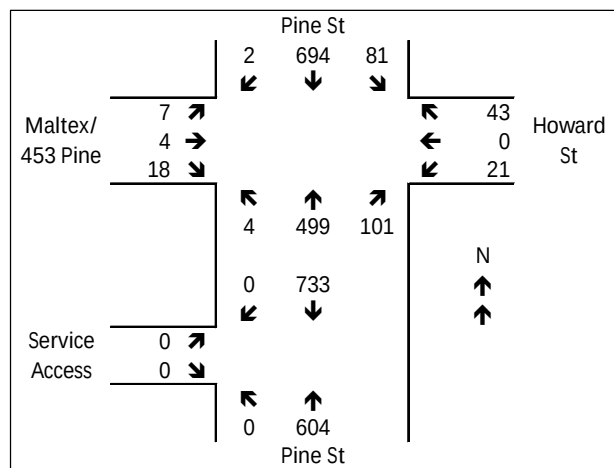
Background traffic volumes on Pine St were obtained from the traffic projections contained in the LSFSEIS¹ prepared for the Champlain Parkway, and from a Vermont Agency of Transportation (VTrans) turning movement count performed at the Pine St/Howard St intersection on June 25, 2014. Additional traffic volume data for Pine St was also obtained from a VTrans automatic traffic recorder count performed in June 2014 at Station D444, located between Howard St and Locust St.

The observed pm peak hour volumes from the above turning movement count were adjusted to estimated design hour volumes (DHV) for years 2024 (estimated project completion) and 2029 (project completion + 5 years). A DHV adjustment factor of +5.0% and background traffic growth factors of 1.5% (to 2024) and 4.0% (to 2029) were used. The resulting pm peak hour two-way traffic volumes on Pine St south of Howard St equal 1,255 vph (observed 2014 pm peak hour), 1,337 vph (2024 DHV) and 1,371 vph (2029 DHV).

Future completion of the final segments of the Champlain Parkway (including the I-189 - Home Ave and Kilburn St - Main St segments, the “full” Champlain Parkway) in 2027 are projected to add 235 vph to future Pine St pm peak hour traffic volumes (LSFSEIS pg 7-5). This will increase the projected 2029 DHV to 1,606 vph.

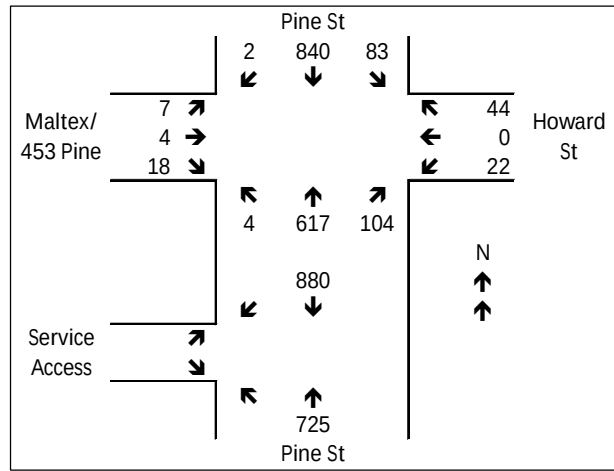
The resulting projected 2024 and 2029 background design hour volumes (representing the No-Build analysis scenarios) are shown in Figures 1 and 2, respectively.

Figure 1 - 2024 No-Build PM DHV
(without I-189 Champlain Parkway Connection)



¹ Burlington, Vermont Project MEGC-M5000(1) Southern Connector/Champlain Parkway Project, Chittenden County, Vermont, Limited Scope Final Supplemental Environmental Impact Statement, Federal Highway Administration, June 2020

Figure 2 - 2029 No-Build PM DHV
(with I-189 Champlain Parkway Connection)



Project-Generated Traffic

Anticipated peak hour trips for this Project were calculated using trip generation rates compiled by the Institute of Transportation Engineers (ITE) in *Trip Generation*² for the proposed land-uses. The resulting estimated trips were then adjusted using VTrans TDM guidance.³ With this Project being located in a mixed-use area having Walk/Bike and Transit Scores of 87 (very walkable and bikeable) and 42 (some transit), respectively, its peak hour trips can be reduced by 20%. Table 1 summarizes the resulting estimated weekday peak hour trip generation of this Project.

Table 1 - Weekday Peak Hour Trip Generation

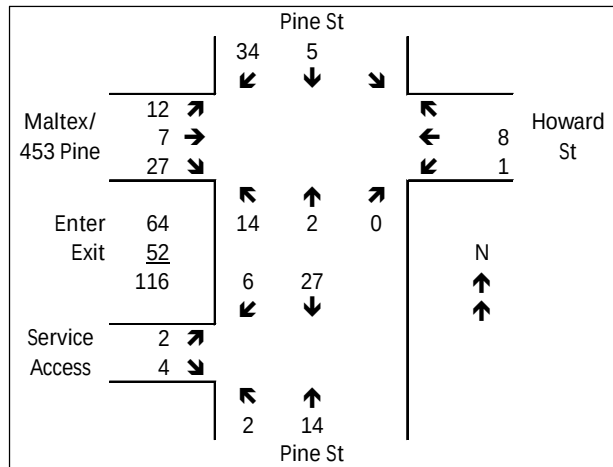
ITE Land-Use Category	Size	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
#492 – Health/Fitness Club	24,000 sf	16	15	31	55	41	96
#814 – Variety Store (Comm. Bldg.)	7,305 sf	12	10	22	25	24	49
Total Trips		28	25	53	80	65	145
20% TDM Credit		-6	-5	-11	-16	-13	-29
Total External Vehicle Trips		22	20	42	64	52	116

² *Trip Generation*, Institute of Transportation Engineers, 11th Edition

³ *Travel Demand Management (TDM) Guidance*, Vermont Agency of Transportation, February 2016 (Mixed Use/Moderate Transit area with a Walk Score => 60)

The directional distributions of peak hour project-generated trips were estimated using existing traffic patterns at the Pine St / Howard St intersection. The resulting directional distribution of pm peak hour project-generated trips is shown in Figure 3.

Figure 3 - Project-Generated PM Peak Hour Trip Distribution



Combining the project-generated trips with the No-Build volumes provides the 2024 and 2029 Build design hour volumes shown in Figures 4 and 5.

Figure 4 - 2024 Build PM DHV
(without I-189 Champlain Parkway Connection)

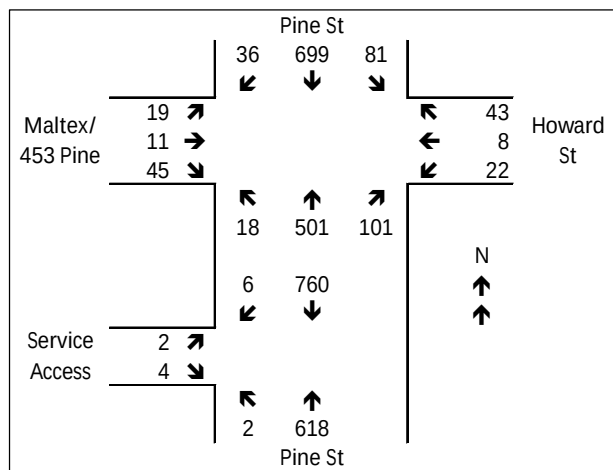
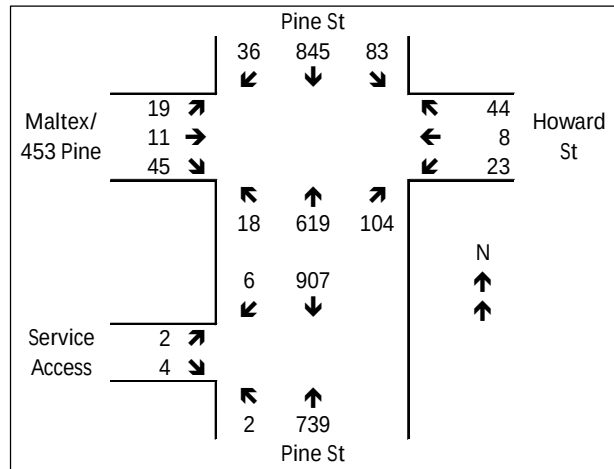


Figure 5 - 2029 Build PM DHV
(with I-189 Champlain Parkway Connection)



Traffic Congestion

Levels of service (LOS) at intersections are determined by the average control delay; measured in seconds per vehicle. The methodology for analyzing LOS is established by the *Highway Capacity Manual (HCM)*.⁴ Table 2 summarizes the LOS delay thresholds for intersections.

Table 2 - Unsignalized Intersection
Level of Service Criteria

LOS	Avg. Delay*	LOS	Avg. Delay*
A	≤10	D	≤35
B	≤15	E	≤50
C	≤25	F	>50

* seconds per vehicle

In Vermont, VTrans' level of service policy⁵ sets LOS D as the desired design standard for two-way stop controlled (unsignalized) intersections having greater than 100 vph approach volume on a single-lane side street approach or greater than 150 vph approach volume on a two-lane side street approach. There is no level of service standard for unsignalized intersections with lower than the above indicated side street volume thresholds. Future traffic volumes exiting Howard St and the Maltex driveway will be less than the thresholds for side street approaches, both with and without this Project. VTrans' LOS D traffic congestion design standard therefore does not apply at this location.

⁴ *Highway Capacity Manual*, Transportation Research Board, 6th Edition

⁵ Vermont Agency of Transportation Highway Design "Level of Service" Policy, May 31, 2007

Table 3 presents the results of intersection capacity analyses performed at the Pine St / Howard St intersection. All analyses were performed using *Synchro v.11* software. Detailed analysis reports are enclosed in Appendix A.

Table 3 - Intersection Levels of Service

Intersection / Approach	2024 PM No-Build			2024 PM Build		
	LOS	Delay	V/C	LOS	Delay	V/C
<u>Pine St / Howard St</u>						
Maltex Driveway EB	D	27.6	0.15	F	71.2	0.36
Maltex Driveway EB RT	-	-	-	B	14.4	0.11
Howard St WB	D	29.4	0.30	E	47.0	0.46
Pine St NB	A	0.1	0.00	A	0.3	0.02
Pine St SB	A	0.9	0.08	A	0.9	0.08
Intersection / Approach	2029 PM No-Build			2029 PM Build		
	LOS	Delay	V/C	LOS	Delay	V/C
<u>Pine St / Howard St</u>						
Maltex Driveway EB	E	44.5	0.25	F	>100	0.60
Maltex Driveway EB RT	-	-	-	C	16.6	0.13
Howard St WB	F	55.1	0.48	F	>100	0.77
Pine St NB	A	0.1	0.01	A	0.2	0.02
Pine St SB	A	0.9	0.09	A	0.8	0.09

The results of the intersection capacity analyses results indicate that traffic exiting the Maltex Driveway and the Howard St side street approaches will experience very long delays and poor levels of service during future pm peak hour traffic conditions.

A large majority of the traffic exiting Maltex Driveway turns right onto Pine St; both presently and proposed. With a single exit lane, those vehicles will otherwise be blocked by other exiting vehicles waiting to make a left-turn or to cross Pine St. To reduce the delays which would otherwise be experienced by that movement, the two “Build” intersection capacity analyses in Table 3 include a second right-turn exit lane. Such a lane is possible due to the Maltex Driveway being reconstructed as part of the Champlain Parkway construction to provide a 32 ft wide approach width, and can be accomplished by striping two 10 ft wide exit lanes plus one 12 ft wide enter lane on the Maltex Driveway approach. If wider (11 ft wide) exit lanes are desired, the Maltex Driveway approach would need to be widened to 34 ft.

TDM Strategies & Multi-Modal Connections

Travel demand management (TDM) strategies and encouraging the use of alternative travel modes are effective tools in mitigating future traffic congestion. Recognizing this, the City of Burlington has adopted TDM standards in its Comprehensive Development Ordinance. The Ordinance requires implementing specific strategies, including, but not limited to:

- Outreach and education to employees and customers.
- Designating a Transportation Coordinator.

- Offering free car share memberships and GMT Transit passes (see below) to employees for the first two years, and discounted at 50% thereafter.
- Membership in a Transportation Management Association is an acceptable alternative to the above two items.
- Implementing a parking management plan.
- Providing priority parking spaces for bicycles, scooters, motorcycles and carpool vehicles.

The Champlain Parkway improvements described earlier, which are presently under construction, were designed to encourage walkability and bikeability together with using alternative travel modes along the Pine St corridor. Regarding the latter, Green Mountain Transit provides local transit service along Pine Street at 30-minute headways between 6:30 am and 6:30 pm on weekdays and Saturday. Late evening transit service operates on weekdays and Saturday at greater headways. Transit service is also provided on Sundays between 8:00 am and 6:00 pm at 60-minute headways. Existing bus stops are located at the Pine St / Howard St intersection in both the northbound and southbound directions.

Conclusions

While the above results indicate that Pine St north of Lakeside Ave will experience traffic congestion during peak periods in the future, such conditions are not unexpected on a heavily traveled street located in a densely developed urban area. The Champlain Parkway improvements and application of TDM strategies will be important factors in encouraging the use of alternative travel modes and maintaining safe traffic conditions for all users along the Pine St corridor.

APPENDIX A

Intersection Capacity Analyses

Intersection

Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	4	18	21	0	43	4	499	101	81	694	2
Future Vol, veh/h	7	4	18	21	0	43	4	499	101	81	694	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	4	18	21	0	43	4	499	101	81	694	2

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1436	1465	695	1426	1416	550	696	0	0	600	0	0
Stage 1	857	857	-	558	558	-	-	-	-	-	-	-
Stage 2	579	608	-	868	858	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	111	128	442	113	137	535	900	-	-	977	-	-
Stage 1	352	374	-	514	512	-	-	-	-	-	-	-
Stage 2	501	486	-	347	374	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	91	110	442	94	118	535	900	-	-	977	-	-
Mov Cap-2 Maneuver	91	110	-	94	118	-	-	-	-	-	-	-
Stage 1	350	324	-	510	508	-	-	-	-	-	-	-
Stage 2	458	483	-	284	324	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	27.6		29.4		0.1		0.9	
HCM LOS	D		D					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	900	-	-	188	211	977	-	-
HCM Lane V/C Ratio	0.004	-	-	0.154	0.303	0.083	-	-
HCM Control Delay (s)	9	0	-	27.6	29.4	9	0	-
HCM Lane LOS	A	A	-	D	D	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.5	1.3	0.3	-	-

Intersection

Int Delay, s/veh	3.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	8	4	18	22	0	44	4	617	104	83	840	2
Future Vol, veh/h	8	4	18	22	0	44	4	617	104	83	840	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	4	18	22	0	44	4	617	104	83	840	2

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1706	1736	841	1695	1685	669	842	0	0	721	0	0
Stage 1	1007	1007	-	677	677	-	-	-	-	-	-	-
Stage 2	699	729	-	1018	1008	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	72	87	365	73	94	458	794	-	-	881	-	-
Stage 1	290	319	-	443	452	-	-	-	-	-	-	-
Stage 2	430	428	-	286	318	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	56	71	365	57	77	458	794	-	-	881	-	-
Mov Cap-2 Maneuver	56	71	-	57	77	-	-	-	-	-	-	-
Stage 1	287	263	-	439	448	-	-	-	-	-	-	-
Stage 2	385	424	-	220	262	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	44.5		55.1		0.1		0.9	
HCM LOS	E		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	794	-	-	121 137	881	-	-
HCM Lane V/C Ratio	0.005	-	-	0.248 0.482	0.094	-	-
HCM Control Delay (s)	9.6	0	-	44.5 55.1	9.5	0	-
HCM Lane LOS	A	A	-	E F	A	A	-
HCM 95th %tile Q(veh)	0	-	-	1 2.6	0.3	-	-

HCM 6th TWSC
3: Pine St & Maltex/#453/Howard St

2024 Build
PM DHV

Intersection

Int Delay, s/veh 4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	11	45	22	8	43	18	501	101	81	699	36
Future Vol, veh/h	19	11	45	22	8	43	18	501	101	81	699	36
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	11	45	22	8	43	18	501	101	81	699	36

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1492	1517	717	1495	1485	552	735	0	0	602	0	0
Stage 1	879	879	-	588	588	-	-	-	-	-	-	-
Stage 2	613	638	-	907	897	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	102	119	430	101	125	533	870	-	-	975	-	-
Stage 1	342	365	-	495	496	-	-	-	-	-	-	-
Stage 2	480	471	-	330	358	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	77	99	430	72	104	533	870	-	-	975	-	-
Mov Cap-2 Maneuver	77	99	-	72	104	-	-	-	-	-	-	-
Stage 1	331	314	-	479	480	-	-	-	-	-	-	-
Stage 2	420	456	-	245	308	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	37.1	47	0.3	0.9
HCM LOS	E	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	870	-	-	84	430	158	975	-	-
HCM Lane V/C Ratio	0.021	-	-	0.357	0.105	0.462	0.083	-	-
HCM Control Delay (s)	9.2	0	-	71.2	14.4	47	9	0	-
HCM Lane LOS	A	A	-	F	B	E	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	1.6	0.3	2.4	0.3	-	-

Intersection

Int Delay, s/veh 0.1

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations						
Traffic Vol, veh/h	2	4	2	618	760	6
Future Vol, veh/h	2	4	2	618	760	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	4	2	618	760	6

Major/Minor Minor2 Major1 Major2

Conflicting Flow All	1385	763	766	0	-	0
Stage 1	763	-	-	-	-	-
Stage 2	622	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	158	404	847	-	-	-
Stage 1	460	-	-	-	-	-
Stage 2	535	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	157	404	847	-	-	-
Mov Cap-2 Maneuver	157	-	-	-	-	-
Stage 1	458	-	-	-	-	-
Stage 2	535	-	-	-	-	-

Approach EB NB SB

HCM Control Delay, s	18.9	0	0
HCM LOS	C		

Minor Lane/Major Mvmt NBL NBT EBLn1 SBT SBR

Capacity (veh/h)	847	-	265	-	-
HCM Lane V/C Ratio	0.002	-	0.023	-	-
HCM Control Delay (s)	9.3	0	18.9	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

HCM 6th TWSC
3: Pine St & Maltex/#453/Howard St

2029 Build
PM DHV

Intersection

Int Delay, s/veh	9.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	11	45	23	8	44	18	619	104	83	845	36
Future Vol, veh/h	19	11	45	23	8	44	18	619	104	83	845	36
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	19	11	45	23	8	44	18	619	104	83	845	36

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1762	1788	863	1764	1754	671	881	0	0	723	0	0
Stage 1	1029	1029	-	707	707	-	-	-	-	-	-	-
Stage 2	733	759	-	1057	1047	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	66	81	354	66	85	456	767	-	-	879	-	-
Stage 1	282	311	-	426	438	-	-	-	-	-	-	-
Stage 2	412	415	-	272	305	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	45	63	354	42	66	456	767	-	-	879	-	-
Mov Cap-2 Maneuver	45	63	-	42	66	-	-	-	-	-	-	-
Stage 1	271	253	-	409	420	-	-	-	-	-	-	-
Stage 2	351	398	-	185	248	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	78.9		139.1		0.2		0.8	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	767	-	-	50	354	98	879	-	-
HCM Lane V/C Ratio	0.023	-	-	0.6	0.127	0.765	0.094	-	-
HCM Control Delay (s)	9.8	0	-	172.4	16.6	139.1	9.5	0	-
HCM Lane LOS	A	A	-	F	C	F	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	3.4	0.4	6.3	0.3	-	-

HCM 6th TWSC
6: Pine St & #453 Service

2029 Build
PM DHV

Intersection

Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	4	2	739	907	6
Future Vol, veh/h	2	4	2	739	907	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	4	2	739	907	6

Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	1653	910	913	0	-	0
Stage 1	910	-	-	-	-	-
Stage 2	743	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	108	333	746	-	-	-
Stage 1	393	-	-	-	-	-
Stage 2	470	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	107	333	746	-	-	-
Mov Cap-2 Maneuver	107	-	-	-	-	-
Stage 1	391	-	-	-	-	-
Stage 2	470	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	24	0	0
HCM LOS	C		

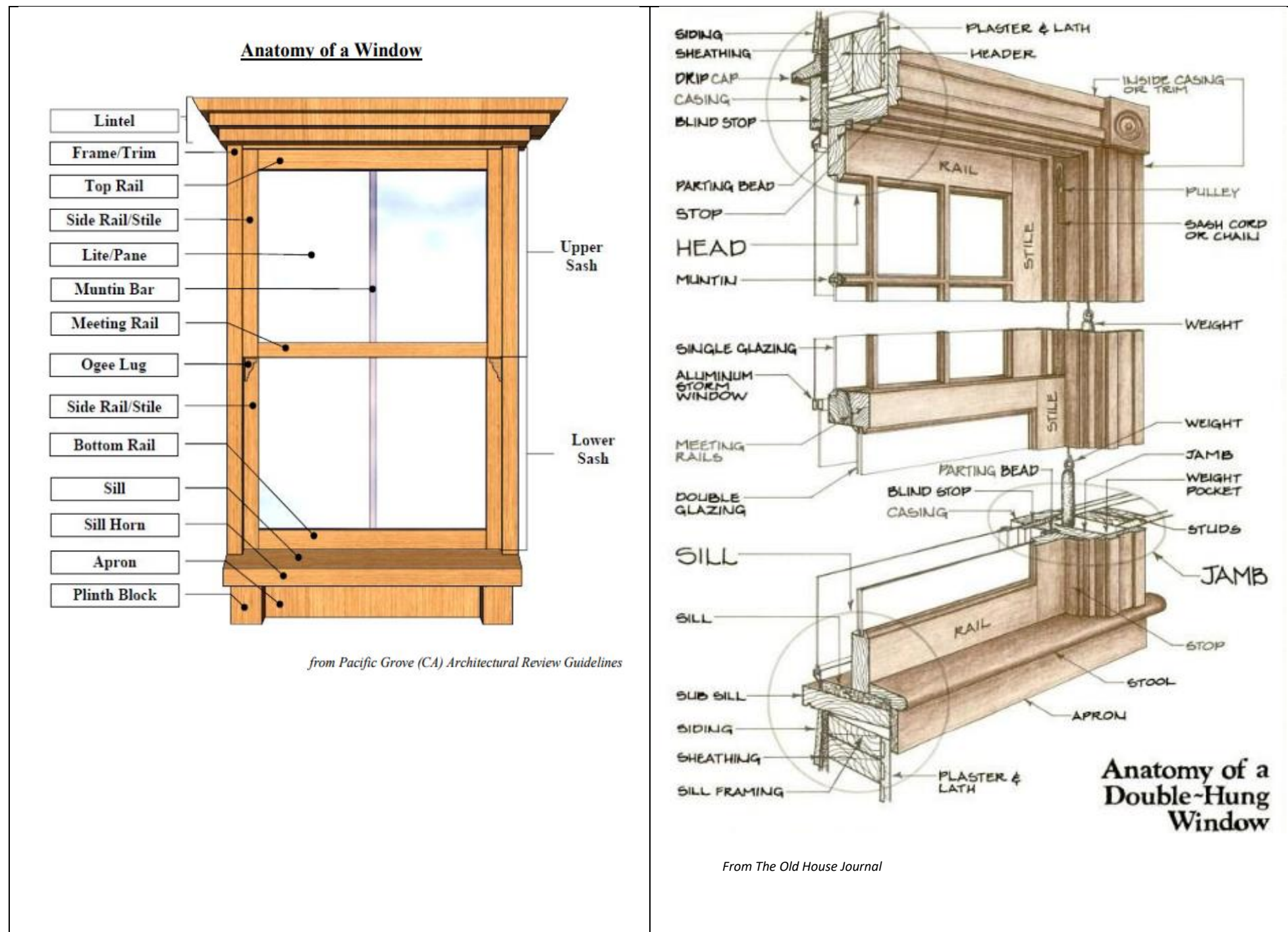
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	746	-	195	-	-
HCM Lane V/C Ratio	0.003	-	0.031	-	-
HCM Control Delay (s)	9.8	0	24	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Replacement Window Guidelines for Historic Buildings

For historic wood windows, the following shall be undertaken prior to consideration of replacement:

1. **First, Maintain** distinctive materials, features, finishes and construction techniques or examples of craftsmanship that characterize a property;
2. **Then, Repair** in kind deteriorated historic features rather than replace them whenever possible; and
3. **Finally, Replace** only what is beyond repair and where the severity of deterioration requires replacement.

Typical Historic Wood Window Details



When these alternatives have been considered, the following steps will guide the choice of replacement windows:

- Limited extent. Wholesale replacement of windows should only be considered in cases of failure.
- Match dimension and design, including profile, muntin/mullion pattern, size, stile and rail dimensions. Unusual or ornamental windows shall be retained. If not true divided light, factory-adhered muntins on the exterior are acceptable. Between-the-glass grilles are not acceptable.
- Retain or replicate exterior framing and trim.
- Match existing window style (i.e. double hung, awning, transom, etc). Replacement casement windows are acceptable with a factory-adhered dividing bar (and muntins pattern, as appropriate) to visually replicate the appearance of a double-hung window.

Replacement windows shall be of durable materials. Typically, wooden, clad wooden, and fiberglass windows meet this standard. Typically, vinyl windows do not meet this standard.

Burlington Design Advisory Board

Department of Permitting and Inspections

645 Pine Street

Burlington, VT 05401

<http://www.burlingtonvt.gov/DPI/Boards/Design-Advisory-Board/>

Telephone: (802) 865-7188

Ron Wanamaker

Emily Morse

Jack Qualey

Gabriel Stadecker

Jay White

Kathleen Ryan, Alternate

Michael Alvanos, Alternate



DESIGN ADVISORY BOARD Tuesday June 27, 2023 3:00 PM

Minutes

Present: Jack Qualey (left 4:10), Gabe Stadecker, Jay White.

Absent: Emily Morse, Kathleen Ryan (alternate), Ron Wanamaker, Michael Alvanos (alternate),

Staff present: Mary O'Neil, Scott Gustin & Garret King.

Guests: Jovial King, Kelley DesRoches (Wiehmann Lamphere), Doug Goldsmith, Jeff Kamuda, (Birdseye), John Gates, (Birdseye), rep. from Wagner Hodson (remote), Sharon Bushor.

Agenda

Session I – 3:00 PM – 3:30 PM

ZP-23-253; 453 Pine Street (E-LM, Ward 5S) Derrick Davis / Kelley DesRoches

Construction of 30,000 square foot health club (spa/bathhouse) and 12,400 square foot retail/commercial buildings with associated site improvements. (Project Manager, Mary O'Neil)

Motion by Jay White: I move we recommend approval as proposed, with a recommendation to soften the south parking lot to a crescent.

2nd – Jack Qualey

Vote 3-0

Motion carries.

Session II – 3:30 PM – 4:00 PM

ZP-23-249; 288 Maple Street (I, Ward 6S) Donna Carpenter / David Marshall

Renovation of both the single-family home and ADU. (Project Manager, Scott Gustin)

Motion by Jay White: I move we recommend approval as submitted.

2nd – Jack Qualey

Vote 3-0.

Motion carries

Session III – 4:00 PM – 4:30 PM

Historic Preservation Review Committee

Revisit Guidance for Replacement Windows in Historic Structures document.

The Board took no action on this item.

Adjournment 4:50 PM

The programs and services of the City of Burlington are accessible to people with disabilities. Individuals who require special arrangements to participate are encouraged to contact the Department of Planning & Zoning at least 72 hours in advance so that proper accommodations can be arranged. For information call 865-7188 (TTY users: 865-7142).