Reading Conservation Commission
16 Lowell Street
Reading, MA 01867

March 12, 2025

Re: Notice of Intent
885 Main Street, Reading, MA 01867
Parcel ID: Map: 28, Parcel: 133

Dear Reading Conservation Commission,

Goddard Consulting LLC is pleased to submit this Notice of Intent (NOI) on behalf of the Applicant, Primrose Schools Franchising Company, for the property known as 885 Main Street, identified as Map/Parcel 28-133, located in Reading, MA. The Applicant is filing a Notice of Intent for the proposed construction of a two-story childcare facility and associated structures, consisting of a paved parking lot, walkways, retaining walls, play yards, and stormwater infrastructure partially within the 100-Foot Buffer Zone to delineated Bordering Vegetated Wetlands (BVW) located in the northeastern portions of the site.

The project has been designed to locate the proposed structures to the maximum distance practicable from the on-site wetlands. Due to zoning constraints and the locations of wetlands on and off site to the north, most of the lot's suitable uplands are located within the 100-Foot Buffer Zone. As such, portions of the proposed facility, associated structures, parking lot and site amenities are proposed within the 100-Foot Buffer Zone. The project has been designed to fully comply with the local 25-Foot No Disturb Zone and 35-Foot No Build Zone established under the local wetland bylaw. To provide a permanent limit of work upgradient of the No-Disturb Zone, the Applicant proposes the installation of an erosion control barrier (ECB) at the Limit of Work upgradient of the 25-Foot No Disturb Zone. This application is being filed under the Massachusetts Wetlands Protection Act (the WPA), Regulations 310 CMR 10.00 et. al, and Chapter 650, The Town of Readings Wetlands Protection Regulations (the Bylaw).

A list of enclosed documents is as follows:

- NOI Application (WPA Form 3)
- MassDEP NOI Wetland Fee Transmittal Form
- Local Filing Fee Calculation Form
- Notice of Intent Submittal Checklist, Reading Conservation Commission
- Affidavit of Service
- Abutter Notification
- Certified Abutters List
- *Wetland Border Report, 885 Main Street, Reading, MA*, Goddard Consulting, LLC. 12/02/2024
- *Orthophoto of Locus Site, 885 Main Street - Reading, MA*, Goddard Consulting, LLC. 11/25/2024
- *FEMA Flood Map of Locus Site, 885 Main Street - Reading, MA*, Goddard Consulting, LLC. 11/25/2024
- *NRCS Soil Survey of Locus Site, 885 Main Street - Reading,*, Goddard Consulting, LLC. 11/25/2024
- *USGS of Locus Site, 885 Main Street - Reading, MA*, Goddard Consulting, LLC. 11/25/2024
- *Land Development Plans for Primrose Schools,* Stonefield Engineering & Design. 03/07/2025
- *Stormwater Management Report, Primrose Schools,* Stonefield Engineering & Design. 03/07/2025

1.0 Existing Conditions

The site of the proposed project consists of a developed single-family house lot, known as 885 Main Street in Reading, MA (Map/Parcel 28-133). The subject site is located within the Single Family 15 (S-15) zoning district in the Town of Reading. The site is bordered by single-family houses on all sides, located off of Main Street, Duck Road, and Bethesda Lane. The site totals 84,280 square feet (SF), approximately 1.94 acres. The site is currently developed with a single-family home, driveway, walkway, wood sheds, patio, and pool. Portions of the existing single-family house and pool lie within the 100-Foot Buffer Zone to Bordering Vegetated Wetlands (BVW). The existing development on-site totals 11,574 SF of impervious surface cover.

The remainder of the property consists of maintained lawn surrounding the existing home, forested uplands to the North and South, and forested wetlands to the Northeast. The property pitches from the development to the Northeast, transitioning from a white pine dominated upland forest, to a red maple dominant deciduous wooded swamp. A full wetland delineation was conducted by Goddard Consulting during November of 2024 to determine the extent of jurisdictional wetlands on the subject site. The on-site Bordering Vegetated Wetlands (BVW) are found in the northeastern portion of the lot. The wetland system is a deciduous wooded swamp located throughout low-lying topography between existing residential developments off of Main Street, Duck Road, and Hampshire Road. The delineated wetland system is classified by MassDEP as a deciduous wooded swamp. Vegetation within the resource area consists of Red Maple, White Pine, Highbush Blueberry, Royal Fern, and Cinnamon Fern, as well as invasive Oriental Bittersweet and Glossy Buckthorn. Vegetation upgradient of the BVW is dominated by White Pine in addition to invasive Norway Maple, Garlic Mustard, and Oriental Bittersweet.

According to the MassGIS data layers for the Natural Heritage & Endangered Species Program (NHESP), the locus site is not located within Estimated and/or Priority Habitat of Rare Wildlife. The site does not fall within an Area of Critical Environmental Concern (ACEC). No mapped certified or potential vernal pools exist on site, though two potential vernal pools exist within 200 feet of the property boundary to the North and the Southeast. The site does not fall within a mapped Outstanding Resource Water (ORW) area. Lastly, the site does not fall within any jurisdictional FEMA flood zones.

Due to the presence of delineated wetland resource areas on and off site to the northeast, the site is subject to regulated Buffer Zones under the Massachusetts Wetlands Protection Act and the town of Readings Wetlands Protection Regulations. The Buffer Zones the proposed project will be subject to consist of the 25-Foot No Disturb Zone (NDZ) and the 35-Foot No Build Zone (NBZ) established under the local wetland bylaw, and the standard 100-foot Buffer Zone under the MA Wetlands Protection Act. The project has been designed to adhere to the performance standards under each applicable buffer zone.

2.0 Site Photos

Photo 1: A view of the existing house, shed, and maintained lawn on the northern portion of the development.

Photo 2: A view of the driveway access and landscaping taken from the front of the existing house.

Photo 3: A representative view of the site's uplands adjacent to the existing house.

Photo 4: A representative view of the site's delineated wetlands.

3.0 Project Summary

The project proposes the construction of a 7040 SF two-story childcare facility and associated structures, consisting of a paved parking lot, walkways, retaining wall, play yards, and stormwater infrastructure, partially within the 100-Foot Buffer Zone to delineated Bordering Vegetated Wetlands (BVW) located in the northeastern portions of the site. The project proposes to redevelop the property, razing the existing single-family home and amenities to construct the proposed project as designed.

The project has been designed to locate the proposed structures and amenities to the maximum distance practicable from the on-site wetlands. Due to the locations of wetlands on-site to the northeast, portions of the lot's suitable uplands (and portions of the existing development) are located within the 100-Foot Buffer Zone. The proposed structures and amenities have been located and oriented to be positioned outside of the 100-Foot Buffer Zone to the greatest extent feasible. The project has proposed to redevelop all previously developed surfaces to limit the increase in impervious surface cover generated by the proposed work. The project will require additional development of the property to meet the intended goals in addition to the redeveloped surfaces. In regard to the newly developed portions of the site, the project proposes to match existing topography and drainage patterns to the extent feasible. However, due to the need for more commercially friendly, ADA compliant grades, portions of the site require widening and flattening with the proposed project. As seen on the attached site plans, a combination of extended curbing and retaining/landscape walls will be implemented through the project to allow for the creation of the required grades and avoid any grading or land disturbances into the 25-Foot Zone of Natural Vegetation. Grading is limited to the 35-Foot No Structure Zone. At the completion of the proposed grading, the 35-Foot No Structure Zone will be revegetated with a native landscaping schedule. As seen on the attached landscaping plan (Sheet C-10 on full site plan set), the project proposes a robust landscaping plan, with many native species selected for installation along the limits of work. The landscaping plan will revegetate the 35-Foot No Structure Zone with native species, and account for the required replanting as a result of the tree removal associated with construction.

To mitigate for all impervious surface increases generated by the proposed work, the project utilizes an underground infiltration basin consisting of 66 ADS SC-800 Chambers proposed underneath the parking lot in the center of the site's development. As seen in the attached stormwater report, dated 3/07/2025, prepared by Stonefield Engineering, the stormwater management system results in a reduction in runoff to the delineated wetlands for all simulated storm events, including the 100-year storm. The attached stormwater report contains all relevant information on pre and post conditions associated with the site's development.

2.1 Proposed Two-Story Childcare Facility Construction

The Applicant proposes the construction of a 7040 SF two-story childcare facility in the southern portion of the lot. The proposed structure has been located and oriented to be located outside of the 100-Foot Buffer Zone to the greatest extent feasible. Of the 7040 SF envelope proposed for the structure, 2250 SF is located within the 100-Foot Buffer Zone. The remaining 4790 SF is located outside of the jurisdictional 100-Foot Buffer Zone. The entirety of the proposed facility is located outside of the 35-Foot No Build Zone and the 25-Foot No Disturbance Zone established under the local wetland bylaw. The proposed structure has been laid out to be located +/- 68.6 feet from the closest wetland flag at its nearest point.

2.2 Proposed Driveway and Parking

To service the proposed childcare facility, the Applicant proposes the installation of a 15,000 SF parking lot and associated driveway, the facility from the site's access off of Main Street. The proposed parking lot has been located and oriented to be located outside of the 100-Foot Buffer Zone to the greatest extent feasible. Of the 15,000 SF of proposed parking area, 6820 SF is located within the 100-Foot Buffer Zone. The remaining 8180 SF is located outside of the jurisdictional 100-Foot Buffer Zone. The entirety of the proposed parking area is located outside of the 35-Foot

No Build Zone and the 25-Foot No Disturbance Zone established under the local wetland bylaw. The proposed parking lot is located +/- 36.3 feet from the closest wetland flag at its nearest point. Under the local wetland regulations, a 25-foot Zone of Natural Vegetation (ZNV) and 35-foot No Build Buffers are cast from the edge of delineated wetlands. Therefore, the proposed parking lot has been laid out in compliance with the Massachusetts Wetlands Protection Act, Regulations 310 CMR 10.00 et. al, and The Town of Reading Wetlands Protection Regulations.

2.3 Proposed Play Areas

The project proposes two fenced in play yards are proposed to be constructed attached to the eastern and western sides of the childcare facility. The proposed play yards are proposed to be laid with turf and be maintained as pervious surface. Small structures in the form of swings sets, slides, and climbing fixtures are proposed within the limits of the designated play yards. Most of the eastern yard falls within the 100-foot buffer zone and outside of the 35-foot NBZ totaling approximately XSF of the yard to occur within the buffer zone. Additionally, a proposed outdoor amenity area is proposed to the north of the childcare facility. The entirety of this area will fall within the 100-foot buffer zone and has been designed as to avoid any encroachment into the 35-Foot NBZ.

2.4 Proposed Retaining Walls, Grading, & Native Landscaping

The project proposes to match existing topography and drainage patterns to the extent feasible. However, due to the need for more commercially friendly, ADA compliant grades, the previously developed footprint of the site requires widening and flattening with the proposed project. As seen on the attached site plans, a combination of extended curbing and retaining/landscape walls will be implemented through the project to allow for the creation of the required grades and avoid any grading or land disturbances into the 25-Foot Zone of Natural Vegetation. Grading is limited to the 35-Foot No Structure Zone. At the completion of the proposed grading, the 35-Foot No Structure Zone will be revegetated with a native landscaping schedule. As seen on the attached landscaping plan (Sheet C-10 on full site plan set), the project proposes a robust landscaping plan, with many native species selected for installation along the limits of work. The landscaping plan will revegetate the 35-Foot No Structure Zone with native species.

2.5 Proposed Stormwater Management

As outlined within the attached stormwater management report, stormwater runoff from the site development pitches to the wetland system located in the northeastern portion of the site. The property's high points are located at the southern and western portions of the site. These areas all pitch downgradient toward the delineated wetland system at present. The proposed project will result in over one acre of land disturbance on-site; as such, it is subject to all Stormwater Standards as defined in the Town Ordinances and the Massachusetts Stormwater Handbook Volume 1. The project utilizes an underground infiltration basin consisting of 66 ADS SC-800 Chambers proposed underneath the parking lot in the center of the site's development. As seen in the attached stormwater report, dated 3/07/2025, prepared by Stonefield Engineering, the stormwater management system results in a reduction in runoff to the delineated wetlands for all simulated storm events, including the 100-year. The attached stormwater report contains all relevant information on pre and post conditions associated with the site's development.

2.6 Proposed Erosion Control Measures

The applicant proposes erosion control barriers in the form of entrenched silt fencing at the downgradient limits of work for the project, located upgradient of the 25-Foot Zone of Natural Vegetation. The erosion control barrier will remain throughout the project to protect downgradient resource areas and will not be removed until the project is completed, and the site is stabilized.

Table 01. Proposed Impervious Surface Breakdown

Buffer Zone	Existing Impervious Surface Cover (SF)	Proposed New Impervious Surface Cover (SF)	Proposed Impervious Surface Increase (SF)
0-25 Foot Zone of Natural Vegetation (No Disturb Zone)	0	0	**0**
25-35 Foot No Build Zone	0	0	**0**
35-100 Foot Buffer Zone (Local)	1,790	10,576	**8,786**
0-100 foot Buffer Zone (WPA)	**1,790**	**10,576**	**8,786**

3.0 Regulatory Compliance

This project will comply with the regulations set forth in the Massachusetts Wetlands Protection Act, Regulations 310 CMR 10.00 et. al, and Chapter 650, The Town of Readings Wetlands Protection Regulations. Bordering Vegetated Wetlands and their respective 100-Foot Buffer Zones exist on and adjacent to the site and are jurisdictional Inland Resource Areas under the WPA and the Town of Reading Wetlands Protection Bylaw. The work proposed under this application will not occur within the delineated Bordering Vegetated Wetlands and will occur only within their buffer zones. The project has been laid out to minimize buffer zone impacts to the extent feasible. The project has been designed to fully comply with the 25-Foot No Disturb Zone and 35-Foot No Build Zone, as set forth by the Town of Readings Wetlands Protection Regulations. An entrenched silt fence is proposed upgradient of the 25-Foot No Disturb Zone to provide a permanent limit of work, protecting the downgradient resource areas during construction. All proposed structures are proposed to be located greater than 35 feet from the delineated wetland resource areas.

3.1 Buffer Zone – Under the Wetlands Protection Act

The WPA Regulations do not contain performance standards for Buffer Zone Alteration (310 CMR 10.02(2)(b)). However, 310 CMR 10.53(1) outlines general provisions for work proposed within the buffer zone to jurisdictional resource areas. Such provisions include the scope of the work within the buffer zone, defining a limit of work, assessing slopes, grading, and potential for erosion, and the preservation of natural vegetation upgradient of the wetland edge (though no specific performance standards are defined). The proposed project has taken into account these provisions. All reasonable efforts to avoid, minimize and mitigate adverse impacts on the Buffer Zone have been considered with the proposed project.

The applicant proposes the construction of a two-story childcare facility, associated parking lot, play yards, landscaping, and stormwater infrastructure within the 100-foot Buffer Zone to BVW. Efforts to protect vegetation during construction will take place, however, the applicant seeks approval for clearing as necessary for the proposed work. The project has been laid out to minimize buffer zone impacts to the extent feasible. The project has been designed to fully comply with the 25-Foot No Disturb Zone and 35-Foot No Build Zone, as set forth by the Town of Readings Wetlands Protection Regulations. An entrenched silt fence is proposed upgradient of the 25-Foot No Disturb Zone to provide a permanent limit of work, protecting the downgradient resource areas during construction. All proposed structures are proposed to be located greater than 35 feet from the delineated wetland resource areas. The project proposes a robust landscaping plan with native species proposed for revegetation throughout the work area, focused on areas to revegetate within jurisdictional buffer zones.

3.2 25-Foot Zone of Natural Vegetation – Under the Bylaw

The project has been designed to maintain the 25-Foot Zone of Natural Vegetation (ZNV) as established under the local wetland ordinance. The Town of Reading Wetlands Protection Bylaw States:

"*Bordering any wetland, the Commission shall require a Zone of Natural Vegetation (ZNV) or No-Disturb Zone of sufficient width and vegetative community type to assure that silt, soil, fertilizer in solution, organic chemicals, herbicides, organic manures, oils or petroleum products which may be carried by surface run-off shall not reach that wetland, but instead will be trapped by the natural mulch, soil and roots; and that light levels and temperature shall be moderated; and that dispersal of seeds of exotic or otherwise disruptive plant species, such as phragmites reed and purple loosestrife (Lythrum salicaria) shall be avoided; and that other alterations shall be avoided or mitigated within the wetland. 2 Under most conditions, a zone width of a minimum of twenty-five feet would be considered sufficient to accomplish this purpose. A wider ZNV may be required, depending on specific site conditions, such as grades, soil permeability or other impact potential, including but not limited to potential vernal pools, as defined in Section 3J2 of these regulations"*

At present, the 25-Foot ZNV on the subject property is undeveloped. The area is comprised of a mix of native vegetation and invasive vegetation, as seen in the attached wetland delineation report. The delineated wetlands consist of a deciduous wooded swamp, the most common wetland type occurring within the area. As a result, it is the opinion of Goddard that a 25-Foot ZNV is sufficient for the area and will be fully adhered to by the proposed project. The entirety of the work proposed under this application will occur outside of the 25-foot ZNV. An entrenched silt fence is proposed upgradient of the 25-Foot ZNV to provide a permanent limit of work, protecting the downgradient resource areas during construction. The project will create a permanent limit of work outside of the 25-Foot ZNV, fully complying with the local regulation.

3.3 35-Foot No Structure Zone – Under the Bylaw

The project has been designed to maintain the 35-Foot No Structure Zone as established under the local wetland regulations. The Town of Reading Wetlands Protection Bylaw States:

"no new structures or fixtures that may not require a building permit, including, but not limited to, foundations, footings, frost walls, retaining walls, pools and pool equipment, fences, patios, sports courts, driveways, sheds, or other in-ground fixtures, shall be permitted within ten feet of the ZNV. Depending on special site conditions, a greater distance may be required. The ZNV as otherwise defined in this Section 3D, plus this "ten feet" or "greater distance," may be referred to as the "No Structure Zone." Associated structures, including but not limited to the following: cantilevered structures, bay windows, eaves, and garrisons, or other overhangs, may protrude to no closer than seven feet from the ZNV."

As outlined above, at present, the 35-Foot No Structure Zone on the subject property is undeveloped. The area is comprised of a mix of native vegetation and invasive vegetation, as seen in the attached wetland delineation report. The delineated wetlands consist of a deciduous wooded swamp, the most common wetland type occurring within the area. As a result, it is the opinion of Goddard that a 35-Foot No Structure Zone is sufficient for the area and will be fully adhered to by the proposed project. All permanent surfaces proposed under this application will occur outside of the 35-Foot No Structure Zone. As seen in the attached site plans, work within the 35-Foot No Structure Zone is limited to required grading. As the area currently holds high levels of invasive species, the required grading will remove the vegetative cover, providing the opportunity for a net benefit to the area. At the completion of the proposed grading, the 35-Foot No Structure Zone will be revegetated with a native landscaping schedule. As seen on the attached landscaping plan (Sheet C-10 on full site plan set), the project proposes a robust landscaping plan, with many native species selected for installation along the limits of work. The landscaping plan will revegetate the 35-Foot No Structure Zone with native species.

The proposed parking lot is located +/- 36.3 feet from the closest wetland flag at its nearest point. An entrenched silt fence is proposed upgradient of the 25-Foot ZNV to provide a permanent limit of work, protecting the downgradient resource areas during construction. All grading and native landscaping improvements will occur within the 25-35-Foot No Structure Zone or further, fully complying with the local regulation.

4.0 Conclusion

In summary, Goddard Consulting believes that the proposed project will not have any adverse impacts on the interests identified in the Wetlands Protection Act or Chapter 650, The Town of Readings Wetlands Protection Regulations (the Bylaw). The project has been designed with sensitivity to the resource areas on site and has been designed to minimize and avoid impacts to the extent feasible. The proposed development has been kept entirely outside of the 25-Foot Zone of Natural Vegetation. All structures have been kept outside of the 35-Foot No Structure Zone. The project has been designed to comply with all local and state stormwater standards, utilizing a subsurface drainage system within the proposed parking lot to manage all runoff generated by the proposed project. Goddard Consulting respectfully requests that the Reading Conservation Commission issue an Order of Conditions approving the proposed project.

Please feel free to contact us if you have any questions.

Sincerely,
Goddard Consulting, LLC

Andrew Thibault, WPIT, WSA
Environmental Scientist

CC: Mass DEP – NERO – 150 Presidential Way, Woburn, MA 01801
Stonefield Engineering & Design, 120 Washington Street, Suite 201, Salem, MA 01970
Primrose Schools Franchising Company, 3200 Windy Hill Road SE, Suite 1200E, Atlanta, GA 30339

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40
and Chapter 650, The Town of Readings Wetlands Protection Bylaw

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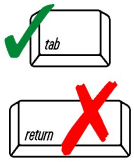
Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Note: Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

A. General Information

1. Project Location (**Note:** electronic filers will click on button to locate project site):

885 Main Street — a. Street Address
Reading — b. City/Town
01867 — c. Zip Code

Latitude and Longitude:
42.53312 — d. Latitude
-71.10279 — e. Longitude

28 — f. Assessors Map/Plat Number
133 — g. Parcel /Lot Number

2. Applicant:

a. First Name
b. Last Name
Primrose Schools Franchising Company — c. Organization
3200 Windy Hill Road SE, Suite 1200E — d. Street Address
Atlanta — e. City/Town
Georgia — f. State
30339 — g. Zip Code
978-289-4020 — h. Phone Number
i. Fax Number
mtaylor@primroseschools.com — j. Email Address

3. Property owner (required if different from applicant): ☐ Check if more than one owner

Joseph P. — a. First Name
Norden — b. Last Name
c. Organization
885 Main Street — d. Street Address
Reading — e. City/Town
MA — f. State
01867 — g. Zip Code
h. Phone Number
i. Fax Number
j. Email address

4. Representative (if any):

Andrew — a. First Name
Thibault — b. Last Name
Goddard Consulting LLC — c. Company
291 Main Street, #8 — d. Street Address
Northborough — e. City/Town
MA — f. State
01532 — g. Zip Code
(508) 393-3784 — h. Phone Number
i. Fax Number
andrew@goddardconsultingllc.com — j. Email address

5. Total WPA Fee Paid (from NOI Wetland Fee Transmittal Form):

$1050 + $1000 (Bylaw) — a. Total Fee Paid
$512.50 — b. State Fee Paid
$537.50 + $1000 (Bylaw) — c. City/Town Fee Paid

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

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A. General Information (continued)

6. General Project Description:

The Applicant is filing a Notice of Intent for the proposed construction of a two-story childcare facility and associated structures, consisting of a paved parking lot, walkways, retaining wall, play yards, and stormwater infrastructure partially within the 100-Foot Buffer Zone to delineated Bordering Vegetated Wetlands

7a. Project Type Checklist: (Limited Project Types see Section A. 7b.)

1. ☐ Single Family Home
2. ☐ Residential Subdivision
3. ☒ Commercial/Industrial
4. ☐ Dock/Pier
5. ☐ Utilities
6. ☐ Coastal engineering Structure
7. ☐ Agriculture (e.g., cranberries, forestry)
8. ☐ Transportation
9. ☐ Other

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration Limited Project) subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

1. ☐ Yes ☒ No

If yes, describe which limited project applies to this project. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

a. County	b. Certificate # (if registered land)
Southern Middlesex	
c. Book	**d. Page Number**
63156	579

B. Buffer Zone & Resource Area Impacts (temporary & permanent)

1. ☒ Buffer Zone Only – Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.
2. ☐ Inland Resource Areas (see 310 CMR 10.54-10.58; if not applicable, go to Section B.3, Coastal Resource Areas).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Massachusetts Department of Environmental Protection
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B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. ☐ Bank	1. linear feet	2. linear feet
b. ☐ Bordering Vegetated Wetland	1. square feet	2. square feet
c. ☐ Land Under Waterbodies and Waterways	1. square feet 3. cubic yards dredged	2. square feet

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. ☐ Bordering Land Subject to Flooding	1. square feet 3. cubic feet of flood storage lost	2. square feet 4. cubic feet replaced
e. ☐ Isolated Land Subject to Flooding	1. square feet 2. cubic feet of flood storage lost	3. cubic feet replaced
f. ☐ Riverfront Area	1. Name of Waterway (if available) - **specify coastal or inland**	

2. Width of Riverfront Area (check one):

☐ 25 ft. - Designated Densely Developed Areas only

☐ 100 ft. - New agricultural projects only

☐ 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project: _____ square feet

4. Proposed alteration of the Riverfront Area:

a. total square feet _____ b. square feet within 100 ft. _____ c. square feet between 100 ft. and 200 ft. _____

5. Has an alternatives analysis been done and is it attached to this NOI? ☐ Yes ☐ No

6. Was the lot where the activity is proposed created prior to August 1, 1996? ☐ Yes ☐ No

3. ☐ Coastal Resource Areas: (See 310 CMR 10.25-10.35)

Note: for coastal riverfront areas, please complete **Section B.2.f**. above.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

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Massachusetts Wetlands Protection Act M.G.L. c. 131, §40
and Chapter 650, The Town of Readings Wetlands Protection Bylaw

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B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Online Users: Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. ☐ Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. ☐ Land Under the Ocean	1. square feet 2. cubic yards dredged	
c. ☐ Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. ☐ Coastal Beaches	1. square feet	2. cubic yards beach nourishment
e. ☐ Coastal Dunes	1. square feet	2. cubic yards dune nourishment

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
f. ☐ Coastal Banks	1. linear feet	
g. ☐ Rocky Intertidal Shores	1. square feet	
h. ☐ Salt Marshes	1. square feet	2. sq ft restoration, rehab., creation
i. ☐ Land Under Salt Ponds	1. square feet 2. cubic yards dredged	
j. ☐ Land Containing Shellfish	1. square feet	
k. ☐ Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above 1. cubic yards dredged	
l. ☐ Land Subject to Coastal Storm Flowage	1. square feet	

4. ☐ Restoration/Enhancement
If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please enter the additional amount here.

a. square feet of BVW
b. square feet of Salt Marsh

5. ☐ Project Involves Stream Crossings

a. number of new stream crossings
b. number of replacement stream crossings

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C. Other Applicable Standards and Requirements

☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section C and complete Appendix A: Ecological Restoration Limited Project Checklists – Required Actions (310 CMR 10.11).

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the *Massachusetts Natural Heritage Atlas* or go to http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm.

   a. ☐ Yes ☒ No

   If yes, include proof of mailing or hand delivery of NOI to:

   Natural Heritage and Endangered Species Program
   Division of Fisheries and Wildlife
   1 Rabbit Hill Road
   Westborough, MA 01581

   08/2021
   b. Date of map

   If *yes*, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.c, and include requested materials with this Notice of Intent (NOI); *OR* complete Section C.2.f, if applicable. *If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).*

   c. Submit Supplemental Information for Endangered Species Review*

      1. ☐ Percentage/acreage of property to be altered:

         (a) within wetland Resource Area _____ percentage/acreage

         (b) outside Resource Area _____ percentage/acreage

      2. ☐ Assessor's Map or right-of-way plan of site

2. ☐ Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work **

   (a) ☐ Project description (including description of impacts outside of wetland resource area & buffer zone)

   (b) ☐ Photographs representative of the site

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see https://www.mass.gov/ma-endangered-species-act-mesa-regulatory-review).
Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.

** MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40
and Chapter 650, The Town of Readings Wetlands Protection Bylaw

Provided by MassDEP:
MassDEP File Number
Document Transaction Number
Reading
City/Town

C. Other Applicable Standards and Requirements (cont'd)

(c) ☐ MESA filing fee (fee information available at https://www.mass.gov/how-to/how-to-file-for-a-mesa-project-review).
Make check payable to "Commonwealth of Massachusetts - NHESP" and ***mail to NHESP*** at above address

*Projects altering **10 or more acres** of land, also submit:*

(d) ☐ Vegetation cover type map of site

(e) ☐ Project plans showing Priority & Estimated Habitat boundaries

(f) OR Check One of the Following

1. ☐ Project is exempt from MESA review.
Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, https://www.mass.gov/service-details/exemptions-from-review-for-projectsactivities-in-priority-habitat; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)

2. ☐ Separate MESA review ongoing. a. NHESP Tracking # b. Date submitted to NHESP

3. ☐ Separate MESA review completed.
Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.

3. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?

a. ☒ Not applicable – project is in inland resource area only b. ☐ Yes ☐ No

If yes, include proof of mailing, hand delivery, or electronic delivery of NOI to either:

South Shore - Bourne to Rhode Island border, and the Cape & Islands:

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
836 South Rodney French Blvd.
New Bedford, MA 02744
Email: dmf.envreview-south@mass.gov

North Shore - Plymouth to New Hampshire border:

Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
Email: dmf.envreview-north@mass.gov

Also if yes, the project may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP's Boston Office. For coastal towns in the Southeast Region, please contact MassDEP's Southeast Regional Office.

c. ☐ Is this an aquaculture project? d. ☐ Yes ☒ No

If yes, include a copy of the Division of Marine Fisheries Certification Letter (M.G.L. c. 130, § 57).

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40
and Chapter 650, The Town of Readings Wetlands Protection Bylaw

Provided by MassDEP:
MassDEP File Number
Document Transaction Number
Reading
City/Town

C. Other Applicable Standards and Requirements (cont'd)

Online Users: Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?

   a. ☐ Yes ☒ No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.

   b. ACEC

5. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?

   a. ☐ Yes ☒ No

6. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?

   a. ☐ Yes ☒ No

7. Is this project subject to provisions of the MassDEP Stormwater Management Standards?

   a. ☒ Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:

      1. ☐ Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)

      2. ☐ A portion of the site constitutes redevelopment

      3. ☒ Proprietary BMPs are included in the Stormwater Management System.

   b. ☐ No. Check why the project is exempt:

      1. ☐ Single-family house

      2. ☐ Emergency road repair

      3. ☐ Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

D. Additional Information

☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section D and complete Appendix A: Ecological Restoration Notice of Intent – Minimum Required Documents (310 CMR 10.12).

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

Online Users: Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department.

1. ☒ USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)

2. ☒ Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40
and Chapter 650, The Town of Readings Wetlands Protection Bylaw

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Reading
City/Town

D. Additional Information (cont'd)

3. ☒ Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.

4. ☒ List the titles and dates for all plans and other materials submitted with this NOI.

Land Development Plans for Primrose Schools
a. Plan Title

Stonefield Engineering
b. Prepared By

Joshua H. Kline
c. Signed and Stamped by

3/07/2025
d. Final Revision Date

1"=20'
e. Scale

f. Additional Plan or Document Title

g. Date

5. ☐ If there is more than one property owner, please attach a list of these property owners not listed on this form.

6. ☐ Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.

7. ☐ Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.

8. ☒ Attach NOI Wetland Fee Transmittal Form

9. ☒ Attach Stormwater Report, if needed.

E. Fees

1. ☐ Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

445,446
2. Municipal Check Number

3/11/25, 3/11/25
3. Check date

417
4. State Check Number

3/11/25
5. Check date

Goddard Consulting LLC
6. Payor name on check: First Name

7. Payor name on check: Last Name

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40
and Chapter 650, The Town of Readings Wetlands Protection Bylaw

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Reading
City/Town

F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

Matthew Taylor 1. Signature of Applicant (Primrose Schools Franchising Company)	03/11/2025 2. Date
Joseph P Norden dotloop verified 03/11/25 2:14 PM EDT UPIG-YNQV-UDYM-FGYZ 3. Signature of Property Owner (Joseph Norden)	03/11/2025 4. Date
Andrew Thibault 5. Signature of Representative (Andrew Thibault, Goddard Consulting LLC)	3/12/2025 6. Date

For Conservation Commission:
Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

For MassDEP:
One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Other:
If the applicant has checked the “yes” box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

NOI Wetland Fee Transmittal Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.

A. Applicant Information

1. Location of Project:

885 Main Street	Reading
a. Street Address	b. City/Town
417	$512.50
c. Check number	d. Fee amount

2. Applicant Mailing Address:

a. First Name	b. Last Name

Primrose Schools Franchising Company
c. Organization

3200 Windy Hill Road SE, Suite 1200E
d. Mailing Address

Atlanta	GA	30339
e. City/Town	f. State	g. Zip Code

978-289-4020		mtaylor@primroseschools.com
h. Phone Number	i. Fax Number	j. Email Address

3. Property Owner (if different):

Joseph P.	Norden
a. First Name	b. Last Name

c. Organization

885 Main Street
d. Mailing Address

Reading	MA	01867
e. City/Town	f. State	g. Zip Code

h. Phone Number	i. Fax Number	j. Email Address

B. Fees

To calculate filing fees, refer to the category fee list and examples in the instructions for filling out WPA Form 3 (Notice of Intent).

Fee should be calculated using the following process & worksheet. ***Please see Instructions before filling out worksheet.***

Step 1/Type of Activity: Describe each type of activity that will occur in wetland resource area and buffer zone.

Step 2/Number of Activities: Identify the number of each type of activity.

Step 3/Individual Activity Fee: Identify each activity fee from the six project categories listed in the instructions.

Step 4/Subtotal Activity Fee: Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount. Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

Step 5/Total Project Fee: Determine the total project fee by adding the subtotal amounts from Step 4.

Step 6/Fee Payments: To calculate the state share of the fee, divide the total fee in half and subtract $12.50. To calculate the city/town share of the fee, divide the total fee in half and add $12.50.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

NOI Wetland Fee Transmittal Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
Category 3B: Commercial Building	1	$1050+1000 (Bylaw)	$1050 + $1000 (bylaw)

Step 5/Total Project Fee:

Step 6/Fee Payments:

Total Project Fee:	$1050 + $1000 (bylaw) a. Total Fee from Step 5
State share of filing Fee:	$512.50 b. 1/2 Total Fee **less $**12.50
City/Town share of filling Fee:	$537.50 + $1000 (Bylaw)

C. Submittal Requirements

a.) Complete pages 1 and 2 and send with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts.

Department of Environmental Protection
Box 4062
Boston, MA 02211

b.) **To the Conservation Commission:** Send the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and the city/town fee payment.

To MassDEP Regional Office (see Instructions): Send a copy of the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and a **copy** of the state fee payment. (E-filers of Notices of Intent may submit these electronically.)

Reading Wetlands Protection Bylaw Fee Calculation Form

Type of Activity	NOI Filing Fee	Calculated Fee
A. Each addition to or accessory use activity Associated with an existing single-family or Multi-family residential dwelling, including but not limited to driveways, sheds, swimming pools, athletic courts, additions to existing houses, grading, and landscaping	$125.00 plus all applicable fees listed in lines F though K	
B. Each new single-family dwelling, including associated driveway, utilities, grading, landscaping, and drainage structures	$600.00 plus all applicable fees listed in lines F though K	
C. Each new multi-family dwelling	$600.00 plus $125.00 per unit located in any Resource Area or Buffer Zone, plus all applicable fees listed in lines F though K	
D. Each subdivision roadway, or other roadway, or driveway (other than for a single-family dwelling), and all associated drainage structures, utilities, grading, curbing, landscaping, and other associated work exclusive of dwellings	$1,000.00 plus $600.00 per house, plus all applicable fees listed in lines F though K	
E. Each commercial, industrial, institutional or other non-residential project	$1,000.00 , plus all applicable fees listed in lines F though K	x1 = $1000
F. Boundary delineation for any Resource Area	$1.25 per linear foot of Resource Area boundary, up to a maximum of $125 for a single-family lot and $1,250 for any other lot.	
G. Temporary and /or permanent alteration of land within the Buffer Zone	$1.25 per square foot of Buffer Zone altered for any temporary or permanent alteration within 25 feet of a Resource Area or any permanent structure within 35 feet of a Resource Area	
H. Work in Floodplain	$1.25 per square foot of Floodplain temporarily or permanently altered outside of any other Resource Area and Buffer Zone	
I. Work in Vernal Pool habitat	$11.00 per square foot of Vernal Pool habitat temporarily or permanently altered.	
J. Work in Freshwater Wetland, Wet Meadow, Bog, Swamp, Marsh, Creek, River, Stream, Pond, Lake, Land Under Waterbody	$11.00 per square foot of Resource Area temporarily or permanently altered	
K. Work in Bank	$11.00 per linear foot of Bank temporarily or permanently altered	
	Total Fee Calculated	$ $1000

Notice of Intent

Submittal Checklist

Reading Conservation Commission

This checklist is intended as an aid only, to assist in the process of submitting a Notice of Intent (NOI) and to help avoid delays. Please consult MGL Chapter 131, Section 40, the Wetlands Protection Act and its accompanying Regulations, 310 CMR 10.00, available through the state website, www.mass.gov/dep. Also, please consult Reading General Bylaws, Section 7.1, and the Reading Wetlands Protection Regulations, available through the Town Clerk's office and on the town website, www.readingma.gov. It is only necessary to file one submittal under both State and Town law.

Prior to the submittal of a Notice of Intent (NOI):

1. It is strongly recommended that the applicant or representative meet with the Conservation Administrator to review the proposed work, research existing site information, and become familiar with the wetlands regulations. Contact the Administrator at Town Hall, (781) 942-6616.
2. Submit a completed Request for Abutters List form to the Conservation Administrator or Public Service Department Staff, who will submit the request to the Assessor's Office. It may take up to 21 days for the Assessor to return the Certified List of Abutters.

Notice of Intent submittal:

Complete 1. 1 completed **electronic copy** and 2 physical completed copies with 2 full-size original plans. The electronic file can be e-mailed to ctirone@ci.reading.ma.us and the 2 physical copies with can be dropped off at the Public Services Department. Both must include the following items:

Complete a. A completed Notice of Intent form (Form 3)

Complete b. A copy of the Locus Map showing the site location clearly marked (e.g., circled and located by a large arrow).

Complete c. A description of the site, the proposed activity, and supporting data and calculations such as soils test data, drainage calculations, wetlands boundaries, proposed earth moving, impervious cover area, etc. (Please refer to the wetlands regulations for requirements)

Complete d. Resource area Information

- Identifying what standard was used to define the wetland
- A summary of methods used to delineate the wetland
- Provide copies of wetland determination data forms, for each resource area, buffer zone, and upland, either from the USACE New England District wetland delineation manual or equivalent, that documents observations and conditions of hydrology, soil, and vegetation made during the wetland delineation.
- How a project meets or does meet performance standards for affected resource areas

Complete e. A site plan or plans no more than 2' by 3' in size, prepared by an engineer, surveyor, or other licensed professional, having a title block with location, date, legend, scale (1"=20' or 1" =40'), and north arrow, that clearly shows at least the following (please refer to the wetlands regulations for complete requirements):

- Property boundaries, easements, rights-of-way, etc.;
- Boundaries of waterways, water bodies, banks, floodplains, and wetlands within and within 100 feet of the site, including locations of field flags;

- Boundaries of the 100-foot Buffer Zone 35- foot No Structure zone and 25-foot Zone of Natural Vegetation;
- Existing topography (in one- or two-foot intervals), structures, and other physical features (walls, paths, trees, wells, drainage and utility lines, etc.);
- Proposed topography, structures, and physical features, including temporary and permanent stormwater and erosion control features.

Complete f. Completed **NOI Fee Transmittal Form** with a check payable to "**Town of Reading**" for Town fee: Use the link to state forms on the Conservation home page, or download the form from the State website,www.mass.gov/dep

Complete g. Completed **Reading Bylaw Fee Calculation Form** with a check payable to "**Town of Reading**" for the calculated amount. (One check may be written to the Town to cover both State and Town fees). https://ma-reading.civicplus.com/468/Applications-for-Conservation-wetland-pe

Complete h. Affidavit of Service

Complete i. Notification to Abutters

Complete j. Certified List of Abutters

Complete 2. The same day the Notice of Intent is submitted to the Commission, mail one completed copy to:

Complete a. **DEP Northeast Regional Office**
ATTN: Wetlands Program
150 Presidential Way, Woburn MA 01801

Complete b. One copy of the completed Notice of Intent Fee Transmittal Form and check payable to "Commonwealth of Massachusetts" for the State share of the state fee to the DEP Box in Boston shown on the fee form.

Legal Notice & Mailing Information

1. The legal notice mailing and fee for the publication is the responsibility of the applicant/consultant.
2. Conservation Department will:
    a. Draft and publish the legal notice with the Daily Times Chronicle
    b. Send a copy of the legal notice Application/Consultant for the mailing, along with the contact information to directly pay for the **$325 fee** (fee is subject to change at any time) for the publication:
        - Tricia Lawson
          Accounting Department
          Daily Times Chronicle
          1 Arrow Drive, Woburn, MA 01801
          P 781-933-3700 ext. 353
          tricia.lawson@dailytimesinc.com
          www.homenewshere.com
3. Mailing Requirements
    a. One copy of the Affidavit of Service and one copy of the Legal Notice must be sent to all certified abutters.
        - They can be mailed in the same envelope
        - If the certified list of abutters includes duplicates, one mailing is sufficient.

- If the list includes the Planning Boards of abutting towns, do not send notifications to those addresses.

b. The Legal Notices can be mailed in the following ways:

- Certified Mail
- Certificate of Mailing
- Hand deliver with homeowner's signature.
- The legal notice must be mailed out 7 days before the scheduled Conservation meeting.

c. A digital copy of the mailing receipts needs to be scanned and emailed to ctirone@ci.reading.ma.us

Prior to the Public Hearing

1. The Conservation Commission will submit the legal notice of the public hearing to the Daily Times Chronicle for publication.
2. The applicant will pay the legal notice fee, mail the legal notice using the certified abutters list and provide proof of mailing.
3. The Conservation Administrator and the Conservation Commission may inspect the site. The Administrator usually inspects during normal business hours Monday through Thursday. The Commission usually inspects prior to the hearing. The boundaries of all resource areas should be marked on site with labeled flags. The corners of proposed structures and other important features (drainage systems, paved areas, limits of work, etc.) should be marked with stakes or flags, preferably using different colors and labels for different features.

Public Hearing

1. A public hearing will normally be scheduled within 21 days of receipt of a complete submittal. (If not possible, the Commission may ask the applicant to sign a waiver of the 21-day requirement. It is rare that the Commission cannot open the hearing within 21 days.) Commission meetings are generally held every other Wednesday evening.
2. At the hearing, the applicant and his or her representatives will be given the opportunity to present and discuss the proposed work. The Commission, the Administrator, and the general public may comment upon the proposal and ask questions.
3. If additional information is needed for the Commission to understand the proposed work, the Commission and applicant may continue the public hearing to a future date, giving the applicant adequate time to provide the information. When the information is complete, the hearing will be closed and the Commission will draft a decision.

Order of Conditions

1. The Commission will vote on the conditions of the Order during a public meeting and will issue the Order of Conditions within 21 days of the close of the hearing. The Order may be appealed as provided by law.

Note

The Commission adopted a Tree Policy on 9/28/2016. This can be found on the Conservation Commission Home Page. Please read the policy carefully as you are required to replace all trees removed in the Buffer Zone, one to one.

AFFIDAVIT OF SERVICE

Under the Massachusetts Wetlands Protection Act, M.G.L., c.131, s.40 and Reading General Bylaws, Section 7.1

(To be submitted to the Conservation Commission when filing a Notice of Intent or Abbreviated Notice of Resource Area Delineation or Request for Determination of Applicability)

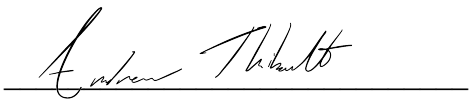
I, Andrew Thibault, Goddard Consulting LLC (Name), hereby certify under the pains and penalties of perjury that on 03/13/2025 (Date), I gave notification to abutters in compliance with the second paragraph of Massachusetts General Laws, c.131, s.40, and the **DEP Guide to Abutter Notification** dated April 8, 1994, and Reading General Bylaws, Section 7.1 in connection with the following matter:

(Check the applicable form.)

- ☑ Notice of Intent
- ☐ Abbreviated Notice of Resource Area Delineation
- ☐ Request for Determination of Applicability

filed under M.G.L., c.131, s.40 and R.G.B., s.7.1 by Primrose Schools Franchising Company (Applicant) with the Town of Reading Conservation Commission on 03/12/2025 (Date) for property located at 885 Main Street, Reading, MA 01867 (Map/Parcel 28-133) (Location).

The form of the notification and list of abutters to whom it was given and their addresses are attached to this Affidavit of Service.



Name

03/12/2025

Date

TOWN OF READING

REQUEST FOR CERTIFIED ABUTTERS LIST

RECEIVED
FEB 27 2025
By

SUBJECT PROPERTY:

ADDRESS: 885 Main Street, Reading, MA 01867

Assessors' Map Number: 28 Lot Number: 133

APPLICANT/AGENT:

Name: Andrew Thibault, Goddard Consulting LLC

Address: 291 Main Street, Suite 8, Northborough, MA 01532

Telephone: 508-393-3784 Email: andrew@goddardconsultingllc.com

Board or Commission for which this request is made (check all that are applicable):

Community Planning and Development Commission:

- ☐ Site Plan Review (300 feet)
- ☐ Special Permit (300 feet)
- ☐ Subdivision (300 feet)

Conservation Commission:

- ☐ Request for Determination (300 feet)
- ☐ Abbreviated Notice of Resource Area Delineation (300 feet)
- ☑ Notice of Intent (300 feet)

Zoning Board of Appeals:

- ☐ Appeal (300 feet)
- ☐ Special Permit (300 feet)
- ☐ Variance (300 feet)

- ☐ **Building Department: Immediate Abutters**
- ☐ **Health Department: Immediate Abutters**
- ☐ **Historic District Commission** (300 feet)
- ☐ **Historical Commission** (300 feet)
- ☐ **Other:** _____

Brief description of request: Request of a certified list of abutters for a Notice of Intent, required by the Wetlands Protection Act for work within Bordering Vegetated Wetland buffer zone.

Applicant/Agent Signature: _____ Date: 2/27/2025

The Assessors' Office may require up to three weeks in order to process and approve this request.

Authorized Signature: Amanda Beatrice Digitally signed by Amanda Beatrice Date: 2025.02.27 12:56:10 -05'00' Date: _____

Must be signed by the Public Services Department

TOWN OF READING
16 LOWELL STREET
READING, MA 01867-2693

BOARD OF ASSESSORS
TEL.: 781-942-9027
FAX: 781-942-9037

January 2025

To whom it may concern:

In an effort to streamline our business practices and desire to decrease turnaround time for taxpayers and other municipal departments, please be advised that effective this date, we the Board of Assessors for the Town of Reading hereby delegate to the Town Chief Assessor of the Assessing Department signatory authority of all Certified Abutters Lists as compiled by the department.

Sincerely,

Reading Board of Assessors

Michael E. Golden **Brendan Zarechian** **Jean Paul Plouffe**

TOWN OF READING
16 LOWELL STREET
READING, MA 01867-2693

BOARD OF ASSESSORS
781-942-9027
FAX: 781-942-9037

ABUTTERS LIST

CERTIFICATION

FOR BOARD OF ASSESSORS

VICTOR P. SANTANIELLO, CHIEF ASSESSOR	**DATE**
M Keohan	2/27/25
MICHELE L. KEOHAN, ASSISTANT ASSESSOR	**DATE**

Patriot Properties

Reading

02/27/2025

1:49:23PM

Abutters List

Filter Used: DataProperty.AccountNumber in (5652,6585,5819,5656,5868,5816,5855,5820,5867,5645,5648,5852,5817,5650,5870,5662,5643,5653,5876,5651,5857,5647,5877,5674,5663,5869,5843,5847,5854,5872,5641,5850..

Reading
Abutters List

Subject Parcel ID: ***885 Main Street Report***

Subject Property Location:

ParcelID	Location	Owner	Co-Owner	Mailing Address	City	State	Zip
027.0-0000-0379.0	14 BETHESDA LN	BRETCHKO PAVEL	TITOVA ELENA	14 BETHESDA LN	READING	MA	01867
027.0-0000-0381.0	868 MAIN ST	MELLEN MICHAELA	SHAIKH GABRIEL A D TE	868 MAIN ST	READING	MA	01867
027.0-0000-0382.0	872 MAIN ST	872 874 MAIN STREET LLC		874 MAIN ST	READING	MA	01867
027.0-0000-0383.0	8 BETHESDA LN	MOREAU MICHAEL N	MOREAU MEGHAN	8 BETHESDA LN	READING	MA	01867
027.0-0000-0384.0	882 MAIN ST	MOREIRA GREGORY G		882 MAIN ST	READING	MA	01867
027.0-0000-0385.0	11 BETHESDA LN	SICILIANO ROBERT L	SICILIANO STEPHANIE A	11 BETHESDA LN	READING	MA	01867
027.0-0000-0386.0	17 BETHESDA LN	KOUTOUVIDES DAKIS S	KOUTOUVIDES KIMBERLY A	17 BETHESDA LN	READING	MA	01867
027.0-0000-0388.0	905 MAIN ST	PATEL HASMUKH R	CHHAYA H PATEL	905 MAIN ST	READING	MA	01867
027.0-0000-0389.0	899 MAIN ST	LOGIUDICE KAREN R TRUSTEE	899 MAIN STREET IRREVOC	899 MAIN ST	READING	MA	01867
027.0-0000-0390.0	895 MAIN ST	LEETE KEVIN R ETAL TRUSTEES	LEETE REV TRUST	895 MAIN STREET	READING	MA	01867
027.0-0000-0391.0	891 MAIN ST	DENTREMONT ARTHUR V TRUSTE	DENTREMONT ELLEN A TRU	1 BEACHWOOD R GROVE	BROOKFIELD	CT	06804
027.0-0000-0394.0	884 MAIN ST	GEORGE JENNIFER L	DANIEL F DECARPIS	884 MAIN ST	READING	MA	01867
027.0-0000-0397.0	890 MAIN ST	JOYCE MARY ELIZABETH	JOHN JOYCE	890 MAIN ST	READING	MA	01867
027.0-0000-0399.0	896 MAIN ST	DSE CONSTRUCTION INC	LUIKY COMPANY INC	14 HILLVIEW RD	NORTH READING	MA	01864
027.0-0000-0400.0	908 MAIN ST	CHEN I-CHEI		908 MAIN ST	READING	MA	01867
027.0-0000-0401.0	900 MAIN ST	READING KOREAN CHURCH	OF THE NAZARENE	900 MAIN ST	READING	MA	01867
027.0-0000-0413.0	911 MAIN ST	KURKOWSKI MATTHEW	CORBIN SAMUEL TE	911 MAIN ST	READING	MA	01867
028.0-0000-0133.0	885 MAIN ST	NORDEN JOSEPH P		885 MAIN ST	READING	MA	01867
028.0-0000-0134.0	881 MAIN ST	WILLIFORD JONATHAN R	JONES MICHELLE L TE	881 MAIN ST	READING	MA	01867
028.0-0000-0135.0	877 MAIN ST	DSE CONSTRUCTION INC		14 HILLVIEW RD	NORTH READING	MA	01864
028.0-0000-0136.0	873 MAIN ST	GNANARATNAM JOHN A	MONIQUE P GNANARATNAM	873 MAIN ST	READING	MA	01867
028.0-0000-0137.0	869 MAIN ST	TASCO KATRINA		869 MAIN ST	READING	MA	01867
028.0-0000-0138.0	863 MAIN ST	HYSOMEMAJ NERITAN	CERRA LAUDEO TC	863 MAIN ST	READING	MA	01867
028.0-0000-0161.0	124 PEARL ST	CRONIN JACQUELYN A	TOFFLING DAVID TE	124 PEARL ST	READING	MA	01867
028.0-0000-0163.0	14 BUNKER AVE	LIEVENS GEERT J		14 BUNKER AVE	READING	MA	01867
028.0-0000-0166.0	17 BUNKER AVE	MADAN SIMRAN A	SAHA SANANDAN TE	17 BUNKER AVE	READING	MA	01867
028.0-0000-0168.0	44 FRANCIS DR	MCCORD THOMAS J	JANE COMINS MCCORD	44 FRANCIS DRIVE	READING	MA	01867
028.0-0000-0169.0	50 FRANCIS DR	COUGHLIN SAMANTHA		50 FRANCIS DR	READING	MA	01867
028.0-0000-0170.0	54 FRANCIS DR	REID GARNET L	DONNA L REID	54 FRANCIS DR	READING	MA	01867
028.0-0000-0171.0	58 FRANCIS DR	CULLEN MARK R	NANCY FAVA CULLEN	58 FRANCIS DR	READING	MA	01867
028.0-0000-0172.0	59 FRANCIS DR	MAYES LISA		59 FRANCIS DR	READING	MA	01867
028.0-0000-0173.0	55 FRANCIS DR	CURTIN ANDREW J	CURTIN CHRISTINE M	55 FRANCIS DRIVE	READING	MA	01867
028.0-0000-0174.0	49 FRANCIS DR	WHALEN RICHARD C	WHALEN DONNA J	49 FRANCIS DRIVE	READING	MA	01867
028.0-0000-0176.0	43 FRANCIS DR	MCELENEY JOHN J ETAL TRUSTE	MCELENEY REALTY TRUST	43 FRANCIS DR	READING	MA	01867
028.0-0000-0186.0	24 DUCK RD	WALSH DENIS D	DEIRDRE BRADLEY	24 DUCK RD	READING	MA	01867
028.0-0000-0187.0	30 DUCK RD	KANDYBOWICZ THOMAS	KANDYBOWICZ SAMANTHA	30 DUCK RD	READING	MA	01867
028.0-0000-0188.0	34 DUCK RD	MCKENNA LORI JEANNE		34 DUCK RD	READING	MA	01867
028.0-0000-0189.0	35 DUCK RD	DONAHUE ANDREW J	MARIE F DONAHUE	35 DUCK RD	READING	MA	01867
028.0-0000-0190.0	31 DUCK RD	MARFIONE PETER C	MARFIONE MARY T	31 DUCK RD	READING	MA	01867

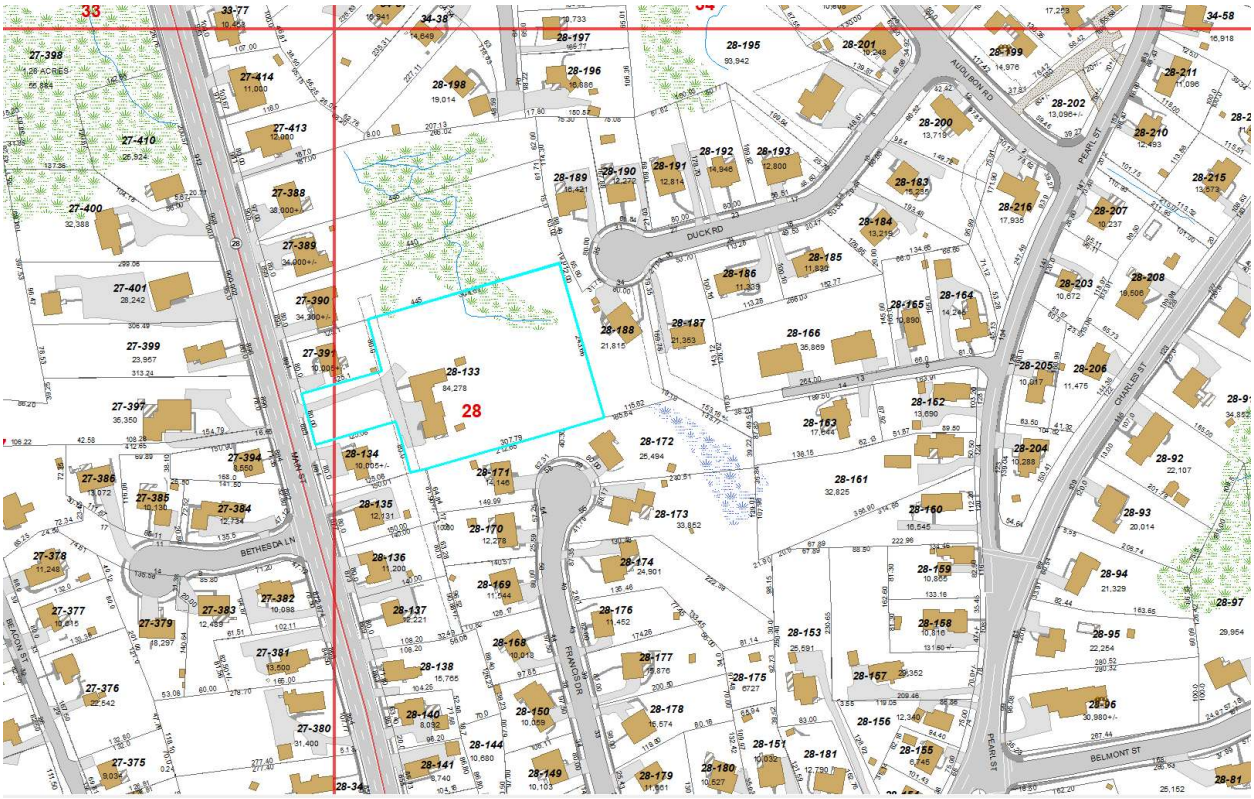
Subject Parcel ID: ***885 Main Street Report***

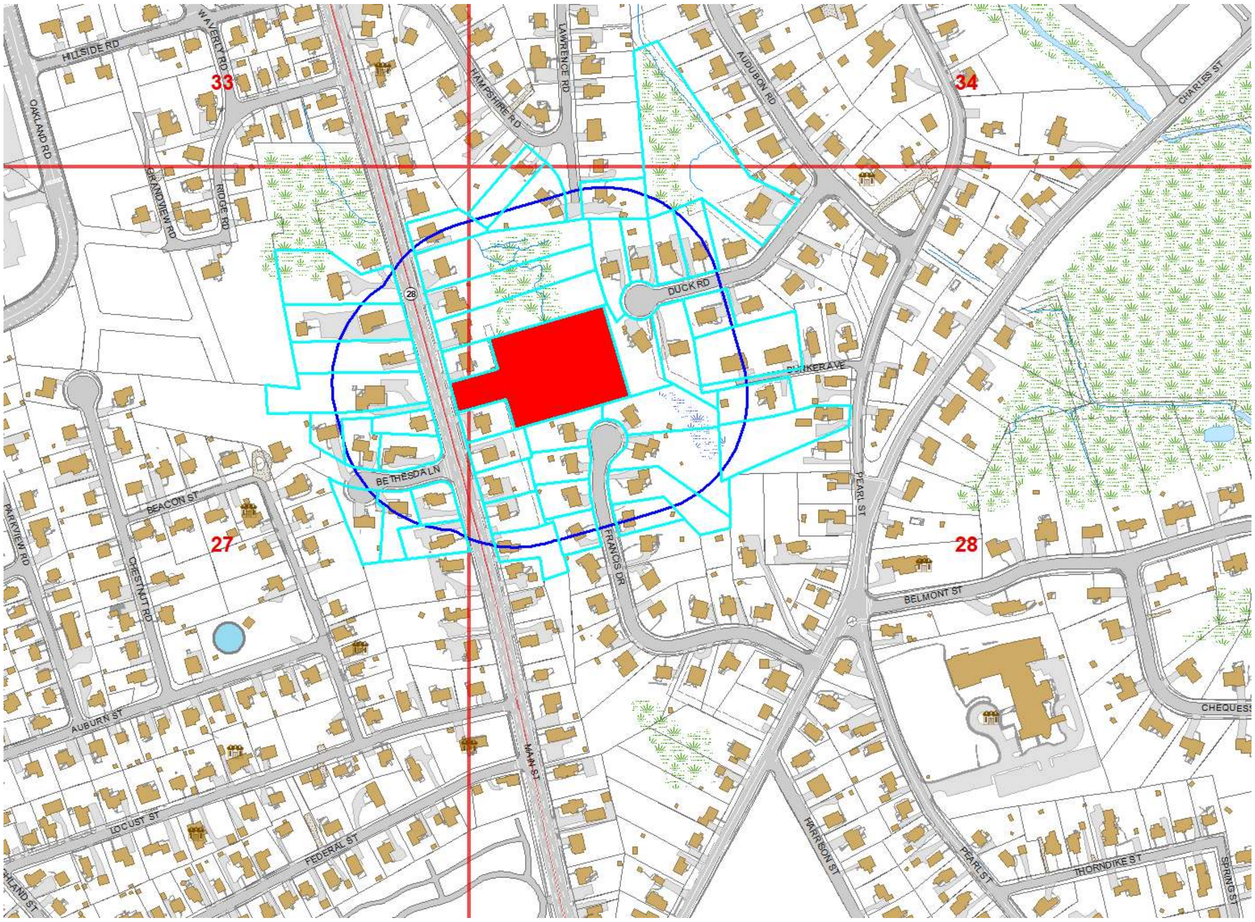
Subject Property Location:

ParcelID	Location	Owner	Co-Owner	Mailing Address	City	State	Zip
028.0-0000-0191.0	27 DUCK RD	GENT PETER	LESLIE GENT	27 DUCK RD	READING	MA	01867
028.0-0000-0192.0	23 DUCK RD	KUSHINSKY ALAN	ELIZABETH KUSHINSKY	23 DUCK RD	READING	MA	01867
028.0-0000-0195.0	5 DUCK RD	ZHONG YU		5 DUCK RD	READING	MA	01867
028.0-0000-0196.0	70 LAWRENCE RD	BRUSSARD MICHAEL R	KATHLEEN A BRUSSARD	70 LAWRENCE RD	READING	MA	01867
028.0-0000-0198.0	63 LAWRENCE RD	O`NEILL STEPHEN J	LAURA MARROCCO O`NEILL	63 LAWRENCE RD	READING	MA	01867
034.0-0000-0038.0	39 HAMPSHIRE RD	HEFFERON EDWARD J	HEFFERON KATHRYN OLEA	39 HAMPSHIRE RD	READING	MA	01867

Parcel Count: **45**

End of Report


28
DUCK RD
AUDUBON RD
PEARL ST
CHARLES ST
MAIN ST
BETHESDA LN
FRANCIS DR
BELMONT ST
BEACON ST



HILLSIDE RD
WAVERLY RD
33
34
HAMPSHIRE RD
LAWRENCE RD
AUDUBON RD
CHARLES ST
OAKLAND RD
GRANDVIEW RD
RIDGE RD
DUCK RD
BUNKER AVE
PEARL ST
BETHESDA LN
BEACON ST
PARKVIEW RD
CHESTNUT RD
27
28
FRANCIS DR
BELMONT ST
AUBURN ST
MAIN ST
CHEQUESS
LOCUST ST
FEDERAL ST
HARRISON ST
THORNDIKE ST

872 874 MAIN STREET LLC
874 MAIN ST
READING, MA 01867

BRETCHKO PAVEL
TITOVA ELENA
14 BETHESDA LN
READING, MA 01867

BRUSSARD MICHAEL R
KATHLEEN A BRUSSARD
70 LAWRENCE RD
READING, MA 01867

CHEN I-CHEI
908 MAIN ST
READING, MA 01867

COUGHLIN SAMANTHA
50 FRANCIS DR
READING, MA 01867

CRONIN JACQUELYN A
TOFFLING DAVID TE
124 PEARL ST
READING, MA 01867

CULLEN MARK R
NANCY FAVA CULLEN
58 FRANCIS DR
READING, MA 01867

CURTIN ANDREW J
CURTIN CHRISTINE M
55 FRANCIS DRIVE
READING, MA 01867

DENTREMONT ARTHUR V TRUSTEE
DENTREMONT ELLEN A TRUSTEE
1 BEACHWOOD R GROVE
BROOKFIELD, CT 06804

DONAHUE ANDREW J
MARIE F DONAHUE
35 DUCK RD
READING, MA 01867

DSE CONSTRUCTION INC
LUIKY COMPANY INC
14 HILLVIEW RD
NORTH READING, MA 01864

DSE CONSTRUCTION INC
14 HILLVIEW RD
NORTH READING, MA 01864

GENT PETER
LESLIE GENT
27 DUCK RD
READING, MA 01867

GEORGE JENNIFER L
DANIEL F DECARPIS
884 MAIN ST
READING, MA 01867

GNANARATNAM JOHN A
MONIQUE P GNANARATNAM
873 MAIN ST
READING, MA 01867

HEFFERON EDWARD J
HEFFERON KATHRYN OLEARY TE
39 HAMPSHIRE RD
READING, MA 01867

HYSOMEMAJ NERITAN
CERRA LAUDEO TC
863 MAIN ST
READING, MA 01867

JOYCE MARY ELIZABETH
JOHN JOYCE
890 MAIN ST
READING, MA 01867

KANDYBOWICZ THOMAS
KANDYBOWICZ SAMANTHA TE
30 DUCK RD
READING, MA 01867

KOUTOUVIDES DAKIS S
KOUTOUVIDES KIMBERLY A
17 BETHESDA LN
READING, MA 01867

KURKOWSKI MATTHEW
CORBIN SAMUEL TE
911 MAIN ST
READING, MA 01867

KUSHINSKY ALAN
ELIZABETH KUSHINSKY
23 DUCK RD
READING, MA 01867

LEETE KEVIN R ETAL TRUSTEES
LEETE REV TRUST
895 MAIN STREET
READING, MA 01867

LIEVENS GEERT J
14 BUNKER AVE
READING, MA 01867

LOGIUDICE KAREN R TRUSTEE
899 MAIN STREET IRREVOCABLE TR
899 MAIN ST
READING, MA 01867

MADAN SIMRAN A
SAHA SANANDAN TE
17 BUNKER AVE
READING, MA 01867

MARFIONE PETER C
MARFIONE MARY T
31 DUCK RD
READING, MA 01867

MAYES LISA
59 FRANCIS DR
READING, MA 01867

MCCORD THOMAS J
JANE COMINS MCCORD
44 FRANCIS DRIVE
READING, MA 01867

MCELENEY JOHN J ETAL TRUSTEES
MCELENEY REALTY TRUST
43 FRANCIS DR
READING, MA 01867

MCKENNA LORI JEANNE
34 DUCK RD
READING, MA 01867

MELLEN MICHAELA
SHAIKH GABRIEL A D TE
868 MAIN ST
READING , MA 01867

MOREAU MICHAEL N
MOREAU MEGHAN
8 BETHESDA LN
READING, MA 01867

MOREIRA GREGORY G
882 MAIN ST
READING, MA 01867

NORDEN JOSEPH P
885 MAIN ST
READING, MA 01867

O`NEILL STEPHEN J
LAURA MARROCCO O`NEILL
63 LAWRENCE RD
READING, MA 01867

PATEL HASMUKH R
CHHAYA H PATEL
905 MAIN ST
READING, MA 01867

READING KOREAN CHURCH
OF THE NAZARENE
900 MAIN ST
READING, MA 01867

REID GARNET L
DONNA L REID
54 FRANCIS DR
READING, MA 01867

SICILIANO ROBERT L
SICILIANO STEPHANIE A
11 BETHESDA LN
READING, MA 01867

TASCO KATRINA
869 MAIN ST
READING, MA 01867

WALSH DENIS D
DEIRDRE BRADLEY
24 DUCK RD
READING, MA 01867

WHALEN RICHARD C
WHALEN DONNA J
49 FRANCIS DRIVE
READING, MA 01867

WILLIFORD JONATHAN R
JONES MICHELLE L TE
881 MAIN ST
READING, MA 01867

ZHONG YU
5 DUCK RD
READING, MA 01867

Wetland Border Report

Site Locus: 885 Main Street, Reading, MA (Map/Parcel 28-133).
Prepared for: Stonefield Engineering
Prepared by: Goddard Consulting LLC, 291 Main St, Suite 8, Northborough, MA 01532
Date: 12/02/2024

INTRODUCTION

On November 25th, 2024, the wetland resources were delineated for Stonefield Engineering on land on and surrounding the property known as 885 Main Street, in Reading, MA (refer to enclosed locus maps). The wetland border was flagged using the criteria in the most recent edition of MA Wetland Protection Act (WPA) and Regulations 310 CMR 10.00 et al and, the Reading Wetlands Protection Bylaw. Hydric soil indicators, vegetation changes, hydrological indicators, and topography were all considered for delineation purposes.

The titles of attached documents are as follows:

- DEP Bordering Vegetated Wetland Determination Form
- Orthophoto of Locus Site, Goddard Consulting LLC, 11/25/2024
- NRCS Soils Survey of Locus Site, Goddard Consulting LLC, 11/25/2024
- FEMA Flood Map of Locus Site, Goddard Consulting LLC, 11/25/2024
- USGS Map of Locus Site, Goddard Consulting LLC, 11/25/2024

SUMMARY OF FINDINGS

The site of the proposed project consists of a developed single-family house lot, known as 885 Main Street in Reading, MA (Map/Parcel 28-133). The subject site is located within the Single Family 15 (S-15) zoning district in the Town of Reading. The site is bordered by single-family houses on all sides, located off of Main Street, Duck Road, and Bethesda Lane. The site totals 84,280 square feet (SF), approximately 1.94 acres. The site is currently developed with a single-family home, driveway, walkway, wood sheds, patio, and pool.

The remainder of the property consists of maintained lawn surrounding the existing home, forested uplands to the North and South, and forested wetlands to the Northeast. The property pitches from the development to the Northeast, transitioning from a white pine dominated upland forest, to a red maple dominant deciduous wooded swamp. The boundary of the on-site Bordering Vegetated Wetland (BVW) system was found and delineated on the northern portion of the property with flag series GC-A1 – GC-A35. The wetland system is a deciduous wooded swamp located throughout low-lying topography between existing residential developments off of Main Street, Duck Road, and Hampshire Road.

As seen in the attached BVW Determination Form, Vegetation upgradient of the BVW is dominated by White Pine in addition to invasive Norway Maple, Garlic Mustard, and Oriental Bittersweet. Vegetation within the resource area consists of Red Maple, White Pine, Highbush Blueberry, Royal Fern, and Cinnamon Fern, as well as invasive Oriental Bittersweet and Glossy Buckthorn.

Soils identified on the property include primarily fine sandy loams, consistent with the NRCS soil survey for the site. Within the upland sample, a deep topsoil with a matrix color of 10YR2/2 was found from 0-15". The topsoil was underlain by a dry subsoil colored to a 2.5Y4/4 from 10-24 and beyond. Within the wetland soil sample, an organic topsoil with a matrix color of 10YR 2/1 was found from 0-10". The topsoil was underlain by a depleted subsoil indicative of saturated conditions, colored to a 10YR6/2. From 10-24"+, redoximorphic concentrations colored to a 7.5YR6/6 were found within the depleted subsoil, accounting for approximately 5% of the visible subsoil.

According to the MassGIS data layers for the Natural Heritage & Endangered Species Program (NHESP), the locus site is not located within Estimated and/or Priority Habitat of Rare Wildlife. The site does not fall within an Area of Critical Environmental Concern (ACEC). No mapped certified or potential vernal pools exist on site, though two potential vernal pools exist within 200 feet of the property boundary to the North and the Southeast. The site does not fall within a mapped Outstanding Resource Water (ORW) area. Lastly, the site does not fall within any jurisdictional FEMA flood zones.

The MA Wetlands Protection Act and the Town of Reading take jurisdiction over BVW Resource Areas. The delineated BVW has a jurisdictional 100-foot Buffer Zone cast onto the site under the MA Wetlands Protection Act. In addition to the 100-Foot Buffer Zone, the Town of Reading, through their Wetlands Protection Bylaw, regulates a 25-Foot area of native, undisturbed vegetation from the edge of a delineated resource area, as well as a 35-Foot No Structure Zone.

Any work within these resource areas, including the 100-Foot Buffer Zone, requires a Request for Determination (RDA) or Notice of Intent (NOI) to be filed with the Reading Conservation Commission.

DESCRIPTION OF REGULATED INLAND RESOURCE AREA

The table below provides the regulatory jurisdiction, flag numbers/colors, and wetland types and locations for the resource areas delineated.

Resource Area	Regulatory Jurisdiction	Flag Numbers and Color	Wetland Types and Locations
Bordering Vegetated Wetland	100-Foot Buffer (State and Bylaw Jurisdictional) 25-Foot No Disturb Zone (Bylaw Jurisdictional) 35-Foot No Structure Zone (Bylaw Jurisdictional)	GC-A1 – GC-A35 (Blue flags)	Bordering Vegetated Wetland boundary of a deciduous wooded swamp through the Northeastern portion of the site.

SITE PHOTOS

Photo 1: A representative view of the delineated wetlands, taken downgradient from GC A23.

Photo 2: A view of a site typical depleted wetland subsoil, taken downgradient of GC A23

Photo 3: A representative view of the on-site uplands. Note steep topography off of existing development.

Photo 4: A representative view of an upland soil sample from the site.

Sincerely,
Goddard Consulting, LLC

Andrew Thibault, WPIT, WSA
Environmental Scientist

BORDERING VEGETATED WETLAND DETERMINATION FORM

Project/Site:	885 Main Street	City/Town: Reading	Sampling Date: 11/25/2024
Applicant/Owner:	Stonefield Engineering	Sampling Point or Zone:	GC A-23
Investigator(s):	Goddard Consulting LLC	Latitude/Longitude:	42.53312, -71.10279
Soil Map Unit Name:	Whitman 73B, Charlton 631C	NWI or DEP Classification:	Wooded Swamp Deciduous

UPGRADIENT

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ____ No X (If no, explain in Remarks)
Are Vegetation ____ , Soil ____ , or Hydrology ____ significantly disturbed? (If yes, explain in Remarks)
Are Vegetation X , Soil ____ , or Hydrology ____ naturally problematic? (If yes, explain in Remarks)

SUMMARY OF FINDINGS – Attach site map and photograph log showing sampling locations, transects, etc

Wetland vegetation criterion met?	Yes ____	No X	Is the Sampled Area within a Wetland?	Yes ____	No X
Hydric Soils criterion met?	Yes ____	No X			
Wetlands hydrology present?	Yes ____	No X			

Remarks, Photo Details, Flagging, etc.:

Region remains in declared drought - High percentages of invasive species consisting of Norway Maple, Oriental Bittersweet and Glossy Buckthorn

HYDROLOGY

Field Observations:			
Surface Water Present?	Yes	No X	Depth (in)
Water Table Present?	Yes	No X	Depth (in)
Saturation Present (including capillary fringe)?	Yes	No X	Depth (in)

Wetland Hydrology Indicators

Reliable Indicators of Wetlands Hydrology	Indicators that can be Reliable with Proper Interpretation	Indicators of the Influence of Water
___ Water-stained leaves	___ Hydrological records	___ Direct observation of inundation
___ Evidence of aquatic fauna	___ Free water in a soil test hole	___ Drainage patterns
___ Iron deposits	___ Saturated soil	___ Drift lines
___ Algal mats or crusts	___ Water marks	___ Scoured areas
___ Oxidized rhizospheres/pore linings	___ Moss trim lines	___ Sediment deposits
___ Thin muck surfaces	___ Presence of reduced iron	___ Surface soil cracks
___ Plants with air-filled tissue (aerenchyma)	___ Woody plants with adventitious roots	___ Sparsely vegetated concave surface
___ Plants with polymorphic leaves	___ Trees with shallow root systems	___ Microtopographic relief
___ Plants with floating leaves	___ Woody plants with enlarged lenticels	___ Geographic position (depression, toe of slope, fringing lowland)
___ Hydrogen sulfide odor		

Remarks (describe recorded data from stream gauge, monitoring well, aerial photos, previous inspections, if available):

This form is only for BVW delineations. Other wetland resource areas may be present and should be delineated according to the applicable regulatory provisions.

Sampling Point GC A-23

VEGETATION – Use both common and scientific names of plants.

Tree Stratum Plot size 30'

	Common Name	Scientific name	Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indictor? (yes/no)	% Dominant
1	White Pine	Pinus strobus	FACU	20.5%	X		50.0%
2	Norway Maple	Acer platanoides	UPL	20.5%	X		50.0%
3							
4							
5							
6							
7							
8							
9							

41.0% =Total Cover

Shrub/Sapling Stratum Plot size 15'

	Common Name	Scientific name	Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indictor? (yes/no)	% Dominant
1	Norway Maple	Acer platanoides	UPL	38.0%	X		86.4%
2	Yew	Taxus canadensis	FACU	3.0%			6.8%
3	Northern White Oak	Quercus alba	FACU	3.0%			6.8%
4							
5							
6							
7							
8							
9							

44.0% =Total Cover

Herb Stratum Plot size 5'

	Common Name	Scientific name	Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indictor? (yes/no)	% Dominant
1	Garlic-Mustard	Alliaria petiolata	FACU	10.5%	X		100.0%
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							

10.5% =Total Cover

VEGETATION – continued.

Woody Vine Stratum Plot size 30'

	Common Name	Scientific name	Indicator Status	Absolute % Cover	Dominant? (yes/no)	Wetland Indictor? (yes/no)	% Dominant
1	Oriental Bittersweet	Celastrus orbiculatus	FACU	38.0%	X		100.0%
2							
3							
4							
				38.0%	=Total Cover		

Rapid Test:	Do all dominant species have an indicator status of OBL or FACW?			Yes		No	X	
Dominance Test:	Number of dominant species	Number of dominant species that are wetland indicator plants		Do wetland indicator plants make up ≥ 50% of dominant plant species?				
	5	0		Yes		No	X	
Prevalence Index:		Total % Cover (all strata)	Multiply by:	Result				
	OBL species	0%	x1	=	0%			
	FACW species	0%	x2	=	0%			
	FAC species	0%	x3	=	0%			
	FACU species	75%	x4	=	300%			
	UPL species	59%	x5	=	293%			
	Column Totals (A)	134%		(B)	593%			
	Prevalence Index	B/A=	4.44	Is the Prevalence Index ≤ 3.0?				
				Yes		No	X	
Wetland vegetation criterion met?	**Yes**	**No** X						

Definitions of Vegetation Strata

Tree	Woody plants 3 in. (7.62 cm) or more in diameter at breast height (DBH), regardless of height
Shrub/Sapling	Woody plants less than 3 in. (7.62 cm) DBH and greater than or equal to 3.3 ft. (1 m) tall
Herb	All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.3 ft. (1 m) tall
Woody vines	All woody vines greater than 3.3 ft. (1 m) in height

Cover Ranges	
Range	Midpoint
1-5 %	3.00%
6-15 %	10.50%
15-25 %	20.50%
26-50 %	38.00%
51-75 %	63.00%
76-95 %	85.50%
96-100 %	98.00%

Sampling Point GC A-23

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Location[2]	Texture	Remarks
0-15"	10YR2/2	1					FSL	
15-24+"	2.5Y4/4	1					FSL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators (Check all that apply)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Dark Surface (S7)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Polyvalue Below Surface (S8)
- ___ Thin Dark Surface (S9)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F7)
- ___ Depleted Dark Surface (F8)

Indicators for Problematic Hydric Soils

- ___ 2 cm Muck (A10)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8)
- ___ Thin Dark Surface (S9)
- ___ Iron-Manganese Masses (F12)
- ___ Mesic Spodic (A17)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Include Explanation in Remarks)

Restrictive Layer (if observed) Type: Depth (inches):

Remarks

Hydric Soils criterion met? **Yes** **No** X

DOWNGRADIENT

Are climatic/hydrologic conditions on the site typical for this time of year? Yes _____ No ___X___ (If no, explain in Remarks)
Are Vegetation _____ , Soil _____ , or Hydrology _____ significantly disturbed? (If yes, explain in Remarks)
Are Vegetation ___X___ , Soil _____ , or Hydrology _____ naturally problematic? (If yes, explain in Remarks)

SUMMARY OF FINDINGS – Attach site map and photograph log showing sampling locations, transects, etc

Wetland vegetation criterion met?	Yes X	No _____	Is the Sampled Area within a Wetland?	Yes X	No ___
Hydric Soils criterion met?	Yes X	No _____			
Wetlands hydrology present?	Yes X	No _____			

Remarks, Photo Details, Flagging, etc.:

Region remains in declared drought - High percentages of invasive species consisting of Norway Maple, Oriental Bittersweet and Glossy Buckthorn

HYDROLOGY

Field Observations:

Surface Water Present?	Yes X	No	Depth (in)	Surface
Water Table Present?	Yes	No X	Depth (in)	
Saturation Present (including capillary fringe)?	Yes	No X	Depth (in)	

Wetland Hydrology Indicators

Reliable Indicators of Wetlands	Indicators that can be Reliable with	Indicators of the Influence of Water
X Water-stained leaves	_____ Hydrological records	_____ Direct observation of inundation
___ Evidence of aquatic fauna	_____ Free water in a soil test hole	X Drainage patterns
___ Iron deposits	X Saturated soil	_____ Drift lines
___ Algal mats or crusts	_____ Water marks	_____ Scoured areas
___ Oxidized rhizospheres/pore linings	_____ Moss trim lines	_____ Sediment deposits
___ Thin muck surfaces	_____ Presence of reduced iron	_____ Surface soil cracks
___ Plants with air-filled tissue	_____ Woody plants with adventitious	X Sparsely vegetated concave
(aerenchyma)	roots	surface
___ Plants with polymorphic leaves	X Trees with shallow root systems	X Microtopographic relief
___ Plants with floating leaves	_____ Woody plants with enlarged lenticels	X Geographic position (depression,
___ Hydrogen sulfide odor		toe of slope, fringing lowland)

Remarks (describe recorded data from stream gauge, monitoring well, aerial photos, previous inspections, if available):

This form is only for BVW delineations. Other wetland resource areas may be present and should be delineated according to the applicable regulatory provisions.

Sampling Point GC A-23

VEGETATION – Use both common and scientific names of plants.

Tree Stratum Plot size 30'

	Common Name	Scientific name	Indicator	Absolute %	Dominant?	Wetland Indictor?	% Dominant
1	Red Maple	Acer rubrum	FAC	38.0%	X	X	78.4%
2	White Pine	Pinus strobus	FACU	10.5%	X		21.6%
3							
4							
5							
6							
7							
8							
9							

48.5% =Total Cover

Shrub/Sapling Stratum Plot size 15'

	Common Name	Scientific name	Indicator	Absolute %	Dominant?	Wetland Indictor?	% Dominant
1	Highbush Blueberry	Vaccinium corymbosum	FACW	20.5%	X	X	33.1%
2	Glossy Buckthorn	Frangula alnus	FAC	20.5%	X	X	33.1%
3	Northern Arrowwood	Viburnum recognitum	FAC	10.5%		X	16.9%
4	Red Maple	Acer rubrum	FAC	10.5%		X	16.9%
5							
6							
7							
8							
9							

62.0% =Total Cover

Herb Stratum Plot size 5'

	Common Name	Scientific name	Indicator	Absolute %	Dominant?	Wetland Indictor?	% Dominant
1	Royal Fern	Osmunda spectabilis	OBL	20.5%	X	X	50.0%
2	Cinnamon Fern	Osmundastrum cinnamomeum	FACW	20.5%	X	X	50.0%
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							

41.0% =Total Cover

VEGETATION – continued.

Woody Vine Stratum Plot size 30'

	Common Name	Scientific name	Indicator	Absolute %	Dominant?	Wetland Indictor?	% Dominant
1	Oriental Bittersweet	Celastrus orbiculatus	FACU	3.0%	X		100.0%
2							
3							
4							
				3.0%	=Total Cover		

Rapid Test:	Do all dominant species have an indicator status of OBL or FACW?			Yes		No	X	
Dominance Test:	Number of dominant species	Number of dominant species that are		Do wetland indicator plants make				
	7	5		Yes X No				
Prevalence Index:		Total % Cover	Multiply by:	Result				
	OBL species	21%	x1	=	21%			
	FACW species	41%	x2	=	82%			
	FAC species	80%	x3	=	239%			
	FACU species	14%	x4	=	54%			
	UPL species	0%	x5	=	0%			
	Column Totals (A)	155%		(B)	395%			
	Prevalence Index	B/A=	2.56	Is the Prevalence Index ≤ 3.0? Yes X No				
Wetland vegetation criterion met? Yes X No								

Definitions of Vegetation Strata

Tree	Woody plants 3 in. (7.62 cm) or more in diameter at breast height (DBH), regardless of height
Shrub/Sapling	Woody plants less than 3 in. (7.62 cm) DBH and greater than or equal to 3.3 ft. (1 m) tall
Herb	All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.3 ft. (1 m) tall
Woody vines	All woody vines greater than 3.3 ft. (1 m) in height

Cover Ranges	
Range	Midpoint
1-5 %	3.00%
6-15 %	10.50%
15-25 %	20.50%
26-50 %	38.00%
51-75 %	63.00%
76-95 %	85.50%
96-100 %	98.00%

Sampling Point GC A-23

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Location[2]	Texture	Remarks
0-10"	10YR2/1	1					Mucky FSL	
10-24+"	10YR6/2	0.95	7.5YR6/6	0.05	C=Concentration		Fine Sand	

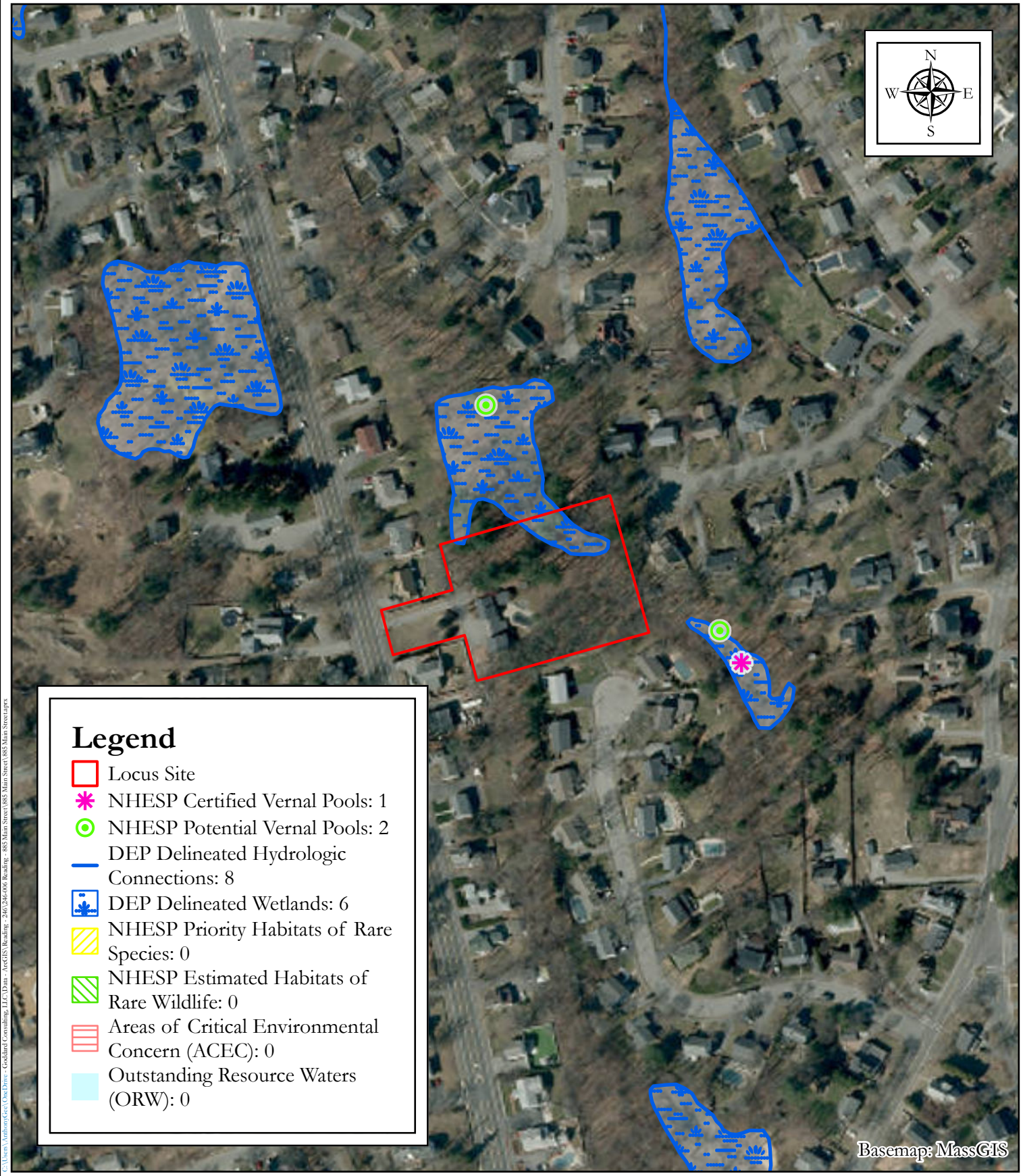
[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators (Check all that apply)		**Indicators for Problematic Hydric Soils**
___ Histosol (A1)	____ Sandy Redox (S5)	____ 2 cm Muck (A10)
X Histic Epipedon (A2)	____ Stripped Matrix (S6)	____ 5 cm Mucky Peat or Peat (S3)
___ Black Histic (A3)	____ Polyvalue Below Surface (S8)	____ Dark Surface (S7)
___ Hydrogen Sulfide (A4)	____ Thin Dark Surface (S9)	____ Polyvalue Below Surface (S8)
___ Stratified Layers (A5)	____ Loamy Mucky Mineral (F1)	____ Thin Dark Surface (S9)
X Depleted Below Dark Surface (A11)	____ Loamy Gleyed Matrix (F2)	____ Iron-Manganese Masses (F12)
___ Thick Dark Surface (A12)	____ Depleted Matrix (F3)	____ Mesic Spodic (A17)
___ Sandy Mucky Mineral (S1)	____ Redox Dark Surface (F7)	____ Red Parent Material (F21)
___ Sandy Gleyed Matrix (S4)	____ Depleted Dark Surface (F8)	____ Very Shallow Dark Surface (TF12)
___ Dark Surface (S7)		____ Other (Include Explanation in Remarks)

Restrictive Layer (if observed) Type: Depth (inches):

Remarks

Hydric Soils criterion met? **Yes** X **No**



C:\Users\AnthonyGee\OneDrive - Goddard Consulting, LLC\Data - ArcGIS\Reading - 246\246-006 Reading - 885 Main Street\885 Main Street.aprx

GODDARD CONSULTING
Strategic Ecological Consulting

Orthophoto of Locus Site

0 150 300 Feet

1" = 300'

71.1029749°W, 42.5329553°N

Date: 11/25/2024

855 Main Street
Reading, MA 01867

Parcel ID: 28-133

Figure 2

C:\Users\Anthony\Geo\OneDrive - Goddard Consulting, LLC\Data - ArcGIS\Reading - 246\246-006 Reading - 885 Main Street\885 Main Street\885 Main Street.aprx

GODDARD CONSULTING
Strategic Ecological Consulting

NRCS Soil Survey of Locus Site

855 Main Street
Reading, MA 01867

0 60 120 Feet

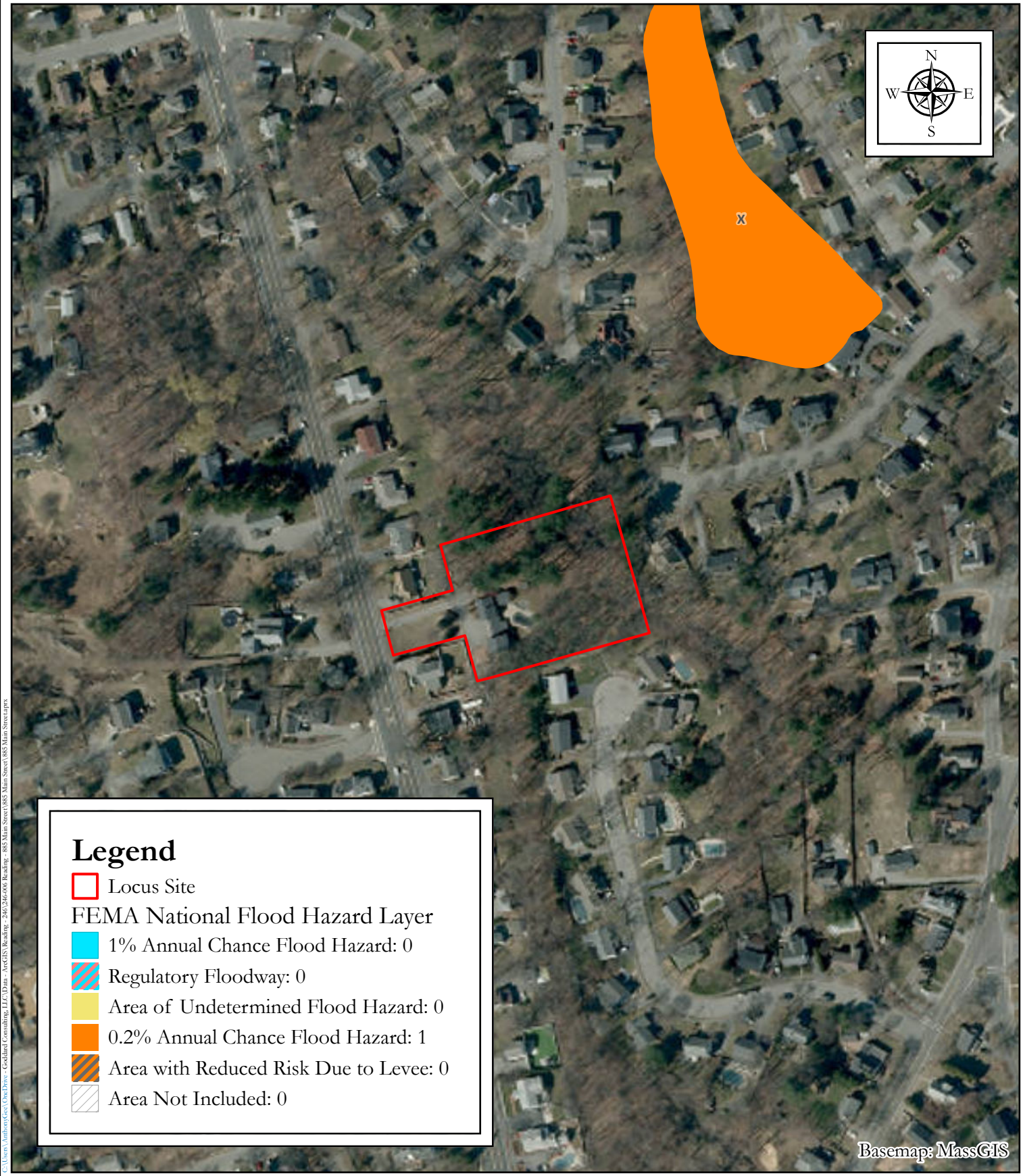
1" = 120'

71.1029749°W, 42.5329553°N

Date: 11/25/2024

Parcel ID: 28-133

Figure 4



C:\Users\AnthonyGee\OneDrive - Goddard Consulting, LLC\Data - ArcGIS\Reading - 246\246-006 Reading - 885 Main Street\885 Main Street\885 Main Street.aprx

GODDARD CONSULTING
Strategic Ecological Consulting

FEMA Flood Map of Locus Site

0 150 300 Feet

1" = 300'

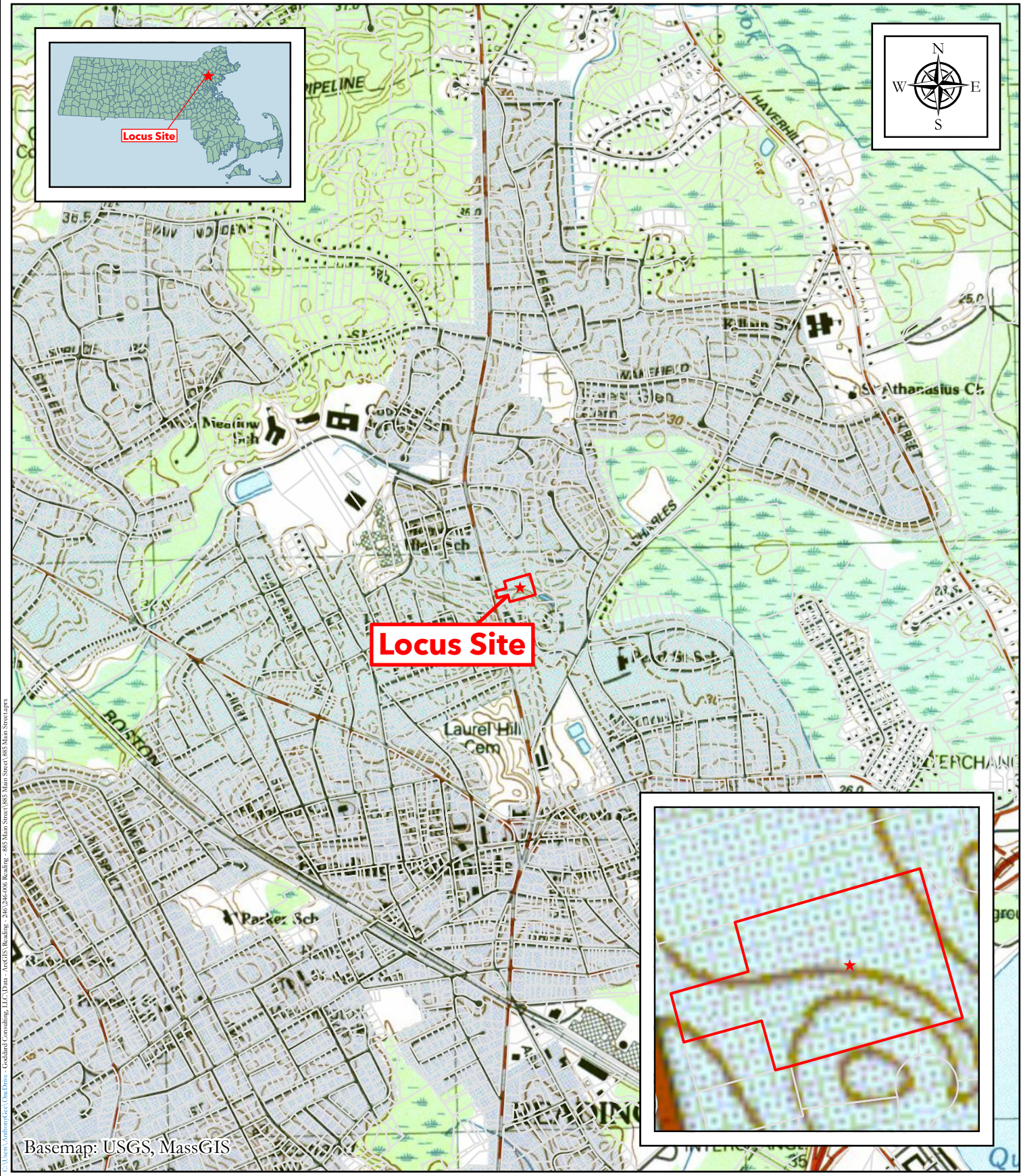
71.1029749°W, 42.5329553°N

Date: 11/25/2024

855 Main Street
Reading, MA 01867

Parcel ID: 28-133

Figure 3



GODDARD CONSULTING
Strategic Ecological Consulting

USGS of Locus Site

0 1,000 2,000 Feet
1" = 2,000'

71.1029749°W, 42.5329553°N

Date: 11/25/2024

855 Main Street
Reading, MA 01867

Parcel ID: 28-133

Figure 1

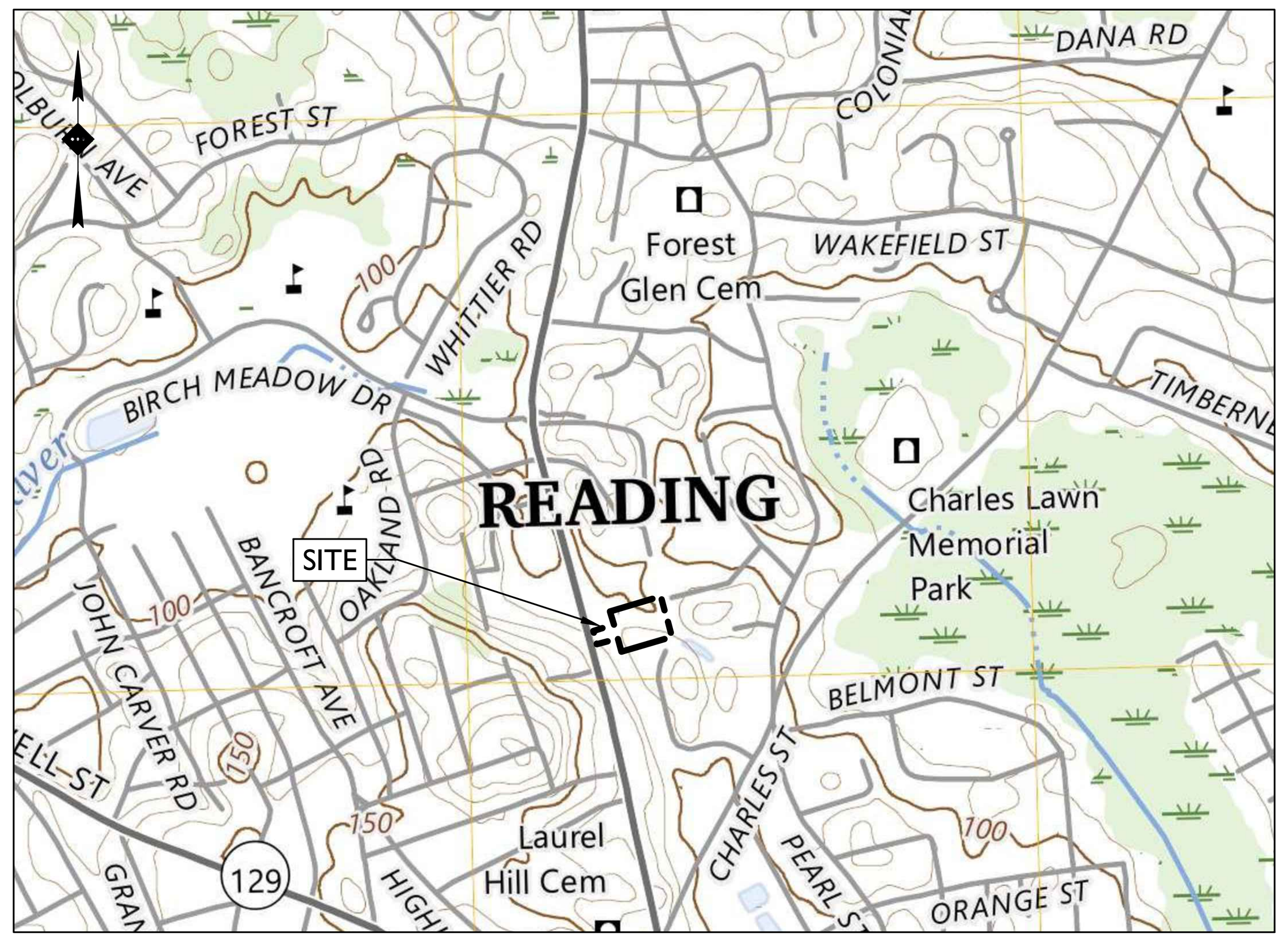
LAND DEVELOPMENT PLANS
FOR
PRIMROSE SCHOOLS FRANCHISING COMPANY
PROPOSED CHILD CARE FACILITY

MAP 28, LOT 113
885 MAIN STREET
TOWN OF READING, MIDDLESEX COUNTY, MASSACHUSETTS

APPLICANT
PRIMROSE SCHOOLS FRANCHISING COMPANY
3200 WINDY HILL ROAD SE
SUITE 1200E,
ATLANTA, GA 30339
MTAYLOR@PRIMROSESCHOOLS.COM

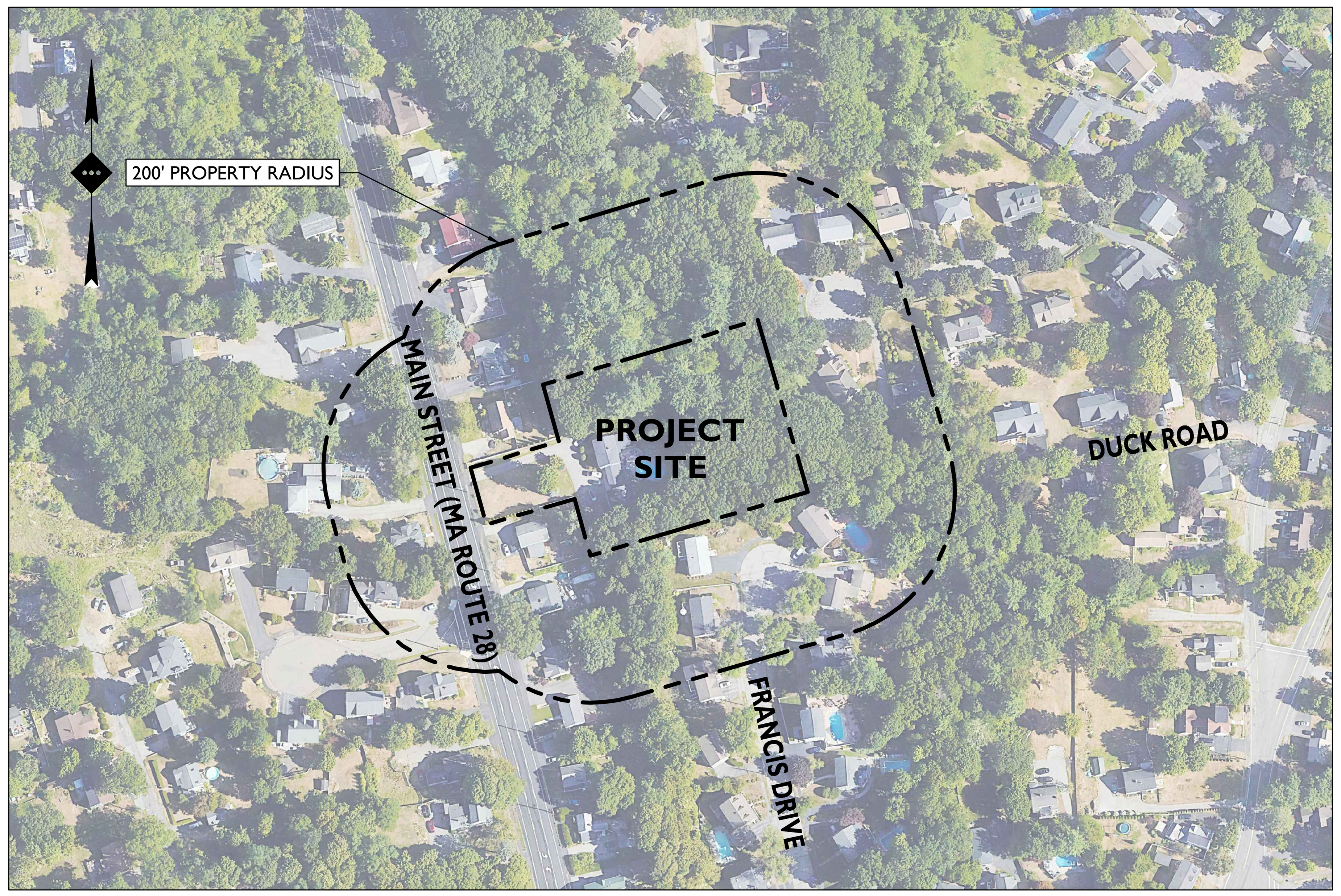
OWNER
JOSEPH P NORDEN
885 MAIN STREET
READING, MA 01867

811
Know what's **below**
Call before you dig.



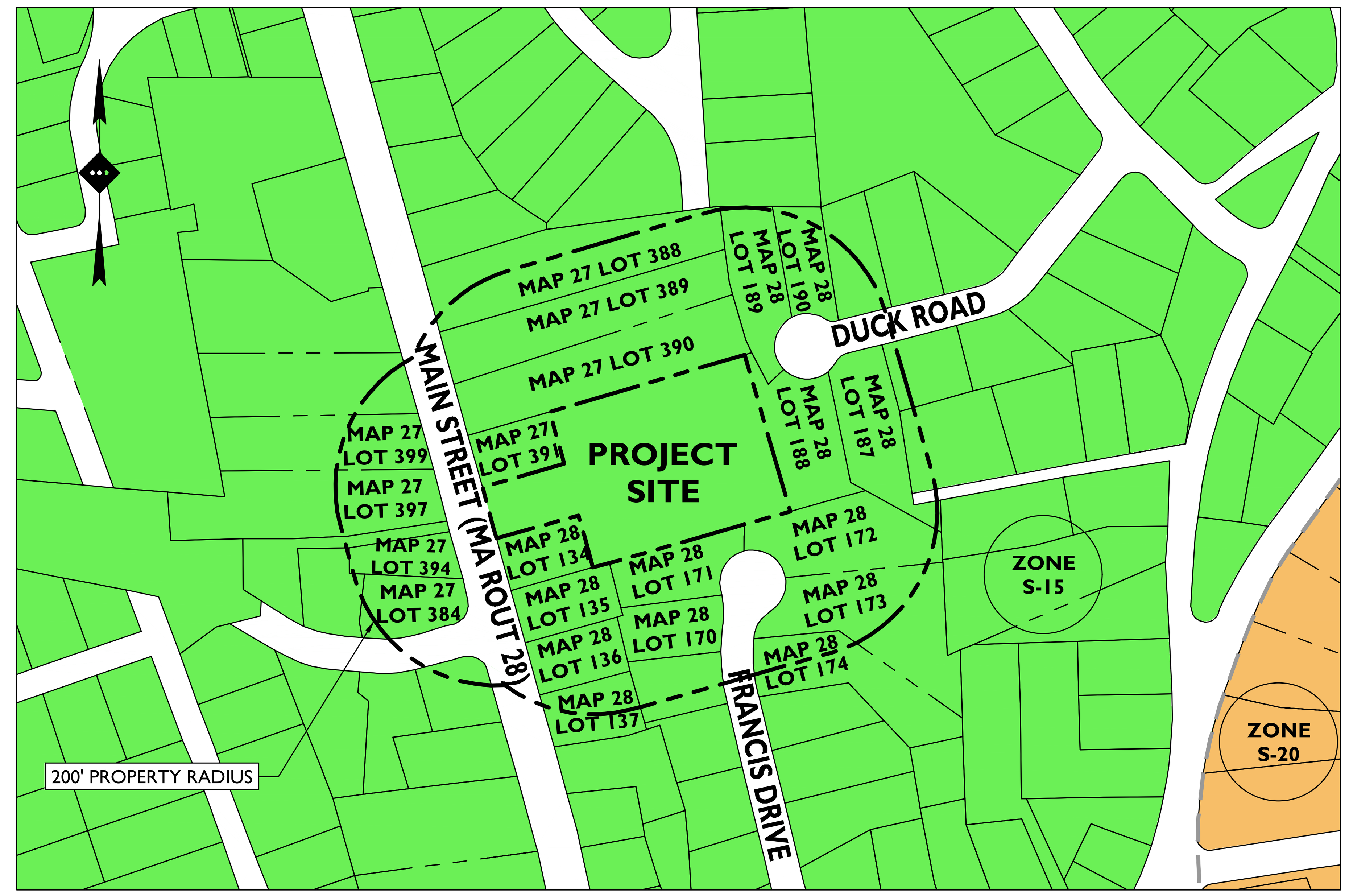
SOURCE: READING, MA QUADRANGLE MAP, 7.5 MINUTE SERIES, DATED: 2024

USGS TOPO MAP
SCALE: 1" = 1,000'



SOURCE: GOOGLE EARTH IMAGE, DATED: 06/13/2022

AERIAL MAP
SCALE: 1" = 150'



SOURCE: TOWN OF READING ONLINE GIS MAPPING

TAX / ZONING / OTHER MAP
SCALE: 1" = 150'±

ZONING LEGEND:
- (S-15) - SINGLE FAMILY 15 DISTRICT
- (S-20) - SINGLE FAMILY 20 DISTRICT

PLANS PREPARED BY:

STONEFIELD
engineering & design
Rutherford, NJ · New York, NY · Salem, MA
Princeton, NJ · Tampa, FL · Birmingham, MI · Providence, RI
www.stonefieldeng.com

56 Pine Street, Providence, RI 02903
Phone 617.203.2076

TOWN OF READING 200' PROPERTY OWNERS LIST

PROPERTY ID:	OWNER	OWNER'S ADDRESS
27-386	KOUTOUVIDES DAKIS	17 BETHESDA LANE
28-166	MADAN SIMRAN	17 BUNKER LANE
28-286	WALSH DENIS	24 DUCK ROAD
28-191	GENT PETER	27 DUCK ROAD
28-187	SWEENEY MICHAEL	30 DUCK ROAD
28-190	MARFIONE PETER	31 DUCK ROAD
28-188	GORSKI JONATHAN	34 DUCK ROAD
28-189	DONAHUE ANDREW	35 DUCK ROAD
28-174	WHALEN RICHARD	49 FRANCIS DRIVE
28-169	COUGHLIN SAMANTHA	50 FRANCIS DRIVE
28-170	REID GARNET	54 FRANCIS DRIVE
28-173	CURTIN ANDREW	55 FRANCIS DRIVE
28-171	CULLEN MARK	58 FRANCIS DRIVE
28-172	MAYES LISA	59 FRANCIS DRIVE
28-137	TASCO KATRINA	869 MAIN STREET

27-382	872 874 MAIN STREET LLC	872 MAIN STREET
28-136	GNANARATNAM JOHN	873 MAIN STREET
28-135	MATTHEWS CRYSTAL	877 MAIN STREET
28-134	WILLIFORD JONATHAN	881 MAIN STREET
27-384	MOREIRA GREGORY	882 MAIN STREET
27-394	GEORGE JENNIFER	884 MAIN STREET
27-397	JOYCE MARY ELIZABETH	890 MAIN STREET
27-391	DENTREMONT ARTHUR	891 MAIN STREET
27-390	LEETE KAVIN R ETAL TRUSTEES	895 MAIN STREET
27-399	SANDBERG ELLEN	896 MAIN STREET
27-389	LOGIUDICE KAREN R TRUSTEES	899 MAIN STREET
27-401	READING KOREAN CHURCH OF THE NAZARENE	900 MAIN STREET
27-388	PATEL HASMUKH	905 MAIN STREET

PLAN REFERENCE MATERIALS:

1. THIS PLAN SET REFERENCES THE FOLLOWING DOCUMENTS INCLUDING, BUT NOT LIMITED TO:
   - EXISTING CONDITIONS SURVEY, PREPARED BY NORTHEAST GEOSPATIOAL, DATED FEBRUARY 24, 2025
   - WETLAND BORDER REPORT, PREPARED BY GODDARD CONSULTING, DATED DECEMBER 02, 2024
   - AERIAL MAP OBTAINED FROM GOOGLE EARTH PRO, DATED JUNE 13, 2022
   - TAX AND ZONING MAP OBTAINED FROM THE TOWN OF READING ONLINE GIS MAPPING
   - ARCHITECTURAL PLANS, PREPARED BY ADA ARCHITECTS, DATED MARCH 5, 2025
2. ALL REFERENCE MATERIAL LISTED ABOVE SHALL BE CONSIDERED A PART OF THIS PLAN SET AND ALL INFORMATION CONTAINED WITHIN THESE MATERIALS SHALL BE UTILIZED IN CONJUNCTION WITH THIS PLAN SET. THE CONTRACTOR IS RESPONSIBLE TO OBTAIN A COPY OF EACH REFERENCE AND REVIEW IT THOROUGHLY PRIOR TO THE START OF CONSTRUCTION.

SHEET INDEX

ISSUE	DATE	BY	DESCRIPTION
00	03/07/2025	AJD	ISSUED FOR MUNICIPAL SUBMISSION

NOT APPROVED FOR CONSTRUCTION

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www.stonefieldeng.com
56 Pine Street, Providence, RI 02903
Phone 617.203.2076

LAND DEVELOPMENT PLANS
PRIMROSE SCHOOLS FRANCHISING COMPANY
PROPOSED CHILD DAY CARE FACILITY
PARCEL ID: 28-113
885 MAIN STREET
TOWN OF READING
MIDDLESEX COUNTY, MASSACHUSETTS

PRIMROSE® SCHOOLS

JOSHUA H. KLINE, P.E.
MASSACHUSETTS LICENSE No. 53936
LICENSED PROFESSIONAL ENGINEER

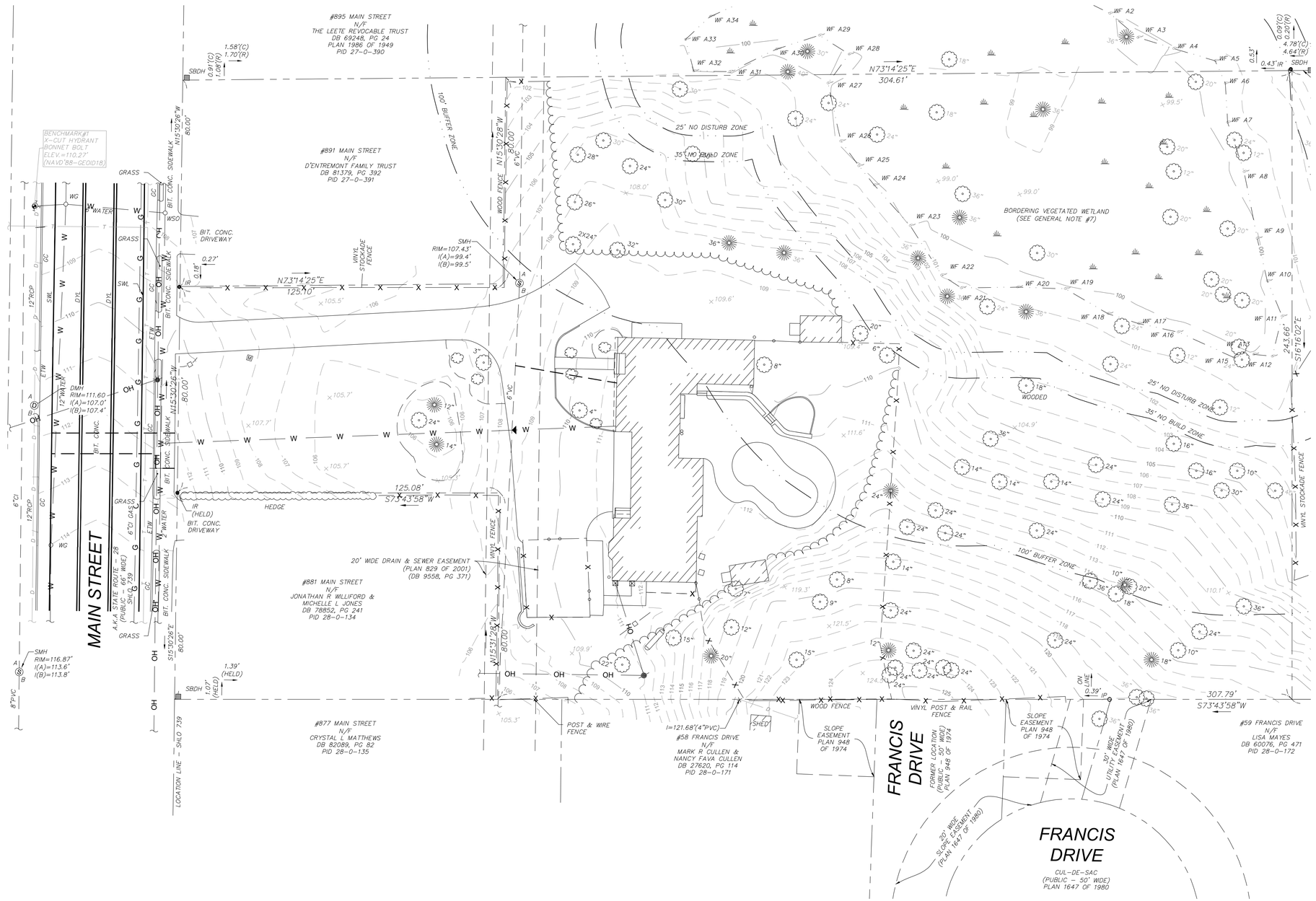
STONEFIELD
engineering & design

SCALE: AS SHOWN | PROJECT ID: BOS-240115

TITLE: COVER SHEET

DRAWING: C-1

Z:\BOSTON\BOS\2024\BOS-240115 PRIMROSE SCHOOLS - 885 MAIN STREET, READING, MA\CADD\PLOT\XXX-01-COVR.DWG



SYMBOL / DESCRIPTION

SYMBOL	DESCRIPTION
	BIKE RACK
■	BOUND
▦	CATCH BASIN
○	DOWNSPOUT
Ⓓ	DRAIN MANHOLE
Ⓔ	ELECTRIC MANHOLE
○	GAS GATE
□	HANDHOLE
	HYDRANT
●	IRON ROD
	LIGHT POLE
○	PARKING METER
Ⓢ	SEWER MANHOLE
Ⓣ	TELEPHONE MANHOLE
	WALL LAMP
	SIGN (SINGLE POST)
○	WATER GATE
○	WATER SHUT OFF
×10.00'	SPOT ELEVATION
(C)	CALCULATED
(R)	RECORD
BIT.	BITUMINOUS
CONC.	CONCRETE
DH	DRILL HOLE
DWP	DETECTABLE WARNING PAD
SB	STONE BOUND
SWL	SOLID WHITE LINE
THRESH.	THRESHOLD
D	DRAIN PIPE
G	GAS PIPE
E	ELECTRIC LINE
S	SEWER PIPE
W	WATER PIPE
	GUIDE RAIL
x x	CHAINLINK FENCE
	ASPHALT / CONCRETE CURB
	PROPERTY LINE
	VACATED / INTERIOR LOT LINE
	ADJACENT PROPERTY LINE

SURVEY NOTES:

1. THE SURVEY LISTED WITHIN THE PLAN REFERENCES ON THE COVER SHEET SHALL BE CONSIDERED A PART OF THIS PLAN SET AND ALL INFORMATION CONTAINED WITHIN THE SURVEY AND ASSOCIATED DOCUMENTS SHALL BE UTILIZED IN CONJUNCTION WITH THIS PLAN SET. THE CONTRACTOR IS RESPONSIBLE TO OBTAIN A COPY OF THE SURVEY AND REVIEW IT THOROUGHLY PRIOR TO THE START OF CONSTRUCTION.

20' 0' 20' 40'
GRAPHIC SCALE IN FEET
1" = 20'

DESCRIPTION	BY	DATE	ISSUE
ISSUED FOR MUNICIPAL SUBMISSION	AJD	03/07/2025	00

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PRIMROSE SCHOOLS

LAND DEVELOPMENT PLANS

PRIMROSE SCHOOLS FRANCHISING COMPANY

PROPOSED CHILD DAY CARE FACILITY

PARCEL ID: 28-113
885 MAIN STREET
TOWN OF READING
MIDDLESEX COUNTY, MASSACHUSETTS

JOSHUA H. KLINE, P.E.
MASSACHUSETTS LICENSE No. 53936
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 20' | PROJECT ID: BOS-240115

TITLE:

EXISTING CONDITIONS PLAN

DRAWING:

C-2

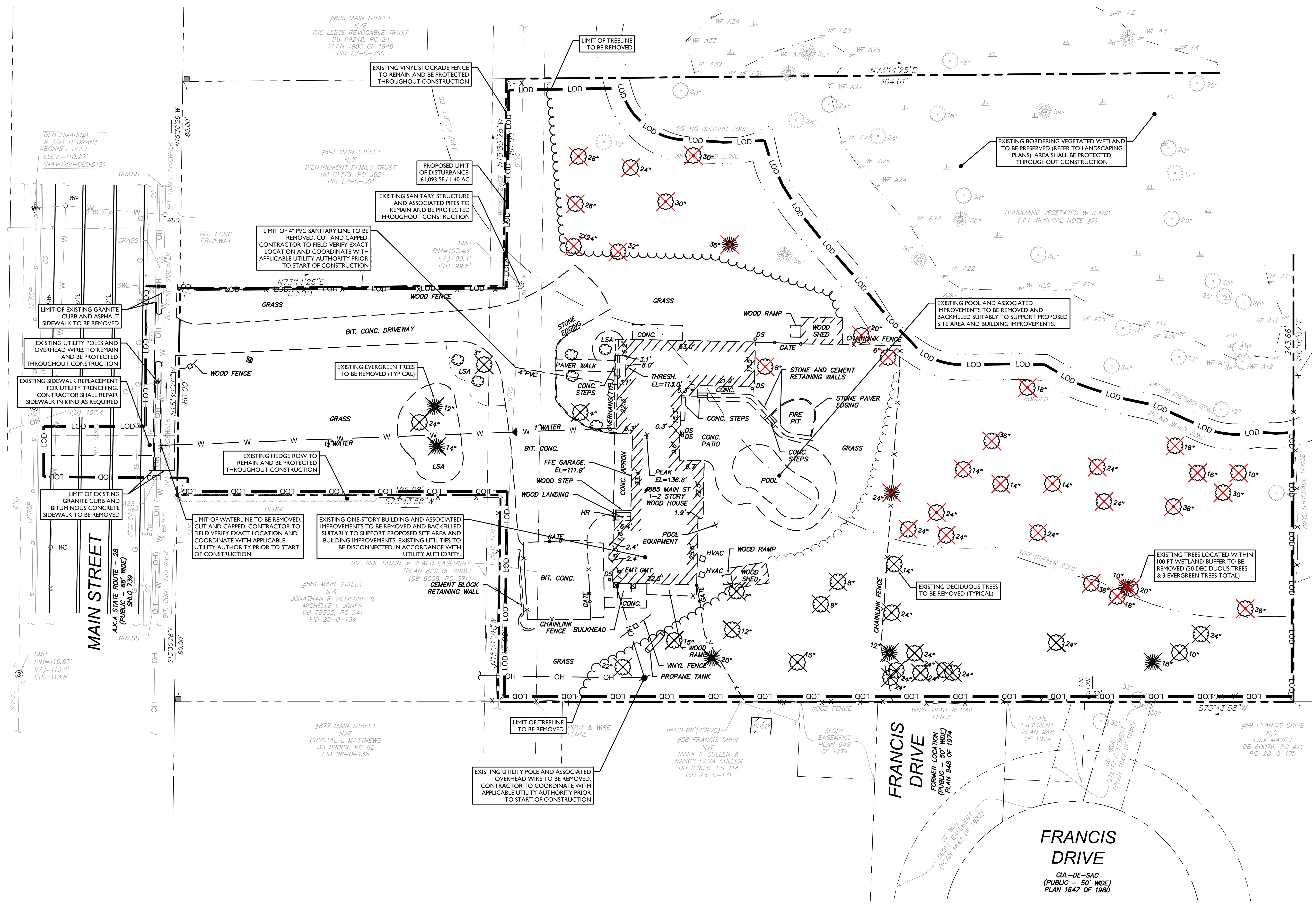
Z:\BOSTON\BOS\2024\BOS-240115 PRIMROSE SCHOOLS - 885 MAIN STREET, READING, MA\CAD\SHEETS\XXX-EXISTING.DWG

ALL SITE FEATURES WITHIN THE LIMIT OF DISTURBANCE INDICATED ON THIS PLAN ARE TO BE REMOVED / DEMOLISHED UNLESS OTHERWISE NOTED. THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IF SIGNIFICANT DISCREPANCIES ARE DISCERNED BETWEEN THIS PLAN AND FIELD CONDITIONS

TREE REPLACEMENT REQUIREMENTS

REQUIRED	PROPOSED
REPLACEMENT REQUIRED FOR TREES REMOVED WITHIN 100 FT OF A WETLAND	COMPLIES
PLANTING WITHIN THE BUFFER ZONE MUST BE A NATIVE SPECIES OR CULTIVAR OF A NATIVE SPECIES	COMPLIES
REPLACEMENT TREES MINIMUM SIZE: 4-10 FT HT OR 3" CALIPER	COMPLIES
DECIDUOUS SHADE TREES 6" DBH OR MORE:	
1 REPLACEMENT TREE REQUIRED FOR EVERY 1 TREE REMOVED	
(30 TREES TO BE REMOVED) * (1) = 30 REPLACEMENT TREES	30 TREES(1)
EVERGREEN TREES 5-6 FT HT OR MORE:	
1 REPLACEMENT TREE REQUIRED FOR EVERY 1 TREE REMOVED	
(3 TREES TO BE REMOVED) * (1) = 3 REPLACEMENT TREES	3 TREES(1)
TOTAL REPLACEMENT TREES REQUIRED = 33 TREES	**33 TREES(1)**

(1) REFER TO THE LANDSCAPING PLAN (SHEET C-10) FOR REPLACEMENT TREE LOCATIONS & SPECIES.



SYMBOL	DESCRIPTION
	FEATURE TO BE REMOVED / DEMOLISHED
WF AXX	WETLAND LIMITS
	WETLAND BUFFER
LOD	LIMIT OF DISTURBANCE
	EXISTING TREES TO REMAIN
	EXISTING TREES TO BE REMOVED
	EXISTING TREES WITHIN 100 FT WETLAND BUFFER TO BE REMOVED

811

Know what's **below**
Call before you dig.

DEMOLITION NOTES

1. THE WORK REFLECTED ON THE DEMOLITION PLAN IS TO PROVIDE GENERAL INFORMATION TOWARDS THE EXISTING ITEMS TO BE DEMOLISHED AND/OR REMOVED. THE CONTRACTOR IS RESPONSIBLE TO REVIEW THE ENTIRE PLAN SET AND ASSOCIATED REPORTS/REFERENCE DOCUMENTS INCLUDING ALL DEMOLITION ACTIVITIES AND INCIDENTAL TASKS NECESSARY TO COMPLETE THE SITE IMPROVEMENTS.
2. THE CONTRACTOR IS RESPONSIBLE TO DETERMINE THE MEANS AND METHODS OF DEMOLITION ACTIVITIES.
3. EXPLOSIVES SHALL NOT BE USED UNLESS WRITTEN CONSENT FROM BOTH THE OWNER AND ANY APPLICABLE GOVERNING AGENCY IS OBTAINED. BEFORE THE START OF ANY EXPLOSIVE PROGRAM, THE CONTRACTOR IS RESPONSIBLE TO OBTAIN ALL LOCAL, STATE, AND FEDERAL PERMITS. ADDITIONALLY, THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL SEISMIC TESTING AS REQUIRED AND ANY DAMAGES AS THE RESULT OF SAID DEMOLITION PRACTICES.
4. ALL DEMOLITION ACTIVITIES SHALL BE PERFORMED IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL CODES. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING ALL UTILITIES ARE DISCONNECTED IN ACCORDANCE WITH THE UTILITY AUTHORITY'S REQUIREMENTS PRIOR TO STARTING THE DEMOLITION OF ANY STRUCTURE. ALL EXCAVATIONS ASSOCIATED WITH DEMOLISHED STRUCTURES OR REMOVED TANKS SHALL BE BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED TO SUPPORT SITE AND BUILDING IMPROVEMENTS. A GEOTECHNICAL ENGINEER SHOULD BE PRESENT DURING BACKFILLING ACTIVITIES TO OBSERVE AND CERTIFY THAT BACKFILL MATERIAL WAS COMPACTED TO A SUITABLE CONDITION.
5. DEMOLISHED DEBRIS SHALL NOT BE BURIED ON SITE. ALL WASTE/DEBRIS GENERATED FROM DEMOLITION ACTIVITIES SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REQUIREMENTS. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN ALL RECORDS OF THE DISPOSAL TO DEMONSTRATE COMPLIANCE WITH THE ABOVE REGULATIONS.

20' 0' 20' 40'

GRAPHIC SCALE IN FEET
1" = 20'

ISSUE	DATE	BY	DESCRIPTION
00	03/07/2025	AJD	ISSUED FOR MUNICIPAL SUBMISSION

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LAND DEVELOPMENT PLANS

PRIMROSE SCHOOLS FRANCHISING COMPANY

PROPOSED CHILD DAY CARE FACILITY

PARCEL ID: 28-113
885 MAIN STREET
TOWN OF READING
MIDDLESEX COUNTY, MASSACHUSETTS

JOSHUA H. KLINE, P.E.
MASSACHUSETTS LICENSE No. 53936
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 20' | PROJECT ID: BOS-240115

TITLE:

DEMOLITION & TREE REMOVAL PLAN

DRAWING:

C-3

LAND USE AND ZONING

PARCEL ID: 028.0-0000-0133.0

SINGLE FAMILY 15 DISTRICT (S-15)

PROPOSED USE

CHILD CARE FACILITY — PERMITTED USE

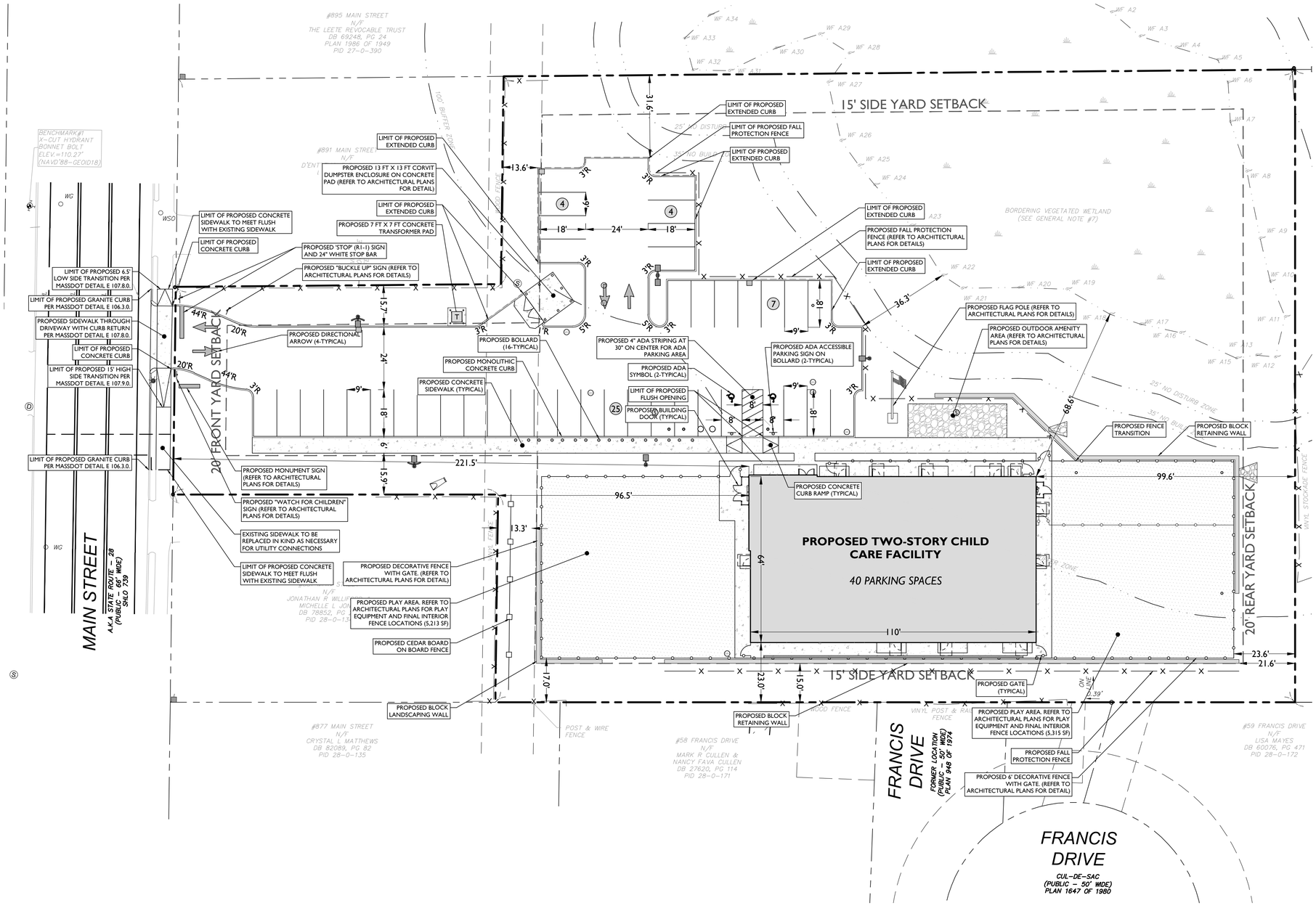
ZONING REQUIREMENT	REQUIRED	EXISTING	PROPOSED
MINIMUM LOT AREA	15,000 SF (0.34 AC)	84,280 SF (1.94 AC)	NO CHANGE
MINIMUM LOT AREA OUTSIDE OF WETLAND RESOURCE AREA	12,000 SF	71,063 SF	NO CHANGE
MINIMUM LOT FRONTAGE	100 FT	80 FT (EN)	NO CHANGE
MINIMUM FRONT YARD	20 FT	169.5 FT	221.5 FT
MINIMUM SIDE YARD	15 FT	42.2 FT	23.0 FT
MINIMUM REAR YARD	20 FT	208.2 FT	99.6 FT
MAXIMUM LOT COVERAGE	25% (21,070 SF)	3.9% (3,320 SF)	8.4% (7,064 SF)
MAXIMUM BUILDING HEIGHT	35 FT	<35 FT	<35 FT

(EN) EXISTING NON-CONFORMITY

OFF-STREET PARKING REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
§ 9.1.1.7	REQUIRED PARKING FOR NURSERY/ KINDERGARTEN / ELEMENTARY: 1 SPACE / EMPLOYEE + 1 SPACE / 7 STUDENTS 1 SPACE / EMPLOYEE * (26 EMPLOYEES) + 1 SPACE / 7 STUDENTS * (177 STUDENTS) = **52 SPACES**	40 SPACES (V)
§ 9.1.2.2	PARKING SPACE DIMENSIONS: 9 FT X 18 FT	9 FT X 18 FT

(V) VARIANCE



SYMBOL / DESCRIPTION

- PROPERTY LINE
- SETBACK LINE
- SAWCUT LINE
- PROPOSED CURB
- PROPOSED FLUSH OPENING
- PROPOSED EXTENDED CURB
- PROPOSED SIGNS / BOLLARDS
- PROPOSED BUILDING
- PROPOSED CONCRETE
- PROPOSED TURF
- PROPOSED GRAVEL
- PROPOSED AREA LIGHT
- PROPOSED RETAINING WALL
- PROPOSED HANDRAIL
- PROPOSED FALL PROTECTION FENCE
- PROPOSED CEDAR BOARD-ON-BOARD FENCE
- PROPOSED BUILDING DOORS
- WF AXX — WETLAND LIMITS
- WETLAND BUFFER

GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY AND FAMILIARIZE THEMSELVES WITH THE EXISTING SITE CONDITIONS AND THE PROPOSED SCOPE OF WORK (INCLUDING DIMENSIONS, LAYOUT, ETC.) PRIOR TO INITIATING THE IMPROVEMENTS IDENTIFIED WITHIN THESE DOCUMENTS. SHOULD ANY DISCREPANCY BE FOUND BETWEEN THE EXISTING SITE CONDITIONS AND THE PROPOSED WORK THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. PRIOR TO THE START OF CONSTRUCTION.
2. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND ENSURE THAT ALL REQUIRED APPROVALS HAVE BEEN OBTAINED PRIOR TO THE START OF CONSTRUCTION. COPIES OF ALL REQUIRED PERMITS AND APPROVALS SHALL BE KEPT ON SITE AT ALL TIMES DURING CONSTRUCTION.
3. ALL CONTRACTORS WILL, TO THE FULLEST EXTENT PERMITTED BY LAW, INDEMNIFY AND HOLD HARMLESS STONEFIELD ENGINEERING & DESIGN, LLC. AND IT'S SUB-CONSULTANTS FROM AND AGAINST ANY DAMAGES AND LIABILITIES INCLUDING ATTORNEY'S FEES ARISING OUT OF CLAIMS BY EMPLOYEES OF THE CONTRACTOR IN ADDITION TO CLAIMS CONNECTED TO THE PROJECT AS A RESULT OF NOT CARRYING THE PROPER INSURANCE FOR WORKERS COMPENSATION, LIABILITY INSURANCE, AND LIMITS OF COMMERCIAL GENERAL LIABILITY INSURANCE.
4. THE CONTRACTOR SHALL NOT DEVIATE FROM THE PROPOSED IMPROVEMENTS IDENTIFIED WITHIN THIS PLAN SET UNLESS APPROVAL IS PROVIDED IN WRITING BY STONEFIELD ENGINEERING & DESIGN, LLC.
5. THE CONTRACTOR IS RESPONSIBLE TO DETERMINE THE MEANS AND METHODS OF CONSTRUCTION.
6. THE CONTRACTOR SHALL NOT PERFORM ANY WORK OR CAUSE DISTURBANCE ON A PRIVATE PROPERTY NOT CONTROLLED BY THE PERSON OR ENTITY WHO HAS AUTHORIZED THE WORK WITHOUT PRIOR WRITTEN CONSENT FROM THE OWNER OF THE PRIVATE PROPERTY.
7. THE CONTRACTOR IS RESPONSIBLE TO RESTORE ANY DAMAGED OR UNDERMINED STRUCTURE OR SITE FEATURE THAT IS IDENTIFIED TO REMAIN ON THE PLAN SET. ALL REPAIRS SHALL USE NEW MATERIALS TO RESTORE THE FEATURE TO ITS EXISTING CONDITION AT THE CONTRACTORS EXPENSE.
8. CONTRACTOR IS RESPONSIBLE TO PROVIDE THE APPROPRIATE SHOP DRAWINGS, PRODUCT DATA, AND OTHER REQUIRED SUBMITTALS FOR REVIEW. STONEFIELD ENGINEERING & DESIGN, LLC. WILL REVIEW THE SUBMITTALS IN ACCORDANCE WITH THE DESIGN INTENT AS REFLECTED WITHIN THE PLAN SET.
9. THE CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL IN ACCORDANCE WITH MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
10. THE CONTRACTOR IS REQUIRED TO PERFORM ALL WORK IN THE PUBLIC RIGHT-OF-WAY IN ACCORDANCE WITH THE APPROPRIATE GOVERNING AUTHORITY AND SHALL BE RESPONSIBLE FOR THE PROCUREMENT OF STREET OPENING PERMITS.
11. THE CONTRACTOR IS REQUIRED TO RETAIN AN OSHA CERTIFIED SAFETY INSPECTOR TO BE PRESENT ON SITE AT ALL TIMES DURING CONSTRUCTION & DEMOLITION ACTIVITIES.
12. SHOULD AN EMPLOYEE OF STONEFIELD ENGINEERING & DESIGN, LLC. BE PRESENT ON SITE AT ANY TIME DURING CONSTRUCTION, IT DOES NOT RELIEVE THE CONTRACTOR OF ANY OF THE RESPONSIBILITIES AND REQUIREMENTS LISTED IN THE NOTES WITHIN THIS PLAN SET.

20' 0' 20' 40'
GRAPHIC SCALE IN FEET
1" = 20'

NO	DATE	BY	DESCRIPTION
00	03/07/2025	AJD	ISSUED FOR MUNICIPAL SUBMISSION

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
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Princeton, NJ · Tampa, FL · Birmingham, MI
www.stonefieldeng.com
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LAND DEVELOPMENT PLANS

PRIMROSE SCHOOLS FRANCHISING COMPANY

PROPOSED CHILD DAY CARE FACILITY

PARCEL ID: 28-4-1.2
885 MAIN STREET
TOWN OF READING
MIDDLESEX COUNTY, MASSACHUSETTS

JOSHUA H. KLINE, P.E.
MASSACHUSETTS LICENSE No. 53936
LICENSED PROFESSIONAL ENGINEER

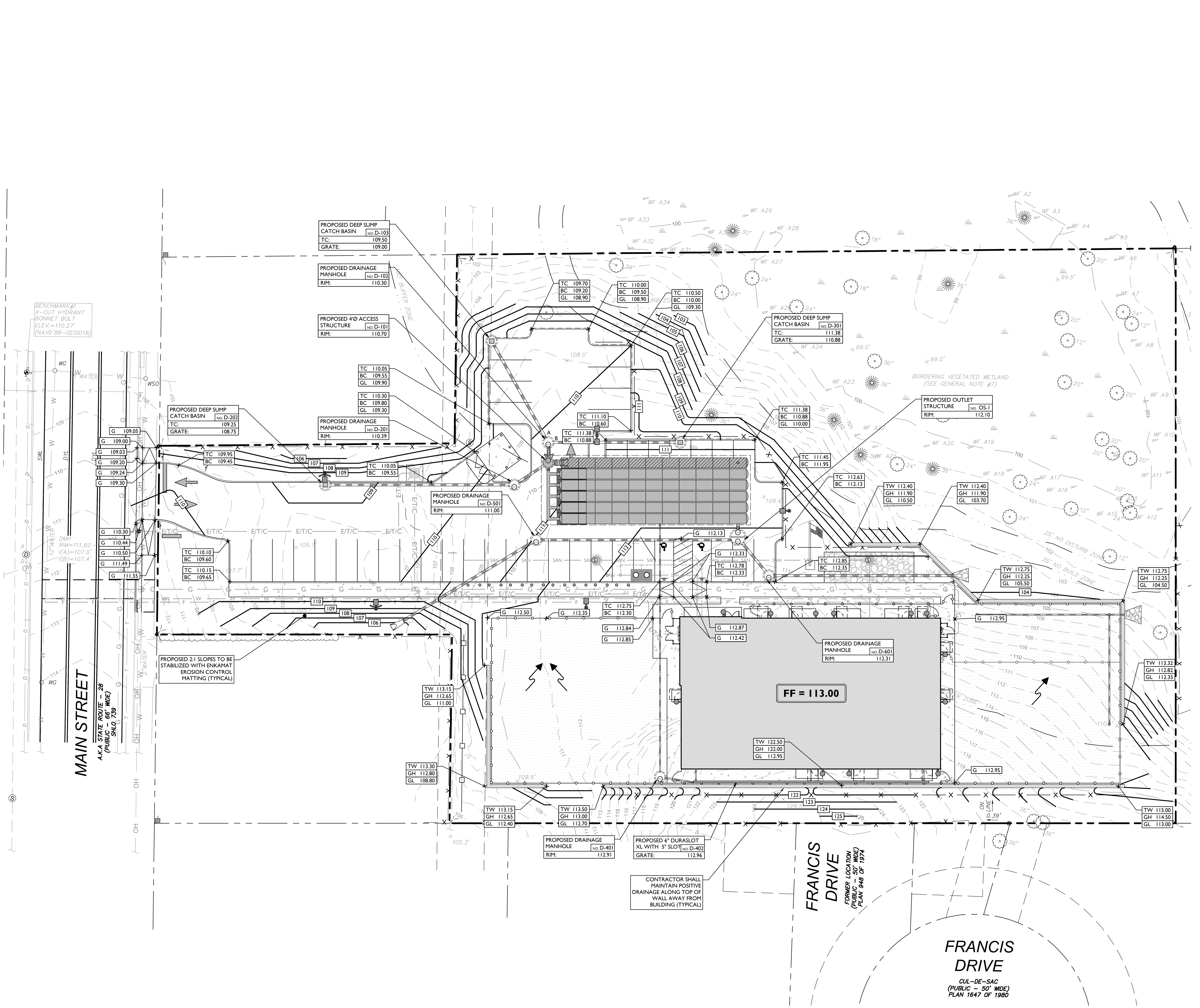
STONEFIELD engineering & design

SCALE: 1" = 20' | PROJECT ID: BOS-240115

TITLE: SITE PLAN

DRAWING: C-4

Z:\BOTOMBOS\2024\BOS-240115 PRIMROSE SCHOOLS - 885 MAIN STREET, READING, MA\CAD\PLOT\DCD-A-ARTS.DWG



SYMBOL	DESCRIPTION
	PROPERTY LINE
100	PROPOSED GRADING CONTOUR
RIDGELINE	PROPOSED GRADING RIDGELINE
	PROPOSED DIRECTION OF DRAINAGE FLOW
G 100.00	PROPOSED GRADE SPOT SHOT
TC 100.50 / BC 100.00	PROPOSED TOP OF CURB / BOTTOM OF CURB SPOT SHOT
TC 100.50 / BC 100.00 / GL 99.00	PROPOSED EXPOSED CURB SPOT SHOT
DC 100.12 / BC 100.00	PROPOSED DEPRESSED CURB / BOTTOM OF CURB SPOT SHOT
TW 100.50 / GH 100.00 / GL 95.00	PROPOSED TOP OF WALL / BOTTOM OF WALL SPOT SHOT

GRADING NOTES

1. ALL SOIL AND MATERIAL REMOVED FROM THE SITE SHALL BE DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS. ANY GROUNDWATER DE-WATERING PRACTICES SHALL BE PERFORMED UNDER THE SUPERVISION OF A QUALIFIED PROFESSIONAL. THE CONTRACTOR IS REQUIRED TO OBTAIN ALL NECESSARY PERMITS FOR THE DISCHARGE OF DE-WATERED GROUNDWATER. ALL SOIL IMPORTED TO THE SITE SHALL BE CERTIFIED CLEAN FILL. CONTRACTOR SHALL MAINTAIN RECORDS OF ALL FILL MATERIALS BROUGHT TO THE SITE.
2. THE CONTRACTOR IS REQUIRED TO PROVIDE TEMPORARY AND/OR PERMANENT SHORING WHERE REQUIRED DURING EXCAVATION ACTIVITIES, INCLUDING BUT NOT LIMITED TO UTILITY TRENCHES, TO ENSURE THE STRUCTURAL INTEGRITY OF NEARBY STRUCTURES AND STABILITY OF THE SURROUNDING SOILS.
3. PROPOSED TOP OF CURB ELEVATIONS ARE GENERALLY 4 INCHES TO 7 INCHES ABOVE EXISTING GRADES UNLESS OTHERWISE NOTED. THE CONTRACTOR WILL SUPPLY ALL STAKEOUT CURB GRADE SHEETS TO STONEFIELD ENGINEERING & DESIGN, LLC. FOR REVIEW AND APPROVAL PRIOR TO POURING CURBS.
4. THE CONTRACTOR IS RESPONSIBLE TO SET ALL PROPOSED UTILITY COVERS AND RESET ALL EXISTING UTILITY COVERS WITHIN THE PROJECT LIMITS TO PROPOSED GRADE IN ACCORDANCE WITH ANY APPLICABLE MUNICIPAL, COUNTY, STATE AND/OR UTILITY AUTHORITY REGULATIONS.
5. MINIMUM SLOPE REQUIREMENTS TO PREVENT PONDING SHALL BE AS FOLLOWS:
   - CURB GUTTER: 0.50%
   - CONCRETE SURFACES: 1.00%
   - ASPHALT SURFACES: 1.00%
6. A MINIMUM SLOPE OF 1.00% SHALL BE PROVIDED AWAY FROM ALL BUILDINGS. THE CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE FROM THE BUILDING IS ACHIEVED AND SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IF THIS CONDITION CANNOT BE MET.
7. FOR PROJECTS WHERE BASEMENTS ARE PROPOSED, THE DEVELOPER IS RESPONSIBLE TO DETERMINE THE DEPTH TO GROUNDWATER AT THE LOCATION OF THE PROPOSED STRUCTURE. IF GROUNDWATER IS ENCOUNTERED WITHIN THE BASEMENT AREA, SPECIAL CONSTRUCTION METHODS SHALL BE UTILIZED AND REVIEWED/APPROVED BY THE CONSTRUCTION CODE OFFICIAL. IF SUMP PUMPS ARE UTILIZED, ALL DISCHARGES SHALL BE CONNECTED DIRECTLY TO THE PUBLIC STORM SEWER SYSTEM WITH APPROVAL FROM THE GOVERNING STORM SEWER SYSTEM AUTHORITY.

ADA NOTES

1. THE CONTRACTOR SHALL MAINTAIN A MAXIMUM 2.00% SLOPE IN ANY DIRECTION WITHIN THE ADA PARKING SPACES AND ACCESS AISLES.
2. THE CONTRACTOR SHALL PROVIDE COMPLIANT SIGNAGE AT ALL ADA PARKING AREAS IN ACCORDANCE WITH STATE GUIDELINES.
3. THE CONTRACTOR SHALL MAINTAIN A MAXIMUM 5.00% RUNNING SLOPE AND A MAXIMUM OF 2.00% CROSS SLOPE ALONG WALKWAYS WITHIN THE ACCESSIBLE PATH OF TRAVEL (SEE THE SITE PLAN FOR THE LOCATION OF THE ACCESSIBLE PATH). THE CONTRACTOR IS RESPONSIBLE TO ENSURE THE ACCESSIBLE PATH OF TRAVEL IS 36 INCHES WIDE OR GREATER UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET.
4. THE CONTRACTOR SHALL MAINTAIN A MAXIMUM 2.00% SLOPE IN ANY DIRECTION AT ALL LANDINGS. LANDINGS INCLUDE, BUT ARE NOT LIMITED TO, THE TOP AND BOTTOM OF AN ACCESSIBLE RAMP, AT ACCESSIBLE BUILDING ENTRANCES, AT AN AREA IN FRONT OF A WALK-UP ATM, AND AT TURNING SPACES ALONG THE ACCESSIBLE PATH OF TRAVEL. THE LANDING AREA SHALL HAVE A MINIMUM CLEAR AREA OF 60 INCHES BY 60 INCHES UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET.
5. THE CONTRACTOR SHALL MAINTAIN A MAXIMUM 8.33% RUNNING SLOPE AND A MAXIMUM 2.00% CROSS SLOPE ON ANY CURB RAMPS ALONG THE ACCESSIBLE PATH OF TRAVEL. WHERE PROVIDED, CURB RAMP FLARES SHALL NOT HAVE A SLOPE GREATER THAN 10.00% IF A LANDING AREA IS PROVIDED AT THE TOP OF THE RAMP. FOR ALTERATIONS, A CURB RAMP FLARES SHALL NOT HAVE A SLOPE GREATER THAN 8.33% IF A LANDING AREA IS NOT PROVIDED AT THE TOP OF THE RAMP. CURBS RAMPS SHALL NOT RISE MORE THAN 6 INCHES IN ELEVATION WITHOUT A HANDRAIL. THE CLEAR WIDTH OF A CURB RAMP SHALL BE NO LESS THAN 36 INCHES WIDE.
6. ACCESSIBLE RAMPS WITH A RISE GREATER THAN 6 INCHES SHALL CONTAIN COMPLIANT HANDRAILS ON BOTH SIDES OF THE RAMP AND SHALL NOT RISE MORE THAN 30" IN ELEVATION WITHOUT A LANDING AREA IN BETWEEN RAMP RUNS. LANDING AREAS SHALL ALSO BE PROVIDED AT THE TOP AND BOTTOM OF THE RAMP.
7. A SLIP RESISTANT SURFACE SHALL BE CONSTRUCTED ALONG THE ACCESSIBLE PATH AND WITHIN ADA PARKING AREAS.
8. THE CONTRACTOR SHALL ENSURE A MAXIMUM OF ¼ INCHES VERTICAL CHANGE IN LEVEL ALONG THE ACCESSIBLE PATH. WHERE A CHANGE IN LEVEL BETWEEN ¼ INCHES AND ½ INCHES EXISTS, CONTRACTOR SHALL ENSURE THAT THE TOP ¼ INCH CHANGE IN LEVEL IS BEVELED WITH A SLOPE NOT STEEPER THAN 1 UNIT VERTICAL AND 2 UNITS HORIZONTAL (2:1 SLOPE).
9. THE CONTRACTOR SHALL ENSURE THAT ANY OPENINGS (GAPS OR HORIZONTAL SEPARATION) ALONG THE ACCESSIBLE PATH SHALL NOT ALLOW PASSAGE OF A SPHERE GREATER THAN ½ INCH.

20' 0' 20' 40'
GRAPHIC SCALE IN FEET
1" = 20'

ISSUE	DATE	BY	DESCRIPTION
00	03/07/2025	AJD	ISSUED FOR MUNICIPAL SUBMISSION

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LAND DEVELOPMENT PLANS

PRIMROSE SCHOOLS FRANCHISING COMPANY

PRIMROSE® SCHOOLS

PROPOSED CHILD DAY CARE FACILITY

PARCEL ID: 28-113
885 MAIN STREET
TOWN OF READING
MIDDLESEX COUNTY, MASSACHUSETTS

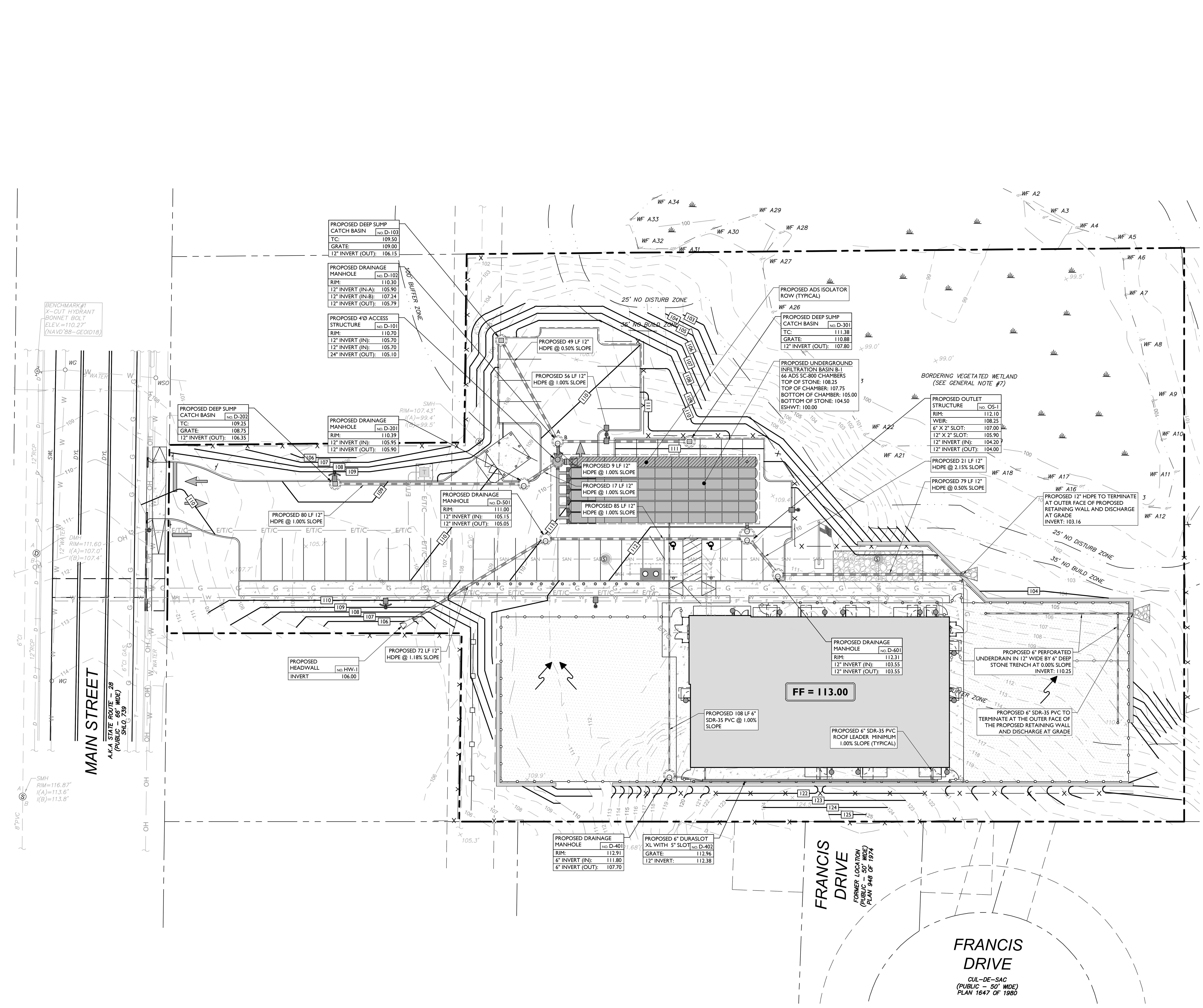
JOSHUA H. KLINE, P.E.
MASSACHUSETTS LICENSE No. 53936
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 20' PROJECT ID: BOS-240115

TITLE: GRADING PLAN

DRAWING: C-5



SYMBOL	DESCRIPTION
	PROPERTY LINE
	PROPOSED GRADING CONTOUR
RIDGELINE	PROPOSED GRADING RIDGELINE
	PROPOSED STORMWATER STRUCTURES
	PROPOSED TRENCH DRAIN
	PROPOSED STORMWATER PIPING
	PROPOSED UNDERGROUND OUTLET STRUCTURE

DRAINAGE AND UTILITY NOTES

1. THE CONTRACTOR TO PERFORM A TEST PIT PRIOR TO CONSTRUCTION (RECOMMEND 30 DAYS PRIOR) AT LOCATIONS OF EXISTING UTILITY CROSSINGS FOR STORMWATER IMPROVEMENTS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IN WRITING.
2. CONTRACTOR SHALL START CONSTRUCTION OF STORM LINES AT THE LOWEST INVERT AND WORK UP-GRADIENT.
3. THE CONTRACTOR IS REQUIRED TO CALL THE APPROPRIATE AUTHORITY FOR NOTICE OF CONSTRUCTION/EXCAVATION AND UTILITY MARK OUT PRIOR TO THE START OF CONSTRUCTION IN ACCORDANCE WITH STATE LAW. CONTRACTOR IS REQUIRED TO CONFIRM THE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES IN THE FIELD. SHOULD A DISCREPANCY EXIST BETWEEN THE FIELD LOCATION OF A UTILITY AND THE LOCATION SHOWN ON THE PLAN SET OR SURVEY, THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IMMEDIATELY IN WRITING.
4. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN A RECORD OF THE AS-BUILT LOCATIONS OF ALL PROPOSED UNDERGROUND INFRASTRUCTURE. THE CONTRACTOR SHALL NOTE ANY DISCREPANCIES BETWEEN THE AS-BUILT LOCATIONS AND THE LOCATIONS DEPICTED WITHIN THE PLAN SET. THIS RECORD SHALL BE PROVIDED TO THE OWNER FOLLOWING COMPLETION OF WORK.

EXCAVATION, SOIL PREPARATION, AND DEWATERING NOTES

1. THE CONTRACTOR IS REQUIRED TO REVIEW THE REFERENCED GEOTECHNICAL DOCUMENTS PRIOR TO CONSTRUCTION, THESE DOCUMENTS SHALL BE CONSIDERED A PART OF THE PLAN SET.
2. THE CONTRACTOR IS REQUIRED TO PREPARE SUBGRADE SOILS BENEATH ALL PROPOSED IMPROVEMENTS AND BACKFILL ALL EXCAVATIONS IN ACCORDANCE WITH RECOMMENDATIONS BY THE GEOTECHNICAL ENGINEER OF RECORD.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING SHORING FOR ALL EXCAVATIONS AS REQUIRED. CONTRACTOR SHALL HAVE THE SHORING DESIGN PREPARED BY A QUALIFIED PROFESSIONAL. SHORING DESIGNS SHALL BE SUBMITTED TO STONEFIELD ENGINEERING & DESIGN, LLC. AND THE OWNER PRIOR TO THE START OF CONSTRUCTION.
4. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL OPEN EXCAVATIONS ARE PERFORMED AND PROTECTED IN ACCORDANCE WITH THE LATEST OSHA REGULATIONS.
5. THE CONTRACTOR IS RESPONSIBLE FOR ANY DEWATERING DESIGN AND OPERATIONS, AS REQUIRED, TO CONSTRUCT THE PROPOSED IMPROVEMENTS. THE CONTRACTOR SHALL OBTAIN ANY REQUIRED PERMITS FOR DEWATERING OPERATIONS AND GROUNDWATER DISPOSAL.

STORMWATER INFILTRATION BMP CONSTRUCTION NOTES

1. PRIOR TO THE START OF CONSTRUCTION, ANY AREA DESIGNATED TO BE USED FOR AN INFILTRATION BMP (E.G. BASIN, BIORETENTION AREA, ETC.) SHALL BE FENCED OFF AND SHALL NOT BE UTILIZED AS STORAGE FOR CONSTRUCTION EQUIPMENT OR AS A STOCKPILE AREA FOR CONSTRUCTION MATERIALS. NO ACTIVITY SHALL BE PERMITTED WITHIN THE INFILTRATION BASIN AREA UNLESS RELATED TO THE CONSTRUCTION OF THE INFILTRATION BASIN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY ALL SUBCONTRACTORS OF BASIN AREA RESTRICTIONS.
2. THE CONTRACTOR SHALL MAKE EVERY EFFORT, WHERE PRACTICAL, TO AVOID SUBGRADE SOIL COMPACTION IN THE AREAS DESIGNATED TO BE USED FOR AN INFILTRATION BMP.
3. ALL EXCAVATION WITHIN THE LIMITS OF ANY INFILTRATION BMP SHALL BE PERFORMED WITH THE LIGHTEST PRACTICAL EXCAVATION EQUIPMENT. ALL EXCAVATION EQUIPMENT SHALL BE PLACED OUTSIDE THE LIMITS OF THE BASIN WHERE FEASIBLE. THE USE OF LIGHT-WEIGHT, RUBBER-TIRED EQUIPMENT (LESS THAN 8 PSI APPLIED TO THE GROUND SURFACE) IS RECOMMENDED WITHIN THE BASIN LIMITS.
4. THE SEQUENCE OF SITE CONSTRUCTION SHALL BE COORDINATED WITH BASIN CONSTRUCTION TO ADHERE TO SEQUENCING LIMITATIONS.
5. DURING THE FINAL GRADING OF AN INFILTRATION BASIN, THE BOTTOM OF THE BASIN SHALL BE DEEPLY TILLED WITH A ROTARY TILLER OR DISC HARROW AND THEN SMOOTHED OUT WITH A LEVELING DRAW OR EQUIVALENT GRADING EQUIPMENT. ALL GRADING EQUIPMENT SHALL BE LOCATED OUTSIDE OF THE BASIN BOTTOM WHERE FEASIBLE.
6. FOLLOWING CONSTRUCTION OF AN INFILTRATION BASIN, SOIL INFILTRATION TESTING BY A LICENSED GEOTECHNICAL ENGINEER IS REQUIRED TO CERTIFY COMPLIANCE WITH THE DESIGN INFILTRATION RATES IN ACCORDANCE WITH APPENDIX E OF THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION'S BEST MANAGEMENT PRACTICES MANUAL, LATEST EDITION. IF THE FIELD INFILTRATION RATES ARE LOWER THAN THE RATE USED DURING DESIGN, THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IN WRITING IMMEDIATELY TO DETERMINE THE APPROPRIATE COURSE OF ACTION.
7. THE CONTRACTOR SHALL NOTIFY THE MUNICIPALITY TO DETERMINE IF WITNESS TESTING IS REQUIRED DURING INFILTRATION BASIN EXCAVATION AND/OR SOIL INFILTRATION TESTING.

STORMWATER UNDERGROUND BMP CONSTRUCTION NOTES

1. THE CONTRACTOR SHALL INSTALL AND BACKFILL THE UNDERGROUND BMP IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
2. UNDERGROUND BASINS SHALL UTILIZE A STONE BACKFILL WITH A MINIMUM VOID RATIO OF 40%.
3. NO CONSTRUCTION LOADING OVER UNDERGROUND BASINS IS PERMITTED UNTIL BACKFILL IS COMPLETE PER THE MANUFACTURER'S SPECIFICATIONS. NO VEHICLES SHALL BE STAGED OR OPERATE FROM A FIXED POSITION OVER THE BASIN.

20' 0' 20' 40'

GRAPHIC SCALE IN FEET

1" = 20'

ISSUE	DATE	BY	DESCRIPTION
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LAND DEVELOPMENT PLANS

PRIMROSE SCHOOLS FRANCHISING COMPANY

PROPOSED CHILD DAY CARE FACILITY

PARCEL ID: 28-113
885 MAIN STREET
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MIDDLESEX COUNTY, MASSACHUSETTS

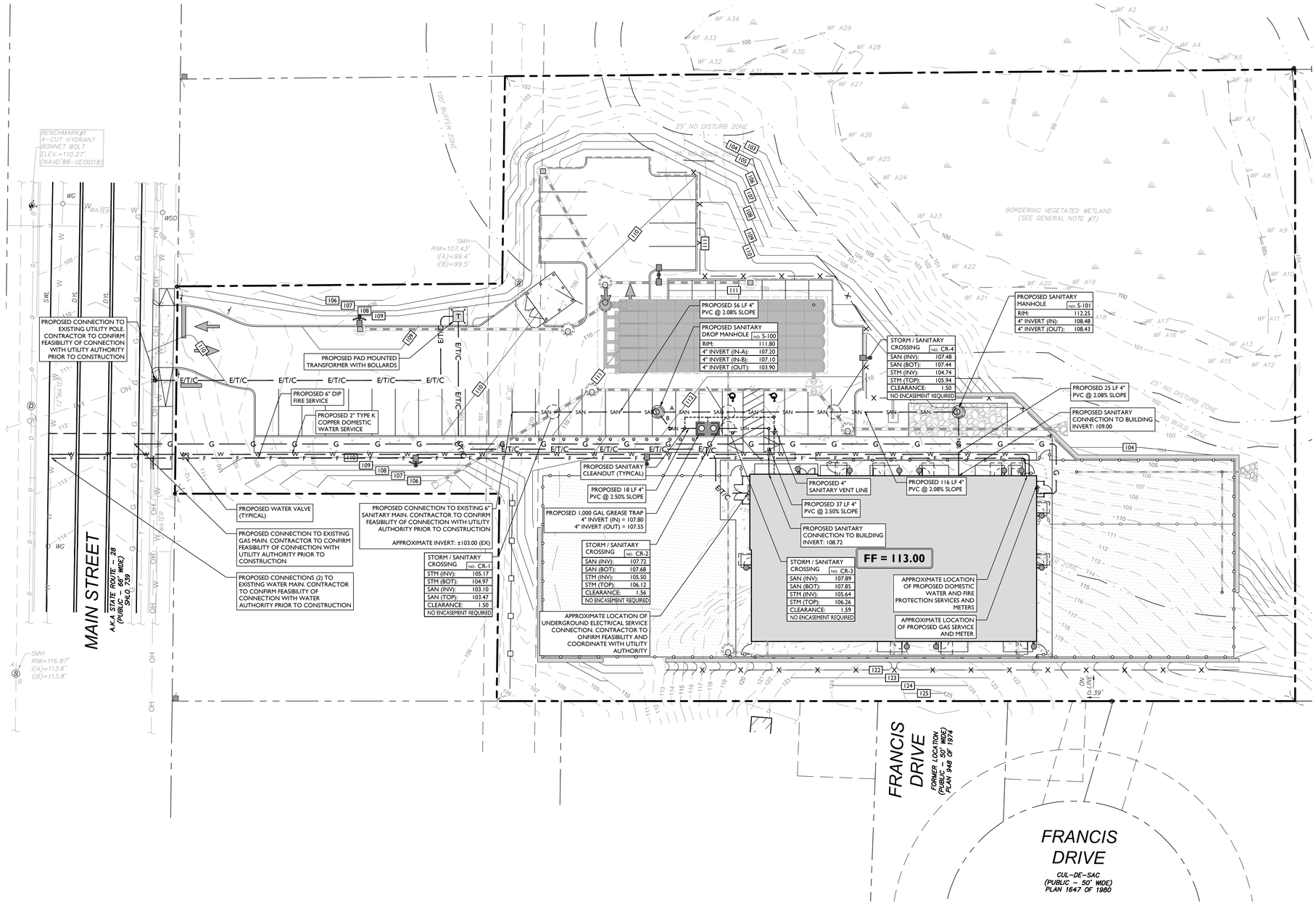
JOSHUA H. KLINE, P.E.
MASSACHUSETTS LICENSE No. 53936
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 20' PROJECT ID: BOS-240115

TITLE: STORMWATER MANAGEMENT PLAN

DRAWING: C-6



SYMBOL / DESCRIPTION

SYMBOL	DESCRIPTION
	PROPERTY LINE
SAN	PROPOSED SANITARY LATERAL
W	PROPOSED DOMESTIC WATER SERVICE
E/T/C	PROPOSED ELECTRICAL/DATA CONDUITS
T/C	PROPOSED DATA CONDUITS
E	PROPOSED ELECTRIC CONDUITS
OH	PROPOSED OVERHEAD WIRES
G	PROPOSED GAS LINE
	PROPOSED VALVE
	PROPOSED WATER TEE / BEND
	PROPOSED FIRE HYDRANT
	PROPOSED FIRE DIRECT CONNECTION (FDC)
S	PROPOSED SANITARY MANHOLE / CLEANOUT
	PROPOSED UTILITY POLE
T	PROPOSED TRANSFORMER ON CONCRETE PAD WITH BOLLARDS

DRAINAGE AND UTILITY NOTES

1. THE CONTRACTOR IS REQUIRED TO CALL THE APPROPRIATE AUTHORITY FOR NOTICE OF CONSTRUCTION/EXCAVATION AND UTILITY MARK OUT PRIOR TO THE START OF CONSTRUCTION IN ACCORDANCE WITH STATE LAW. CONTRACTOR IS REQUIRED TO CONFIRM THE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES IN THE FIELD. SHOULD A DISCREPANCY EXIST BETWEEN THE FIELD LOCATION OF A UTILITY AND THE LOCATION SHOWN ON THE PLAN SET OR SURVEY, THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IMMEDIATELY IN WRITING.
2. THE CONTRACTOR IS RESPONSIBLE TO PROTECT AND MAINTAIN IN OPERATION ALL UTILITIES NOT DESIGNATED TO BE REMOVED.
3. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO ANY EXISTING UTILITY IDENTIFIED TO REMAIN WITHIN THE LIMITS OF THE PROPOSED WORK DURING CONSTRUCTION.
4. A MINIMUM HORIZONTAL SEPARATION OF 10 FEET IS REQUIRED BETWEEN ANY SANITARY SEWER SERVICE AND ANY WATER LINES. IF THIS SEPARATION CANNOT BE PROVIDED, A CONCRETE ENCASEMENT SHALL BE UTILIZED FOR THE SANITARY SEWER SERVICE AS APPROVED BY STONEFIELD ENGINEERING & DESIGN, LLC.
5. ALL WATER LINES SHALL BE VERTICALLY SEPARATED ABOVE SANITARY SEWER, LINES BY A MINIMUM DISTANCE OF 18 INCHES. IF THIS SEPARATION CANNOT BE PROVIDED, A CONCRETE ENCASEMENT SHALL BE UTILIZED FOR THE SANITARY SEWER SERVICE AS APPROVED BY STONEFIELD ENGINEERING & DESIGN, LLC.
6. THE CONTRACTOR TO PERFORM A TEST PIT PRIOR TO CONSTRUCTION (RECOMMEND 30 DAYS PRIOR) AT LOCATIONS OF EXISTING UTILITY CROSSINGS FOR WATER AND SANITARY SEWER CONNECTION IMPROVEMENTS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IN WRITING.
7. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING GAS, ELECTRIC AND TELECOMMUNICATION CONNECTIONS WITH THE APPROPRIATE GOVERNING AUTHORITY.
8. CONTRACTOR SHALL START CONSTRUCTION OF ANY GRAVITY SEWER AT THE LOWEST INVERT AND WORK UP-GRADIENT.
9. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN A RECORD SET OF PLANS REFLECTING THE LOCATION OF EXISTING UTILITIES THAT HAVE BEEN CAPPED, ABANDONED, OR RELOCATED BASED ON THE DEMOLITION/REMOVAL ACTIVITIES REQUIRED IN THIS PLAN SET. THIS DOCUMENT SHALL BE PROVIDED TO THE OWNER FOLLOWING COMPLETION OF WORK.
10. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN A RECORD OF THE AS-BUILT LOCATIONS OF ALL PROPOSED UNDERGROUND INFRASTRUCTURE. THE CONTRACTOR SHALL NOTE ANY DISCREPANCIES BETWEEN THE AS-BUILT LOCATIONS AND THE LOCATIONS DEPICTED WITHIN THE PLAN SET. THIS RECORD SHALL BE PROVIDED TO THE OWNER FOLLOWING COMPLETION OF WORK.

20' 0' 20' 40'
GRAPHIC SCALE IN FEET
1" = 20'

ISSUE	DATE	BY	DESCRIPTION
00	03/07/2025	AJD	ISSUED FOR MUNICIPAL SUBMISSION

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JOSHUA H. KLINE, P.E.
MASSACHUSETTS LICENSE No. 53936
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 20' | PROJECT ID: BOS-240115

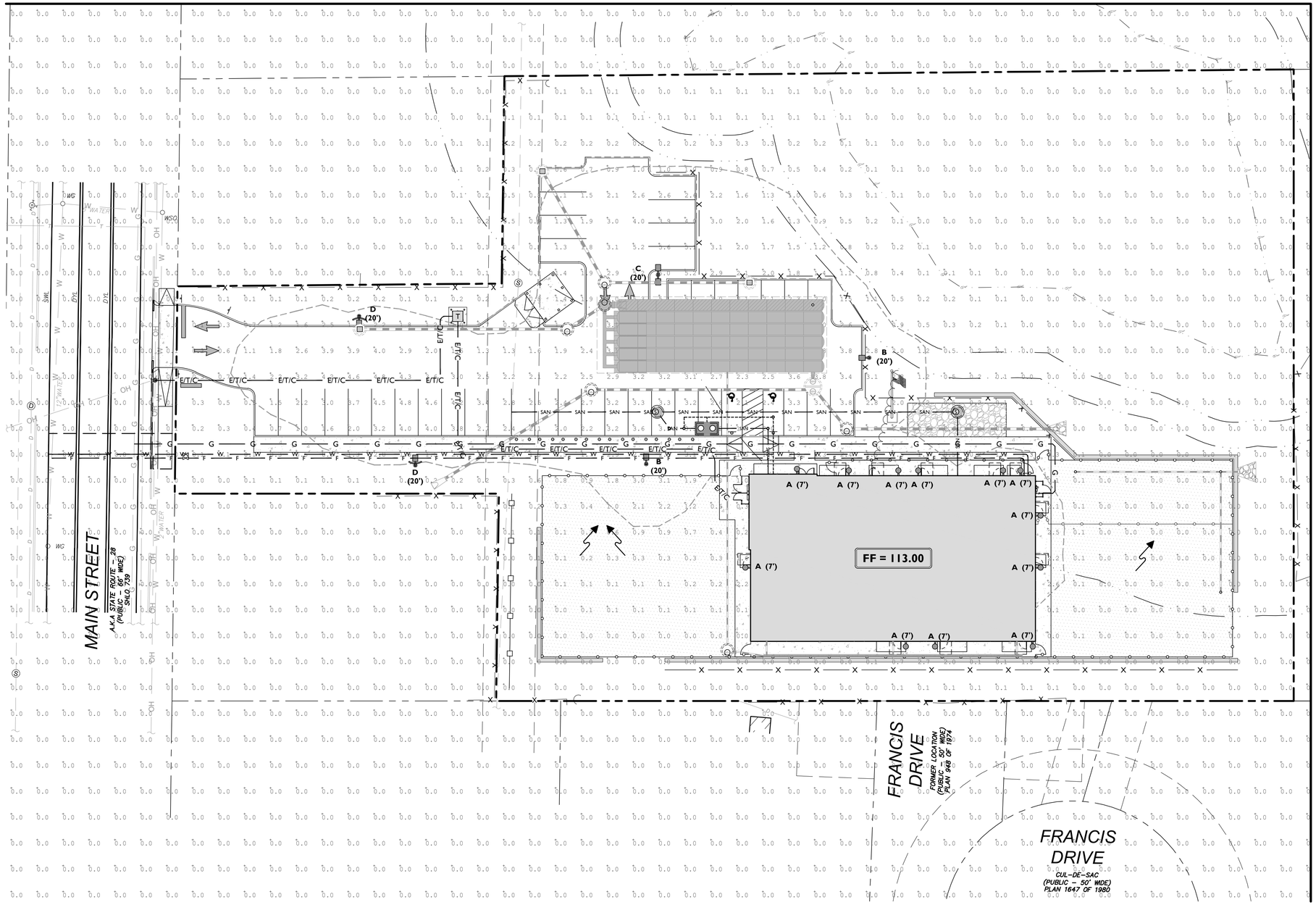
TITLE: UTILITY PLAN

DRAWING: C-7

Z:\BOSTON\BOS\240115 PRIMROSE SCHOOLS - 885 MAIN STREET, READING, MA\CAD\PLOT\XXXPLOTS.DWG

PROPOSED LUMINAIRE SCHEDULE							
SYMBOL	LABEL	QUANTITY	SECURITY LIGHTING	DISTRIBUTION	LLF	MANUFACTURER	IES FILE
	A	11	HI-LITE WALL MOUNT LIGHT - LED - 30K - 12 WATT	TYPE V	0.9	HI-LITE MFG	NEWH-CGU-1B LED3.IES
	B	2	MIRADA (MRM) AREA LIGHT - 12LED - 30K	TYPE III	0.9	LSI	MRM-LED-12L-SIL-3-30-70CRI.IES
	C	1	MIRADA (MRM) AREA LIGHT - DOUBLE 180° - 12LED - 30K	TYPE III	0.9	LSI	MRM-LED-12L-SIL-3-30-70CRI.IES
	D	2	MIRADA (MRM) AREA LIGHT - DOUBLE 180° - 12LED - 30K - W/ INTEGRATED LOUVER	TYPE III	0.9	LSI	MRM-LED-12L-SIL-3-30-70CRI-IL.IES

LIGHTING REQUIREMENTS		
CODE SECTION	REQUIRED	PROPOSED
§ 4.6.5 - A	MINIMIZE GLARE BEYOND PROPERTY LINE	0.1 FC



SYMBOL	DESCRIPTION
	PROPOSED ISOMETRIC LINE
A (XX')	PROPOSED LIGHTING FIXTURE (MOUNTING HEIGHT)
+X.X	PROPOSED LIGHTING INTENSITY (FOOTCANDLES)
	PROPOSED AREA LIGHT
	PROPOSED BUILDING MOUNTED LIGHT

GENERAL LIGHTING NOTES

1. THE LIGHTING LEVELS DEPICTED WITHIN THE PLAN SET ARE CALCULATED UTILIZING DATA OBTAINED FROM THE LISTED MANUFACTURER. ACTUAL ILLUMINATION LEVELS AND PERFORMANCE OF ANY PROPOSED LIGHTING FIXTURE MAY VARY DUE TO UNCONTROLLABLE VARIABLES SUCH ARE WEATHER, VOLTAGE SUPPLY, LAMP TOLERANCE, EQUIPMENT SERVICE LIFE AND OTHER VARIABLE FIELD CONDITIONS.
2. WHERE APPLICABLE, THE EXISTING LIGHT LEVELS DEPICTED WITHIN THE PLAN SET SHALL BE CONSIDERED APPROXIMATE. THE EXISTING LIGHT LEVELS ARE BASED ON FIELD OBSERVATIONS AND THE MANUFACTURER'S DATA OF THE ASSUMED OR MOST SIMILAR LIGHTING FIXTURE MODEL.
3. UNLESS NOTED ELSEWHERE WITHIN THIS PLAN SET, THE LIGHT LOSS FACTORS USED IN THE LIGHTING ANALYSIS ARE AS FOLLOWS:
   - LIGHT EMITTING DIODES (LED): 0.90
   - HIGH PRESSURE SODIUM: 0.72
   - METAL HALIDE: 0.72
4. THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IN WRITING, PRIOR TO THE START OF CONSTRUCTION, OF ANY PROPOSED LIGHTING LOCATIONS THAT CONFLICT WITH EXISTING/ PROPOSED DRAINAGE, UTILITY, OR OTHER IMPROVEMENTS.
5. THE CONTRACTOR IS RESPONSIBLE TO PREPARE A WIRING PLAN AND PROVIDE ELECTRIC SERVICE TO ALL PROPOSED LIGHTING FIXTURES. THE CONTRACTOR IS REQUIRED TO PREPARE AN AS-BUILT PLAN OF WIRING AND PROVIDE COPIES TO THE OWNER AND STONEFIELD ENGINEERING & DESIGN, LLC.

20' 0' 20' 40'
GRAPHIC SCALE IN FEET
1" = 20'

ISSUE	DATE	BY	DESCRIPTION
00	03/07/2025	AJD	ISSUED FOR MUNICIPAL SUBMISSION

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STONEFIELD engineering & design
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www.stonefieldeng.com
56 Pine Street, Providence, RI 02903
Phone 617.203.2076

LAND DEVELOPMENT PLANS

PRIMROSE SCHOOLS FRANCHISING COMPANY

PROPOSED CHILD DAY CARE FACILITY

PARCEL ID: 28-113
885 MAIN STREET
TOWN OF READING
MIDDLESEX COUNTY, MASSACHUSETTS

JOSHUA H. KLINE, P.E.
MASSACHUSETTS LICENSE No. 53936
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 20' | PROJECT ID: BOS-240115

TITLE: LIGHTING PLAN

DRAWING: C-8

Z:\BOS\PROJECTS\2024\BOS-240115 PRIMROSE SCHOOLS - 885 MAIN STREET, READING, MA\CAD\PLOT\XXX-XXLIGHT.DWG

STABILIZATION SPECIFICATIONS:

I.A. TEMPORARY SEEDING AND MULCHING:
GROUND LIMESTONE - APPLIED UNIFORMLY ACCORDING TO SOIL TEST RECOMMENDATIONS.
FERTILIZER - APPLY 11LBS./1,000 SF OF 10-20-10 OR EQUIVALENT WITH 50% WATER INSOLUBLE NITROGEN (UNLESS A SOIL TEST INDICATES OTHERWISE) WORKED INTO THE SOIL A MINIMUM OF 4".
SEED - PERENNIAL RYEGRASS 100 LBS/ACRE (2.3 LBS./1,000 SF) OR OTHER APPROVED SEEDS; PLANT BETWEEN MARCH 1 AND MAY 15 OR BETWEEN AUGUST 15 AND OCTOBER 1.
MULCH - UNROTTED STRAW OR HAY AT A RATE OF 70 TO 90 LBS./1,000 SF APPLIED TO ACHIEVE 95% SOIL SURFACE COVERAGE. MULCH SHALL BE ANCHORED BY APPROVED METHODS (I.E. PEG AND TWINE, MULCH NETTING, OR LIQUID MULCH BINDER).

I.B. PERMANENT SEEDING AND MULCHING:
TOPSOIL - UNIFORM APPLICATION TO A DEPTH OF 5" (UNSETTLED).
GROUND LIMESTONE - APPLIED UNIFORMLY ACCORDING TO SOIL TEST RECOMMENDATIONS.
FERTILIZER - APPLY 11 LBS./1,000 SF OF 10-10-10 OR EQUIVALENT WITH 50% WATER INSOLUBLE NITROGEN (UNLESS A SOIL TEST INDICATES OTHERWISE) WORKED INTO THE SOIL A MINIMUM OF 4".
SEED - TURF TYPE TALL FESCUE (BLEND OF 3 CULTIVARS) 350 LBS./ACRE (8 LBS./1,000 SF) OR OTHER APPROVED SEEDS; PLANT BETWEEN MARCH 1 AND OCTOBER 1 (SUMMER SEEDINGS REQUIRE IRRIGATION)
MULCH - UNROTTED STRAW OR HAY AT A RATE OF 70 TO 90 LBS./1,000 SF APPLIED TO ACHIEVE 95% SOIL SURFACE COVERAGE. MULCH SHALL BE ANCHORED BY APPROVED METHODS (I.E. PEG AND TWINE, MULCH NETTING, OR LIQUID MULCH BINDER).

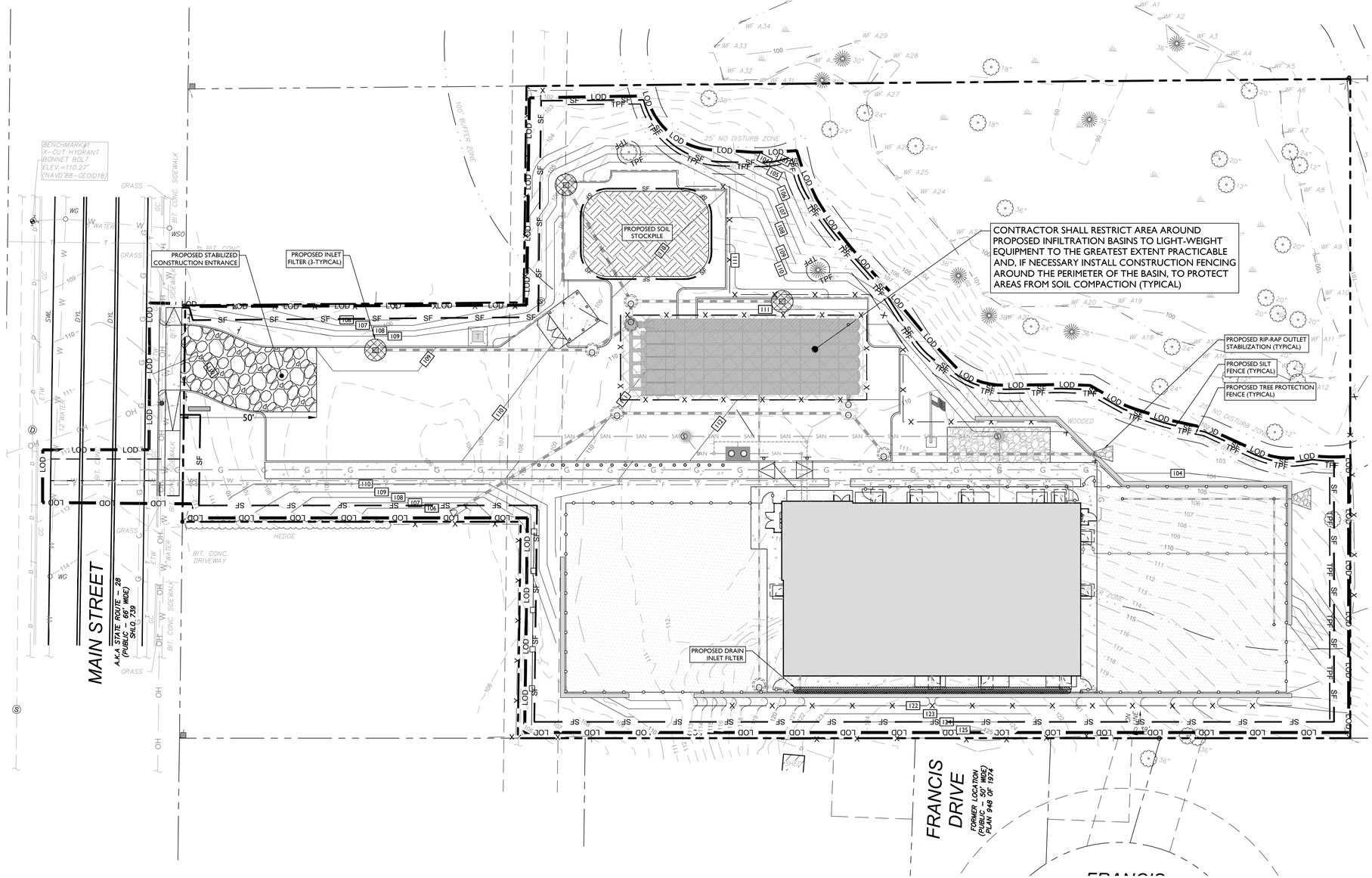
DUST CONTROL NOTES

1. MULCHES - SEE STANDARD OF STABILIZATION WITH MULCHES ONLY, PG. 5-1
2. VEGETATIVE COVER - SEE STANDARD FOR: TEMPORARY VEGETATIVE COVER, PG. 7-1, PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION PG. 4-1 AND PERMANENT STABILIZATION WITH SOD, PG. 6-1
3. SPRAY-ON ADHESIVES - ON MINERAL SOILS (NOT EFFECTIVE ON MUCK SOILS). KEEP TRAFFIC OFF THESE AREAS.
4. TILLAGE - TO ROUGHEN SURFACE AND BRING CLODS TO THE SURFACE. THIS IS A TEMPORARY EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE SOIL BLOWING STARTS. BEGIN PLOWING ON WINDWARD SIDE OF SITE. CHISEL-TYPE PLOWS SPACED ABOUT 12 INCHES APART AND SPRING-TOOTHED HARROWS ARE EXAMPLES OF EQUIPMENT WHICH MAY PRODUCE THE DESIRED EFFECT.
5. SPRINKLING - SITE IS SPRINKLED UNTIL THE SURFACE IS WET.
6. BARRIERS - SOLID BOARD FENCES, SNOW FENCES, BURLAP FENCES, CRATE WALLS, BALES OF HAY AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CURRENTS AND SOIL BLOWING.
7. CALCIUM CHLORIDE - SHALL BE IN THE FORM OF LOOSE, DRY GRANULES OR FLAKES FINE ENOUGH TO FEED THROUGH COMMONLY USED SPREADERS AT A RATE THAT WILL KEEP SURFACE MOIST BUT NOT CAUSE POLLUTION OR PLANT DAMAGE. IF USED ON STEEPER SLOPES, THEN USE OTHER PRACTICES TO PREVENT WASHING INTO STREAMS OR ACCUMULATION AROUND PLANTS.
8. STONE - COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL.

NRCS WEB SOIL SURVEY SOIL CHARACTERISTICS CHART

TYPE OF SOIL	WHITMAN FINE SANDY LOAM (73B)	CHARLTON-URBAN LAND-HOLLIS COMPLEX (631C)	UDORTHENTS (655)	PAXTON FINE SANDY LOAM (305C)	CANTON-CHARLTON-URBAN LAND COMPLEX (629C)
PERCENT OF SITE COVERAGE	61.3%	28.5%	5.9%	3.8%	0.5%
HYDROLOGIC SOIL GROUP	D	A	D*	C	A
DEPTH TO RESTRICTIVE LAYER	7 TO 38 INCHES	> 80 INCHES	> 80 INCHES	20 TO 39 INCHES	18 TO 30 INCHES
SOIL PERMEABILITY	0.00 TO 0.14 IN / HR	0.60 TO 6.00 IN / HR	*	0.00 TO 0.14 IN / HR	2.00 TO 6.00 IN / HR
DEPTH TO WATER TABLE	0 TO 6 INCHES	> 80 INCHES	> 80 INCHES	18 TO 37 INCHES	> 80 INCHES

* NOT SPECIFIED IN NRCS SOIL REPORT



SYMBOL / DESCRIPTION

- PROPERTY BOUNDARY
- ADJACENT PROPERTY BOUNDARY
- LOD — PROPOSED LIMIT OF DISTURBANCE
- SF — PROPOSED SILT FENCE
- TPF — PROPOSED TREE PROTECTION FENCE
- PROPOSED STOCKPILE & EQUIPMENT STORAGE
- PROPOSED STABILIZED CONSTRUCTION ENTRANCE
- PROPOSED INLET PROTECTION FILTER

SOIL EROSION AND SEDIMENT CONTROL NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR SOIL EROSION AND SEDIMENT CONTROL IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS.
2. THE CONTRACTOR IS RESPONSIBLE FOR DUST CONTROL IN COMPLIANCE WITH LOCAL, STATE, AND FEDERAL AIR QUALITY STANDARDS.
3. THE CONTRACTOR IS RESPONSIBLE TO INSPECT ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES WEEKLY AND AFTER A PRECIPITATION EVENT GREATER THAN 1 INCH. THE CONTRACTOR SHALL MAINTAIN AN INSPECTION LOG ON SITE AND DOCUMENT CORRECTIVE ACTION TAKEN THROUGHOUT THE COURSE OF CONSTRUCTION AS REQUIRED.

SEQUENCE OF CONSTRUCTION

1. INSTALL CONSTRUCTION ENTRANCE (2 DAYS)
2. STRIPPING AND CLEARING OF SITE (2 WEEKS)
8. INSTALL CURBSIDE SEDIMENT BARRIERS. (1 DAY)
9. DEMOLISH EXISTING PAVEMENT WHERE APPLICABLE (7 DAYS)
10. ROUGH GRADING AND TEMPORARY SEEDING (21 DAYS)
11. BASIN CONSTRUCTION INCLUDING STABILIZATION (14 DAYS)
12. UTILITY CONSTRUCTION (10 DAYS)
13. BUILDING CONSTRUCTION AND SITE IMPROVEMENTS (100 DAYS)
14. FINAL GRADING (3 DAYS)
15. SOIL RESTORATION MEASURES (3 DAYS)
16. LANDSCAPING IMPROVEMENTS AND FINAL SEEDING & TOP SOILING (7 DAYS)
17. REMOVE SOIL EROSION MEASURES (1 DAY)

NOTE: TIME DURATIONS ARE APPROXIMATE AND ARE INTENDED TO ACT AS A GENERAL GUIDE TO THE CONSTRUCTION TIMELINE. ALL DURATIONS ARE SUBJECT TO CHANGE BY CONTRACTOR. CONTRACTOR SHALL SUBMIT CONSTRUCTION SCHEDULE TO TOWNSHIP AND ENGINEER. CONTRACTOR SHALL PHASE CONSTRUCTION ACCORDINGLY.

811 Know what's **below** **Call** before you dig.

20' 0' 20' 40'
GRAPHIC SCALE IN FEET
1" = 20'

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JOSHUA H. KLINE, P.E.
MASSACHUSETTS LICENSE No. 53936
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 20 | PROJECT ID: BOS-240115

TITLE: **SOIL EROSION & SEDIMENT CONTROL PLAN**

DRAWING: **C-9**

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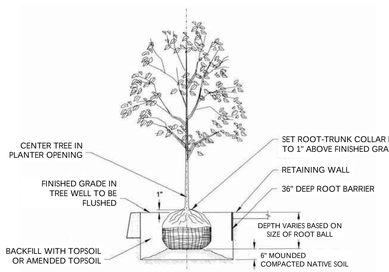
PLANT SCHEDULE

SYMBOL	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	REMARKS
DECIDUOUS TREES							
	LIQ	2	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	3" - 3.5" CAL	B&B	RECOMMENDED NATIVE PLANT
	MAG	2	MAGNOLIA VIRGINANA	SWEETBAY MAGNOLIA	3" - 3.5" CAL	B&B	RECOMMENDED NATIVE PLANT
	NYS	4	NYSSA SYLVATICA	TUPELO	3" - 3.5" CAL	B&B	RECOMMENDED NATIVE PLANT
	PAL	4	QUERCUS PALUSTRIS	PIN OAK	3" - 3.5" CAL	B&B	RECOMMENDED NATIVE PLANT
	TIL	1	TILIA AMERICANA	AMERICAN LINDEN	3" - 3.5" CAL	B&B	RECOMMENDED NATIVE PLANT
EVERGREEN TREES							
	VIR	37	JUNIPERUS VIRGINIANA	EASTERN REDCEDAR	6` - 8` HT	B&B	RECOMMENDED NATIVE PLANT
	JUN	12	JUNIPERUS VIRGINIANA 'J.N. SELECT GREEN'	EMERALD FEATHER EASTERN REDCEDAR	6` - 8` HT	B&B	RECOMMENDED NATIVE PLANT
	PIC	12	PICEA GLAUCA	WHITE SPRUCE	6` - 8` HT	B&B	RECOMMENDED NATIVE PLANT
SHRUBS							
	COR	10	CORNUS STOLONIFERA 'FARROW'	ARCTIC FIRE RED TWIG DOGWOOD	18" - 24"	POT	-
	PHY	6	PHYSOCARPUS OPULIFOLIUS 'LITTLE DEVIL'	LITTLE DEVIL DWARF NINEBARK	18" - 24"	POT	-
	VIB	8	VIBURNUM DENTATUM	VIBURNUM	18" - 24"	POT	RECOMMENDED NATIVE PLANT
EVERGREEN SHRUBS							
	GLA	29	ILEX GLABRA 'COMPACTA'	COMPACT INKBERRY	18" - 24"	POT	RECOMMENDED NATIVE PLANT
	TAX	10	TAXUS X MEDIA 'DENSIFORMIS'	DENSE ANGLO-JAPANESE YEW	18" - 24"	POT	-
GROUND COVERS							
	CAR	62	CAREX PENSYLVANICA	PENNSYLVANIA SEDGE	1 GAL.	POT, 24" O.C.	RECOMMENDED NATIVE PLANT
	BAR	46	JUNIPERUS HORIZONTALIS 'BAR HARBOR'	BAR HARBOR CREEPING JUNIPER	1 GAL.	POT, 36" O.C.	-
PERENNIALS AND GRASSES							
	ROS	59	COREOPSIS ROSEA	ROSE COREOPSIS	1 GAL.	POT, 24" O.C.	RECOMMENDED NATIVE PLANT
	HEM	17	HEMEROCALLIS X 'STELLA DE ORO'	STELLA DE ORO DAYLILY	1 GAL.	POT, 24" O.C.	-
	PAN	11	PANICUM VIRGATUM 'SHENANDOAH'	SHENANDOAH SWITCH GRASS	1 GAL.	POT, 24" O.C.	RECOMMENDED NATIVE PLANT

NOTE: IF ANY DISCREPANCIES OCCUR BETWEEN AMOUNTS SHOWN ON THE LANDSCAPE PLAN AND WITHIN THE PLANT LIST, THE PLAN SHALL DICTATE.

LANDSCAPE MAINTENANCE SCHEDULE

MAINTENANCE TASK	WINTER			SPRING				SUMMER				FALL			
	DEC	JAN	FEB	MAR	APR	MAY	FREQUENCY	JUN	JUL	AUG	FREQUENCY	SEP	OCT	NOV	FREQUENCY
SITE INSPECTION				X			ONCE PER SEASON		X		ONCE PER SEASON			X	ONCE PER SEASON
DEBRIS & WEED CONTROL				X	X	X	BI-WEEKLY	X	X	X	BI-WEEKLY	X	X		BI-WEEKLY
IRRIGATION MAINTENANCE					X		ONCE PER SEASON				N/A		X		ONCE PER SEASON
MULCHING					X		ONCE PER SEASON				N/A				N/A
SEASONAL PLANTINGS						X	ONCE PER SEASON	X	X	X	WEEKLY	X	X	X	WEEKLY
MOWING OF TURF				X	X	X	WEEKLY	X	X	X	WEEKLY	X	X	X	WEEKLY
MOWING OF WILDFLOWERS							N/A				N/A			X	ONCE PER SEASON
PRUNING				X	X		MONTHLY				N/A			X	ONCE PER SEASON
FERTILIZER & AMENDMENTS				X	X	X	MONTHLY	X	X	X	BI-WEEKLY	X	X	X	BI-WEEKLY
INSECT & DISEASE CONTROL						X	ONCE PER SEASON	X	X	X	BI-WEEKLY	X	X		N/A
PLANTING RENOVATION				X			ONCE PER SEASON				N/A		X		ONCE PER SEASON
LANDSCAPE STRUCTURES INSPECTION					X		ONCE PER SEASON				N/A				N/A
LIGHTING MAINTENANCE				X			ONCE PER SEASON				N/A		X		ONCE PER SEASON
PAVED SURFACE MAINTENANCE					X		ONCE PER SEASON				N/A				N/A



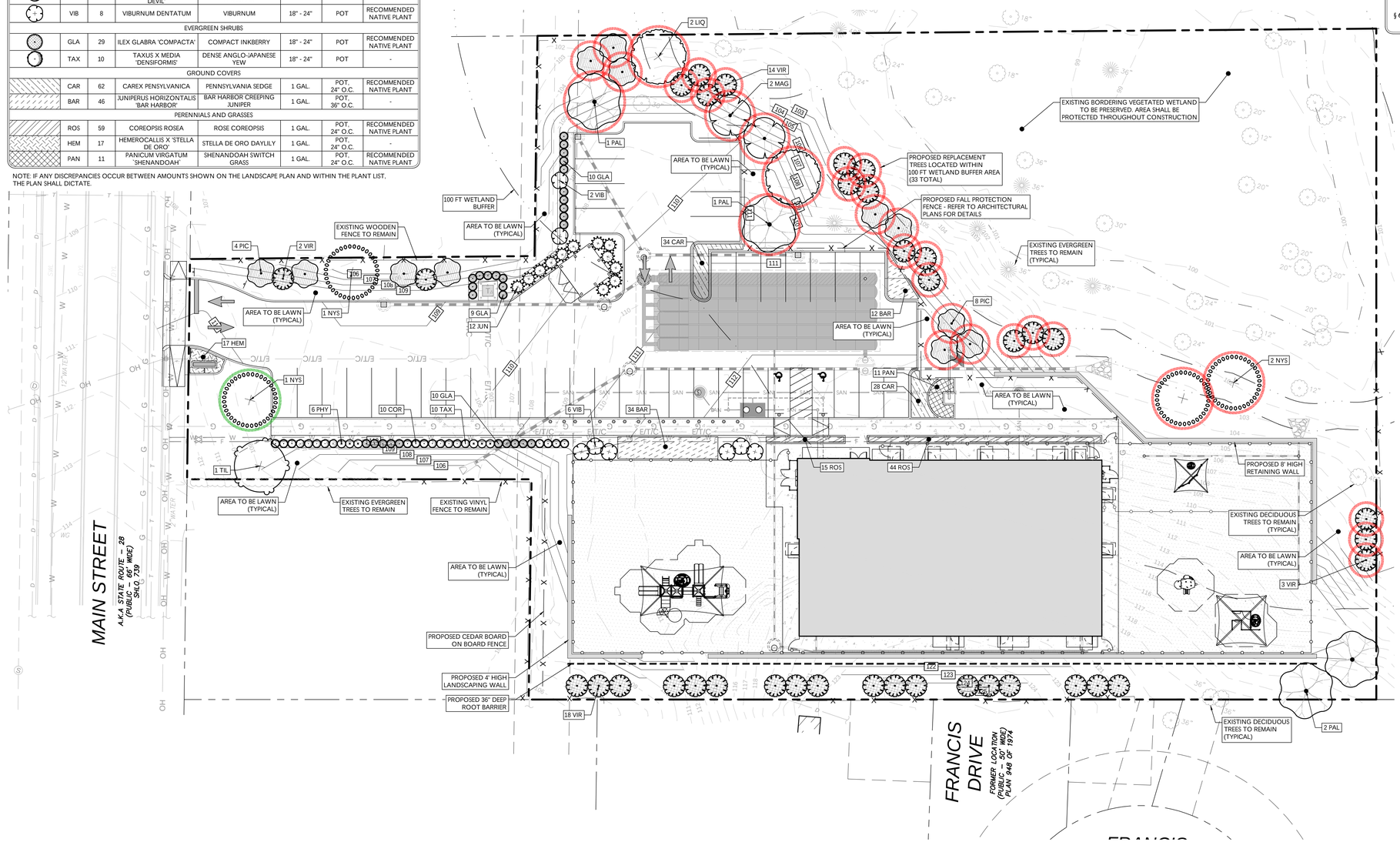
RHIZOME BARRIER SUPPLY - 36" x 24" ROOT BARRIER PANELS

NOT TO SCALE

SYMBOL	DESCRIPTION
	PROPOSED ROOT BARRIER
	PROPOSED STREET TREES
	PROPOSED REPLACEMENT TREES

LANDSCAPING REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
§ 6.5.2	LANDSCAPE STANDARDS SIDE YARD SETBACKS SHALL BE PLANTED WITH GRASS, SHRUBS AND SHADE TREES	COMPLIES
§ 6.5.7	STREET TREES 1 TREE FOR EVERY 50 LF OF FRONTAGE (55 FT) * (1 TREE / 50 FT FRONTAGE) = 1 TREE	1 TREE



Know what's below
Call before you dig.

IRRIGATION NOTE:

IRRIGATION CONTRACTOR TO PROVIDE A DESIGN FOR AN IRRIGATION SYSTEM SEPARATING PLANTING BEDS FROM LAWN AREA. PRIOR TO CONSTRUCTION. DESIGN IS TO BE SUBMITTED TO THE PROJECT LANDSCAPE DESIGNER FOR REVIEW AND APPROVAL. WHERE POSSIBLE, DRIP IRRIGATION AND OTHER WATER CONSERVATION TECHNIQUES SUCH AS RAIN SENSORS SHALL BE IMPLEMENTED. CONTRACTOR TO VERIFY MAXIMUM ON SITE DYNAMIC WATER PRESSURE AVAILABLE MEASURED IN PSI. PRESSURE REDUCING DEVICES OR BOOSTER PUMPS SHALL BE PROVIDED TO MEET SYSTEM PRESSURE REQUIREMENTS. DESIGN TO SHOW ALL VALVES, PIPING, HEADS, BACKFLOW PREVENTION, METERS, CONTROLLERS, AND SLEEVES WITHIN HARDSCAPE AREAS.

LANDSCAPING NOTES

1. THE CONTRACTOR SHALL RESTORE ALL DISTURBED GRASS AND LANDSCAPED AREAS TO MATCH EXISTING CONDITIONS UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET.
2. THE CONTRACTOR SHALL RESTORE ALL DISTURBED LAWN AREAS WITH A MINIMUM 4 INCH LAYER OF TOPSOIL AND SEED.
3. THE CONTRACTOR SHALL RESTORE MULCH AREAS WITH A MINIMUM 3 INCH LAYER OF MULCH .
4. THE MAXIMUM SLOPE ALLOWABLE IN LANDSCAPE RESTORATION AREAS SHALL BE 3 FEET HORIZONTAL TO 1 FOOT VERTICAL (3:1 SLOPE) UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET.
5. THE CONTRACTOR IS REQUIRED TO LOCATE ALL SPRINKLER HEADS IN AREA OF LANDSCAPING DISTURBANCE PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL RELOCATE SPRINKLER HEADS AND LINES IN ACCORDANCE WITH OWNER'S DIRECTION WITHIN AREAS OF DISTURBANCE.
6. THE CONTRACTOR SHALL ENSURE THAT ALL DISTURBED LANDSCAPED AREAS ARE GRADED TO MEET FLUSH AT THE ELEVATION OF WALKWAYS AND TOP OF CURB ELEVATIONS EXCEPT UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET. NO ABRUPT CHANGES IN GRADE ARE PERMITTED IN DISTURBED LANDSCAPING AREAS.

20' 0' 20' 40'
GRAPHIC SCALE IN FEET
1" = 20'

DESCRIPTION	BY	DATE	ISSUE
ISSUED FOR MUNICIPAL SUBMISSION	A/D	03/07/2025	00

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MASSACHUSETTS LICENSE No. 53936
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 20' | PROJECT ID: BOS-240115

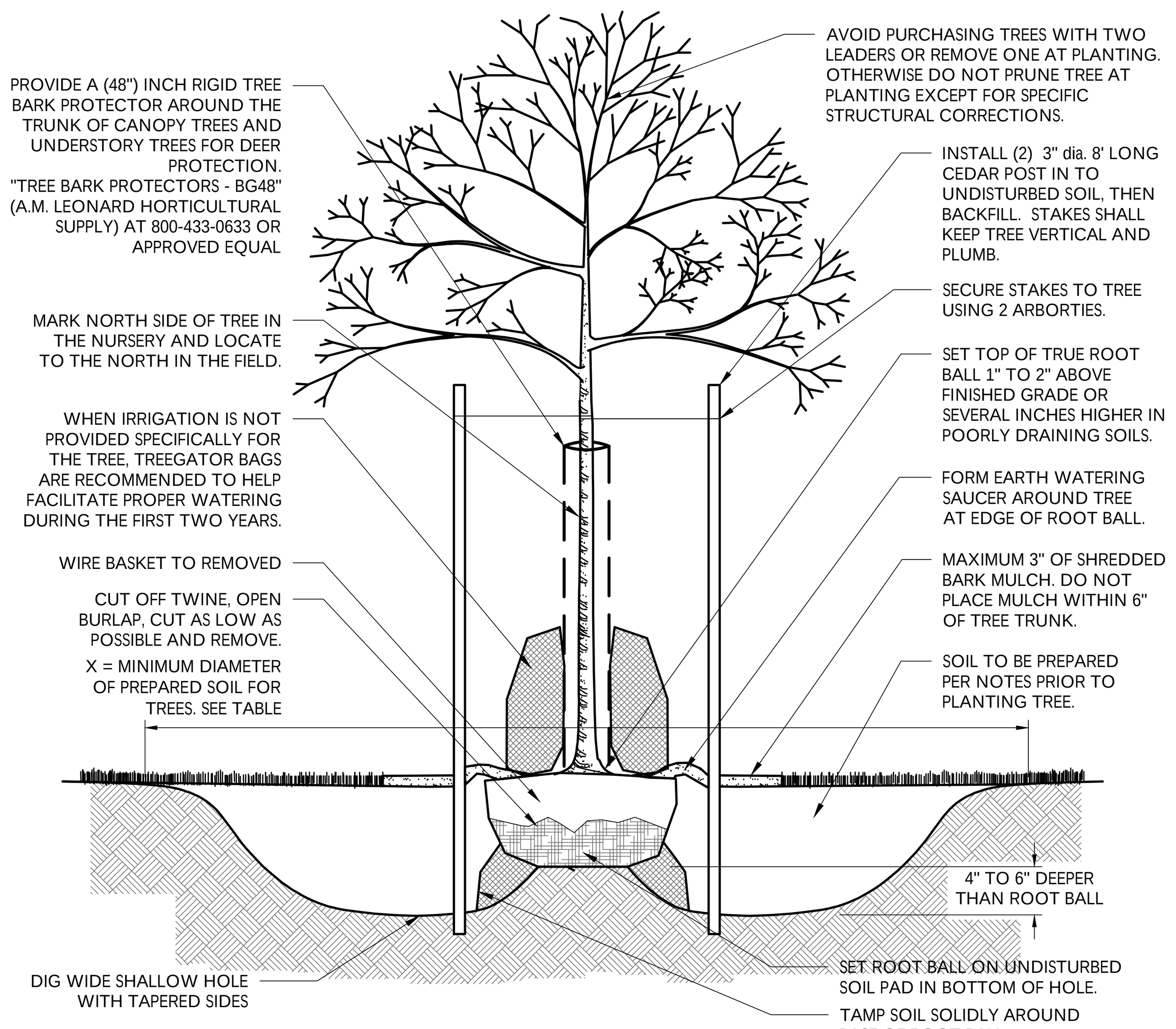
TITLE: LANDSCAPING PLAN

DRAWING: C-10

Z:\BOSTON\BOS\2024\BOS-240115 PRIMROSE SCHOOLS - 885 MAIN STREET, READING, MA\CAD\PLOT\XXX-10-LAND.DWG

NOTES:

1. FOR CONTAINER-GROWN TREES, USE FINGERS OR SMALL HAND TOOLS TO PULL THE ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL; THEN CUT OR PULL APART ANY ROOTS CIRCLING THE PERIMETER OF THE CONTAINER
2. THOROUGHLY SOAK THE TREE ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
3. SOIL AMENDMENTS:
   - MODIFY HEAVY CLAY OR SILT SOILS (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) OR GYPSUM
   - MODIFY EXTREMELY SANDY SOILDS (MORE THAN 85% SAND) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX



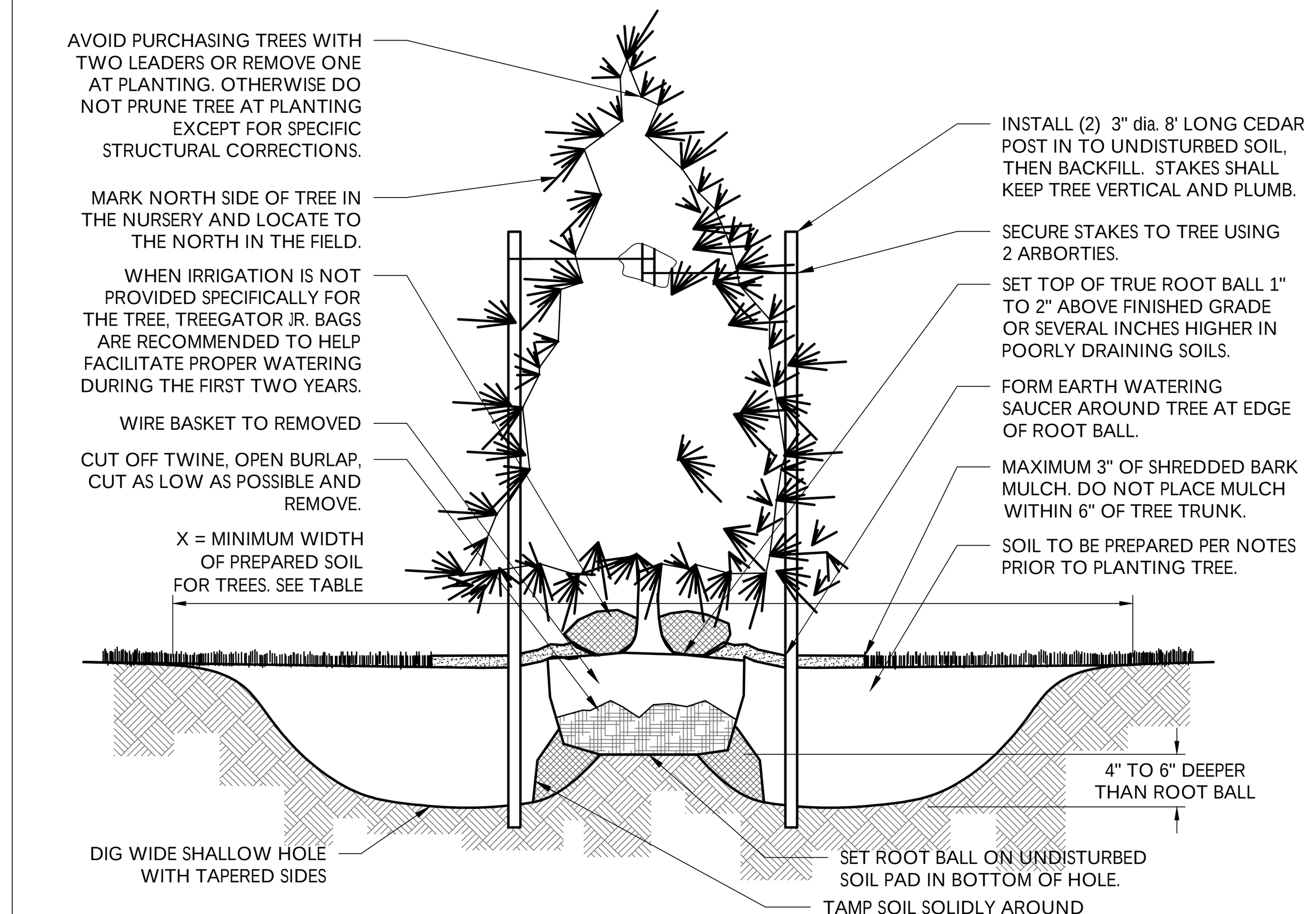
DECIDUOUS TREE PLANTING DETAIL

NOT TO SCALE

1

NOTES:

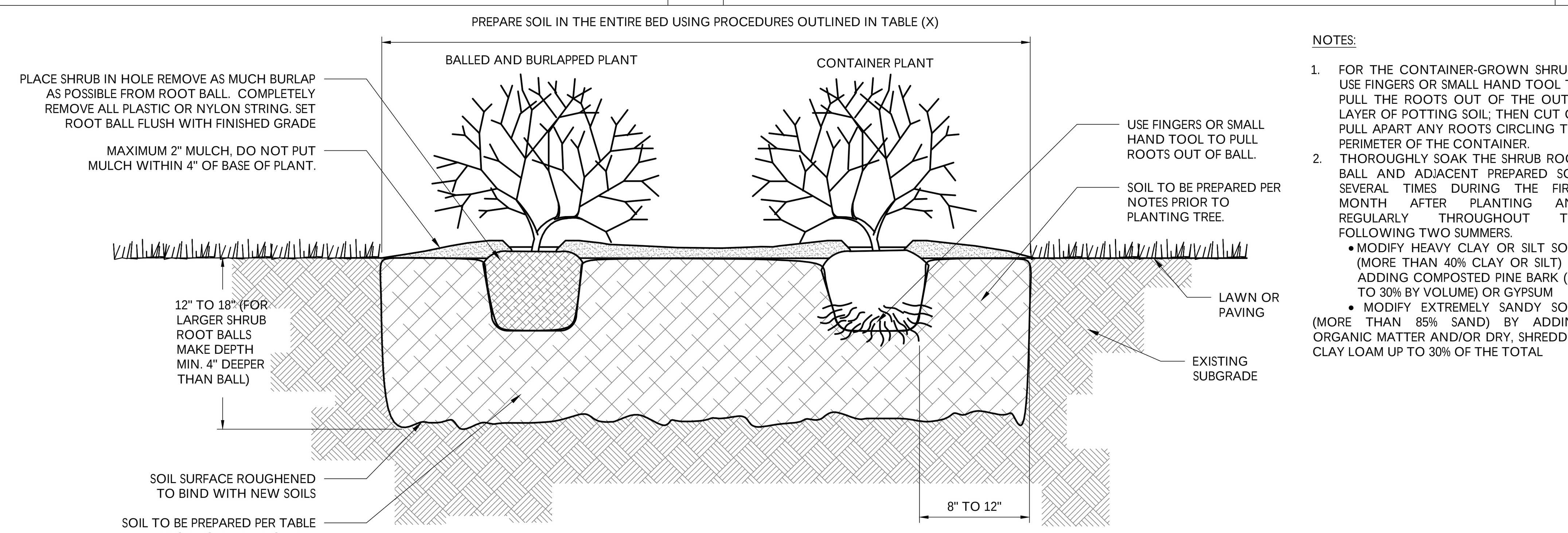
1. FOR CONTAINER-GROWN TREES, USE FINGERS OR SMALL HAND TOOLS TO PULL THE ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL; THEN CUT OR PULL APART ANY ROOTS CIRCLING THE PERIMETER OF THE CONTAINER.
2. THOROUGHLY SOAK THE TREE ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
3. SOIL AMENDMENTS:
   - MODIFY HEAVY CLAY OR SILT SOILS (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) OR GYPSUM
   - MODIFY EXTREMELY SANDY SOILS (MORE THAN 85% SAND) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX



CONIFEROUS TREE PLANTING DETAIL

NOT TO SCALE

2



NOTES:

1. FOR THE CONTAINER-GROWN SHRUBS, USE FINGERS OR SMALL HAND TOOL TO PULL THE ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL; THEN CUT OR PULL APART ANY ROOTS CIRCLING THE PERIMETER OF THE CONTAINER.
2. THOROUGHLY SOAK THE SHRUB ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
   - MODIFY HEAVY CLAY OR SILT SOILS (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) OR GYPSUM
   - MODIFY EXTREMELY SANDY SOILS (MORE THAN 85% SAND) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL

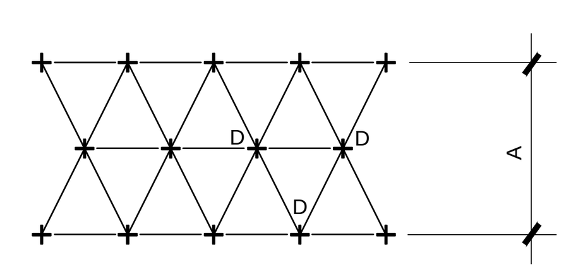
DECIDUOUS AND EVERGREEN SHRUB PLANTING DETAIL

NOT TO SCALE

3

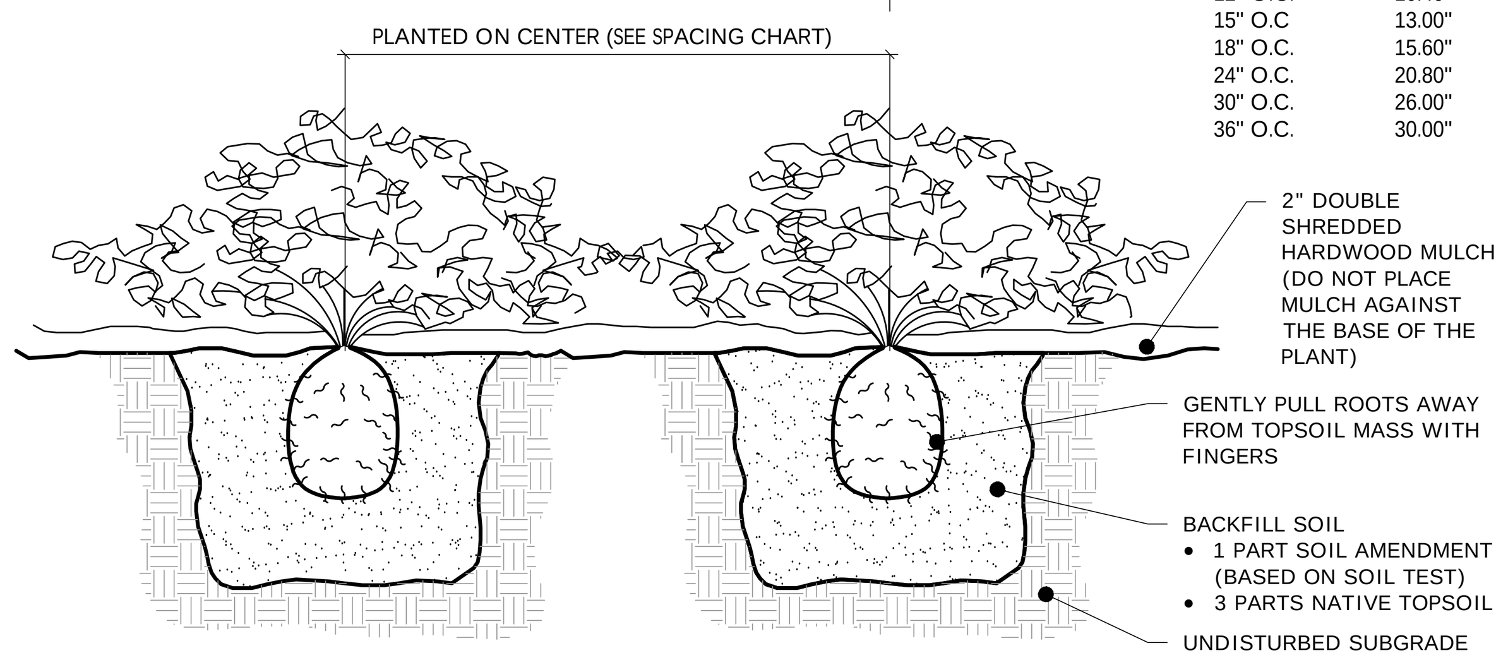
NOTES:

1. THOROUGHLY SOAK THE GROUND COVER ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
2. SOIL AMENDMENTS:
   - MODIFY HEAVY CLAY OR SILT SOILDS (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) OR GYPSUM
   - MODIFY EXTREMELY SANDY SOILDS (MORE THAN 85% SAND) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX
3. ALL GROUND COVER AREAS SHALL BE TREATED WITH A PRE-EMERGENT PER MANUFACTURER'S SPECIFICATIONS



SPACING CHART
NOT TO SCALE

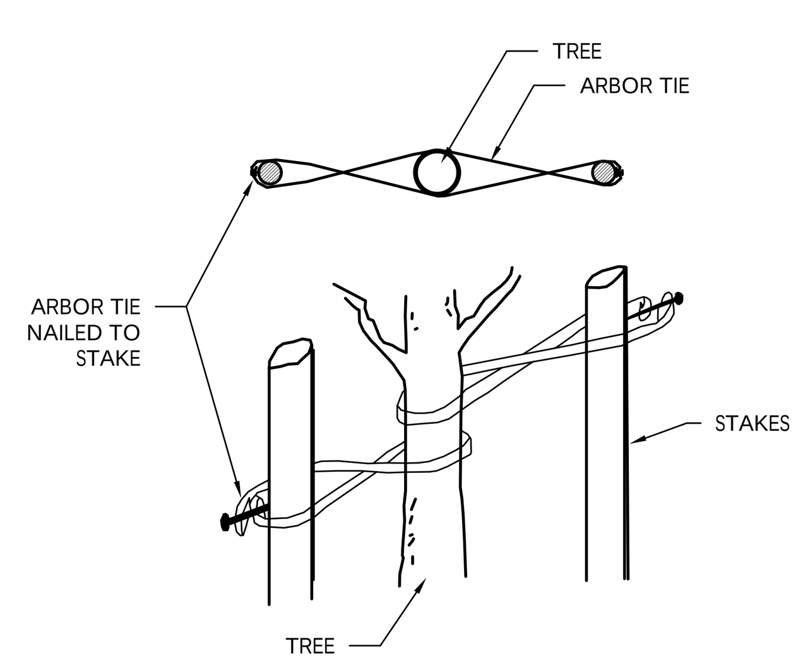
SPACING "D"	ROW "A"
6" O.C.	5.20"
8" O.C.	6.93"
10" O.C.	8.66"
12" O.C.	10.40"
15" O.C	13.00"
18" O.C.	15.60"
24" O.C.	20.80"
30" O.C.	26.00"
36" O.C.	30.00"



GROUND COVER/PERENNIAL/ANNUAL PLANTING DETAIL

NOT TO SCALE

4



INSTALLATION GUIDELINES:
1. LOOP TIE AROUND TREE AND NAIL TO CEDAR STAKE.
2. REMOVE ALL STAKING AND TIES AT END OF FIRST GROWING SEASON.
3. FOLD ENDS OF ARBORTIE BACK. SECURE TO STAKES WITH 1" GALVANIZED ROOFING NAIL OR USE A KNOT.
4. CONSULT LANDSCAPE ARCHITECT FOR STAKING OF TREES LARGER THAN 6".
5. SOURCES INCLUDE:
   GEMPLERS 1-800-332-6744 or GEMPLERS.COM
   CSP OUTDOORS 1-800-592-6940 or CSPOUTDOORS.COM

ARBORTIE DETAIL

NOT TO SCALE

5

GENERAL LANDSCAPING NOTES:

1. THE LANDSCAPE CONTRACTOR SHALL FURNISH ALL MATERIALS AND PERFORM ALL WORK IN ACCORDANCE WITH THESE SPECIFICATIONS, APPROVED OR FINAL DRAWINGS, AND INSTRUCTIONS PROVIDED BY THE PROJECT LANDSCAPE DESIGNER, MUNICIPAL OFFICIALS, OR OWNER/OWNER'S REPRESENTATIVE. ALL WORK COMPLETED AND MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH THE INTENTION OF THE SPECIFICATIONS, DRAWINGS, AND INSTRUCTIONS AND EXECUTED WITH THE STANDARD LEVEL OF CARE FOR THE LANDSCAPE INDUSTRY.
2. WORK MUST BE CARRIED OUT ONLY DURING WEATHER CONDITIONS FAVORABLE TO LANDSCAPE CONSTRUCTION AND TO THE HEALTH AND WELFARE OF PLANTS. THE SUITABILITY OF SUCH WEATHER CONDITIONS SHALL BE DETERMINED BY THE PROJECT LANDSCAPE DESIGNER OR GOVERNING MUNICIPAL OFFICIAL.
3. IT IS THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR, BEFORE ORDERING OR PURCHASING MATERIALS, TO PROVIDE SAMPLES OF THOSE MATERIALS TO THE PROJECT LANDSCAPE DESIGNER OR GOVERNING MUNICIPAL OFFICIAL FOR APPROVAL, IF SO REQUESTED.
4. IF SAMPLES ARE REQUESTED, THE LANDSCAPE CONTRACTOR IS TO SUBMIT CERTIFICATION TAGS FROM TREES, SHRUBS AND SEED VERIFYING TYPE AND PURITY.
5. UNLESS OTHERWISE AUTHORIZED BY THE PROJECT LANDSCAPE DESIGNER OR GOVERNING MUNICIPAL OFFICIAL, THE LANDSCAPE CONTRACTOR SHALL PROVIDE NOTICE AT LEAST FORTY-EIGHT HOURS (48 HRS.) IN ADVANCE OF THE ANTICIPATED DELIVERY DATE OF ANY PLANT MATERIALS TO THE PROJECT SITE. A LEGIBLE COPY OF THE INVOICE, SHOWING VARIETIES AND SIZES OF MATERIALS INCLUDED FOR EACH SHIPMENT SHALL BE FURNISHED TO THE PROJECT LANDSCAPE DESIGNER, OR GOVERNING MUNICIPAL OFFICIAL.
6. THE PROJECT LANDSCAPE DESIGNER OR GOVERNING MUNICIPAL OFFICIAL RESERVES THE RIGHT TO INSPECT AND REJECT PLANTS AT ANY TIME AND AT ANY PLACE.

PROTECTION OF EXISTING VEGETATION NOTES:

1. BEFORE COMMENCING WORK, ALL EXISTING VEGETATION WHICH COULD BE IMPACTED AS A RESULT OF THE PROPOSED CONSTRUCTION ACTIVITIES MUST BE PROTECTED FROM DAMAGE BY THE INSTALLATION OF TREE PROTECTION FENCING. FENCING SHALL BE LOCATED AT THE DRIP-LINE OR LIMIT OF DISTURBANCE AS DEPICTED WITHIN THE APPROVED OR FINAL PLAN SET, ESTABLISHING THE TREE PROTECTION ZONE. FENCE INSTALLATION SHALL BE IN ACCORDANCE WITH THE PROVIDED TREE PROTECTION FENCE DETAIL." NO WORK MAY BEGIN UNTIL THIS REQUIREMENT IS FULFILLED. THE FENCING SHALL BE INSPECTED REGULARLY BY THE LANDSCAPE CONTRACTOR AND MAINTAINED UNTIL ALL CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
2. IN ORDER TO AVOID DAMAGE TO ROOTS, BARK OR LOWER BRANCHES, NO VEHICLE, EQUIPMENT, DEBRIS, OR OTHER MATERIALS SHALL BE DRIVEN, PARKED OR PLACED WITHIN THE TREE PROTECTION ZONE. ALL ON-SITE CONTRACTORS SHALL USE ANY AND ALL PRECAUTIONARY MEASURES WHEN PERFORMING WORK AROUND TREES, WALKS, PAVEMENTS, UTILITIES, AND ANY OTHER FEATURES EITHER EXISTING OR PREVIOUSLY INSTALLED UNDER THIS CONTRACT.
3. IN RARE INSTANCES WHERE EXCAVATING, FILL, OR GRADING IS REQUIRED WITHIN THE DRIP-LINE OF TREES TO REMAIN, THE WORK SHALL BE PERFORMED AS FOLLOWS:
   - TRENCHING: WHEN TRENCHING OCCURS AROUND TREES TO REMAIN, THE TREE ROOTS SHALL NOT BE CUT, BUT THE TRENCH SHALL BE TUNNELED UNDER OR AROUND THE ROOTS BY CAREFUL HAND DIGGING AND WITHOUT INJURY TO THE ROOTS. NO ROOTS, LIMBS, OR WOODS ARE TO HAVE ANY PAINT OR MATERIAL APPLIED TO ANY SURFACE.
   - RAISING GRADES: WHEN THE GRADE AT AN EXISTING TREE IS BELOW THE NEW FINISHED GRADE, AND FILL NOT EXCEEDING 6 INCHES (6") IS REQUIRED, CLEAN, WASHED GRAVEL FROM ONE TO TWO INCHES (1" - 2") IN SIZE SHALL BE PLACED DIRECTLY AROUND THE TREE TRUNK. THE GRAVEL SHALL EXTEND OUT FROM THE TRUNK ON ALL SIDES A MINIMUM OF 18 INCHES (18") AND FINISH APPROXIMATELY TWO INCHES (2") ABOVE THE FINISH GRADE AT TREE. INSTALL GRAVEL BEFORE ANY EARTH FILL IS PLACED. NEW EARTH FILL SHALL NOT BE LEFT IN CONTACT WITH THE TRUNK OF ANY TREE REQUIRING FILL. WHERE FILL EXCEEDING 6 INCHES (6") IS REQUIRED, A DRY LAID TREE WELL SHALL BE CONSTRUCTED. IF APPLICABLE, TREE WELL INSTALLATION SHALL BE IN ACCORDANCE WITH THE PROVIDED TREE WELL DETAIL."
   - LOWERING GRADES: EXISTING TREES LOCATED IN AREAS WHERE THE NEW FINISHED GRADE IS TO BE LOWERED, SHALL HAVE RE-GRADING WORK DONE BY HAND TO THE INDICATED ELEVATION, NO GREATER THAN SIX INCHES (6"). ROOTS SHALL BE CUT CLEANLY THREE INCHES (3") BELOW FINISHED GRADE UNDER THE DIRECTION OF A LICENSED ARBORIST. WHERE CUT EXCEEDING 6 INCHES (6") IS REQUIRED, A DRY LAID RETAINING WALL SHALL BE CONSTRUCTED. IF APPLICABLE, THE RETAINING WALL INSTALLATION SHALL BE IN ACCORDANCE WITH THE PROVIDED TREE RETAINING WALL DETAIL."

SOIL PREPARATION AND MULCH NOTES:

1. LANDSCAPE CONTRACTOR SHALL OBTAIN A SOIL TEST OF THE IN-SITU TOPSOIL BY A CERTIFIED SOIL LABORATORY PRIOR TO PLANTING. LANDSCAPE CONTRACTOR SHALL ALLOW FOR A TWO WEEK TURNAROUND TIME FROM SUBMITTAL OF SAMPLE TO NOTIFICATION OF RESULTS.
2. BASED ON SOIL TEST RESULTS, ADJUST THE RATES OF LIME AND FERTILIZER THAT SHALL BE MIXED INTO THE TOP SIX INCHES (6") OF TOPSOIL. THE LIME AND FERTILIZER RATES PROVIDED WITHIN THE SEED SPECIFICATION" OR SOD SPECIFICATION" IS APPROXIMATE AND FOR BIDDING PURPOSES ONLY. IF ADDITIONAL AMENDMENTS ARE NECESSARY, ADJUST THE TOPSOIL AS FOLLOWS:
   - MODIFY HEAVY CLAY OR SILT SOILS (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) OR GYPSUM.
   - MODIFY EXTREMELY SANDY SOILS (MORE THAN 85%) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX.
3. TOPSOIL SHALL BE FERTILE, FRIABLE, NATURAL TOPSOIL OF LOAMING CHARACTER, WITHOUT ADMIXTURE OF SUBSOIL MATERIAL OBTAINED FROM A WELL-DRAINED ARABLE SITE, FREE FROM ALL CLAY, LUMPS, COARSE SANDS, STONES, PLANTS, ROOTS, STICKS, AND OTHER FOREIGN MATERIAL GREATER THAN ONE INCH (1").
4. TOPSOIL SHALL HAVE A PH RANGE OF 5.0-7.0 AND SHALL NOT CONTAIN LESS THAN 6% ORGANIC MATTER BY WEIGHT.
5. OBTAIN TOPSOIL ONLY FROM LOCAL SOURCES OR FROM AREAS HAVING SIMILAR SOIL CHARACTERISTICS TO THAT FOUND AT THE PROJECT SITE.
6. CONTRACTOR SHALL PROVIDE A SIX INCH (6") DEEP LAYER OF TOPSOIL IN ALL PLANTING AREAS. TOPSOIL SHALL BE SPREAD OVER A PREPARED SURFACE IN A UNIFORM LAYER TO ACHIEVE THE DESIRED COMPACTED THICKNESS. THE SPREADING OF TOPSOIL SHALL NOT BE CONDUCTED UNDER MUDDY OR FROZEN SOIL CONDITIONS.
7. UNLESS OTHERWISE NOTED IN THE CONTRACT, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF TOPSOIL AND THE ESTABLISHMENT OF FINE-GRADING WITHIN THE DISTURBED AREA OF THE SITE.
8. LANDSCAPE CONTRACTOR SHALL VERIFY THAT THE SUB-GRADE ELEVATION MEETS THE FINISHED GRADE ELEVATION (LESS THE REQUIRED TOPSOIL), IN ACCORDANCE WITH THE APPROVED OR FINAL GRADING PLAN.
9. ALL LAWN AND PLANTING AREAS SHALL BE GRADED TO A SMOOTH, EVEN AND UNIFORM PLANE WITH NO ABRUPT CHANGE OF SURFACE AS DEPICTED WITHIN THE APPROVED OR FINAL CONSTRUCTION SET UNLESS OTHERWISE DIRECTED BY THE PROJECT LANDSCAPE DESIGNER OR MUNICIPAL OFFICIAL.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER SURFACE AND SUBSURFACE PLANT BED DRAINAGE PRIOR TO THE INSTALLATION OF PLANTINGS. IF POOR DRAINAGE CONDITIONS EXIST, CORRECTIVE ACTION SHALL BE TAKEN PRIOR TO INSTALLATION. ALL PLANTING AND LAWN AREAS SHALL BE GRADED AND MAINTAINED TO ALLOW A FREE FLOW OF SURFACE WATER.
11. DOUBLE SHREDDED HARDWOOD MULCH OR APPROVED EQUAL SHALL BE USED AS A THREE INCH (3") TOP DRESSING IN ALL SHRUB PLANTING BEDS AND AROUND ALL TREES PLANTED BY LANDSCAPE CONTRACTOR. GROUND COVER, PERENNIAL, AND ANNUAL PLANTING BEDS SHALL BE MULCHED WITH A TWO INCH (2") TOP DRESSING. SINGLE TREES OR SHRUBS SHALL BE MULCHED TO AVOID CONTACT WITH TRUNK OR PLANT STEM. MULCH SHALL BE OF SUFFICIENT CHARACTER AS NOT TO BE EASILY DISPLACED BY WIND OR WATER RUNOFF.
12. WHENEVER POSSIBLE, THE SOIL PREPARATION AREA SHALL BE CONNECTED FROM PLANTING TO PLANTING.
13. SOIL SHALL BE LOOSENED WITH A BACKHOE OR OTHER LARGE COARSE-TILING EQUIPMENT UNLESS THE SOIL IS FROZEN OR EXCESSIVELY WET. TILING THAT PRODUCES LARGE, COARSE CHUNKS OF SOIL IS PREFERABLE TO TILING THAT RESULTS IN FINE GRAINS UNIFORM IN TEXTURE. AFTER THE AREA IS LOOSENED IT SHALL NOT BE DRIVEN OVER BY ANY VEHICLE.
14. APPLY PRE-EMERGENT WEED CONTROL TO ALL PLANT BEDS PRIOR TO MULCHING. ENSURE COMPATIBILITY BETWEEN PRODUCT AND PLANT MATERIAL.
15. ALL PLANTING SOIL SHALL BE AMENDED WITH THE FOLLOWING:

MYCRO TREE SAVER - A DRY GRANULAR MYCORRHIZAL FUNGI INOCULANT THAT IS MIXED IN THE BACKFILL WHEN PLANTING TREES AND SHRUBS. IT CONTAINS SPORES OF BOTH ECTOMYCORRHIZAL AND VA MYCORRHIZAL FUNGI (VAM), BENEFICIAL RHIZOSPHERE BACTERIA, TERRA-SORB SUPERABSORBENT HYDROGEL TO REDUCE WATER LEACHING, AND SELECTED ORGANIC MICROBIAL NUTRIENTS.
- DIRECTIONS FOR USE: USE 3-OZ PER EACH FOOT DIAMETER OF THE ROOT BALL, OR 3-OZ PER INCH CALIPER. MIX INTO THE BACKFILL WHEN TRANSPLANTING TREES AND SHRUBS. MIX PRODUCT IN A RING-SHAPED VOLUME OF SOIL AROUND THE UPPER PORTION OF THE ROOT BALL, EXTENDING FROM THE SOIL SURFACE TO A DEPTH OF ABOUT 8 INCHES, AND EXTENDING OUT FROM THE ROOT BALL ABOUT 8 INCHES INTO THE BACKFILL. APPLY WATER TO SOIL SATURATION.
- MYCOR TREE SAVER IS EFFECTIVE FOR ALL TREE AND SHRUB SPECIES EXCEPT RHODODENDRONS, AZALEAS, AND MOUNTAIN LAUREL, WHICH REQUIRE ERICOID MYCORRHIZAE.
- SOIL PH: THE FUNGI IN THIS PRODUCT WERE CHOSEN BASED ON THEIR ABILITY TO SURVIVE AND COLONIZE PLANT ROOTS IN A PH RANGE OF 3 TO 9.
- FUNGICIDES: THE USE OF CERTAIN FUNGICIDES CAN HAVE A DETRIMENTAL EFFECT ON THE INOCULATION PROGRAM. SOIL APPLICATION OF ANY FUNGICIDE IS NOT RECOMMENDED FOR TWO WEEKS AFTER APPLICATION.
- OTHER PESTICIDES: HERBICIDES AND INSECTICIDES DO NOT NORMALLY INTERFERE WITH MYCORRHIZAL FUNGAL DEVELOPMENT, BUT MAY INHIBIT THE GROWTH OF SOME TREE AND SHRUB SPECIES IF NOT USED PROPERLY.

HEALTHY START MACRO TABS 12-8-8
- FERTILIZER TABLETS ARE PLACED IN THE UPPER 4 INCHES OF BACKFILL SOIL WHEN PLANTING TREES AND SHRUBS.
- TABLETS ARE FORMULATED FOR LONG-TERM RELEASE BY SLOW BIODEGRADATION, AND LAST UP TO 2 YEARS AFTER PLANTING. TABLETS CONTAIN 12-8-8 NPK FERTILIZER, AS WELL AS A MINIMUM OF SEVEN PERCENT (7%) HUMIC ACID BY WEIGHT, MICROBIAL NUTRIENTS DERIVED FROM SEA KELP, PROTEIN BYPRODUCTS, AND YUCCA SCHIDIGERA, AND A COMPLEMENT OF BENEFICIAL RHIZOSPHERE BACTERIA. THE STANDARD 21 GRAM TABLET IS SPECIFIED HERE. DIRECTIONS FOR USE: FOR PLANTING BALLED & BURLAPPED (B&B) TREES AND SHRUBS, MEASURE THE THICKNESS OF THE TRUNK, AND USE ABOUT 1 TABLET (21-G) PER HALF-INCH. PLACE THE TABLETS DIRECTLY NEXT TO THE ROOT BALL, EVENLY DISTRIBUTED AROUND ITS PERIMETER, AT A DEPTH OF ABOUT 4 INCHES.

IRRIGATION DURING ESTABLISHMENT

SIZE AT PLANTING	IRRIGATION FOR VITALITY	IRRIGATION FOR SURVIVAL
< 2" CALIPER	DAILY FOR TWO WEEKS, EVERY OTHER DAY FOR TWO MONTHS, WEEKLY UNTIL ESTABLISHED	TWO TO THREE TIMES WEEKLY FOR TWO TO THREE MONTHS
2"-4 CALIPER	DAILY FOR ONE MONTH, EVERY OTHER DAY FOR THREE MONTHS, WEEKLY UNTIL ESTABLISHED	TWO TO THREE TIMES WEEKLY FOR THREE TO FOUR MONTHS
4 >" CALIPER	DAILY FOR SIX WEEKS, EVERY OTHER DAY FOR FIVE MONTHS, WEEKLY UNTIL ESTABLISHED	TWICE WEEKLY FOR FOUR TO FIVE MONTHS

TABLE NOTES:
1. AT EACH IRRIGATION, APPLY TWO TO THREE GALLONS PER INCH TRUNK CALIPER TO THE ROOT BALL SURFACE. APPLY IT IN A MANNER SO ALL WATER SOAKS THE ENTIRE ROOT BALL. DO NOT WATER IF ROOT BALL IS WET/SATURATED ON THE IRRIGATION DAY.

2. WHEN IRRIGATING FOR VITALITY, DELETE DAILY IRRIGATION WHEN PLANTING IN WINTER OR WHEN PLANTING IN COOL CLIMATES. ESTABLISHMENT TAKES THREE TO FOUR MONTHS PER INCH TRUNK CALIPER. NEVER APPLY IRRIGATION IF THE SOIL IS SATURATED.

3. WHEN IRRIGATION FOR SURVIVAL, TREES TAKE MUCH LONGER TO ESTABLISH THAN REGULARLY IRRIGATED TREES. IRRIGATION MAY BE REQUIRED IN THE NORMAL HOT, DRY PORTIONS OF THE FOLLOWING YEAR.

PLANT QUALITY AND HANDLING NOTES:

1. ALL PLANT MATERIAL SHALL CONFORM TO THE AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1-2004) OR LATEST REVISION AS PUBLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION.
2. IN ALL CASES, BOTANICAL NAMES LISTED WITHIN THE APPROVED OR FINAL PLANT LIST SHALL TAKE PRECEDENCE OVER COMMON NAMES.
3. ALL PLANTS SHALL BE OF SELECTED SPECIMEN QUALITY, EXCEPTIONALLY HEAVY, TIGHTLY KNIT, SO TRAINED OR FAVORED IN THEIR DEVELOPMENT AND APPEARANCE AS TO BE SUPERIOR IN FORM, NUMBER OF BRANCHES, COMPACTNESS AND SYMMETRY. ALL PLANTS SHALL HAVE A NORMAL HABIT OR SOUND, HEALTHY, VIGOROUS PLANTS WITH WELL DEVELOPED ROOT SYSTEM. PLANTS SHALL BE FREE OF DISEASE, INSECT PESTS, EGGS OR LARVAE.
4. PLANTS SHALL NOT BE PRUNED BEFORE DELIVERY. TREES WITH ABRASION OF THE BARK, SUNSCALDS, DISFIGURING KNOTS OR FRESH CUTS OF LIMBS OVER ONE AND ONE-FOURTH INCHES (1-1/4") WHICH HAVE NOT COMPLETELY CALLOUSED SHALL BE REJECTED.
5. ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES OR VARIETY AND SHALL HAVE A NORMAL HABIT OF GROWTH AND BE LEGIBLY TAGGED WITH THE PROPER NAME AND SIZE.
6. THE ROOT SYSTEM OF EACH PLANT SHALL BE WELL PROVIDED WITH FIBROUS ROOTS. ALL PARTS SHALL BE SOUND, HEALTHY, VIGOROUS, WELL-BRANCHED AND DENSELY FOLIATED WHEN IN LEAF.
7. ALL PLANTS DESIGNATED BALL AND BURLAP (B&B) MUST BE MOVED WITH THE ROOT SYSTEM AS SOLID UNITS WITH BALLS OF EARTH FIRMLY WRAPPED WITH BURLAP. THE DIAMETER AND DEPTH OF THE BALLS OF EARTH MUST BE SUFFICIENT TO ENCOMPASS THE FIBROUS ROOT FEEDING SYSTEMS NECESSARY FOR THE HEALTHY DEVELOPMENT OF THE PLANT. NO PLANT SHALL BE ACCEPTED WHEN THE BALL OF EARTH SURROUNDING ITS ROOTS HAS BEEN BADLY CRACKED OR BROKEN PREPARATORY TO OR DURING THE PROCESS OF PLANTING. THE BALLS SHALL REMAIN INTACT DURING ALL OPERATIONS. ALL PLANTS THAT CANNOT BE PLANTED AT ONCE MUST BE HEELED-IN BY SETTING IN THE GROUND AND COVERING THE BALLS WITH SOIL OR MULCH AND THEN WATERING. HEMP BURLAP AND TWINE IS PREFERABLE TO TREATED. IF TREATED BURLAP IS USED, ALL TWINE IS TO BE CUT FROM AROUND THE TRUNK AND ALL BURLAP IS TO BE REMOVED.
8. PLANTS TRANSPORTED TO THE PROJECT IN OPEN VEHICLES SHALL BE COVERED WITH TARPS OR OTHER SUITABLE COVERS SECURELY FASTENED TO THE BODY OF THE VEHICLE TO PREVENT INJURY TO THE PLANTS. CLOSED VEHICLES SHALL BE ADEQUATELY VENTILATED TO PREVENT OVERHEATING OF THE PLANTS. EVIDENCE OF INADEQUATE PROTECTION FOLLOWING DIGGING, CARELESSNESS WHILE IN TRANSIT, OR IMPROPER HANDLING OR STORAGE SHALL BE CAUSE FOR REJECTION OF PLANT MATERIAL. ALL PLANTS SHALL BE KEPT MOIST, FRESH, AND PROTECTED. SUCH PROTECTION SHALL ENCOMPASS THE ENTIRE PERIOD DURING WHICH THE PLANTS ARE IN TRANSIT, BEING HANDLED, OR ARE IN TEMPORARY STORAGE.
9. ALL PLANT MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH THE CORRESPONDING LANDSCAPE PLAN AND PLANTING DETAILS.
10. LANDSCAPE CONTRACTOR SHALL MAKE BEST EFFORT TO INSTALL PLANTINGS ON THE SAME DAY AS DELIVERY. IF PLANTS ARE NOT PLANTED IMMEDIATELY ON SITE, PROPER CARE SHALL BE TAKEN TO PLACE THE PLANTINGS IN PARTIAL SHADE WHEN POSSIBLE. THE ROOT BALL SHALL BE KEPT MOIST AT ALL TIME AND COVERED WITH MOISTENED MULCH OR AGED WOODCHIPS. PROPER IRRIGATION SHALL BE SUPPLIED SO AS TO NOT ALLOW THE ROOT BALL TO DRY OUT. PLANTINGS SHALL BE UNTIED AND PROPER SPACING SHALL BE ALLOTTED FOR AIR CIRCULATION AND TO PREVENT DISEASE, WILTING, AND LEAF LOSS. PLANTS THAT REMAIN UNPLANTED FOR A PERIOD OF TIME GREATER THAN THREE (3) DAYS SHALL BE HEALED IN WITH TOPSOIL OR MULCH AND WATERED AS REQUIRED TO PRESERVE ROOT MOISTURE.
11. NO PLANT MATERIAL SHALL BE PLANTED IN MUDDY OR FROZEN SOIL.
12. PLANTS WITH INJURED ROOTS OR BRANCHES SHALL BE PRUNED PRIOR TO PLANTING UTILIZING CLEAN, SHARP TOOLS. ONLY DISEASED OR INJURED PLANTS SHALL BE REMOVED.
13. IF ROCK OR OTHER UNDERGROUND OBSTRUCTION IS ENCOUNTERED, THE LANDSCAPE DESIGNER RESERVES THE RIGHT TO RELOCATE OR ENLARGE PLANTING PITS OR DELETE PLANT MATERIAL FROM THE CONTRACT.
14. IF PLANTS ARE PROPOSED WITHIN SIGHT TRIANGLES, TREES SHALL BE LIMBED AND MAINTAINED TO A HEIGHT OF EIGHT FEET (8') ABOVE GRADE, AND SHRUBS, GROUND COVER, PERENNIALS, AND ANNUALS SHALL BE MAINTAINED TO A HEIGHT NOT TO EXCEED TWO FEET (2') ABOVE GRADE UNLESS OTHERWISE NOTED OR SPECIFIED BY THE GOVERNING MUNICIPALITY OR AGENCY.
15. INSTALLATION SHALL OCCUR DURING THE FOLLOWING SEASONS:
    PLANTS (APRIL 15 - SEPTEMBER 30)
    LAWNS (MARCH 15 - JUNE 15 OR SEPTEMBER 1 - DECEMBER 1)
16. THE FOLLOWING TREES ARE SUSCEPTIBLE TO TRANSPLANT SHOCK AND SHALL NOT BE PLANTED DURING THE FALL SEASON (STARTING SEPTEMBER 15):

ABIES CONCOLOR	CORNUS VARIETIES	OSTRYA VIRGINIANA
ACER BUERGERIANUM	CRATAEGUS VARIETIES	PINUS NIGRA
ACER FREEMANII	CUPRESSOCYPARIS LEYLANDII	PLATANUS VARIETIES
ACER RUBRUM	FAGUS VARIETIES	POPULUS VARIETIES
ACER SACCHARINUM	HALESIA VARIETIES	PRUNUS VARIETIES
BETULA VARIETIES	ILEX X FOSTERII	PYRUS VARIETIES
CARPINUS VARIETIES	ILEX NELLIE STEVENS	QUERCUS VARIETIES (NOT Q. PALUSTRIS)
CEDRUS DEODARA	ILEX OPACA	SALIX WEEPING VARIETIES
CELTIS VARIETIES	JUNIPERUS VIRGINIANA	SORBUS VARIETIES
CERCIDIPHYLLUM VARIETIES	KOELREUTERIA PANICULATA	TAXODIUM VARIETIES
CERCIS CANADENSIS	LIQUIDAMBAR VARIETIES	TAXUX B REPANDENS
CORNUS VARIETIES	LIRIODENDRON VARIETIES	TILIA TOMENTOSA VARIETIES
CRATAEGUS VARIETIES	MALUS IN LEAF	ULMUS PARVIFOLIA VARIETIES
	NYSSA SYLVATICA	ZELKOVA VARIETIES

17. IF A PROPOSED PLANT IS UNATTAINABLE OR ON THE FALL DIGGING HAZARD LIST, AN EQUIVALENT SPECIES OF THE SAME SIZE MAY BE REQUESTED FOR SUBSTITUTION OF THE ORIGINAL PLANT. ALL SUBSTITUTIONS SHALL BE APPROVED BY THE PROJECT LANDSCAPE DESIGNER OR MUNICIPAL OFFICIAL PRIOR TO ORDERING AND INSTALLATION.
18. DURING THE COURSE OF CONSTRUCTION/PLANT INSTALLATION, EXCESS AND WASTE MATERIALS SHALL BE CONTINUOUSLY AND PROMPTLY REMOVED AT THE END OF EACH WORK DAY. ALL DEBRIS, MATERIALS, AND TOOLS SHALL BE PROPERLY STORED, STOCKPILED OR DISPOSED OF AND ALL PAVED AREAS SHALL BE CLEANED.
19. THE LANDSCAPE CONTRACTOR SHALL DISPOSE OF ALL RUBBISH AND EXCESS SOIL AT HIS EXPENSE TO AN OFF-SITE LOCATION AS APPROVED BY THE LOCAL MUNICIPALITY.
20. A 90-DAY MAINTENANCE PERIOD SHALL BEGIN IMMEDIATELY AFTER ALL PLANTS HAVE BEEN SATISFACTORILY INSTALLED.
21. MAINTENANCE SHALL INCLUDE, BUT NOT BE LIMITED TO, REPLACING MULCH THAT HAS BEEN DISPLACED BY EROSION OR OTHER MEANS, REPAIRING AND RESHAPING WATER RINGS OR SAUCERS, MAINTAINING STAKES AND GUYS IF ORIGINALLY REQUIRED, WATERING WHEN NEEDED OR DIRECTED, WEEDING, PRUNING, SPRAYING, FERTILIZING, MOWING THE LAWN, AND PERFORMING ANY OTHER WORK REQUIRED TO KEEP THE PLANTS IN A HEALTHY CONDITION.
22. MOW ALL GRASS AREAS AT REGULAR INTERVALS TO KEEP THE GRASS HEIGHT FROM EXCEEDING THREE INCHES (3"). MOWING SHALL BE PERFORMED ONLY WHEN GRASS IS DRY. MOWER BLADE SHALL BE SET TO REMOVE NO MORE THAN ONE THIRD (1/3) OF THE GRASS LENGTH. WHEN THE AMOUNT OF GRASS IS HEAVY, IT SHALL BE REMOVED TO PREVENT DESTRUCTION OF THE UNDERLYING TURF. MOW GRASS AREAS IN SUCH A MANNER AS TO PREVENT CLIPPINGS FROM BLOWING ON PAVED AREAS, AND SIDEWALKS. CLEANUP AFTER MOWING SHALL INCLUDE SWEEPING OR BLOWING OF PAVED AREAS AND SIDEWALKS TO CLEAR THEM FROM MOWING DEBRIS.
23. GRASSED AREAS DAMAGED DURING THE PROCESS OF THE WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, WHO SHALL RESTORE THE DISTURBED AREAS TO A CONDITION SATISFACTORY TO THE PROJECT LANDSCAPE DESIGNER, MUNICIPAL OFFICIAL, OR OWNER/OWNER'S REPRESENTATIVE. THIS MAY INCLUDE FILLING TO GRADE, FERTILIZING, SEEDING, AND MULCHING.
24. SHOULD THE OWNER REQUIRE MAINTENANCE BEYOND THE STANDARD 90-DAY MAINTENANCE PERIOD, A SEPARATE CONTRACT SHALL BE ESTABLISHED.
25. LANDSCAPE CONTRACTOR SHALL WATER NEW PLANTINGS FROM TIME OF INSTALL AND THROUGHOUT REQUIRED 90-DAY MAINTENANCE PERIOD UNTIL PLANTS ARE ESTABLISHED. IF ON-SITE WATER IS NOT AVAILABLE AT THE PROJECT LOCATION, THE LANDSCAPE CONTRACTOR SHALL FURNISH IT BY MEANS OR A WATERING TRUCK OR OTHER ACCEPTABLE MANNER.
26. THE QUANTITY OF WATER APPLIED AT ONE TIME SHALL BE SUFFICIENT TO PENETRATE THE SOIL TO A MINIMUM OF EIGHT INCHES (8") IN SHRUB BEDS AND SIX INCHES (6") IN TURF AREAS AT A RATE WHICH WILL PREVENT SATURATION OF THE SOIL.
27. IF AN AUTOMATIC IRRIGATION SYSTEM HAS BEEN INSTALLED, IT CAN BE USED FOR WATERING PLANT MATERIAL. HOWEVER, FAILURE OF THE SYSTEM DOES NOT ELIMINATE THE LANDSCAPE CONTRACTOR'S RESPONSIBILITY OF PLANT HEALTH AND ESTABLISHMENT.

PLANT MATERIAL GUARANTEE NOTES:

1. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIAL FOR A PERIOD OF ONE YEAR (1 YR.) FROM APPROVAL OF LANDSCAPE INSTALLATION BY THE PROJECT LANDSCAPE DESIGNER, MUNICIPAL OFFICIAL, OR OWNER/OWNER'S REPRESENTATIVE.
2. THE LANDSCAPE CONTRACTOR SHALL REMOVE AND REPLACE DYING, DEAD, OR DEFECTIVE PLANT MATERIAL AT HIS EXPENSE. THE LANDSCAPE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS COMPANY'S OPERATIONS.
3. ALL REPLACEMENT PLANTS SHALL BE OF THE SAME SPECIES AND SIZE AS SPECIFIED ON THE APPROVED OR FINAL PLANT LIST. REPLACEMENTS RESULTING FROM REMOVAL, LOSS, OR DAMAGE DUE TO OCCUPANCY OF THE PROJECT IN ANY PART, VANDALISM, PHYSICAL DAMAGE BY ANIMALS, VEHICLES, ETC., AND LOSSES DUE TO CURTAILMENT OF WATER BY LOCAL AUTHORITIES SHALL BE APPROVED AND PAID FOR BY THE OWNER.
4. THE CONTRACTOR SHALL INSTRUCT THE OWNER AS TO THE PROPER CARE AND MAINTENANCE OF ALL PLANTINGS.

LAWN (SEED OR SOD) NOTES:

1. SEED MIXTURE SHALL BE FRESH, CLEAN, NEW CROP SEED. SOD SHALL BE STRONGLY ROOTED, UNIFORM IN THICKNESS, AND FREE OF WEEDS, DISEASE, AND PESTS.
2. SEED OR SOD SHALL BE PURCHASED FROM A RECOGNIZED DISTRIBUTOR AND SHALL BE COMPOSED OF THE MIX OR BLEND WITHIN THE PROVIDED SEED SPECIFICATION" OR SOD SPECIFICATION."
3. REFERENCE LANDSCAPE PLAN FOR AREAS TO BE SEEDED OR LAID WITH SOD.
4. SEEDING SHALL NOT BE PERFORMED IN WINDY WEATHER. IF THE SEASON OF THE PROJECT COMPLETION PROHIBITS PERMANENT STABILIZATION, TEMPORARY STABILIZATION SHALL BE PROVIDED IN ACCORDANCE WITH THE TEMPORARY SEEDING SPECIFICATION."
5. PROTECT NEW LAWN AREAS AGAINST TRESPASSING WHILE THE SEED IS GERMINATING. FURNISH AND INSTALL FENCES, SIGNS, BARRIERS OR ANY OTHER NECESSARY TEMPORARY PROTECTIVE DEVICES. DAMAGE RESULTING FROM TRESPASS, EROSION, WASHOUT, SETTLEMENT OR OTHER CAUSES SHALL BE REPAIRED BY THE LANDSCAPE CONTRACTOR AT HIS EXPENSE. REMOVE ALL FENCES, SIGNS, BARRIERS OR OTHER TEMPORARY PROTECTIVE DEVICES ONCE LAWN HAS BEEN ESTABLISHED.

ISSUE	DATE	BY	DESCRIPTION
00	03/07/2025	AJD	ISSUED FOR MUNICIPAL SUBMISSION

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LAND DEVELOPMENT PLANS

PRIMROSE SCHOOLS FRANCHISING COMPANY

PROPOSED CHILD DAY CARE FACILITY

PARCEL ID: 28-113
885 MAIN STREET
TOWN OF READING
MIDDLESEX COUNTY, MASSACHUSETTS

JOSHUA H. KLINE, P.E.
MASSACHUSETTS LICENSE No. 53936
LICENSED PROFESSIONAL ENGINEER

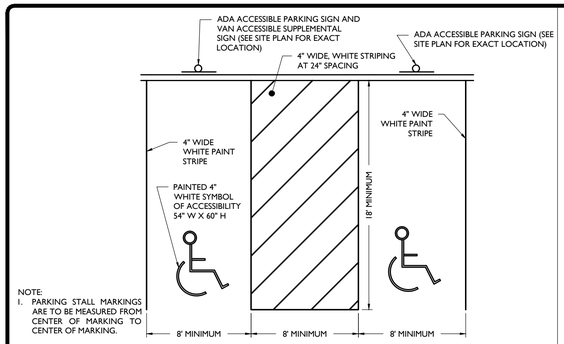
STONEFIELD engineering & design

SCALE: AS SHOWN | PROJECT ID: BOS-240115

TITLE: LANDSCAPING DETAILS

DRAWING: C-11

Z:\BOSTON\BOS\2024\BOS-240115 PRIMROSE SCHOOLS - 885 MAIN STREET, READING, MA\CADD\PLOT\XXX-10-LAND.DWG

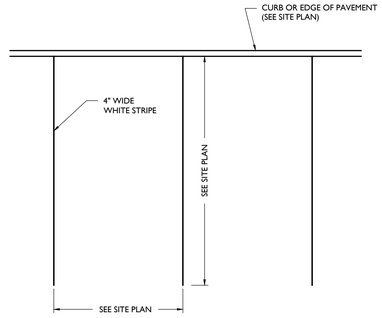


NOTE:
1. PARKING STALL MARKINGS ARE TO BE MEASURED FROM CENTER OF MARKING TO CENTER OF MARKING.

ACCESSIBLE PARKING STALL MARKINGS

NOT TO SCALE

1

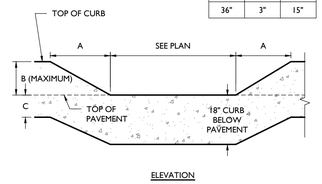


PARKING STALL MARKINGS

NOT TO SCALE

2

FLUSH OPENING DIMENSIONS		
A	B	C
72"	6"	12"
60"	5"	13"
48"	4"	14"
36"	3"	15"

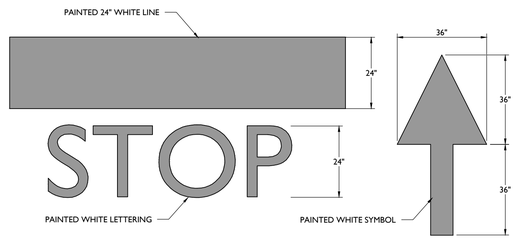


ELEVATION

FLUSH OPENING DETAIL

NOT TO SCALE

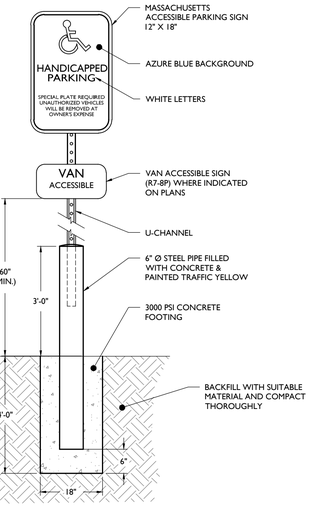
3



STOP BAR & ARROW DETAILS

NOT TO SCALE

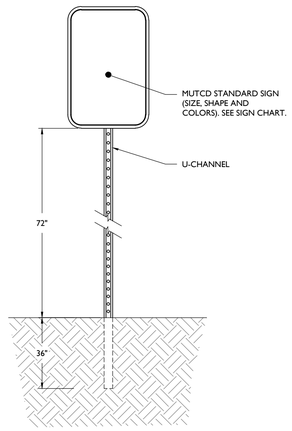
4



ACCESSIBLE PARKING SIGN WITH BOLLARD DETAIL

NOT TO SCALE

5



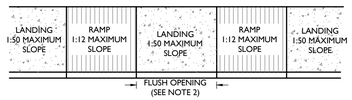
M.U.T.C.D. NUMBER	TEXT	COLOR		SIZE OF SIGN (WIDTH X HEIGHT)	TYPE OF MOUNT
		LEGEND	BACKGROUND		
STOP SIGN (R1-1)	STOP	RED	WHITE	36"x36"	GROUND
DO NOT ENTER (R5-1)	DO NOT ENTER	RED	WHITE	30"x30"	GROUND

NOTE:
1. ALL SIGNS SHALL BE IN ACCORDANCE WITH THE FEDERAL HIGHWAY ADMINISTRATION (FHWA) MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), EXCEPT AS NOTED.
2. ALL SIGNS SHALL BE MOUNTED AS TO NOT OBSTRUCT THE SHAPE OF "STOP" (R1-1) AND "YIELD" (R1-2) SIGNS.

SIGN POST DETAIL & SIGN DATA TABLE

NOT TO SCALE

6

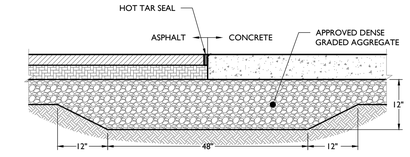


TRANSITION RAMP DETAIL

NOT TO SCALE

NOTES:
1. CROSS SLOPE ON RAMP SHALL NOT EXCEED 2%
2. A FLUSH OPENING SHALL HAVE A MINIMUM WIDTH OF 36". SEE PLAN FOR EXACT WIDTH.
3. RAMP SHALL HAVE A MAXIMUM RISE OF 6" WITHOUT A HANDRAIL

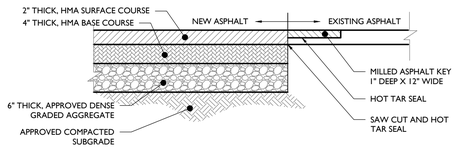
7



CONCRETE TO ASPHALT TRANSITION DETAIL

NOT TO SCALE

8

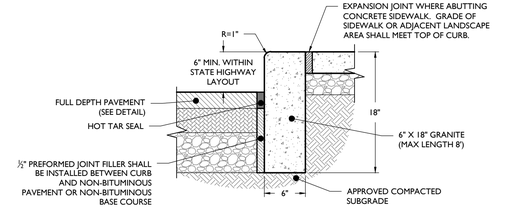


FULL DEPTH ASPHALT PAVEMENT DETAIL

NOT TO SCALE

NOTE:
HMA MIX AND DENSE GRADED AGGREGATE SHALL CONFORM TO STATE DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.

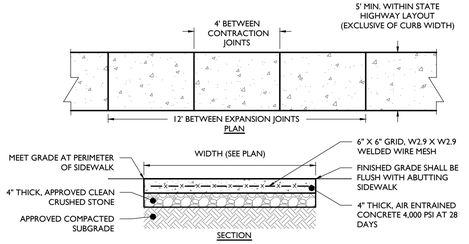
9



GRANITE BLOCK CURB DETAIL

NOT TO SCALE

10



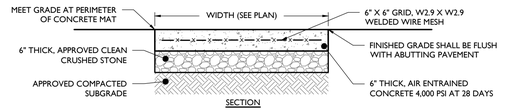
SECTION

REINFORCED CONCRETE WALKWAY DETAIL

NOT TO SCALE

NOTES:
1. MAXIMUM CROSS SLOPE SHALL BE ¼" PER FOOT.
2. ½" EXPANSION JOINTS SHALL BE PROVIDED AT 12' INTERVALS WITH PRE-MOLDED, BITUMINOUS JOINT FILLER, RECESSED ½" FROM THE SURFACE.
3. 1" DEEP BY ½" WIDE, TOOLED CONTRACTION JOINTS SHALL BE PROVIDED AT 4' INTERVALS.
4. EXPANSION JOIN SHALL BE PROVIDED WHERE ADJACENT TO A BUILDING.

11



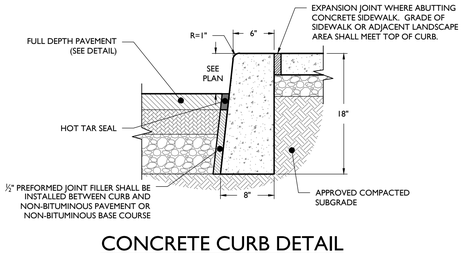
SECTION

REINFORCED 6" CONCRETE MAT

NOT TO SCALE

NOTES:
1. ½" EXPANSION JOINTS WITH WATER SEAL SHALL BE PROVIDED AT 12' INTERVALS WITH PRE-MOLDED, BITUMINOUS JOINT FILLER, RECESSED ¼" FROM THE SURFACE. LONGITUDINAL REBAR TO BE CUT AT EXPANSION JOINTS.
2. 1" DEEP BY ¼" WIDE, TOOLED CONTRACTION JOINTS SHALL BE PROVIDED AT MID-POINT BETWEEN EXPANSION JOINTS OR 6' INTERVALS MAX.
3. CONCRETE SHALL RECEIVE BROOM FINISH.
4. ALL EXPOSED CORNERS TO HAVE 12" CHAMFER.

12

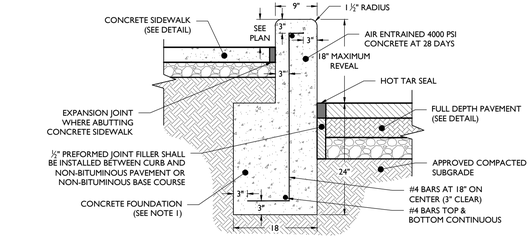


CONCRETE CURB DETAIL

NOT TO SCALE

NOTES:
1. CONCRETE SHALL BE 3500 PSI AT 28 DAYS, AIR-ENTRAINED.
2. TRANSVERSE EXPANSION JOINTS SHALL BE PROVIDED AT 20 FOOT INTERVALS WITH PRE-MOLDED, BITUMINOUS JOINT FILLER, RECESSED ¼" FROM SURFACE.
3. HALF DEPTH CONTRACTION JOINTS SHALL BE PROVIDED AT 10 FOOT INTERVALS.
4. 18" CURB DEPTH SHALL BE MAINTAINED AT DEPRESSED OR FLUSH CURBED AREAS.

13



EXTENDED CONCRETE CURB DETAIL

NOT TO SCALE

NOTES:
1. CONCRETE SHALL BE 4000 PSI AT 28 DAYS, AIR-ENTRAINED.
2. ½" EXPANSION JOINTS WITH WATER SEAL SHALL BE PROVIDED AT 50 FOOT INTERVALS WITH PRE-MOLDED, BITUMINOUS JOINT FILLER, RECESSED ½" FROM SURFACE. LONGITUDINAL REBAR TO BE CUT AT EXPANSION JOINTS.
3. 1" DEEP AND ½" WIDE TOOLED CONTRACTION JOINTS SHALL BE PROVIDED AT MID-POINT BETWEEN EXPANSION JOINTS, OR 30 FOOT MAX.

14

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JOSHUA H. KLINE, P.E.
MASSACHUSETTS LICENSE No. 53936
LICENSED PROFESSIONAL ENGINEER

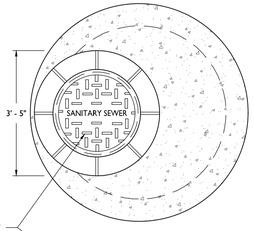
STONEFIELD engineering & design

SCALE: AS NOTED | PROJECT ID: BOS-240115

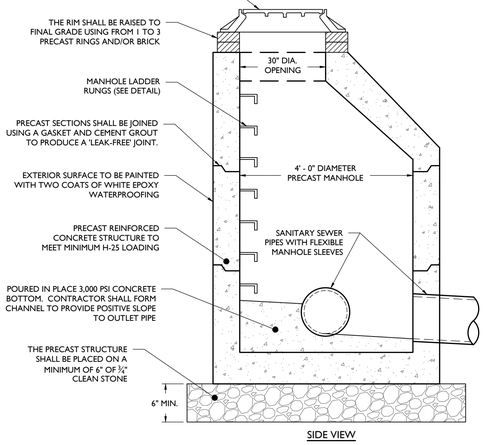
TITLE: CONSTRUCTION DETAILS

DRAWING: C-12

NOTES:
1. STRUCTURE TO BE CONSTRUCTED OF REINFORCED PRECAST CONCRETE.
2. FRAME AND COVER TO BE CAST-IRON AND SUPPORT MINIMUM H-25 LOADING.
3. ALL JOINTS TO BE WATER-TIGHT.
4. SUBGRADE BENEATH STRUCTURE SHALL BE LEVELED AND COMPACTED AS NECESSARY PRIOR TO INSTALLING STRUCTURE.



TOP VIEW



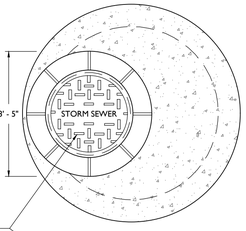
SIDE VIEW

SANITARY MANHOLE DETAIL

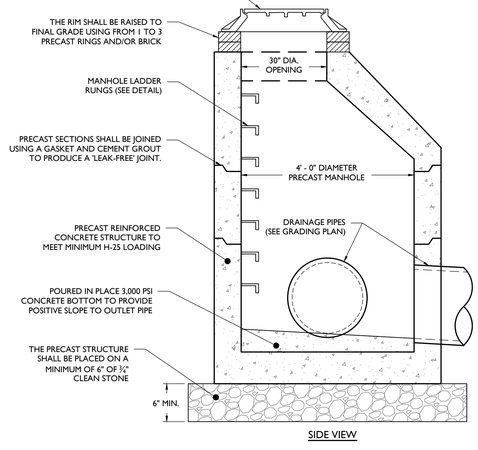
NOT TO SCALE

1

NOTES:
1. STRUCTURE TO BE CONSTRUCTED OF REINFORCED PRECAST CONCRETE.
2. FRAME AND COVER TO BE CAST-IRON AND SUPPORT MINIMUM H-25 LOADING.
3. ALL JOINTS TO BE WATER-TIGHT.
4. SUBGRADE BENEATH STRUCTURE SHALL BE LEVELED AND COMPACTED AS NECESSARY PRIOR TO INSTALLING STRUCTURE.



TOP VIEW

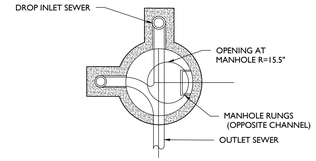


SIDE VIEW

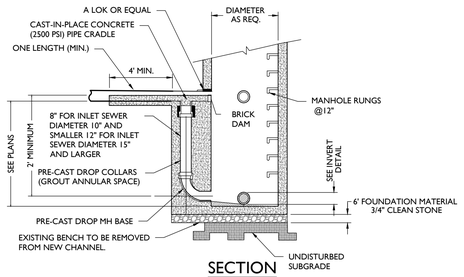
STORM STRUCTURE DETAIL

NOT TO SCALE

2



PLAN



SECTION

NOTE:
1. SUBMIT SHOP DRAWINGS FOR APPROVAL

2.BUTYL LOK SEALANT TUBE USED BETWEEN PRECAST SECTIONS

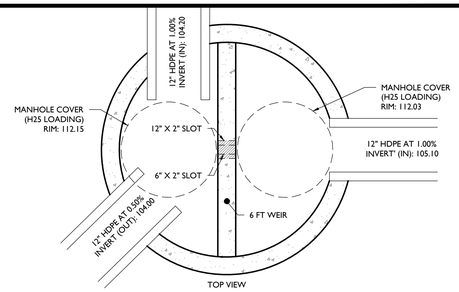
3. DROP CONNECTIONS MORE THAN 10 FEET DEEP SHALL BE DUCTILE IRON PIPE CONSTRUCTION

4.MANHOLE TO BE CONSTRUCTED IN ACCORDANCE WITH STANDARD MANHOLE DETAIL EXPECT AS MODIFIED HEREIN

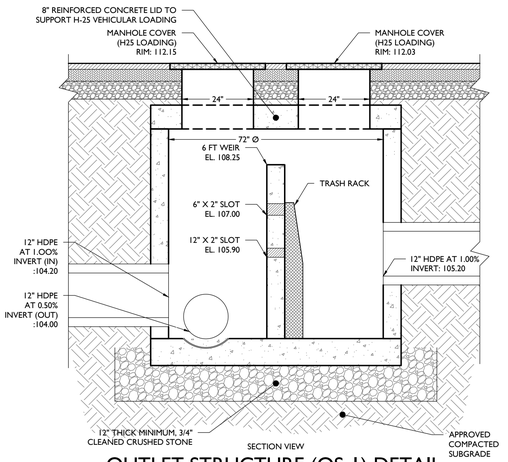
DROP CONNECTION

NOT TO SCALE

3



TOP VIEW

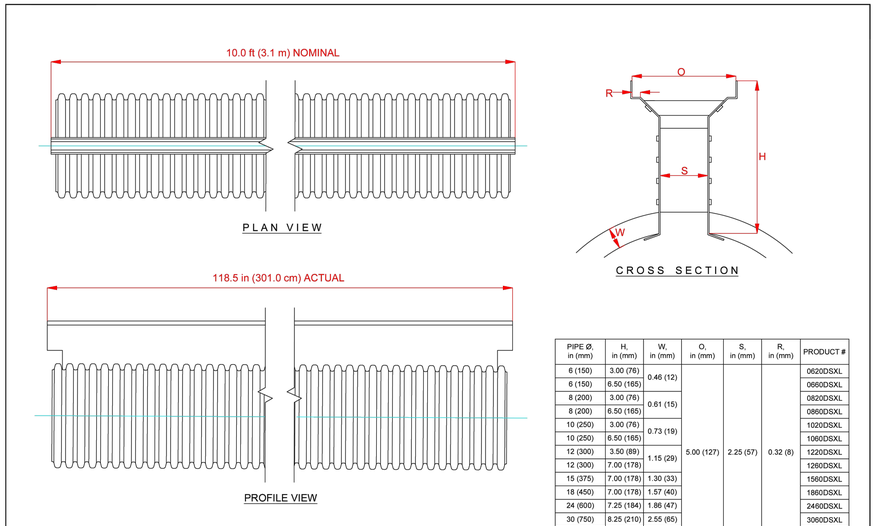


SECTION VIEW

OUTLET STRUCTURE (OS-1) DETAIL

NOT TO SCALE

4



PIPE Ø, in (mm)	H, in (mm)	W, in (mm)	O, in (mm)	S, in (mm)	R, in (mm)	PRODUCT #
6 (150)	3.00 (76)	0.46 (12)	5.00 (127)	2.25 (57)	0.32 (8)	0620DSXL
6 (150)	6.50 (165)					0660DSXL
8 (200)	3.00 (76)	0.61 (15)				0820DSXL
8 (200)	6.50 (165)					0860DSXL
10 (250)	3.00 (76)	0.73 (19)				1020DSXL
10 (250)	6.50 (165)					1060DSXL
12 (300)	3.50 (89)	1.15 (29)				1220DSXL
12 (300)	7.00 (178)					1260DSXL
15 (375)	7.00 (178)	1.30 (33)				1560DSXL
18 (450)	7.00 (178)	1.57 (40)				1860DSXL
24 (600)	7.25 (184)	1.86 (47)				2460DSXL
30 (750)	8.25 (210)	2.55 (65)				3060DSXL
36 (900)	8.25 (210)	2.85 (72)				3660DSXL

NOTES:
1. SEE GRATING DETAILS FOR SURFACE TREATMENT OPTIONS.
2. ALL DIMENSIONS ARE FOR REFERENCE ONLY.

REV.	DESCRIPTION	BY	MM/DD/YY	CHK'D
3	Updated Layers & Logo	KJS	01/09/2025	-

Duraslot XL Pipe
Standard Slot Height

DRAWING NUMBER: STD-1400B

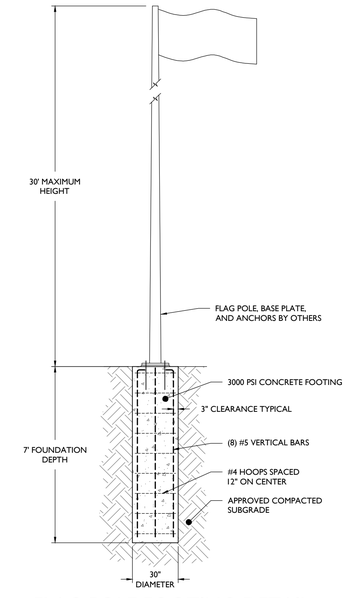
ADS Advanced Drainage Systems, Inc.
4640 TRUEMAN BLVD
HILLIARD, OHIO 43026

DRAWN BY:	KJS
DATE:	04-18-2023
CHK'D BY:	-
STATUS:	NTS
SHEET:	1 OF 1

ADS DURASLOT XL DETAIL

NOT TO SCALE

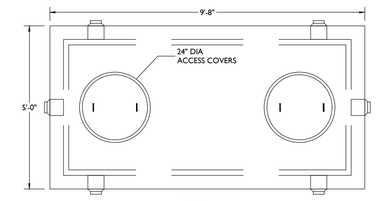
5



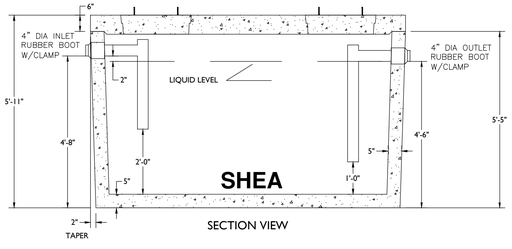
FLAG POLE FOOTING DETAIL

NOT TO SCALE

6



TOP VIEW



SECTION VIEW

NOTES:
1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
2. CONSTRUCTION OF GREASE TRAPS CONFORMS WITH 310 CMR, SECTION 15.00 DEP TITLE 5 REGS.
3. ALL REINFORCEMENT PER ASTM C1227.
4. TEES AND BAFFLES SOLD SEPARATELY.
5. TONGUE & GROOVE JOINT SEALED WITH BUTYL RESIN.
6. DESIGNED FOR AASHTO HS-20 LOADING, 1 TO 5 FT COVER.

WEIGHT:
BOTTOM = 11,250#
10" TOP = 5,960#
6" TOP = 3,575#

ITEM NO.		
M1000H	H-20 (6" TOP)	
M1000HT10	H-20 (10" TOP)	

1,000 GALLON GREASE TRAP DETAIL

NOT TO SCALE

7

NO.	DATE	BY	DESCRIPTION
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LAND DEVELOPMENT PLANS

PRIMROSE SCHOOLS FRANCHISING COMPANY

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PARCEL ID: 28113
885 MAIN STREET
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JOSHUA H. KLINE, P.E.
MASSACHUSETTS LICENSE No. 53936
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

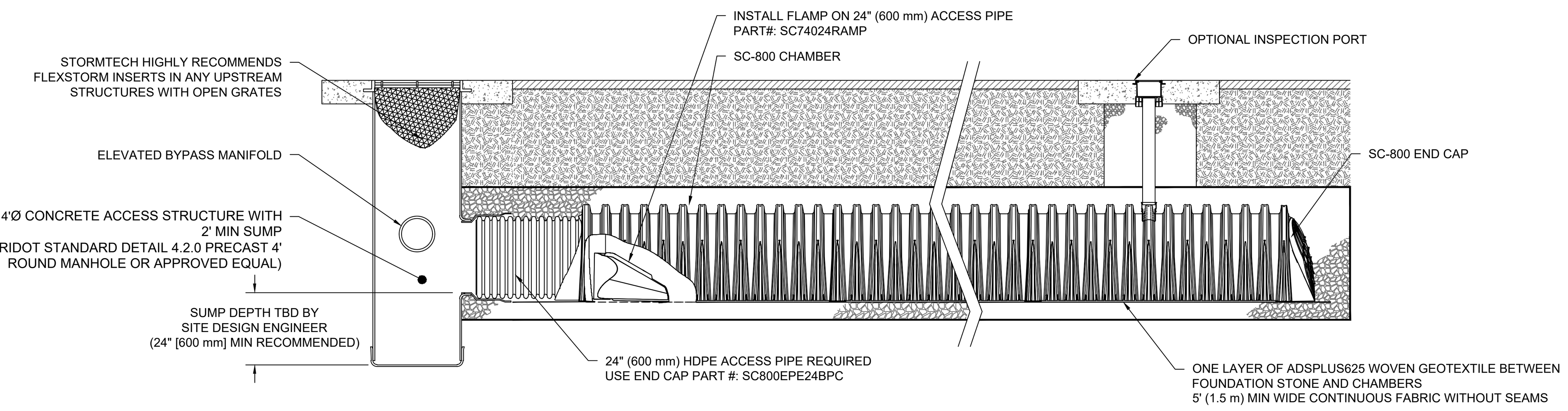
SCALE: AS NOTED | PROJECT ID: BOS-240115

TITLE:

CONSTRUCTION DETAILS

DRAWING:

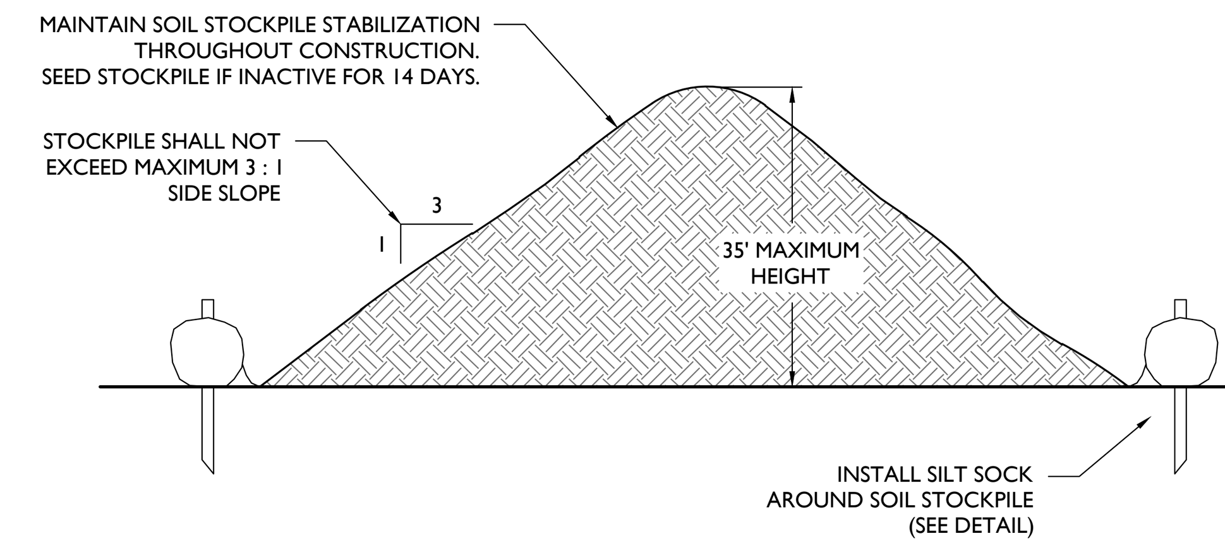
C-13



SC-800 ISOLATOR ROW PLUS DETAIL

NOT TO SCALE

1



NOTES:
1. STOCKPILES SHALL BE SITUATED SO AS NOT TO OBSTRUCT NATURAL DRAINAGE OR CAUSE OFF-SITE ENVIRONMENTAL DAMAGE.
2. STOCKPILES SHALL BE STABILIZED IN ACCORDANCE WITH THE STANDARDS FOR PERMANENT OR TEMPORARY VEGETATIVE COVER FOR SOIL STABILIZATION, AS APPROPRIATE (SEE SOIL EROSION NOTES).
3. IN THE EVENT A SOIL STOCKPILE REMAINS INACTIVE FOR A MINIMUM OF 14 DAYS, THE STOCKPILE SHALL BE SEEDED AND STABILIZED IN ACCORDANCE WITH APPLICABLE STANDARDS.

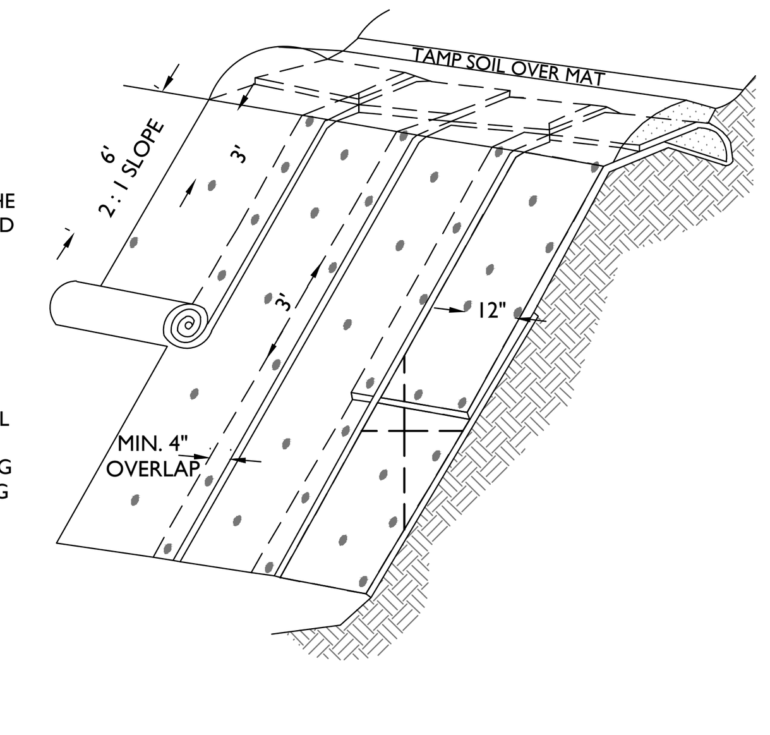
SOIL STOCKPILE DETAIL

NOT TO SCALE

2

NOTES:
1. **SITE PREPARATION:** THE SITE MUST BE GRADED TO THE DESIGN SPECIFICATIONS (GRADE, GEOMETRY, DENSITY OF SOIL, ETC.) AND THEN DRESSED TO BE FREE OF SOIL CLODS, CLUMPS, ROCKS, OR VEHICLE IMPRINTS OF ANY SIGNIFICANT SIZE THAT WOULD PREVENT ENKAMAT FROM LYING FLUSH TO SURFACE CONTOURS.
2. **ANCHOR TRENCH:** ANCHOR TRENCHES ARE REQUIRED TO SECURELY FASTEN THE ENKAMAT TO THE GROUND SURFACE. THE ENKAMAT IS INSTALLED IN TO THE BOTTOM OF THE TRENCH AND FASTENED WITH PINS SPACED 3 FEET APART. THE ANCHOR TRENCH / INTERMEDIATE CHECK SLOTS ARE THEN BACKFILLED AND COMPACTED IN A MANNER AS TO NOT DAMAGE THE ENKAMAT.
3. **ENKAMAT INSTALLATION:** ROLL THE ENKAMAT DOWN THE SLOPE OR CHANNEL. THE OVERLAP BETWEEN ROLLS IS 3 TO 4 INCHES. THE SPLICE BETWEEN ROLLS IS BETWEEN 2 AND 3 FEET. SHINGLE THE ROLL IN THE DIRECTION OF WATER FLOW. INSTALL PINS DOWN THE CENTER OF EACH MAT (MAT IS 3.25 FEET WIDE) STAGGERING THEM BETWEEN THE OUTSIDE PINS WITH A SPACING INTERVAL OF 3 TO 5 FEET. PINS PATTERNS WILL VARY DEPENDING UPON APPLICATION, SOIL TYPE, SLOPE OR CHANNEL SLOPE, GEOMETRY, ETC. A RULE OF THUMB FOR ESTIMATING THE AMOUNT OF PINS REQUIRED FOR A PROJECT IS:
   1:1 TO 2:1 SLOPES: 3-4 PINS PER SQ. YD.
   3:1 AND LESSER SLOPES: 2-3 PINS PER SQ. YD.

   ALWAYS INSTALL TWO ROWS OF PINS SPACED 1.5 X 1.5 FEET APART AT ALL ROLL SPLICE LOCATIONS.
4. **ANCHORING DEVICES:** TYPICALLY 11-8 GAUGE OF A 6" X 1" X 6" METAL PINS ARE USED. WHEN SURFACE SOIL CONDITIONS ARE LOOSE, USE 8" X 1" X 8" OR 12" X 1.5" X 12" METAL PINS, 8"-18" PINS WITH 1.5" DIAMETER WASHER, OR 12-30" J-SHAPE PINS (BENT REBAR) HAVING A ¼" DIAMETER. DRIVE PINS OR PINS FLUSH WITH THE GROUND SURFACE.
5. **SEEDING:** FOR NON-SOIL FILLING APPLICATIONS, BROADCAST SEED OR HYDROSEED OVER THE INSTALLED ENKAMAT. MAKE SURE HYDROMULCH OCCURS AFTER SEEDING TO ENSURE THE SEED REACHES THE TOPSOIL. IF SOIL FILLING, SEED AFTER FILLING IS COMPLETED. YOU MAY ALSO SEED BEFORE AND AFTER SOIL FILLING TO CREATE A BETTER ESTABLISHED ROOT STRUCTURE AND INCREASE VEGETATION STRENGTH.



ENKAMAT DETAIL

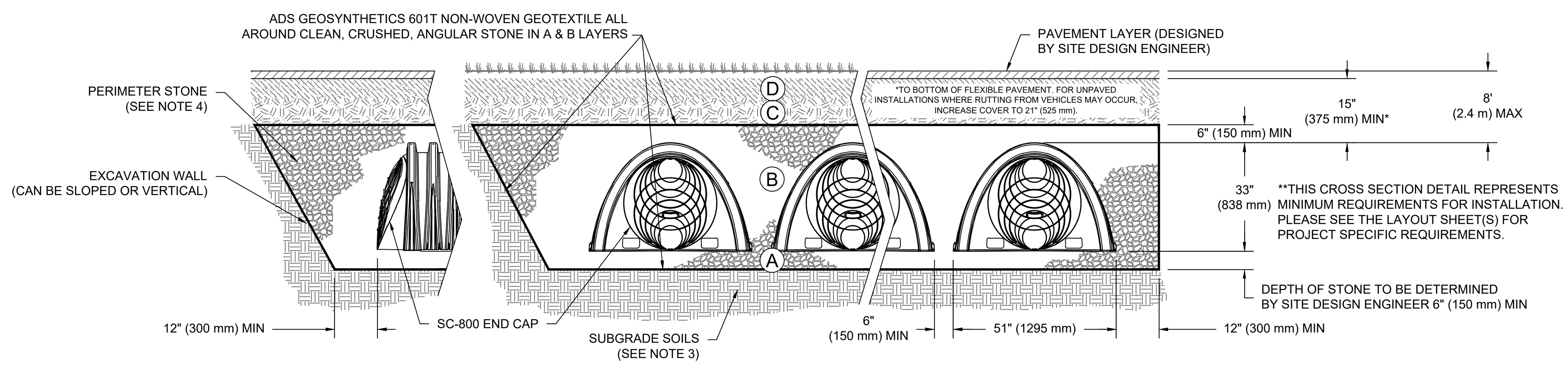
NOT TO SCALE

3

ACCEPTABLE FILL MATERIALS: STORMTECH SC-800 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 15" (375 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE[5]	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE[5]	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.
5. WHERE RECYCLED CONCRETE AGGREGATE IS USED IN LAYERS 'A' OR 'B' THE MATERIAL SHOULD ALSO MEET THE ACCEPTABILITY CRITERIA OUTLINED IN TECHNICAL NOTE 6.20 "RECYCLED CONCRETE STRUCTURAL BACKFILL".



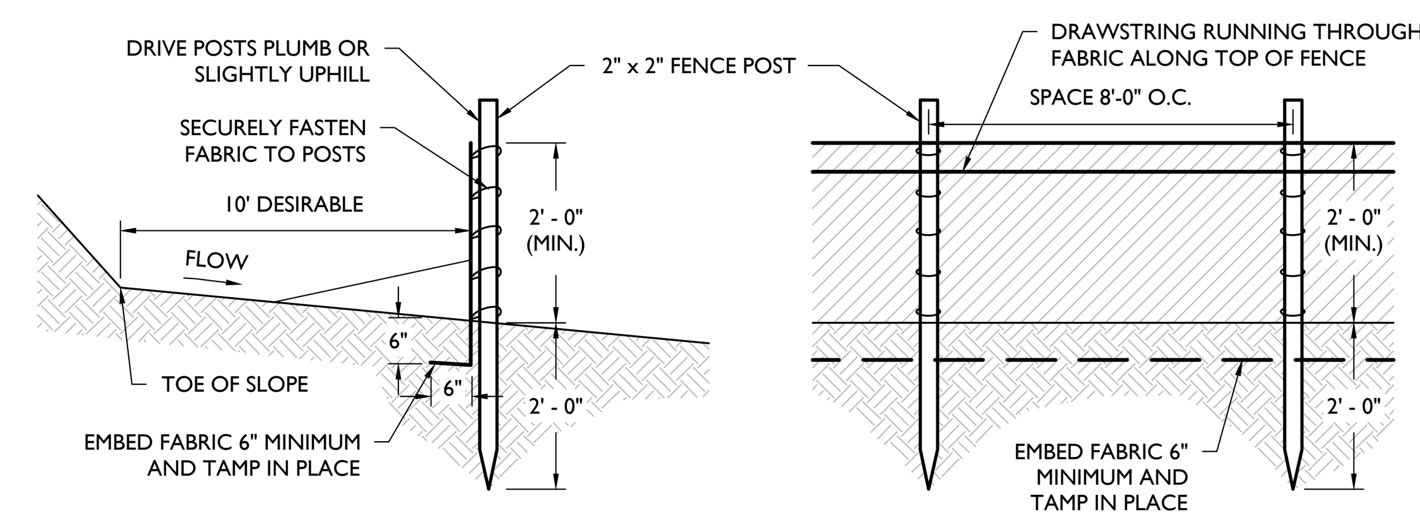
NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-800 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 550 LBS/FT/%. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

SC-800 CROSS SECTION DETAIL

NOT TO SCALE

6

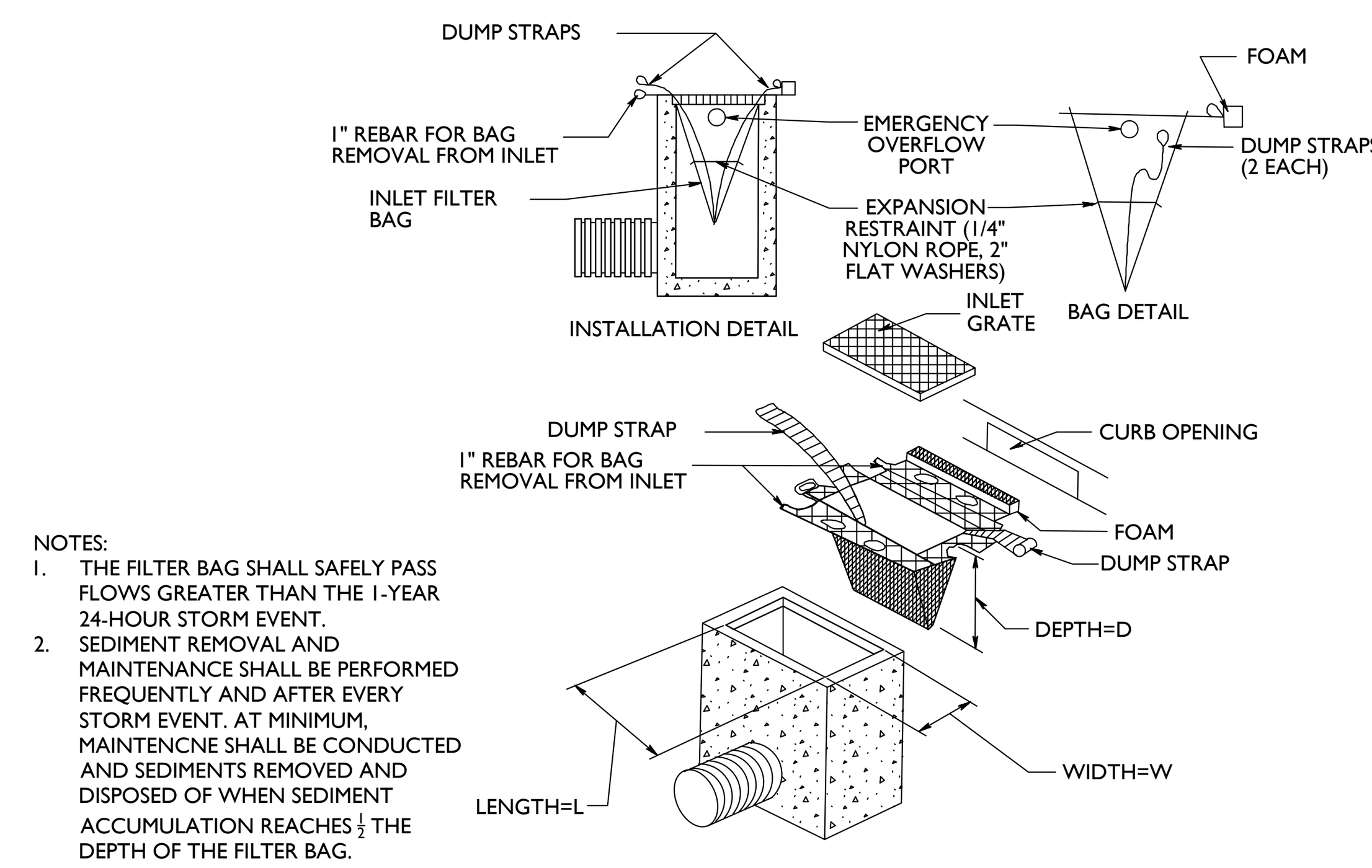


NOTES:
1. SECURELY FASTEN GEOTEXTILE TO FENCE POST BY USE OF WIRE TIES, HOG RINGS, STAPLES OR POCKETS. FOUR TO SIX FASTENERS PER POST.
2. GEOTEXTILE FABRIC TO BE EMBEDDED 6" (MIN.) AND TAMP IN PLACE.
3. SECURELY FASTEN ENDS OF INDIVIDUAL ROLLS OF GEOTEXTILE TO A POST BY WRAPPING EACH END OF THE GEOTEXTILE AROUND THE POST TWICE AND ATTACHING AS SPECIFIED IN NOTE 1 ABOVE. SPLICING OF INDIVIDUAL ROLLS SHALL NOT OCCUR AT LOW POINTS.
4. SET SILT FENCE WITHIN PROJECT LIMITS. 10'-0" IS DESIRABLE.
5. SILT FENCE SHALL BE CLEANED AND SEDIMENTS REMOVED AND PROPERLY DISPOSED OF ONCE SEDIMENT ACCUMULATION REACHES $\frac{1}{4}$ TO $\frac{1}{2}$ THE HEIGHT OF THE FENCE. FENCE SHALL BE REPAIRED AND/OR REPLACED AS NEEDED.

SILT FENCE DETAIL

NOT TO SCALE

4

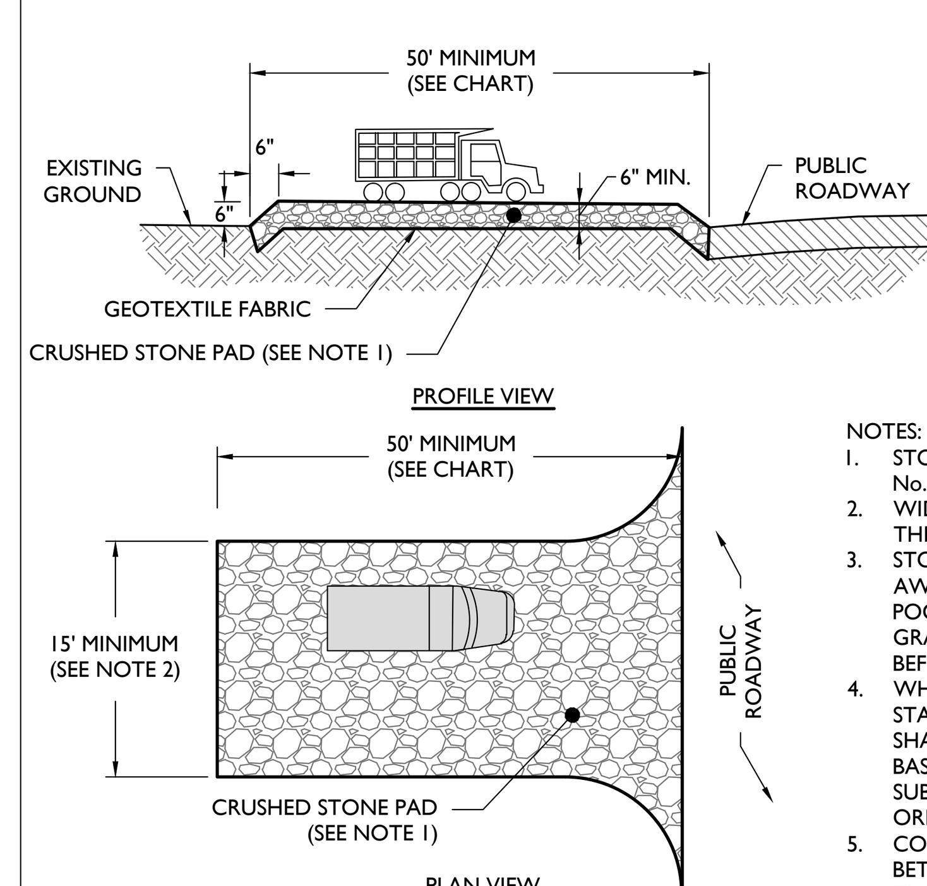


NOTES:
1. THE FILTER BAG SHALL SAFELY PASS FLOWS GREATER THAN THE 1-YEAR 24-HOUR STORM EVENT.
2. SEDIMENT REMOVAL AND MAINTENANCE SHALL BE PERFORMED FREQUENTLY AND AFTER EVERY STORM EVENT. AT MINIMUM, MAINTENCNE SHALL BE CONDUCTED AND SEDIMENTS REMOVED AND DISPOSED OF WHEN SEDIMENT ACCUMULATION REACHES $\frac{1}{2}$ THE DEPTH OF THE FILTER BAG.

INLET FILTER BAG DETAIL

NOT TO SCALE

5



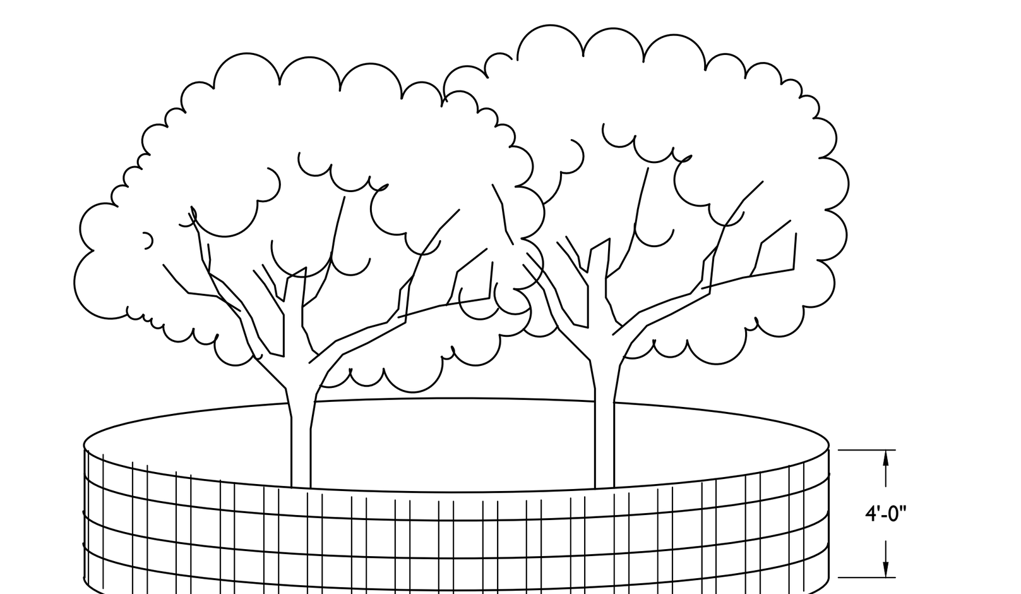
SLOPE OF PUBLIC ROADWAY	LENGTH OF STONE REQ'D	
	COARSE GRAINED SOILS	FINE GRAINED SOILS
0% TO 2%	50 FEET	100 FEET
2% TO 5%	100 FEET	200 FEET
> 5%	SEE NOTE 4	

NOTES:
1. STONE SHALL BE ASTM C-33, SIZE No. 2 (2.5" TO 1.5") OR No. 3 (2" TO 1") CLEAN CRUSHED ANGULAR STONE.
2. WIDTH SHALL BE 15' MINIMUM OR THE FULL WIDTH OF THE ACCESS POINT, WHICHEVER IS GREATER.
3. STORMWATER FROM UP-SLOPE AREAS SHALL BE DIVERTED AWAY FROM THE STABILIZED PAD, WHERE POSSIBLE. AT POORLY DRAINED LOCATIONS, SUBSURFACE DRAINAGE GRAVEL FILTER OR GEOTEXTILE SHALL BE INSTALLED BEFORE THE STABILIZED CONSTRUCTION ENTRANCE.
4. WHERE THE SLOPE OF THE ROADWAY EXCEEDS 5%, A STABILIZED BASE OF HOT MIX ASPHALT BASE COURSE SHALL BE INSTALLED. THE TYPE AND THICKNESS OF THE BASE COURSE AND USE OF DENSE GRADED AGGREGATE SUB-BASE SHALL BE AS PRESCRIBED BY LOCAL MUNICIPAL ORDINANCE OR GOVERNING AUTHORITY.
5. CONTRACTOR SHALL PROVIDE A SMOOTH TRANSITION BETWEEN THE STABILIZED CONSTRUCTION ACCESS AND THE PUBLIC ROADWAY.

STABILIZED CONSTRUCTION ACCESS DETAIL

NOT TO SCALE

7



NOTES:
1. SNOW FENCING IS TO BE 4'-0" HIGH AND SELF SUPPORTED.
2. DO NOT STOCKPILE MATERIALS OR STORE EQUIPMENT WITHIN THE TREE PROTECTION FENCING.
3. SNOW FENCE TO BE INSTALLED AT DRIP LINE OF EXISTING TREE OR TREE CLUSTER TO BE PROTECTED OR NO CLOSER THAN 6' FROM TREE TRUNK IF NECESSARY.
4. IF THE PROJECT AREA ENCOMPASSES A PORTION OF THE DRIP LINE OF THE TREE, NO MORE THAN ONE THIRD OF THE OF THE TOTAL AREA OF WITHIN THE DRIP LINE SHOULD BE DISTURBED BY CONSTRUCTION OR REGRADING AND A 3" THICK LAYER OF MULCH SHALL BE INSTALLED OVER THE AREA OF THE DRIP LINE WHICH IS NOT PROTECTED BY FENCING TO PROVIDE A CUSHION.

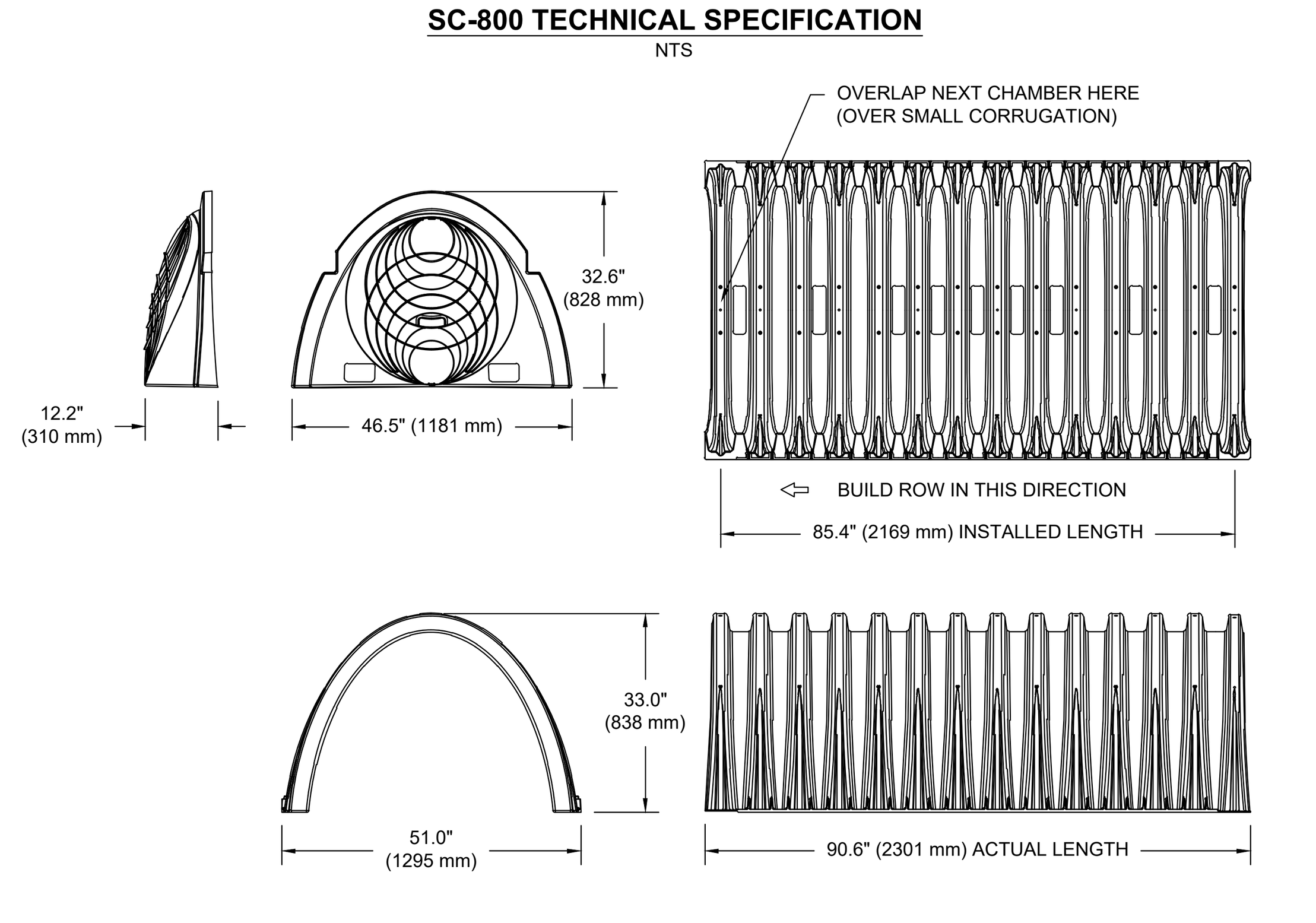
TREE PROTECTION DETAIL

NOT TO SCALE

8

SC-800 TECHNICAL SPECIFICATION

NTS



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	51.0" X 33.0" X 85.4"	(1295 mm X 838 mm X 2169 mm)
CHAMBER STORAGE	50.6 CUBIC FEET	(1.43 m³)
MINIMUM INSTALLED STORAGE*	81.0 CUBIC FEET	(2.29 m³)
WEIGHT	81.8 lbs.	(37.1 kg)

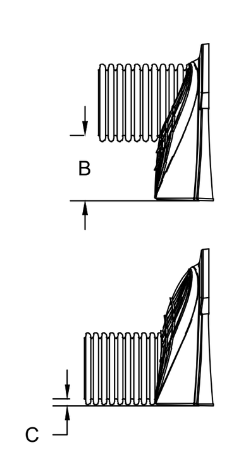
NOMINAL END CAP SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	46.5" X 32.6" X 10.5"	(1181 mm X 828 mm X 267 mm)
END CAP STORAGE	3.4 CUBIC FEET	(0.09 m³)
MINIMUM INSTALLED STORAGE**	15.4 CUBIC FEET	(0.43 m³)
WEIGHT	15.7 lbs.	(7.1 kg)

* ASSUMES 6" (152 mm) STONE ABOVE, BELOW, AND BETWEEN CHAMBERS
**ASSUMES 6" (152 mm) STONE ABOVE AND BELOW END CAPS, 6" (152 mm) BETWEEN ROWS, 12" (305 mm) BEYOND END CAPS

PRE-CORED HOLES AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "BPC"
PRE-CORED HOLES AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "TPC"

PART #	STUB	B	C
SC800EPE06TPC	6" (150 mm)	21.4" (544 mm)	---
SC800EPE06BPC		---	0.9" (23 mm)
SC800EPE08TPC	8" (200 mm)	19.2" (488 mm)	---
SC800EPE08BPC		---	1.0" (25 mm)
SC800EPE10TPC	10" (250 mm)	17.0" (432 mm)	---
SC800EPE10BPC		---	1.2" (30 mm)
SC800EPE12TPC	12" (300 mm)	14.4" (366 mm)	---
SC800EPE12BPC		---	1.6" (41 mm)
SC800EPE15TPC	15" (375 mm)	11.3" (287 mm)	---
SC800EPE15BPC		---	1.7" (43 mm)
SC800EPE18TPC	18" (450 mm)	8.0" (203 mm)	---
SC800EPE18BPC		---	2.0" (51 mm)
SC800EPE24BPC	24" (600 mm)	---	2.3" (58 mm)
SC800EPE	NONE	SOLID END CAP	



NOTE: ALL DIMENSIONS ARE NOMINAL

SC-800 TECHNICAL SPECIFICATIONS

NOT TO SCALE

INSPECTION & MAINTENANCE

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

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

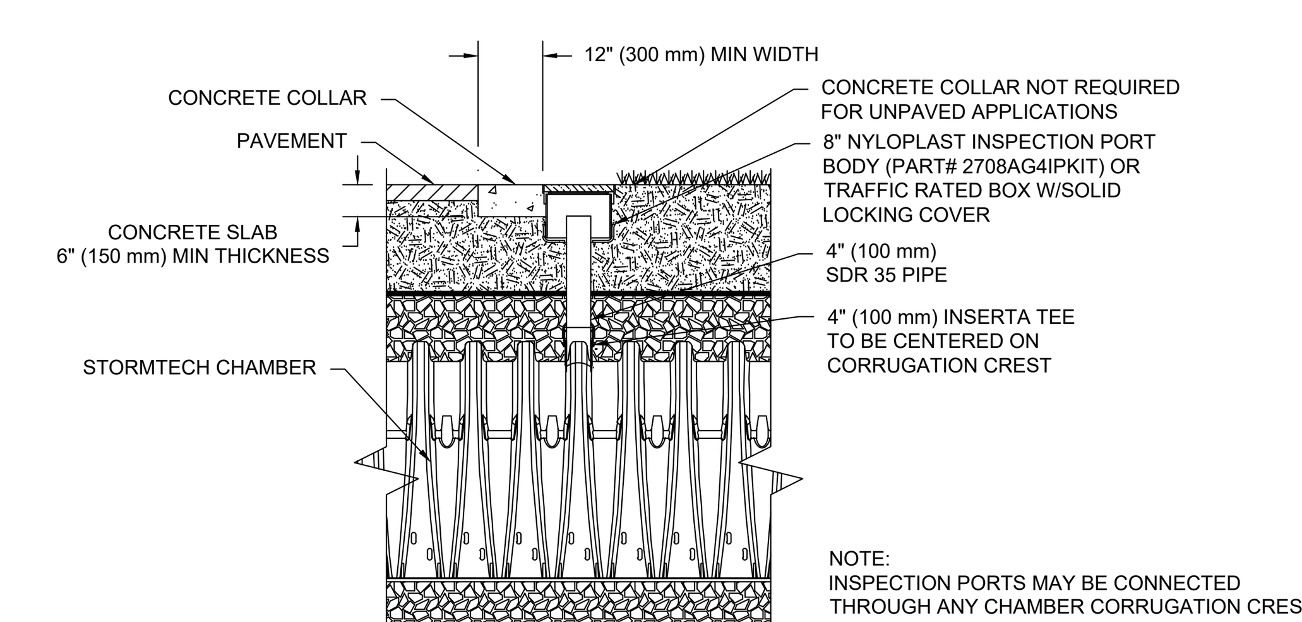
STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

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

NOTES

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

9



NOTE:
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION CREST.

4" PVC INSPECTION PORT DETAIL (SC SERIES CHAMBER)

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10

ISSUE	DATE	BY	DESCRIPTION
00	03/07/2025	AJD	ISSUED FOR MUNICIPAL SUBMISSION

NOT APPROVED FOR CONSTRUCTION

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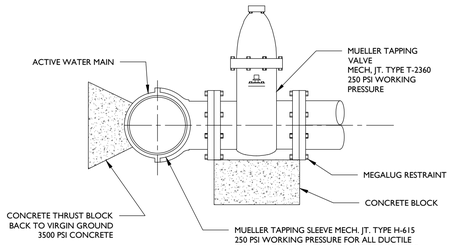
LICENSED PROFESSIONAL ENGINEER
STONEFIELD engineering & design

SCALE: AS NOTED | PROJECT ID: BOS-240115

TITLE: CONSTRUCTION DETAILS

DRAWING: C-14



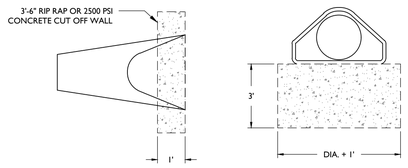
WET TAP

NOT TO SCALE

NOTES:

1. ALL NEWLY INSTALLED TAPPING SLEEVES AND TAPPING VALVES SHALL BE PNEUMATICALLY TESTED AT A TEST PRESSURE OF 150 PSI FOR A PERIOD OF THIRTY MINUTES. AT THE END OF THE TEST PERIOD, IF THE TEST PRESSURE HAS REMAINED CONSTANT, THE TAPPING SLEEVE AND AND VALVE SHALL HAVE PASSED THE TEST.
2. ANY VALVE INSTALLED OUTSIDE OF ASPHALT AREAS MUST BE CONSTRUCTED WITH A 2'x2'x6" CONCRETE COLLAR AROUND IT.

1



FLARED END SECTION DETAIL

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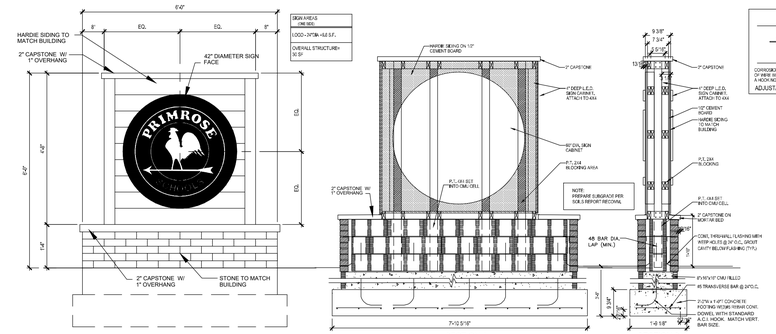
2



MONUMENT SIGN DETAIL

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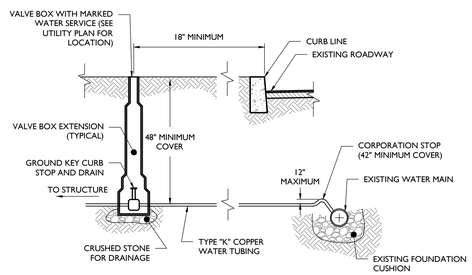

WATER CONNECTION DETAIL

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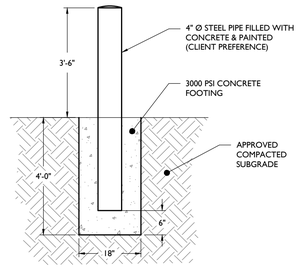
4



BOLLARD DETAIL

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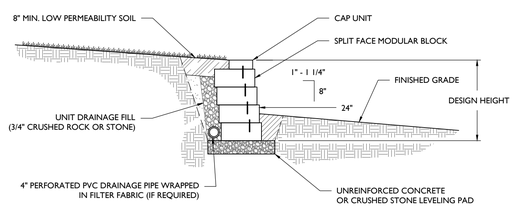


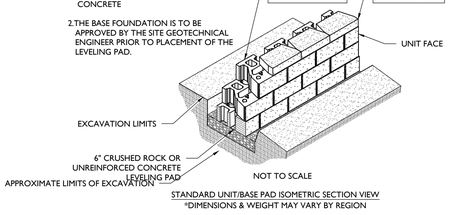
TYPICAL GRAVITY WALL SECTION

STANDARD UNIT - 1" SETBACK

BASE LEVELING PAD NOTES:

1. THE LEVELING PAD IS TO BE CONSTRUCTED OF CRUSHED STONE OR 2,000 PSI± UNREINFORCED CONCRETE
2. THE BASE FOUNDATION IS TO BE APPROVED BY THE SITE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF THE LEVELING PAD.

STANDARD UNIT	CAP UNIT
WIDTH: 18"	WIDTH: 18"
*DEPTH: 18"	*DEPTH: 10 1/2"
HEIGHT: 8"	HEIGHT: 4"
*WEIGHT: 108 LBS	*WEIGHT: 50 LBS



NOT TO SCALE

STANDARD UNIT/BASE PAD ISOMETRIC SECTION VIEW

*DIMENSIONS & WEIGHT MAY VARY BY REGION

BLOCK WALL DETAIL

NOT TO SCALE

NOTES:

1. RETAINING WALL DESIGN PLANS TO BE PREPARED BY LICENSED PROFESSIONAL IN THE STATE OF NEW JERSEY.
2. KEYSTONE WALL SYSTEM, OR APPROVED EQUIVALENT, TO BE CONSTRUCTED.

8

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☑ SELECT DESIRED WALL (METAL):

☐ 7.2 RIB ☐ PERFORATED 7.2 RIB
☐ TEXTURED FLAT ☐ TRUE LOUVER
☐ SLAT WALL

☑ SELECT DESIRED WALL (NATURESCREEN®):

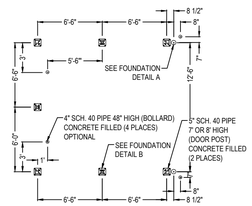
☐ NATURESCREEN® DMT
☐ NATURESCREEN® GMT
☐ NATURESCREEN® SMT
☐ NATURESCREEN® SMT E

☑ SELECT DESIRED WALL (ACRYLICAP® ABS):

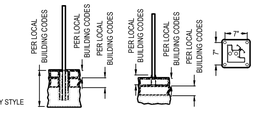
☐ CLAPBOARD ☐ 7.2 RIB
☐ HORIZONTAL LOUVER ☐ GRAPHIC OPTION
☐ CLAPBOARD WITH BRICK

☑ SELECT DESIRED WALL (NATURAL WOOD & STONE):

☐ IPE ☐ BRICK
☐ CEDAR ☐ VERSETTA STONE (TIGHT CUT)
☐ VERSETTA STONE (LEDGESTONE)



TOP VIEW



DETAIL A FOUNDATION (TYP. 6 PLACES) | DETAIL B FOUNDATION (TYP. 9 PLACES) | DETAIL BOLT PATTERN (TYP 6 PLACES)

FEATURES & BENEFITS

- MAINTENANCE FREE MATERIALS
- WIDE SELECTION OF WALL INFILLS AND GATES TO SUIT ANY STYLE AND BUDGET
- EASY INSTALL, NO SPECIAL TOOLS REQUIRED
- STANDARD AND PROJECT SPECIFIC CONFIGURATIONS AVAILABLE
- PROFESSIONAL GRADE EXTRUDED ALUMINUM STRUCTURAL COMPONENTS

NOTES:

1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. DO NOT SCALE DRAWING.
3. THIS DRAWING IS INTENDED FOR USE BY ARCHITECTS, ENGINEERS, CONTRACTORS, CONSULTANTS AND DESIGN PROFESSIONALS FOR PLANNING PURPOSES ONLY. THIS DRAWING MAY NOT BE USED FOR CONSTRUCTION.
4. ALL INFORMATION CONTAINED HEREIN WAS CURRENT AT THE TIME OF DEVELOPMENT BUT MUST BE REVIEWED AND APPROVED BY THE PRODUCT MANUFACTURER TO BE CONSIDERED ACCURATE.
5. CONTRACTOR'S NOTE: FOR PRODUCT AND COMPANY INFORMATION VISIT www.CADdetails.com/info AND ENTER REFERENCE NUMBER XXX-11-DE

COVRIT® SCREENING SYSTEMS

COVRIT® STANDARD (MODEL 1313)

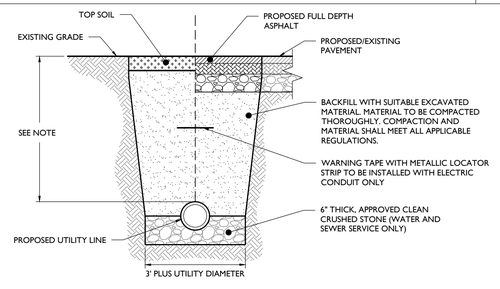
XXX-11-D REVISION DATE 10/03/2025

 CADdetails.com

DUMPSTER ENCLOSURE DETAIL

NOT TO SCALE

9



UTILITY TRENCH DETAIL

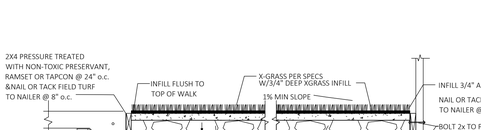
NOT TO SCALE

NOTE:

MINIMUM PIPE COVER SHALL BE AS FOLLOW:

- ELECTRIC SERVICE - PER APPLICABLE UTILITY AUTHORITY
- GAS SERVICE - PER APPLICABLE UTILITY AUTHORITY
- SEWER SERVICE - 36" MINIMUM
- WATER SERVICE - 48" MINIMUM

10



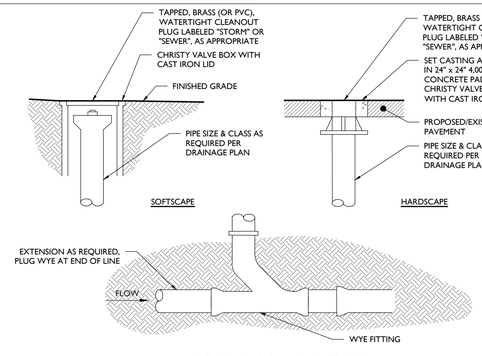
NOTES:

1. FALL SURFACING SHALL COMPLY WITH ASTM F1951 FOR WHEELCHAIR ACCESSIBILITY & ASTM F1292 FOR FALL ATTENUATION.
2. PREPARE SUBGRADE 5.75" BELOW FINISH GRADE WITH 1" SOFTPAD & 6.75" WITH 2" SOFTPAD - CONSULT XGRASS FOR AREAS OF PAD.
3. STONE DETENTION TO BE ADDED UNDER 4" COMPACTED SUBBASE PER INFILTRATION BASIN B-1C DETAIL.

ARTIFICIAL TURF DETAIL

NOT TO SCALE

7



CLEAN-OUT DETAIL

NOT TO SCALE

11

NO	ISSUE	DATE	BY	DESCRIPTION
00		03/07/2025	AJD	ISSUED FOR MUNICIPAL SUBMISSION

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56 Pine Street, Providence, RI 02903
Phone 617.203.2076

LAND DEVELOPMENT PLANS

PRIMROSE SCHOOLS FRANCHISING COMPANY

PROPOSED CHILD DAY CARE FACILITY

PARCEL ID: 28-113
885 MAIN STREET
TOWN OF READING
MIDDLESEX COUNTY, MASSACHUSETTS

JOSHUA H. KLINE, P.E.
MASSACHUSETTS LICENSE No. 53936
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: AS NOTED | PROJECT ID: BOS-240115

TITLE:

CONSTRUCTION DETAILS

DRAWING:

C-15

Z:\BOSTON\BOS2024\BOS-240115 PRIMROSE SCHOOLS - 885 MAIN STREET, READING, MA\CAD\PLOTSTYLE\11 DETS.DWG

HI-LITE MFG. CO., INC.

13450 Monte Vista Avenue
Chino, California 91710
Telephone: (909) 465-1999
Fax: (909) 465-0907

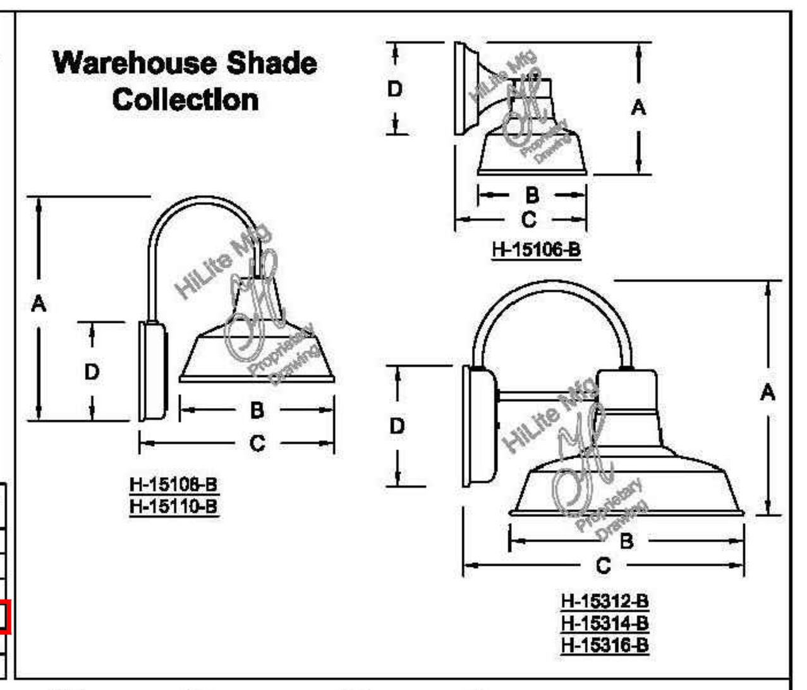
Warehouse Shade Collection

Job Name:

Type:

Quantity:

For Wall Mount Only



Item Number	Height (A)	Width (B)	Projection (C)	Canopy Dia. (D)
H-15106-B	8"	6"	8"	5 1/2"
H-15108-B	12"	8"	10"	6 1/4"
H-15110-B	13"	10"	13"	6 1/4"
H-15312-B	12-1/2"	12"	15"	6 1/4"
H-15314-B	15"	14"	16"	6 1/4"
H-15316-B	15"	16"	18"	6 1/4"

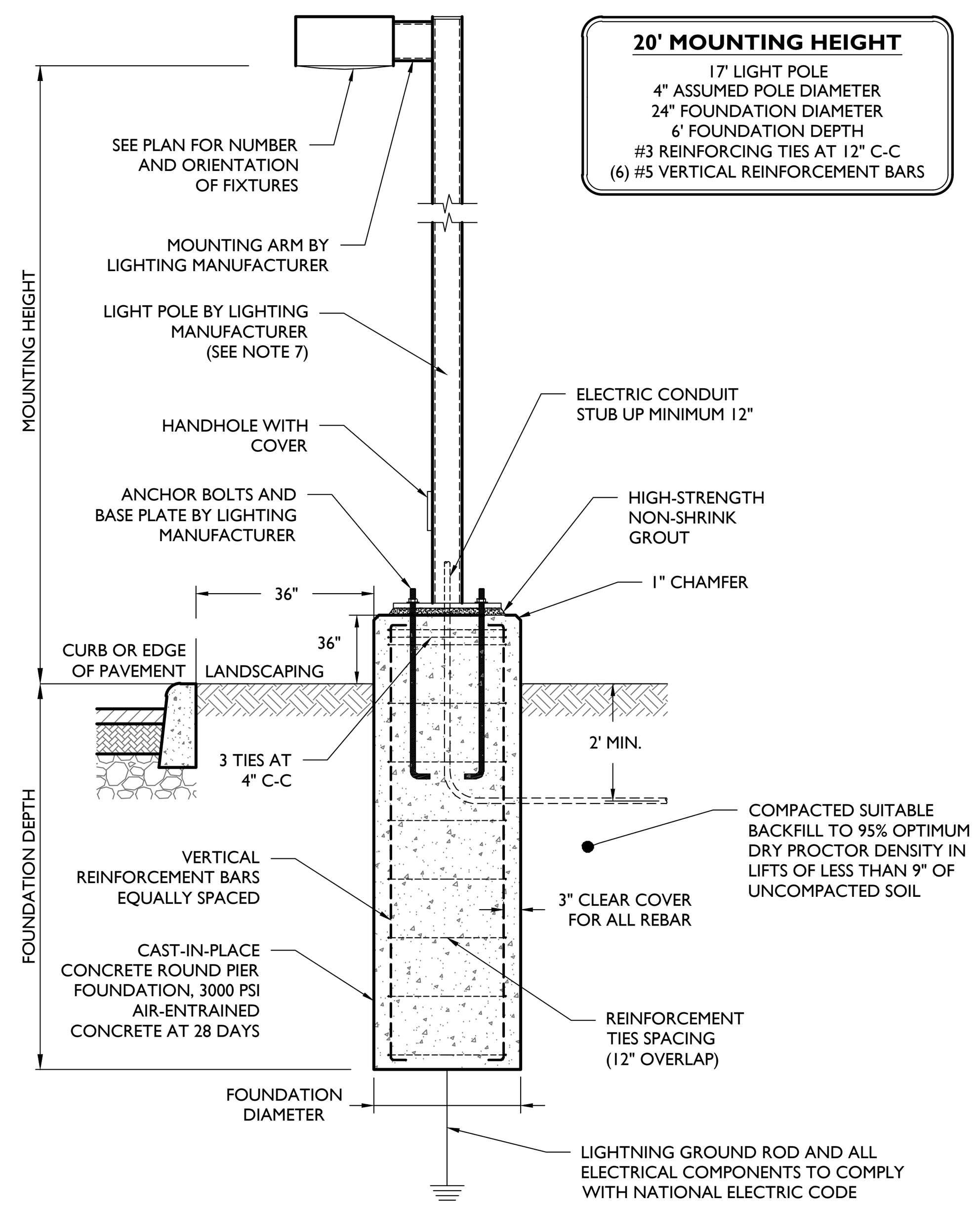
Fixture No.	Fixture Color	Optional Accessories	Accessory Color	Wattage/ Lamp Options	Ballast Options	Voltage
H-15106-B(1) H-15108-B(1) H-15110-B(1) H-15312-B H-15314-B H-15316-B	Standard(2) 91 (Black) 93 (White) 95 (Dk. Grn) 96 (Galv.) BR47 (Rust) BK01, GN20. Upgraded Finishes 29, 66, 82, 90, 92, 94, 97, 99, 100, 103, 104, 105, 110, 112, 113, 114, 115, 117, 118, 119, 120, 127, 128, 129, 133, 134, 135, 136, 138, 139, 140, 01, 11, 22, 25, 33, 77, 89, 24, 44, 48, 49. For finish specs see pages 344-348.	CGU (Cast guard & glass) LCGU (Large cast guard & glass) WGU (Wire guard & glass) LWGU (Large wire guard & glass) ARN (Acorn globe) LARN (Large acorn globe) WGR (Wire guard) For specs and glass color see pages 321-344.	Standard 91 (Black) 93 (White) 95 (Dk. Grn) 96 (Galv.) BR47 (Rust) For all finishes see pages 344-348.	Incandescent (1) (5) (Fixture is standard 75W, 100W or 200W. Do not specify.) CFL(3) (5) (Compact Fluorescent) 13/CFL 18/CFL 26/32/42/CFL 26/CFL 32/CFL 42/CFL 57/CFL DMB (Dimmable Ballast for CFL. Add to Part No.) HID(3) (High Intensity Discharge) MH(3) (5) (Metal Halide) 35/MH 50/MH 70/MH 100/MH 150/MH 175/MH HPS(3) (5) (High Pressure Sodium) 50/HPS 70/HPS 100/HPS 150/HPS LED 20W 30W	Ballast option not available for INC. RB(4) (Remote) OBB (Onboard) OBB (Fluorescent Options 13W-57W) For specs see pages 341-343. LED See specifications for complete part number.	Incandescent (Fixture is standard 120V. Do not specify.) CFL M (Multi 120/277V) HID RB and BCM M (Multi 120/208/ 240/277V) LED See specifications for complete part number.

H-15312-B - 91 / WGR - 91 / 13/CFL - BCM - M

ORDER EXAMPLE
(USE THIS FORMAT TO PLACE ORDER)

Notes:
(1) H-15106-B available for 75W Max INC only and not available with glass enclosures. H-15108-B and H-15110-B available for 100W Max INC only and not available with glass enclosures.
(2) For interior finish of fixture refer to color chart on pages 344-348. H-15312-B, H-15314-b and H-15316-B not available in copper finish.
(3) Requires Globe Option (See pages 339-341 for Globe Options) CGU and WGU Max. Wattage 100W INC, 100W HID and 32W CFL. LWGU, LCGU, ARN and LARN Max Wattage 200W INC, 175W HID and 57W CFL.
(4) (RB) Remote ballast not available for Fluorescent Lamping.
(5) Socket Bases: INC and HID are medium base, CFL are GX24Q.
Suitable for wet location.

1



20' MOUNTING HEIGHT
17' LIGHT POLE
4" ASSUMED POLE DIAMETER
24" FOUNDATION DIAMETER
6' FOUNDATION DEPTH
#3 REINFORCING TIES AT 12" C-C
(6) #5 VERTICAL REINFORCEMENT BARS

LIGHT POLE INSTALLATION DETAIL

NOT TO SCALE

NOTES:
1. MINIMUM SOIL BEARING PRESSURE OF 1500 PSF, SOIL FRICTION ANGLE OF 30 DEGREES, AND SOIL DRY UNIT WEIGHT OF 120 PCF SHALL BE CONFIRMED IN THE FIELD BY A QUALIFIED PROFESSIONAL.
2. CAST-IN-PLACE CONCRETE SHALL BE CONSOLIDATED USING VIBRATOR.
3. ALL REBAR TO BE NEW GRADE 60 STEEL.
4. PRE-CAST PIERS ACCEPTABLE UPON WRITTEN APPROVAL OF SHOP DRAWING BY ENGINEER.
5. CONCRETE TO BE INSTALLED A MINIMUM OF 7 DAYS PRIOR TO INSTALLING LIGHT POLE. POURED CONCRETE MIX REQUIRED TO OBTAIN 80% OF DESIGN STRENGTH PRIOR TO INSTALLING LIGHT POLE.
6. CONCRETE SHALL HAVE A MAXIMUM SLUMP OF 4" (WITHIN 1" TOLERANCE).
7. POLE SHALL BE RATED FOR 10 MPH HIGHER THAN MAXIMUM WIND SPEED 33FT ABOVE GROUND FOR THE AREA BASED ON ANSI/ASCE 7-93.
8. POUR TO BE TERMINATED AT A FORM.
9. WORK SHALL CONFORM TO ACI BEST PRACTICES FOR APPROPRIATE TEMPERATURE AND WEATHER CONDITIONS.
10. CONTRACTOR TO TEMPORARILY SUPPORT ADJACENT SOIL AND STRUCTURES DURING EXCAVATION IF REQUIRED.

2

Catalog #: ______ Project: ______
Prepared By: ______ Date: ______ Type: ______

Mirada Medium (MRM)

Outdoor LED Area Light

IP66 IK08

OVERVIEW	
Lumen Package	7,000 - 48,000
Wattage Range	48 - 401
Efficacy Range (LPW)	117 - 160
Weight lbs(kg)	30 (13.6)

QUICK LINKS

Ordering Guide | Performance | Photometrics | Dimensions

FEATURES & SPECIFICATIONS

Construction
- Rugged die-cast aluminum housing contains factory prewired driver and optical unit. Cast aluminum wiring access door located underneath.
- Designed to mount to square or round poles.
- Fixtures are finished with LSI's DuraGrip® polyester powder coat finishing process. The DuraGrip finish withstands extreme weather changes without cracking or peeling. Other standard LSI finishes available. Consult factory.
- Shipping weight: 37 lbs in carton.

Optical System
- State-of-the-Art one piece silicone optic sheet delivers industry leading optical control with an integrated gasket to provide IP66 rated sealed optical chamber in 1 component.
- Proprietary silicone refractor optics provide exceptional coverage and uniformity in IES Types 2, 3, 5W, FT, FTA and AM.
- Silicone optical material does not yellow or crack with age and provides a typical light transmittance of 93%.
- Zero uplight.
- Available in 5000K, 4000K, and 3000K color temperatures per ANSI C78.377. Also Available in Phosphor Converted Amber with Peak intensity at 610nm.
- Minimum CRI of 70.
- Integral louver (IL) and house-side shield (IH) options available for improved backlight control without sacrificing street side performance. See page 3 for more details.

Electrical
- High-performance programmable driver features over-voltage, under-voltage, short-circuit and over temperature protection. Custom lumen and wattage packages available.
- 0-10V dimming (10% - 100%) standard.
- Standard Universal Voltage (120-277 Vac) Input 50/60 Hz or optional High Voltage (347-480 Vac).
- L80 Calculated Life: >100k Hours (See Lumen Maintenance on Page 5)
- Total harmonic distortion: <20%
- Operating temperature: -40°C to +50°C (-40°F to +122°F). 42L and 48L lumen packages rated to +40ºC.
- Power factor: >.90
- Input power stays constant over life.
- Field replaceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).
- High-efficacy LEDs mounted to metal-core circuit board to maximize heat dissipation
- Components are fully encased in potting material for moisture resistance. Driver complies with FCC standards. Driver and key electronic components can easily be accessed.

Controls
- Optional integral passive infrared Bluetooth™ motion and photocell sensor (see page 9 for more details). Fixtures operate independently and can be commissioned via iOS or Android configuration app
- LSI's AirLink™ wireless control system options reduce energy and maintenance costs while optimizing light quality 24/7. (see page 9 for more details).

Installation
- Designed to mount to square or round poles.
- A single fastener secures the hinged door, underneath the housing and provides quick & easy access to the electrical compartment.
- Included terminal block accepts up to 12 ga. wire.
- Utilizes LSI's traditional 3" drill pattern B3 for easy fastening of LSI products. (See drawing on page 9)

Warranty
- LSI LED Fixtures carry a 5-year warranty.

Listings
- Listed to UL 1598 and UL 8750.
- Meets Buy American Act requirements.
- IDA compliant; with 3000K color temperature selection.
- Title 24 Compliant; see local ordinance for qualification information.
- Suitable for wet Locations.
- IP66 rated Luminaire per IEC 60598.
- 3G rated for ANSI C136.31 high vibration applications are qualified.
- DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.
- Patented Silicone Optics (US Patent NO. 10,816,165 B2)
- IK08 rated luminiare per IEC 66262 mechanical impact code

Specifications and dimensions subject to change without notice.

Type: ______

Mirada Medium Outdoor LED Area Light

ORDERING GUIDE

Back to Quick Links

TYPICAL ORDER EXAMPLE: MRM LED 36L SIL FTA UNV DIM 50 70CRI ALSCS04 BRZ IL

Luminaire Prefix	Light Source	Lumen Package	Light Output	Distribution	Orientation[2]	Voltage	Driver
MRM - Mirada	LED	7L - 7,000 lms 9L - 9,000 lms 12L - 12,000 lms 18L - 18,000 lms 24L - 24,000 lms 30L - 30,000 lms 36L - 36,000 lms 42L - 42,000 lms 48L - 48,000 lms Custom Lumen Packages[1]	SIL - Silicone	2 - Type 2 3 - Type 3 5W - Type 5 Wide FT - Forward Throw FTA - Forward Throw Automotive AM - Automotive Merchandise	(blank) - standard L - Optics rotated left 90° R - Optics rotated right 90°	UNV - Universal Voltage (120-277V) HV - High Voltage (347-480V)	DIM - 0-10V Dimming (0-10%)

Color Temp	Color Rendering	Finish	Options
50 - 5,000 CCT 40 - 4,000 CCT 30 - 3,000 CCT AMB - Phosphor Converted Amber[12]	70CRI - 70 CRI	BLK - Black BRZ - Dark Bronze GMG - Gun Metal Gray GPT - Graphite MSV - Metallic Silver PLP - Platinum Plus SVG - Satin Verde Green WHT - White	(Blank) - None IH - Integral Houseside Shield[2] IL - Integral Louver (Sharp Spill Light Cutoff)[2]

Controls (Choose One)

(Blank) - None

Wireless Controls System
ALSC - AirLink Synapse Control System
ALSCH - AirLink Synapse Control System Host / Satelite[3]
ALSCS02 - AirLink Synapse Control System with 12-20' Motion Sensor
ALSCHS02 - AirLink Synapse Control System Host / Satelite with 12-20' Motion Sensor[3]
ALSCS04 - AirLink Synapse Control System with 20-40' Motion Sensor
ALSCHS04 - AirLink Synapse Control System Host / Satelite with 20-40' Motion Sensor[3]
ALBCS1 - AirLink Blue Wireless Motion & Photo Sensor Controller (8-24' mounting height)
ALBCS2 - AirLink Blue Wireless Motion & Photo Sensor Controller (25-40' mounting height)

Stand-Alone Controls
EXT - 0-10v Dimming leads extended to housing exterior
CR7P - 7 Pin Control Receptacle ANSI C136.41[6]
IMSBT1- Integral Bluetooth™ Motion and Photocell Sensor (8-24' MH)[5]
IMSBT2- Integral Bluetooth™ Motion and Photocell Sensor (25-40' MH)[5]

Button Type Photocells
PCI120 - 120V
PCI208-277 - 208 -277V
PCI347 - 347V

Lutron Limelight Controls
LLC – LimeLight Integral Wireless Radio Control by Lutron[4]
LLCS1 – Limelight Integral Wireless Radio Control and PIR Motion/ Daylight Sensor by Lutron 8-15' mt height[4]
LLCS2 – Limelight Integral Wireless Radio Control and PIR Motion/ Daylight Sensor by Lutron 16-30' mt height[4]
LLCS3 – Limelight Integral Wireless Radio Control and PIR Motion/ Daylight Sensor by Lutron 31-40' mt height[4]

Accessory Ordering Information[7]

Controls Accessories	
Description	Order Numberr[10]
PC120 Photocell for use with CR7P option (120V)[8]	122514
PC208-277 Photocell for use with CR7P option (208V, 240V, 277V)[8]	122515
Twist Lock Photocell (347V) for use with CR7P[8]	122516
Twist Lock Photocell (480V) for use with CR7P[8]	1225180
AirLink 5 Pin Twist Lock Controller[8]	661409
AirLink 7 Pin Twist Lock Controller[8]	661410
PMOS24-24V Pole-Mounted Occupancy Sensor (24V)	663284CLR
Shorting Cap for use with CR7P	149328

Fusing Options[11]	
Description	Order Number
Single Fusing (120V)	See Fusing Accessory Guide
Single Fusing (277V)	
Double Fusing (208V, 240V)	
Double Fusing (480V)	
Double Fusing (347V)	

Mounting Accessories[9]	
Description	Order Number[10]
Universal Mounting Bracket	684616CLR
Adjustable Slip Fitter (2" - 2 3/8" Tenon)	688138CLR
Horizontal Slip Fitter (2" - 2 3/8" Tenon)	652761CLR
Quick Mount Pole Bracket (Square Pole)	687073CLR
Quick Mount Pole Bracket (4-5" Round Pole)	689903CLR
15 Tilt Quick Mount Pole Bracket (Square Pole)	688003CLR
15 Tilt Quick Mount Pole Bracket (4-5" Round Pole)	689905CLR
Wall Mount Bracket	382132CLR
Wood Pole Bracket (6" Minimum Pole Diameter)	751219CLR

Miscellaneous Accessories	
Description	Order Number
Integral Louver/Shield	690981
Integral House Side Shield	743415
10' Linear Bird Spike Kit (3' Recommended per Luminaire)	751632

FOOTNOTES:
1. Custom lumen and wattage packages available, consult factory. Values are within industry standard tolerances but not DLC listed.
2. Not available with 5W distribution
3. Consult Factory for availability.
4. Not available in HV.
5. IMSBT is field configurable via the LSI app that can be downloaded from your smartphone's native app store.
6. Control device or shorting cap must be ordered separately. See Accessory Ordering Information.
7. Accessories are shipped separately and field installed.
8. Factory installed CR7P option required. See Options.
9. "CLR" denotes finish. See Finish options.
10. Only available with ALSC/ALSCH control options.
11. Fusing must be located in hand hole of pole. See Fusing Accessory Guide for compatability.
12. Only available in 9L and 12L Lumen Packages. Consult factory for lead time and availability.

AREA LIGHT FIXTURE SPECIFICATIONS

NOT TO SCALE

3

ISSUE	DATE	BY	DESCRIPTION
00	03/07/2025	AJD	ISSUED FOR MUNICIPAL SUBMISSION

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LAND DEVELOPMENT PLANS
PRIMROSE SCHOOLS FRANCHISING COMPANY
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PARCEL ID: 28-113
885 MAIN STREET
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MIDDLESEX COUNTY, MASSACHUSETTS

JOSHUA H. KLINE, P.E.
MASSACHUSETTS LICENSE No. 53936
LICENSED PROFESSIONAL ENGINEER

STONEFIELD
engineering & design

SCALE: AS NOTED | PROJECT ID: BOS-240115

TITLE: CONSTRUCTION DETAILS

DRAWING: C-16

massDOT Highway Division
CONSTRUCTION STANDARDS

CURB TRANSITION LENGTH FOR WHEELCHAIR RAMPS

DATE OF ISSUE: OCTOBER 2017
DRAWING NUMBER: **E 107.9.0**

ROADWAY PROFILE GRADE %	* HIGH SIDE TRANSITION LENGTH ENGLISH UNITS
=0%	6'-6"
>0% TO 1%	7'-8"
>1% TO 2%	9'-0"
>2% TO 3%	11'-0"
>3% TO 4%	14'-0"
>4% TO 5%	15'-0" Max

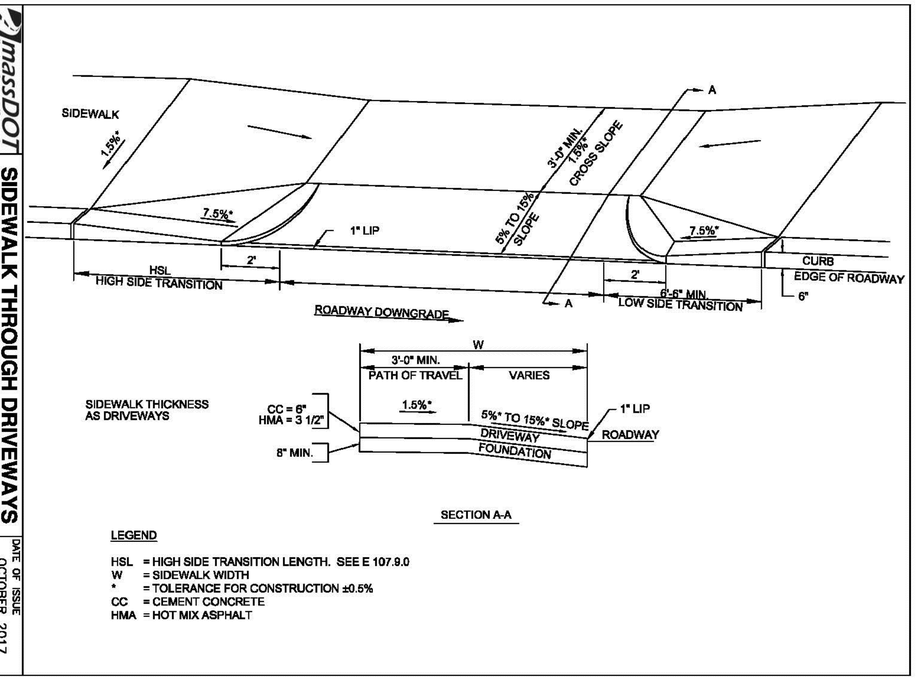
NOTE:

* BASED ON A DESIGN SLOPE OF 7.5% AND A REVEAL OF 6".

massDOT Highway Division
CONSTRUCTION STANDARDS

SIDEWALK THROUGH DRIVEWAYS WITH CURB RETURNS 2' CURB CORNERS

DATE OF ISSUE: OCTOBER 2017
DRAWING NUMBER: **E 107.8.0**



SECTION A-A

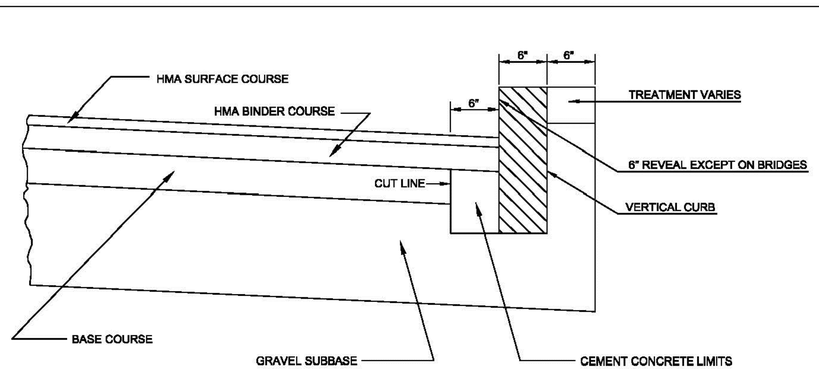
LEGEND

HSL = HIGH SIDE TRANSITION LENGTH. SEE E 107.9.0
W = SIDEWALK WIDTH
* = TOLERANCE FOR CONSTRUCTION ±0.5%
CC = CEMENT CONCRETE
HMA = HOT MIX ASPHALT

massDOT Highway Division
CONSTRUCTION STANDARDS

METHOD OF SETTING VERTICAL CURB

DATE OF ISSUE: OCTOBER 2017
DRAWING NUMBER: **E 106.3.0**

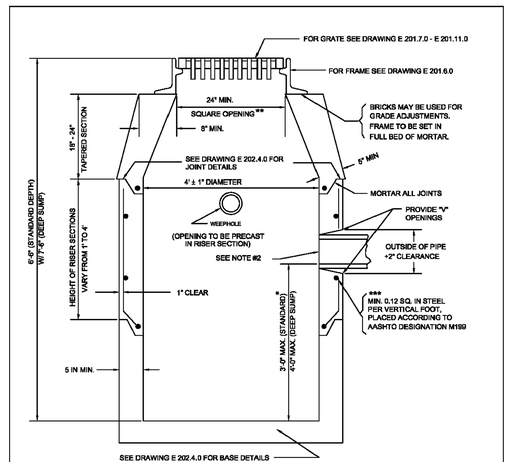


NOTES:

1. THIS PROCEDURE IS APPLICABLE ONLY IF CURB IS TO BE SET AFTER BASE COURSE IS IN PLACE PRIOR TO BINDER AND TOP PLACEMENT.

2. CUT NEAT LINE 6" FROM CURB LINE AND REMOVE BASE AND GRAVEL. REPLACE WITH CEMENT CONCRETE.

3. ANY DESIGNATED CEMENT CONCRETE THAT IS ACCEPTABLE UNDER SECTION M4 OF THE STANDARD SPECIFICATIONS MAY BE USED; ALL TEST REQUIREMENTS ARE WAIVED. HOT MIX ASPHALT SHALL NOT TO BE USED AS A SUBSTITUTE.



* MINIMUM DEPTH OF SUMP TO BE 2 FT
** WHEN A CURB INLET IS INSTALLED, THE OPENING IS TO BE 24"±1" X 27"±1"
*** REINFORCING STEEL BASED ON A WALL THICKNESS OF 5".

NOTES:

1. DETAILS NOT INDICATED ABOVE ARE TO BE SIMILAR TO THOSE SHOWN ON E 201.3.0
2. FACE OF PIPE FLUSH OR NOT TO PROJECT MORE THAN 4" FROM FACE OF WALL ALONG CENTERLINE OF PIPE.
3. FOR DESCRIPTION, MATERIALS AND CONSTRUCTION METHOD, SEE STANDARD SPECIFICATIONS.
4. ALL CONCRETE TO BE AIR ENTRAINED

massDOT Highway Division
CONSTRUCTION STANDARDS

PRECAST CONCRETE CATCH BASIN

DATE OF ISSUE: OCTOBER 2017
DRAWING NUMBER: **E 201.4.0**

ISSUE	DATE	BY	DESCRIPTION
00	03/07/2025	AJD	ISSUED FOR MUNICIPAL SUBMISSION

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LAND DEVELOPMENT PLANS

PRIMROSE SCHOOLS FRANCHISING COMPANY

PROPOSED CHILD DAY CARE FACILITY

PARCEL ID: 28 113
885 MAIN STREET
TOWN OF READING
MIDDLESEX COUNTY, MASSACHUSETTS

JOSHUA H. KLINE, P.E.
MASSACHUSETTS LICENSE No. 53936
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: AS NOTED | PROJECT ID: BOS-240115

TITLE: CONSTRUCTION DETAILS

DRAWING: **C-17**

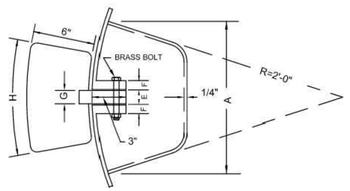
massDOT Massachusetts Department of Transportation Highway Division

CONSTRUCTION STANDARDS

CATCH BASIN HOOD

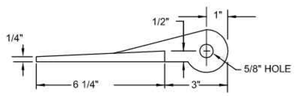
DRAWING NUMBER **E 201.12.0**

DATE OF ISSUE OCTOBER 2017

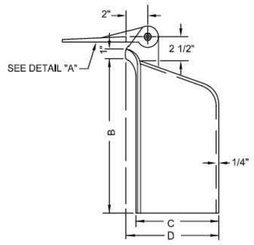


TOP

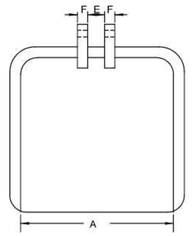
DIMENSIONS (In.)	A	B	C	D	E	F	G	H
8" and 10" PIPE	15	15	8	9	2	7/8	1 7/8	14
12" and 15" PIPE	18	18	10	11 1/4	2	1	1 7/8	14



DETAIL "A" HINGE



SIDE



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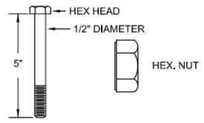


BRASS BOLT & NUT

NOTE:

1. HOODS TO BE GRAY CAST IRON - SEE STANDARD SPECIFICATIONS WITH NO BLACK ASPHALT COATING ALLOWED

1

NOTES:

1. ALL DIMENSIONS OF STANDARD GUARDRAIL COMPONENTS, INCLUDING PANELS, POSTS, OFFSET BLOCKS, BOLTS, NUTS, WASHERS AND HOLES, ARE BASED UPON ENGLISH UNIT CONVERSIONS OF THE AASHTO-ARTBA-AGC JOINT COMMITTEE TASK FORCE 13 REPORT: *A GUIDE TO STANDARDIZING HIGHWAY BARRIER HARDWARE* (http://www.aashtotf13.org/Barrier-Hardware.php).
2. ALL GUARDRAIL MATERIALS SHALL CONFORM TO M8.07.0 UNLESS OTHERWISE INDICATED.
3. APPROVAL BY THE ENGINEER IS REQUIRED WHERE A DIFFERING GUARDRAIL CONFIGURATION IS REQUIRED FOR CONSTRUCTABILITY BEYOND THE OPTIONS SHOWN IN THESE STANDARDS OR THE PLANS.
4. THE BEGIN OR END STATION LABELS SHOWN IN THESE STANDARDS CORRESPOND TO THE STATION AND OFFSET CALLOUTS SPECIFIED IN THE PLANS.
5. USE 12'-6" NOMINAL LENGTH PANELS UNLESS OTHERWISE INDICATED IN THESE STANDARDS OR THE PLANS.
6. ALL LAP SPLICES SHALL BE MIDSPAN UNLESS OTHERWISE SHOWN.
7. LAP SPLICES SHALL BE CONSTRUCTED WITH THE SPLICE RIDGE ORIENTED DOWNSTREAM OF THE FINAL DIRECTION OF TRAFFIC IN THE NEAREST TRAVEL LANE. REORIENTING LAP SPLICES FOR TEMPORARY TRAFFIC CONTROL IS NOT REQUIRED.
8. STANDARD POSTS SHALL BE STEEL OR TIMBER, UNLESS OTHERWISE INDICATED IN THE PLANS, FABRICATED TO THE DIMENSIONS SHOWN ON 400.1.4. POSTS OF A SINGLE MATERIAL TYPE SHALL BE USED THROUGHOUT AN ENTIRE RUN OF GUARDRAIL; EXCEPTIONS ARE ALLOWED ONLY WHEN SPECIFIC MATERIAL TYPES ARE REQUIRED FOR TRANSITIONS, END TREATMENTS, AND/OR ANCHORAGES.
9. DEEP POST SHALL ONLY BE USED WHERE INDICATED IN THESE STANDARDS OR THE PLANS.
10. OFFSET BLOCKS, WHERE REQUIRED, SHALL BE TIMBER AND FABRICATED TO THE NOMINAL DIMENSIONS SHOWN ON 400.1.4. PLASTIC OR COMPOSITE OFFSET BLOCKS OF THE SAME NOMINAL DIMENSIONS THAT ARE LISTED ON THE QUALIFIED CONSTRUCTION MATERIALS LIST MAY BE SUBSTITUTED. OFFSET BLOCKS OF A SINGLE MATERIAL TYPE SHALL BE USED THROUGHOUT AN ENTIRE RUN OF GUARDRAIL; EXCEPTIONS ARE ALLOWED ONLY WHEN SPECIFIC MATERIAL TYPES ARE REQUIRED FOR TRANSITIONS, END TREATMENTS, AND/OR ANCHORAGES.
11. PAVEMENT MILLING MULCH, WHERE CALLED FOR IN THE STANDARDS, SHALL CONFORM TO SECTION 739.
12. GUARDRAIL DELINEATORS, CONFORMING TO SECTION 601, SHALL BE INSTALLED AT 25' INTERVALS WITHIN 100' OF AN END TREATMENT OR TRAILING ANCHORAGE AND AT 100' INTERVALS IN ALL OTHER AREAS UNLESS OTHERWISE SHOWN IN THE PLANS.
13. MINIMUM OFFSET DISTANCE FROM FACE OF W-BEAM PANEL TO A FIXED (NON-BREAKAWAY) OBJECT SHALL BE 48" FOR TL-2 AND 60" FOR TL-3.

massDOT Massachusetts Department of Transportation Highway Division | CONSTRUCTION STANDARDS SECTION 400

GENERAL NOTES

DATE OF ISSUE OCTOBER 2017 | DRAWING NUMBER **400.1.0**

2

ISSUE	DATE	BY	DESCRIPTION
00	03/07/2025	AJD	ISSUED FOR MUNICIPAL SUBMISSION

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Rutherford, NJ · New York, NY · Salem, MA · Providence, RI
Princeton, NJ · Tampa, FL · Birmingham, MI
www.stonefieldeng.com
56 Pine Street, Providence, RI 02903
Phone 617.203.2076

LAND DEVELOPMENT PLANS

PRIMROSE SCHOOLS FRANCHISING COMPANY

PROPOSED CHILD DAY CARE FACILITY

PARCEL ID: 28-113
885 MAIN STREET
TOWN OF READING
MIDDLESEX COUNTY, MASSACHUSETTS

JOSHUA H. KLINE, P.E.
MASSACHUSETTS LICENSE No. 53936
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: AS NOTED | PROJECT ID: BOS-240115

TITLE:

CONSTRUCTION DETAILS

DRAWING:

C-18

Z:\BOSTON\BOS2024\BOS-240115 PRIMROSE SCHOOLS - 885 MAIN STREET, READING, MA\CAD\PLOT\XXX-11 DETL.DWG

STONEFIELD

STORMWATER MANAGEMENT REPORT
PRIMROSE SCHOOL FRANCHISING COMPANY

PROPOSED CHILDCARE FACILITY
PARCEL ID: 28-113
885 MAIN STREET
TOWN OF READING
MIDDLESEX COUNTY, MASSACHUSETTS

PREPARED FOR:
PRIMROSE SCHOOLS FRANCHISING COMPANY
21 CONKLIN AVENUE
WARREN, NEW JERSEY 07059

PREPARED BY:
STONEFIELD ENGINEERING & DESIGN, LLC
120 WASHINGTON STREET, SUITE 201
SALEM, MASSACHUSETTS

REPORT DATE:
MARCH 7, 2025

JOSHUA H. KLINE, PE
MA PE LICENSE #53936

REPORT CONTENTS

APPENDICES

1.0 PROJECT DESCRIPTION

Primrose School Franchising Company is proposing to develop Parcel 28-113, commonly known as 885 Main Street, Reading, MA, (herein referred to as the "project site") to accommodate the construction of a 14,058 square foot Childcare Facility (7,029 SF Floor Plate). Additional improvements include children's playground areas with associated play equipment, lighting, landscaping, off-street parking facilities, utility connections, and stormwater infrastructure.

The property is located within the Single Family 15 (S-15) zoning district in the Town of Reading. The proposed development fronts Main Street (Route 28) and is surrounded by single family residential lots. The site will be accessed via one (1) full movement driveway from Main Street (MA Route 28). Refer to **APPENDIX A** for project maps of the subject site.

The project site is 84,280 SF (1.94 acres), the extent of land disturbance is 61,093 SF (1.40 acres), and 15,257 SF (0.35 acres) of impervious surface will be added to the project site. The overall drainage area was modeled as 84,280 SF (1.94 acres).

This Report has been prepared to analyze the potential stormwater runoff impacts of the proposed project site and outline proposed measures to conform to the stormwater management regulations set forth by the Town of Reading and the Massachusetts Department of Environmental Protection.

2.0 EXISTING CONDITIONS

EXISTING SITE DEVELOPMENT

The project site fronts Main Street (MA Route 28) to the East. Under existing conditions, the project site is developed with an approximately 3,070 ± SF house with associated accessory structures, parking facilities, pool and utility connections. The site is accessed via one (1) full movement driveway off Main Street. There is an existing bordering vegetated wetland on the northeast corner of the project site that captures all runoff within the existing developed area. The entirety of the existing structures, associated parking area, and utility connections will be removed to accommodate the proposed development. An Aerial Map depicting the existing site conditions can be found in **APPENDIX A**.

EXISTING TOPOGRAPHY

The high point of the project site is 125.0' along the southern property line near Francis Drive. Runoff will sheet flow north from the high point near Francis drive, across site, and discharge to the onsite wetlands. Another high point of 112.5' exists at the western edge of the project site along Main Street, runoff from this point, similarly, will

sheet flow across site and discharge to the wetlands. No runoff from the project site enters the State Highway Layout. Grades onsite generally range from 2-7% within the previously developed area and increases to 30-35% as it approaches the onsite wetlands to the Northeast.

PROJECT SITE SOILS

Soil mapping was obtained from the National Resource Conservation Service (NRCS) for the project site and immediate area. Generally, the project site is underlain with one major soil group: Sandy Loam (SL). Overall, the soils are well drained and runoff flows overland northeast to the on-site wetlands. The table below provides a summary of soils for the project site:

TABLE 1: NRCS SOIL MAPPING RESULTS

Soil Unit Code	Soil Description	Approximate Project Coverage	Drainage Class	Hydrologic Soil Group
73B	Whitman Fine Sandy Loam	61.3%	Very Poorly Drained	D
631C	Charlton-Urban Land-Hollis Complex	28.5%	Well Drained	A
655	Udorthents	5.9%	NS	D*
305C	Paxton Fine Sandy Loam	3.8%	Well Drained	C
629C	Canton-Charlton-Urban Land Complex	0.5%	Well Drained	A

*629C does not have a pre-determined hydraulic soil group. As such, these soils are analyzed as HSG D for a conservative analysis.

Additional information regarding the NRCS soil mapping can be found in **APPENDIX B**.

Preliminary subsurface investigations have revealed the estimated seasonal high-water table (ESHWT) to be approximately 10' below existing graded at the location of the proposed subsurface infiltration system. A detailed geotechnical report will be provided at a later date.

WATERSHED / RECEIVING WATERS – TMDL DESIGNATION

Under existing conditions, the site drains to the onsite bordering vegetated wetlands to the northeast of the project site that ultimately discharges to Saugus River (State Waterbody ID: MA93-94). The watershed for the development is part of the Headwaters Saugus River Watershed (State Watershed ID Designation: 010900010401) as defined by the United States Environmental Protection Agency for Community Waterway Mapping. Per the Massachusetts Year 2022 Integrated List of Waters prepared by the Massachusetts Department of Environmental Protection, Saugus River is identified as an impaired water for algae, bacteria and other microbes, degraded habitat, low oxygen, murky water, and nitrogen and/or phosphorus.

EXISTING ENVIRONMENTAL INVENTORY

Based on the effective FEMA flood insurance rate mapping (FEMA Map #25017C311E issued June 4th, 2010), the entirety of the site lies within flood zone x, an area with minimal flood hazard. The FEMA Map can be found in **APPENDIX A** of this Report.

There are state (MassDEP) regulated freshwater wetlands within the project site that are subject to the Wetlands Protection Act Regulations (310 CMR). As there are regulated wetlands within the project site, the limits of the areas and associated Buffer Zones are shown on the Site Plans prepared by Stonefield in conjunction with this Report. Per the records of natural communities maintained in the National Heritage & Endangered Species Program (NHESP) database, there are no records of endangered or threatened species sightings or suitable habitats located within the vicinity of the proposed improvements.

3.0 PROPOSED CONDITIONS

PROPOSED SITE DEVELOPMENT

The proposed development will consist of a 14,058 square foot child daycare facility. Additional improvements include an off-street parking facility, lighting, landscaping, child play area, utility services and stormwater management infrastructure. The site will be accessed via one (1) full movement driveway off of Main Street. Refer to **APPENDIX A** for a half-size Overall Site Plan depicting the proposed project improvements.

PROPOSED TOPOGRAPHY

Project site topography and drainage patterns will generally remain similar to existing conditions; however, due to the need for more commercially friendly, ADA compliant grades, the previously developed area has been widened and flattened. A combination of extended curbing and retaining/landscape walls will be implemented through the project to make up for the change in grades.

ANTICIPATED ENVIRONMENTAL INVENTORY IMPACTS

The proposed development will not disturb land within the 25' wetland buffer. The Township will remain apprised of the MassDEP permitting status as the project moves forward.

4.0 STORMWATER MANAGEMENT METHODOLOGY & PARAMETERS

HYDROLOGIC METHODOLOGY

The analysis program "HydroCAD" Version 10.0 by HydroCAD Software Solutions was utilized to calculate and plot the runoff hydrographs. The program incorporates the time of concentration, C values, rainfall data, and project drainage areas to calculate the runoff characteristics. The existing and proposed drainage areas have been analyzed

utilizing Intensity-Duration-Frequency data obtained from NOAA for the project area; specifics of the rainfall distribution can be found in **APPENDIX C.** Additional key variables utilized in the analysis include:

TABLE 2: HYDROCAD DESIGN VARIABLES

Variable	Input	Variable	Input
Runoff Calculation Method	SCS TR-20	NRCS Rainfall Frequency Data Set	Middlesex
Pervious/Impervious CN Calculations	Separate	Storm Intervals (Year Events)	2, 10, 100
Stage-Storage Relationship	Dynamic	Storm Duration	24 Hours
Minimum time of concentration	6 minutes	Storm Curve	NOAA D

Additional information regarding the hydrologic calculations can be found in **APPENDIX C**.

5.0 STORMWATER ANALYSIS

EXISTING DRAINAGE AREAS

Under current conditions, the project site is comprised of one (1) drainage area discharging to one (1) Point of Interest (POI-1). The ultimate POI analyzed for the development is the existing bordering vegetated wetlands located in the northeast corner of the project site. POI-1, comprised of drainage area EX-1, receives runoff via sheet flow from the entirety of site. See below for a short summary of the drainage area:

TABLE 3: SUMMARY OF EXISTING DRAINAGE AREA

Drainage Area	Description	Area Extents	Impervious Area	Time of Concentration
EX-1 (POI-1)	Existing Runoff to Wetlands	84,280 SF	11,547 SF	11.2 Minutes

Existing drainage areas were delineated based on field surveying data. Hydrologic calculations and parameters for each drainage area can be found in **APPENDIX C**; specific drainage area delineations and land cover can be found in **APPENDIX E.**

PROPOSED DRAINAGE AREAS

Under proposed conditions, the general drainage patterns and ultimate point of interest will be maintained. The intent behind the proposed delineations is to reduce the amount of direct runoff to the onsite bordering vegetated wetlands. The diverted land from drainage area P-1B is sent to various stormwater management features to meet

the Massachusetts Department of Environmental Protection Stormwater Management Standards as outlined in the next Report section. See below for a short summary of each area:

TABLE 5: SUMMARY OF PROPOSED DRAINAGE AREAS

Drainage Area	Description	Area Extents	Impervious Area	Time of Concentration
P-1A	Proposed Drainage Direct to POI-1	51,488 SF	1,313 SF	6.6 Minutes
P-1B	Proposed Drainage to B-1	32,792 SF	25,492 SF	6.0 Minutes*
POI (P-1)	Ultimate Point of Interest: Onsite Bordering Vegetated Wetlands	84,280 SF	26,805 **SF**	N/A

***The minimum time of concentration was utilized due to the high level of impervious coverage / land disturbance and proximity to existing and proposed stormwater pipe conveyance systems**

All proposed drainage areas were delineated based on the proposed grading design overlain on field survey data data. Hydrologic calculations and parameters for each drainage area can be found in **APPENDIX C**; specific drainage area delineations and land cover can be found in **APPENDIX E.**

STORMWATER MANAGEMENT DESIGN PARAMETERS

The extent of development proposes to disturb over one (1) acre of the existing site; as such, it is subject to all Stormwater Standards as defined in the Town Ordinances and the Massachusetts Stormwater Handbook Volume 1. See below for a summary of each design parameter and compliance requirements:

TABLE 6: STORMWATER DESIGN STANDARDS SUMMARY

Design Parameter	Design Target for Compliance
Standard 1: *Stormwater Discharge*	Demonstrate that no new stormwater conveyances will discharge untreated stormwater directly to or cause erosion in wetlands or waters.
Standard 2: *Stormwater Quantity*	Demonstrate through hydrologic and hydraulic analysis that for stormwater leaving the site, post-construction runoff hydrographs for the 2-, 10-, and 100-year storm events do not exceed, at any point in time, the pre-construction runoff hydrographs for the same storm events.
Standard 3: *Groundwater Recharge*	Demonstrate through hydrologic and hydraulic analysis that the site and its stormwater management measure shall approximate average annual pre-construction groundwater recharge volume for the site.
Standard 4: *Stormwater Quality*	Stormwater management measures shall be designed to reduce the post-construction load of total suspended solids (TSS) in stormwater runoff generated from the water quality design storm by 80 percent of the anticipated load from existing and proposed impervious coverage onsite.
Standard 5: *High Pollutant Loads*	Demonstrate that the discharge of stormwater runoff from land uses with higher potential pollutant loads will be eliminated or reduced through complete protection from potential runoff or use of a specific structural BMP.
Standard 6: *Critical Areas*	The project does not lie within Zone II Areas, Interim Wellhead Protection Areas, Outstanding Resource Waters, Special Resources, Zone I, or Zone A and therefore is **exempt** from meeting Standard 6 as it is not applicable to the development.

STANDARD 1 – STORMWATER DISCHARGE

The proposed stormwater conveyance system for POI-1 discharges directly to the onsite bordering vegetated wetlands and is therefore subject to water treatment standards. The level of treatment is outlined under the Standard 4 section in this Report as the development impacts a critical area.

STANDARD 2 – STORMWATER QUANTITY

A series of SC-800 StormTech chambers in conjunction with an outlet control structure are used to attenuate peak stormwater runoff rates to the mandated regulatory levels. The tables below summarize the various drainage areas in relation to flow rates and runoff volume during regulatory storm events:

TABLE 7: SUMMARY OF EXISTING DRAINAGE AREA FLOW RATES

Drainage Area	2-Year Flow Rate	10-Year Flow Rate	100-Year Flow Rate
POI (E-1)	1.49 CFS	3.34 CFS	8.59 CFS

TABLE 8: SUMMARY OF PROPOSED DRAINAGE AREA FLOW RATES

Drainage Area	2-Year Flow Rate	10-Year Flow Rate	100-Year Flow Rate
P-1A (Undetained to POI)	1.11 CFS	2.55 CFS	6.49 CFS
P-1B (To Infiltration System)	1.63 CFS	2.47 CFS	4.77 CFS
POI (P-1)	1.11 CFS	2.89 CFS	7.91 CFS

Under post-development conditions the runoff flow rates and volumes are reduced to the bordering vegetated wetlands, the ultimate point of interest (POI-1). Runoff is diverted from the majority of the developed area (P-1B) to the on-site stormwater management system for runoff attenuation and water quality treatment. The table below outlines the regulatory compliance parameters for runoff quantity on the project site:

TABLE 9: STORMWATER RUNOFF QUANTITY COMPLIANCE SUMMARY (POI-1)

Rainfall Event	Existing Flow Rate	Proposed Flow Rate	Proposed % Reduction
2-Year Storm	1.49 CFS	1.11 CFS	25.50%
10-Year Storm	3.34 CFS	2.89 CFS	13.47%
100-Year Storm	8.598 CFS	7.91 CFS	8.00%

The proposed SC-800 StormTech chambers in conjunction with an outlet control structure provide sufficient flow rate attenuation to ensure that no adverse impacts are anticipated downstream of the project site. Detailed hydrologic calculations for each drainage area can be found in **APPENDIX C**.

STANDARD 3 – GROUNDWATER RECHARGE

Groundwater recharge is required as the infiltration rates of the soils were found to be greater than 0.17 in/hour and there are no contaminated soils on or within the vicinity of the site. Groundwater recharge is met through the implementation of the aforementioned subsurface infiltration system which provides a total recharge volume of 2,290 CF. There is a separation of ±4.5 feet between the bottom of the infiltration structure and the seasonal high groundwater table, therefore a groundwater mounding analysis was not required.

The required recharge volume was calculated by multiplying the total impervious area, 26,805 SF, by 0.60 inches due to the hydrologic rating of A which yields a required recharge volume of 1,340.25 CF. The proposed BMP exceeds this requirement by 949.75 CF and therefore meets Standard 3 requirements. The dynamic method was utilized and can be found in **APPENDIX C.**

STANDARD 4 – STORMWATER QUALITY CONTROL

For all developments, a removal of 80% of the average annual post-construction load of Total Suspended Solids (TSS) is required.

Compliance with stormwater runoff quality requirements will be accomplished through street sweeping (9% TSS removal rate), deep sump and hooded catch basins (25% TSS removal rate), ADS isolator Row (25% TSS removal rate), and Infiltration Basin (80% TSS removal rate), which when utilized in series provide a combined 90% TSS removal rate. The table below summarizes the required and proposed weighted TSS removal rates:

The proposed treatment design will exceed the regulatory requirements for stormwater runoff quality and ensure that runoff discharged into the unnamed tributary will not have any adverse effects on downstream waterways and environs. The MassDEP TSS removal spreadsheet can be found in **APPENDIX C.**

STANDARD 5 – HIGH POLLUTANT LOADS

The proposed use for the development is a child day care facility which is not considered a Land Use with Higher Potential Pollutant Loads (LUHPPL) by the MassDEP and therefore is exempt from Standard 5 requirements.

STANDARD 6 – CRITICAL AREAS

The proposed redevelopment area does not lie in or discharge to a Zone II Interim Wellhead Protection Area, Outstanding Resources Waters, Special Resource Waters or other critical area as defined by the Massachusetts Stormwater Handbook Volume 1, and therefore is exempt from Standard 6 requirements.

STANDARD 7 – REDEVELOPMENT PROJECT

Since the site has a net increase of impervious cover by 15,257 SF (0.35 AC), the site is not determined to be a redevelopment project and must comply with all Standards as defined in the Massachusetts Department of Environmental Protection Stormwater Management Standards.

STANDARD 8 – EROSION, SEDIMENTATION, AND POLLUTION PREVENTION PLAN

A Soil Erosion & Sediment Control Plan has been prepared in accordance with the latest edition of Volume 2 of the Massachusetts Stormwater Handbook and the Erosion and Sedimentation Control Guidelines. This plan can be found within the Land Development Plans prepared by Stonefield Engineering & Design in conjunction with this Report. Proposed temporary measures during construction include but are not limited to silt fencing, stabilized construction entrance, inlet filters, silt sock, street sweeping, and temporary seeding for soil stabilization. No land disturbance will occur until certification and permits have been obtained. Details for all proposed control measures have also been provided.

STANDARD 9 – STORMWATER FACILITY OPERATIONS AND MAINTENANCE

A Stormwater Operations & Maintenance Manual has been included in this Pollution Prevention Plan. Any necessary easements or covenants associated with the stormwater improvements will be recorded prior to the start of construction.

STANDARD 10 – ILLICIT DISCHARGES

The proposed stormwater management system discharges are entirely comprised of stormwater. Firefighting, water line flushing, landscape irrigation, uncontaminated groundwater, potable water sources, foundation drains, air conditioning condensation, footing drains, and water for street washing are prohibited to discharge onsite and will therefore not result in an illicit discharge.

6.0 EROSION, SEDIMENTATION, AND POLLUTION PREVENTION

TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES

Under proposed conditions, erosion and sediment controls will be utilized to limit the potential effects due to construction of the proposed development. Refer to the Soil Erosion and Sediment Control Plans in **APPENDIX A** of this report. The following includes the temporary sediment controls proposed for this project:

Construction Entrance – To provide a stable entrance and exit from a construction site and keep mud and sediment off public roads, a temporary stone-stabilized pad located at points of vehicular ingress and egress on a construction site. If the action of the vehicle traveling over the gravel pad is not sufficient to remove the majority of the mud, then the tires must be washed before the vehicle enters a public road. If washing is used, provisions must be made to intercept the wash water and trap sediment before it is carried off-site.

Dust Control – To reduce surface and air movement of dust from exposed soil surfaces during land disturbing, demolition, and construction activities, preventative measures must be taken. Sprinkling or other approved methods must be used to reduce dust generated on the site. Dust control shall be provided by the general contractor to a degree acceptable to the owner/operator, and in compliance with the applicable local and state dust control requirements.

Inlet Protection – A sediment filter or an excavated impounding area around a storm drain, drop inlet, or curb inlet must be used to prevent sediment from entering storm drainage systems prior to permanent stabilization of the disturbed area. During construction, the inlet protection measures shall be replaced as needed to ensure proper function of the structure.

Preserving Natural Vegetation – Natural vegetation should be preserved whenever possible, but especially on steep slopes, near perennial and intermittent watercourses or swales, and on building sites in wooded areas. Clearly flag or mark areas around trees that are to be saved. It is preferable to keep ground disturbance away from the trees at least as far out as the dripline. If possible, place a barrier/fencing around the trees. Inspect flagged areas regularly to make sure flagging has not been removed. If tree roots have been exposed or injured, re-cover and/or seal them.

Sediment Fence – A temporary sediment barrier consisting of a filter fabric stretched across and attached to supporting posts and entrenched must be established along the perimeter of areas to be disturbed before initiation of and during construction. The sediment fence is constructed of stakes and synthetic filter fabric with a rigid wire fence backing where necessary for support. Sediment fence can be purchased with pockets presewn to accept use of steel fence posts. Silt fences should be inspected immediately after each rainfall and at least daily during prolonged rainfall. Repair as necessary. If the fabric tears, decomposes, or in any way becomes ineffective, replace it immediately. Replace burlap used in sediment fences after no more than 60 days.

Compost Filter Sock – A temporary tubular mesh sleeve that contains compost of a well-shredded organic material for a linear treatment that provides stormwater pollutant removal through filtration of pollutants from overland flow. The compost filter sock is placed at the bottom of the silt fence and should be repaired as necessary. Filter socks shall be inspected immediately after each rainfall and at least daily during prolonged rainfall as well as at least once weekly. If the fabric tears, decomposes, or in any way becomes ineffective, replace it immediately. Filter socks shall be replaced after 6 months. Upon completion of temporary control, the sock may be cut open and the mulch spread as a soil supplement.

Temporary Soil Stockpile – Locate the topsoil stockpile so that it does not interfere with work on the site. Side slopes of the stockpile should not exceed 2:1. Surround all topsoil stockpiles with an interceptor dike with gravel outlet and silt fence. Either seed or cover stockpiles with clear plastic or other mulching materials within 7 days of the formation of the stockpile. Topsoil should not be placed while in a frozen or muddy condition, when the subgrade is excessively wet, or when conditions exist that may otherwise be detrimental to proper grading or proposed sodding or seeding. Do not place topsoil on slopes steeper than 2:1. Maintain protective cover on stockpiles until needed.

PERMANENT EROSION AND SEDIMENT CONTROL MEASURES

Permanent Seeding – Permanent seeding of grass and planting trees and shrubs shall be established on any graded or cleared area where long-lived plant cover is needed to stabilize the soil in accordance with the accompanying plans. Areas which will not be brought to final grade for a year or more shall also be seeded

permanently. Inspect seeded areas for failure and make necessary repairs and reseed immediately. Conduct or follow-up survey after one year and replace failed plants where necessary.

Riprap – A permanent, erosion-resistant ground cover of large, loose, angular stone must be installed in accordance with the accompanying plans to protect slopes, streambanks, channels, or areas subject to erosion by wave action. Riprap should be checked at least annually and after every major storm for displaced stones, slumping, and erosion at edges, especially downstream or downslope. If the riprap has been damaged, it should be repaired immediately before further damage can take place.

CONSTRUCTION PHASING PLAN AND SEQUENCE OF OPERATIONS

The Soil Erosion & Sediment Control Plans have been phased in order to effectively control erosion and sedimentation and minimize impacts due to seasonal changes. Please refer to **APPENDIX A** for half size Soil Erosion & Sediment Control Plans for detailed construction sequencing.

FINAL SITE STABILIZATION

Recommended practices for final surface stabilization include surface roughening, terrace, topsoiling, permanent seeding, sodding, trees and shrub planting, mulching, and riprap. The stabilization measures shall be in conformance with the *Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas*, latest edition.

7.0 CONCLUSIONS

As demonstrated in this Report, the increase in runoff flow rate and volume generated by the proposed development will be satisfactorily mitigated by the introduction of an on-site stormwater conveyance system, a subsurface infiltration system, and an outlet control structure and on-site stormwater conveyance system. Runoff water quality will be impacted by the increase in impervious surfaces and a series of street sweeping, deep sump hooded catch basins, ADS isolator row and a subsurface infiltration system will provide treatment to remove total suspended solids to a satisfactory regulatory level. Groundwater recharge also will be impacted due to the loss of pervious surfaces and a subsurface infiltration system will provide groundwater recharge equal to or greater than recharge under existing conditions.

The proposed project complies with all applicable stormwater management regulations and standards. As such, the project is not anticipated to have any adverse drainage impacts on neighboring properties, downstream watercourses, or adjoining conveyance systems.

8.0 REFERENCES

1. Massachusetts Stormwater Handbook and Stormwater Standards, last amended January 2, 2008

   https://www.mass.gov/guides/massachusetts-stormwater-handbook-and-stormwater-standards

2. Massachusetts Complete Erosion and Sedimentation Control Guidelines for Urban and Suburban Areas: A Guide for Planners, Designers, and Municipal Officials, last amended May 2003

   https://www.mass.gov/doc/complete-erosion-and-sedimentation-control-guidelines-a-guide-for-planners-designers-and/download

3. Town of Reading Zoning Bylaw, last amended April, 2022

   https://www.readingma.gov/DocumentCenter/View/2242/Zoning-Bylaw-PDF

4. Town of Reading Stormwater Management and Erosion Control Regulations, last amended December 6, 2021

   https://www.readingma.gov/DocumentCenter/View/2280/Stormwater-Regulations-PDF

APPENDIX A
PROJECT FIGURES

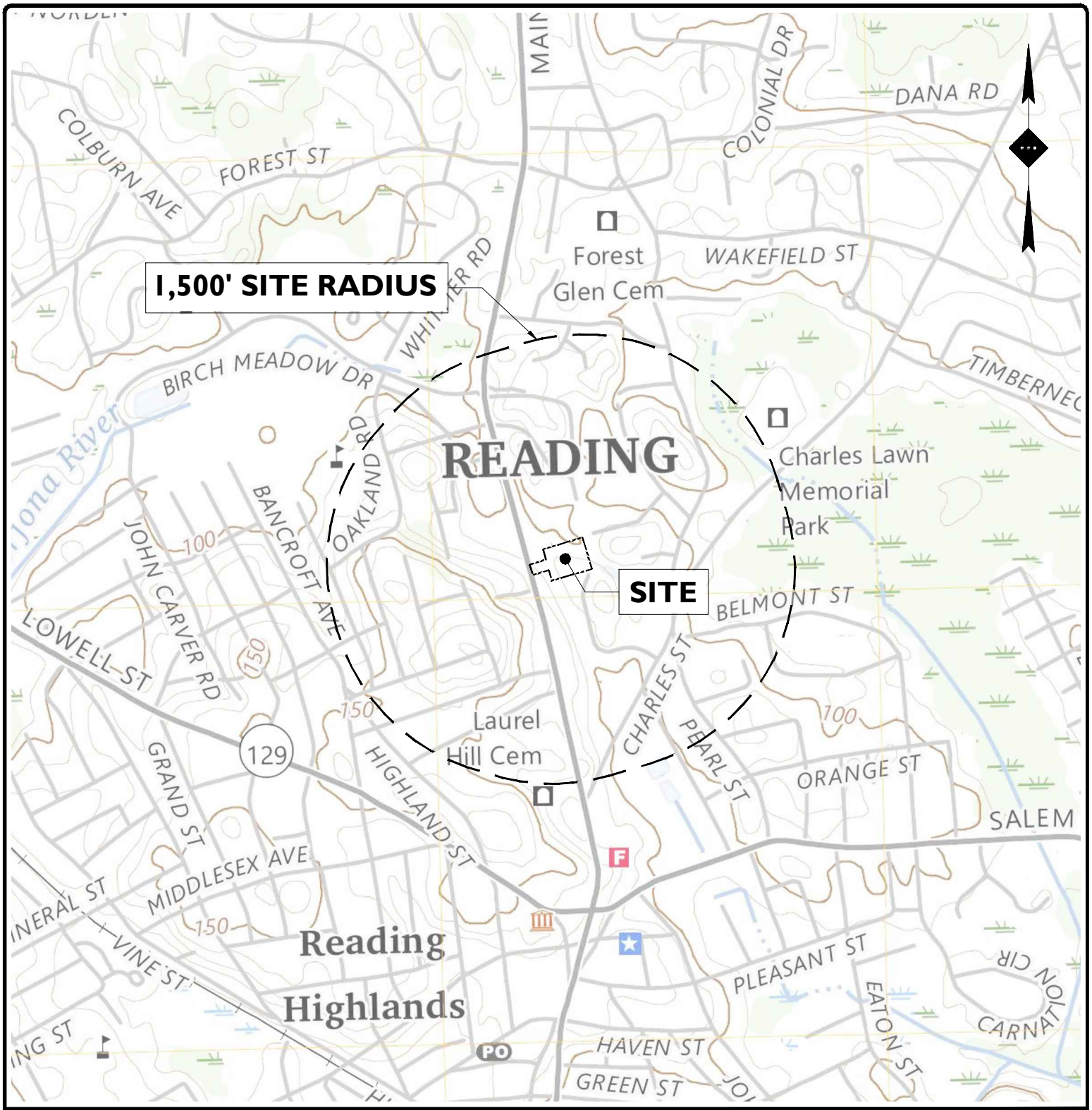
INVENTORY

FIGURE 1: USGS LOCATION MAP

FIGURE 2: AERIAL MAP

FIGURE 3: TAX & ZONING MAP

FIGURE 4: FEMA MAP



USGS QUAD MAP

1000' 0' 1000' 2000'

GRAPHIC SCALE IN FEET

1" = 1000'

SOURCE: USGS READING QUADRANGLE MASSACHUSETTS 7.5-MINUTE SERIES

PRIMROSE SCHOOLS FRANCHISING COMPANY

PROPOSED CHILD DAY CARE FACILITY

PARCEL ID: 28-113
885 MAIN STREET, TOWN OF READING
MIDDLESEX COUNTY, MASSACHUSETTS

DRAWN BY:	SCL
CHECKED BY:	JHK
DATE:	02/27/2025
SCALE:	1" = 1000'
PROJECT ID:	BOS-240115

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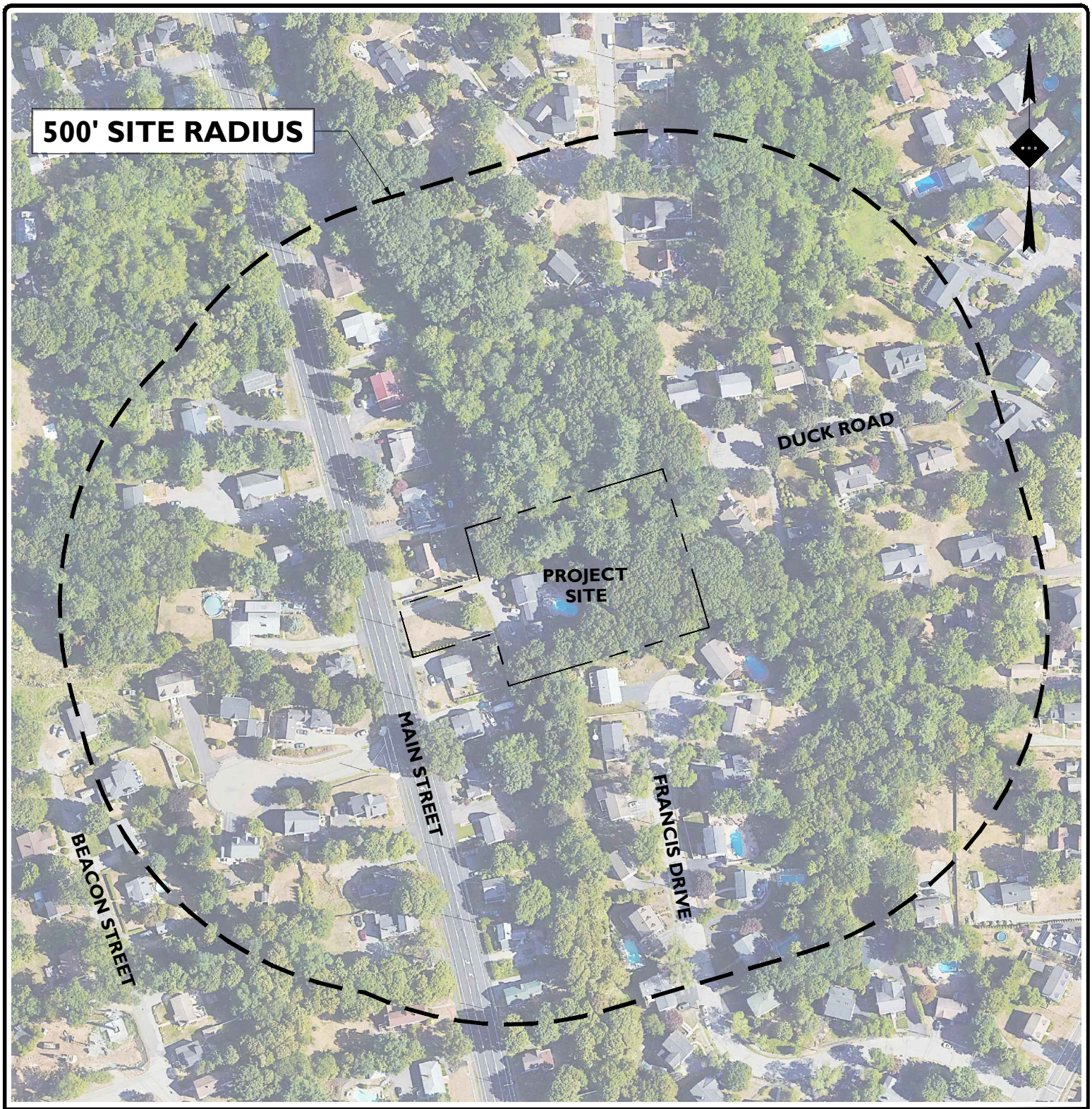

AERIAL MAP

200' 0' 200' 400'

GRAPHIC SCALE IN FEET

1" = 200'

SOURCE: GOOGLE EARTH IMAGE, DATED 06/13/2024

DRAWN BY:	SCL
CHECKED BY:	JHK
DATE:	02/27/2025
SCALE:	1" = 200'
PROJECT ID:	BOS-240115

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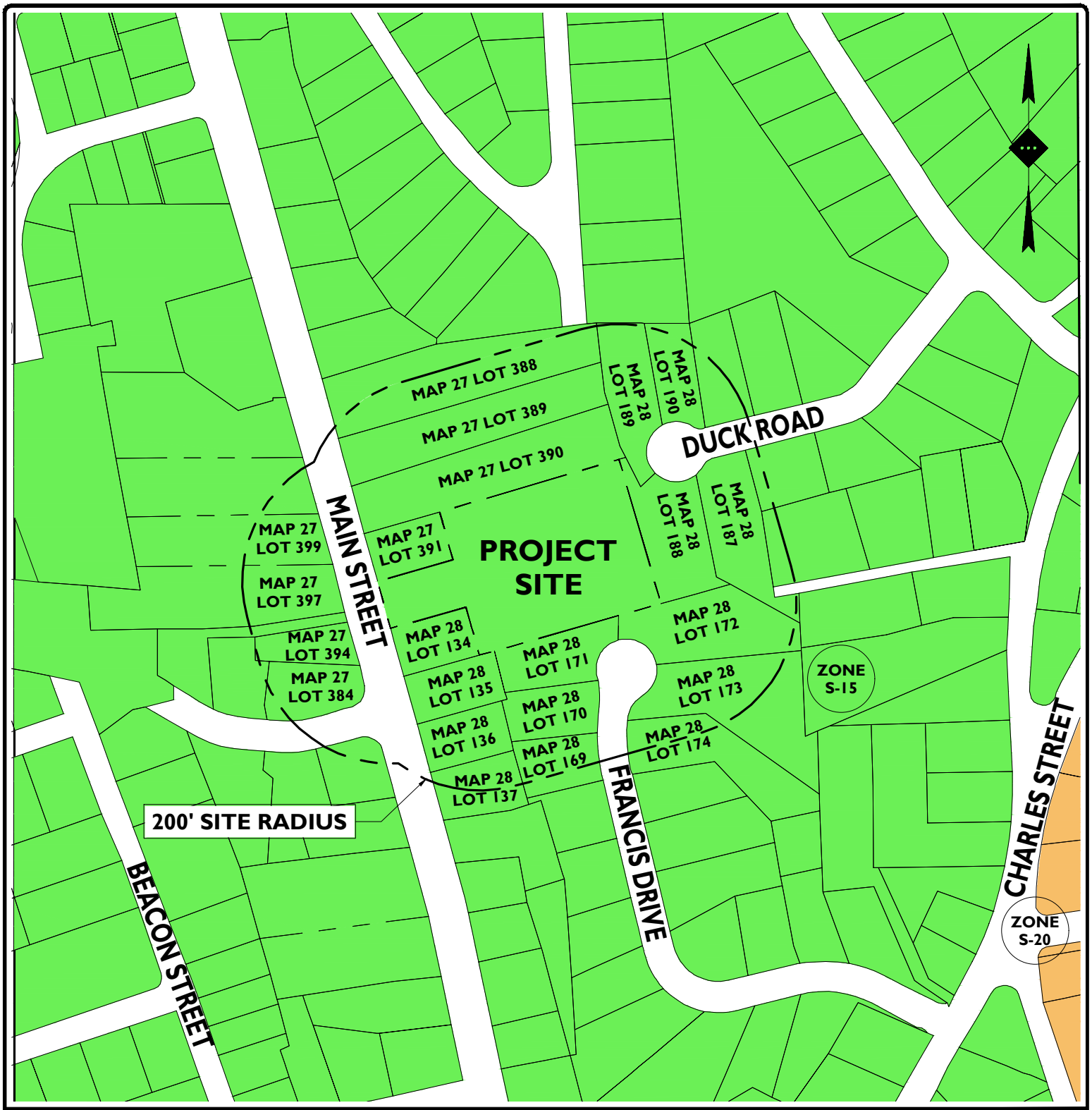

TAX & ZONING MAP

200' 0' 200' 400'

GRAPHIC SCALE IN FEET

1" = 200'

SOURCE: TOWN OF READING ZONING MAP DATED 04/27/2025 & TOWN OF READING MAPGEO

PRIMROSE SCHOOLS FRANCHISING COMPANY

PROPOSED CHILD DAY CARE FACILITY

PARCEL ID: 28-113
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MIDDLESEX COUNTY, MASSACHUSETTS

DRAWN BY:	SCL
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DATE:	02/27/2025
SCALE:	1" = 200'
PROJECT ID:	BOS-240115

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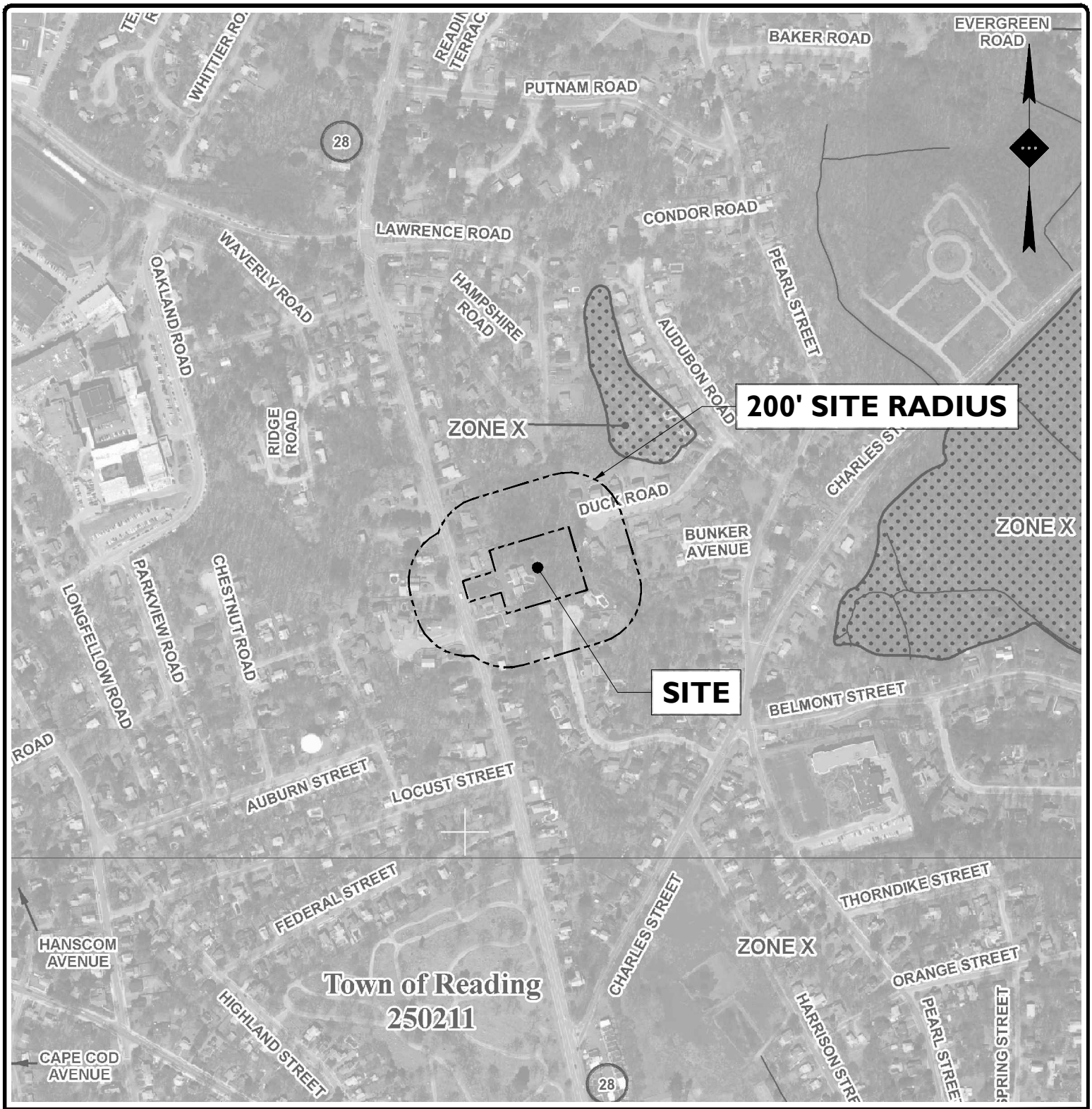

FEMA FLOOD MAP

500' 0' 500' 1000'

GRAPHIC SCALE IN FEET

1" = 500'

SOURCE: FEMA FLOOD MAP NUMBER 25017C0311E & 25017C0313E

PRIMROSE SCHOOLS FRANCHISING COMPANY

PROPOSED CHILD DAY CARE FACILITY

PARCEL ID: 28-113
885 MAIN STREET, TOWN OF READING
MIDDLESEX COUNTY, MASSACHUSETTS

DRAWN BY:	SCL
CHECKED BY:	JHK
DATE:	02/27/2025
SCALE:	1" = 500'
PROJECT ID:	BOS-240115

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APPENDIX B
PROJECT SOILS

INVENTORY

B-1: NRCS 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 Middlesex County, Massachusetts

February 25, 2025

Custom Soil Resource Report
Soil Map

Map Scale: 1:934 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 10 20 40 60

Feet
0 45 90 180 270

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

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Middlesex County, Massachusetts
Survey Area Data: Version 24, Aug 27, 2024

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

Date(s) aerial images were photographed: Mar 1, 2023—Sep 1, 2023

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
73B	Whitman fine sandy loam, 0 to 3 percent slopes, extremely stony	1.3	53.0%
305C	Paxton fine sandy loam, 8 to 15 percent slopes	0.1	3.8%
629C	Canton-Charlton-Urban land complex, 3 to 15 percent slopes	0.0	0.5%
631C	Charlton-Urban land-Hollis complex, 3 to 15 percent slopes, rocky	0.9	37.5%
655	Udorthents, wet substratum	0.1	5.2%
Totals for Area of Interest		**2.4**	**100.0%**

Map Unit Descriptions

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

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

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

was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

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

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

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

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

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

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

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

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

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

Middlesex County, Massachusetts

73B—Whitman fine sandy loam, 0 to 3 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2w695
Elevation: 0 to 1,580 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Whitman, extremely stony, and similar soils: 81 percent
Minor components: 19 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Whitman, Extremely Stony

Setting

Landform: Drumlins, ground moraines, hills, drainageways, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oi - 0 to 1 inches: peat
A - 1 to 10 inches: fine sandy loam
Bg - 10 to 17 inches: gravelly fine sandy loam
Cdg - 17 to 61 inches: fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 7 to 38 inches to densic material
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: F144AY041MA - Very Wet Till Depressions
Hydric soil rating: Yes

Minor Components

Ridgebury, extremely stony

Percent of map unit: 10 percent
Landform: Drumlins, depressions, ground moraines, hills, drainageways
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Scarboro

Percent of map unit: 5 percent
Landform: Drainageways, depressions, outwash terraces, outwash deltas
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Swansea

Percent of map unit: 3 percent
Landform: Marshes, bogs, swamps
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Woodbridge, extremely stony

Percent of map unit: 1 percent
Landform: Ground moraines, hills, drumlins
Landform position (two-dimensional): Summit, backslope, footslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

305C—Paxton fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2w66y
Elevation: 0 to 1,320 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Paxton and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Paxton

Setting

Landform: Ground moraines, hills, drumlins
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Ap - 0 to 8 inches: fine sandy loam
Bw1 - 8 to 15 inches: fine sandy loam
Bw2 - 15 to 26 inches: fine sandy loam
Cd - 26 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 20 to 39 inches to densic material
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 18 to 37 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 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: F144AY007CT - Well Drained Dense Till Uplands
Hydric soil rating: No

Minor Components

Charlton

Percent of map unit: 7 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Woodbridge

Percent of map unit: 6 percent
Landform: Hills, drumlins, ground moraines
Landform position (two-dimensional): Summit, backslope, footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Ridgebury

Percent of map unit: 2 percent
Landform: Drumlins, drainageways, depressions, ground moraines, hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: Yes

629C—Canton-Charlton-Urban land complex, 3 to 15 percent slopes

Map Unit Setting

National map unit symbol: 9959
Elevation: 0 to 1,000 feet
Mean annual precipitation: 32 to 54 inches
Mean annual air temperature: 43 to 54 degrees F
Frost-free period: 110 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Canton and similar soils: 40 percent
Charlton and similar soils: 30 percent
Urban land: 25 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Canton

Setting

Landform: Hills
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Friable loamy eolian deposits over friable sandy basal till derived from granite and gneiss

Typical profile

H1 - 0 to 8 inches: fine sandy loam
H2 - 8 to 21 inches: fine sandy loam
H3 - 21 to 65 inches: gravelly loamy sand

Properties and qualities

Slope: 3 to 15 percent
Depth to restrictive feature: 18 to 30 inches to strongly contrasting textural stratification
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 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: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Charlton

Setting

Landform: Ground moraines, drumlins
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Friable loamy eolian deposits over friable loamy basal till derived from granite and gneiss

Typical profile

H1 - 0 to 5 inches: fine sandy loam
H2 - 5 to 22 inches: sandy loam
H3 - 22 to 65 inches: gravelly sandy loam

Properties and qualities

Slope: 3 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 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: Moderate (about 7.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Urban Land

Setting

Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Excavated and filled land

Minor Components

Scituate

Percent of map unit: 2 percent

Landform: Hillslopes, depressions
Landform position (two-dimensional): Summit, toeslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

Montauk

Percent of map unit: 2 percent
Landform: Hillslopes
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Head slope, nose slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Udorthents, loamy

Percent of map unit: 1 percent
Hydric soil rating: No

631C—Charlton-Urban land-Hollis complex, 3 to 15 percent slopes, rocky

Map Unit Setting

National map unit symbol: vr1g
Elevation: 0 to 1,000 feet
Mean annual precipitation: 32 to 54 inches
Mean annual air temperature: 43 to 54 degrees F
Frost-free period: 110 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Charlton and similar soils: 45 percent
Urban land: 35 percent
Hollis and similar soils: 10 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Charlton

Setting

Landform: Ground moraines, drumlins
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Friable loamy eolian deposits over friable loamy basal till derived from granite and gneiss

Typical profile

H1 - 0 to 5 inches: fine sandy loam
H2 - 5 to 22 inches: sandy loam
H3 - 22 to 65 inches: gravelly sandy loam

Properties and qualities

Slope: 3 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 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: Moderate (about 7.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Urban Land

Setting

Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Excavated and filled land

Description of Hollis

Setting

Landform: Hillslopes, ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Friable, shallow loamy basal till over granite and gneiss

Typical profile

H1 - 0 to 2 inches: fine sandy loam
H2 - 2 to 14 inches: fine sandy loam
H3 - 14 to 18 inches: unweathered bedrock

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 8 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 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: Very low (about 2.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: F144AY033MA - Shallow Dry Till Uplands
Hydric soil rating: No

Minor Components

Canton

Percent of map unit: 4 percent
Landform: Hills
Landform position (two-dimensional): Backslope, toeslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Udorthents, loamy

Percent of map unit: 2 percent
Hydric soil rating: No

Rock outcrop

Percent of map unit: 2 percent
Landform: Ledges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Head slope
Down-slope shape: Concave
Across-slope shape: Concave

Scituate

Percent of map unit: 1 percent
Landform: Hillslopes, depressions
Landform position (two-dimensional): Summit, toeslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

Montauk

Percent of map unit: 1 percent
Landform: Hillslopes
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Head slope, nose slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

655—Udorthents, wet substratum

Map Unit Setting

National map unit symbol: vr1n
Elevation: 0 to 3,000 feet
Mean annual precipitation: 32 to 54 inches
Mean annual air temperature: 43 to 54 degrees F
Frost-free period: 110 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents, wet substratum, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents, Wet Substratum

Setting

Parent material: Loamy alluvium and/or sandy glaciofluvial deposits and/or loamy glaciolacustrine deposits and/or loamy marine deposits and/or loamy basal till and/or loamy lodgment till

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Minor Components

Urban land

Percent of map unit: 8 percent
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear

Freetown

Percent of map unit: 4 percent
Landform: Depressions, bogs
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Swansea

Percent of map unit: 3 percent
Landform: Depressions, bogs
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

References

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United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

APPENDIX C
HYDROLOGIC & HYDRAULIC CALCULATIONS

INVENTORY

APPENDIX C-1
TSS REMOVAL CALCULATIONS

INSTRUCTIONS:

Version 1, Automated: Mar. 4, 2008

1. In BMP Column, click on Blue Cell to Activate Drop Down Menu
2. Select BMP from Drop Down Menu
3. After BMP is selected, TSS Removal and other Columns are automatically completed.

Location: Basin B-1

TSS Removal Calculation Worksheet

B BMP[1]	C TSS Removal Rate[1]	D Starting TSS Load*	E Amount Removed (C*D)	F Remaining Load (D-E)
Street Sweeping - 9%	0.09	1.00	0.09	0.91
Deep Sump and Hooded Catch Basin	0.25	0.91	0.23	0.68
Isolator Row	0.25	0.68	0.17	0.51
Infiltration Basin	0.80	0.51	0.41	0.10
	0.00	0.10	0.00	0.10

Total TSS Removal = 90%

Separate Form Needs to be Completed for Each Outlet or BMP Train

Project: BOS-240115

Prepared By: AJD

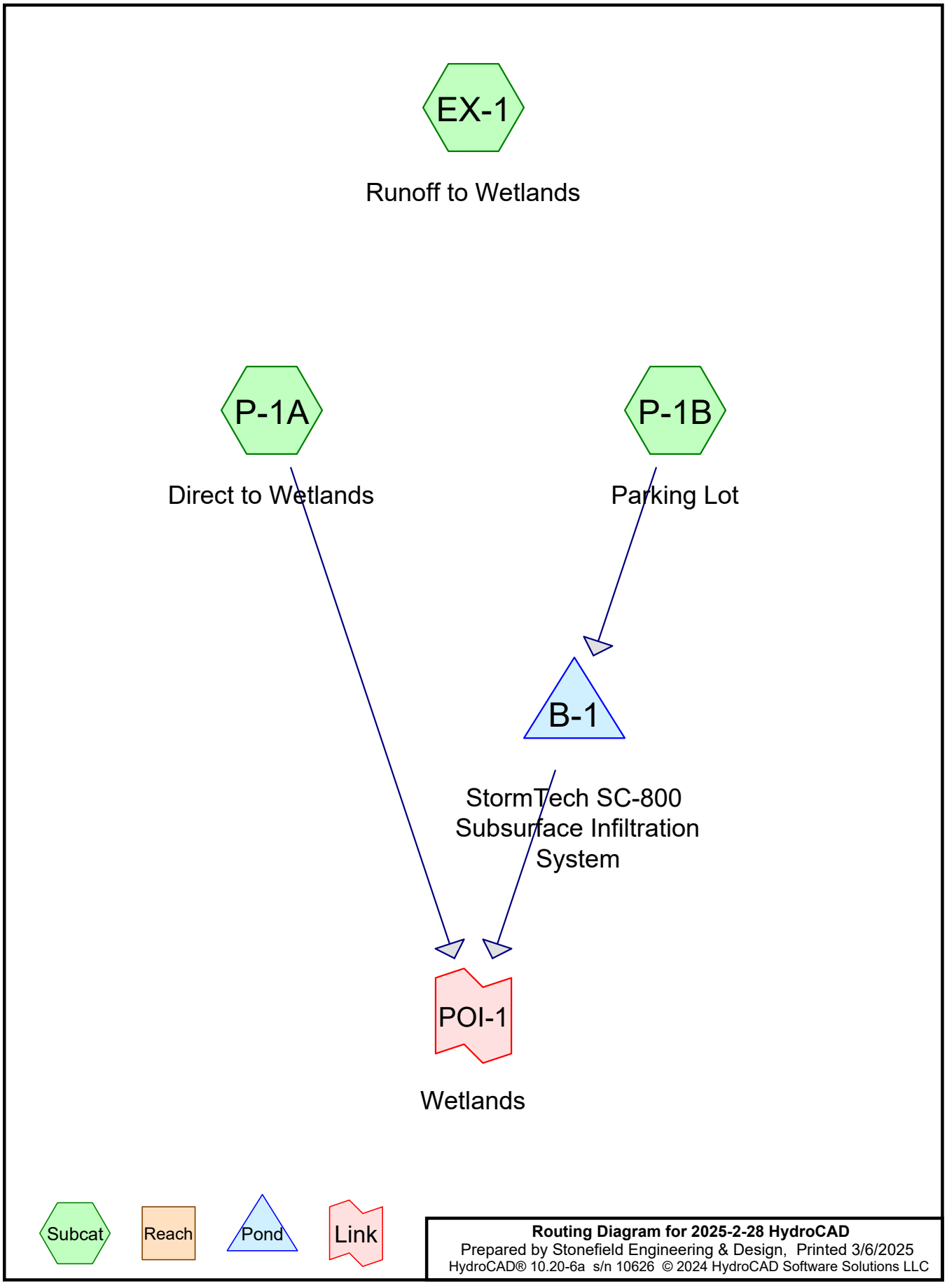
Date: 2/28/2025

*Equals remaining load from previous BMP (E) which enters the BMP

Non-automated TSS Calculation Sheet must be used if Proprietary BMP Proposed

1. From MassDEP Stormwater Handbook Vol. 1

APPENDIX C-2
HydroCAD Node Schematic Diagram



Routing Diagram for 2025-2-28 HydroCAD
Prepared by Stonefield Engineering & Design, Printed 3/6/2025

APPENDIX C-3
HydroCAD Hydrologic Calculations

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX-1: Runoff to Wetlands Runoff Area=84,280 sf 13.70% Impervious Runoff Depth=0.97"
Flow Length=204' Tc=11.2 min CN=68/98 Runoff=1.49 cfs 6,833 cf

Subcatchment P-1A: Direct to Wetlands Runoff Area=51,488 sf 2.55% Impervious Runoff Depth=0.91"
Flow Length=208' Tc=6.6 min CN=72/98 Runoff=1.11 cfs 3,918 cf

Subcatchment P-1B: Parking Lot Runoff Area=32,792 sf 77.74% Impervious Runoff Depth=2.23"
Tc=6.0 min CN=45/98 Runoff=1.63 cfs 6,091 cf

Pond B-1: StormTech SC-800 Subsurface Peak Elev=105.98' Storage=2,441 cf Inflow=1.63 cfs 6,091 cf
Discarded=0.08 cfs 5,767 cf Primary=0.07 cfs 323 cf Outflow=0.15 cfs 6,091 cf

Link POI-1: Wetlands Inflow=1.11 cfs 4,241 cf
Primary=1.11 cfs 4,241 cf

Summary for Subcatchment EX-1: Runoff to Wetlands

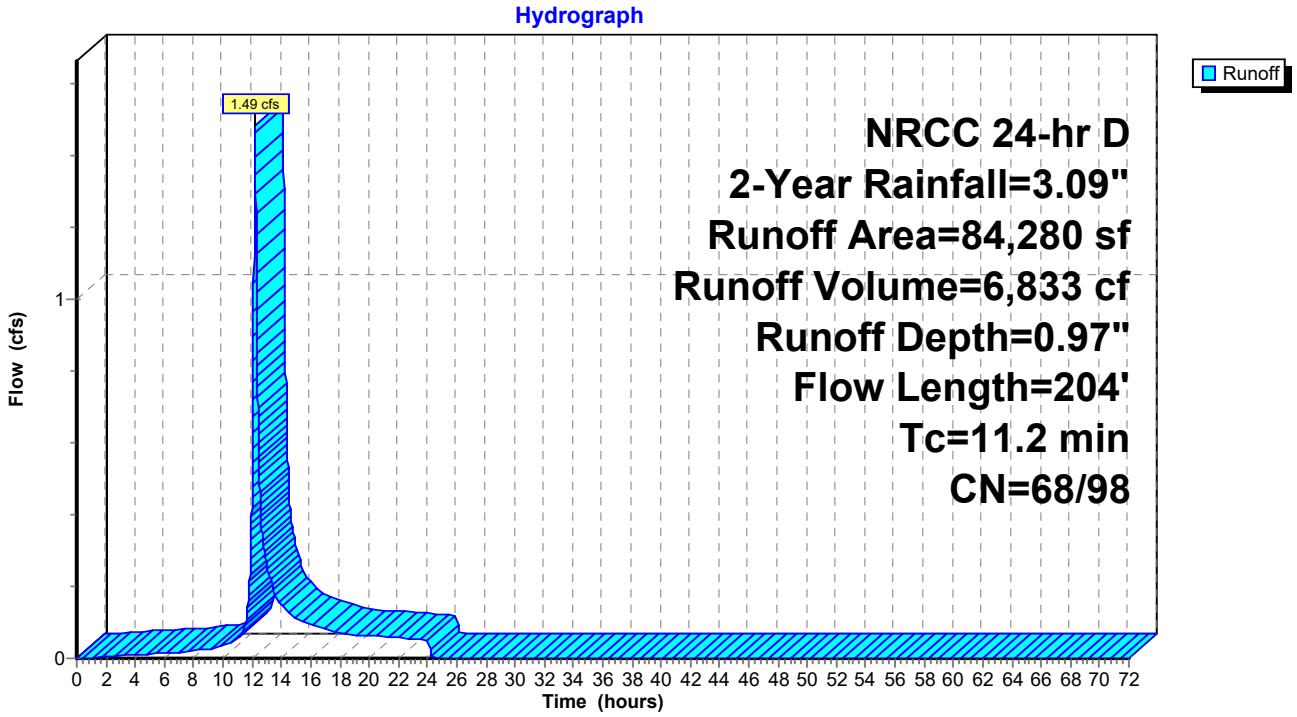
Runoff = 1.49 cfs @ 12.19 hrs, Volume= 6,833 cf, Depth= 0.97"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 2-Year Rainfall=3.09"

Area (sf)	CN	Description
11,547	98	Unconnected pavement, HSG D
7,989	30	Woods, Good, HSG A
44,941	77	Woods, Good, HSG D
5,755	80	>75% Grass cover, Good, HSG D
7,174	74	>75% Grass cover, Good, HSG C
6,874	39	>75% Grass cover, Good, HSG A
84,280	72	Weighted Average
72,733	68	86.30% Pervious Area
11,547	98	13.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	96	0.1200	0.15		**Sheet Flow, 1A-1B** Woods: Light underbrush n= 0.400 P2= 3.09"
0.6	63	0.0670	1.81		**Shallow Concentrated Flow, 1B-1C** Short Grass Pasture Kv= 7.0 fps
0.3	45	0.2000	2.24		**Shallow Concentrated Flow, 1C-1D** Woodland Kv= 5.0 fps
11.2	204	Total			

Subcatchment EX-1: Runoff to Wetlands



Summary for Subcatchment P-1A: Direct to Wetlands

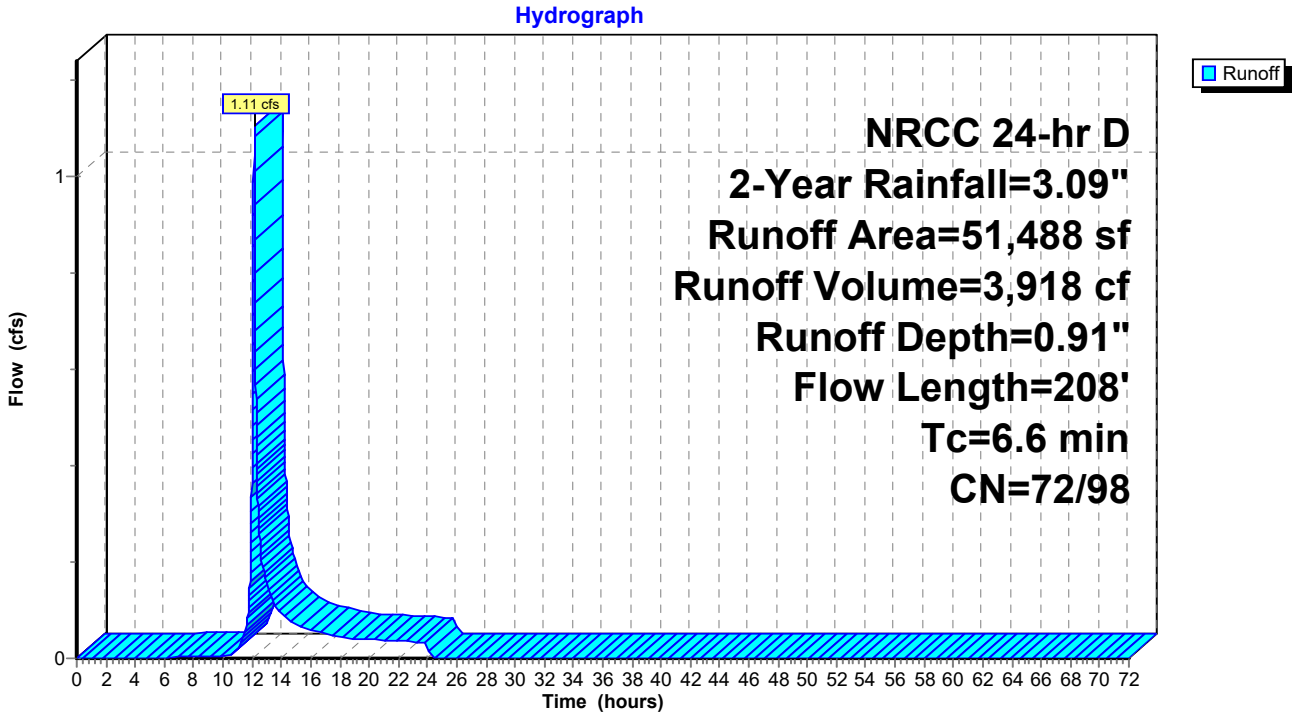
Runoff = 1.11 cfs @ 12.14 hrs, Volume= 3,918 cf, Depth= 0.91"
Routed to Link POI-1 : Wetlands

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 2-Year Rainfall=3.09"

	Area (sf)	CN	Description
*	1,313	98	Impervious
	6,792	39	>75% Grass cover, Good, HSG A
	2,880	74	>75% Grass cover, Good, HSG C
*	5,315	80	Turf Area, HSG D
	12,835	80	>75% Grass cover, Good, HSG D
	1,088	30	Woods, Good, HSG A
	21,265	77	Woods, Good, HSG D
	51,488	72	Weighted Average
	50,175	72	97.45% Pervious Area
	1,313	98	2.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	62	0.0887	0.28		**Sheet Flow, 1A-1B** Grass: Short n= 0.150 P2= 3.09"
2.5	103	0.0100	0.70		**Shallow Concentrated Flow, 1B-1C** Short Grass Pasture Kv= 7.0 fps
0.4	43	0.1050	1.62		**Shallow Concentrated Flow, 1C-1D** Woodland Kv= 5.0 fps
6.6	208	Total			

Subcatchment P-1A: Direct to Wetlands



Summary for Subcatchment P-1B: Parking Lot

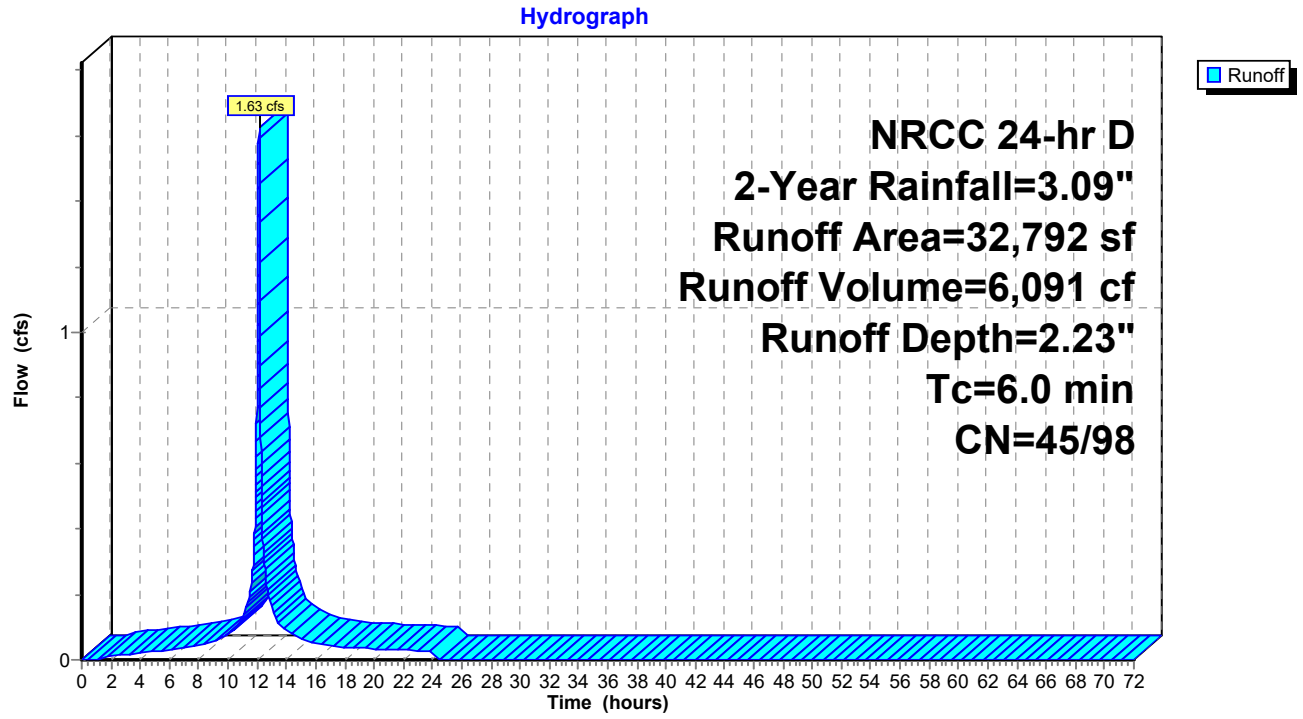
Runoff = 1.63 cfs @ 12.13 hrs, Volume= 6,091 cf, Depth= 2.23"
Routed to Pond B-1 : StormTech SC-800 Subsurface Infiltration System

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 2-Year Rainfall=3.09"

	Area (sf)	CN	Description
*	25,492	98	Impervious
	270	80	>75% Grass cover, Good, HSG D
	854	74	>75% Grass cover, Good, HSG C
	6,176	39	>75% Grass cover, Good, HSG A
	32,792	86	Weighted Average
	7,300	45	22.26% Pervious Area
	25,492	98	77.74% Impervious Area

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

Subcatchment P-1B: Parking Lot



Summary for Pond B-1: StormTech SC-800 Subsurface Infiltration System

Inflow Area = 32,792 sf, 77.74% Impervious, Inflow Depth = 2.23" for 2-Year event
Inflow = 1.63 cfs @ 12.13 hrs, Volume= 6,091 cf
Outflow = 0.15 cfs @ 13.08 hrs, Volume= 6,091 cf, Atten= 91%, Lag= 57.0 min
Discarded = 0.08 cfs @ 13.08 hrs, Volume= 5,767 cf
Primary = 0.07 cfs @ 13.08 hrs, Volume= 323 cf
Routed to Link POI-1 : Wetlands

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 105.98' @ 13.08 hrs Surf.Area= 2,462 sf Storage= 2,441 cf

Plug-Flow detention time= 260.8 min calculated for 6,091 cf (100% of inflow)
Center-of-Mass det. time= 260.8 min (1,023.5 - 762.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	104.50'	2,340 cf	**30.00'W x 82.05'L x 3.75'H Field A** 9,231 cf Overall - 3,380 cf Embedded = 5,850 cf x 40.0% Voids
#2A	105.00'	3,380 cf	**ADS_StormTech SC-800 +Cap** x 66 Inside #1 Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap 66 Chambers in 6 Rows Cap Storage= 3.4 cf x 2 x 6 rows = 41.0 cf
		5,720 cf	Total Available Storage

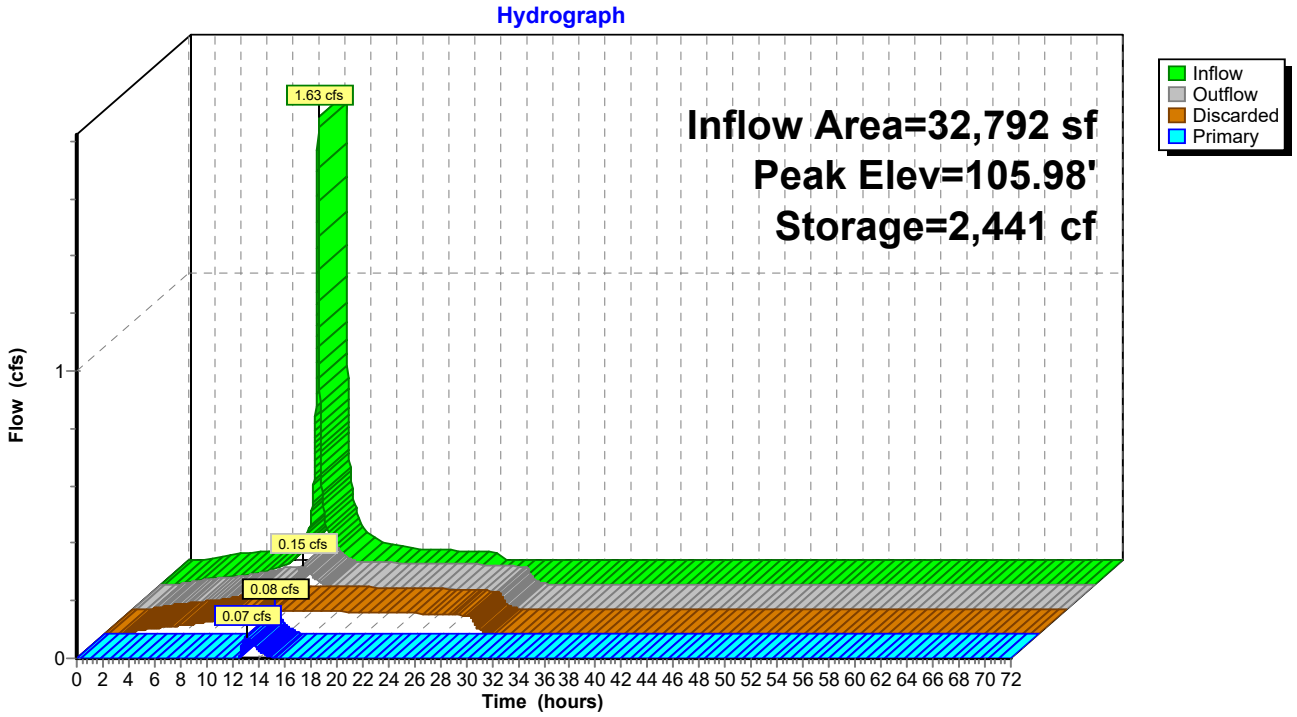
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	104.00'	**12.0" Round Culvert** L= 45.0' Ke= 0.500 Inlet / Outlet Invert= 104.00' / 103.00' S= 0.0222 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	107.00'	**6.0" W x 2.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	105.90'	**12.0" W x 2.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	107.75'	**6.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#5	Discarded	104.50'	**1.050 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 100.00' Phase-In= 0.10'

Discarded OutFlow Max=0.08 cfs @ 13.08 hrs HW=105.98' (Free Discharge)
└**5=Exfiltration** (Controls 0.08 cfs)

Primary OutFlow Max=0.07 cfs @ 13.08 hrs HW=105.98' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.07 cfs of 4.60 cfs potential flow)
  ├**2=Orifice/Grate** (Controls 0.00 cfs)
  ├**3=Orifice/Grate** (Orifice Controls 0.07 cfs @ 0.90 fps)
  └**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond B-1: StormTech SC-800 Subsurface Infiltration System

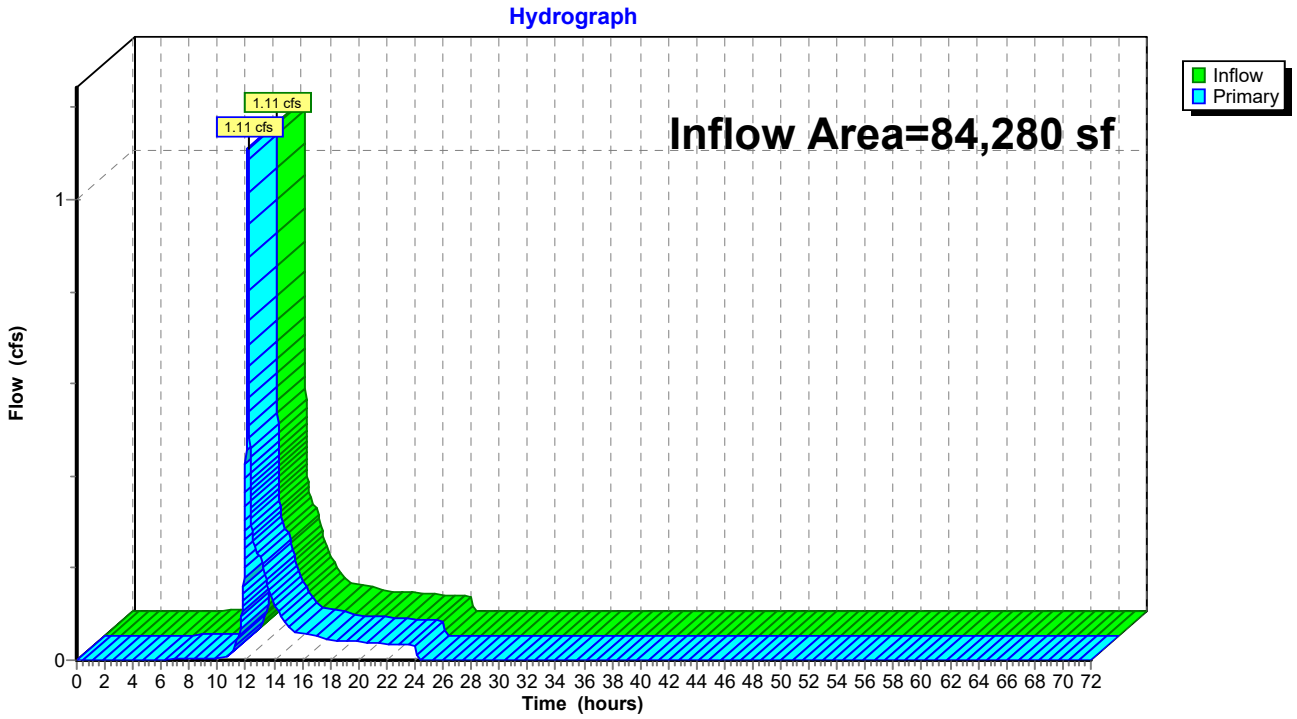


Summary for Link POI-1: Wetlands

Inflow Area = 84,280 sf, 31.80% Impervious, Inflow Depth = 0.60" for 2-Year event
Inflow = 1.11 cfs @ 12.14 hrs, Volume= 4,241 cf
Primary = 1.11 cfs @ 12.14 hrs, Volume= 4,241 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POI-1: Wetlands



Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX-1: Runoff to Wetlands Runoff Area=84,280 sf 13.70% Impervious Runoff Depth=2.02"
Flow Length=204' Tc=11.2 min CN=68/98 Runoff=3.34 cfs 14,155 cf

Subcatchment P-1A: Direct to Wetlands Runoff Area=51,488 sf 2.55% Impervious Runoff Depth=2.00"
Flow Length=208' Tc=6.6 min CN=72/98 Runoff=2.55 cfs 8,561 cf

Subcatchment P-1B: Parking Lot Runoff Area=32,792 sf 77.74% Impervious Runoff Depth=3.51"
Tc=6.0 min CN=45/98 Runoff=2.47 cfs 9,581 cf

Pond B-1: StormTech SC-800 Subsurface Peak Elev=106.43' Storage=3,283 cf Inflow=2.47 cfs 9,581 cf
Discarded=0.09 cfs 6,989 cf Primary=0.54 cfs 2,593 cf Outflow=0.62 cfs 9,581 cf

Link POI-1: Wetlands Inflow=2.89 cfs 11,154 cf
Primary=2.89 cfs 11,154 cf

Summary for Subcatchment EX-1: Runoff to Wetlands

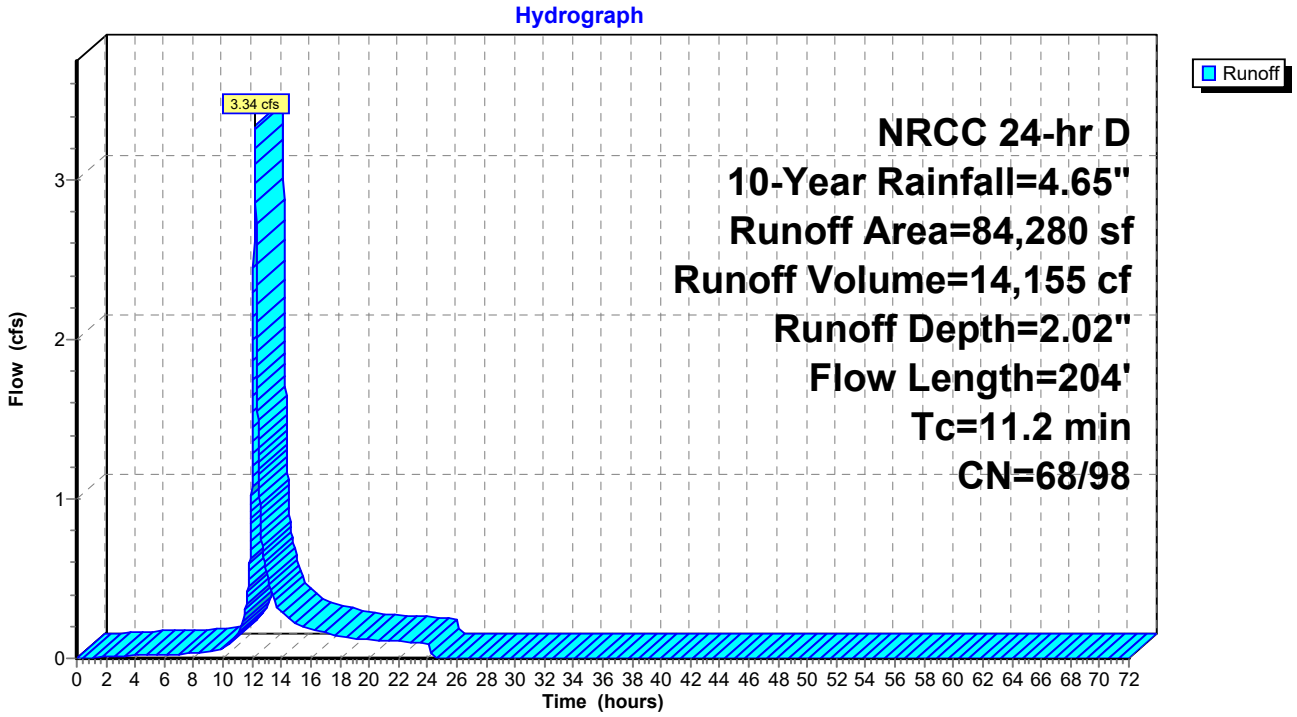
Runoff = 3.34 cfs @ 12.19 hrs, Volume= 14,155 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 10-Year Rainfall=4.65"

Area (sf)	CN	Description
11,547	98	Unconnected pavement, HSG D
7,989	30	Woods, Good, HSG A
44,941	77	Woods, Good, HSG D
5,755	80	>75% Grass cover, Good, HSG D
7,174	74	>75% Grass cover, Good, HSG C
6,874	39	>75% Grass cover, Good, HSG A
84,280	72	Weighted Average
72,733	68	86.30% Pervious Area
11,547	98	13.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	96	0.1200	0.15		**Sheet Flow, 1A-1B** Woods: Light underbrush n= 0.400 P2= 3.09"
0.6	63	0.0670	1.81		**Shallow Concentrated Flow, 1B-1C** Short Grass Pasture Kv= 7.0 fps
0.3	45	0.2000	2.24		**Shallow Concentrated Flow, 1C-1D** Woodland Kv= 5.0 fps
11.2	204	Total			

Subcatchment EX-1: Runoff to Wetlands



Summary for Subcatchment P-1A: Direct to Wetlands

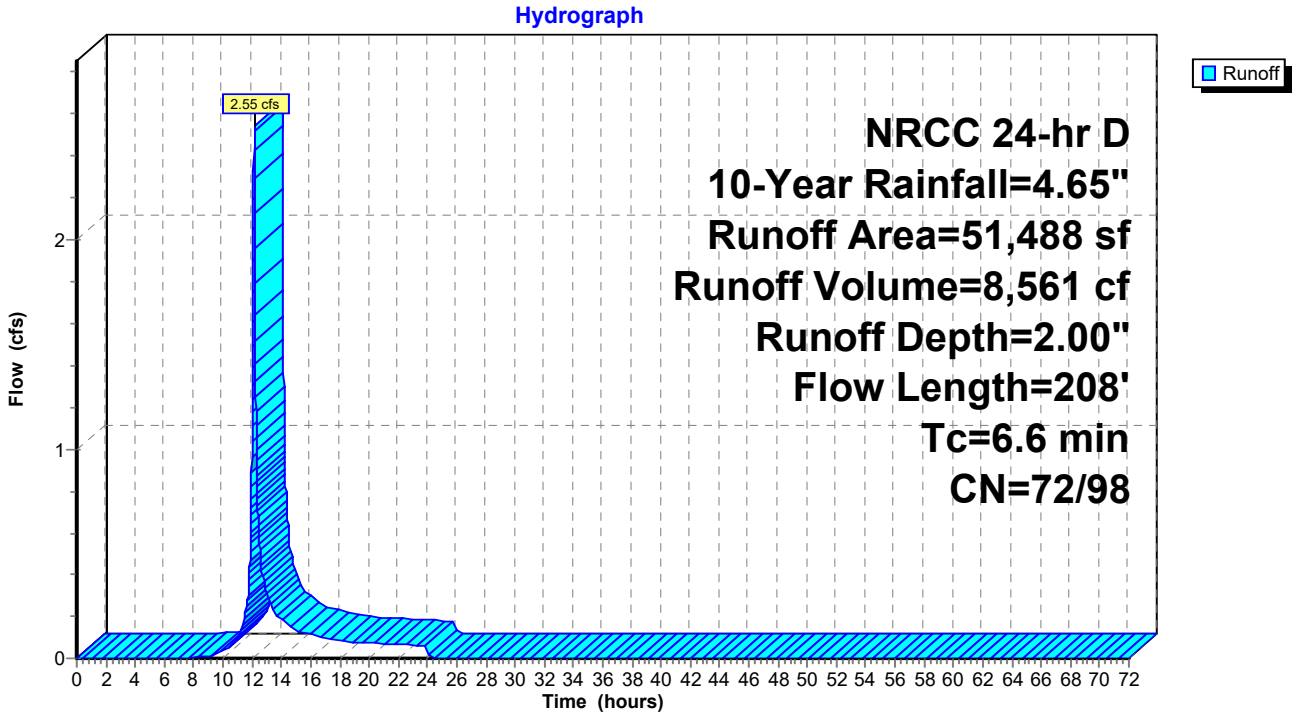
Runoff = 2.55 cfs @ 12.14 hrs, Volume= 8,561 cf, Depth= 2.00"
Routed to Link POI-1 : Wetlands

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 10-Year Rainfall=4.65"

	Area (sf)	CN	Description
*	1,313	98	Impervious
	6,792	39	>75% Grass cover, Good, HSG A
	2,880	74	>75% Grass cover, Good, HSG C
*	5,315	80	Turf Area, HSG D
	12,835	80	>75% Grass cover, Good, HSG D
	1,088	30	Woods, Good, HSG A
	21,265	77	Woods, Good, HSG D
	51,488	72	Weighted Average
	50,175	72	97.45% Pervious Area
	1,313	98	2.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	62	0.0887	0.28		**Sheet Flow, 1A-1B** Grass: Short n= 0.150 P2= 3.09"
2.5	103	0.0100	0.70		**Shallow Concentrated Flow, 1B-1C** Short Grass Pasture Kv= 7.0 fps
0.4	43	0.1050	1.62		**Shallow Concentrated Flow, 1C-1D** Woodland Kv= 5.0 fps
6.6	208	Total			

Subcatchment P-1A: Direct to Wetlands



Summary for Subcatchment P-1B: Parking Lot

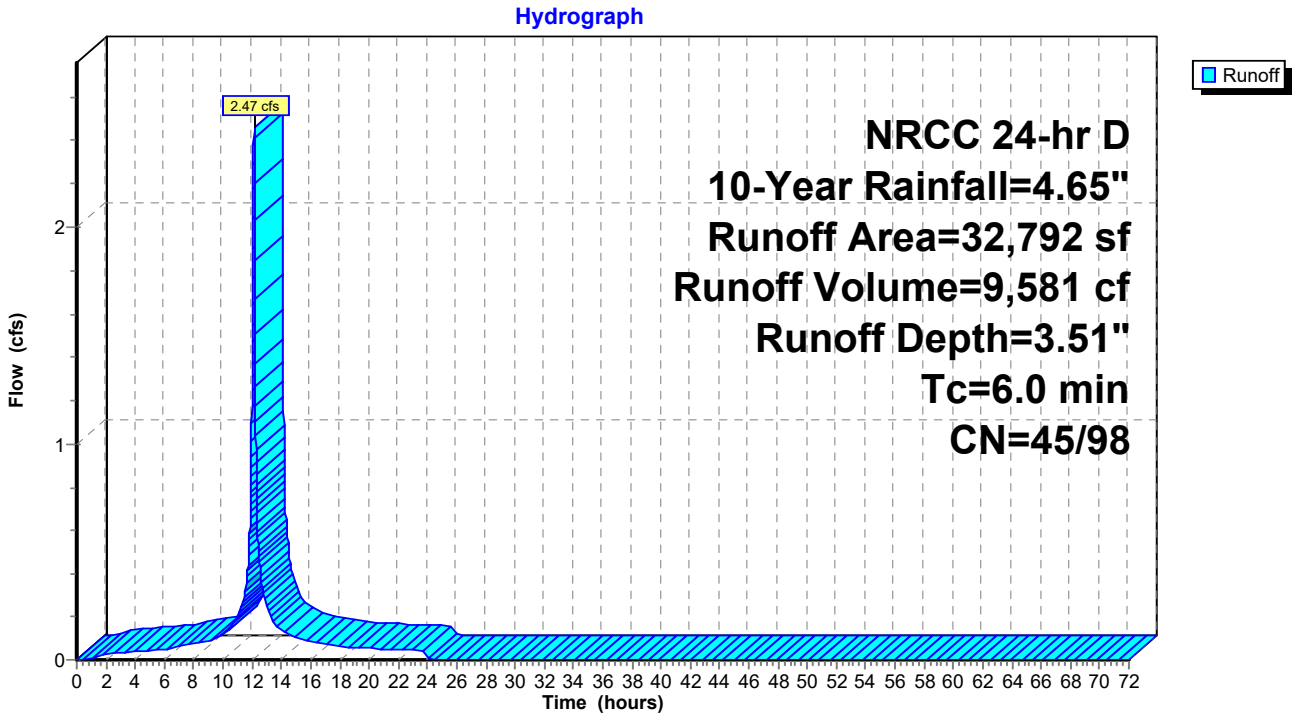
Runoff = 2.47 cfs @ 12.13 hrs, Volume= 9,581 cf, Depth= 3.51"
Routed to Pond B-1 : StormTech SC-800 Subsurface Infiltration System

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 10-Year Rainfall=4.65"

	Area (sf)	CN	Description
*	25,492	98	Impervious
	270	80	>75% Grass cover, Good, HSG D
	854	74	>75% Grass cover, Good, HSG C
	6,176	39	>75% Grass cover, Good, HSG A
	32,792	86	Weighted Average
	7,300	45	22.26% Pervious Area
	25,492	98	77.74% Impervious Area

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

Subcatchment P-1B: Parking Lot



Summary for Pond B-1: StormTech SC-800 Subsurface Infiltration System

Inflow Area = 32,792 sf, 77.74% Impervious, Inflow Depth = 3.51" for 10-Year event
Inflow = 2.47 cfs @ 12.13 hrs, Volume= 9,581 cf
Outflow = 0.62 cfs @ 12.36 hrs, Volume= 9,581 cf, Atten= 75%, Lag= 13.8 min
Discarded = 0.09 cfs @ 12.36 hrs, Volume= 6,989 cf
Primary = 0.54 cfs @ 12.36 hrs, Volume= 2,593 cf
Routed to Link POI-1 : Wetlands

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 106.43' @ 12.36 hrs Surf.Area= 2,462 sf Storage= 3,283 cf

Plug-Flow detention time= 221.1 min calculated for 9,580 cf (100% of inflow)
Center-of-Mass det. time= 221.2 min (978.7 - 757.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	104.50'	2,340 cf	**30.00'W x 82.05'L x 3.75'H Field A** 9,231 cf Overall - 3,380 cf Embedded = 5,850 cf x 40.0% Voids
#2A	105.00'	3,380 cf	**ADS_StormTech SC-800 +Cap** x 66 Inside #1 Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap 66 Chambers in 6 Rows Cap Storage= 3.4 cf x 2 x 6 rows = 41.0 cf
		5,720 cf	Total Available Storage

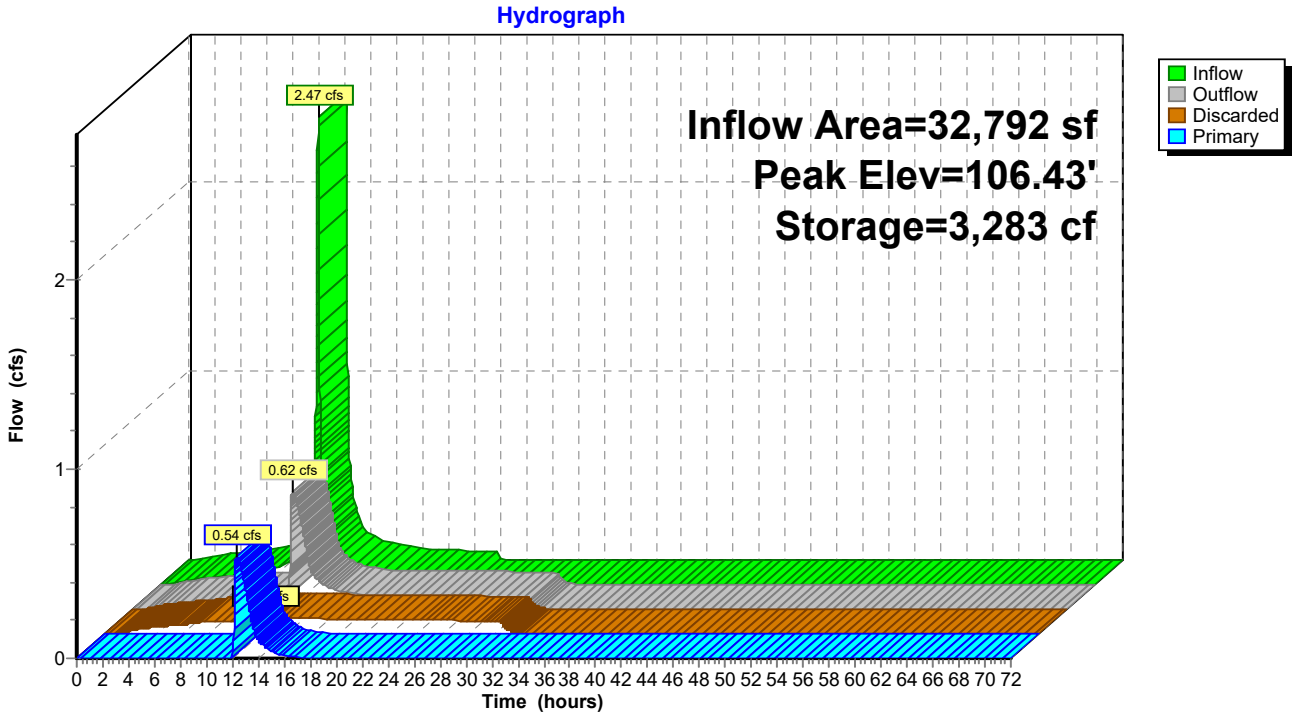
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	104.00'	**12.0" Round Culvert** L= 45.0' Ke= 0.500 Inlet / Outlet Invert= 104.00' / 103.00' S= 0.0222 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	107.00'	**6.0" W x 2.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	105.90'	**12.0" W x 2.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	107.75'	**6.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#5	Discarded	104.50'	**1.050 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 100.00' Phase-In= 0.10'

Discarded OutFlow Max=0.09 cfs @ 12.36 hrs HW=106.43' (Free Discharge)
└**5=Exfiltration** (Controls 0.09 cfs)

Primary OutFlow Max=0.54 cfs @ 12.36 hrs HW=106.43' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.54 cfs of 5.26 cfs potential flow)
  ├**2=Orifice/Grate** (Controls 0.00 cfs)
  ├**3=Orifice/Grate** (Orifice Controls 0.54 cfs @ 3.22 fps)
  └**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond B-1: StormTech SC-800 Subsurface Infiltration System

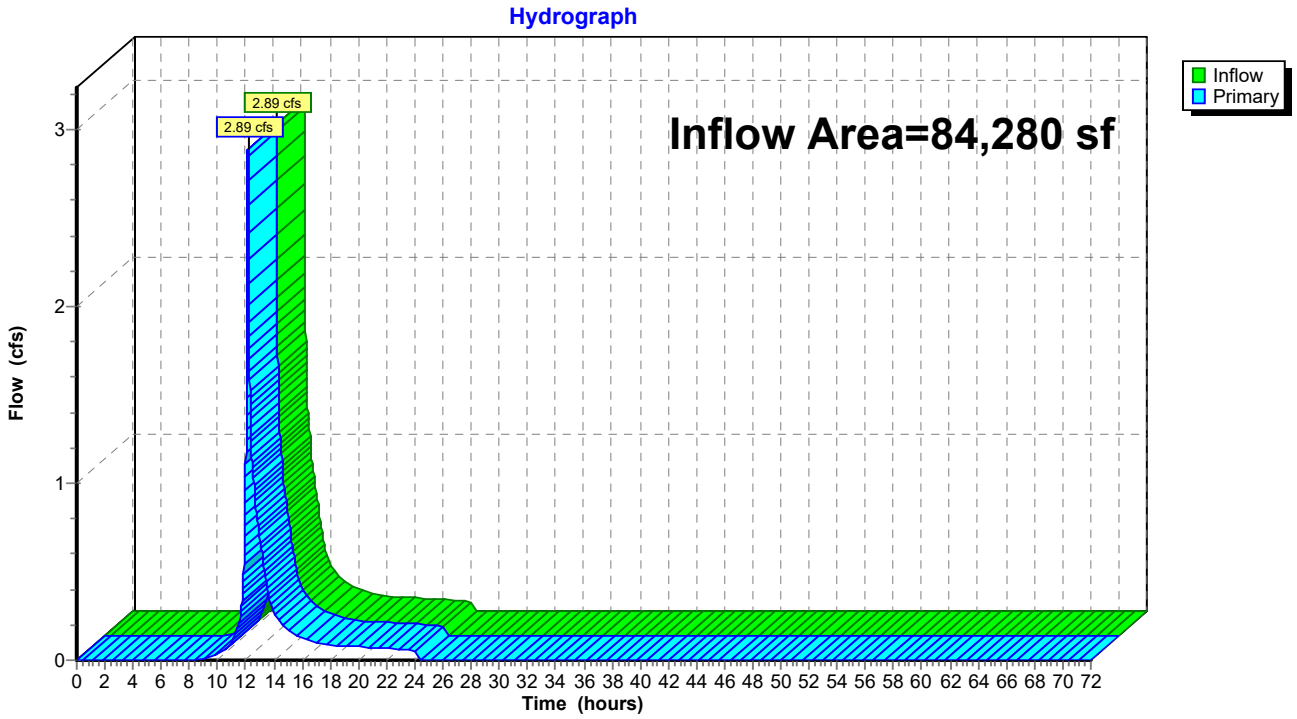


Summary for Link POI-1: Wetlands

Inflow Area = 84,280 sf, 31.80% Impervious, Inflow Depth = 1.59" for 10-Year event
Inflow = 2.89 cfs @ 12.15 hrs, Volume= 11,154 cf
Primary = 2.89 cfs @ 12.15 hrs, Volume= 11,154 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POI-1: Wetlands



Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment EX-1: Runoff to Wetlands Runoff Area=84,280 sf 13.70% Impervious Runoff Depth=5.03"
Flow Length=204' Tc=11.2 min CN=68/98 Runoff=8.59 cfs 35,327 cf

Subcatchment P-1A: Direct to Wetlands Runoff Area=51,488 sf 2.55% Impervious Runoff Depth=5.09"
Flow Length=208' Tc=6.6 min CN=72/98 Runoff=6.49 cfs 21,844 cf

Subcatchment P-1B: Parking Lot Runoff Area=32,792 sf 77.74% Impervious Runoff Depth=6.74"
Tc=6.0 min CN=45/98 Runoff=4.77 cfs 18,423 cf

Pond B-1: StormTech SC-800 Subsurface Peak Elev=107.94' Storage=5,413 cf Inflow=4.77 cfs 18,423 cf
Discarded=0.11 cfs 8,425 cf Primary=2.86 cfs 9,998 cf Outflow=2.97 cfs 18,423 cf

Link POI-1: Wetlands Inflow=7.91 cfs 31,842 cf
Primary=7.91 cfs 31,842 cf

Summary for Subcatchment EX-1: Runoff to Wetlands

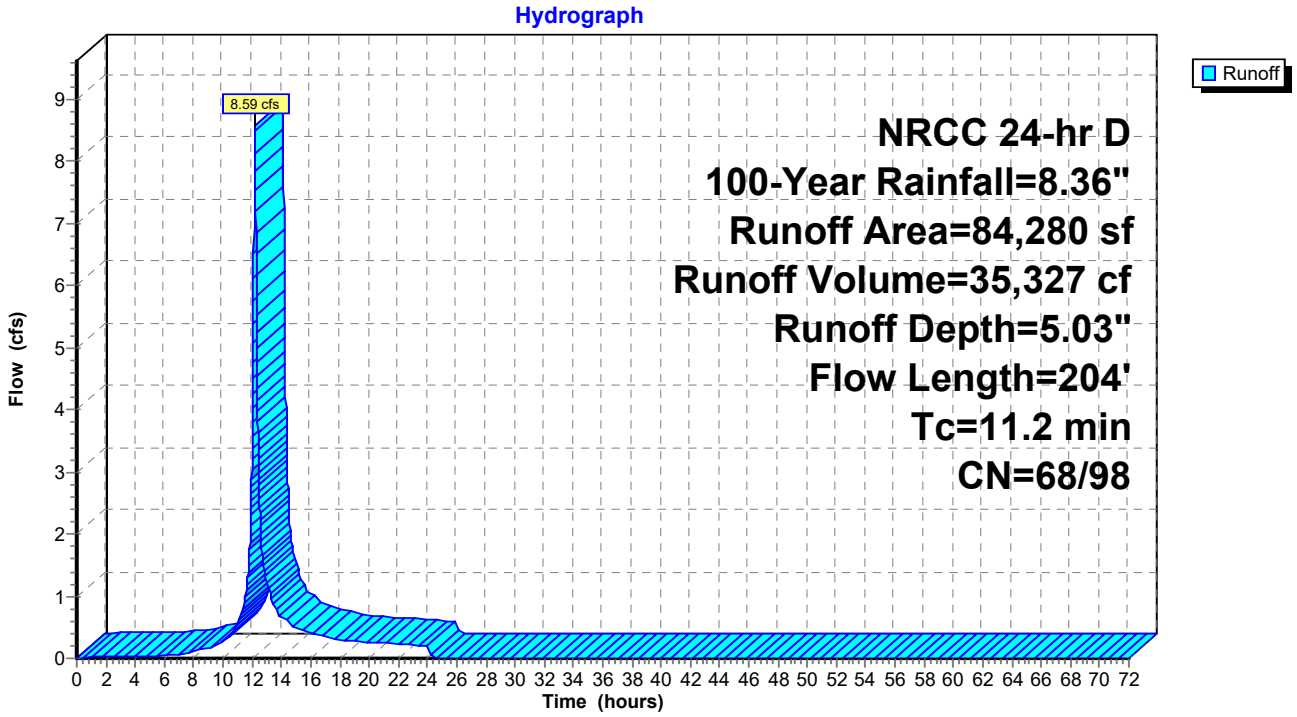
Runoff = 8.59 cfs @ 12.19 hrs, Volume= 35,327 cf, Depth= 5.03"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 100-Year Rainfall=8.36"

Area (sf)	CN	Description
11,547	98	Unconnected pavement, HSG D
7,989	30	Woods, Good, HSG A
44,941	77	Woods, Good, HSG D
5,755	80	>75% Grass cover, Good, HSG D
7,174	74	>75% Grass cover, Good, HSG C
6,874	39	>75% Grass cover, Good, HSG A
84,280	72	Weighted Average
72,733	68	86.30% Pervious Area
11,547	98	13.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.3	96	0.1200	0.15		**Sheet Flow, 1A-1B** Woods: Light underbrush n= 0.400 P2= 3.09"
0.6	63	0.0670	1.81		**Shallow Concentrated Flow, 1B-1C** Short Grass Pasture Kv= 7.0 fps
0.3	45	0.2000	2.24		**Shallow Concentrated Flow, 1C-1D** Woodland Kv= 5.0 fps
11.2	204	Total			

Subcatchment EX-1: Runoff to Wetlands



Summary for Subcatchment P-1A: Direct to Wetlands

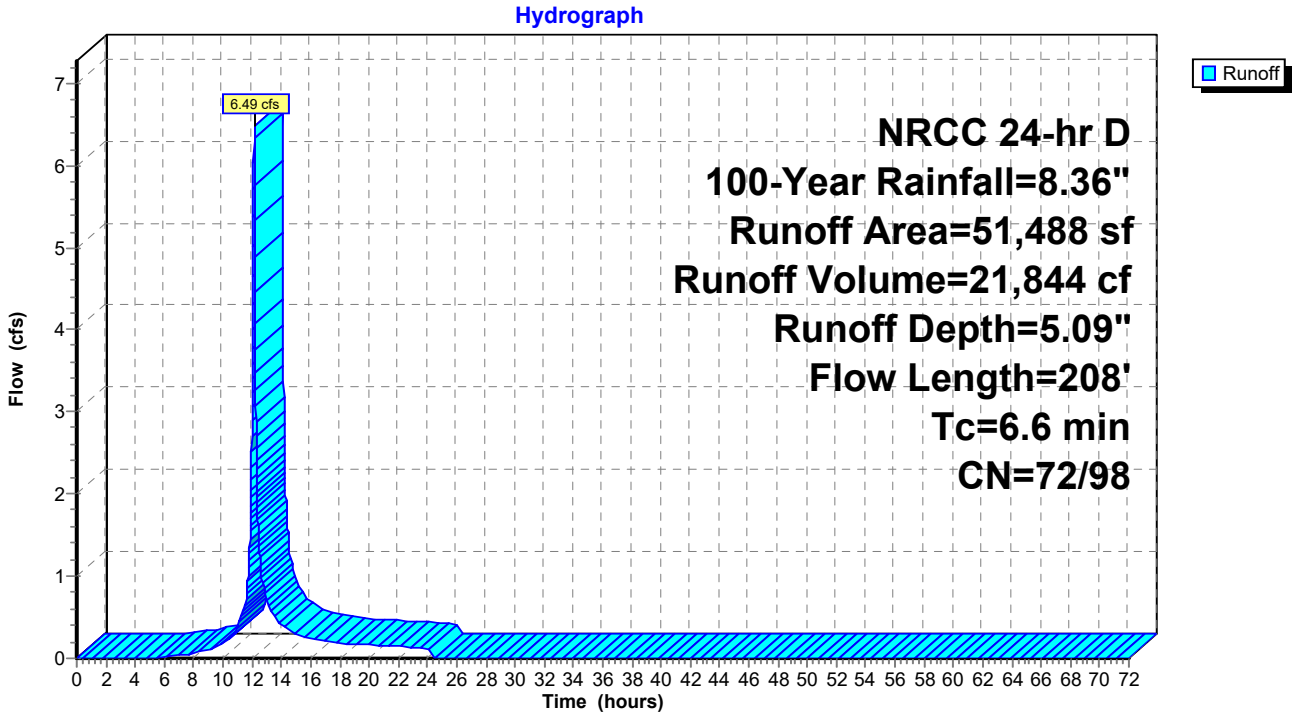
Runoff = 6.49 cfs @ 12.14 hrs, Volume= 21,844 cf, Depth= 5.09"
Routed to Link POI-1 : Wetlands

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 100-Year Rainfall=8.36"

	Area (sf)	CN	Description
*	1,313	98	Impervious
	6,792	39	>75% Grass cover, Good, HSG A
	2,880	74	>75% Grass cover, Good, HSG C
*	5,315	80	Turf Area, HSG D
	12,835	80	>75% Grass cover, Good, HSG D
	1,088	30	Woods, Good, HSG A
	21,265	77	Woods, Good, HSG D
	51,488	72	Weighted Average
	50,175	72	97.45% Pervious Area
	1,313	98	2.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	62	0.0887	0.28		**Sheet Flow, 1A-1B** Grass: Short n= 0.150 P2= 3.09"
2.5	103	0.0100	0.70		**Shallow Concentrated Flow, 1B-1C** Short Grass Pasture Kv= 7.0 fps
0.4	43	0.1050	1.62		**Shallow Concentrated Flow, 1C-1D** Woodland Kv= 5.0 fps
6.6	208	Total			

Subcatchment P-1A: Direct to Wetlands



Summary for Subcatchment P-1B: Parking Lot

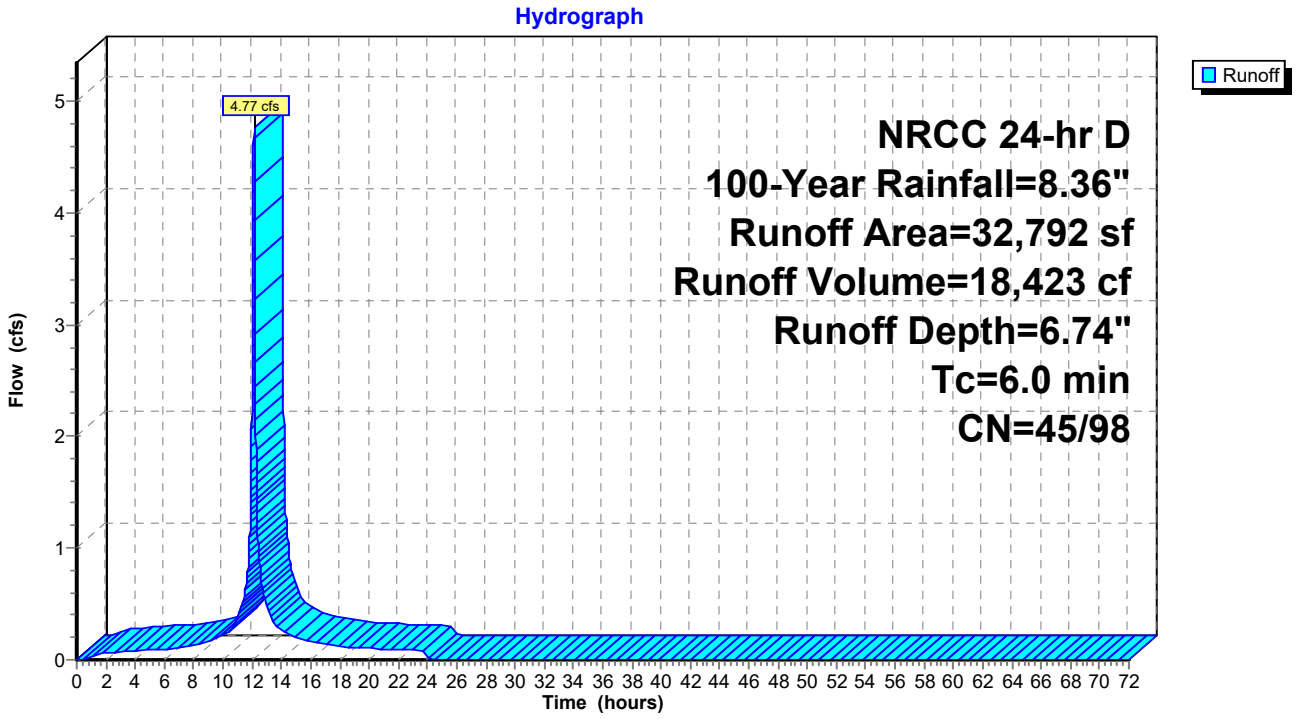
Runoff = 4.77 cfs @ 12.13 hrs, Volume= 18,423 cf, Depth= 6.74"
Routed to Pond B-1 : StormTech SC-800 Subsurface Infiltration System

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 100-Year Rainfall=8.36"

	Area (sf)	CN	Description
*	25,492	98	Impervious
	270	80	>75% Grass cover, Good, HSG D
	854	74	>75% Grass cover, Good, HSG C
	6,176	39	>75% Grass cover, Good, HSG A
	32,792	86	Weighted Average
	7,300	45	22.26% Pervious Area
	25,492	98	77.74% Impervious Area

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

Subcatchment P-1B: Parking Lot



Summary for Pond B-1: StormTech SC-800 Subsurface Infiltration System

Inflow Area = 32,792 sf, 77.74% Impervious, Inflow Depth = 6.74" for 100-Year event
Inflow = 4.77 cfs @ 12.13 hrs, Volume= 18,423 cf
Outflow = 2.97 cfs @ 12.20 hrs, Volume= 18,423 cf, Atten= 38%, Lag= 4.2 min
Discarded = 0.11 cfs @ 12.20 hrs, Volume= 8,425 cf
Primary = 2.86 cfs @ 12.20 hrs, Volume= 9,998 cf
Routed to Link POI-1 : Wetlands

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 107.94' @ 12.20 hrs Surf.Area= 2,462 sf Storage= 5,413 cf

Plug-Flow detention time= 166.8 min calculated for 18,421 cf (100% of inflow)
Center-of-Mass det. time= 166.9 min (920.3 - 753.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	104.50'	2,340 cf	**30.00'W x 82.05'L x 3.75'H Field A** 9,231 cf Overall - 3,380 cf Embedded = 5,850 cf x 40.0% Voids
#2A	105.00'	3,380 cf	**ADS_StormTech SC-800 +Cap** x 66 Inside #1 Effective Size= 45.0"W x 33.0"H => 7.11 sf x 7.12'L = 50.6 cf Overall Size= 51.0"W x 33.0"H x 7.55'L with 0.43' Overlap 66 Chambers in 6 Rows Cap Storage= 3.4 cf x 2 x 6 rows = 41.0 cf
		5,720 cf	Total Available Storage

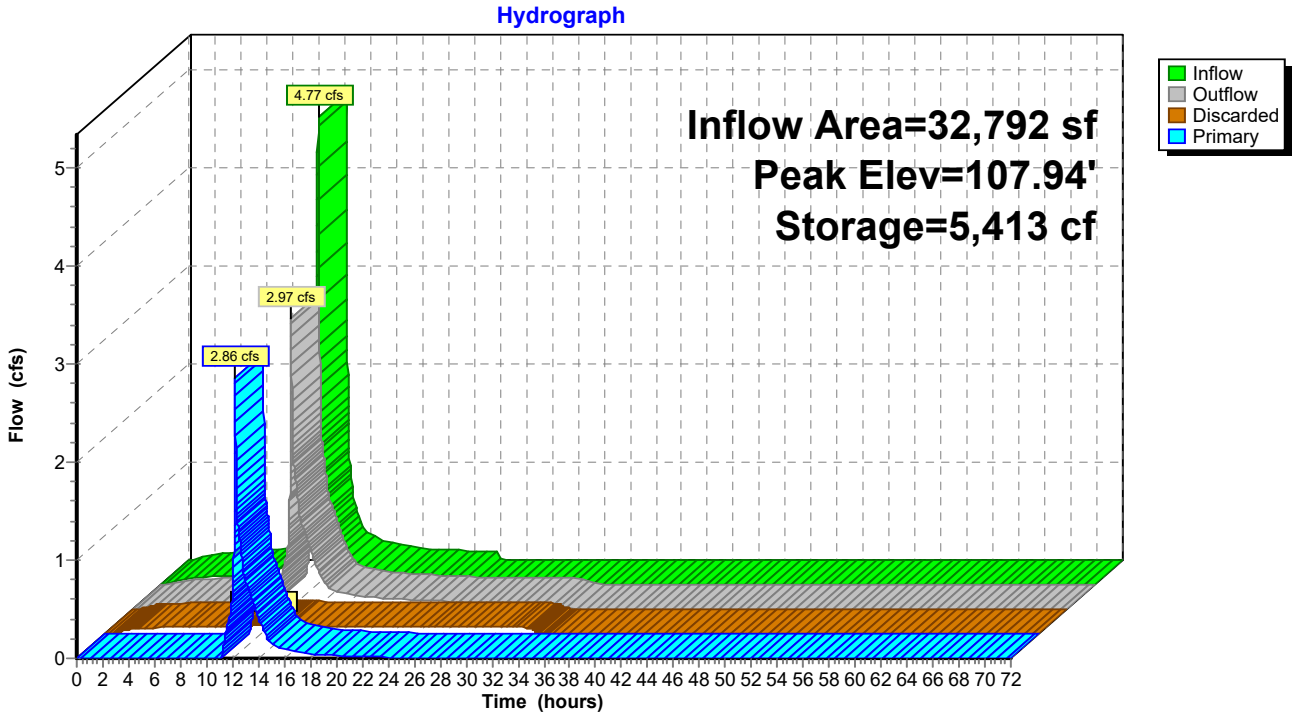
Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	104.00'	**12.0" Round Culvert** L= 45.0' Ke= 0.500 Inlet / Outlet Invert= 104.00' / 103.00' S= 0.0222 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	107.00'	**6.0" W x 2.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	105.90'	**12.0" W x 2.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	107.75'	**6.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#5	Discarded	104.50'	**1.050 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 100.00' Phase-In= 0.10'

Discarded OutFlow Max=0.11 cfs @ 12.20 hrs HW=107.94' (Free Discharge)
└**5=Exfiltration** (Controls 0.11 cfs)

Primary OutFlow Max=2.86 cfs @ 12.20 hrs HW=107.94' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 2.86 cfs of 7.01 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.37 cfs @ 4.45 fps)
  ├**3=Orifice/Grate** (Orifice Controls 1.12 cfs @ 6.73 fps)
  └**4=Broad-Crested Rectangular Weir** (Weir Controls 1.37 cfs @ 1.21 fps)

Pond B-1: StormTech SC-800 Subsurface Infiltration System

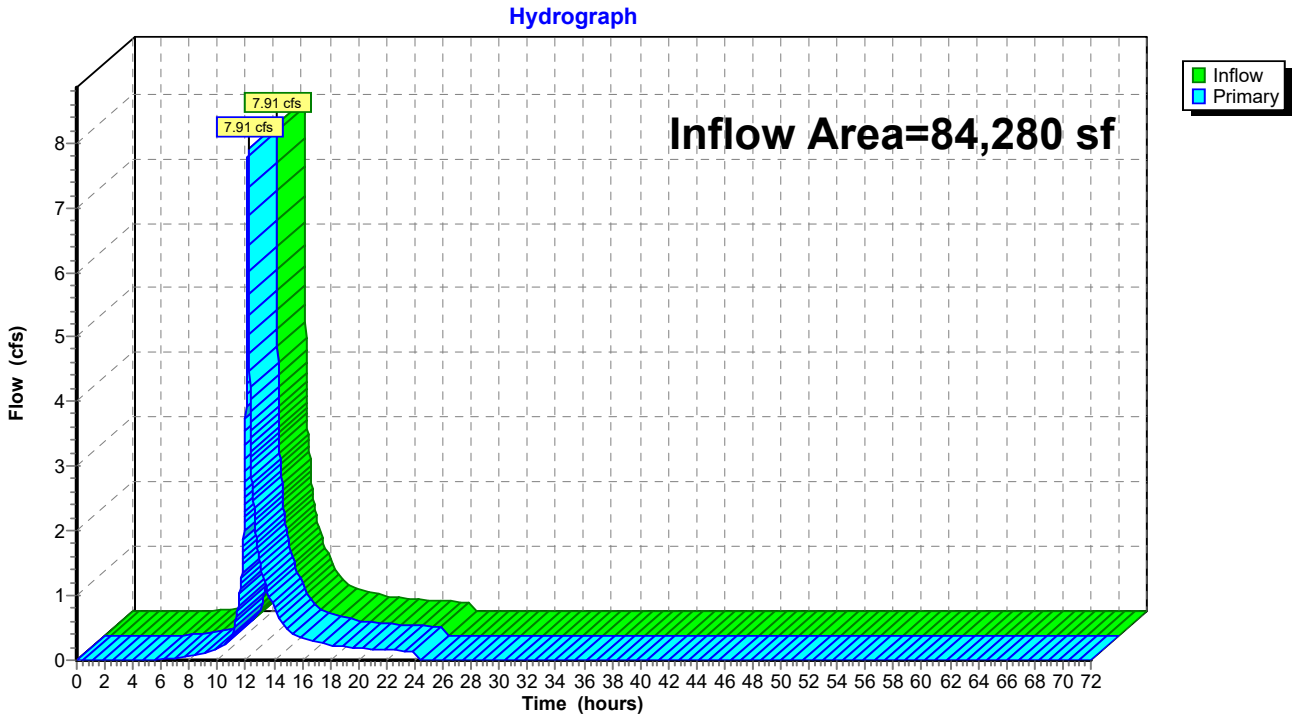


Summary for Link POI-1: Wetlands

Inflow Area = 84,280 sf, 31.80% Impervious, Inflow Depth = 4.53" for 100-Year event
Inflow = 7.91 cfs @ 12.18 hrs, Volume= 31,842 cf
Primary = 7.91 cfs @ 12.18 hrs, Volume= 31,842 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POI-1: Wetlands



APPENDIX C-4
INFILTRATION BASIN STAGE-STORAGE TABLES

Stage-Area-Storage for Pond B-1: StormTech SC-800 Subsurface Infiltration System

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
104.50	**2,462**	0
104.70	2,462	197
104.90	2,462	394
105.10	2,462	697
105.30	2,462	1,104
105.50	2,462	1,506
105.70	2,462	1,901
105.90	2,462	2,290
106.10	2,462	2,670
106.30	2,462	3,042
106.50	2,462	3,403
106.70	2,462	3,752
106.90	2,462	4,087
107.10	2,462	4,404
107.30	2,462	4,699
107.50	2,462	4,959
107.70	2,462	5,178
107.90	2,462	5,376
108.10	2,462	**5,573**

APPENDIX C-5
INFILTRATION BASIN STAGE-DISCHARGE TABLES

Stage-Discharge for Pond B-1: StormTech SC-800 Subsurface Infiltration System

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
104.50	0.00	0.00	0.00
104.70	0.06	0.06	0.00
104.90	0.07	0.07	0.00
105.10	0.07	0.07	0.00
105.30	0.07	0.07	0.00
105.50	0.07	0.07	0.00
105.70	0.08	0.08	0.00
105.90	0.08	0.08	0.00
106.10	0.35	0.08	0.27
106.30	0.53	0.08	0.45
106.50	0.66	0.09	0.58
106.70	0.77	0.09	0.68
106.90	0.86	0.09	0.77
107.10	0.99	0.09	0.90
107.30	1.20	0.10	1.11
107.50	1.35	0.10	1.25
107.70	1.47	0.10	1.37
107.90	2.55	0.11	2.45
108.10	**5.27**	**0.11**	**5.16**

APPENDIX D
SITE PLAN SHEETS

INVENTORY

FIGURE 1: SITE PLAN

FIGURE 2: STORMWATER MANAGEMENT PLAN

FIGURE 3: LANDSCAPING PLAN

FIGURE 4: SOIL EROSION & SEDIMENT CONTROL PLAN

LAND USE AND ZONING

PARCEL ID: 028.0-0000-0133.0

SINGLE FAMILY 15 DISTRICT (S-15)

PROPOSED USE

CHILD CARE FACILITY — PERMITTED USE

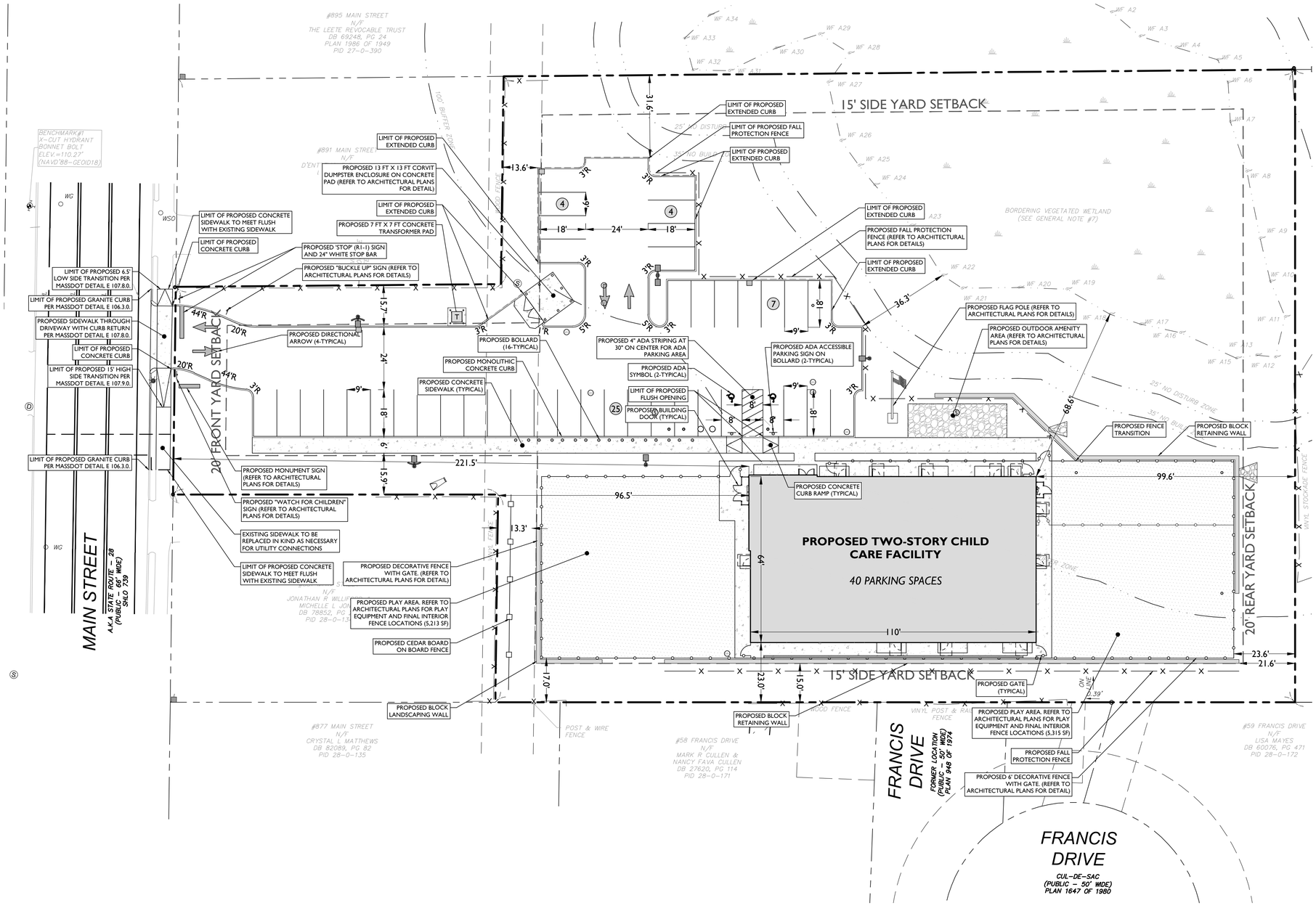
ZONING REQUIREMENT	REQUIRED	EXISTING	PROPOSED
MINIMUM LOT AREA	15,000 SF (0.34 AC)	84,280 SF (1.94 AC)	NO CHANGE
MINIMUM LOT AREA OUTSIDE OF WETLAND RESOURCE AREA	12,000 SF	71,063 SF	NO CHANGE
MINIMUM LOT FRONTAGE	100 FT	80 FT (EN)	NO CHANGE
MINIMUM FRONT YARD	20 FT	169.5 FT	221.5 FT
MINIMUM SIDE YARD	15 FT	42.2 FT	23.0 FT
MINIMUM REAR YARD	20 FT	208.2 FT	99.6 FT
MAXIMUM LOT COVERAGE	25% (21,070 SF)	3.9% (3,320 SF)	8.4% (7,064 SF)
MAXIMUM BUILDING HEIGHT	35 FT	<35 FT	<35 FT

(EN) EXISTING NON-CONFORMITY

OFF-STREET PARKING REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
§ 9.1.1.7	REQUIRED PARKING FOR NURSERY/ KINDERGARTEN / ELEMENTARY: 1 SPACE / EMPLOYEE + 1 SPACE / 7 STUDENTS 1 SPACE / EMPLOYEE * (26 EMPLOYEES) + 1 SPACE / 7 STUDENTS * (177 STUDENTS) = **52 SPACES**	40 SPACES (V)
§ 9.1.2.2	PARKING SPACE DIMENSIONS: 9 FT X 18 FT	9 FT X 18 FT

(V) VARIANCE



SYMBOL / DESCRIPTION

- PROPERTY LINE
- SETBACK LINE
- SAWCUT LINE
- PROPOSED CURB
- PROPOSED FLUSH OPENING
- PROPOSED EXTENDED CURB
- PROPOSED SIGNS / BOLLARDS
- PROPOSED BUILDING
- PROPOSED CONCRETE
- PROPOSED TURF
- PROPOSED GRAVEL
- PROPOSED AREA LIGHT
- PROPOSED RETAINING WALL
- PROPOSED HANDRAIL
- PROPOSED FALL PROTECTION FENCE
- PROPOSED CEDAR BOARD-ON-BOARD FENCE
- PROPOSED BUILDING DOORS
- WF AXX — WETLAND LIMITS
- WETLAND BUFFER

GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY AND FAMILIARIZE THEMSELVES WITH THE EXISTING SITE CONDITIONS AND THE PROPOSED SCOPE OF WORK (INCLUDING DIMENSIONS, LAYOUT, ETC.) PRIOR TO INITIATING THE IMPROVEMENTS IDENTIFIED WITHIN THESE DOCUMENTS. SHOULD ANY DISCREPANCY BE FOUND BETWEEN THE EXISTING SITE CONDITIONS AND THE PROPOSED WORK THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. PRIOR TO THE START OF CONSTRUCTION.
2. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND ENSURE THAT ALL REQUIRED APPROVALS HAVE BEEN OBTAINED PRIOR TO THE START OF CONSTRUCTION. COPIES OF ALL REQUIRED PERMITS AND APPROVALS SHALL BE KEPT ON SITE AT ALL TIMES DURING CONSTRUCTION.
3. ALL CONTRACTORS WILL, TO THE FULLEST EXTENT PERMITTED BY LAW, INDEMNIFY AND HOLD HARMLESS STONEFIELD ENGINEERING & DESIGN, LLC. AND IT'S SUB-CONSULTANTS FROM AND AGAINST ANY DAMAGES AND LIABILITIES INCLUDING ATTORNEY'S FEES ARISING OUT OF CLAIMS BY EMPLOYEES OF THE CONTRACTOR IN ADDITION TO CLAIMS CONNECTED TO THE PROJECT AS A RESULT OF NOT CARRYING THE PROPER INSURANCE FOR WORKERS COMPENSATION, LIABILITY INSURANCE, AND LIMITS OF COMMERCIAL GENERAL LIABILITY INSURANCE.
4. THE CONTRACTOR SHALL NOT DEVIATE FROM THE PROPOSED IMPROVEMENTS IDENTIFIED WITHIN THIS PLAN SET UNLESS APPROVAL IS PROVIDED IN WRITING BY STONEFIELD ENGINEERING & DESIGN, LLC.
5. THE CONTRACTOR IS RESPONSIBLE TO DETERMINE THE MEANS AND METHODS OF CONSTRUCTION.
6. THE CONTRACTOR SHALL NOT PERFORM ANY WORK OR CAUSE DISTURBANCE ON A PRIVATE PROPERTY NOT CONTROLLED BY THE PERSON OR ENTITY WHO HAS AUTHORIZED THE WORK WITHOUT PRIOR WRITTEN CONSENT FROM THE OWNER OF THE PRIVATE PROPERTY.
7. THE CONTRACTOR IS RESPONSIBLE TO RESTORE ANY DAMAGED OR UNDERMINED STRUCTURE OR SITE FEATURE THAT IS IDENTIFIED TO REMAIN ON THE PLAN SET. ALL REPAIRS SHALL USE NEW MATERIALS TO RESTORE THE FEATURE TO ITS EXISTING CONDITION AT THE CONTRACTORS EXPENSE.
8. CONTRACTOR IS RESPONSIBLE TO PROVIDE THE APPROPRIATE SHOP DRAWINGS, PRODUCT DATA, AND OTHER REQUIRED SUBMITTALS FOR REVIEW. STONEFIELD ENGINEERING & DESIGN, LLC. WILL REVIEW THE SUBMITTALS IN ACCORDANCE WITH THE DESIGN INTENT AS REFLECTED WITHIN THE PLAN SET.
9. THE CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL IN ACCORDANCE WITH MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
10. THE CONTRACTOR IS REQUIRED TO PERFORM ALL WORK IN THE PUBLIC RIGHT-OF-WAY IN ACCORDANCE WITH THE APPROPRIATE GOVERNING AUTHORITY AND SHALL BE RESPONSIBLE FOR THE PROCUREMENT OF STREET OPENING PERMITS.
11. THE CONTRACTOR IS REQUIRED TO RETAIN AN OSHA CERTIFIED SAFETY INSPECTOR TO BE PRESENT ON SITE AT ALL TIMES DURING CONSTRUCTION & DEMOLITION ACTIVITIES.
12. SHOULD AN EMPLOYEE OF STONEFIELD ENGINEERING & DESIGN, LLC. BE PRESENT ON SITE AT ANY TIME DURING CONSTRUCTION, IT DOES NOT RELIEVE THE CONTRACTOR OF ANY OF THE RESPONSIBILITIES AND REQUIREMENTS LISTED IN THE NOTES WITHIN THIS PLAN SET.

20' 0' 20' 40'
GRAPHIC SCALE IN FEET
1" = 20'

NO	DATE	BY	DESCRIPTION
00	03/07/2025	AJD	ISSUED FOR MUNICIPAL SUBMISSION

NOT APPROVED FOR CONSTRUCTION

STONEFIELD engineering & design
Rutherford, NJ · New York, NY · Salem, MA · Providence, RI
Princeton, NJ · Tampa, FL · Birmingham, MI
www.stonefieldeng.com
56 Pine Street, Providence, RI 02903
Phone 617.203.2076

LAND DEVELOPMENT PLANS

PRIMROSE SCHOOLS FRANCHISING COMPANY

PROPOSED CHILD DAY CARE FACILITY

PARCEL ID: 28-4-1.2
885 MAIN STREET
TOWN OF READING
MIDDLESEX COUNTY, MASSACHUSETTS

JOSHUA H. KLINE, P.E.
MASSACHUSETTS LICENSE No. 53936
LICENSED PROFESSIONAL ENGINEER

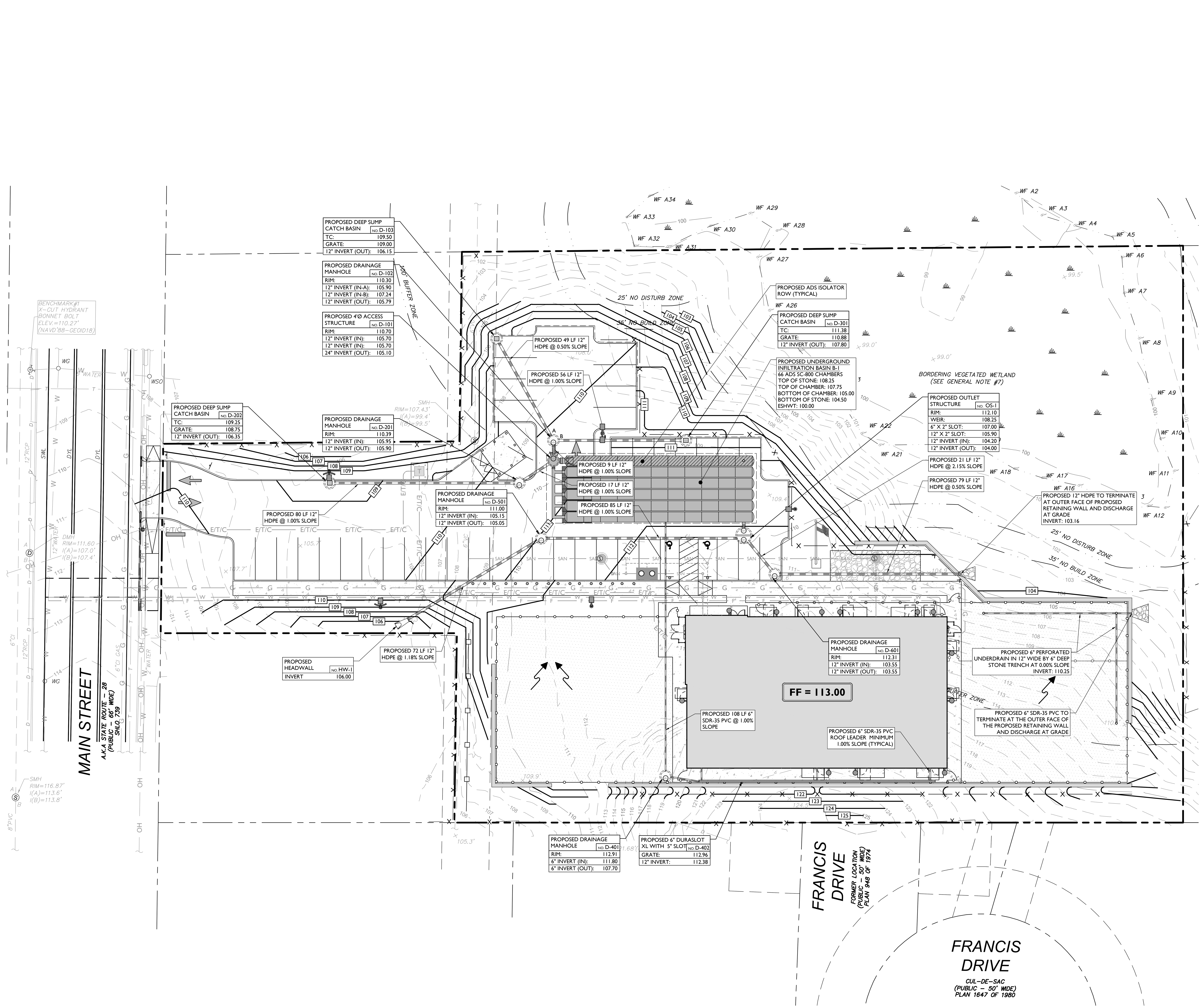
STONEFIELD engineering & design

SCALE: 1" = 20' | PROJECT ID: BOS-240115

TITLE: SITE PLAN

DRAWING: C-4

Z:\BOTOMBOS\2024\BOS-240115 PRIMROSE SCHOOLS - 885 MAIN STREET, READING, MA\CAD\PLOT\DCD-A-ARTS.DWG



SYMBOL	DESCRIPTION
	PROPERTY LINE
100	PROPOSED GRADING CONTOUR
RIDGELINE	PROPOSED GRADING RIDGELINE
	PROPOSED STORMWATER STRUCTURES
	PROPOSED TRENCH DRAIN
	PROPOSED STORMWATER PIPING
	PROPOSED UNDERGROUND OUTLET STRUCTURE

DRAINAGE AND UTILITY NOTES

1. THE CONTRACTOR TO PERFORM A TEST PIT PRIOR TO CONSTRUCTION (RECOMMEND 30 DAYS PRIOR) AT LOCATIONS OF EXISTING UTILITY CROSSINGS FOR STORMWATER IMPROVEMENTS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IN WRITING.
2. CONTRACTOR SHALL START CONSTRUCTION OF STORM LINES AT THE LOWEST INVERT AND WORK UP-GRADIENT.
3. THE CONTRACTOR IS REQUIRED TO CALL THE APPROPRIATE AUTHORITY FOR NOTICE OF CONSTRUCTION/EXCAVATION AND UTILITY MARK OUT PRIOR TO THE START OF CONSTRUCTION IN ACCORDANCE WITH STATE LAW. CONTRACTOR IS REQUIRED TO CONFIRM THE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES IN THE FIELD. SHOULD A DISCREPANCY EXIST BETWEEN THE FIELD LOCATION OF A UTILITY AND THE LOCATION SHOWN ON THE PLAN SET OR SURVEY, THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IMMEDIATELY IN WRITING.
4. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN A RECORD OF THE AS-BUILT LOCATIONS OF ALL PROPOSED UNDERGROUND INFRASTRUCTURE. THE CONTRACTOR SHALL NOTE ANY DISCREPANCIES BETWEEN THE AS-BUILT LOCATIONS AND THE LOCATIONS DEPICTED WITHIN THE PLAN SET. THIS RECORD SHALL BE PROVIDED TO THE OWNER FOLLOWING COMPLETION OF WORK.

EXCAVATION, SOIL PREPARATION, AND DEWATERING NOTES

1. THE CONTRACTOR IS REQUIRED TO REVIEW THE REFERENCED GEOTECHNICAL DOCUMENTS PRIOR TO CONSTRUCTION, THESE DOCUMENTS SHALL BE CONSIDERED A PART OF THE PLAN SET.
2. THE CONTRACTOR IS REQUIRED TO PREPARE SUBGRADE SOILS BENEATH ALL PROPOSED IMPROVEMENTS AND BACKFILL ALL EXCAVATIONS IN ACCORDANCE WITH RECOMMENDATIONS BY THE GEOTECHNICAL ENGINEER OF RECORD.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING SHORING FOR ALL EXCAVATIONS AS REQUIRED. CONTRACTOR SHALL HAVE THE SHORING DESIGN PREPARED BY A QUALIFIED PROFESSIONAL. SHORING DESIGNS SHALL BE SUBMITTED TO STONEFIELD ENGINEERING & DESIGN, LLC. AND THE OWNER PRIOR TO THE START OF CONSTRUCTION.
4. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL OPEN EXCAVATIONS ARE PERFORMED AND PROTECTED IN ACCORDANCE WITH THE LATEST OSHA REGULATIONS.
5. THE CONTRACTOR IS RESPONSIBLE FOR ANY DEWATERING DESIGN AND OPERATIONS, AS REQUIRED, TO CONSTRUCT THE PROPOSED IMPROVEMENTS. THE CONTRACTOR SHALL OBTAIN ANY REQUIRED PERMITS FOR DEWATERING OPERATIONS AND GROUNDWATER DISPOSAL.

STORMWATER INFILTRATION BMP CONSTRUCTION NOTES

1. PRIOR TO THE START OF CONSTRUCTION, ANY AREA DESIGNATED TO BE USED FOR AN INFILTRATION BMP (E.G. BASIN, BIORETENTION AREA, ETC.) SHALL BE FENCED OFF AND SHALL NOT BE UTILIZED AS STORAGE FOR CONSTRUCTION EQUIPMENT OR AS A STOCKPILE AREA FOR CONSTRUCTION MATERIALS. NO ACTIVITY SHALL BE PERMITTED WITHIN THE INFILTRATION BASIN AREA UNLESS RELATED TO THE CONSTRUCTION OF THE INFILTRATION BASIN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY ALL SUBCONTRACTORS OF BASIN AREA RESTRICTIONS.
2. THE CONTRACTOR SHALL MAKE EVERY EFFORT, WHERE PRACTICAL, TO AVOID SUBGRADE SOIL COMPACTION IN THE AREAS DESIGNATED TO BE USED FOR AN INFILTRATION BMP.
3. ALL EXCAVATION WITHIN THE LIMITS OF ANY INFILTRATION BMP SHALL BE PERFORMED WITH THE LIGHTEST PRACTICAL EXCAVATION EQUIPMENT. ALL EXCAVATION EQUIPMENT SHALL BE PLACED OUTSIDE THE LIMITS OF THE BASIN WHERE FEASIBLE. THE USE OF LIGHT-WEIGHT, RUBBER-TIRED EQUIPMENT (LESS THAN 8 PSI APPLIED TO THE GROUND SURFACE) IS RECOMMENDED WITHIN THE BASIN LIMITS.
4. THE SEQUENCE OF SITE CONSTRUCTION SHALL BE COORDINATED WITH BASIN CONSTRUCTION TO ADHERE TO SEQUENCING LIMITATIONS.
5. DURING THE FINAL GRADING OF AN INFILTRATION BASIN, THE BOTTOM OF THE BASIN SHALL BE DEEPLY TILLED WITH A ROTARY TILLER OR DISC HARROW AND THEN SMOOTHED OUT WITH A LEVELING DRAW OR EQUIVALENT GRADING EQUIPMENT. ALL GRADING EQUIPMENT SHALL BE LOCATED OUTSIDE OF THE BASIN BOTTOM WHERE FEASIBLE.
6. FOLLOWING CONSTRUCTION OF AN INFILTRATION BASIN, SOIL INFILTRATION TESTING BY A LICENSED GEOTECHNICAL ENGINEER IS REQUIRED TO CERTIFY COMPLIANCE WITH THE DESIGN INFILTRATION RATES IN ACCORDANCE WITH APPENDIX E OF THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION'S BEST MANAGEMENT PRACTICES MANUAL, LATEST EDITION. IF THE FIELD INFILTRATION RATES ARE LOWER THAN THE RATE USED DURING DESIGN, THE CONTRACTOR SHALL NOTIFY STONEFIELD ENGINEERING & DESIGN, LLC. IN WRITING IMMEDIATELY TO DETERMINE THE APPROPRIATE COURSE OF ACTION.
7. THE CONTRACTOR SHALL NOTIFY THE MUNICIPALITY TO DETERMINE IF WITNESS TESTING IS REQUIRED DURING INFILTRATION BASIN EXCAVATION AND/OR SOIL INFILTRATION TESTING.

STORMWATER UNDERGROUND BMP CONSTRUCTION NOTES

1. THE CONTRACTOR SHALL INSTALL AND BACKFILL THE UNDERGROUND BMP IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
2. UNDERGROUND BASINS SHALL UTILIZE A STONE BACKFILL WITH A MINIMUM VOID RATIO OF 40%.
3. NO CONSTRUCTION LOADING OVER UNDERGROUND BASINS IS PERMITTED UNTIL BACKFILL IS COMPLETE PER THE MANUFACTURER'S SPECIFICATIONS. NO VEHICLES SHALL BE STAGED OR OPERATE FROM A FIXED POSITION OVER THE BASIN.

20' 0' 20' 40'

GRAPHIC SCALE IN FEET
1" = 20'

ISSUE	DATE	BY	DESCRIPTION
00	03/07/2025	AJD	ISSUED FOR MUNICIPAL SUBMISSION

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Princeton, NJ · Tampa, FL · Birmingham, MI
www.stonefieldeng.com
56 Pine Street, Providence, RI 02903
Phone 617.203.2076

LAND DEVELOPMENT PLANS

PRIMROSE SCHOOLS FRANCHISING COMPANY

PROPOSED CHILD DAY CARE FACILITY

PARCEL ID: 28-113
885 MAIN STREET
TOWN OF READING
MIDDLESEX COUNTY, MASSACHUSETTS

JOSHUA H. KLINE, P.E.
MASSACHUSETTS LICENSE No. 53936
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 20' PROJECT ID: BOS-240115

TITLE:

STORMWATER MANAGEMENT PLAN

DRAWING:

C-6

STABILIZATION SPECIFICATIONS:

I.A. TEMPORARY SEEDING AND MULCHING:
GROUND LIMESTONE - APPLIED UNIFORMLY ACCORDING TO SOIL TEST RECOMMENDATIONS.
FERTILIZER - APPLY 11LBS./1,000 SF OF 10-20-10 OR EQUIVALENT WITH 50% WATER INSOLUBLE NITROGEN (UNLESS A SOIL TEST INDICATES OTHERWISE) WORKED INTO THE SOIL A MINIMUM OF 4".
SEED - PERENNIAL RYEGRASS 100 LBS/ACRE (2.3 LBS./1,000 SF) OR OTHER APPROVED SEEDS; PLANT BETWEEN MARCH 1 AND MAY 15 OR BETWEEN AUGUST 15 AND OCTOBER 1.
MULCH - UNROTTED STRAW OR HAY AT A RATE OF 70 TO 90 LBS./1,000 SF APPLIED TO ACHIEVE 95% SOIL SURFACE COVERAGE. MULCH SHALL BE ANCHORED BY APPROVED METHODS (I.E. PEG AND TWINE, MULCH NETTING, OR LIQUID MULCH BINDER).

I.B. PERMANENT SEEDING AND MULCHING:
TOPSOIL - UNIFORM APPLICATION TO A DEPTH OF 5" (UNSETTLED).
GROUND LIMESTONE - APPLIED UNIFORMLY ACCORDING TO SOIL TEST RECOMMENDATIONS.
FERTILIZER - APPLY 11 LBS./1,000 SF OF 10-10-10 OR EQUIVALENT WITH 50% WATER INSOLUBLE NITROGEN (UNLESS A SOIL TEST INDICATES OTHERWISE) WORKED INTO THE SOIL A MINIMUM OF 4".
SEED - TURF TYPE TALL FESCUE (BLEND OF 3 CULTIVARS) 350 LBS./ACRE (8 LBS./1,000 SF) OR OTHER APPROVED SEEDS; PLANT BETWEEN MARCH 1 AND OCTOBER 1 (SUMMER SEEDINGS REQUIRE IRRIGATION)
MULCH - UNROTTED STRAW OR HAY AT A RATE OF 70 TO 90 LBS./1,000 SF APPLIED TO ACHIEVE 95% SOIL SURFACE COVERAGE. MULCH SHALL BE ANCHORED BY APPROVED METHODS (I.E. PEG AND TWINE, MULCH NETTING, OR LIQUID MULCH BINDER).

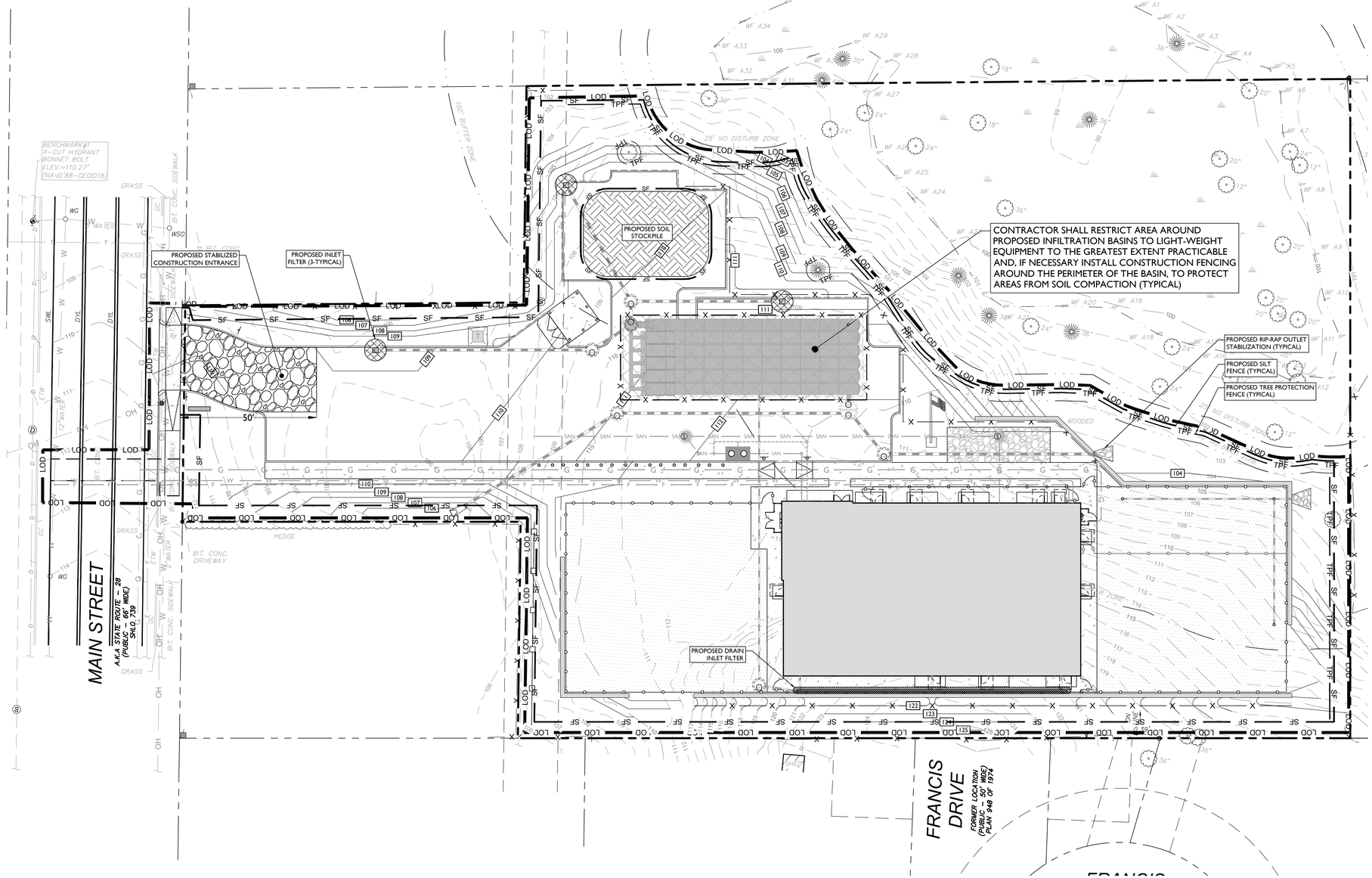
DUST CONTROL NOTES

1. MULCHES - SEE STANDARD OF STABILIZATION WITH MULCHES ONLY, PG. 5-1
2. VEGETATIVE COVER - SEE STANDARD FOR: TEMPORARY VEGETATIVE COVER, PG. 7-1, PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION PG. 4-1 AND PERMANENT STABILIZATION WITH SOD, PG. 6-1
3. SPRAY-ON ADHESIVES - ON MINERAL SOILS (NOT EFFECTIVE ON MUCK SOILS). KEEP TRAFFIC OFF THESE AREAS.
4. TILLAGE - TO ROUGHEN SURFACE AND BRING CLODS TO THE SURFACE. THIS IS A TEMPORARY EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE SOIL BLOWING STARTS. BEGIN PLOWING ON WINDWARD SIDE OF SITE. CHISEL-TYPE PLOWS SPACED ABOUT 12 INCHES APART AND SPRING-TOOTHED HARROWS ARE EXAMPLES OF EQUIPMENT WHICH MAY PRODUCE THE DESIRED EFFECT.
5. SPRINKLING - SITE IS SPRINKLED UNTIL THE SURFACE IS WET.
6. BARRIERS - SOLID BOARD FENCES, SNOW FENCES, BURLAP FENCES, CRATE WALLS, BALES OF HAY AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CURRENTS AND SOIL BLOWING.
7. CALCIUM CHLORIDE - SHALL BE IN THE FORM OF LOOSE, DRY GRANULES OR FLAKES FINE ENOUGH TO FEED THROUGH COMMONLY USED SPREADERS AT A RATE THAT WILL KEEP SURFACE MOIST BUT NOT CAUSE POLLUTION OR PLANT DAMAGE. IF USED ON STEEPER SLOPES, THEN USE OTHER PRACTICES TO PREVENT WASHING INTO STREAMS OR ACCUMULATION AROUND PLANTS.
8. STONE - COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL.

NRCS WEB SOIL SURVEY SOIL CHARACTERISTICS CHART

TYPE OF SOIL	WHITMAN FINE SANDY LOAM (73B)	CHARLTON-URBAN LAND-HOLLIS COMPLEX (631C)	UDORTHENTS (655)	PAXTON FINE SANDY LOAM (305C)	CANTON-CHARLTON-URBAN LAND COMPLEX (629C)
PERCENT OF SITE COVERAGE	61.3%	28.5%	5.9%	3.8%	0.5%
HYDROLOGIC SOIL GROUP	D	A	D*	C	A
DEPTH TO RESTRICTIVE LAYER	7 TO 38 INCHES	> 80 INCHES	> 80 INCHES	20 TO 39 INCHES	18 TO 30 INCHES
SOIL PERMEABILITY	0.00 TO 0.14 IN / HR	0.60 TO 6.00 IN / HR	*	0.00 TO 0.14 IN / HR	2.00 TO 6.00 IN / HR
DEPTH TO WATER TABLE	0 TO 6 INCHES	> 80 INCHES	> 80 INCHES	18 TO 37 INCHES	> 80 INCHES

* NOT SPECIFIED IN NRCS SOIL REPORT



SYMBOL / DESCRIPTION

- PROPERTY BOUNDARY
- ADJACENT PROPERTY BOUNDARY
- LOD — PROPOSED LIMIT OF DISTURBANCE
- SF — PROPOSED SILT FENCE
- TPF — PROPOSED TREE PROTECTION FENCE
- PROPOSED STOCKPILE & EQUIPMENT STORAGE
- PROPOSED STABILIZED CONSTRUCTION ENTRANCE
- PROPOSED INLET PROTECTION FILTER

SOIL EROSION AND SEDIMENT CONTROL NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR SOIL EROSION AND SEDIMENT CONTROL IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS.
2. THE CONTRACTOR IS RESPONSIBLE FOR DUST CONTROL IN COMPLIANCE WITH LOCAL, STATE, AND FEDERAL AIR QUALITY STANDARDS.
3. THE CONTRACTOR IS RESPONSIBLE TO INSPECT ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES WEEKLY AND AFTER A PRECIPITATION EVENT GREATER THAN 1 INCH. THE CONTRACTOR SHALL MAINTAIN AN INSPECTION LOG ON SITE AND DOCUMENT CORRECTIVE ACTION TAKEN THROUGHOUT THE COURSE OF CONSTRUCTION AS REQUIRED.

SEQUENCE OF CONSTRUCTION

1. INSTALL CONSTRUCTION ENTRANCE (2 DAYS)
2. STRIPPING AND CLEARING OF SITE (2 WEEKS)
8. INSTALL CURBSIDE SEDIMENT BARRIERS. (1 DAY)
9. DEMOLISH EXISTING PAVEMENT WHERE APPLICABLE (7 DAYS)
10. ROUGH GRADING AND TEMPORARY SEEDING (21 DAYS)
11. BASIN CONSTRUCTION INCLUDING STABILIZATION (14 DAYS)
12. UTILITY CONSTRUCTION (10 DAYS)
13. BUILDING CONSTRUCTION AND SITE IMPROVEMENTS (100 DAYS)
14. FINAL GRADING (3 DAYS)
15. SOIL RESTORATION MEASURES (3 DAYS)
16. LANDSCAPING IMPROVEMENTS AND FINAL SEEDING & TOP SOILING (7 DAYS)
17. REMOVE SOIL EROSION MEASURES (1 DAY)

NOTE: TIME DURATIONS ARE APPROXIMATE AND ARE INTENDED TO ACT AS A GENERAL GUIDE TO THE CONSTRUCTION TIMELINE. ALL DURATIONS ARE SUBJECT TO CHANGE BY CONTRACTOR. CONTRACTOR SHALL SUBMIT CONSTRUCTION SCHEDULE TO TOWNSHIP AND ENGINEER. CONTRACTOR SHALL PHASE CONSTRUCTION ACCORDINGLY.

811 Know what's **below** **Call** before you dig.

20' 0' 20' 40'
GRAPHIC SCALE IN FEET
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LAND DEVELOPMENT PLANS

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JOSHUA H. KLINE, P.E.
MASSACHUSETTS LICENSE No. 53936
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 20 | PROJECT ID: BOS-240115

TITLE: **SOIL EROSION & SEDIMENT CONTROL PLAN**

DRAWING: **C-9**

Z:\BOS\TOWNS\READING\240115 PRIMROSE SCHOOLS - 885 MAIN STREET, READING, MA\CAD\PLOT\XXX-XX-ESC.DWG

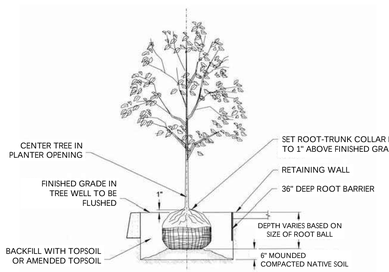
PLANT SCHEDULE

SYMBOL	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	REMARKS
DECIDUOUS TREES							
	LIQ	2	LIQUIDAMBAR STYRACIFLUA	SWEET GUM	3" - 3.5" CAL	B&B	RECOMMENDED NATIVE PLANT
	MAG	2	MAGNOLIA VIRGINANA	SWEETBAY MAGNOLIA	3" - 3.5" CAL	B&B	RECOMMENDED NATIVE PLANT
	NYS	4	NYSSA SYLVATICA	TUPELO	3" - 3.5" CAL	B&B	RECOMMENDED NATIVE PLANT
	PAL	4	QUERCUS PALUSTRIS	PIN OAK	3" - 3.5" CAL	B&B	RECOMMENDED NATIVE PLANT
	TIL	1	TILIA AMERICANA	AMERICAN LINDEN	3" - 3.5" CAL	B&B	RECOMMENDED NATIVE PLANT
EVERGREEN TREES							
	VIR	37	JUNIPERUS VIRGINIANA	EASTERN REDCEDAR	6` - 8` HT	B&B	RECOMMENDED NATIVE PLANT
	JUN	12	JUNIPERUS VIRGINIANA 'J.N. SELECT GREEN'	EMERALD FEATHER EASTERN REDCEDAR	6` - 8` HT	B&B	RECOMMENDED NATIVE PLANT
	PIC	12	PICEA GLAUCA	WHITE SPRUCE	6` - 8` HT	B&B	RECOMMENDED NATIVE PLANT
SHRUBS							
	COR	10	CORNUS STOLONIFERA 'FARROW'	ARCTIC FIRE RED TWIG DOGWOOD	18" - 24"	POT	-
	PHY	6	PHYSOCARPUS OPULIFOLIUS 'LITTLE DEVIL'	LITTLE DEVIL DWARF NINEBARK	18" - 24"	POT	-
	VIB	8	VIBURNUM DENTATUM	VIBURNUM	18" - 24"	POT	RECOMMENDED NATIVE PLANT
EVERGREEN SHRUBS							
	GLA	29	ILEX GLABRA 'COMPACTA'	COMPACT INKBERRY	18" - 24"	POT	RECOMMENDED NATIVE PLANT
	TAX	10	TAXUS X MEDIA 'DENSIFORMIS'	DENSE ANGLO-JAPANESE YEW	18" - 24"	POT	-
GROUND COVERS							
	CAR	62	CAREX PENSYLVANICA	PENNSYLVANIA SEDGE	1 GAL.	POT, 24" O.C.	RECOMMENDED NATIVE PLANT
	BAR	46	JUNIPERUS HORIZONTALIS 'BAR HARBOR'	BAR HARBOR CREEPING JUNIPER	1 GAL.	POT, 36" O.C.	-
PERENNIALS AND GRASSES							
	ROS	59	COREOPSIS ROSEA	ROSE COREOPSIS	1 GAL.	POT, 24" O.C.	RECOMMENDED NATIVE PLANT
	HEM	17	HEMEROCALLIS X 'STELLA DE ORO'	STELLA DE ORO DAYLILY	1 GAL.	POT, 24" O.C.	-
	PAN	11	PANICUM VIRGATUM 'SHENANDOAH'	SHENANDOAH SWITCH GRASS	1 GAL.	POT, 24" O.C.	RECOMMENDED NATIVE PLANT

NOTE: IF ANY DISCREPANCIES OCCUR BETWEEN AMOUNTS SHOWN ON THE LANDSCAPE PLAN AND WITHIN THE PLANT LIST, THE PLAN SHALL DICTATE.

LANDSCAPE MAINTENANCE SCHEDULE

MAINTENANCE TASK	WINTER			SPRING				SUMMER				FALL			
	DEC	JAN	FEB	MAR	APR	MAY	FREQUENCY	JUN	JUL	AUG	FREQUENCY	SEP	OCT	NOV	FREQUENCY
SITE INSPECTION				X			ONCE PER SEASON		X		ONCE PER SEASON			X	ONCE PER SEASON
DEBRIS & WEED CONTROL				X	X	X	BI-WEEKLY	X	X	X	BI-WEEKLY	X	X		BI-WEEKLY
IRRIGATION MAINTENANCE					X		ONCE PER SEASON				N/A		X		ONCE PER SEASON
MULCHING					X		ONCE PER SEASON				N/A				N/A
SEASONAL PLANTINGS						X	ONCE PER SEASON	X	X	X	WEEKLY	X	X	X	WEEKLY
MOWING OF TURF				X	X	X	WEEKLY	X	X	X	WEEKLY	X	X	X	WEEKLY
MOWING OF WILDFLOWERS							N/A				N/A			X	ONCE PER SEASON
PRUNING				X	X		MONTHLY				N/A			X	ONCE PER SEASON
FERTILIZER & AMENDMENTS				X	X	X	MONTHLY	X	X	X	BI-WEEKLY	X	X	X	BI-WEEKLY
INSECT & DISEASE CONTROL						X	ONCE PER SEASON	X	X	X	BI-WEEKLY	X	X		N/A
PLANTING RENOVATION				X			ONCE PER SEASON				N/A		X		ONCE PER SEASON
LANDSCAPE STRUCTURES INSPECTION					X		ONCE PER SEASON				N/A				N/A
LIGHTING MAINTENANCE				X			ONCE PER SEASON				N/A		X		ONCE PER SEASON
PAVED SURFACE MAINTENANCE					X		ONCE PER SEASON				N/A				N/A



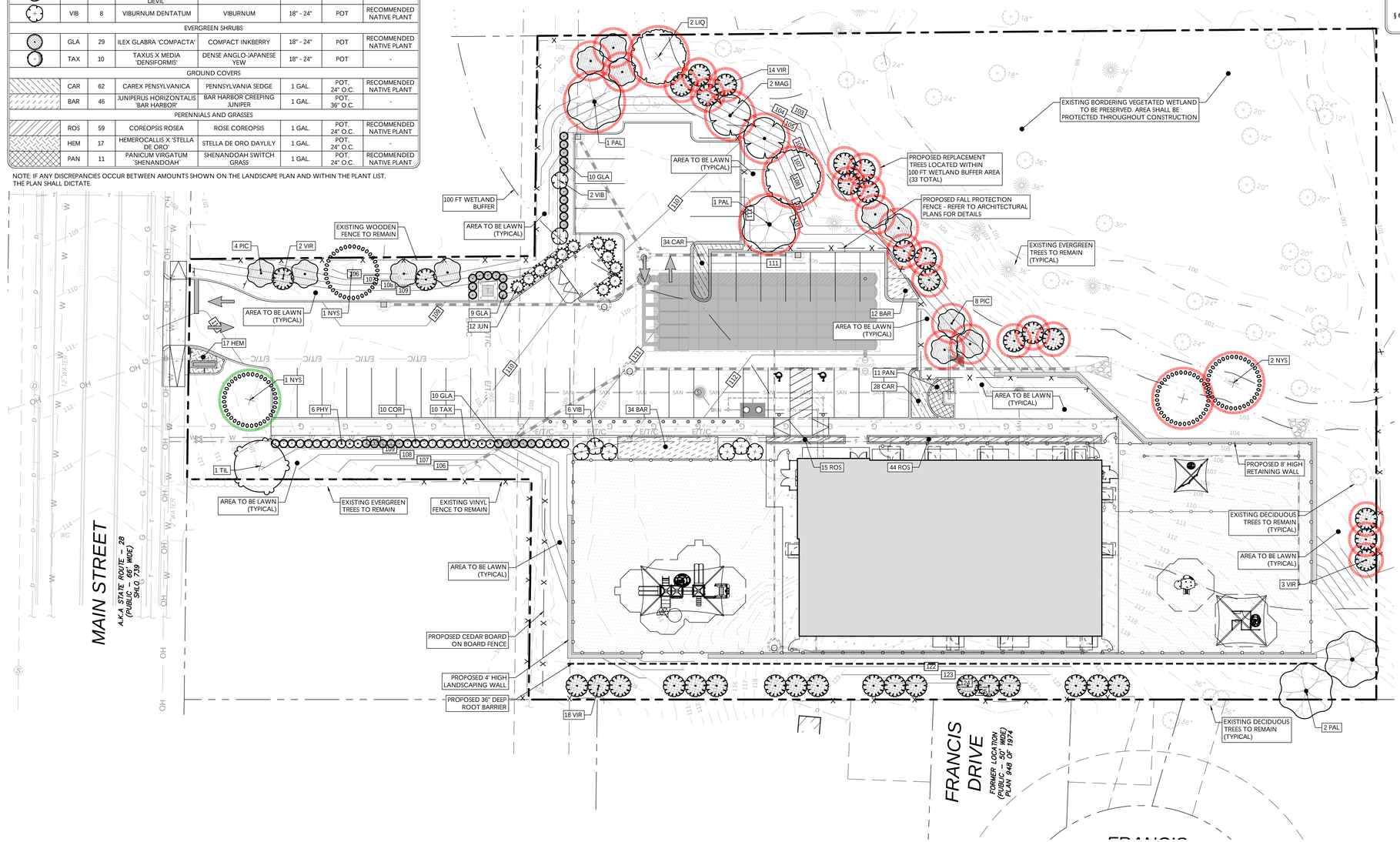
RHIZOME BARRIER SUPPLY - 36" x 24" ROOT BARRIER PANELS

NOT TO SCALE

SYMBOL	DESCRIPTION
	PROPOSED ROOT BARRIER
	PROPOSED STREET TREES
	PROPOSED REPLACEMENT TREES

LANDSCAPING REQUIREMENTS

CODE SECTION	REQUIRED	PROPOSED
§ 6.5.2	LANDSCAPE STANDARDS SIDE YARD SETBACKS SHALL BE PLANTED WITH GRASS, SHRUBS AND SHADE TREES	COMPLIES
§ 6.5.7	STREET TREES 1 TREE FOR EVERY 50 LF OF FRONTAGE (55 FT) * (1 TREE / 50 FT FRONTAGE) = 1 TREE	1 TREE



Know what's below
Call before you dig.

IRRIGATION NOTE:

IRRIGATION CONTRACTOR TO PROVIDE A DESIGN FOR AN IRRIGATION SYSTEM SEPARATING PLANTING BEDS FROM LAWN AREA. PRIOR TO CONSTRUCTION. DESIGN IS TO BE SUBMITTED TO THE PROJECT LANDSCAPE DESIGNER FOR REVIEW AND APPROVAL. WHERE POSSIBLE, DRIP IRRIGATION AND OTHER WATER CONSERVATION TECHNIQUES SUCH AS RAIN SENSORS SHALL BE IMPLEMENTED. CONTRACTOR TO VERIFY MAXIMUM ON SITE DYNAMIC WATER PRESSURE AVAILABLE MEASURED IN PSI. PRESSURE REDUCING DEVICES OR BOOSTER PUMPS SHALL BE PROVIDED TO MEET SYSTEM PRESSURE REQUIREMENTS. DESIGN TO SHOW ALL VALVES, PIPING, HEADS, BACKFLOW PREVENTION, METERS, CONTROLLERS, AND SLEEVES WITHIN HARDSCAPE AREAS.

LANDSCAPING NOTES

1. THE CONTRACTOR SHALL RESTORE ALL DISTURBED GRASS AND LANDSCAPED AREAS TO MATCH EXISTING CONDITIONS UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET.
2. THE CONTRACTOR SHALL RESTORE ALL DISTURBED LAWN AREAS WITH A MINIMUM 4 INCH LAYER OF TOPSOIL AND SEED.
3. THE CONTRACTOR SHALL RESTORE MULCH AREAS WITH A MINIMUM 3 INCH LAYER OF MULCH .
4. THE MAXIMUM SLOPE ALLOWABLE IN LANDSCAPE RESTORATION AREAS SHALL BE 3 FEET HORIZONTAL TO 1 FOOT VERTICAL (3:1 SLOPE) UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET.
5. THE CONTRACTOR IS REQUIRED TO LOCATE ALL SPRINKLER HEADS IN AREA OF LANDSCAPING DISTURBANCE PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL RELOCATE SPRINKLER HEADS AND LINES IN ACCORDANCE WITH OWNER'S DIRECTION WITHIN AREAS OF DISTURBANCE.
6. THE CONTRACTOR SHALL ENSURE THAT ALL DISTURBED LANDSCAPED AREAS ARE GRADED TO MEET FLUSH AT THE ELEVATION OF WALKWAYS AND TOP OF CURB ELEVATIONS EXCEPT UNLESS INDICATED OTHERWISE WITHIN THE PLAN SET. NO ABRUPT CHANGES IN GRADE ARE PERMITTED IN DISTURBED LANDSCAPING AREAS.

20' 0' 20' 40'
GRAPHIC SCALE IN FEET
1" = 20'

DESCRIPTION	BY	DATE	ISSUE
ISSUED FOR MUNICIPAL SUBMISSION	A/D	03/07/2025	00

NOT APPROVED FOR CONSTRUCTION

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LAND DEVELOPMENT PLANS

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MASSACHUSETTS LICENSE No. 53936
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 20' | PROJECT ID: BOS-240115

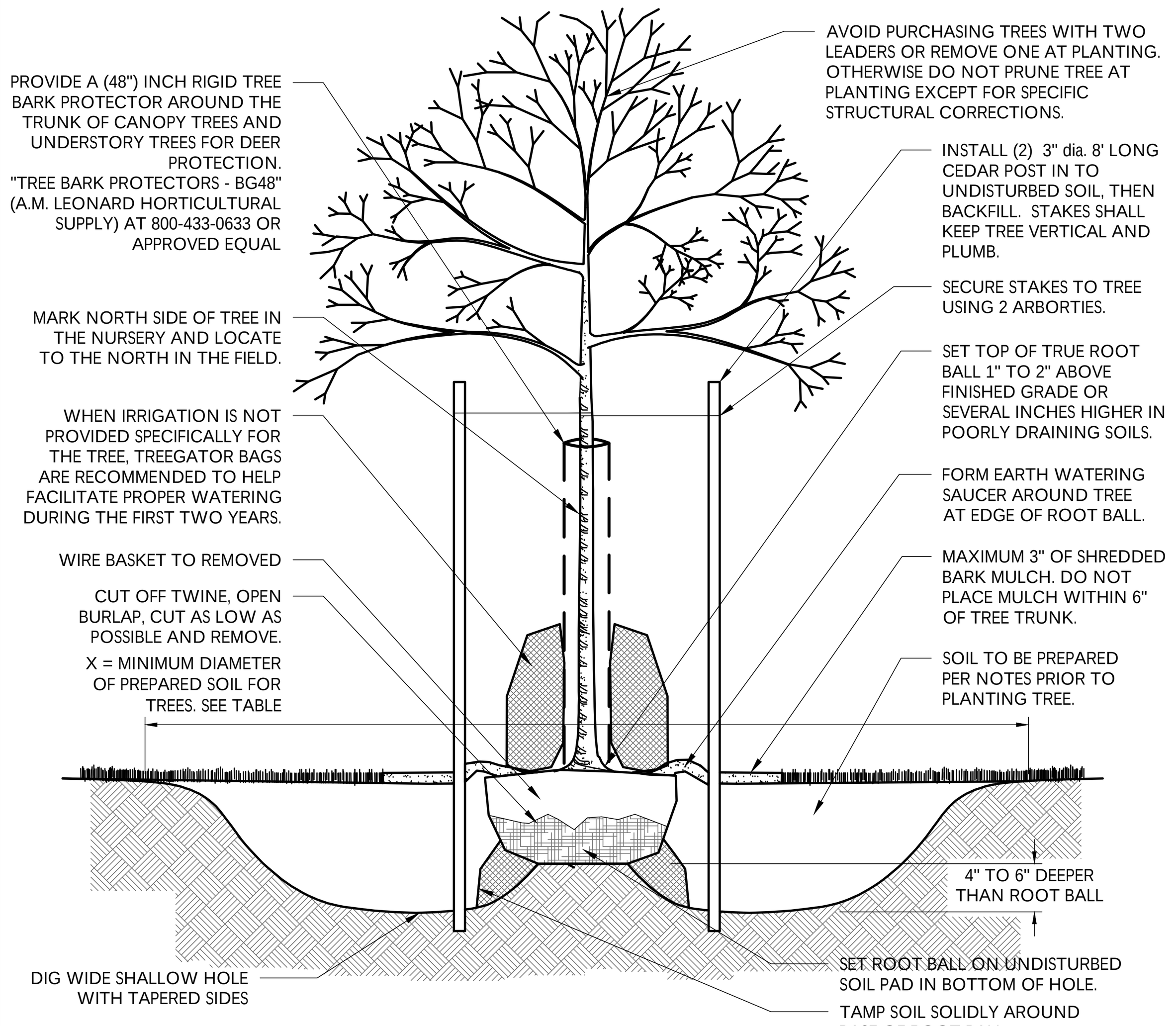
TITLE: LANDSCAPING PLAN

DRAWING: C-10

Z:\BOSTON\BOS\2024\BOS-240115 PRIMROSE SCHOOLS - 885 MAIN STREET, READING, MA\CAD\PLOT\XXX-10-LAND.DWG

NOTES:

1. FOR CONTAINER-GROWN TREES, USE FINGERS OR SMALL HAND TOOLS TO PULL THE ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL; THEN CUT OR PULL APART ANY ROOTS CIRCLING THE PERIMETER OF THE CONTAINER
2. THOROUGHLY SOAK THE TREE ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
3. SOIL AMENDMENTS:
   - MODIFY HEAVY CLAY OR SILT SOILS (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) OR GYPSUM
   - MODIFY EXTREMELY SANDY SOILDS (MORE THAN 85% SAND) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX



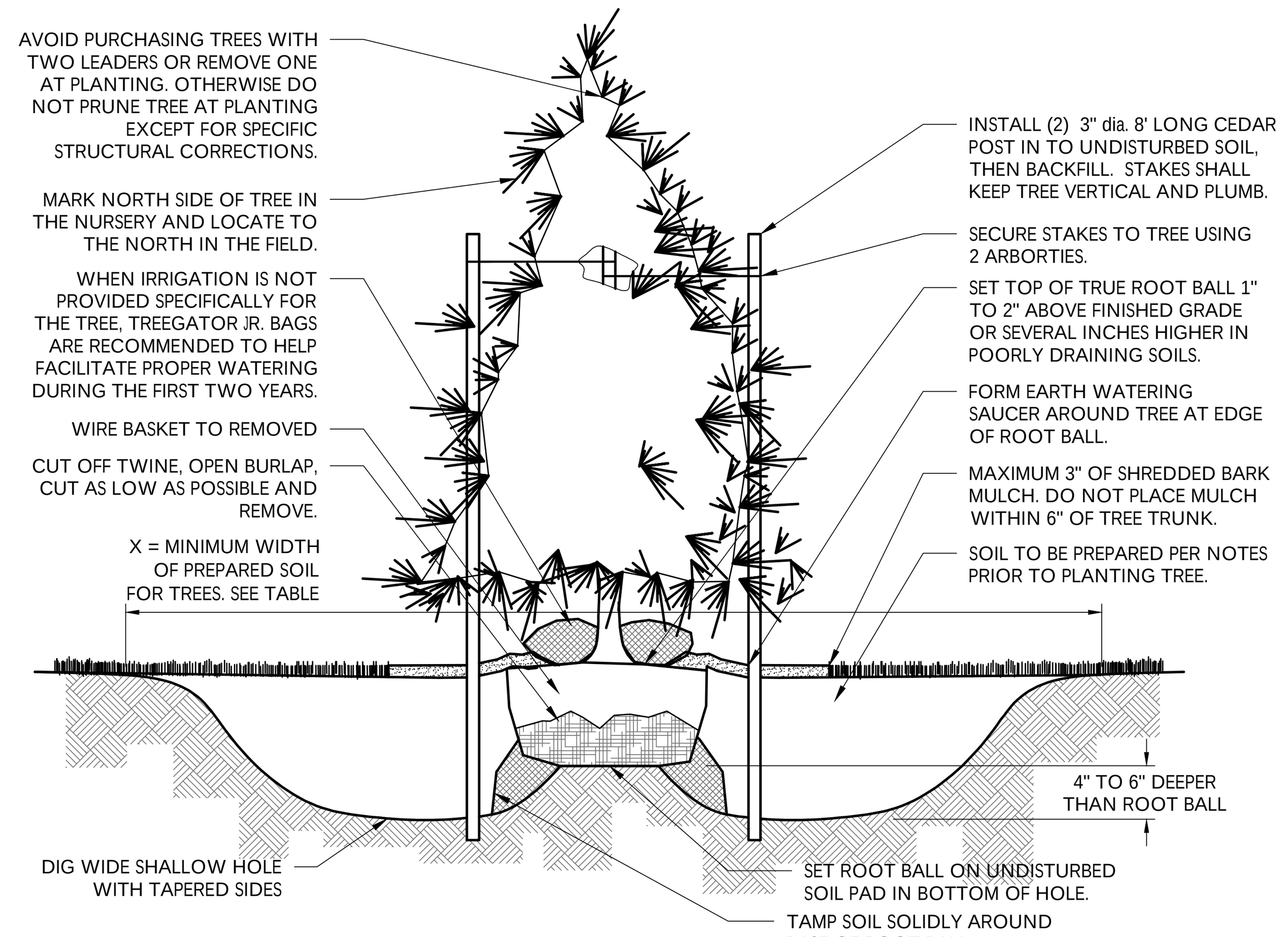
DECIDUOUS TREE PLANTING DETAIL

NOT TO SCALE

1

NOTES:

1. FOR CONTAINER-GROWN TREES, USE FINGERS OR SMALL HAND TOOLS TO PULL THE ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL; THEN CUT OR PULL APART ANY ROOTS CIRCLING THE PERIMETER OF THE CONTAINER.
2. THOROUGHLY SOAK THE TREE ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
3. SOIL AMENDMENTS:
   - MODIFY HEAVY CLAY OR SILT SOILS (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) OR GYPSUM
   - MODIFY EXTREMELY SANDY SOILS (MORE THAN 85% SAND) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX

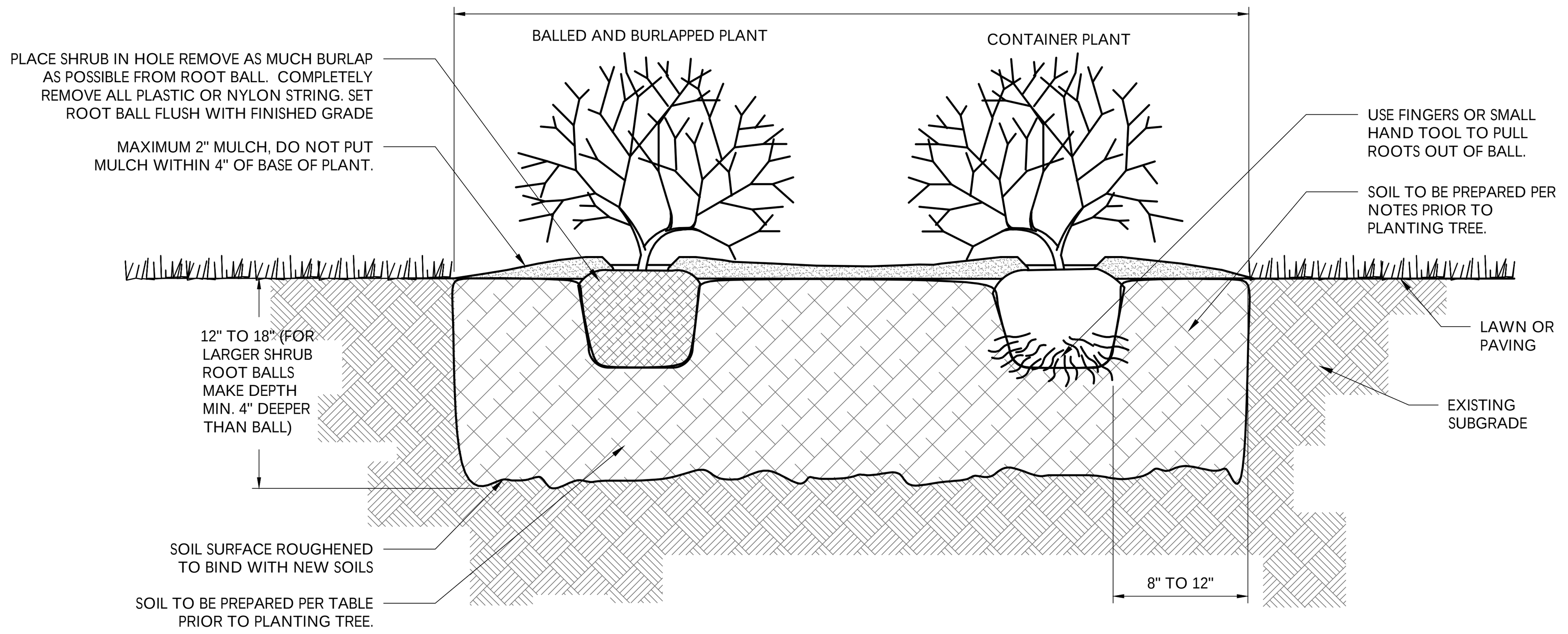


CONIFEROUS TREE PLANTING DETAIL

NOT TO SCALE

2

PREPARE SOIL IN THE ENTIRE BED USING PROCEDURES OUTLINED IN TABLE (X)



NOTES:

1. FOR THE CONTAINER-GROWN SHRUBS, USE FINGERS OR SMALL HAND TOOL TO PULL THE ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL; THEN CUT OR PULL APART ANY ROOTS CIRCLING THE PERIMETER OF THE CONTAINER.
2. THOROUGHLY SOAK THE SHRUB ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
   - MODIFY HEAVY CLAY OR SILT SOILS (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) OR GYPSUM
   - MODIFY EXTREMELY SANDY SOILS (MORE THAN 85% SAND) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL

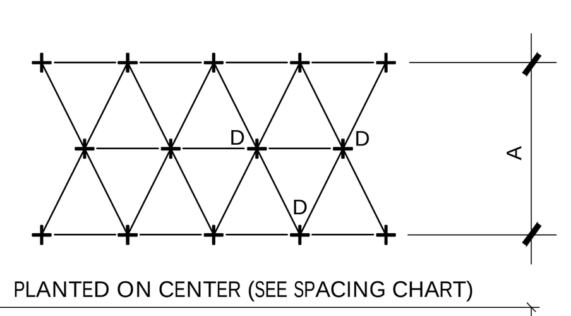
DECIDUOUS AND EVERGREEN SHRUB PLANTING DETAIL

NOT TO SCALE

3

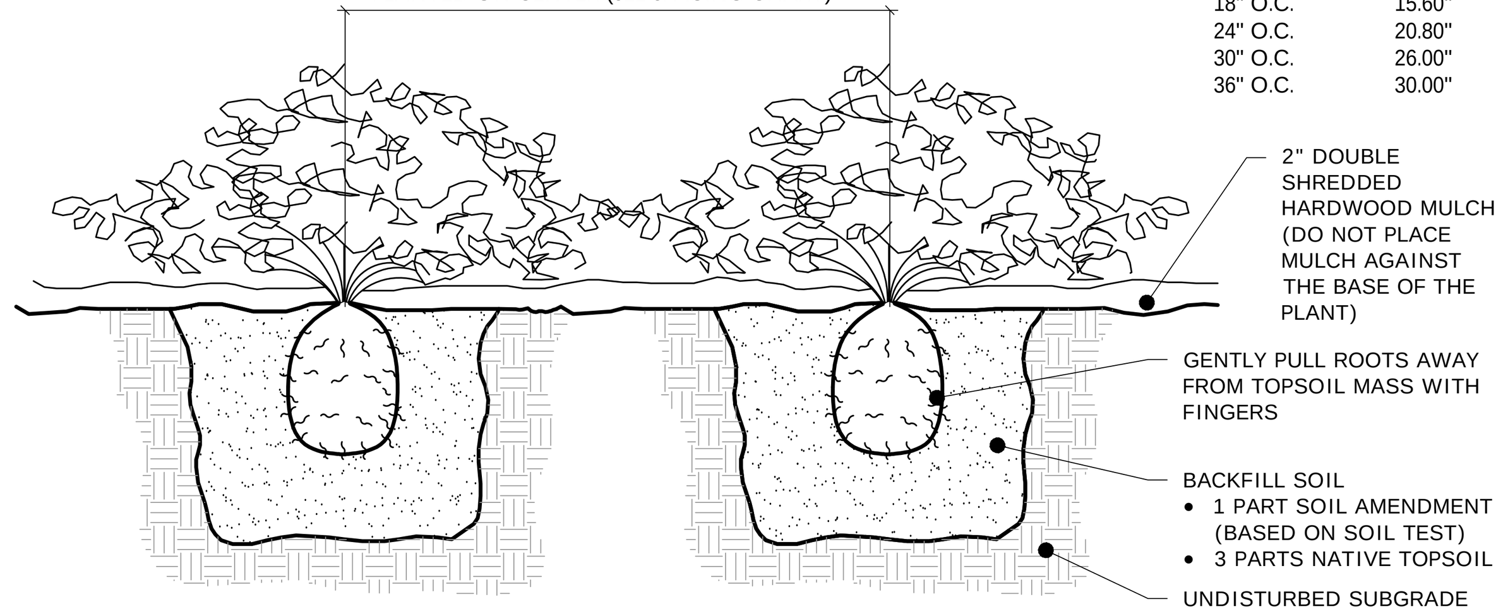
NOTES:

1. THOROUGHLY SOAK THE GROUND COVER ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE FOLLOWING TWO SUMMERS.
2. SOIL AMENDMENTS:
   - MODIFY HEAVY CLAY OR SILT SOILDS (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) OR GYPSUM
   - MODIFY EXTREMELY SANDY SOILDS (MORE THAN 85% SAND) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX
3. ALL GROUND COVER AREAS SHALL BE TREATED WITH A PRE-EMERGENT PER MANUFACTURER'S SPECIFICATIONS



SPACING CHART
NOT TO SCALE

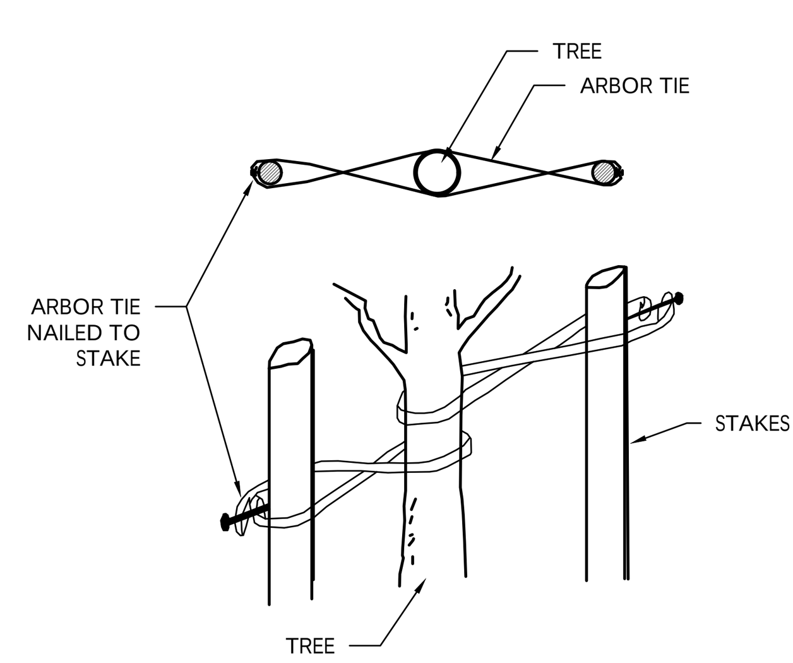
SPACING "D"	ROW "A"
6" O.C.	5.20"
8" O.C.	6.93"
10" O.C.	8.66"
12" O.C.	10.40"
15" O.C	13.00"
18" O.C.	15.60"
24" O.C.	20.80"
30" O.C.	26.00"
36" O.C.	30.00"



GROUND COVER/PERENNIAL/ANNUAL PLANTING DETAIL

NOT TO SCALE

4



INSTALLATION GUIDELINES:
1. LOOP TIE AROUND TREE AND NAIL TO CEDAR STAKE.
2. REMOVE ALL STAKING AND TIES AT END OF FIRST GROWING SEASON.
3. FOLD ENDS OF ARBORTIE BACK. SECURE TO STAKES WITH 1" GALVANIZED ROOFING NAIL OR USE A KNOT.
4. CONSULT LANDSCAPE ARCHITECT FOR STAKING OF TREES LARGER THAN 6".
5. SOURCES INCLUDE:
   GEMPLERS 1-800-332-6744 or GEMPLERS.COM
   CSP OUTDOORS 1-800-592-6940 or CSPOUTDOORS.COM

ARBORTIE DETAIL

NOT TO SCALE

5

GENERAL LANDSCAPING NOTES:

1. THE LANDSCAPE CONTRACTOR SHALL FURNISH ALL MATERIALS AND PERFORM ALL WORK IN ACCORDANCE WITH THESE SPECIFICATIONS, APPROVED OR FINAL DRAWINGS, AND INSTRUCTIONS PROVIDED BY THE PROJECT LANDSCAPE DESIGNER, MUNICIPAL OFFICIALS, OR OWNER/OWNER'S REPRESENTATIVE. ALL WORK COMPLETED AND MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH THE INTENTION OF THE SPECIFICATIONS, DRAWINGS, AND INSTRUCTIONS AND EXECUTED WITH THE STANDARD LEVEL OF CARE FOR THE LANDSCAPE INDUSTRY.
2. WORK MUST BE CARRIED OUT ONLY DURING WEATHER CONDITIONS FAVORABLE TO LANDSCAPE CONSTRUCTION AND TO THE HEALTH AND WELFARE OF PLANTS. THE SUITABILITY OF SUCH WEATHER CONDITIONS SHALL BE DETERMINED BY THE PROJECT LANDSCAPE DESIGNER OR GOVERNING MUNICIPAL OFFICIAL.
3. IT IS THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR, BEFORE ORDERING OR PURCHASING MATERIALS, TO PROVIDE SAMPLES OF THOSE MATERIALS TO THE PROJECT LANDSCAPE DESIGNER OR GOVERNING MUNICIPAL OFFICIAL FOR APPROVAL, IF SO REQUESTED.
4. IF SAMPLES ARE REQUESTED, THE LANDSCAPE CONTRACTOR IS TO SUBMIT CERTIFICATION TAGS FROM TREES, SHRUBS AND SEED VERIFYING TYPE AND PURITY.
5. UNLESS OTHERWISE AUTHORIZED BY THE PROJECT LANDSCAPE DESIGNER OR GOVERNING MUNICIPAL OFFICIAL, THE LANDSCAPE CONTRACTOR SHALL PROVIDE NOTICE AT LEAST FORTY-EIGHT HOURS (48 HRS.) IN ADVANCE OF THE ANTICIPATED DELIVERY DATE OF ANY PLANT MATERIALS TO THE PROJECT SITE. A LEGIBLE COPY OF THE INVOICE, SHOWING VARIETIES AND SIZES OF MATERIALS INCLUDED FOR EACH SHIPMENT SHALL BE FURNISHED TO THE PROJECT LANDSCAPE DESIGNER, OR GOVERNING MUNICIPAL OFFICIAL.
6. THE PROJECT LANDSCAPE DESIGNER OR GOVERNING MUNICIPAL OFFICIAL RESERVES THE RIGHT TO INSPECT AND REJECT PLANTS AT ANY TIME AND AT ANY PLACE.

PROTECTION OF EXISTING VEGETATION NOTES:

1. BEFORE COMMENCING WORK, ALL EXISTING VEGETATION WHICH COULD BE IMPACTED AS A RESULT OF THE PROPOSED CONSTRUCTION ACTIVITIES MUST BE PROTECTED FROM DAMAGE BY THE INSTALLATION OF TREE PROTECTION FENCING. FENCING SHALL BE LOCATED AT THE DRIP-LINE OR LIMIT OF DISTURBANCE AS DEPICTED WITHIN THE APPROVED OR FINAL PLAN SET, ESTABLISHING THE TREE PROTECTION ZONE. FENCE INSTALLATION SHALL BE IN ACCORDANCE WITH THE PROVIDED TREE PROTECTION FENCE DETAIL." NO WORK MAY BEGIN UNTIL THIS REQUIREMENT IS FULFILLED. THE FENCING SHALL BE INSPECTED REGULARLY BY THE LANDSCAPE CONTRACTOR AND MAINTAINED UNTIL ALL CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
2. IN ORDER TO AVOID DAMAGE TO ROOTS, BARK OR LOWER BRANCHES, NO VEHICLE, EQUIPMENT, DEBRIS, OR OTHER MATERIALS SHALL BE DRIVEN, PARKED OR PLACED WITHIN THE TREE PROTECTION ZONE. ALL ON-SITE CONTRACTORS SHALL USE ANY AND ALL PRECAUTIONARY MEASURES WHEN PERFORMING WORK AROUND TREES, WALKS, PAVEMENTS, UTILITIES, AND ANY OTHER FEATURES EITHER EXISTING OR PREVIOUSLY INSTALLED UNDER THIS CONTRACT.
3. IN RARE INSTANCES WHERE EXCAVATING, FILL, OR GRADING IS REQUIRED WITHIN THE DRIP-LINE OF TREES TO REMAIN, THE WORK SHALL BE PERFORMED AS FOLLOWS:
   - TRENCHING: WHEN TRENCHING OCCURS AROUND TREES TO REMAIN, THE TREE ROOTS SHALL NOT BE CUT, BUT THE TRENCH SHALL BE TUNNELED UNDER OR AROUND THE ROOTS BY CAREFUL HAND DIGGING AND WITHOUT INJURY TO THE ROOTS. NO ROOTS, LIMBS, OR WOODS ARE TO HAVE ANY PAINT OR MATERIAL APPLIED TO ANY SURFACE.
   - RAISING GRADES: WHEN THE GRADE AT AN EXISTING TREE IS BELOW THE NEW FINISHED GRADE, AND FILL NOT EXCEEDING 6 INCHES (6") IS REQUIRED, CLEAN, WASHED GRAVEL FROM ONE TO TWO INCHES (1" - 2") IN SIZE SHALL BE PLACED DIRECTLY AROUND THE TREE TRUNK. THE GRAVEL SHALL EXTEND OUT FROM THE TRUNK ON ALL SIDES A MINIMUM OF 18 INCHES (18") AND FINISH APPROXIMATELY TWO INCHES (2") ABOVE THE FINISH GRADE AT TREE. INSTALL GRAVEL BEFORE ANY EARTH FILL IS PLACED. NEW EARTH FILL SHALL NOT BE LEFT IN CONTACT WITH THE TRUNK OF ANY TREE REQUIRING FILL. WHERE FILL EXCEEDING 6 INCHES (6") IS REQUIRED, A DRY LAID TREE WELL SHALL BE CONSTRUCTED. **IF APPLICABLE, TREE WELL INSTALLATION SHALL BE IN ACCORDANCE WITH THE PROVIDED TREE WELL DETAIL."**
   - LOWERING GRADES: EXISTING TREES LOCATED IN AREAS WHERE THE NEW FINISHED GRADE IS TO BE LOWERED, SHALL HAVE RE-GRADING WORK DONE BY HAND TO THE INDICATED ELEVATION, NO GREATER THAN SIX INCHES (6"). ROOTS SHALL BE CUT CLEANLY THREE INCHES (3") BELOW FINISHED GRADE UNDER THE DIRECTION OF A LICENSED ARBORIST. WHERE CUT EXCEEDING 6 INCHES (6") IS REQUIRED, A DRY LAID RETAINING WALL SHALL BE CONSTRUCTED. IF APPLICABLE, **THE RETAINING WALL INSTALLATION SHALL BE IN ACCORDANCE WITH THE PROVIDED TREE RETAINING WALL DETAIL."**

SOIL PREPARATION AND MULCH NOTES:

1. LANDSCAPE CONTRACTOR SHALL OBTAIN A SOIL TEST OF THE IN-SITU TOPSOIL BY A CERTIFIED SOIL LABORATORY PRIOR TO PLANTING. LANDSCAPE CONTRACTOR SHALL ALLOW FOR A TWO WEEK TURNAROUND TIME FROM SUBMITTAL OF SAMPLE TO NOTIFICATION OF RESULTS.
2. BASED ON SOIL TEST RESULTS, ADJUST THE RATES OF LIME AND FERTILIZER THAT SHALL BE MIXED INTO THE TOP SIX INCHES (6") OF TOPSOIL. THE LIME AND FERTILIZER RATES PROVIDED WITHIN THE SEED SPECIFICATION" OR SOD SPECIFICATION" IS APPROXIMATE AND FOR BIDDING PURPOSES ONLY. IF ADDITIONAL AMENDMENTS ARE NECESSARY, ADJUST THE TOPSOIL AS FOLLOWS:
   - MODIFY HEAVY CLAY OR SILT SOILS (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) OR GYPSUM.
   - MODIFY EXTREMELY SANDY SOILS (MORE THAN 85%) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX.
3. TOPSOIL SHALL BE FERTILE, FRIABLE, NATURAL TOPSOIL OF LOAMING CHARACTER, WITHOUT ADMIXTURE OF SUBSOIL MATERIAL OBTAINED FROM A WELL-DRAINED ARABLE SITE, FREE FROM ALL CLAY, LUMPS, COARSE SANDS, STONES, PLANTS, **ROOTS, STICKS, AND OTHER FOREIGN MATERIAL GREATER THAN ONE INCH (1").**
4. TOPSOIL SHALL HAVE A PH RANGE OF 5.0-7.0 AND SHALL NOT CONTAIN LESS THAN 6% ORGANIC MATTER BY WEIGHT.
5. OBTAIN TOPSOIL ONLY FROM LOCAL SOURCES OR FROM AREAS HAVING SIMILAR SOIL CHARACTERISTICS TO THAT FOUND AT THE PROJECT SITE.
6. CONTRACTOR SHALL PROVIDE A SIX INCH (6") DEEP LAYER OF TOPSOIL IN ALL PLANTING AREAS. TOPSOIL SHALL BE SPREAD OVER A PREPARED SURFACE IN A UNIFORM LAYER TO ACHIEVE THE DESIRED COMPACTED THICKNESS. THE SPREADING OF TOPSOIL SHALL NOT BE CONDUCTED UNDER MUDDY OR FROZEN SOIL CONDITIONS.
7. UNLESS OTHERWISE NOTED IN THE CONTRACT, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF TOPSOIL AND THE ESTABLISHMENT OF FINE-GRADING WITHIN THE DISTURBED AREA OF THE SITE.
8. LANDSCAPE CONTRACTOR SHALL VERIFY THAT THE SUB-GRADE ELEVATION MEETS THE FINISHED GRADE ELEVATION (LESS THE REQUIRED TOPSOIL), IN ACCORDANCE WITH THE APPROVED OR FINAL GRADING PLAN.
9. ALL LAWN AND PLANTING AREAS SHALL BE GRADED TO A SMOOTH, EVEN AND UNIFORM PLANE WITH NO ABRUPT CHANGE OF SURFACE AS DEPICTED WITHIN THE APPROVED OR FINAL CONSTRUCTION SET UNLESS OTHERWISE DIRECTED BY THE PROJECT LANDSCAPE DESIGNER OR MUNICIPAL OFFICIAL.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER SURFACE AND SUBSURFACE PLANT BED DRAINAGE PRIOR TO THE INSTALLATION OF PLANTINGS. IF POOR DRAINAGE CONDITIONS EXIST, CORRECTIVE ACTION SHALL BE TAKEN PRIOR TO INSTALLATION. ALL PLANTING AND LAWN AREAS SHALL BE GRADED AND MAINTAINED TO ALLOW A FREE FLOW OF SURFACE WATER.
11. DOUBLE SHREDDED HARDWOOD MULCH OR APPROVED EQUAL SHALL BE USED AS A THREE INCH (3") TOP DRESSING IN ALL SHRUB PLANTING BEDS AND AROUND ALL TREES PLANTED BY LANDSCAPE CONTRACTOR. GROUND COVER, PERENNIAL, AND ANNUAL PLANTING BEDS SHALL BE MULCHED WITH A TWO INCH (2") TOP DRESSING. SINGLE TREES OR SHRUBS SHALL BE MULCHED TO AVOID CONTACT WITH TRUNK OR PLANT STEM. MULCH SHALL BE OF SUFFICIENT CHARACTER AS NOT TO BE EASILY DISPLACED BY WIND OR WATER RUNOFF.
12. WHENEVER POSSIBLE, THE SOIL PREPARATION AREA SHALL BE CONNECTED FROM PLANTING TO PLANTING.
13. SOIL SHALL BE LOOSENED WITH A BACKHOE OR OTHER LARGE COARSE-TILING EQUIPMENT UNLESS THE SOIL IS FROZEN OR EXCESSIVELY WET. TILING THAT PRODUCES LARGE, COARSE CHUNKS OF SOIL IS PREFERABLE TO TILING THAT RESULTS IN FINE GRAINS UNIFORM IN TEXTURE. AFTER THE AREA IS LOOSENED IT SHALL NOT BE DRIVEN OVER BY ANY VEHICLE.
14. APPLY PRE-EMERGENT WEED CONTROL TO ALL PLANT BEDS PRIOR TO MULCHING. ENSURE COMPATIBILITY BETWEEN PRODUCT AND PLANT MATERIAL.
15. ALL PLANTING SOIL SHALL BE AMENDED WITH THE FOLLOWING:

MYCRO TREE SAVER - A DRY GRANULAR MYCORRHIZAL FUNGI INOCULANT THAT IS MIXED IN THE BACKFILL WHEN PLANTING TREES AND SHRUBS. IT CONTAINS SPORES OF BOTH ECTOMYCORRHIZAL AND VA MYCORRHIZAL FUNGI (VAM), BENEFICIAL RHIZOSPHERE BACTERIA, TERRA-SORB SUPERABSORBENT HYDROGEL TO REDUCE WATER LEACHING, AND SELECTED ORGANIC MICROBIAL NUTRIENTS.

- DIRECTIONS FOR USE: USE 3-OZ PER EACH FOOT DIAMETER OF THE ROOT BALL, OR 3-OZ PER INCH CALIPER. MIX INTO THE BACKFILL WHEN TRANSPLANTING TREES AND SHRUBS. MIX PRODUCT IN A RING-SHAPED VOLUME OF SOIL AROUND THE UPPER PORTION OF THE ROOT BALL, EXTENDING FROM THE SOIL SURFACE TO A DEPTH OF ABOUT 8 INCHES, AND EXTENDING OUT FROM THE ROOT BALL ABOUT 8 INCHES INTO THE BACKFILL. APPLY WATER TO SOIL SATURATION.
- MYCOR TREE SAVER IS EFFECTIVE FOR ALL TREE AND SHRUB SPECIES EXCEPT RHODODENDRONS, AZALEAS, AND MOUNTAIN LAUREL, WHICH REQUIRE ERICOID MYCORRHIZAE.
- SOIL PH: THE FUNGI IN THIS PRODUCT WERE CHOSEN BASED ON THEIR ABILITY TO SURVIVE AND COLONIZE PLANT ROOTS IN A PH RANGE OF 3 TO 9.
- FUNGICIDES: THE USE OF CERTAIN FUNGICIDES CAN HAVE A DETRIMENTAL EFFECT ON THE INOCULATION PROGRAM. SOIL APPLICATION OF ANY FUNGICIDE IS NOT RECOMMENDED FOR TWO WEEKS AFTER APPLICATION.
- OTHER PESTICIDES: HERBICIDES AND INSECTICIDES DO NOT NORMALLY INTERFERE WITH MYCORRHIZAL FUNGAL DEVELOPMENT, BUT MAY INHIBIT THE GROWTH OF SOME TREE AND SHRUB SPECIES IF NOT USED PROPERLY.

HEALTHY START MACRO TABS 12-8-8

- FERTILIZER TABLETS ARE PLACED IN THE UPPER 4 INCHES OF BACKFILL SOIL WHEN PLANTING TREES AND SHRUBS.
- TABLETS ARE FORMULATED FOR LONG-TERM RELEASE BY SLOW BIODEGRADATION, AND LAST UP TO 2 YEARS AFTER PLANTING. TABLETS CONTAIN 12-8-8 NPK FERTILIZER, AS WELL AS A MINIMUM OF SEVEN PERCENT (7%) HUMIC ACID BY WEIGHT, MICROBIAL NUTRIENTS DERIVED FROM SEA KELP, PROTEIN BYPRODUCTS, AND YUCCA SCHIDIGERA, AND A COMPLEMENT OF BENEFICIAL RHIZOSPHERE BACTERIA. THE STANDARD 21 GRAM TABLET IS SPECIFIED HERE. DIRECTIONS FOR USE: FOR PLANTING BALLED & BURLAPPED (B&B) TREES AND SHRUBS, MEASURE THE THICKNESS OF THE TRUNK, AND USE ABOUT 1 TABLET (21-G) PER HALF-INCH. PLACE THE TABLETS DIRECTLY NEXT TO THE ROOT BALL, EVENLY DISTRIBUTED AROUND ITS PERIMETER, AT A DEPTH OF ABOUT 4 INCHES.

IRRIGATION DURING ESTABLISHMENT

SIZE AT PLANTING	IRRIGATION FOR VITALITY	IRRIGATION FOR SURVIVAL
< 2" CALIPER	DAILY FOR TWO WEEKS, EVERY OTHER DAY FOR TWO MONTHS, WEEKLY UNTIL ESTABLISHED	TWO TO THREE TIMES WEEKLY FOR TWO TO THREE MONTHS
2"-4 CALIPER	DAILY FOR ONE MONTH, EVERY OTHER DAY FOR THREE MONTHS, WEEKLY UNTIL ESTABLISHED	TWO TO THREE TIMES WEEKLY FOR THREE TO FOUR MONTHS
4 >" CALIPER	DAILY FOR SIX WEEKS, EVERY OTHER DAY FOR FIVE MONTHS, WEEKLY UNTIL ESTABLISHED	TWICE WEEKLY FOR FOUR TO FIVE MONTHS

TABLE NOTES:
1. AT EACH IRRIGATION, APPLY TWO TO THREE GALLONS PER INCH TRUNK CALIPER TO THE ROOT BALL SURFACE. APPLY IT IN A MANNER SO ALL WATER SOAKS THE ENTIRE ROOT BALL. DO NOT WATER IF ROOT BALL IS WET/SATURATED ON THE IRRIGATION DAY.

2. WHEN IRRIGATING FOR VITALITY, DELETE DAILY IRRIGATION WHEN PLANTING IN WINTER OR WHEN PLANTING IN COOL CLIMATES. ESTABLISHMENT TAKES THREE TO FOUR MONTHS PER INCH TRUNK CALIPER. NEVER APPLY IRRIGATION IF THE SOIL IS SATURATED.

3. WHEN IRRIGATION FOR SURVIVAL, TREES TAKE MUCH LONGER TO ESTABLISH THAN REGULARLY IRRIGATED TREES. IRRIGATION MAY BE REQUIRED IN THE NORMAL HOT, DRY PORTIONS OF THE FOLLOWING YEAR.

PLANT QUALITY AND HANDLING NOTES:

1. ALL PLANT MATERIAL SHALL CONFORM TO THE AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1-2004) OR LATEST REVISION AS PUBLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION.
2. IN ALL CASES, BOTANICAL NAMES LISTED WITHIN THE APPROVED OR FINAL PLANT LIST SHALL TAKE PRECEDENCE OVER COMMON NAMES.
3. ALL PLANTS SHALL BE OF SELECTED SPECIMEN QUALITY, EXCEPTIONALLY HEAVY, TIGHTLY KNIT, SO TRAINED OR FAVORED IN THEIR DEVELOPMENT AND APPEARANCE AS TO BE SUPERIOR IN FORM, NUMBER OF BRANCHES, COMPACTNESS AND SYMMETRY. ALL PLANTS SHALL HAVE A NORMAL HABIT OR SOUND, HEALTHY, VIGOROUS PLANTS WITH WELL DEVELOPED ROOT SYSTEM. PLANTS SHALL BE FREE OF DISEASE, INSECT PESTS, EGGS OR LARVAE.
4. PLANTS SHALL NOT BE PRUNED BEFORE DELIVERY. TREES WITH ABRASION OF THE BARK, SUNSCALDS, DISFIGURING KNOTS OR FRESH CUTS OF LIMBS OVER ONE AND ONE-FOURTH INCHES (1-1/4") WHICH HAVE NOT COMPLETELY CALLOUSED SHALL BE REJECTED.
5. ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES OR VARIETY AND SHALL HAVE A NORMAL HABIT OF GROWTH AND BE LEGIBLY TAGGED WITH THE PROPER NAME AND SIZE.
6. THE ROOT SYSTEM OF EACH PLANT SHALL BE WELL PROVIDED WITH FIBROUS ROOTS. ALL PARTS SHALL BE SOUND, HEALTHY, VIGOROUS, WELL-BRANCHED AND DENSELY FOLIATED WHEN IN LEAF.
7. ALL PLANTS DESIGNATED BALL AND BURLAP (B&B) MUST BE MOVED WITH THE ROOT SYSTEM AS SOLID UNITS WITH BALLS OF EARTH FIRMLY WRAPPED WITH BURLAP. THE DIAMETER AND DEPTH OF THE BALLS OF EARTH MUST BE SUFFICIENT TO ENCOMPASS THE FIBROUS ROOT FEEDING SYSTEMS NECESSARY FOR THE HEALTHY DEVELOPMENT OF THE PLANT. NO PLANT SHALL BE ACCEPTED WHEN THE BALL OF EARTH SURROUNDING ITS ROOTS HAS BEEN BADLY CRACKED OR BROKEN PREPARATORY TO OR DURING THE PROCESS OF PLANTING. THE BALLS SHALL REMAIN INTACT DURING ALL OPERATIONS. ALL PLANTS THAT CANNOT BE PLANTED AT ONCE MUST BE HEELED-IN BY SETTING IN THE GROUND AND COVERING THE BALLS WITH SOIL OR MULCH AND THEN WATERING. HEMP BURLAP AND TWINE IS PREFERABLE TO TREATED. IF TREATED BURLAP IS USED, ALL TWINE IS TO BE CUT FROM AROUND THE TRUNK AND ALL BURLAP IS TO BE REMOVED.
8. PLANTS TRANSPORTED TO THE PROJECT IN OPEN VEHICLES SHALL BE COVERED WITH TARPS OR OTHER SUITABLE COVERS SECURELY FASTENED TO THE BODY OF THE VEHICLE TO PREVENT INJURY TO THE PLANTS. CLOSED VEHICLES SHALL BE ADEQUATELY VENTILATED TO PREVENT OVERHEATING OF THE PLANTS. EVIDENCE OF INADEQUATE PROTECTION FOLLOWING DIGGING, CARELESSNESS WHILE IN TRANSIT, OR IMPROPER HANDLING OR STORAGE SHALL BE CAUSE FOR REJECTION OF PLANT MATERIAL. ALL PLANTS SHALL BE KEPT MOIST, FRESH, AND PROTECTED. SUCH PROTECTION SHALL ENCOMPASS THE ENTIRE PERIOD DURING WHICH THE PLANTS ARE IN TRANSIT, BEING HANDLED, OR ARE IN TEMPORARY STORAGE.
9. ALL PLANT MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH THE CORRESPONDING LANDSCAPE PLAN AND PLANTING DETAILS.
10. LANDSCAPE CONTRACTOR SHALL MAKE BEST EFFORT TO INSTALL PLANTINGS ON THE SAME DAY AS DELIVERY. IF PLANTS ARE NOT PLANTED IMMEDIATELY ON SITE, PROPER CARE SHALL BE TAKEN TO PLACE THE PLANTINGS IN PARTIAL SHADE WHEN POSSIBLE. THE ROOT BALL SHALL BE KEPT MOIST AT ALL TIME AND COVERED WITH MOISTENED MULCH OR AGED WOODCHIPS. PROPER IRRIGATION SHALL BE SUPPLIED SO AS TO NOT ALLOW THE ROOT BALL TO DRY OUT. PLANTINGS SHALL BE UNTIED AND PROPER SPACING SHALL BE ALLOTTED FOR AIR CIRCULATION AND TO PREVENT DISEASE, WILTING, AND LEAF LOSS. PLANTS THAT REMAIN UNPLANTED FOR A PERIOD OF TIME GREATER THAN THREE (3) DAYS SHALL BE HEALED IN WITH TOPSOIL OR MULCH AND WATERED AS REQUIRED TO PRESERVE ROOT MOISTURE.
11. NO PLANT MATERIAL SHALL BE PLANTED IN MUDDY OR FROZEN SOIL.
12. PLANTS WITH INJURED ROOTS OR BRANCHES SHALL BE PRUNED PRIOR TO PLANTING UTILIZING CLEAN, SHARP TOOLS. ONLY DISEASED OR INJURED PLANTS SHALL BE REMOVED.
13. IF ROCK OR OTHER UNDERGROUND OBSTRUCTION IS ENCOUNTERED, THE LANDSCAPE DESIGNER RESERVES THE RIGHT TO RELOCATE OR ENLARGE PLANTING PITS OR DELETE PLANT MATERIAL FROM THE CONTRACT.
14. IF PLANTS ARE PROPOSED WITHIN SIGHT TRIANGLES, TREES SHALL BE LIMBED AND MAINTAINED TO A HEIGHT OF EIGHT FEET (8') ABOVE GRADE, AND SHRUBS, GROUND COVER, PERENNIALS, AND ANNUALS SHALL BE MAINTAINED TO A HEIGHT NOT TO EXCEED TWO FEET (2') ABOVE GRADE UNLESS OTHERWISE NOTED OR SPECIFIED BY THE GOVERNING MUNICIPALITY OR AGENCY.
15. INSTALLATION SHALL OCCUR DURING THE FOLLOWING SEASONS:
    PLANTS (APRIL 15 - SEPTEMBER 30)
    LAWNS (MARCH 15 - JUNE 15 OR SEPTEMBER 1 - DECEMBER 1)
16. THE FOLLOWING TREES ARE SUSCEPTIBLE TO TRANSPLANT SHOCK AND SHALL NOT BE PLANTED DURING THE FALL SEASON (STARTING SEPTEMBER 15):

ABIES CONCOLOR	CORNUS VARIETIES	OSTRYA VIRGINIANA
ACER BUERGERIANUM	CRATAEGUS VARIETIES	PINUS NIGRA
ACER FREEMANII	CUPRESSOCYPARIS LEYLANDII	PLATANUS VARIETIES
ACER RUBRUM	FAGUS VARIETIES	POPULUS VARIETIES
ACER SACCHARINUM	HALESIA VARIETIES	PRUNUS VARIETIES
BETULA VARIETIES	ILEX X FOSTERII	PYRUS VARIETIES
CARPINUS VARIETIES	ILEX NELLIE STEVENS	QUERCUS VARIETIES (NOT Q. PALUSTRIS)
CEDRUS DEODARA	ILEX OPACA	SALIX WEEPING VARIETIES
CELTIS VARIETIES	JUNIPERUS VIRGINIANA	SORBUS VARIETIES
CERCIDIPHYLLUM VARIETIES	KOELREUTERIA PANICULATA	TAXODIUM VARIETIES
CERCIS CANADENSIS	LIQUIDAMBAR VARIETIES	TAXUX B REPANDENS
CORNUS VARIETIES	LIRIODENDRON VARIETIES	TILIA TOMENTOSA VARIETIES
CRATAEGUS VARIETIES	MALUS IN LEAF	ULMUS PARVIFOLIA VARIETIES
	NYSSA SYLVATICA	ZELKOVA VARIETIES

17. IF A PROPOSED PLANT IS UNATTAINABLE OR ON THE FALL DIGGING HAZARD LIST, AN EQUIVALENT SPECIES OF THE SAME SIZE MAY BE REQUESTED FOR SUBSTITUTION OF THE ORIGINAL PLANT. ALL SUBSTITUTIONS SHALL BE APPROVED BY THE PROJECT LANDSCAPE DESIGNER OR MUNICIPAL OFFICIAL PRIOR TO ORDERING AND INSTALLATION.
18. DURING THE COURSE OF CONSTRUCTION/PLANT INSTALLATION, EXCESS AND WASTE MATERIALS SHALL BE CONTINUOUSLY AND PROMPTLY REMOVED AT THE END OF EACH WORK DAY. ALL DEBRIS, MATERIALS, AND TOOLS SHALL BE PROPERLY STORED, STOCKPILED OR DISPOSED OF AND ALL PAVED AREAS SHALL BE CLEANED.
19. THE LANDSCAPE CONTRACTOR SHALL DISPOSE OF ALL RUBBISH AND EXCESS SOIL AT HIS EXPENSE TO AN OFF-SITE LOCATION AS APPROVED BY THE LOCAL MUNICIPALITY.
20. A 90-DAY MAINTENANCE PERIOD SHALL BEGIN IMMEDIATELY AFTER ALL PLANTS HAVE BEEN SATISFACTORILY INSTALLED.
21. MAINTENANCE SHALL INCLUDE, BUT NOT BE LIMITED TO, REPLACING MULCH THAT HAS BEEN DISPLACED BY EROSION OR OTHER MEANS, REPAIRING AND RESHAPING WATER RINGS OR SAUCERS, MAINTAINING STAKES AND GUYS IF ORIGINALLY REQUIRED, WATERING WHEN NEEDED OR DIRECTED, WEEDING, PRUNING, SPRAYING, FERTILIZING, MOWING THE LAWN, AND PERFORMING ANY OTHER WORK REQUIRED TO KEEP THE PLANTS IN A HEALTHY CONDITION.
22. MOW ALL GRASS AREAS AT REGULAR INTERVALS TO KEEP THE GRASS HEIGHT FROM EXCEEDING THREE INCHES (3"). MOWING SHALL BE PERFORMED ONLY WHEN GRASS IS DRY. MOWER BLADE SHALL BE SET TO REMOVE NO MORE THAN ONE THIRD (1/3) OF THE GRASS LENGTH. WHEN THE AMOUNT OF GRASS IS HEAVY, IT SHALL BE REMOVED TO PREVENT DESTRUCTION OF THE UNDERLYING TURF. MOW GRASS AREAS IN SUCH A MANNER AS TO PREVENT CLIPPINGS FROM BLOWING ON PAVED AREAS, AND SIDEWALKS. CLEANUP AFTER MOWING SHALL INCLUDE SWEEPING OR BLOWING OF PAVED AREAS AND SIDEWALKS TO CLEAR THEM FROM MOWING DEBRIS.
23. GRASSED AREAS DAMAGED DURING THE PROCESS OF THE WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR, WHO SHALL RESTORE THE DISTURBED AREAS TO A CONDITION SATISFACTORY TO THE PROJECT LANDSCAPE DESIGNER, MUNICIPAL OFFICIAL, OR OWNER/OWNER'S REPRESENTATIVE. THIS MAY INCLUDE FILLING TO GRADE, FERTILIZING, SEEDING, AND MULCHING.
24. SHOULD THE OWNER REQUIRE MAINTENANCE BEYOND THE STANDARD 90-DAY MAINTENANCE PERIOD, A SEPARATE CONTRACT SHALL BE ESTABLISHED.
25. LANDSCAPE CONTRACTOR SHALL WATER NEW PLANTINGS FROM TIME OF INSTALL AND THROUGHOUT REQUIRED 90-DAY MAINTENANCE PERIOD UNTIL PLANTS ARE ESTABLISHED. IF ON-SITE WATER IS NOT AVAILABLE AT THE PROJECT LOCATION, THE LANDSCAPE CONTRACTOR SHALL FURNISH IT BY MEANS OR A WATERING TRUCK OR OTHER ACCEPTABLE MANNER.
26. THE QUANTITY OF WATER APPLIED AT ONE TIME SHALL BE SUFFICIENT TO PENETRATE THE SOIL TO A MINIMUM OF EIGHT INCHES (8") IN SHRUB BEDS AND SIX INCHES (6") IN TURF AREAS AT A RATE WHICH WILL PREVENT SATURATION OF THE SOIL.
27. IF AN AUTOMATIC IRRIGATION SYSTEM HAS BEEN INSTALLED, IT CAN BE USED FOR WATERING PLANT MATERIAL. HOWEVER, FAILURE OF THE SYSTEM DOES NOT ELIMINATE THE LANDSCAPE CONTRACTOR'S RESPONSIBILITY OF PLANT HEALTH AND ESTABLISHMENT.

PLANT MATERIAL GUARANTEE NOTES:

1. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIAL FOR A PERIOD OF ONE YEAR (1 YR.) FROM APPROVAL OF LANDSCAPE INSTALLATION BY THE PROJECT LANDSCAPE DESIGNER, MUNICIPAL OFFICIAL, OR OWNER/OWNER'S REPRESENTATIVE.
2. THE LANDSCAPE CONTRACTOR SHALL REMOVE AND REPLACE DYING, DEAD, OR DEFECTIVE PLANT MATERIAL AT HIS EXPENSE. THE LANDSCAPE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS COMPANY'S OPERATIONS.
3. ALL REPLACEMENT PLANTS SHALL BE OF THE SAME SPECIES AND SIZE AS SPECIFIED ON THE APPROVED OR FINAL PLANT LIST. REPLACEMENTS RESULTING FROM REMOVAL, LOSS, OR DAMAGE DUE TO OCCUPANCY OF THE PROJECT IN ANY PART, VANDALISM, PHYSICAL DAMAGE BY ANIMALS, VEHICLES, ETC., AND LOSSES DUE TO CURTAILMENT OF WATER BY LOCAL AUTHORITIES SHALL BE APPROVED AND PAID FOR BY THE OWNER.
4. THE CONTRACTOR SHALL INSTRUCT THE OWNER AS TO THE PROPER CARE AND MAINTENANCE OF ALL PLANTINGS.

LAWN (SEED OR SOD) NOTES:

1. SEED MIXTURE SHALL BE FRESH, CLEAN, NEW CROP SEED. SOD SHALL BE STRONGLY ROOTED, UNIFORM IN THICKNESS, AND FREE OF WEEDS, DISEASE, AND PESTS.
2. SEED OR SOD SHALL BE PURCHASED FROM A RECOGNIZED DISTRIBUTOR AND SHALL BE COMPOSED OF THE MIX OR BLEND **WITHIN THE PROVIDED SEED SPECIFICATION" OR SOD SPECIFICATION."**
3. REFERENCE LANDSCAPE PLAN FOR AREAS TO BE SEEDED OR LAID WITH SOD.
4. SEEDING SHALL NOT BE PERFORMED IN WINDY WEATHER. IF THE SEASON OF THE PROJECT COMPLETION PROHIBITS PERMANENT STABILIZATION, TEMPORARY STABILIZATION SHALL BE PROVIDED IN ACCORDANCE WITH THE **TEMPORARY SEEDING SPECIFICATION."**
5. PROTECT NEW LAWN AREAS AGAINST TRESPASSING WHILE THE SEED IS GERMINATING. FURNISH AND INSTALL FENCES, SIGNS, BARRIERS OR ANY OTHER NECESSARY TEMPORARY PROTECTIVE DEVICES. DAMAGE RESULTING FROM TRESPASS, EROSION, WASHOUT, SETTLEMENT OR OTHER CAUSES SHALL BE REPAIRED BY THE LANDSCAPE CONTRACTOR AT HIS EXPENSE. REMOVE ALL FENCES, SIGNS, BARRIERS OR OTHER TEMPORARY PROTECTIVE DEVICES ONCE LAWN HAS BEEN ESTABLISHED.

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LAND DEVELOPMENT PLANS

PRIMROSE SCHOOLS FRANCHISING COMPANY

PROPOSED CHILD DAY CARE FACILITY

PARCEL ID: 28-113
885 MAIN STREET
TOWN OF READING
MIDDLESEX COUNTY, MASSACHUSETTS

PRIMROSE® SCHOOLS

JOSHUA H. KLINE, P.E.
MASSACHUSETTS LICENSE No. 53936
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: AS SHOWN | PROJECT ID: BOS-240115

TITLE: LANDSCAPING DETAILS

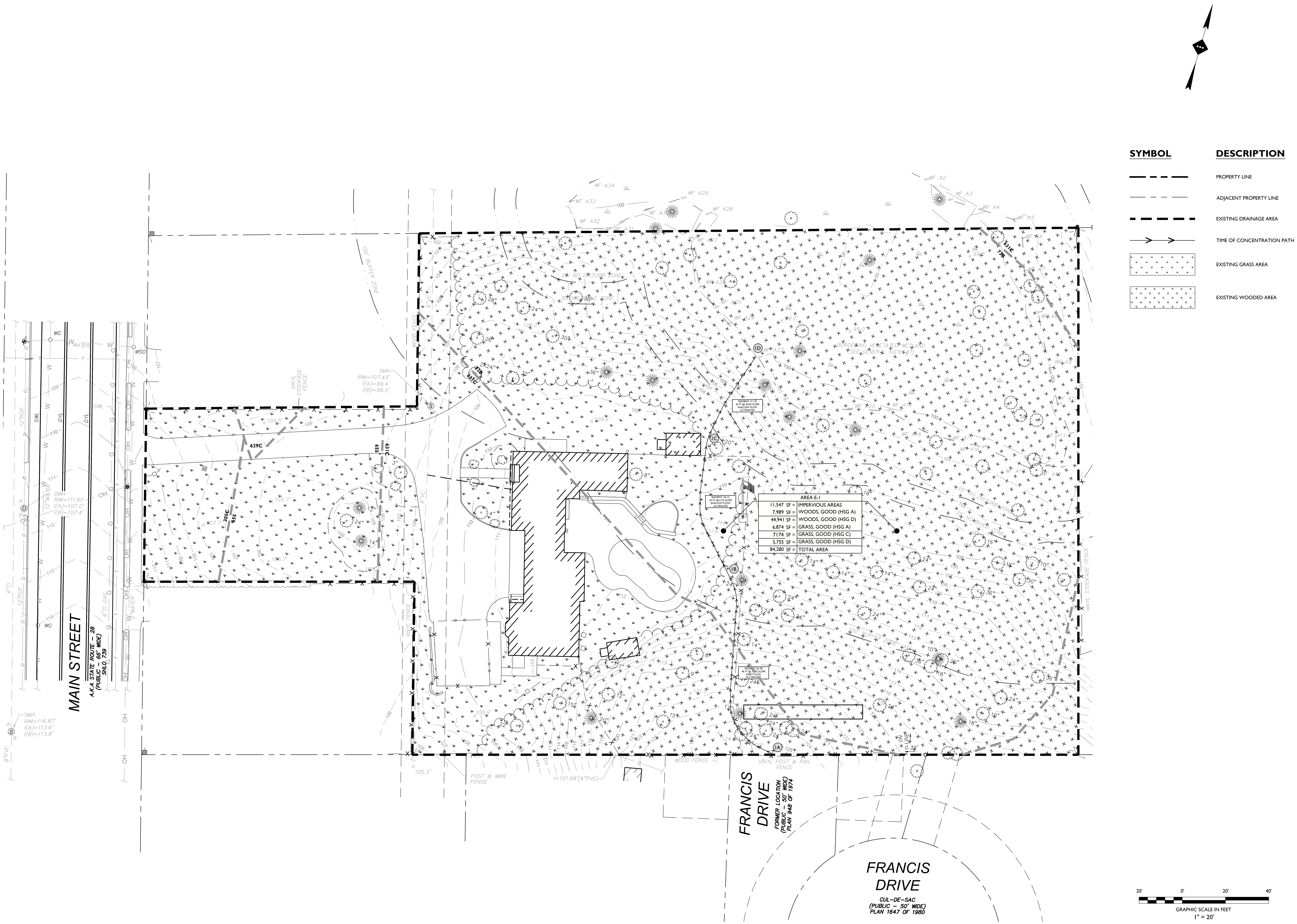
DRAWING: C-11

APPENDIX E
DRAINAGE AREA MAPS

INVENTORY

SHEET 1 OF 2: EXISTING DRAINAGE AREA MAP

SHEET 2 OF 2: PROPOSED DRAINAGE AREA MAP



AREA E-1	
11,547 SF =	IMPERVIOUS AREAS
7,989 SF =	WOODS, GOOD (HSG A)
44,941 SF =	WOODS, GOOD (HSG D)
6,874 SF =	GRASS, GOOD (HSG A)
7174 SF =	GRASS, GOOD (HSG C)
5,755 SF =	GRASS, GOOD (HSG D)
84,280 SF =	TOTAL AREA

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DRAINAGE AREA MAPS

ADA ARCHITECTS

PROP PRIMROSE SCHOOL CHILD CARE CENTER

PARCEL ID: 28-113
885 MAIN STREET
TOWN OF READING
MIDDLESEX COUNTY, MASSACHUSETTS

JOSHUA H. KLINE, P.E.
MASSACHUSETTS LICENSE No. 53936
LICENSED PROFESSIONAL ENGINEER

STONEFIELD engineering & design

SCALE: 1" = 20' | PROJECT ID: BOS-240115

TITLE:

EXISTING DRAINAGE AREA MAP

DRAWING:

1 OF 2

SYMBOL	DESCRIPTION
	PROPERTY LINE
	ADJACENT PROPERTY LINE
	PROPOSED DRAINAGE AREA
	TIME OF CONCENTRATION PATH
	PROPOSED GRASS AREA
	PROPOSED WOODED AREA

AREA P1-C	
17,206 SF =	IMPERVIOUS AREAS
884 SF =	GRASS, GOOD (HSG A)
854 SF =	GRASS, GOOD (HSG C)
270 SF =	GRASS, GOOD (HSG D)
19,214 SF =	TOTAL AREA

AREA P-1A	
1,670 SF =	IMPERVIOUS AREAS
6,792 SF =	GRASS, GOOD (HSG A)
2,880 SF =	GRASS, GOOD (HSG C)
18,150 SF =	GRASS, GOOD (HSG D)
1,088 SF =	WOODS, GOOD (HSG A)
21,266 SF =	WOODS, GOOD (HSG D)
51,846 SF =	TOTAL AREA

AREA P-1B	
7,928 SF =	IMPERVIOUS AREAS
5,292 SF =	GRASS, GOOD (HSG A)
13,220 SF =	TOTAL AREA

MAIN STREET
A.K.A. STATE ROUTE – 28
(PUBLIC – 65' WIDE)
SHLD. 739

FRANCIS DRIVE
FORMER LOCATION
(PUBLIC – 50' WIDE)
PLAN 948 OF 1974

FRANCIS DRIVE
CUL–DE–SAC
(PUBLIC – 50' WIDE)
PLAN 1647 OF 1980

20' 0' 20' 40'
GRAPHIC SCALE IN FEET
1" = 20'

Z:\BOS\TOWNS\2024\BOS-240115 PRIMROSE SCHOOLS - 885 MAIN STREET, READING, MA\CAD\EXHIBITS\DRAINAGE AREA MAPS\2025-03-25_DRAINAGE AREA MAPS.DWG

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SCALE: 1" = 20' | PROJECT ID: BOS-240115

TITLE:
PROPOSED DRAINAGE AREA MAP

DRAWING:
2 OF 2