



TOWN OF
MONTAGUE
MASSACHUSETTS

TOWN HALL
One Avenue A
Turners Falls, MA 01376

PLANNING BOARD
(413) 863-3200 ext. 112
Planner@montague-ma.gov



MONTAGUE PLANNING BOARD

APPLICATION FOR PLAN APPROVAL UNDER SMART GROWTH OVERLAY 40R DISTRICTS

Date 7/22/26

Pursuant to the provisions of Section 10 of the Montague Zoning Bylaw, the undersigned herewith submits the accompanying application for a Plan Approval as described below and detailed in the supporting documentation which is incorporated into and made part of this application.

APPLICABLE SMART GROWTH DISTRICT: Subdistrict B

NATURE OF REQUEST (Check and Describe as Appropriate):

- ☐ a. Multi-Family Development
☐ b. Mixed-Use Development
☒ c. Other (Describe Construct 6 new single family homes)

GENERAL DESCRIPTION OF REQUEST:

Requesting site plan approval for the development of six new affordable homeownership units.

NUMBER OF DWELLING UNITS PROPOSED: six

NUMBER OF AFFORDABLE DWELLING UNITS PROPOSED: six

SQUARE FOOTAGE OF NONRESIDENTIAL SPACE PROPOSED: zero

1. Applicant Franklin Hampshire Habitat for Humanity, Inc.

Address PO Box 60642 Florence, MA 01062

Telephone 413-586-5430 x106

Email Address: megan@fhhabitat.org

2. Owner (if not applicant) Town of Montague

Address _____

Email Address: _____

3. Site Plan Preparer Terry Reynolds

Title or License Civil Engineer

Address 152 Maplewood Terrace Florence, MA 01062

Telephone 413-387-8078



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Email Address: terry@treynoldsengineering.com

4. Subsidizing agency contact Information

Name of Subsidizing Agency/Program: MassHousing

Contact Person: Amarillys Rodriguez

Address One Beacon Street, Boston, MA 02108

Telephone 617-854-1116

Email Address: arodriguez@masshousing.com

5. Deed of property recorded in the Franklin County Registry of Deeds,
Book 1165 Page 584

6. Location and description of property (street and number if any) _____
Vacant lot on First Street - .65 acres more or less

Assessors Map # 4 Parcel # Lot 31

7. The subject property is presently in underlying zoning district(s) – Section 4: Neighborhood Business

8. Is the property in an Overlay District(s) other than the Smart Growth Zoning District (Section 6)?
No If so, what Overlay District(s): n/a

10. Is the subject property located in a National Historic District or listed as a Priority Heritage
Landscape? No If so, which one? n/a

11. Does the subject property abut a designated Scenic Roadway? no

12. Is the subject property within the designated Montague Economic Development and Industrial
Corporation (EDIC) Planning Areas? No

13. Are the materials required by Section 10 and the Administrative Regulations attached? Yes

I, as applicant, certify that the application and all attachments are correct and complete.


Signature of Applicant

FOR PLANNING BOARD OFFICE USE:

13. Amount of Application Fee: N/A

14. Fee Paid? Yes _____ No _____

FOR TOWN CLERK (indicate date and time received:

Submission received on (Date) July 28, 2026 at (time) 10:17 am

Signature Aust. Tina Suleja

Great Falls First Street Project Narrative

40R Site Plan Review Application ~ July 22, 2026



Required Attachments to the Application

In addition to the requirements of the zoning regulations, the Town of Montague has created the “Montague Planning Board Administrative Regulations Regarding Applications and Plan Review Under Smart Growth Overlay 40R District”. Section 12 of these regulations outline the minimum requirements for information to accompany an application. This information is provided below.

Project Narrative

Franklin Hampshire Habitat for Humanity (FHHH) plans to build six detached homes on individual lots with frontage on First Street in Montague, MA. Six families earning up to 60% of the area median income will help build and buy their future homes in this development. The project site was the home to former mill housing a hundred years ago, but has been an underutilized municipal parking lot for many decades.

FHHH’s rehab of the property responds to the city’s Smart Growth Overlay District plan for the site for the purpose of encouraging the revitalization of underutilized properties to benefit the general health and welfare of the city’s residents and the region. These homes with front porches on First street will increase eyes on the street as people traverse from Avenue A to Unity Park and take advantage of the nearby amenities of the bike path and downtown area. While this project is clearly a benefit to the six families who will build and buy their first homes, the community will also reap the benefits of the remediation of a blighted property and an increase in its affordable homeownership inventory of six units in perpetuity.

Development Narrative

We propose to build six energy efficient detached homes. Five of the homes will be two-story, 3-bedroom “townhouse” style homes and one will be built as a single-story 2-bedroom home and adaptable to meet the accessibility needs of someone in a wheelchair. The three-bedroom homes will each be approximately 1,500 square feet and the two-bedroom home will be approximately 1,000 square feet.

Zoning summary

Zoning allows for the use of EITHER the underlying zoning or the overlay district. We have chosen to meet the requirements of the overlay district.

Requirement	SGOD – Subdistrict B	Proposed	Waiver ?
10.6.1 Density	Min density of 8 units per acre (= 1 unit on .125 acre min)	6 units on .65 acres (.106 units per acre)	None needed
10.6.2 Min Project area	4,000 square feet	28,000 sq ft	None needed

10.6.2 Min frontage	30 feet	39 feet +/- for two story homes 64.3 feet +/- for single story house	None needed
10.6.2 Min front yard setback	Zero feet	30 feet +/- feet for 2 story and 17+/- feet for 1-story home	None needed
10.6.2 Max front yard setback	No maximum setback		None needed
10.6.2 Min side yard setback	No requirement between buildings within a Project; 10 feet between any project building and the boundary of the applicable sub-district	10 feet to side yard for the accessible unit 15 feet +/- to side yard on shady glen side	None needed
10.6.2 Min rear yard setback	No requirement between buildings within a Project; 10 feet between any project building and the boundary of the applicable sub-district	31 feet +/- to rear for 2-story Accessible unit 64 feet +/-	None needed
10.6.2 Access	There shall be not more than one driveway (curb cut) per 50 feet of frontage	One curb cut on first street, driveway access on alley	Not needed, alley access is not on frontage
10.6.3 Open Space	A minimum of 20% of the total project area shall be open space.	Over 50% open space	None needed, yards meet requirement
10.6.4 Building Height Maximum	40 feet	3 bedroom - 26' to peak Single story - 17' to peak	None needed
10.7.1 Number of parking spaces	Minimum 1 space per unit, Maximum 2 spaces per unit.	2 spaces per unit for 2 story houses 1 space for single story	Only 2 spaces per unit will be retained as part of the project, extra public parking to be deeded back to the town

10.7.4 Location of parking	Surface parking lot requirements	No “parking lots” only private driveways and parking spaces	Yes, since Habitat will not retain ownership of the public parking lot long-term, we are requesting waivers of surface parking lot requirements.
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Requirement	Neighborhood Business Req – n/a
5.5.1 Lot size	10,000 square feet
5.5.1 Frontage	75 feet
5.5.1 Front set back	15 feet
5.5.1 Side set back	10 feet
5.5.1 Rear set back	30 feet
5.5.1 Max Bldg Height	28 feet
5.5.2 Accessory Structures	Sheds less than 120 sf, side and rear setback minimum 3 feet
7.2.2 Min Parking Spaces	1 per unit
7.2.5 Parking Design	No backing on public way, 18’ wide for two-way use, storage for plowed snow, adequate lighting, etc.
7.4.2 Access over front line	Vehicular egress and access to a lot must be across the front line

Site Management Narrative

All six homes will be independently owned by the low-income homebuyers selected through Habitat’s program. The only common infrastructure will be underground utilities crossing lots, with rights to repair outlined in deeds and easements.

Each homeowner will be provided with a small shed that can be utilized for the storage of trash containers, lawn equipment or other items for landscaping.

Parking for the homeowners with 2 story homes will be provided on the First Street Alley. The small parking areas will most likely be cleared with snow shovels or snow blowers by the homeowners. Their sheds will be conveniently located next to their parking.

The one-story wheelchair adaptable home will have a driveway off of First Street and may choose to get their driveway plowed. The driveway has been designed in such a way that snow could be pushed to the back after a homeowner moves their car. The shed for this homeowner will be located off of the parking area for ease of use.

Photos of Adjacent Properties



To the North East is town hall



To the North West - Shady Glen Diner



To the South, across the Alley is a residential area



Neighbors have been parking their cars on the alleyway and have dumpsters on the lot



The vacant lot to the South East is for lease

Project Phasing

Summer 2026	Permitting and design
Fall 2026	Tree clearing
Spring 2027	Construction to start
Spring 2028-Fall 2029	staggered construction and completions
Spring 2028	Initial sale of 3 units
Fall 2029	Final sale of last 3 units

After taking ownership of the property in fall 2026, Habitat will clear trees on the alley side and erect a construction fence around the project.

The initial site work to stabilize grades and establish parking at the alley will commence in spring 2027. This initial site work will include rough grading and pouring foundations for all five of the two-story homes. The first 3 homes closest to the Shady Glen, will be prioritized for framing and roofing over the summer and fall of 2027. The next two homes will have the first floor framed, capped and tarped to stabilize over the winter of 2027-2028 if capacity does not allow us to get these additional homes closed in fully before the winter.

Waivers Requested and Reasons for Waivers

Depending on the interpretation of the regulations we may or may not require any waivers. Here are the gray areas that we request clarification or potentially a waiver:

- 10.6.2 (Lot Area, Frontage, and Yard Setbacks) limits curb cuts to every 50'
 - We are utilizing the existing curb cut for the single-story home that needs zero-step entrances from their parking.
 - The two-story homes do not have “curb cuts” per se, because their driveway access is off the alley and not the street.
- Access over frontage is required in section 7.4.2 (Lot Access: Access over front lot line) of the zoning, but the design guidelines encourage access to be from the alley for homes in subdistrict B (see Section III, A3 Garages and Driveways of the Design guidelines).
 - We are following the design guidelines intent by having five of the homes have parking access from the alley.
- 10.7.1 Parking requirements: Number of parking spaces. This section of the zoning requires a minimum of 1 parking space and a maximum of 2 parking spaces per residential unit.
 - Habitat has proposed 2 private parking spaces per dwelling unit.
 - An additional 6 public parking spaces will be created and deeded back to the town upon project completion.

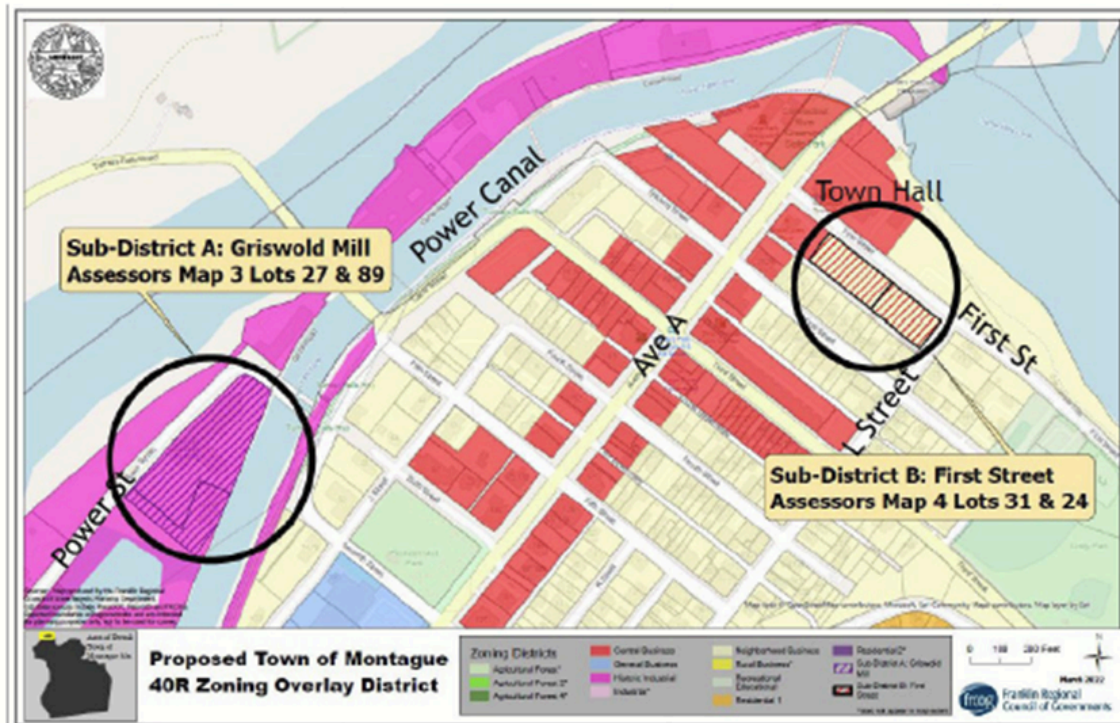
Project Plans

Attached plans include:

1. Site plan by T Reynolds Engineering dated July 14, 2026
2. Elevations by Kuhn Riddle Architects dated Jul 22, 2026
3. Landscape plan by studio FARM landscape architects dated Jul 16, 2026
4. ANR plan by Holmberg and Associates dated July 15, 2026

Relationship to Other Developments

The Neighborhood Business District contains a mix of residential and business uses. The residential use we have proposed is complementary to the residential use on neighboring streets – like second street and L street. The other open parcel in sub-district B is currently undeveloped and is open space. Proximity to the town hall, downtown, the bike bath, unity park is all complementary to residential use.



Subdistrict B: First Street



From planning board presentation to select board about creation of 40R Smart Growth District

Construction Logistics Plan

i. Construction timeline and expected completion dates for each phase;

Summer 2026	Permitting and design
Fall 2026	Tree clearing and site security
Spring 2027	Construction to start
Spring 2028-Fall 2029	staggered construction and completions
Spring 2028	Initial sale of 3 units
Fall 2029	Final sale of last 3 units

ii. Location of parking for contractors;

Limited onsite parking can be facilitated in the driveway area of the one-story home as needed for trades people. Habitat community volunteers will park on street on Avenue A or in nearby public parking areas at town hall and Unity Park.

iii. Location of on-site and off-site staging, such as for construction vehicles, including cement trucks;

The lots are small enough that they are accessible from public ways – both the alley and the street. The houses are also small enough that cement truck staging for long lengths of time will not be required.

iv. Location of fencing around construction site;

A construction fence will be erected around the entirety of the site with an access gate by the existing curb cut on first street. Sections of fencing will be moved as needed by the contractor

v. Details and locations of directional, marketing and job signs related to construction;

We will post no-trespassing signs on the fence. Habitat will also hang temporary vinyl banners from the construction fencing listing key sponsors of the project and providing contact information for the public to learn more about the project and contact Habitat.

vi. Emergency contact information, such as name and cell phone number of developer and contractor;

Megan McDonough, FHHS Executive Director, cell phone 413-218-0683, work phone 413-586-5430

Michael Broad, Independent Construction Consultant, cell phone 413-636-6747

Donovan Lee, FHHS Construction Coordinator, cell phone 413-409-9312

vii. Information about construction signs, including advertising signs for contractor, developer and architect;

Habitat will hang vinyl banners from the construction fencing listing key sponsors of the project and providing contact information for the public to learn more about the project.

viii. the company affiliation, name, address and business telephone number of the construction superintendent who shall have overall responsibility for construction activities on the Project Site;

Michael Broad Construction Services
PO Box 94, 36 Briggs Road, Shutesbury, MA 01072
cell phone 413-636-6747

ix. proof that "Dig-Safe" has been notified at least 72 hours prior to the start of any site work; Any other relevant information that they may request.

Dig safe notification will be included in our site work job specifications and site plan notes.

Smart Grown Overlay Administrative Regulations Compliance Narrative

In addition to the requirements of the zoning regulations, the Town of Montague has created the “Montague Planning Board Administrative Regulations Regarding Applications and Plan Review Under Smart Growth Overlay 40R District”. This next section of our application seeks to provide the additional information requested in these administrative regulations.

Pre-Application Process & Review

Pre-application review was completed primarily in 2023 when the initial building and site concepts were developed.

- Ongoing communication and discussion with town planner
- Pre-application review meeting with town staff September 11, 2023
- Neighborhood meeting September 30, 2023
- Second pre-application review meeting with town staff June 9, 2026

Additional Requirements: Design Standards for Smart Growth Zoning District

Section 9a of the 40R Administrative Guidelines asks the applicant to provide a description as to how the project, as designed, conforms to the adopted Design Standards for the applicable Smart Growth Overlay Sub-District. Below you will find commentary on the design standards that apply to Sub District B (First Street) where the Habitat project is located.

Guiding Principles

Franklin Hampshire Habitat for Humanity has engaged a talented group of professional designers to achieve our goal of building homes that will be complementary to nearby buildings and structures, consistent with town plans and provide high-density quality development. We believe our project strikes that balance of bringing something new to town that is consistent with the character of building types, streetscapes and community features.

Guidelines for Project Design: Protection of Natural, Cultural and Historic Features

The site where we are building was historically a residential site for millworker housing many years ago. Those historic buildings have long since been removed from the site, but the re-establishment of this site as a place for worker housing respects its history.

Trees along First Street are being prioritized for preservation.

Much of the historic natural and cultural features were removed with the creation of an asphalt parking lot. This underutilized area will be enhanced with the addition of new housing.

Guidelines for Project Design: Building Placement

The building placement of the six homes tucked back from the road closer to the alley, allows us to prioritize the preservation of the trees near the public sidewalk. Trees along the First Street Alley will be removed to provide solar access, complete grading for the construction of the homes and parking. There are no wetlands or other significant natural resources to preserve.

Given the small size of the overall lots, the individual lots are simple rectangles. The symmetry of the five row-style homes are then offset by the single-story home creating a transition to the nearby vacant lot.

By building six detached homes, we avoid “uninteresting box like forms” that can occur from large multi-family buildings that go on for 100 feet or more. The massing of the Habitat homes is at a similar residential scale to the other homes on nearby L and second street.

Habitat will not be building any garages, but will provide small sheds for each homeowner that are subservient in size and scale to the overall homes.

Guidelines for Project Design: Green Building and Renewable Energy

We are working closely with our partner PV Squared to include solar photovoltaics on all six homes. While the homes are orientated towards the street rather than with a roof due south, PV2 has completed a shading analysis and preliminary concept plan for solar panels on the roofs. In order to provide adequate access to the sun for solar, the trees on the rear of the lot near the Alley need to be removed.

Each home in this project will be all-electric and built to Energy Star Next Gen certification standards. We have prioritized a simple building envelope with continuous insulation and high efficiency lights and equipment to achieve our energy efficiency goals. This all-electric design approach is complemented by the addition of solar energy.

In the stormwater design process, we have focused on low-impact and low-maintenance design features such as rain gardens. Since each homeowner will be responsible for the long-term maintenance of their own yard and parking area, it is important to focus on simple resilient strategies.

The landscape plan focuses primarily on native species and pollinators. No invasive plants are included.

Guidelines for Project Design: Parking and Lighting

We have focused on providing most parking at the rear of the project on the Alley side of the lots as recommended by the design guidelines. The smaller individual driveway/parking areas for the homes are in line with the recommendation to break large parking areas into smaller ones to reduce their visual impact. Rather than one large parking area on the Alley, the parking will be separated by sheds and plantings.

The parking areas and pedestrian walkways will be partially lit from lighting provided on the homes and sheds. No additional lighting will be provided. This will help to reduce light pollution and increase homeowner control of lighting at entrances.

Building Character & Design: Building Size, Height and Scale

This neighborhood in Turners Falls has a combination of brick buildings and wood framed homes. The brick buildings tend to be focused more towards the mixed use and commercial areas on Avenue A with more wood framed one and two story homes along the other streets.

To find buildings of a similar residential use to this project within approximately 200 feet one must look towards Second Street or L Street.

The pattern you will see in these nearby residential buildings is primarily two-story wood framed homes with gables facing the street. Homes are spaced closely together in a repeating pattern. The proposed Habitat homes are a bit narrower than some of these structures but are roughly equal to the scale and height of existing buildings.



Corner of First Street and L Street



Second Street



More homes on Second Street



More homes on second street



More homes on second street

Building Character & Design: Building Massing

The detached homes proposed by Habitat avoid the creation of long unbroken building facades of 100' or more.

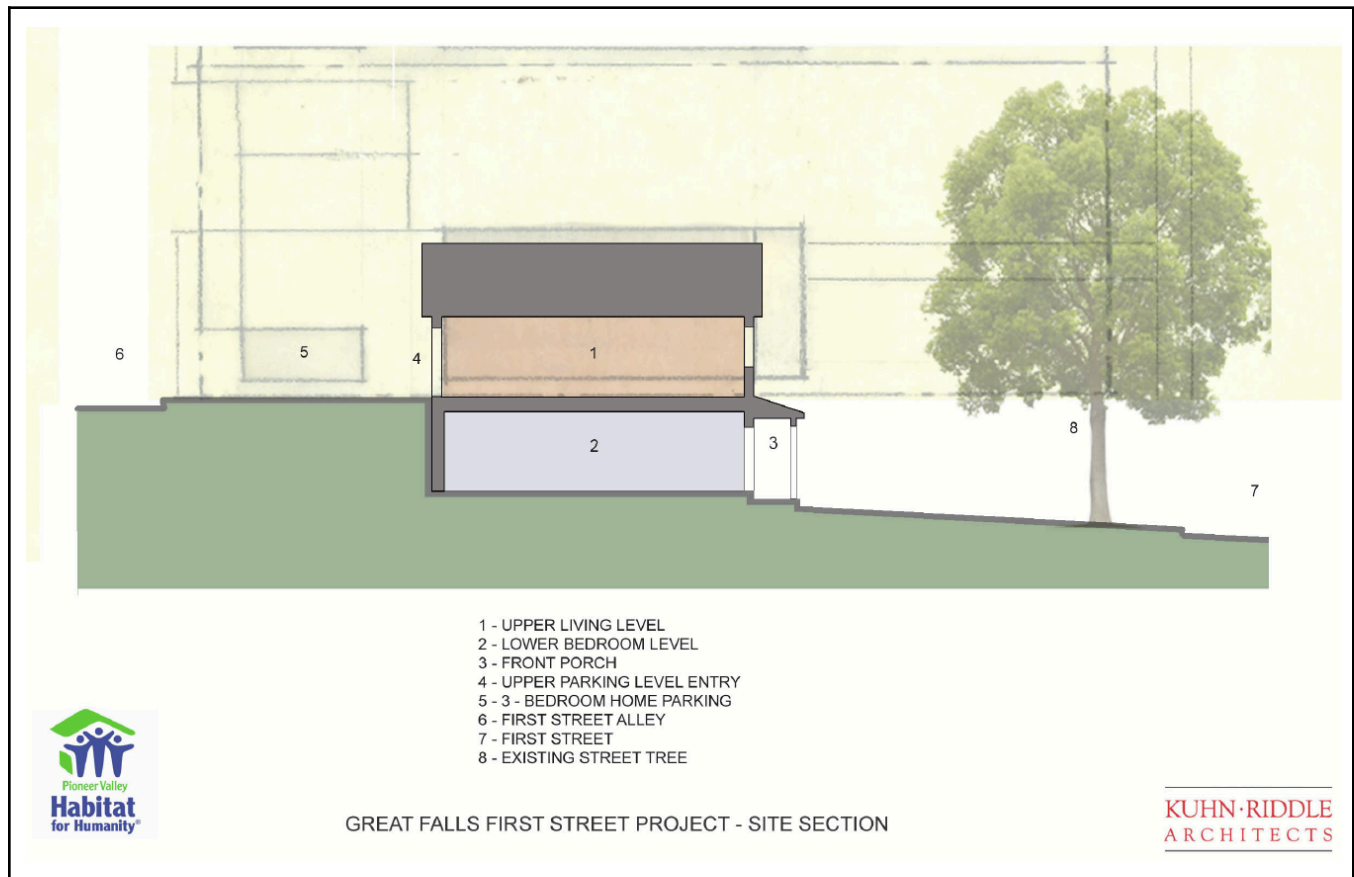
Our designs focus on human-scale features such as zero-step front porches facing First Street, walkways and gardens. The front porches have been specially designed to welcome visitors with all abilities providing wheelchair access and pedestrian access to the homes.

Building Character & Design: Garages and Driveways

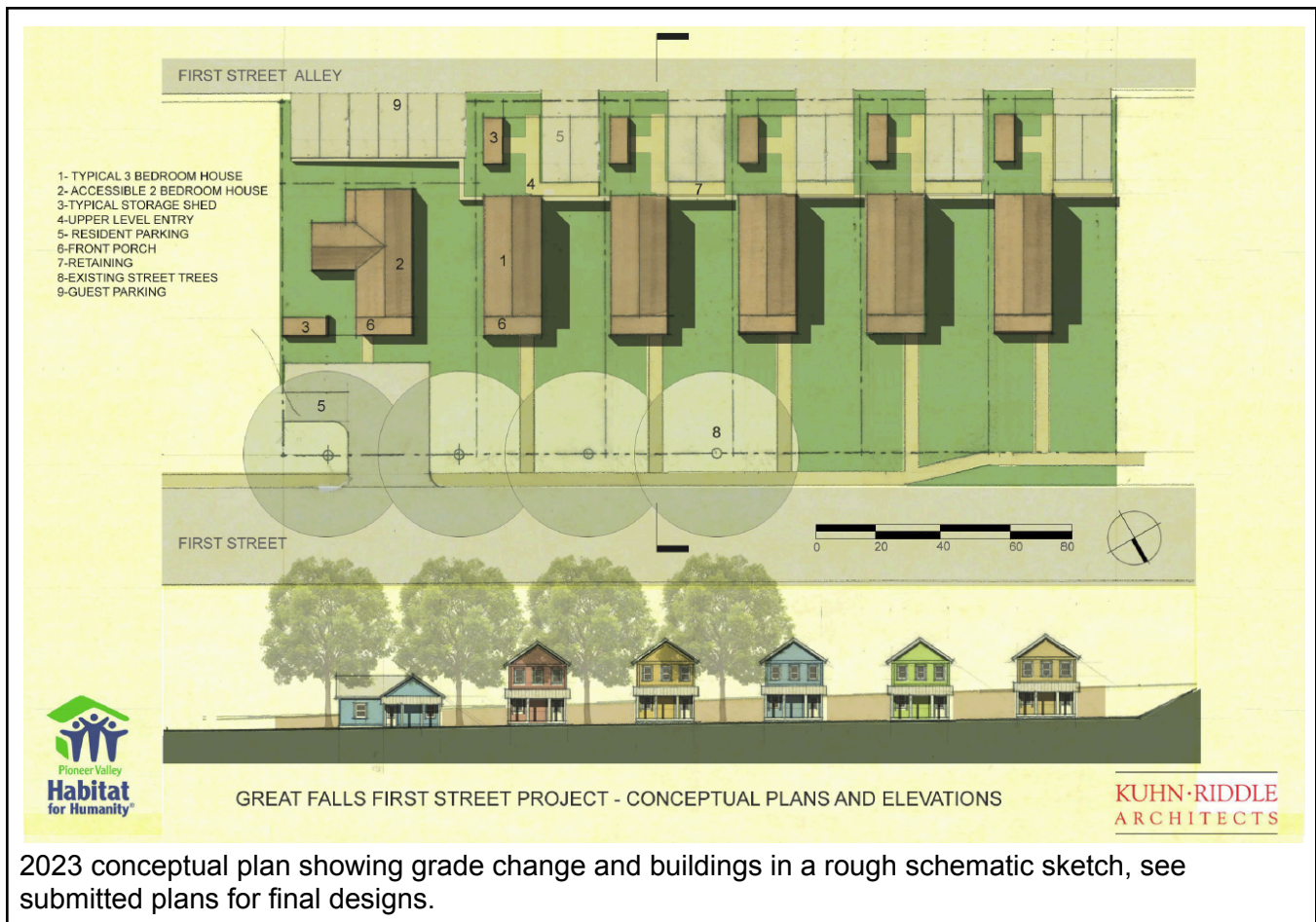
Habitat does not build garages, but we seek to provide driveway parking close to each home to allow for electric car charging.

In order to utilize the Alleyway for driveway access as recommended in Montague's Design Guidelines, a creative solution was required because of the significant grade difference between the First St Alley and First Street.

This early schematic sketch shows how access from the Alley goes to the second floor of the two story homes and the front porches on First Street are on the lower level.



This creative approach was used for the first five buildings, and then as the grade height difference lessens as you move away from the Shady Glen, the final house is designed to have driveway access from First Street. This allows for a fully adaptable one-story unit for someone with mobility impairments.



Building Character & Design: Energy Efficiency

All of Franklin Hampshire Habitat for Humanity's projects share a commitment to energy efficient construction. We focus on the design of simple, well-insulated, all-electric homes that can provide many years of comfort for the homebuyers. The design and construction of the homes to Energy Star standards will be verified by an independent third-party Home Energy Rater.

Building Character & Design: Universal Access

While not required to meet the more stringent standards for multi-family buildings, Habitat has prioritized making all of the homes in this project visitable by someone in a wheelchair. Visitable means providing at least one entrance to the home without a step, providing wide doorways and adequate turning space to visit the main living area and first floor bathroom.

We have also made one of the homes a single-story so that it can be adaptable for someone with mobility impairments. This means meeting the same "visitable" standards as the other homes, but also providing single-story living with a full-bath and bedrooms on the ground floor. Based on the needs of the homeowner selected additional adaptations around shower/bath design, kitchen countertops/appliances and other individualized needs can be made. The core structural elements of

no-step entrances, wide doorways and rooms with turning space are already built into the design of the home.

Parking

Habitat plans to provide each home with 1 or 2 driveway parking spots in compliance with zoning. The two story homes will all have two parking space on the alley. The single story adaptable home will have one van accessible parking space in their driveway. This will create 11 private parking spaces for this project. Only 1 of these spaces will be located along First Street and the other 10 will be off the Alleyway. The driveway for the adaptable one-story home on First Street will include a turn around to prevent the backing of automobiles onto the street.

In addition to these private parking spaces, Habitat will construct a small parking area on the Alley that will be for public use. This is to offset some of the impact of the change of use for the project site to the Second Street neighbors. The neighbors from Second Street have been informally parking cars on the First Street side of the Alley for decades. With the change to private ownership of this land, it will change the parking options for these neighbors.

This small public use parking area will be deeded back to the town of Montague after construction is completed. Neither Habitat nor the future homeowners for this project will retain ownership or rights to these additional parking spaces. These six spaces will not fully replace the informal parking and dumpster usage, but are a gesture of good faith towards lessening the impact of this neighborhood change, while still providing the future homeowners with privacy and parking for their homes.

Infrastructure: Stormwater Management

Low-impact design elements like rain gardens and thoughtful grading of the slopes will be utilized in the stormwater management of the site. We are working to maximize green areas and minimize impervious area. Please see the detailed Storm Water Management Plan provided by T Reynolds Engineering for specific details of stormwater compliance.

Infrastructure: Utilities

Habitat will be submitting our plans to Eversource for electrical design. The expectation is that they will provide overhead service to the site from which we will be able to install a transformer to provide underground electric to each of the homes. Conduits for other utilities like phone and internet will be provided in the same fashion underground from a central transformer.

Final design from Eversource will determine if one pole or two are required to bring power across the street to one or two transformers.

Infrastructure: Lighting

Porch and parking light will be provided that is designed to be shielded or downcast to avoid light trespass onto adjacent properties. A combination of ceiling lights on porches and shielded flood lights to light parking areas will be utilized. Here are sample pictures from recent Habitat homes of this type of lighting.



Front porch ceiling light;



Shielded fixtures: sconces and floodlight



Natural Features: Open Space

Greater than 20% of the property will be open space. The proximity of the buildings is “dense” but does not overwhelm the natural landscape. Each homeowner will have access to yard space - primarily at the front of the homes. This open space will feature rain gardens, lawn and slopes to transition from one grade to the next. No public open space will be created with this project.

Natural Features: Tree Preservation

While there are no specific guidelines for tree preservation in Subdistrict B, Habitat has prioritized tree preservation of the trees along First Street to maintain the streetscape.

Landscaping: Storage Areas

These single family residential structures will not have significant unsightly uses that require screening with fences or dense vegetation. The modest storage sheds provided will be constructed with the same exterior finishes of the homes.

Landscaping: Maintenance

Each homeowner will be responsible for their own landscape maintenance. Just like any other single family homeowner in the town. Personal preferences and interest in landscaping may result in natural variation between lots. Homeowners will be provided with both written and verbal education about how to maintain their rain gardens and landscaping.

Landscaping: Signs

No permanent signage is planned for these single family homes.

Additional Requirements: Waiver Requests

No significant deviations from the administrative regulations, design guidelines or zoning requirements that would require a waiver are being planned. Please see notations above in our zoning review of potential gray areas, that if deemed necessary a waiver would be requested.

Additional Requirements: Coordination with other developments

We are not aware of any specific plans for development on the neighboring parcels.

Stormwater Management Plan

This project is subject to stormwater regulations. A Stormwater Manage Plan is being submitted along with the 40R permit application.

Zoning Review Details

Section 10.5.3 of the Montague zoning bylaw outlines the Submission Requirements for Plan Approval.

Cost and eligibility requirements of Zoning Section 10.5.4

Franklin Hampshire Habitat for Humanity has set the maximum resale price for these homes at \$200,000. We had briefly considered a higher sales price for the 3-bedroom vs. 2-bedroom home, but for marketing simplicity we are planning to have the same sales price. Affordability goals can be met for both home sizes with the \$200,000 maximum sales price.

Affordability Calculation			
	3 Bedroom		2 Bedroom
Sales Price	\$200,000		\$200,000
5% Down payment	\$10,000		\$10,000
Mortgage	\$190,000		\$190,000
Interest rate	6.74%		6.74%
Amortization	30		30
Monthly P&I Payments	\$1,231		\$1,231
Tax Rate	\$15.13	FY26	\$15.13
monthly property tax	\$252		\$252
Hazard insurance	\$100		\$100
PMI			
Condo/HOA fees (if applicable)			
Monthly Housing Cost	\$1,583		\$1,583

Necessary Income:	\$63,330	\$63,330
Household Income:		
# of Bedrooms	3	2
Sample Household size	4	3
60% AMI Limit Franklin County	\$78,900	\$71,025
Target Housing Cost (60%AMI) MAX	\$1,973	\$1,776
OVER / UNDER MAX	\$389	\$192

Affordable Housing Restriction that satisfies Zoning Section 10.5.6

Franklin Hampshire Habitat for Humanity's mission is to provide affordable housing and we have a 37-year track record of successful partnerships in western Massachusetts with over 60 families. We are an experienced affordable housing developer with the necessary staff and volunteers to meet Executive Office of Housing and Livable Communities (EOHLC, formerly DHCD) regulations for the creation of affordable homeownership opportunities.

Habitat is working in coordination with the town of Montague on a Local Action Unit application to EOHLC. The application includes an affirmative fair housing marketing plan, a red-lined Regulatory Agreement to restrict the property, and the form of the deed rider for the future income-eligible homebuyers.

This project will also be receiving funding from MassHousing and receiving additional oversight through that funding process.

- a) **Term of the restriction:** in perpetuity
- b) **The Monitoring Agent:** EOHLC, the Town of Montague and Franklin Hampshire Habitat for Humanity
- c) **Description of affordable units:** 100% of the development will be designated as affordable. Address assignments by the town will not be issued until after zoning permits are approved.
 - o Five 3-bedroom units
 - o One 2-bedroom adaptable unit
- d) **Affirmative fair housing marketing:** All homebuyers will be selected through an affirmative fair housing marketing process and lottery. Habitat will follow state guidelines for the running of a lottery including giving preference for one-story homes to people with mobility impairments who need those accessibility features, and preference to filling all bedrooms. The marketing plan will be reviewed and approved by EOHLC.

- e) **Buyer selection:** The initial selection of future homebuyers for each of the units will be by lottery of all eligible applicants. The marketing plan includes a description of the resale process to eligible buyers, which in most cases shall be on a first come first serve basis.
- f) **Maximum sale price:** The maximum sales price for the initial sale is set by Habitat for Humanity to ensure that buyers earning less than 60% of the Area Median Income will be able to afford the purchase while paying no more than 30% of their income on housing. Subsequent sales will be subject to the maximum resale price formula in the deed rider. This standard formula created by EOHLC ensures that prices only go up if the median income in the area rises. Future resales will be limited to buyers earning 80% of the Area Median Income or less.
- g) **Owner occupancy:** The deed rider includes an owner occupancy requirement.
- h) **Monitoring and enforcement:** The deed rider will be recorded in the registry of deeds along with a performance mortgage to help enforce the restriction. In order for the initial homebuyers to sell their homes they need to notify the Monitoring Agent for approval. This process ensures the ongoing compliance with the terms.
- i) **Limit resale on homeownership:** The deed rider and draft Regulatory Agreement have been reviewed by town counsel as part of the Local Action Unit application process. This collaborative and routine process ensures we are using documents that limit the resale to eligible homebuyers.
- j) **Rental approval:** n/a
- k) **Rental report:** n/a
- l) **Resident information:** An extensive application process which requires the provision of information from homebuyers is used to determine eligibility before the sale of any unit.

Submission Documents

1. 40R Application Form
2. Narrative for 40R
3. Sample deed rider showing form of affordability restriction
4. Drainage Analysis Stormwater Management Plan dated 7/14/26
5. Site plan by T Reynolds Engineering dated July 14, 2026
6. Elevations by Kuhn Riddle Architects dated Jul 22, 2026
7. Planting plan by studio FARM landscape architects dated Jul 16, 2026
8. ANR plan by Holmberg and Associates dated July 15, 2026
9. ANR application Form

LOCAL INITIATIVE PROGRAM
AFFORDABLE HOUSING DEED RIDER

*For Projects in Which
Affordability Restrictions Survive Foreclosure*

This LOCAL INITIATIVE PROGRAM AFFORDABLE HOUSING DEED RIDER is made part of that certain deed (the "Deed") of certain property (the "Property") from _____ ("Grantor") to _____ ("Owner") dated _____, 20____. The Property is located in the city/town of _____ (the "Municipality").

RECITALS

WHEREAS, the Grantor is conveying that certain real property more particularly described in the Deed to the Owner at a consideration which is at or less than the fair market value of the Property; and

WHEREAS, the Property is part of a project which was: [check all that are applicable]

- (i) granted a Comprehensive Permit under Massachusetts General Laws Chapter 40B, Sections 20-23, from the Board of Appeals of the Municipality or the Housing Appeals Committee dated _____ and recorded/filed with the _____ Registry of Deeds/Registry District of Land Court (the "Registry") in Book _____, Page _____/Document No. _____ (the "Comprehensive Permit");
- (ii) subject to a Regulatory Agreement among _____ (the "Developer"), [☐] Massachusetts Housing Finance Agency ("MassHousing"), [X] the Massachusetts Executive Office of Housing and Livable Communities ("EOHLC"), as successor agency to the Department of Housing and Community Development, and duly organized and existing pursuant to Chapter 23B, as amended by Chapter 7 of the Acts of 2023, and [X] the Municipality; dated _____ and recorded/filed with the Registry in Book _____, Page _____/Document No. _____ (the "Regulatory Agreement"); and
- (iii) ☒ subsidized by the federal or state government under the Local Initiative Program, a program to assist construction of low- or moderate-income housing (the "Program"); and

WHEREAS, pursuant to the Program, eligible purchasers such as the Owner are given the opportunity to purchase residential property at or less than its fair market value if the purchaser agrees to certain use and transfer restrictions, including an agreement to occupy the property as a principal residence and to convey the property for an amount not greater than a maximum resale price, all as more fully provided herein; and

WHEREAS, EOHLC and the city/town of _____ (singly, or if more than one entity is listed, collectively, the “Monitoring Agent”) is obligated by the Program or has been retained to monitor compliance with and to enforce the terms of this Deed Rider, and eligible purchasers such as the Owner may be required to pay to the Monitoring Agent, or its successor, a small percentage of the resale price upon the Owner’s conveyance of the Property, as set out in the Regulatory Agreement and as more fully provided herein; and

WHEREAS, the rights and restrictions granted herein to the Monitoring Agent serve the public’s interest in the creation and retention of affordable housing for persons and households of low- and moderate-income and in the restricting of the resale price of property in order to assure its affordability by future low- and moderate-income purchasers.

NOW, THEREFORE, as further consideration for the conveyance of the Property at or less than fair market value, the Grantor and the Owner, including his/her/their heirs, successors and assigns, hereby agree that the Property shall be subject to the following rights and restrictions which are imposed for the benefit of, and shall be enforceable by, the Municipality and the Monitoring Agent, and, if EOHLC is a party to the Regulatory Agreement and is not the Monitoring Agent, by EOHLC.

1. Definitions. In this Deed Rider, in addition to the terms defined above, the following words and phrases shall have the following meanings:

Affordable Housing Fund means a fund established by the Municipality for the purpose of reducing the cost of housing for Eligible Purchasers or for the purpose of encouraging, creating, or subsidizing the construction or rehabilitation of housing for Eligible Purchasers or, if no such fund exists, a fund established by the Municipality pursuant to Massachusetts General Laws Chapter 44 Section 53A, et seq.

Applicable Foreclosure Price shall have the meaning set forth in Section 7(b) hereof.

Appropriate Size Household means a household containing a number of members equal to the number of bedrooms in the Property plus one.

Approved Capital Improvements means the documented commercially reasonable cost of extraordinary capital improvements made to the Property by the Owner; provided that the Monitoring Agent shall have given written authorization for incurring such cost prior to the cost being incurred and that the original cost of such improvements shall be discounted over the course of their useful life.

Area means the Primary Metropolitan Statistical Area or non-metropolitan area that includes the Municipality, as determined by HUD, which in this case is the _____ MSA/HMFA.

Area Median Income means the most recently published median income for the Area adjusted for household size as determined by HUD. If HUD discontinues publication of Area Median Income, the income statistics used by MassHousing for its low- and moderate-income housing programs shall apply.

Base Income Number means the Area Median Income for a four (4)-person household. Currently, the AMI for the _____ MSA/HMFA is \$ _____.

Chief Executive Officer shall mean the mayor in a city or the board of selectmen in a town unless some other municipal office is designated to be the chief executive officer under the provisions of a local charter.

Closing shall have the meaning set forth in Section 5(b) hereof.

Compliance Certificate shall have the meaning set forth in Section 6(a) hereof.

Conveyance Notice shall have the meaning set forth in Section 4(a) hereof.

Eligible Purchaser means an individual or household earning no more than eighty percent (80%) of Area Median Income (or, if checked [] _____ percent (____%) of Area Median Income, as required by the Program) and owning assets not in excess of the limit set forth in the Program Guidelines. To be considered an Eligible Purchaser, the individual or household must intend to occupy and thereafter must occupy the Property as his, her or their principal residence and must provide to the Monitoring Agent such certifications as to income, assets and residency as the Monitoring Agent may be required to determine eligibility as an Eligible Purchaser. An Eligible Purchaser shall be a First-Time Homebuyer if required by the Program and as specified in the Regulatory Agreement.

First-Time Homebuyer means an individual or household, of which no household member has had an ownership interest in a principal residence at any time during the three (3)-year period prior to the date of qualification as an Eligible Purchaser, except that (i) any individual who is a displaced homemaker (as may be defined by EOHLC) (ii) and any individual age 55 or over (applying for age 55 or over housing) shall not be excluded from consideration as a First-Time Homebuyer under this definition on the basis that the individual, owned a home or had an ownership interest in a principal residence at any time during the three (3)-year period.

Foreclosure Notice shall have the meaning set forth in Section 7(a) hereof.

HUD means the United States Department of Housing and Urban Development.

Ineligible Purchaser means an individual or household not meeting the requirements to be eligible as an Eligible Purchaser.

Maximum Resale Price means the sum of (i) the Base Income Number (at the time of resale) multiplied by the Resale Price Multiplier, plus (ii) the Resale Fee and any necessary marketing expenses (including broker's fees) as may have been approved by the Monitoring Agent, plus (iii) Approved Capital Improvements, if any (the original cost of which shall have been discounted over time, as calculated by the Monitoring Agent); provided that in no event shall the Maximum Resale Price be greater than the purchase price for which a credit-worthy Eligible Purchaser earning seventy percent (70%) of the Area Median Income (or, if checked [] _____ percent (____%) of Area Median Income, as required by the Program) of Area Median Income, as

required by the Program) for an Appropriate Size Household could obtain mortgage financing (as such purchase price is determined by the Monitoring Agent using the same methodology then used by EOHLC for its Local Initiative Program or similar comprehensive permit program); and further provided that the Maximum Resale Price shall not be less than the purchase price paid for the Property by the Owner unless the Owner agrees to accept a lesser price.

Monitoring Services Agreement means any Monitoring Services Agreement for monitoring and enforcement of this Deed Rider among some or all of the Developer, the Monitoring Agent, the Municipality, MassHousing and EOHLC.

Mortgage Satisfaction Amount shall have the meaning set forth in Section 7(b) hereof.

Mortgagee shall have the meaning set forth in Section 7(a) hereof.

Program Guidelines means the regulations and/or guidelines issued for the applicable Program and controlling its operations, as amended from time to time.

Resale Fee means a fee of **Two Percent (2%)** of the Base Income Number (at the time of resale) multiplied by the Resale Price Multiplier, to be paid to the Monitoring Agent as compensation for monitoring and enforcing compliance with the terms of this Deed Rider, including the supervision of the resale process.

Resale Price Certificate means the certificate issued as may be specified in the Regulatory Agreement and recorded with the first deed of the Property from the Developer, or the subsequent certificate (if any) issued as may be specified in the Regulatory Agreement, which sets forth the Resale Price Multiplier to be applied on the Owner's sale of the Property, as provided herein, for so long as the restrictions set forth herein continue. In the absence of contrary specification in the Regulatory Agreement the Monitoring Agent shall issue the certificate.

Resale Price Multiplier means the number calculated by dividing the Property's initial sale price by the Base Income Number at the time of the initial sale from the Developer to the first Eligible Purchaser. The Resale Price Multiplier will be multiplied by the Base Income Number at the time of the Owner's resale of the Property to determine the Maximum Resale Price on such conveyance subject to adjustment for the Resale Fee, marketing expenses and Approved Capital Improvements. In the event that the purchase price paid for the Property by the Owner includes such an adjustment a new Resale Price Multiplier will be recalculated by the Monitoring Agent by dividing the purchase price so paid by the Base Income Number at the time of such purchase, and a new Resale Price Certificate will be issued and recorded reflecting the new Resale Price Multiplier. A Resale Price Multiplier of _____ is hereby assigned to the Property.

Term means in perpetuity, unless earlier terminated by (i) the termination of the term of affordability set forth in the Regulatory Agreement or Comprehensive Permit, whichever is longer; or (ii) the recording of a Compliance Certificate and a new Deed Rider executed by the purchaser in form and substance substantially identical to this Deed Rider establishing a new term.

2. Owner-Occupancy/Principal Residence. The Property shall be occupied and used by the Owner's household exclusively as his, her or their principal residence. Any use of the Property or activity thereon which is inconsistent with such exclusive residential use is expressly prohibited.

3. Restrictions Against Leasing, Refinancing and Junior Encumbrances. The Property shall not be leased, rented, refinanced, encumbered (voluntarily or otherwise) or mortgaged without the prior written consent of the Monitoring Agent; provided that this provision shall not apply to a first mortgage granted on the date hereof in connection with this conveyance from Grantor to Owner securing indebtedness not greater than one hundred percent (100%) of the purchase price. Any rents, profits, or proceeds from any transaction described in the preceding sentence which transaction has not received the requisite written consent of the Monitoring Agent shall be paid upon demand by Owner to the Municipality for deposit to its Affordable Housing Fund. The Monitoring Agent or Municipality may institute proceedings to recover such rents, profits or proceeds, and costs of collection, including attorneys' fees. Upon recovery, after payment of costs, the balance shall be paid to the Municipality for deposit to its Affordable Housing Fund. In the event that the Monitoring Agent consents for good cause to any such lease, refinancing, encumbrance or mortgage, it shall be a condition to such consent that all rents, profits or proceeds from such transaction, which exceed the actual carrying costs of the Property as determined by the Monitoring Agent, shall be paid to the Municipality for deposit to its Affordable Housing Fund.

4. Options to Purchase.

(a) When the Owner or any successor in title to the Owner shall desire to sell, dispose of or otherwise convey the Property, or any portion thereof, the Owner shall notify the Monitoring Agent and the Municipality in writing of the Owner's intention to so convey the Property (the "Conveyance Notice"). Upon receipt of the Conveyance Notice, the Monitoring Agent shall (i) calculate the Maximum Resale Price which the Owner may receive on the sale of the Property based upon the Base Income Number in effect as of the date of the Conveyance Notice and the Resale Price Multiplier set forth in the most recently recorded Resale Price Certificate together with permissible adjustments for the Resale Fee, marketing expenses and Approved Capital Improvements (as discounted), and (ii) promptly begin marketing efforts. The Owner shall fully cooperate with the Monitoring Agent's efforts to locate an Eligible Purchaser and, if so requested by the Monitoring Agent, shall hire a broker selected by the Monitoring Agent to assist in locating an Eligible Purchaser ready, willing and able to purchase the Property at the Maximum Resale Price after entering a purchase and sale agreement. Pursuant to such agreement, sale to the Eligible Purchaser at the Maximum Resale Price shall occur within ninety (90) days after the Monitoring Agent receives the Conveyance Notice or such further time as reasonably requested to arrange for details of closing. If the Owner fails to cooperate in such resale efforts, including a failure to agree to reasonable terms in the purchase and sale agreement, the Monitoring Agent may extend the 90-day period for a period commensurate with the time the lack of cooperation continues, as determined by the Monitoring Agent in its reasonable discretion. In such event, the Monitoring Agent shall give Owner written notice of the lack of cooperation and the length of the extension added to the 90-day period.

(b) The Monitoring Agent shall ensure that diligent marketing efforts are made to locate an Eligible Purchaser ready, willing and able to purchase the Property at the Maximum Resale Price within the time period provided in subsection (a) above and to enter the requisite purchase and sale agreement. If more than one Eligible Purchaser is located, the Monitoring Agent shall conduct a lottery or other like procedure to determine which Eligible Purchaser shall be entitled to enter a purchase and sale agreement with Owner and to purchase the Property. Preference shall be given to Appropriate Size Households. The procedure for marketing and selecting an Eligible Purchaser shall be approved as provided in the Regulatory Agreement and any applicable Program Guidelines. If an Eligible Purchaser is located within ninety (90) days after receipt of the Conveyance Notice, but such Eligible Purchaser proves unable to secure mortgage financing so as to be able to complete the purchase of the Property pursuant to the purchase and sale agreement, following written notice to Owner within the 90-day period the Monitoring Agent shall have an additional sixty (60) days to locate another Eligible Purchaser who will enter a purchase and sale agreement and purchase the Property by the end of such sixty (60)-day period or such further time as reasonably requested to carry out the purchase and sale agreement.

(c) In lieu of sale to an Eligible Purchaser, the Monitoring Agent or the Municipality or designee shall also have the right to purchase the Property at the Maximum Resale Price, in which event the purchase and sale agreement shall be entered, and the purchase shall occur within ninety (90) days after receipt of the Conveyance Notice or, within the additional sixty (60)-day period specified in subsection (b) above, or such further time as reasonably requested to carry out the purchase and sale agreement. Any lack of cooperation by Owner in measures reasonably necessary to effect the sale shall extend the 90-day period by the length of the delay caused by such lack of cooperation. The Monitoring Agent shall promptly give Owner written notice of the lack of cooperation and the length of the extension added to the 90-day period. In the event of such a sale to the Monitoring Agent or Municipality or designee, the Property shall remain subject to this Deed Rider and shall thereafter be sold or rented to an Eligible Purchaser as may be more particularly set forth in the Regulatory Agreement.

(d) If an Eligible Purchaser fails to purchase the Property within the 90-day period (or such further time determined as provided herein) after receipt of the Conveyance Notice, and the Monitoring Agent or Municipality or designee does not purchase the Property during said period, then the Owner may convey the Property to an Ineligible Purchaser no earlier than thirty (30) days after the end of said period at the Maximum Resale Price, but subject to all rights and restrictions contained herein; provided that the Property shall be conveyed subject to a Deed Rider identical in form and substance to this Deed Rider which the Owner agrees to execute, to secure execution by the Ineligible Purchaser and to record with the Deed; and further provided that, if more than one Ineligible Purchaser is ready, willing and able to purchase the Property the Owner will give preference and enter a purchase and sale agreement with any individuals or households identified by the Monitoring Agent as an Appropriate Size Household earning more than eighty percent (80%) but less than one hundred twenty percent (120%) of the Area Median Income.

(e) The priority for exercising the options to purchase contained in this Section 4 shall be as follows: (i) an Eligible Purchaser located and selected by the Monitoring

Agent, as provided in subsection (b) above, (ii) the Municipality or its designee, as provided in subsection (c) above, and (iii) an Ineligible Purchaser, as provided in subsection (d) above.

(f) Nothing in this Deed Rider or the Regulatory Agreement constitutes a promise, commitment or guarantee by EOHLC, MassHousing, the Municipality or the Monitoring Agent that upon resale the Owner shall actually receive the Maximum Resale Price for the Property or any other price for the Property.

(g) The holder of a mortgage on the Property is not obligated to forbear from exercising the rights and remedies under its mortgage, at law or in equity, after delivery of the Conveyance Notice.

5. Delivery of Deed.

(a) In connection with any conveyance pursuant to an option to purchase as set forth in Section 4 above, the Property shall be conveyed by the Owner to the selected purchaser by a good and sufficient quitclaim deed conveying a good and clear record and marketable title to the Property free from all encumbrances except (i) such taxes for the then current year as are not due and payable on the date of delivery of the deed, (ii) any lien for municipal betterments assessed after the date of the Conveyance Notice, (iii) provisions of local building and zoning laws, (iv) all easements, restrictions, covenants and agreements of record specified in the deed from the Owner to the selected purchaser, (v) such additional easements, restrictions, covenants and agreements of record as the selected purchaser consents to, such consent not to be unreasonably withheld or delayed, (vi) the Regulatory Agreement, and (vii), except as otherwise provided in the Compliance Certificate, a Deed Rider identical in form and substance to this Deed Rider which the Owner hereby agrees to execute, to secure execution by the selected purchaser, and to record with the deed. **Said deed shall clearly state that it is made subject to the Deed Rider which is made part of the deed.** Failure to comply with the preceding sentence shall not affect the validity of the conveyance from the Owner to the selected purchaser or the enforceability of the restrictions herein.

(b) Said deed, including the approved Deed Rider, shall be delivered and the purchase price paid (the "Closing") at the Registry, or at the option of the selected purchaser, exercised by written notice to the Owner at least five (5) days prior to the delivery of the deed, at such other place as the selected purchaser may designate in said notice. The Closing shall occur at such time and on such date as shall be specified in a written notice from the selected purchaser to the Owner, which date shall be at least five (5) days after the date on which such notice is given, and no later than the end of the time period specified in Section 4(a) above.

(c) To enable Owner to make conveyance as herein provided, Owner may, if Owner so desires at the time of delivery of the deed, use the purchase money or any portion thereof to clear the title of any or all encumbrances or interests, all instruments with respect thereto to be recorded simultaneously with the delivery of said deed. Nothing contained herein as to the Owner's obligation to remove defects in title or to make conveyance or to deliver possession of the Property in accordance with the terms hereof, as to use of proceeds to clear title or as to the election of the selected purchaser to take title, nor anything else in this Deed Rider shall be deemed

to waive, impair or otherwise affect the priority of the rights herein over matters appearing of record, or occurring, at any time after the recording of this Deed Rider, all such matters so appearing or occurring being subject and subordinate in all events to the rights herein.

(d) Water and sewer charges and taxes for the then current tax period shall be apportioned and fuel value shall be adjusted as of the date of Closing and the net amount thereof shall be added to or deducted from, as the case may be, the purchase price payable by the selected purchaser.

(e) Full possession of the Property free from all occupants is to be delivered at the time of the Closing, the Property to be then in the same condition as it is in on the date of the execution of the purchase and sale agreement, reasonable wear and tear only excepted.

(f) If Owner shall be unable to give title or to make conveyance as above required, or if any change of condition in the Property not included in the above exception shall occur, then Owner shall be given a reasonable time not to exceed thirty (30) days after the date on which the Closing was to have occurred in which to remove any defect in title or to restore the Property to the condition herein required. The Owner shall use best efforts to remove any such defects in the title, whether voluntary or involuntary, and to restore the Property to the extent permitted by insurance proceeds or condemnation award. The Closing shall occur fifteen (15) days after notice by Owner that such defect has been cured or that the Property has been so restored. The selected purchaser shall have the election, at either the original or any extended time for performance, to accept such title as the Owner can deliver to the Property in its then condition and to pay therefor the purchase price without deduction, in which case the Owner shall convey such title, except that in the event of such conveyance in accordance with the provisions of this clause, if the Property shall have been damaged by fire or casualty insured against or if a portion of the Property shall have been taken by a public authority, then the Owner shall, unless the Owner has previously restored the Property to its former condition, either:

- (A) pay over or assign to the selected purchaser, on delivery of the deed, all amounts recovered or recoverable on account of such insurance or condemnation award less any amounts reasonably expended by the Owner for any partial restoration, or
- (B) if a holder of a mortgage on the Property shall not permit the insurance proceeds or the condemnation award or part thereof to be used to restore the Property to its former condition or to be so paid over or assigned, give to the selected purchaser a credit against the purchase price, on delivery of the deed, equal to said amounts so retained by the holder of the said mortgage less any amounts reasonably expended by the Owner for any partial restoration.

6. Resale and Transfer Restrictions.

(a) Except as otherwise provided herein, the Property or any interest therein shall not at any time be sold by the Owner, or the Owner's successors and assigns, and no attempted sale shall be valid, unless the aggregate value of all consideration and payments of every kind given or paid by the selected purchaser of the Property for and in connection with the transfer of such Property, is equal to or less than the Maximum Resale Price for the Property, and unless a certificate (the "Compliance Certificate") is obtained and recorded, signed and acknowledged by the Monitoring Agent which Compliance Certificate refers to the Property, the Owner, the selected purchaser thereof, and the Maximum Resale Price therefor, and states that the proposed conveyance, sale or transfer of the Property to the selected purchaser is in compliance with the rights, restrictions, covenants and agreements contained in this Deed Rider, and unless there is also recorded a new Deed Rider executed by the selected purchaser, which new Deed Rider is identical in form and substance to this Deed Rider.

(b) The Owner, any good faith purchaser of the Property, any lender or other party taking a security interest in such Property and any other third party may rely upon a Compliance Certificate as conclusive evidence that the proposed conveyance, sale or transfer of the Property to the selected purchaser is in compliance with the rights, restrictions, covenants and agreements contained in this Deed Rider, and may record such Compliance Certificate in connection with the conveyance of the Property.

(c) Within ten (10) days of the closing of the conveyance of the Property from the Owner to the selected purchaser, the Owner shall deliver to the Monitoring Agent a copy of the Deed of the Property, including the deed rider, together with recording information. Failure of the Owner, or Owner's successors or assigns to comply with the preceding sentence shall not affect the validity of such conveyance or the enforceability of the restrictions herein.

7. Survival of Restrictions Upon Exercise of Remedies by Mortgagees.

(a) The holder of record of any mortgage on the Property (each, a "Mortgagee") shall notify the Monitoring Agent, the Municipality and any senior Mortgagee(s) in the event of any default for which the Mortgagee intends to commence foreclosure proceedings or similar remedial action pursuant to its mortgage (the "Foreclosure Notice"), which notice shall be sent to the Monitoring Agent and the Municipality as set forth in this Deed Rider, and to the senior Mortgagee(s) as set forth in such senior Mortgagee's mortgage, not less than one hundred twenty (120) days prior to the foreclosure sale or the acceptance of a deed in lieu of foreclosure. The Owner expressly agrees to the delivery of the Foreclosure Notice and any other communications and disclosures made by the Mortgagee pursuant to this Deed Rider.

(b) The Owner grants to the Municipality or its designee the right and option to purchase the Property upon receipt by the Municipality of the Foreclosure Notice. In the event that the Municipality intends to exercise its option, the Municipality or its designee shall purchase the Property within one hundred twenty (120) days of receipt of such notice, at a price equal to the greater of (i) the sum of the outstanding principal balance of the note secured by such foreclosing Mortgagee's mortgage, together with the outstanding principal balance(s) of any note(s) secured

by mortgage(s) senior in priority to such mortgage (but in no event shall the aggregate amount thereof be greater than one hundred percent (100%) of the Maximum Resale Price calculated at the time of the granting of the mortgage) plus all future advances, accrued interest and all reasonable costs and expenses which the foreclosing Mortgagee and any senior Mortgagee(s) are entitled to recover pursuant to the terms of such mortgages (the “Mortgage Satisfaction Amount”), and (ii) the Maximum Resale Price (which for this purpose may be less than the purchase price paid for the Property by the Owner) (the greater of (i) and (ii) above herein referred to as the “Applicable Foreclosure Price”). The Property shall be sold and conveyed in its then-current “as is, where is” condition, without representation or warranty of any kind, direct or indirect, express or implied, and with the benefit of and subject to all rights, rights of way, restrictions, easements, covenants, liens, improvements, housing code violations, public assessments, any and all unpaid federal or state taxes (subject to any rights of redemption for unpaid federal taxes), municipal liens and any other encumbrances of record then in force and applicable to the Property having priority over such foreclosing Mortgagee’s mortgage, and further subject to a Deed Rider identical in form and substance to this Deed Rider which the Owner hereby agrees to execute, to secure execution by the Municipality or its designee, and to record with the deed, except that (i) during the term of ownership of the Property by the Municipality or its designee the owner-occupancy requirements of Section 2 hereof shall not apply (unless the designee is an Eligible Purchaser), and (ii) the Maximum Resale Price shall be recalculated based on the price paid for the Property by the Municipality or its designee, but not greater than the Applicable Foreclosure Price. **Said deed shall clearly state that it is made subject to the Deed Rider which is made part of the deed.** Failure to comply with the preceding sentence shall not affect the validity of the conveyance from the Owner to the Municipality or its designee or the enforceability of the restrictions herein.

(c) Not earlier than one hundred twenty (120) days following the delivery of the Foreclosure Notice to the Monitoring Agent, the Municipality and any senior Mortgagee(s) pursuant to subsection (a) above, the foreclosing Mortgagee may conduct the foreclosure sale or accept a deed in lieu of foreclosure. The Property shall be sold and conveyed in its then-current “as is, where is” condition, without representation or warranty of any kind, direct or indirect, express or implied, and with the benefit of and subject to all rights, rights of way, restrictions, easements, covenants, liens, improvements, housing code violations, public assessments, any and all unpaid federal or state taxes (subject to any rights of redemption for unpaid federal taxes), municipal liens and any other encumbrances of record then in force and applicable to the Property having priority over the foreclosing Mortgagee’s mortgage, and further subject to a Deed Rider, as set forth below.

(d) In the event that the foreclosing Mortgagee conducts a foreclosure sale or other proceeding enforcing its rights under its mortgage and the Property is sold for a price in excess of the greater of the Maximum Resale Price and the Mortgage Satisfaction Amount, such excess shall be paid to the Municipality for its Affordable Housing Fund after (i) a final judicial determination, or (ii) a written agreement of all parties who, as of such date hold (or have been duly authorized to act for other parties who hold) a record interest in the Property, that the Municipality is entitled to such excess. The legal costs of obtaining any such judicial determination or agreement shall be deducted from the excess prior to payment to the Municipality. To the extent that the Owner possesses any interest in any amount which would otherwise be

payable to the Municipality under this paragraph, to the fullest extent permissible by law, the Owner hereby assigns its interest in such amount to the Mortgagee for payment to the Municipality.

(e) If any Mortgagee shall acquire the Property by reason of foreclosure or upon conveyance of the Property in lieu of foreclosure, which shall include the Federal National Mortgage Association (“Fannie Mae”) when it is assignee of the Mortgagee’s rights after such foreclosure or conveyance, then the rights and restrictions contained herein shall apply to such Mortgagee upon such acquisition of the Property and to any purchaser of the Property from such Mortgagee, and the Property shall be conveyed subject to a Deed Rider identical in form and substance to this Deed Rider, which the Mortgagee that has so acquired the Property agrees to annex to the deed and to record with the deed, except that (i) during the term of ownership of the Property by such Mortgagee the owner-occupancy requirements of Section 2 hereof shall not apply, (ii) the title covenants required under Section 5 shall not apply only as to a subsequent REO conveyance by Fannie Mae, and (iii) the Maximum Resale Price shall be recalculated based on the price paid for the Property by such Mortgagee at the foreclosure sale, but not greater than the Applicable Foreclosure Price. **Said deed shall clearly state that it is made subject to the Deed Rider which is made part of the deed.** Failure to comply with the preceding sentence shall not affect the validity of the conveyance to the Mortgagee or the enforceability of the restrictions herein.

(f) If any party other than a Mortgagee shall acquire the Property by reason of foreclosure or upon conveyance of the Property in lieu of foreclosure, the Property shall be conveyed subject to a Deed Rider identical in form and substance to this Deed Rider, which the foreclosing Mortgagee agrees to annex to the deed and to record with the deed, except that (i) if the purchaser at such foreclosure sale or assignee of a deed in lieu of foreclosure is an Ineligible Purchaser, then during the term of ownership of the Property by such Ineligible Purchaser, the owner-occupancy requirements of Section 2 hereof shall not apply, and (ii) the Maximum Resale Price shall be recalculated based on the price paid for the Property by such third party purchaser at the foreclosure sale, but not greater than the Applicable Foreclosure Price. **Said deed shall clearly state that it is made subject to the Deed Rider which is made part of the deed.** Failure to comply with the preceding sentence shall not affect the validity of the conveyance to such third party purchaser or the enforceability of the restrictions herein.

(g) Upon satisfaction of the requirements contained in this Section 7, the Monitoring Agent shall issue a Compliance Certificate to the foreclosing Mortgagee which, upon recording in the Registry, may be relied upon as provided in Section 6(b) hereof as conclusive evidence that the conveyance of the Property pursuant to this Section 7 is in compliance with the rights, restrictions, covenants and agreements contained in this Deed Rider.

(h) The Owner understands and agrees that nothing in this Deed Rider or the Regulatory Agreement (i) in any way constitutes a promise or guarantee by MassHousing, EOHLIC, the Municipality or the Monitoring Agent that the Mortgagee shall actually receive the Mortgage Satisfaction Amount, the Maximum Resale Price for the Property or any other price for the Property, or (ii) impairs the rights and remedies of the Mortgagee in the event of a deficiency.

(i) If a Foreclosure Notice is delivered after the delivery of a Conveyance Notice as provided in Section 4(a) hereof, the procedures set forth in this Section 7 shall supersede the provisions of Section 4 hereof.

8. Covenants to Run With the Property.

(a) This Deed Rider, including all restrictions, rights and covenants contained herein, is an affordable housing restriction as that term is defined in Section 31 of Chapter 184 of the Massachusetts General Laws, having the benefit of Section 32 of such Chapter 184, and is enforceable as such. This Deed Rider has been approved by the Undersecretary of EOHLC.

(b) In confirmation thereof the Grantor and the Owner intend, declare and covenant (i) that this Deed Rider, including all restrictions, rights and covenants contained herein, shall be and are covenants running with the land, encumbering the Property for the Term, and are binding upon the Owner and the Owner's successors in title and assigns, (ii) are not merely personal covenants of the Owner, and (iii) shall inure to the benefit of and be enforceable by the Municipality, the Monitoring Agent and EOHLC and their successors and assigns, for the Term. Owner hereby agrees that any and all requirements of the laws of the Commonwealth of Massachusetts have been satisfied in order for the provisions of this Deed Rider to constitute restrictions and covenants running with the land and that any requirements of privity of estate have been satisfied in full.

9. Notice. Any notices, demands or requests that may be given under this Deed Rider shall be sufficiently served if given in writing and delivered by hand or mailed by certified or registered mail, postage prepaid, return receipt requested, to the following entities and parties in interest at the addresses set forth below, or such other addresses as may be specified by any party (or its successor) by such notice.

Municipality:

Grantor:

Owner:

Monitoring Agent(s): (1) Director, Local Initiative Program
EOHLC
100 Cambridge Street
Boston, MA 02114

(2)

Any such notice, demand or request shall be deemed to have been given on the day it is hand delivered or mailed.

10. Further Assurances. The Owner agrees from time to time, as may be reasonably required by the Monitoring Agent, to furnish the Monitoring Agent upon its request with a written statement, signed and, if requested, acknowledged, setting forth the condition and occupancy of the Property, information concerning the resale of the Property and other material information pertaining to the Property and the Owner's conformance with the requirements of the Comprehensive Permit, Program and Program Guidelines, as applicable.

11. Enforcement.

(a) The rights hereby granted shall include the right of the Municipality and the Monitoring Agent to enforce this Deed Rider independently by appropriate legal proceedings and to obtain injunctive and other appropriate relief on account of any violations including without limitation relief requiring restoration of the Property to the condition, affordability or occupancy which existed prior to the violation impacting such condition, affordability or occupancy (it being agreed that there shall be no adequate remedy at law for such violation), and shall be in addition to, and not in limitation of, any other rights and remedies available to the Municipality and the Monitoring Agent.

(b) Without limitation of any other rights or remedies of the Municipality and the Monitoring Agent, or their successors and assigns, in the event of any sale, conveyance or other transfer or occupancy of the Property in violation of the provisions of this Deed Rider, the Municipality and Monitoring Agent shall be entitled to the following remedies, which shall be cumulative and not mutually exclusive:

- (i) specific performance of the provisions of this Deed Rider;
- (ii) money damages for charges in excess of the Maximum Resale Price, if applicable;
- (iii) if the violation is a sale of the Property to an Ineligible Purchaser except as permitted herein, the Monitoring Agent and the Municipality shall have the option to locate an Eligible Purchaser to purchase or itself purchase the Property from the Ineligible Purchaser on the terms and conditions provided

herein; the purchase price shall be a price which complies with the provisions of this Deed Rider; specific performance of the requirement that an Ineligible Purchaser shall sell, as herein provided, may be judicially ordered.

- (iv) the right to void any contract for sale or any sale, conveyance or other transfer of the Property in violation of the provisions of this Deed Rider in the absence of a Compliance Certificate, by an action in equity to enforce this Deed Rider; and
- (v) money damages for the cost of creating or obtaining a comparable dwelling unit for an Eligible Purchaser.

(c) In addition to the foregoing, the Owner hereby agrees and shall be obligated to pay all fees and expenses (including legal fees) of the Monitoring Agent and/or the Municipality in the event successful enforcement action is taken against the Owner or Owner's successors or assigns. The Owner hereby grants to the Monitoring Agent and the Municipality a lien on the Property, junior to the lien of any institutional holder of a first mortgage on the Property, to secure payment of such fees and expenses in any successful enforcement action. The Monitoring Agent and the Municipality shall be entitled to seek recovery of fees and expenses incurred in a successful enforcement action of this Deed Rider against the Owner and to assert such a lien on the Property to secure payment by the Owner of such fees and expenses. Notwithstanding anything herein to the contrary, in the event that the Monitoring Agent and/or Municipality fails to enforce this Deed Rider as provided in this Section, EOHLC, if it is not named as Monitoring Agent, shall have the same rights and standing to enforce this Deed Rider as the Municipality and Monitoring Agent.

(d) The Owner for himself, herself or themselves and his, her or their successors and assigns, hereby grants to the Monitoring Agent and the Municipality the right to take all actions with respect to the Property which the Monitoring Agent or Municipality may determine to be necessary or appropriate pursuant to applicable law, court order, or the consent of the Owner to prevent, remedy or abate any violation of this Deed Rider.

12. Monitoring Agent Services; Fees. The Monitoring Agent shall monitor compliance of the Project and enforce the requirements of this Deed Rider. As partial compensation for providing these services, a Resale Fee [☒] shall [☐] shall not be payable to the Monitoring Agent on the sale of the Property to an Eligible Purchaser or any other purchaser in accordance with the terms of this Deed Rider. This fee, if imposed, shall be paid by the Owner herein as a closing cost at the time of Closing, and payment of the fee to the Monitoring Agent shall be a condition to delivery and recording of its certificate, failing which the Monitoring Agent shall have a claim against the new purchaser, his, her or their successors or assigns, for which the Monitoring Agent may bring an action and may seek an attachment against the Property.

13. Actions by Municipality. Any action required or allowed to be taken by the Municipality hereunder shall be taken by the Municipality's Chief Executive Officer or designee.

14. Severability. If any provisions hereof or the application thereof to any person or circumstance are judicially determined, to any extent, to be invalid or unenforceable, the remainder hereof, or the application of such provision to the persons or circumstances other than those as to which it is held invalid or unenforceable, shall not be affected thereby.

15. Independent Counsel. THE OWNER ACKNOWLEDGES THAT HE, SHE, OR THEY HAVE READ THIS DOCUMENT IN ITS ENTIRETY AND HAS HAD THE OPPORTUNITY TO CONSULT LEGAL AND FINANCIAL ADVISORS OF HIS, HER OR THEIR CHOOSING REGARDING THE EXECUTION, DELIVERY AND PERFORMANCE OF THE OBLIGATIONS HEREUNDER.

16. Binding Agreement. This Deed Rider shall bind and inure to the benefit of the persons, entities and parties named herein and their successors or assigns as are permitted by this Deed Rider.

17. Amendment. This Deed Rider may not be rescinded, modified or amended, in whole or in part, without the written consent of the Monitoring Agent, the Municipality and the holder of any mortgage or other security instrument encumbering all or any portion of the Property, which written consent shall be recorded with the Registry.

Executed as a sealed instrument this _____ day of _____, 20__.

Grantor: _____ Owner: _____

By: _____ By: _____
Its: _____

COMMONWEALTH OF MASSACHUSETTS

_____, ss.

On this _____ day of _____, 20__, before me, the undersigned notary public, personally appeared _____, of _____, proved to me through satisfactory evidence of identification, which was my personal knowledge, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he/she signed it voluntarily for its stated purpose, as _____ of _____, and as the voluntary act of _____.

Notary Public
My commission expires:

COMMONWEALTH OF MASSACHUSETTS

_____ County, ss.

On this _____ day of _____, 20____, before me, the undersigned notary public, personally appeared _____, proved to me through satisfactory evidence of identification, which was [*check one*]: [☐] a current driver's license, [☐] a current U.S. passport, [☐] my personal knowledge, to be the person whose name is signed on the preceding document, and acknowledged to me that he/she signed it voluntarily for its stated purpose.

Notary Public

My commission expires:

STORMWATER DRAINAGE REPORT **AND MANAGEMENT PLAN**

for
Habitat Great Falls
First Street
First Street
Turners Falls, MA

Prepared for
Franklin Hampshire Habitat for Humanity
221 Pine St., Suite 159,
Florence, MA 01062

Prepared by
T Reynolds Engineering
152 Maplewood Terrace
Florence, MA 01062
(413) 387-8078
e-mail: terry@treynoldsenineering.com

July, 2026

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APPENDICES

Appendix A: Pre- & Post-Construction Drainage Area Plans
Appendix B: Soils Report
Appendix C: Hydrologic Analyses
Appendix D: TSS Removal Calculation Worksheet
Appendix E: BMPs Checklist

T Reynolds Engineering (TRE) has been retained by Franklin Hampshire Habitat for Humanity (FHHH) to design and perform stormwater calculations for the existing and proposed conditions at parcel 04-0-0031 First Street in Turners Falls, MA. The purpose of this analysis is to evaluate the proposed stormwater design regarding potential increases in stormwater flows associated with the development of the property.

Project Summary

FHHH is proposing to build six new homes. In addition, associated paved parking and associated utilities are proposed. Currently the site is partially developed consisting of trees and shrubs on the SW side of the site and a parking lot on the NE side. The intent of this report is to show that the project will meet the general performance standards for Town approval.

The project has been designed so that existing stormwater drainage patterns and volumes will generally not be changed. Currently significant runoff flows onto the site from the Shady Glen restaurant located upgradient NW of the site onto the existing parking lot. The proposed housing units and associated lawn spaces are proposed to replace the existing paved parking lot. Stormwater runoff from the proposed buildings and newly graded areas will be collected in individual rain gardens. Pre-existing stormwater runoff from the Shady Glen restaurant will be collected in a larger rain garden with overflow being routed to the town stormwater system. The SW area of the site includes a large gravel parking strip that will be replaced with lawn areas and limited parking resulting in an overall reduction of impervious areas.

Soil Conditions

Review of the Soil Conservation Service (SCS), now Natural Resource Conservation Service (NRCS), Soil Survey Manual of Hampden County, indicates soils located within the area of concern are considered to be 275A – Agawam fine sandy loam. See the attached soils report for additional soils information, Appendix B.

Method of Drainage Analysis

The program HydroCAD was utilized to perform stormwater modeling for this project. HydroCAD uses the NRCS method of analysis TR-20. The TR-20 method is a widely accepted standard engineering practice within the civil engineering profession. The NRCS method of hydrology analysis utilizes the drainage area, hydraulic length, terrain slope, and soil conditions of a watershed or catchment as input to calculate peak flows and total volume of runoff for specific synthetic rain events.

The model analyzes an area approximately 49,800± SF contributing stormwater runoff flows on the project site. TRE modeled the 2-year, 10-year, 25-year and 100-year statistical rain events for the existing and proposed condition. The total rainfall per a 24-hour period for the 2, 10, 25, and 100-year statistical rain events are 2.88-inches, 4.34-inches, 5.26-inches, and 6.67-inches respectively (see Pre and Post Construction Drainage Area Plans, Appendix A).

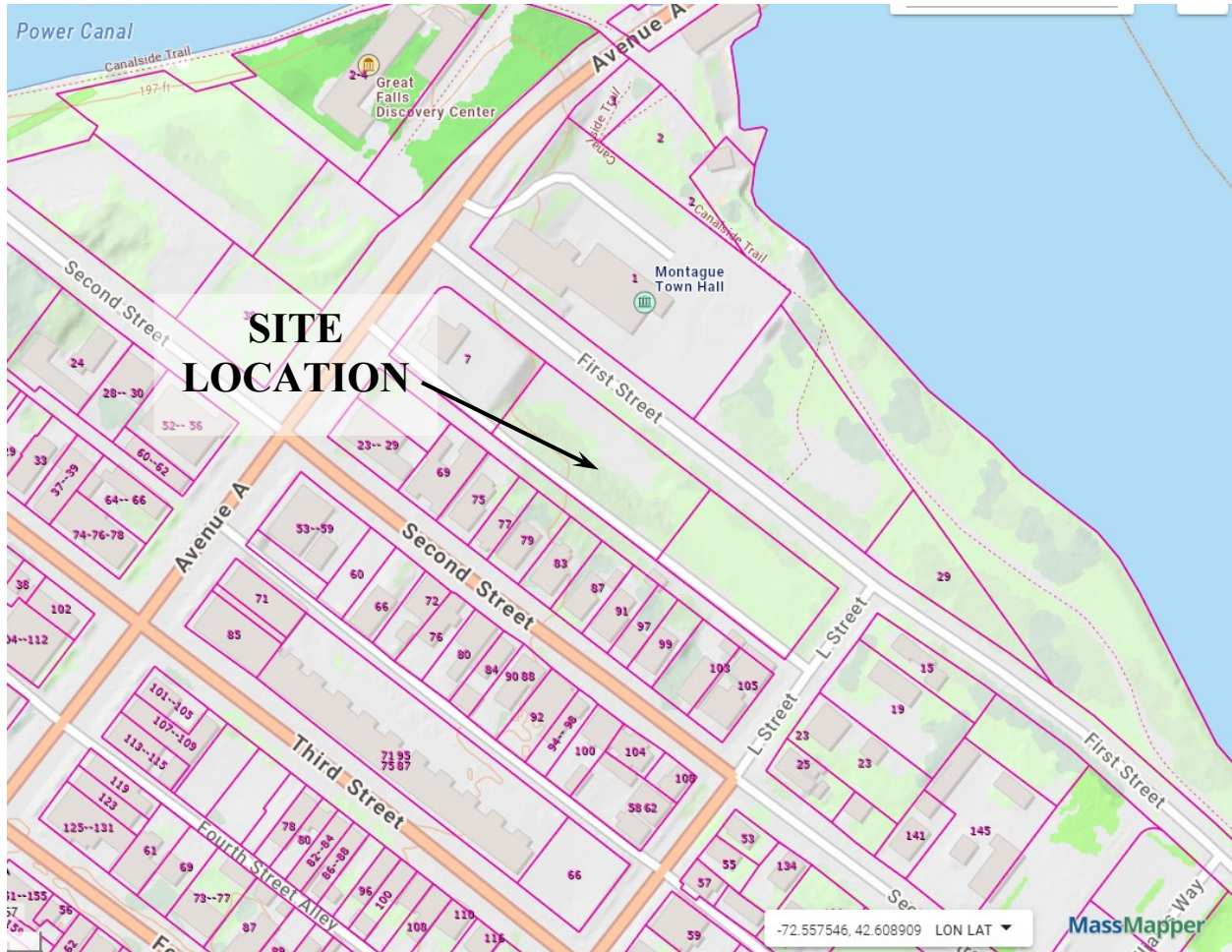


FIGURE 1: LOCUS OF PROJECT AREA
(MassMapper)

Limitations

The stormwater analysis was performed in accordance with standard civil engineering practice and relies on information provided by other parties as well as published information. Potential runoff analysis was limited to areas within the bounds of property owned and areas immediately adjacent and interpreted to drain toward the areas of concern.

It shall also be understood that the NRCS Method of drainage analyses was originally formulated to assist with the development of farmland and crop production. Although the NRCS method has become one of the standard methods of hydrologic analysis within civil engineering community, it may be conservative for use on very small areas of modern development and provide runoff results that are greater than actual conditions.

Model Results

The following tables summarize the results of the drainage analysis using HydroCad (See Hydrologic Analysis, Appendix C). Two design points and total runoff leaving the site were used to evaluate the potential stormwater impacts from the proposed development of the site.

First Street	2-Year (cfs)	10-Year (cfs)	25-Year (cfs)	100-Year (cfs)
Existing Conditions	1.58	2.92	3.78	5.11
Proposed Condition	1.28	2.53	3.41	4.61

Southern Boundary	2-Year (cfs)	10-Year (cfs)	25-Year (cfs)	100-Year (cfs)
Existing Conditions	0.43	0.75	.095	1.26
Proposed Condition	0.41	0.75	0.97	1.31

Conclusions

As can be seen from the above results, overall flows leaving the site are reduced during the 2, 10 and 25-year storm events. The calculations did result in a logical error for the two year event in the rain gardens. This resulted in the model producing a higher outflow than inflow. This is caused by the small rain garden area proportions to flow input. This value was manually adjusted so the outflow matched the inflow. Stormwater discharges from the basin during the 100-year event are also reduce and as such no significant increased flooding or overtopping of structures is expected.

(See Hydrologic Analysis, Appendix C).

Construction Period Pollution Prevention and Erosion and Sediment Control Measures

The following erosion and sedimentation control measures will be employed during the earthwork and construction phases of the project.

Sediment Barrier and Work Limit: Before installation of the sediment barriers, the location shall be staked in the field for review and approval by the engineer or their representative. To facilitate sediment barrier installation, woody vegetation may then be removed and any required trench may be cut by machine, provided all other ground cover is left intact.

Filter Sock (Filtrexx or equivalent): In areas of expected sheet flow, filter sock may be placed directly on the ground without trenching or stakes. In areas of expected concentrated flow, mulch or crushed stone shall be placed along the up-slope face to control and filter underflow. Additional layers of Filter Sock may be required for adequate freeboard.

Temporary Sediment Basins: Temporary sediment basins may be excavations or bermed stormwater detention structures (depending on grading) that will retain runoff for a sufficient period of time to allow suspended soil particles to settle out prior to discharge. These temporary basins will be located based on the construction needs as determined by the contractor and outlet devices will be designed to control velocity and sediment. Points of discharge from sediment basins will be stabilized to minimize erosion.

Stocking Additional Materials: A stock of additional erosion control materials shall be available on the site for emergency repairs and temporary measures. Stock shall be replenished when decreased to 50% of the numbers below. Stock shall include:

Straw -bales - 10 (Covered to be kept dry) with 20 Oak stakes

Or

Silt fence - 30 linear feet.

Or

Filter Sock - 4, 8 ft. sections (covered to be kept dry)

Washed stone - 1 cubic yards, 3/4" to 1 2" diameter

Trench Protection: Open trenches shall be protected from accumulation of surface water or groundwater that could result in erosion of the trench and discharge of sediment. Where feasible, spoil shall be stockpiled on the up-slope side of the trench to prevent surface runoff from entering the trench. Backfill shall be crowned to allow for settlement and to avoid concentration of runoff on top of the trench.

Storm Drain Protection: The storm drain and swale system shall be put into operation as soon as possible in order to control runoff within a non-erodible system. The storm drain system shall be protected against inflow of sediment. Open storm drain structures shall be protected by sediment barriers, "Filtrexx" filter socks, stone filter berms, or filter fabric inserts (tea-bags, silt-sacks or equivalents). These measures shall be maintained until the tributary area is stabilized by paving and vegetative cover.

Site Stabilization - Temporary: Where a portion of the site will not be subject to construction activity for over 14 days, measures shall be taken to provide temporary stabilization of that inactive portion of the site, within 14 days of the cessation of construction activity. Stabilization measures may include seeding for temporary cover, mulching, or other measures to protect exposed soil from erosion and prevent sediment movement.

Site Stabilization - Permanent: Within 14 days of completion of loaming and finish grading on any portion of the site, that area shall be seeded or planted for permanent cover (season permitting) in accordance with USDA NRCS guidelines or equivalent.

Roadway Sweeping: The entrance to the site and affected portions of the public roadway or paved project roadway shall be swept as needed to control sediment runoff into storm drains or waterways and to control dust migration.

Short-Term Erosion Control Maintenance

- The contractor or subcontractor will be responsible for implementing all erosion and sediment controls.
- The on-site contractor will inspect all sediment and erosion controls on a ongoing weekly basis and after each significant rainfall event. Records of the inspections will be prepared and maintained on-site by the contractor.
- Sediment shall be removed from behind barriers if greater than 6-inches deep or as needed.
- Damaged or deteriorated items will be repaired immediately after identification.
- The underside of filter socks should be kept in close contact with the earth and reset or provided with mulch or stone filter as necessary.
- The underside of hay bales should be kept in close contact with the earth and reset as necessary.
- Sediment that is collected in drainage structures or within sediment controls shall be disposed of properly and, if on site, shall not be placed in an area subject to erosion.
- Erosion control structures shall remain in place until all disturbed earth has been securely stabilized. After removal of structures, disturbed areas shall be re-graded and stabilized as necessary.

The sedimentation and erosion control plan is included in project plan set.

Post Construction Operation and Maintenance Plan

The following maintenance program is proposed to ensure the continued effectiveness of the structural water quality controls previously described.

The Stormwater management system will be owned and operated by the Owners of the individual lots. Individual O&M agreements between the owners and Town will be prepared and recorded as part of the closing processes for the individual lots.

Operation and maintenance of stormwater management system will be the responsibility of the Owners.

Rain Gardens

- The vegetation on the side slopes and in the buffer areas should be mowed, and grass clippings, organic matter, and accumulated trash and debris removed, at least twice during the growing season. Eroded or barren spots should be reseeded immediately after inspection to prevent additional erosion and accumulation of sediment.
- Inspect soil and repair eroded areas monthly. Re-seed/mulch void areas as needed. Remove litter and debris monthly. Treat/replace diseased vegetation as needed. Remove and replace dead vegetation twice per year (spring and fall) and re-mulch as needed. Remove invasive species as needed to prevent these species from spreading into the rain garden area.
- Basin Bottom Areas planted with the “Short Sedge Meadow Mix” from Prairie Moon Nursery only:
- First year mow at a mower height of 6-8" and remove clippings whenever the vegetation exceeds 10" in height to remove unwanted weeds (usually once weeds reach 8-12 inches and before weeds set seeds). Hand remove unwanted woody material as needed. Annual assessment of desired wildflower establishment is recommended to establish a long term diverse wildflower outcomes.
- Rain gardens should be inspected by the engineer every five years to assess ongoing functionality. Upon failure, excavate rain garden area, scarify bottom and sides, replace filter fabric and soil, replant, and re-seed as directed by engineer.

Parking Lot Sweeping

Paved areas will be swept, at a minimum, two times per year in the months of May and October.

See the Grading and Drainage Plan for a scaled drawing of the treatment train.

Long Term Pollution Prevention Plan

Good Housekeeping Practices

The following is a list of good housekeeping practices provided as guidance by DEP to be considered by the property management company hired to maintain the proposed building and grounds.

Lawn and Garden Activities, including application and disposal of lawn and garden care products, and proper disposal of leaves and yard trimmings. Effective measures include: applying pesticides and fertilizers properly, including: timing; application reduction; providing buffer areas (preferably natural vegetation) between surface waters and lawn and garden activities; limiting lawn watering and landscaping with climate-suitable vegetation; providing guidelines for what to expect from landscaping and lawn care professionals; and providing composting guidelines, if not covered elsewhere under solid waste efforts.

<<http://www.mass.gov/dep/water/resources/nonpoint.htm#megaman>>

See “More than Just a Yard: Ecological Landscaping Tools for Massachusetts Homeowners”

http://www.mass.gov/envir/mwrc/pdf/More_Than_Just_Yard.pdf

and Guide to Lawn and Landscape Water Conservation,

<http://www.mass.gov/envir/mwrc/pdf/LawnGuide.pdf>.

Turf Management on golf courses, parks, and recreation areas. Many of the measures described above are applicable to turf management and need to be implemented by caretakers responsible for golf courses and parks and recreation areas (including municipal employees, in some cases).

Pet Waste Management. Pooper-scooper laws for pets should be enacted and implemented. Public outreach is essential to the effectiveness of these laws. Priority resource areas, such as bathing beaches and shellfish growing areas may need to exclude pets at least for the summer months or at other critical use times. Specific controls for horses and the control of manure may be needed.

<<http://www.mass.gov/dep/water/resources/nonpoint.htm#megaman>>

Integrated Pest Management (IPM) effectively prevents and controls pests (including weeds) in a way that maximizes environmental benefits at a reduced cost to growers. IPM involves applying an array of techniques and control strategies for pest management – with a focus on using them in the proper amounts and determining when they are most needed. By choosing from all possible pest control methods (e.g., biological controls and beneficial organisms) and rotating methods, resistance to repeated chemical controls can be delayed or prevented.

<<http://www.mass.gov/dep/water/resources/nonpoint.htm#megaman>>

Proper Storage, Use, and Disposal of Household Hazardous Chemicals, including automobile fluids, pesticides, paints, and solvents. Information should be provided on chemicals of concern, proper use, and disposal options. Household hazardous waste collection days should be sponsored whenever feasible. Recycling programs for used motor oil, antifreeze, and other products should be developed and promoted.

Storm Drain Stenciling involves labeling storm drain inlets with painted messages warning citizens not to dump pollutants into the drains. The stenciled messages are generally a simple phrase to remind passersby that the storm drains connect to local waterbodies and that dumping pollutes those waters. Some storm drain stencils specify which waterbody the inlet drains to or name the particular river, lake, or bay. Commonly stenciled messages include: “No Dumping. Drains to Water Source,” “Drains to River,” and “You Dump it, You Drink it. No Waste Here.” Pictures can also be used to convey the message, including a shrimp, common game fish, or a graphic depiction of the path from drain to waterbody. Communities with a large Spanish-speaking population might wish to develop stencils in both English and Spanish, or use a graphic alone. <<http://www.mass.gov/dep/water/resources/nonpoint.htm#megaman>>

Proper Operation and Maintenance of Septic Systems. Knowledge of proper operation and maintenance of septic systems should be promoted to avoid serious failures.

Car Washing. This management measure involves educating the general public, businesses, municipal fleets (public works, school buses, fire, police, and parks) on the water quality impacts of the outdoor washing of automobiles and how to avoid allowing polluted runoff to enter the storm drain system. Outdoor car washing has the potential to result in high loads of nutrients, metals, and hydrocarbons during dry weather conditions in many watersheds, as the detergent-rich water used to wash the grime off our cars flows down streets and into storm drains. Commercial car wash facilities often recycle their water or are required to treat their wash-water discharge prior to release to the sanitary sewer system. As a result, most stormwater impacts from car washing are from residents, businesses, and charity car wash fundraisers that discharge polluted wash water to the storm drain system.

<<http://www.mass.gov/dep/water/resources/nonpoint.htm#megaman>>

Commercial Operations and Activities, including parking lots, gas stations, and other local businesses. Recycling, spill prevention and response plans, and proper material storage and disposal should be promoted. Using dry floor cleaners and absorbent materials and limiting the use of water to clean driveways and walkways should be encouraged. Care should be taken to avoid accidental disposal of hazardous materials down floor drains. Floor drains should be inventoried.

Department of Public Works Facilities (DPWs). Because of the nature of the activities they perform, such as storing and managing sand, salt, and chemicals, and fueling and maintaining trucks and other equipment, DPWs are in a unique position to prevent a wide range of compounds from becoming stormwater pollutants. MassDEP has developed a Fact Sheet specifically for DPWs:

<<http://www.mass.gov/dep/water/resources/nonpoint.htm#megaman>>

Other efforts, including water conservation and litter control, can be tied to nonpoint source pollution control.

Provisions for Storing Materials and Waste Products Inside or Under Cover

All maintenance will be conducted by independent contractors hired by the property owner. No maintenance equipment or materials will be kept on-site.

Vehicle Washing Controls

All maintenance vehicles will be associated with independent contractors hired by the property manager. These vehicles will not be cleaned on-site. Vehicles owned by employees will not be cleaned on-site.

Requirements for Routine inspections and Maintenance of Stormwater BMP's

Routine inspections will be performed to ensure the correct functioning of stormwater BMP's. Please see the Long Term Stormwater Maintenance Program for detail regarding inspections and maintenance.

Spill Prevention and Response Plan

It will be the responsibility of the property manager to contain and legally remove any materials that are spilled onsite. The property manager will be responsible for providing an emergency response plan for any spills within the subject property.

Provisions for Maintenance of Lawns, Gardens, and Other Landscaped Areas

There will be standard landscaping consistent with other industrial uses. The use of fertilizers, herbicides and pesticides will be limited to areas outside of resource areas, and outside of the 50-foot buffer of the Bordering Vegetated Wetland (BVW) on-site. Standard practices will be conducted outside of said areas and will be the ultimate responsibility of the property manager.

Requirements for Storage and Use of Fertilizers, Herbicides, and Pesticides

As mentioned above, fertilizers, herbicides, and pesticides will be limited to those areas outside of the resource area and the 50-foot buffer zone to the bordering vegetated wetland on-site. All of these materials will be stored off-site by the independent contractor hired by the property manager and will be applied consistent with industry standards and applicable laws.

Pet Waste Management Provisions

Pet waste is not anticipated to be a problem. However, any pet waste is required to be properly maintained by the pet owner.

Provisions for Operation and Management of Septic Systems

There are no septic systems on-site. City sewer will be utilized for the proposed building.

Provisions for Solid Waste Management

A dumpster pad will be located on-site at the rear of the parking area. This area will be enclosed with PVC fencing to obscure it from plain view. The traffic circulation within the parking area is two-way throughout, which should provide easy access for trash removal.

Snow Disposal and Plowing Plans Relative to Wetland Resource Areas

All snow removal and deicing activities will be conducted as spelled out in the snow removal plan provided herewith. A snow removal area is proposed along the north side of the parking area. Snow will be stored in this area in the event of winter storms.

Winter Road Salt and/or Sand Use and Storage Restrictions

The use of road salt will be kept to a minimum per the Department of Environmental Protection's (DEP's) standards. Please refer to the Long Term Stormwater Maintenance Program for additional information.

Parking Lot Sweeping Schedules

Please see the Long-Term Stormwater Maintenance Program.

Provisions for Prevention of Illicit Discharges to the Stormwater Management System

Any and all illicit discharges to the stormwater basin will be promptly dealt with. It will be the property manager's responsibility to ensure compliance with the legal disposal of all materials and containment/cleanup of any illicit discharges.

Training for Staff or Personnel Involved with Implementing Long-Term Pollution Prevention Plan

The property manager on-site will be responsible for the implementations of the measures set forth in the Long-Term Pollution Prevention Plan (LTPPP). Said property manager will be responsible for providing documentation that management staff and sub-contractors involved with the implementation of the LTPPP have been trained to conduct such tasks.

Appendix A:
Pre-Construction and Post-Construction Drainage Area Plans

NOTES:
1. THE PREMISES AND EXISTING CONDITIONS SHOWN HEREON ARE THE RESULT OF SURFACE EVIDENCE AS LOCATED BY FIELD SURVEY, PLANS OF RECORD, INFORMATION FURNISHED BY LAND SURVEY FOR PIONEER VALLEY HARBOR FOR HUMANITY BY HOLMBERG AND SPRING OF 2023.

UTILITY NOTE

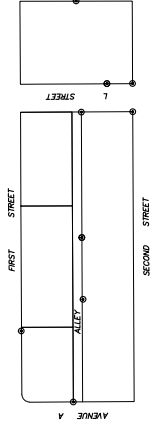
LOCATIONS OF UTILITIES SHOWN HEREON ARE THE RESULT OF SURFACE EVIDENCE AS LOCATED BY FIELD SURVEY, PLANS OF RECORD, INFORMATION FURNISHED BY LAND SURVEY FOR PIONEER VALLEY HARBOR FOR HUMANITY BY HOLMBERG AND SPRING OF 2023. CONTRACTORS SHOULD CONTACT DIG SAFE (811) PRIOR TO ANY DIGGING.

DISCREPANCIES WERE FOUND BETWEEN WHAT WE OBSERVED IN THE FIELD FOR THIS SURVEY AND A PLAN ENTITLED "TOWN OF MONTAGUE F119 COMPLETE STREETS GRANT PROJECT SITE 3 CONSTRUCTION PLANS SHEET 1 OF 1" WHICH HAVE NOT BEEN RESOLVED.

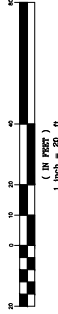
PROJECT BENCHMARK

MASS DOT ID: 11100
ELEVATION = 186.40' NAD 1988

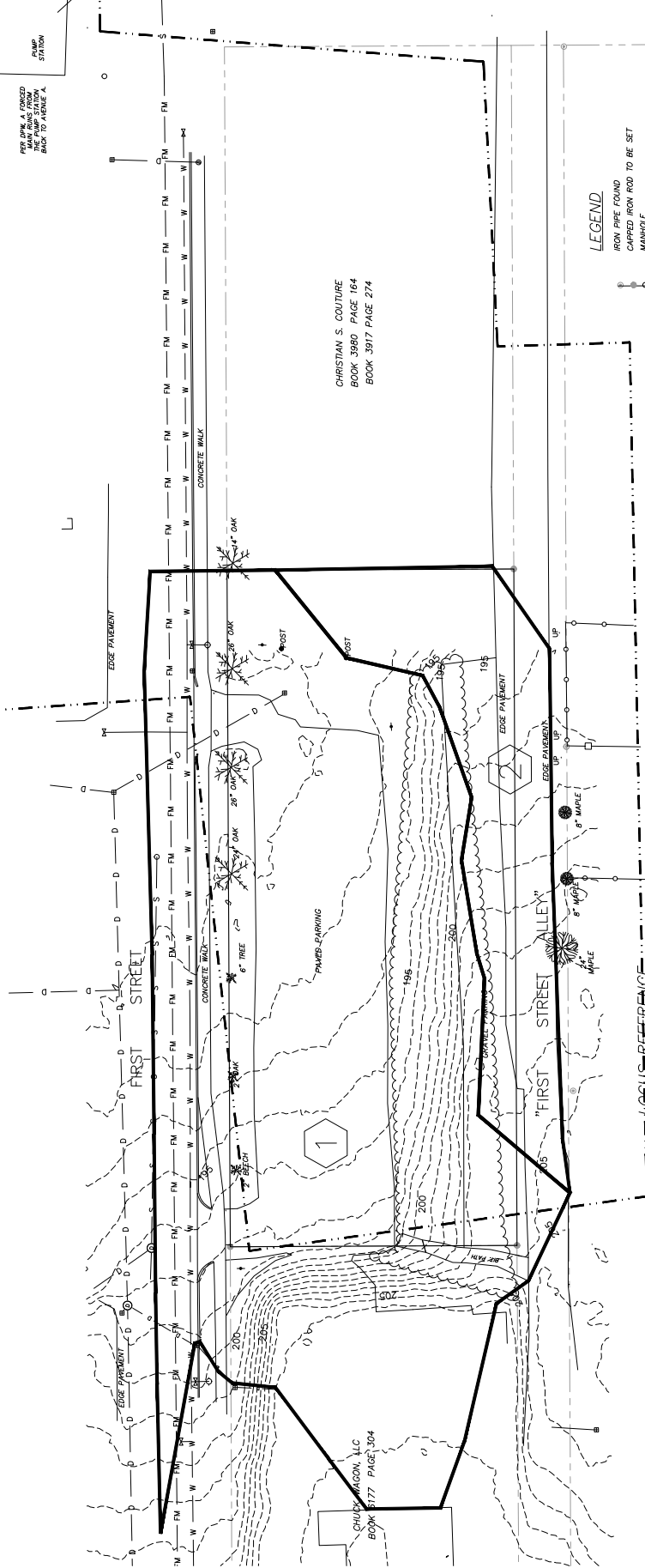
VICINITY MAP



GRAPHIC SCALE



3/4" Scale
279A - Agreement
First Survey Locom



LEGEND

- IRON PIPE FOUND
- CAPED IRON ROD TO BE SET
- MANHOLE
- SEWER MANHOLE
- DRAIN MANHOLE
- CATCH BASIN
- WATER GATE
- HYDRANT
- UTILITY POLE
- LIGHT POLE
- SIGN
- OVERHEAD WIRES
- SEWER LINE
- DRAIN LINE
- WATER LINE
- CHAIN LINK FENCE
- FREE LINE

TOWN OF MONTAGUE
BOOK 1165 PAGE 584
SEE BOOK 863 PAGE 399 FOR
COMPLETE DESCRIPTION
EVIDENCE AND SURVEY DATA REFERRED TO
SAMUEL L. COUTURE IN BOOK 1465 PAGE 8.

28,523 SF±

Permitting, Not for Construction

T Reynolds Engineering
Civil Engineers
Planning, Design, Surveying Services
15 Maplewood Terrace
Florence, MA 01062
Phone: 413.397.8878 Fax: 413.397.5477
email: trey@treynoldengineering.com
www.treynoldengineering.com

Existing Drainage Area Plan
Great Falls, First Street Project
First Street
Turners Falls, MA



PREPARED FOR:
Franklin for Humanity
15 Maplewood Terrace
Florence, MA 01062

REVISIONS:	DATE:

UNAUTHORIZED ALTERATION OF
THIS DOCUMENT IS A VIOLATION OF
MASSACHUSETTS STATE LAW

PROJECT NO: 28-1101
DRAWING Eng Plan 7-9-26
ISSUE DATE: 7/14/26
SCALE: 1" = 20'
SHEET NO. 1 OF 2

Appendix B:
Soils Report



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

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

Custom Soil Resource Report for **Franklin County, Massachusetts**



August 4, 2023

Preface

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

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

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

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

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

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

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How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Map

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

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Soil Map



MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

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

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

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

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

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

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

Soil Survey Area: Franklin County, Massachusetts
Survey Area Data: Version 17, Sep 9, 2022

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

Date(s) aerial images were photographed: Oct 15, 2020—Oct 31, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
275A	Agawam fine sandy loam, 0 to 3 percent slopes	1.5	42.6%
656	Udorthents-Urban land complex	2.0	57.4%
Totals for Area of Interest		3.6	100.0%

Map Unit Descriptions

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

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onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

Franklin County, Massachusetts

275A—Agawam fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2tyqw

Elevation: 0 to 1,040 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 250 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Agawam and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Agawam

Setting

Landform: Moraines, kames, kame terraces, outwash plains, outwash terraces

Landform position (two-dimensional): Summit, shoulder, backslope, footslope

Landform position (three-dimensional): Side slope, crest, riser, tread, rise, dip

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Coarse-loamy eolian deposits over sandy and gravelly glaciofluvial deposits derived from gneiss, granite, schist, and/or phyllite

Typical profile

Ap - 0 to 11 inches: fine sandy loam

Bw1 - 11 to 16 inches: fine sandy loam

Bw2 - 16 to 26 inches: fine sandy loam

2C1 - 26 to 39 inches: loamy fine sand

2C2 - 39 to 55 inches: loamy fine sand

2C3 - 55 to 65 inches: loamy sand

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: 15 to 35 inches to strongly contrasting textural stratification

Drainage class: Well drained

Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2s

Hydrologic Soil Group: B

Ecological site: F145XY008MA - Dry Outwash

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Hydric soil rating: No

Minor Components

Ninigret

Percent of map unit: 5 percent

Landform: Terraces

Down-slope shape: Linear

Across-slope shape: Concave

Hydric soil rating: No

Windsor

Percent of map unit: 4 percent

Landform: Dunes, deltas, outwash terraces, outwash plains

Landform position (three-dimensional): Tread, riser

Down-slope shape: Convex, linear

Across-slope shape: Convex, linear

Hydric soil rating: No

Walpole

Percent of map unit: 3 percent

Landform: Deltas, depressions, outwash terraces, depressions, outwash plains

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread, talf, dip

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

Hinckley

Percent of map unit: 3 percent

Landform: Deltas, kames, eskers, outwash plains

Landform position (two-dimensional): Summit, shoulder, backslope

Landform position (three-dimensional): Head slope, nose slope, side slope, crest,
rise

Down-slope shape: Convex

Across-slope shape: Convex, linear

Hydric soil rating: No

656—Udorthents-Urban land complex

Map Unit Setting

National map unit symbol: 9c8s

Elevation: 100 to 1,670 feet

Mean annual precipitation: 37 to 53 inches

Mean annual air temperature: 33 to 59 degrees F

Frost-free period: 127 to 182 days

Farmland classification: Not prime farmland

Map Unit Composition

Udorthents and similar soils: 50 percent

Urban land: 45 percent

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Minor components: 5 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Setting

Landform position (two-dimensional): Summit

Landform position (three-dimensional): Talf

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Human reworked till and/or alluvium and/or glaciofluvial deposits

Typical profile

^A - 0 to 6 inches: fine sandy loam

^C1 - 6 to 23 inches: stratified loamy very fine sand to fine sandy loam

^C2 - 23 to 42 inches: stratified loamy very fine sand to fine sandy loam

^C3 - 42 to 46 inches: fine sand

^C4 - 46 to 65 inches: loamy fine sand

Properties and qualities

Slope: 0 to 15 percent

Surface area covered with cobbles, stones or boulders: 0.0 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (0.60 to 20.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4s

Hydrologic Soil Group: A

Hydric soil rating: No

Minor Components

Windsor

Percent of map unit: 5 percent

Landform: Terraces, outwash plains

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread, rise

Down-slope shape: Convex

Across-slope shape: Convex

Hydric soil rating: No

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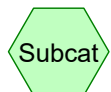
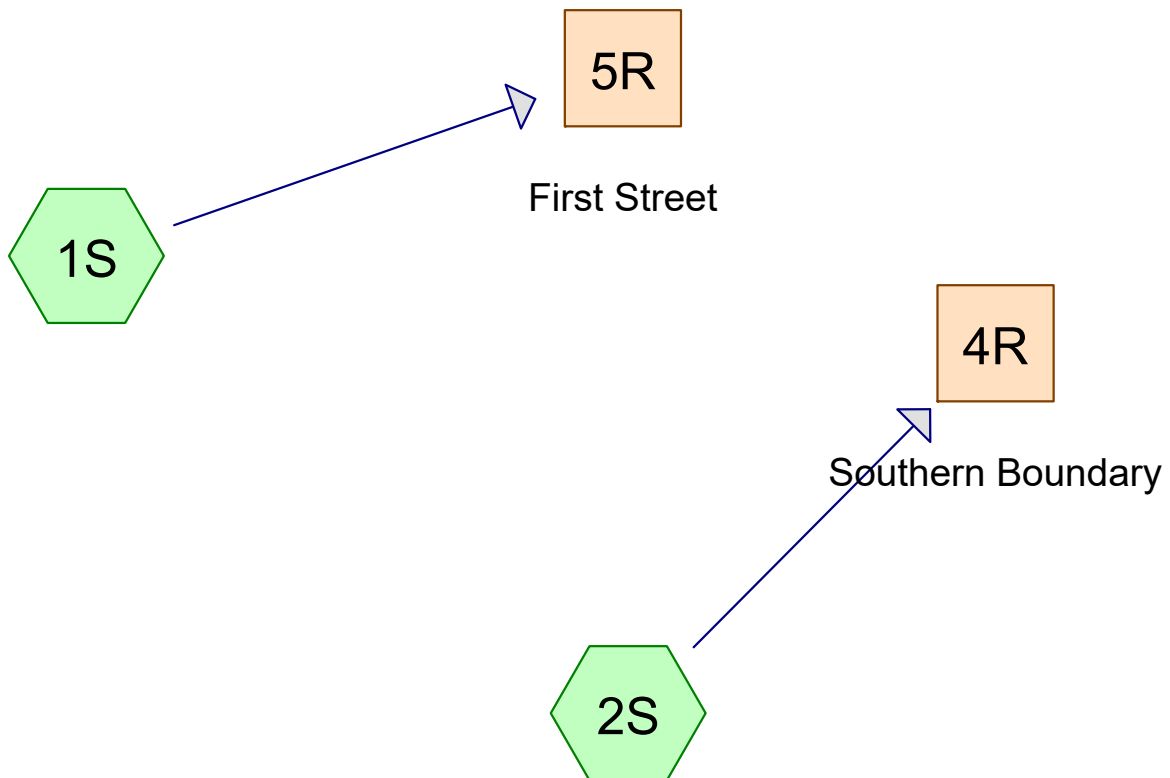
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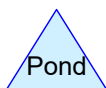
Appendix C:
Hydrologic Analyses



Subcat



Reach



Pond



Link

Routing Diagram for Pre Dev

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Pre Dev

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Page 2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
4,803	61	>75% Grass cover, Good, HSG B (1S, 2S)
4,935	96	Gravel surface, HSG B (1S, 2S)
29,038	98	Paved parking, HSG B (1S, 2S)
11,025	59	Woods/grass comb., Good, HSG B (1S)
49,801	86	TOTAL AREA

Pre Dev*Type III 24-hr 2-Year Event Rainfall=2.88"*

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1S:

Runoff Area=40,300 sf 61.72% Impervious Runoff Depth>1.38"
Tc=6.0 min CN=85 Runoff=1.58 cfs 4,647 cf

Subcatchment 2S:

Runoff Area=9,501 sf 43.83% Impervious Runoff Depth>1.60"
Tc=6.0 min CN=88 Runoff=0.43 cfs 1,268 cf

Reach 4R: Southern Boundary

Inflow=0.43 cfs 1,268 cf
Outflow=0.43 cfs 1,268 cf

Reach 5R: First Street

Inflow=1.58 cfs 4,647 cf
Outflow=1.58 cfs 4,647 cf

Total Runoff Area = 49,801 sf Runoff Volume = 5,914 cf Average Runoff Depth = 1.43"
41.69% Pervious = 20,763 sf 58.31% Impervious = 29,038 sf

Pre Dev

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Type III 24-hr 2-Year Event Rainfall=2.88"

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Summary for Subcatchment 1S:

Runoff = 1.58 cfs @ 12.09 hrs, Volume= 4,647 cf, Depth> 1.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Event Rainfall=2.88"

Area (sf)	CN	Description
12,989	98	Paved parking, HSG B
2,264	61	>75% Grass cover, Good, HSG B
11,885	98	Paved parking, HSG B
* 11,025	59	Woods/grass comb., Good, HSG B
1,815	96	Gravel surface, HSG B
322	96	Gravel surface, HSG B
40,300	85	Weighted Average
15,426		38.28% Pervious Area
24,874		61.72% Impervious Area

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

Summary for Subcatchment 2S:

Runoff = 0.43 cfs @ 12.09 hrs, Volume= 1,268 cf, Depth> 1.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Event Rainfall=2.88"

Area (sf)	CN	Description
4,164	98	Paved parking, HSG B
2,798	96	Gravel surface, HSG B
2,539	61	>75% Grass cover, Good, HSG B
9,501	88	Weighted Average
5,337		56.17% Pervious Area
4,164		43.83% Impervious Area

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

Summary for Reach 4R: Southern Boundary

Inflow Area = 9,501 sf, 43.83% Impervious, Inflow Depth > 1.60" for 2-Year Event event
Inflow = 0.43 cfs @ 12.09 hrs, Volume= 1,268 cf
Outflow = 0.43 cfs @ 12.09 hrs, Volume= 1,268 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach 5R: First Street

Inflow Area = 40,300 sf, 61.72% Impervious, Inflow Depth > 1.38" for 2-Year Event event
Inflow = 1.58 cfs @ 12.09 hrs, Volume= 4,647 cf
Outflow = 1.58 cfs @ 12.09 hrs, Volume= 4,647 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pre Dev*Type III 24-hr 10-Year Event Rainfall=4.34"*

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1S:

Runoff Area=40,300 sf 61.72% Impervious Runoff Depth>2.59"
Tc=6.0 min CN=85 Runoff=2.92 cfs 8,704 cf

Subcatchment 2S:

Runoff Area=9,501 sf 43.83% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=88 Runoff=0.75 cfs 2,271 cf

Reach 4R: Southern Boundary

Inflow=0.75 cfs 2,271 cf
Outflow=0.75 cfs 2,271 cf

Reach 5R: First Street

Inflow=2.92 cfs 8,704 cf
Outflow=2.92 cfs 8,704 cf

Total Runoff Area = 49,801 sf Runoff Volume = 10,975 cf Average Runoff Depth = 2.64"
41.69% Pervious = 20,763 sf 58.31% Impervious = 29,038 sf

Pre Dev

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Type III 24-hr 10-Year Event Rainfall=4.34"

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Summary for Subcatchment 1S:

Runoff = 2.92 cfs @ 12.09 hrs, Volume= 8,704 cf, Depth> 2.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Event Rainfall=4.34"

Area (sf)	CN	Description
12,989	98	Paved parking, HSG B
2,264	61	>75% Grass cover, Good, HSG B
11,885	98	Paved parking, HSG B
* 11,025	59	Woods/grass comb., Good, HSG B
1,815	96	Gravel surface, HSG B
322	96	Gravel surface, HSG B
40,300	85	Weighted Average
15,426		38.28% Pervious Area
24,874		61.72% Impervious Area

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

Summary for Subcatchment 2S:

Runoff = 0.75 cfs @ 12.09 hrs, Volume= 2,271 cf, Depth> 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Event Rainfall=4.34"

Area (sf)	CN	Description
4,164	98	Paved parking, HSG B
2,798	96	Gravel surface, HSG B
2,539	61	>75% Grass cover, Good, HSG B
9,501	88	Weighted Average
5,337		56.17% Pervious Area
4,164		43.83% Impervious Area

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

Summary for Reach 4R: Southern Boundary

Inflow Area = 9,501 sf, 43.83% Impervious, Inflow Depth > 2.87" for 10-Year Event event

Inflow = 0.75 cfs @ 12.09 hrs, Volume= 2,271 cf

Outflow = 0.75 cfs @ 12.09 hrs, Volume= 2,271 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach 5R: First Street

Inflow Area = 40,300 sf, 61.72% Impervious, Inflow Depth > 2.59" for 10-Year Event event
Inflow = 2.92 cfs @ 12.09 hrs, Volume= 8,704 cf
Outflow = 2.92 cfs @ 12.09 hrs, Volume= 8,704 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pre Dev*Type III 24-hr 25-Year Event Rainfall=5.26"*

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1S:

Runoff Area=40,300 sf 61.72% Impervious Runoff Depth>3.40"
Tc=6.0 min CN=85 Runoff=3.78 cfs 11,402 cf

Subcatchment 2S:

Runoff Area=9,501 sf 43.83% Impervious Runoff Depth>3.70"
Tc=6.0 min CN=88 Runoff=0.95 cfs 2,927 cf

Reach 4R: Southern Boundary

Inflow=0.95 cfs 2,927 cf
Outflow=0.95 cfs 2,927 cf

Reach 5R: First Street

Inflow=3.78 cfs 11,402 cf
Outflow=3.78 cfs 11,402 cf

Total Runoff Area = 49,801 sf Runoff Volume = 14,328 cf Average Runoff Depth = 3.45"
41.69% Pervious = 20,763 sf 58.31% Impervious = 29,038 sf

Summary for Subcatchment 1S:

Runoff = 3.78 cfs @ 12.09 hrs, Volume= 11,402 cf, Depth> 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Event Rainfall=5.26"

Area (sf)	CN	Description
12,989	98	Paved parking, HSG B
2,264	61	>75% Grass cover, Good, HSG B
11,885	98	Paved parking, HSG B
* 11,025	59	Woods/grass comb., Good, HSG B
1,815	96	Gravel surface, HSG B
322	96	Gravel surface, HSG B
40,300	85	Weighted Average
15,426		38.28% Pervious Area
24,874		61.72% Impervious Area

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

Summary for Subcatchment 2S:

Runoff = 0.95 cfs @ 12.09 hrs, Volume= 2,927 cf, Depth> 3.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Event Rainfall=5.26"

Area (sf)	CN	Description
4,164	98	Paved parking, HSG B
2,798	96	Gravel surface, HSG B
2,539	61	>75% Grass cover, Good, HSG B
9,501	88	Weighted Average
5,337		56.17% Pervious Area
4,164		43.83% Impervious Area

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

Summary for Reach 4R: Southern Boundary

Inflow Area = 9,501 sf, 43.83% Impervious, Inflow Depth > 3.70" for 25-Year Event event
Inflow = 0.95 cfs @ 12.09 hrs, Volume= 2,927 cf
Outflow = 0.95 cfs @ 12.09 hrs, Volume= 2,927 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach 5R: First Street

Inflow Area = 40,300 sf, 61.72% Impervious, Inflow Depth > 3.40" for 25-Year Event event
Inflow = 3.78 cfs @ 12.09 hrs, Volume= 11,402 cf
Outflow = 3.78 cfs @ 12.09 hrs, Volume= 11,402 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pre Dev*Type III 24-hr 100-Year Event Rainfall=6.67"*

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1S:

Runoff Area=40,300 sf 61.72% Impervious Runoff Depth>4.66"
Tc=6.0 min CN=85 Runoff=5.11 cfs 15,648 cf

Subcatchment 2S:

Runoff Area=9,501 sf 43.83% Impervious Runoff Depth>4.98"
Tc=6.0 min CN=88 Runoff=1.26 cfs 3,946 cf

Reach 4R: Southern Boundary

Inflow=1.26 cfs 3,946 cf
Outflow=1.26 cfs 3,946 cf

Reach 5R: First Street

Inflow=5.11 cfs 15,648 cf
Outflow=5.11 cfs 15,648 cf

Total Runoff Area = 49,801 sf Runoff Volume = 19,593 cf Average Runoff Depth = 4.72"
41.69% Pervious = 20,763 sf 58.31% Impervious = 29,038 sf

Pre Dev

Type III 24-hr 100-Year Event Rainfall=6.67"

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Summary for Subcatchment 1S:

Runoff = 5.11 cfs @ 12.09 hrs, Volume= 15,648 cf, Depth> 4.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Event Rainfall=6.67"

Area (sf)	CN	Description
12,989	98	Paved parking, HSG B
2,264	61	>75% Grass cover, Good, HSG B
11,885	98	Paved parking, HSG B
* 11,025	59	Woods/grass comb., Good, HSG B
1,815	96	Gravel surface, HSG B
322	96	Gravel surface, HSG B
40,300	85	Weighted Average
15,426		38.28% Pervious Area
24,874		61.72% Impervious Area

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

Summary for Subcatchment 2S:

Runoff = 1.26 cfs @ 12.09 hrs, Volume= 3,946 cf, Depth> 4.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Event Rainfall=6.67"

Area (sf)	CN	Description
4,164	98	Paved parking, HSG B
2,798	96	Gravel surface, HSG B
2,539	61	>75% Grass cover, Good, HSG B
9,501	88	Weighted Average
5,337		56.17% Pervious Area
4,164		43.83% Impervious Area

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

Summary for Reach 4R: Southern Boundary

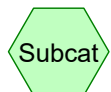
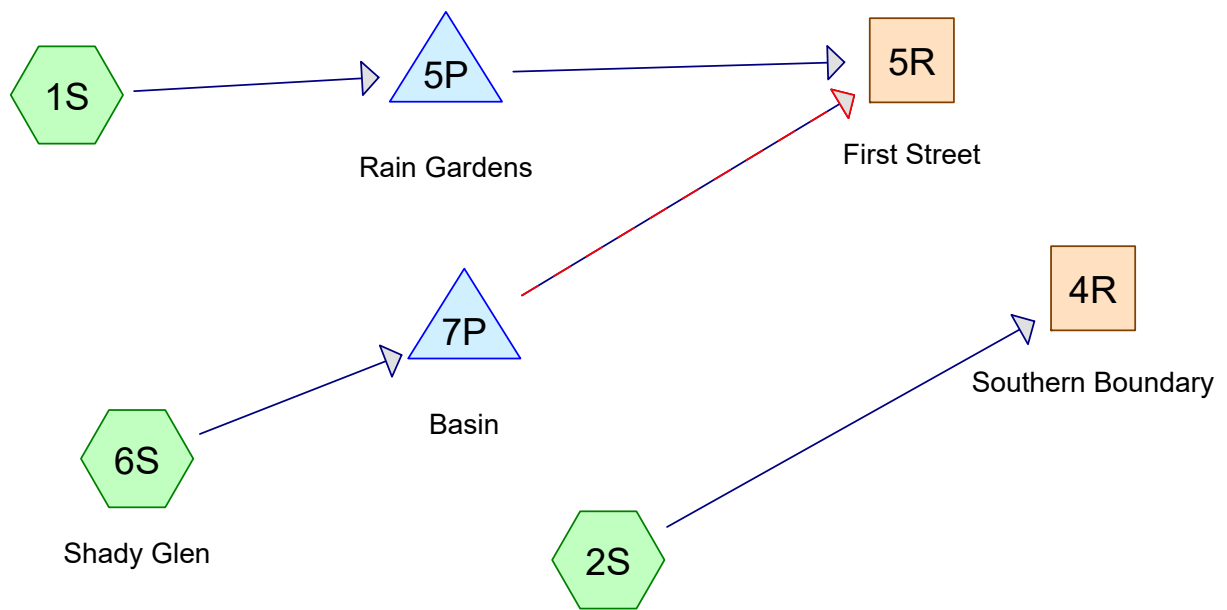
Inflow Area = 9,501 sf, 43.83% Impervious, Inflow Depth > 4.98" for 100-Year Event event
 Inflow = 1.26 cfs @ 12.09 hrs, Volume= 3,946 cf
 Outflow = 1.26 cfs @ 12.09 hrs, Volume= 3,946 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach 5R: First Street

Inflow Area = 40,300 sf, 61.72% Impervious, Inflow Depth > 4.66" for 100-Year Event event
Inflow = 5.11 cfs @ 12.09 hrs, Volume= 15,648 cf
Outflow = 5.11 cfs @ 12.09 hrs, Volume= 15,648 cf, Atten= 0%, Lag= 0.0 min

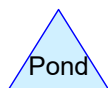
Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



Subcat



Reach



Pond



Link

Routing Diagram for Pro Dev

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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
3,438	69	50-75% Grass cover, Fair, HSG B (6S)
13,912	61	>75% Grass cover, Good, HSG B (1S)
23,124	98	Paved parking, HSG B (1S, 2S, 6S)
5,818	98	Roofs, HSG B (1S, 2S, 6S)
162	98	Water Surface, HSG B (6S)
3,322	58	Woods/grass comb., Good, HSG B (2S)
49,776	83	TOTAL AREA

Pro Dev*Type III 24-hr 2-Year Event Rainfall=2.88"*

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1S:	Runoff Area=29,098 sf 52.19% Impervious Runoff Depth>1.07" Tc=6.0 min CN=80 Runoff=0.88 cfs 2,591 cf
Subcatchment 2S:	Runoff Area=10,363 sf 67.94% Impervious Runoff Depth>1.38" Tc=6.0 min CN=85 Runoff=0.41 cfs 1,195 cf
Subcatchment 6S: Shady Glen	Runoff Area=10,315 sf 66.67% Impervious Runoff Depth>1.60" Tc=6.0 min CN=88 Runoff=0.47 cfs 1,376 cf
Reach 4R: Southern Boundary	Inflow=0.41 cfs 1,195 cf Outflow=0.41 cfs 1,195 cf
Reach 5R: First Street	Inflow=1.61 cfs 1,970 cf Outflow=1.61 cfs 1,970 cf
Pond 5P: Rain Gardens	Peak Elev=195.05' Storage=441 cf Inflow=0.88 cfs 2,591 cf Discarded=0.05 cfs 1,160 cf Primary=1.17 cfs 1,165 cf Outflow=1.22 cfs 2,325 cf
Pond 7P: Basin	Peak Elev=196.22' Storage=128 cf Inflow=0.47 cfs 1,376 cf Discarded=0.02 cfs 512 cf Primary=0.45 cfs 806 cf Secondary=0.00 cfs 0 cf Outflow=0.46 cfs 1,318 cf
Total Runoff Area = 49,776 sf Runoff Volume = 5,162 cf Average Runoff Depth = 1.24" 41.53% Pervious = 20,672 sf 58.47% Impervious = 29,104 sf	

Summary for Subcatchment 1S:

Runoff = 0.88 cfs @ 12.10 hrs, Volume= 2,591 cf, Depth> 1.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Event Rainfall=2.88"

Area (sf)	CN	Description
10,538	98	Paved parking, HSG B
13,912	61	>75% Grass cover, Good, HSG B
4,648	98	Roofs, HSG B
29,098	80	Weighted Average
13,912		47.81% Pervious Area
15,186		52.19% Impervious Area

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

Summary for Subcatchment 2S:

Runoff = 0.41 cfs @ 12.09 hrs, Volume= 1,195 cf, Depth> 1.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Event Rainfall=2.88"

Area (sf)	CN	Description
6,261	98	Paved parking, HSG B
3,322	58	Woods/grass comb., Good, HSG B
780	98	Roofs, HSG B
10,363	85	Weighted Average
3,322		32.06% Pervious Area
7,041		67.94% Impervious Area

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

Summary for Subcatchment 6S: Shady Glen

Runoff = 0.47 cfs @ 12.09 hrs, Volume= 1,376 cf, Depth> 1.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Event Rainfall=2.88"

Area (sf)	CN	Description
6,325	98	Paved parking, HSG B
3,438	69	50-75% Grass cover, Fair, HSG B
162	98	Water Surface, HSG B
390	98	Roofs, HSG B
10,315	88	Weighted Average
3,438		33.33% Pervious Area
6,877		66.67% Impervious Area

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

Summary for Reach 4R: Southern Boundary

Inflow Area = 10,363 sf, 67.94% Impervious, Inflow Depth > 1.38" for 2-Year Event event
 Inflow = 0.41 cfs @ 12.09 hrs, Volume= 1,195 cf
 Outflow = 0.41 cfs @ 12.09 hrs, Volume= 1,195 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach 5R: First Street

Inflow Area = 39,413 sf, 55.98% Impervious, Inflow Depth = 0.60" for 2-Year Event event
 Inflow = 1.61 cfs @ 12.11 hrs, Volume= 1,970 cf
 Outflow = 1.61 cfs @ 12.11 hrs, Volume= 1,970 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 5P: Rain Gardens

Inflow Area = 29,098 sf, 52.19% Impervious, Inflow Depth > 1.07" for 2-Year Event event
 Inflow = 0.88 cfs @ 12.10 hrs, Volume= 2,591 cf
 Outflow = 1.22 cfs @ 12.11 hrs, Volume= 2,325 cf, Atten= 0%, Lag= 0.6 min
 Discarded = 0.05 cfs @ 12.11 hrs, Volume= 1,160 cf
 Primary = 1.17 cfs @ 12.11 hrs, Volume= 1,165 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 195.05' @ 12.11 hrs Surf.Area= 753 sf Storage= 441 cf

Plug-Flow detention time= 68.2 min calculated for 2,317 cf (89% of inflow)
 Center-of-Mass det. time= 35.6 min (843.6 - 808.0)

Volume	Invert	Avail.Storage	Storage Description
#1	194.00'	3,180 cf	Custom Stage Data (Prismatic) Listed below (Recalc) x 5
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
194.00	56	0	0
195.00	108	82	82
196.00	1,000	554	636

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Type III 24-hr 2-Year Event Rainfall=2.88"

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Device	Routing	Invert	Outlet Devices
#1	Discarded	194.00'	2.410 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 191.00'
#2	Primary	195.00'	50.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.05 cfs @ 12.11 hrs HW=195.04' (Free Discharge)↑**1=Exfiltration** (Controls 0.05 cfs)**Primary OutFlow** Max=1.03 cfs @ 12.11 hrs HW=195.04' (Free Discharge)↑**2=Broad-Crested Rectangular Weir** (Weir Controls 1.03 cfs @ 0.48 fps)**Summary for Pond 7P: Basin**

Inflow Area = 10,315 sf, 66.67% Impervious, Inflow Depth > 1.60" for 2-Year Event event
 Inflow = 0.47 cfs @ 12.09 hrs, Volume= 1,376 cf
 Outflow = 0.46 cfs @ 12.11 hrs, Volume= 1,318 cf, Atten= 1%, Lag= 0.8 min
 Discarded = 0.02 cfs @ 12.11 hrs, Volume= 512 cf
 Primary = 0.45 cfs @ 12.11 hrs, Volume= 806 cf
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 196.22' @ 12.11 hrs Surf.Area= 248 sf Storage= 128 cf

Plug-Flow detention time= 35.0 min calculated for 1,318 cf (96% of inflow)

Center-of-Mass det. time= 19.2 min (804.3 - 785.1)

Volume	Invert	Avail.Storage	Storage Description
#1	195.60'	231 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
195.60	162	0	0
196.60	300	231	231

Device	Routing	Invert	Outlet Devices
#1	Discarded	195.60'	2.410 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 191.00'
#2	Primary	192.74'	12.0" Round Culvert L= 46.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 192.74' / 192.28' S= 0.0100 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	196.10'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Secondary	196.60'	10.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65

Pro Dev

Type III 24-hr 2-Year Event Rainfall=2.88"

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2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.02 cfs @ 12.11 hrs HW=196.22' (Free Discharge)

↑**1=Exfiltration** (Controls 0.02 cfs)

Primary OutFlow Max=0.44 cfs @ 12.11 hrs HW=196.22' (Free Discharge)

↑**2=Culvert** (Passes 0.44 cfs of 5.16 cfs potential flow)

↑**3=Orifice/Grate** (Weir Controls 0.44 cfs @ 1.14 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=195.60' (Free Discharge)

↑**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pro Dev

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Type III 24-hr 10-Year Event Rainfall=4.34"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1S: Runoff Area=29,098 sf 52.19% Impervious Runoff Depth>2.17"
Tc=6.0 min CN=80 Runoff=1.79 cfs 5,252 cf

Subcatchment 2S: Runoff Area=10,363 sf 67.94% Impervious Runoff Depth>2.59"
Tc=6.0 min CN=85 Runoff=0.75 cfs 2,238 cf

Subcatchment 6S: Shady Glen Runoff Area=10,315 sf 66.67% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=88 Runoff=0.81 cfs 2,465 cf

Reach 4R: Southern Boundary Inflow=0.75 cfs 2,238 cf
Outflow=0.75 cfs 2,238 cf

Reach 5R: First Street Inflow=2.53 cfs 5,260 cf
Outflow=2.53 cfs 5,260 cf

Pond 5P: Rain Gardens Peak Elev=195.06' Storage=451 cf Inflow=1.79 cfs 5,252 cf
Discarded=0.05 cfs 1,365 cf Primary=1.74 cfs 3,491 cf Outflow=1.79 cfs 4,856 cf

Pond 7P: Basin Peak Elev=196.28' Storage=143 cf Inflow=0.81 cfs 2,465 cf
Discarded=0.02 cfs 600 cf Primary=0.80 cfs 1,769 cf Secondary=0.00 cfs 0 cf Outflow=0.81 cfs 2,369 cf

Total Runoff Area = 49,776 sf Runoff Volume = 9,955 cf Average Runoff Depth = 2.40"
41.53% Pervious = 20,672 sf 58.47% Impervious = 29,104 sf

Summary for Subcatchment 1S:

Runoff = 1.79 cfs @ 12.09 hrs, Volume= 5,252 cf, Depth> 2.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Event Rainfall=4.34"

Area (sf)	CN	Description
10,538	98	Paved parking, HSG B
13,912	61	>75% Grass cover, Good, HSG B
4,648	98	Roofs, HSG B
29,098	80	Weighted Average
13,912		47.81% Pervious Area
15,186		52.19% Impervious Area

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

Summary for Subcatchment 2S:

Runoff = 0.75 cfs @ 12.09 hrs, Volume= 2,238 cf, Depth> 2.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Event Rainfall=4.34"

Area (sf)	CN	Description
6,261	98	Paved parking, HSG B
3,322	58	Woods/grass comb., Good, HSG B
780	98	Roofs, HSG B
10,363	85	Weighted Average
3,322		32.06% Pervious Area
7,041		67.94% Impervious Area

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

Summary for Subcatchment 6S: Shady Glen

Runoff = 0.81 cfs @ 12.09 hrs, Volume= 2,465 cf, Depth> 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Event Rainfall=4.34"

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Type III 24-hr 10-Year Event Rainfall=4.34"

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Area (sf)	CN	Description
6,325	98	Paved parking, HSG B
3,438	69	50-75% Grass cover, Fair, HSG B
162	98	Water Surface, HSG B
390	98	Roofs, HSG B
10,315	88	Weighted Average
3,438		33.33% Pervious Area
6,877		66.67% Impervious Area

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

Summary for Reach 4R: Southern Boundary

Inflow Area = 10,363 sf, 67.94% Impervious, Inflow Depth > 2.59" for 10-Year Event event
 Inflow = 0.75 cfs @ 12.09 hrs, Volume= 2,238 cf
 Outflow = 0.75 cfs @ 12.09 hrs, Volume= 2,238 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach 5R: First Street

Inflow Area = 39,413 sf, 55.98% Impervious, Inflow Depth = 1.60" for 10-Year Event event
 Inflow = 2.53 cfs @ 12.10 hrs, Volume= 5,260 cf
 Outflow = 2.53 cfs @ 12.10 hrs, Volume= 5,260 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 5P: Rain Gardens

Inflow Area = 29,098 sf, 52.19% Impervious, Inflow Depth > 2.17" for 10-Year Event event
 Inflow = 1.79 cfs @ 12.09 hrs, Volume= 5,252 cf
 Outflow = 1.79 cfs @ 12.10 hrs, Volume= 4,856 cf, Atten= 0%, Lag= 0.3 min
 Discarded = 0.05 cfs @ 12.10 hrs, Volume= 1,365 cf
 Primary = 1.74 cfs @ 12.10 hrs, Volume= 3,491 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 195.06' @ 12.10 hrs Surf.Area= 809 sf Storage= 451 cf

Plug-Flow detention time= 37.5 min calculated for 4,856 cf (92% of inflow)
 Center-of-Mass det. time= 11.6 min (803.7 - 792.1)

Volume	Invert	Avail.Storage	Storage Description
#1	194.00'	3,180 cf	Custom Stage Data (Prismatic) Listed below (Recalc) x 5
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
194.00	56	0	0
195.00	108	82	82
196.00	1,000	554	636

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Type III 24-hr 10-Year Event Rainfall=4.34"

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Device	Routing	Invert	Outlet Devices
#1	Discarded	194.00'	2.410 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 191.00'
#2	Primary	195.00'	50.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.05 cfs @ 12.10 hrs HW=195.06' (Free Discharge)↑**1=Exfiltration** (Controls 0.05 cfs)**Primary OutFlow** Max=1.73 cfs @ 12.10 hrs HW=195.06' (Free Discharge)↑**2=Broad-Crested Rectangular Weir** (Weir Controls 1.73 cfs @ 0.57 fps)**Summary for Pond 7P: Basin**

Inflow Area = 10,315 sf, 66.67% Impervious, Inflow Depth > 2.87" for 10-Year Event event
 Inflow = 0.81 cfs @ 12.09 hrs, Volume= 2,465 cf
 Outflow = 0.81 cfs @ 12.10 hrs, Volume= 2,369 cf, Atten= 0%, Lag= 0.7 min
 Discarded = 0.02 cfs @ 12.10 hrs, Volume= 600 cf
 Primary = 0.80 cfs @ 12.10 hrs, Volume= 1,769 cf
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 196.28' @ 12.10 hrs Surf.Area= 256 sf Storage= 143 cf

Plug-Flow detention time= 23.5 min calculated for 2,369 cf (96% of inflow)

Center-of-Mass det. time= 8.5 min (779.8 - 771.3)

Volume	Invert	Avail.Storage	Storage Description
#1	195.60'	231 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
195.60	162	0	0
196.60	300	231	231

Device	Routing	Invert	Outlet Devices
#1	Discarded	195.60'	2.410 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 191.00'
#2	Primary	192.74'	12.0" Round Culvert L= 46.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 192.74' / 192.28' S= 0.0100 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	196.10'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Secondary	196.60'	10.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65

2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.02 cfs @ 12.10 hrs HW=196.28' (Free Discharge)

↑**1=Exfiltration** (Controls 0.02 cfs)

Primary OutFlow Max=0.79 cfs @ 12.10 hrs HW=196.28' (Free Discharge)

↑**2=Culvert** (Passes 0.79 cfs of 5.21 cfs potential flow)

↑**3=Orifice/Grate** (Weir Controls 0.79 cfs @ 1.39 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=195.60' (Free Discharge)

↑**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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Type III 24-hr 25-Year Event Rainfall=5.26"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1S: Runoff Area=29,098 sf 52.19% Impervious Runoff Depth>2.92"
Tc=6.0 min CN=80 Runoff=2.39 cfs 7,076 cf

Subcatchment 2S: Runoff Area=10,363 sf 67.94% Impervious Runoff Depth>3.40"
Tc=6.0 min CN=85 Runoff=0.97 cfs 2,932 cf

Subcatchment 6S: Shady Glen Runoff Area=10,315 sf 66.67% Impervious Runoff Depth>3.70"
Tc=6.0 min CN=88 Runoff=1.04 cfs 3,177 cf

Reach 4R: Southern Boundary Inflow=0.97 cfs 2,932 cf
Outflow=0.97 cfs 2,932 cf

Reach 5R: First Street Inflow=3.36 cfs 7,630 cf
Outflow=3.36 cfs 7,630 cf

Pond 5P: Rain Gardens Peak Elev=195.07' Storage=462 cf Inflow=2.39 cfs 7,076 cf
Discarded=0.06 cfs 1,473 cf Primary=2.34 cfs 5,193 cf Outflow=2.40 cfs 6,666 cf

Pond 7P: Basin Peak Elev=196.31' Storage=151 cf Inflow=1.04 cfs 3,177 cf
Discarded=0.02 cfs 642 cf Primary=1.02 cfs 2,437 cf Secondary=0.00 cfs 0 cf Outflow=1.03 cfs 3,079 cf

Total Runoff Area = 49,776 sf Runoff Volume = 13,186 cf Average Runoff Depth = 3.18"
41.53% Pervious = 20,672 sf 58.47% Impervious = 29,104 sf

Summary for Subcatchment 1S:

Runoff = 2.39 cfs @ 12.09 hrs, Volume= 7,076 cf, Depth> 2.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Event Rainfall=5.26"

Area (sf)	CN	Description
10,538	98	Paved parking, HSG B
13,912	61	>75% Grass cover, Good, HSG B
4,648	98	Roofs, HSG B
29,098	80	Weighted Average
13,912		47.81% Pervious Area
15,186		52.19% Impervious Area

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

Summary for Subcatchment 2S:

Runoff = 0.97 cfs @ 12.09 hrs, Volume= 2,932 cf, Depth> 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Event Rainfall=5.26"

Area (sf)	CN	Description
6,261	98	Paved parking, HSG B
3,322	58	Woods/grass comb., Good, HSG B
780	98	Roofs, HSG B
10,363	85	Weighted Average
3,322		32.06% Pervious Area
7,041		67.94% Impervious Area

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

Summary for Subcatchment 6S: Shady Glen

Runoff = 1.04 cfs @ 12.09 hrs, Volume= 3,177 cf, Depth> 3.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Event Rainfall=5.26"

Area (sf)	CN	Description
6,325	98	Paved parking, HSG B
3,438	69	50-75% Grass cover, Fair, HSG B
162	98	Water Surface, HSG B
390	98	Roofs, HSG B
10,315	88	Weighted Average
3,438		33.33% Pervious Area
6,877		66.67% Impervious Area

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

Summary for Reach 4R: Southern Boundary

Inflow Area = 10,363 sf, 67.94% Impervious, Inflow Depth > 3.40" for 25-Year Event event
 Inflow = 0.97 cfs @ 12.09 hrs, Volume= 2,932 cf
 Outflow = 0.97 cfs @ 12.09 hrs, Volume= 2,932 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach 5R: First Street

Inflow Area = 39,413 sf, 55.98% Impervious, Inflow Depth > 2.32" for 25-Year Event event
 Inflow = 3.36 cfs @ 12.10 hrs, Volume= 7,630 cf
 Outflow = 3.36 cfs @ 12.10 hrs, Volume= 7,630 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 5P: Rain Gardens

Inflow Area = 29,098 sf, 52.19% Impervious, Inflow Depth > 2.92" for 25-Year Event event
 Inflow = 2.39 cfs @ 12.09 hrs, Volume= 7,076 cf
 Outflow = 2.40 cfs @ 12.10 hrs, Volume= 6,666 cf, Atten= 0%, Lag= 0.3 min
 Discarded = 0.06 cfs @ 12.10 hrs, Volume= 1,473 cf
 Primary = 2.34 cfs @ 12.10 hrs, Volume= 5,193 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 195.07' @ 12.10 hrs Surf.Area= 867 sf Storage= 462 cf

Plug-Flow detention time= 30.3 min calculated for 6,666 cf (94% of inflow)
 Center-of-Mass det. time= 9.4 min (794.6 - 785.2)

Volume	Invert	Avail.Storage	Storage Description
#1	194.00'	3,180 cf	Custom Stage Data (Prismatic) Listed below (Recalc) x 5
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
194.00	56	0	0
195.00	108	82	82
196.00	1,000	554	636

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Type III 24-hr 25-Year Event Rainfall=5.26"

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Device	Routing	Invert	Outlet Devices
#1	Discarded	194.00'	2.410 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 191.00'
#2	Primary	195.00'	50.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.06 cfs @ 12.10 hrs HW=195.07' (Free Discharge)↑**1=Exfiltration** (Controls 0.06 cfs)**Primary OutFlow** Max=2.31 cfs @ 12.10 hrs HW=195.07' (Free Discharge)↑**2=Broad-Crested Rectangular Weir** (Weir Controls 2.31 cfs @ 0.63 fps)**Summary for Pond 7P: Basin**

Inflow Area = 10,315 sf, 66.67% Impervious, Inflow Depth > 3.70" for 25-Year Event event
 Inflow = 1.04 cfs @ 12.09 hrs, Volume= 3,177 cf
 Outflow = 1.03 cfs @ 12.10 hrs, Volume= 3,079 cf, Atten= 0%, Lag= 0.7 min
 Discarded = 0.02 cfs @ 12.10 hrs, Volume= 642 cf
 Primary = 1.02 cfs @ 12.10 hrs, Volume= 2,437 cf
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 196.31' @ 12.10 hrs Surf.Area= 261 sf Storage= 151 cf

Plug-Flow detention time= 19.7 min calculated for 3,069 cf (97% of inflow)

Center-of-Mass det. time= 7.6 min (772.8 - 765.2)

Volume	Invert	Avail.Storage	Storage Description
#1	195.60'	231 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
195.60	162	0	0
196.60	300	231	231

Device	Routing	Invert	Outlet Devices
#1	Discarded	195.60'	2.410 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 191.00'
#2	Primary	192.74'	12.0" Round Culvert L= 46.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 192.74' / 192.28' S= 0.0100 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	196.10'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Secondary	196.60'	10.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65

2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.02 cfs @ 12.10 hrs HW=196.31' (Free Discharge)

↑**1=Exfiltration** (Controls 0.02 cfs)

Primary OutFlow Max=1.02 cfs @ 12.10 hrs HW=196.31' (Free Discharge)

↑**2=Culvert** (Passes 1.02 cfs of 5.23 cfs potential flow)

↑**3=Orifice/Grate** (Weir Controls 1.02 cfs @ 1.51 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=195.60' (Free Discharge)

↑**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pro Dev*Type III 24-hr 100-Year Event Rainfall=6.67"*

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

Subcatchment 1S: Runoff Area=29,098 sf 52.19% Impervious Runoff Depth>4.12"
Tc=6.0 min CN=80 Runoff=3.34 cfs 9,998 cf

Subcatchment 2S: Runoff Area=10,363 sf 67.94% Impervious Runoff Depth>4.66"
Tc=6.0 min CN=85 Runoff=1.31 cfs 4,024 cf

Subcatchment 6S: Shady Glen Runoff Area=10,315 sf 66.67% Impervious Runoff Depth>4.98"
Tc=6.0 min CN=88 Runoff=1.37 cfs 4,284 cf

Reach 4R: Southern Boundary Inflow=1.31 cfs 4,024 cf
Outflow=1.31 cfs 4,024 cf

Reach 5R: First Street Inflow=4.64 cfs 11,457 cf
Outflow=4.64 cfs 11,457 cf

Pond 5P: Rain Gardens Peak Elev=195.09' Storage=479 cf Inflow=3.34 cfs 9,998 cf
Discarded=0.06 cfs 1,625 cf Primary=3.29 cfs 7,962 cf Outflow=3.35 cfs 9,588 cf

Pond 7P: Basin Peak Elev=196.36' Storage=163 cf Inflow=1.37 cfs 4,284 cf
Discarded=0.02 cfs 690 cf Primary=1.36 cfs 3,494 cf Secondary=0.00 cfs 0 cf Outflow=1.37 cfs 4,184 cf

Total Runoff Area = 49,776 sf Runoff Volume = 18,306 cf Average Runoff Depth = 4.41"
41.53% Pervious = 20,672 sf 58.47% Impervious = 29,104 sf

Summary for Subcatchment 1S:

Runoff = 3.34 cfs @ 12.09 hrs, Volume= 9,998 cf, Depth> 4.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Event Rainfall=6.67"

Area (sf)	CN	Description
10,538	98	Paved parking, HSG B
13,912	61	>75% Grass cover, Good, HSG B
4,648	98	Roofs, HSG B
29,098	80	Weighted Average
13,912		47.81% Pervious Area
15,186		52.19% Impervious Area

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

Summary for Subcatchment 2S:

Runoff = 1.31 cfs @ 12.09 hrs, Volume= 4,024 cf, Depth> 4.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Event Rainfall=6.67"

Area (sf)	CN	Description
6,261	98	Paved parking, HSG B
3,322	58	Woods/grass comb., Good, HSG B
780	98	Roofs, HSG B
10,363	85	Weighted Average
3,322		32.06% Pervious Area
7,041		67.94% Impervious Area

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

Summary for Subcatchment 6S: Shady Glen

Runoff = 1.37 cfs @ 12.09 hrs, Volume= 4,284 cf, Depth> 4.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Event Rainfall=6.67"

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Type III 24-hr 100-Year Event Rainfall=6.67"

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Area (sf)	CN	Description
6,325	98	Paved parking, HSG B
3,438	69	50-75% Grass cover, Fair, HSG B
162	98	Water Surface, HSG B
390	98	Roofs, HSG B
10,315	88	Weighted Average
3,438		33.33% Pervious Area
6,877		66.67% Impervious Area

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

Summary for Reach 4R: Southern Boundary

Inflow Area = 10,363 sf, 67.94% Impervious, Inflow Depth > 4.66" for 100-Year Event event
 Inflow = 1.31 cfs @ 12.09 hrs, Volume= 4,024 cf
 Outflow = 1.31 cfs @ 12.09 hrs, Volume= 4,024 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach 5R: First Street

Inflow Area = 39,413 sf, 55.98% Impervious, Inflow Depth > 3.49" for 100-Year Event event
 Inflow = 4.64 cfs @ 12.10 hrs, Volume= 11,457 cf
 Outflow = 4.64 cfs @ 12.10 hrs, Volume= 11,457 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 5P: Rain Gardens

Inflow Area = 29,098 sf, 52.19% Impervious, Inflow Depth > 4.12" for 100-Year Event event
 Inflow = 3.34 cfs @ 12.09 hrs, Volume= 9,998 cf
 Outflow = 3.35 cfs @ 12.10 hrs, Volume= 9,588 cf, Atten= 0%, Lag= 0.3 min
 Discarded = 0.06 cfs @ 12.10 hrs, Volume= 1,625 cf
 Primary = 3.29 cfs @ 12.10 hrs, Volume= 7,962 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 195.09' @ 12.10 hrs Surf.Area= 951 sf Storage= 479 cf

Plug-Flow detention time= 24.0 min calculated for 9,588 cf (96% of inflow)
 Center-of-Mass det. time= 8.4 min (785.5 - 777.1)

Volume	Invert	Avail.Storage	Storage Description
#1	194.00'	3,180 cf	Custom Stage Data (Prismatic) Listed below (Recalc) x 5
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
194.00	56	0	0
195.00	108	82	82
196.00	1,000	554	636

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Type III 24-hr 100-Year Event Rainfall=6.67"

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Device	Routing	Invert	Outlet Devices
#1	Discarded	194.00'	2.410 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 191.00'
#2	Primary	195.00'	50.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.06 cfs @ 12.10 hrs HW=195.09' (Free Discharge)↑**1=Exfiltration** (Controls 0.06 cfs)**Primary OutFlow** Max=3.24 cfs @ 12.10 hrs HW=195.09' (Free Discharge)↑**2=Broad-Crested Rectangular Weir** (Weir Controls 3.24 cfs @ 0.71 fps)**Summary for Pond 7P: Basin**

Inflow Area = 10,315 sf, 66.67% Impervious, Inflow Depth > 4.98" for 100-Year Event event
 Inflow = 1.37 cfs @ 12.09 hrs, Volume= 4,284 cf
 Outflow = 1.37 cfs @ 12.10 hrs, Volume= 4,184 cf, Atten= 0%, Lag= 0.6 min
 Discarded = 0.02 cfs @ 12.10 hrs, Volume= 690 cf
 Primary = 1.36 cfs @ 12.10 hrs, Volume= 3,494 cf
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 196.36' @ 12.10 hrs Surf.Area= 267 sf Storage= 163 cf

Plug-Flow detention time= 16.4 min calculated for 4,170 cf (97% of inflow)

Center-of-Mass det. time= 6.9 min (765.5 - 758.6)

Volume	Invert	Avail.Storage	Storage Description
#1	195.60'	231 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
195.60	162	0	0
196.60	300	231	231

Device	Routing	Invert	Outlet Devices
#1	Discarded	195.60'	2.410 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 191.00'
#2	Primary	192.74'	12.0" Round Culvert L= 46.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 192.74' / 192.28' S= 0.0100 ' /' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	196.10'	12.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Secondary	196.60'	10.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65

Pro Dev

Type III 24-hr 100-Year Event Rainfall=6.67"

Prepared by T Reynolds Engineering

Printed 7/14/2026

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2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Discarded OutFlow Max=0.02 cfs @ 12.10 hrs HW=196.36' (Free Discharge)

↑**1=Exfiltration** (Controls 0.02 cfs)

Primary OutFlow Max=1.35 cfs @ 12.10 hrs HW=196.36' (Free Discharge)

↑**2=Culvert** (Passes 1.35 cfs of 5.27 cfs potential flow)

↑**3=Orifice/Grate** (Weir Controls 1.35 cfs @ 1.66 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=195.60' (Free Discharge)

↑**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)



NOAA Atlas 14, Volume 10, Version 3
Location name: Turners Falls, Massachusetts,
USA*

Latitude: 42.609°, Longitude: -72.5549°

Elevation: 192 ft**

* source: ESRI Maps

** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aerals](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.308 (0.244-0.383)	0.361 (0.285-0.449)	0.447 (0.351-0.558)	0.518 (0.405-0.650)	0.616 (0.464-0.803)	0.691 (0.508-0.918)	0.767 (0.546-1.05)	0.847 (0.574-1.20)	0.956 (0.621-1.40)	1.04 (0.659-1.55)
10-min	0.436 (0.345-0.543)	0.511 (0.403-0.636)	0.633 (0.498-0.790)	0.734 (0.574-0.922)	0.873 (0.658-1.14)	0.979 (0.721-1.30)	1.09 (0.773-1.49)	1.20 (0.812-1.69)	1.35 (0.879-1.98)	1.47 (0.933-2.20)
15-min	0.513 (0.406-0.639)	0.601 (0.475-0.748)	0.745 (0.586-0.931)	0.863 (0.675-1.08)	1.03 (0.774-1.34)	1.15 (0.848-1.53)	1.28 (0.909-1.75)	1.41 (0.957-1.99)	1.59 (1.04-2.32)	1.74 (1.10-2.58)
30-min	0.718 (0.567-0.893)	0.840 (0.664-1.05)	1.04 (0.819-1.30)	1.21 (0.944-1.52)	1.44 (1.08-1.87)	1.61 (1.19-2.14)	1.79 (1.27-2.45)	1.98 (1.34-2.79)	2.23 (1.45-3.26)	2.43 (1.54-3.62)
60-min	0.922 (0.729-1.15)	1.08 (0.853-1.34)	1.34 (1.05-1.67)	1.55 (1.21-1.95)	1.85 (1.39-2.41)	2.07 (1.53-2.75)	2.30 (1.64-3.16)	2.54 (1.72-3.59)	2.87 (1.86-4.19)	3.12 (1.98-4.65)
2-hr	1.16 (0.924-1.43)	1.37 (1.09-1.69)	1.70 (1.35-2.11)	1.98 (1.56-2.48)	2.37 (1.80-3.08)	2.66 (1.98-3.52)	2.96 (2.13-4.06)	3.30 (2.24-4.62)	3.76 (2.45-5.46)	4.14 (2.63-6.13)
3-hr	1.32 (1.06-1.62)	1.56 (1.25-1.92)	1.95 (1.55-2.41)	2.28 (1.80-2.83)	2.73 (2.08-3.53)	3.06 (2.29-4.05)	3.42 (2.47-4.68)	3.82 (2.60-5.33)	4.39 (2.87-6.34)	4.86 (3.09-7.16)
6-hr	1.64 (1.32-2.00)	1.95 (1.57-2.38)	2.46 (1.97-3.01)	2.88 (2.29-3.55)	3.45 (2.66-4.45)	3.88 (2.92-5.11)	4.34 (3.17-5.93)	4.88 (3.34-6.77)	5.66 (3.71-8.12)	6.32 (4.03-9.23)
12-hr	2.02 (1.64-2.45)	2.41 (1.96-2.93)	3.06 (2.47-3.73)	3.59 (2.89-4.40)	4.33 (3.36-5.54)	4.87 (3.70-6.38)	5.46 (4.01-7.43)	6.16 (4.23-8.49)	7.20 (4.73-10.3)	8.08 (5.17-11.7)
24-hr	2.38 (1.95-2.87)	2.88 (2.35-3.47)	3.68 (3.00-4.45)	4.34 (3.52-5.28)	5.26 (4.11-6.70)	5.94 (4.54-7.74)	6.67 (4.94-9.05)	7.56 (5.21-10.4)	8.92 (5.88-12.6)	10.1 (6.48-14.5)
2-day	2.70 (2.23-3.23)	3.29 (2.72-3.94)	4.27 (3.50-5.13)	5.08 (4.14-6.13)	6.19 (4.87-7.85)	7.00 (5.40-9.10)	7.90 (5.92-10.7)	9.02 (6.24-12.3)	10.8 (7.13-15.2)	12.3 (7.93-17.6)
3-day	2.93 (2.43-3.49)	3.59 (2.97-4.28)	4.66 (3.85-5.58)	5.56 (4.56-6.68)	6.79 (5.37-8.59)	7.69 (5.96-9.96)	8.69 (6.54-11.8)	9.95 (6.90-13.5)	12.0 (7.92-16.7)	13.7 (8.86-19.5)
4-day	3.14 (2.61-3.73)	3.84 (3.19-4.57)	4.99 (4.13-5.95)	5.94 (4.89-7.13)	7.26 (5.76-9.15)	8.22 (6.38-10.6)	9.28 (7.01-12.5)	10.6 (7.39-14.4)	12.8 (8.50-17.9)	14.7 (9.50-20.9)
7-day	3.74 (3.13-4.42)	4.52 (3.78-5.34)	5.79 (4.82-6.87)	6.85 (5.66-8.16)	8.30 (6.62-10.4)	9.37 (7.31-12.0)	10.5 (7.98-14.1)	12.0 (8.39-16.1)	14.4 (9.56-19.9)	16.4 (10.6-23.2)
10-day	4.36 (3.66-5.13)	5.17 (4.34-6.09)	6.50 (5.44-7.68)	7.61 (6.32-9.04)	9.13 (7.30-11.4)	10.3 (8.01-13.0)	11.5 (8.67-15.2)	13.0 (9.08-17.4)	15.3 (10.2-21.1)	17.3 (11.2-24.4)
20-day	6.32 (5.36-7.38)	7.18 (6.08-8.39)	8.58 (7.23-10.1)	9.74 (8.16-11.5)	11.3 (9.12-13.9)	12.6 (9.82-15.7)	13.8 (10.4-17.9)	15.2 (10.7-20.2)	17.3 (11.6-23.6)	18.9 (12.3-26.4)
30-day	7.96 (6.78-9.26)	8.85 (7.53-10.3)	10.3 (8.74-12.0)	11.5 (9.69-13.5)	13.2 (10.6-16.0)	14.5 (11.3-17.9)	15.8 (11.8-20.1)	17.1 (12.1-22.5)	18.9 (12.7-25.8)	20.3 (13.2-28.2)
45-day	9.97 (8.54-11.5)	10.9 (9.34-12.7)	12.5 (10.6-14.5)	13.8 (11.7-16.1)	15.6 (12.6-18.8)	17.0 (13.3-20.8)	18.3 (13.7-23.1)	19.6 (14.0-25.7)	21.3 (14.4-28.9)	22.5 (14.7-31.2)
60-day	11.6 (9.99-13.4)	12.7 (10.9-14.6)	14.3 (12.3-16.6)	15.7 (13.3-18.3)	17.7 (14.3-21.2)	19.2 (15.1-23.4)	20.6 (15.4-25.9)	22.0 (15.7-28.7)	23.6 (16.0-31.9)	24.8 (16.2-34.2)

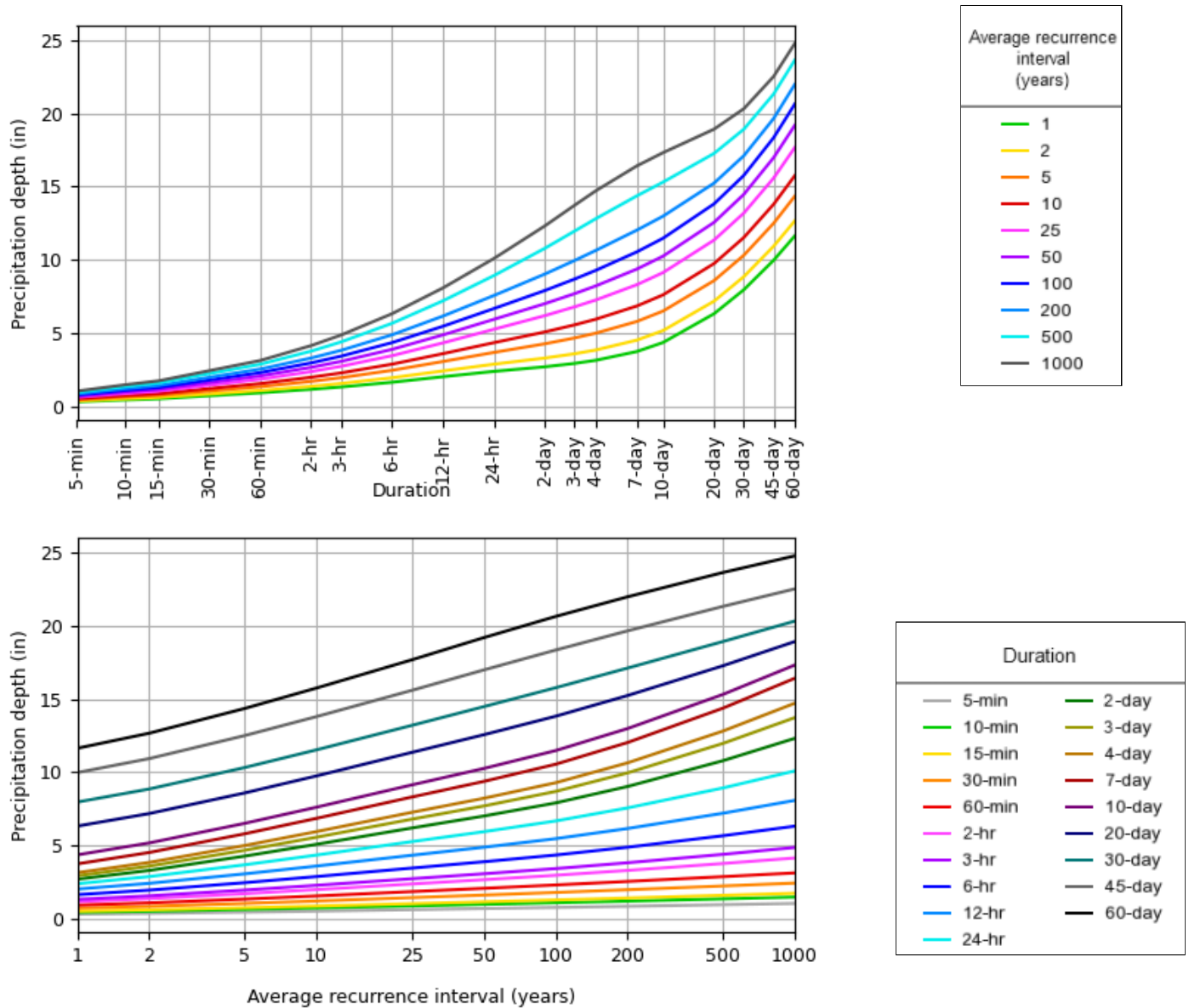
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

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PF graphical

PDS-based depth-duration-frequency (DDF) curves

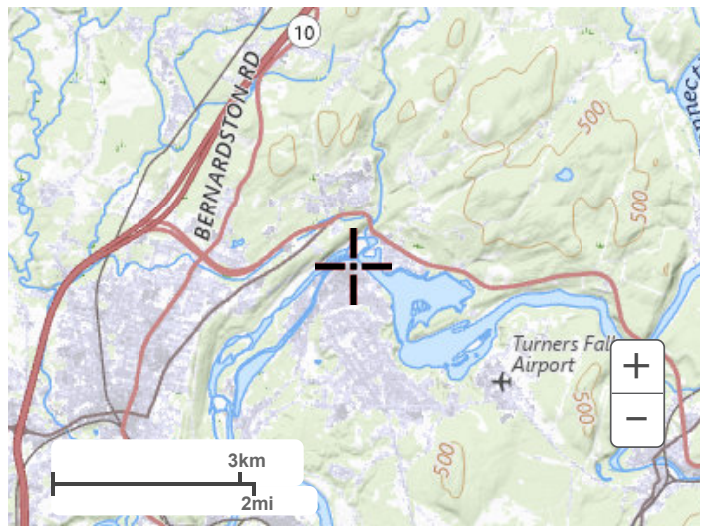
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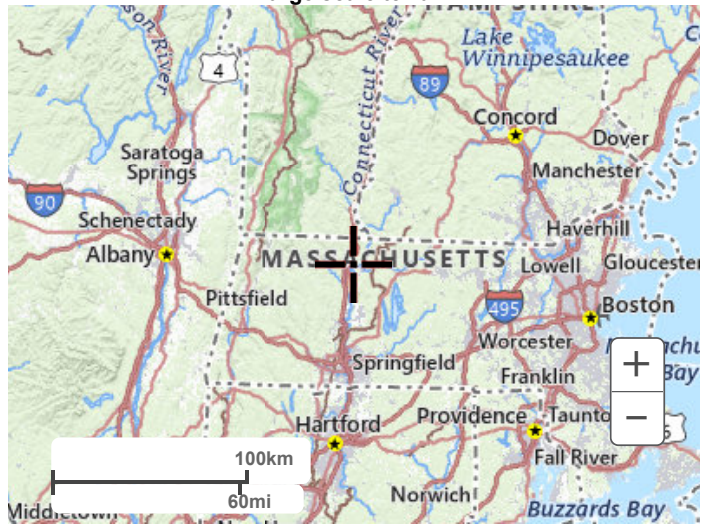
NOAA Atlas 14, Volume 10, Version 3

Created (GMT): Tue Jul 14 18:46:12 2026

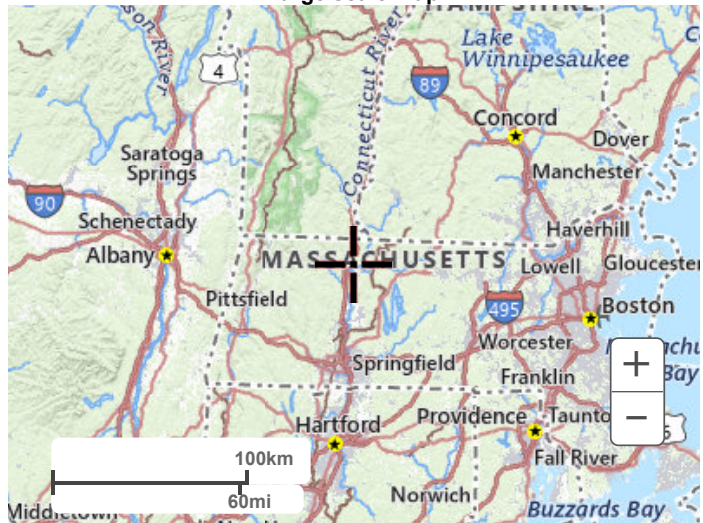
[Back to Top](#)**Maps & aerials****Small scale terrain**



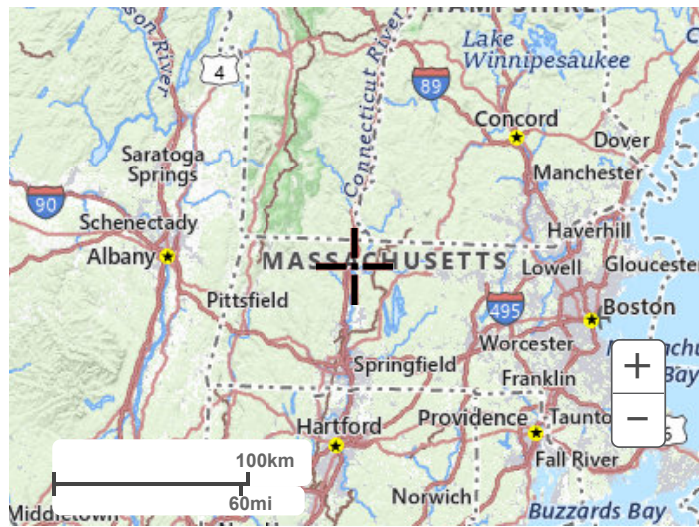
Large scale terrain



Large scale map



Large scale aerial



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[National Weather Service](#)
[National Water Center](#)
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

[Disclaimer](#)

Appendix D:
TSS Removal Calculation Worksheet

Name: Habitat, First Street, Montague

Proj. No.: 25-1101

Date: 7/14/26

Location: Montague, MA

Computed by: TR

Treatment Train TSS Removal

A BMP	B TSS Removal Rate	C Starting TSS Load*	D Amount Removed (BxC)	E Remaining Load (C-D)
Rain Garden	90	1.00	0.9	0.10

Total TSS Removal=

90%

Notes:

*Starting TSS Load for first BMP= 1.00. TSS load for subsequent BMP's is equal to the Remaining Load (E) from the previous BMP.

Appendix E:
BMPs Checklist

Habitat for Humanity, First Street, Massachusetts

Best Management Practices – Maintenance/ Evaluation Checklist

Construction Practices

Best Management Practice	Inspection Frequency	Date Inspected	Inspector	Minimum Maintenance and Key Items to Check	Cleaning/Repair Needed ☐ yes ☐ no (List Items)	Date of Cleaning/Repair	Performed by
Erosion Control Barriers	Once a month and immediately following any major storm event.						
Gravel Construction Entrance	Once a month and immediately following any major storm event.						
Catch Basin Protection	Once a month and immediately following any major storm event.						
Diversion Channels	Once a month and immediately following any major storm event.						
Temporary Sedimentation Basins	Once a month and immediately following any major storm event.						
Vegetated Slope Stabilization	Once a month and immediately following any major storm event.						

Stormwater Control Manager _____

Habitat for Humanity, First Street, Massachusetts

Best Management Practices – Maintenance/ Evaluation Checklist

Long Term Practices

Best Management Practice	Inspection Frequency	Date Inspected	Inspector	Minimum Maintenance and Key Items to Check	Cleaning/Repair Needed ☐ yes ☐ no (List Items)	Date of Cleaning/Repair	Performed by
Rain Garden	- Inspect pretreatment devices and bioretention cells regularly for sediment build-up, structural damage, and standing water. - Inspect soil and repair eroded areas monthly. Re-mulch void areas as needed. Remove litter and debris monthly.			- Treat diseased vegetation as needed. Remove and replace dead vegetation twice per year (spring and fall.) - Proper selection of plant species and support during establishment of vegetation should minimize—if not eliminate—the need for fertilizers and pesticides. - Remove invasive species as needed to prevent these species from spreading into the rain garden area. - Replace mulch every two years, in the early spring. - Upon failure, excavate rain garden area, scarify bottom and sides, replace filter fabric and soil, replant, and mulch.			
Street Sweeping	Twice a year						

Stormwater Control Manager _____

Proposed Development Plan

Great Falls, First Street Project First Street, Turners Falls, MA

PREPARED FOR

Franklin Hampshire Habitat for Humanity

221 Pine Street
Florence, MA 01062

Dial Before You Dig

Gas, electric, telephone and cable television companies have underground pipes and cables in places you'd least expect.

So it's a good idea for anyone who does any excavating to check beforehand to make sure there is no danger of damaging these facilities.

In fact, state laws in Massachusetts, New Hampshire, Rhode Island and Vermont make it mandatory for anyone doing excavating work to notify utility companies well ahead of time. (Rhode Island and Vermont require 48 hours prior notice and the other two states require 72 hours.)

The utility companies have simplified this notification process by providing a toll-free number. One call to this "Dig Safe" line satisfies the law and enables all of the utilities to receive the information.

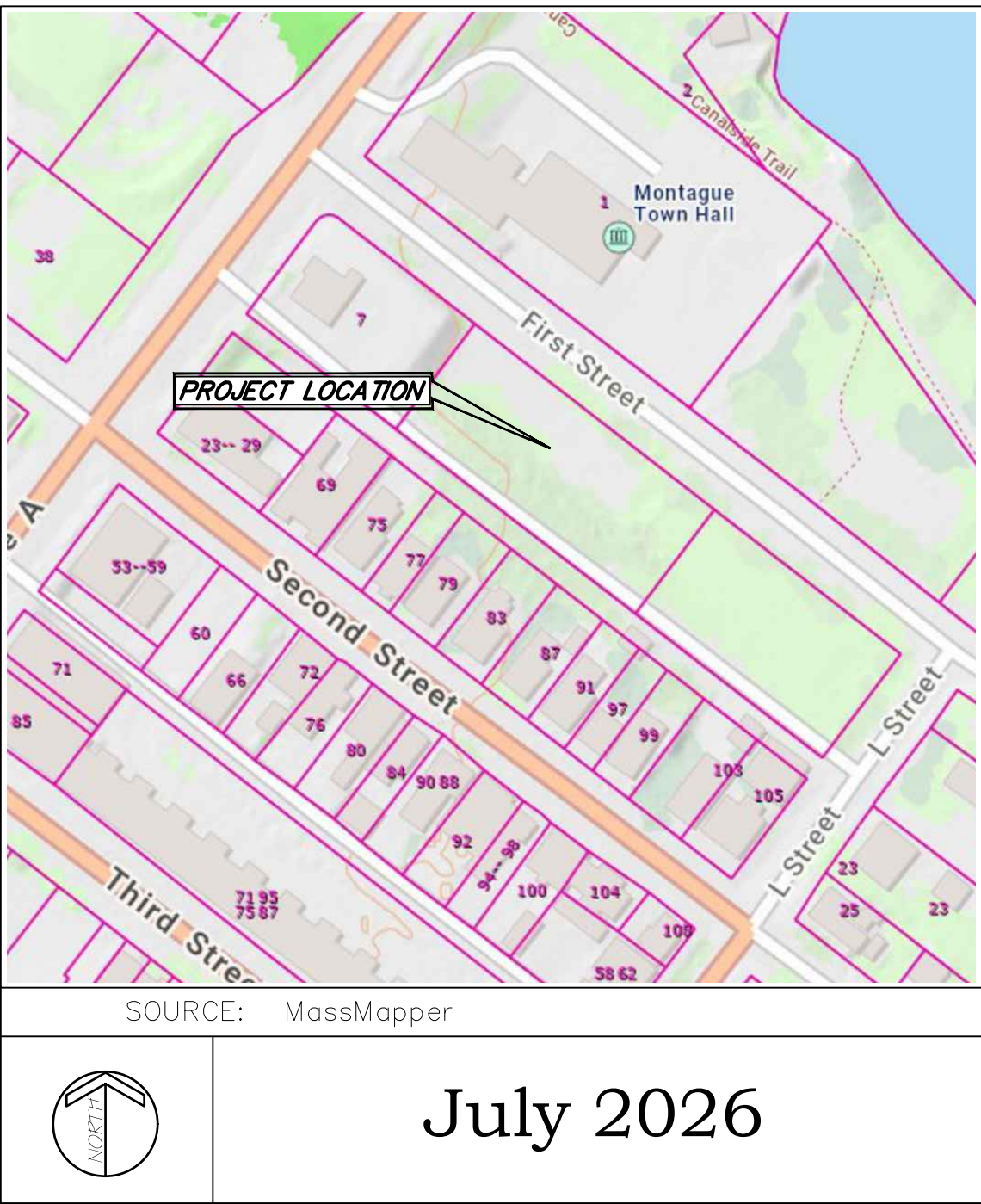
In Massachusetts, the number is 811

In Maine, New Hampshire, Vermont and Rhode Island, the number is 811

If there are underground facilities in your area, the utility company will identify their location for you. This will eliminate the possibility of damage and save you the expense of costly repairs.

So be on the safe side and dial before you start to dig.

DIG SAFE



BY

T Reynolds Engineering

Civil Engineers
Planning, Design, and Permitting Services

ph: 413 387-8078
email: terry@treynoldsengineering.com
www.treynoldsengineering.com

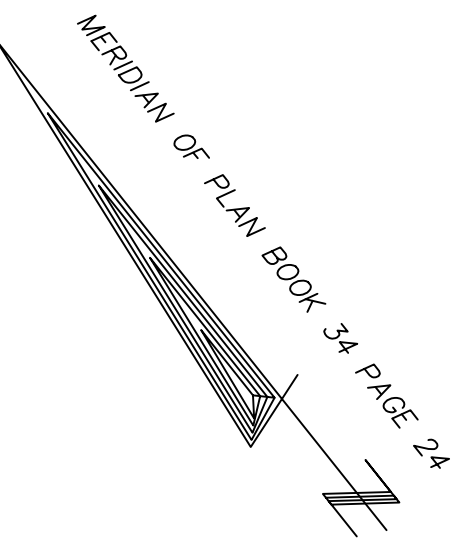
152 Maplewood Terrace
Florence, MA 01062

DRAWING INDEX

SHEET NO.	SHEET NAME	ISSUE DATE	REVISION DATE
1	TITLE SHEET	7/14/26	
2	EXISTING CONDITIONS	7/14/26	
3	CONSTRUCTION NOTES	7/14/26	
4	LAYOUT AND MATERIALS PLAN	7/14/26	
5	GRADING AND UTILITIES PLAN	7/14/26	
6	CONSTRUCTION DETAILS	7/14/26	
7	CONSTRUCTION DETAILS	7/14/26	

Permitting, Not for Construction

NOTES:
1. THE PREMISES AND EXISTING CONDITIONS SHOWN HEREON ARE COMPILED FROM A LAND SURVEY FOR PIONEER VALLEY HABITAT FOR HUMANITY BY HOLMBERG AND HOWE LAND SURVEYORS DURING THE SPRING OF 2023.



UTILITY NOTE

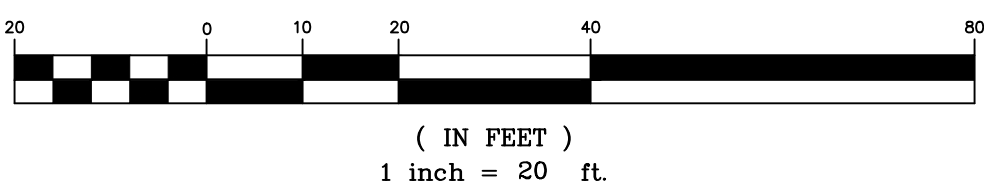
LOCATIONS OF UTILITIES SHOWN HEREON ARE THE RESULT OF SURFACE EVIDENCE AS LOCATED BY FIELD SURVEY, PLANS OF RECORD, INFORMATION FURNISHED BY THE RESPECTIVE UTILITY COMPANIES, AND OTHER AVAILABLE SOURCES. THIS PLAN DOES NOT NECESSARILY DEPICT THE EXACT LOCATIONS OF ALL UTILITIES WHICH MAY EXIST AT THIS TIME WITHIN THE PREMISES SURVEYED. CONTRACTORS SHOULD CONTACT DIG SAFE (811) PRIOR TO ANY DIGGING.

DISCREPANCIES WERE FOUND BETWEEN WHAT WE OBSERVED IN THE FIELD FOR THIS SURVEY AND A PLAN ENTITLED "TOWN OF MONTAGUE FY19 COMPLETE STREETS GRANT PROJECT SITE 3 CONSTRUCTION PLANS SHEET 1 OF 1" WHICH HAVE NOT BEEN RESOLVED.

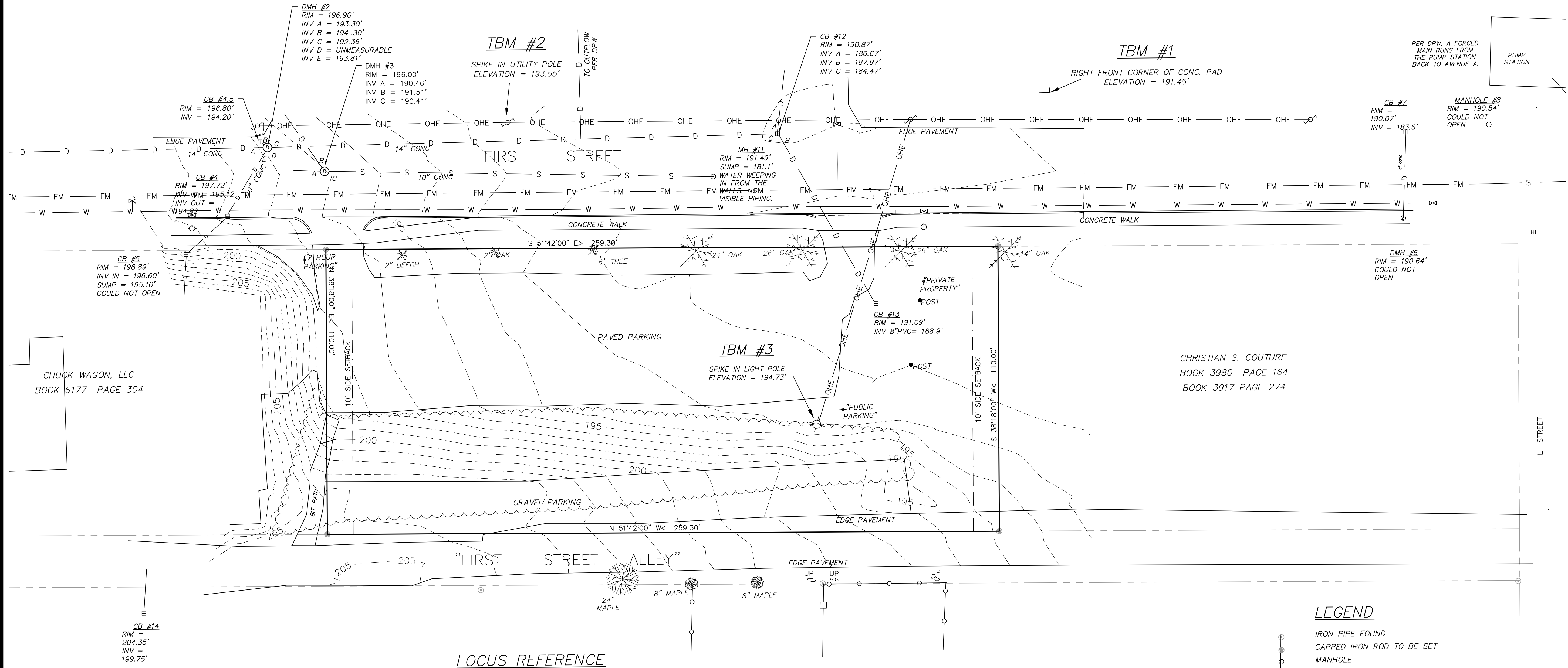
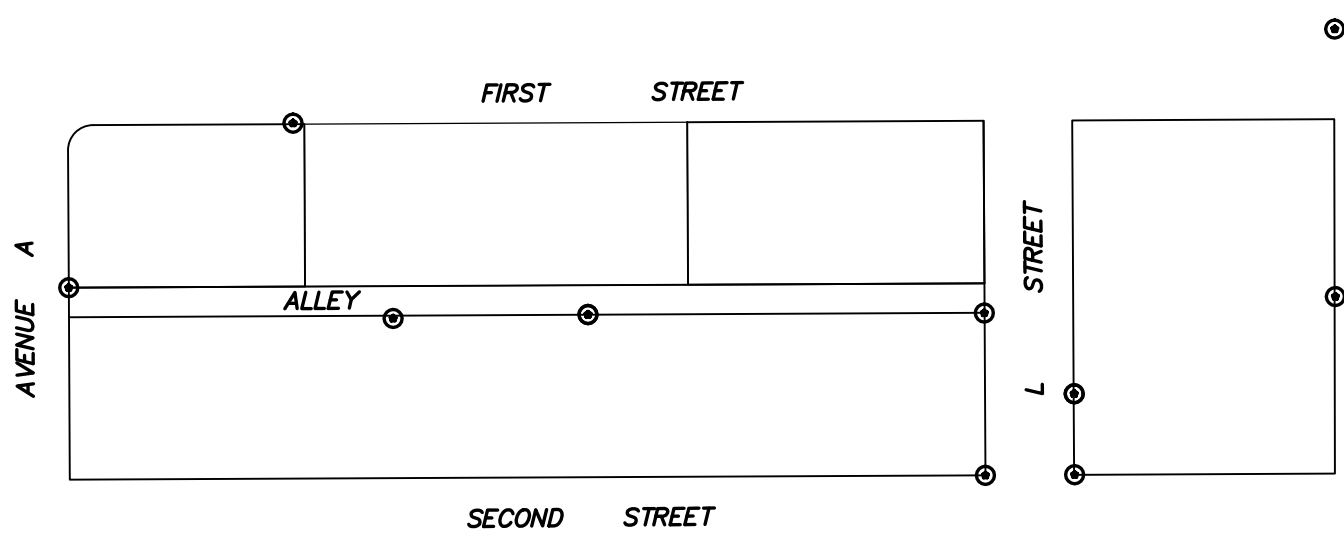
PROJECT BENCHMARK

MASS DOT ID: 11100
ELEVATION = 186.40' NAVD 1988

GRAPHIC SCALE



VICINITY MAP



CHUCK WAGON, LLC
BOOK 6177 PAGE 304

CHRISTIAN S. COUTURE
BOOK 3980 PAGE 164
BOOK 3917 PAGE 274

LOCUS REFERENCE

TOWN OF MONTAGUE
BOOK 1165 PAGE 584
SEE BOOK 863 PAGE 399 FOR
COMPLETE DESCRIPTION.
EXCEPTING A 50'x110' STRIP CONVEYED TO
SAMUEL I. COUTURE IN BOOK 1465 PAGE 9.

28,523 SF±

LEGEND

- IRON PIPE FOUND
- CAPPED IRON ROD TO BE SET
- MANHOLE
- SEWER MANHOLE
- DRAIN MAN HOLE
- CATCH BASIN
- WATER GATE
- HYDRANT
- UTILITY POLE
- LIGHT POLE
- SIGN
- OVERHEAD WIRES
- SEWER LINE
- DRAIN LINE
- WATER LINE
- CHAIN LINK FENCE
- TREE LINE

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T Reynolds Engineering

Civil Engineers
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www.treynoldsenineering.com

152 Maplewood Terrace
Florence, MA 01062

Existing Conditions Plan

Great Falls, First Street Project
First Street
Turners Falls, MA



PREPARED FOR:
Franklin Hampshire
Habitat for Humanity
221 Pine Street
Florence, MA 01062

REVISIONS:	DATE:

UNAUTHORIZED ALTERATION OF
THIS DOCUMENT IS A VIOLATION OF
MASSACHUSETTS STATE LAW

PROJECT NO: 25-1101
DRAWING: Eng Plan 7-9-26
ISSUE DATE: 7/14/26
SCALE: 1" = 20'
SHEET NO.

2 OF 7

EROSION & SEDIMENT CONTROL NOTES

MANAGEMENT STRATEGIES

- CONSTRUCTION TRAFFIC SHALL BE LIMITED TO THE CONSTRUCTION ENTRANCE.
- CONSTRUCTION SEQUENCE SHALL BE PHASED TO AVOID LEAVING LARGE AREAS EXPOSED FOR LONG PERIODS OF TIME.
- STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES ARE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. EXCEPTIONS TO THE STABILIZATION SCHEDULE ARE:
 - WHERE THE INITIATION OF STABILIZATION MEASURES BY THE 14TH DAY AFTER CONSTRUCTION ACTIVITY TEMPORARILY OR PERMANENTLY CEASES IS PRECLUDED BY SNOW COVER, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE.
 - WHERE CONSTRUCTION ACTIVITY WILL RESUME ON A PORTION OF THE SITE WITHIN 21 DAYS FROM WHEN ACTIVITIES CEASED, (E.G., THE TOTAL TIME PERIOD THAT CONSTRUCTION ACTIVITY IS TEMPORARILY CEASED IS LESS THAN 21 DAYS).TEMPORARY STABILIZATION MEASURES SHALL INCLUDE SEEDING WITH A MIX OF WINTER AND PERENNIAL RYE GRASS AND MULCHING WITH HAY OR STRAW. THESE MEASURES INCLUDE STABILIZATION OF SOIL STOCKPILES WITH GRASS.
- PERMANENT STABILIZATION MEASURES SHALL INCLUDE SEEDING AND MULCHING ACCORDING TO PLAN SPECIFICATIONS WITHIN 14 DAYS OF STOP OF CONSTRUCTION ACTIVITY AT ANY PORTION OF THE SITE.
- SEDIMENTATION CONTROL MEASURES SHALL BE INSPECTED CONTINUOUSLY, ESPECIALLY FOLLOWING STORM EVENTS TO LOCATE FAILING CONTROL MEASURES AND CONDUCT ROUTINE MAINTENANCE OPERATIONS.
- THE CONSTRUCTION SUPERINTENDENT SHALL INFORM ALL ON-SITE WORKERS OF THE SEDIMENTATION CONTROL PROGRAM.

VEGETATIVE CONTROL PRACTICES

- TOPSOIL STOCKPILING: TOPSOIL SHALL BE STRIPPED FROM AREAS TO BE DISTURBED AND STOCKPILED FOR LATER USE. STOCKPILE LOCATION SHALL BE APPROVED BY THE OWNER AND ENGINEER/LANDSCAPE ARCHITECT AND BE WITHIN LIMIT OF WORK.
- TEMPORARY SEEDING: THE TEMPORARY SEDIMENT BASIN, TOPSOIL STOCKPILE AND ROUGH GRADED AREAS SHALL BE SEEDDED WITH WINTER RYE AT A RATE OF 30 LBS. PER ACRE. ANY SOILS THAT ARE LEFT EXPOSED AND UNDISTURBED FOR MORE THAN 30 DAYS SHALL BE TEMPORARILY SEEDDED.
- A. SITE PREPARATION
 - COMPLETE ALL ROUGH GRADING ACTIVITIES
 - REMOVE ALL ROCKS AND DEBRIS LARGER THAN 3" IN DIAMETER FROM AREAS TO BE TEMPORARILY SEEDDED. –EVENLY APPLY LIME TO ACHIEVE A PH VALUE OF 6.0.
 - EVENLY APPLY 14 LBS. OF 5–10–10 ANALYSIS FERTILIZER TO A DEPTH OF 4" USING SUITABLE EQUIPMENT.
 - SEEDBED IS TO BE LEFT IN FIRM AND SMOOTH CONDITION.
 - THE LAST TILLAGE OPERATION SHALL BE PERFORMED ACROSS THE SLOPE.
- B. ESTABLISHMENT
 - EVENLY APPLY SEED IN ACCORDANCE WITH THE SPECIES AND RATE INDICATED ABOVE BY MEANS OF BROADCASTING OR HYDROSEEDING.
 - UNLESS HYDROSEEDDED, COVER SEED WITH 1/4" TO 1/2" OF TOPSOIL.
 - APPLY MULCH OR EROSION CONTROL BLANKET IMMEDIATELY FOLLOWING SEEDING.
 - VERIFY SEEDING DATES WITH ENGINEER/LANDSCAPE ARCHITECT. IF ENGINEER/LANDSCAPE ARCHITECT DETERMINES THAT SEED CANNOT BE APPLIED DUE TO CLIMATE, TOPSOIL SHALL NOT BE SPREAD AND MULCHING SHALL BE APPLIED TO THE EXPOSED SURFACE TO STABILIZE SOILS UNTIL THE NEXT RECOMMENDED SEEDING PERIOD.
 - PERMANENT SEEDING SHALL BE APPLIED BETWEEN APRIL 15 AND SEPTEMBER 30. TEMPORARY SEEDING SHALL BE APPLIED TO ALL DISTURBED AREAS OUTSIDE THIS TIME FRAME, UPON APPROVAL BY THE ENGINEER/LANDSCAPE ARCHITECT.
- C. MAINTENANCE
 - ALL SEEDDED/MULCHED AREAS SHALL BE INSPECTED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHALL BE REPAIRED AS NECESSARY.

NONSTRUCTURAL CONTROL PRACTICES

- SCARIFICATION: EXPOSED SLOPES EXCEEDING 4:1 SHALL BE SCARIFIED AT RIGHT ANGLES TO THE SLOPE. PROVIDE PERIODIC UPGRADING OF SERRATIONS DURING EXPOSED PERIOD UNTIL VEGETATION IS ESTABLISHED. PROVIDE VEGETATIVE COVER AS SOON AS POSSIBLE.
- STRAW MULCH: STRAW MULCH SHALL BE APPLIED IN CONJUNCTION WITH TEMPORARY/PERMANENT SEEDING AND TO GRADED AREAS WHICH REMAIN EXPOSED OUTSIDE OF RECOMMENDED SEEDING DATES. MULCH SHALL BE APPLIED AT 90 LBS. PER 1000 S.F. CONTRACTOR SHALL PERIODICALLY INSPECT AND REAPPLY AS NECESSARY, PARTICULARLY FOLLOWING SIGNIFICANT STORM EVENTS.
- TOPSOIL: DISTURBED AREAS SHALL BE TOPSOILED PRIOR TO SEED APPLICATION. APPLICATION STANDARDS:
 - REMOVE ALL ROCKS AND DEBRIS OVER 1"–1 1/2" IN DIAMETER.
 - SCARIFY SURFACE PRIOR TO SEED APPLICATION.
 - APPLY 6" DEPTH OF TOPSOIL.
- SILT FENCE: SILT FENCE SHALL BE INSTALLED AROUND THE PERIMETER OF THE SITE, AT CULVERT OUTLET LOCATIONS, OR AS INDICATED ON THE DRAWINGS. SILT FENCE SHALL BE INSPECTED AND REPAIRED ROUTINELY, ESPECIALLY FOLLOWING STORM EVENTS UNTIL THE SITE HAS BEEN STABILIZED (COVER > 70%) BY VEGETATION.

STRUCTURAL CONTROL PRACTICES

- RIP–RAP OUTLET PROTECTION: RIP–RAP SHALL BE PROVIDED AT ALL PIPE OUTLETS TO THE WETLAND. MATERIAL SHALL BE HARD, DURABLE FIELD OR QUARRY STONE WHICH IS ANGULAR AND RESISTS BREAKING DOWN WHEN EXPOSED TO WATER OR WEATHERING.
- CONSTRUCTION ENTRANCE: CONSTRUCTION ENTRANCE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DRAWINGS.
- SEDIMENT CONTROLS: MAINTENANCE SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL EVENT (0.5-INCH OR MORE). THE FOLLOWING ITEMS SHALL BE CHECKED IN PARTICULAR:
 - RIP–RAP OUTLET PROTECTION SHALL BE CHECKED REGULARLY FOR SEDIMENT ACCUMULATION. IF SIGNIFICANT AMOUNTS OF SEDIMENT ACCUMULATE, RIP–RAP SHALL BE REMOVED AND REPLACED.
 - SILT FENCING SHALL BE INSPECTED REGULARLY FOR UNDERMINING AND DETEIORATION. REMOVE SEDIMENT FROM BEHIND FENCE WHEN IT BECOMES 6 INCHES DEEP.
 - SEEDDED/MULCHED AREAS SHALL BE INSPECTED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHALL BE REPAIRED AS NECESSARY.
- EXISTING OUTFALL INSPECTIONS AND MAINTENANCE ARE THE RESPONSIBILITY OF THE CONTRACTOR. NO SEDIMENT MATERIAL IS TO GET TO EXISTING OUTLET. CONTRACTOR SHALL DOCUMENT EXISTING CONDITION AT EXISTING OUTLET PRIOR TO CONSTRUCTION.

GENERAL CONSTRUCTION NOTES

- PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR OR HIS AUTHORIZED REPRESENTATIVE SHALL CONVENE A PRE–CONSTRUCTION CONFERENCE BETWEEN THE CITY/TOWN REPRESENTATIVES, CONSULTING ENGINEER/LANDSCAPE ARCHITECT, UTILITY COMPANY REPRESENTATIVES, AND ANY OTHER AFFECTED PARTIES.
- THE OWNER AND T REYNOLDS ENGINEERING AND/OR THEIR REPRESENTATIVES, IN PREPARING THESE PLANS HAVE ATTEMPTED TO LOCATE ALL EXISTING UTILITIES IN THE PROJECT AREA. HOWEVER, THERE MAY BE UTILITIES THAT WERE NOT OR COULD NOT BE LOCATED. UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE IN APPROXIMATE LOCATIONS ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATIONS AND ELEVATIONS OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL CONTACT ALL APPROPRIATE UTILITY COMPANIES, THE TOWN/CITY FOR LOCATIONS OF THEIR UTILITIES AT LEAST 48 HOURS BEFORE COMMENCING EXCAVATION. CONTRACTOR SHALL ALSO OBTAIN A VALID DIGSAFE NUMBER PRIOR TO ANY EXCAVATION WORK. IN THE EVENT THAT A UTILITY IS SITUATED SUCH THAT CONSTRUCTION CANNOT PROCEED AS SHOWN ON THE PLANS, THE PROJECT ENGINEER/LANDSCAPE ARCHITECT AND OWNER SHALL BE NOTIFIED IMMEDIATELY.
- THE SITE CONTRACTOR IS RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH OCCUR DUE TO HIS FAILURE TO LOCATE AND PRESERVE ANY AND ALL UTILITIES.
- CONTRACTOR SHALL PROVIDE TWO SETS OF AS–BUILT DRAWINGS. AS–BUILT DRAWINGS BY A REGISTERED LAND SURVEYOR SHALL INCLUDE ALL INSTALLED UTILITIES WITH VERTICAL AND HORIZONTAL LOCATIONS AND BE SATISFACTORY TO THE BUILDING OFFICIAL FOR ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
- ALL FILL WORK REQUIRED TO BRING THE PROPOSED ROADWAY UP TO SUB–GRADE LEVEL SHALL CONFORM TO MHD SPECIFICATIONS SECTION 150.
- CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE GOVERNING CODES AND BE CONSTRUCTED TO SAME. NOTE THAT THE CONTRACTOR IS RERESPONSIBLE FOR OBTAINING A TRENCHING PERMIT PRIOR TO MAKING CONNECTIONS FOR DRAINAGE, WATER AND FIRE SERVICES IN THE ROW.
- ALL WORK IN THE CITY/TOWN RIGHT–OF–WAY AND EASEMENTS SHALL BE IN ACCORDANCE WITH THE CITY/TOWN SPECIFICATIONS AND MASSACHUSETTS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.
- THE CONTRACTOR SHALL GIVE THE CITY/TOWN A MINIMUM OF 48 HOURS NOTICE BEFORE BEGINNING EACH PHASE OF CONSTRUCTION.
- CONTRACTOR IS RESPONSIBLE FOR REPAIRS OF DAMAGE TO ANY EXISTING IMPROVEMENTS DURING CONSTRUCTION, SUCH AS, BUT NOT LIMITED TO, DRAINAGE, UTILITIES, PAVEMENT, STRIPING, CURB, ETC. REPAIRS SHALL BE EQUAL TO OR BETTER THAN EXISTING CONDITIONS.
- ALL WORK SHALL BE PERFORMED IN CONFORMANCE WITH THE CONDITIONS OF APPROVAL OUTLINED IN ALL STATE AND LOCAL PERMITS. COPIES OF THE CONDITIONS ARE INCLUDED WITHIN THE PROJECTS TECHNICAL SPECIFICATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING THIS INFORMATION PRIOR TO CONSTRUCTION AND CONFORMING TO THE CONDITIONS AS REQUIRED DURING CONSTRUCTION.
- THE GENERAL CONTRACTOR SHALL MAINTAIN THE JOB CLEAR OF TRASH AND DEBRIS. THE WORK AREAS ARE TO BE PICKED UP AT THE END OF EACH WORK DAY.
- ANY TEMPORARY FACILITIES FOR THE STORAGE OR PROTECTION OF TOOLS, EQUIPMENT OR MATERIALS SHALL CONFORM TO LOCAL REGULATIONS AND SHALL BE THE GENERAL CONTRACTORS RESPONSIBILITY. THESE DOCUMENTS DO NOT INCLUDE THE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY. SAFETY, CARE OF ADJACENT PROPERTIES DURING CONSTRUCTION, AND COMPLIANCE WITH STATE AND FEDERAL REGULATIONS REGARDING SAFETY SHALL BE THE GENERAL CONTRACTORS RESPONSIBILITY.
- THE GENERAL CONTRACTOR AND HIS SUBCONTRACTORS SHALL VISIT THE SITE AND BECOME FAMILIAR WITH ALL CONDITIONS PRIOR TO SUBMITTING HIS PROPOSAL. NO EXTRA DUE TO UNFAMILIARITY WITH THE EXISTING SITE OR WORKING CONDITIONS WILL BE ALLOWED.
- CONTRACTOR SHALL BE REQUIRED TO PERFORM FINAL CLEANUP CONSISTING OF CLEANING THE PROPOSED DRAINAGE AND SEWER SYSTEMS OF ALL DEBRIS PRIOR TO THE ACCEPTANCE BY THE OWNER. ADDITIONALLY, THE PROPOSED ROADWAY SHALL BE CLEANED AND SWEPT BY THE CONTRACTOR PRIOR TO ACCEPTANCE.
- ALL EXCAVATION SHALL COMPLY WITH OSHA'S LATEST STANDARDS. ALL REQUIREMENTS OF OSHA'S EXCAVATION STANDARDS SHALL BE PROVIDED BY THE CONTRACTOR INCLUDING, BUT NOT LIMITED TO, THE PROVISION FOR A COMPETENT PERSON ON SITE, MANAGER, AND ANY REQUIRED DOCUMENTATION THAT MAY REQUIRE CERTIFICATION BY A PROFESSIONAL ENGINEER. THE OWNER, THROUGH ITS ENGINEER, SHALL EXPRESSLY NOT PROVIDE ANY OF THE ABOVE REQUIREMENTS DESIGNATED BY OSHA'S EXCAVATION STANDARD.
- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE COST OF LAYING OUT ALL ITEMS OF THE WORK BASED ON CERTAIN HORIZONTAL CONTROL AND BENCHMARK SUPPLIED BY THE SURVEYOR OF RECORD. ANY DISCREPANCIES SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER AND SURVEYOR.
- THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, EQUIPMENT, PERMITS AND APPURTENANCES NECESSARY TO PROVIDE A COMPLETE PROJECT AS INDICATED ON THE PLANS AND IN THESE SPECIFICATIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR A THOROUGH SITE EXAMINATION IN ORDER TO PREPARE SITE FOR CONSTRUCTION.
- ANY AND ALL DEMOLISHED TREES, STRUCTURES AND OTHER RUBBLE MATERIAL PERTAINING TO THIS PROJECT SHALL BE DISPOSED OF BY THE CONTRACTOR OFF–SITE AT HIS EXPENSE IN ACCORDANCE WITH ALL OF THE CITY/TOWN ORDINANCES AND ALL APPLICABLE STATE AND FEDERAL ENVIRONMENTAL REGULATIONS.
- ALL PAVEMENT DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED IN ACCORDANCE WITH THE SPECIFICATIONS AND AS SHOWN ON THE DRAWINGS.
- ALL STREET EXCAVATIONS SHALL BE COMPLETELY CLOSED AT THE END OF EACH WORKING DAY BY BACKFILLING OR COVERING WITH STEEL PLATES.
- ALL MATERIALS AND METHODS ARE TO COMPLY WITH THE CITY/TOWN DPW STANDARDS OR MASSACHUSETTS HIGHWAY (WHERE APPLICABLE), UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- PERMITS WILL BE REQUIRED BY CONTRACTOR WHEN WORKING WITHIN OR OCCUPYING PUBLIC WAY. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED WORK PERMITS AND MAINTAINING A COPY OF ALL PERMITS IN A THREE RING BINDER OR PROJECT BOOK AND ON–SITE AT ALL TIMES.
- BACKFILL WILL BE PLACED IN SUCCESSIVE LAYERS NOT MORE THAN TWELVE INCHES IN THICKNESS AND SHALL BE COMPACTED TO 95% OF MAXIMUM DRY DENSITY DETERMINED BY STANDARD PROCTOR TEST (ASTM 698) FOR ALL APPLICABLE TYPES OF BACKFILL MATERIAL. NO FROZEN MATERIAL SHALL BE USED AS BACKFILL. IF, IN THE OPINION OF THE ENGINEER OR THE DPW, THE EXCAVATED MATERIAL IS UNSUITABLE, THE ENTIRE MATERIAL FOR BACKFILLING SHALL CONSIST OF APPROVED GRAVEL OR APPROVED BORROW, AS DIRECTED. AFTER THOROUGH TAMPING AROUND AND BENEATH THE UTILITY, A SIX-INCH LAYER OF BACKFILL WILL BE THOROUGHLY COMPACTED AS FOLLOWS: IF DRY, SHALL BE MOISTENED AND THEN COMPACTED WITH MECHANICAL TAMPERS OR BY HAND TAMPERS HAVING A TAMPING FACE NOT EXCEEDING 25 SQUARE INCHES IN AREA. THE FINAL TWELVE INCHES OF FILLING WILL, IN ALL CASES, CONSIST OF APPROVED GRAVEL THOROUGHLY TAMPED.
- CONTRACTOR SHALL PROVIDE FIELD COMPACTION VERIFICATION UTILIZING ASTM D5195–02, STANDARD TEST METHOD FOR DENSITY OF SOIL & ROCK IN–PLACE AT SITE DEPTHS BELOW THE SURFACE BY NUCLEAR METHODS AS REQUESTED BY THE ENGINEER.
- CONTRACTOR SHALL PROVIDE FIELD COMPACTION RESULTS TO ENGINEER WITHIN 24–HOURS PRIOR TO PLACEMENT OF INFRASTRUCTURE OR BITUMINOUS BINDER.
- ALL FILL TO BRING PROPOSED ROADWAY UP TO THE SUB–GRADE LEVEL SHALL EXTEND PAST THE EDGE OF THE RIGHT–OF–WAY AT A 2:1 SLOPE. THIS IS TO PROVIDE ADEQUATE SUPPORT FOR THE RIGHT–OF–WAY.

LAYOUT NOTES

- CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF VESTIBULES, SLOPE PAVING, SIDEWALKS, EXIT PORCHES, PRECISE BUILDING DIMENSIONS AND EXACT BUILDING UTILITY ENTRANCE LOCATIONS.
- ALL CONSTRUCTION IN CITY RIGHT–OF–WAYS AND/OR EASEMENTS SHALL BE IN ACCORDANCE WITH THE CITY/TOWN STANDARD SPECIFICATIONS.
- IN THE EVENT OF DISCREPANCIES BETWEEN LOCAL SPECIFICATIONS AND SITE SPECIFICATIONS, THE MORE STRINGENT REQUIREMENT SHALL GOVERN.
- SITE CONTRACTOR SHALL REFER TO ARCHITECTURAL DETAILS AND SPECIFICATIONS FOR REQUIREMENTS OF CONSTRUCTION AND JOINT SPACING OF SIDEWALKS, RAMPS, AND CURBING ADJACENT TO BUILDING.
- SITE CONTRACTOR SHALL PROTECT ALL BENCHMARKS AND PROPERTY MONUMENTATION AND SHALL REPLACE OR REPAIR, AT HIS OWN EXPENSE, BENCHMARKS AND MONUMENTATION DISTURBED DURING CONSTRUCTION.
- SITE CONTRACTOR SHALL PAINT ALL LIGHT POLE BASES, CURBS, FIRE HYDRANTS, PIPE BOLLARDS SIGN BASES, AND OTHER SITE AND UTILITY APPURTENANCES. CONTRACTOR SHALL PAINT OR REPAINT FIRE LANES WHERE REQUIRED BY LOCAL CODE.
- ALL STRIPING, PAVEMENT MARKINGS, AND TRAFFIC SIGNAGE SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, UNLESS OTHERWISE NOTED ON THE PLANS.
- ALL WORK SHALL COMPLY WITH FEDERAL, STATE AND LOCAL CODES AND ORDINANCES INCLUDING BUT NOT LIMITED TO: AASHTO, OSHA, EPA, DEP, AND MASS HIGHWAY. THE GENERAL CONTRACTOR SHALL APPLY FOR ALL PERMITS AND SHALL PAY ALL PERMIT RELATED FEES. ALL NECESSARY PERMITS SHALL BE OBTAINED PRIOR TO THE START OF WORK.
- ALL DIMENSIONS AND CONDITIONS SHOWN ON THE DRAWINGS ARE TO BE VERIFIED BY THE CONTRACTOR. IF FIELD CONDITIONS VARY SIGNIFICANTLY ENOUGH TO REQUIRE A CHANGE TO THE CONTRACT DOCUMENTS, THE PROJECT PROPONENT AND LANDSCAPE ARCHITECT/ENGINEER SHALL BE NOTIFIED IMMEDIATELY.
- THE SITE/GENERAL CONTRACTOR AND SUBCONTRACTORS SHALL CONTACT THE OWNER AND LANDSCAPE ARCHITECT/ENGINEER SHOULD HE FIND ANY CONFLICT OR INCONSISTENCY BETWEEN THE WORK SHOWN ON THE DRAWINGS AND NORMAL ACCEPTED CONSTRUCTION PRACTICES, OR HE SHALL ASSUME RESPONSIBILITY FOR ALL CORRECTIONS.
- ANY CORRECTIONS REQUIRED FOR REVISIONS TO THE CONTRACT DRAWINGS INITIATED BY THE GENERAL CONTRACTOR OR SUBCONTRACTORS WITHOUT PRIOR APPROVAL OF THE OWNER AND OR THE LANDSCAPE ARCHITECT/ENGINEER SHALL BE ACCOMPLISHED AT THE CONTRACTORS RISK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL & LEGAL DISPOSAL OF ALL MATERIAL NECESSARY TO PREPARE THE SITE FOR THE NEW CONSTRUCTION AS SHOWN ON THE SITE DRAWINGS.
- REPAIR DAMAGE CITY/TOWN ROADS AND CURBS IN ACCORDANCE WITH MASS HIGHWAY AND/OR THE CITY/TOWN REGULATIONS.
- CONTRACTOR SHALL SAWCUT PAVEMENT EDGE WHERE PAVEMENT TO REMAIN IS ADJACENT TO PAVEMENT TO BE REMOVED.
- CONTRACTOR SHALL PREPARE SITE AS NECESSARY FOR CONSTRUCTION SHOWN ON THE PLANS.

EARTHWORK NOTES

- THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
- ALL CUT OR FILL SLOPES SHALL BE 3:1 OR FLATTER UNLESS OTHERWISE NOTED.
- STORM PIPE SHALL BE AS NOTED ON PLANS.
- EXISTING DRAINAGE STRUCTURES TO BE INSPECTED AND REPAIRED AS NEEDED, AND EXISTING PIPES TO BE CLEANED OUT TO REMOVE ALL SILT AND DEBRIS.
- EXISTING GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT INTERVALS.
- PROPOSED GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT INTERVALS.
- IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.
- ALL STORM PIPE ENTERING STRUCTURES SHALL BE SEALED TO ASSURE CONNECTION AT STRUCTURE IS WATERTIGHT.
- ALL STORM SEWER MANHOLES FRAMES AND GRATES ARE TO BE SET EQUAL TO FINISH GRADES, AND SHALL HAVE TRAFFIC BEARING RING & COVERS (H20). LIDS SHALL BE LABELED "STORM SEWER".
- CONTRACTOR SHALL ADJUST AND/OR CUT EXISTING PAVEMENT AS NECESSARY TO ASSURE A SMOOTH FIT AND CONTINUOUS GRADE.
- CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR ALL NATURAL AND PAVED AREAS.
- TOPOGRAPHIC INFORMATION WAS OBTAINED BY HOLMBERG AND HOWE IN THE SUMMER OF 2023. IF CONTRACTOR DOES NOT ACCEPT EXISTING TOPOGRAPHY AS SHOWN ON THE PLANS, WITHOUT EXCEPTION, HE SHALL HAVE MADE, AT HIS EXPENSE, A TOPOGRAPHIC SURVEY BY A REGISTERED LAND SURVEYOR AND SUBMIT IT TO THE OWNER FOR REVIEW.
- ALL UNSURFACED AREAS DISTURBED BY GRADING OPERATION SHALL RECEIVE 4 INCHES OF TOPSOIL. CONTRACTOR SHALL APPLY STABILIZATION FABRIC TO ALL SLOPES 3H:1V OR STEEPER. CONTRACTOR SHALL GRASS DISTURBED AREAS IN ACCORDANCE WITH THE SPECIFICATIONS UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.
- CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE GOVERNING CODES AND BE CONSTRUCTED TO SAME.
- EARTHWORK FOR ALL BUILDING FOUNDATIONS AND SLABS SHALL BE IN ACCORDANCE WITH ARCHITECTURAL BUILDING PLANS AND SPECIFICATIONS.
- IF CONTRACTOR RELOCATES OR SETS NEW BENCHMARKS, THE VERTICAL ELEVATIONS OF THE BENCHMARKS SHALL BE SET WITHIN A TOLERANCE OF 0.010 FT. ALL FOOTINGS AND FOUNDATIONS FOR PROPOSED STRUCTURES SHALL BE EXCAVATED TO NATIVE SUBGRADE AND COMPACTED PER ARCHITECTURAL SPECIFICATIONS.
- CONTRACTOR SHALL LEAVE GRADE BEHIND CURB IN ALL PLANTER AREAS A MINIMUM OF 4" LOW FOR THE PLACEMENT OF SUITABLE TOPSOIL OR PLANTING MIX.
- CONTRACTOR TO SPREAD ON–SITE STOCKPILE TO A 4" DEPTH ON ALL AREAS TO BE SOILED/SEEDDED AS SHOWN ON DRAWINGS. SITE CONTRACTOR FINE GRADE OF INSTALLED TOPSOIL PRIOR TO HYDOMULCHING BY LANDSCAPE SUB–CONTRACTOR.

SITE UTILITY NOTES

- GENERAL:
- ALL FILL MATERIAL IS TO BE IN PLACE, AND COMPACTED BEFORE INSTALLATION OF PROPOSED UTILITIES.
 - TOPS OF EXISTING MANHOLES SHALL BE SET EQUAL TO FINISH GRADE. IN GRASSED LANDSCAPED AREAS WITH WATER TIGHT LIDS.
 - ALL CONCRETE FOR ENCASEMENTS SHALL HAVE A MINIMUM 28 DAY COMPRESSION STRENGTH AT 3000 P.S.I.
 - DRAWINGS DO NOT PURPORT TO SHOW ALL EXISTING UTILITIES.
 - EXISTING UTILITIES SHALL BE VERIFIED IN FIELD PRIOR TO INSTALLATION OF ANY NEW LINES.
 - PRIOR TO CONSTRUCTION OF UTILITIES REFER TO ARCHITECTURAL INTERIOR PLUMBING DRAWINGS FOR ALL TIE–INS.
 - SITE/GENERAL CONTRACTOR IS RESPONSIBLE FOR COMPLYING TO THE SPECIFICATIONS OF THE LOCAL AUTHORITIES AT THE CITY WITH REGARD TO MATERIALS AND INSTALLATION OF THE WATER AND SEWER LINES.
 - THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
 - ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES AND/OR UTILITY SERVICE COMPANIES SHALL BE PERFORMED PRIOR TO ANNOUNCED BUILDING POSSESSION AND THE FINAL CONNECTION OF SERVICE.
 - CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES FOR INSTALLATION REQUIREMENTS AND SPECIFICATIONS.
 - CONTRACTOR SHALL COORDINATE INSPECTION OF UTILITY LINES WITH APPROPRIATE AUTHORITIES PRIOR TO BACKFILLING TRENCHES.
 - CONTRACTOR SHALL COMPLY WITH THE LATEST OSHA STANDARDS OR DIRECTIVES OR ANY OTHER AGENCY HAVING JURISDICTION FOR EXCAVATION AND TRENCHING PROCEDURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND MAINTENANCE OF ALL SUPPORT SYSTEMS, SLOPING, BENCHING, AND OTHER MEANS OF PROTECTION.
 - CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES WITH LOCAL COMPANIES TO AVOID CONFLICTS AND TO ASSURE THAT PROPER DEPTHS ARE ACHIEVED. CONTRACTOR SHALL COORDINATE WITH LOCAL UTILITY COMPANIES FOR EXACT LOCATION AND SCHEDULING OF CONNECTIONS TO THEIR FACILITIES.
 - THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY, DUE TO THE LACK OF AVAILABLE DOCUMENTATION. ALL UTILITIES, INCLUDING CURB BOXES, MAY NOT BE SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL CALL THE "DIG SAFE CENTER" TO HAVE ALL UTILITIES MARKED ON THE GROUND PRIOR TO THE START OF CONSTRUCTION.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH OCCUR DUE TO HIS FAILURE TO LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
 - DO NOT INTERRUPT EXISTING UTILITIES WITHOUT AUTHORIZATION FROM THE OWNER, OWNERS OF ADJACENT PROPERTIES, AND THE CORRESPONDING UTILITY OWNER. CONTRACTOR SHALL ARRANGE TO SHUT OFF UTILITIES, AS REQUIRED, WITH THE UTILITY OWNERS.
 - COORDINATE UTILITY TERMINATION WITH UTILITY OWNERS.
- SEWER:
- SEWER LATERALS SHALL BE INSTALLED IN FIRST–CLASS BEDDING AND IN ACCORDANCE WITH THE DEPARTMENT OF PUBLIC WORKS SPECIFICATIONS. SEWERS SHALL BE INSTALLED TO THE LINE AND GRADE INDICATED ON THE PLANS.
 - ONLY PRECAST CONCRETE MANHOLES OF A DESIGN APPROVED BY THE ENGINEER SHALL BE INSTALLED.
 - NO GROUNDWATER OR SURFACE WATER SHALL BE DISCHARGED INTO THE SANITARY SEWER.
 - WHERE ROCK IS ENCOUNTERED, IT SHALL BE REMOVED TO A DEPTH OF ONE FOOT BELOW THE FLOWLINE OF THE SEWER AND THE PIPE LAID IN A PROPERLY COMPACTED GRANULAR MATERIAL APPROVED BY THE ENGINEER.
 - ONLY GRANULAR MATERIAL APPROVED BY THE ENGINEER SHALL BE USED AS BACKFILL IN ANY TRENCH EXCAVATION.
- WATER:
- CONTRACTOR SHALL CONTACT THE CITY WATER RESOURCE DEPARTMENT FOR SPECIFICATIONS AND MAKE OF VALVES, VALVE BOXES, FIRE HYDRANTS AND ALL OTHER WATER LINE APPURTENANCES.
 - WATER LINE TESTING AND STERILIZATION SHALL BE PERFORMED IN ACCORDANCE WITH LOCAL DPW SPECIFICATIONS AND WATER DISTRIBUTION SYSTEM. CONTRACTOR SHALL COORDINATE TESTING WITH THE CITY/TOWN WATER DEPARTMENT.
 - ALL WATER LINES, UNLESS OTHERWISE NOTED, SHALL BE INSTALLED WITH A MINIMUM FIVE FEET OF COVER. WHEN CROSSING ABOVE OR BELOW WATER PIPELINES, A MINIMUM VERTICAL SEPARATION OF SIX INCHES SHALL BE PROVIDED. WHEN CROSSING SANITARY SEWERS, A MINIMUM OF 18" SHALL BE PROVIDED.
 - THE INSTALLED WATER MAIN SHALL BE PRESSURE TESTED, FLUSHED AND DISINFECTED BY CONTRACTOR IN ACCORDANCE WITH AWWA C–600 AND AWWA C–651 OR PER CITY/TOWN WATER DEPARTMENT STANDARDS.
 - ALL WATER SERVICES SHALL HAVE UTILITY WARNING TAPE. THE TAPE SHALL BE BURIED APPROXIMATELY 2 FEET BELOW FINISHED GRADE.
 - BACKFILL SHALL BE COMPACTED TO 95 PERCENT OF THE STANDARD PROCTOR DENSITY AS DETERMINED BY ASTM D698. COMPACTION EQUIPMENT USED MUST BE SPECIFICALLY DESIGNED FOR COMPACTION. TAMPING WITH THE BACK OF THE BACK HOE BUCKET IS UNACCEPTABLE COMPACTION.
 - ALL WATER SERVICES SHALL BE 1" DIA. COPPER TUBING TYPE K, SOFT TEMPER CONFORMING TO ASTM B88 UNLESS OTHERWISE NOTED.
 - ALL WATER SERVICES SHALL BE LAID AT LEAST TEN (10) FEET HORIZONTALLY FROM EXISTING OR PROPOSED SANITARY SEWER. DISTANCE SHALL BE MEASURED EDGE TO EDGE.
 - ALL WATER SERVICE PIPES SHALL BE LAID IN A TRENCH SEPARATE FROM ANY OTHER UTILITY (GAS, ELECTRIC, TELEPHONE, ETC.) SHALL BE A MINIMUM NO LESS THAN FIVE (5) FEET FROM ANOTHER UTILITY.
 - ALL MATERIAL SHALL BE IN ACCORDANCE WITH CITY/TOWN WATER DEPARTMENT "RULES & REGULATIONS". ALL WORK TO BE PERFORMED IN ACCORDANCE WITH CITY/TOWN WATER DEPARTMENT "SPECIFICATIONS". CITY/TOWN WATER DEPARTMENT STANDARDS SHALL TAKE PRECEDENCE OVER ANY REQUIREMENTS LISTED ABOVE.

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Construction Notes

Great Falls, First Street Project
First Street
Turners Falls, MA



PREPARED FOR:
**Franklin Hampshire
Habitat for Humanity**
221 Pine Street
Florence, MA 01062

REVISIONS:	DATE:

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PROJECT NO: 25-1101

DRAWING: Eng Plan 7-9-26

ISSUE DATE: 7/14/26

SCALE: -

SHEET NO.

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OF

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Permitting, Not for Construction

SIGNAGE AND PAVEMENT MARKING NOTES:

1. STRIPE ALL PARKING AREAS AS SHOWN, INCLUDING PARKING SPACES, STOP BARS, CROSSWALKS, AND ACCESSIBLE ROUTE MARKINGS AND SYMBOLS USING WHITE TRAFFIC PAINT. PAINTED ISLANDS, FIRE LANES, AND TRAVEL WAY CENTERLINES SHALL BE PAINTED USING YELLOW TRAFFIC PAINT. ALL TRAFFIC PAINT SHALL CONFORM TO AASHTO M248 TYPE "N".
2. STOP BARS SHALL BE 12" WIDE (WHITE).
3. PAINTED ISLANDS SHALL BE 4" WIDE DIAGONAL LINES @ 3'-0" O.C. BORDERED BY 4" WIDE LINES (YELLOW).
4. ALL PARKING STALL LINES SHALL BE 4" WIDE (WHITE).
5. ALL PAVEMENT MARKINGS AND SIGNS SHALL CONFORM TO "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS", MASSDOT, STATE BUILDING CODE AND ADA REQUIREMENTS, AND AS SHOWN ON THE PLANS & DETAILS.

LAYOUT NOTES:

1. SITE CONTRACTOR SHALL REFER TO SHEET 3, DETAIL SHEETS AND REMAINING PLAN SET FOR INFORMATION REGARDING SITE LAYOUT.
2. IT SHALL BE THE SITE CONTRACTOR'S RESPONSIBILITY TO CROSS REFERENCE INFORMATION CONTAINED IN OTHER SHEETS WITH SITE INFORMATION SHOWN HEREON.
3. PRIOR TO SUBMITTING THEIR BID FOR CONSTRUCTION, THE SITE CONTRACTOR SHALL COMMUNICATE ANY DISCREPANCIES BETWEEN THE PROPOSED DESIGN AND THE SAID SPECIFICATIONS WITH THE PROJECT PROPONENT AND LANDSCAPE ARCHITECT/ENGINEER. SHOULD THE SITE CONTRACTOR FAIL TO COMMUNICATE ANY DISCREPANCIES, HE/SHE SHALL BE RESPONSIBLE FOR ANY COSTS RESULTING FROM SAID DISCREPANCY.

CLOSED DRIVEWAY OPENING
AND INSTALL GRANITE
CURBING TO MATCH EXISTING
SEE DETAIL

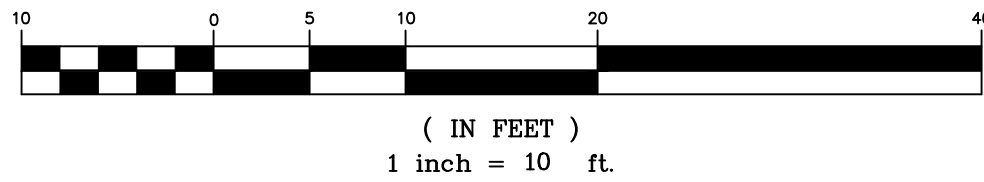
PROPOSED 4' BITUMINOUS SIDEWALK TYP.

PROPOSED 4' BITUMINOUS SIDEWALK TYP.

NOTES:

1. THE PREMISES AND EXISTING CONDITIONS SHOWN HEREON ARE COMPILED FROM A LAND SURVEY FOR PIONEER VALLEY HABITAT FOR HUMANITY BY HOLMBERG AND HOWE LAND SURVEYORS DURING THE SPRING OF 2023.

GRAPHIC SCALE



SITE INFORMATION, Map/Lot 04-0-0031

LOT INFORMATION			
ZONE	NEIGHBORHOOD BUSINESS (NB), SECTION 10.		
SEWER	TOWN		
WATER	TOWN		
SITE PLAN INFORMATION			
ITEM	REQUIRED	EXISTING	PROPOSED
MINIMUM LOT AREA	4,000 S.F.	28,523 S.F.	28,000 S.F.
MINIMUM ROAD FRONTAGE	30'	259'	39'
MINIMUM LOT DEPTH	-	-	-
MINIMUM FRONT YARD SETBACK	NONE	-	-
MINIMUM SIDE YARD SETBACK	10'*	-	10'
MINIMUM REAR YARD SETBACK	10'*	-	-
MAXIMUM BUILDING HEIGHT/STORIES	40'	<40'	<40'
OPEN SPACE	20%	45%	62%

*NO SETBACK REQUIRED EXCEPT 10 feet between any project building and the boundary of the applicable sub-district.

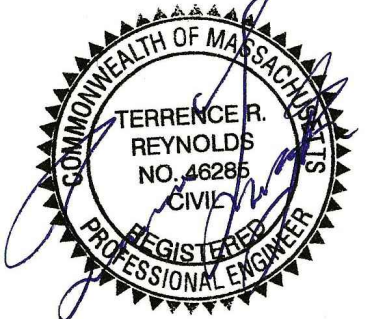
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email: terry@treynoldsenr.com
www.treynoldsenr.com

152 Maplewood Terrace
Florence, MA 01062

Layout and Materials Plan

Great Falls, First Street Project
First Street
Turners Falls, MA



PREPARED FOR:
Franklin Hampshire
Habitat for Humanity
221 Pine Street
Florence, MA 01062

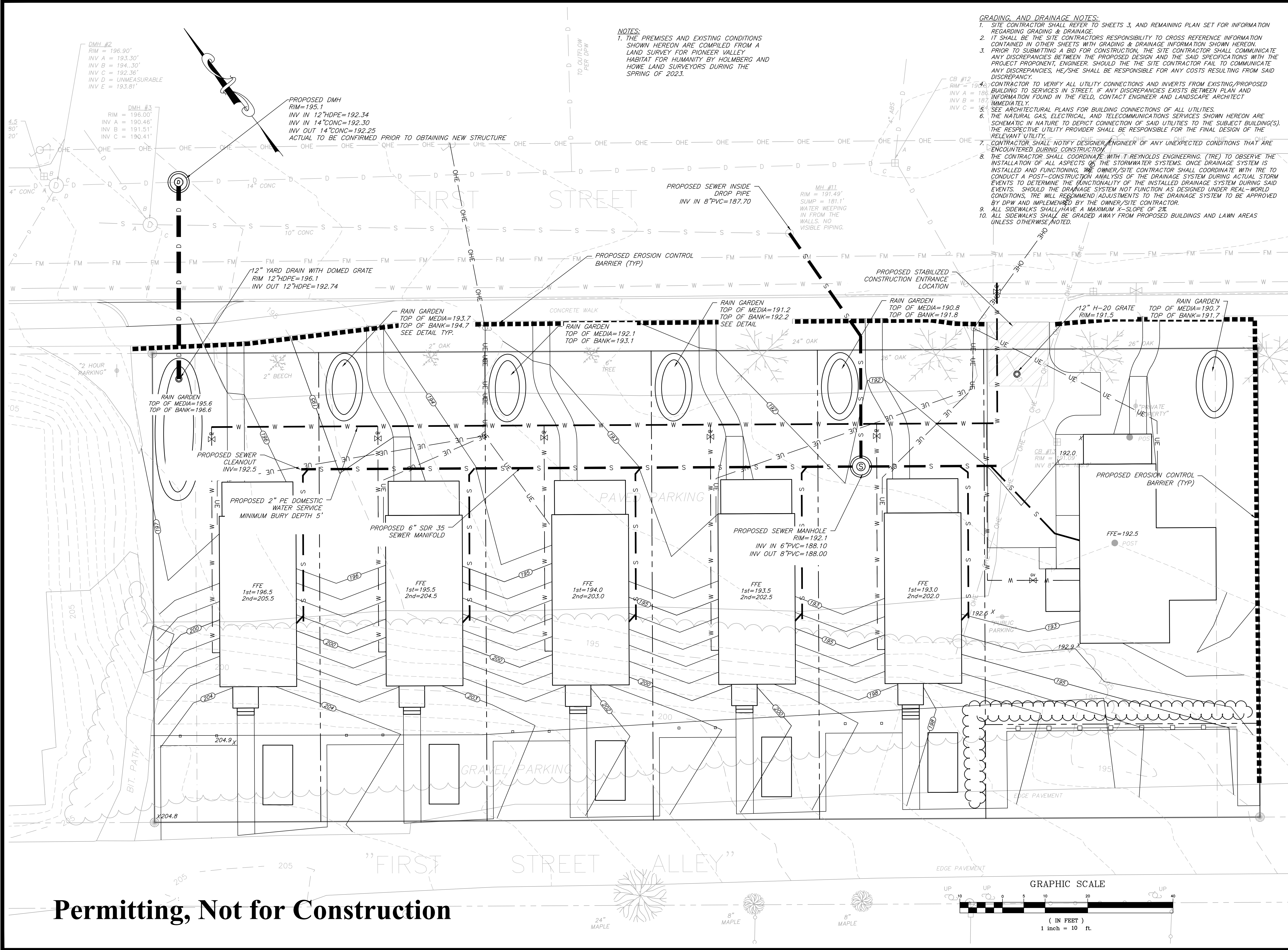
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PROJECT NO: 25-1101
DRAWING: Eng Plan 7-9-26
ISSUE DATE: 7/14/26
SCALE: 1" = 10'
SHEET NO.

4 OF 7

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Grading, Erosion Control and
Utilities Plan
Great Falls, First Street Project
First Street
Turners Falls, MA

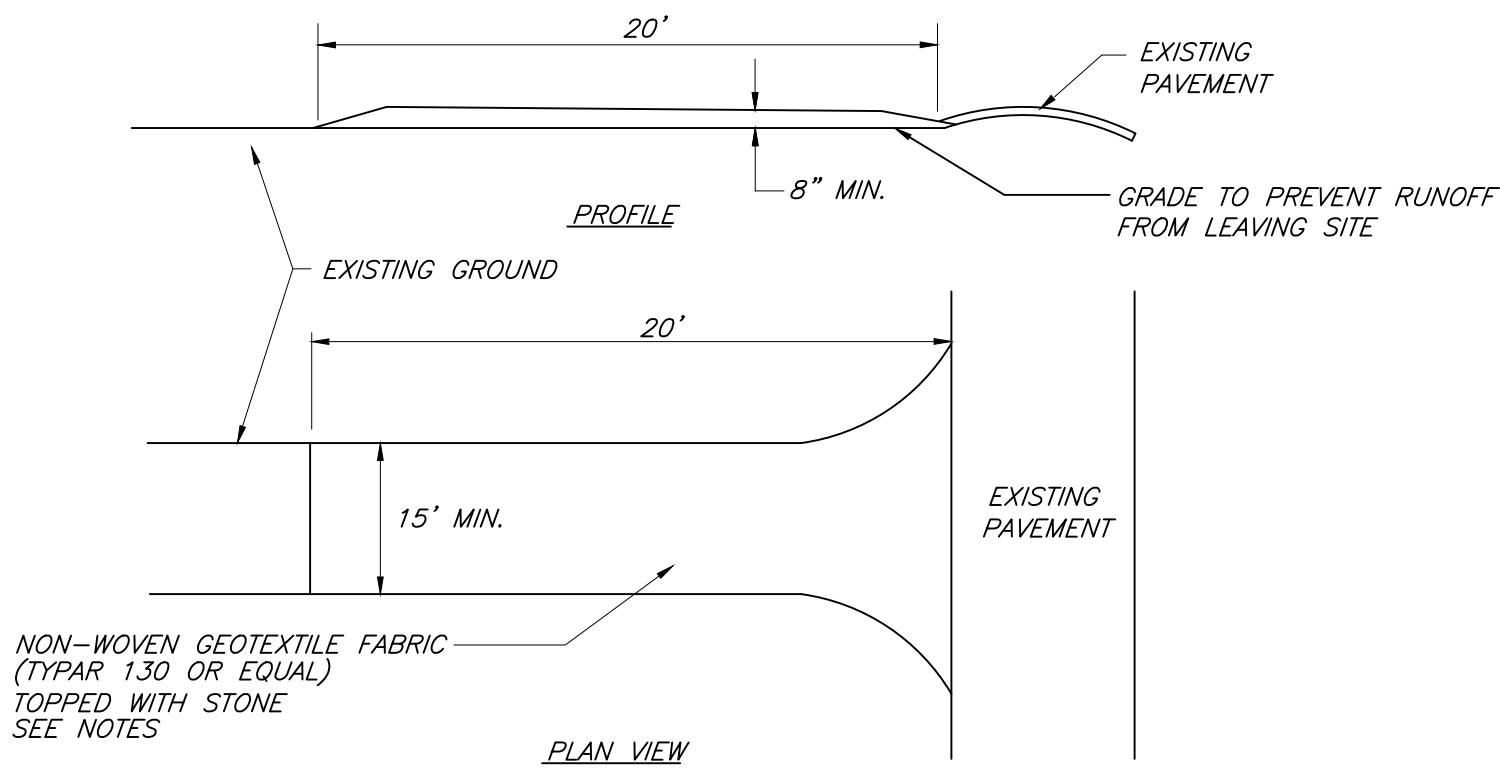


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Florence, MA 01062

REVISIONS:	DATE:

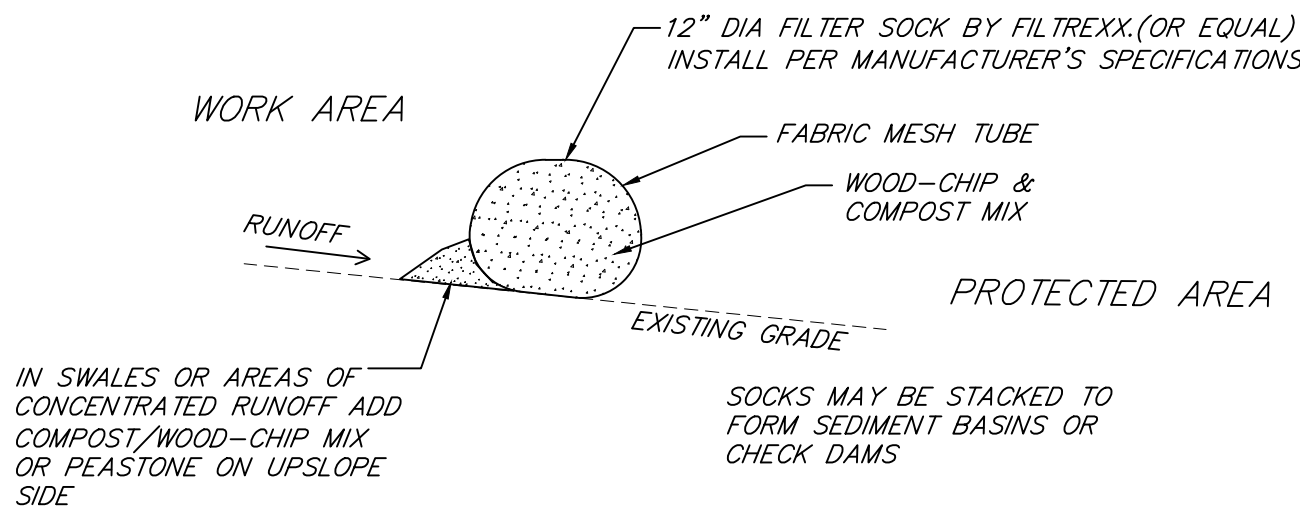
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SHEET NO.



- STONE SIZE—USE 2-4" RIP RAP, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
- LENGTH—AS REQUIRED.
- THICKNESS—NOT LESS THAN 8".
- WIDTH—NO LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
- PLACE GEOTEXTILE OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
- MAINTENANCE—THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED IMMEDIATELY.
- PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

1	STABILIZED CONSTRUCTION ENTRANCE DETAIL
—	NO SCALE



TYPICAL FILTER SOCK INSTALLATION

2	SEDIMENT BARRIER ALTERNATIVE
—	NO SCALE (CONTRACTOR'S OPTION)

HDPE TRENCH INSTALLATION DETAIL

NOTES:

- FOUNDATION:** WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH A FOUNDATION OF CLASS I OR II MATERIAL AS DEFINED IN ASTM D2321, "STANDARD PRACTICE FOR INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY-FLOW APPLICATIONS," LATEST EDITION; AS AN ALTERNATIVE AND AT THE DISCRETION OF THE ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A WOVEN GEOTEXTILE FABRIC.

- BEDDING:** SUITABLE MATERIAL SHALL BE CLASS I, II OR III AND INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.
UNLESS OTHERWISE SPECIFIED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4"-24" (100-600mm) AND 42"-48" (1050-1200mm) CORRUGATED POLYETHYLENE PIPE (CPEP); 6" (150mm) FOR 30"-36" (750-900mm) CPEP.

- HAUNCHING AND INITIAL BACKFILL:** SUITABLE MATERIAL SHALL BE CLASS I, II OR III AND INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.

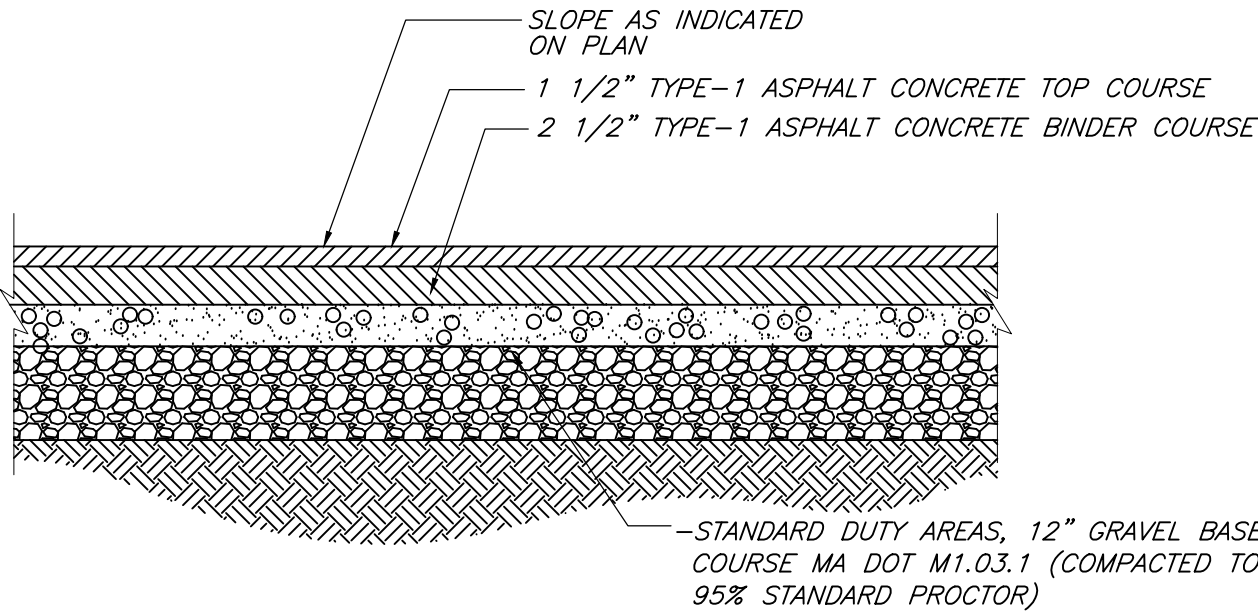
- UNLESS OTHERWISE SPECIFIED BY THE ENGINEER, MINIMUM TRENCH WIDTHS SHALL BE AS FOLLOWS:

NOMINAL Ø in (mm)	MIN. RECOMMENDED TRENCH WIDTH in (mm)
12 (300)	31 (790)

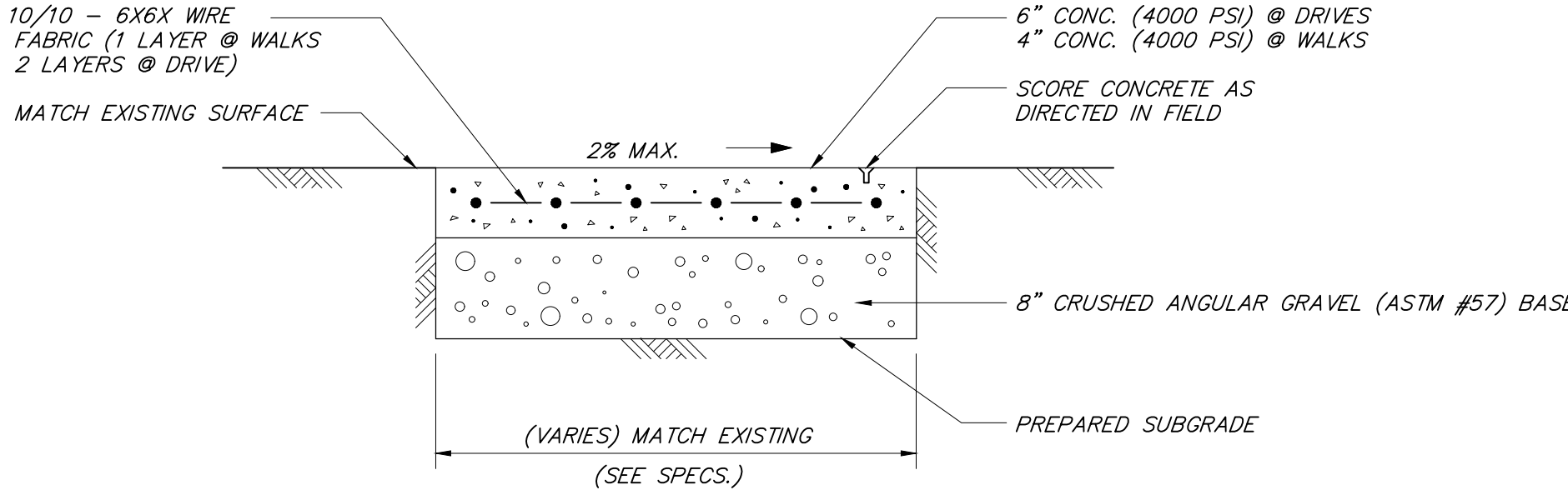
- MINIMUM COVER:** MINIMUM RECOMMENDED DEPTHS OF COVER FOR VARIOUS LIVE LOADING CONDITIONS ARE SUMMARIZED IN THE FOLLOWING TABLE. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE TAKEN FROM THE TOP OF PIPE TO THE GROUND SURFACE.

SURFACE LIVE LOADING CONDITION	MINIMUM RECOMMENDED COVER in (mm)
H2S (FLEXIBLE PAVEMENT)	12 (300)
H2S (RIGID PAVEMENT)	12 (300)
E80 RAILWAY	24 (610)
HEAVY CONSTRUCTION	48 (1220)

* TOP OF PIPE TO BOTTOM OF BITUMINOUS PAVEMENT SECTION



4	PARKING BITUMINOUS PAVEMENT DETAIL
—	NO SCALE



5	TYPICAL CONCRETE WALK SECTION
—	NO SCALE

NOTES:

- WHERE ULTIMATE DISCHARGE FROM THE RAIN GARDEN AREA IS BY INFILTRATION INTO THE SUBSOIL, THE PRESERVATION OF INFILTRATION FUNCTION OF UNDERLYING SOILS REQUIRES CAREFUL CONSIDERATION DURING CONSTRUCTION TO PREVENT DEGRADATION OF INFILTRATION FUNCTION:

• DO NOT DISCHARGE SEDIMENT-LADEN WATERS FROM CONSTRUCTION ACTIVITIES (RUNOFF, WATER FROM EXCAVATIONS) TO FULLY EXCAVATED RAIN GARDEN AREA DURING ANY STAGE OF CONSTRUCTION. RAIN GARDEN AREA MAY BE USED FOR TEMPORARY SEDIMENTATION BY EXCATING THE BASIN ONLY ENOUGH TO MAINTAIN A MINIMUM 1-FOOT SEPARATION TO FINAL EXCAVATED GRADE.

• DO NOT TRAFFIC EXPOSED SOIL SURFACE WITH CONSTRUCTION EQUIPMENT. IF FEASIBLE, PERFORM EXCAVATIONS WITH EQUIPMENT POSITIONED OUTSIDE THE LIMITS OF THE INFILTRATION COMPONENTS OF THE SYSTEM.

- ALL DRAINAGE AREAS TO A RAIN GARDEN FACILITY ARE TO BE STABILIZED PRIOR TO INSTALLATION OF AMENDED SOILS, MULCH OR PLANTINGS.

- AMENDED SOIL WILL ONLY BE PERMITTED WITH A VALID SOIL ANALYSIS REPORT.

- INSTALL WIRE SCREENING AROUND ALL OUTLET OPENINGS TO PREVENT LOSS OF MULCH.

- PLANT MATERIAL SHALL BE TOLERANT OF INUNDATION AND DROUGHT CONDITIONS. NATIVE PLANT MATERIALS ARE RECOMMENDED.

- FILTER MEDIA SHALL BE AS FOLLOWS:

THE SOIL MIX FOR RAIN GARDEN AREAS SHOULD BE A MIXTURE OF SAND COMPOST AND SOIL.

—40 % SAND,
—20-30% TOPSOIL, AND
—30-40% COMPOST.

THE SOIL MIX MUST BE UNIFORM, FREE OF STONES, STUMPS, ROOTS OR SIMILAR OBJECTS LARGER THAN 2 INCHES. CLAY CONTENT SHOULD NOT EXCEED 5%.

SOIL PH SHOULD GENERALLY BE BETWEEN 5.5-6.5, A RANGE THAT IS OPTIMAL FOR MICROBIAL ACTIVITY AND ADSORPTION OF NITROGEN, PHOSPHORUS, AND OTHER POLLUTANTS.

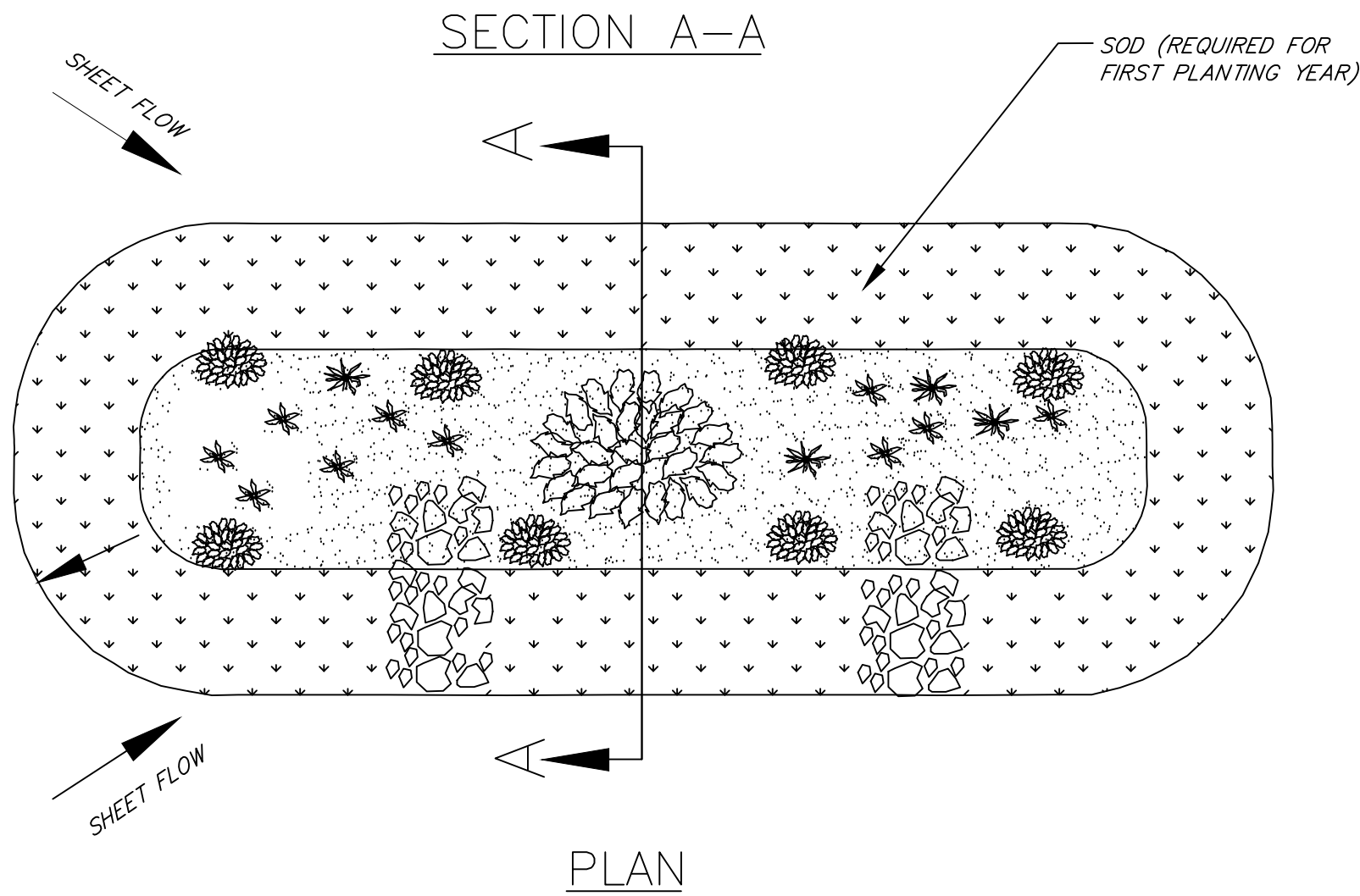
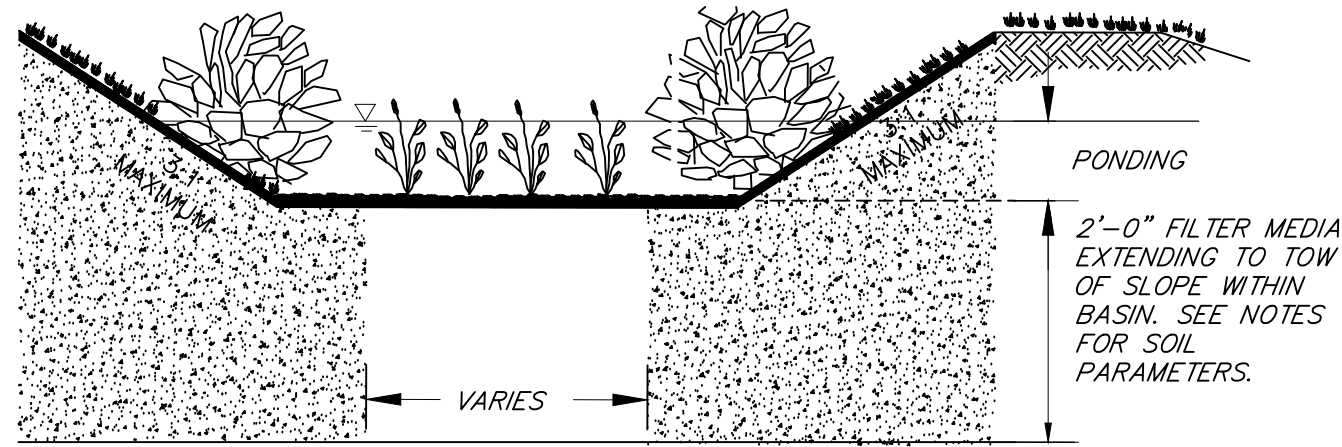
USE SOILS WITH 1.5% TO 3% ORGANIC CONTENT AND MAXIMUM 500-PPM SOLUBLE SALTS.

THE SAND COMPONENT SHOULD BE GRAVELLY SAND THAT MEETS ASTM D 422. SIEVE SIZE PERCENT PASSING:

SIEVE NO.	PERCENT BY WEIGHT PASSING STANDARD SIEVE INDICATED
2-INCH	100
3/4-INCH	70-100
1/4-INCH	50-80
40	15-40
200	0-3

THE TOPSOIL COMPONENT SHALL BE A SANDY LOAM, LOAMY SAND OR LOAM TEXTURE.

THE COMPOST COMPONENT MUST BE PROCESSED FROM YARD WASTE IN ACCORDANCE WITH MASSDEP GUIDELINES (SEE [HTTP://WWW.MASS.GOV/DEP/RECYCLE/REDUCE/LEAFGUID.DOC](http://www.mass.gov/dep/recycle/reduce/leafguid.doc)). THE COMPOST SHALL NOT CONTAIN BIOSOLIDS.



7	RAIN GARDEN "III" DETAIL
—	NO SCALE

3	PRECAST CONCRETE STORM MANHOLE
—	NO SCALE

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www.treynoldengineering.com

152 Maplewood Terrace
Florence, MA 01062

Construction Details

Great Falls, First Street Project
First Street
Turners Falls, MA



PREPARED FOR:
Franklin Hampshire
Habitat for Humanity

221 Pine Street
Florence, MA 01062

REVISIONS:	DATE:

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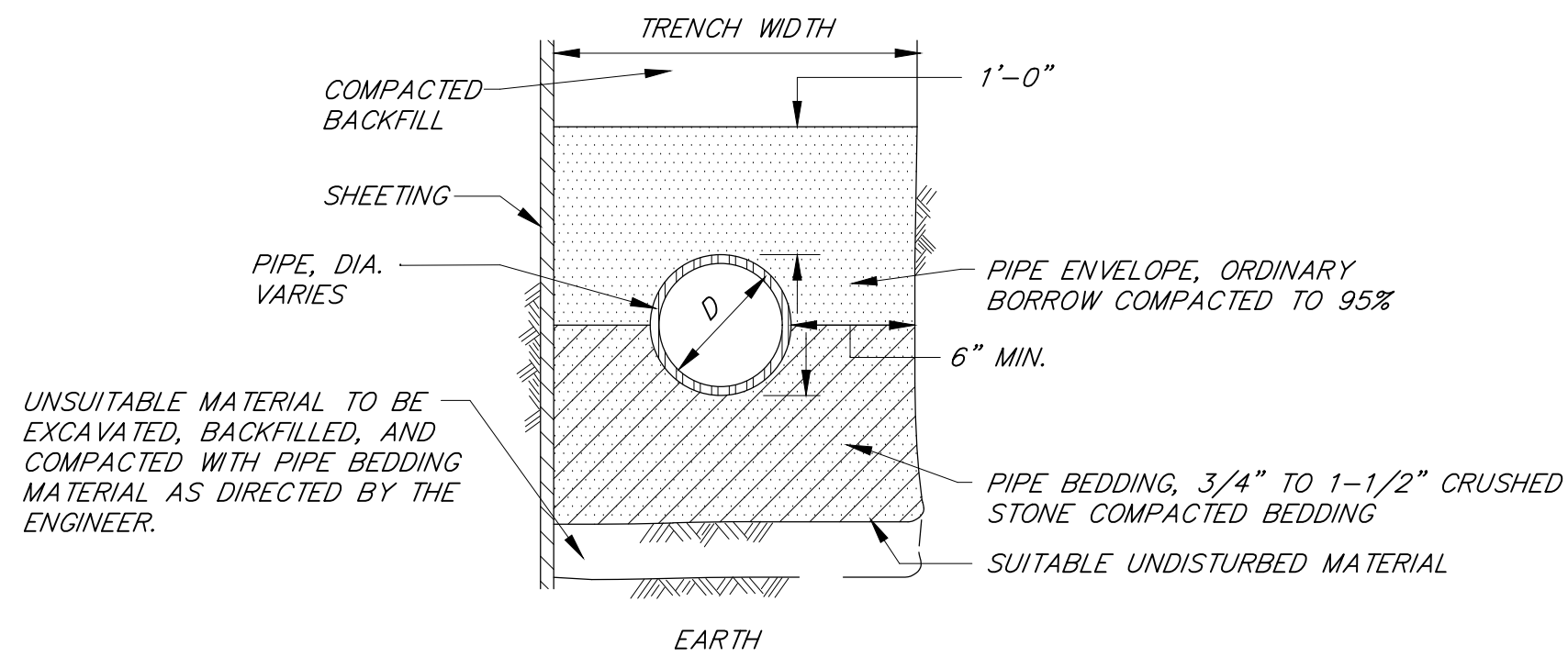
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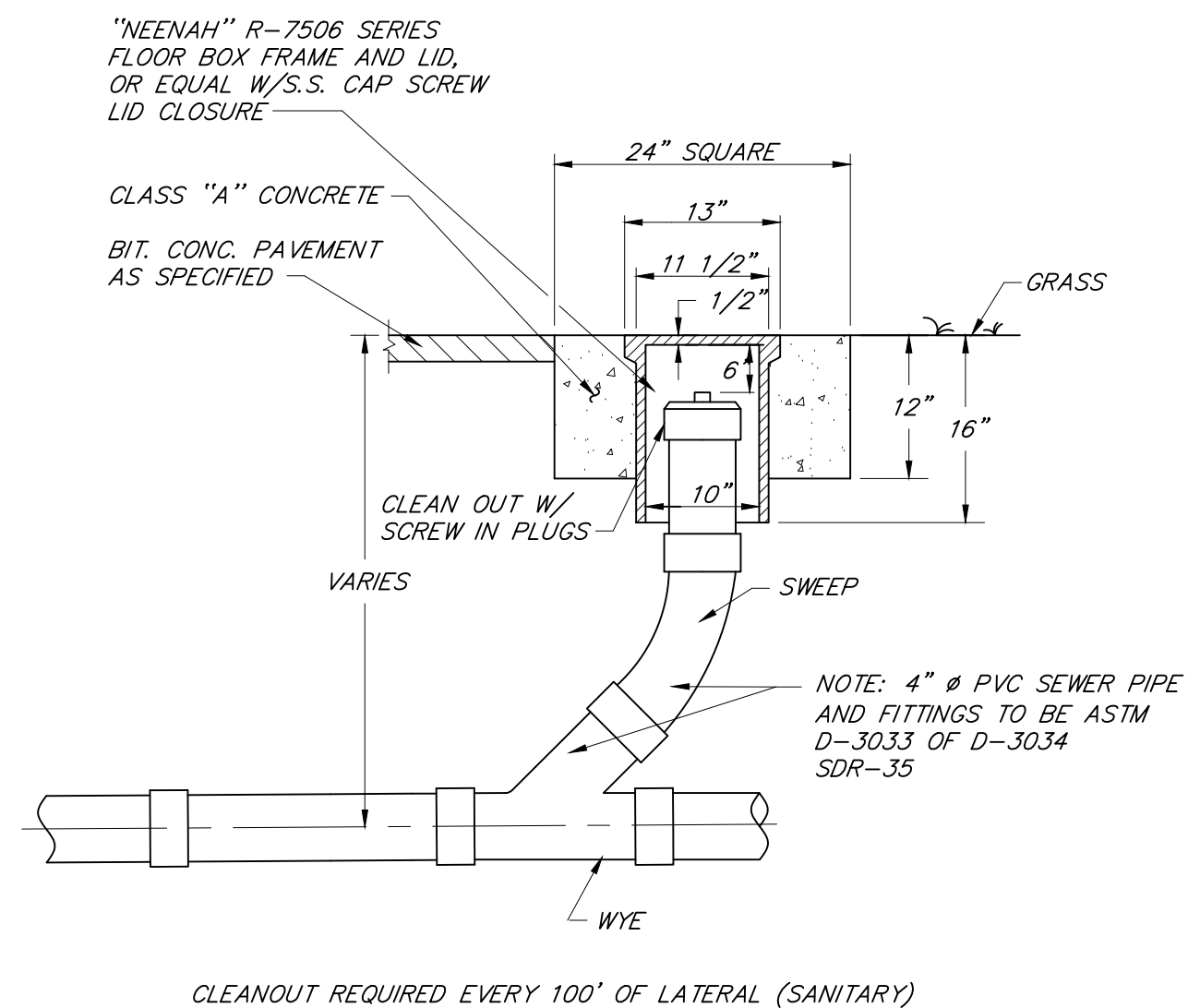
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OF

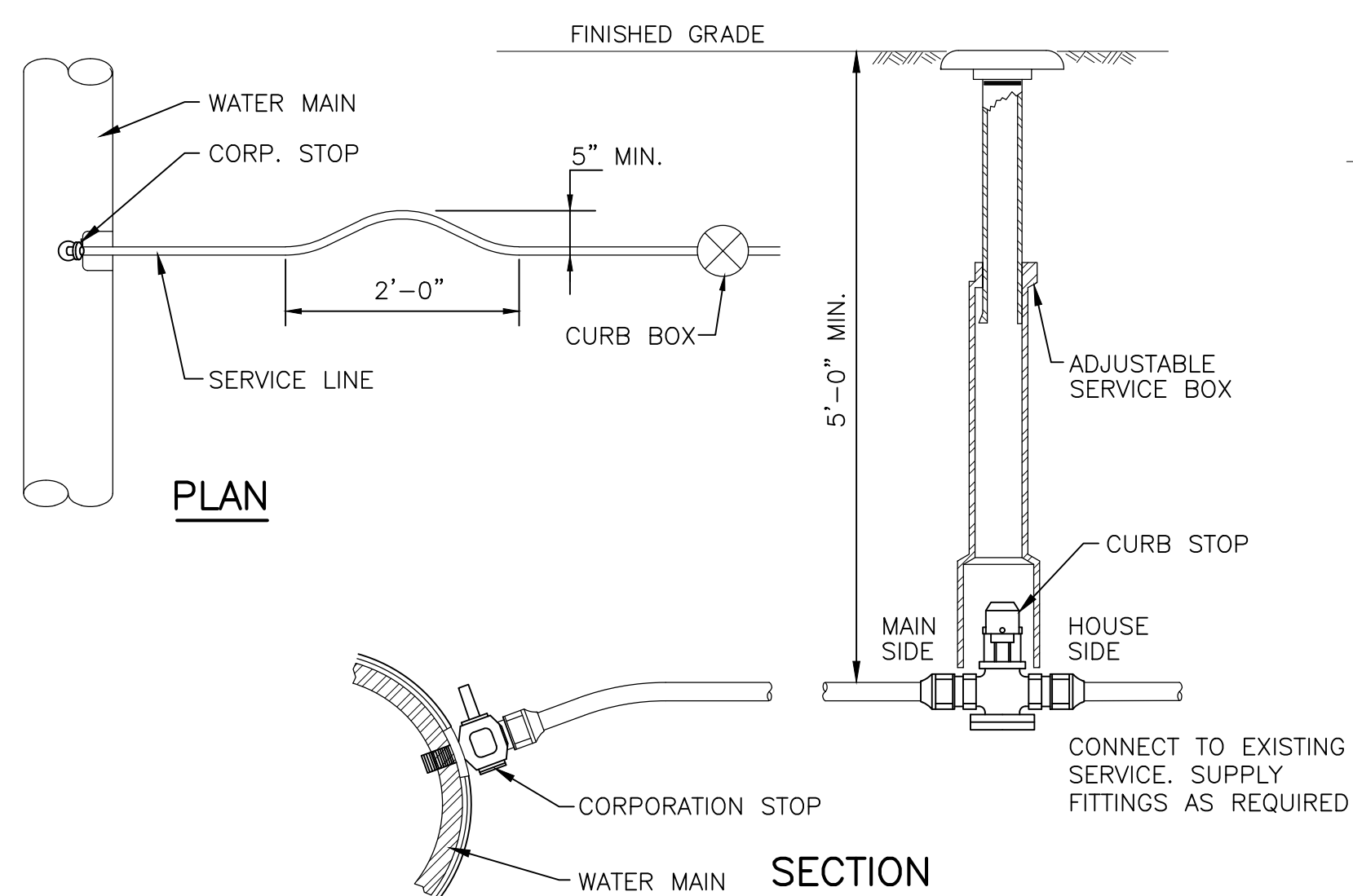
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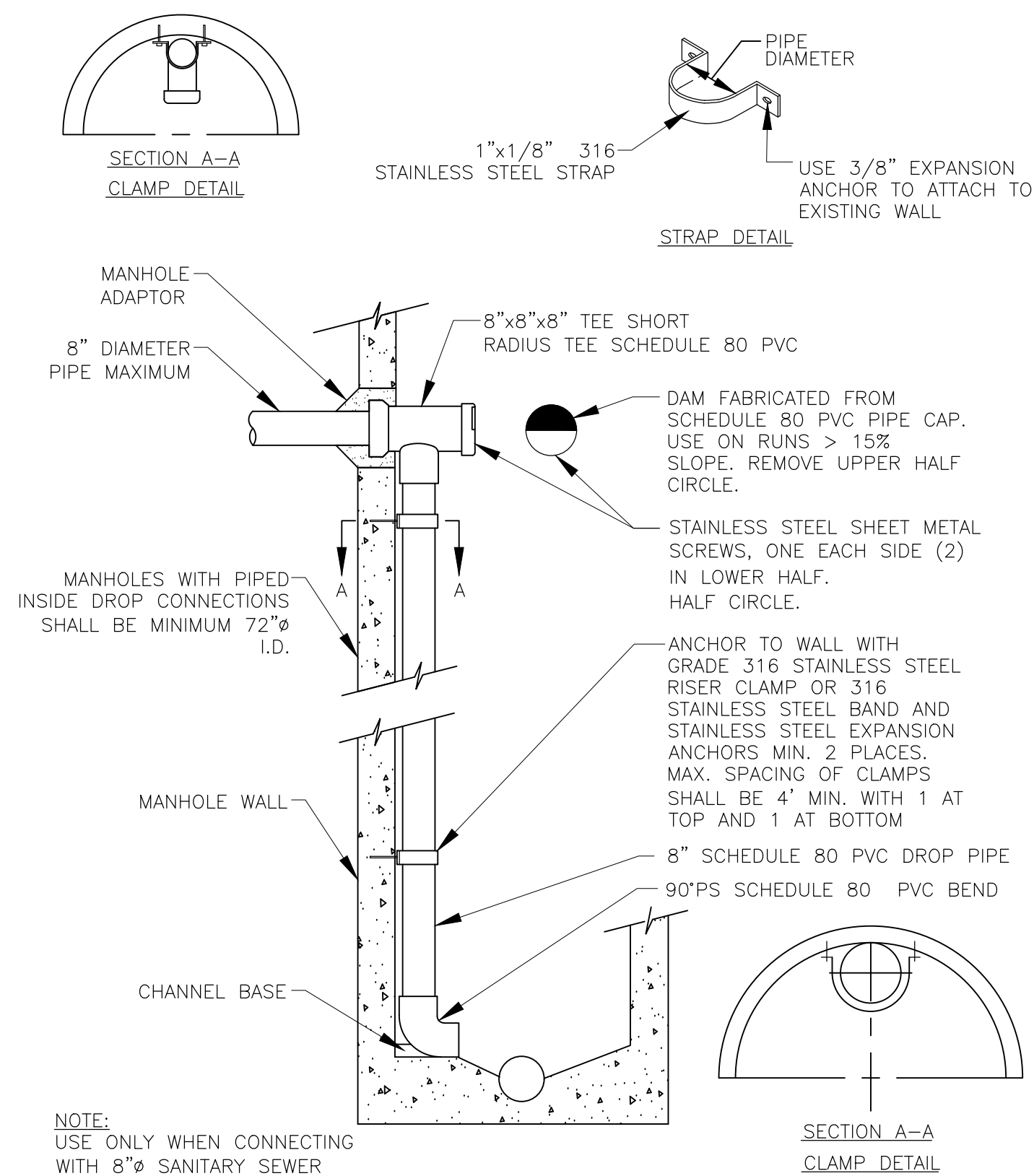
1 TYPICAL UTILITY PIPE TRENCH SECTION
N.T.S.



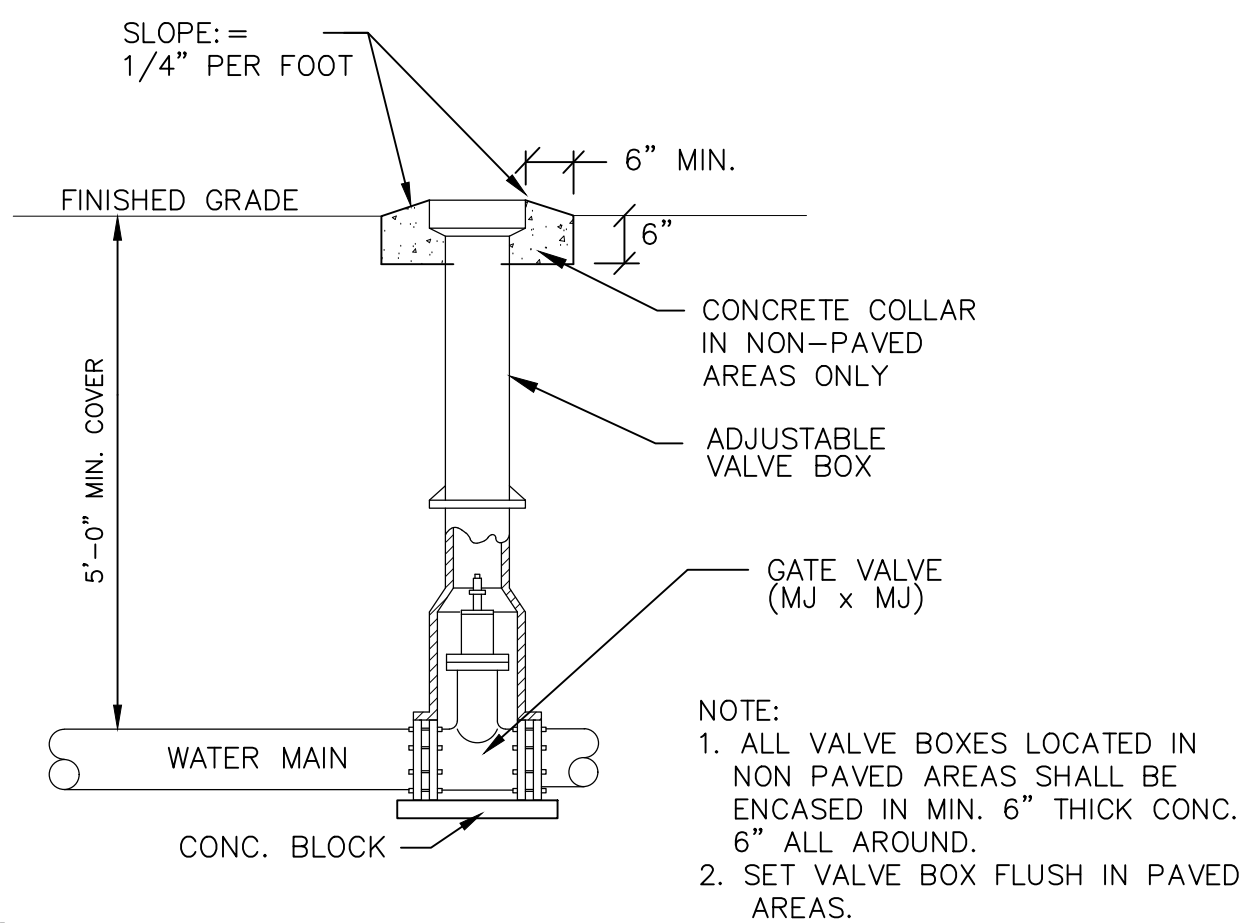
2 TYPICAL SANITARY CLEANOUT DETAIL
NO SCALE



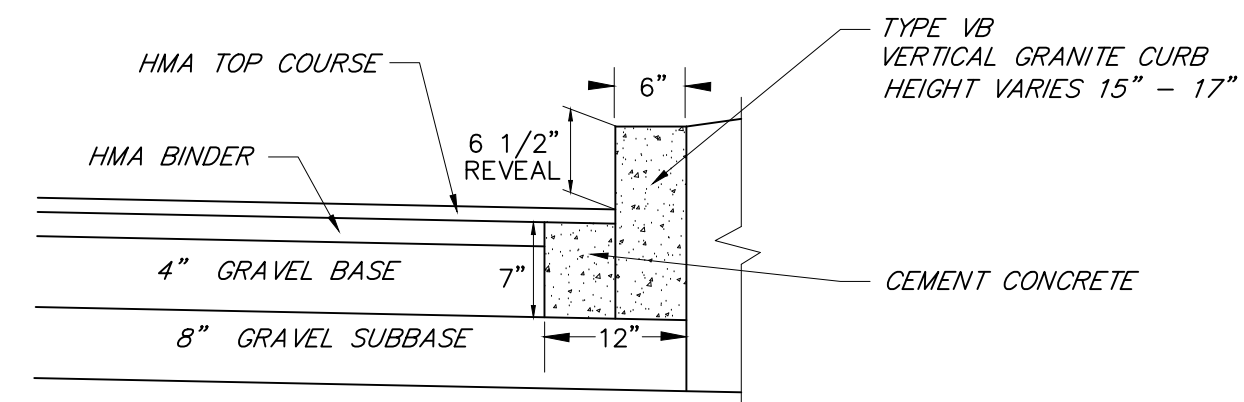
3 TYPICAL SERVICE CONNECTION
N.T.S.



5 SEWER PIPE INSIDE DROP CONNECTION
NO SCALE

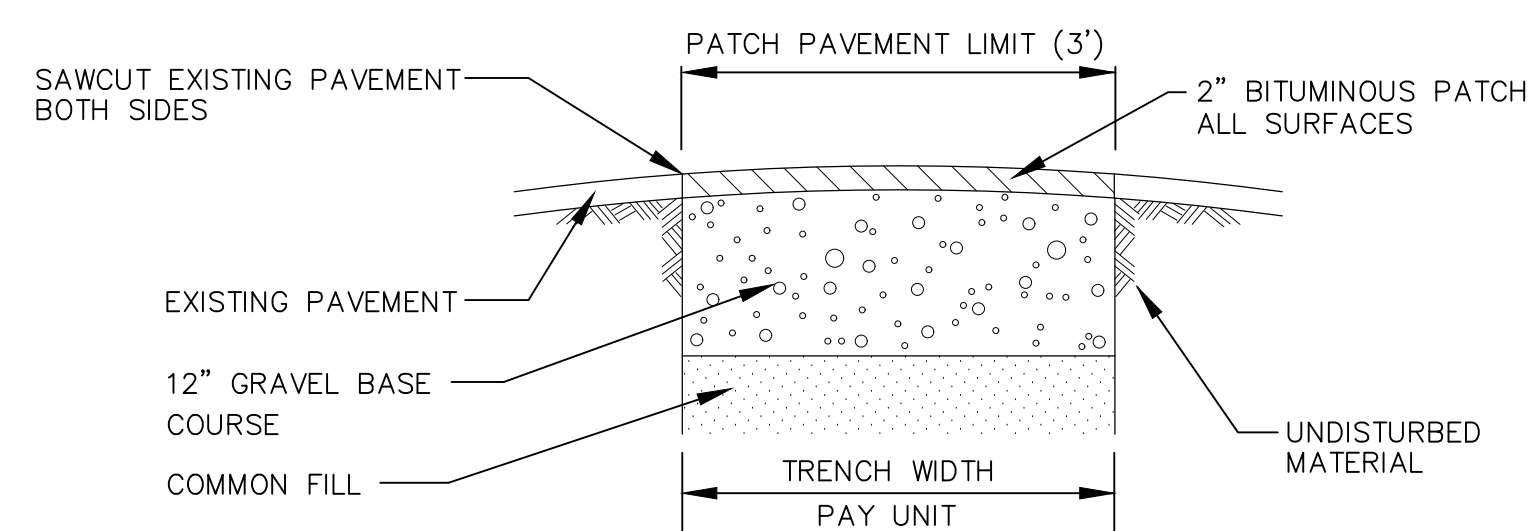


4 TYPICAL BURIED VALVE
N.T.S.

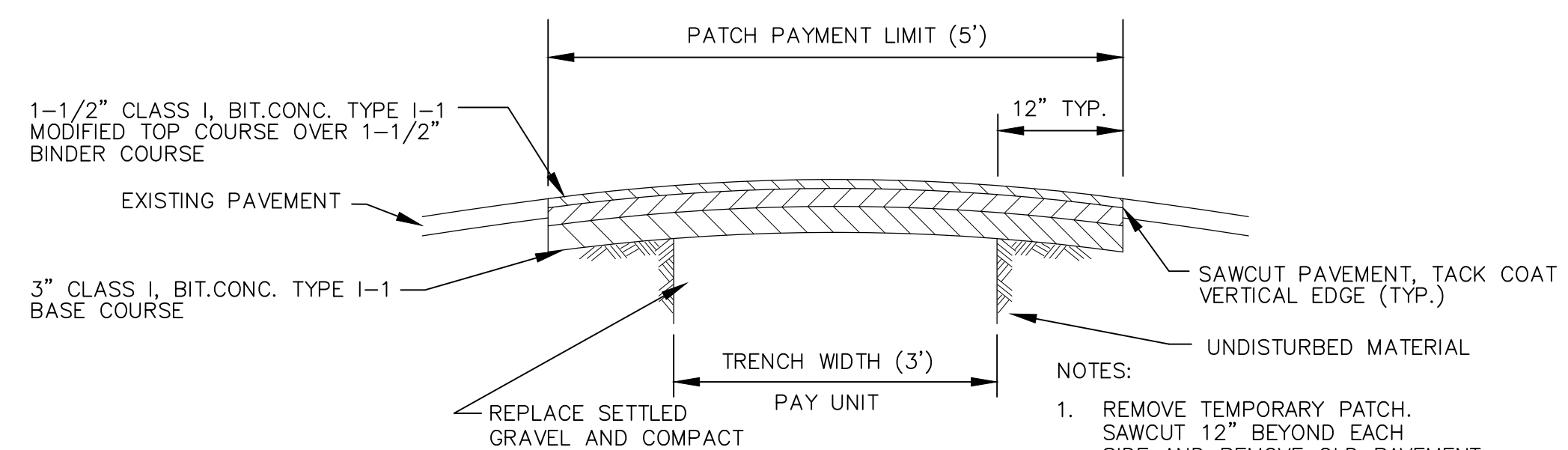


- NOTES:
- CUT NEAT LINE 6" FROM CURB LINE AND REMOVE BINDER, BASE AND STONE, AND REPLACE WITH CEMENT CONCRETE.
 - ACCEPTABLE CEMENT CONCRETE IS ANY CLASS UNDER SECTION M4 OF THE 1988 MHD STANDARD SPECIFICATIONS; ALL TEST REQUIREMENTS ARE WAIVED. HMA IS NOT AN ACCEPTABLE SUBSTITUTE.
 - WHEN SET ON RADII, THE CURBING SHALL BE CUT WITH THE REQUIRED RADIUS OF CURVATURE.

6 VERTICAL GRANITE CURB DETAIL (H-4)
NO SCALE



7 TEMPORARY PAVEMENT PATCH
N.T.S.



8 PERMANENT PATCH
N.T.S.

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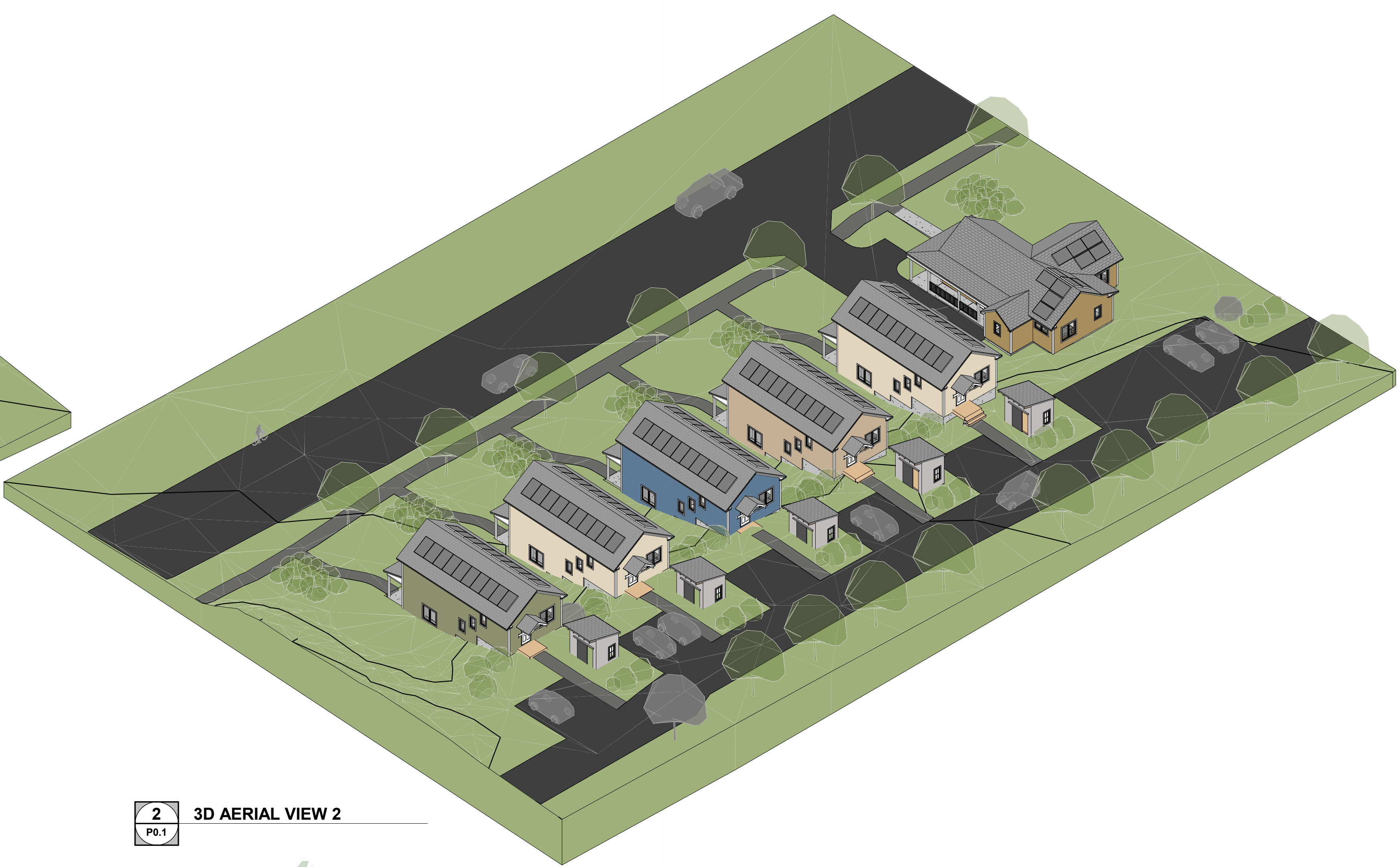
PROJECT NO: 25-1101
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SHEET NO.

7 OF 7

Permitting, Not for Construction



1 3D AERIAL VIEW 1
P0.1



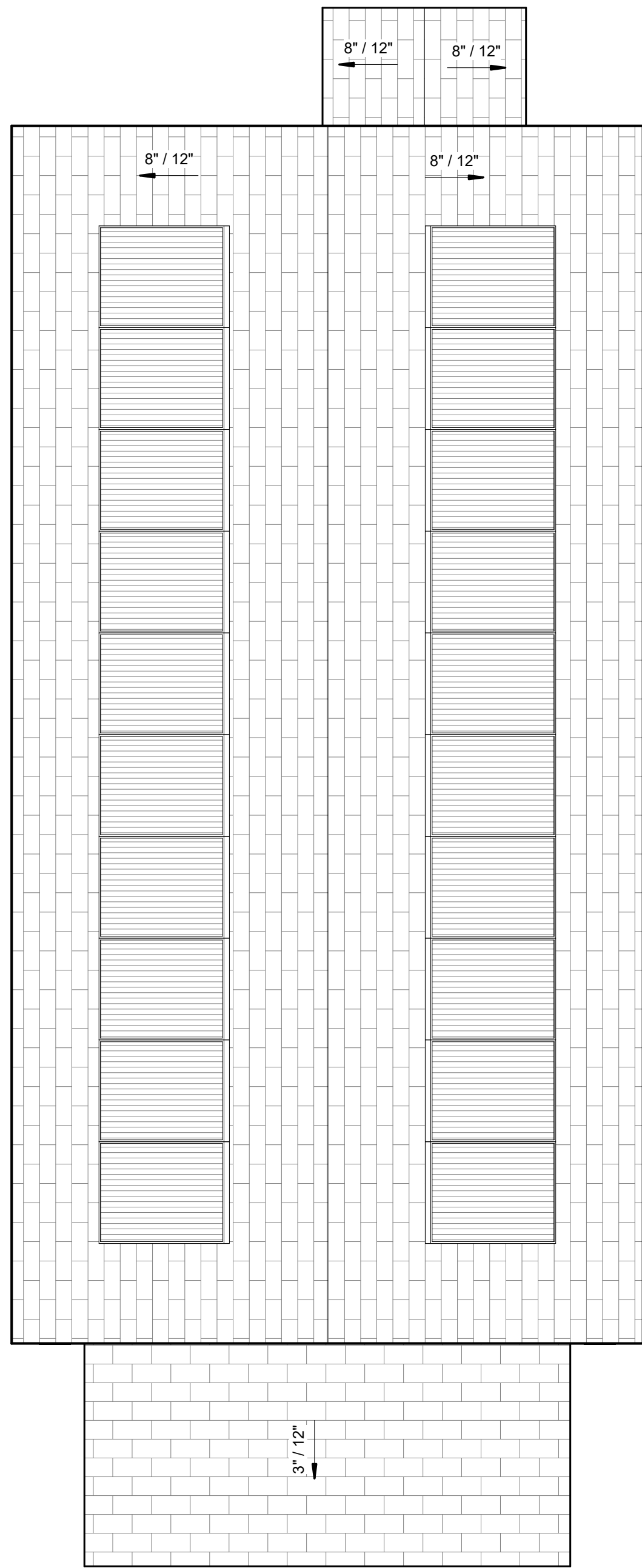
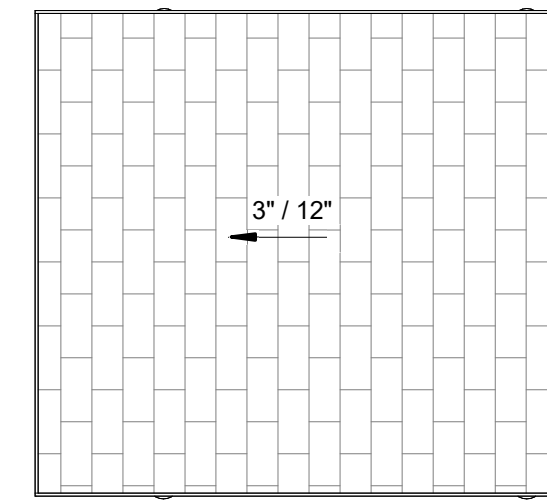
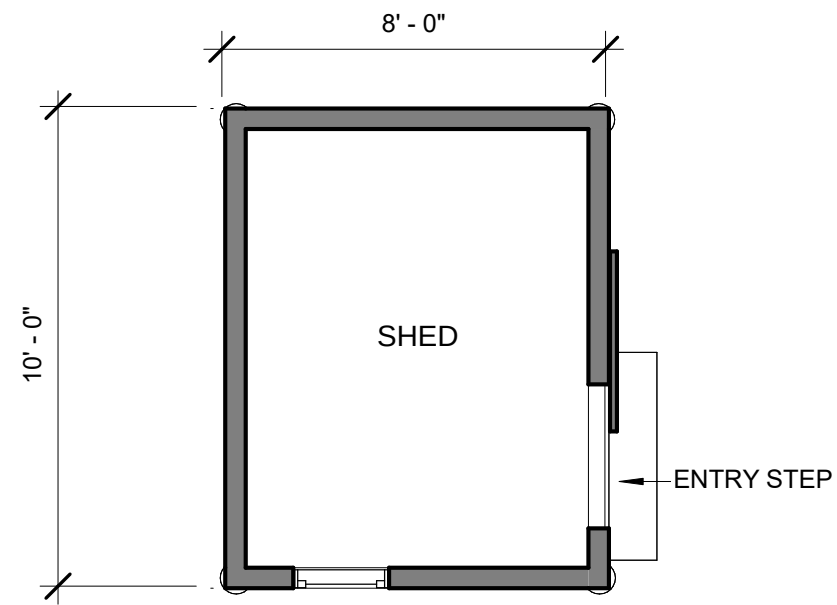
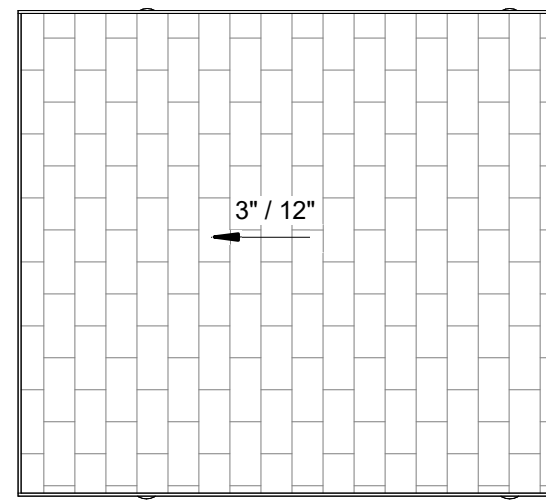
2 3D AERIAL VIEW 2
P0.1



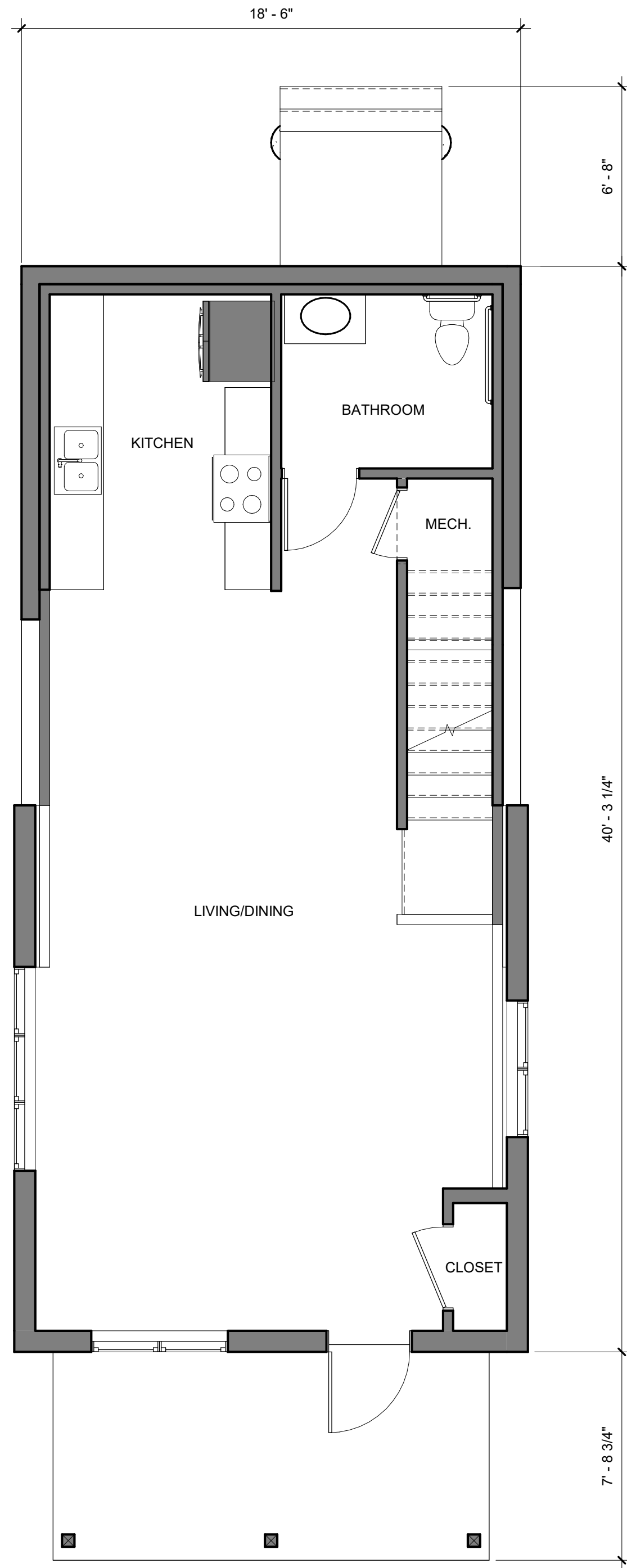
3 SOUTH ELEVATION FROM FIRST STREET ALLEY
P0.1 1/8" = 1'-0"



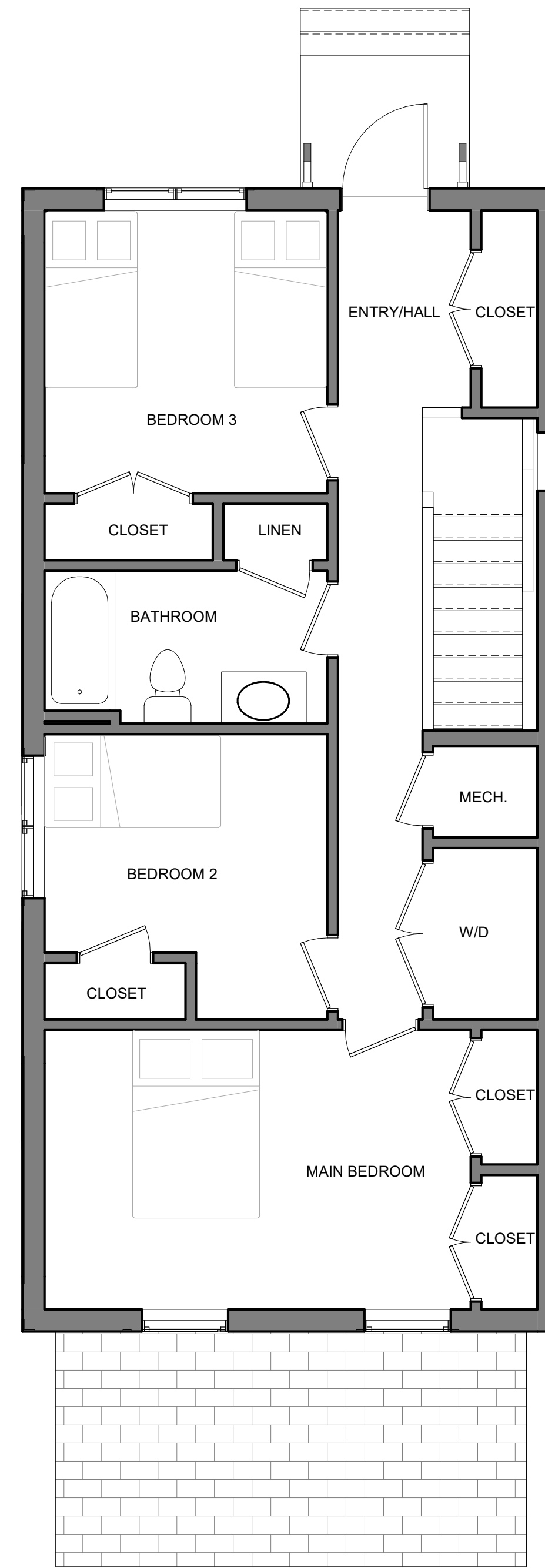
4 NORTH ELEVATION FROM FIRST STREET
P0.1 1/8" = 1'-0"



1 TYPICAL ROOF PLAN
1/4" = 1'-0"



2 1ST FLOOR PLAN
1/4" = 1'-0"



3 2ND FLOOR PLAN
1/4" = 1'-0"



1 NORTH ELEVATION FROM FIRST STREET
1/4" = 1'-0"



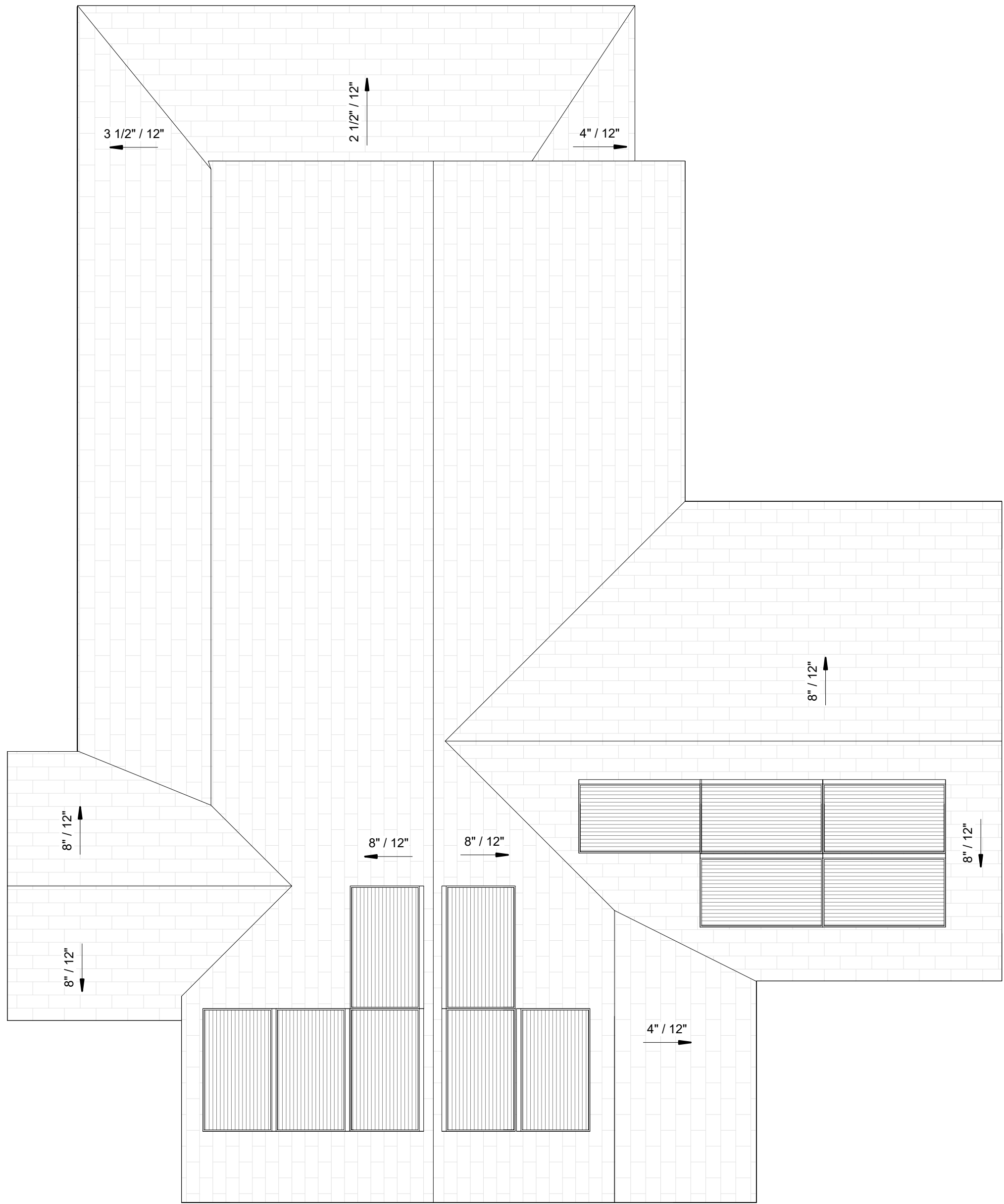
2 WEST ELEVATION 1
1/4" = 1'-0"



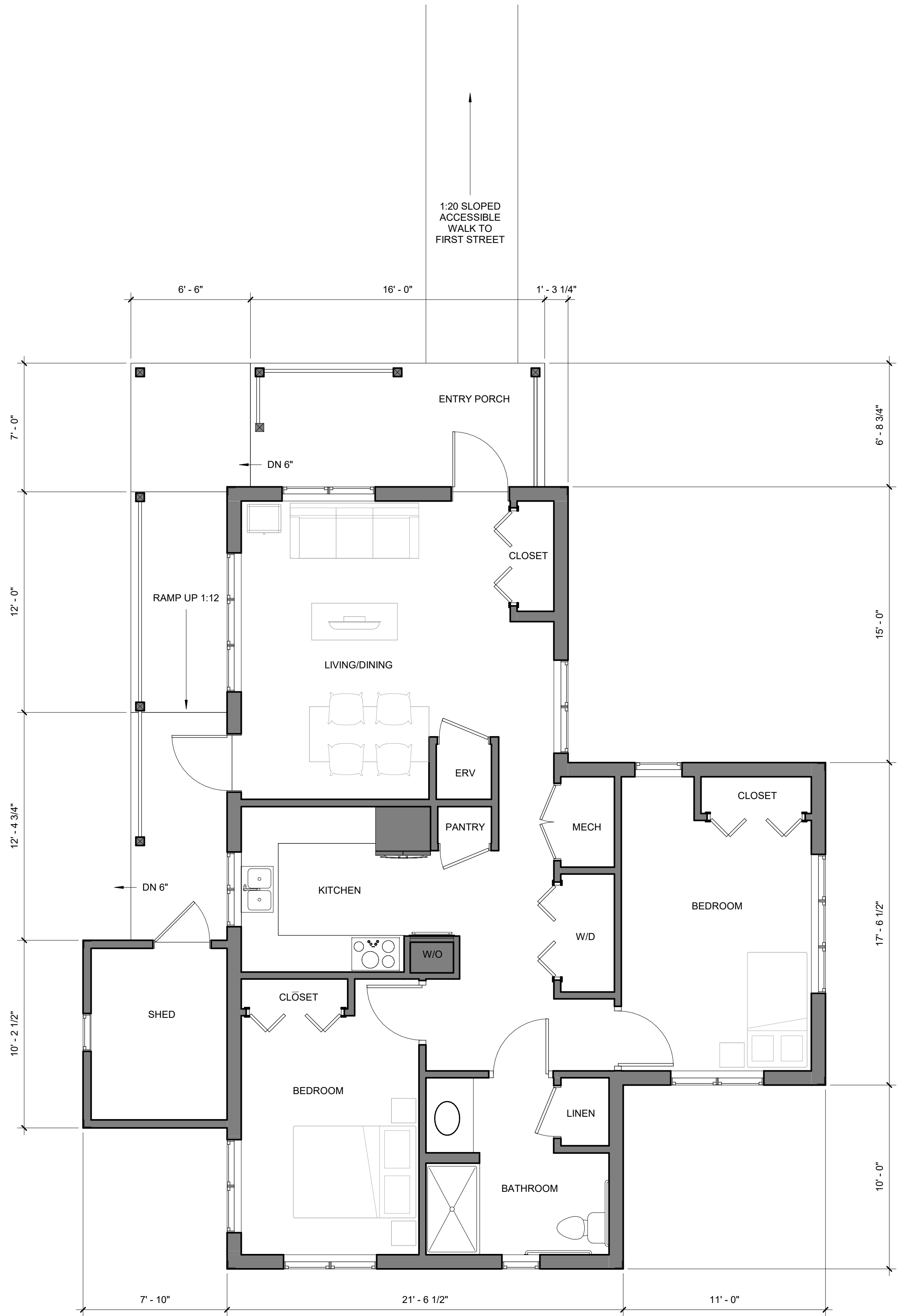
3 SOUTH ELEVATION FROM FIRST STREET ALLEY
1/4" = 1'-0"



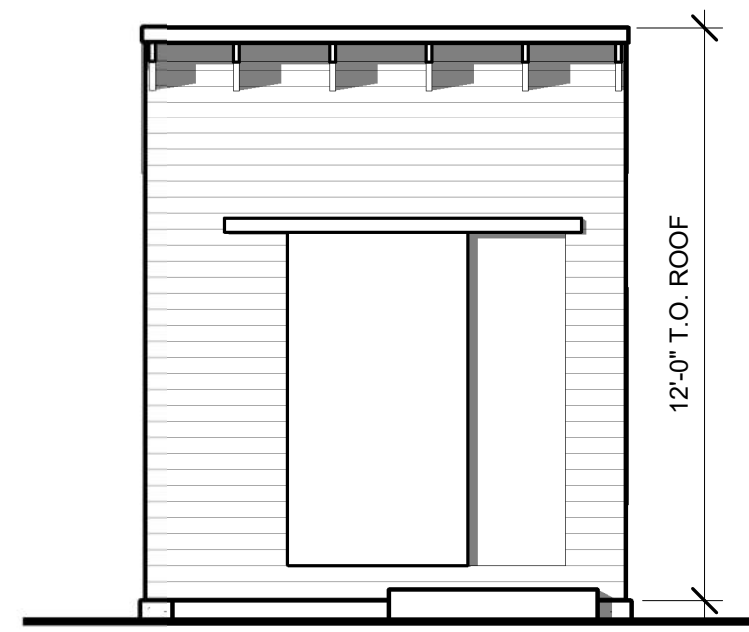
4 EAST ELEVATION 1
1/4" = 1'-0"



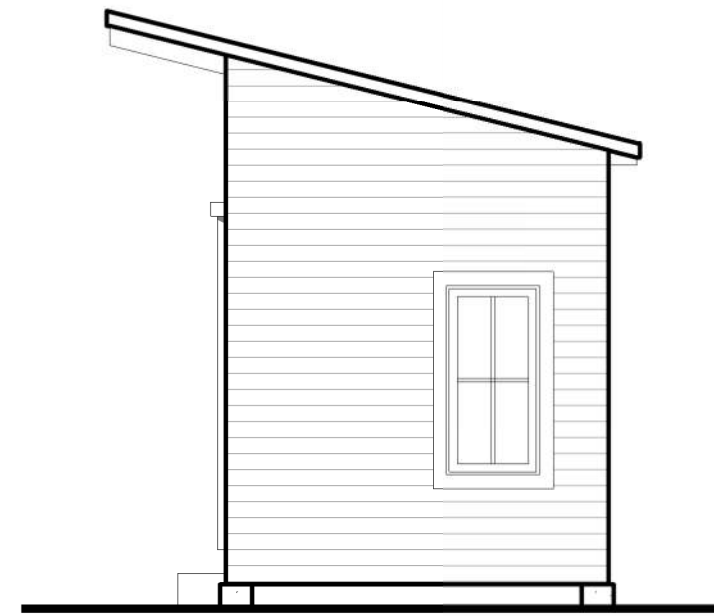
2 ROOF PLAN
P1.2 1/4" = 1'-0"



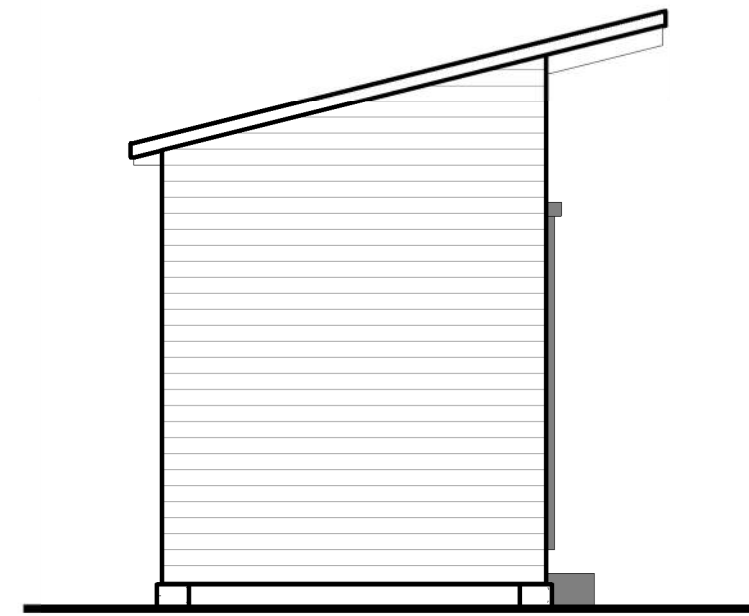
1 FLOOR PLAN
P1.2 1/4" = 1'-0"



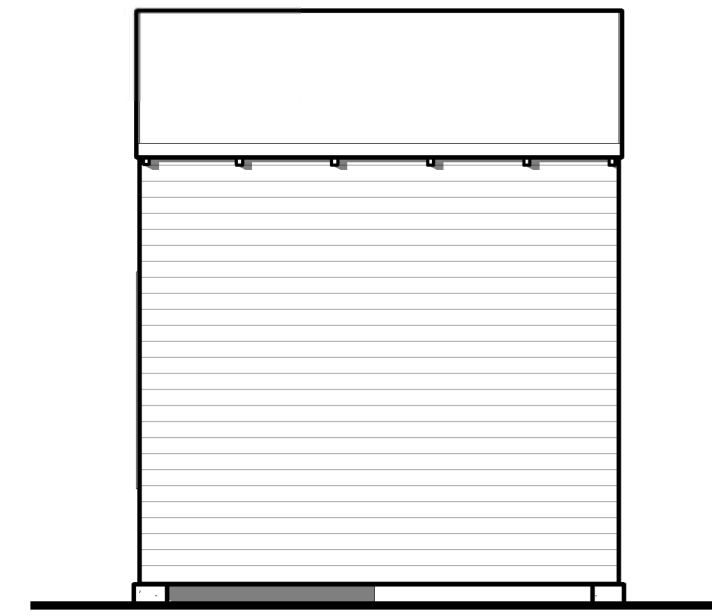
SHED - WEST ELEVATION
1/4" = 1'-0"



SHED - SOUTH ELEVATION
1/4" = 1'-0"



SHED - NORTH ELEVATION
1/4" = 1'-0"



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



1 NORTH ELEVATION FROM FIRST STREET
1/4" = 1'-0"



2 WEST ELEVATION
1/4" = 1'-0"



3 SOUTH ELEVATION FROM FIRST STREET ALLEY
1/4" = 1'-0"



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



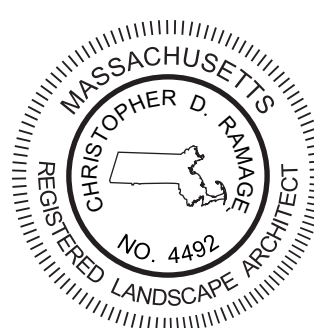


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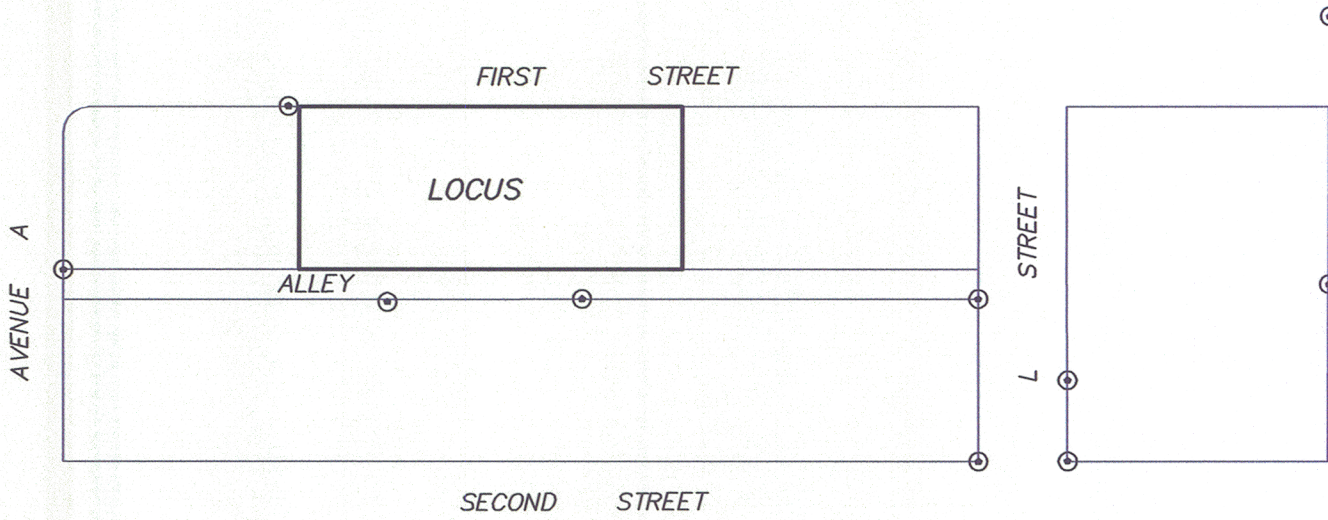
The landscape contractor shall guarantee all plant materials for one (1) year from date of acceptance.

REVIEWED BY:
CH RA

PERMITTING, NOT FOR
CONSTRUCTION



VICINITY MAP



NOTES

1. ZONING: DISTRICT: NEIGHBORHOOD BUSINESS (NB)
40R ZONING OVERLAY DISTRICT, SUB-DISTRICT B
2. TREES WERE RELOCATED ON JUNE 16, 2026 AT A POINT AT THE BASE OF THE TREE CLOSEST TO FIRST STREET. ALL TREES WERE PHYSICALLY LOCATED ON THE LOCUS WITH NO POINT OF THE TREE TRUNK LOCATED IN THE FIRST STREET RIGHT-OF-WAY.

AVENUE A

L STREET

CHUCK WAGON, LLC
BOOK 6177 PAGE 304
PID: 04-0-0037

CHRISTIAN S. COUTURE
BOOK 3980 PAGE 164
BOOK 3917 PAGE 274
PID: 04-0-0024

LOT 7 NOTE

LOT 7 IS A PROPOSED PARKING AREA.
IT IS NOT A SEPARATE BUILDING LOT.

LOCUS REFERENCE

TOWN OF MONTAGUE
BOOK 1165 PAGE 584
SEE BOOK 863 PAGE 399 FOR
COMPLETE DESCRIPTION.
EXCEPTING A 50'x110' STRIP CONVEYED TO
SAMUEL I. COUTURE IN BOOK 1465 PAGE 9.

PID: 04-0-0031

28,523 SF±

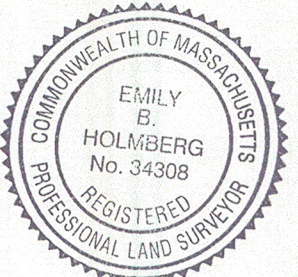
I REPORT THAT THIS PLAN AND SURVEY CONFORM TO THE
TECHNICAL AND PROCEDURAL STANDARDS FOR THE PRACTICE OF
LAND SURVEYING IN THE COMMONWEALTH OF MASSACHUSETTS.
FURTHERMORE, I REPORT THAT THIS PLAN HAS BEEN PREPARED
IN CONFORMITY WITH THE RULES AND REGULATIONS OF THE
REGISTERS OF DEEDS OF THE COMMONWEALTH OF
MASSACHUSETTS.

SIGNED:

DATE:

LEGEND

- IRON PIPE FOUND
● CAPPED IRON ROD TO BE SET
○ UTILITY POLE
○ LIGHT POLE
○ SIGN
— OVERHEAD WIRES
— CHAIN LINK FENCE
— TREE LINE



TOWN OF MONTAGUE, MASSACHUSETTS PLANNING BOARD
APPROVAL NOT REQUIRED UNDER SUBDIVISION CONTROL LAWS.
ENDORSEMENT OF THIS ANR PLAN DOES NOT CERIFY THAT THE
LOTS SHOWN ON THE PLAN QUALITY AS BUILDING LOTS UNDER
THE TOWN OF MONTAGUE ZONING BYLAW.

DATE: _____

DATE	REVISION	BY

FEET 0 20 40 60	SCALE	60
METERS 0 6.1 12.2 18.3		
SURVEY: SO	FLD. BK:	
CALC: LWH	DESIGN:	
DRAFT: LWH	CHECK: EBH	

Holmberg & Howe
LAND SURVEYORS

87 UNION STREET
P.O. BOX 945
EASTHAMPTON, MA 01027
TELEPHONE (413) 529-1700
FAX (413) 529-2237

37 DAMON POND ROAD
CHESTERFIELD, MA 01012
TELEPHONE (413) 298-4525
FAX (413) 529-2237

APPROVAL NOT REQUIRED PLAN OF LAND IN
MONTAGUE, MASSACHUSETTS

PREPARED FOR
FRANKLIN HAMPSHIRE HABITAT FOR HUMANITY

SHEET: 1 OF 1 SCALE: 1"= 20' JULY 15, 2026 JOB NO.: 2023-032



MONTAGUE PLANNING BOARD

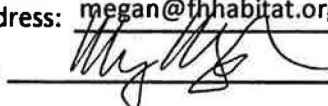
FORM A

APPLICATION FOR ENDORSEMENT OF A PLAN BELIEVED NOT TO REQUIRE APPROVAL (ANR)

1. **Name of Applicant:** Franklin Hampshire Habitat for Humanity Phone #: 413-586-5430 x106

Mailing Address: PO Box 60642, Florence, MA 01062

E-mail Address: megan@fhhabitat.org

Signature:  Date: 7/22/26

2. **Property Owner(s)** (If different from above. All entities listed on deed must sign. Please attach additional sheets if necessary.)

Name: Town of Montague Phone #: 413-863-3200

Mailing Address: 1 Avenue A, Turners Falls, MA 01376

E-mail Address: _____

Signature: _____ Date: _____

3. **Name of Registered Land Surveyor/Engineer:** Holmberg & Howe, Inc.

Mailing Address: PO Box 945, Easthampton, MA 01027

Phone #: 413-529-1700 E-mail Address: eholmberg@holmberghowe.com

4. **Parcel ID: Street Address:** First Street

Map: 4 Lot/Parcel #: 31 Zoning District: 40R Overlay

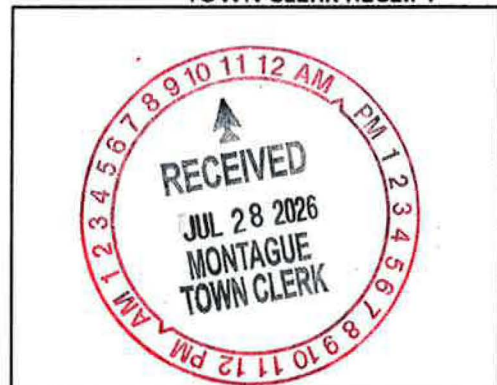
Number of existing parcels/lots: 1 Number of new parcels/lots: 7 Fee: _____

5. **Description of changes:** Creating 6 building lots and a parcel for parking to be retained by the Town

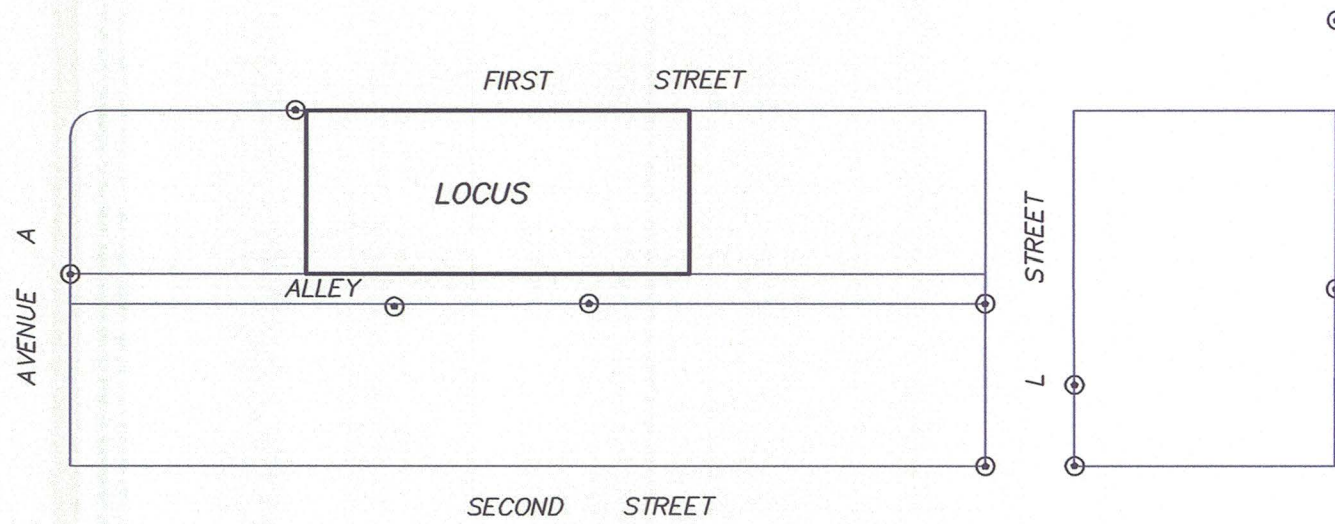
PLANNING DEPARTMENT RECEIPT



TOWN CLERK RECEIPT



VICINITY MAP

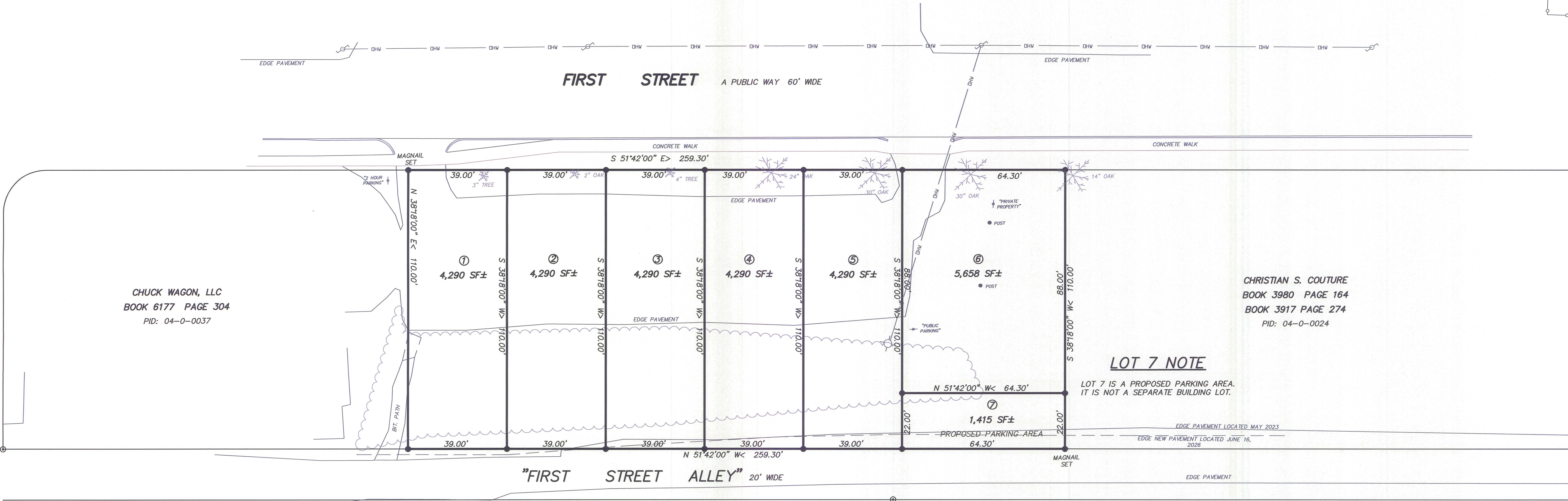


NOTES

1. ZONING: DISTRICT: NEIGHBORHOOD BUSINESS (NB)
40R ZONING OVERLAY DISTRICT, SUB-DISTRICT B
2. TREES WERE RELOCATED ON JUNE 16, 2026 AT A POINT AT THE BASE OF THE TREE CLOSEST TO FIRST STREET. ALL TREES WERE PHYSICALLY LOCATED ON THE LOCUS WITH NO POINT OF THE TREE TRUNK LOCATED IN THE FIRST STREET RIGHT-OF-WAY.

AVENUE A

L STREET



CHUCK WAGON, LLC
BOOK 6177 PAGE 304
PID: 04-0-0037

CHRISTIAN S. COUTURE
BOOK 3980 PAGE 164
BOOK 3917 PAGE 274
PID: 04-0-0024

LOT 7 NOTE

LOT 7 IS A PROPOSED PARKING AREA.
IT IS NOT A SEPARATE BUILDING LOT.

LEGEND

- IRON PIPE FOUND
● CAPPED IRON ROD TO BE SET
○ UTILITY POLE
○ LIGHT POLE
○ SIGN
— OVERHEAD WIRES
— CHAIN LINK FENCE
— TREE LINE

LOCUS REFERENCE

TOWN OF MONTAGUE
BOOK 1165 PAGE 584
SEE BOOK 863 PAGE 399 FOR
COMPLETE DESCRIPTION.
EXCEPTING A 50'x110' STRIP CONVEYED TO
SAMUEL I. COUTURE IN BOOK 1465 PAGE 9.

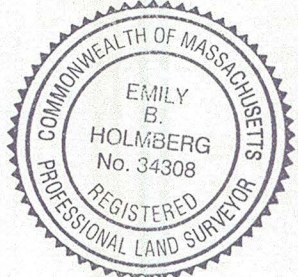
PID: 04-0-0031

28,523 SF±

I REPORT THAT THIS PLAN AND SURVEY CONFORM TO THE
TECHNICAL AND PROCEDURAL STANDARDS FOR THE PRACTICE OF
LAND SURVEYING IN THE COMMONWEALTH OF MASSACHUSETTS.
FURTHERMORE, I REPORT THAT THIS PLAN HAS BEEN PREPARED
IN CONFORMITY WITH THE RULES AND REGULATIONS OF THE
REGISTERS OF DEEDS OF THE COMMONWEALTH OF
MASSACHUSETTS.

SIGNED: *Emily S. Holmberg*

DATE: July 15, 2026



TOWN OF MONTAGUE, MASSACHUSETTS PLANNING BOARD
APPROVAL NOT REQUIRED UNDER SUBDIVISION CONTROL LAWS.
ENDORSEMENT OF THIS ANR PLAN DOES NOT CERIFY THAT THE
LOTS SHOWN ON THE PLAN QUALITY AS BUILDING LOTS UNDER
THE TOWN OF MONTAGUE ZONING BYLAW.

DATE: _____

DATE	REVISION	BY

FEET 0 20 40 60	SCALE 12.2 18.3
METERS 0 6.1 12.2 18.3	
SURVEY: SO	FLD. BK:
CALC: LWH	DESIGN:
DRAFT: LWH	CHECK: EBH

Holmberg & Howe
LAND SURVEYORS

87 UNION STREET
P.O. BOX 945
EASTHAMPTON, MA 01027
TELEPHONE (413) 529-1700
FAX (413) 529-2237

37 DAMON POND ROAD
CHESTERFIELD, MA 01012
TELEPHONE (413) 296-4525
FAX (413) 529-2237

APPROVAL NOT REQUIRED PLAN OF LAND IN
MONTAGUE, MASSACHUSETTS

PREPARED FOR
FRANKLIN HAMPSHIRE HABITAT FOR HUMANITY

SHEET: 1 OF 1 SCALE: 1"= 20' JULY 15, 2026 JOB NO.: 2023-032



Property Map: 0 First Street (Parcel #04-0-0031)

Town of Montague, MA

1 inch = 139 Feet



www.cai-tech.com

July 8, 2026



	PWater		Buildings (MassGIS)
	Property Line		Public Road
	Public Road		Water-poly
	RoadNotPar		

Data shown on this map is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this map.



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