Mary O'Neil

From: Kimberlee Sturtevant
Sent: Tuesday, May 26, 2020 2:52 PM
To: Mary O'Neil
Subject: FW: Questions

Hi Mary,
Sorry not to get this to you sooner, but me email has been giving me trouble today. Below in red are my responses. Please let me know if you have any questions.
Thanks,
Kim

Kimberlee J. Sturtevant, Esq.
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Office of City Attorney & Corporation Counsel
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From: Mary O'Neil
Sent: Wednesday, May 20, 2020 8:11 AM
To: Kimberlee Sturtevant <ksturtevant@burlingtonvt.gov>
Cc: Scott Gustin <SGustin@burlingtonvt.gov>
Subject: Questions

Good morning Kimberlee,
Eric Morrow of the DAB requested that I ask the Attorneys' office the proprieties of Zoom meetings; specifically,

1. Is it not appropriate that a board member submit a motion to the Chair; who then requests a second? His p is that the Chair should not be making any motions. How is the board member submitting a motion to the Chair? Correct that the Chair should not make the motion, but if he/she is just restating the motion for clarit the record than that is okay.

2. Voting on Zoom – if it cannot be observed by call-in attendees (I answered that the staff member or Chair co verbally acknowledge the vote.) Yes, I believe the staff or Chair could verbally acknowledge the vote for cla
3. Relative to call-in participants (if there are any); how to observe Roberts Rules? I believe he means to be recognized as a participant. The way it has been handled so far is the staff member can assist by identifying is in queue and the Chair then recognizes them. I would suggest allowing them to email you as the staff member saying they want to speak or have the raise your hand function on for zoom. It is a bit tricky when are logged in by just a phone number. For those that are just on the phone, the chair can ask if there are an persons that want to speak and then just make sure they identify themselves for the record.

   I think Scott was skillful in this last night at DRB.

   I believe I answered his questions, but he was insistent it come from your office.

I hope you are managing, and your family is well.

Mary

Mary O'Neil, AICP
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Coordinator, Certified Local Government Program
645 Pine Street
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mconeil@burlingtonvt.gov
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802.865.7556 direct
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Please note! Our offices have moved to 645 Pine Street as of December 2, 2019.

*** **Please note** that this electronic message may be subject to disclosure as a public record under the Vermont Public Records Act

Please note that this communication and any response to it will be maintained as a public record and may be subject to disclosure under the Vermont Public Records Act.

Design Advisory Board
Terms of Office FY 2021

Organizational Meeting July 14, 2020

Members and assignments **2020**: (*What is*)

Member	Appointed	Term expires	Chair	Vice Chair	PCOC[1]	HPRC[2]
Ron Wanamaker	12.15.2003	6.30.2022				✓
Eric Morrow	8.12.19	6.30.2020				
Matthew Bushey	4.16.2012	6.30.2022		✓	✓	
Steven Offenhartz	9.13.2010	6.30.2020	✓			
Tom Cullins	6.23.17	6.30.2021				✓
Phil Wagner (alt)	6.26.17	6.30.2020				✓
Phil Hammerslough (alt)	4.16.2012	6.30.2020				

Terms are for three years.
Re-appointed by City Council June 29, 2020 for a three-year term: Eric Morrow

Members and Assignments 2021 (*What will be*):

Member	Appointed	Term expires	Chair	Vice Chair	PCOC[1]	HPRC[2]
Ron Wanamaker	12.15.2003	6.30.2022				
Karyn Norwood	6.29.2020	6.30.2023				
Matthew Bushey	4.16.2012	6.30.2022				
Eric Morrow	8.12.19	6.30.2023				
Tom Cullins	6.23.17	6.30.2021				
vacant (alternate)						
vacant (alternate)						

[1] The Planning Commission Ordinance Committee meets the first Thursday of the month at 5:15-6:15 PM, currently remote.

[2] Historic Preservation Review Committee. From *Ordinance relating to Appendix A – Zoning #92-03, Design Control Districts*, as amended March 16, 1992:
To the extent available, at least two (2) of the ***three members*** *shall be professionals from the fields of history, archaeology, architectural history, architecture or historical architecture who meet the requirements outlined in Appendix A of the "Regulations for the Vermont Certified Local Government Program". These two (2) shall serve on the historic preservation review committee.*

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

Matthew Bushey
Ron Wanamaker
Tom Cullins
Eric Morrow
Karyn Norwood
vacant Alt.
vacant, Alt.

DESIGN ADVISORY BOARD
Tuesday July 14, 2020 3:00 PM
REMOTE MEETING

Zoom: https://us02web.zoom.us/j/81870413140?pwd=eWtxOTltYVovZWFQZ2RQTm5NV3g3dz09
Webinar ID: 818 7041 3140
Password: 923553
Call in telephone: US: +1 929 205 6099 or +1 301 715 8592 or +1 312 626 6799 or +1 669 900 6833 or +1 253 215 8782 or +1 346 248 7799

Session I – 3:00 PM – 3:15 PM

DAB Reorganizational Meeting for 2021

Session II – 3:15 PM – 3:45 PM

20-0717CA/MA; 273 Pearl Street (RH, Ward 8E) Triple Tree Group, LLC (Bruce Baker, Greg Doremus)
Planned Unit Development involving 273 Pearl St, 11 Hungerford Terrace, 15 Hungerford Terrace, and 21 Hungerford Terrace. Demolish porch and move garage at 21 Hungerford; demolish garage at 11 Hungerford. Construct 12-unit residential building with related parking and supporting infrastructure.

Session III – 3:45-4:15 PM

20-0971CA/CU; 362 South Union Street (RL, Ward 6S) William Fellows
Demolish garage and construct attached garage and second dwelling unit.

Session IV – 4:15-4:30 PM

Discussion of making motions, Roberts Rules relative to Zoom meetings.

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 Permitting & Inspections at least 72 hours in advance so that proper accommodations can be arranged. For information call 865-7188.

Non-Discrimination
The City of Burlington will not tolerate unlawful harassment or discrimination on the basis of political or religious affiliation, race, color, national origin, place of birth, ancestry, age, sex, sexual orientation, gender identity, marital status, veteran status, disability, HIV positive status, crime victim status or genetic information. The City is also committed to providing proper access to services, facilities, and employment opportunities. For accessibility information or alternative formats, please contact Human Resources Department at (802) 540-2505.

44. House (362 South Union Street); c.1900.

Built c.1900, this slate hip roofed, two and one-half story, three bay wide, Colonial Revival residence sits on a stone foundation and is fairly regular and formal in appearance. The 6/1 sash windows with molded jambs and shutters are arranged as singles, in pairs and in triples. The centrally positioned six panel front door which is surrounded by a leaded transom and sidelights to dado height is accentuated by a one story, gabled portico consisting of single Doric corner columns supporting a full entablature with modillions which in turn carries a pediment (also with modillions) and side balustrades consisting of shaped handrails and square balusters. The shallow hip roof of the main block projects slightly over the cornice with modillions and has small gable dormers on the north and east hips and a large pedimented wall dormer, bisected by an exterior chimney, on the south hip.

The south facade is dominated by a two story, two bay deep porch which also has Doric columns and a full entablature and is open on the first floor and accessible through French doors; a balustrade wraps the open front bay deck of the second story while the rear bay is enclosed by banks of 4/4 windows forming a sunroom. A small, one story entrance porch is located off-center on the east (rear) side. The entire structure is surfaced with clapboards and framed by corner boards.

44A. Garage (362 South Union Street); c.1925.

A square, clapboard sided, one story, two bay garage with a hip roof, two shuttered windows on the west and east facades and a small brick exterior chimney on the north facade, is located northeast of the main house. The roof is wood shingled, and has a broad gable above the garage doors on the south elevation. Each bay has a pair of hinged wooden doors.

44B. Garden House (362 South Union Street); c.1935.

Further east and up a rise from the garage is a small, one story, gable roofed, clapboard sided outbuilding with a doorway on the gabled west facade and three large windows facing the south.

Department of Permiting and Inspections
Zoning Division
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William Ward, Director
Scott Gustin, AICP, CFM, Principal Planner
Mary O'Neil, AICP, Principal Planner
Ryan Morrison, Associate Planner
Layne Darfler, Planning Technician
Alison Davis, Zoning Clerk
Theodore Miles, Zoning Specialist
Charlene Orton, DPI Administrator

MEMORANDUM

To: The Design Advisory Board
From: Mary O'Neil, AICP, Principal Planner
RE: 273 Pearl Street, 11, 15 and 21 Hungerford Terrace
ZP20-0717CA/MA, ZP20-0718CA, ZP20-0719CA, ZP20-0720CA.
Date: ~~March 24, 2020~~ July 14, 2020

File: ZP20-0717CA/MA, ZP20-0718CA, ZP20-0719CA, ZP20-0720CA.
Location: 273 Pearl Street, 11, 15 and 21 Hungerford Terrace
Zone: RH **Ward**: 8E
Parking District: Neighborhood
Date application accepted: February 20, 2020. Project review delayed by Covid 19, and plan revisions (submitted June 11, 2020.)
Applicant/ Owner: 18138 Parking LLC, Triple Tree Group, LLC, 15 Hungerford Terrace, LLC and 21 Hungerford Terrace LLC. (Bruce Baker, Greg Doremus.)
Request: Planned Unit Development to include demolition of a single family home at 15 Hungerford Terrace and a garage at 11 Hungerford Terrace; demolish south porch and move garage at 21 Hungerford Terrace; construct 12 unit residential building. Net new new units = 11 (if earlier duplex approvals are relinquished.) Site changes, including retaining walls. Parking changes with 17 space parking waiver request (42% of required residential parking.)

Background:

273 Pearl Street (constructed 1952)

- **Zoning Permit 16-0273CA;** replace 3 windows. September 2015.
- **Zoning Permit 15-0427CA; regrade portion of lot and install retaining wall.** Also see 15 and 21 Hungerford Terrace. September 2014.
- **Non-applicability of Zoning Permit Requirements 15-1015NA**; roof replacement. April 2015.
- **Zoning Permit 12-0231FC**; install chain link security fence on top of existing concrete block wall. September 2011.
- **Zoning Permit 00-466**; reside existing medical (dental) office in vinyl siding with new front elevation changes that include new windows, door and unenclosed entry roof canopy. No increase in coverage. Front yard setback encroachment allowed as per 5.3.6 (g). April 2000.

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- **Zoning Permit 81-305**; change existing office to dental office. January 1981.
- **Zoning Permit n.n.;** Enlarge existing non-conforming use by addition of 21' x 16'. Approved May 1965.
- **Zoning Permit n.n**; three unilluminated signs. Approved July 1960.
- **Notice to Gates Professional Pharmacy, sign exceeding size permitted in Zone One**. August 1952.
- **Petition to building a one story building approximately 24' x 40' to be used as prescription laboratory, doctor's office or professional use.** Approved December 1951.

11 Hungerford Terrace (constructed 1912)

- **Zoning Permit 18-10990CA;** handicap ramp, stoop, addition, parking changes. Convert a portion of the garage's front wall into a retractable wall to accommodate interior parking. July 2018.
- **Zoning Permit 18-0812CA;** replacement windows. April 2018.
- **Non-applicability of Zoning Permit Requirements 12-0252NA**; replace retaining wall in kind at same location & same height. August 2011.

15 Hungerford Terrace (constructed 1994)

- **Zoning Permit 18-1091CA;** change of use from single family to duplex. Parking changes. July 2018.
- **Zoning Permit 15-0428CA**; regrade portion of lot and install retaining wall. See also 21 Hungerford Terrace and 273 Pearl Street. Issued September 2014; permit relinquished.
- **Zoning Permit 02-377**; Construct 60' retaining wall. Issued March 2002, permit relinquished.
- **Zoning Permit 96-407**; installation of skylight in single family home. April 1996.
- **Zoning Permit 094-059 and 94-059A**; construction of a single-family home on existing vacant lot. February 1994.

21 Hungerford Terrace (constructed 1922)

- **Zoning Permit 18-1092CA;** Change of use from single family to duplex; add habitable space to basement. Shared parking and driveway with 11 and 15 Hungerford. See related permits AP18-1090CA and ZP18-1091CA. July 2018.
- **Zoning Permit 15-0429CA;** regrade portion of lot and install retaining wall. See also 15 Hungerford Terrace and 273 Pearl Street. Permit issued September 2014; permit relinquished.
- **Zoning Permit n.n**.; Use two front rooms for doctor's office. ZBA approved April 1966.

Overview:
The application is for a Planned Unit Development, utilizing 273 Pearl Street, 11, 15 and 21 Hungerford Terrace to create a new 12 unit residential building on the site of 15 Hungerford which will be demolished. One accessory building (garage, 11 Hungerford) and a porch (21 Hungerford) are proposed to be removed and the garage at 21 Hungerford relocated. A retaining wall will be constructed to ameliorate the grade change west of Hungerford Terrace. Parking changes, 17 space (47.22% residential) parking waiver request.

<u>Article 6: Development Review Standards</u>
Part 1: Land Division Design Standards
No land division or boundary line adjustments are proposed. As a Planned Unit Development (PUD), the development area will be reviewed by the DRB under Article 11.

Part 2: Site Plan Design Standards
Sec. 6.2.2 Review Standards

(a) Protection of Important Natural Features
The most significant feature of the site is the topographic change from east to west. See "Topographical alterations", below.
There are two mature trees within the ROW in front of 21 Hungerford that are identified on Plan A1 for retention, and a large tree in the front yard of 15 Hungerford Terrace to be removed. At least 17 trees are proposed to be removed from the collective project area. There is no discrete landscaping plan, but reference to proposed plantings and tree removal on Plan A0, A1, A2 and A7 as revised. A defined landscaping plan is recommended, included identification of trees proposed for removal (species, caliper) and those requiring tree protection.

(b) Topographical alterations

The rear of this development area reflects a tangible remnant of Burlington's physical geography, the Burlington Ravine. Previous permitting illustrates the efforts made to address the significant grade changes in the rear of these four properties.Plan A0 defines the grade low as 220' on the west of the site; increasing to 240' on the east (Hungerford Terrace) side. The plan includes retention of the existing concrete block retaining wall behind 273 Pearl Street, with a connecting retaining wall running around the west and south end of the development area raising the grade from 220 to 232 (see Civil Plan C2.2.) The proposed retaining wall will reach heights of 11' along the westerly wall, requiring approval of the City Engineer.

Hungerford Terrace at the top, Pearl to the left. Grade change to the west (bottom) evident.

(c) Protection of important public views
There are no protected important public views from or through the property.

(d) Protection of important cultural resources
See Section 5.4.8 (b).

(e) Supporting the use of alternative energy
Floor plans illustrate ERV (Energy Recovery Ventilator) closets. Other alternative energy options, including solar for the large flat roof, are encouraged.

(f) Brownfield sites
The properties are not listed on the Vermont DEC Hazardous Waste Site. Not applicable.

(g) Provide for nature's events
A subsurface stormwater treatment vault is present on Civil plans C2.2 and includes a Stormwater Retention component located under the new parking area. The EPSC and Stormwater management plans were forwarded to Stormwater Engineering Division for review. There is no identified area of snow storage on the proposed site plan. Given the grade changes on the site and the large expansion of pavement, a firm plan needs to be in place for snow storage or removal.

(h) Building location and orientation
The demolition of 15 Hungerford Terrace affords the location of the new, 3 story 12 unit residential building. The front setback duplicates that of the building to be demolished, with the footprint expanding further west, consistent with the setback average of the three neighboring

properties. (Average setback is 47.4' when averaging 11, 21 and 27 Hungerford. Front setback may be +/- 5' of that average.)

(i) Vehicular access
The access drive for all units is proposed south of 21 Hungerford Terrace, via an existing driveway. Plans A0 and A1 both define existing driveway encroachment onto a neighboring property. All access must be established within the PUD property boundaries, with no further encroachment into setbacks than existing conditions.

(j) Pedestrian access
Existing front entrance walks connecting to the city public sidewalk will remain at 11 and 21 Hungerford. A new walkway will be introduced to the immediate south of the 3 story residential building, with common ground floor entry at its terminus.

(k) Accessibility for the handicapped
Unit 1 is identified as fully accessible, with Units 2, 3 and 4 as "adaptable". The eight remaining units on the 2nd and third floor will meet Visitability standards for access.
2 ADA parking spaces are provided (one immediately behind 21 Hungerford, and one to the north of the new building at 15 Hungerford that provides a loading area.) The building inspector has jurisdiction relative to the acceptability of the number of spaces and their specific dimensions.

(l) Parking and circulation
Plan A1 provides 25 parking spaces,
273 Pearl Street will retain its 6 existing permitted parking spaces for the dental office/1 residential unit.
11, 15 and 21 Hungerford (18 units) will share 19 parking spaces.
The requirements within the Neighborhood Parking District are 2 parking spaces for every residential unit.
Zoning Permit 18-1090CA allowed a shared parking arrangement among 11 Hungerford (5 units), 15 and 21 Hungerford Terrace that provided a total of 19 parking spaces. For the total 9 units, that plan met required on-site parking (2 per unit, or 2 x 9 = 18 spaces.)
The current plan proposes **19 spaces** for residential use while the required parking for 18 units (5 units at 11 Hungerford, 12 units at 15 Hungerford, and 1 unit at 21 Hungerford) if earlier permit for duplex is relinquished) is now **36 spaces**. Only one additional space is provided greater than the previously approved shared use parking plan for 11, 15 and 21 Hungerford Terrace. (One net new provided). With a substantial increase in bedroom count (33 bedrooms in 15 Hungerford), the parking deficiency is marked.
Discounting the dental office/1 apartment use at 273 Pearl which remains constant, the proposal is deficient (36-19) by 17 parking spaces, requiring a 47.22% parking waiver.

Parking spaces north of the new building are standard parking spaces (9 x 20); all of the spaces on the westerly boundary are compact (8 x 18); and the four immediately west of 15 Hungerford are undersized (8 x 16) per Table 8.1.8-11 of the ordinance. All spaces lack the required backup space (24' for 90° standard size angled parking spaces) although the most westerly meet the requirement for compact spaces (20' backup.) The h/c space south of 15 Hungerford, the lone

garage space, and the southerly space immediately west of 15 Hungerford are all deficient in back-up space. The applicant will rely Section 8.1.11 that permits the DRB discretionary review to determine a lesser standard necessary due to site topography, location of existing or proposed structures, lot configuration, and/or the need to preserve existing trees and vegetation.

A Parking management Plan has been submitted, weighing largely on tenants without cars, advantageous location near the downtown, and shared parking by critical use periods. The plan proposes use of 5 residential parking spaces by the dentist office during business hours, when residential tenants would vacate their spaces.) The plan further hinges on specific tenant selection practices and required tenant education. Both of these tools rely on the methods and practices of current owners; their continued success largely reliant under practices of unknown future ownership.
Finally, the applicant/owners include up-front monthly charges for parking on-site to discourage vehicular ownership. Parking is permitted on-site by permit and assigned space only, with towing enforced. As proposed, there is just one parking space per residential unit.

Owners will provide information to tenants about ridesharing programs and maintain a group membership with Car Share Vermont, offering to tenants free of charge. CCTA bus passes are provided to tenants on a first-come basis. Bicycle parking and storage is provided on site. Grocery trollies will be made available to tenants.

The applicants have also requested consideration of sharing all parking from their 5 commonly owned lots within 3 blocks; a total of 128 parking spaces. An examination of all those parcels and their parking requirements are outside this project review, but suggest the potential for private TDM (Transportation Demand Management) within the City. While advanced, TDM as practice is not yet incorporated as part of Parking Management opportunites within the Comprehensive Development Ordinance, and likely provide challenges to future compliance and enforcement of individual properties.

Article 8 defines the requirement to meet the parking demand of new development effectively. A proposed parking management plan must guarantee present and future success, enforceable over the long term. The creation of 33 new bedrooms with only one new parking space is challenging; and hinged in this application with active and enduring control by owners.

Surface parking requires shading to reduce the effect on the local microclimate, air quality, and stormwater runoff. New or substantially improved parking areas must shade at least 30% of the parking lot. 1 shade tree shall be provided for every 5 parking spaces with a minimum caliper size of 2 ½ -3” at planting. A substantial number of existing trees will be removed for this redevelopment. As no discrete landscaping plan has been provided, the applicant is obligated to confirm compliance with this shading standard.

Bicycle parking is provided along a walkway to the newly developed 15 Hungerford Terrace. Long Term bicycle parking is afforded in a separate room in the basement of 15 Hungerford Terrace. With 33 new bedrooms, at least 17 long term bicycle parking spaces will be required for the residential use. (1 bike parking/2 bedrooms requirement). This is more fully addressed under Article 8.

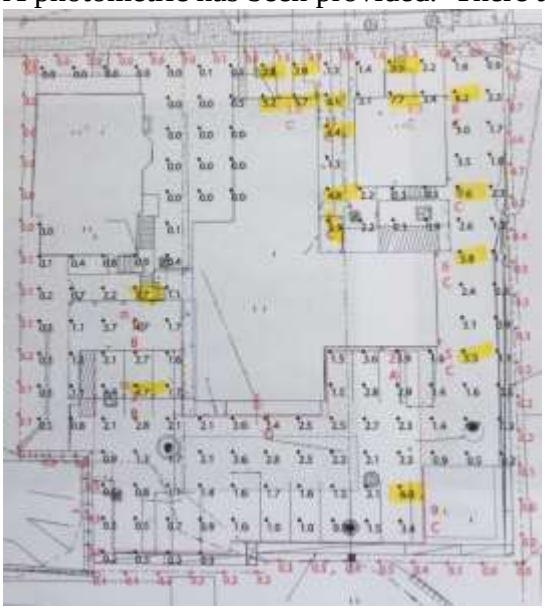
(m) Landscaping, fences and retaining walls
A separate landscaping plan has not been provided, however alluded to in plan A0, A7 and A8. A definitive plan, with confirmation of required shading for the parking lot area will be required.

(n) Public plazas and open space
While there are no formal public plazas included in the plan, "open green space" is annotated on Plan A1. This occurs between 11 Hungerford and the new 12 unit residential building, and north of the parking area. Given the large number of residential units proposed for the combined site, some outdoor amenity space is encouraged to be identified and programmed for the enjoyment of the tenants. Open space / common land is a requirement of PUDs under Article 11.

Retaining walls greater than 5 feet tall shall incorporate textured surfaces, terracing, and/or vegetation to avoid long monotonous unarticulated expanses and to minimize adverse visual impacts to neighboring properties. As with fences, retaining wall styles, materials, and dimensions shall be compatible with the context of the neighborhood and use of the property.

Plan C2.2 and 4.2 detail the material, method, and plan of the complex retaining wall. Heights vary from 2-12'. As the involved properties all sit on the cusp of the Burlington Ravine and have consistently struggled with the changing grade inherent to their site, this is the context of the neighborhood. Review of retaining walls greater than 3' in height is the responsibility of the City Engineer.

(o) Outdoor lighting
A photometric has been provided. There are some hot spots:



- Walkway light may not exceed 2 fc. Entrance walkways to 15 and 21 exceed that.
- Building entrances, unless designated handicap access, may not exceed 5 fc. That is an issue here.
- The entrance drive has fc measurements in excess of 7 fc, which seem directly related to fixtures positioned on the south side of the building. These should be adjusted.
- Parking lots are limited to a maximum illumination of 4 fc. There are several areas that exceed that for the functional part of the parking area, including north of the relocated garage. These, also will require attention to bring light levels down.
- There is measureable light spill across property boundaries. The limit is 0.1 fc measured 20' across the boundary line. The applicant shall confirm compliance in a revised photometric plan.

(p) Integrate infrastructure into the design
Civil plan C2.3 shows a continuation of overhead electric service to both 21 Hungerford and the new 15 Hungerford building. New construction demands undergrounding of on-site utilities,

Meters, utility connections, HVAC or similar mechanical equipment should be coordinated with the design of the building, and grouped in a service court out of public view. All need to be illustrated on elevations and/or site plans to determine appropriateness of location and necessity of screening.
No rooftop mechanicals are identified. If such units are proposed, they need to be provided with plans to be assessed for compliance with the standards of the ordinance.
The location of trash and recyling facilities has been re-defined within the relocated garage at the Southwesterly corner of the collective lots.
Residential mailboxes are identified along the public sidewalk, presumably in cluster box unit ("CBU".) This is an undesirable solution for residential use, due to its commercial appearance. An interior or sheltered porch location where unit boxes can be accessed by tenants is preferable and more consistent with residential use. The Common Entry on the south elevation or alternately at the Lounge location are recommended for resident mail delivery.

Part 3, Architectural Design Standards
Section 6.3.2 Review Standards

(a) Relate development to its environment:

1. Massing, Height and Scale:

Plan A9, A10 and A11 provide a modeled street view, illustrating the new building approximately the same height as the hipped roof of 11 Hungerford Terrace, to its north and 295 Pearl Street; on the corner of Pearl and Hungerford. The flat roof, however, allows for a building mass (and occupied third floor) that exceeds any of the existing buildings surrounding it. As viewed from the south and west (see rendered elevations A6, A7) the new building dominates the viewshed. The automotive service station on Pearl Street somewhat ameliorates the view from the north.

2. Roofs and Rooflines.

The new building has connected flat roofs; differing from either the north or south detached building that will abut it.

3. Building Openings

Building openings are symmetrically arranged on the primary façade, with rhythmic structural punctures on other elevations. Openings are grouped to provide the same floorplan plate-to-plate.

(b) Protection of Important Architectural Resources:

Burlington's architectural and cultural heritage shall be protected through sensitive and respectful redevelopment, rehabilitation, and infill. Where the proposed development involves buildings 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. The introduction of new buildings to a historic district listed on a state or national register of historic places shall make every effort to be compatible with nearby historic buildings.

See Section 5.4.8.

(c) Protection of Important Public Views:

There are no protected important public views from this site. Not applicable.

(d) Provide an active and inviting street edge:

The removal and replacement of 15 Hungerford Terrace has introduced a substantially larger and more imposing structure to the streetscape. While there is no relationship in style or massing to the context of the older street, it does offer an identifiable front portal, the welcome of porches, and larger windows to warm the streetface.

(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.

Sheathing is proposed to be panel siding (Fiber Cement or similar), interchanged with lap siding at the third floor of the primary elevation and intermixed on other elevations. Boral trim and MDO accent bands will complete the finish. Windows and doors are detailed on Plan A5. All are acceptable 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.

(g) Make advertising features complementary to the site:

No signage is proposed. Any signs will require a separate sign permit, consistent with the regulations of Article 7 and compliant to the residential zoning district standards.

(h) Integrate infrastructure into the building design:

See Section 6.2.2. (p.)

(i)Make spaces secure and safe:

All applicable building and life safety code as defined by the building inspector and fire marshal will be required. Building entrances need to be adequately illuminated (but not to exceed 5 fc.) Adequate lighting at building entrances will support resident safety. See lighting standards of Section 5.5.2 and 6.2.2. (o), above.

An intercom system is recommended to maximize personal safety of the residents in the new 12-unit structure.

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.

11 and 21 Hungerford Terrace (and their garages) are listed on the Vermont State Register of Historic Places and the National Register of Historic Places within the **Buell-Bradley Street Historic District**.

15 Hungerford Terrace is of construction that is more modern and identified as non-contributing due to age.

273 Pearl Street falls within the **Pearl Street Historic District** (#50, Lavoie Offices**)**, but was identified as non-contributing to the district.

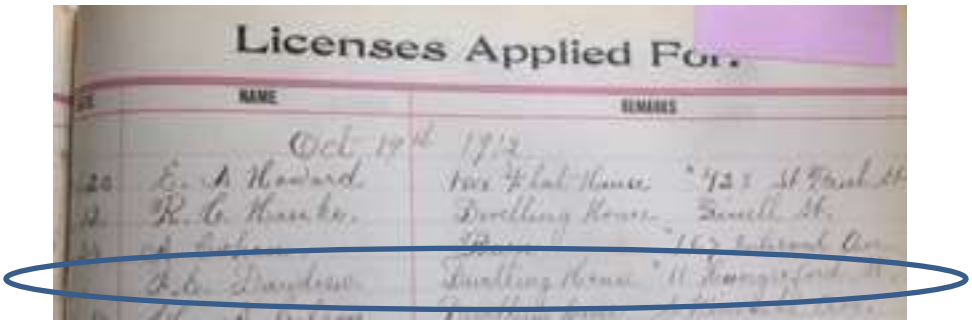
The following standards apply to 11 and 21 Hungerford Terrace:

(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.*

   11 and 21 Hungerford Terrace will remain residential, although 11 Hungerford is now multi-unit. The existing garage at 11 Hungerford is proposed to be demolished in support of new development, as well as the southerly side porch at 21 Hungerford Terrace. The garage at 21 Hungerford will be moved to the rear of the lot to be utilized for one parking space and a trash location.



Issuance of a building permit for the construction of 11 Hungerford Terrace
October 24, 1912.

   The elimination of the 11 Hungerford garage (1912) and porch at 21 Hungerford (between 1936-1942) alters the essential characteristics of the resources, and diminishes the integrity of the overall context of the site as documented in the National Register nomination.

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.*

   See response above.

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 are proposed.

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

   The southerly sunporch on 21 Hungerford Terrace is a typical feature that characteristically was added after the original construction of the single family home, adding to the significance of the overall structure. The porch is a feature that has acquired significance, consistent with 20th century evolutionary changes to residential architecture as promoted by Sears, Aladdin, Montgomery Wards and other national building plan providers. 21 Hungerford Terrace appears to be based on the Sears "Rembrandt" or "Van Jean"design, both of which were offered an option of a side porch.

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

   The location of the garages behind residential buildings is characteristic of residential construction during the period of origin. The removal of the garage at 11 Hungerford and replacement with a paved surface parking lot advances the appearance of a developed modern site, rather than residential neighborhood. Similarly, the addition of a side porch (popularized particularly in house plan catalogs) strongly supports the residential nature of this neighborhood as it was listed on the National Register of Historic Resources. Its proposed removal will diminish those essential and concomitant characteristics that collectively contribute to the overall feeling, association, and arrangement of the neighborhood.

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.*

The object of the application is to remove a 1994 home and replace it with a 12 unit three story building with associated parking. The retaining walls will be new construction. A garage at 11 Hungerford that is in disrepair is proposed for demolition rather than repair and reuse. The applicant has provided a narrative (Exhibit G-11H) as to the condition of the garage at 11 Hungerford and Exhibit SP-21H for the proposed porch removal at 21 Hungerford.

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.*

   Building demolition of a garage and a porch is a permanent physical treatment. See Section 5.4.8 (d) below.

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

   No archaeological resources have been identified on these parcels.

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.*

   The proposed new multi unit residential building is much larger is massing than the abutting buildings, and will introduce a building of greater proportion. It is, however, minimized at the street front and designed with a modern vocabulary that is differentiated from the older building stock that surrounds it.

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.*

    Although unlikely, if the replacement building at 15 Hungerford Terrace were removed, 11 and 21 Hungerford Terrace would remain and retain enough integrity to merit retention on the National Register of Historic Places. The large parking area proposed for the 15 Hungerford site would, on its own, be out of context for the existing neighborhood.

Items for the Board's consideration:

- Permits 18-1091CA (15 Hungerford) and 18-1092CA (21 Hungerford) must be successfully relinquished for the unit count to agree with the application materials.
- The Erosion Prevention and Sediment Control Plan as well as a Stormwater Plan are subject to review and written approval of the Stormwater Engineering Division.
- The retaining wall will require approval of the City Engineer.
- Application materials define snow will be "plowed and removed as necessary." Assuming typical winter precipitation and need for plowing, the applicant must commit to a defined snow removal plan that includes to where the snow will be removed.

- The applicant shall provide one new shade tree for every 5 parking spaces of the newly improved parking area, providing shade for at least 30% of the parking area.
- As submitted, light levels exceed allowable levels at several locations across the site. The applicant is advised to consult Section 5.5.2 of the ordinance, and address light levels as identified within 6.2.2. (o), above. A revised photometric will be required to demonstrate compliance.
- The proposed parking count, parking dimensions, and parking backup space are deficient to Table 8.1.8-1 and 8.1.11-1. The DRB has authority to provide relief in situations where a lesser standard is deemed necessary due to site topography, location of existing or proposed structures, lot configuration, and/or the need to preserve existing trees and mature vegetation.
- The parking requirement may be reduced through calculation of Inclusionary Housing. (8.1.8 (c))

2 EXISTING SITE PLAN IN CONTEXT
1" = 50'-0"

7 EXISTING UNITS
5 UNITS - 11 HUNGERFORD
1 UNITS - 15 HUNGERFORD
1 UNITS - 21 HUNGERFORD

1 DEMO SITE PLAN
1" = 10'-0"

HUNGERFORD TERRACE

A0

EXISTING SITE PLAN

06/15/20

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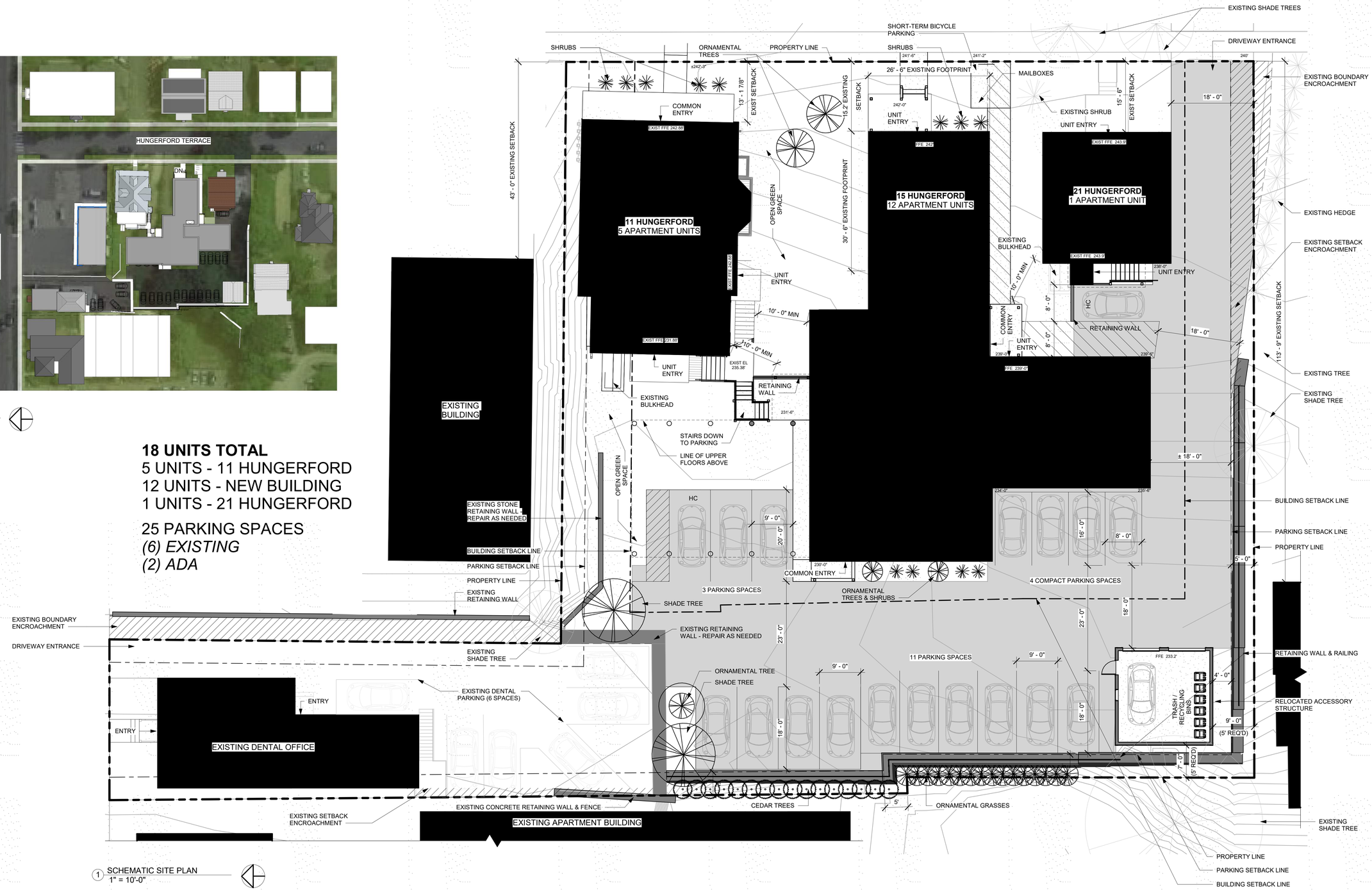
2 SITE PLAN IN CONTEXT
1" = 50'-0"

18 UNITS TOTAL
5 UNITS - 11 HUNGERFORD
12 UNITS - NEW BUILDING
1 UNITS - 21 HUNGERFORD

25 PARKING SPACES
(6) EXISTING
(2) ADA



1 SCHEMATIC SITE PLAN
1" = 10'-0"

TOTAL LOT AREA (4 PARCELS) = 27,226.97 SF
MAX LOT COVERAGE ALLOWED = 80%
INCLUSIONARY BONUS = **92% MAX LOT COVERAGE ALLOWED**

BUILDING FOOTPRINT = 8,000 SF
PARKING/WALKWAYS/PORCHES = 13,000 SF
TOTAL **PROPOSED LOT COVERAGE = 21,000 SF (78%)**

HUNGERFORD TERRACE

A1

SCHEMATIC PROPOSED SITE PLAN

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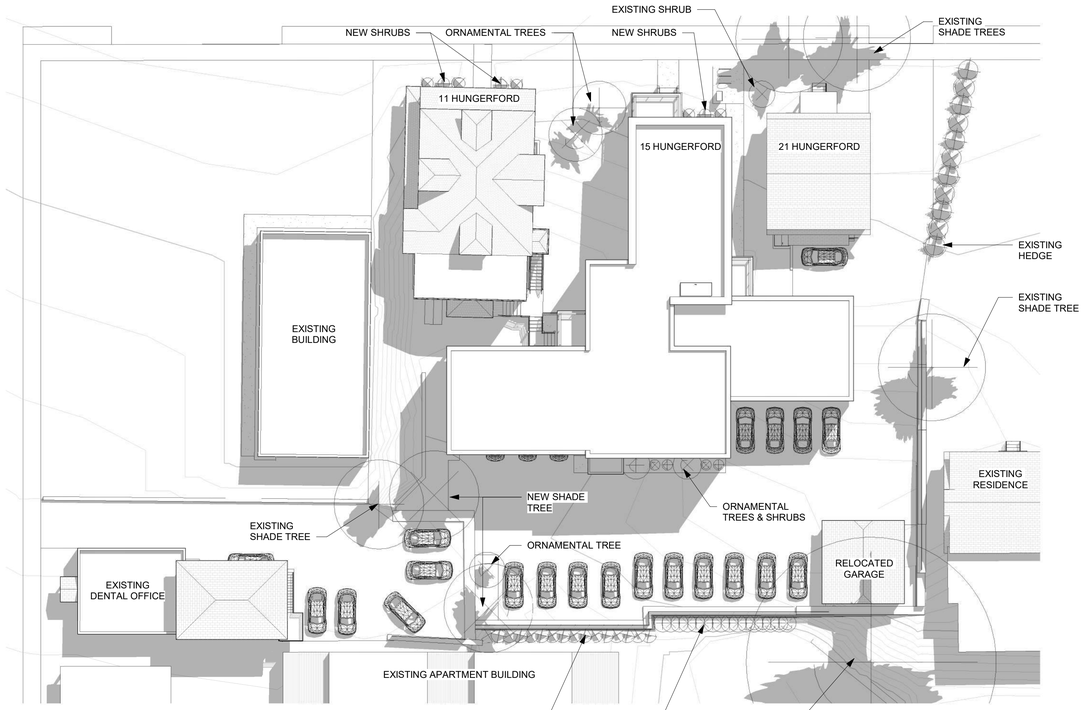
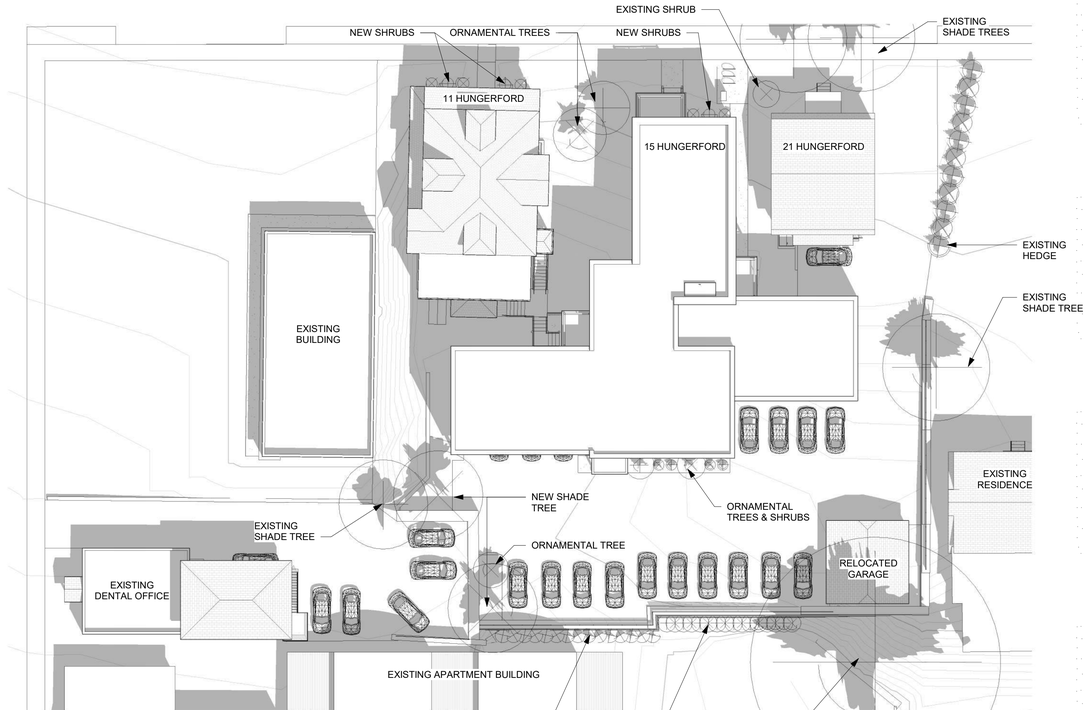


1 SHADING - JUNE 21 AT 10 AM



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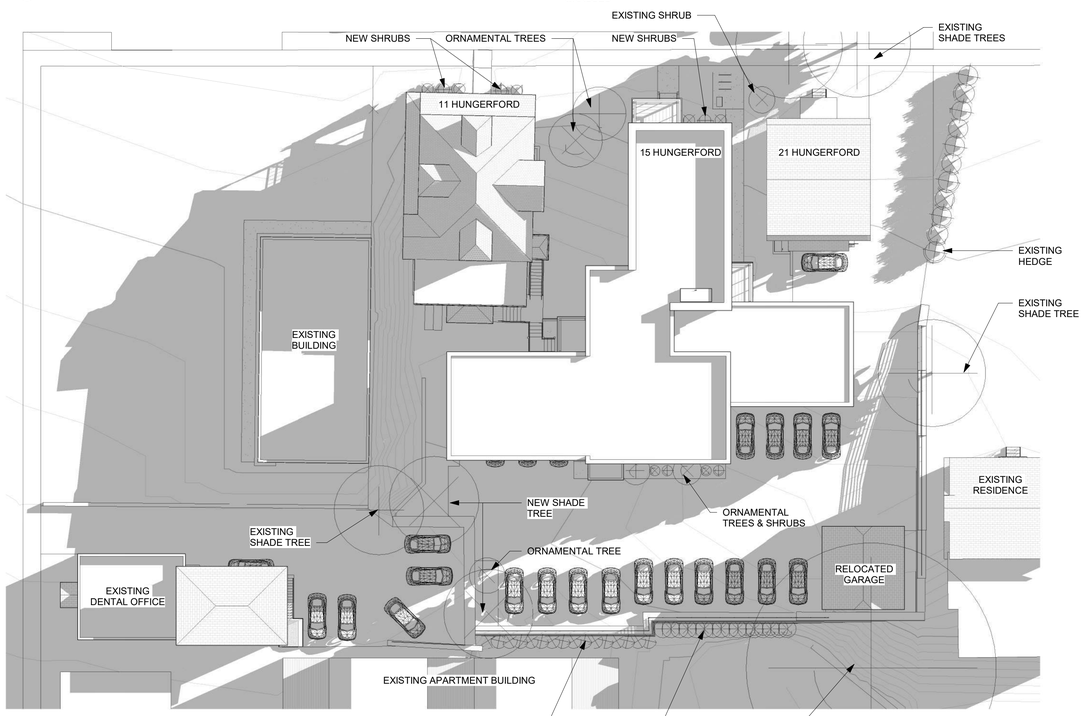
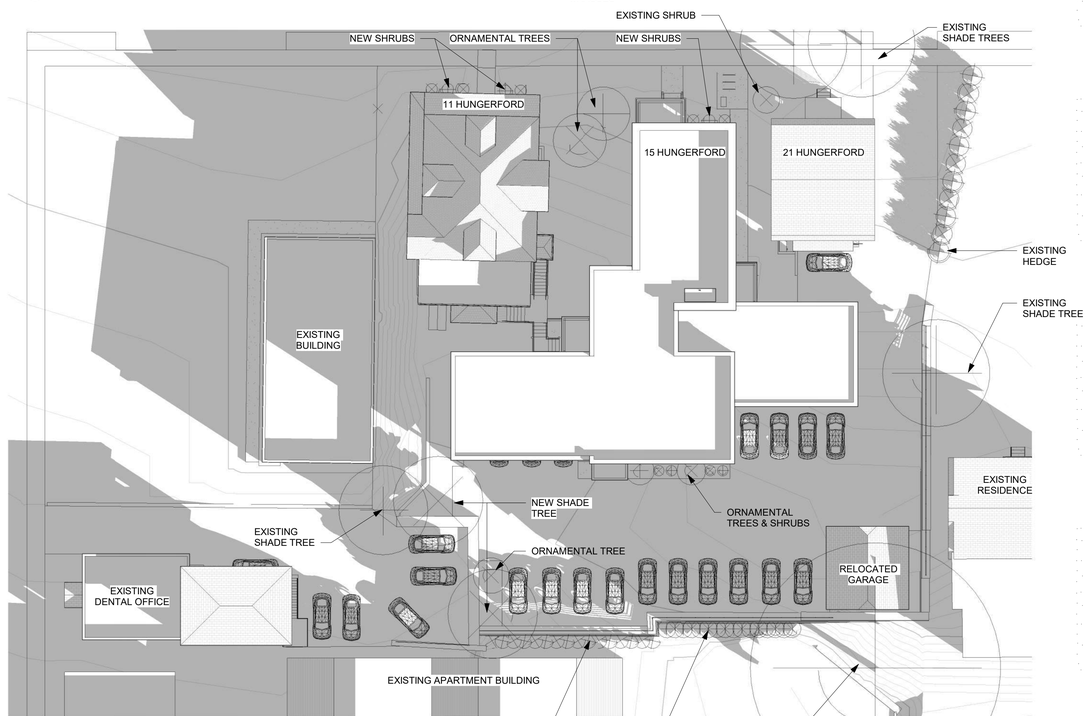


3 SHADING - DECEMBER 21 AT 10 AM



4 SHADING - DECEMBER 21 AT 2 PM

HUNGERFORD TERRACE

A2

SITE SHADING

06/15/20

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FFE 233.2'

2 BASEMENT PLAN - ENTRY FROM REAR PARKING LEVEL
1/8" = 1'-0"

FFE 233.2'

1 FIRST FLOOR PLAN - ENTRY FROM SIDEWALK LEVEL
1/8" = 1'-0"

HUNGERFORD TERRACE

A3

NEW BUILDING PLANS

06/15/20

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1 SECOND FLOOR PLAN
1/8" = 1'-0"

2 THIRD FLOOR PLAN
1/8" = 1'-0"

HUNGERFORD TERRACE

A4

NEW BUILDING PLANS

06/15/20

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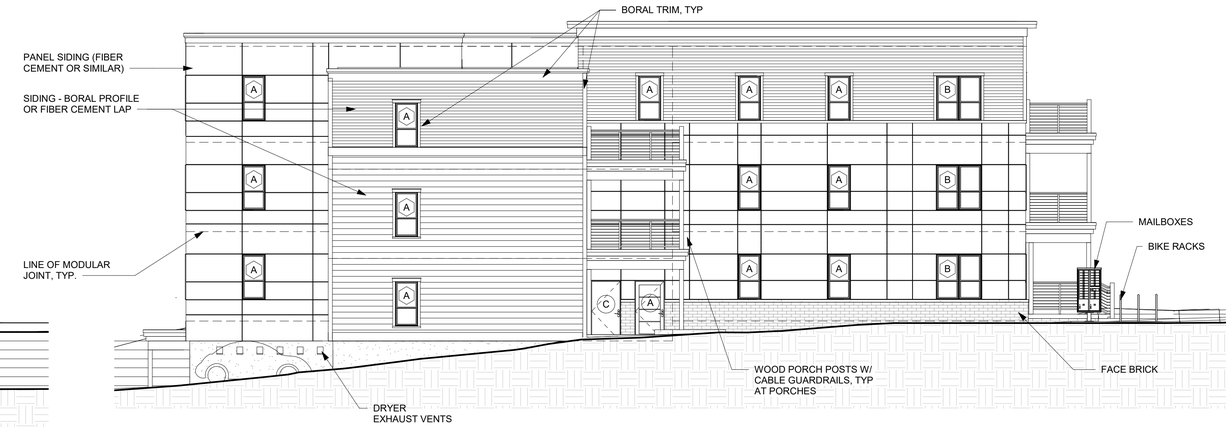
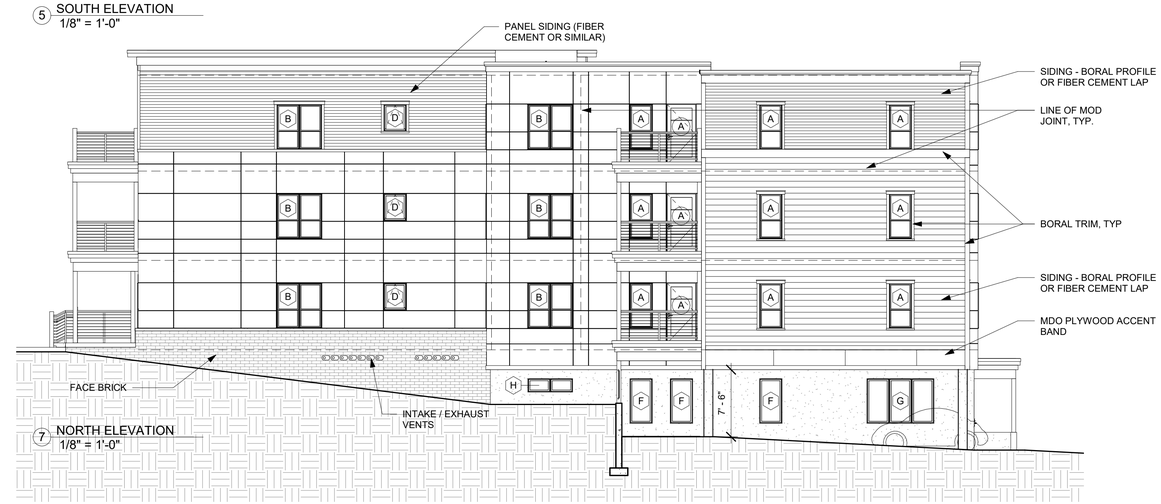
6 WEST ELEVATION
1/8" = 1'-0"



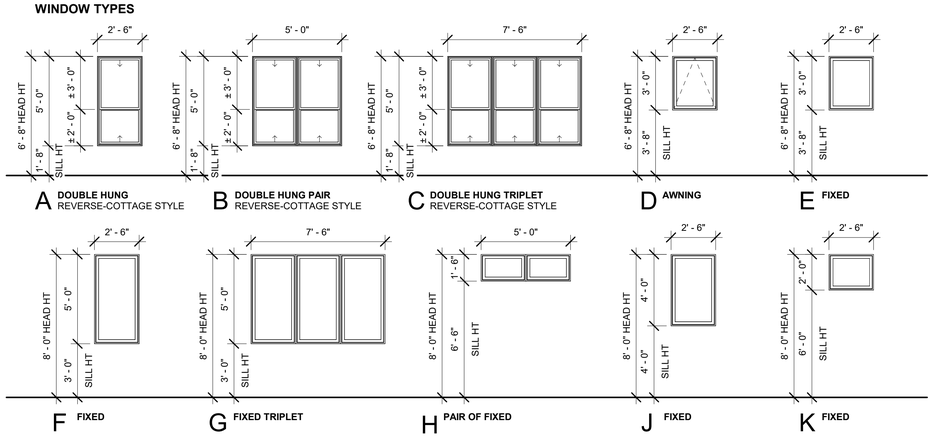
5 SOUTH ELEVATION
1/8" = 1'-0"

4 EAST ELEVATION
1/8" = 1'-0"

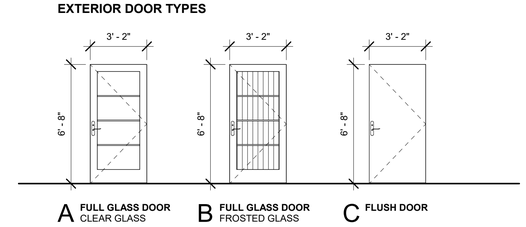


7 NORTH ELEVATION
1/8" = 1'-0"

WINDOW TYPES



EXTERIOR DOOR TYPES



HUNGERFORD TERRACE

A5

EXTERIOR ELEVATIONS

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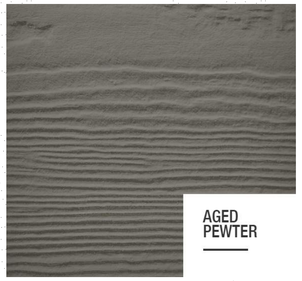
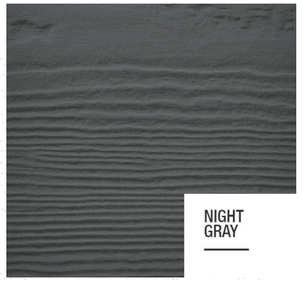
1 EAST ELEVATION RENDERED
3/16" = 1'-0"

4 SOUTH ELEVATION RENDERED
3/16" = 1'-0"

PEARL GRAY



AGED PEWTER



NIGHT GRAY

HUNGERFORD TERRACE

A6

RENDERED ELEVATIONS

06/15/20

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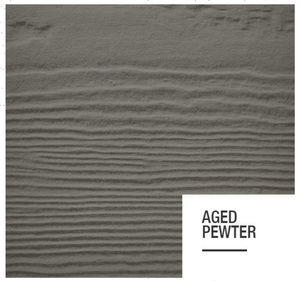
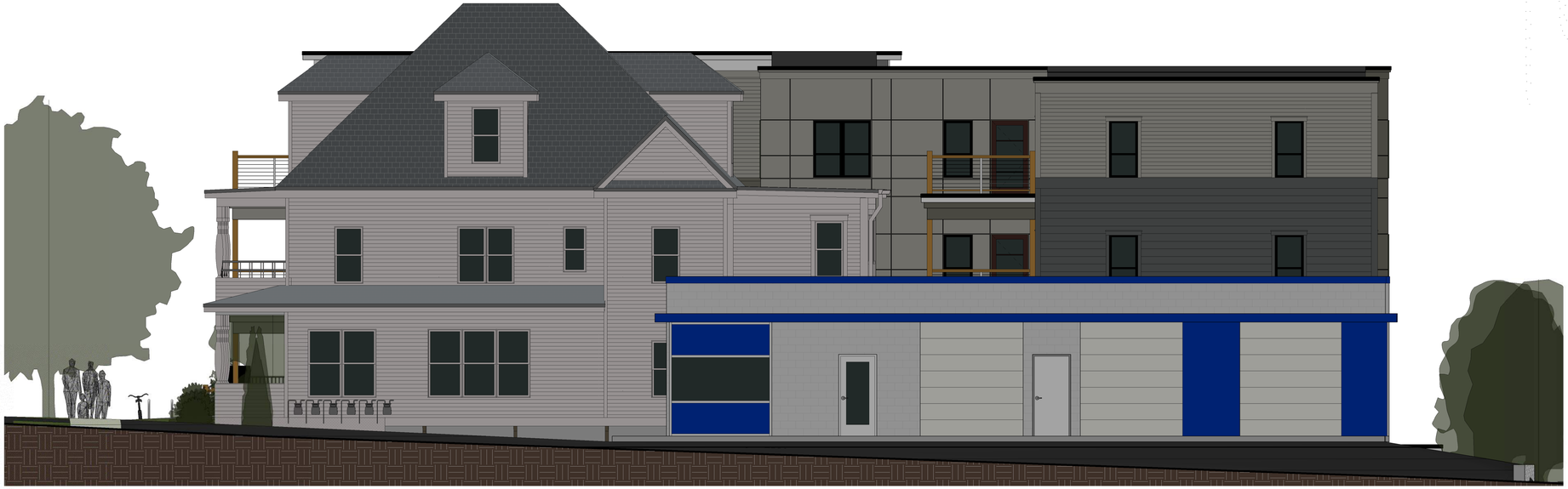
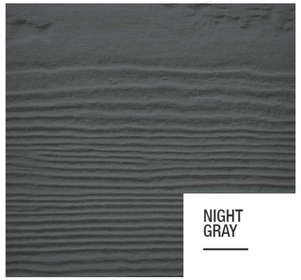
1 WEST ELEVATION RENDERED
3/16" = 1'-0"





2 NORTH ELEVATION RENDERED
3/16" = 1'-0"



HUNGERFORD TERRACE

A7

RENDERED ELEVATIONS

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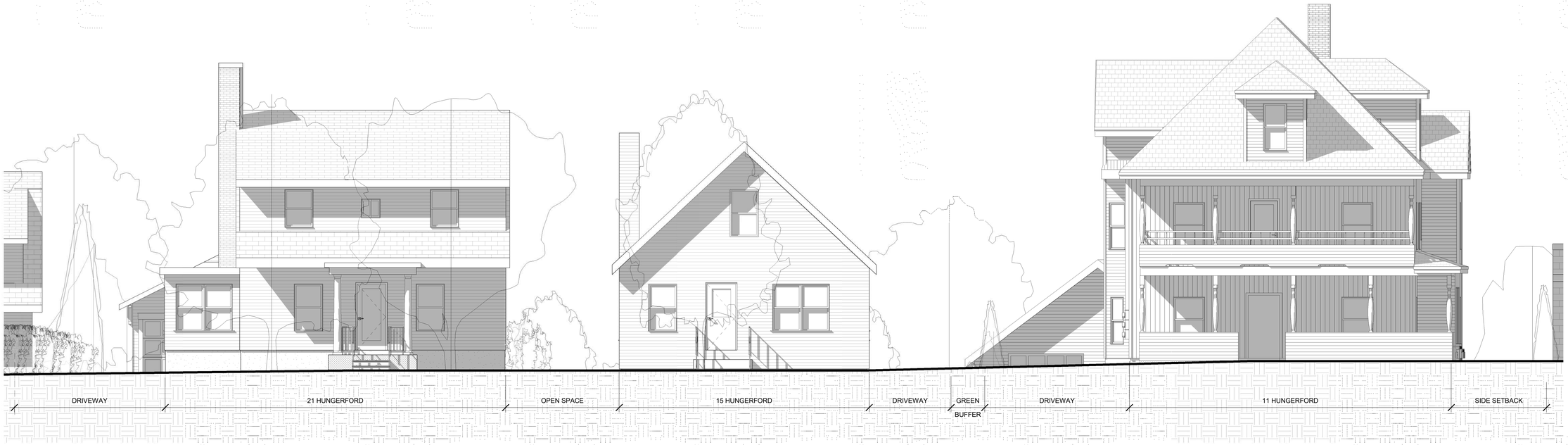

1 EAST ELEVATION - EXISTING
3/16" = 1'-0"

2 EAST ELEVATION - PROPOSED
3/16" = 1'-0"

HUNGERFORD TERRACE

A8

EAST ELEVATION

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2 CONTEXT VIEW NORTH ALONG HUNGERFORD
12" = 1'-0"

EXISTING VIEW NORTH ALONG HUNGERFORD TERRACE - MID SUMMER

EXISTING VIEW NORTH ALONG HUNGERFORD TERRACE - LATE FALL

1 NORTH CONTEXT ELEVATION ALONG PEARL STREET
3/32" = 1'-0"

HUNGERFORD TERRACE

A9

VIEWS IN LARGER CONTEXT

06/15/20

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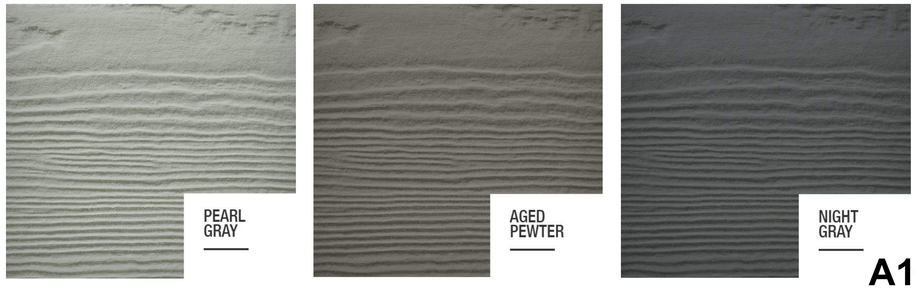
1 FINAL - STREET VIEW NORTH
12" = 1'-0"



HUNGERFORD TERRACE

A10

PERSPECTIVE VIEW NORTH

06/15/20

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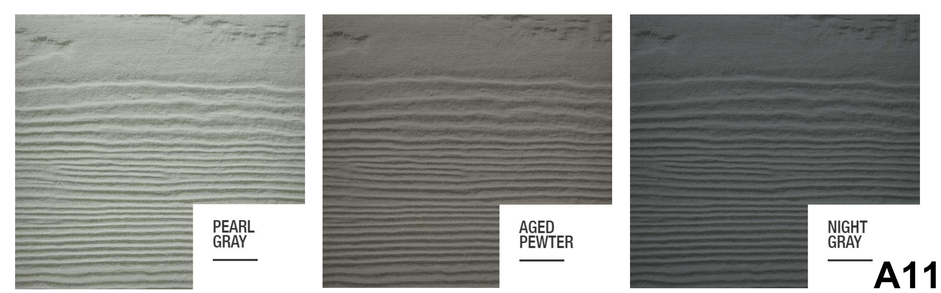
1 FINAL - STREET VIEW SOUTH
12" = 1'-0"



HUNGERFORD TERRACE

PERSPECTIVE VIEW SOUTH

06/15/20

A11

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Be good to the planet and stay HEALTHY with GCG's Bike Trolley Program!

Do your shopping by foot or by bicycle – the trolley is on us! Green Castle Group provides a limited number of free walk/bike trolleys for tenants to use for in town shopping. Burlington is a beautiful city and your apartment is so close to everything this City has to offer.

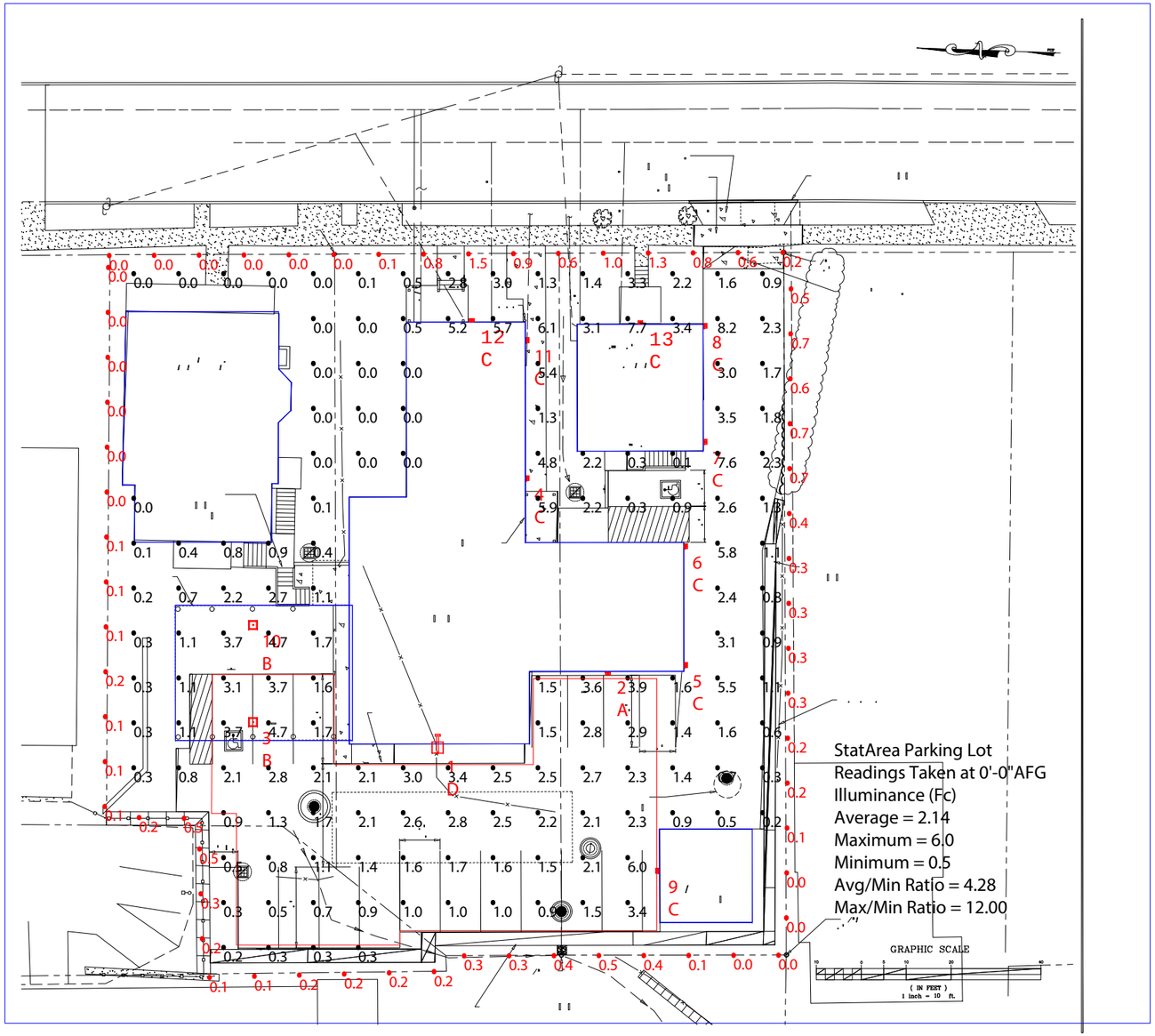
With our free bike trolleys it's an easy and quick trip. GCG's trolleys can go into the store with you as your personal shopping cart!

Our trolleys are free for your use. We ask that you take good care of them, of course along with some other conditions. If you want to use a trolley, we will ask for your initial agreement that if you were to lose or damage a trolley that we be allowed to cover that loss by reducing your damage deposit for the cost of a new replacement trolley.

We hope that you take advantage of this service - - think about what a trend setter you'll be when you bike down the street towing your groceries!

GREEN CASTLE GROUP

Conditions apply. Trolley's are on a first come first serve basis. Program start date will be July 1, 2015.



Scale: 1 inch= 30 Ft.

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Prepared For:
Holbrook Associated
P.O. Box 401
Rockland, MA 02370

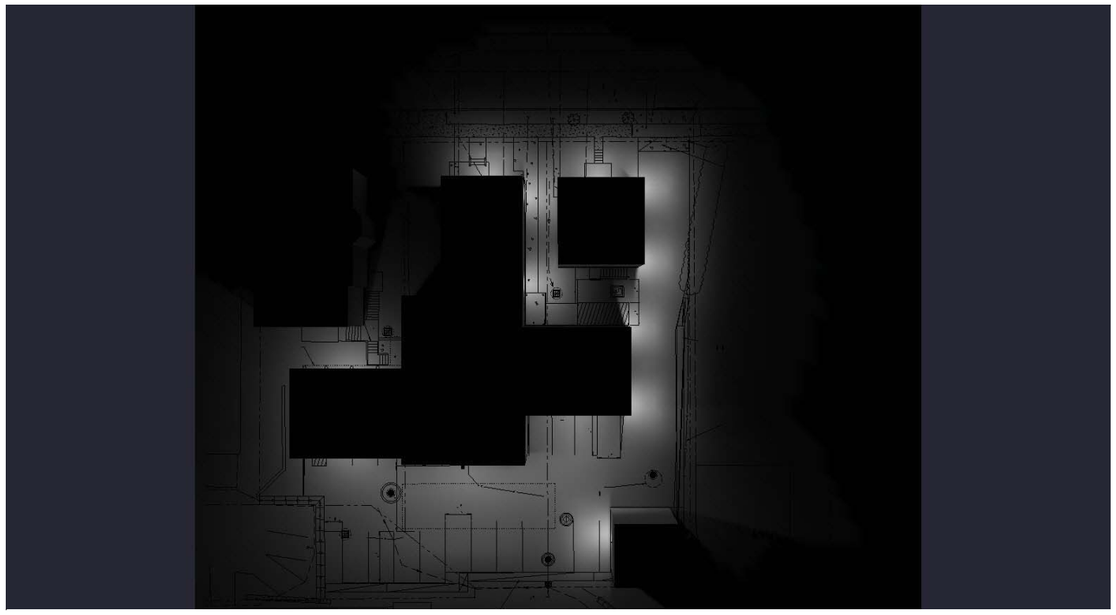
Job Name:
Hungerford Terrace
Lighting Layout
Version A

Scale: as noted	PROJECT # : 152640
Date:5/21/2020	CASE # : 00390792
Filename: Hungerford Terrace Lighting Layout 00390792A.AGI	
Drawn By: S Elliott	

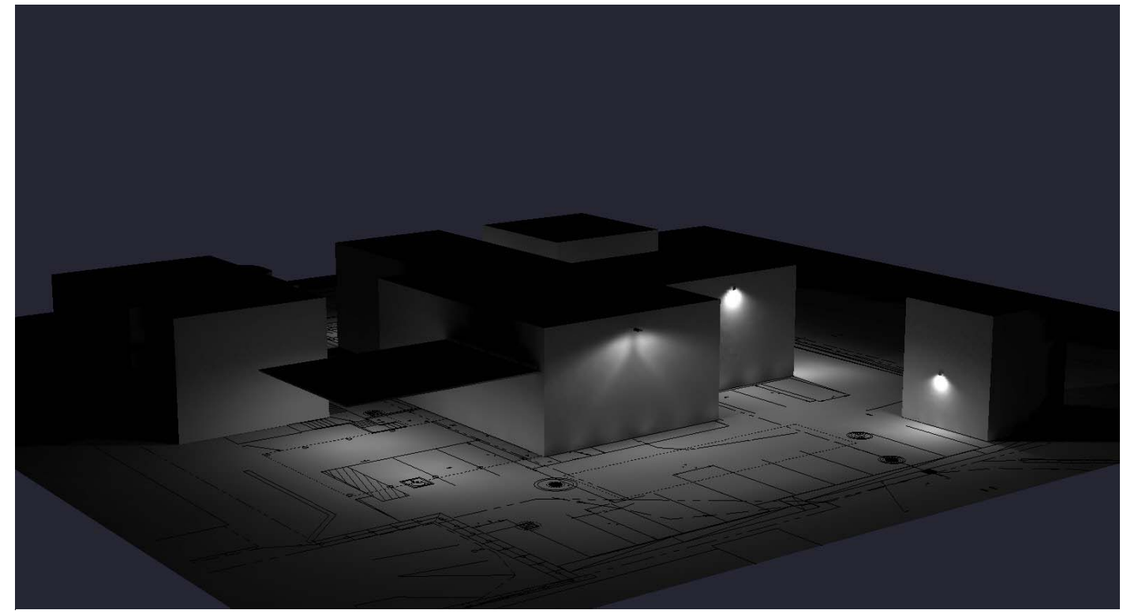
Filename: Z:\Job Files\Holbrook Associated\NE North East\Williston 108345\Hungerford Terrace\Working Files\AGI\Hungerford Terrace Lighting Layout 00390792A.AGI

The Lighting Analysis, ezLayout, Energy Analysis and/or Visual Simulation ("Lighting Design") provided by the RAB Lighting Inc. ("RAB") represent an anticipated prediction of lighting system performance based upon design parameters and information supplied by others. These design parameters and information provided by others have not been field verified by RAB and therefore actual measured r esults may vary from the actual field conditions. RAB recommends that design parameters and other information be field verified to reduce variation.

RAB neither warranties, either implied or stated with regard to actual measured light levels or energy consumption levels as compared to those illustrated by the Lighting Design. RAB neither warranties, either implied or stated, nor represents the appropriateness, completeness or suitability of the Lighting Design intent as compliant with any applicable regulatory code requirements with the exception of those specifically stated on drawings created and submitted by RAB. The Lighting design is issued, in whole or in part, as advisory documents for informational purposes and is not intended for construction nor as being part of a project's construction documentation package.



Plan View



Iso View

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Prepared For:
Holbrook Associated
P.O. Box 401
Rockland, MA 02370

Job Name:
Hungerford Terrace
Lighting Layout
Version A

Scale: as noted	PROJECT # : 152640
Date:5/21/2020	CASE # : 00390792
Filename: Hungerford Terrace Lighting Layout 00390792A.AGI	
Drawn By: S Elliott	

Filename: Z:\Job Files\Holbrook Associated\NE North East\Williston 108345\Hungerford Terrace\Working Files\AGI\Hungerford Terrace Lighting Layout 00390792A.AGI

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RAB neither warranties, either implied or stated with regard to actual measured light levels or energy consumption levels as compared to those illustrated by the Lighting Design. RAB neither warranties, either implied or stated, nor represents the appropriateness, completeness or suitability of the Lighting Design intent as compliant with any applicable regulatory code requirements with the exception of those specifically stated on drawings created and submitted by RAB. The Lighting design is issued, in whole or in part, as advisory documents for informational purposes and is not intended for construction nor as being part of a project's construction documentation package.

Calculation Summary											
Label	**CalcType**	**Units**	**Avg**	**Max**	**Min**	**Avg/Min**	**Max/Min**	**Description**	**PtSpcLr**	**PtSpcTb**	**Meter Type**
CalcPts Ground	Illuminance	Fc	1.82	8.2	0.0	N.A.	N.A.	Readings Taken at 0'-0"AFG	10	10	Horizontal
CalcPts Perimeter	Illuminance	Fc	0.30	1.5	0.0	N.A.	N.A.	Readings Taken at 0'-0"AFG	10	N.A.	Horizontal
StatArea Parking L	Illuminance	Fc	2.14	6.0	0.5	4.28	12.00	Readings Taken at 0'-0"AFG			

Luminaire Schedule			All quotes/orders generated from this layout must be forwarded to the Local Rep Agency				
Symbol	**Qty**	**Tag**	**Label**	**Arrangement**	**LLF**	**Description**	**BUG Rating**
	1	A	SLIM26Y	SINGLE	1.000	Wall Mount	B1-U0-G0
	2	B	VANLED20YF	SINGLE	1.000	Ceiling	B1-U0-G1
	9	C	SLIM12Y	SINGLE	1.000	Wall Mount	B1-U0-G0
	1	D	WPLED3T50Y	SINGLE	1.000	Wall Mount	B1-U0-G2

Luminaire Tag Summary	
Tag	**Qty**
A	1
B	2
C	9
D	1

Expanded Luminaire Location Summary						
LumNo	**Tag**	**X**	**Y**	**MTG HT**	**Orient**	**Tilt**
1	D	96.351	60.382	20	270	0
2	A	134.262	78.072	20	270	0
3	B	55.238	67.066	15	0	0
4	C	116.165	121.325	10	0	0
5	C	151.411	79.735	10	0	0
6	C	151.411	106.174	10	0	0
7	C	155.758	129.434	10	0	0
8	C	155.758	155.228	10	0	0
9	C	145.469	33.962	10	180	0
10	B	55.238	88.676	15	0	0
11	C	116.165	152.053	10	0	0
12	C	103.94	156.278	10	90	0
13	C	141.5	155.81	10	90	0
Total Quantity: 13						

NOTES:

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

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

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

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

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

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

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

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

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

Prepared For:
Holbrook Associated
P.O. Box 401
Rockland, MA 02370

Job Name:
Hungerford Terrace
Lighting Layout
Version A

Scale: as noted	PROJECT # : 152640
Date:5/21/2020	CASE # : 00390792
Filename: Hungerford Terrace Lighting Layout 00390792A.AGI	
Drawn By: S Elliott	

Filename: Z:\Job Files\Holbrook Associated\NE North East\Williston 108345\Hungerford Terrace\Working Files\AGI\Hungerford Terrace Lighting Layout 00390792A.AGI

The Lighting Analysis, ezLayout, Energy Analysis and/or Visual Simulation ("Lighting Design") provided by the RAB Lighting Inc. ("RAB") represent an anticipated prediction of lighting system performance based upon design parameters and information supplied by others. These design parameters and information provided by others have not been field verified by RAB and therefore actual measured r esults may vary from the actual field conditions. RAB recommends that design parameters and other information be field verified to reduce variation.

RAB neither warranties, either implied or stated with regard to actual measured light levels or energy consumption levels as compared to those illustrated by the Lighting Design. RAB neither warranties, either implied or stated, nor represents the appropriateness, completeness or suitability of the Lighting Design intent as compliant with any applicable regulatory code requirements with the exception of those specifically stated on drawings created and submitted by RAB. The Lighting design is issued, in whole or in part, as advisory documents for informational purposes and is not intended for construction nor as being part of a project's construction documentation package.

SLIM26Y

RAB

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

Color: Bronze

Weight: 4.5 lbs

Project:	Type:
Prepared By:	Date:

Driver Info

Type	Constant Current
120V	0.27A
208V	0.17A
240V	0.15A
277V	0.13A
Input Watts	30.60W

LED Info

Watts	26W
Color Temp	3000K (Warm)
Color Accuracy	71 CRI
L70 Lifespan	100,000
Lumens	3,580
Efficacy	117 LPW

Technical Specifications

Listings

UL Listed:

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

ADA Compliant:

SLIM™ is ADA Compliant

IESNA LM-79 & LM-80 Testing:

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

DLC Listed:

This product is listed by Design Lights Consortium (DLC) as an ultra-efficient premium product that qualifies for the highest tier of rebates from DLC Member Utilities. DLC Product Code: P6GMC1KT

Construction

IP Rating:

Ingress Protection rating of IP66 for dust and water

Cold Weather Starting:

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

Maximum Ambient Temperature:

Suitable for use in 40°C (104°F)

Housing:

Precision die-cast aluminum housing

Mounting:

Heavy-duty mounting bracket with hinged housing for easy installation

Recommended Mounting Height:

Up to 22 ft

Lens:

Tempered glass lens

Reflector:

Specular thermoplastic

Gaskets:

High-temperature silicone

Finish:

Formulated for high durability and long-lasting color

Green Technology:

Mercury and UV free. RoHS-compliant components.

LED Characteristics

LED:

Multi-chip, long-life LED

Lifespan:

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

Color Consistency:

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

Color Stability:

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

Color Uniformity:

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

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Technical Specifications (continued)

Optical

BUG Rating:

B1 U2 G0

Other

HID Replacement Range:

Replaces 175W Metal Halide

Warranty:

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

Buy American Act Compliance:

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

Electrical

Driver:

Constant Current, Class 2, 100-277V, 50/60 Hz., 6KV surge protection, 120V: 0.28A, 208V: 0.16A, 240V: 0.14A, 277V: 0.12A

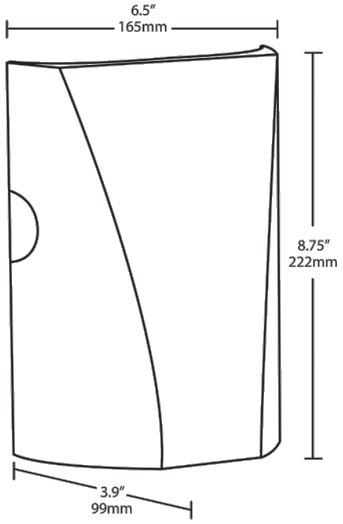
THD:

8.4% at 120V, 18% at 277V

Power Factor:

99.1% at 120V, 90.9% at 277V

Dimensions



Features

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

Ordering Matrix

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

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VANLED20YF

RAB

Low-profile vandal-resistant fixture covers the footprint of most traditional canopy lights. Available in flat or drop lens with frosted and unfrosted options.

Color: Bronze

Weight: 10.0 lbs

Project:	Type:
Prepared By:	Date:

Driver Info

Type	Constant Current
120V	0.19A
208V	0.12A
240V	0.1A
277V	0.09A
Input Watts	22.80W

LED Info

Watts	20W
Color Temp	3000K (Warm)
Color Accuracy	84 CRI
L70 Lifespan	100,000
Lumens	3,059
Efficacy	134.2 LPW

Technical Specifications

Listings

UL Listed:

Suitable for Wet Locations. Covered Ceiling Mount Only.

IESNA LM-79 & LM-80 Testing:

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

DLC Listed:

This product is listed by Design Lights Consortium (DLC) as an ultra-efficient premium product that qualifies for the highest tier of rebates from DLC Member Utilities. DLC Product Code: PFNK24S6

LED Characteristics

LEDs:

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

Color Stability:

RAB LEDs exceed industry standards for chromatic stability

Color Uniformity:

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

Construction

Cold Weather Starting:

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

Lens:

Vandal-resistant polycarbonate textured opaque for low glare flat lens

Housing:

Die-cast aluminum housing and lens frame with (4) 1/2" NPS side conduit entries and weatherproof rear wire plug and access plate

Mounting:

Ceiling mount to recessed junction with knockout template or directy to ceiling surface, utilizing side conduit entry points

IP Rating:

Ingress Protection rating of IP66 for dust and water

Air Tight:

Housing certified Air Tight as per ASTM E283

Finish:

Our environmentally friendly polyester powder coatings are formulated for high-durability and long-lasting color

Other

Warranty:

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

Buy American Act Compliance:

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

Electrical

Driver:

Class 2, Constant Current, 120-277V, 50-60Hz, 120V: 0.19A, 208V: 0.12A, 240V: 0.1A, 277V: 0.09A

THD:

8.44% at 120V, 19.05% at 277V

Power Factor:

98.5% at 120V, 87.3% at 277V

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Maximum Ambient Temperature:

Suitable for use in 40°C (104°F)

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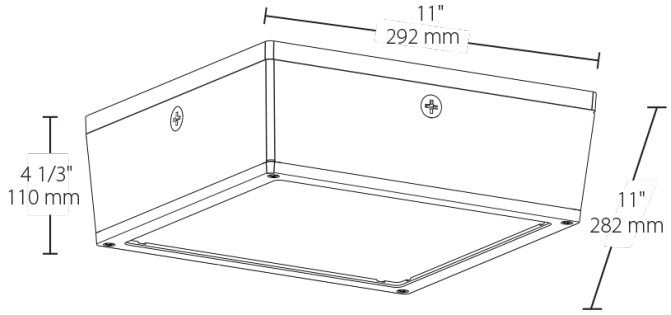
VANLED20YF

Dimensions



Features

- Fits the footprint of older canopy lights
- Vandal resistant and UV resistant lens
- Ultra-high efficiency
- Clean, contemporary, low-profile design
- Available with drop lens or flat lens
- IP66 rated, keeps dust, bugs and water out
- Photo and motion sensor options available

Ordering Matrix

Family	Wattage	Color Temp	Lens-Optics	Finish	Voltage	Options	Suffix
VANLED	20	Y	F				
	10 = 10W **20 =** 20W **28 =** 28W **40 =** 40W **52 =** 52W **65 =** 65W **75 =** 75W	**Blank =** 5000K (Cool) **N =** 4000K (Neutral) **Y =** 3000K (Warm)	**Blank =** Drop lens **F =** Flat lens [1] **FR =** Frosted Drop Lens **FFR =** Frosted Flat Lens [1]	**Blank =** Bronze **W =** White	**Blank =** 120-277V, 0-10V Dim Standard **/480 =** 480V, 0-10V Dim Standard	**Blank =** No Options **/MVS =** Microwave Sensor [1] **/WS =** Wattstopper, 8ft **/WS2 =** Wattstopper, 20ft **/PCS =** 120V Swivel Photocell **/PCS2 =** 277V Swivel Photocell **/PCS4 =** 480V Swivel Photocell **/LC =** Lightcloud® Control factory Installed **/E2 =** Battery, 120-277V only	**Blank =** Standard **USA =** Complies with the BAA

[1] /MVS option not available with F and FFR lens

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SLIM12Y

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

Color: Bronze

Weight: 4.5 lbs

Project:	Type:
Prepared By:	Date:

Driver Info

Type	Constant Current
120V	0.12A
208V	0.08A
240V	0.07A
277V	0.06A
Input Watts	15.90W

LED Info

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

Technical Specifications

Listings

UL Listed:

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

ADA Compliant:

SLIM™ is ADA Compliant

IESNA LM-79 & LM-80 Testing:

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

DLC Listed:

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

Construction

IP Rating:

Ingress Protection rating of IP66 for dust and water

Cold Weather Starting:

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

Maximum Ambient Temperature:

Suitable for use in 40°C (104°F)

Housing:

Precision die-cast aluminum housing

Mounting:

Heavy-duty mounting bracket with hinged housing for easy installation

Recommended Mounting Height:

Up to 8 ft

Lens:

Tempered glass lens

Reflector:

Specular thermoplastic

Gaskets:

High-temperature silicone

Finish:

Formulated for high durability and long-lasting color

Green Technology:

Mercury and UV free. RoHS-compliant components.

LED Characteristics

LED:

Multi-chip, long-life LED

Lifespan:

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

Color Consistency:

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

Color Stability:

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

Color Uniformity:

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

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Technical Specifications (continued)

Other

Patents:

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

HID Replacement Range:

Replaces 70W Metal Halide

Warranty:

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

Buy American Act Compliance:

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

Optical

BUG Rating:

B1 U1 G0

Electrical

Driver:

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

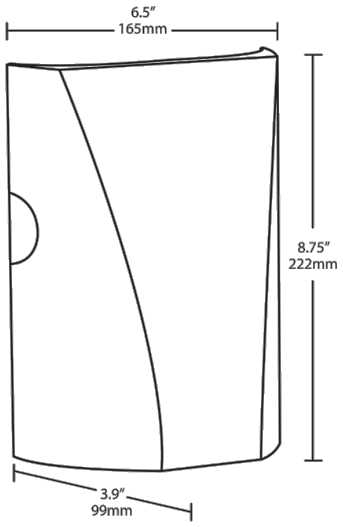
THD:

7.7% at 120V, 13.3% at 277V

Power Factor:

99.4% at 120V, 95.4% at 277V

Dimensions



Features

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

Ordering Matrix

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

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WPLED3T50Y

RAB

Color: Bronze

Weight: 34.8 lbs

Project:	Type:
Prepared By:	Date:

Driver Info

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

LED Info

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

Technical Specifications

Listings

UL Listed:

Suitable for wet locations as a downlight

DLC Listed:

This product is on the Design Lights Consortium (DLC) Qualified Products List and is eligible for rebates from DLC Member Utilities. DLC Product Code: P00001792

IESNA LM-79 & IESNA LM-80 Testing:

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

LED Characteristics

Lifespan:

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

LEDs:

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

Color Consistency:

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

Color Stability:

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

Color Uniformity:

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

Construction

IES Classification:

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

IP Rating:

Ingress Protection rating of IP66 for dust and water

Ambient Temperature:

Suitable For use in 40°C (104°F)

Cold Weather Starting:

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

Thermal Management:

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

Housing:

Die-cast aluminum housing, lens frame and mounting arm

Mounting:

Heavy-duty mounting arm with "O" ring seal & stainless steel screws

Reflector:

Specular vacuum-metallized polycarbonate

Gaskets:

High-temperature silicone gaskets

Finish:

Formulated for high durability and long-lasting color

Green Technology:

Mercury and UV free. RoHS-compliant components.

Electrical

Driver:

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

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Technical Specifications (continued)

Electrical

THD:

6.1% at 120V, 9.4% at 277V

Power Factor:

99.6% at 120V, 96% at 277V

Surge Protection:

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

Other

Patents:

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

Warranty:

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

Equivalency:

Replaces 200W Metal Halide

Buy American Act Compliance:

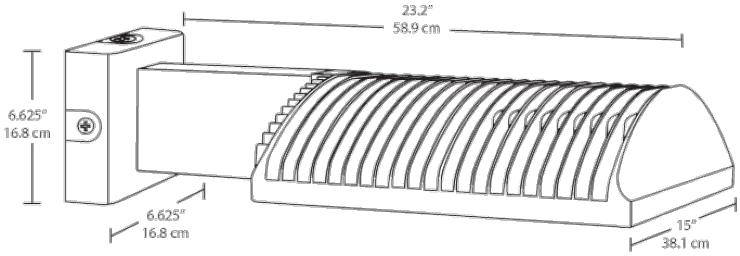
RAB values USA manufacturing! Upon request, RAB may be able to manufacture this product to be compliant with the Buy American Act (BAA). Please contact customer service to request a quote for the product to be made BAA compliant.

Optical

BUG Rating:

B0 U0 G1

Dimensions



Features

- High performance LED light engine
- Maintains 70% of initial lumens at 100,000-hours
- Weatherproof high temperature silicone gaskets
- Superior heat sinking with die cast aluminum housing and external fins
- Replaces 400W MH
- 100 up to 277 Volts
- 5-Year, No-Compromise Warranty

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WPLED3T50Y

RAB

Ordering Matrix

Family	Optics	Wattage	Color Temp	Mounting	Finish	Driver Options	Other Options
WPLED	3T	50	Y				
	4T = Type IV **3T =** Type III **2T =** Type II	**50 =** 50W **78 =** 78W **105 =** 105W **125 =** 125W **150 =** 150W	**Blank =** 5000K (Cool) **N =** 4000K (Neutral) **Y =** 3000K (Warm)	**Blank =** Arm **FX =** Flat Mount	**Blank =** Bronze **W =** White	**Blank =** Standard **/480 =** 480V **/BL =** Bi-Level **/D10 =** 0-10V Dimming **/480/D10 =** 480V 0-10V Dimming	**Blank =** Standard **/PC =** 120V Photocell **/PC2 =** 277V Photocell **/PCT =** 120-277V Twistlock Photocell **/PCT4 =** 480V Twistlock Photocell **/PCS =** 120V Swivel Photocell **/PCS2 =** 277V Swivel Photocell **/PCS4 =** 480V Swivel Photocell **/WS =** Multi-Level Motion Sensor **/WS2 =** Multi-Level Motion Sensor (20 ft. mt. ht.) **/WS4 =** Multi-Level Motion Sensor (40 ft. mt. ht.) **/LC =** Lightcloud Controller

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Project Narrative – This application is for Planned Unit Development and involves 4 existing lots with the following addresses: 273 Pearl Street, 11 Hungerford Terrace, 15 Hungerford Terrace and 21 Hungerford Terrace.

The Properties are currently improved as follows:

273 Pearl – Mixed use building housing a small dental office and a one bedroom apartment
11 Hungerford Terrace. 5 unit apartment building
15 Hungerford Terrace. Single family dwelling. Note: The applicant obtained a permit to make this building a duplex apartment building, but the conversion to duplex was not commenced or completed.
21 Hungerford Terrace. Single family dwelling. Note: The applicant has also obtained a permit to make this building a duplex, but the conversion to duplex was not commenced or completed.

Note: Applicant has obtained zoning permits to convert the house to be dismantled, 11 Hungerford Terrace, to a duplex and has not commenced construction. Similarly, applicant has obtained a permit to convert 21 Hungerford Terrace house to a duplex, but has chosen not to do so and has not commenced this construction. In lieu of the foregoing duplex conversions, applicant seeks an affirmative finding to instead to construct the Project described herein.

The applicant seeks to construct a new multi-tenant residential building to house 12 residential apartment units with and related parking and other supporting infrastructure on the combined site.

In order to support the new construction, the applicants seeks:
1) removal of the modular cape cod style house located at 15 Hungerford Terrace;
2) Removal of a garage structure on the 11 Hungerford Terrace Lot;
3) Moving of an existing garage structure back to the rear of the 11 Hungerford Terrace lot
4) Removal of a conjectural side porch on the Southerly elevation of the house at 21 Hungerford Terrace.

Total new units proposed = 11 apartment units (12 new minus the one unit currently being removed at 15 Hungerford Terrace)

****

Major Impact Review Standards

1. Sufficiency of water, water supply and distribution, public infrastructure, capacity of existing and planned community facilities generally.
The Project location is an existing high density residential area very close to the urban core and approximately three (3) blocks from Church Street. The Project is located within the Residential High Density Zoning District.

The City's intent for the RH Zone at CDO Section 4.4.5 (a) (5) is as follows:

"The Residential High Density (RH) district is intended primarily for high density attached multi-family residential development. Development is intended to be intense with high lot coverage, large buildings, and buildings placed close together. Parking is intended to be hidden either behind or underneath structures."

For purposes of residential construction, if an area is zoned for housing and a lot can accommodate the density, the cumulative impact of housing shall be considered negligible; The parcel is zoned for high density residential housing, and can accommodate the proposed density. The cumulative impact must be considered negligible.

The City has planned for development in the RH Zone on a large scale. It has accordingly set requirements in the form of the CDO to allow for high intensity of residential development near the downtown core where community facilities and infrastructure has already been invested in, created and concentrated. The CDO allows for 40 dwelling units per acre in the RH Zone before consideration of bonuses to take advantage of this existing infrastructure. This is not by accident. Water and sewer infrastructure is robust and runs to the Site. Substantial metered parking extends along Pearl Street and non-metered parking spaces along Hungerford Terrace adjacent to the Project. There are four parking garages within 5 blocks of the Project. The main fire station for the City is 4 blocks away few hundred yards away. The police station is approximately 9 blocks away. Schools are nearby. However, the Project is highly unlikely to generate additional school demand given the likely tenant population being young professionals or students.

The net addition of just eleven (11) new residential units will increase the intensity of use at the site. Given the High Density Residential Zoning District and the housing crisis that exists in the City, more dwelling units are both anticipated and encouraged by the CDO and the MDP, however.

Impact Fees/Incremental Property Taxes Supporting Infrastructure.

An impact fee is a fee imposed by local government on a new project to pay for public services. The increase in the number of dwelling units would be off-set by the payment of Impact Fees, and would thus pose no adverse impact to existing or planned community facilities.

The MDP directs housing density to occur in the RH zone, in large part because nearby infrastructure already exists, has capacity and is concentrated nearby. Higher density such as this Project located near the downtown core provides very substantial tax benefits to the City. These benefits are proportionately larger than any incremental infrastructure use arising from the Project. The Applicant estimates that the incremental tax benefit to the City above existing conditions would be at least $31,250 annually, without the likelihood putting children in the school system. As such, the Project is not a detriment to City facilities. Rather, it is a substantial boon to the City's capital infrastructure budget far into the future.

Major Impact Review Standards

The Project shall...

1. Not result in undue water, air or noise pollution;

Applicant's Response: The proposed project would only improve the situation as it relates to these impacts.

The site currently slopes to the West and does not have modern infrastructure to control these impacts. Stormwater and erosion impacts will be taken into account and there will be a substantial improvement by using current engineering methods. Engineered stormwater and erosion control infrastructure will be constructed as part of the proposal meeting the City's

requirements of Article 5, Sec. 5.5.3 of Burlington's Comprehensive Zoning Ordinance. Snow would be plowed and removed from site when necessary.

The proposal will not cause undue Noise pollution. The Project is not anticipated to generate substantial noise pollution. We choose are tenants carefully and require them to sign a good neighbor policy. As such, we anticipate continued success in managing noise impacts in a densely populated area.

As to air pollution, the site's proximity to employers, public transport and urban infrastructure will allow tenants of the property to avoid the automobile altogether. It will thus provide tangible opportunity to replace use of the automobile with pedestrian, bicycle and public transport and accordingly help minimize air pollution.

2. Have sufficient water available for its needs;

Applicant's Response: The proposed project would be served by the municipal water service administered by the Department of Public Works. The Applicant will obtain a water allocation from the Department of Public Works sufficient to support the proposed project.

3. Not unreasonably burden the city's present or future water supply or distribution system:

Applicant's Response: Applicant is only proposing to add a net of 11 apartment units to the Site which is already served by the municipal water service. Water lines (including a waterline for sprinkler system) already exist at the Hungerford Terrace site. There is no reason to believe that the addition of 11 residential units would unreasonably burden the City's present or future water supply or distribution system.

In fact, in 1984 the City's capacity of the water system was expanded to 18 million gallons per day (MGPD) and Burlington's water system typically operates at one-third or less of its total capacity.

4. Not cause unreasonable soil erosion or reduction in the capacity of the land to hold water so that a dangerous or unhealthy condition may result;

Applicant's Response: Applicant will submit an engineered Erosion Prevention and Sediment Control Plan and refers to those proposed measures as a means of avoiding such adverse impacts. Additionally, maximum lot coverage permitted in this zoning district is 92% with the affordable housing component. Applicant's proposal is at or below the allowed lot coverage.

5. Not cause unreasonable congestion or unsafe conditions on highways, streets, waterways, railways, bikeways, pedestrian pathways or other means of transportation, existing or proposed;

Applicant's Response: Applicant is only proposing to add 11 residential units of to the site which is located in a high-density residential (RH) zoning district. This is well within the maximum build-out allowed under the CDO. In addition, the site is also extremely well located on Hungerford Terrace within/near the urban core of the City. Accordingly, it is one of the precious few locations remaining in the State where multiple modes of transport are extremely viable. In this location use of an automobile is very often less convenient than walking, cycling

or public transport. Within 1 to 5 blocks of the Site, the rich urban infrastructure of downtown Burlington unfolds. The shops and restaurants of Church Street are within 3 blocks. Fletcher Free Library is approximately 3 block away. The Chittenden County Court house is within 5 blocks. Hundreds of employers lie within a 1 to 8 block radius of the site. Any increase in traffic of any sort should be easily absorbed by the existing urban infrastructure.

Public Transport. Public transport is extremely convenient from the Site. There is a bus stop approximately one block away with service regularly from CCTA along Pearl Street, which is a Major Street.

Bike Friendly Building/Pedestrian Friendly Building. The Applicant will also offer amenities to all residential tenants that will make bicycle use extremely convenient and will also make walking a convenient mode of transportation. Included within each apartment will be a wall mounted bicycle rack for one bicycle. Interior climate controlled bicycle storage will also be offered on site. A fixed bike rack will be provided outside of the building. In addition, tenants will be offered free use of several caged trolleys. These trolleys will be designed for use as either pedestrian shopping carts or bicycle mounted shopping carts when shopping at nearby City Market and other Burlington shops. The carts will serve as shopping carts with the intent that the tenant can wheel inside City Market and back home.

6. Not cause an unreasonable burden on the city's ability to provide educational services;

Applicant's Response: The target demographic for tenants of the proposed project would be adults without minor children, primarily workers who work in the City or students. It is unlikely that this project would draw many tenants with school-age children who would be entering the Burlington School District, if any.

7. Not place an unreasonable burden on the city's ability to provide municipal services;

Applicant's Response: There is no reason to believe that the addition of this small number of residential units would unreasonably burden the city's ability to provide municipal services given the location so close to the urban core.

Solid waste will be picked up regularly by private hauler.

According to the MDP, the Burlington Police Department meets national standards by providing two police officers per one thousand residents. The addition of just 11 residential units would therefore not have any material impact on the City's ability to provide police services.

The Proposal would not unreasonably burden the City's ability to provide fire services.
According to the MDP, fire department officials believe they have adequate facilities and equipment with which to fight fires as long as building heights do not increase significantly beyond the current maximum heights. The new and existing construction on the site will meet the height limit of 35' allowed by the CDO for the RH zone.

The new apartment building on the site will be fully sprinklered with a type 13 R automatic sprinkler system and a fully automated integrated fire alarm system. It is important to note that newer structures, equipped with sprinklers and fire alarms tied into the fire department electronically are less likely to burn than older buildings. Much of the City's housing, old and new is wood frame construction. Accordingly, the addition of a fully sprinklered building to the housing stock will only help this situation.

8. Not have an undue adverse effect on rare, irreplaceable or significant natural areas, historic or archaeological sites, nor on the scenic or natural beauty of the area or any part of the city;

Applicant's Response:

There are no rare, irreplaceable or significant natural areas or archaeological sites at the subject property being unduly impacted. The existing buildings at 11 and 21 Hungerford Terrace are eligible for listing or have been listed on the state's historic registry and are contributing structures in this Historic District. These structures are being preserved for the most part.

The 15 Hungerford Terrace house was built in the 1970s and is not historic. The proposal is to remove the existing house at 15 Hungerford Terrace and move it to another location off site.

There is one outbuilding (a garage on the 11 Hungerford Terrace site) and a conjectural side porch to 21 Hungerford Terrace that are sought to be removed in order to provide for the substantial public benefit of additional housing. The additional housing and related infrastructure as proposed would not be possible without such removal. The revenues from additional housing will be used to protect and preserve the two primary historic structures on the combined site. (11 Hungerford Terrace building has already been completely renovated on the interior and improved by Applicant with a fully automated sprinkler system and fire alarm system. Thus helping to assure its preservation into the future.) Given the foregoing and the substantial public benefit of additional housing, the impacts in this criteria are not undue and adverse. For a complete analysis of the criteria impacted by removal of the 11 Hungerford Garage, see **Exhibit G-11H** hereto. For a complete analysis of the criteria impacted by removal of the 11 Hungerford Garage, see **Exhibit SP-21H** hereto.

The Applicant recognizes that the MDP seeks to respect the city's architectural heritage and to conserve the existing elements and design characteristics of its neighborhoods and maintain neighborhood proportions of scale and mass, as well as supporting the development of additional housing within the city

Accordingly, the primary vertical construction will be completely detached from the buildings at 11 Hungerford and 21 Hungerford Terrace and no material changes to the existing buildings at 11 and 21 Hungerford are contemplated other than changes toward the side of 21 Hungerford Terrace. There will be site changes on the 11 and 21 Hungerford lots, which will have impacts only to the rear of the 11 and 21 Hungerford sites. The site changes have two primary purposes. First, to provide greater accessibility to the existing structure as well as to the new construction. The new residential units will comply with the VT Access Rules 2012, by providing two fully accessible HC parking spaces and the required number of HC accessible units. Second, the new apartment structure will help facilitate common use of shared facilities across the site such as an exercise room, storage, bicycle storage and a common lobby.

In summary, the design seeks to minimize impacts on historic features of the existing structures at 11 and 21 Hungerford. This is why Applicant chose not to add on to 11 and 21 Hungerford structures, but rather to build on the middle lot (15 Hungerford) primarily and to the rear of the 11 and 21 Hungerford lots.

The Applicant submits that the proposed new structure is compatible in style with the Hungerford Terrace Historic District. The new addition has been carefully planned to be substantially compatible to the existing building height, massing and arrangement on the street. The Site slopes substantially to the West and the site has an open area to the West that is open for development. The development plan thus exercises the Hungerford Terrace grade change to 'sink' the basement substantially from view from Hungerford Street, while accommodating an attractive walk-out provision. It is also of note that the structure reflects the design and massing of two buildings across the street and within 40' of the Site.

As for the scenic or natural beauty of the area, there are no public viewscapes to impair. Applicant intends to preserve the existing mature trees on the streetscape and to locate new development on the site in a manner which respects the topography.

9. Not have an undue adverse effect on the city's present or future growth patterns nor on the city's fiscal ability to accommodate such growth, nor on the city's investment in public services and facilities;

Applicant's Response: The proposed project is to be located in the RH district within the maximum unit limits prescribed by the CDO, where the CDO directs multi-unit residential housing to be constructed. Accordingly, this criteria represents one of the primary strengths of this Project. The proposal provides infill, thus augmenting an already existing development pattern within a largely built up environment, rather than sprawling out the pattern of development. The RH zone of the City is a mostly built out environment with some limited opportunity for small scale infill development such as the subject site. Infill development of this sort are incorporated within and take advantage of existing development patterns, thus avoiding sprawl impacts.

Infill of this sort also maximizes the City's existing investment in infrastructure. City services and facilities are already concentrated within the nearby urban core and the RH Zone. Accordingly, infill development as directed by the City provides substantial benefits, while utilizing existing infrastructure and thus avoiding the substantial associated capital costs of additional infrastructure.

As a result, the CDO expressly directs multi-unit residential development to occur in the RH zone to maximize the City's existing infrastructure investment. "The Residential High Density (RH) district is intended primarily for high density attached multi-family residential development. Development is intended to be intense with high lot coverage, large buildings, and buildings placed close together." City of Burlington Comprehensive Development Ordinance, Section 4.4.5(a)5. The RH zone of the City is a mostly built out environment with some limited opportunity for small scale infill development such as the subject site. Infill development of this sort takes advantage of existing infrastructure and development patterns, thus avoiding sprawl impacts that include additional infrastructure costs.

10. Resource Utilization. The Site's many advantages in this regard are outlined thoughout. Primarily, the location and improvements proposed provide for the ability of tenants to live, work and play within walking and biking distance. This will result in a project with among the lowest resource utilization profiles possible in the entire State of Vermont. Notably, the Project provides for substantial amount of fenistration, thus providing ample opportunity for

solar gain. Energy efficiency and insulation standards provided under State law and City ordinance will be followed.

11. Be in substantial conformance with the city's municipal development plan and all incorporated plans:

Applicant's Response: Regarding the MDP, the proposed development is in conformance with but also gives direct effect to the MDP.

Exhibit G-11H

Demolition of Dilapidated Garage on 11 Hungerford Terrace Lot

Description of Structure proposed for Demolition and Site.

The only structure proposed to for demolition its entirety in connection with the subject application is a subordinate, dilapidated out building used as a garage located on the 11 Hungerford Terrace.

The primary structure on the lot is a five (5) unit residential apartment building located nearest to Hungerford Terrace which has undergone a complete interior renovation and thus has been preserved by Applicant. The only other structure on the 11 Hungerford Terrace lot is the dilapidated subordinate garage structure.

11 Hungerford Terrace is a narrow lot of about 50' in width that slopes substantially to the West. The subject garage structure is set back on the lot about 60' feet from Hungerford Terrace, just beyond the Westerly façade of the primary structure on the site. The garage is built into the grade close to the southerly boundary line. The elevation between the Easterly facing front of the garage and the back of the garage drops off about 8'. The location of the garage structure on the narrow lot approximately mid-way across the narrow lot blocks access and creation of parking and other infrastructure necessary for the proposed project and also interferes with creation of habitable space on the combined lots.

The subject garage is in substantial disrepair, to the point where it is structurally unsound and cannot be rehabilitated or moved to better accommodate economically feasible development of the Combined Site.

The garage structure is a primarily wood structure with two levels, a partially below ground level and a street facing level with a wood floor that is above ground. The garage structure appears to have been built at the same time as the primary structure on the Property and has been substantially altered since its original construction. As noted abovve, Applicant has undergone a complete interior renovation of the existing primary structure on the lot, to include a complete interior renovation and sprinkler system to preserve the property.

Applications for Demolition of an entire structure are governed by Article 5.4.8(d) of the City of Burlington Comprehensive Development Ordinance.

A. *The Structure Proposed for Demolition is Structurally Unsound Despite Ongoing Efforts to Maintain.*

One very substantial reason for the proposed demolition is that the garage structure is unsound. *See report of Scott + Partners Architects* attached (the "Architects Report"), confirming the following defective conditions:

The foundation and footings appear to have been improperly installed originally. As a result, the slab and foundation is sinking up to 42 inches in some places. In addition, there is extensive water

leakage through the roof and siding. The compromised roof and siding systems have caused substantial issues, including, but not limited to:

-structural supports rotting

-rotting of wall systems

-white mold infiltration

As a result of the foregoing, the structure is unsound for use as a garage structure.

The Applicant acquired the 11 Hungerford Terrace property in March of 2018. Since that time, the Applicant has sought diligently to properly maintain the structure. Primarily, this has consisted of installing beams to support the first floor that is sinking and settling substantially. (See pictures attached and Architects Report). However, given the existing compromised foundation and footings, such work is not likely to achieve lasting positive results structurally.

B. <u>The structure cannot be rehabilitated or reused on site as part of any economically beneficial use of the property in conformance with the intent and requirements of the RH Zone and cannot be practicably moved due to its compromised condition</u>.

The Applicant is seeking a zoning permit to add 12 apartment units (net 11 apartment units) and to make associated site improvements including stormwater infrastructure. The Applicant has already done a complete interior renovation to the primary structure at 11 Hungerford Terrace. Thus helping to assure its economic viability well into the future and its historic preservation. Rehabilitation of the garage structure is not practically feasible, however. This is primarily due to the fact that the foundation and slab have been substantially compromised and are sinking. There is also rot and other structural damage as noted above and in the Architect's Report. As a result, any rehabilitation would be extremely costly, involving wholesale reconstruction of nearly every element of the structure with new materials including, but not limited to, new footings, new foundation, new concrete slab, new roof underlayment, new roof shingles and new siding. For these same reasons, the garage cannot be practicably moved.

Moreover, such reconstruction would result in a structure that has little or no economic benefit in the context of the residential high density zone in which it is located. Section 4.4.5 (a) of Burlington's Comprehensive Development Ordinance provided that "[t]he Residential High Density (RH) district is intended primarily for high density attached multi-family residential development. Development is intended to be intense with high lot coverage, large buildings, and buildings placed close together. Parking is intended to be hidden either behind or underneath structures."

Put simply, a suburban garage type structure that cannot be practicably moved and is in substantial disrepair as of purchase by the Applicant uses up precious land and lot coverage needed for development of housing on the site. As such under the circumstances, preservation of the 11 Hungerford garage is both impractical and runs directly counter to the intent of the RH Zone, which is to engender intense development consisting of large multi-family residential buildings.

C. **The proposed redevelopment of the site will provide a substantial community benefit that outweighs the historic or architectural significance of the building proposed for demolition.**

i) The Garage structure has little if any historic significance.

In order to weigh the historic significance of the building set for demolition against the community benefits, it is necessary to first review the historic character of the garage structure. The State of Vermont Division of Historic Preservation Individual Structure Survey Form includes a reference to the garage as a related structure, which is often done as a matter of course. Significantly, the Historic Preservation Individual Structure Survey Form notes present no fact indicating any material historic significance attributable to the garage structure itself. Accordingly, in the Statement of Significance at page 2 thereof, there is only mention of the apartment building on the site as contributing to the massing on the street. There is no mention of the garage itself as meeting any historic standard or criteria whatsoever.

Review of the applicable standards used to determine historic value of a structure confirms that this ancillary structure to have little or no historic significance.

1. There was no event that occurred on or about this lot or on any structure on the lot that made a substantial contribution to the major pattern of American History.
2. The Property is not associated with any significant person of the American past.
3. The design and construction is not particularly distinctive and does not possess historic value and was not the work of a master.
4. The property has not yielded and is not likely to yield information that is important to prehistory or history.

Moreover, even if the garage did originally have any historic merit, such qualities have been completely eroded by subsequent modifications. Accordingly, the structure has no historic integrity. This is due to modifications to nearly every aspect of the exterior of the structure done by prior owners, including the following:

-The Original roofing materials have been replaced with asphalt shingles.

-The original siding materials have been changed to vinyl siding.

-The street facing easterly façade has been substantially modified to provide for an opening large enough to accommodate single garage door.

-Late 1970s era single entry garage door has been added on the street facing façade

- a newer entry door has been added to the right of the modern garage door

-a newer poured concrete foundation walls and slab have been installed at the lower level.

Finally, because the garage is set back so far from the street and sunken in elevation, its removal would not represent a detriment to the massing on the street, which is the only recognizable basis for nomination of the primary structure at 11 Hungerford Terrace.

The community benefit to redevelopment of the site is overwhelmingly evident. Burlington has long had a housing crisis resulting in a scarcity of housing. The addition of twelve additional residential units

to the site, thus renders a substantial community wide benefit. It is also important to note the location as being critical to the analysis. Because the site is close walking distance to downtown, the waterfront, the institutions and many dozens of employers, residential development of the site will make a substantial contribution to mitigating reliance on automobiles as cars are not needed for commuting to work, studies or downtown recreation.

D. Demolition of the garage will be done in a way that has no impact on the existing multi-unit building on the 11 Hungerford property, but will instead facilitate preservation of the primary structure.

The structure is detached from the primary building on the 11 Hungerford lot. The garage structure can therefore be accessed from the driveway for demolition. In addition, the redevelopment of the greater site has been planned and designed to assure that the primary building on the 11 Hungerford lot will not be impacted or changed at all. As such, there will be no impact whatsoever on any other structure as a result of demolition, including the existing multi-unit apartment house on the 11 Hungerford lot.

E. All Historically and architecturally important design, features, construction techniques and examples of craftsmanship and materials will be documented properly using the applicable standards of HABS.

As a condition to the permit to remove the structure, the Applicant will document any important design, features, construction techniques and materials using the standards of the Historic American Building Survey and make such available to historians and those interested in Burlington's historic history.

F. *The space generated after demolition will be used to construct housing units.*

It is also important to note that the garage sits at a place on the property that blocks functional use of a large portion of the 11 Hungerford lot. In this PUD, the rear 25% setback must be maintained as well as the other setbacks around the combined site perimeter. Accordingly, redevelopment of this site is very limited if this dilapidated garage is retained. Put simply, maintaining this garage prevents the construction of incredibly valuable housing units in the location of the garage.

It is also important to note, that Applicant is proposing as part of the Application to add a stormwater bio-treatment detention area located behind the existing structures, which is much needed in this difficult, sloping site. The proposed bio treatment area also offers the substantial added community benefit of treatment of stormwater run-off from the adjacent sites at 15 and 21 Hungerford Terrace and from sites originating up the hill. Such stormwater infrastructure is simply not viable to construct economically if not associated with redevelopment of the site to apartments.

G. The Applicant Has Provided a substantial redevelopment plan for the combined site after demolition which provides for replacement structure consisting of a multi-unit residential apartment building with 12 apartment units.

The Application represents a significant redevelopment plan for the site that provided for replacement structure. The proposed structure is also compatible with the historical integrity and enhances the architectural character of the site and area.

The Applicant expects to commence construction immediately after zoning approval and development of construction drawings, with an expected construction start date of Spring, 2021. The demolition of the 11 Hungerford Structure would be within a few days of the commencement of construction of the overall project. So, there would be no appreciable time lag between demolition and commencement of construction.

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Mr. Greg Doremus

Green Castle Group

346 Shelburne Road, Suite 602

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10/08/2018

Dear Greg:

You have asked us to report on the soundness of the shed/garage currently located at 11 Hungerford Terrace. This report is based on our site visit to the property on October 4, 2018.

Description of Structure and Site.

The garage structure is a wood structure of approximately 675 square feet with a parking level and a walk out basement. There is a small storage loft on the parking level accessed by a step ladder. The lot slopes toward the main entry of the garage and continues to slope toward the back of the garage. The structure is built into the grade and sits about 5' feet from the Westerly boundary line. The elevation between the front and back of the structure drops off about 8'. Retaining walls hold back the grade to allow an entry to the basement on the North side. The rear of the building is at grade. The building form is a simple rectangular form with a pitched roof and gables at the entry and rear ends. The roof ridge aligns East to West. The structure appears to have been built at the same time as the primary structure on the Property was built. (The Primary structure on the property was converted to a 5 unit apartment building by a previous Owner and has substantially been allowed to degrade.) Both buildings sit on a narrow lot of about 50' in width, that slopes substantially to the South and West. The building is constructed as follows.

Roof Structure:

The roof structure is 2x4 framing at varying on center dimension of around 24 inches covered with board sheathing and topped with asphalt shingles. There is no ridge beam. Rafter ends at the ridge butt together and are fastened with nails. Rafters sit on a wood top plate and are secured with nails. There are no collar ties or a structural roof beam. The loft framing provides some resistance to outward gravitational pressures.

Exterior walls:

Exterior walls are framed with 2 x 4 wood studs at 24" or more on center. Corner studs are larger wood member and there is a former timber column framed into the wall system to support the loft area. Nails are used to secure the framing. The outside of the studs is framed with wood sheathing and topped by what is assumed to be wood siding and trim. The exposed exterior finish of the walls is vinyl siding and does not allow for view of finishes behind. Wall framing sits on wood plates that are not pressure treated and appear to be in fair to poor condition. The plates sit on a concrete foundation wall.

Floor system:

Garage floor system consists of wood framing with a board floor. Framing is a mix of non-original pressure treated boards and original boards. Several built up beams have been added at some point to provide additional floor structure. The floor system bears on the basement walls. Fasteners used are nails. Beams bear on the concrete basement foundation walls and internal columns. Columns are a mix of steel tube and light weight steel adjustable columns. The columns sit on a failing concrete floor slab. It is not clear if the columns sit on footings.

Basement:

The basement walls are poured concrete and wood framed. The concrete walls were formed using board forms. There is no indication of rebar or other structural reinforcing. The walls do not show signs of structural distress. The basement slab is a thin slab that is failing. There appears to be water movement under the building causing undermining of the slab.

Windows and Doors:

Windows where they remain are wood double hung with a six over six configuration. Window sash and frame are in poor and deteriorating condition. There is a person door next to a garage door on the garage entry side of the building. The person door has four wood panels and three glass lites. The door is damaged and one lite is broken. The garage door is wood and not original to the structure. The basement is accessed by a wood door fabricated from board and in fair condition.

Building Location:

The garage location on the lot limits easy access to the rear of the property impacting the ability to access an existing sewer line (which requires periodic maintenance) and limits the ability to properly manage stormwater that runs to the back of the lot. Removal of the structure would greatly improve the ability to maintain of the site and its utilities.

Observations:

- The asphalt shingles are beyond their useful life and require replacement.
- Roof sheathing shows signs of rot and deterioration. There is extensive discoloration and water markings. Sheathing will be required to be replaced.
- Rafters are undersized for their function. Some are damaged and will require replacement or reinforcing to meet current standards. Some rafters have failed and are repaired with a wood splice.
- Rafters will require proper attachment to the wall framing and a structural ridge installed to reduce gravitational forces.
- Wall sheathing shows signs of rot, water damage, and staining indication a long period of weather exposure. We assume a minimum of 50% will require replacement.
- Walls studs where damaged or rotten will require replacement. We assume a minimum of 20% of the studs will require replacement.

- The condition of the finishes under the vinyl siding was not able to be observed. It is assumed that the vinyl siding was installed to cover failing exterior siding. Replacement of the exterior siding and trim should be anticipated if the vinyl siding is removed.
- Garage floor boards show signs of rot and deterioration at the perimeter edges of the floor. Damaged and rotten boards should be replaced. We assume a minimum of 10% of the boards are to be replaced.
- Steel columns are poured into the concrete basement slab and are rusting. Column should be replaced. Reinforced concrete footing should be provided for each column.
- The basement slab will need to be replaced if desired to be kept. Proper structural fill installed as well as a new storm water management system.
- A footing underneath the existing poured concrete basement walls was not able to be verified. Existence of a footing should be confirmed.
- On the rear and North side of the building there is a visible bump and change in wall plain at the main floor framing. It appears that there has been some movement either of the building or the foundation. A more invasive exploration of this area should be conducted.
- Past work completed on the building has removed most of the original historical building components.

Soundness of Structure and its Suitability for Rehabilitation.

Based on the observation above there are valid concerns about the structural soundness of the garage and its suitability for rehabilitation. The building has been neglected over the years and the lack of repair and up keep are showing. The building framing does not meet current structural standards. Rehabilitation of the building will require extensive structural reinforcing as well as replacement of framing, wall sheathing, windows, columns, footings, and exterior finishes. As such, it is our opinion that the structure is compromised and is not suitable for rehabilitation. In addition, because of the extensive nature of the defects, it is not economically feasible to rehabilitate the structure.

Sincerely,

Joel Page, AIA

Scott + Partners, Inc.

Principal

Exhibit SP-21H

Executive Summary

Application for zoning approval to remove ancillary sun-porch attached to historic building to facilitate emergency vehicle access to PUD site.

-The sun-porch is not part of the original construction of the building; The exact date is unclear, but the Sanborn Fire Insurance Maps and National Register of Historic Places indicate that the sun-porch was not part of the original building.

-On its own, the sun-porch does not meet the criteria for Applicability of a Structure as a historic building or site. To be applicable, all of the following conditions must be met

a. The building is 50 years old or older.
b. The building does not possess significance in illustrating the heritage of the city, state, or nation in history.
    i. No associations with significant events.
    ii. No associations with significant people.
    iii. No distinctive construction techniques or artistic qualities. Not constructed by a "master".
    iv. No maintenance to an "exceptional high degree of integrity", original site orientation, or character defining elements.
c. The building does not possess a high degree of integrity of location, design, setting, materials, workmanship, feeling, and association.

-The sun-porch contrasts the historic nature of the primary historic structure; Hip roofs originate from French/French Creole inspired architecture, contrasting the Dutch/Flemish gambrel roof of the main structure that makes the structure historically significant.

-The removal of the sun-porch will help return the structure to its original historical state; In addition to the hip roof of the porch contradicting the gambrel roof design of the main house, removal of the sun-porch will expose the exterior chimney, a historical feature.

-The removal of the porch will not damage the historical nature of the main house; The sun-porch will be disassembled, rather than "demolished" in the traditional sense. This will allow for careful preservation of the existing historical building.

Project Overview: This application is part of a Planned Unit Development that involves 4 sites: 273 Pearl Street, 11 Hungerford Terrace, 15 Hungerford Terrace, and 21 Hungerford Terrace (the "Combined Site"). The project seeks to construct a new multi-tenant residential building to house 12 residential units (net 11 new units), related parking, and other supporting infrastructure on the Combined Site. In support thereof seeks removal of a non-historic house constructed in 1994 located at 15 Hungerford Terrace, the demolition removal of one outbuilding located at 11 Hungerford Terrace, and the removal of an accessory sun-porch on a secondary facade of 21 Hungerford Terrace. This memorandum relates to the removal of the accessory sun-porch at 21 Hungerford Terrace.

Applications for removal of an ancillary space pursuant to article 5.4.8(d) and the City of Burlington Comprehensive Development ordinance.

Description of Ancillary Space Proposed for Removal.

This is an application for the zoning approval to remove a sun-porch located at 21 Hungerford Terrace. The primary structure on the lot is a single family dwelling, to which the sun-porch is connected via a door through the living room. The removal of this sun-porch is proposed in this application to facilitate safe and fast access to the site by emergency response vehicles.

21 Hungerford Terrace is a lot approximately 50" in width, with driveway access to parking in the rear along the Southern facade of the primary structure. The sun-porch proposed for removal in this application attaches to this Southern facade and protrudes out from the primary structure approximately eight feet, leaving about 18 in of space between the driveway and building. The porch attaches in the front ⅔ of the primary structure, leaving the rear 1/3 as open space for cars to fit between the porch and a row of large trees along the Southern property line. The location of the porch between the primary structure and the property line makes for difficult access to the rear of the property by any vehicle that is larger than average. The poor location of this retrofitted space has led to the repeated striking of the building by vehicles.

The sun-porch is constructed using standard framing techniques on top of a cement block foundation. The crawl space underneath is not accessible, although there are two openings for basement windows facing South. The main windows consist of 8 casements covered by modern metal storm windows. Siding below, between, and above windows is vinyl. The roof is a wood framed, slight pitch hip roof peaking at the chimney (which was on the exterior prior to the construction of the porch). The roof covering is sheet metal.

Applicability of Structure Pursuant to Article 5.4.8

Section 5.4.8(a) specifies that **all** of the following conditions must be met for a structure to be listed on the State or National Register of Historic Places.

1. **The Building is 50 years old or older;** 21 Hungerford Terrace is listed both in the State and National Register of Historic Places. The original construction date is unclear, either in 1922 (State Register) or in 1923 (National Register).

2. **The building or site is deemed to possess significance in illustrating or interpreting the heritage of the city, state, or nation in history, architecture, archeology, technology and culture because one or more of the following conditions is present;**

a. **Associations with events that have made a significant contribution to the broad patterns of history;** There was no event that occurred on or in the building or its lot that made a substantial contribution to the broad patterns of American or international history.
b. **Associations with the lives of persons significant in the past;** The original occupant was a man named William Robinson, however there is no evidence of his historical significance. He was either a banker or a barber, and has no relation to Daniel Webster Robinson, the Burlington lumber magnate who lived at 384-388 Main St.
c. **Embodiment of distinctive characteristics of a type, period, or method of construction, or representation of the work of a master, or possession of high artistic values, or representation of a significant or distinguishable entity whose components may lack individual distinction ;** The distinctive characteristic of the building as stated in the state and national historic registers is the gambrel roof feature of the house itself. The sun-porch in question was not constructed by a master and has no distinguishing features that could be considered artistic or representative of a significant or distinguishable entity.
d. **Maintenance of an exceptional high degree of integrity, original site orientation and virtually all character defining elements intact;** The statement of significance of this building on the state historic register lists its character defining elements as being one of several gambrel roof houses on this block. We are not removing or modifying this distinguishing feature that adds to the "Dutch or Flemish 'feel' to the surroundings".
e. **Yielding, or may be likely to yield, information important to prehistory;** There is no evidence that this site is likely to yield any prehistoric information.

3. **The building or site possess a high degree of integrity of location, design, setting, materials, workmanship, feeling, and association;** Although the primary structure of the building lends its gambrel roof to the feeling of the neighborhood and its association, the enclosed porch in question lends no integrity of design.

Following the review of the State and National Historic registers, the significance of the structure with regard to these registers is as follows.

-The building is part of the Buell-Bradley Street Historic District. A district characterized by its Dutch colonial and Colonial Revival building style.

-The building has a gambrel roof that adds to the Dutch "feel" of the surroundings.

The sun-porch section of the building in question does not exhibit any of the characteristics that lend to the neighborhood Dutch or Flemish "feel". In fact, hip roofs as seen on this porch directly contrast the Dutch Colonial style as they are historically seen in French-inspired architecture.

Standards and Guidelines Pursuant to Article 5.4.8(b)

Following the review of the Secretary of Interior's Standards for the Treatment of Historical Properties, we believe that the removal of the sun-porch in question falls well within the standards. Article 5.4.8(b) specifies that "These standards are intended to be applied in a reasonable manner, taking into consideration economic and technical feasibility". Within the context of the greater PUD for this site will require access to large emergency vehicles. The driveway is currently too narrow for this. In the past, even smaller vehicles have had trouble navigating this section of driveway and have struck the sun-porch, causing damage. The following points address each standard and guideline in article 5.4.8(b)

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 original use for this property was as a residential dwelling. It is currently used as such and will continue to be after removal of the sun-porch.

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.** As stated above, both state and national historic registers recognize this property for its distinctive roof features. This feature will not be altered or removed.
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 historical properties, will not be undertaken.** No conjectural features will be added. In fact, removal of the sun-porch will help return the building back to its original historical nature, as the hip roof feature of the porch directly contrasts the Flemish architectural style that distinguishes the structure.
4. **Changes to a property that have acquired a historical significance in their own right will be retained and preserved.** The sun-porch itself is a change to this historical property, however it has not achieved any historical significance according to section 5.4.8(a).
5. **Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.** The sun-porch has no distinctive features with regards to its construction. Common construction techniques were utilized and finishes are not distinctive.
6. **Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration required 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.** We are not removing any historic features, deteriorated or otherwise. The sun-porch is not a historic feature because it (in itself) does not meet eligibility conditions 2 and 3 listed under section 5.4.8.(a), of which **all** must be met for a building or site to be considered historic.
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.** N/a
8. **Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.** N/A
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.** No new exterior features or alterations are proposed.
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 will be unimpaired.** The new development in the greater PUD will not infringe or impair the historic nature of the property. The historic property will be properly separated and protected from any development on the site.

Standards for review of Demolition pursuant to article 5.4.8(d) (2)

Article 5.4.8(d)(1) focuses on demolition applications involving a historic building. However the removal of a non-original addition to a historic building is not addressed. This applicant will attempt to apply these standards to this project.

A. **The structure proposed for demolition is structurally unsound despite ongoing efforts by the owner to properly maintain the structure; or,** Despite the structure being struck by multiple vehicles, it is not in structurally unsound condition to the best knowledge of the applicant.

B. **The structure cannot be rehabilitated or reused on site as part of any economical beneficial use of the property in conformance with the intent and requirements of the underlying zoning district; and, the structure cannot be practically moved to another site within the district; or,** The section of the structure in question cannot be moved or reused on the site as it is attached to the greater historical structure. Movement of the structure to another location on the greater structure would further decrease the historical significance of the building as this section of the structure is not original and has no historical significance of its own merit.

C. **The proposed redevelopment of the site will provide a substantial community-wide benefit that outweighs the historic or architectural significance of the building proposed for demolition.** The sun-porch in and of itself has no historical significance. To determine the historical significance of the porch it is necessary to review the State and National Historical Registers. The State of Vermont Historic Sites and Structures Survey makes no mention of the sun-porch, only that the gambrel roof of the primary structure has significance to the overall "feel" of the neighborhood. The National Register of Historic Places (published in 1995) mentions the sun-porch as a matter of course in a description of the building as it stood at the time. However there is no mention of its historical significance. In addition, the construction of the sun-porch covered a distinctive feature in the exterior chimney, a design element common at the time. Although inefficient for heating, deep fireplaces feeding into exterior chimneys were a fire safety measure. The exterior chimney is mentioned in the national register of historic places.

The greater redevelopment of this site will provide a substantial community benefit that significantly outweighs the historic or architectural significance of the sun-porch. The sun-porch has little or no historic or architectural significance. In addition, the proposed PUD will help provide the safe and efficient housing that is needed in downtown Burlington. The combined site is currently vastly underutilized. Development would not only provide housing, but would help provide the funding needed to keep the historic buildings at 11 and 21 Hungerford well-maintained and able to contribute to the history of the neighborhood long into the future.

D. **The development and redevelopment proposal mitigates to the greatest extent practical any impact to the historical importance of other structures located on the property and adjacent properties;** Removal of the sun-porch will be done with the greatest care to preserve the greater historic structure. The porch will not be "demolished", but dismantled piece by piece to ensure that no damage will occur. Siding and other materials that are needed to fill in the doorway from the primary structure to the sun-porch will be consistent with the materials on the rest of the house. Separation from other historical structures on the site is significant enough to facilitate removal without disturbance to those structures.

E. **All historically and architecturally important design, features, construction techniques, examples of craftsmanship, and materials have been properly documented using the applicable standards of the Historic American Building Survey (HABS) and made available to historians, architectural historians, and others interested in Burlington's history;** As of this writing, no significant historical features, construction, architectural, or otherwise have been observed at the sun-porch. If during removal any significant features are discovered, they will be documented using the HABS standards, preserved, and physically made available to the Chittenden Historical Society and or the City of Burlington.

F. **The applicant has agreed to redevelop the site after demolition pursuant to an approved redevelopment plan which provides for a replacement structure(s);** The space gained from the removal of the sun-porch will provide access to the rear of the property and greater PUD site

by emergency vehicles. The driveway currently is narrow and is required to curve around the porch, which has resulted in vehicles hitting the structure, causing damage. If an emergency vehicle was currently required to access the site, they would be unable to do so. This is a significant life safety issue that we seek to resolve with this application. See greater PUD application for more details.

Parking / Traffic Analysis

We are proposing twenty-five (25) shared use parking spaces across the PUD, which meets or exceeds the anticipated peak parking demand. The combined parcels have two historic use categories, which we will utilize for purposes of this analysis.

For purposes of this analysis, we will call Use Category 1 the "Dental Office Lot Use" and Use Category 2 the "Hungerford Terrace Lots Use". Each of these two use categories has its peak parking demand at the time when the other use category has its minimum parking demand. Thus, the parking demand profiles substantially off-set and generate a lower parking demand when parking resource is shared as in the proposed PUD.

Based on the foregoing, the Project proposes a shared parking arrangement across the four involved parcels. All uses across the 4 parcels within the PUD will share all parking equally.

Use Category 1
The Dental Office Lot Use

The dental office lot at 273 Pearl Street supports dental operations which operate 4 weekdays per week from 8 am to 5pm plus a one bedroom apartment use. The peak parking generated by the existing dentist office, (which has two dentists plus 3 other employees), during the four days of operations is set out below in narrative format. The parking and traffic demand from the current Dental Office Lot Use is not changed by the proposed Project.

The dentist office during the 4 days of operations generates maximum employee parking demand of 5 parking spaces plus a customer demand at the rate of 2-3 parking spaces throughout daytime hours of operation Monday to Thursday. (Parking spaces for patients turn over hourly, representing a sustained demand of 2-3 parking spaces for the current use of this portion of the combined site plus). The one-bedroom apartment has always had one tenant that historically has always driven to work. So, no parking demand is anticipated from the apartment during dental office hours. But traffic and up to one (1) space of parking demand is anticipated on nights, Fridays and weekends when the dental office generates demand of zero parking spaces.

Summary Result:
Dental Office Lot Use Category Peak Anticipated Parking Demand = 7.5 parking spaces.

Use Category 2
Hungerford Terrace Lots Use Parking Demand.

Based on annual surveys of our tenants, the vast majority of tenants walk to work or school. This is due to the proximity of our apartments to employers and the institutions. The same is anticipated here given the location of the subject Project mid-way between downtown and the institutions. Our tenant surveys over the past 3 years indicate that parking demand generated by our apartments, all similarly located, when employing our TDM strategies outlined in our

parking management plan attached, results in a maximum parking demand at any given time equal to just under 0.9 parking space per dwelling unit. This peak demand occurs evenings (defined as after 5pm), weekends and holidays. During weekday hours between 8 am and 5pm, the demand drops by just under 25% to .72 spaces per unit.[1] Based on the foregoing, we anticipate a peak parking demand for the Category 2 Hungerford Terrace Lots Use equal to 16.2 parking spaces during peak evening, weekend and holiday hours (0.9 pk x 18) and 13 (0.72x18) parking spaces during weekday hours.

The foregoing combined results for each Use Category are summarized in the table below:

- **Summary Table**

- **Combined Peak Parking Demand - 21 Parking Spaces**

	Category 1 Dental Office	**Category 2 Hung. Terrace Lots**	**Total Spaces**
Evening Weekend Holiday Parking Demand	1	16.2	17.2
Weekday Peak Parking Demand	7.5	13	**20.5**

The Project proposes 25 parking spaces. Thus, the on-site parking proposed meets anticipated parking demand.

[1]. It is interesting to note that the parking demand is dependent on the tenant. Based on our tenant surveys, those tenants that tend to drive from our lots and vacate parking spaces are almost exclusively workers employed outside Burlington and collegiate athletes. These tenant groups represent the vast majority of tenants that drive their cars from our parking areas during the daytime hours to other locations, leaving them vacant during the weekday hours.

GREEN CASTLE GROUP

PARKING IN BURLINGTON IS UNNECESSARY AND EXPENSIVE

Parking on the Street will cost you $3,000 per year and is likely to cost a whole lot more.

All of the parking surrounding your apartment is metered parking.

Apart from being a giant pain in the butt, if you are on the spot just when the meter expires each time, feeding the meter will cost you **$9.60 per day** at current rates which amounts to more than **$3,000 per year**.

Burlington has very robust parking enforcement, however. Your schedule is not likely always to line up with the expiration of a meter or having change in your pocket. So, you are likely to get fined and towed at some point if you rely on

Street parking.

-Every meter violation will cost you $15 if you pay the ticket on time. The ticket doubles every 30 days.

-Towing/storage minimum is $72.50. (one tow and one day of vehicle storage)

-Park on Street during a parking ban and you will be fined $125 by the City.

Telecommute! Telecommute! Telecommute! All you need to do is Ask.

There are so many things you can do to make a contribution. For example, simply asking your employer to work from home for a portion of your work week. This could result in a huge benefit for you and also reduces carbon emissions. With the pandemic requiring most of us to work or attend school from home, work from home opportunities are rapidly expanding. This is a great opportunity to eliminate or reduce car useage in your life. Given the pandemic, we find most employers are very willing to offer you this flexibility. It cant hurt to ask! The same is true of classes. If you are taking classes, consider taking some classes on line! They are often cheaper and can be done from the comfort of home.

Parking Alternatives.

Ask us about our car/parking alternatives:

1. You don't need to have a Car. Your apartment is located in a place where a car is more of a burden than a benefit. You simply don't need the car very much, if at all. We will give priority to on site parking so that each apartment unit has one vehicle parked on site. This allows all other occupants not to have a car. Share the car and share the space.

2. Car Share. We maintain a car share membership for those that qualify and may need to use a car. The nearest vehicle location is just a few hundred feet from your living room at Fletcher Free Library!
3. Bus Pass. Ask us about our free bus pass program.
4. Off-site parking. Ask us about our satellite parking lot useage.
5. Shopping Trolleys. Your personal shopping cart! Walk to City Market using our grocery trolleys! See flyer attached.
6. Rideshare: A great way to meet people and lower your impact on the plant. Check out these sites:

https://www.carpoolworld.com/

http://www.ridebuzz.org/

Exhibit A
Zoning Permit Application
Parking Management Plan

I. Proposal Summary: The subject application is made as a planned unit development. The combined site includes three parcels along Hungerford Terrace with 7 residential units in 3 different buildings, consisting of 11 Hungerford Terrace (5 residential unit building), 15 Hungerford Terrace, (1 residential unit building and 21 Hungerford Terrace (1 residential unit building). In addition, an abutting fourth lot with an address of 273 Pearl Street is proposed to be incorporated into the PUD, in order to readily share infrastructure including parking.

The proposal is to remove the 15 Hungerford Terrace building and replace it with the building shown in the attached plans. Total net new units = 11 residential units. Total apartment units at completion = 18 apartment units. Site changes are indicated on the submitted.

The site plan included in the application provides twenty-five (25) on-site parking spaces to be provided. A parking waiver is being requested.

Demand Management/How Plan more effectively furthers the goals of CDO Article and Municipal Development Plan

The Municipal Development Plan ("MDP") strongly supports and encourages better management of parking facilities and provision for alternative modes for commuting. To this end, the MDP advocates removing parking minimums or changing the number of parking spaces required by the zoning ordinance from a minimum to a maximum – in effect limiting the number of parking spaces a developer can provide. As a result, the CDO limits the parking that can be provided on site to 125% of the required at Section 8.1.9.

The purposes of Article 8 of the CDO that are relevant to parking supply and management for this site are set out at Section 8.1.1 of the CDO. That section states, in pertinent part, that the purpose of the article is to "(a) [e]nsure there are adequate parking and loading facilities to serve the use or uses of the property;"… [and to] ii) "[e]courage alternate modes of travel that will reduce dependence on the single-occupancy automobile." See CDO Section 8.1.1 (a) and (d)

Parking Management Plan Implementation.

Current parking planning tends to focus primarily on quantity. As a result, as a nation we have about five (5) parking spaces for every car on the road. Todd Litman,

"*Parking Management: Innovative Solutions to Vehicle Parking Problems*", at page 2. Planet Citizen March 27, 2006. https://www.planetizen.com/node/19149

Parking management focuses both on quality parking management and quantity of parking. On the management side, utilizing tools like: i) providing parking information, ii) locating projects for convenience and safety of walking from a parking space to destinations; and iii) provision of alternative parking supply and alternative transportation modes, often provide better utilization of parking supply. Todd Litman, "*Parking Management Best Practices*" American Planners Association 2006, republished e book 2014.

The CDO attempts to incentivize parking management strategies rather than just building more poorly utilized parking supply. As such, the CDO provides for parking waivers, provided there is an effective parking management plan that explains how the proposed parking management plan addresses the specific needs of the proposed development and more effectively satisfies the intent of Article 8 of the CDO. See, CDO Section 8.1.15 (2).

The parking solution to be applied in any effective parking management plan must necessarily be grounded in the useage profile of the parking user and the location of the subject property and surrounding uses. In this case, the site characteristics, the uses involved across the combined site and the tenant population are uniquely suited to parking management strategies that reduce the on-site parking demand below the two per dwelling unit baseline.

Parking Useage Pattern.

Our tenants have a very consistent parking usage pattern. The large majority do not commute daily by automobile. Instead their commute is by walking or bicycling and not by the single user automobile. This is a very important characteristic. Cars are seldom used convenience items and not daily utilized necessities. A majority of cars are generally left parked for many days and often weeks. Cars are only driven occasionally for single purpose trips like groceries and extended trips to visit relatives.

Site Specific Characteristics

The Project location of the site is uniquely conducive to effective parking management strategies that are a substantial improvement when compared to over production of parking supply. The Site is located adjacent to the downtown core approximately 3 blocks from Church Street and 3 blocks from City Market. The Site is under one block from the bus stop at the corner of South Willard Street and Pearl Street.

Parking Management to Best Utilize Site Characteristics & Use Profile

The dentist office at 273 Pearl Street has a chronic problem with providing parking for its employees, primarily because its parking useage is not evenly distributed

throughout the week. Its parking useage profile is that its parking is used almost exclusively 4 days per week between the hours of 7:30 am and 5:30 pm. In surveying our tenants and the useage patterns of our parking lots we found that approximately 25% of our parking spaces dedicated for residential tenant parking are vacant during the weekdays at all times. The parking management plan seeks to take advantage of this compatible useage pattern by allowing the dentist office to utilize the entire combined parking lot to be constructed for use by its employees, thereby relieving on-street parking demand during the peak useage times associated with the dental office use.

Residential Tenant Selection Methodology. In our experience, tenant selection methodology and practice heavily influences parking useage. Our management team will utilize its current multi-step tenant selection process to prioritize tenant applicants without automobiles or those that are not heavily reliant on automobiles. In addition, tenant education as to parking will be a focus as the methodology is implemented.

Step 1. Tenant Screening/Tenant Education. Tenant candidates are pre-screened to meet certain pre-screening requirements prior to being accepted as applicants. Prospective tenants will be required to submit a written application that includes detail as to automobile usage and parking requirements. Tenant screening and leasing occurs in September for tenants seeking to lease the following June 1. So, for tenants seeking occupancy on the following June 1, we screen applicants in September/October of the prior calendar year. Our management team applies a ranking system that includes giving priority to tenants i) without vehicles in Burlington or ii) without the need for parking in the City, or iii) with the potential for low usage of the automobile. We require tenants to disclose to us in the lease application whether or not they have a car in Burlington and to register that car with us. Tenants generally comply with this requirement in our experience. There are several reasons for this. Because we offer the tenant use of our parking lot for move in and move out based on registered cars only. Moreover, if we need to clear lots for snow removal, tenants understand that we need this information to contact the owner and avoid having to tow.

By gathering this information, we are able to marshall our parking resource to match tenant demand. With limited exception, we then provide Tenants with no greater than one on site parking space per apartment unit.

Step 1. – Perking Information to all Perspective Tenants

From the first interaction with a perspective tenant, education around parking issues is a focus. The goal is to educate tenants about parking and alternative modes. WE think this has positive benefit beyond our properties as some applicants to not end up seeking tenancy with us yet they are given this information commencing at the first inquiry.

We start by explaining in detail that bringing a car to Burlington represents an unnecessary substantial expense given the low use necessary at the property location. We provide tangible cost data to begin explaining the cost of parking.

At this early point, our management will explain that:

All of the parking surrounding on Pearl Street is metered parking and any available on Hungerford Terrace is usually taken. For the metered parking, we provide a quantifiable measure of parking costs to prospective tenants. Even without taking into account the likelihood of fines and towing charges, based on the chart below, if a tenant were to feed a meter on a timely basis for an entire year, the cost to park would be $9.60 per day or over $3,000 per year.

Parking charges in Burlington:
Brown Top Meters – 25 cents pear 37.5 minutes. $9.60 per day.
Meter Violation - $15
Residential Parking - $75
Parking Ban - $125
Towing Charge - $62,50 per tow plus $10 for storage. Minimum: $72.50

Along with the foregoing cost explanation orally, we also provide the Attached Flyer - *Parking is Unnecessary and Expensive*. Finally, in the initial interaction, we explain that there may be additional parking supply at a cost, but the best solution is to not bring the car to Burlington.

Step 2. Lease Signing Meeting.

Tenants that meet the pre-screening requirements are then scheduled to meet with our management for a lease signing meeting. This meeting takes at least one hour and is held at our offices. All tenants are required to attend. At this meeting, management goes over our expectations and the lease in detail. In particular, management goes over information as to the i) cost of parking, ii) parking avoidance strategies and iii) parking supply alternatives. Generally, we have been successful in having one space leased on site per apartment.

While illuminating the actual cost of parking is often effective in reducing parking demand, we also provide tenants with parking alternatives that are more City friendly than building new spaces. Those strategies we have developed are set out below and include off site parking, ride share, car share, walking, cycling and grocery trolleys.

At this point the following elements of our parking management planning are explained in greater detail:

Parking Costs Laddered According to Convenience

Our experience is that showing and imposing the cost of parking is very effective in managing parking demand. Over time, we have refined our approach. We now pursue an integrated and laddered approach, with parking cost increasing as convenience increases.

Annual On Site Parking Charge.

Tenants will be charged an annual fee for parking at the Site for residential tenants. That fee currently amounts to $90/month, but is collected in one lump sum up-front at the lease meeting which occurs approximately 6-7 months prior to occupancy. (This charge is separate from and in addition to the apartment rent.) This is done for all of our properties with parking lots. Nearly all of our leases for our properties are signed in September and October of the prior year for June 1 occupancy. Both at the pre-lease meeting and at the formal lease meeting, our management team strongly encourages tenants not to have cars. By charging for parking spaces up front for the entire year, this requires a very early decision by the tenant as to whether or not to have a car in Burlington.

Parking Enforcement/Permit Only.

In order to enforce on-site parking requirements, the Site will employ a strict parking by permit only policy. Each tenant that purchases a lease of a space for the year is allocated a parking pass connected to a particular vehicle. We contract with Spillane's to enforce a strict towing policy for any automobile parked without a valid permit or in a parking space not allocated to the particular automobile. Towing is generally only suspended for a short time during times of tenant turnover to facilitate tenant move-in and move-out.

Ride sharing Programs. Although fairly low daily commuter automobile traffic is expected to be generated from the Site, the Applicant also promotes Vermont Rideshare to its tenants. Tenants are provided with Vermont Rideshare information at lease signing, in our lease and on our website so that tenants can have knowledge of CCTA's Vermont Rideshare program which effectively links people interested in carpooling via the internet.

In addition, we promote to our tenants two services that focus on matching rides for people that take trips out of town.

https://www.carpoolworld.com/

http://www.ridebuzz.org/

Bus Pass Program. In order to encourage bus useage, the we continue to offer $500 of free CCTA passes annually to tenants on a first come first serve basis.

Bicycle Parking. Cycling is a mode of travel heavily encouraged by the MDP in reducing automobile dependence. The building to be constructed will be a cycling friendly building. 24 wall mounted bicycle racks, each holding one bicycle, will be installed inside the building. We also have outdoor bicycle parking for visitors and tenants. We have noted from site visits to the Property over the past year an increase in bicycle count on the site. We estimate based on our visits that 20% more bicycles are parked at the Property from time to time.

Parking shared between commonly owned Lots. We currently have 5 parking lots ancillary to our other apartment buildings, each of which is within 3 blocks and 1200 feet of the Site with approximately 100 parking spaces. At any given time, due to our TDM strategies parking spaces become available in those lots. Our management plan proposal underpinning this Application is to allow for sharing of those parking spaces with the subject site where vacancies occur. We would first offer the parking to the tenants of each building on each site and if not taken, we would then offer them to tenants on other of our sites including this one. Applicant request that as a condition of the permit, that it be granted permission to share parking between all of those lots as needed.

Total parking spaces involved: 128 parking spaces.

Grocery Trollies

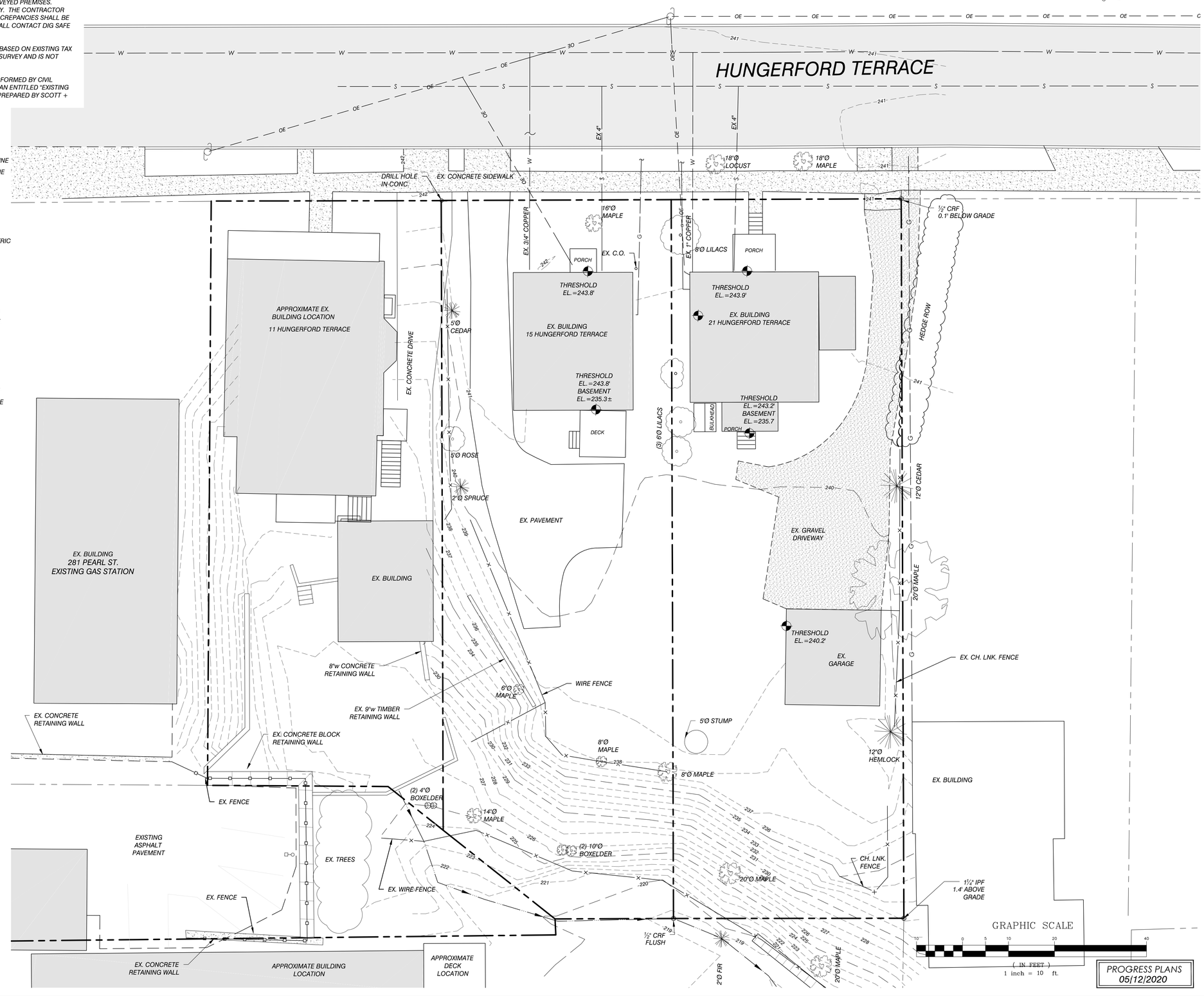
Recently as part of our parking management, we have decided to acquire grocery trollies. (See attached description). We provide these trolleys to our tenants upon request in order to allow them to more readily shop for groceries. These trollies attached to bicycles and are easily detachable so that they can be wheeled into the grocery store and used as a shopping cart.

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 APPROXIMATE AND BASED ON EXISTING TAX MAP INFORMATION. THIS PLAN IS NOT A BOUNDARY SURVEY AND IS NOT INTENDED TO BE USED AS ONE.
3. SITE INFORMATION IS BASED ON A FIELD SURVEY PERFORMED BY CIVIL ENGINEERING ASSOCIATES, INC MARCH 2014 AND PLAN ENTITLED "EXISTING SITE PLAN HUNGERFORD TERRACE" DATED 02/18/20 PREPARED BY SCOTT + PARTNERS ARCHITECTURE.

LEGEND

- APPROXIMATE PROPERTY LINE
- APPROXIMATE SETBACK LINE
- 100 — EXISTING CONTOUR
- EXISTING CURB
- EXISTING FENCE
- EXISTING GRAVEL
- EXISTING PAVEMENT
- OE — EXISTING OVERHEAD ELECTRIC
- G — EXISTING GAS
- ST — EXISTING STORM
- S — EXISTING GRAVITY SEWER
- W — EXISTING WATER
- EXISTING SWALE
- EXISTING SEWER MANHOLE
- EXISTING STORM MANHOLE
- EXISTING CATCH BASIN
- EXISTING HYDRANT
- EXISTING SHUT OFF
- EXISTING UTILITY POLE
- EXISTING SIGN
- EXISTING DECIDUOUS TREE
- EXISTING CONIFEROUS TREE
- EDGE OF BRUSH/WOODS
- IRON ROD/PIPE FOUND
- PROJECT BENCHMARK



PROGRESS PLANS 05/12/2020

SITE ENGINEER:

CIVIL ENGINEERING ASSOCIATES, INC.
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APPROVED ---

CLIENT:

15 HUNGERFORD TERRACE, LLC

21 HUNGERFORD TERRACE, LLC

BURLINGTON, VERMONT 05401

PROJECT:

15 & 21 HUNGERFORD TERRACE

15 HUNGERFORD TERRACE
BURLINGTON, VT

LOCATION MAP
1" = 1000'

DATE	CHECKED	REVISION

EXISTING CONDITIONS PLAN

DATE --
SCALE 1" = 10'
PROJ. NO. 20123

DRAWING NUMBER C1.0

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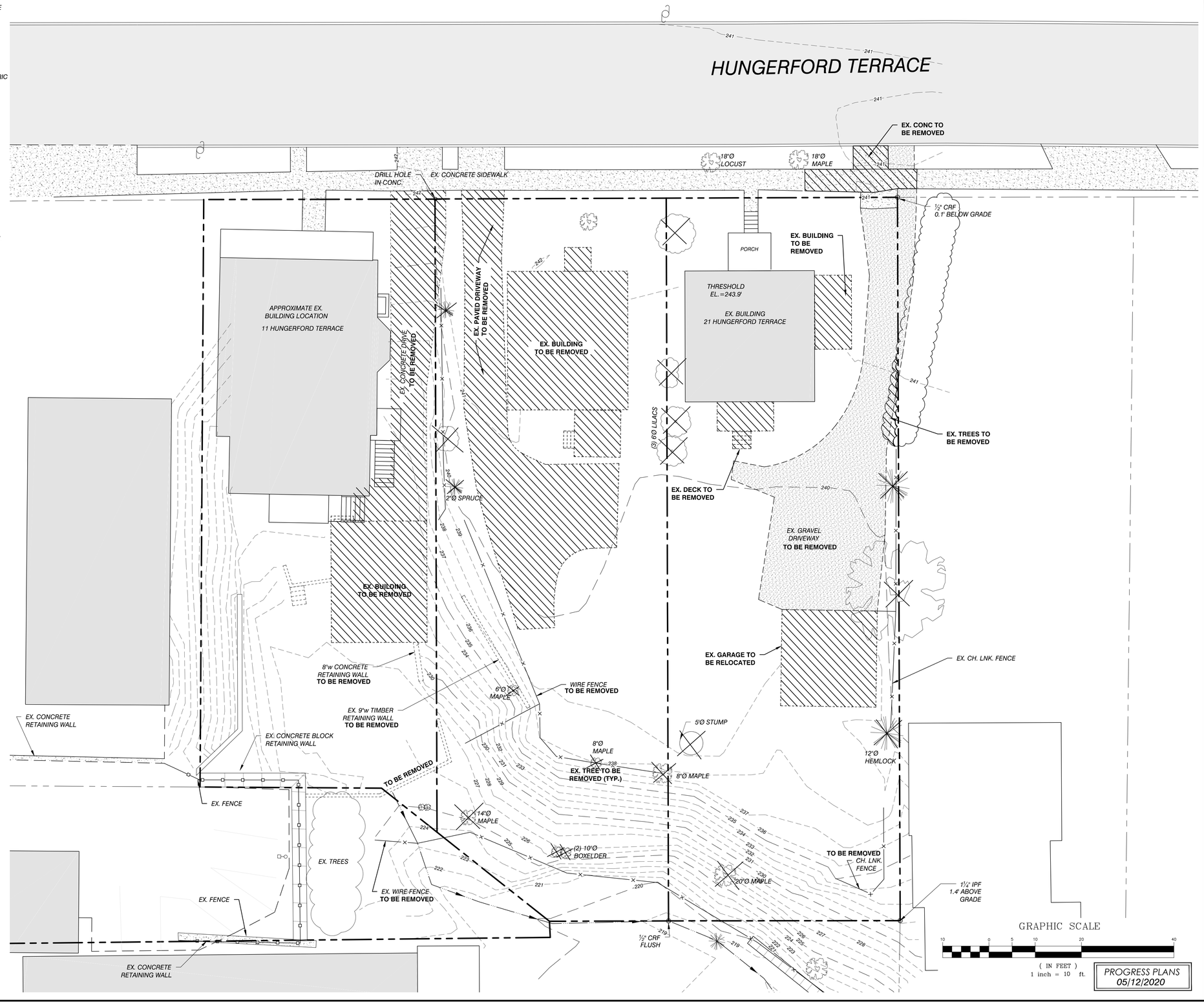

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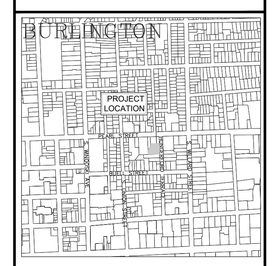
BURLINGTON, VT



LOCATION MAP
1" = 1000'

DATE	CHECKED	REVISION

DEMOLITION PLAN

DATE
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SCALE
1" = 10'
PROJ. NO.
20123

DRAWING NUMBER
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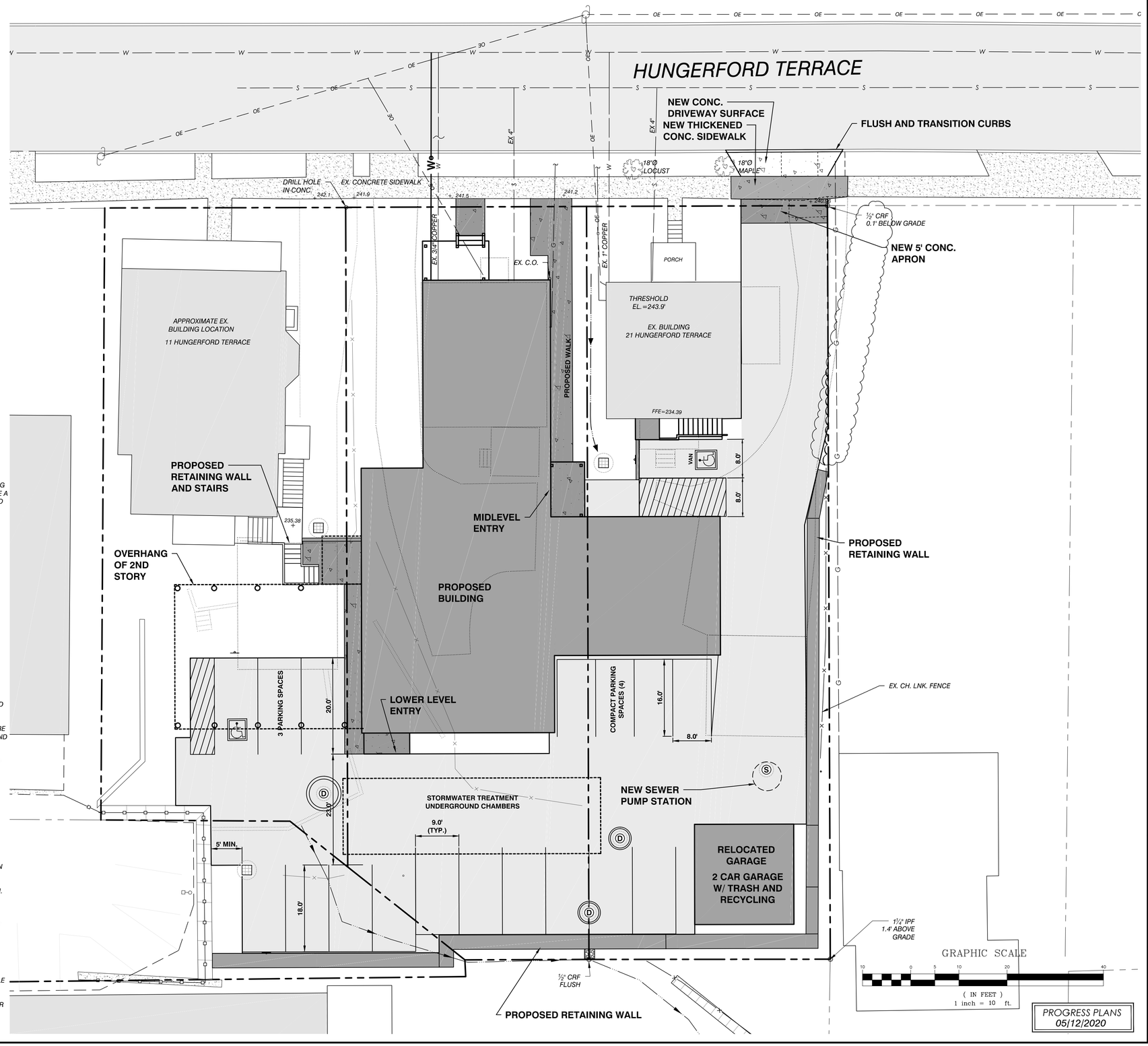
- **PROPOSED STORM MANHOLE**
- **PROPOSED SIGN**

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 APPROXIMATE AND BASED ON EXISTING TAX MAP INFORMATION. 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.



PROGRESS PLANS
05/12/2020

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CHECKED: DSM
APPROVED: DSM

CLIENT:

15 HUNGERFORD TERRACE, LLC

21 HUNGERFORD TERRACE, LLC

BURLINGTON, VERMONT 05401

PROJECT:

15 & 21 HUNGERFORD TERRACE

15 HUNGERFORD TERRACE
BURLINGTON, VT

LOCATION MAP
1" = 2000'

DATE	CHECKED	REVISION

PROPOSED CONDITIONS PLAN

DATE: --
SCALE: 1" = 10'
PROJ. NO. 20123

DRAWING NUMBER: C2.0

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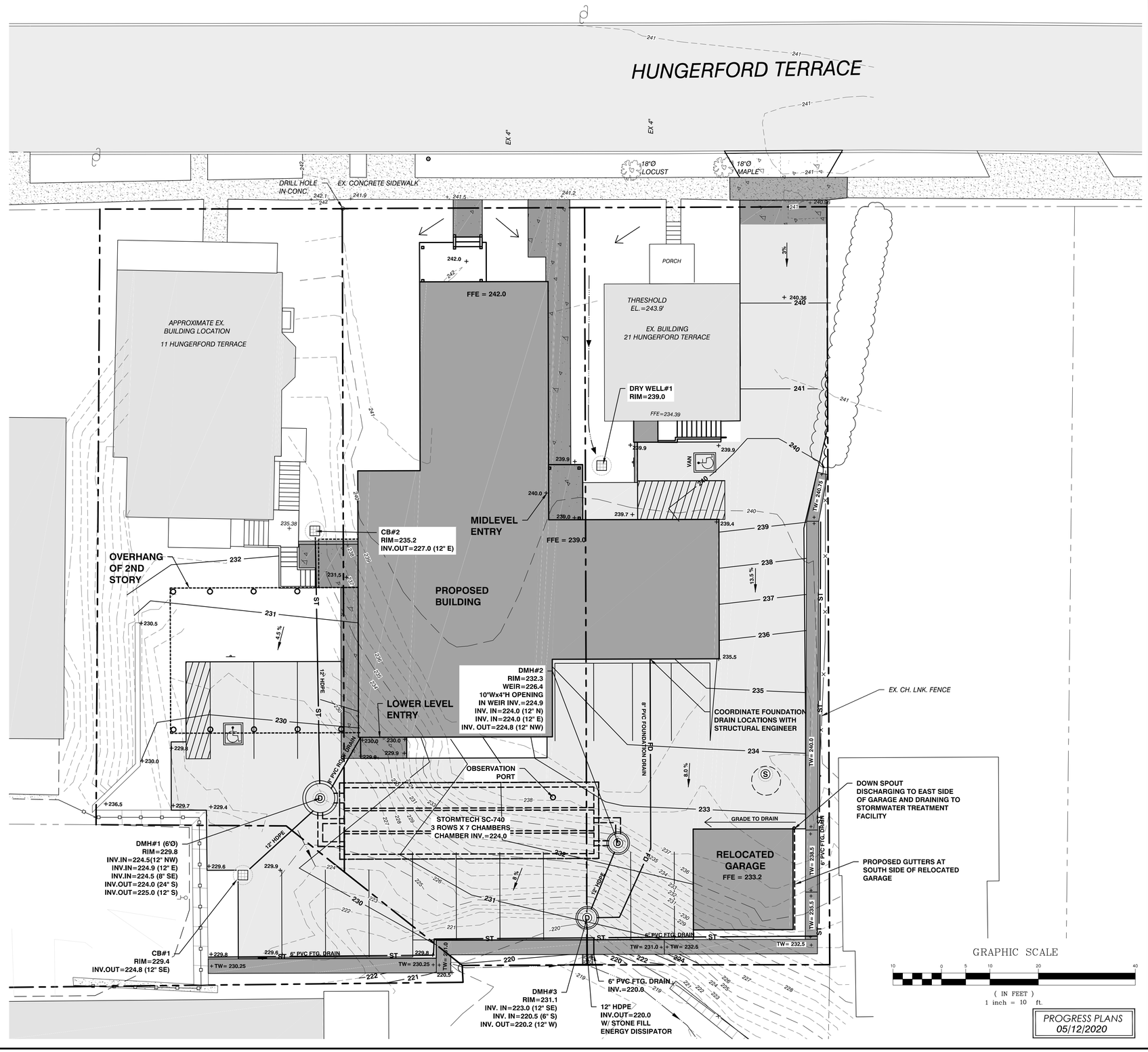

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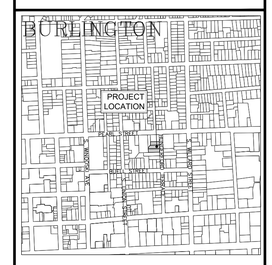

LOCATION MAP
1" = 2000'

DATE	CHECKED	REVISION

PROPOSED GRADING AND DRAINAGE PLAN

DATE
--

SCALE
1" = 10'

PROJ. NO.
20123

DRAWING NUMBER
C2.1

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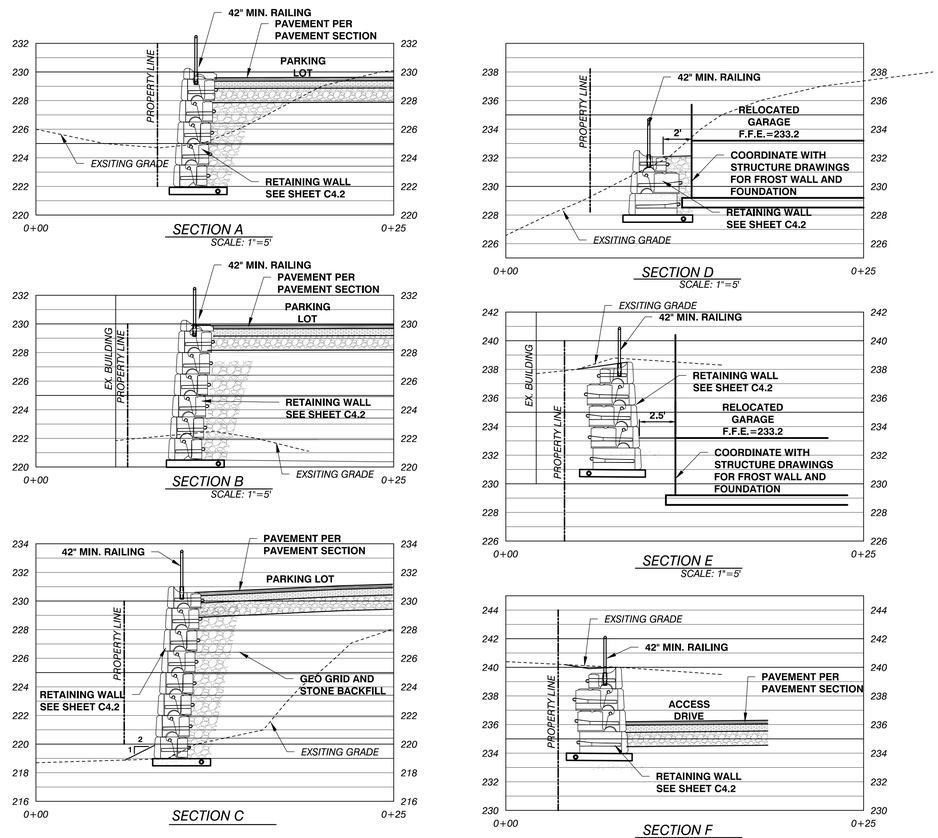
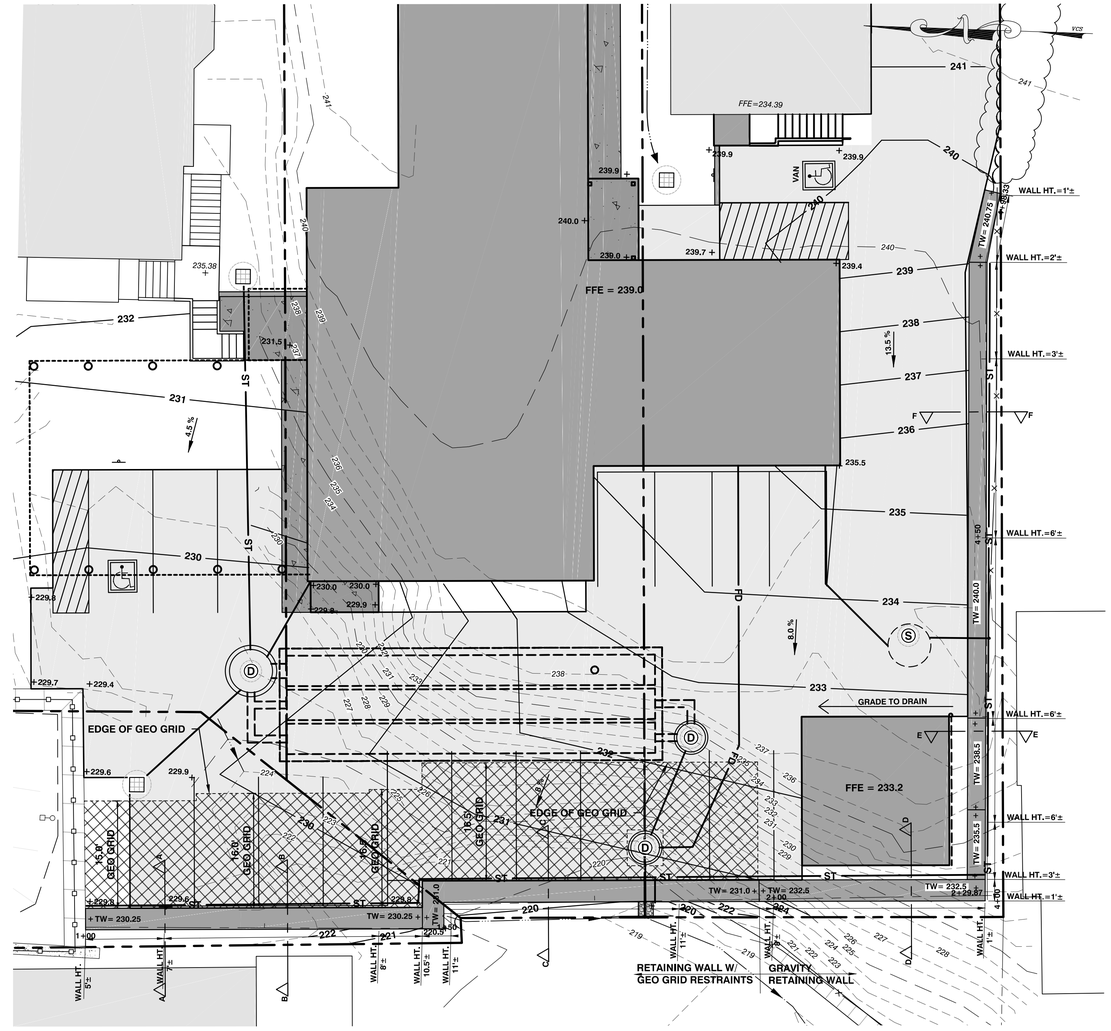


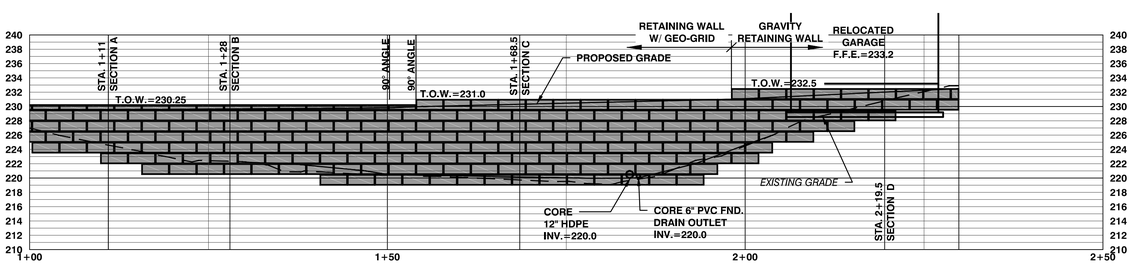
RETAINING WALL SECTIONS

SCALE: 1"=5'



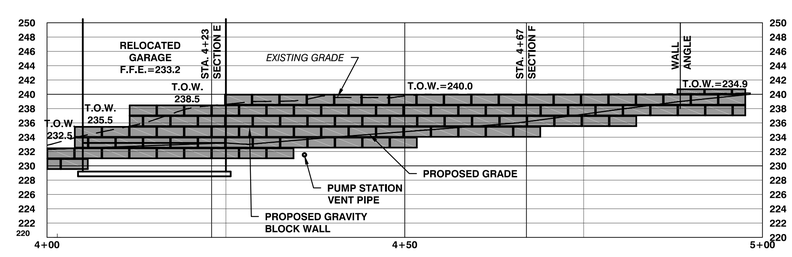
PARTIAL SITE PLAN

SCALE: 1"=10'



NORTH - SOUTH WALL PROFILE

SCALE: 1"=10'



EAST - WEST WALL PROFILE

SCALE: 1"=10'

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 inch = 10 ft.

PROGRESS PLANS
05/12/2020

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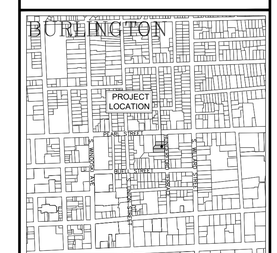

LOCATION MAP

1" = 2000'

DATE	CHECKED	REVISION

RETAINING WALL SECTIONS

DATE: --
SCALE: AS SHOWN
PROJ. NO. 20123

DRAWING NUMBER: C2.2

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LEGEND

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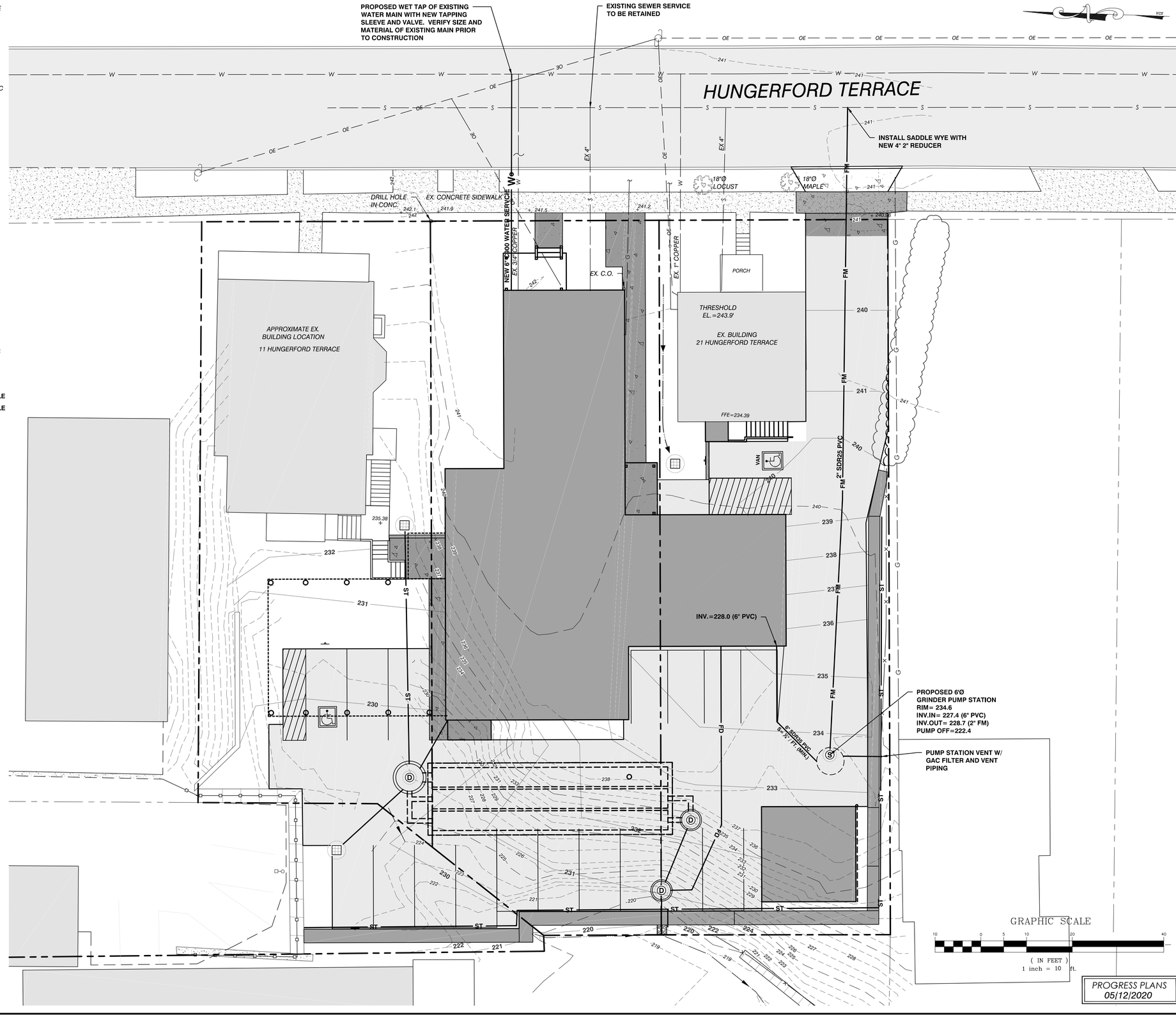

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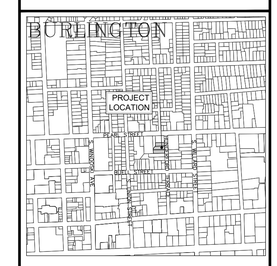

LOCATION MAP
1" = 2000'

DATE	CHECKED	REVISION

PROPOSED UTILITY PLAN

DATE
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SCALE
1" = 10'
PROJ. NO.
20123

DRAWING NUMBER
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IF CONSTRUCTION ACTIVITIES INVOLVING EARTH DISTURBANCE CONTINUES PAST OCT. 15 OR BEGEINS BEFORE APRIL 15, THE FOLLOWING EPSC MEASURES MUST BE TAKEN:

1. SNOW STORAGE TO BE LOCATED DOWN GRADIENT OF AREAS DISTURBANCE.

2. INSTALL SILT FENCE DOWN GRADIENT OF AREAS OF DISTURBANCE AND SNOW STORAGE AREAS. REINFORCE FENCE IN AREAS WHERE SNOW LOADS FORCES MAY BE AN ISSUE. INSTALL SILT FENCE PRIOR TO GROUND FREEZING.

3. KEEP DRAINAGE STRUCTURES OPEN AND FREE OF SNOW.

4. WHERE MULCH IS THE SELECTED STABILIZATION MEASURE, USE DOUBLE THE STANDARD RATE OF MULCH. USE STRAW ANCHORING METHOD (RUN BULLDOZER UP AND DOWN SLOPE) TO PREVENT MULCH FROM BLOWING OFF.

5. TO ENSURE COVER OF DISTURBED SOIL IN ADVANCE OF A MELT EVENT, AREAS OF DISTURBED SOIL MUST BE STABILIZED AT THE END OF EACH DAY, WITH THE FOLLOWING EXCEPTION:

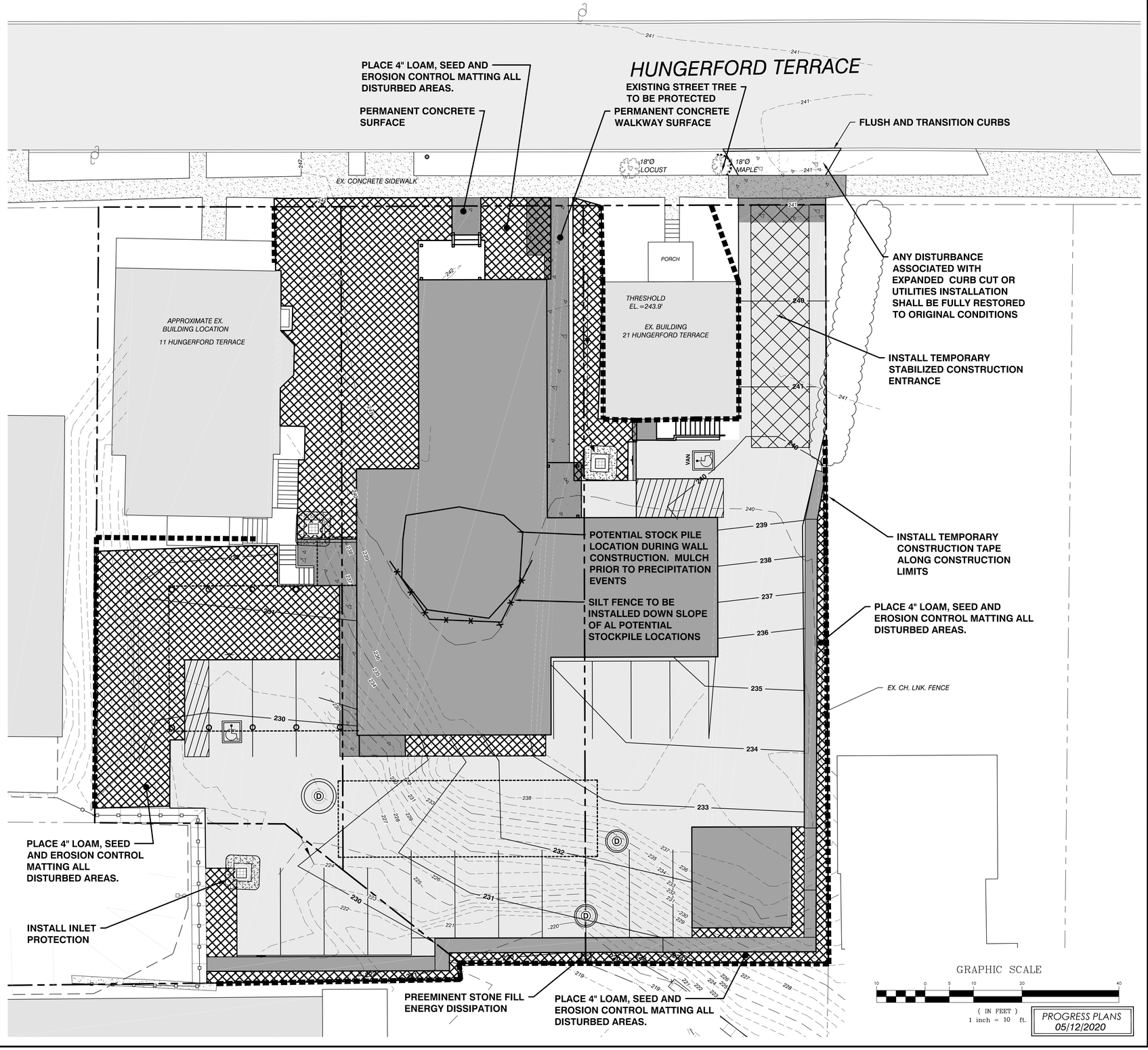
1. IF NO PRECIPITATION WITHIN 24 HOURS IS FORECAST AND WORK WILL RESUME IN THE SAME DISTURBED AREA WITHIN 24 HOURS, DAILY STABILIZATION IS NOT NECESSARY.

NOTES:

1. **LOAM, SEED AND MULCH ALL DISTURBED AREAS (TYP.)**
2. **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.**
3. **SLOPES >3:1 SHALL RECEIVE EROSION CONTROL MATTING.**
4. **MAXIMUM AMOUNT OF DISTURBED SOILS TO BE LIMITED TO NO MORE THAN 2 ACRES.**
5. **SILT FENCE CONTRIBUTORY AREA TO BE LIMITED TO ¼ ACRE / 100 L.F.**

EROSION CONTROL LEGEND

- **SILT FENCE**
- **CONSTRUCTION FLAGGING**
- **INLET PROTECTION**
- **EROSION CONTROL MATTING**
- **STABILIZED CONSTRUCTION ENTRANCE**



PROGRESS PLANS
05/12/2020

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:

15 HUNGERFORD TERRACE, LLC

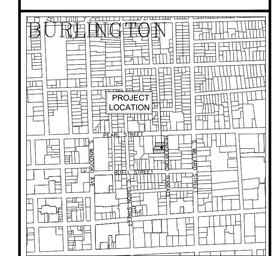
21 HUNGERFORD TERRACE, LLC

BURLINGTON, VERMONT 05401

PROJECT:

15 & 21 HUNGERFORD TERRACE

15 HUNGERFORD TERRACE
BURLINGTON, VT



LOCATION MAP
1" = 2000'

DATE	CHECKED	REVISION

ESPC

DATE: --
SCALE: 1" = 10'
PROJ. NO. 20123

DRAWING NUMBER: C3.0

P:\AutoCADD Projects\2020\20123\1-CADD Files-20123\dwg\20123-SITE.dwg, 5/13/2020 9:11:49 AM, DWG To PDF.pc3

Introduction

This project is subject to the terms and conditions of the authorization from the State of Vermont to discharge construction related storm water runoff.

Coverage under the State Construction General Permit 3-9020 is required for any construction activity that disturbs 1 or more acres of land, or is part of a larger development plan that will disturb 1 or more acres.

This project has been deemed to qualify as a Low Risk Site which is subject to the erosion prevention and sediment control (EPSC) standards set for in the State of Vermont's
Low Risk Site Handbook for Erosion Prevention and Sediment Control

The following narrative and implementation requirements represent the minimum standard for which this site is required to be maintained as regulated by the State of Vermont.

Any best management practices (BMP's) depicted on the project's EPSC Site plan which go beyond the Handbook requirements are considered to be integral to the management of the site and represent components of the municipal EPSC approval for the project which shall be implemented.

The EPSC plan depicts one snap shot in time of the site. All construction sites are fluid in their day to day exposures and risks as it relates to minimizing sediment loss from the site. **It is the responsibility of the Contractor to implement the necessary BMP's to comply with the Low Risk Handbook standards outlined on this sheet based on the interim site disturbance conditions which may or may not be shown on the EPSC Site Plan.**

Specific BMP's which are critical to allowing the project to be considered a Low Risk site include the items checked below:

- Limit the amount of disturbed earth to two acres or less at any one time.
- There shall be a maximum of 7 consecutive days of disturbed earth exposure in any location before temporary or final stabilization is implemented.

1. Mark Site Boundaries

Purpose:
Mark the site boundaries to identify the limits of construction. Delineating your site will help to limit the area of disturbance, preserve existing vegetation and limit erosion potential on the site.

How to comply:
Before beginning construction, walk the site boundaries and flag trees, post signs, or install orange safety fence. Fence is required on any boundary within 50 feet of a stream, lake, pond or wetland, unless the area is already developed (existing roads, buildings, etc.)

2. **Limit Disturbance Area**

Purpose:
Limit the amount of soil exposed at one time to reduce the potential erosion on site.

Requirements:
The permitted disturbance area is specified on the site's written authorization to discharge. Only the acreage listed on the authorization form may be exposed at any given time.

How to comply:
Plan ahead and phase the construction activities to ensure that no more than the permitted acreage is disturbed at one time. Be sure to properly stabilize exposed soil with seed and mulch or erosion control matting before beginning work in a new section of the site.

3. **Stabilize Construction Entrance**

Purpose:
A stabilized construction entrance helps remove mud from vehicle wheels to prevent tracking onto streets.

Requirements:
If there will be any vehicle traffic off of the construction site, you must install a stabilized construction entrance before construction begins.

How to install
Rock Size: Use a mix of 1 to 4 inch stone
Depth: 8 inches minimum
Width: 12 feet minimum
Length: 40 feet minimum (or length of driveway, if shorter)
Geotextile: Place filter cloth under entire gravel bed

Maintenance:
Redress with clean stone as required to keep sediment from tracking onto the street.

4. **Install Silt Fence**

Purpose:
Silt fences intercept runoff and allow suspended sediment to settle out.

Requirements:
Silt fence must be installed:
- on the downhill side of the construction activities
- between any ditch, swale, storm sewer inlet, or waters of the State and the disturbed soil

** Hay bales must not be used as sediment barriers due to their tendency to degrade and fall apart.*

Where to place:
- Place silt fence on the downhill edge of bare soil. At the bottom of slopes, place fence 10 feet downhill from the end of the slope (if space is available).
- Ensure the silt fence catches all runoff from bare soil.
- Maximum drainage area is ¼ acre for 100 feet of silt fence.
- Install silt fence across the slope (not up and down hills!)
- Install multiple rows of silt fence on long hills to break up flow.
- Do not install silt fence across ditches, channels, or streams or in stream buffers.

How to install silt fence:
- Dig a trench 6 inches deep across the slope
- Unroll silt fence along the trench
- Ensure stakes are on the downhill side of the fence
- Join fencing by rolling the end stakes together
- Drive stakes in against downhill side of trench
- Drive stakes until 16 inches of fabric is in trench
- Push fabric into trench; spread along bottom
- Fill trench with soil and pack down

Maintenance:
- Remove accumulated sediment before it is halfway up the fence.
- Ensure that silt fence is trenched in ground and there are no gaps.

5. **Divert Upland Runoff**

Purpose:
Diversion berms intercept runoff from above the construction site and direct it around the disturbed area. This prevents clean water from becoming muddied with soil from the construction site.

Requirements:
If storm water runs onto your site from upslope areas and your site meets the following two conditions, you must install a diversion berm before disturbing any soil.
1. You plan to have one or more acres of soil exposed at any one time (excluding roads).
2. Average slope of the disturbed area is 20% or steeper.

How to install:
1. Compact the berm with a shovel or earth-moving equipment.
2. Seed and mulch berm or cover with erosion control matting immediately after installation.
3. Stabilize the flow channel with seed and straw mulch or erosion control matting. Line the channel with 4 inch stone if the channel slope is greater than 20%.
4. Ensure the berm drains to an outlet stabilized with riprap. Ensure that there is no erosion at the outlet.
5. The diversion berm shall remain in place until the disturbed areas are completely stabilized.

6. **Slow Down Channelized Runoff**

Purpose:
Stone check dams reduce erosion in drainage channels by slowing down the storm water flow.

Requirements:
If there is a concentrated flow (e.g. in a ditch or channel) of storm water on your site, then you must install stone check dams. Hay bales must not be used as check dams.

How to install:
Height: No greater than 2 feet. Center of dam should be 9 inches lower than the side elevation
Side slopes: 2:1 or flatter
Stone size: Use a mixture of 2 to 9 inch stone
Width: Dams should span the width of the channel and extend up the sides of the banks
Spacing: Space the dams so that the bottom (toe) of the upstream dam is at the elevation of the top (crest) of the downstream dam. This spacing is equal to the height of the check dam divided by the channel slope.
Spacing (in feet) = Height of check dam (in feet)/Slope in channel (ft/ft)

Maintenance:
Remove sediment accumulated behind the dam as needed to allow channel to drain through the stone check dam and prevent large flows from carrying sediment over the dam. If significant erosion occurs between check dams, a liner of stone should be installed.

7. **Construct Permanent Controls**

Purpose:
Permanent storm water treatment practices are constructed to maintain water quality, ensure groundwater flows, and prevent downstream flooding. Practices include detention ponds and wetlands, infiltration basins, and storm water filters.

Requirements:
If the total impervious* area on your site, or within the common plan of development, will be 1 or more acres, you must apply for a State Storm water Discharge Permit and construct permanent storm water treatment practices on your site. These practices must be installed before the construction of any impervious surfaces.

How to comply:
Contact the Vermont Storm water Program and follow the requirements in the Vermont Storm water Management Manual. The Storm water Management Manual is available at:
www.vtwaterquality.org/stormwater.htm
*An impervious surface is a manmade surface, including, but not limited to, paved and unpaved roads, parking areas, roofs, driveways, and walkways, from which precipitation runs off rather than infiltrates.

8. **Stabilize Exposed Soil**

Purpose:
Seeding and mulching, applying erosion control matting, and hydroseeding are all methods to stabilize exposed soil. Mulches and matting protect the soil surface while grass is establishing.

Requirements:
All areas of disturbance must have temporary or permanent stabilization within 7, 14, or 21 days of initial disturbance, as stated in the project authorization. After this time, any disturbance in the area must be stabilized at the end of each work day.

The following exceptions apply:

- Stabilization is not required if earthwork is to continue in the area within the next 24 hours and there is no precipitation forecast for the next 24 hours.
- 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. house foundation excavation, utility trenches).

All areas of disturbance must have permanent stabilization within 48 hours of reaching final grade.

How to comply:
Prepare bare soil for seeding by grading the top 3 to 6 inches of soil and removing any large rocks or debris.

Seeding Rates for Temporary Stabilization
April 15 - Sept. 15 --- Ryegrass (annual or perennial: 20 lbs/acre)
Sept. 15 - April 15 --- Winter rye: 120 lbs/acre

Seeding Rates for Final Stabilization:

Seeding Rates for Final Stabilization:			
Choose from:	Variety	lbs./acre	lbs./1000 sq.ft.
Birdsfoot trefoil	Empire/Pardee	5	0.1
or			
Common white clover	Common	8	0.2
plus			
Tall Fescue	KY-31/Rebel	10	0.25
plus			
Redtop	Common	2	
or			
Ryegrass (perennial)	Pennfine/Linn	5	0.1

1- Mix 2.5 each of Empire and Pardee OR 2.5 lbs. of Birdsfoot and 2.5 lbs. white clover per acre

Mulching Rates
April 15 - Sept.15 -- Hay or Straw: 1 inch deep (1-2 bales/1000 s.f.)
Sept.15 - April 15 -- Hay or Straw: 2 in. deep (2-4 bales/1000 s.f.)

Erosion Control Matting
As per manufacturer's instructions

Hydroseed
As per manufacturer's instructions

9. **Winter Stabilization**

Purpose:
Managing construction sites to minimize erosion and prevent sediment loading of waters is a year-round challenge. In Vermont, this challenge becomes even greater during the late fall, winter, and early spring months.
'Winter construction' as discussed here, describes the period between October 15 and April 15, when erosion prevention and sediment control is significantly more difficult.
Rains in late fall, thaws throughout the winter, and spring melt and rains can produce significant flows over frozen and saturated ground, greatly increasing the potential for erosion.

Requirements for Winter Shutdown:
For those projects that will complete earth disturbance activities prior to the winter period (October 15), the following requirements must be adhered to:
1. For areas to be stabilized by vegetation, seeding shall be completed no later than September 15 to ensure adequate growth and cover.
2. If seeding is not completed by September 15, additional non-vegetative protection must be used to stabilize the site for the winter period. This includes use of Erosion Control Matting or netting of a heavy mulch layer. Seeding with winter rye is recommended to allow for early germination during wet spring conditions.
3. Where mulch is specified, apply roughly 2 inches with an 80-90% cover. Mulch should be tracked in or stabilized with netting in open areas vulnerable to wind.

Requirements for Winter Construction
If construction activities involving earth disturbance continue past October 15 or begin before April 15, the following requirements must be adhered to:
1. Enlarged access points, stabilized to provide for snow stockpiling.
2. Limits of disturbance moved or replaced to reflect boundary of winter work.
3. A snow management plan prepared with adequate storage and control of meltwater, requiring cleared snow to be stored down slope of all areas of disturbance and out of storm water treatment structures.
4. A minimum 25 foot buffer shall be maintained from perimeter controls such as silt fence.
5. In areas of disturbance that drain to a water body within 100 feet, two rows of silt fence must be installed along the contour.
6. Drainage structures must be kept open and free of snow and ice dams.
7. Silt fence and other practices requiring earth disturbance must be installed ahead of frozen ground.
8. Mulch used for temporary stabilization must be applied at double the standard rate, or a minimum of 3 inches with an 80-90% cover.
9. To ensure cover of disturbed soil in advance of a melt event, areas of disturbed soil must be stabilized at the end of each work day, with the following exceptions:
   - If no precipitation within 24 hours is forecast and work will resume in the same disturbed area within 24 hours, daily stabilization is not necessary.
   - Disturbed areas that collect and retain runoff, such as house foundations or open utility trenches.
10. Prior to stabilization, snow or ice must be removed to less than 1 inch thickness.
11. Use stone to stabilize areas such as the perimeter of buildings under construction or where construction vehicle traffic is anticipated. Stone paths should be 10 to 20 feet wide to accommodate vehicular traffic.

10. **Stabilize Soil at Final Grade**

Purpose:
Stabilizing the site with seed and mulch or erosion control matting when it reaches final grade is the best way to prevent erosion while construction continues.

Requirements:
Within 48 hours of final grading, the exposed soil must be seeded and mulched or covered with erosion control matting.

How to comply:
Bring the site or sections of the site to final grade as soon as possible after construction is completed. This will reduce the need for additional sediment and erosion control measures and will reduce the total disturbed area.
For seeding and mulching rates, follow the specifications under Rule 8, Stabilizing Exposed Soil.

11. **Dewatering Activities**

Purpose:
Treat water pumped from dewatering activities so that it is clear when leaving the construction site.

Requirements:
Water from dewatering activities that flows off of the construction site must be clear. Water must not be pumped into storm sewers, lakes, or wetlands unless the water is clear.

How to comply:
Using sock filters or sediment filter bags on dewatering discharge hoses or pipes, discharge water into silt fence enclosures installed in vegetated areas away from waterways. Remove accumulated sediment after the water has dispersed and stabilize the area with seed and mulch.

12. **Inspect Your Site**

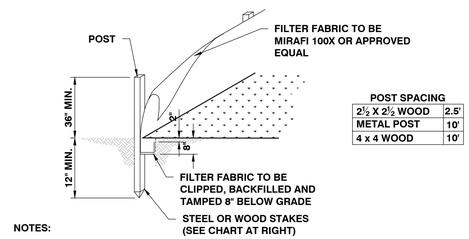
Purpose:
Perform site inspections to ensure that all sediment and erosion control practices are functioning properly. Regular inspections and maintenance of practices will help to reduce costs and protect water quality.

Requirements:
Inspect the site at least once every 7 days and after every rainfall or snow melt that results in a discharge from the site. Perform maintenance to ensure that practices are functioning according to the specifications outlined in this handbook.

In the event of a noticeable sediment discharge from the construction site, you must take immediate action to inspect and maintain existing erosion prevention and sediment control practices. Any visibly discolored storm water runoff to waters of the State must be reported. Forms for reporting discharges are available at:
dec.vermont.gov/watershed/stormwater/
permit-information-applications-fees

E-001 EC Sheet

E-003 Silt Fence



POST SPACING	
2½ X 2½ WOOD	2.5'
METAL POST	10'
4 x 4 WOOD	10'

NOTES:

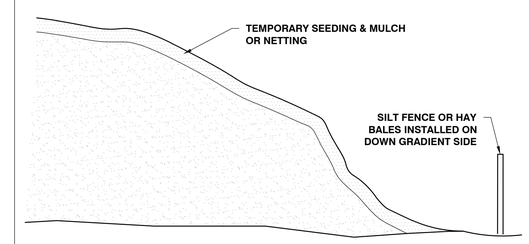
1. INSTALL MIRAFI ENVIROFENCE, OR APPROVED EQUAL OR AS DETAILED HEREIN.
2. INSTALL SILT FENCES AT TOES OF ALL UNPROTECTED SLOPES AND AS PARALLEL TO CONTOURS AS POSSIBLE. THIS INCLUDES ALL FILLED OR UNPROTECTED SLOPES CREATED DURING CONSTRUCTION, NOT NECESSARILY REFLECTED ON THE FINAL PLANS. CURVE THE ENDS OF THE FENCE UP INTO THE SLOPE. REMOVE SEDIMENT WHEN ACCUMULATED TO HALF THE HEIGHT OF THE FENCE. SILT FENCES ARE TO BE MAINTAINED UNTIL SLOPES ARE STABILIZED.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6", FOLDED AND STAPLED.

SILT FENCE DETAIL

N.T.S.

E-003 REVISED 08/01/2014

E-005 Stockpile

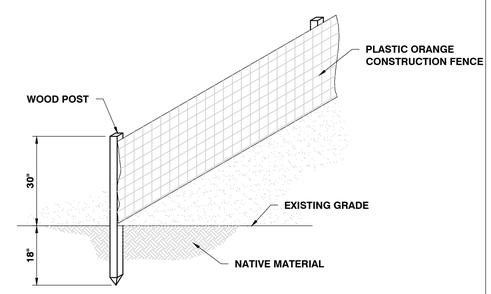


TEMPORARY STOCKPILE DETAIL

N.T.S.

E-005 REVISED 08/01/2014

E-002 Constr. Fence

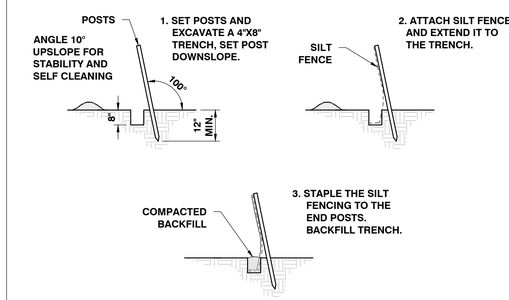


CONSTRUCTION FENCE DETAIL

N.T.S.

E-002 REVISED 08/01/2014

E-007 Infilt Sect

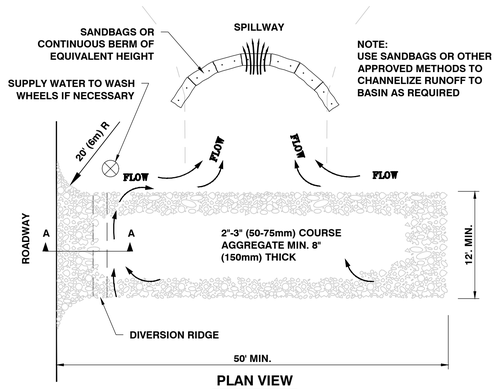


SILT FENCE CONSTRUCTION DETAIL

N.T.S.

E-007 REVISED 08/01/2014

E-004 Constr. Ent



PLAN VIEW

SECTION A-A

NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

STABILIZED CONSTRUCTION ENTRANCE

N.T.S.

E-004 REVISED 08/01/2014

PROGRESS PLANS
05/04/2020

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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21 HUNGERFORD TERRACE, LLC

BURLINGTON, VERMONT 05401

PROJECT:

15 & 21 HUNGERFORD TERRACE

15 HUNGERFORD TERRACE
BURLINGTON, VT

LOCATION MAP
1" = 2000'

DATE	CHECKED	REVISION

ESPC SPECIFICATIONS AND DETAILS

DATE: --
SCALE: AS SHOWN
PROJ. NO.: 20123
DRAWING NUMBER: C3.1

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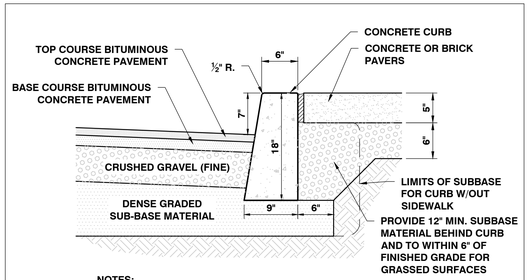


NOTES:

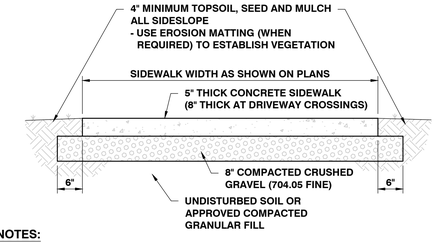
1. CURBING SHALL BE CONSTRUCTED IN 10' SECTIONS WITH ⅜" JOINT BETWEEN SECTIONS.
2. CURBING EXPANSION JOINTS SHALL BE CONSTRUCTED EVERY 20' AND SHALL BE CONSTRUCTED OF MATERIAL CONFORMING TO AASHTO DESIGNATION M-153 (½" SPONGE RUBBER OR CORK).
3. ASPHALT TREATED FELT TO BE USED BETWEEN SIDEWALK AND CONCRETE CURB TOP.

CURB w/SIDEWALK DETAIL

(SIMILAR WITH OUT SIDEWALK) N.T.S.

S-001 Curb

S-001 REVISED 10/07/2015



NOTES:

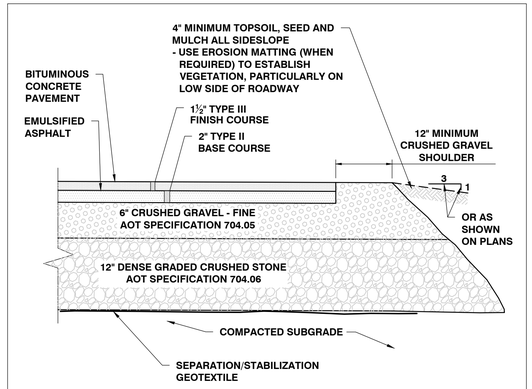
1. SIDEWALK JOINTS:
   - CONSTRUCTION JOINTS: SET CONSTRUCTION JOINTS AT SIDE AND END TERMINATIONS OF PAVING AND AT LOCATIONS WHERE PAVING OPERATIONS ARE STOPPED FOR MORE THAN ONE-HALF HOUR UNLESS PAVING TERMINATES AT ISOLATION JOINTS.
   - ISOLATION JOINTS: FORM ISOLATION JOINTS OF PREFORMED JOINT-FILLER STRIPS ABUTTING CONCRETE CURBS, CATCH BASINS, MANHOLES, INLETS, STRUCTURES, OTHER FIXED OBJECTS, AND WHERE INDICATED.
   - CONTRACTION JOINTS: FORM WEAKENED-PLANE CONTRACTION JOINTS, SECTIONING CONCRETE INTO AREAS AS INDICATED. TYPICAL JOINT SPACING IS 5 FEET BUT MAY BE INDICATED DIFFERENTLY ON PLANS FOR WIDER SIDEWALKS OR PLAZA AREAS. CONSTRUCT CONTRACTION JOINTS FOR A DEPTH EQUAL TO AT LEAST ONE-FOURTH OF THE CONCRETE THICKNESS, CONTRACTION JOINTS MAY BE EITHER GROOVED or SAWED JOINTS.
2. NO DEICER SHALL BE APPLIED TO SIDEWALK UNTIL AT LEAST 30 DAYS OF AIR DRYING TIME HAS OCCURRED.
3. LIQUID MEMBRANE-FORMING CURING AND SEALING COMPOUNDS SHALL MEET ASTM C309 or C1315. SEALERS SHALL BE BASED ON SILANE OR SILOXANE TECHNOLOGY FOR BEST SALT AND WATER REPELLENCY FOR CONCRETE PAVEMENTS. TWO COATS SHALL BE APPLIED AT RIGHT ANGLES FOR EVEN COVERAGE. INSTALL IN CONFORMANCE WITH MANUFACTURERS RECOMMENDATIONS.
4. INSTALL POLYURETHANE ELASTOMERIC SEALANT AT ALL SAWED JOINTS.

CONCRETE SIDEWALK DETAIL

N.T.S.

S-002 Conc Walk

S-002 REVISED 7/01/2019

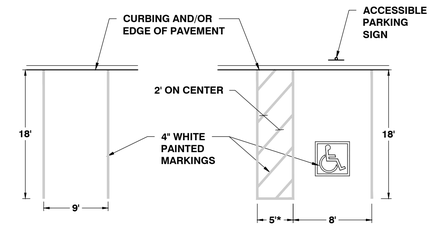


TYPICAL PAVEMENT SECTION

(FULL DEPTH CONSTRUCTION SECTION) N.T.S.

S-003 Pave Sec-Shoulder

S-003 REVISED 6/19/2019



*8' FOR VAN ACCESSIBLE SPACE (UNLESS OTHERWISE NOTED ON PLANS)

STANDARD PARKING SPACE ACCESSIBLE PARKING SPACE

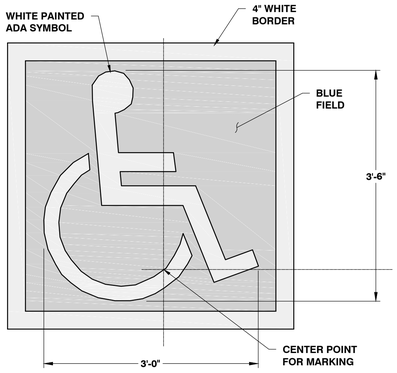
TRAFFIC MARKING PAINT TO BE READY-MIXED TRAFFIC PAINT SUITABLE FOR MARKING ON EITHER BITUMINOUS OR PORTLAND CEMENT CONCRETE PAVEMENT. READY-MIXED LOW VOC TRAFFIC PAINT SHALL CONSIST OF 100% ACRYLIC TYPE, FAST DRYING TRAFFIC PAINT.

LINE STRIPING DETAIL

N.T.S.

S-015 Parking Space Striping

S-015 REVISED 2/27/2020



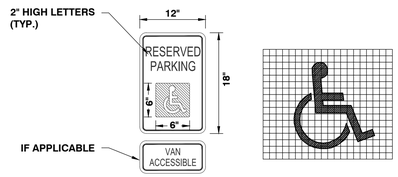
NOTE: PAVEMENT MARKINGS TO MEET STATE STANDARDS E-191

ACCESSIBLE PARKING MARKING DETAIL

N.T.S.

S-015a HC Pave Marking

S-015a REVISED 2/27/2020



COLOR: LEGEND AND BORDER - GREEN
WHITE SYMBOL ON BLUE BACKGROUND
BACKGROUND - WHITE
MATERIAL: AS PER VAOT STANDARD E-143M
POST: 2" (14 ga.) SQUARE STEEL SIGN POST
INSTALL IN ACCORDANCE w/VAOT STANDARD E-164

ACCESSIBLE PARKING SIGN DETAIL

N.T.S.

SIGN SHALL BE POSTED AT THE HEAD OF EACH ACCESSIBLE SPACE. MOUNTING HEIGHT IS 60" MINIMUM TO BOTTOM OF SIGN.

S-015b HC Sign

S-015b REVISED 2/27/2020

PROGRESS PLANS
05/12/2020

SITE ENGINEER:

CIVIL ENGINEERING ASSOCIATES, INC.
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DRAWN MAB
CHECKED DSM
APPROVED DSM

CLIENT:

15 HUNGERFORD TERRACE, LLC

21 HUNGERFORD TERRACE, LLC

BURLINGTON, VERMONT 05401

PROJECT:

15 & 21 HUNGERFORD TERRACE

15 HUNGERFORD TERRACE
BURLINGTON, VT

LOCATION MAP

1" = 2000'

DATE	CHECKED	REVISION

DETAILS

DATE --

SCALE AS SHOWN

PROJ. NO. 20123

DRAWING NUMBER C4.0

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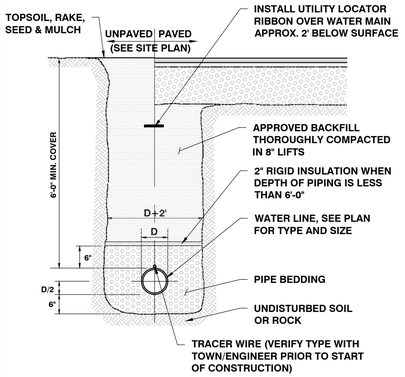


NOTES:

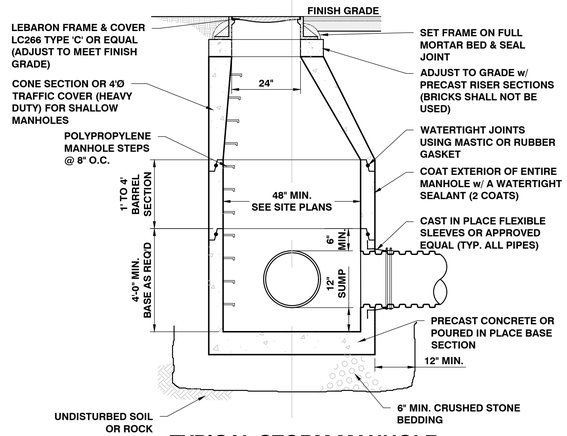
1. COMPACTION OF BACKFILL AND BEDDING SHALL BE A MINIMUM OF 90% (95% UNDER ROADWAY SURFACES) OF MAXIMUM DRY DENSITY DETERMINED IN THE STANDARD PROCTOR TEST (ASTM D698).
2. BEDDING MATERIAL SHALL NOT BE PLACED ON FROZEN SUBGRADE.
3. APPROVED BACKFILL SHALL NOT CONTAIN ANY STONES MORE THAN 12" IN LARGEST DIMENSION (6" IN ROADWAYS, 1 1/2"" MAXIMUM DIAMETER WITHIN 24" OF THE OUTSIDE OF THE PIPE), OR CONTAIN ANY FROZEN, WET, OR ORGANIC MATERIAL.
4. TRENCHES SHALL BE COMPLETELY DEWATERED PRIOR TO PLACING OF PIPE BEDDING MATERIAL AND KEPT DEWATERED DURING INSTALLATION OF PIPE AND BACKFILL.
5. IN TRENCHES WITH UNSTABLE MATERIALS OR HIGH WATER TABLE, TRENCH BOTTOM SHALL FIRST BE STABILIZED BY PLACEMENT OF FILTER FABRIC THEN CRUSHED STONE (3/4" MAXIMUM).
6. THE SIDES OF TRENCHES 4' OR MORE IN DEPTH ENTERED BY PERSONNEL SHALL BE SHEETED OR SLOPED TO THE ANGLE OF REPOSE AS DEFINED BY O.S.H.A. STANDARDS.
7. BEDDING MATERIAL SHALL CONSIST OF CRUSHED STONE, OR SAND WITH A MAXIMUM SIZE OF ¾". SUBMIT A SAMPLE TO THE ENGINEER FOR APPROVAL.
8. CONTRACTOR TO INSTALL TRACER WIRE ALONG ALL SECTIONS OF NEW WATER LINE. TERMINATE TRACER WIRE AT ALL VALVE BOXES AND HYDRANTS. COORDINATE INSTALLATION WITH TOWN AND ENGINEER.

TYPICAL WATER TRENCH DETAIL

N.T.S.

W-001 Trench

W-001 REVISED 12/08/2016

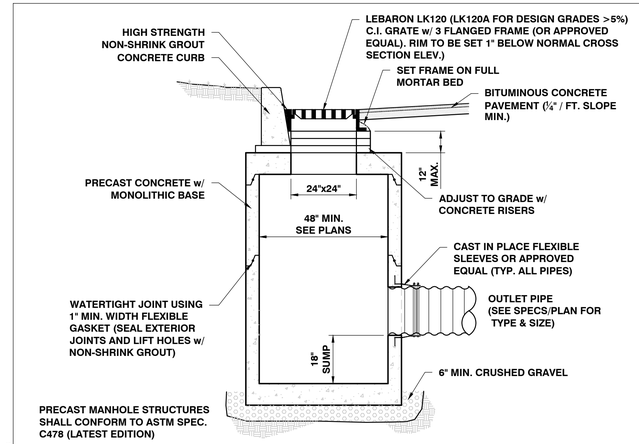


TYPICAL STORM MANHOLE

N.T.S.

ST-001 Typ MH

ST-001 REVISED 4/2/2018

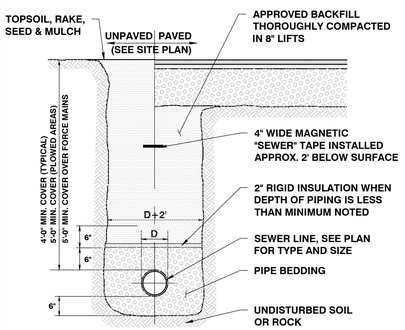


TYPICAL CATCH BASIN @ CURB

(SIMILAR WITHOUT CURB) N.T.S.

ST-002 Typ CB

ST-002 REVISED 6/7/2019



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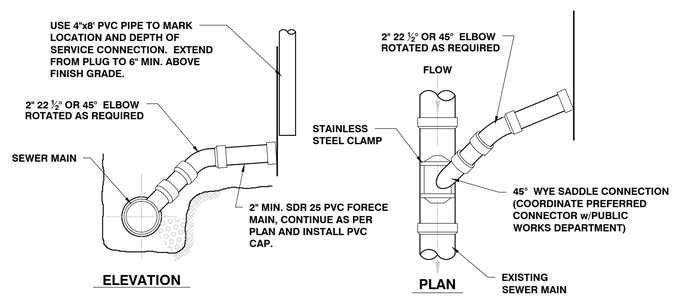
2. BEDDING MATERIAL SHALL NOT BE PLACED ON FROZEN SUBGRADE.
3. APPROVED BACKFILL SHALL NOT CONTAIN ANY STONES MORE THAN 12" IN LARGEST DIMENSION (6" IN ROADWAYS, 1 1/2"" MAXIMUM DIAMETER WITHIN 24" OF THE OUTSIDE OF THE PIPE), OR CONTAIN ANY FROZEN, WET, OR ORGANIC MATERIAL.
4. TRENCHES SHALL BE COMPLETELY DEWATERED PRIOR TO PLACING OF PIPE BEDDING MATERIAL AND KEPT DEWATERED DURING INSTALLATION OF PIPE AND BACKFILL.
5. IN TRENCHES WITH UNSTABLE MATERIALS OR HIGH WATER TABLE, TRENCH BOTTOM SHALL FIRST BE STABILIZED BY PLACEMENT OF FILTER FABRIC THEN CRUSHED STONE (3/4" MAXIMUM).
6. THE SIDES OF TRENCHES 4' OR MORE IN DEPTH ENTERED BY PERSONNEL SHALL BE SHEETED OR SLOPED TO THE ANGLE OF REPOSE AS DEFINED BY O.S.H.A. STANDARDS.
7. BEDDING MATERIAL FOR WASTEWATER LINES SHALL CONSIST OF CRUSHED STONE, GRAVEL, OR SAND WITH A MAXIMUM SIZE OF ¾". SUBMIT A SAMPLE TO THE ENGINEER FOR APPROVAL.
8. ALL JOINTS TO BE INSPECTED BY OWNER/ENGINEER/TOWN PRIOR TO BACKFILL.

TYPICAL SEWER TRENCH DETAIL

N.T.S.

SWR-001 Trench

SWR-001 REVISED 12/08/2016



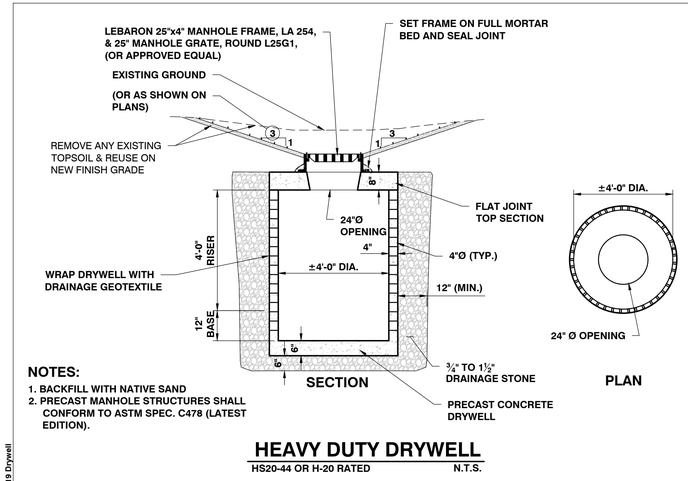
- CONTRACTOR TO PROVIDE 3 LOCATION TIES TO END OF LATERAL TO BE INCLUDED ON "AS-BUILT" DRAWINGS. (IF CONSTRUCTION IS NOT CONCURRENT WITH LATERAL)
- SEE TYPICAL TRENCH FOR BEDDING AND BACKFILL REQUIREMENTS.

SEWER SERVICE CONNECTION

(@ EXISTING SEWER MAIN) N.T.S.

SWR-003 Service Con-EX

SWR-003 REVISED 08/01/2014



NOTES:

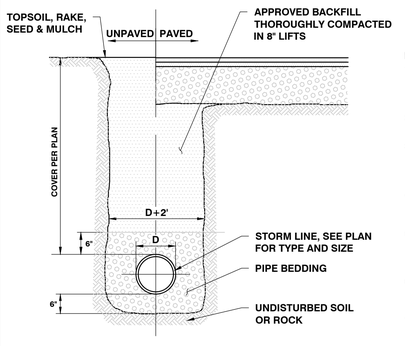
1. BACKFILL WITH NATIVE SAND
2. PRECAST MANHOLE STRUCTURES SHALL CONFORM TO ASTM SPEC. C478 (LATEST EDITION).

HEAVY DUTY DRYWELL

HS20-44 OR H-20 RATED N.T.S.

ST-019 Drywell

ST-019 REVISED 08/01/2014



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7. BEDDING MATERIAL SHALL CONSIST OF CRUSHED STONE, GRAVEL, OR SAND WITH A MAXIMUM SIZE OF ¾". SUBMIT A SAMPLE TO THE ENGINEER FOR APPROVAL.

TYPICAL STORM TRENCH

N.T.S.

ST-003 Storm Trench

ST-003 REVISED 12/08/2016

PROGRESS PLANS
05/09/2020

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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DSM

CLIENT:

15 HUNGERFORD TERRACE, LLC

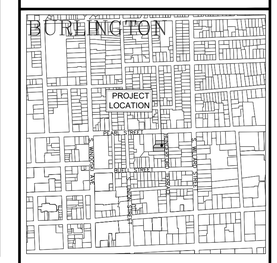
21 HUNGERFORD TERRACE, LLC

BURLINGTON, VERMONT
05401

PROJECT:

15 & 21 HUNGERFORD TERRACE

15 HUNGERFORD TERRACE
BURLINGTON, VT



LOCATION MAP
1" = 2000'

DATE	CHECKED	REVISION

DETAILS

DATE
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SCALE
AS SHOWN

PROJ. NO.
20123

DRAWING NUMBER
C4.1

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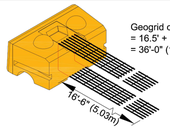
ϕ = 28° | SILTY SAND or CLAYEY SAND

LOAD CONDITION B | 250 lb/ft² (12 kPa) LIVE LOAD SURCHARGE, NO BACK SLOPE, NO TOE SLOPE

8 BLOCK HIGH SECTION
(8) 28" (710 mm) Blocks

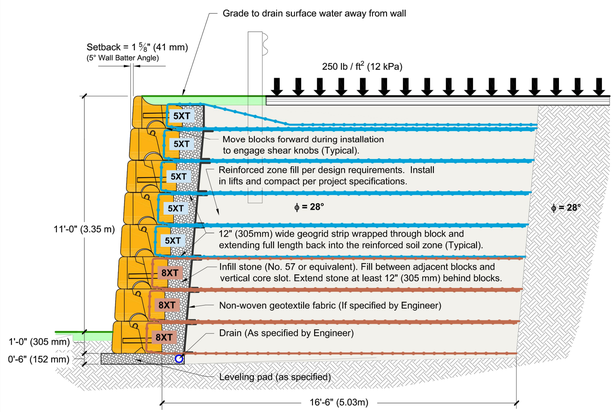
PRELIMINARY
Professional Engineering Design
Required for Construction



Geogrid cut length:
= 16.5' + 16.5' + 3'
= 36'-0" (10.97m)

Geogrid Rolls Required per Wall Length		
Type	Rolls / linear ft	Rolls / linear m
5XT	± 0.26	± 0.85
8XT	± 0.16	± 0.51

Geogrid shall be 12" (305 mm) wide strips of Mirafi geogrid, type as noted. Geogrid shall be **Factory cut** and **Certified** for width and strength by TenCate Mirafi.

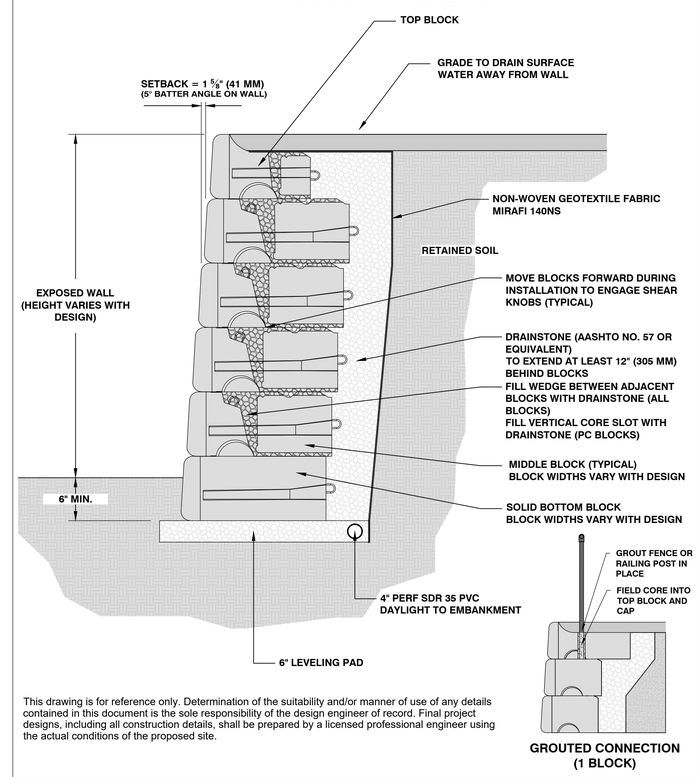


This drawing is for reference only. Determination of the suitability and/or manner of use of any details contained in this document is the sole responsibility of the design engineer of record. Final project designs, including all construction details, shall be prepared by a licensed professional engineer using the actual conditions of the proposed site. Final wall design must address both internal and external drainage and all modes of wall stability.

DRAWN BY:	B. Lindfors	TITLE:	**Preliminary Wall Section** Silty Sand or Clayey Sand, Ø=28° 250 lb/ft² (12 kPa) Live Load Surcharge
APPROVED BY:	J. Johnson		
DATE:	Oct 30, 2015		
SHEET:	1 of 1	FILE:	B_28_PC_28_144_cad.dwg

REDI-ROCK
05481 US 31 SOUTH, CHARLEVOIX, MI 49720
(866) 222-8400 ext 3010 • engineering@redi-rock.com
www.redi-rock.com

TYPICAL GRAVITY WALL SECTION



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DRAWN BY:	JRJ	TITLE:	Typical Gravity Wall Detail
APPROVED BY:	JRJ		
DATE:	17MAR2016		
SHEET:	1 of 1	FILE:	1 Typical Gravity Wall Detail 031716.dwg

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www.redi-rock.com

RAILING NARRATIVE

1. Guardrails and Handrails shall be the product of a company normally engaged in the manufacture of pipe railing. Railing shall be shop assembled in lengths not to exceed 24 feet for field erection.
2. The handrail shall be made of pipes joined together with component fittings. Samples of all components, bases, toeboard and pipe must be submitted for approval at the request of the engineer. Components that are pop-riveted or glued at the joints will not be acceptable. All components must be mechanically fastened with stainless steel hardware. **Handrail and components shall be TUFRAIL, as manufactured by Thompson Fabricating, LLC (Birmingham, Alabama) or an approved equal.**
3. Railings shall be 1 1/2" Schedule 40 aluminum pipe alloy 6105-T5, ASTM-B-429 or ASTM-B-221. Post shall be 1 1/2" Schedule 40 aluminum pipe of the same alloy. Post spacing shall be a maximum of 6'-0".
4. Guardrails and Handrails shall be designed to withstand a 200lb concentrated load applied in any direction and at any point on the top rail
5. Intermediate railings shall be provided such that a 21-inch diameter sphere cannot pass through any opening.
7. The manufacturer shall submit calculations for approval at the request of the Engineer. Testing of base castings or base extrusions by an independent lab or manufacturer's lab (if manufacturer's lab meets the requirements of the Aluminum Association) will be an acceptable substitute for calculations. Calculations will be required for approval of all other design aspects.
8. Posts shall not interrupt the continuation of the top rail at any point along the railing, including corners and end terminations (OSHA 1910.23). The top surface of the top railing shall be smooth and shall not be interrupted by projected fittings.
9. The mid-rail at a corner return shall be able to withstand a 200lb load without loosening. The manufacturer is to determine this dimension for their system and provide physical tests from a laboratory to confirm compliance.
10. Suitable expansion and contraction provisions shal be included in the railing system.
11. Finish shall be Aluminum Association M10-C22-A41 (215-R1). The pipe shall be plastic-wrapped. The plastic wrap is to be removed after erection.
12. Aluminum surfaces in contact with concrete, grout or dissimilar metals will be protected with a coat of bituminous paint, Mylar isolators or other approved material.

PROGRESS PLANS
05/04/2020

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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DSM

CLIENT:

15 HUNGERFORD TERRACE, LLC

21 HUNGERFORD TERRACE, LLC

BURLINGTON, VERMONT
05401

PROJECT:

15 & 21 HUNGERFORD TERRACE

15 HUNGERFORD TERRACE
BURLINGTON, VT

LOCATION MAP
1" = 2000'

DATE	CHECKED	REVISION

RETAINING WALL DETAILS

DATE
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SCALE
AS SHOWN
PROJ. NO.
20123

DRAWING NUMBER
C4.2

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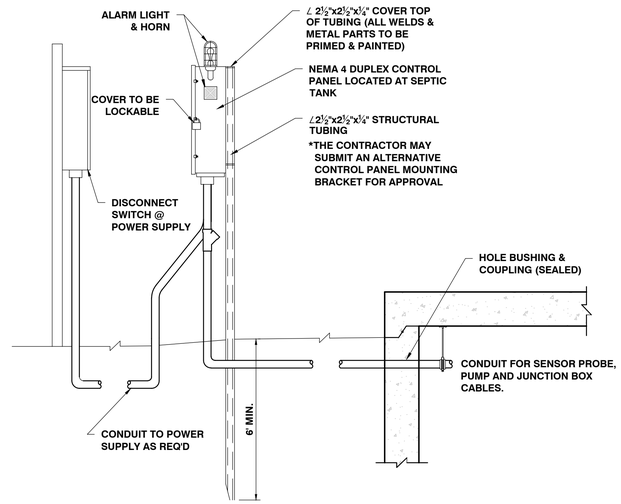
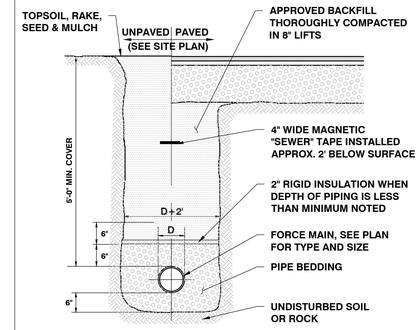
CONTROL PANEL REQUIREMENTS

1. UL LISTED NEMA 4 ENCLOSURE,
2. THE PANEL SHALL BE COMPATIBLE WITH THE PUMPS.
3. EACH PUMP SHALL BE SUPPLIED WITH A RUN LIGHT, HAND-OFF-AUTO SWITCH, ELAPSED TIME METER, CIRCUIT BREAKER, LIGHTING SUPPRESSOR, PHASE LOSS CIRCUITRY, SEAL FAIL INDICATOR LIGHT MAGNETIC CONTACTOR, AND MAIN CIRCUIT BREAKER.
4. ALARM INDICATION - ALARM LIGHT AND HORN (OR BELL) w/ BATTERY BACK-UP. THE AUDIO ALARM SHALL HAVE AN AUTOMATICALLY RESETTING MANUAL SILENCE SWITCH AND MANUAL TEST SWITCH.
5. ALARM ACTIVATION -
   PUMP FAILURE
   HIGH WATER
   LOW WATER
6. PANEL SHALL ACTIVATE A NORMALLY OPEN SOLENOID VALVE TO CLOSE DURING A PUMPING CYCLE.
7. ALL COMPONENTS SHALL BE EXPLOSION PROOF.
8. DOUBLE THROW SWITCH WITH PLUG FOR PORTABLE GENERATOR.
9. 110V OUTLETS.



CONTROL PANEL INSTALLATION

NTS



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6. THE SIDES OF TRENCHES 4' OR MORE IN DEPTH ENTERED BY PERSONNEL SHALL BE SHEETED OR SLOPED TO THE ANGLE OF REPOSE AS DEFINED BY O.S.H.A. STANDARDS.
7. BEDDING MATERIAL FOR FORCE MAINS SHALL CONSIST OF SAND. SUBMIT A SAMPLE TO THE ENGINEER FOR APPROVAL.
8. ALL JOINTS TO BE INSPECTED BY OWNER/ENGINEER/TOWN PRIOR TO BACKFILL.

TYPICAL FORCE MAIN TRENCH DETAIL

N.T.S.

PUMP STATION TANK TESTING

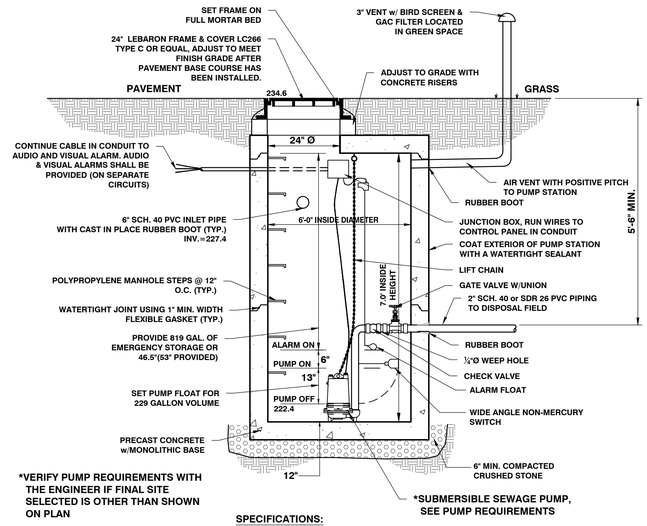
The tanks shall be tested by the following procedure and in conformance with the State of Vermont - Environmental Protection Rules:

1. **Exfiltration Leakage Test: All pipes and other openings into the tank shall be suitably plugged and the plugs braced to prevent blowout. The tank shall then be filled with water to the top of the riser section. A period of time may be permitted, if the Contractor so wishes, to allow for absorption. At the end of this period, the tank shall be refilled to the top of the riser, if necessary, and the measuring time of at least four hours begun. At the end of the test period, the tank shall be refilled to the top of the riser, measuring the volume of water added. This amount shall be converted to gallons per vertical foot depth for 24 hours. The leakage for each tank shall not exceed four gallon/vertical foot/day. If leakage exceeds the allowable rate, repairs shall be made as approved by the Engineer and the tank retested. If the Contractor elects to backfill prior to testing, the testing shall be at his own risk, and it shall be incumbent upon the Contractor to determine the reason for any failure of the test. No adjustment in the leakage allowance will be made for unknown causes such as leaking plugs, absorption, etc. It will be assumed that all loss of water during the test is a result of leaks through the joints or through the concrete. Furthermore, the Contractor shall take any steps necessary to assure the Engineer that the water table is below the bottom of the tank throughout the test.**

   OR

2. **Vacuum test in accordance with ASTM C1227-03, Standard Specification for Precast Concrete Septic Tanks, except as noted below:**

   - seal the empty tank and apply a vacuum to 5 inches (100mm) of mercury. The tank is approved if 90% of vacuum is held for 5 minutes.



SPECIFICATIONS:
- **Concrete Minimum Strength 5000psi @ 28 days**
- **Steel Reinforcement Grade 60**
- **Joints Sealed with Butyl Sealant**
- **Provide H20 Loading**

SIMPLEX PUMP STATION DETAIL

N.T.S.

15 Hungerford Terrace
Burlington, Vermont

Pump Station Basis of Design
April 28, 2020

Design Flow to Pump Station	819	GPD
Average Daily Flow	0.85	GPM
Peaking Factor	5.00	
Peak Flow	4.3	GPM
Force Main Dia.	2.00	Inches
Min. Cleansing Velocity	3.00	FPS
Max. Velocity	10.00	FPS
Min. Pumping Rate	29.36	GPM
Max. Pumping Rate	97.86	GPM
Chosen Pumping rate	32.00	GPM
Length of FM	150.00	feet
Friction Losses	3.10	feet
High Point of FM	240.00	feet
Low Elevation in PS	222.40	feet
Elevation Change	17.60	feet
Minor headlosses	3.00	feet
Residual	1.00	feet
TDH	24.70	feet
Pump Cycle Storage	229	Gallons
Run Cycle	10.68	Minutes
Wet Well Detention Time	268.42	Minutes

System Curve

GPM	TDH
20	22.90
30	24.40
40	26.30
50	28.70
60	31.50

Pump Selection Barnes XSGV20226,2HP, 230V,1PH, 60z, 3.75in Impeller Submersible Grinder and Explosionproof Pump

Pump Station Dosing
Minimum Number of Doses per Day = 4
Maximum Dose Size = 819 GPD/4 = 205 Gal
Drainback Volume =25 gal
Dose volume =205 + 25= 230 gallons
Use 229 Gallon Dose Volume

Pump Station Emergency Storage
Required=666 Gallons
6' diameter pump station = 211 gal/vf = 17.6 gal/in
Required Emergency Storage Delta = 100 gal/ 17.6 gal/in = 5.7", Use 6"
Cycle Delta = 229 Gal/17.6 Gal/inch = 13.0"
Pump off above floor = 12"
Pump on above floor = 12"+13" =25"
Alarm above floor = 25"+6" = 31"
Storage above alarm (inches) = 84" - 31" = 53"
Storage above alarm (gallons) = 53" x 17.6 Gal/inch = 933 Gallons Provided

PROGRESS PLANS
05/08/2020

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:
15 HUNGERFORD TERRACE, LLC
21 HUNGERFORD TERRACE, LLC
BURLINGTON, VERMONT 05401

PROJECT:
15 & 21 HUNGERFORD TERRACE
15 HUNGERFORD TERRACE
BURLINGTON, VT

LOCATION MAP
1" = 2000'

DATE	CHECKED	REVISION

PUMP STATION DETAILS

DATE: --
SCALE: AS SHOWN
PROJ. NO. 20123
DRAWING NUMBER: C4.3

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ADVANCED DRAINAGE SYSTEMS, INC.

FOR STORMTECH INSTRUCTIONS, DOWNLOAD THE INSTALLATION APP

15 & 21 HUNGERFORD TERRACE

BURLINGTON, VT

STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH SC-740, SC-310, OR APPROVED EQUAL.
2. CHAMBERS SHALL BE MANUFACTURED FROM VIRGIN POLYPROPYLENE OR POLYETHYLENE RESINS.*J
3. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORT PANELS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
4. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
5. CHAMBERS SHALL MEET ASTM F2922 (POLYETHYLENE) OR ASTM F2418 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".*J
6. CHAMBERS SHALL BE DESIGNED AND ALLOWABLE LOADS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
7. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. THE CHAMBER MANUFACTURER SHALL SUBMIT THE FOLLOWING UPON REQUEST TO THE SITE DESIGN ENGINEER FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE:
   a. A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY AASHTO FOR THERMOPLASTIC PIPE.
   b. A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET. THE 50 YEAR CREEP MODULUS DATA SPECIFIED IN ASTM F2418 OR ASTM F2922 MUST BE USED AS PART OF THE AASHTO STRUCTURAL EVALUATION TO VERIFY LONG-TERM PERFORMANCE.
   c. STRUCTURAL CROSS SECTION DETAIL ON WHICH THE STRUCTURAL EVALUATION IS BASED.
8. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-310/SC-740 SYSTEM

1. STORMTECH SC-310 & SC-740 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.*J
2. STORMTECH SC-310 & SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/SC-780 CONSTRUCTION GUIDE".*J
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS.*J STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.*J
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.*J
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.*J
6. MAINTAIN MINIMUM - 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.*J
7. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4-2" (20-50 mm).*J
8. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.*J
9. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT*J

1. STORMTECH SC-310 & SC-740 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".*J
2. THE USE OF CONSTRUCTION EQUIPMENT OVER SC-310 & SC-740 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".*J
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

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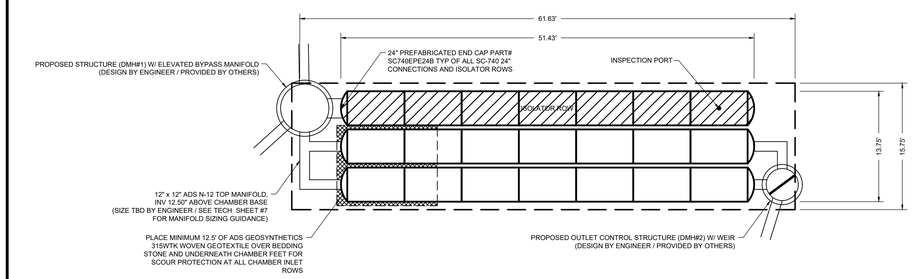
COMPUTER GENERATED CONCEPTUAL LAYOUT - NOT FOR CONSTRUCTION

CONCEPTUAL LAYOUT

(21) STORMTECH SC-740 CHAMBERS
(6) STORMTECH SC-740 END CAPS
INSTALLED WITH 6" COVER STONE, 6" BASE STONE, 40% STONE VOID
INSTALLED SYSTEM VOLUME: 1959 CF
AREA OF SYSTEM: 986 **FT²**
PERIMETER OF SYSTEM: 157 **FT**

PROPOSED ELEVATIONS

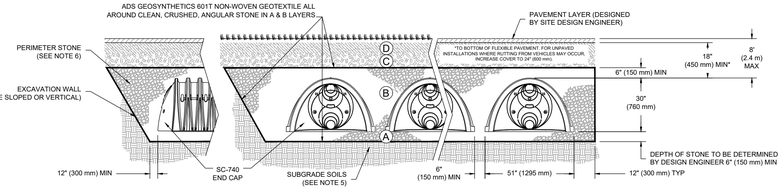
MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED):	234.50
MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC):	228.50
MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC):	228.00
MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT):	228.00
MINIMUM ALLOWABLE GRADE (TOP OF RIGID CONCRETE PAVEMENT):	228.00
TOP OF STONE:	227.00
TOP OF CHAMBER:	226.50
12" TOP MANIFOLD INVERT:	225.04
24" CONNECTION INVERT (ISOLATOR ROW):	224.01
BOTTOM OF CHAMBER:	224.00
BOTTOM OF STONE:	223.50



ACCEPTABLE FILL MATERIALS: STORMTECH SC-740 CHAMBER SYSTEMS

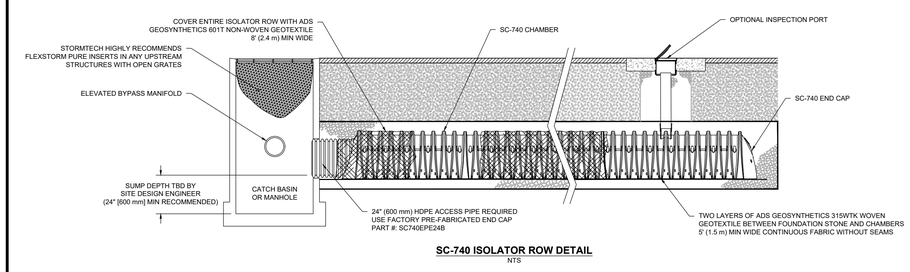
	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOILS/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4-2 INCH (20-50 mm)	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4-2 INCH (20-50 mm)	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. [2 3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.



NOTES:

1. SC-740 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS", OR ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".*J
2. SC-740 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".*J
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.*J
4. THE "SITE DESIGN ENGINEER" REFERS TO THE ENGINEER RESPONSIBLE FOR THE DESIGN AND LAYOUT OF THE STORMTECH CHAMBERS FOR THIS PROJECT.*J
5. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.*J
6. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
7. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



SC-740 ISOLATOR ROW DETAIL
NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

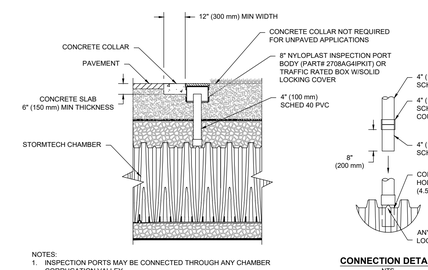
STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



NOTES:
1. INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION VALLEY.
2. ALL SCHEDULE 40 FITTINGS TO BE SOLVENT CEMENTED (4" PVC NOT PROVIDED BY ADS).

CONNECTION DETAIL
NTS

4" PVC INSPECTION PORT DETAIL
NTS

PROGRESS PLANS
05/04/2020

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:

15 HUNGERFORD TERRACE, LLC

21 HUNGERFORD TERRACE, LLC

BURLINGTON, VERMONT 05401

PROJECT:

15 & 21 HUNGERFORD TERRACE

15 HUNGERFORD TERRACE
BURLINGTON, VT

LOCATION MAP
1" = 2000'

DATE	CHECKED	REVISION

STORMWATER DETAILS

DATE: --
SCALE: AS SHOWN
PROJ. NO.: 20123
DRAWING NUMBER: C4.4

SHEET 2 OF 5 | SHEET 3 OF 5 | SHEET 4 OF 5

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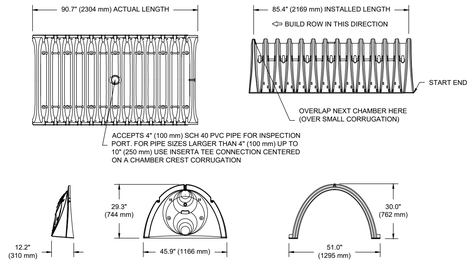
SC-740 TECHNICAL SPECIFICATION

NTS



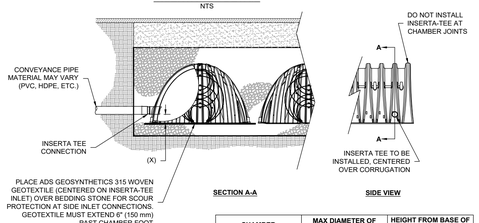
NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	51.0" X 30.0" X 85.4"	(1295 mm X 762 mm X 2169 mm)
CHAMBER STORAGE	45.9 CUBIC FEET	(1.30 m^3)
MINIMUM INSTALLED STORAGE*	74.9 CUBIC FEET	(2.12 m^3)
WEIGHT	75.0 lbs.	(33.6 kg)

*ASSUMES 6" (152 mm) STONE ABOVE, BELOW, AND BETWEEN CHAMBERS

INSERTA TEE DETAIL

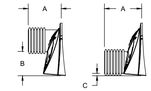
NTS



SECTION A-A **SIDE VIEW**

CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
SC-310	6" (150 mm)	4" (100 mm)
SC-740	10" (250 mm)	4" (100 mm)
DC-780	10" (250 mm)	4" (100 mm)
MC-3500	12" (300 mm)	6" (150 mm)
MC-4500	12" (300 mm)	8" (200 mm)
INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SDR 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON		

NOTE:
PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.



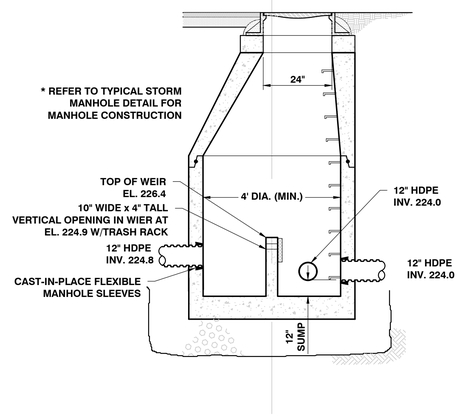
STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"

PART #	STUB	A	B	C
SC740EPE06T / SC740EPE06TPC	6" (150 mm)	10.9" (277 mm)	18.5" (470 mm)	---
SC740EPE06B / SC740EPE06BPC			---	0.5" (13 mm)
SC740EPE08T /SC740EPE08TPC	8" (200 mm)	12.2" (310 mm)	16.5" (419 mm)	---
SC740EPE08B / SC740EPE08BPC			---	0.6" (15 mm)
SC740EPE10T / SC740EPE10TPC	10" (250 mm)	13.4" (340 mm)	14.5" (368 mm)	---
SC740EPE10B / SC740EPE10BPC			---	0.7" (18 mm)
SC740EPE12T / SC740EPE12TPC	12" (300 mm)	14.7" (373 mm)	12.5" (318 mm)	---
SC740EPE12B / SC740EPE12BPC			---	1.2" (30 mm)
SC740EPE15T / SC740EPE15TPC	15" (375 mm)	18.4" (467 mm)	9.0" (229 mm)	---
SC740EPE15B / SC740EPE15BPC			---	1.3" (33 mm)
SC740EPE18T / SC740EPE18TPC	18" (450 mm)	19.7" (500 mm)	5.0" (127 mm)	---
SC740EPE18B / SC740EPE18BPC			---	1.6" (41 mm)
SC740EPE24B*	24" (600 mm)	18.5" (470 mm)	---	0.1" (3 mm)

ALL STUBS, EXCEPT FOR THE SC740EPE24B ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

* FOR THE SC740EPE24B THE 24" (600 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 1.75" (44 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

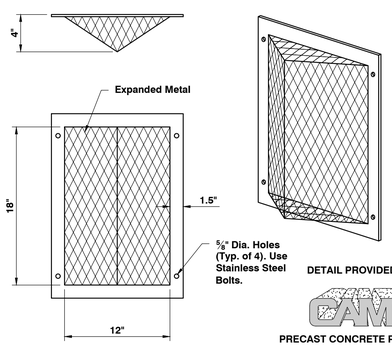
NOTE: ALL DIMENSIONS ARE NOMINAL



DMH #2 - OUTLET CONTROL STRUCTURE

N.T.S.

Note:
Trash Rack Coated with Cold Galvanized Spray



DETAIL PROVIDED BY:

PRECAST CONCRETE PRODUCTS
78 PRECAST ROAD MILTON, VT 05468 802.893.2401
TOLL FREE 1.888.299.2401 FAX 802.893.1542

ST-017 Orifice Trash Rack

ORIFICE TRASH RACK (12"X18")

N.T.S.

ST-017

15 & 21 HUNGERFORD TERRACE
BURLINGTON, VT

DATE: 04/10/2020 DRAWN: AC
PROJECT # Tod CHECKED: ---

REV	DRW	CHK	DESCRIPTION

THE DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO ADS UNDER THE DIRECTION OF THE SITE DESIGN ENGINEER OR OWNER RESULTS REPRESENTATIVE. THE SITE DESIGN ENGINEER SHALL REVIEW THE DRAWING PRIOR TO CONSTRUCTION. SITE DESIGN ENGINEER OR OWNER RESULTS REPRESENTATIVE SHALL ADVISE ADS OF ANY CHANGES REQUIRED TO THE DESIGN.
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ADS
4640 TRUEMAN BLVD
HILLIARD, OH 43026
1-800-733-7473

SHEET
5 OF 5

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:

15 HUNGERFORD TERRACE, LLC

21 HUNGERFORD TERRACE, LLC

BURLINGTON, VERMONT
05401

PROJECT:

15 & 21
HUNGERFORD
TERRACE

15 HUNGERFORD TERRACE
BURLINGTON, VT

LOCATION MAP
1" = 2000'

DATE	CHECKED	REVISION

STORMWATER
DETAILS

DATE
--
SCALE
AS SHOWN
PROJ. NO.
20123

DRAWING NUMBER
C4.5

PROGRESS PLANS
05/04/2020

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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 included 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 CLEARING

PART 1 – GENERAL

1.01 SUMMARY

A. Section includes:

1. Remove surface debris.

2. Clear site of plant life and grass.

3. Remove trees and shrubs.

4. Remove root system of trees and shrubs.

PART 2 – PRODUCTS

Not used.

PART 3 – EXECUTION

3.01 PROTECTION

A. Protect utilities that remain from damage.

B. Protect trees, plant growth, and features designated to remain as final landscaping.

C. Protect bench marks and existing structures from damage or displacement.

D. Use means necessary to prevent dust becoming a nuisance to the public, to neighbors, and to other work being performed on or near the site.

E. Maintain access to the site at all times.

3.02 CLEARING

A. Clear areas required for access to site and execution of Work.

B. Remove trees and shrubs within marked areas. Remove stumps, roots and tap roots and other projections 1" or greater in diameter to 2'-0" below the excavated surfaces in cut areas and 2'-0" below the exposed subgrade in fill areas.

3.03 REMOVAL

A. Remove debris, rock, and extracted plant life from site unless otherwise noted on plans.

3.04 UTILITIES

A. Coordinate with utility companies and agencies as required.

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
¾"	75 – 100
No. 4	20 – 100
No. 100	0 – 20
No. 200	0 – 6

2.04 DRAINAGE COURSE (AOT SPEC. 704.16)

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
¾"	90 – 100
⅜"	20 – 55
No. 4	0 – 10
No. 8	0 – 10

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
3½"	100
3"	90 – 100
2"	75 – 100
1"	50 – 80
½"	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) 1½" 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
1½"	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
1½"	90 – 100
½"	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/yd^2 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 disking, 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
Subgrade and Gravel for Roads and Parking Lots	95%
General Embankments	90%

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.

PROGRESS PLANS 05/04/2020

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:

15 HUNGERFORD TERRACE, LLC

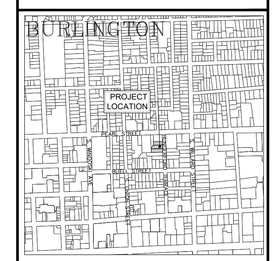
21 HUNGERFORD TERRACE, LLC

BURLINGTON, VERMONT 05401

PROJECT:

15 & 21 HUNGERFORD TERRACE

15 HUNGERFORD TERRACE
BURLINGTON, VT



LOCATION MAP
1" = 2000'

DATE	CHECKED	REVISION

SPECIFICATIONS

DATE: --
SCALE: NTS
PROJ. NO.: 20123

DRAWING NUMBER: C5.0

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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.

I. All trenching shall be in accordance with the latest OSHA requirements.

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.

K. Where trenching occurs in existing lawns, remove turf in sections and keep damp. Replace turf upon completion of the backfilling.

3.03 BEDDING

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.

3.04 BACKFILLING

A. Backfilling shall not be done in freezing weather, with frozen materials, or when materials already placed are frozen.

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.

C. If additional material is required, it shall be furnished from approved sources.

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.

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.

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.

G. Take special care in backfilling and bedding operations to not damage pipe and pipe coatings.

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.

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.

1. Around all structures, under roadway paving, shoulder and embankments – 95%.

2. All other areas – 90%.

BITUMINOUS CONCRETE PAVING

PART 1 – GENERAL

1.01 SUMMARY

A. Section includes:

1. Base Courses

2. Leveling Courses

3. Finish Course

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.

1.02 QUALITY ASSURANCE

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.

B. All materials and installation shall be in accordance with The Asphalt Institute Manual (MS-4) and the VAOT Standard Specifications, (Latest Edition).

C. Mixing Plant: Conform to State of Vermont Standards.

D. Obtain materials from same source throughout.

1.03 PROJECT CONDITIONS

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:

Air Temperature Degrees Fahrenheit	Pavement Compacted Depth
40 Degrees or below	1 1/4" or Greater
50 Degrees or below	Less than 1 1/4"

PART 2 – PRODUCTS

2.01 MATERIALS

A. Materials shall be combined and graded to meet the criteria as defined in the VAOT Standard Specifications, Division 700 for bituminous concrete.

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

1. Bituminous concrete pavement shall be designed in conformance with the design criteria for heavy duty bituminous concrete pavement. (75 blows/side) Superpave 65 gyration mix is also acceptable.

2. All Asphalt Cement used in the bituminous concrete pavement shall be PG 58-28 (or VTrans approved mix) unless otherwise noted. Superpave 65 gyration mix with 58-28 asphalt cement is also acceptable.

C. Thickness of paving for drives and parking lots shall be as shown on the plans, consisting of base course and finish course.

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.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install in accordance with VAOT Standard Specifications, Section 406.

3.02 EXAMINATION

A. Verify that compacted granular base is dry and ready to support paving and imposed loads.

B. Verify gradients and elevations of base are correct.

3.03 PREPARATION

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.

3.04 PREPARATION – TACK COAT

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.

B. Also apply to contact surfaces of curbs.

C. Coat surfaces of manhole and catch basin frames with oil to prevent bond with asphalt pavement. Do not tack coat these surfaces.

3.05 PLACING ASPHALT PAVEMENT

A. Place to compacted thickness identified on the plans.

B. Compact pavement by rolling. Do not displace or extrude pavement from position. Hand compact in areas inaccessible to rolling equipment.

C. Develop rolling with consecutive passes to achieve even and smooth finish, without roller marks.

3.06 JOINTS

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.

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.

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.

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.

3.07 TOLERANCES

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.

B. Scheduled Compacted Thickness: Within 1/4 inch.

C. Variation from True Elevation: Within 1/2 inch.

3.08 FIELD QUALITY CONTROL

A. Permit no vehicular traffic on surfaces until thoroughly cool and hard.

3.09 REPAIR OF SUBSIDENCE

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 necessary and the Contractor shall pay the Owner for all costs incurred in making such repairs.

ROCK AND BOULDER EXCAVATION

PART 1 – GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Work included: Furnish all labor and equipment required for excavation, disposal and replacement of rock and boulders.

a. All boulders within the range boundaries shown on the site plans to be removed shall be included as part of the Contractors mass rock removal.

1.2 SUBMITTALS

A. Blasting Plan: For record purposes; approved by authorities having jurisdiction.

B. Seismic Survey Report: For record purposes; from seismic survey agency.

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.

1.3 QUALITY ASSURANCE

A. Blasting: Comply with applicable requirements in NFPA 495, "Explosive Materials Code," and prepare a blasting plan reporting the following:

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.

2. Seismographic monitoring during blasting operations.

3. Explosive Firm: The company specializing in explosives for disintegration of rock with a minimum of five (5) years documented experience.

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. 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. Seismographic monitoring during blasting operations.

3. Seismic Survey Firm: The company specializing in seismic surveys with a minimum of five (5) years documented experience.

1.4 SCHEDULING

A. Drilling operations shall be conducted Monday through Friday, from 7:00 A.M. to 4:00 P.M.

B. Blasting operations shall be conducted Monday through Friday, from 8:00 A.M. to 4:00 P.M.

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.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION

3.1 EXAMINATION

A. Pre-Blast Survey and Site Examination:

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.

2. Verify site conditions and note all subsurface irregularities, which may affect any work requiring blasting.

3. Identify required lines, levels, contours and datum.

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.

3.2 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, and other hazards created by blasting operations.

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.

3.3 EXPLOSIVES

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.

1. Perform blasting without damaging adjacent structures, property, or site improvements.

2. Perform blasting without weakening the bearing capacity of rock subgrade and with the least-practicable disturbance to rock to remain.

3.4 EXCAVATION, GENERAL

A. Rock excavation includes removal and disposal of rock. Remove rock to lines and subgrade elevations indicated to permit installation of permanent construction.

3.5 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavations under construction.

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.

DRAINAGE

PART 1 – GENERAL

1.01 SUMMARY

A. Section includes:

1. Culvert pipe and appurtenances.

2. Stone fill.

3. Drainage Structures

1.02 REFERENCES

A. Vermont Agency of Transportation Standard Specifications, Latest Edition.

1.03 SUBMITTALS

A. Manufacturer's technical data for:

1. Pipe and appurtenances.

2. Structures.

PART 2 – PRODUCTS

2.01 GENERAL REQUIREMENTS

A. Furnish ells, tees, reducing tees, wyes, couplings, increasers, crosses, transitions and end caps of the same type and class of material as the conduit, or of material having equal or superior physical and chemical properties as acceptable to the Engineer.

B. All culverts and storm drains shall meet the requirements of Section 601 of the Standard Specifications.

2.02 DRAINAGE PIPE & PERFORATED PIPE

A. Culvert / Drainage Pipe

1. Corrugated Polypropylene pipe and fittings (smooth interior) meeting the requirements of ASTM F2881, Section 5 and AASHTO M330, Section 6.1.

2. for drainage piping installed by directional boring techniques, use PE 3408 high density polyethylene pipe meeting ASTM D3350 Standard (SDR 11 or better)

2.03 CONCRETE STRUCTURES

A. ASTM C478, sized as indicated.

2.04 METAL ACCESSORIES

A. Manhole frames and covers:

1. Grey cast iron, ASTM A48, as shown on plans.

2.05 STONE FILL

A. Stone for stone fill shall be approved, hard, blasted angular rock other than serpentine rock containing the fibrous variety chrysotile (asbestos). The least dimension of the stone shall be greater than 1/3 of the longest dimension. The stone fill shall be reasonably well graded from the smallest to the maximum size stone specified so as to form a compact mass when in place.

1. Type 1 – The longest dimension of the stone shall vary from 1 inch to 12 inches, and at least 50 percent of the volume of the stone in place shall have a dimension of 4 inches.

2. Type II – The longest dimension of the stone shall vary from 2 inches to 36 inches, and at least 50 percent of the volume of the stone in place shall have a least dimension of 12 inches.

3. Type III – The longest dimension of the stone shall vary from 3 inches to 48 inches and at least 50 percent of the volume of the stone in place shall have a least dimension of 16 inches.

4. Type IV – The longest dimension of the stone shall vary from 3 inches to 60 inches, and at least 50 percent of the volume of the stone in place shall have a least dimension of 20 inches.

PART 3 – EXECUTION

3.01 INSPECTION

A. Examine the areas and conditions under which storm sewer system work is to be installed and notify the Contractor in writing of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.02 GENERAL

A. 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.

3.03 PREPARATION

A. Hand trim excavation (where necessary) to required elevations. Correct over-excavations with fill material.

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.

C. Remove large stones or other hard matter which could damage drainage structures or impede consistent backfilling or compaction.

3.04 INSTALLATION OF PIPE

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.

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.

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.

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.

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

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.

G. The Contractor shall take all necessary precautions to prevent floatation of the pipe in the trench.

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.

3.05 MANHOLES

A. Precast concrete structures:

1. Place precast concrete structures and covers as shown on the Drawings.

2. Where manholes occur in pavement, set tops of frames and covers flush with finish surface.

3. Provide rubber joint gasket complying with ASTM C443.

CURBS AND WALKS

PART 1 – GENERAL

1.01 SUMMARY

A. Section includes:

1. Concrete Curbs

2. Concrete Sidewalks

PART 2 – PRODUCTS

2.01 CONCRETE

A. The concrete shall have a minimum compressive strength of 4,000 psi at 28 days and shall conform to the requirements of Cast-in-Place Concrete.

2.02 ADMIXTURES

A. Air-entraining admixture shall meet or exceed ASTM C260. Air content shall range from minimum of

PROGRESS PLANS
05/04/2020

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:

15 HUNGERFORD TERRACE, LLC

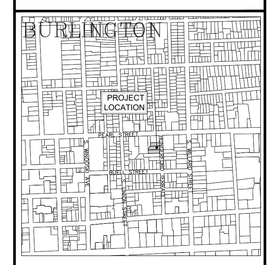
21 HUNGERFORD TERRACE, LLC

BURLINGTON, VERMONT 05401

PROJECT:

15 & 21 HUNGERFORD TERRACE

15 HUNGERFORD TERRACE
BURLINGTON, VT



LOCATION MAP
1" = 2000'

DATE	CHECKED	REVISION

SPECIFICATIONS

DATE
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SCALE
NTS
PROJ. NO.
20123

DRAWING NUMBER
C5.1

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2.03 EXPANSION JOINT MATERIAL

A. Expansion joint material shall be premolded bituminous filler conforming to ASTM D994.

PART 3 – EXECUTION

3.01 CONCRETE CURBS

A. Excavation shall be made to the required depth and the base material upon which the curb is to be set shall be compacted to a firm, even surface. All soft and unsuitable material shall be removed and replaced with suitable material which shall be thoroughly compacted.

B. Installation: The curb shall be set so that the front top line is in close conformity to the line and grade required. All space under the curbing shall be filled and thoroughly tamped with material meeting the requirements of the material for the bed course.

C. Concrete Mixing and Placing: Compaction of concrete placed in the forms shall be by spading or other approved methods. Forms shall be left in place for 24 hours or until the concrete has set sufficiently so that they can be removed without injury to the curbing. Upon removal of the forms, the curb shall be immediately rubbed down to a smooth and uniform surface but no plastering will be permitted. For this work, competent and skillful finishers shall be employed.

D. Sections: Curbing shall be constructed in sections having a uniform length of ten feet, unless otherwise ordered. Sections shall be separated by open joints 1/8 inch wide except at expansion joints.

E. Expansion Joints: Expansion joints shall be formed at the intervals shown on the plans using a pre–formed expansion joint filler having a thickness of 1/4 inch cut to conform to the cross–section of the curb. They shall be constructed at 20 foot intervals or as directed by the Engineer. When the curb is constructed adjacent to or on concrete pavement, expansion joints shall be located opposite or at expansion joints in the pavement.

F. Backfilling: After the concrete has set sufficiently, the spaces in front and back of the curb shall be filled to the required elevation with layers of not more than six inches of the same material as the bedding and thoroughly tamped.

G. The Contractor shall protect the curb and keep it in alignment until the completion of the contract. Each curb which is damaged at any time previous to final acceptance of the work shall be removed and replaced with satisfactory curb at the Contractor's expense.

H. Concrete Curing/Sealing: Curing and Sealing may be accomplished with a dissipating curing compound in conjunction with a sealer, moisture curing with a sealer or one step curing and sealing compound.
– Protect newly placed concrete against low and high temperature effects and against rapid loss of moisture. Cure all concrete for at least seven (7) days at a temperature of at least 50 degrees Fahrenheit by approved curing methods.
– Moisture curing with silane based sealer is recommended during hot weather applications.
– liquid membrane–forming curing and sealing (or sealing) compounds shall meet ASTM C309 or C1315. Sealers shall be based on silane or siloxane technology for best salt and water repellency for concrete pavements. Two coats shall be applied at right angles for even coverage, allowing first coat to dry before applying second coat. Install in conformance with manufacturers recommendations.

3.02 GRANITE CURBING

A. Sloped granite curbing shall be hard, durable, reasonably uniform in appearance and free from weakening seams. Surfaces shall be as follows:

– Top: 6" wide, sawn true plane.

– Front Face: Smooth quarry split, right angle top (No drill holes showing in top 10")

– Back Face Exposed: Plane parallel with front face, straight split to 1 1/2" below surface.

– End Face Exposed: Square planes on top and face.

– Joints Exposed: Maximum 1" and pointed with mortar. Exposed faces shall be finished with a jointer. Remove all excess mortar from exposed faces.

– Length: Minimum length 3'.

Provide curved curbing to conform to radii indicated on the Contract Plans.

3.03 CONCRETE SIDEWALKS

A. Excavation and Foundation: Excavation shall be made to the required depth and to a width that will permit placing of bed course material and the installation and bracing of the forms. Bed course material shall be placed to the depth and section shown on the plans. When the layer required exceeds six inches, two layers of approximately equal depth shall be placed and each layer thoroughly compacted so that it is hard and unyielding. The wetting of bed course material may be required to obtain the compaction.

B. Finishing: The surface shall be finished with a wooden float. No plastering will be permitted. The edges shall be rounded with an edger having a radius of 1/4 inch. The surface of the sidewalk, after the floating and screeding process is completed, shall be finished with a broom of a type approved by the Engineer, drawn over the surface parallel to the transverse joints. Special texturing on sidewalk ramps shall be installed in accordance with construction plan details.

C. Joints: Construction Joints: Set Construction joints at side and end terminations of paving and at locations where paving operations are stopped for more than one–half hour unless paving terminates at isolation joints. Isolation Joints: Form Isolation joints of preformed joint–filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, other fixed objects and where indicated. Contraction Joints: Form weakened–plane Contraction Joints, sectioning concrete into areas as indicated. Typical joint spacing is 5 feet but may be indicated differently on plans for wider sidewalks or plaza areas. Construct contraction joints for a depth equal to at least one–fourth of the concrete thickness, contraction joints may be either grooved or sawed.

D. Curing: During the curing period all traffic, both pedestrian and vehicular, shall be excluded. Vehicular traffic shall be excluded for such additional time as the Engineer may direct.

E. Backfilling: Before the concrete has been opened to traffic, the space on each side of the sidewalk shall be backfilled to the required elevation with suitable material, firmly compacted and neatly graded.

F. Concrete Curing/Sealing: Curing and Sealing may be accomplished with a dissipating curing compound in conjunction with a sealer, moisture curing with a sealer or one step curing and sealing compound.
– Protect newly placed concrete against low and high temperature effects and against rapid loss of moisture. Cure all concrete for at least seven (7) days at a temperature of at least 50 degrees Fahrenheit by approved curing methods.
– Moisture curing with silane based sealer is recommended during hot weather applications.
– liquid membrane–forming curing and sealing (or sealing) compounds shall meet ASTM C309 or C1315. Sealers shall be based on silane or siloxane technology for best salt and water repellency for concrete pavements. Two coats shall be applied at right angles for even coverage, allowing first coat to dry before applying second coat. Install in conformance with manufacturers recommendations.

G. Joint Sealing: All joints shall be sealed with polyurethane based, elastomeric sealant such as Sikaflex–2c SL, or equivalent approved by the Engineer.

SANITARY SEWER SYSTEMS

PART 1 – GENERAL

1.01 SUMMARY

A. Section includes:

1. Gravity Sewer Pipe
2. Manhole Structures and Appurtenances
3. Pressure Sewer Pipe

B. Related Sections:

1. Utility Trenching and Backfilling

1.02 SUBMITTALS

A. Product Data: Submit published data from manufacturers of products and accessories specified, indicating compliance with requirements.

1.03 QUALITY ASSURANCE

A. All sanitary sewer materials and construction of same shall be as shown on the Contract Plans and shall meet the requirements of the State of Vermont Agency of Natural Resources (Department of Environmental Conservation) and the Public Works Standards and Specifications of the local municipality.

PART 2 – PRODUCTS

2.01 GENERAL

A. Furnish ells, tees, reducing tees, wyes, couplings, increasers, crosses, transitions and end caps of the same type and class of material as the conduit, or of material having equal or superior physical and chemical properties as acceptable to the Engineer to provide a complete and operable system.

2.02 PVC GRAVITY SANITARY SEWER PIPE

A. PVC sewer pipe shall conform in all respects to the latest revision of ASTM Specifications D–3034 or F679, Type PSM Polyvinyl Chloride (PVC) Sewer Pipe and Fittings, SDR 35 pipe. All pipe and fittings shall be clearly marked as follows:

– Manufacturer's Name and Trademark

– Nominal Pipe Size (as shown on plans)

– Material Designation 12454–C PVC

– Legend "Type PSM SDR 35 PVC Sewer Pipe" or "PS 46 PVC Sewer Pipe"

– Designation ASTM D–3034 or F679

B. Joints shall be push–on type using elastomeric gaskets and shall conform to ASTM D–3212. The gaskets shall be factory installed. The pipe shall be furnished in nominal 13 foot lengths. Sufficient numbers of short lengths and full machine fittings shall be provided for use at manholes and connections. All connections will require the use of manufactured fittings. Field fabricated, saddle–type connections will not be considered acceptable.

C. Any pipe or fitting having a crack or other defect or which has received a severe blow shall be marked rejected and removed at once from the work site. All field cuts are to be made with saw and 90 degree miter box. Bevel the cut end to the same as the factory bevel and remove all interior burrs. Measure and place a homing mark on the pipe before assembling. The pipe installed under this specification shall be installed so that the initial deflection, measured as described below, shall be less than five percent (5%).

D. The manhole water stop gasket and stainless steel clamp assembly must be approved by the Town Wastewater Treatment Department prior to the installation of any pipe.

E. The Contractor will submit certification that the materials of construction have been sampled, tested, inspected, and meet all the requirements including wall thickness in accordance with ASTM D–3034 or ASTM F679 for all pipe and fittings to be included in project work. PVC pipe shall not be installed when the temperature drops below 32 degrees Fahrenheit or goes above 100 degrees Fahrenheit. During cold weather, the flexibility and impact resistance of PVC pipe is reduced. Extra care is required when handling PVC pipe during cold weather. PVC pipe shall not be stored outside and exposed to prolonged periods of sunlight, as pipe discoloration and reduction in pipe impact strength will occur. Canvas and other opaque material shall be used to cover PVC pipe when stored outside.

2.03 PVC PRESSURE SEWER PIPE

A. PVC pipe shall conform in all respects to the latest revisions of ASTM Specifications D–2241. All pipe and fittings shall be SDR 26 (or as specified on plans) clearly marked as follows:

– Manufacturer's Name and Trademark
– Nominal Pipe Size (as shown on plans)
– Material Designation 12454–A PVC ASTM D–1784

B. Joints shall be push–on type using elastomeric gaskets factory installed conforming to ASTM Specification D–3212.

2.04 POLYETHYLENE (PE3408) SANITARY SEWER FORCE MAINS

A. This specification covers requirements for PE3408 high density polyethylene sanitary sewer force mains. All work shall be performed in accordance with these specifications and manufacturer requirements.

B. Referenced Standards. All standard specifications, i.e., Federal, ANSI, ASTM, etc., made a portion of these Specifications by reference, shall be the latest edition and revision thereof.

C. Warranty and Acceptance. The Contractor shall warrant all work to be free from defects in workmanship and materials for a period of one year from the date of completion of all construction. If work meets these specifications, a letter of acceptance, subject to the one year warranty period, shall be given at the time of completion. A final acceptance letter shall be given upon final inspection at the end of the one year warranty period, provided the work still complies with these specifications. In the event deficiencies are discovered during the warranty period, they shall be corrected by the Contractor without additional charge to the owner before final acceptance. During the warranty period, the Project Engineer shall determine if warranty repairs or replacement work shall be performed by the Contractor. The decision of the Project Engineer shall be binding upon the Contractor.

D. Polyethylene Pipe and Fittings

1. Qualification of Manufacturers. The Manufacturer shall have manufacturing and quality control facilities capable of producing and assuring the quality of the pipe and fittings required by these Specifications. The manufacturer's production facilities shall be open for inspection by the Owner or his Authorized Representative. Qualified manufacturers shall be approved by the Project Engineer.

2. Materials. Materials used for the manufacture of polyethylene pipe and fittings shall be PE3408 high density polyethylene (SDR 11 or better) meeting cell classification 345444C or 345444E per ASTM D 3350; and shall be listed in the name of the pipe and fitting manufacturer in Plastics Pipe Institute's TR–4, Recommended Hydrostatic Strengths and Design Stresses for Thermoplastic Pipe and Fitting Compounds, with a standard grade HDB rating of 1,600 psi at 73°F. The manufacturer shall certify that the materials used to manufacture pipe and fittings meets these requirements.

3. Polyethylene Pipe. Polyethylene pipe shall be manufactured in accordance with ASTM F 714, Polyethylene (PE) Plastic Pipe (SDR–11 rating or better) Based on Outside Diameter, and shall be so marked. Each production lot of pipe shall be tested for (from material or pipe) melt index, density, % carbon, (from pipe) dimensions and ring tensile strength.

4. Polyethylene Fittings & Custom Fabrications. Polyethylene fittings and custom fabrications shall be molded or fabricated by the pipe manufacturer. Butt fusion outlets shall be made to the same outside diameter, wall thickness, and tolerances as the mating pipe. All fittings and custom fabrications and connections shall be fully rated for the same internal pressure as the mating pipe. Pressure de–rated fabricated fittings are prohibited.

5. Molded Fittings. Molded fittings shall be manufactured in accordance with ASTM D 3261, Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (IPE) Plastic Pipe and Tubing, and shall be so marked. Each production lot of molded fittings shall be subjected to the tests required under ASTM D 3261.

6. Fabricated Fittings. Fabricated fittings shall be made by heat fusion joining specially machined shapes cut from pipe, polyethylene sheet stock, or molded fittings. Fabricated fittings shall be rated for internal pressure service at least equal to the full service pressure rating of the mating pipe.

7. Polyethylene Flange Adapters. Flange adapters shall be made with sufficient through–bore length to be clamped in a butt fusion joining machine without the use of a stub–end holder.

8. Back–up Rings & Flange Bolts. Flange adapters shall be fitted with back–up rings pressure rated equal to or grater than the mating pipe. The back–up ring bore shall be chamfered or radiused to provide clearance to the flange adapter radius. Flange bolts and nuts shall be Grade 6 or higher (stainless steel).

9. Compliance Tests. Manufacturer's inspection and testing of the materials. In case of conflict with manufacturer's certifications, the Contractor, Project Engineer, or Owner may request retesting by the manufacturer or have retests performed by an outside testing service. All retesting shall be at the requestor's expense, and shall be performed in accordance with the Specifications.

E. Joining

1. Heat Fusion Joining. Joints between plain end pipes and fittings shall be made by butt fusion, electrofusion couplings and joints between the main and saddle branch fittings shall be made using saddle fusion procedures that are recommended by the pipe and fitting manufacturer. The Contractor shall ensure that persons making heat fusion joints have received training in the manufacturer's recommended procedure. The Contractor shall maintain records of trained personnel and shall certify that training was received not more than 12 months before commencing construction. External and internal beads shall not be removed.

2. Butt Fusion of Unlike Wall Thicknesses. Fusions of different wall thickness are acceptable, as long as the difference is limited to a one SDR difference, i.e. SDR 11 to SDR 9. Transitions between unlike wall thicknesses greater than one SDR shall be made with a transition nipple (a short length of the heavier wall pipe with one end machined to the lighter wall) or by mechanical means.

3. Joining by Other Means. Polyethylene pipe and fittings may be joined together or to other materials by means of (a) flanged connections (flange adapters and backup rings), (b) mechanical couplings designed for joining polyethylene pipe or for joining polyethylene pipe to another material, or (c) electrofusion. When joining by other means, the installation instructions of the joining device manufacturer shall be followed. All connections shall maintain the total pressure rating of the force main.

4. Mechanical Joint Installation. Mechanical joints shall be installed in accordance with the manufacturer's recommended procedure. When an OD compression mechanical coupling is used, a stiffener shall be installed in the bore of the polyethylene pipe.

5. Branch Connections. Branch connections to the main shall be made with saddle fittings or tees. Polyethylene saddle fittings shall be saddle fused to the main pipe.

2.05 HORIZONTAL DIRECTIONAL DRILLING W/ POLYETHYLENE PIPE

A. Directional boring with PE3408 pipe shall be completed in accordance with the manufacturer's requirements and shall not in any way affect the joint connections or the overall strength characteristics of the pipe.

B. References:

"Mini–Horizontal Directional Drilling Manual" published by North American Society for Trenchless Technology (NASTT).

"Guidelines for a Successful Directional Crossing Bid Package" published by Directional Crossing Contractors Association (DCCA).

"Polyethylene Pipe for Horizontal Directional Drilling" of the Plastic Pipe Institute's Handbook of Polyethylene Piping.

C. Quality Control. All directional boring shall be completed in such a way as not to jeopardize the existing infrastructure/facilities, such as the roadway, utility poles, subsurface utilities, structures/foundations, or significant landscaping. Prior to directional drilling, all potential conflicts shall be field verified.

D. General

1. Directional drilling shall be performed in a manner required to install HDPE utility line as indicated on the drawings. Furnish all manpower and equipment required to perform the pipeline installation. The operation shall include all excavation and dewatering, drilling calculations, pilot hole, and pullback operations. Contractor shall be responsible for type of reamer, diameter, and other pertinent operations required for a complete installation. Contractor shall be responsible for mobilizing on–site with a full range of drill stems and reaming heads to allow for various factors which may occur. Drill stems shall be of proper size and diameter to allow for full thrust and torque capabilities of the drilling machines.

2. Contractor shall perform utility survey to locate information concerning existing utility lines located in the areas of the directional drilling work.

3. Directional drilling shall be accomplished by drilling from one side of the crossing to the other using an approved method. One method shall be drilling a small diameter pilot hole along the proposed utility route. Steering shall be accomplished by using drilling mud which is pumped into the drill pipe to provide rotational energy in a drill bit at the end of the drill pipe. A jet bit shall force the mud through small orifices and jet away the earth and to allow the drilled path to curve in the proper direction as the drill pipe is thrust forward. An electronic survey instrument shall be placed inside the drill pipe head. The instrument shall signal a computer of the drilled paths magnetic azimuth, vertical inclination, and orientation of the bend. This data shall be used by the drilling contractor to calculate location of the drill bit and allow steering adjustments to be made.

4. After completing the pilot hole, larger diameter reaming heads shall be pulled back in order to enlarge the hole as required to allow for the pipe pullback. The Contractor shall be responsible for multiple reaming operations as required to complete the work. Pull back operations shall be carried out as soon as possible following the final preream. During this phase of the work, the Contractor shall continue his work operations without interruption regardless of the day of week or hour of the day. A pullback head shall be attached to the pipe to allow fastening to the swivel head reamer. The head shall be closed to prevent drilling mud from entering the main during the pullback operation.

5. Upon completion of the drilling operations, the equipment and materials used shall be removed from the site and the areas disturbed shall be restored to original conditions. The main shall be tested in accordance with the Pressure Pipe Testing section of the specifications. If the main fails the testing, it shall be removed and the work repeated at no additional cost to the Owner.

2.06 MANHOLES

A. Manholes shall be sized as indicated on the plan and shall be precast concrete with a monolithic base and shall conform to the latest version of ASTM Specification C478.

B. Shelves shall be constructed with concrete having a minimum compressive strength of 3,000 psi at 28 days. Inverts for sewer manholes shall be as shown on the plans and details and shall be constructed with concrete or brick, as per the local municipality's standards. Inverts shall have the exact shape of the sewer to which they are connected, and any change in size of direction shall be gradual and even.

C. All manholes are to be provided with copolymer polypropylene plastic steps with steel reinforcement 12 inches on center.

D. All manholes shall be provided with rough, gray, cast iron manhole frames and covers. All iron castings shall be thoroughly cleaned and then coated with hot tar before being delivered. Frames and covers shall be LeBaron LC 266, or an approved equal, and have a minimum weight of 400 pounds.

E. Precast risers and bases for manholes shall conform to ASTM Specification C–478. The pipe opening in the precast manhole system shall have a cast–in–place flexible gasket or an equivalent system for pipe installation as approved by the Engineer. Joints between manhole risers shall be 1" minimum width flexible gasket or approved equals.

2.07 CLEANOUTS

A. Cleanouts for gravity sewers and force mains shall be provided at locations indicated on the plans or as directed by the Engineer. Cleanout frames and covers shall be of tough gray cast iron. Castings shall be true to pattern and free from flaws. The bearing surface of cleanout frames and covers against each other shall be machined to give continuous contact throughout their circumference.

2.08 PIPELINE INSULATION

A. Approved sewer lines with less than four feet (4'–0") of cover over the crown, five (5'–0") in plowed areas that cross a storm sewer, or where indicated on the plans, shall be protected against freezing by the installation of two inch (2") thick highest available density extruded polystyrene insulating sheets or equivalent. Sheets shall be the the lesser of 3' or 2 x diameter of the pipe. The sheets shall be placed six inches (6") above the crown after placement of four to six inches (4"–6") of clean medium or coarse sand below the pipe bottom and four to six inches (4"–6") above the crown. Joints shall be overlapped so there is no gap that will allow frost to penetrate. Care shall be exercised during backfill and compaction over the polystyrene sheets to prevent damage to the sheets. The polystyrene sheets shall meet the comprehensive strength requirements of ASTM D1621–73. In no cases shall the sewer line have less than four feet (4') of cover over the top of the pipe. When sewer line passes within 5 feet of a catch basin install 2" min. rigid insulation, polystyrene sheets, between sewer line and cb.

PART 3 – EXECUTION

3.01 GENERAL

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

B. When existing underground utilities 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.

C. Installation of pipe shall be in accordance with the Utility Trenching and Backfilling and as specified by this section.

3.02 BEDDING FOR PIPE

A. The bedding material shall be shaped to fit the pipe for a depth of not less than 10 percent of its total height and shall have recesses to receive the bell.

3.03 LAYING PIPE

A. In general, sewer pipe shall be installed in accordance with the latest detailed instructions of the manufacturer.

B. The laying shall begin at the outlet end and the lower segment of the pipe shall be in contact with the shaped bedding throughout its full length. Bell or grooved ends of rigid pipes and the circumferential laps of flexible pipe shall be placed facing upstream.

C. 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.

D. 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 so laid as to form a close joint with the next adjoining pipe and to bring the inverts continuously to the required grade.

E. The Contractor shall take all necessary precautions to prevent flotation of the pipe in the trench.

F. 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. For force mains, concrete reaction blocking shall be provided as detailed at all bends deflecting 22½ degrees or more. At the Contractor's option, retainer glands may be used at bends in lieu of concrete blocking. Retainer glands shall also be provided at all joints within three pipe lengths each side of the bends.

H. Any pipe that is not laid to grade and alignment shall be re–laid to the satisfaction of the Town Wastewater Department. The bedding material shall be placed and compacted on each side of the pipe to a depth to

PROGRESS PLANS
05/04/2020

SITE ENGINEER:

CIVIL ENGINEERING ASSOCIATES, INC.
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DRAWN: MAB
CHECKED: DSM
APPROVED: DSM

CLIENT:

15 HUNGERFORD TERRACE, LLC

21 HUNGERFORD TERRACE, LLC

BURLINGTON, VERMONT 05401

PROJECT:

15 & 21 HUNGERFORD TERRACE

15 HUNGERFORD TERRACE
BURLINGTON, VT

LOCATION MAP
1" = 2000'

DATE	CHECKED	REVISION

SPECIFICATIONS

DATE: --
SCALE: NTS
PROJ. NO.: 20123

DRAWING NUMBER: C5.2

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one−half (1/2) the pipe diameter and for the full width of the excavated trench and as shown on the accepted plans. Bedding shall be #2 pea stone from Shelburne Limestone or an equivalent approved by the Town Wastewater Department and the Engineer.

I. All sewer pipes shall be marked with magnetic marking tape. The marking tape shall be installed one (1) foot directly over the pipe and shall be labeled "sewer". Concrete thrust blocks or anchors shall be placed at bends, tees, fittings, and other locations on the force main as shown on the contract drawings or as directed by the Town Wastewater Department. Concrete for thrust blocks and anchors shall be Class B concrete. Steel rods and clamps as required shall be galvanized and rust proofed or painted.

3.04 GRAVITY SEWER PIPE TESTING

A. The Contractor shall provide all necessary equipment and instrumentation required for proper completion of the flushing and testing. Quality of water, test procedures, and method of disposal of water shall be approved by the Engineer. Prior to testing, flush with water to remove construction debris and pass through a full gauge squeegee.

B. All tests shall be made in the presence of the Engineer. Preliminary tests made by the Contractor without being observed by the Engineer will not be accepted. The Engineer will be notified at least eight hours before any work is to be inspected or tested. The Town shall be notified at least at least two (2) days before testing.

C. The maximum sewer length to be tested at one time shall be that length between any two manholes.

D. Air Testing: Low pressure air testing shall be conducted in accordance with the following procedures:

1. Each end of the test section and laterals shall be plugged, capped and braced. Necessary safety precautions shall be taken to prevent blowouts and possible injury.

2. An air hose shall be connected to a tapped plug used for an air inlet. The hose will be connected to the air control equipment, which shall include valves and pressure gauges. These shall allow air to enter the sewer test line, monitor air pressure in the sewer, shut off air, and provide pressure reduction and relief. The monitoring pressure gauge shall have a range of 0−10 psi with divisions of 0.10 psi and accuracy of 0.05 psi±.

3. The air compressor and air supply shall be connected to the test line and the test section filled slowly, until a constant pressure of 4.0 psig is maintained.

4. A pressure above 3.0 psig shall be maintained for at least five minutes to allow the temperature to stabilize. A check for leaks shall be made and if any are found, the pressure shall be released and the fitting replaced or repaired.

5. After the stabilization period, the pressure shall be adjusted to 3.5 psig and the air supply disconnected.

6. Measure and record the time interval for the test line pressure to drop from 3.5 psig to 2.5 psig.

7. If the groundwater table is above the pipe, increase above test pressures 0.5 psig for each foot the groundwater is above the invert of the pipe.

8. The requirements of this specification shall be considered satisfied if the time required in seconds for the pressure to decrease from 3.5 to 2.5 psi greater than the average back pressure of any groundwater that may submerge the pipe is not less than that computed according to the following table:

Minimum Test Time for Various Pipe Sizes

Diameter (Inches)	Time (Sec./100 Ft.)
4	18
6	45
8	75
10	90
12	110

3.05 MANHOLES

A. The excavation shall be to the depth indicated on the plans or ordered by the Engineer, and carefully shaped and graded.

B. Manhole sections shall be precast concrete and shall conform to the dimensions indicated on the plans or ordered by the Engineer.

C. Channels, inverts and floor areas for sewer manholes shall be constructed of concrete. Inverts shall have the exact shape of the sewer to which they are connected and any change in size or direction shall be gradual and even. All construction of sewer manholes must be carried out to insure watertight work.

D. The required precast concrete risers shall be placed on top of the concrete to the elevation indicated on the plans or as ordered by the Engineer.

E. The cast iron frame shall be set as indicated on the plans in a full mortar bed. The cover shall be properly placed in the frame.

3.06 MANHOLE TESTING

A. Manholes shall be tested separately by one of the following two procedures:

1. Exfiltration Leakage Test: All pipes and other openings into the manhole shall be suitably plugged and the plugs braced to prevent blowout. The manhole shall then be filled with water to the top of the cone section. A period of time may be permitted, if the Contractor so wishes, to allow for absorption. At the end of this period, the manhole shall be refilled to the top of the cone, if necessary, and the measuring time of at least four hours begun. At the end of the test period, the manhole shall be refilled to the top of the cone, measuring the volume of water added. This amount shall be converted to gallons per vertical foot depth for 24 hours. The leakage for each manhole shall not exceed one gallon/vertical foot/day. If leakage exceeds the allowable rate, repairs shall be made as approved by the Engineer and the manhole retested. If the Contractor elects to backfill prior to testing, the testing shall be at his own risk, and it shall be incumbent upon the Contractor to determine the reason for any failure of the test. No adjustment in the leakage allowance will be made for unknown causes such as leaking plugs, absorption, etc. It will be assumed that all loss of water during the test is a result of leaks through the joints or through the concrete. Furthermore, the Contractor shall take any steps necessary to assure the Engineer that the water table is below the bottom of the manhole throughout the test.

2. Vacuum Test: This method of testing manholes for leakage involves the use of a device for sealing the top of the manhole cone section and pumping the air out of the manhole, creating a vacuum and holding this vacuum for a prescribed period of time. The procedure for this test is as follows:

a. All lifting holes and exterior joints shall be filled and pointed with an approved non−shrinking mortar. The completed manhole shall not be backfilled prior to testing. Manholes which have been backfilled shall be excavated to expose the entire exterior prior to vacuum testing or the manhole shall be tested for leakage by means of the exfiltration leakage test.

b. All pipes and other openings into the manhole shall be suitably plugged in a manner to prevent displacement.

c. A plate with an inflatable rubber ring the size of the top of the manhole shall be installed by inflating the ring with air to pressure adequate to prevent leakage of air between the rubber ring and the manhole wall.

d. Air shall then be pumped out of the manhole through an opening in the plate until a vacuum is created inside of the manhole equal to 10 inches of mercury on an approved vacuum gauge. The removal of air shall then be stopped and the test begun.

e. The manhole shall pass this test if the vacuum holds at 10" Hg or drops no lower than 9" Hg within the following times:

Depth of 4'ø Manhole	Minutes	Seconds
0' − 10'	2	0
10' − 15'	2	30
15' − 20'	3	0
20' − 25'	3	30

f. If the vacuum drop exceeds 1" Hg during the specified time periods, the manhole shall be resealed and Steps 2 through 5 above repeated until the vacuum holds for the specified time.

g. After the manhole passes the vacuum test, it shall be backfilled carefully so that no leaks are created. If the manhole is disturbed in any way during backfill, it shall again be vacuum tested according to Steps 1 through 5 above. If the manhole fails the vacuum test, the Contractor shall test the manhole using the manhole exfiltration test.

h. The Contractor shall provide the Engineer with a written log of each manhole leakage test result.

i. Manholes shall be tested and accepted prior to building manhole inverts.

3.07 PRESSURE PIPE TESTING

A. General: All force mains shall pass the hydrostatic pressure test and leakage test described herein. Prior to testing, all anchors and braces shall be installed. All concrete thrust blocks and restraints shall be in place and cured at least seven days. All buried pipe shall be backfilled. Suitable test plugs shall be installed and air release valves shall be installed at the high points.

B. Hydrostatic Test: The following procedure shall be used:

1. All air release valves shall be opened and the pipe shall be filled with water at a rate not to exceed the venting capacity of the air release valves.

2. The water pressure shall be raised to 150 percent of the designed operating pressure or 60 psi minimum at the highest point.

3. Failure to hold the designated pressure within 5 psi of the specified test pressure for the two hour period constitutes a failure of the section tested.

C. Leakage Test: The following procedure shall be used:

1. Leakage shall be defined as the quantity of water that must be supplied into the pipe being tested to maintain pressure within 5 psi of the specified test pressure.

2. No pipe installation shall be accepted if the leakage is greater than that determined by the following formula:

L= ND(P)^0.5
7,400

Whichever is less

L= SD(P)^0.5
133,100

S = Length of Pipe Testing
L = Allowable Leakage in Gal/Hr
D = Nominal Diameter of Pipe (")
P = Average Test Pressure (psi)
N = Number of Joints in the Pipeline Tested

All testing shall be conducted in accordance with AWWA C600−87 or latest revision.

3.08 PUMP STATION AND STORAGE TANK TESTING

A. Pump Station and Storage Tank Testing: All manholes and storage tanks shall be tested for leakage in accordance with the following procedure:

B. Water Test: After the structure has been assembled in place, all lifting holes and exterior joints shall be filled and pointed with non shrinking mortar. All pipes and other openings into the structure shall be suitably plugged and the plugs placed to prevent blowout.

1. Each structure shall be checked for exfiltration by filling with water to the top of the cone section. A stabilization period of one hour shall be provided to allow for absorption. At the end of this period, the structure shall be refilled to the top of the cone, if necessary, and the measuring time of at least six hours begun. At the end of the test period, the structure shall be refilled to the top of the cone measuring the volume of water added.

2. This amount shall be converted to a 24−hour rate and the leakage determined on the basis of depth and size of structure. The leakage for each structure shall not exceed one gallon per vertical foot per 15 linear feet of wall (as measured in plan view) for a 24 hour period for exfiltration and there shall be no visible infiltration.

C. Air Test: Alternatively, the manhole may be tested for leakage using the following procedure:

1. All lifting hole and exterior joints shall be filled and pointed with an approved non−shrinking mortar. The completed manhole shall not be backfilled prior to testing. Structures that have been backfilled shall be excavated to expose the entire exterior prior to vacuum testing or the manhole shall be tested for leakage by means of a hydrostatic test.

2. All pipes and other openings in the manhole shall be suitably plugged in a manner to prevent displacement.

3. A plate with an inflatable rubber ring the size of the top of the manhole shall be installed by inflating the ring with air to a pressure adequate to prevent leakage of air between the rubber ring and the manhole wall.

4. Air shall then be pumped out of the manhole through an opening in the plate until a vacuum is created inside of the manhole equal to 10 inches of mercury on an approved vacuum gauge. The removal of the air shall then be stopped and the test time begun.

5. The vacuum must not drop below 9 inches of mercury within a 2 minute test period. If more than 1 inch of drop in vacuum occurs within the 2 minute test period the manhole has failed the test and shall be repaired or reconstructed and retested.

D. Following satisfactory test results, the manhole may be backfilled.

3.09 SERVICE CONNECTION

A. No sanitary sewer shall be placed in service until such time as the Town has given final approval to the sewer installation, including satisfactory completion of all required tests. Service connections shall not be made until all receiving sewer mains have been completed and approved and as−builts received along with GPS coordinates and approved by the Town Wastewater Department.

1. Laterals

Where required on the plans, sewer service connections for one house shall be constructed of four inch (4") pipe, unless otherwise noted on the plans, of the type material specified under this section. The pipe shall be laid and its joints made as required for sewer construction in this specification. Open ends of pipes shall be properly sealed to prevent damage and intrusion of foreign matter where hookup to the building sewer is not coincident with sewer main construction. Additionally, the Contractor will provide a stable, temporary marker approved by the Town Wastewater Department from the sewer service invert up to six inches (6") above the finish grade and seated securely into the ground for ease in relocating the end of sewer service connection for hooking up the building sewer. Two (2) tie points to permanent objects shall be documented. The tie points shall be submitted to the homeowner and to the Wastewater Department.

In the case of reconnection of existing services, such reconnection will be made only after the new sewer main has been completed, tested, and accepted. The excavation, bedding material, installation, and backfill for service connections shall be the same as for sewer mains.

2. Cleanouts for Sewers

Cleanouts for gravity sewers and force mains shall be provided at locations indicated on the plans or as directed by the Town Wastewater Department. Cleanout frames and covers against each other shall be machined to give continuous contact throughout their circumference. All iron castings shall be thoroughly cleaned and then coated with hot coal tar before being delivered. Individual laterals shall have cleanouts every one hundred feet (100'). Cleanouts shall also be installed in laterals with changes of alignment of 45 degrees or greater.

3. Chimneys

Chimneys shall be built of four inch (4") pipe and/or as indicated on the contract drawings. Each chimney shall be plugged or capped at end until ready to connect to existing services. Chimneys are required where the vertical drop between the finished grade surface and the main sewer line exceeds fifteen feet (15') at the wye from a service connection.

3.10 Force Main

A. After force mains have been laid and the trench backfilled, the pipe shall be subjected to a hydrostatic pressure test in accordance with AWWA Standard for Installation of Cast Iron Water Main, AWWA C600 (latest issue), Section 13. The hydrostatic pressure shall be 150 percent (150%) of normal operational pressure. After the pressure test has been satisfactorily completed, a leakage test shall be conducted in accordance with AWWA C600 (latest issue), Section 13. The minimum test pressure shall be 75 pounds per square inch at the high point in the system.

3.11 Wet well

A. The pre−cast concrete wet well shall be externally coated with an asphaltic sealant and tested for water tightness using an approved vacuum or water testing procedure.

PART 4 − PUMP STATION

4.01 SPARE PARTS

A. A complete replacement pump shaft seal assembly shall be furnished with each lift station. The spare seal shall be securely fastened to the control panel and shall include complete installation instructions.

B. Two (2) spare volute gaskets shall be provided.

C. A spare filter cone for the seal filter shall be provided in the same container as the pump shaft seal.

D. Provide 100% spare lamps and fuses for control panel.

E. Provide all lubricants required for initial operation.

F. Provide one (1) spare input and output card, processor, and power supply for the Programmable logic controller (PLC) system.

G. Provide one (1) spare level transducer.

4.02 O & M MANUALS

A. Installation of all mechanical equipment shall be done in accordance with written instructions provided by the manufacturer. Installation instructions shall be delivered with the station.

B. The manufacturer shall provide 5 copies of a complete and detailed operating and maintenance manual. This manual shall provide all design criteria, general operating procedures, maintenance and servicing procedures for all major components, and as−built drawings of the contributory gravity sewer system, the pumping station and force main. All instructions and parts lists shall be prepared for the specific equipment furnished and shall not refer to similar equipment. Operating manuals must be submitted to the Town prior to final acceptance of the station.

WATER SUPPLY SYSTEM

PART 1 − GENERAL

1.01 SUMMARY

A. Section includes:

1. Pipe Materials
2. Hydrants
3. Valves
4. Fittings
5. All other appurtenances necessary to complete the water main system as shown on the Contract Plans.

B. Related Sections:

1. Utility Trenching and Backfilling

1.02 SUBMITTALS

A. Product Data: Submit published data from manufacturers of products and accessories specified, indicating compliance with requirements to the Engineer and local municipality.

1.03 QUALITY ASSURANCE

A. All materials and the installation procedure shall be in accordance with the Department of Environmental Conservation, Water Supply Division and the applicable construction ordinances of the local municipality.

PART 2 − PRODUCTS

2.01 GENERAL

A. Furnish ells, tees, reducing tees, wyes, couplings, increasers, crosses, transitions and end caps of the same type and class of material as the conduit, or of material having equal or superior physical and chemical properties as acceptable to the Engineer as necessary to complete the water system.

2.02 WATER MAIN MATERIAL

C−900 PVC WATER MAIN

A. Pipe shall be C−900 (DR−14 200 psi) PVC (sizes as shown on the plans) conforming to current AWWA C−900, latest revision and shall be UL and FM approved. Larger size mains will be required if necessary to allow withdrawal of the required fire flow while maintaining the minimum pressure specified in the VT Water Supply Rule, Chapter 21, 8.1.1. Any proposed departure from minimum requirements shall be justified by hydraulic analysis and future water use assessment, and will be considered only in special circumstances (VT Water Supply Rule, Chapter 21 8.1.4). Push−on joint accessories shall conform to applicable requirements of ANSI/AWWA C111/A21.11.

B. When a pipe material is specifically noted on the contract drawings,the contractor/developer shall not have the option of utilizing any other pipe material. Galvanized pipe or fittings shall not be used in any water system owned or maintained by the Town. The Town Water Department requires the use of polyethylene pipe sleeve encasements and/or alternate pipe materials in known or suspected corrosive soil conditions.

DUCTILE IRON WATER PIPE

A. Pipe shall be Tyton Ductile Iron Class 52 (sizes as shown on the plans) conforming to current ANSI/AWWA C151/A21.51 latest revision. Push−on joint pipe shall be minimum thickness Class 52. Push−on joint accessories shall conform to applicable requirements of ANSI/AWWA C111/A21.11.

B. Pipe shall be cement mortar lined on the inside in accordance with ANSI Specification A21.4 except that the cement lining thickness shall not be less than 1/8 inch. A plus tolerance of 1/8 inch will be permitted.

C. Pipe shall be given an exterior petroleum asphaltic coating in accordance with ANSI/AWWA Specification C151/ASNI A21.51.

D. Pipe shall be poly wrapped with a minimum thickness of 4 mil poly in accordance with AWWA Specification C105 / ANSI A21.5, unless approved otherwise.

2.03 FITTINGS

A. Ductile iron fittings shall conform to ANSI/AWWA C110/A21.10, 350 PSI working pressure. Ductile iron fittings larger than twelve inches (12") shall have a standard body length equal to Class 250 Cast Iron fittings. Cast Iron Class 250 fittings will be allowed in lieu of ductile iron fittings larger than twelve inches (12"). Ductile iron fittings shall be rated for 250 p.s.i. However, twelve inch (12") and smaller may be rated for 350 p.s.i. with the use of special gaskets. All ductile iron compact fittings shall conforming to AWWA/ANSI C153/A21,53 standards.

B. Anchor tees shall be standard mechanical joint tees except that the branch is plain Class 250 cast iron or Class 350 ductile iron, cement lined, conforming to ANSI/AWWA C110/ A21.10, C111/A21,11, and C104/A21.4. Anchor tees shall be Clow F−1217, U.S. Pipe U5−92 or equal.

C. Mechanical Joint restraints shall be incorporated into the design of the follower gland and shall include a restraining mechanism which, when actuated, imparts multiple wedging action against the pipe increasing its resistance as the pressure increases. Flexibility of the joint shall be maintained after burial. Glands shall be manufactured of ductile iron, and have a minimum working pressure of 350 psi. Twist off nuts (i.e. mega−lug) or equal shall be used to ensure proper actuating of the restraining devices. Contractors may also use approved grip ring (or equal) retainer glands.

D. Bolts shall conform to ANSI Specification A21.10.

E. Pipeline couplings shall conform to AWWA Standards C110 and ANSI A21.10. Mechanical joint connecting pieces of proper diameter shall be installed in accordance with the manufacturer recommendations and at locations directed by the plans or the Town Water Department.

F. All fittings shall be restrained; double poly wrapped and have concrete thrust blocks poured in place as defined herein.

2.04 TAPPING SLEEVES AND VALVES

A. The Town Water Department shall be notified whenever a proposed tap is to be made on any transmission main within the municipal system.

B. Only approved tapping companies shall be allowed to perform wet taps on any Town Water Department water mains.

C. All materials used when tapping for a branch connection or interconnection from any Town Water Department water transmission or distribution pipelines shall be specified below

2.05 TAPPING SLEEVES

For use on existing asbestos cement, gray cast iron, ductile iron or PVC C−900 pipe:

A. Tapping sleeves shall be of the split sleeve design, constructed with two solid half−sleeves bolted together. Sleeves shall be constructed of ductile iron, shall have a working pressure of at least 250 psi, and shall have mechanical joint ends with end and side gasket seals.

B. All iron body tapping sleeves shall be provided with a 3/4" NPT test plug, or other provisions must be made for air testing the valve and sleeve at maximum working pressure, prior to tapping.

C. All bolts and nuts for mechanical joints of tapping sleeves shall be of high−strength cast iron or high−strength, low−alloy steel conforming to ANSI/AWWA C111/A21.11.

D. All bolts and nuts for flanged joints of tapping sleeves shall be of high−strength, low carbon steel conforming to ANSI/AWWA C110/A21.10.

E. All bolts and nuts shall be sound, clean, and coated with a rust−resistant lubricant; their surfaces shall be free of objectionable protrusions that would interfere with their fit in the made−up mechanical or flanged joint.

2.06 TAPPING VALVES

A. Tapping valves shall conform to ANSI/AWWA C509 Standard for Resilient−Seated Gate Valves for Water and Sewage Systems, except as modified herein. Valves shall open counterclockwise and shall have a minimum working pressure of 200 psi. Inlet flanges shall be Class 125 conforming to ANSI Specification B16.1 or ANSI/AWWA C110/A21.10, and outlet connection shall be Standardized Mechanical Joint unless specified otherwise on the drawings for the type of pipe required for the branch or lateral pipeline.

B. Tapping valves over sixteen inches (16") diameter shall be installed with their stems horizontal, shall be equipped with rollers, tracks and scrapers, and shall be provided with bypass valves unless otherwise specified.

C. Buried tapping valves shall be provided with a two inch (2") square wrench nut and shall be installed with a cast iron valve box as required to allow positive access to the valve operating nut at all times. In installations where the depth from grade to top of valve operating nut is greater than 5'0", a valve stem riser shall be provided and installed such that the depth from valve stem riser nut to grade is from four feet to five feet (4'−5'), (minimum length of valve stem riser is two feet (2')). Valve stem riser shall be of high strength steel and of welded construction.

D. All contractors (or others) who apply for water line tapping permits shall submit complete specifications of the tapping material they intend to use at the time the tapping permit application is submitted on 8 1/2" x 11" shop drawing sheets

E. All bolts and nuts used with all pipe sleeves shall, upon final tightening and testing, be brush coated heavily with bitumastic cold−applied material to thoroughly cover all exposed surfaces of the bolts and nuts.

2.07 GATE VALVES−RESILIENT SEAT

A. Valves shall be manufactured to meet all requirements of AWWA Specification C509, latest edition. Valves twelve inches

PROGRESS PLANS
05/04/2020

SITE ENGINEER:

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10 MANSFIELD VIEW LANE, SOUTH BURLINGTON, VT 05403
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DRAWN: MAB
CHECKED: DSM
APPROVED: DSM

CLIENT:

15 HUNGERFORD TERRACE, LLC

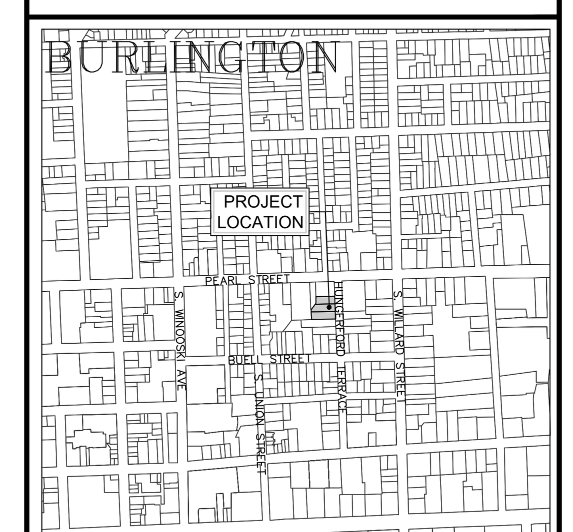
21 HUNGERFORD TERRACE, LLC

BURLINGTON, VERMONT 05401

PROJECT:

15 & 21 HUNGERFORD TERRACE

15 HUNGERFORD TERRACE
BURLINGTON, VT



LOCATION MAP
1" = 2000'

DATE	CHECKED	REVISION

SPECIFICATIONS

DATE: --
SCALE: NTS
PROJ. NO.: 20123
DRAWING NUMBER: C5.3

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(12") and smaller shall be bubble tight, zero leakage at 200 psi working pressure. Valves shall have non–rising stems, open counter clockwise, and provide a two inch (2") square operating nut with arrow cast in the metal indicating direction of opening. Each valve shall have maker's name, pressure rating and year in which manufactured cast on the body. Prior to shipment from the factory, each valve shall be tested by hydrostatic pressure equal to twice the specified working pressure. Gate valves shall be Mueller, Kennedy, AFC, or approved equal.

B. Buried valves shall be installed with a gate valve box.

C. Gate valves shall normally be placed a maximum of five hundred feet (500') apart. Tee intersections shall have a minimum of three (3) gate valves. Cross sections (four way intersections) shall have a minimum of four (4) valves.

D. The Town Water Department may require all bolts, studs and nuts be made from a corrosion resistant–material stainless steel.

2.08 VALVE BOXES

A. Valve boxes shall be of the three–piece Cast iron slide–type with a minimum inside shaft diameter of five and one quarter inches (5 1/4") and a six foot (6') trench depth. Valve boxes shall not transfer loads onto the valve.

B. Valve boxes shall have a cast iron cover, marked "WATER". The boxes shall be dirt tight with the top of the cover flush with the top of the box rim.countersunk brass pentagon plug for paved or concrete areas, and standard two holes for grass areas. Curb box couplings and extensions will be the same material as the curb box. Both cover and upper section of the box shall be able to be located with an aqua type metal locator.

C. All service connections shall be installed to the curb stop for all building lots before the street is paved.

D. Valve boxes located in roadways shall have one non–adjusting paving riser of a height ranging from one and a half inches (1.5") to six inches (6") as needed to be brought to final pavement grade.

2.09 BACKFLOW PREVENTION DEVICES

A. No water service connection shall be approved or maintained by the Town Water Department unless the water supply is protected as required by State laws, regulations and ordinances. The type of protective device shall depend on the degree of hazard that exists. In general, backflow devices designed to protect potable water supplies in accordance with national plumbing codes for non–health hazard cross connections and continuous pressure applications shall be used, i.e. Watts Series 007 or approved equal. Watts Series 709 Double Check Valve Assembly or approved equal shall be installed on all sprinkler systems. A shop drawing detail assembly showing backflow devices and meter placements shall be required by the Town Water Department.

2.10 PIPE BEDDING

A. Water lines shall be laid and maintained on lines and grades established by the plans for the project. Pipeline trenches shall be excavated to the width and depths shown on the plan typicals. Pipeline trenches in which pipe is to be laid directly on the trench bottom shall not be excavated entirely by machinery, but shall be finally excavated by hand tools such that the trench shall have a bottom shaped to support the pipe throughout its entire length by firm and undisturbed material. Pipeline trenches, for which bedding is required, may be excavated to the required depths using machinery. No pipe shall be laid directly on ledge, hard shale or a very compact glacial till. When an unstable trench bottom is encountered and the Town Water Department determines that it cannot support the pipe adequately, an additional depth shall be excavated and refilled to the pipe invert with approved material at the contractor's expense. Pipeline trenches shall be dry during the laying of pipe. Wood supports under pipe shall be removed prior to backfilling. Pipeline installation procedures can be found in AWWA Standard C600.

B. Bedding material shall consist of crushed or natural stone conforming to ASTM D2321.

Sieve	Percent Passing
1" Screen	100%
¾" Screen	100%
½" Screen	90 – 100%
⅜" Screen	40 – 70%
No. 4 Sieve	0 – 15%

C. Bedding and blanket material shall be Class II material (ASTM D2321) consisting of clean, granular material (sand), particle size limits described as follows:

Sieve	Percent Passing
No. 4	100%
No. 100	30%
No. 200	12%

2.11 PIPELINE INSULATION

A. Approved waterlines with less than six feet (6'–0") of cover over the crown, that cross a storm sewer, or where indicated on the plans, shall be protected against freezing by the installation of two inch (2") thick highest available density extruded polystyrene insulating sheets or equivalent. Sheets shall be the the lesser of 3' or 2 x diameter of the pipe. The sheets shall be placed six inches (6") above the crown after placement of four to six inches (4" – 6") of clean medium or coarse sand below the pipe bottom and four to six inches (4" – 6") above the crown. Joints shall be overlapped so there is no gap that will allow frost to penetrate. Care shall be exercised during backfill and compaction over the polystyrene sheets to prevent damage to the sheets. The polystyrene sheets shall meet the comprehensive strength requirements of ASTM D1621–73. In no cases shall the waterline have less than four feet (4') of cover over the top of the pipe.When water line passes within 5 feet of a catch basin install 2" min. rigid insulation, polystyrene sheets, between water line and cb.

2.12 POLYETHYLENE PIPE ENCASEMENT

A. Polyethylene pipe encasement may be required in areas of corrosive soils and shall conform to current ANSI/AWWA C105/A21.5 Specifications. Minimum material requirements for the polyethylene film shall be high density, cross laminated virgin polyethylene 4 mil film. The Town Water Department reserves the right to specify Polyethylene pipe, C–900, in areas of corrosive soils.

B. The polyethylene encasement shall prevent contact between the pipe or fittings and the surrounding backfill and bedding material and shall be installed as outlined in Section 4.1 of the above ANSI/AWWA standard.

2.13 CONCRETE FOR THRUST BLOCKS

A. Concrete shall be Portland Cement concrete of 3,000 psi minimum 28 day compressive strength. ASTM C–94 specification for transit mixed concrete shall control the concrete quality. A maximum water cement ratio of 6 gallons per sack and a maximum slump of four inches (4") will be allowed.

2.14 FIRE HYDRANTS AND HYDRANT BRANCHES

A. Fire hydrants shall be Mueller Super Centurion 250, Figure A–423, Kennedy K–81 D, or Waterous Pacer Hydrant and shall conform to AWWA C502 with the following specifications:

1. Main Valve Opening: 5 1/4 inches
2. Nozzle Arrangement: Two 2 1/2 inch Hose Nozzles with National Standard Thread (NST)
3. One 4 1/2 inch Pumper Nozzle with National Standard Thread (NST)
4. Inlet Connection: 6 inch Mechanical Joint, "Mega–Lug" or equivalent retaining gland and concrete thrust block
5. Operating Nut: Standard 1 1/2 inch Pentagon
6. Direction of Opening: Counterclockwise
7. Depth of Bury: Six–foot cover. The hydrant shall have at least 15 inches and no more than 21 inches between the bottom of the steamer cap and the ground.
8. Drain: The hydrant shall be non–draining or have the drains permanently plugged.
9. Color: Red enamel
10. Other: Hydrants shall be compression type closing with the pressure. Hose and pumper nozzles shall be 1/4 turn type secured by stainless steel or corrosion resistant pins or screws. Pressure seals behind the nozzle flanges shall be "O" rings. A breakable coupling retained in place by stainless steel or corrosion resistant pins shall make the union between the upper and lower stems. The two–piece traffic flange shall be held in place by nuts and bolts. The upper barrel shall be able to rotate 360 degrees without removing any bolts. Hydrant flags shall be required and supplied for each hydrant. Wherever a traffic hazard appears to exist, curbing and/or bollards shall protect the hydrant.

B. For single–family house subdivisions, there will be at least one hydrant at each intersection and a maximum of five hundred feet (500') between hydrants with a minimum water flow of 500 gallons per minute (gpm) at the flow hydrant with a 20–psi residual pressure at the residual hydrant. Hydrants should be located immediately adjacent to street property lines. A 20' x 20' easement will be required around all hydrants. No structures or plantings are to be placed within a 20' x 20' area of any hydrant.

C. Where dead–end mains occur, they shall be provided with a fire hydrant if flow and pressure meet minimum requirements. If flows and pressure are not sufficient, then an approved flushing hydrant or blow off shall be installed for flushing purposes. Flushing devices should be sized to provide flows which will give a velocity of at least 2.5 feet per second in the water main being flushed. The open end of a blow off must be capped and terminate at least eighteen inches (18") above grade.

D. When set in lawn space between the curb and sidewalk, no portion of the hydrant or nozzle cap will be less than one foot off the gutter face of the curb or edge of the sidewalk. Hydrants shall be a minimum of four feet (4') and a maximum of six feet (6') from the edge of the sidewalk to the closest point on the hydrant when placed behind the sidewalk. In the absence of a curb or sidewalk, no hydrant shall be placed more than six feet (6') from the edge of pavement. Hydrants shall be located so as to provide complete accessibility and minimize the possibility of damage from vehicles or injury to pedestrians.

2.15 HYDRANT ASSEMBLIES

A. Hydrant assemblies shall consist of an anchor tee, a six inch (6") mechanical joint gate valve conforming to the above specifications, the appropriate length of six inch (6") Ductile Iron Cement Lined, Class 52 pipe, all necessary anchor couplings and approved restraining glands, the fire hydrant and appropriate thrust block.

B. Care shall be taken to prevent damage to hydrants and appurtenances during handling and installation. All materials shall be carefully inspected for defects in workmanship and materials; all debris and foreign material cleaned out of the hydrant bowl; all operating mechanisms operated to check their proper functioning, and all nuts and bolts checked for tightness. All hydrants shall be carefully incorporated in the water main and supported in their respective positions free from distortion and strain. Hydrants shall be set plumb. All hydrants shall be oriented to most efficiently allow fire truck access and connection for emergency purposes. They shall be installed away from the curb line at sufficient distance to avoid damage from or to vehicles. Traffic model hydrants shall be installed so the breakaway flange is not less than two inches (2"), nor more than six inches (6") above the established grade, according to manufacturer recommendations. Hydrant locations are subject to the approval of the Town Water Department and the appropriate municipality's fire department. Installation for fire hydrants can be found in AWWA Standard C600.

2.16 SERVICE CONNECTIONS

A. Service lines shall be installed so as to run perpendicular, in a straight line from the water main to the curb stop.

B. Each service shall consist of a corporation, curb stop, copper tubing and a curb box with a cast iron or stainless steel service rod. Service lines from three–quarter to two inch (3/4" to 2") shall be copper tubing from the corporation stop to the curb stop. Copper tubing shall be type "K", soft temper, conforming to ASTM B88. The name or trademark of the manufacturer and type shall be stamped at regular intervals along the pipe. Copper service pipe shall be one piece from the corporation to the curb stop. The minimum service for a single–family residence shall be three–quarter inch (3/4"). The minimum service for a duplex shall be one inch (1").

C. Corporations shall be AY McDonald or Cambridge Brass Low–Lead and manufactured in accordance with AWWA C800. Corporations shall have threads per AWWA C800 Table 7 / Figure 2, at the inlet and a compression type fitting at the outlet. Both inlet and outlet shall be the same size. Three–quarter inch and one–inch corporations shall be directly tapped into ductile iron pipe six inches (6") and larger in diameter. Larger size corporations up to two inches (2") shall use a tapping saddle. Pipe less than six inches (6") shall require the use of a tapping saddle and corporation. Corporations shall be used for all taps up to two inches (2"). In no instance, except when a tapping sleeve and valve are used, shall a tap be made without a corporation. Corporations shall be Mueller 110 (3/4" – 1"), or Mueller H 15013 (1 1/2" – 2"). A connection made to a pipe that requires a tapping saddle or is not ductile iron will have a body with a suitable outlet, seal, and suitable means for attachment to the main. The body shall be made to conform to the outside configuration of the main. The service saddle shall be designed to provide a drip tight connection. The body shall be Teflon or Epoxy coated with stainless steel strap(s), bolts, nuts, and mechanism for attaching to the pipe barrel.

D. Curb stops shall be a ball valve type with a minimum allowable pressure rating of 300 psi and be manufactured in accordance with AWWA C800. The curb stop shall open left, have a positive stop, be full port, provide drip–tight shutoff in the closed position and be of the tee design or flat design. No curb stop shall have the ability to drain the service line. Both the inlet and outlet of the curb stop shall have compression type fittings. The tee head of the curb stop shall have the provision for the connection of a service rod. Curb stops shall be AY McDonald or Cambridge Brass Low–Lead, or approved equal. The curb stop shall rest on a four inch by eight inch by sixteen–inch (4" x 8" x 16") concrete block for support. Curb stops shall be installed just inside the municipality R.O.W.

E. Curb boxes shall be of sliding adjustable type capable of adjusting from five feet to six feet (5' – 6') (Erie Style). The base of the box shall be arch type so as to prevent the box from resting on the curb stop. The adjustable upper section shall be one inch (1") diameter for use with 3/4" and 1" curb stops. For larger curb stops, the upper section shall be 1 1/4" in diameter. Stationary rods affixed to the key of the curb stop with a brass pin shall be thirty inches (30") in length for 3/4" and 1" curb stops and twenty–four inches (24") for large curb stops. Curb box rods may be cast iron or stainless steel, as determined by the Town Water Department. The word "WATER" shall be inscribed on the cover of the box.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Contractors shall notify the Town Water Department and Dig Safe at least seven days prior to any work on the water system.

B. Skilled workers experienced in such work shall install all items. Tools shall be adequate for the work and in good condition so as to produce good, clean cut threads of the correct size, pitch, and taper.

C. Installation of all water lines shall be in accordance with the latest version of AWWA C600 or AWWA C605 , as applicable, current edition.

D. Connection to an existing water main shall be done under the supervision of and with the approval of the Town Water Department. It is the applicant's, developer's, or owner of record's responsibility to secure ALL necessary connection permits and pay ALL applicable fees to make the connection, and to coordinate all parties involved in the process. The engineer and the Town Water Department shall be notified at least two working days in advance of the intended connection time. No existing valves, hydrants, curb stops, etc. shall be operated without prior approval of the Town Water Department. The Town Water Department shall operate all valves initially to ensure the integrity of the valve. The Town Water Department may then allow the contractor to operate those valves. Any damage occurring after the use of any valve operated by the contractor shall be the contractor's responsibility.

E. Care shall be taken to prevent damage to valves and other appurtenances during handling and installation. All materials shall be carefully inspected for defects in workmanship and materials; all debris and foreign matter cleaned out of valve openings, etc.; all operating mechanisms operated to check their proper functioning, and all other nuts and bolts checked for tightness. Valves and other equipment, which do not operate easily, or are otherwise defective, shall be replaced. All valves shall be carefully incorporated into the water main and supported in their respective positions free from all distortion and strain. Valves and valve boxes shall be set plumb. Valve boxes, besides being plumb, shall be centered directly over the valves.

F. All pipes showing cracks shall be rejected. If cracks occur in the pipe, the contractor may, at his own expense and after approval of the Town Water Department, cut off cracked portions at a point at least twice the pipe diameter from the visible limits of the crack and use the sound portion of the pipe.

G. All water mains shall have no less than six feet (6') of cover unless waived by the Town Water Department. The pipe shall be laid to conform to the lines and grades indicated on the Department. The Town Water Department may restrict work before November 15 and after April 1 during adverse weather conditions. The Town Water Department may not allow excavating for water mains during the winter months except by special permission for emergencies. Each pipe shall be laid so as to form a close joint with the next adjoining pipe and to bring the inverts continuously to the required grade. In no cases shall the waterline have less than four feet (4') of cover over the top of the pipe.

H. Temporary support, adequate protection, and maintenance of all underground structures, drains, sewers and other obstructions encountered in the progress of the work shall be provided at all times. If utility service is interrupted as a result of work for the project, the contractor shall immediately restore service by repairing the damaged utility at the contractor's expense.

I. At all times, when pipe laying is not actually in progress, the open ends of the pipe shall be closed by temporary watertight plugs or by other approved means. If water is in the trench when work is resumed, the plug shall not be removed until all danger of water entering the pipe has passed. During construction, the contractor shall conduct operations so as to prevent the accumulation of water, ice, and snow in the vicinity of excavations or in the vicinity of excavated areas, and to prevent water from interfering with the progress and quality of the work.

J. Under no conditions shall water be allowed to rise in open trenches after pipe has been laid.

K. 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 that will not create a hazard to public health, nor cause injury to public or private property, work completed or in progress, or public streets. Disposal shall not cause any interference in the use of streets and roads by the public. Pipes under construction shall not be used for drainage of excavations.

L. Any deflection of joints in pipe up to twelve–inch (12") diameter shall be within the limits specified by the manufacturer, but not to exceed five degrees or nineteen inches (19") per eighteen feet (18') of pipe length.

M. Concrete thrust blocks shall be installed on all hydrants, plugs, tees, and bends deflecting 11 1/4 degrees or more. Concrete thrust blocks shall be used in conjunction with "Mega–Lug" restraining glands or equivalent. Care shall be taken to ensure that concrete will not come into contact with flanges, joints, or bolts. The required area of thrust blocks shall be indicated on plan typicals and approved by the Town Water Department. Concrete shall be placed against undisturbed soil. Wooden side forms or equal shall be provided for thrust blocks. No backfilling shall be allowed until concrete masonry has set sufficiently. Where directed by the Town Water Department or engineer, concrete encasement of the waterline may be made for stream crossings and similar purposes. Where required on the plans or as directed by the Town Water Department or engineer, a concrete cradle shall be used to bolster and strengthen the pipe. The Town Water Department or his designee shall inspect all thrust blocks prior to backfilling.

N. All trenching safety standards shall be in conformance with all applicable State and Federal guidelines. The contractor shall be solely responsible for any safety citations by State or Federal inspectors.

O. There shall be no physical connection between the distribution system and any pipes, pumps, hydrants, or tanks that are supplied with water that is, or may be, contaminated.

P. As necessary, temporary PVC markers shall be supplied at all gate valves, curb boxes, and at the end of water lines to a minimum of twelve inches (12") above finish grade until accepted by the Town Water Department.

Q. All surplus material and debris shall be removed as the project progresses, leaving all areas clean and presentable.

R. Unless otherwise required, all paving and sidewalks that may be damaged during construction shall be replaced with the same kind of material that previously existed.

S. The contractor shall be responsible for proper protection of persons and property on the project. The contractor shall barricade open holes and depressions occurring as part of the work, and post warning lights on adjacent property to or with public access.

T. Warning lights shall be operated during hours from dusk to dawn and as otherwise requested.

U. The contractor shall protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, washout, and other hazards created by construction operations.

V. No water lines shall be installed after November 15 or before April 1 without prior approval of the Town Water Department.

3.02 WATER/SEWER SEPARATION

A. Water mains crossing sewers shall be laid to provide minimum vertical distance of eighteen inches (18") between the outside of the water main and the outside of the sewer line. This shall be the case where the water main is either above or below the sewer. At crossings, one full length of pipe shall be located so both joints will be as far from the sewer as possible. This vertical separation shall be maintained for that portion of the water main located within ten feet (10') horizontally of any sewer it crosses. Water mains must be laid at least five feet (5') horizontally from any existing or proposed storm sewer and ten feet (10') from any existing or proposed sanitary sewer.

B. When it is impossible to obtain horizontal and vertical separation on new installations, both the water main and sewer main shall be constructed of waterworks material with watertight joints and shall be pressure tested before backfilling. A PVC sleeve may be required for one or both mains in addition to the waterworks material. Lines may also be encased in concrete as required by the Retail Department. No water main shall pass through or come in contact with any part of a sewer manhole.

C. Distribution lines shall not be placed closer than fifty feet (50') horizontal distance from any septic tank or leach field unless approved by the VT Water Supply Rule Provisions under Chapter 21.8.6.4 or the Town Water Department.

D. Force main crossing shall be arranged so that at least one full length of sewer pipe is centered above or below the water line, with the sewer joints as far as possible from the water joints. The new force main line shall be constructed to water main standards for a minimum of twenty feet (20') on either side of the crossing. The section constructed to water main standards shall be pressure tested to maintain 50 psi for fifteen (15) minutes without leakage prior to backfilling. In those areas that proper cover cannot be provided, proper insulation shall be installed.

E. Sewer and waterline separation shall conform to all VT Water Supply Rule requirements, and installed in accordance with the latest edition of the "Ten States Standards – Recommended Standards for Water."

3.03 TESTING AND DISINFECTION

A. All water mains shall be constructed, tested and disinfected in accordance with AWWA Standards C–600, C–605, C651 and The Vermont Water Supply Rule. All tests shall be conducted by and at the expense of the Contractor.

1. The Contractor shall furnish all gauges, testing plugs, caps and all other necessary equipment and labor to perform leakage and pressure tests in sections of an approved length. Each valved section, including hydrant laterals, or a maximum length of 1,000 feet of pipe shall be tested. The Contractor shall provide at his own expense any additional taps to the water line necessary to perform the pressure and leakage test between valves. All didinfection/testing shall be completed by an independent third party unless otherwise approved by the Engineer or local municipality.
2. All water required for testing shall be potable. All testing shall be conducted in the presence of the Engineer.
3. The Contractor shall make the necessary provisions to tap the pipe at the high point to release all air and shall plug same after completing the test. Hydrants or blowoffs located at high points may be used for air release in lieu of taps if approved by the Engineer.
4. For the pressure test, the Contractor shall develop and maintain for two hours, 150% of the working pressure, or 200 psi, whichever is greater. Failure to hold within 5 psi of the designated pressure for the two hour period constitutes a failure of the section tested.
5. No pipe installation shall be accepted if the leakage is greater than that determined by the following. Maximum allowable leakage will be:

$$L = \frac{SD\sqrt{P}}{148{,}000} \quad \text{or} \quad L = \frac{ND\sqrt{P}}{7{,}400}$$

whichever is less

Where:

L = allowable leakage, in gallons per hour
S = length of pipe tested, in feet
D = nominal diameter of the pipe, in inches
P = average test pressure during the leakage test, in pounds per square inch (gauge).
N = Number of joints in the pipeline tested

All testing shall be conducted in accordance with AWWA C600 (latest edition)

6. Should any section of pipe fail either the pressure or leakage test, the Contractor shall do everything necessary to locate and repair or replace the defective pipe, fittings, or joints at no cost to the Owner.
7. Disinfection: Disinfection of the pipeline shall be directed by the Engineer and at the Contractor's expense. AWWA Standard C–651 shall be used as a basis for the disinfection process.

B. The Engineer or Town Water Department will require as minimum:

1. Complete flushing of the pipeline to wash out all dirt, debris, etc. which may have accumulated in the pipeline during construction. A reducing agent shall be used at the point of flushing to eliminate the free chlorine residual per the direction of the Town Water Department.
2. Following flushing to clean clear water, the Contractor will add chlorine through continuous feed to the entire pipeline volume of water such that the water will have not less than 25 mg/L free chlorine, and let the mixture set for at least 24 hours.
3. After the 24–hour duration, the water in the pipeline shall be tested for residual free chlorine and must contain a minimum of 10 mg/L chlorine. If less than 10 mg/L are found, then the disinfection procedure shall be repeated until at least 10 mg/L chlorine residual is indicated by test.
4. Upon successful completion of step 3 above, the pipeline shall be flushed again until the chlorine concentration in the pipeline is no higher than that prevailing in the supply system. A reducing agent shall be used to eliminate the free chlorine residual in the flushing process per the direction of the Town Water Department.

C. After final flushing and before the new water main is connected to the distribution system, two consecutive sets of acceptable samples, taken at least 24 hours apart, shall be collected from the new main, and submitted to the Vermont Health Department for analysis. At least one set of samples shall be collected from every 1,000 feet of the new water main, plus one set from the end of the line and at least one set from each branch. All samples shall show the absence of coliform organisms and, if required, the presence of a chlorine residual (AWWA C651–99). If the initial disinfection fails to produce samples which pass the V.S.H.D. requirements for potable drinking water, then the new main shall be reflushed and shall be resampled until satisfactory test results are obtained.

D. Upon satisfactory results by the Vermont State Health Department, the pipeline may be placed in service. All costs

PROGRESS PLANS
05/04/2020

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:

15 HUNGERFORD TERRACE, LLC

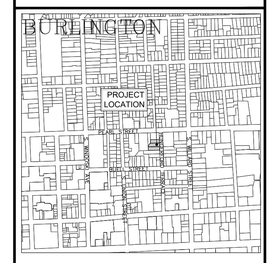
21 HUNGERFORD TERRACE, LLC

BURLINGTON, VERMONT 05401

PROJECT:

15 & 21 HUNGERFORD TERRACE

15 HUNGERFORD TERRACE
BURLINGTON, VT



LOCATION MAP
1" = 2000'

DATE	CHECKED	REVISION

SPECIFICATIONS

DATE: --
SCALE: NTS
PROJ. NO.: 20123

DRAWING NUMBER: C5.4

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for water, materials, equipment and labor to perform the required testing disinfection, and flushing of the pipeline shall be paid by the Contractor.

3.04 SUBMITTAL OF TEST RESULTS

A. A. The Applicant or Project Engineer shall be responsible for submittal of test results to the Town Water Department. The Applicant or Project Engineer shall also provide a letter to the Town Water Department certifying that the water system has passed all tests, is constructed in accordance with the approved plans, except as may have been modified by approved Change Order, and is in condition to be placed in service. <u>Submittal of all test results shall be required prior to the water main being placed into service.</u>

3.05 FINAL INSPECTION

A. For one year from the date the new system is placed into service, the applicant's developer/contractor will be responsible for any necessary repairs or corrections as part of the project warranty. At the end of a one-year period, an inspection will be performed by the Town Water Department prior to the system owner assuming ownership of any of the lines and appurtenances. The contractor shall correct any punch list items accumulated during the inspection after receipt of this list. Incomplete work on the system shall not be included in the initial inspection, but shall be inspected as the project continues. The contractor shall repair, replace, or retest promptly as directed by the Town Water Department and without further charges, all work equipment, materials or parts, which may fail during the one year warranty period.

B. A final walk-through inspection shall be conducted by the Town Water Department prior to the water system being accepted for ownership by the system owner. This inspection shall include but not be limited to:

1. Valves, hydrants, and curb stops operating properly.
2. Valve boxes and covers set plumb and at proper elevations.
3. Proper hydrant nozzle height above grade.
4. Proper hydrant opening direction, nozzle thread, and barrel color.
5. Proper distance from the face of the curb of hydrant nozzles.
6. Hydrant flags meeting Town Water Department specifications installed on each fire hydrant at the time of installation.
7. Static and residual hydrant pressures and flow rates.
8. Curb boxes inside ROW, set to grade, containing operating rod, and plumb.
9. Tie information and record drawings complete and submitted.
10. Material testing results, lab reports, manufacturers' certificates, and leakage test results complete and on file.
11. General appearance and restoration.
12. Submittal of O&M manuals in hard copy and Adobe Acrobat Reader (.pdf) format.
13. Submittal of As-Builts in hard copy format and Auto-CAD.DWG Version 2000 format or newer within 14 days of completion.

3.06 GENERAL INFORMATION

A. All persons taking water must keep the fixtures and service pipe within their own premises in good repair and fully protected from frost, and must prevent unnecessary leakage of water. The Town Water Department shall not be liable for leakage of hydrants, pipes or fixtures upon the premises of any consumer, nor for obstructions therein by freezing or otherwise, nor for damages resulting from any of the forgoing causes. All leaks that are on the building side of the curb stop will be the owner's responsibility and repaired at the owner's expense.

B. Water rates shall be collected for all water used until the water is shut off at the curb stop by the Town Water Department. No abatement of water rates will be allowed by reason of disuse, diminished use, or vacancy of premises without proper notice to the Town Water Department.

C. The Town Water Department or system owner shall not be liable for any injury, loss or damage of whatever nature occasioned by the failure to maintain a constant or uniform pressure in the water mains, or for damages occasioned by or growing out of a stoppage of said water by frost or other cause, or for damage occasioned by or growing out of an insufficient supply of the same, or for accident or damage of any kind caused by or growing out of the use or failure of said water.

D. No person shall open any hydrant or draw water there from except the Town Water Department personnel or persons under their direction, or the officers or designees of the municipal fire department and members of the fire companies under their direction for fire purposes, or those individuals who have been granted approval on a hydrant use application by the Town Water Department, in which case, all such usage shall be metered. Fines for unauthorized use of any hydrant or connection may be incurred, according to the Rules and Regulations of the Town Water Department.

E. One curb stop and one water meter shall be installed for each individual dwelling unit, condominium unit, apartment unit, commercial or office occupancy. Exceptions may be permitted in cases where a condominium association signs a binding agreement to be responsible for all collection of water bills. In cases where condominiums are converted into separate apartments, separate curb stops and water meters shall be installed for each unit. Town Water Department employees shall install all water meters. Under no circumstances are plumbers or persons other than those authorized by the Town Water Department permitted to turn water on or off at the curb stop. The water will not in any instance be turned on to any premise for use until the Town Water Department has suitably attached a meter.

F. The owner of the premises shall be responsible for all water payments. A change of tenants or premises will not relieve the owners from payment of a back bill.

LANDSCAPE GRADING

PART 1 – GENERAL

1.01 SUMMARY

A. Section includes:

1. Finish grading; bring rough grade in areas to design elevations as shown on the drawings.
2. Topsoil: Work shall consist of furnishing, placing and shaping topsoil, or placing, spreading, and shaping topsoil form stockpiles or stripped areas.

PART 2 – PRODUCTS

2.01 TOPSOIL

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.

PART 3 – EXECUTION

3.01 SUBGRADE PREPARATION

A. Clean subgrade of all stumps, stones, roots, trash or other materials which might hinder proper tillage or spreading.

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.

3.02 PLACING TOPSOIL

A. Minimum final depth of topsoil shall be 4 inches.

B. Place topsoil when seeding operations can closely follow spreading operations. Use topsoil in relatively dry state.

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 1¼ inch in diameter along with any sodding weeds and other undesirable material shall be removed.

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.

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 untillable. 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.

PROGRESS PLANS
05/04/2020

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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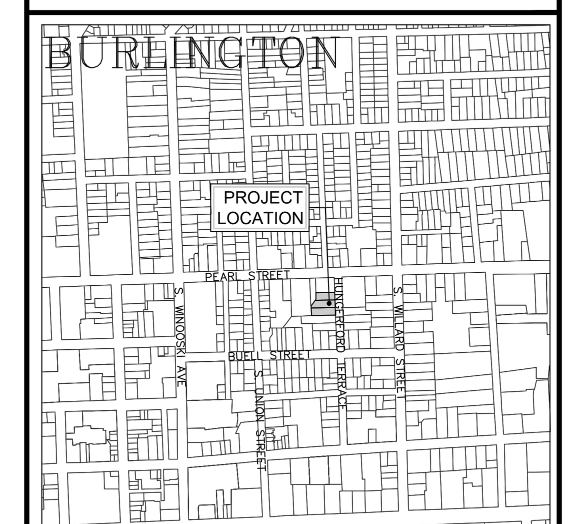
DRAWN: MAB
CHECKED: DSM
APPROVED: DSM

CLIENT:
15 HUNGERFORD TERRACE, LLC
21 HUNGERFORD TERRACE, LLC
BURLINGTON, VERMONT 05401

PROJECT:
15 & 21 HUNGERFORD TERRACE
15 HUNGERFORD TERRACE
BURLINGTON, VT



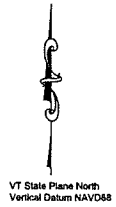
LOCATION MAP
1" = 2000'

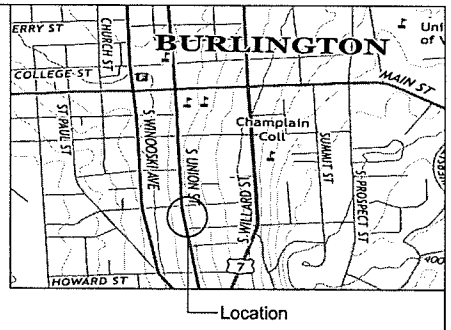
DATE	CHECKED	REVISION

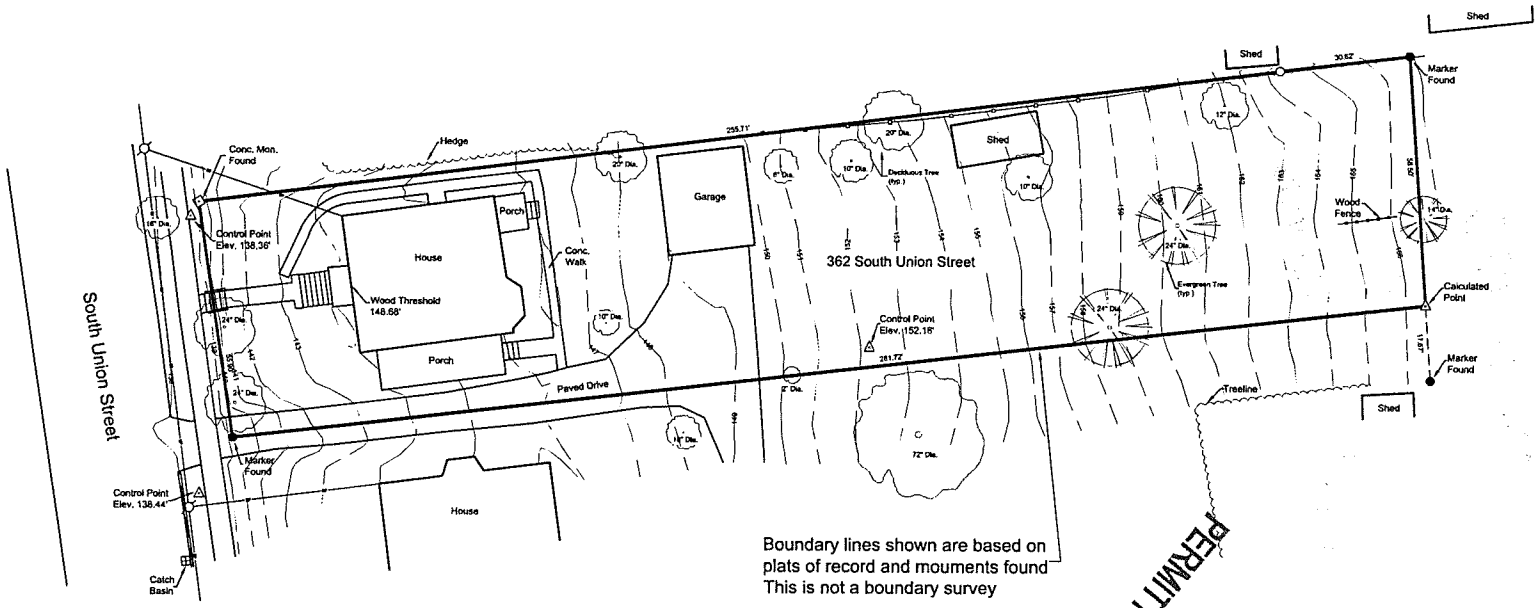
SPECIFICATIONS

DATE: --
SCALE: NTS
PROJ. NO.: 20123
DRAWING NUMBER: C5.5

P:\AutoCADD Projects\2020\20123\1-CADD Files-20123\dwg\20123 - DETAIL - SPEC.dwg, 5/4/2020 11:13:48 AM, DWG To PDF.pc3







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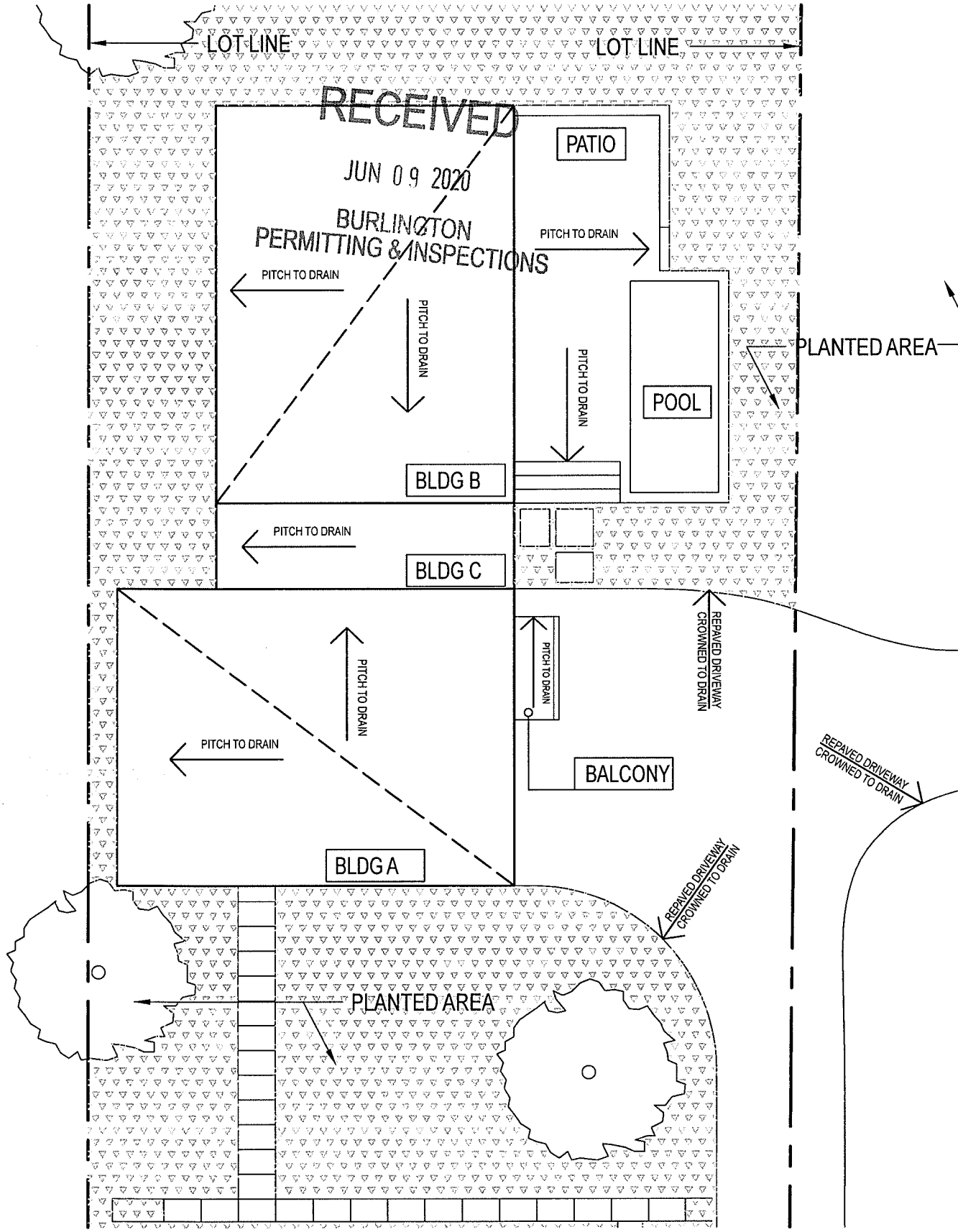
Topographic Survey
Lands Of
William Fellows & Tshen Shue
362 South Union Street,
Burlington, Vermont

LATITUDES Land Surveying

Date
12/14/2018



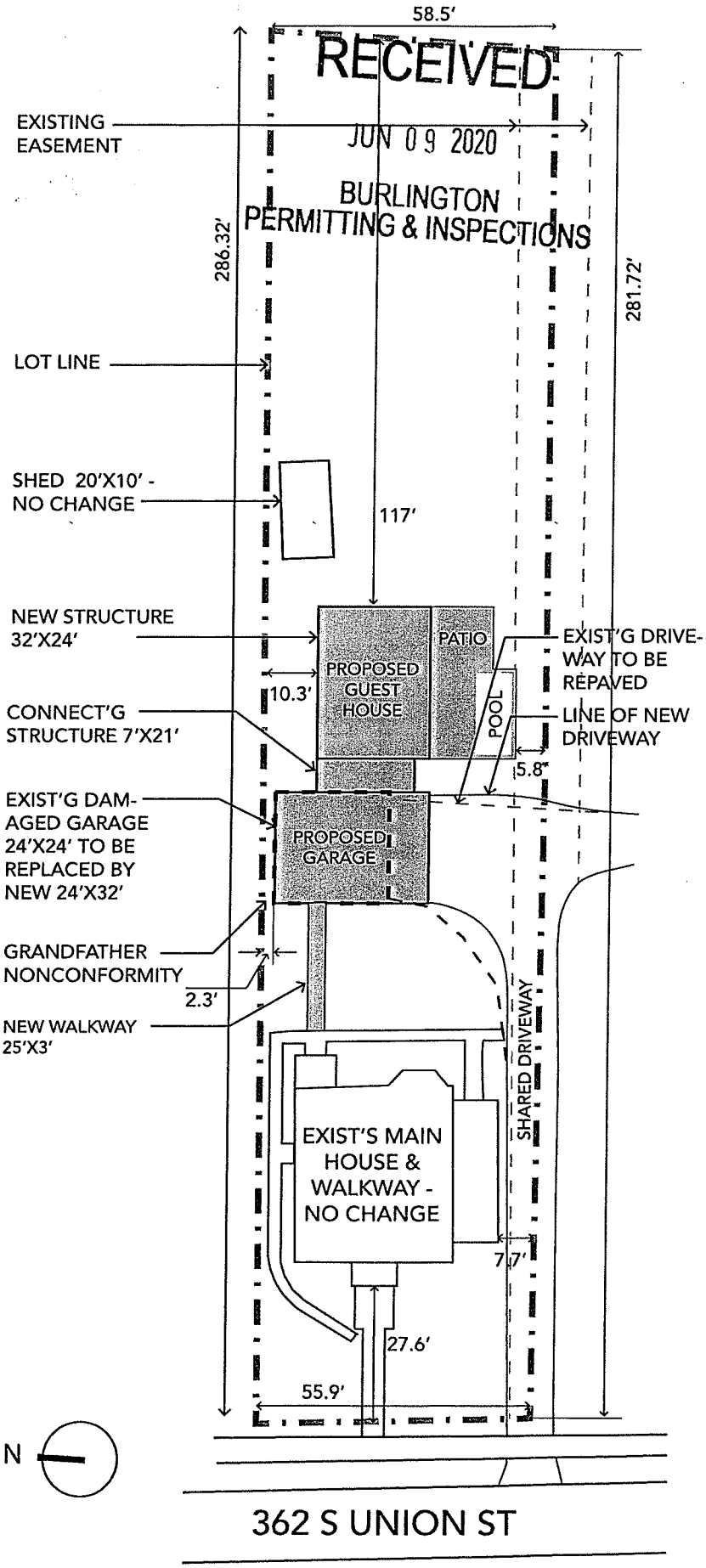
362 S UNION ST., BURLINGTON VT

SK-01

N

GARAGE & GUESTHOUSE

SMP SITE/ROOF PLAN(PARTIAL) 3/32"=1'-



COVERAGE CALCULATION

362 S UNION ST., BURLINGTON, VT
ZONE: RM
MAX. LOT COVERAGE 40%

EXISTING:

MAIN HOUSE	1203.5 SQFT
PORCH: FRONT\SIDE \BACK	381.5 SQFT
WALKWAYS	485 SQFT
GARAGE	576 SQFT
SHED	200 SQFT
SHARED DRIVEWAY	1360 SQFT
TOTAL	4206 SQFT
Lot SIZE	16,553 sq feet
EXISTING COVERAGE	**25.4%**

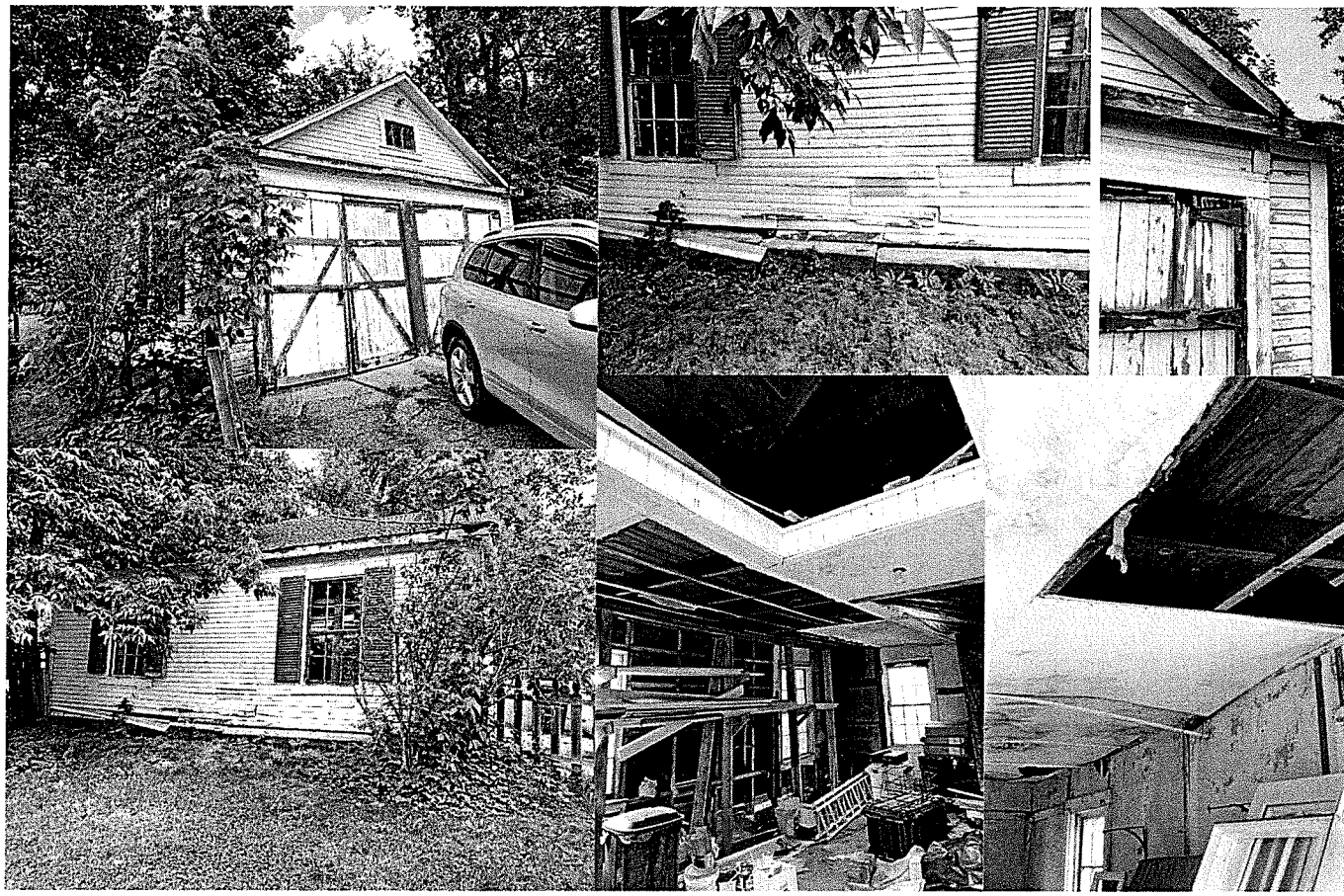
PROPOSED:

MAIN HOUSE	1203.5 SQFT
PORCH: FRONT\SIDE \BACK	381.5 SQFT
WALKWAYS	485 SQFT
SHED	200 SQFT
NEW WALKWAY	75 SQFT
NEW GARAGE	768 SQFT
NEW CONNECTION	147 SQFT
NEW ACCESSORY	768 SQFT
NEW PATIO	433 SQFT
SHARED DRIVEWAY	1175 SQFT
TOTAL	5636 SQFT
Lot SIZE	16,553 sq feet
NEW COVERAGE	**34%**

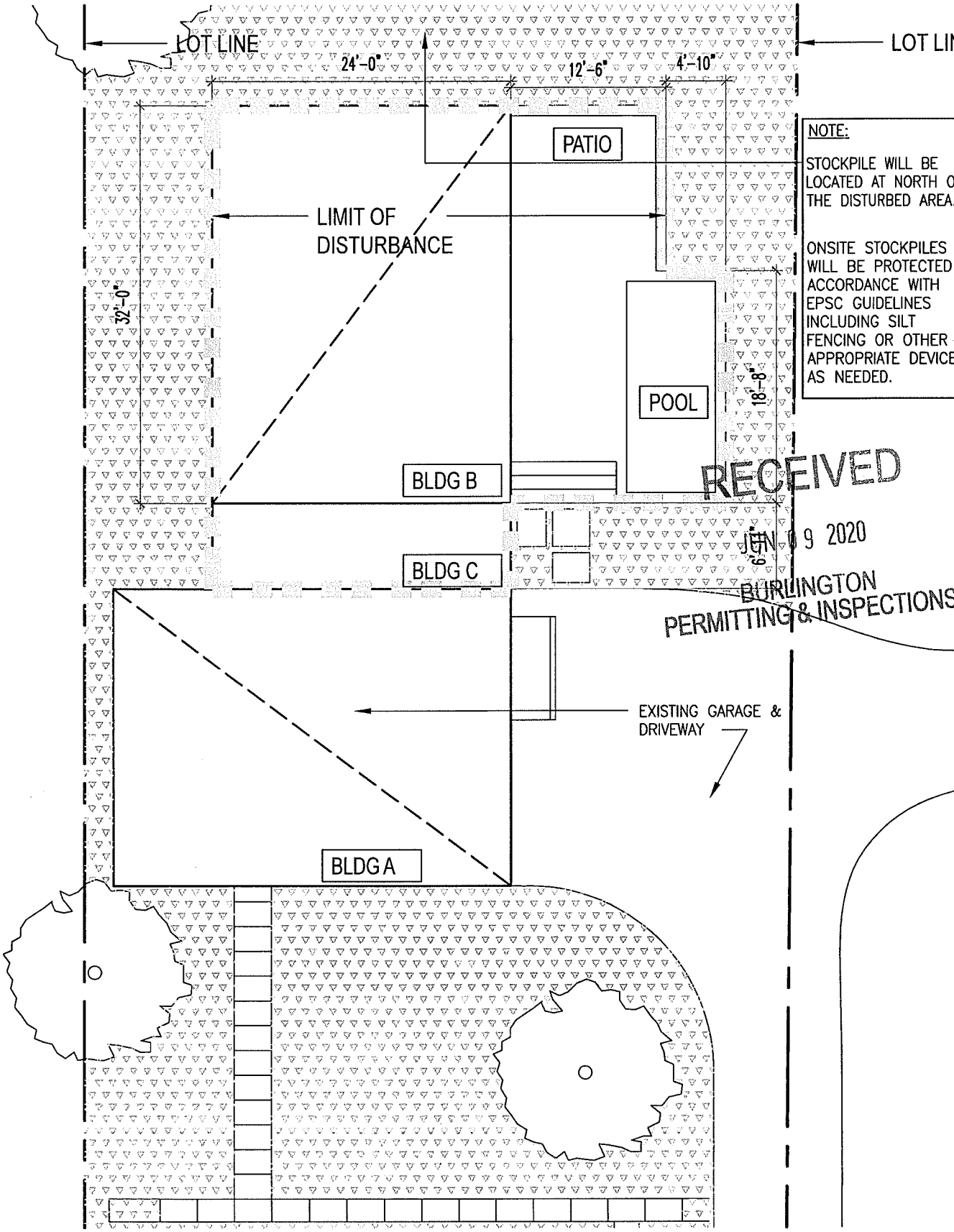
LEGENDS

- LOT LINE
- EXIST'G TO BE REPLACED
- PROPOSED BUILDING
- COVERAGE OUTLINE

WILLIAM FELLOWS & TSHEN SHUE
362 S UNION ST, BURLINGTON VT
JUNE 8TH, 2020



EXISTING GARAGE IS SEVERELY DAMAGED AND STRUCTURALLY UNSOUND.



NOTE:

STOCKPILE WILL BE LOCATED AT NORTH O THE DISTURBED AREA.

ONSITE STOCKPILES WILL BE PROTECTED ACCORDANCE WITH EPSC GUIDELINES INCLUDING SILT FENCING OR OTHER APPROPRIATE DEVICE AS NEEDED.

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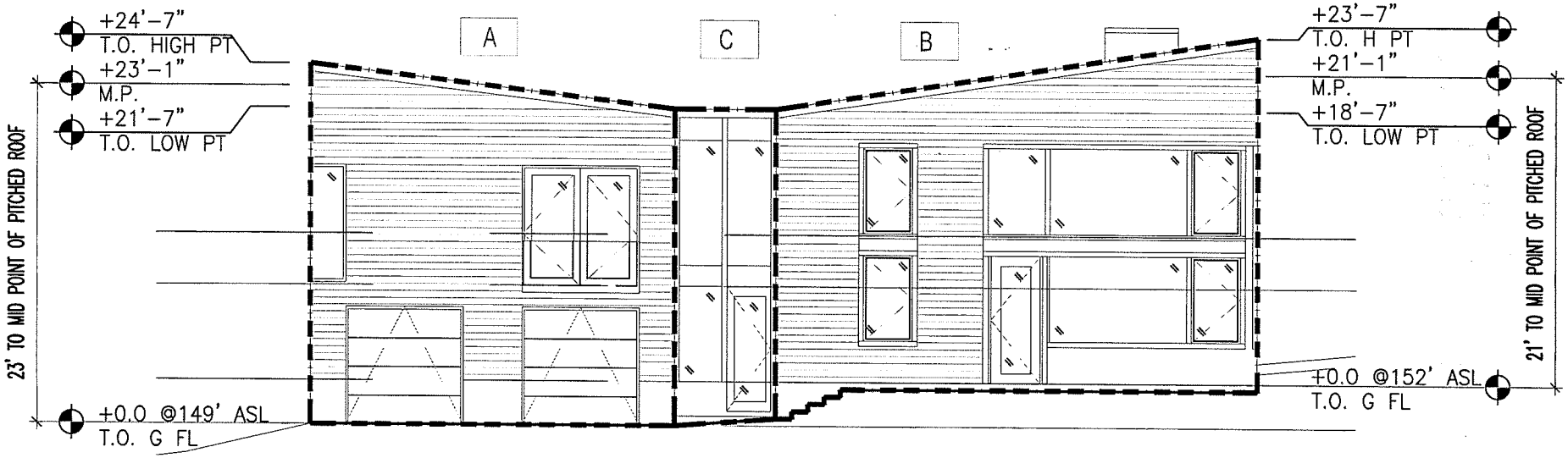
362 S UNION ST., BURLINGTON VT

SK-02

N

GARAGE & GUESTHOUSE

EPSC SITE/ROOF PLAN(PARTIAL) 3/32"=1'-



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362 S UNION ST., BURLINGTON VT

SK-03

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JUN 09 2020

BURLINGTON
PERMITTING & INSPECTIONS

Burlington Department of Public Works
Stormwater Program
234 Penny Lane (Water Plant)
Burlington, VT 05401
PH: 802-863-4501 Email: stormwater@burlingtonvt.gov

Small Project Erosion Prevention & Sediment Control (EPSC) Plan

This questionnaire, at a minimum, is required to accompany all zoning or building permit applications which involve 400 sq. ft. or more of land disturbance. If your project meets one of the following categories, do not submit this form. You must submit the "Standard" EPSC Form:

- on properties other than single family (R1) or duplexes (R2) that require a level II or III Certificate of Appropriateness or Major Impact zoning applications and involve 5000 sq. ft. or more of earth disturbance; or
- any activity where a zoning permit is not required but where the project involves 10,000 sq. ft. or more of earth disturbance; or
- if requested by the Stormwater Program due to project characteristics such as slope, soils or proximity to drainage structures or waterbodies.

For this Small EPSC form, please also provide a simple site plan indicating the locations of all erosion prevention and sediment control measures (silt fence, hay bales etc).

Single family or duplex properties with greater than 2500 sq. ft. of total impervious surfaces, that are adding more impervious, will also be required to submit a Residential Stormwater Management Questionnaire. All other projects involving redevelopment or addition of impervious surface must submit the stormwater management pre-screening form (attached) for evaluation or meet with the Stormwater Program to determine the stormwater management requirements for your project.

1. Project Location 362 S UNION ST, BURLINGTON VT
2. Brief Project Description (i.e. house foundation, swimming pool)
   1) A new Garage structure to replace the existing; 2) A Guesthouse with a connecting structure to the garage, and an attached patio with a swimming pool.

3. Owner Name: WILLIAM FELLOWS & TSHEN SHUE
4. Owner Mailing Address: 362 S UNION ST, BURLINGTON VT 05401
5. Owner Phone: 917-923-8578 6. Owner email: SHUETSHEN@YAHOO.COM
7. Contractor Name: OWNER.
8. Contractor Phone: 917.923-8578 9. Contractor Email: OWNER
10. Estimated Project Start Date / AUG / 2 Estimated End Date / MAR / 2
11. Area of Land Disturbance 2238 sq. ft.
12. Existing Impervious: 4206 sq. ft. Proposed impervious: 5636 sq. ft.
13. Site plan/ sketch MUST BE ATTACHED TO THIS FORM showing the following:
    - ☐ Limits of disturbance
    - ☐ Direction of stormwater flow on site
    - ☐ Location of stockpiles (if any)
    - ☐ Location of sediment control BMP's (silt fence etc.)

*impervious = any surface off of which water runs off rather than infiltrates, including, but not limited to rooftops and paved/unpaved (gravel/packed dirt) driveways, walkways and patios

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SITE PLAN

ZONING INFORMATION		
SPACE	EXISTING AREAS	PROPOSED AREAS
PROPERTY: LOTS 260, 264, 272, AND 280	30,851 SQ. FT.	30,851 SQ. FT.
EXISTING STRUCTURES	3484 SQ. FT.	3484 SQ. FT.
NEW UNITS - LOT COVERAGE INCLUDING DECKS AND STAIRS	—	2550 SQ. FT.
WALKWAYS	320 SQ. FT.	321 SQ. FT.
DRIVEWAY	4323 SQ. FT.	6625 SQ. FT.
TOTAL	8127 SQ. FT.	12980 SQ. FT.
TOTAL LOT COVERAGE	26.3%	42%

NOTES:

SITE PLAN BASED ON INFORMATION PROVIDED BY 'CIVIL ENGINEERING ASSOCIATES' DRAWING C1.0 - 'EXISTING CONDITIONS SITE PLAN' C1.0 BISONETTE PROPERTIES. THIS PLAN IS NOT A BOUNDARY SURVEY AND IS NOT INTENDED TO BE USED AS ONE

ZONING PERMIT 2020 06 24

JRMA
DESIGN STUDIO
175 SUMMIT CIRCLE
SHELBURNE, VERMONT 05482
802-985-9363

JOB_NO.	2010-141
DRAWN_BY	WJR
DATE	JUNE-24-2020
SCALE	1"=30'-0"

MANHATTAN DRIVE TOWNHOUSES
BURLINGTON, VERMONT
SITE PLAN

L-1

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VIEW FROM MANHATTAN DRIVE LOOKING NORTHWEST

VIEW FROM MANHATTAN DRIVE LOOKING NORTHEAST

PRELIMINARY - 2020 06 24

JOB_NO.	2010-141
DRAWN_BY	WJR
DATE	JUNE-24-2020
SCALE	N/A

MANHATTAN DRIVE TOWNHOUSES
BURLINGTON, VERMONT
EXISTING SITE PHOTOGRAPHS

EX-1

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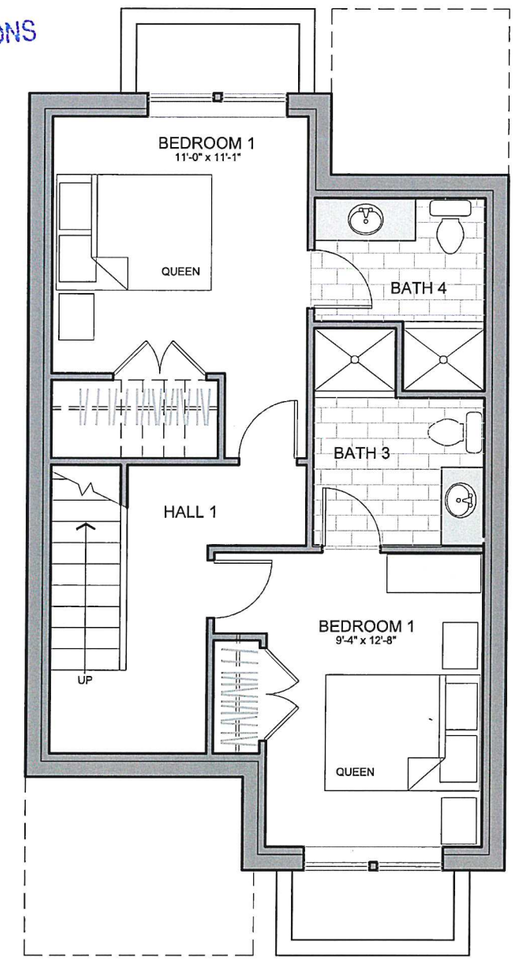
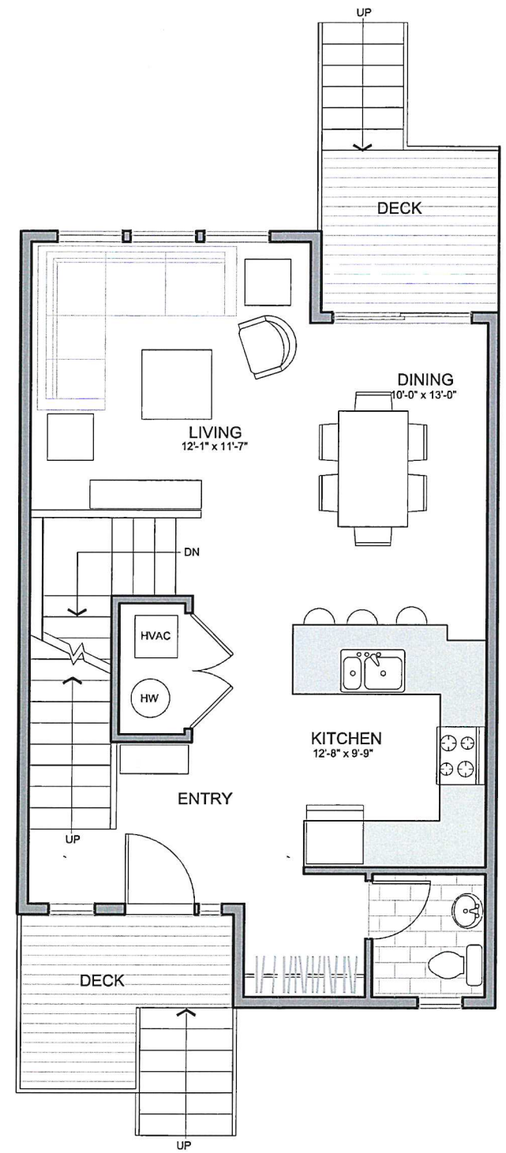
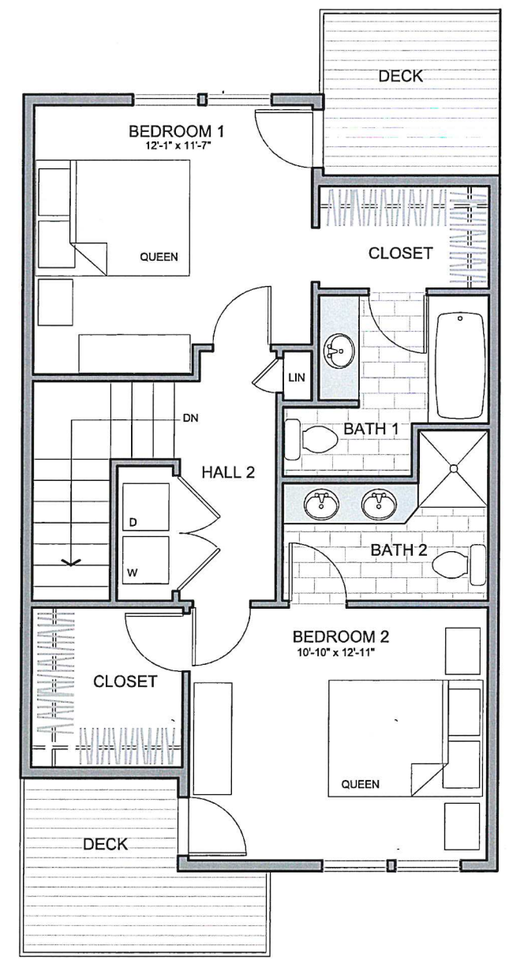


lower level floor plan
3/16" = 1'-0"



first floor plan
3/16" = 1'-0"



UNIT SIZE: 1884 SQ. FT.
DECKS: 297 SQ. FT.

second floor plan
3/16" = 1'-0"

PRELIMINARY - 2020 06 24

JOB_NO.	2010-141
DRAWN_BY	WJR
DATE	JUNE-24-2020
SCALE	3/16"=1'-0"

MANHATTAN DRIVE TOWNHOUSES
BURLINGTON, VERMONT
FLOOR PLANS

A-1

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Manhattan Drive Townhouses

BURLINGTON, VERMONT

ZONING PRESENTATION APRIL 14 2020

BILL BISSONETTE PROPERTIES

perspective

overview from southeast

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south elevation

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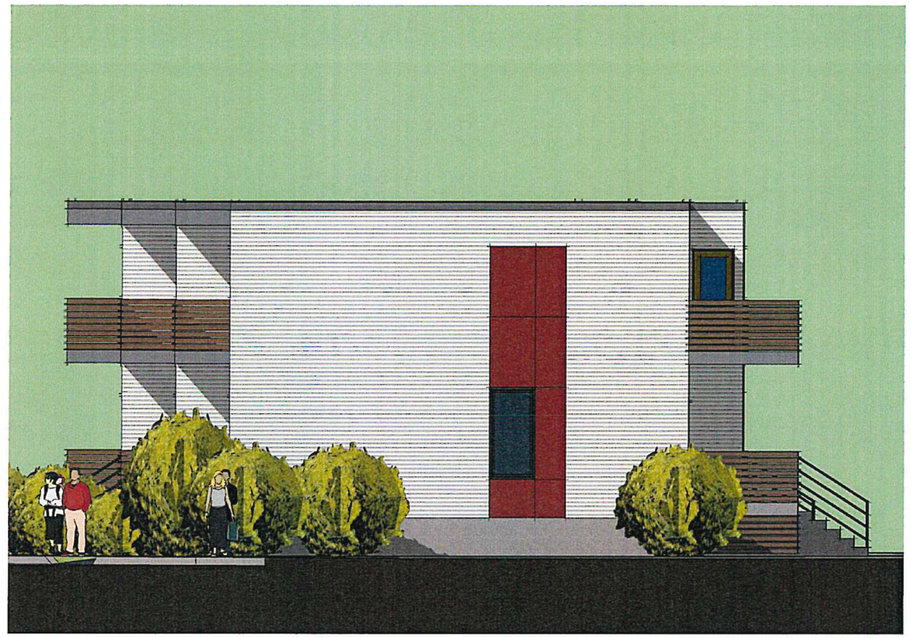
west elevation



east elevation

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north elevation

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Photos, 11 Hungerford Terrace garage

Embankment photos

Department of Permiting 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
Ryan Morrison, Associate Planner
Layne Darfler, Planning Technician
Alison Davis, Zoning Clerk
Theodore Miles, Zoning Specialist
Charlene Orton, DPI Administrator

MEMORANDUM

To: The Design Advisory Board
From: Ryan Morrison, Associate Planner
RE: ZP20-0971CA/CU; 362 South Union Street
Date: July 14, 2020

File: 20-0971CA/CU
Location: 362 South Union Street
Zone: RL **Ward**: 6S
Parking District: Neighborhood
Date application accepted: June 9, 2020
Applicant / Owner: William Fellows / William Fellows & Tshen Shue
Request: Demolish existing garage and replace with a new garage and attached accessory dwelling unit.

Background:

- **Zoning Permit 14-0010LL**; lot line adjustment with 368 S Union Street. July 2013.
- **Non-Applicability of Zoning Permit 14-0656NA**; interior kitchen remodel. December 2013.
- **Zoning Permit 19-0346CA**; replacement windows. October 2018.

Overview: The applicant proposes demolishing a damaged/structurally unsound garage and replacing it with a new 2-car, 2-story garage and an attached 2-story guest house. The garage is included in the property's listing in the South Union Street Historic District (national registry). The listing notes the garage as *'a square, clapboard sided, one story, two bay garage with a hip roof, two shuttered windows on the west and east facades and a small brick exterior chimney on the north façade, is located northeast of the main house. The roof is wood shingled, and has a broad gable above the garage doors on the south elevation. Each bay has a pair of hinged wooden doors.'* The principal structure on the property, a single family residence constructed c. 1900, will remain as-is – no changes are proposed. Additionally, a garden house, c. 1935, also exists further back on the property.

The applicant has provided photos which show the deteriorated state of the garage. The applicant bought the property in June, 2018 and states that the garage was in its deteriorated state then. The existing garage is within the minimum 5 ft side yard setback requirement with a setback of 2.3 ft. The proposal is to replace the garage with one of the same width and the same setback. Sec. 5.3.5 (a) allows for a nonconforming accessory structure (setback) to be rebuilt to the existing setback as long as the replacement does not increase the nonconformity. This section continues – *'Existing accessory buildings of 15 feet in height or less shall not exceed 15*

feet tall as expanded.' The existing garage is no taller than 15 ft in height. At the time of this report, the proposed garage replacement maintains the same footprint, but increases in height to approximately 24 ft. This is in conflict with Sec. 5.3.5 (a). The applicant has been informed of this and intends to redesign the upper floor of the garage in a manner so that it complies with the side yard setback. It is assumed that the footprint of the garage/1st level will remain as proposed, and the north wall of the 2nd level (art studio space) will shift in, approximately 3-4 ft, so that it meets the minimum side yard setback requirement. The applicant state that revised plans will be prepared in time for the July 14, 2020 DAB meeting.

The attached accessory dwelling unit portion of the structure is shifted in, in a manner to comply with the minimum side yard setback. The ADU portion will be 2 stories, with a bedroom, dressing/study room and bathroom on the second floor, and a kitchen, bathroom and living space on the first floor. An attached patio and pool are proposed on the south side of the ADU.

The existing shared driveway will be repaved, and the footprint will be slightly altered to make vehicular access to the garage easier.

Part 1: Land Division Design Standards
No land division is proposed as part of this application. Not applicable.

Part 2: Site Plan Design Standards
Sec. 6.2.2 Review Standards

(a)Protection of Important Natural Features:

There are a few mature trees that line the north property line. The site plan indicates that there may be two (6" and 10" diameter) trees that will be removed to make way for the ADU structure.

(b) Topographical Alterations:

No topographical alterations are defined within the project application.

(c) Protection of Important Public Views:

There are no protected important views from or through this property. Not applicable.

(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:

No part of this application precludes the use of wind, solar, water, geothermal or other renewable energy resource.

(f) Brownfield Sites:

This address is not listed on the Vermont DEC website for identified Brownfields.

(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.

The applicant has provided and Erosion Prevention and Sediment Control Plan for review by the Stormwater engineering program. Their review and written approval will be a condition of any permit.

The elevation drawings do not indicate the presence of a canopy/shelter from inclement weather. Aside from the two garage doors, there are three man doors providing access/egress from the structure. One door is on the west façade (the garage side), one is between the garage and the ADU accessing the foyer (south elevation) which primarily appears to serve the ADU, and the third door is also on the south elevation providing direct access to the attached patio. While there is a balcony above one of the garage doors, there appears to not be cover for any of the three man doors. A canopy or roof shelter is recommended for each door.

(h) Building Location and Orientation:

The replacement garage is in a pre-existing location on the site, and the new ADU portion will extend to the east off the garage. Overall, the new/replacement structure will be located behind the principle structure.

(i)Vehicular Access:

Access will remain as existing, from South Union Street via a driveway that is shared with 368 South Union St.

(j) Pedestrian Access:

Pedestrian access between the primary structure and the South Union St. sidewalk will remain. The site plan indicates a new walkway between the replacement garage and the primary structure. While the zoning ordinance requires no additional parking space for ADUs, it is assumed that the ADU will use one of the parking spaces in the garage while the habitants of the main residence can tandem park (one space in the garage and one space behind the garage space in the driveway. Either way, there is adequate space to provide three parking spaces in and in front of the garage.

(k) Accessibility for the Handicapped:

The building inspector has jurisdiction over ADA requirements. By his direction and per Chapter 8 of the Burlington Code of Ordinances, 4 to 14 units must provide 1 accessible unit.

(l) Parking and Circulation:

Within the Neighborhood Parking District, 2 parking spaces are required for each residential unit, and ADUs require no additional parking spaces. The two-car garage alone satisfies this requirement. And it should be noted that there is adequate room in front of the garage to provide parking spaces, should a tandem situation be desired for the primary single family residence.

(m) Landscaping and Fences:

The proposed site plan shows a 'planted area' around the new/replacement structure. Specific plantings are unknown, but it is speculated that this simply means lawn. No shrubs, trees, or similar plantings are indicated on the plans and there should be. Fencing is also absent from the plan.

(n) Public Plazas and Open Space:

There are no public plazas required, but the site plan illustrates areas for resident outdoor enjoyment.

(o) Outdoor Lighting:

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

No lighting information has been provided, and is required. The elevation drawings do not include exterior light fixtures. Fixture information and illumination levels are required, and the elevation drawings need to be revised to include exterior light fixture locations.

(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 place 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.

The location of a mailbox, utility connection, meter, and mechanical equipment must be identified on the site plan and building elevations as appropriate. All electrical service to the new building shall be underground.

Part 3: Architectural Design Standards
Sec. 6.3.2 Review Standards

(a)Relate development to its environment:

1. Massing, Height and Scale:

The existing garage is one story tall. The replacement garage is proposed at two stories, as well as is the attached ADU structure. While the massing, height and scale will increase dramatically, the structure is located behind the principle single family home and will not be easily seen from the street. It will be visible from adjacent properties. The proposed addition of this detached accessory structure will not conflict with the massing, height or scale of the existing principal dwelling.

2. Roofs and Rooflines.

The existing garage has a gable roof, and the applicant proposes a two-way slanted roof for the new structure. The roof will slant downward in a west-east manner over the garage, and then slant upward in the same west-east manner over the ADU portion. This roof type appears to be unique to those on other accessory buildings in the area, however, because it will be particularly difficult to see from the public street, it won't have a negative impact on the roofline appearance of the many existing homes along South Union Street.

3. Building Openings

There are a variety of building openings proposed on the new structure, with a mix of fixed, casement and awning windows. The garage portion of the structure will see a mix of fixed, awning and casement windows. On the rear façade (north), small awning windows will provide some natural sunlight into the garage and upper floor. On the west side, an awning and casement window is proposed, along with a row of fixed windows just below the roof line. This side also contains a man-door providing access to the garage. The 'front' of the garage portion (south) will have two garage doors at the ground level, and at the upper story level, there is one window proposed and a sliding door providing access to the balcony.

The building connector will have an almost entirely glazed front (south), containing the entrance door and fixed windows on the first and second levels.

A mixture of fixed and casement windows are proposed on the ADU portion. Large picture windows are proposed and will provide ample sunlight into the living and sleeping areas on the first and second floors. Additionally, one door on the south side will be installed providing direct access to the patio.

(b) Protection of Important Architectural Resources:

Burlington's architectural and cultural heritage shall be protected through sensitive and respectful redevelopment, rehabilitation, and infill. Where the proposed development involves buildings 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. The introduction of new buildings to a historic district listed on a state or national register of historic places shall make every effort to be compatible with nearby historic buildings.

See Section 5.4.8, below.

(c) Protection of Important Public Views:

There are no protected important views from this property. Not applicable.

(d) Provide an active and inviting street edge:
No changes are included for the principal building.

(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 new building is proposed to with wood clapboard siding. Roofing will be formed metal. Windows will be aluminum clad wood windows. The material for the patio has not been provided and will need to be.

(f) Reduce energy utilization:

All new construction shall 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.

(g) Make advertising features complementary to the site:

Any signage will require a separate zoning permit.

(h) Integrate infrastructure into the building design:

See Section 6.2.2. (p), above.

(i) Make spaces secure and safe:

Redevelopment is subject to all applicable building and life safety codes as defined by the Burlington's Building Inspector and the Fire Marshal.

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.

As such, a building or site may be found to be eligible for listing on the state or national register of historic places and subject to the provisions of this section if all of the following conditions are present:

1. *The building is 50 years old or older;*
2. *The building or site is deemed to possess significance in illustrating or interpreting the heritage of the City, state or nation in history, architecture, archeology, technology and culture because one or more of the following conditions is present:*
   - A. *Association with events that have made a significant contribution to the broad patterns of history; or,*
   - B. *Association with the lives of persons significant in the past; or,*
   - C. *Embodiment of distinctive characteristics of a type, period, or method of construction, or representation of the work of a master, or possession of high artistic values, or representation of a significant or distinguishable entity whose components may lack individual distinction; or,*
   - D. *Maintenance of an exceptionally high degree of integrity, original site orientation and virtually all character defining elements intact; or,*
   - E. *Yielding, or may be likely to yield, information important to prehistory; and,*
3. *The building or site possess a high degree of integrity of location, design, setting, materials, workmanship, feeling, and association*

The garage at 362 South Union Street is listed as historic on the South Union Street Historic District National Register. See attached listing sheet. Therefore, the standards of Section 5.4.8 apply to the garage.

(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 garage was traditionally used as an accessory structure to the primary dwelling. Conversion to residential use has been successful in other applications, with some allowances for alteration. In this instance, a garage use will remain, and an additional story for personal studio space will be added as a second floor. However, the historic appearance of the existing garage will be lost with the new proposal. If the DAB agrees that the garage is beyond repair and that a complete tear-down is warranted, then this historic element will be lost entirely, which would then warrant a replacement structure to be constructed.

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.*

   While not easily visible from the street, the proposal will result in the entire loss of a historical accessory structure. The applicant has provided photos showing the damage to the garage and how it is structurally unfit for continued use. If the DAB and the DRB (Development Review Board) agree that the structure is beyond repair, then this historic structure will be lost.

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.*

   The proposal involves the construction of a new structure that will not maintain consistency with the existing garage. However, it will be similar in size and style to that of a new garage that was permitted around the corner at 129 Spruce Street that is quite visible from the public street.

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

   The proposal involves removing the historic garage. If the DAB and DRB agree that it is beyond repair, then such a change will be acceptable.

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

   While the proposed structure will have a different appearance from the original garage, it will maintain the use of wood clapboard siding.

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.*

   The application proposes a full demolition of the existing garage. The applicant states that the garage is damaged and has been structurally unfit for repairs. Photos submitted show the damage, both inside and out. In accordance with subsection 'd' below, an assessment from a professional is required to verify its condition and if a full demo is necessary.

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.*

   No chemical or physical treatments are proposed. 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 identified archaeological resources at this location. Not applicable.

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.*

   The new structure will not detract from the property's historic appearance as viewed from the street. The existing garage is nearly impossible to see from the street, so its removal won't be easily noticed. With the exception of the siding, the proposed replacement structure will differentiate in architectural appearance from the historic principle home.

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.*

    The proposal involves an entirely new structure. It is understood that if it were to be removed in the future, the remaining form and integrity of the historic property (principle home and garden structure in the rear) would not be impaired.

(c) Demolition by Neglect:

No owner of a historic building, or lessee who is obligated by lease to maintain and repair such a structure (other than the interior), shall allow, cause, or permit the structure to suffer or experience demolition by neglect. Examples of such disrepair and deterioration include, but are not limited to, the following:

1. *Deterioration of walls or other vertical supports; walls, partitions or vertical supports that split, lean, list, or buckle, thus jeopardizing structural integrity;*
2. *Deterioration or inadequate foundations that jeopardize structural integrity;*
3. *Deterioration of roofs, ceilings, or other horizontal members;*
4. *Deterioration of fireplaces or chimneys;*
5. *Deterioration or crumbling exterior stucco or mortar;*
6. *Ineffective waterproofing of exterior walls, roof, or foundations, including broken windows or doors;*
7. *Lack of weather protection that jeopardizes the structural integrity of walls, roofs, plumbing, electricity, or overall structural integrity, including lack of paint, lack of adequate heating, and lack of adequate ventilation;*
8. *Vandalism caused by lack of reasonable security precautions; and/or*
9. *Deterioration of any feature so as to create a hazardous condition that could require demolition for public safety.*

In such cases, the building inspector shall notify the property owner of any violation of this section. Such person shall have sixty (60) days to remedy any such violation. In the event the violation is not corrected within sixty (60) days of notification, the city shall be authorized to perform all repairs necessary to correct the violation and to place a lien on the property for the costs of such repairs and reasonable administrative and legal fees incurred.

Per the photos submitted, it is clear that previous owners had failed to properly maintain the garage structure. The current owners purchased the property in June, 2018, and it would be difficult to determine just how far back in time the extent to which the garage had deteriorated by the time the property was transferred.

(d) Demolition of Historic Buildings:

The purpose of this subsection is:

- *To discourage the demolition of a historic building, and allow full consideration of alternatives to demolition, including rehabilitation, adaptive reuse, resale, or relocation;*
- *Provide a procedure and criteria regarding the consideration of a proposal for the demolition of a historic building; and*
- *To ensure that the community is compensated for the permanent loss of a historic resource by a redevelopment of clear and substantial benefit to the community, region, or state.*

1. Application for Demolition

For demolition applications involving a historic building, the applicant shall submit the following materials in addition to the submission requirements specified in Art. 3:

A. *A report from a licensed engineer or architect who is experienced in rehabilitation of historic structures regarding the soundness of the structure and its suitability for rehabilitation;*

   No such report has been submitted and should be in order for the DRB to consider the garage demolition. Photos submitted clearly show rotten/damaged siding and trim, interior wall and ceiling damage, and a cracked foundation. The image of the foundation alone on the garage's south side appears quite significant.

B. *A statement addressing compliance with each applicable review standard for demolition;*

   The application clearly intends for a complete reconstruction of the garage and additional living space for an ADU. While the applicant hasn't included in the application considerations for alternatives to demolition (rehabilitation, adaptive reuse, resale, or relocation), it appears that the most of the structure may not be salvageable due to rotten materials and a faulty foundation.

C. *Where a case for economic hardship is claimed, an economic feasibility report prepared by an architect, developer, or appraiser, or other person experienced in the rehabilitation and adaptive reuse of historic structures that addressed:*

   (i) the estimated market value of the property on which the structure lies, both before and after demolition or removal; and

   (ii) the feasibility of rehabilitation or reuse of the structure proposed for demolition or partial demolition;

   There is no claim for economic hardship.

D. *A redevelopment plan for the site, and a statement of the effect of the proposed redevelopment on the architectural and historical qualities of other structures and the character of the neighborhood around the sites; and*

   The application includes a plan for the redevelopment of the garage, while not affecting the other two listed historical structures on the property – the primary home at the front and the garden house in the rear.

E. *Elevations, drawings, plans, statements, and other materials which satisfy the submission requirements specified in Art. 3, for any replacement structure or structures to be erected or constructed pursuant to a development plan.*

   These materials are included in the application.

2. Standards for Review of Demolition

Demolition of a historic structure shall only be approved by the DRB pursuant to the provisions of Art. 3, Part 5 for Conditional Use Review and in accordance with the following standards:

A. *The structure proposed for demolition is structurally unsound despite ongoing efforts by the owner to properly maintain the structure; or*

Although there is no professional analysis provided that addresses the soundness of the garage, photos submitted indicate that it may be beyond simple maintenance efforts to maintain. Specifically, the foundation on the south wall appears to be significantly cracked, and much of the walls (exterior and interior) appear to be significantly damaged/rotten. Since the current owners purchased the property only two years ago, it seems that they 'adopted' a dilapidated historic garage.

B. The structure cannot be rehabilitated or reused on site as part of any economically beneficial use of the property in conformance with the intent and requirements of the underlying zoning district; and, the structure cannot be practicably moved to another site within the district; or

Even short of a professional analysis from an engineer or architect, the majority of the garage materials appear to be damaged/rotten beyond the point of reuse.

C. The proposed redevelopment of the site will provide a substantial community-wide benefit that outweighs the historic or architectural significance of the building proposed for demolition.

The redevelopment of the garage and additional ADU portion won't necessarily provide a community-wide benefit since it is for personal use and will be almost unseen from the street. The main point the applicants are trying to make is that the existing garage is damaged enough to warrant its demolition.

And all of the following:

D. The demolition and redevelopment proposal mitigates to the greatest extent practical any impact to the historical importance of other structures located on the property and adjacent properties;

The other two historic structures on the property (the home and the rear garden house) will remain as-is. While the garage can be seen from adjacent properties, it, as well as the garden house, are difficult to see, if at all, from the public street.

E. All historically and architecturally important design, features, construction techniques, examples of craftsmanship and materials have been properly documented using the applicable standards of the Historic American Building Survey (HABS) and made available to historians, architectural historians and others interested in Burlington's architectural history; and

The existing garage is documented in the South Union Street Historic District (National Listing), and photos are included with this application.

F. The applicant has agreed to redevelop the site after demolition pursuant to an approved redevelopment plan which provides for a replacement structure(s).

(i) Such a plan shall be compatible with the historic integrity and enhances the architectural character of the immediate area, neighborhood, and district;

The proposed replacement structure varies from the previous appearance, and may likely vary from other accessory structures in the immediate area. One such exception to this would be the recently approved garage at 129

Spruce Street that is completely new, and unique to the architectural stylings of similar accessory structures in the neighborhood.

(ii) *Such plans must include an acceptable timetable and guarantees which may include performance bonds/letters of credit for demolition and completion of the project; and*

The application includes a complete redevelopment; however no such timetable has been provided by the applicant. What is relevant here is that construction must commence within one year from the date of zoning permit issuance. Once that requirement has been met, the zoning permit is active for an additional 2 years (3 years total) in order to complete the project.

(iii) *The time between demolition and commencement of new construction generally shall not exceed six (6) months.*

See above. In order to keep the zoning permit effective, construction must start within a year of zoning permit approval.

This requirement may be waived if the applicant agrees to deed restrict the property to provide for open space or recreational uses where such a restriction constitutes a greater benefit to the community than the property's redevelopment.

The private property is in a developed residential neighborhood. This would not be likely.

3. **Deconstruction: Salvage and Reuse of Historic Building Materials**

The applicant shall be encouraged to sell or reclaim a structure and all historic building materials, or permit others to salvage them and to provide an opportunity for others to purchase or reclaim the building ot its materials for future use. An applicant may be required to advertise the availability of the structure and materials for sale or salvage in a local newspaper on at least three (3) occasions prior to demolition.

This should be applied to the applicant.

Items for the Board's consideration:

- Do the photos submitted provide enough evidence to determine that the existing garage is structurally unfit and eligible for demolition? If not, the applicant should hire a professional to provide an analysis of the garage's structural stability, and to discuss whether or not complete rehabilitation is warranted.
- The second story of the garage will need to be redesigned so that the north wall complies with the minimum side yard setback requirement. This will likely require shifting the north wall inward to achieve compliance.
- The applicant needs to demonstrate that the ADU portion complies with the requirement of Sec. 5.4.5 (a) (2) – in that it does not consist of more than 800 sf, or 30% of the gross floor area of the principal home, whichever is greater.
- Specific landscaping should be incorporated onto the site plan.
- A roof canopy is recommended over each man door to provide shelter from the weather.

- All exterior light fixtures need to be included on revised elevation drawings, and manufacturer spec sheets provided to staff to ensure compliance with Sec. 5.5.2 CDO.
- The location of mailboxes, meters, utility connections and mechanical equipment are required to be identified and illustrated on the site plan and building elevation as appropriate.
- Electrical service shall be undergrounded.
- The material for the patio shall be provided.

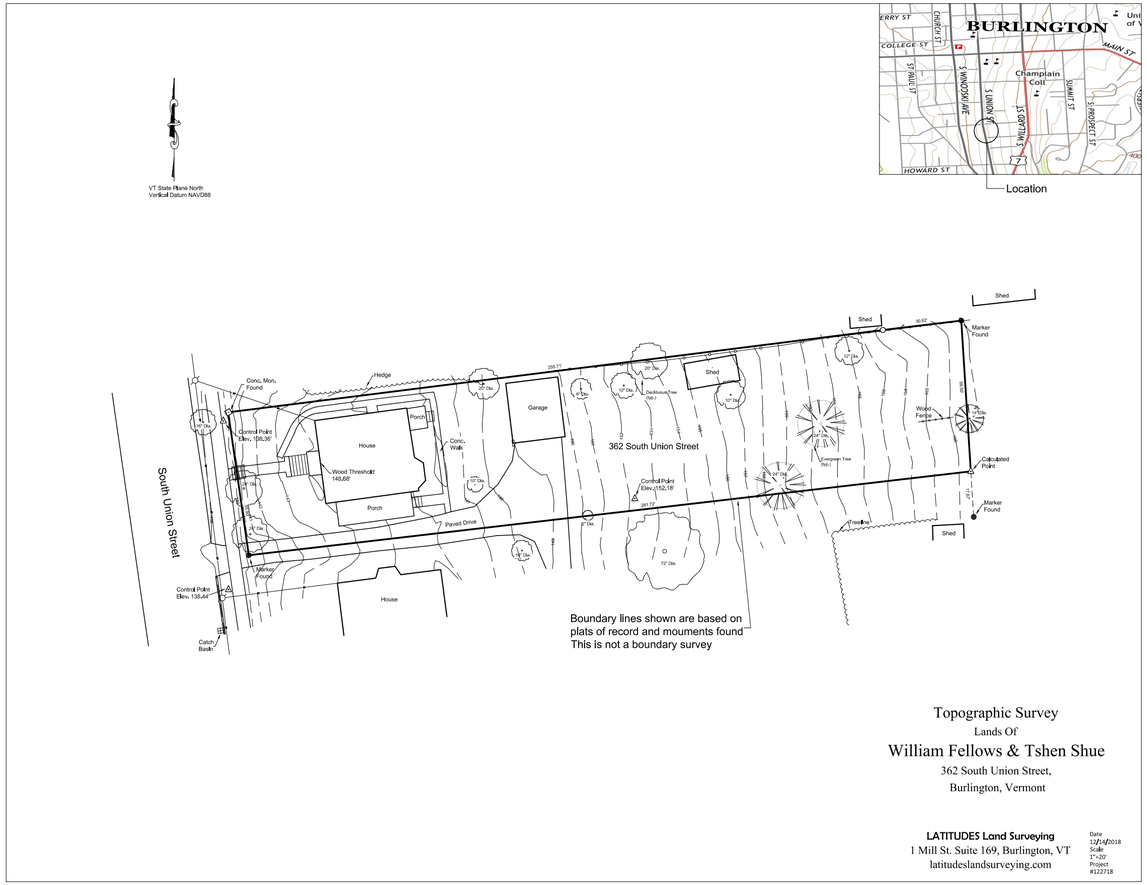
FELLOWS RESIDENCE

GARAGE REPLACEMENT & GUESTHOUSE

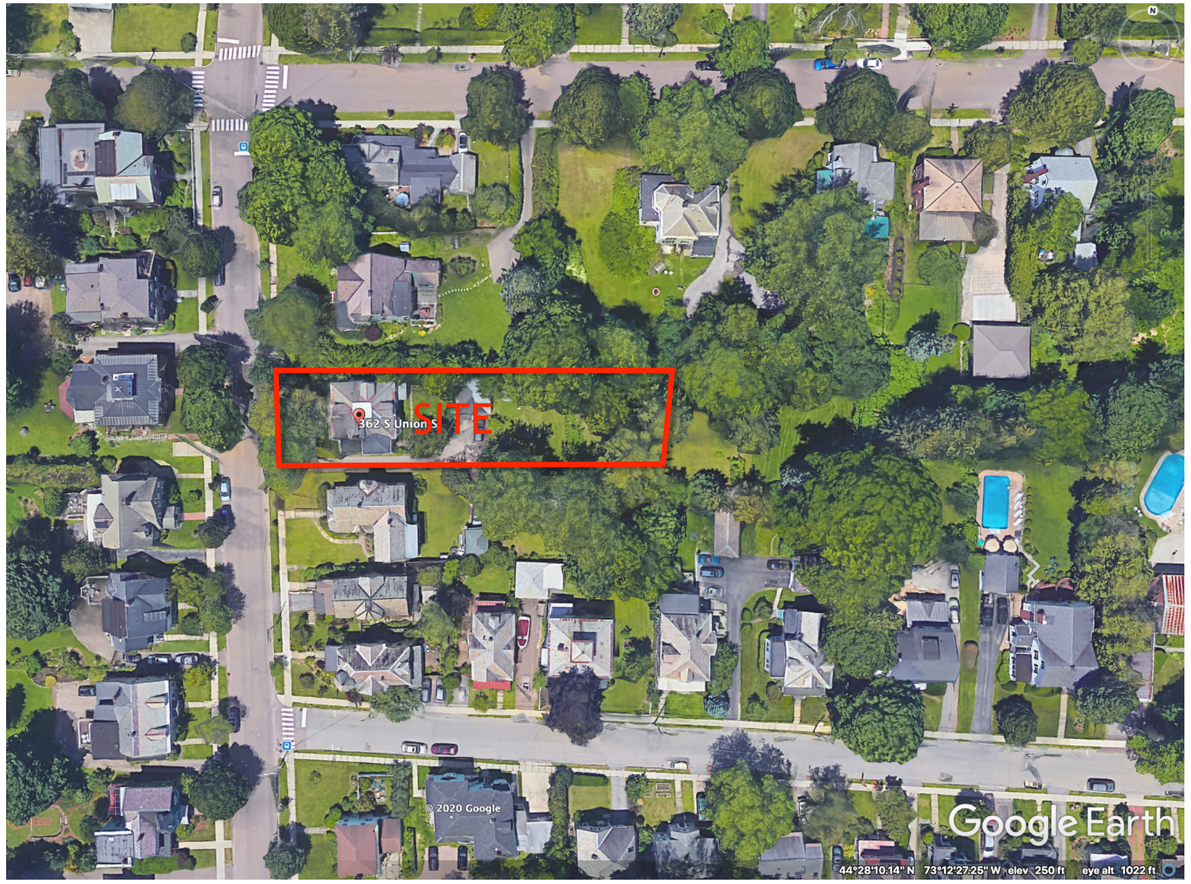
362 S UNION ST., BURLINGTON VT

DAB PRESENTATION

2020.07.14.



SITE SURVEY MAP



SITE GOOGLE EARTH MAP

FELLOWS RESIDENCE

GARAGE REPLACEMENT & GUESTHOUSE

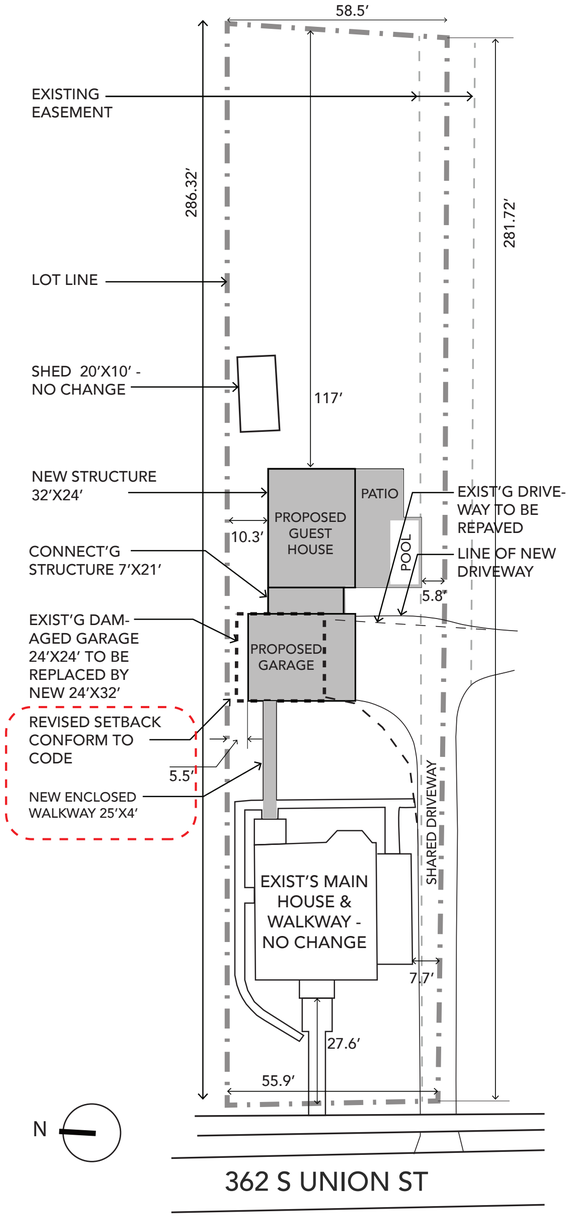
362 S UNION ST., BURLINGTON VT

MAPS

DAB Presentation

2020.07.14.

PHOTOS FROM THE STREET



COVERAGE CALCULATION

362 S UNION ST., BURLINGTON, VT
ZONE: RM
MAX. LOT COVERAGE 40%

EXISTING:

MAIN HOUSE	1203.5 SQFT
PORCH: FRONT\SIDE \BACK	381.5 SQFT
WALKWAYS	485 SQFT
GARAGE	576 SQFT
SHED	200 SQFT
SHARED DRIVEWAY	1360 SQFT
TOTAL	4,206 SQFT
Lot SIZE	16,553 sq feet
EXISTING COVERAGE	**25.4%**

PROPOSED:

MAIN HOUSE	1203.5 SQFT
PORCH: FRONT\SIDE \BACK	381.5 SQFT
WALKWAYS	485 SQFT
SHED	200 SQFT
NEW WALKWAY	100 SQFT
NEW GARAGE	696 SQFT
NEW CONNECTION	147 SQFT
NEW ACCESSORY	768 SQFT
NEW PATIO	433 SQFT
SHARED DRIVEWAY	1175 SQFT
TOTAL	5,589 SQFT
Lot SIZE	16,553 sq feet
NEW COVERAGE	**33.8%**

LEGENDS

- LOT LINE
- EXIST'G TO BE REPLACED
- PROPOSED BUILDING
- COVERAGE OUTLINE

WILLIAM FELLOWS & TSHEN SHUE
362 S UNION ST, BURLINGTON VT
JULY 13TH, 2020

FELLOWS RESIDENCE

GARAGE REPLACEMENT & GUESTHOUSE

362 S UNION ST., BURLINGTON VT

ZONING SITE PLAN AND CALCULATIONS

DAB Presentation
2020.07.14.

• PHOTOS OF THE EXISTING GARAGE

FELLOWS RESIDENCE

GARAGE REPLACEMENT & GUESTHOUSE

362 S UNION ST., BURLINGTON VT

EXISTING CONDITIONS

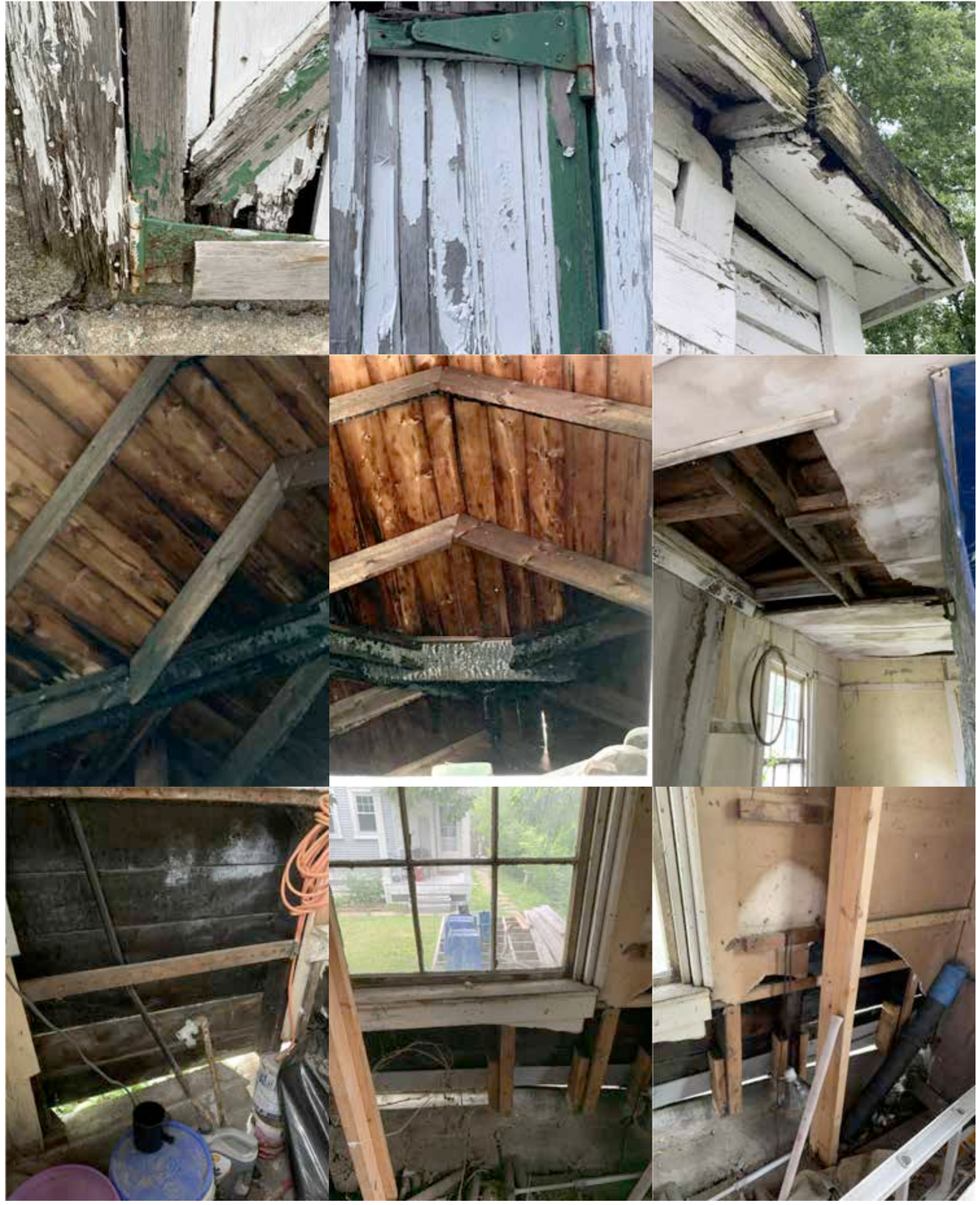
DAB Presentation

2020.07.14.

INTERIOR PHOTO SHOWS:

1. THE GARAGE STRUCTURAL FRAMEWORK IS SEVERELY DAMAGED AND BEYOND REPAIR.
2. THE BUILDING MATERIALS ARE ROTTEN; SEVERE MOLD CAN BE OBSERVED IN MULTIPLE SPOTS.
3. THE FLOOR GROUND IS BROKEN/WARPED.
4. THE WESTERN FOUNDATION WALL CRACKS OPEN ENTIRELY & THE WESTERN WALL IS SUPPORTED ON TEMPORARY VERTICAL TIMBERS ENTIRELY.

• PHOTOS OF THE EXISTING GARAGE



• PHOTOS OF THE EXISTING GARAGE

FELLOWS RESIDENCE

362 S UNION STREET
BURLINGTON, VT 05401

15 JUNE 2020

GARAGE REPLACEMENT & GUESTHOUSE

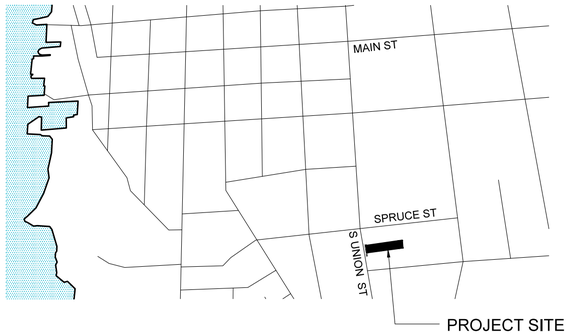
DRAWING LIST

■ ARCHITECTURAL

A-000.00	COVER SHEET
A-101.00	PROPOSED GROUND FLOOR PLAN
A-102.00	PROPOSED SECOND FLOOR PLAN
A-103.00	PROPOSED ROOF PLAN
A-104.00	PROPOSED LANDSCAPING PLAN
A-201.00	BUILDING ELEVATIONS & SECTIONS
A- 501.00	EXTERIOR WINDOW SCHEDULE
A- 502.00	EXTERIOR DOOR SCHEDULE
T- 001.00	GENERAL NOTES, LEGENDS & CODES
T- 002.00	SPECIFICATIONS
T- 003.00	SPECIFICATIONS
T- 004.00	SPECIFICATIONS
T- 005.00	SPECIFICATIONS
T- 006.00	SPECIFICATIONS
T- 007.00	SPECIFICATIONS
T- 008.00	SPECIFICATIONS
T- 009.00	SPECIFICATIONS

■ LOCATION PLAN

NTS

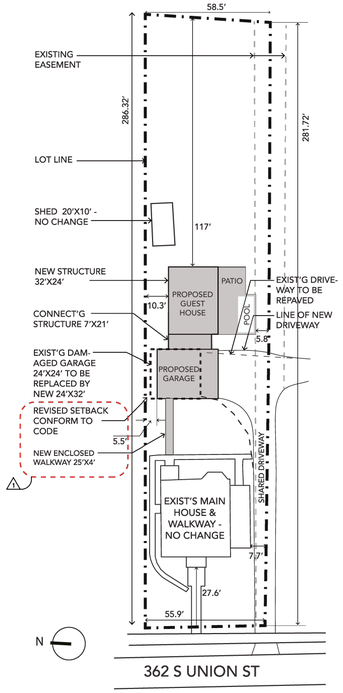


■ ZONING PLAN

NTS

ADDRESS: 362 S UNION ST., BURLINGTON, VT 05401

ZONING: R M



COVERAGE CALCULATION

362 S UNION ST., BURLINGTON, VT
ZONE: RM
MAX. LOT COVERAGE 40%

EXISTING:

MAIN HOUSE	1203.5 SQFT
PORCH:	381.5 SQFT
FRONT\SIDE	
\BACK	
WALKWAYS	485 SQFT
GARAGE	576 SQFT
SHED	200 SQFT
SHARED DRIVEWAY	1360 SQFT
TOTAL	4,206 SQFT
Lot SIZE	16,553 sq feet
EXISTING COVERAGE	**25.4%**

PROPOSED:

MAIN HOUSE	1203.5 SQFT
PORCH:	381.5 SQFT
FRONT\SIDE	
\BACK	
WALKWAYS	485 SQFT
SHED	200 SQFT
NEW WALKWAY	100 SQFT
NEW GARAGE	696 SQFT
NEW CONNECTION	147 SQFT
NEW ACCESSORY	768 SQFT
NEW PATIO	433 SQFT
SHARED DRIVEWAY	1175 SQFT
TOTAL	5,589 SQFT
Lot SIZE	16,553 sq feet
NEW COVERAGE	**33.8%**

LEGENDS

- LOT LINE
- EXIST'G TO BE REPLACED
- PROPOSED BUILDING
- COVERAGE OUTLINE

WILLIAM FELLOWS & TSHEN SHUE
362 S UNION ST, BURLINGTON VT
JULY 13TH, 2020

Project

FELLOWS RESIDENCE
GARAGE REPLACEMENT & GUESTHOUSE

362 S UNION STREET
BURLINGTON, VT 05401

Architect

W F A

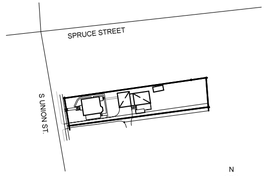
362 S UNION STREET
BURLINGTON VT 05401
T 917 923 5578

Civil Engineer

Mechanical / Electrical / Plumbing Engineer

Structural Engineer

PREMISES: 362 S UNION ST., BURLINGTON, VT
ZONING: R - MEDIUM DENSITY



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Seal

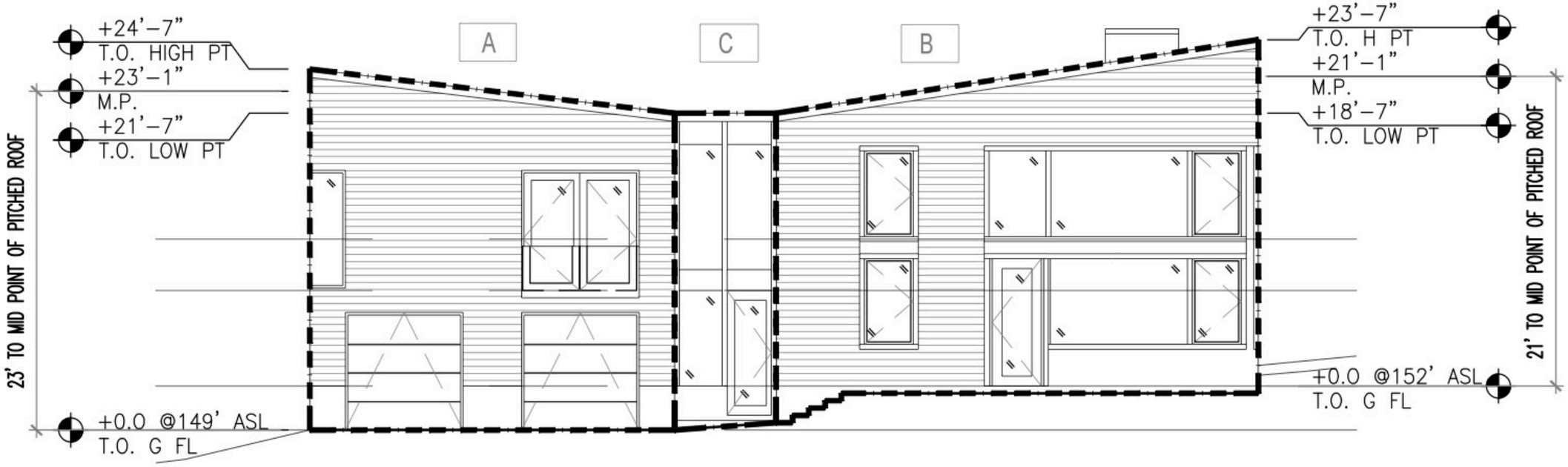
Revision	Date	Remarks
1	07.13.2020	

Drawing Title

COVERSHEET

Project No. 20-002
Date 06/15/2020
Scale AS NOTED
Drawn / Checked TS

Drawing No. A-000.00



FELLOWS RESIDENCE

GARAGE REPLACEMENT & GUESTHOUSE

362 S UNION ST., BURLINGTON VT

BUILDING HEIGHT CALCULATIONS

DAB Presentation

2020.07.14.

01 PROPOSED FIRST FLOOR PLAN
1/4" = 1'-0"

N

EXTERIOR FINISH

EF-1 LOCAL FIELD STONE

NOTE

ALL UTILITY CONNECTIONS SHALL BE UNDERGROUND BACK TO MAIN

Project

FELLOWS RESIDENCE

GARAGE REPLACEMENT & GUESTHOUSE

362 S UNION STREET
BURLINGTON, VT 05401

Architect

W F A

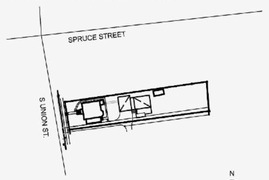
362 S UNION STREET
BURLINGTON VT 05401
T 917 923 8578

Civil Engineer

Mechanical / Electrical / Plumbing Engineer

Structural Engineer

PREMISES: 362 S UNION ST., BURLINGTON, VT
ZONING: R - MEDIUM DENSITY



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Seal

Revision	Date	Remarks
1	07.13.2020	

Drawing Title

PROPOSED PLANS

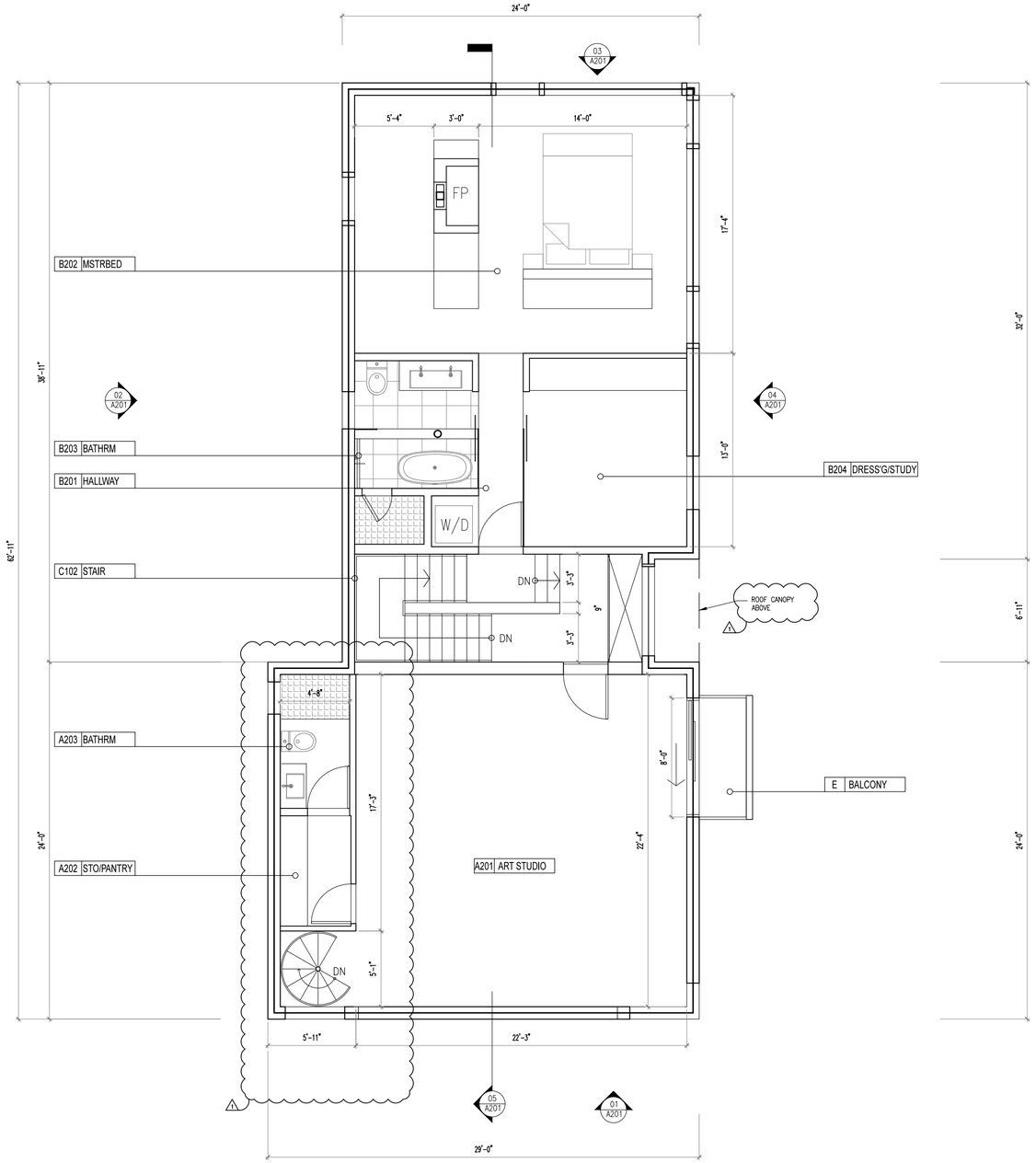
Project No. 20-002

Date 08/15/2020

Scale AS NOTED

Drawn / Checked TS

Drawing No. A-101.00



01 PROPOSED 2ND FLOOR PLAN
1/4" = 1'-0"

N

Project

FELLOWS RESIDENCE
GARAGE REPLACEMENT & GUESTHOUSE

362 S UNION STREET
BURLINGTON, VT 05401

Architect

W F A

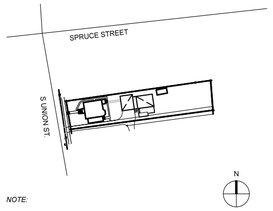
362 S UNION STREET
BURLINGTON VT 05401
T 917 923 8578

Civil Engineer

Mechanical / Electrical / Plumbing Engineer

Structural Engineer

PREMISES: 362 S UNION ST., BURLINGTON, VT
ZONING: R - MEDIUM DENSITY



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Seal

Revision	Date	Remarks
1	07.13.2020	

Drawing Title

PROPOSED PLANS

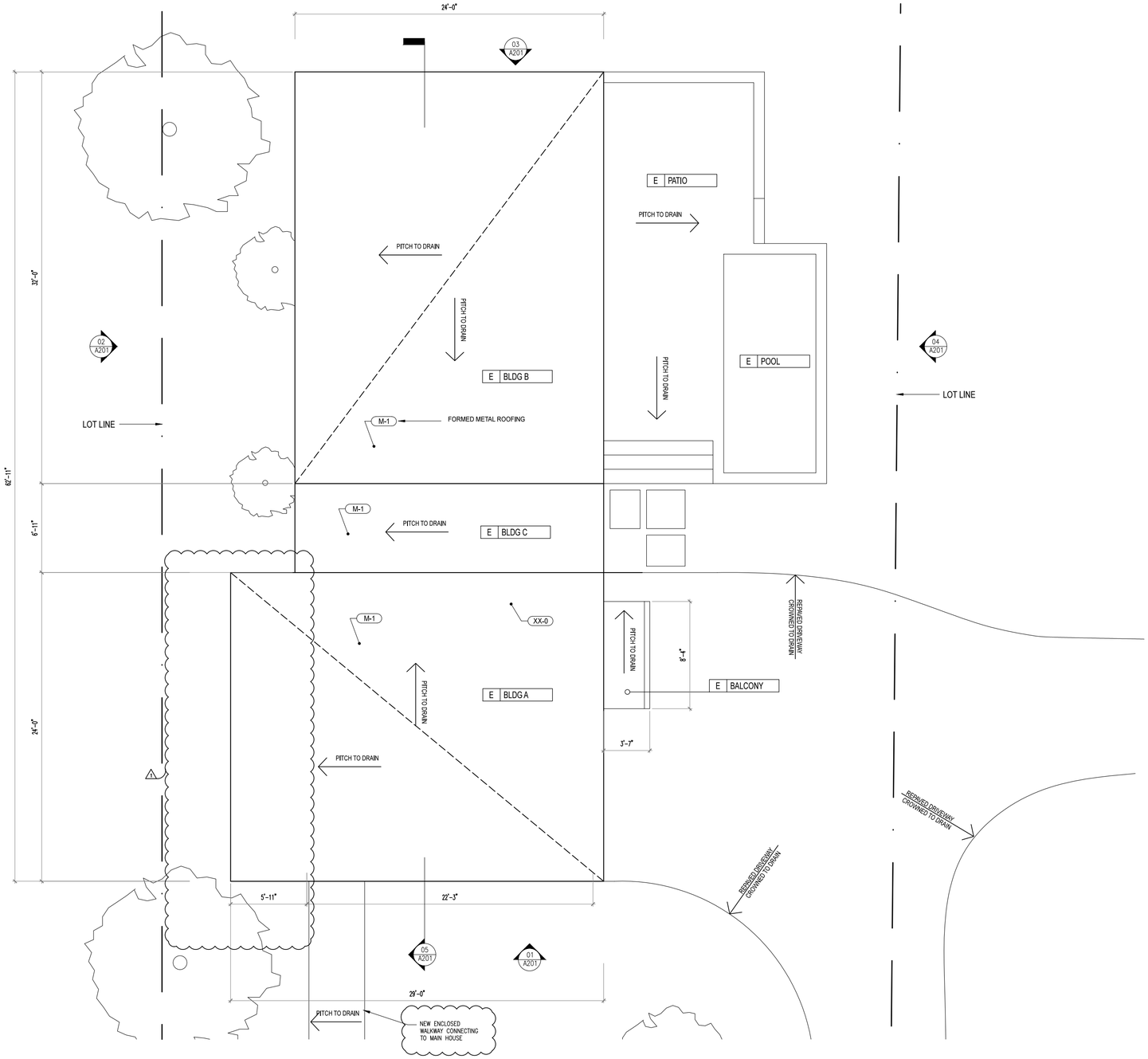
Project No.
20-002

Date
06/15/2020

Scale
AS NOTED

Drawn / Checked
TS

Drawing No.
A-102.00



01 PROPOSED ROOF/SITE PLAN
1/4" = 1'-0"

EXTERIOR FINISH LEGEND

WALL

M-1	FORMED METAL WALL PANELS / WESTERN RIB BY WESTERN STATES METAL ROOFING
WD-1	MILL GRADE. PTD, CEDAR, CLAPBOARD 1X8 WD SIDING
C-1	WATER SEALED CONCRETE RETAINING WALL

ROOF

M-1	FORMED METAL ROOFING / WESTERN RIB BY WESTERN STATES METAL ROOFING

TAG LEGEND

E.0.0	EXTERIOR DOOR NUMBER SEE SCHEDULE A-501
X	WINDOW TYPE NUMBER SEE SCHEDULE A-500
XX-0	EXTERIOR FINISH

Project

FELLOWS RESIDENCE

GARAGE REPLACEMENT & GUESTHOUSE

362 S UNION STREET
BURLINGTON, VT 05401

Architect

W F A

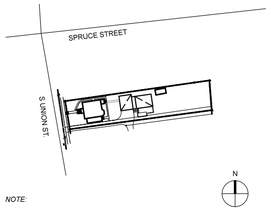
362 S UNION STREET
BURLINGTON VT 05401
T. 917 923 8578

Civil Engineer

Mechanical / Electrical / Plumbing Engineer

Structural Engineer

PREMISES: 362 S UNION ST., BURLINGTON, VT
ZONING: R - MEDIUM DENSITY



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Seal

Revision	Date	Remarks
1	07.13.2020	

Drawing Title

PROPOSED PLANS

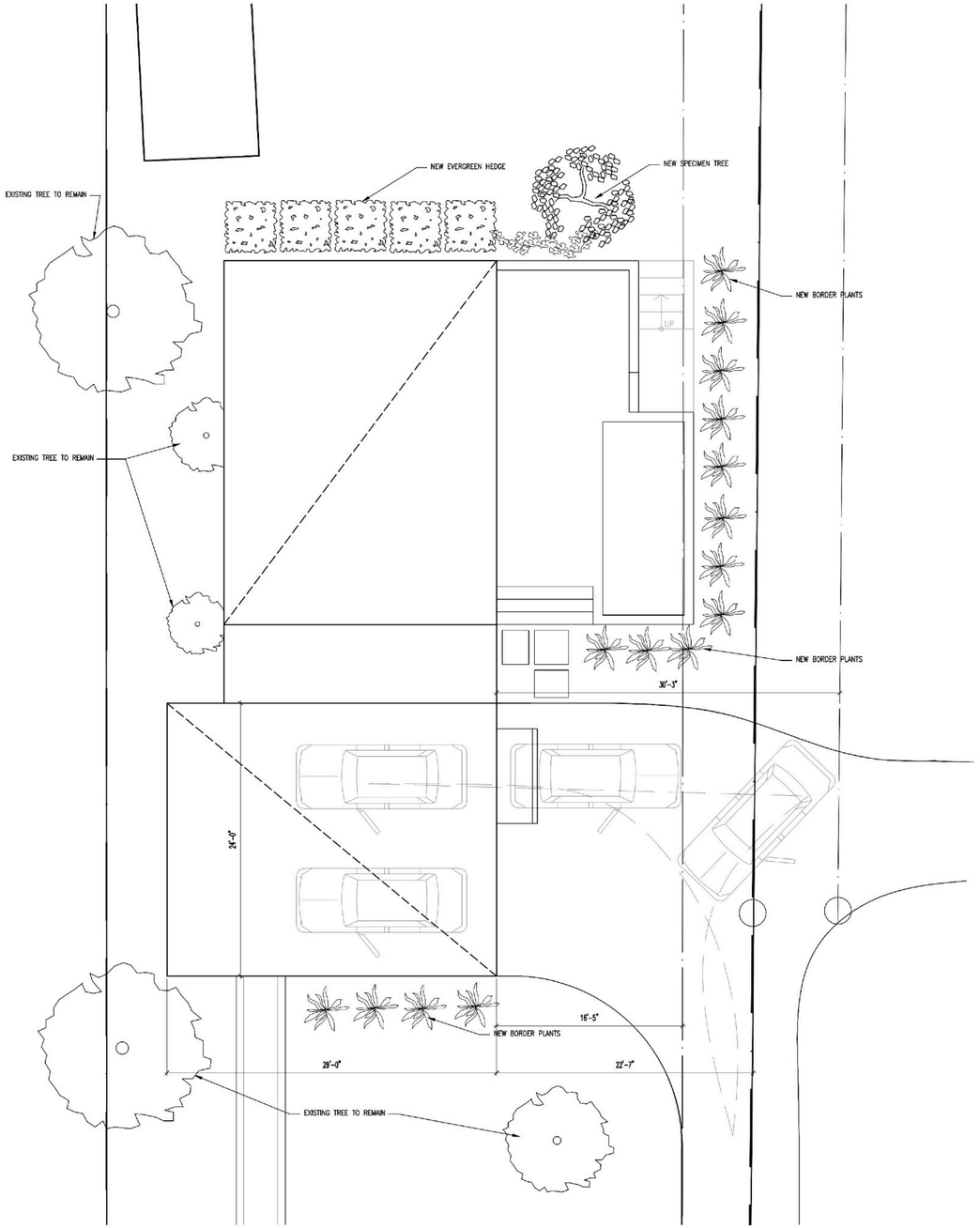
Project No. 20-002

Date 06/15/2020

Scale AS NOTED

Drawn / Checked TS

Drawing No. A-103.00



01 PROPOSED LANDSCAPING PLAN
1/4" = 1'-0"

N

Project

FELLOWS RESIDENCE
GARAGE REPLACEMENT & GUESTHOUSE

362 S UNION STREET
BURLINGTON, VT 05401

Architect

W F A

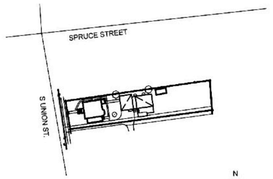
362 S UNION STREET
BURLINGTON VT 05401
T. 917 923 8578

Civil Engineer

Mechanical / Electrical / Plumbing Engineer

Structural Engineer

PREMISES: 362 S UNION ST., BURLINGTON, VT
ZONING: R - MEDIUM DENSITY



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Seal

Revision	Date	Remarks

Drawing Title

PROPOSED PLANS

Project No.
20-002

Date
06/15/2020

Scale
AS NOTED

Drawn / Checked
TS

Drawing No.
A-104.00

FELLOWS RESIDENCE

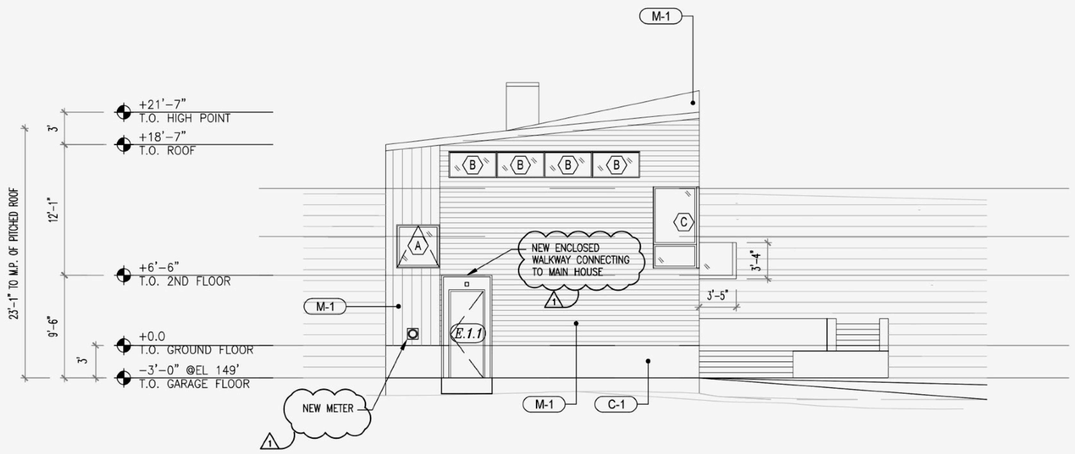
GARAGE REPLACEMENT & GUESTHOUSE

362 S UNION ST., BURLINGTON VT

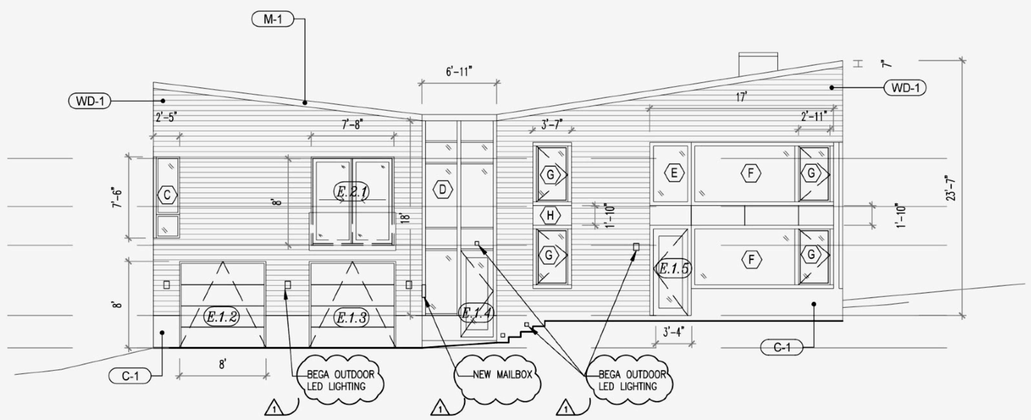
3D RENDERINGS

DAB Presentation

2020.07.14.



01 WEST ELEVATION/ BLDG A
1/8" = 1'-0"



02 SOUTH ELEVATION
1/8" = 1'-0"

EXTERIOR FINISH LEGEND

WALL

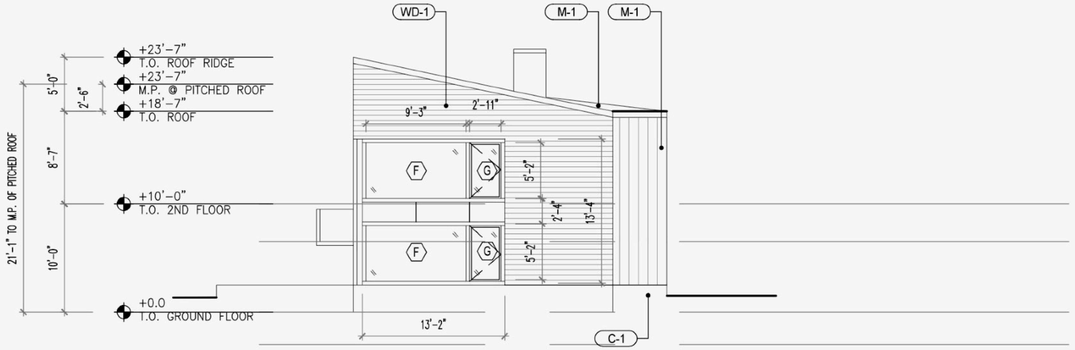
M-1	FORMED METAL WALL PANELS/WESTERN RIB BY WESTERN STATES METAL ROOFING
WD-1	MILL GRADE, PTD. CEDAR, CLAPBOARD 1X8 WD SIDING
C-1	WATER SEALED CONCRETE RETAINING WALL

ROOF

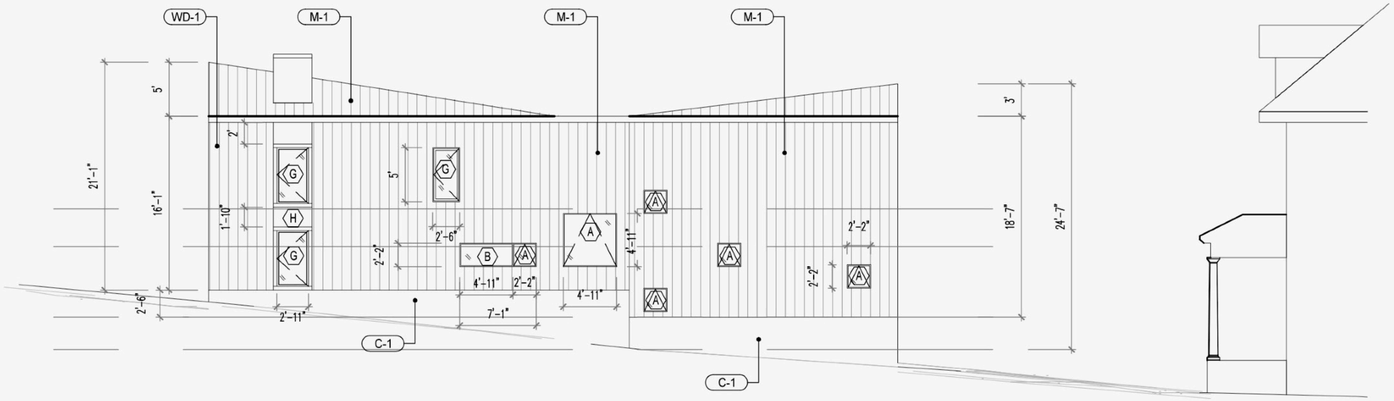
M-1	FORMED METAL ROOFING / WESTERN RIB BY WESTERN STATES METAL ROOFING

TAG LEGEND

E.0.0	EXTERIOR DOOR NUMBER SEE SCHEDULE A-501
X	WINDOW TYPE NUMBER SEE SCHEDULE A-500
XX-0	EXTERIOR FINISH



03 EAST ELEVATION BLDG B
1/8" = 1'-0"



04 NORTH ELEVATION
1/8" = 1'-0"

FELLOWS RESIDENCE

GARAGE REPLACEMENT & GUESTHOUSE

362 S UNION ST., BURLINGTON VT

ELEVATIONS

DAB Presentation

2020.07.14.

FELLOWS RESIDENCE

GARAGE REPLACEMENT & GUESTHOUSE

362 S UNION ST., BURLINGTON VT

DAB PRESENTATION

2020.07.14.

THANK YOU!

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

Eric Morrow, Chair
Matt Bushey, Vice Chair
Tom Cullins
Ron Wanamaker
Karyn Norwood
Vacant, Alternate
Vacant, Alternate

DESIGN ADVISORY BOARD
Tuesday July 14, 2020
Remote Meeting via Zoom

Present: Eric Morrow, Matt Bushey, Ron Wanamaker, Karyn Norwood

Absent: Tom Cullins.

Staff present: Mary O'Neil, Ryan Morrison

Applicants and guests present: Greg Doremus, Bruce Baker, Willam Fellows, Tshen Shue

Session I – 3:00 PM – 3:15 PM

DAB Reorganizational Meeting for 2021

Appointments:
Chair: Eric Morrow
Vice Chair: Matthew Bushey
Representative to the PCOC: Matthew Bushey
Historic Preservation Review Committee: Karyn Norwood, Ron Wanamaker, Matthew Bushey.

Session II – 3:15 PM – 4:15 PM

20-0717CA/MA; 273 Pearl Street (RH, Ward 8E) Triple Tree Group, LLC (Bruce Baker, Greg Doremus)
Planned Unit Development involving 273 Pearl St, 11 Hungerford Terrace, 15 Hungerford Terrace, and 21 Hungerford Terrace. Demolish porch and move garage at 21 Hungerford; demolish garage at 11 Hungerford. Construct 12-unit residential building with related parking and supporting infrastructure.

Motion by Ron Wanamaker: I move we table the application to give the applicants an opportunity to identify design solutions.
2nd – Matthew Bushey
Vote 3-0 (Karyn Norwood not participating as she has not yet taken her oath of office.)
Motion carries.

Session III – 4:15-5:00 PM

3. 20-0971CA/CU; 362 South Union Street (RL, Ward 6S) William Fellows
Demolish garage and construct attached garage and second dwelling unit.

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).

Motion by Matt Bushey: I move that we approve the demolition of the existing garage based on the applicant's sufficient reasons that warrant the demolition, including the additional documentation (photos); and that we approve the project as submitted. Further, with the applicant being an architect, he is qualified to make the determination that the garage is not structurally sound.

2nd: Ron Wanamaker

Vote: 3-0
Motion carries.

Session IV – 5:00-5:15 PM

Discussion of making motions, Roberts Rules relative to Zoom meetings.