# CITY OF BANGOR

To: Honorable Chair and Members of the Bangor City Council
From: Carollynn Lear, City Manager
Subject: Weekly Meetings – **June 15, 2026**
Date: June 12, 2026

| | | | |
|---|---|---|---|
| **June 15** | **(Mon)** | **5:15 P.M.** | **City Council Workshop**<br>• **Executive Session: 1 M.R.S.A. § 405 (6)(D) – Fleet and GSE Bargaining**<br>• **Executive Session: 1 M.R.S.A. § 405 (6)(D) – Public Works Bargaining**<br>• **Executive Session: 1 M.R.S.A. § 405 (6)(A) – Personnel Matter** |
| | | *Immediately following* | **Infrastructure Committee**<br><br>**Finance Committee**<br><br>**Business & Economic Development Committee**<br><br>**Legislative Committee** |
| **June 16** | **(Tues)** | 3:45 P.M. | Bangor Water District Board of Trustees<br>*Hughes Building, 614 State St.* |
| | | **5:30 P.M.** | **Public Forum: Revaluation Discussion**<br>*Bangor High School, Peakes Auditorium, 885 Broadway* |
| | | **7:00 P.M.** | **Planning Board** |
| **June 17** | **(Wed)** | **5:15 P.M.** | **City Council Budget Workshop** |
| **June 18** | **(Thurs)** | **5:15 P.M.** | ~~**City Council Budget Workshop**~~ *Cancelled* |
| **June 19** | **(Fri)** | | **CITY OFFICES CLOSED – JUNETEENTH** |

**Unless otherwise noted, all meetings are held: City Council Chambers, Bangor City Hall, 73 Harlow St. After 4:30 P.M., members of the public are asked to use the side entrance of City Hall that faces the direction of Exchange and State streets.**
**Find the calendar and Zoom link at www.bangormaine.gov/calendar and select the meeting you wish to attend. For guidelines on attending City of Bangor public meetings virtually or in-person, visit www.bangormaine.gov/video**

CITY OF BANGOR

**City Council Workshop**

**Monday, June 15, 2026 @ 5:15 PM**

**Council Chambers, City Hall, 73 Harlow St.**

**Agenda**

1. **Executive Session: 1 M.R.S.A. § 405 (6)(D) – Fleet and GSE Bargaining**
2. **Executive Session: 1 M.R.S.A. § 405 (6)(D) – Public Works Bargaining**
3. **Executive Session: 1 M.R.S.A. § 405 (6)(A) – Personnel Matter**

# INFRASTRUCTURE COMMITTEE

**Monday, June 15, 2026**
**Immediately following City Council Workshop**
**City Hall, Council Chambers, 73 Harlow St.**
**Agenda**

1. **Selection of Forest Operations Contractor – Ben Arruda, Sophia Cameron**
   (Memo attached)

2. **Essex Woods Forest Management Plan – Ben Arruda, Sophia Cameron**
   (Materials attached)

CITY OF BANGOR

# DEPARTMENT OF PUBLIC WORKS

## FORESTRY DIVISION

*June 15th, 2026*

*Infrastructure Committee Meeting*

*Notification of Selection of Forest Operations Contractor*

*Sophia Cameron, Ben Arruda, and Tracy Willette*

Over the past several months members of the Forestry Division have been working to select a Forest Operations contractor to help bring the Rolland F. Perry City Forest and another City owned property called Twining Pit, located in Winterport, back into active management per their Forest Management Plans. These plans were written by consulting forester David Irving of Shelterwood Forestry Services in 2021. Since that time, no active management has been performed on either property, leading to several forest health concerns.

Because of the focal nature of the City Forest specifically, and its high use by recreators, it was important whoever the selected contractor was that they be selected by the quality of their past work as opposed to their rates. For this reason, in the initial request for proposals, a Do Not Exceed amount of $25,000 per fiscal year was included. This amount will come from the existing line item for contractors in the Forestry Division's budget.

We requested and received written proposals from three local contractors. After careful review of each, we determined that the best option for these projects is Prentiss & Carlisle Forest Resource Management and Timberland Services. They are a local Bangor company that has been in operation for over 100 years. They are known throughout the state as providing excellent forest management services for both private landowners as well as non-profit, public access entities. Notably, they provide contracted services for Maine Woodland Owners, New England Forestry Foundation, and Maine Inland Fisheries & Wildlife.

Joe Hutton will be the licensed forester from Prentiss & Carlisle serving as the operations forester for these projects. He will be working in partnership with the City Forest Manager to bring each of the properties back into compliance with their Forest Management Plans. The initial term for this contract is one year with the option for renewal, and the stated Do Not Exceed amount of $25,000 per fiscal year.

No further action is needed from council at this time.

CITY OF BANGOR

Department of Parks and Recreation
Department of Public Works—Forestry Division

*June 15th, 2026*

*Infrastructure Committee Meeting*

*Essex Woods Forest Management Plan*

*Sophia Cameron, Ben Arruda, and Tracy Willette*

The management of forested land is typically governed by a document called a Forest Management Plan. These plans are approved by a licensed forester on behalf of the landowner and share information regarding the current state of boundary lines, forest soil resources, forest health, wildlife considerations, recreation opportunities, and silvicultural prescriptions. In circumstances where timber harvesting is desired by the landowner, they can also include information about that. Forest Management Plans typically govern a piece of land over the course of 10 years, at which time they must be updated.

The last time a Forest Management Plan was written for Essex Woods was in 2003 by Charles Simpson of Woodchuck Forestry Services. To the knowledge of the current land managers, the recommendations within that plan were not carried out. The purpose of this plan is to adapt those recommendations made in the previous plan where appropriate and resume active management of Essex Woods.

Essex Woods is made up of 9 parcels totaling +/- 113 acres. It contains a wide diversity of habitat types, from open wetlands to mature conifer forest. This makes it excellent for birding, mountain biking, walking, running and generally being in nature. It is also the site of an old landfill that was decommissioned in the ‘60s. Because of this, land managers must be strategic about how the site is used by recreators to maintain public safety on the property.

The management objectives for Essex Woods over the next 10 years are:

***Provide safe recreational opportunities for the Citizens of Bangor.*** Managers will prioritize continued access to the trail systems for recreators, promote safety through the removal of hazardous trees along trails, and promote wildlife habitat for public enjoyment. Essex Woods has a community of visiting birders and is listed as one of the top 10 birding locations in Penobscot County, so promotion of diverse bird habitat is a priority.

***Protect local waters, cultural artifacts, and wildlife habitats.*** Managers will strive to create and/or maintain diverse habitats, with early to late successional forest conditions, varied forest structure, and unique nesting and feeding sites. Managers will identify and protect natural and cultural features of significance, including sites that support rare or unusual species, as well as cellar holes, stonewalls, etc.

***Improve tree quality and forest health.*** Managers will strive to regenerate and grow vigorous forests rich in high value tree species, improved tree quality, and with diverse age structures, to best appreciate, and defend against climate, insect, and disease concerns. To the extent possible, non-native trees, shrubs, and pests will be eradicated. This will require active management of the property.

***Demonstrate good forest management.*** Maine's Best Management Practices for erosion control and water quality protection will be followed during all phases of forest management and harvest operations.

***Provide educational opportunities.*** When possible, managers will interact with the public to provide educational and volunteer opportunities for diverse groups of Bangor's citizens and visitors focused on helping the public interact with nature and land management.

The management recommendations for the next 10 years made by the City Forest Technician, Sophia Cameron, and approved by the City Forest Manager, Ben Arruda, are:

1. Survey all of Essex Woods to determine both external and internal boundary lines of the property. These lines should then be blazed and maintained on a five-year schedule.
2. No commercial timber harvesting is recommended over the next 10 years except when being used as a tool to promote forest health or improve public safety.
3. Pruning along the trails should be done on a three-to-five-year basis to maintain clearance for recreators and vehicle access for land managers.
4. Invasive plant control using integrated pest management should be the priority for this management period.
5. Replanting with native tree and shrub species could be done as needed in areas where there is low species diversity or an even-age structure.
6. Special consideration should be taken to maintain and improve various bird habitats. This may look like maintaining forest edges with once-a-year mowing, planting soft-masting tree and shrub species, planting native herbaceous plants to increase the number of insects, adding nest boxes and platforms, and girdling poorly formed trees to create snags.
7. Continue to monitor for and respond to infestations of red pine scale, emerald ash borer, hemlock woolly adelgid, and beech bark and leaf disease.
8. Post educational signage to teach recreators about the various habitat types and bird species in Essex Woods, as well as other natural resources.
9. Update and repair the PAL building so that it can be repurposed for either use by the City or for use by a nature or recreation-based non-profit for the benefit of the citizens of Bangor.
10. Improve and expand the mountain biking trail network following the recommendations made by OSI in their trail plan, which is currently being authored.

11. Control erosion in the areas of the capped landfill following all DEP standards and regulations.
12. Control erosion caused by the Bangor Water District tank outflow that goes through Essex Woods.

Further details of how all these recommendations can be accomplished are shared in the complete Essex Woods Forest Management Plan. We are seeking council approval to approve this Forest Management Plan as the governing document for Essex Woods from June 15th, 2026-June 15th, 2036.

CITY OF BANGOR

# FOREST MANAGEMENT PLAN

Planning Period 2026-2036

## Essex Woods

Bangor, Penobscot County, ME
9 parcels totaling +/- 113 acres

City of Bangor, ATTN: Parks & Recreation
207-992-4490
tracy.willette@bangormaine.gov
647 Main St, Bangor, ME 04401

Prepared by:
Sophia Cameron, FI 4429, Forestry Technician
sophia.cameron@bangormaine.gov
Reviewed and Finalized by:
Ben Arruda, LF 4330, Foresty Manager
ben.arruda@bangormaine.gov
530 Maine Ave, Bangor, ME 04401

*This plan meets specifications for Maine's Tree Growth Tax Law and the USDA/NRCS Conservation Activity Plan and addresses proposed activities between now and 2036 when it should be updated. It is intended to help owners conduct forest management activities and* ***does not represent legal advice.***

I assume responsibility for the development of the above stated Forest Management Plan provided. The plan provided: (1) complies with all applicable Federal, State, Tribal Lands, local laws and requirements; (2) meets applicable standards, specifications, statements of work; (3) is consistent with the particular goals and objectives of the landowner; and (4) incorporates alternatives that are both cost effective and appropriate to address the resource issues.

Forester License #4330 Signature _____ Date 10 June 26

Landowner Signature _____ Date 6-10-26

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# Background

Essex Woods is comprised of nine total parcels owned by the City of Bangor Parks & Recreation Department. Their map and lot numbers can be found in Table 1 below, and they are visualized in Figure 5. The total acreage of Essex Woods is +/- 113 acres, however, the forested acreage is only +/- 65 acres. Powerline rights-of-way, access roads, parking lots, a basketball court, dog parks, a sliding hill and the Police Athletic League (PAL) building take up eight acres.

Two of the forested parcels, R55-002-C and R55-002-F, are under one acre in size, close to residential properties, and are entirely contained within a 250-foot wetland buffer. Five of these parcels are entirely open-wetland or forested-wetland. These seven parcels were not inventoried because of their lack of standing timber, and because there will be no active harvesting on them in the next 10 years. Invasive plant management may occur on these parcels, and all state and federal regulations regarding the use of chemical pesticides will be strictly adhered to across the entire property.

Through the middle of the parcels runs the old Veazie Railbed, which has been converted into a walking trail for recreation, and is referred to as the “rail trail” in this plan. The southernmost portion of R48-007 was once a landfill, and remnants of waste can still be seen above ground in some places. This landfill was capped sometime in the 70s. There is also a sliding hill leading down to the marsh on this lot, that is managed as grassland habitat for birds through spring, summer, and fall, and used as a public sledding hill in the winter when there is snow on the ground. This sliding hill covers only part of the capped landfill. R48-007 also shows evidence of being pastured long ago. This is supported by a lack of stumps or old snags, and smoothness to the forest floor characteristic of rock and debris removal. It is further supported by documentation of a homestead once being present on the property.

In 1993 the City Forester at the time, Rolland Perry, planted two pine plantations totaling eight acres. This included red pine and Jack pine. Five acres of this was thinned in a timber stand improvement (TSI) in 2002. As of 2026, only two acres remain of distinctive red pine plantations, likely because of the low suitability of the site for red pine. Initial integrated pest management (IPM) efforts were undertaken in Fall 2025 to remove invasive plants that had regenerated underneath the pine plantations. Smaller Scots pine and Norway Spruce plantations have been reintegrated into the naturally occurring cover type and are assumed to have been planted at the same time. These are contained in Stand 1 but were not captured in the inventory.

A management plan was written for Essex Woods in 2003 by Charles Simpson of Woodchuck Forestry Services. To the knowledge of the current land managers, the recommendations within that plan were not carried out. The purpose of this plan is to adapt those recommendations made in the previous plan where appropriate and resume active management of Essex Woods.

*Table 1. Map, lot, and unit identification of the nine parcels that make up Essex Woods in Bangor, ME, along with the dominant cover type and acreage of each.*

| Parcel Map, Lot & Unit | Cover Type | Total Acreage |
|---|---|---|
| R48-007 | Forest | 61.0 |
| R49-004 | Forest | 11.3 |
| R55-012 | Forested Wetland/Shrubland | 3.7 |
| R55-012-A | Open Wetland | 12.6 |
| R55-012-B | Forested Wetland/Shrubland | 13.7 |
| R55-012-C | Forest | 0.1 |
| R55-012-F | Forest | 0.8 |
| R56-002-D | Open Wetland | 5.0 |
| R56-002-E | Open Wetland/Forested Wetland/Shrubland | 5.4 |

# History

The indigenous people of what we now know as the Bangor area are the Penobscot. Their presence in the area is thought to date back at least 11,000 years. They heavily utilized the Penobscot River for travel and trade and referred to Bangor as *kkátaskkik* or later "Kenduskeag" by settlers. This means "at/on the water parsnip ground" (Francis, 2008). There is no documented history of the presence of the Penobscot people specifically in Essex Woods. European exploration of the Penobscot Valley began as early as 1524, and Samuel de Champlain arrived in 1605 (Fischer, 2008). Bangor was first settled in 1769 and called Kenduskeag Plantation. It was incorporated as the Town of Bangor in 1791. It is unknown if the name was derived from the Welsh term for "wattle enclosure" or the Irish term for "horned curve". In 1834 it was incorporated as the City of Bangor because of its rapid growth resulting from the log trade.

The earliest deed that could be found for this property was from June 30th, 1860. At that time, it was purchased by Patrick Wall of Bangor from Elisha H. Allen, also of Bangor. In this deed there is reference to the Holland Plan. This plan was made in 1801 by Park Holland and outlined the original subdivision for the City. At some point, the property was sold by Wall and foreclosed in 1862, but this deed of sale could not be found. It was purchased again in 1868 before being sold to Byron Roberts in 1876. It had five more owners until it was sold to the City of Bangor on April 7th, 1933, by Ray D. Strickland. This deed is included as *Appendix F*. Within these deeds there is record that at one time there was a homestead on the property, but it is unknown where this would have been located.

Essex Woods was the site of the City's landfill starting in the 1930s. In the 1970s the City converted the landfill into a slope, using approximately 15,000 yards of fill and the services of the Maine National Guard, per a letter sent in 1971 by Thaxter R. Trafton, former Parks & Recreation director for the City. This letter is included as *Appendix G*. In 1973 a ski lift was added, opened for use and operated for six seasons following. The PAL building was originally built as a ski lodge at the top of this hill (Burnham, 2023). In 1993 the areas near the upper parking lot were cleared of brush and replanted with a red pine plantation.



*Figure 1. A scan of the historical Holland Plan outlining the original parcels of Bangor. Scan acquired from the [Digital Maine Repository](#).*



*Figure 2. Photo of the initial clearing and planting of the red pine plantation at Essex Woods. Photo taken in the Summer of 1993. The photographer is unknown but assumed to be Rolland Perry, former City Forester.*



*Figure 3. Another angle of the red pine plantation at Essex Woods, taken in 1993.*



*Figure 4. Photo of the PAL Building (then Ski Lodge) being built at Essex Woods. Date of photo is unknown, and the photographer is unknown but assumed to be Rolland Perry.*

# Parcel Map

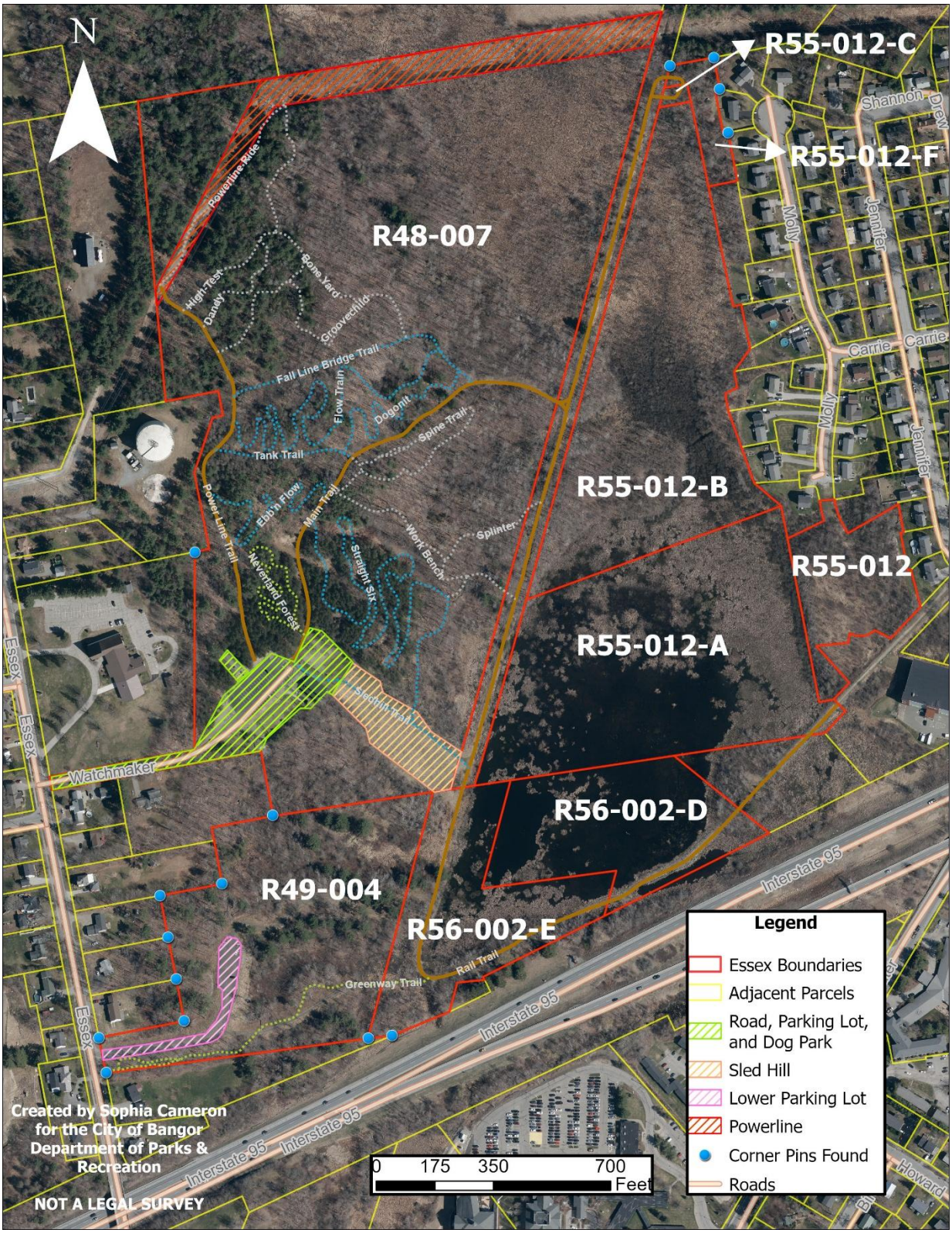



*Figure 5. Map of the nine parcels making up Essex Woods with adjacent landowners' parcels shown in yellow. Improved areas are also shown, and the locations where corner pins were found in winter 2026.*

# Boundary Lines

The condition of the boundary lines of each of these parcels is variable. External boundary lines (those abutting other landowners) were checked in the winter of 2026. The findings are shared by parcel below and visualized in Figure 5. It is recommended that all external boundary lines be surveyed eventually by a licensed surveyor and where blazing is not present new blazes be established. Where existing blazing is present it should be refreshed in the same color. All boundary lines on this property should be maintained on a five-year cycle. Boundary lines should be established and maintained to the standards of *Appendix E*. Monitoring for encroachment on a routine basis is recommended, especially along lines that fall within a 250-foot wetland buffer (R55-012, R55-012-A, R55-012-B, R55-012-C, and R55-012-F).

***R48-007 (61.0 acres)***—This is the largest parcel of Essex Woods. The southern boundary line abuts parcel R49-004, as well as two private landowners. For the portion abutting the larger of the two private residences, only one corner pin was located. The remainder of the line is indicated by the right-of-way of Watchmaker Street. The western boundary line abuts the First Methodist Church of Bangor, a Bangor Water District holding tank property, and a private residential property. Only one corner pin was located along this line, and while there was some old blazing, it appeared to be incomplete, specifically along the portions abutting the church and the holding tank facility. It was noted that a portion of a Penobscot Region New England Mountain Bike Association (PR NEMBA) trail crossed a blazed portion of this line and went on to private property near the holding tank. The northern boundary line abuts two private properties, one residential and one commercial. The status of this line is currently unknown but should be checked and blazed during other boundary line management. A large portion of it is indicated by the edge of a powerline right-of-way. The eastern boundary line is entirely made up of the rail trail. No blazes were found along this line either.

***R49-004 (11.3 acres)***—The southern boundary of this parcel abuts a single residential property. All corner pins indicating this line were found. The western boundary abuts several different residential properties. Five out of the eight corner pins that indicate this line were located and flagged with orange flagging. The northern boundary of this parcel abuts one residential property and R48-007. Only one pin was found to delineate this line. The eastern boundary is the western boundary of R56-002-E.

***R55-012 (3.7 acres)***—This parcel has a highly irregular shape and abuts private landowners on three sides. Two portions of the southern boundary line run parallel to the rail trail, but no corner pins or blazes were found. No corner pins were found along the highly irregular portion of this line either. The western boundary is made up entirely of R55-012-A. This line was not checked because of difficulty of access along the wetland edge. The northern boundary abuts two private residential properties. No corner pins or blazes were found along this line. The eastern line of this parcel abuts three private residential properties, and no corner pins or blazes were found along this line either.

***R55-012-A (12.6 acres)***—This parcel is entirely open wetland. Its southern boundary abuts a small piece of property owned by the Department of Transportation, as well as R56-002-D and R56-002-E. Its western boundary is the rail trail, but no corner pins were found along this stretch. The northern boundary is entirely the southern boundary of R55-012-B, and the status of this boundary is undetermined because of difficulty of access. The eastern boundary line abuts two private properties,

one commercial and one residential. Most of the eastern boundary, however, is the western boundary line of R55-012. No corner pins or blazes were found along this boundary line. Only accessible portions of this boundary line need to be blazed.

***R55-012-B (13.7 acres)***—This parcel is entirely forested wetland/shrubland. The southern boundary line is the northern boundary line of R55-012-A. This line is inaccessible because it goes through the wetland. The western line is the rail trail, and no corner pins or blazes were found along this line. The northern line is R55-012-C, no corner pins or blazes were found on this line either. The eastern boundary line abuts seven private residential properties as well as R55-012-F. No corner pins or blazes were found along this line. Only accessible portions of this boundary line need to be blazed.

***R55-012-C (0.1 acres)***—This is the smallest parcel making up Essex Woods. Its southern line is the northern line of R55-012-B, where no pins or blazes were found. The western line is the rail trail, and the northern and eastern lines are R55-012-F. No corner pins or blazes were found here either.

***R55-012-F (0.8 acres)***—The southern line of this parcel abuts one private property. The western line abuts R55-012-B, R55-012-C, and the rail trail. The northern line also abuts one private property and both corner pins for this line were found. The western line abuts four private residential properties, and someone has built a shed within the parcel. Three corner pins were found along the western line, and the northern-most private landowner on this line has established a false boundary approximately eight feet into the parcel. A surveyor should locate the remaining corner pins of this lot and blaze it.

***R56-002-D (5.0 acres)***—The southern boundary of this parcel is parallel to I-95. No discernable boundary markers were found along this line, though it is indicated by the I-95 corridor. The western line is the eastern line of R56-002-E and the northern line is the southern line of R55-012-A. These lines land in the middle of the open wetland, so no boundary markers were located. The eastern line abuts the Maine DOT parcel along I-95. No boundary indicators were located here either. It is recommended that eventually these lines be surveyed and marked, however it is not a priority at this time because no active management will occur within this parcel and there are no points of encroachment.

***R56-002-E (5.3 acres)***—The southern boundary of this parcel is also parallel to I-95, and no discernable boundary markers could be found here either. The western line is the eastern line of R49-004, and the northern line is the southern lines of R48-007 and R55-012-A. The eastern line is the western line of R56-002-D. No indicators were found on any of these lines. It is recommended that eventually these lines be surveyed and marked, however it is not a priority at this time because no active management will occur within this parcel and there are no points of encroachment.

# Access and Trails Map




*Figure 6. Map of Essex Woods' access points and trails.*

# Access and Trails

Essex Woods can be accessed via three routes into three of the different parcels. These are shown in Figure 6. The first and most easily accessible is via Watchmaker Street off Essex Street. Watchmaker Street is a paved road leading to a large, paved parking lot used by recreators. This provides direct access into lot R48-007 via two gravel access roads. These roads do not extend into any of the other lots. They could be connected for recreational access only by improving the Fall Line Bridge Trail, so that recreators could have a formal loop trail for walking, running, and less technical mountain biking.

The second access point is also off Essex Street via an improved access road. This leads into a gravel parking lot situated in lot R49-004. There are two maintained but unimproved trails off this parking lot, both of which tie into the rail trail.

The final access point leading directly into Essex Woods is off Molly Lane. This road is part of a larger residential development off Stillwater Ave. The access point here is unimproved but leads into lot R55-012 off Molly Lane. Because of the proximity of this access point to private, residential properties, it is not a preferred mode of access for management.

There is additional access via the rail trail at the corner of Jennifer Lane and Garden Way in the same development as Molly Lane. This trail passes through private property before entering lot R55-012-A. It quickly leads out of R55-012-A and enters a lot owned by the Maine Department of Transportation, before exiting this and entering lot R56-002-D. Because this trail goes through private properties, it is not a preferred mode of access for management. While it is an improved trail that is typically maintained by Parks & Recreation, portions that are not owned by the City should not be used for access with heavy equipment without express permission from the landowner.

There are many mountain biking trails throughout the property. These trails will likely change throughout the next ten-year management period as they are updated to suit the needs of Bangor's recreators. Further details regarding this can be found in *Appendix H.*

# Management Objectives

Upon this land, the landowner intends to:

***Provide safe recreational opportunities for the Citizens of Bangor.*** Managers will prioritize continued access to the trail systems for recreators, promote safety through the removal of hazardous trees along trails, and promote wildlife habitat for public enjoyment. Essex Woods has a community of visiting birders and is listed as one of the top 10 birding locations in Penobscot County, so promotion of diverse bird habitat is a priority.

***Protect local waters, cultural artifacts, and wildlife habitats.*** Managers will strive to create and/or maintain diverse habitats, with early to late successional forest conditions, varied forest structure, and unique nesting and feeding sites. Managers will identify and protect natural and cultural features of significance, including sites that support rare or unusual species, as well as cellar holes, stonewalls, etc.

***Improve tree quality and forest health.*** Managers will strive to regenerate and grow vigorous forests rich in high value tree species, improved tree quality, and with diverse age structures, to best appreciate, and defend against climate, insect, and disease concerns. To the extent possible, non-native trees, shrubs, and pests will be eradicated. This will require active management of the property.

***Demonstrate good forest management.*** Maine's Best Management Practices for erosion control and water quality protection will be followed during all phases of forest management and harvest operations.

***Provide educational opportunities.*** When possible, managers will interact with the public to provide educational and volunteer opportunities for diverse groups of Bangor's citizens and visitors focused on helping the public interact with nature and land management.

# Soil and Forest Resources

A large portion of the total Essex Woods acreage is classified as wetlands and was not included in the timber inventory because there will be no active management on these portions. The major soil in these areas is Swanville-Wonsqueak association with 0-3% slopes (38.5% of the total acreage or 41.2 acres). This soil type has a drainage class of poorly drained, and a parent material of fine-silty glaciomarine deposits. This aligns with the wetland cover type currently present. These soils are rated as poorly suited for harvesting equipment and log landings due to ponding and low strength of soils. This enforces the delicate nature of these soils and there should be absolutely no operations requiring machinery carried out on this soil type or within a specified buffer of these wetlands.

Other major soil components in Essex Woods include Elliotsville-Chesuncook association, 8-15% slopes (9.6% or 10.2 acres), Monson-Elliotsville-Abram complex, 15-30% slopes (30.0% or 32.1 acres), and Pushaw-Swanville complex, 0-8% slopes (14.4% or 15.4 acres). Minor soil components Chesuncook-Telos-Urban land association, 0-8% slopes (0.2% or 0.2 acres), Elliotsville-Chesuncook association, 3-8% slopes (0.9% or 1.0 acre), Monarda-Telos complex, 0-8% slopes (0.2% or 0.2 acres), and Pushaw-Swanville-Urban land association, 0-8% slopes (1.4% and 1.5 acres). Drainage classes range from poorly drained to excessively well-drained. Operability ranges from poorly suited to moderately well-suited.

Because there is such a wide range of soil types with variable operability requirements, operations should only be carried out in the winter when there is frozen ground to protect soil integrity. Essex Woods management will likely never require intensive operations, so utilizing smaller equipment will also help to preserve soils.

Much of the acreage of lot R48-007—the largest lot in Essex Woods and where most management will occur—is the Monson-Elliotsville-Abram complex soil type. This soil type is highly productive for Eastern white pine, with a site index of 69 and the potential to produce 129.00 cubic ft/acre/year of wood fiber volume. It is also productive for white spruce, American beech, balsam fir, paper birch, sugar maple, and yellow birch. Other large portions of R48-007 are Pushaw-Swanville complex, which is productive for balsam fir and red spruce. Telos-Chesuncook complex is present on R48-007 in a smaller percentage near the dog park and parking lot. This soil type is also highly productive for Eastern white pine.

Lot R49-004 is the other forested lot in Essex Woods, and the primary soil type in this lot is Elliotsville-Chesuncook association. Once again this is a highly productive soil for Eastern white pine. American beech, balsam fir, paper birch, white spruce, yellow birch, red maple, and sugar maple are also productive in these soils.

The full soils report, including a soil map, is included as *Appendix A*.

# Wildlife

Essex Woods is home to many species of wildlife. Deer can often be seen grazing along the trail edges and on the sliding hill. Grey squirrels are abundant because of the large population of oak and white pine providing sources of food. Frogs can be heard along the rail trail in the spring. Rabbit, mouse and fox tracks have also been seen on the sliding hill. The diversity of wildlife in Essex Woods is largely due to the wide variety of habitat types present. Open wetlands host different species than forested wetlands, and mature softwood forests host different species than mature hardwood forests. Caring for and maintaining each of these habitat types will continue to encourage this wildlife diversity for both the health of the ecosystem and the enjoyment of recreators. Consulting Maine Inland Fisheries & Wildlife (Maine IF&W), Maine Audubon, and other wildlife groups will help to address this goal.

***Deer***

White-tailed deer can be found throughout Essex Woods. The population that has been spotted there does not appear unhealthy, and it is likely that they use Stand 1 (mature softwoods) as deer wintering area. Large deer populations create difficulty for forest managers, because they browse on hardwood seedlings, reducing the overall amount of natural regeneration. While there are signs of deer browsing, there may be enough alternative food sources (grasses, acorns, etc.) to maintain the Essex Woods herd and prevent extensive damage to natural regeneration. This should continue to be monitored, and any planted trees should be equipped with tree tubes or cages. Managing the population through hunting is not a possibility here, because of the large number of recreators and proximity to people's homes. Should the population become out of control and greatly affect the tree species composition, Maine IF&W should be contacted to come up with alternative solutions.

***Beaver***

No beavers have been found in the Essex wetland, but they should be monitored for. Beavers are incredibly important species to ecosystems and have significant influence over water levels and habitat types. While they would be engaging for recreators, they may cause trail washout issues and flooding if they move into the Essex wetland. If this occurs Maine IF&W should be contacted to establish a plan of action for their relocation.

***Amphibians***

The habitat combinations of moist forest floors covered in organic material, and wetlands means that many amphibians call Essex Woods home. Spring peepers can specifically be heard in the wetlands along the rail trail. To maintain these amphibian populations, water quality of the wetland should be tested regularly, as amphibians are highly sensitive to chemicals because of the mucous membranes on their skin. Because of the proximity of the capped landfill, the outflow from the Bangor Water District Tower, and the presence of Voluntary Response Action Program soils underneath the lower parking lot, water quality is something to monitor diligently. More details on these elements can be found in the Other Considerations portion of this plan. It is also important that pesticides be used correctly and sparingly in Essex Woods to maintain water quality.

***Birds***

One of the primary goals of management on this property is to protect and promote habitat for the species of birds that are found in Essex Woods. There are several that are considered endangered, threatened, or of special concern that have been identified here by local birders and recorded using the mobile birding app, eBird. Table 2 shows a list of these species, their protection category, and their general preferred habitats. Some of these species are simply migrating through, while others are nesting and breeding here. The northern part of the property is also zoned as Upland Sandpiper and Sedge Wren habitat by Maine Inland Fisheries & Wildlife. These species have not been identified in Essex itself. For further details, see *Appendix B*.

Special concern, endangered, and threatened are all protection categories under the Maine Endangered Species Act. Endangered species are defined as those that are threatened with extinction throughout all or part of its native range. Threatened species are those that are likely to become endangered in the future. Species of special concern are those that don't meet the requirements of being considered endangered or threatened, but that are particularly vulnerable for various reasons.

*Table 2. List of endangered, protected, and special concern bird species that have been seen at Essex Woods and recorded using eBird. Includes scientific names, their protection category, whether they are likely nesting in the area or migrating through, and their preferred habitat types[1].*

| Common Name | Scientific Name | Protection Category | Nesting or Migratory? | Habitat |
|---|---|---|---|---|
| Least Bittern | *Ixobrychus exilis* | Endangered | Nesting | Freshwater & Brackish Wetlands |
| Black-crowned Night Heron | *Nycticorax nycticorax* | Endangered | Migratory | Wetlands |
| American Pipit | *Anthus rubescens* | Endangered | Migratory | Tundra |
| Blackpoll Warbler | *Setophaga striata* | Threatened | Migratory | Boreal Forest |
| Bank Swallow | *Riparia riparia* | Threatened | Nesting | Lakes & Ponds |
| Cliff Swallow | *Petrochelidon pyrrhonota* | Threatened | Nesting | Lakes & Ponds |
| Great Blue Heron | *Ardea herodias* | Special Concern | Nesting | Freshwater & Brackish Wetlands |
| Northern Harrier | *Circus cyaneus* | Special Concern | Nesting | Wetlands & Grasslands |
| Lesser Yellowlegs | *Tringa flavipes* | Special Concern | Migratory | Freshwater & Brackish Wetlands |
| Chimney Swift | *Chaetura pelagica* | Special Concern | Nesting | Urban & Suburban Areas |
| Olive-sided Flycatcher | *Contopus cooperi* | Special Concern | Nesting | Coniferous Forest Edges & Openings |
| Eastern Kingbird | *Tyrannus tyrannus* | Special Concern | Nesting | Forest Edges & Early Successional Forests |

[1] Information acquired from Cornell Lab of Ornithology All About Birds website.

| | | | | |
|---|---|---|---|---|
| Eastern Wood-pewee | *Contopus virens* | Special Concern | Nesting | Deciduous Forest Edges & Openings |
| Northern Rough-winged Swallow | *Stelgidopteryx serripennis* | Special Concern | Nesting | Rivers & Streams |
| Tree Swallow | *Tachycineta bicolor* | Special Concern | Nesting | Lakes & Ponds |
| Brown Thrasher | *Toxostoma rufum* | Special Concern | Nesting (scarce) | Scrubland/Shrubland |
| Bay-breasted Warbler | *Setophaga castanea* | Special Concern | Nesting | Mature Spruce/Fir Forests |
| Cape May Warbler | *Setophaga tigrina* | Special Concern | Nesting | Mature Spruce/Fir Forests |
| Canada Warbler | *Cardellina canadensis* | Special Concern | Nesting | Mixed Conifer & Deciduous Forests |
| Tennessee Warbler | *Leiothlypis peregrina* | Special Concern | Nesting | Boreal, Coniferous, or Mixed Coniferous & Deciduous Forests |
| Vesper Sparrow | *Pooecetes gramineus* | Special Concern | Nesting | Grasslands |
| American Kestrel | *Falco sparverius* | Special Concern | Nesting | Grasslands |
| Eastern Towhee | *Pipilo erythrophthalmus* | Special Concern | Nesting | Scrubland/Shrubland |
| Rusty Blackbird | *Euphagus carolinus* | Special Concern | Nesting | Forested Wetlands/Wooded Swamps |
| Eastern Meadowlark | *Sturnella magna* | Special Concern | Nesting | Grasslands |
| Bobolink | *Dolichonyx oryzivorous* | Special Concern | Nesting | Grasslands |

To maximize and improve existing bird habitat across Essex Woods, the Forestry Division and Parks & Recreation are working with Ag Allies, Maine IF&W, and Maine Audubon. Ag Allies is an organization through the Somerset County Soil & Water Conservation District that the City has worked with previously to improve grassland bird habitat in the City Forest. Part of this was taking Maine IF&W Songbird Specialist, Mackenzie Roeder, Ph.D., to Essex Woods. Her observations and recommendations are shared in *Appendix I*.

Since the sliding hill is adjacent to the open wetland it has been identified as good aerial insectivore (Swallows, etc.) habitat which should be maximized. The plan for how to do this is based off the recommendations made in *Appendix J*. The sliding hill has previously been planted with native herbaceous plants to promote insect habitat in partnership with Maine Audubon. It will continue to be monitored to determine if these plantings were successful, or if more planting will be needed. Widening the sled hill would also be advantageous to create more aerial insectivore habitat and reduce competition with other bird species. This could be accomplished simply by removing some of the boxelder and Norway maple growing along the edge.

Nesting boxes will help in promoting aerial insectivores as well. These should be placed both out in the open wetland as well as about 100 feet into the forested portions along the sliding hill. These boxes may be able to be supplied by Maine IF&W. Care should be taken to ensure nesting boxes are set away from trails, so they are not disturbed by recreators.

Dead wood is incredibly important for some bird species, so things like creating small slash piles off trails, leaving or creating non-hazardous snags, and leaving downed woody debris will help to improve habitat.

It is also the recommendation of Maine IF&W that leash ordinances in Essex Woods be put in place. This will protect ground nesting birds. This can be accomplished with a large public engagement and outreach approach and with signage. It may be beneficial to begin with interacting with the Essex Woods Dog Park stewards to get their input.

# Recreation

Essex Woods is highly frequented by recreationists of all kinds. It includes amenities such as dog parks, walking and running trails, mountain biking trails, a sliding hill, and ample opportunities for Bangor's citizens to engage with nature. An additional assessment of the condition of the mountain biking trails and trail management recommendations in Essex Woods was performed by Outdoor Sport Institute, and a summary of their findings has been included in this document as *Appendix H*. Managing for recreation is a primary goal of this plan. Many of the recommendations made to enhance recreation in the previous management plan for Essex Woods are still recommended here.



*Figure 7. The rail trail in winter. Footprints show that it is still highly trafficked throughout every season.*

### *Walking/Running Trails*

The integrity of the existing walking and running trails on this property should be maintained during any forest operations using heavy equipment when they will need to be used for access. This may require replacement of fill or culverts, erosion control, and run-off prevention. Frequent crossing of trails by equipment should be avoided whenever possible. Trails should be assessed for damage after they are used for management operations and their repairs prioritized.

Trails should be monitored on a yearly basis to identify hazardous trees within falling distance. The removal of hazard trees should be prioritized to ensure the safety of recreators.

Maintenance of the two improved trails in Essex Woods is shared by Public Works and Parks & Recreation. The rail bed trail has varied ownership. See the Other Considerations portion of this plan for further details. Recommendations for improved connectivity of the trails in Essex Woods to other public recreation trails across the city are made there as well.

### *Mountain Biking Trails*

Essex Woods has an existing network of mountain biking trails. Assessment and recommendations for these trails are provided in further detail in *Appendix H*. Because of the presence of a landfill, no excavation is permitted for the purpose of building trails on any part of the property contained within the site of the old landfill (see Figure 33). For more details, please see the Other Considerations portion of this plan.

These trails are primarily maintained by volunteers from the Penobscot Region New England Mountain Bike Association (PR NEMBA) in partnership with Parks & Recreation. It was noted in the previous management plan that there are concerns regarding erosion caused by using these trails. Erosion remediation should occur in areas where it is necessary, though this will likely be addressed by the trail work recommended in *Appendix H*.

There has been unauthorized trail work occurring in Essex Woods. This includes the cutting of blow downs across unmapped trails and has even led to the unauthorized excavation of the capped landfill on the property. This should be stopped immediately and enforced by park rangers whenever possible. It not only risks the safety of those doing the work, but also that of other recreators and land managers. Additionally, the creation of unauthorized trails damages important wildlife habitat. Any desire trails not mapped should be closed using logs, signage, and possibly replanting to prevent use. Signage at trailhead kiosks discouraging unauthorized trail creation may also be beneficial.

### *Dog Parks*

There are three fenced dog runs surrounding the upper parking lot of Essex Woods. These make up the Essex Woods Dog Park. There are trees within two of these fenced-in areas, and they should be regularly monitored for hazards to ensure the safety of dogs and their owners, and to protect the integrity of the fencing. There is no leash ordinance for Essex Woods currently. Signage should be posted, particularly around the dog park area, anytime management is occurring to encourage the leashing of dogs for their safety and the safety of operators. A leash ordinance should also be explored to protect and promote wildlife.

### *Sliding Hill*

In the southern portion of lot R48-007 there is a sliding hill. This hill leads from the dog park at the top, down to the rail trail and open wetland below. The hill is mowed only once a year to provide a small area of grassland habitat on the property in the hopes of enhancing bird habitat. Recommendations for improving this hill for pollinator and bird habitat can be found in the Wildlife section of this plan. Regulations around how this hill can be managed because it is a capped landfill can be found in *Appendix N* and is discussed in the Other Considerations portion of this plan.

### *Cross-country Skiing and Snowshoeing*



*Figure 8. The frozen, open wetland below the sliding hill at Essex Woods.*

Cross-country skiing and snowshoeing are very popular in Bangor's forested parks, and many snowshoeing and skiing tracks can be seen specifically along the rail trail on a snowy day. The sliding hill also creates a wonderful opportunity for cross-country skiers.

To maximize Essex Woods for winter recreationists, it is recommended that the improved trails be routinely groomed using a snowmobile and a tow-behind groomer/drag. This could be maintained either through volunteer efforts of local skiing/snowshoeing clubs or by City staff. A single track exclusively for cross-country skiers could also be added parallel to the existing improved trails to encourage use and

reduce frequent need for grooming. Organizations to reach out to for this effort could be the New England Nordic Ski Association (NENSA), the Caribou Bog Cross-country Skiers group, and the Penobscot Valley Ski Club (PVSC). Drags can be purchased new or used and are typically affordable. A snowmobile could be purchased as a shared asset between the Forestry Division and Parks & Recreation, since it could be used for other winter operations and management as well. This equipment could be housed in the garage next to the PAL building for ease of access.

***Birding***

Essex Woods is home to a wide array of bird species. For this reason, it has been identified by the Penobscot Valley Maine Audubon chapter as one of the best places to bird in the county. According to eBird, 200 species have been identified and recorded on the property. This includes several species considered to be Endangered, Threatened, or of Special Concern in the state of Maine. For more details on the species of birds and the habitats that support them, see the Wildlife section of this plan.

Parks & Recreation and the Forestry Division consulted with Bob Duchesne to learn more about the birding community in Essex Woods. Mr. Duchesne has played a large role in the birding community in Bangor as an author of a birding column for the Bangor Daily News, a guide for Maine birding, author of the Maine Birding Trail Guide, and as a board member for the Penobscot Valley Maine Audubon chapter. He often leads bird walks in Essex Woods and has been observing bird populations there year-to-year for decades. This makes him an excellent wealth of information for this property.

Mr. Duchesne did not recommend the addition of any structures to Essex Woods to improve bird watching. This is largely because it is a highly frequented area by recreators, and most of the birds there have adjusted to the presence of humans, so things like blinds are unnecessary. He encouraged the addition of a variety of bird boxes to improve the habitat of different species. This would include larger duck boxes for mergansers, and boxes to mimic cavities in trees in the wetlands. Additionally, during a site visit, he suggested that some cattails could be removed along certain portions of the rail trail, as they have grown too thick and block views of sora and Virginia rails that could previously be seen. He also supported the need for signage like what can be found along the Bog Boardwalk at the Rolland F. Perry City Forest, noting this would be particularly appropriate in this location because of the diversity of habitats.

During the completion of the previous management plan Jerry Longcore of the U.S. Geological Survey out of the Orono office was consulted to make recommendations regarding the management of the wetlands to enhance birding recreation through habitat improvement. This full report is included as *Appendix K*. His recommendations are reiterated in this plan. They are as follows:

1. *Removing trash, specifically along the wetland edge*—Because it was previously the City's landfill, old refuse is often unearthed through erosion and deposited at the bottom of the hill and along the wetland edge. Litter is also common because of high levels of recreation.
2. *Establish control of the water level*—Beavers are a significant influence on the water levels of most Maine wetlands, and while there are not any identified in Essex Woods at this time, their presence should be monitored for to explain changes in water level. There is a single storm drainage pipe leading out of R56-002-D from which this wetland drains into the Bangor storm sewer system. This pipe should be located and marked by Parks & Recreation to monitor

blockages and to be used to maintain or alter water levels of the wetland as needed to improve wildlife habitat.

3. *Establish a nest box program for cavity-nesting waterfowl*
4. *Establish a bluebird nest box program*
5. *Establish Canada Goose nesting platforms*
6. *Maintain American woodcock singing ground sites*
7. *Build an interpretive station*—There is an existing kiosk at the main parking lot of Essex Woods, and this would be an excellent place to start sharing information regarding the birding opportunities there. More kiosks could be erected along other trails to share this information as well, specifically at the trailheads off the lower parking lot.

Signage may be able to be provided through organizations like Maine Audubon, Maine IF&W, and Ag Allies. It would be particularly interesting to coordinate signage with each of the different habitat types across Essex Woods to educate about the species of birds found there. Signage could also promote the need for protected wetlands.

***Police Athletic League (PAL) Building***

PAL was founded in New York City in the 20th century. The chapter was established in Bangor in 1990 and relocated to the building at Essex Woods in 1999. Many events for youth were hosted here. Around 2010 the league stopped hosting events, and was officially disbanded in 2022 (Russell, 2022).

Since then, the building has been used intermittently by Parks & Recreation for various purposes, such as local band practices for the Maine Academy of Modern Music. The exterior of the building, especially the overhang structure off the back of the building, will require attention in the next few years if not sooner. This may be a considerable cost depending on the extent of the work. Quotes should be procured soon to determine if the repairs of this building are feasible through the Parks & Recreation budget. If not handled soon, it may become a public safety hazard because of its proximity to the dog parks and sliding hill.

An alternative solution is to seek out an organization that aligns with the goals for Essex Woods to lease or purchase only the PAL building and assume the costs of renovations and maintenance. This could be nature organizations, recreation organizations, or others. If this route is taken, the organization that assumes occupancy of the PAL building should endeavor to benefit the citizens of Bangor.

***Off-Highway Vehicles (OHVs)***

OHVs are not permitted in Essex Woods or any other City-owned property for the purpose of recreation without express permission from the Department of Parks & Recreation. At Essex Woods, the nonprofit organization, Paul Bunyan Snowmobile Club, has a yearly agreement with Parks & Recreation to utilize the Railbed Trail to access their other trails throughout the City.

***Hunting***

Hunting is not permitted on any City-owned property.

# Forest Health

***Invasive Plants***

One of the primary concerns for forest health in Essex Woods is the population of invasive plants present. Invasive plants are very aggressive in how they grow, taking resources from native vegetation and reducing overall biodiversity. They can also directly impact wildlife habitats and food sources. They are often introduced into an area through ornamental plantings by property owners and then spread uncontrollably through a variety of ways. They are most commonly introduced as seeds in fill taken from an area where there is a population of invasive plants. Both methods of introduction are difficult to regulate and control. Public education regarding invasive plants can help to prevent homeowners from planting them, and making best efforts to purchase and use only "clean" fill can prevent introduction of seeds. The invasive species seen in Essex Woods are as follows:

- Japanese knotweed (*Fallopia japonica*)
- Asiatic bittersweet (*Celastrus orbiculatus*)
- Glossy buckthorn (*Frangula alnus*)
- Common buckthorn (*Rhamnus cathartica*)
- Multiflora rose (*Rosa multiflora*)
- Black locust (*Robinia pseudoacacia*)
- Norway maple (*Acer plantanoides*)
- Japanese barberry (*Berberis thumbergii*)
- Ornamental grapevine (*Vitis vinifera*)
- Japanese honeysuckle (*Lonicera japonica*)
- Garlic mustard (*Alliaria petiolata*)

Norway maple is an invasive species of specific concern here. Across the whole property, Norway maple seedlings are regenerating and there has been little to no work done to control the continued spread of seed from the mature trees. In several of the forest stands it appears that Norway maple seedlings are succeeding over native tree species regeneration.

There is also a large "stand" of Japanese knotweed between Stands 3 and 4. Japanese knotweed is particularly difficult to control because of its root structure or rhizomes. These roots spread laterally and new stems can sprout from these. This means that if you just cut the stems, they will resprout from the roots very quickly. This also means that if the roots are not fully removed from the soil there is always a chance it will sprout again. Herbicides and repeated and regular cutting are effective methods of controlling Japanese knotweed. The first round of cutting occurred in spring 2026, and the old stalks were mowed down. The mower must be sterilized after each mowing so as to not spread seed.



*Figure 9. A "stand" of Japanese knotweed underneath the red pine plantation in Essex Woods between Stands 3 and 4.*

### *Invasive Insects and Pathogens*

Like invasive plants, invasive insects and pathogens are non-native species that were unintentionally introduced to North America. Because of their lack of predators or other biotic controls here, their populations grow unchecked, often causing significant damage to forested ecosystems.

Many of these are species specific, for example, Emerald Ash Borer (EAB) only feed on ash tree species and Hemlock Woolly Adelgid (HWA) only feed on hemlock species. This means that knowing the tree species in the forests being managed is incredibly important to determine how the ecosystem may be impacted in the future and what to monitor for. In Essex, the invasive insects and pathogens of greatest concern are:

- Beech bark disease (BBD)
- Beech leaf disease (BLD)
- Red pine scale (RPS)
- Hemlock woolly adelgid (HWA)



*Figure 10. Beech leaf disease (BLD) banding on an American beech tree. Image retrieved from the New York State Department of Environmental Conservation.*

BBD and BLD are a concern in Essex Woods because of the gaps in the canopy that will be left by their resulting mortality, as both only affect beech species. BBD is caused by a scale insect that then spreads a fungus, creating cankers along the typically smooth bark of American beech trees. Beech trees can continue to survive with BBD for a long time; however, it does create points of entry for other pathogens that can lead to mortality. BLD is caused by a nematode (microscope worm) that lives and feeds inside the leaves and buds of beech trees. Their feeding creates cellular damage that causes the papery leaves to become leathery and dark with banding. This reduces photosynthesis year after year, eventually killing the tree. Currently, there are no viable treatment options for either BBD or BLD in a forest setting. Unfortunately, this means that there will likely be decline and eventual mortality of American beech in Essex Woods.

RPS is also of great concern in Essex Woods because of the red pine plantation in Stand 4. RPS has been found in neighboring Washington County and is anticipated to spread to Penobscot County. How to manage RPS on this property is addressed in further detail in the Red Pine Scale Response Plan for the City of Bangor (2026). The infestation of the red pine plantation by RPS would create a significant public safety hazard but would also open the forest floor to sunlight that would likely lead to the enhanced growth of the invasive plant species already found below. RPS has not yet been detected in Bangor but monitoring efforts in partnership with the Maine Forest Service are ongoing.

There is a population of Eastern hemlock in Essex Woods, mostly in the Northwestern corner of the property. At the time of the inventory, they all seemed to be in good health. Hemlock woolly adelgid (HWA) is a concern on this property because of these trees. HWA is an insect that infests hemlock trees by attaching to the underside of their needles and feeding on the nutrients that should be used for

photosynthesis. While it may take a while, large enough infestations will kill a tree. HWA was not detected during the inventory but should continue to be monitored for.



*Figure 11. Hemlock woolly adelgid (HWA) egg sacs on the underside of Eastern hemlock needles. Image retrieved from Wikipedia.*



*Figure 12. Red pine scale (RPS) insects on the branch of a red pine tree. Image retrieved from the National Park Service.*

Public education around wood quarantines and invasive pests and pathogens should be prioritized to prevent future spread into Prentiss Woods and protect other forested properties across Bangor.

***Erosion***

Erosion is also of concern in Essex Woods. Because of the sloping nature of the property, its use for mountain biking, and the previous use of certain areas as a landfill there are high levels of erosion in some places. It was also observed that there is a high level of erosion caused by the outflow drainage of the Bangor Water District water tower found at the top of the hill. This is addressed further in the Other Considerations section of this plan. Erosion was noted as a concern in the previous management plan for Essex as well.

CITY OF BANGOR

# Stand and Cover Type Map

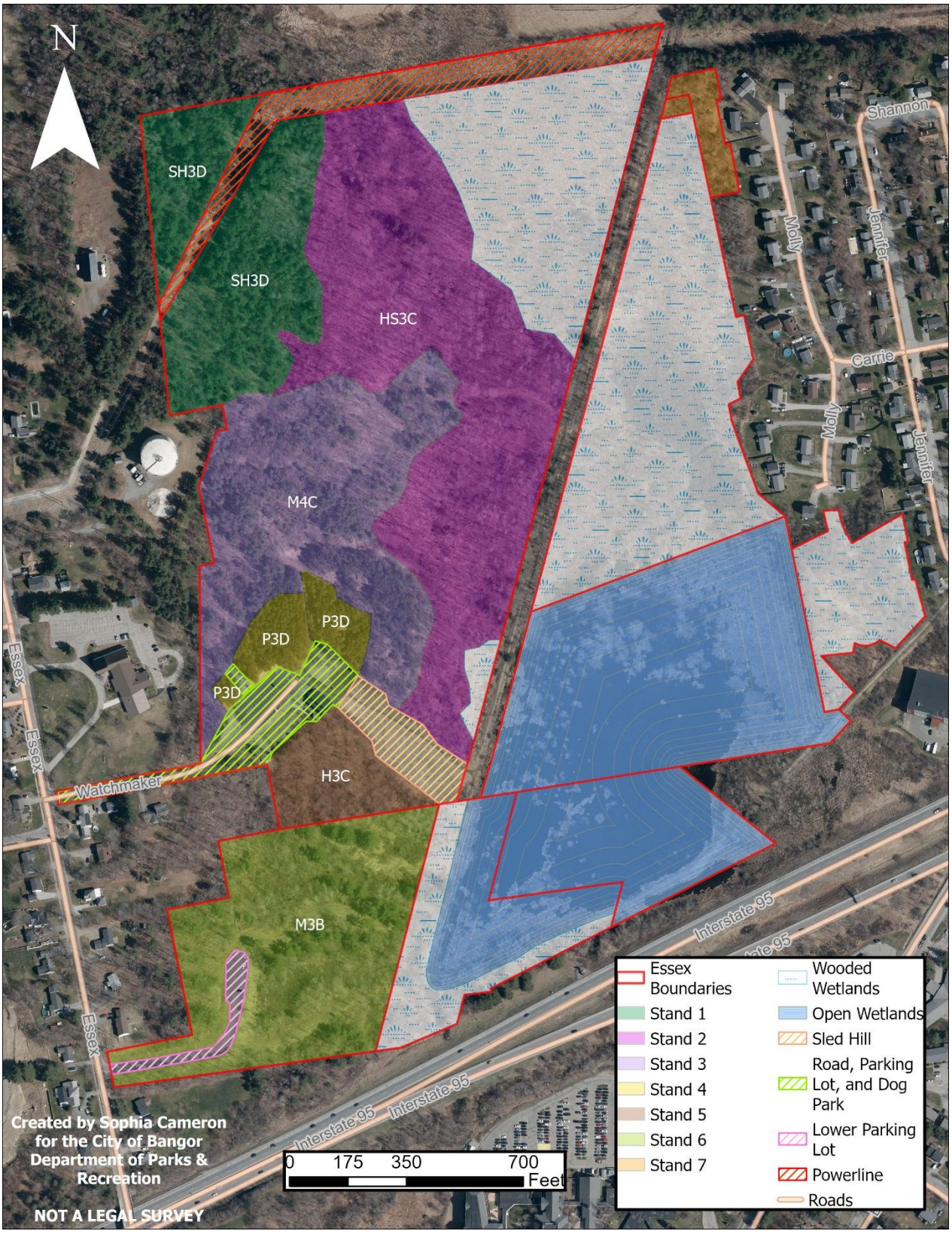



*Figure 13. Stand and cover type map of Essex Woods.*

# Stand Descriptions

*Table 3. Stand typing of each delineated, forested stand in Essex Wood with their respective acreages. Refer to the stand typing scheme found in Table 3 for an explanation of stand types.*

| Stand ID | Stand Type | Stand Size (Acres) |
|---|---|---|
| Stand 1 | SH4D | 8.6 |
| Stand 2 | HS3C | 17.0 |
| Stand 3 | M4C | 11.2 |
| Stand 4 | P3D | 1.9 |
| Stand 5 | H4C | 2.4 |
| Stand 6 | M4D | 10.5 |
| Stand 7[2] | H3C | 0.9 |

*Table 4. Stand typing scheme.*

| Dominant and Codominant Tree Type | Average Diameter Class | Crown Closure |
|---|---|---|
| H- Hardwood | 1- Sapling (0-4 inches DBH) | A- 0-25% |
| S- Softwood | 2- Pole (4-6 inches DBH) | B- 25-50% |
| SH- Mix of hardwood and softwood, but majority softwood | 3- Pulp (6-10 inches DBH) | C- 50-75% |
| HS- Mix of hardwood and softwood, but majority hardwood | 4- Saw (10+ inches DBH) | D- 75-100% |
| M- Even mix of hardwood and softwood | | |

***Stand 1 (SH3D)—Softwood dominant pulpwood and sawlogs, 8.6 acres***

This stand is dominated by mature Eastern white pine and Eastern hemlock. White pine is 40.5% of the species composition and makes up 66.1% of the basal area in the stand. The average diameter of white pine in this stand is 17.9 inches at breast height, and the average height is 77 feet. Hemlock is the second most abundant species and makes up 21.6% of the species composition and 22.1% of the basal area. It has an average diameter of 14 inches, and an average height of 82 feet.

Paper birch, red oak, and white cedar are also present in the stand, but at lower percentages. Cedar makes up 18.9% of the species composition, but only 3.9% of the basal area in the stand and has an average diameter of 6.5 inches. Red oak is 13.5% of the species composition, 5.5% of the basal area, and has an average diameter of 8.8 inches. Paper birch was 2.7% of the species composition, 1.7% of the basal area, and had an average diameter of 11.3 inches.

Norway maple—an invasive tree species—was also captured in this stand during the inventory. It was 2.7% of the species composition and only 0.8% of the basal area. While this is a very low percentage,

[2] Stand 7 is included here because it is classified as forestland, however it was not inventoried because of its very small size and poor accessibility, so it will never be harvested.

Norway maples are prolific seeders at maturity and outcompete native maple species such as sugar maple. The average diameter at breast height for Norway maples in this stand was 7.8 inches, which is the size of a mature, seed-producing tree. Because of their currently low percentage in this stand, it is important to consider how management may impact their populations in the future.

Because of the high levels of shade produced by the dominant white pine and hemlocks, there is currently limited regeneration in the understory. Some hemlock, balsam fir, white pine, and cedar were regenerating, along with hardwood species like birch on the stand edges where there is more sun. However, this has also worked in our favor, as we believe it has controlled the invasive plant species populations in this stand. Invasives that are heavily present in other parts of the forest were not found here, such as glossy and common buckthorn and black locust. This may also explain why the Norway maple population has remained low compared to the rest of the forest. These invasive species should continue to be monitored within this stand going forward.

There was some single-tree mortality in this stand, but nothing indicative of a large-scale insect infestation or disease presence. Since there is a dominant population of hemlock, hemlock wooly adelgid should be monitored regularly. Some of the white pine appeared to have old weevil damage, but there seems to be high enough levels of shade that this may not be an issue for future white pine regeneration.

*Table 5. Summary values for Stand 1.*

| SH3D | | |
|---|---|---|
| Basal Area (Ft 2) | Trees Per Acre | QMD (in.) |
| 123.3 | 241.4 | 9.7 |

**Stand Management Recommendations:**

Some parts of this stand are beginning to exhibit features characteristic of old growth, though the specific previous use history is unknown, as is the number of years since the last harvest here. For this reason, and because of the lack of accessibility, it is recommended that this stand be allowed to continue to grow without a harvest. Specifically, no new mountain biking trails should be constructed in the northwestern corner of the property across the powerline trail, to allow for an area of the park that is undisturbed for wildlife habitat. There could be periodic interventions to attempt to fully remove any invasive plants from this stand, and regular monitoring for hemlock woolly adelgid as well as other pests and diseases. To improve tree species diversity—thus improving forest health—tree species appropriate to the soil type in this stand could be planted in existing gaps from areas of blowdown. Refer to the soils report in *Appendix A* for species that would be suitable for planting.



*Figure 14. An overstory of white pine and hemlock with limited natural regeneration and a more complex horizontal structure in Stand 1.*

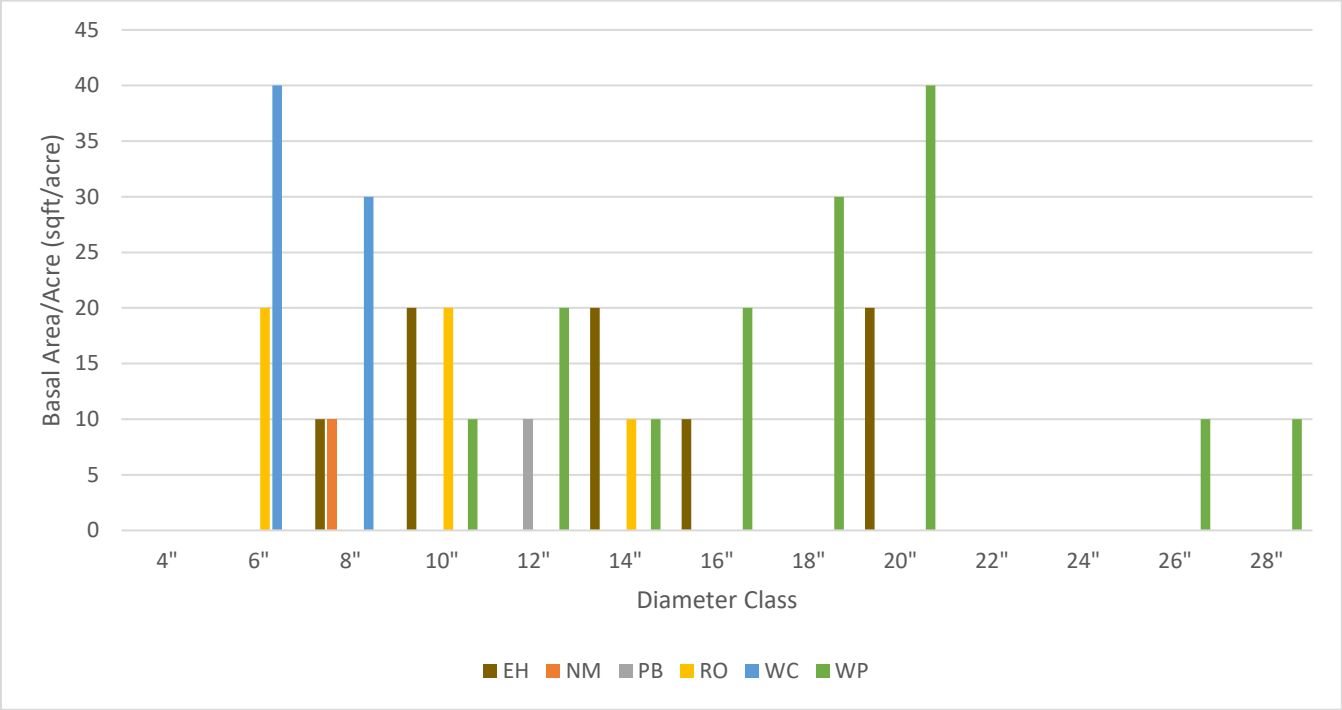



*Figure 15. Diameter distribution of basal area per acre by species[3] for Stand 1.*

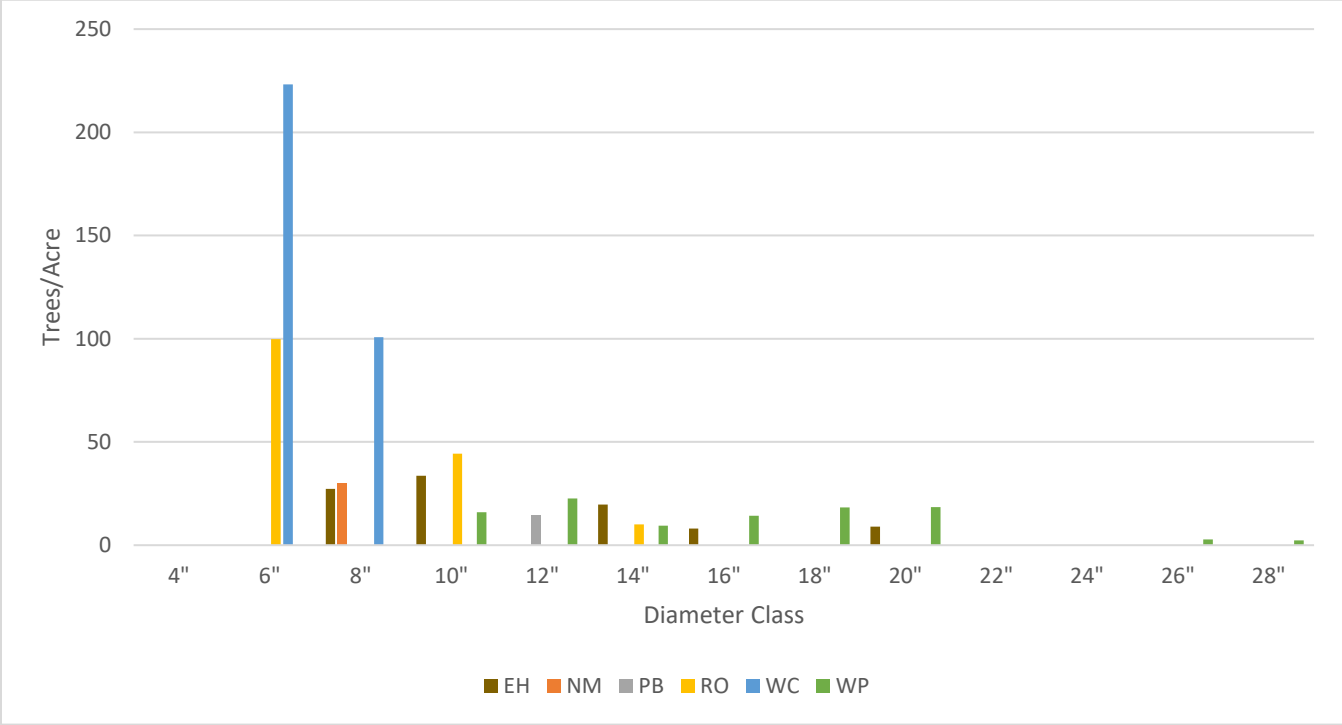



*Figure 16. Diameter distribution of trees per acre by species for Stand 1.*

[3] Species codes can be found in *Appendix I.*

***Stand 2 (HS3C)—Hardwood dominant pulpwood and sawlogs, 17.0 acres***

This stand is largely populated with hardwood species with a small percentage of Eastern white pine. Quaking aspen is the highest percentage of the species composition at 29.8%, and a basal area percentage of 20.8%. Bigtooth aspen is also present on the stand and has a species composition of 16.7% and a basal area composition of 24.1%. Bigtooth aspen has a larger average diameter at breast height (14.2 inches) than quaking aspen (9.7 inches), which accounts for the difference in basal area percentages. Quaking aspen has an average height of 63 feet, and bigtooth aspen has an average height of 83 feet. Red maple is 13.1% of the species composition and 5.1% of the basal area. Its average diameter at breast height is 7.1 inches and its average height is 34 feet. Most of these red maples are stump sprouts from previous harvesting.

10.7% of the species composition and 4.7% of the basal area is categorized as other hardwoods. These are non-timber species of hardwood, and in this stand it is boxelder, black locust, and previously cultivated apple trees. Boxelders have erratic growth forms, and are an aggressive, native tree species. They often colonize cleared areas and are prone to storm damage. Black locust is an invasive tree species in Maine and is not desired on this property.

Red oak makes up only 9.5% of the species composition but is 21.7% of the basal area. The average diameter at breast height is 17.5 inches and the average height is 61 feet. Sugar maple, white ash, white pine, grey birch, paper birch, and American beech are all present in the stand but at low percentages. Beech is 6% of the species composition and 2.3% of the basal area of this stand. While this is only a small part of the stand, it is important to continue monitoring them for decline.

Both beech bark disease and beech leaf disease were found on this property, and the inevitable mortality of all beech in Essex Woods should be planned for. This may create large gaps in the canopy which could promote colonization by invasive plant species present on the landscape. It may also contribute to excessive beech root sprouting, which could outcompete regeneration that will be more successful into the future. Signs or symptoms of emerald ash borer were not seen in the white ash in this stand. There was no evidence of other pests of diseases within this stand at the time of inventory. Japanese knotweed, honeysuckle, glossy and common buckthorn, and black locust were all found in this stand.

There was some beech regeneration, but not enough at the time of the inventory to be of concern. Quaking and bigtooth aspen were both regenerating, likely from root sprouts as opposed to seed, as it was localized to the existing mature groups of the parent species. Other hardwood regeneration was limited, likely due to deer browsing.

The leading concern in this stand is the over-maturity of both aspen species. Aspen is short-lived and grows quickly. Because of their ability to produce clones from root sprouts, mortality often occurs *en masse.* In this scenario, this would leave very large gaps in the canopy, which would likely be quickly colonized by invasive plants.

The southern portion of this stand was once a part of the City landfill. This has led to significant erosion on the slopes. See Figure 29 to visualize the location of the landfill in this stand.

*Table 6. Summary values for Stand 2.*

| HS3C | | |
|---|---|---|
| Basal Area (Ft 2) | Trees Per Acre | QMD (in.) |
| 93.3 | 236.6 | 8.6 |

**Stand Management Recommendations:**

The primary goal for this stand is to reduce the invasive plant species population. Integrated pest management should be used to manage honeysuckle, black locust, Norway maple (if found), Japanese knotweed, and buckthorn. This will likely require the use of herbicides. The use of this stand for recreation and the proximity to wetlands should be considered when applying chemicals. Brush from this management should be chipped and removed from the stand to reduce possible seed sources. Monitoring for widescale mortality of beech and aspen could also occur periodically, especially to ensure trees are not hazardous to recreators or damaging to trails. Mortality without extensive management will eventually create a more diverse horizontal structure in this stand, which will be beneficial for wildlife. Erosion should continue to be monitored on the slopes where the landfill once was, and areas that fall within this area should be managed in accordance with the regulations outlined in *Appendix N*. Primarily, these areas should be cleared and maintained as grassland to reduce erosion potential. Existing erosion should be remediated following DEP standards.



*Figure 17. An overstory of aspen with an understory of invasive plant species and regenerating aspen and beech in Stand 2.*

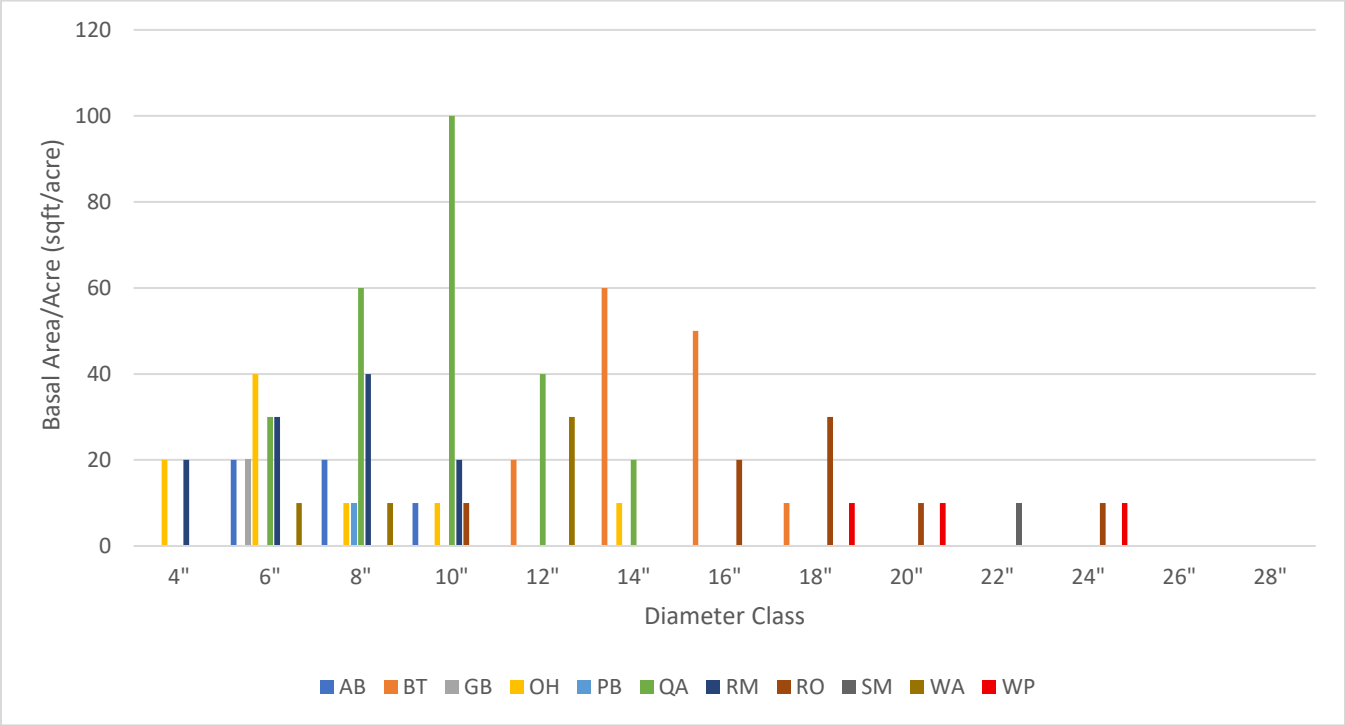



*Figure 18. Diameter distribution of basal area per acre by species for Stand 2.*

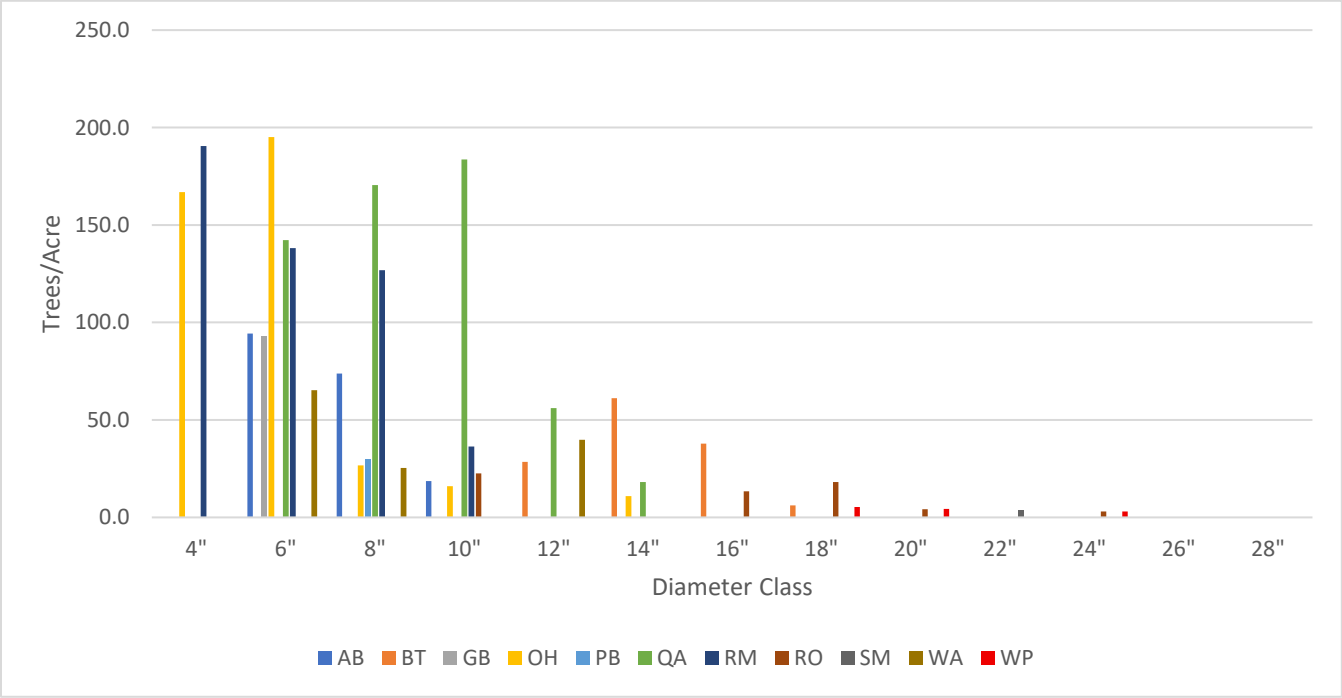



*Figure 19. Diameter distributions of trees per acre by species for Stand 2.*

***Stand 3 (M4C)—Mixed wood sawlogs, 11.2 acres***

Red oak and white pine are the dominant trees in this stand. Red oak is 48.9% of the species composition and 42.1% of the basal area. These are primarily sawlog sized trees with an average diameter at breast height of 12.8 inches and an average height of 45 feet. White pine follows at 31.1% of the species composition of this stand and 53.5% of the basal area. This higher basal area is because the pine is larger than the oak, and it has an average mean diameter of 17.8 inches and average height of 50 feet.

Norway maple is the third most common tree in this stand and is 15.6% of the species composition and 3.9% of the basal area. These percentages show that Norway maple is succeeding under the mature oak and pine, instead of native species. Paper birch and black cherry were also captured in the inventory of this stand. There are two small plantations in this stand that were not captured on the inventory; one is Norway spruce and the other is Scots pine. Neither is native to the U.S. but appear to be in good health. There is a lack of tree species diversity in this stand.

Browntail moths (BTM) have previously been an issue in this stand because of the high percentage of oak, which is a preferred host tree. BTM is an invasive species of lepidoptera that can cause extensive defoliation, and if there is repeated defoliation year after year, possible tree mortality. During the inventory it was noted that there was some canopy dieback, likely related to BTM, but nothing extensive or concerning at that time. The greater concern with BTM is the hazard it poses to recreators, especially along trails. The caterpillars of BTM have toxic hairs that cause skin irritation, and if inhaled can cause breathing problems and inflammation. These hairs often fall to the ground and can land on people walking below.

Most of the mature white pine show signs of previous weevil damage, so although their basal area within this stand is high, very few would be considered sawlog quality. They do, however, serve as excellent wildlife and bird habitat, and their cones are an excellent food source for grey and red squirrels.

Regeneration in this stand is primarily red oak and white pine, indicating that it is a good site for both. The midstory is largely Norway maple, likely because of the access to alternative food sources (in this case, acorns) there is limited deer browse of regeneration. There is currently adequate regeneration within this stand.

This stand is a highly focal area, because of the two main trails that go through it. It should be ensured that the highest standards of forest management are upheld in this stand. A small portion of this stand is identified as having once been part of the landfill, as shown in Figure 29.

*Table 7. Summary values for Stand 3.*

| M4C | | |
|---|---|---|
| Basal Area (Ft 2) | Trees Per Acre | QMD (in.) |
| 75.0 | 193.3 | 10.2 |

**Stand Management Recommendations:**

Managing the invasive plant component—primarily Norway maple— is the priority in this stand. In doing so, aesthetic quality of the forest and safety of recreators is of the utmost importance. Trails

should be fully closed, and signs posted during management that requires machinery. Brush should be chipped and removed from the stand to reduce possible seed sources. Species diversity could be improved through planting of tree species appropriate for the soil type and light conditions. Refer to the soil report in *Appendix A* to identify appropriate species for planting. This could also include planting native shrub species to create bird habitat and provide additional food sources in this stand. Protection of planted and natural regeneration to prevent deer browsing may be required. Because of the high recreational use within this stand, snag creation is not recommended. Branches of oak trees that overhang trails should be routinely pruned to prevent the falling of toxic BTM hairs onto recreators below. The portion of this stand that is classified as part of the capped landfill should be fully cleared and maintained as grassland per the regulations in *Appendix N*.



*Figure 20. White pine and red oak in the overstory with Norway maple in the midstory and red oak regeneration in the understory in Stand 3.*

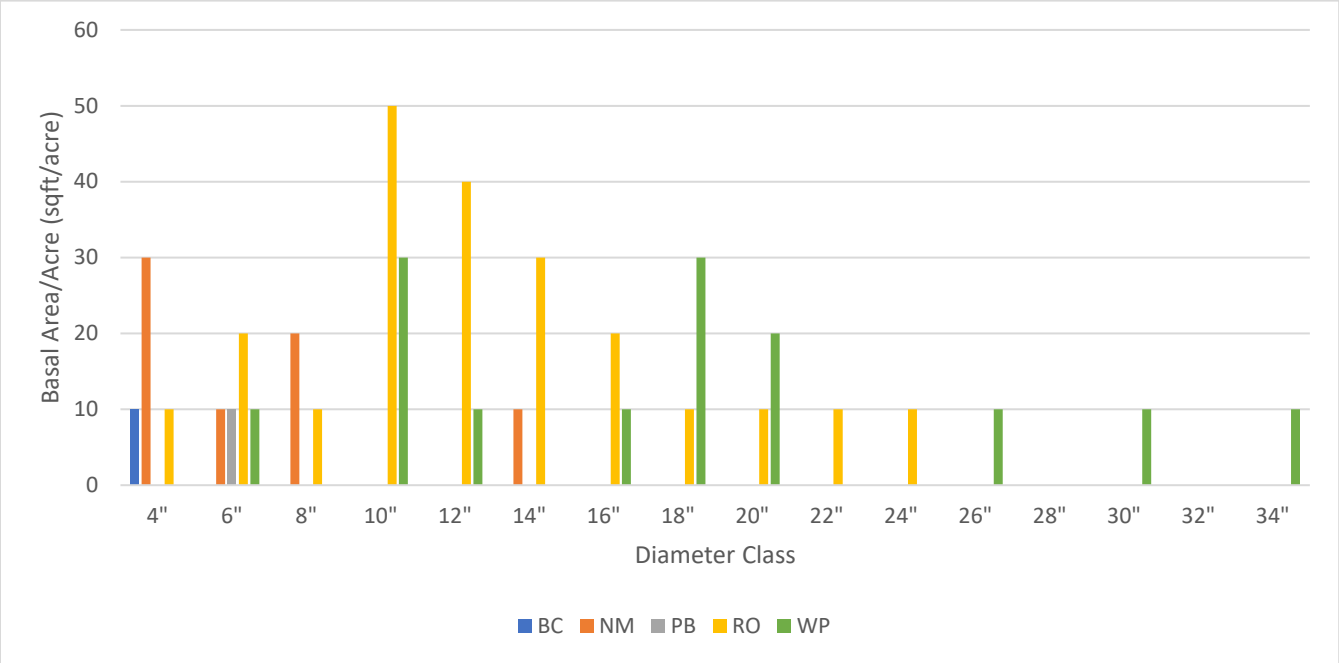



*Figure 21. Diameter distribution of basal area per acre by species for Stand 3.*

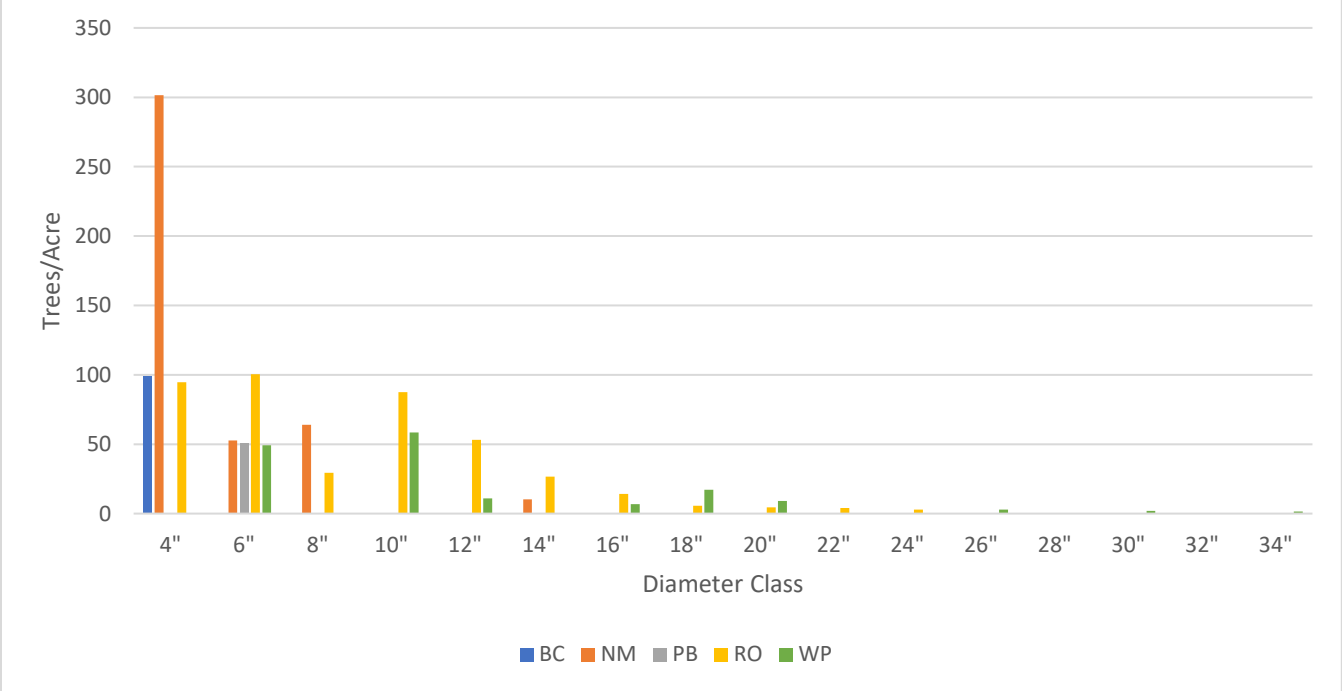



*Figure 22. Diameter distribution of trees per acre by species for Stand 3.*

***Stand 4 (P3D)—Red and Jack Pine pulp plantation, 1.9 acres***

Stand 4 is a plantation of both red and Jack pine. These trees were planted in 1993 by the City Forester at the time, Rolland Perry. 91.9% of the species composition of this stand is red pine, and 5.4% is Jack pine. Red pine makes up 96.3% of the basal area and Jack pine is 2.4%. The remaining 2.7% of the species composition is other hardwoods, primarily boxelder. The average diameter at breast height for red pine in this stand is 8.4 inches, and the average height is 35 feet.

The low height for age of the red pine indicates that this is not a good site for this species. This, along with the approaching threat of red pine scale (RPS), provides rationale for fully removing red pine from this stand and allowing it to convert back to naturally regenerating forest.

The understory of this stand is a mix of naturally regenerating tree species and invasive plants. Glossy and common buckthorn and Norway maple are the biggest problems here, but black locust, multiflora rose, Japanese barberry, grape vines, and bittersweet vines are also present. Red oak, white pine, and black cherry are readily regenerating. There are some sections of the stand where staghorn sumac colonies have also established themselves.

*Table 8. Summary values for Stand 4.*

| P3D | | |
|---|---|---|
| Basal Area (Ft 2) | Trees Per Acre | QMD (in.) |
| 123.3 | 370.9 | 7.9 |

**Stand Management Recommendations:**

An initial mechanical removal of invasive plants was performed in the Fall of 2025, and all species of invasive plant were removed from approximately 50% of this stand. Native species regeneration was flagged and retained. A follow-up in the Summer of 2026 is planned to do a stump application of herbicide to prevent resprouting of what was removed. Monitoring for regrowth will continue over the summer, and in the Fall of 2026 the remaining invasives will be mechanically removed. All harvesting of red pine must be performed in the winter. An initial pre-commercial thinning of poorly formed or unsuccessful stems is recommended to allow the more successful trees to maximize their growth. Once RPS is detected in Bangor, the remaining red pine will be harvested. Depending on markets this harvest may be merchantable. All management should be performed using low-impact equipment because of the proximity to the dog parks and parking area. Replanting with appropriate tree species for the site may be necessary in areas where natural regeneration is not adequate. Refer to the City's Red Pine Scale Response Plan for further details.



*Figure 23. Red pine plantation with the invasive species understory removed and desirable native regeneration flagged in various colors in Stand 4.*

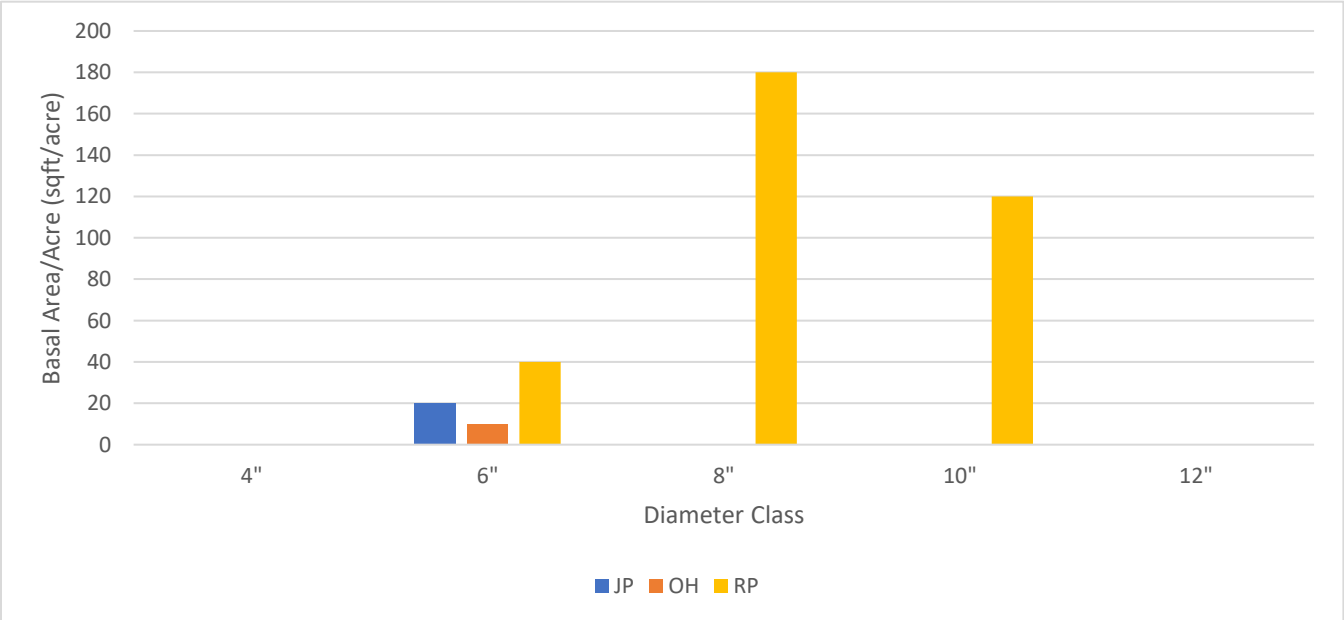



*Figure 24. Diameter distribution of basal area per acre by species for Stand 4.*

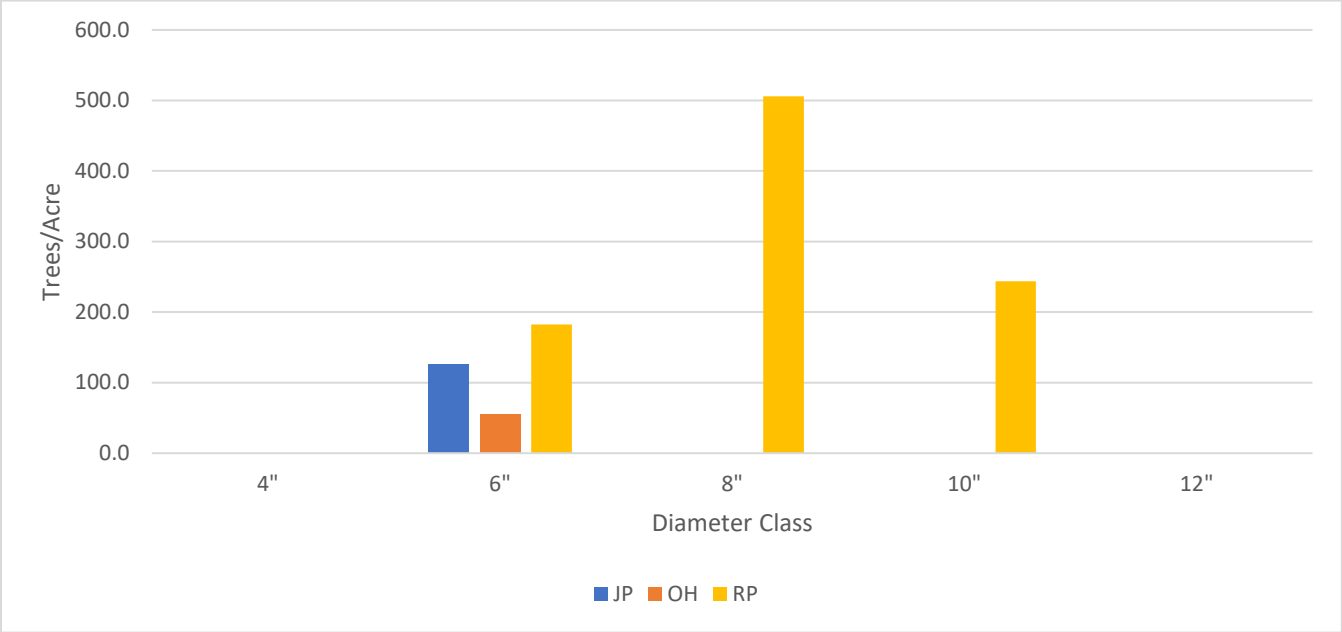



*Figure 25. Diameter distribution of trees per acre by species for Stand 4.*

***Stand 5 (H3C)—Norway maple, boxelder, and black locust, 2.4 acres***

60% of the species composition of this stand is categorized as other hardwoods—specifically boxelder and black locust. This is 83.9% of the basal area of the stand. 35% of the species composition is Norway maples, and they make up 14.2% of the basal area. There are very few desirable species in this stand. Along the edge of the stand at the top of the hill there is a handful of red pine that were likely planted when the plantations were. These make up about 5% of the species composition of the stand and 1.9% of the basal area.

The western portion of stand 5 was once a part of the landfill. This is evident due to the presence of trash emerging from the ground across it, and the steep pitch of the slope. It has been colonized by invasive and aggressive native tree species. Per the Maine Department of Environmental Protection, trees are not permitted to grow on capped landfills such as this. This is because trees can easily blow over and expose waste and can lead to water infiltration. Instead, they should be seeded with native herbaceous plants and mowed, as is done with the sliding hill already. More details regarding DEP regulations for capped landfills can be found as *Appendix N*.

Most of the regeneration in this stand is the same as the mature species, with a skew towards Norway maple seedlings. There is very little natural regeneration of native species.

One large elm can be found on the edge of this stand next to the PAL building. It is clearly infected with Dutch elm disease, and declining.

*Table 9. Summary values for Stand 5.*

| H3C | | |
|---|---|---|
| Basal Area (Ft 2) | Trees Per Acre | QMD (in.) |
| 100.0 | 242.3 | 8.7 |

**Stand Management Recommendations:**

The red pine in this stand should be managed in alignment with the management of the red pine plantations in Stand 4. All management on this stand performed within portions that are a part of the capped landfill should follow the appropriate DEP regulations in *Appendix N*. Complete removal of all tree species within these areas and replanting with native herbaceous species would improve erosion control and prevent the exposure of waste when trees inevitably blow over. This could be managed for insect habitat in the same way that the sliding hill will be managed and could provide for increased habitat for certain bird species. This would also greatly reduce the seed source for invasive tree species present in this stand and keep them from spreading to the rest of the forest. Further removals of invasive tree species in other parts of this stand could create valuable early successional habitat for bird species.



*Figure 26. Norway maple, boxelder, and black locust in the overstory with Norway maples and other invasive species growing in the understory in Stand 5. Image taken from the top of the hill.*

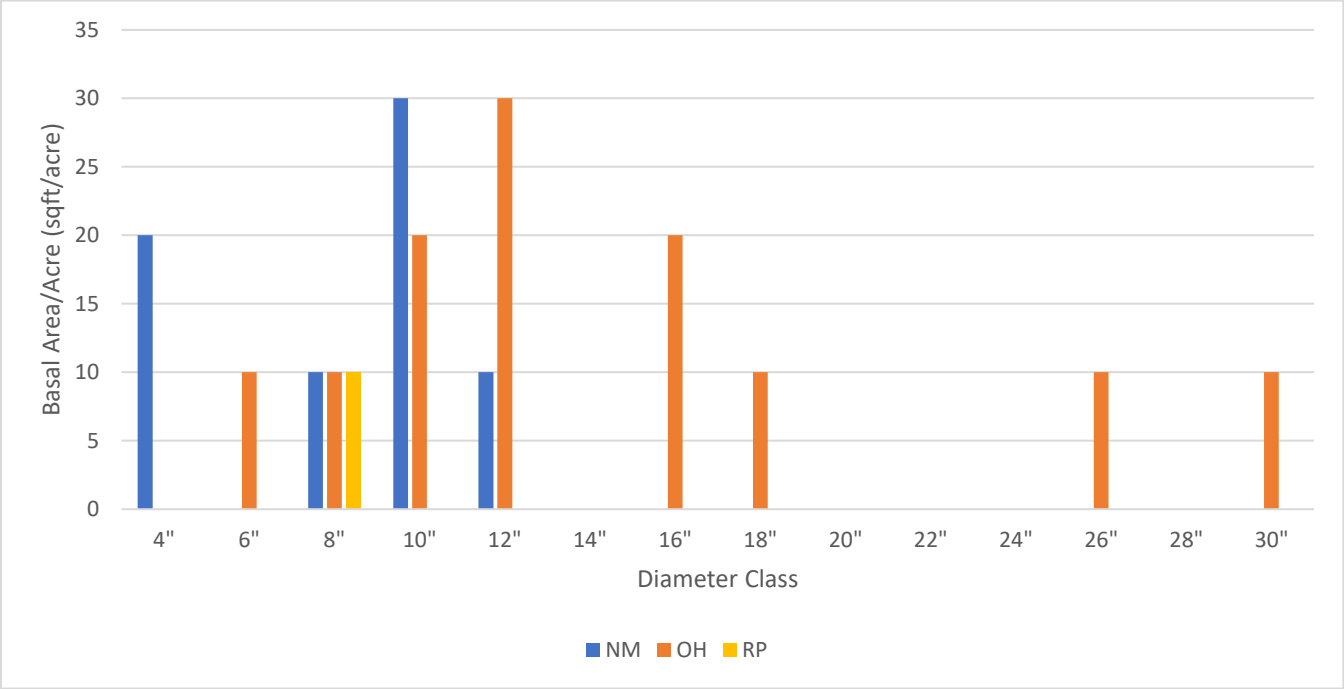



*Figure 27. Diameter distribution of basal area per acre by species for Stand 5.*

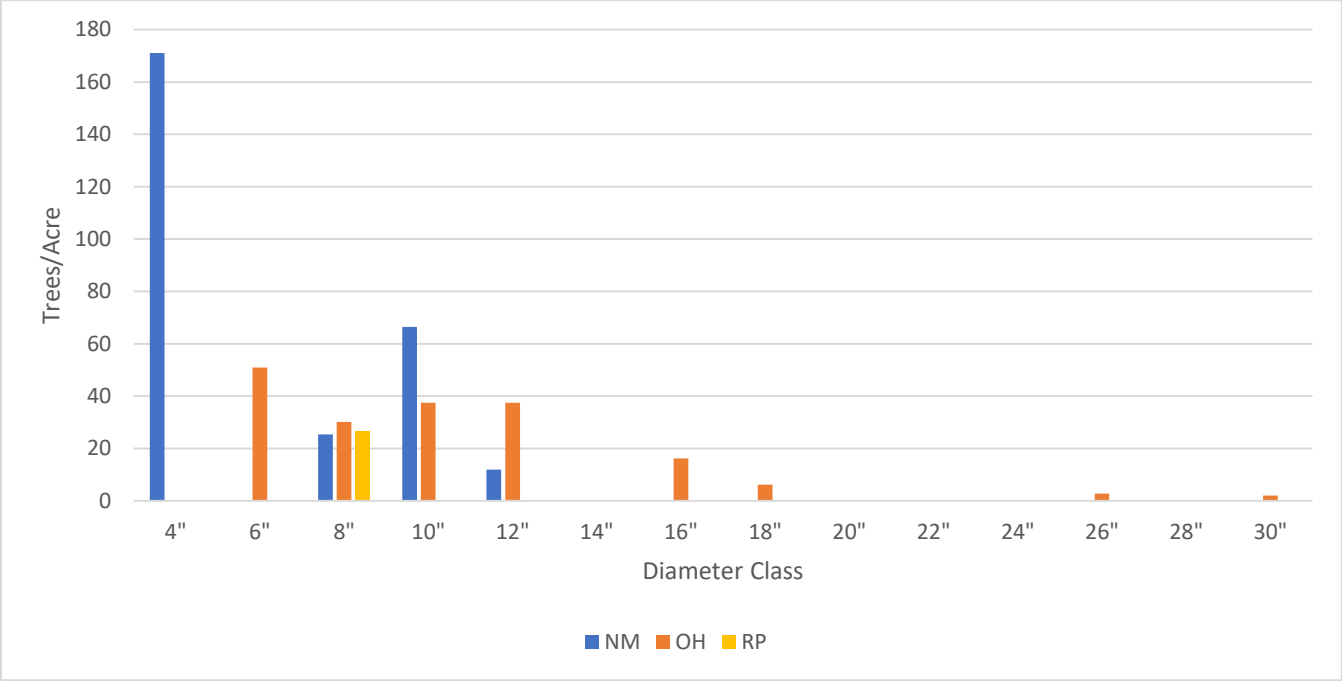



*Figure 28. Diameter distribution of trees per acre by species for Stand 5.*

***Stand 6 (M3B)—Mixed wood pulpwood and sawlogs, 10.5 acres***

White pine is 31% of the species composition of this stand and 70% of the basal area. The average diameter is 24.3 inches at breast height, and the average height is 86 feet. Most of these appear to be old field pines and show signs of extensive weevil damage over the years. Other hardwoods make up 20% of the species composition but only 6.6% of the basal area. These are mostly black locusts and previously cultivated apple trees with multiple stems.

Quaking aspen and red oak are both 13.8% of the species composition of this stand. Red oak is 11.8% of the basal area and quaking aspen is 8%. The average diameter at breast height of red oak is 14.5 inches, and the average diameter at breast height of quaking aspen is 12.4 inches. Black cherry is also present in surprising numbers on this stand. It is 17.2% of the species composition and 3.3% of the basal area, with an average diameter at breast height of 7.1 inches. Norway maples were 3.4% of the species composition and 0.3% of the basal area.

Regeneration of white pine and red oak was present in this stand, as well as quaking aspen, black cherry, black locust and Norway maple. There was also a small stand of balsam poplar regenerating. There were quite a few very large common buckthorn shrubs as well, and some birch in the wetter areas of the stand where it was more open. Invasive multiflora roses and barberries could be found along the trails going through this stand.

*Table 10. Summary values for Stand 6.*

| M3B | | |
|---|---|---|
| Basal Area (Ft 2) | Trees Per Acre | QMD (in.) |
| 72.5 | 173.6 | 9.3 |

**Stand Management Recommendations:**

This stand has a very interesting variation in habitat types, and this could be maintained through management. Several areas may be appropriate for bird species that favor early successional habitats. These could be maintained through small (<1 acre) patch cuts to create small gaps in the forest, which would be feasible because of the ease of access into this stand. Invasive species management should be performed in this stand as well, especially to remove mature buckthorn shrubs to prevent the further spread of seed. Native shrub species could be planted to improve food sources and habitat for wildlife.



*Figure 29. Mature white pine and hardwoods with ferns and some regenerating red oak and hardwoods in the understory in Stand 6.*

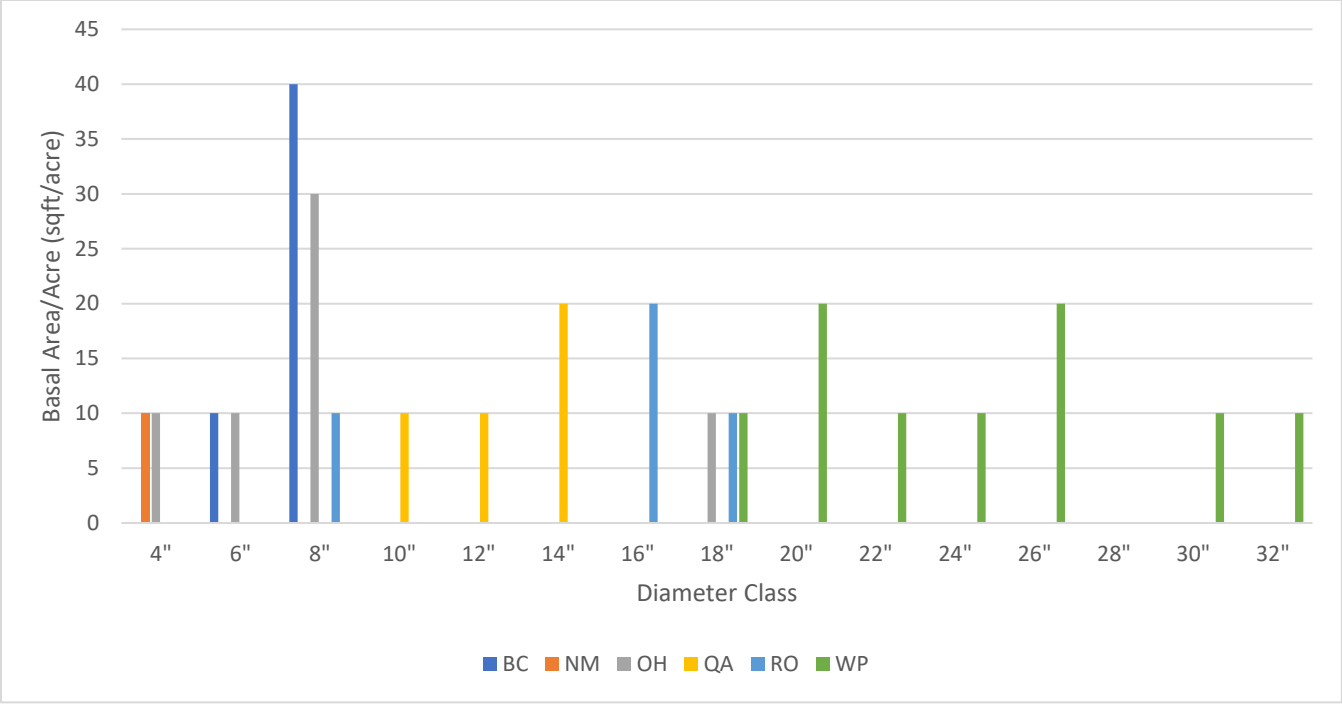



*Figure 30. Diameter distribution of basal area per acre by species for Stand 6.*

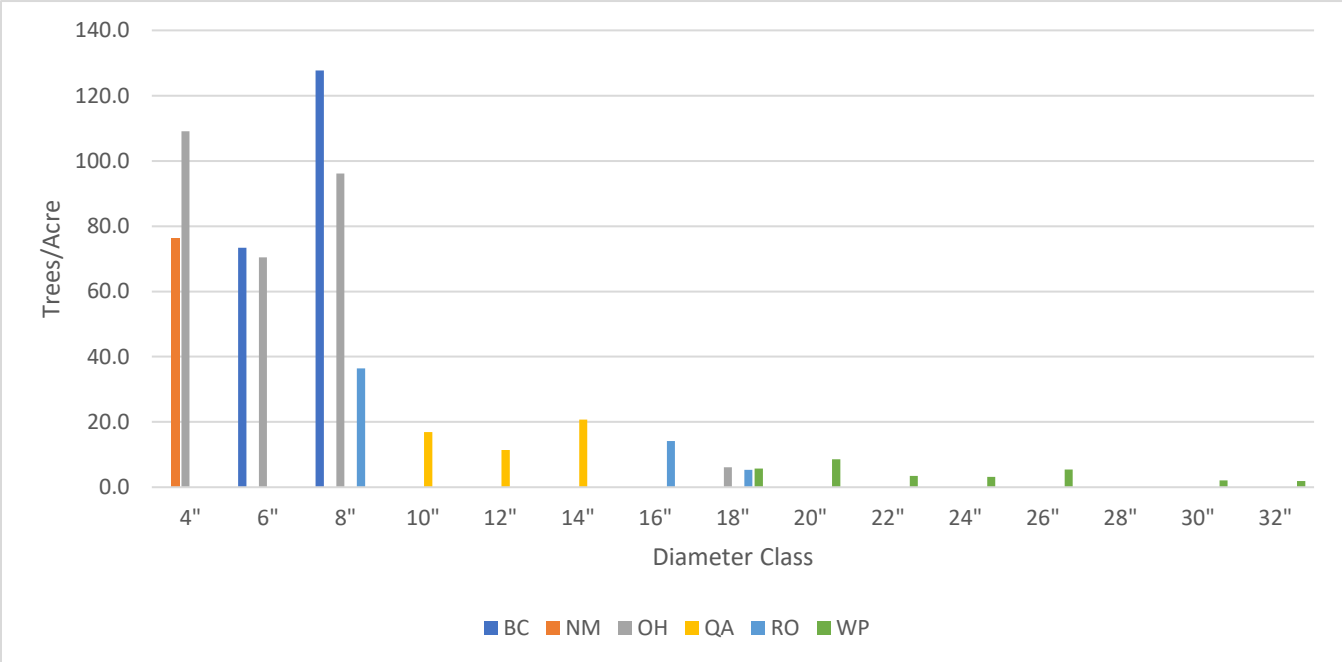



*Figure 31. Diameter distribution of trees per acre by species for Stand 6.*

***Stand 7 (HS3B)—Hardwood dominant pole and pulpwood, 0.9 acres***

This stand is forested, but because of its very small size and lack of accessibility, it was not inventoried. There is no need for management in this stand, except to continue to monitor and manage invasive species and periodically check for encroachment from abutting landowners.

# Cruise Summary

The woodlot summary values were derived from a variable radius field cruise of randomly selected plot points based on a fishnet with a 75-foot spacing. 27 plots on this property returned an estimated mean basal area per acre of 97.9 square feet with an allowable error of 27.69% for Stand 1, 14.67% for Stand 2, 17.31% for Stand 3, 24.81% for Stand 4, 18.19% for Stand 5, and 27.09% for Stand 6—all at a confidence level of 68%. Trees greater than or equal to 4.0" DBH were recorded to the nearest tenth of an inch. 27 plots met the cruising standard for 10 BAF.

*Table 11. Summary of the stocking for the whole property.*

| Whole Property Stocking | | |
|---|---|---|
| Basal Area (Ft 2) | Trees Per Acre | QMD (in.) |
| 97.9 | 243 | 9.1 |

*Table 12. Stand-level statistics with a 68% confidence level.*

| | **Stand 1 (SH3D)** | **Stand 2 (HS3C)** | **Stand 3 (M4C)** | **Stand 4 (P3D)** | **Stand 5 (H3C)** | **Stand 6 (M3B)** |
|---|---|---|---|---|---|---|
| Basal Area (ft2) | 123.33 | 93.33 | 75.00 | 123.33 | 100.00 | 72.50 |
| Standard Deviation | 45.09 | 38.73 | 28.81 | 40.41 | 14.14 | 33.04 |
| % Standard Error | 21.11% | 13.83% | 16.00% | 19.00% | 10.00% | 23.00% |
| Allowable Error | 27.69% | 13.1% | 17.31% | 24.81% | 18.19% | 27.09% |

# Cruise Map

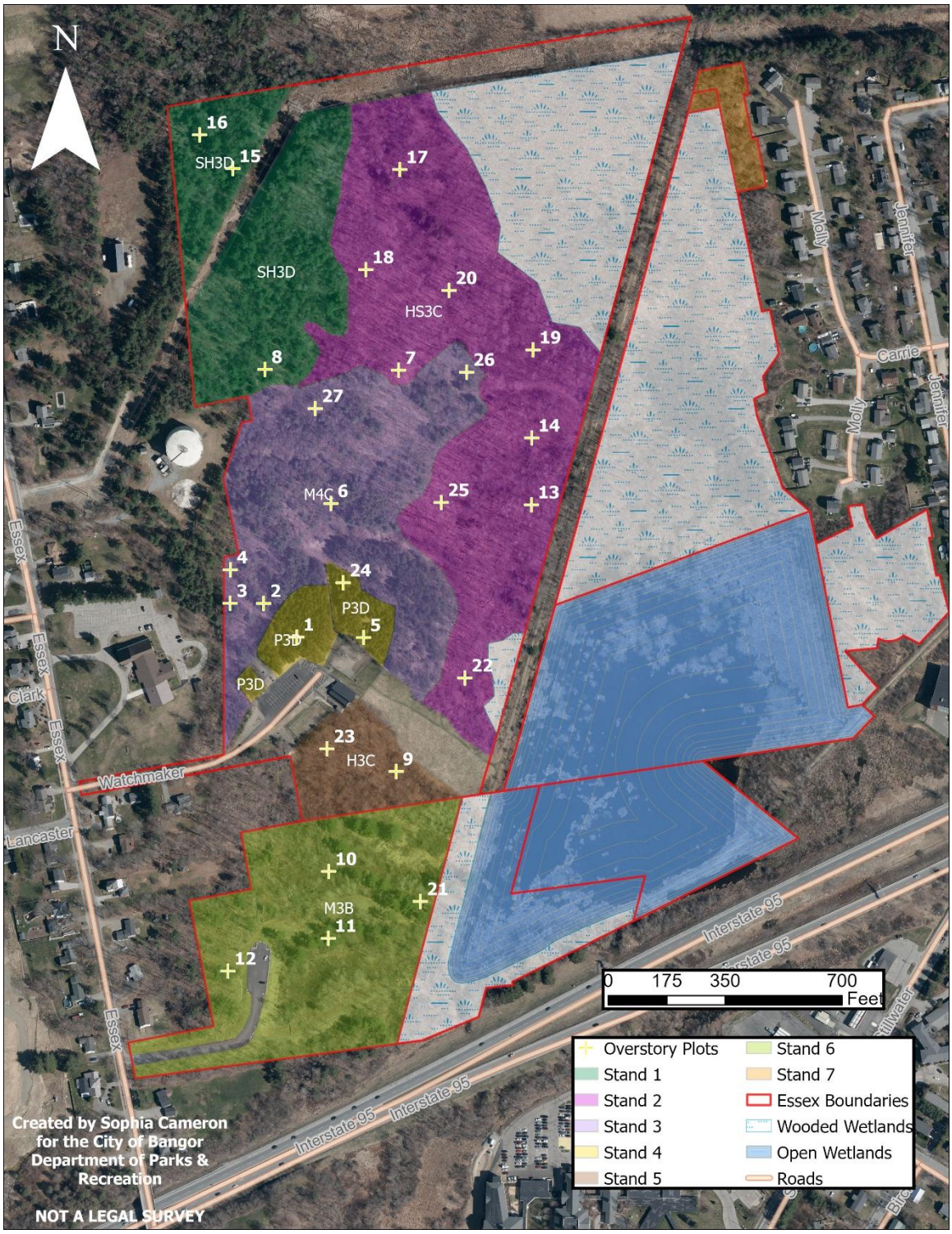



*Figure 32. Map showing the variable radius plot points where inventory data was collected.*

# Management Recommendations

A survey of Essex Woods would be valuable to prevent future encroachment from neighboring landowners. Once a survey is conducted and boundary lines are established, they should be maintained on a five-year cycle following the guidelines in *Appendix E*. Any places of encroachment should be remediated.

No commercial timber harvesting is recommended during this management period aside from being used as a tool to promote forest health. This includes:

1. Performing a pre-commercial thinning of the red pine plantations in Stand 4 to remove poorly formed or dead stems as directed in the Red Pine Scale Response Plan written for the City of Bangor.
2. Removing trees encroaching on the sliding hill to widen that area for recreation, improve aerial insectivore habitat, and enter better alignment with DEP standards for landfills.
3. Removing undesirable species competing with desirable species, such as Norway maple, black locust, and boxelder.
4. Removing trees that pose a threat to public safety along trails.

These operations should only be completed using low-impact equipment to accommodate aesthetic considerations for recreators and to prevent further soil damage and erosion, and so as not to disturb the capped landfill. All stumps should be left for this reason as well, though they are able to be ground is necessary. Any upturned stumps must be disposed of to an appropriate waste site.

Pruning along trails should be done on a three-to-five-year basis to maintain clearance for recreators and vehicle access for land managers. Removal of oak branches along trails should be prioritized to prevent exposure of recreators to browntail moth.

Invasive plant control using integrated pest management should be the priority for this management period in Essex Woods. This will require the targeted use of herbicide which will be used following all state and federal laws and regulations and only when necessary. Only targeted applications of herbicide should be used in this area because of the number of recreators. All brush generated from the mechanical removal of invasive plants should be chipped and taken offsite to reduce the spread of seed.

Replanting with native tree and shrub species could be done as needed in areas where there is low species diversity or an even-age structure. These plantings will require protection from deer browsing to ensure that they are successful. This would specifically be useful in the red pine plantations in Stand 4 as recommended in the Red Pine Scale Response Plan.

Special consideration should be taken to maintain and improve the various bird habitats. This may look like maintaining forest edges with once-a-year mowing, planting soft-masting tree and shrub species, planting native herbaceous plants to increase the number of insects, adding nesting boxes and platforms, and girdling trees to create snags. Removal of the cattails encroaching on the open wetland could also help to improve habitat and maintain areas of open wetland. Maintaining areas as early successional habit would also increase habitat types on the property. This may be specifically appropriate in Stand 5 because most of these trees are invasive and should be removed. The sliding hill should continue to be mowed only once a year and could be planted with more native herbaceous plant species to promote

insect habitat. Nesting boxes for aerial insectivores could be placed along the edge of the hill to create habitat for those species. All recommendations provided in *Appendix I* should be followed.

Red pine scale, hemlock woolly adelgid, emerald ash borer, and beech bark and leaf disease should continue to be monitored for in Essex Woods. These pests and diseases may cause managers to adjust management strategies within the next ten years, specifically hemlock woolly adelgid because of the mature hemlocks in Stand 1. As of spring 2026 traps for red pine scale have been deployed in the red pine plantation. This same trapping protocol should be used in Stand 1 for hemlock woolly adelgid in the next few years. This program is in partnership with the Maine Forest Service.

Educational signage could be posted to teach recreators about the various habitat types and bird species in Essex Woods, as well as other natural resources. This could be done in partnership with Ag Allies, Maine Audubon, and Maine IF&W. Parks & Recreation should work with these organizations to put together outreach and educational events at Essex as well.

The PAL building requires updating and repairs. Once these are completed it could be an excellent home for a non-profit or nature and recreation-based programming. How this is accomplished will be at the discretion of the Director of Parks & Recreation.

Mountain biking trails should be improved following the recommendations made in *Appendix H*. Efforts should be made especially to remediate and prevent future erosion and damage to the capped landfill. See the Other Considerations portion of this plan for further details. There has been damaged from both animal and human use. Any new trails created for mountain biking down this hill should not prevent the annual mowing, or the use of the hill as a sliding hill in the winter. They should also be suitable for both bikers and other recreationists. Leash ordinances should be strictly enforced on this hill for the safety of mountain bikers, dogs, and wildlife. On no part of this hill may the cap be disturbed. New trails should be placed on one side or the other of the hill to be less intrusive to wildlife habitat and will need to be built up to prevent erosion from repeated use. Volunteers constructing trails or doing extensive maintenance of trails need to be always supervised by a staff member of either Parks & Recreation or the Forestry Division and must wear appropriate PPE. Any trails that go onto other properties need to be approved by those private property owners, otherwise those trails should be closed as soon as possible. At no time may volunteers or members of the public conduct trail work without the written permission of both Parks & Recreation and the Forestry Division.

Erosion also needs to be controlled in the areas of the capped landfill, specifically in Stands 2 and 3. This will require working with the Maine DEP to make sure everything remains in compliance and can be done in tandem with the removal of trees from these areas. The sliding hill trail needs to be closed permanently and rerouted elsewhere because of excessive erosion. Plans on how to do this are outlined in *Appendix H*.

Erosion control measures also must be taken in the case of the Bangor Water District tank outflow stream. To do so, modifications must be made to the existing drainage system, including the replacement of several culverts to appropriate sizes, periodic addition of riprap in areas of higher water velocity, and replacing the single culvert along the rail trail connecting the two wetlands with an appropriately sized open-bottom drainage structure following all State BMPs.

Under no circumstances should private residents be permitted to fell standing trees, remove downed woody debris or snags, prune branches, remove brush, or remove herbaceous plants without the permission of the Director of Parks & Recreation and the City Forest Manager. All work along trails must be approved and supervised by either the Parks & Recreation Department or by the Forestry Division. All brush must be removed or chipped following trail work.

# Other Considerations

***Veazie Railbed Trail***

The rail trail is not entirely owned by Parks & Recreation. Much of the north-south stretch of the trail is owned by the Department of Community & Economic Development. The east-west portion of the trail is accessed from the corner of Garden Way and Jennifer Lane and is partially owned by the Maine Department of Transportation and a private, commercial landowner. Efforts could be made for the City to acquire the portions of the rail trail owned by the private landowner and Maine DOT. Barring this possibility, contracted rights-of-way could be established to improve ease of access for future management or emergency response (e.g. wildfire response), as well as for continued use by recreators. Ownership of the portion owned by Community & Economic Development could remain with them or be transferred to Parks & Recreation.

Various culverts should be replaced along the rail trail within the next ten-year period to improve drainage.

***Park Connectivity and Maintaining Natural Spaces in Bangor***

In the previous management plan, it was recommended that efforts be made to purchase property to connect Essex Woods to protected Bangor Land Trust properties, which would then connect it to the City Forest. This would create a very large stretch of protected forest and wetlands from central Bangor northwards. This concept should continue to be explored, especially as Bangor becomes increasingly developed and habitat and recreation fragmentation becomes a larger issue. Even obtaining recreational right-of-way access through private properties to connect the rail trail would be beneficial. Signage to educate recreators on the consequences of habitat fragmentation could also be implemented to gain public support.

***Lower Parking Lot and Access Road***

In 2020 the lower parking lot and access road at Essex Woods were constructed. This area was previously a forested wetland, and all appropriate permits were granted before construction began. This parking lot created necessary direct access to the rail trail and lower part of the park.

A Beneficial Use Permit was granted to the City by the Maine DEP for the use of soils that were removed from Bangor's Waterfront Park through the Voluntary Remediation Action Program (VRAP). This program allows for the voluntary investigation and remediation of properties not in compliance with DEP standards. These specific soils were removed from Waterfront Park during the Davis Brook Combined Sewer Overflow (CSO) Storage Tank Project. These soils were used as fill for the construction of the road and parking lot. They were covered by two feet of an aggregate base on top, and clean, imported fill material on the sides at an unspecified depth. The full details of this project are shared in *Appendix L*.

***Capped Landfill***

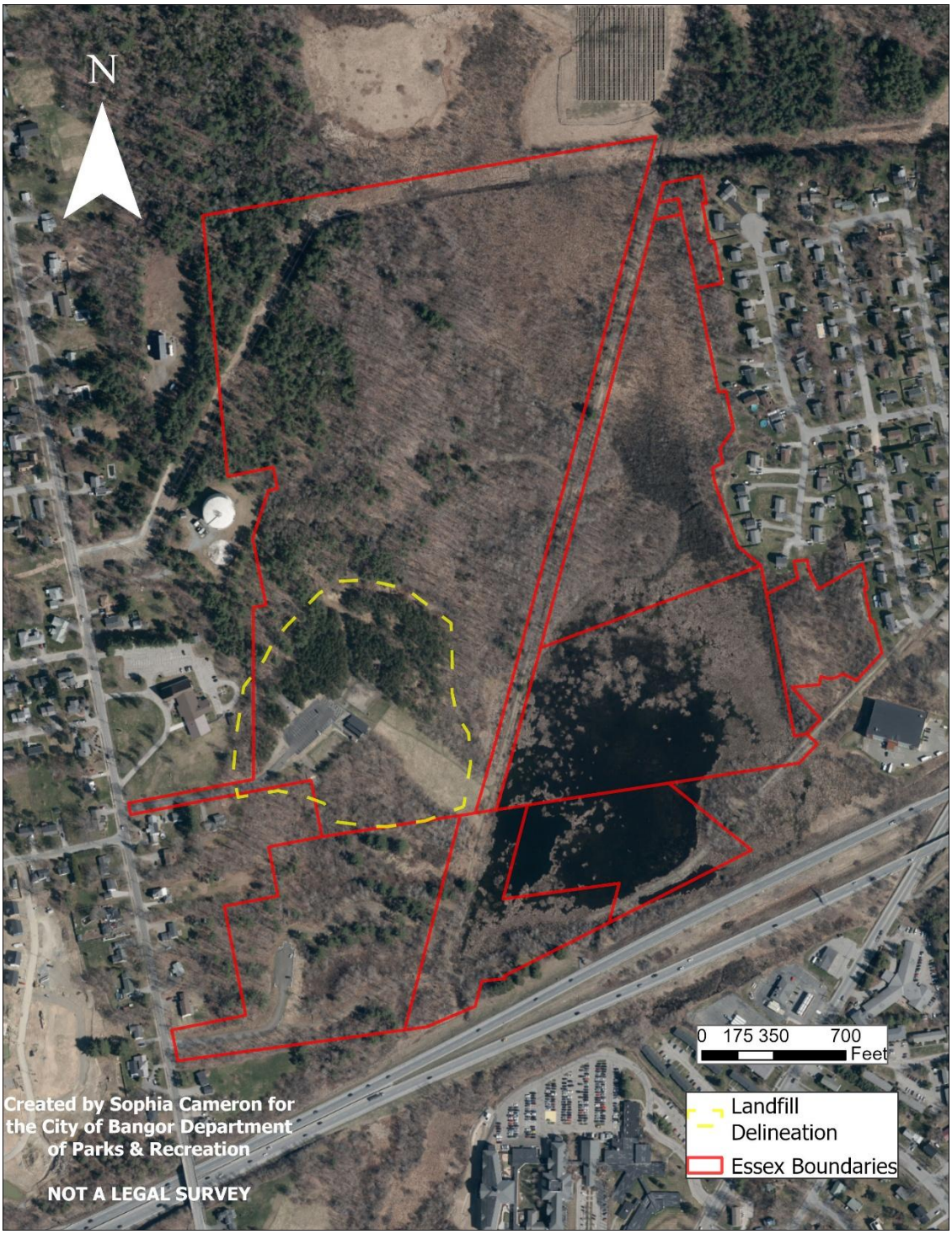



*Figure 33. Map showing the current, mapped waste area of the capped landfill in Essex Woods by the DEP and which stands it is contained within.*

The landfill at Essex Woods was capped sometime in the 70s. The estimated area of waste disposal can be seen in Figure 33. For this reason, no excavation is permitted anywhere in the area shown in Figure

33 to avoid exposing buried trash. In areas where trash is already exposed, there should be no attempt to remove it, as it would be futile.

Matt Young from the Maine Department of Environmental Protection was brought to the site of the landfill and his findings were in alignment with the following recommendations. His documentation is included as *Appendix M*.

The mapped area must be maintained following the guidelines laid out in *Appendix N*. Matt Young does not think it's necessary to fully remove all trees, however, the areas along the sled hill could be cleared and reseeded with native herbaceous species to create a larger cleared area for bird habitat. Volunteers are not permitted to deal with blow downs in which trash has been exposed and instead should contact the Forestry Division. Stumps and root balls of tip-ups will need to be disposed of properly and should not be left.

No new trails should be constructed in areas where there is already exposed trash to prevent injury to recreators. For trails that already exist and go by areas of exposed trash, fill or other cover materials (such as woodchips) could be used to provide at least somewhat of a buffer. Other measures may need to be taken to prevent recreators from encountering exposed trash, such as fencing or signage.

Because of the presence of this landfill, it is important that the groundwater and water from the wetland are tested on a regular basis to monitor for leaching.

***Bangor Water District Tank Outflow and Erosion***

Upon review of the historical aerial imagery of Essex Woods, there is a water tank present at the top of the property since at least 1939. At that time, it would have been owned by the City itself, though its ownership was transferred upon the creation of the Bangor Water District in 1957. All water arrives at this tank having already been treated using ozone/ultraviolet light disinfection systems and chloramines (*Bangor Water District*).

This tank must periodically empty out for maintenance, repairs, or to simply keep the water flowing to prevent fouling. For this purpose, there is an outflow point that drains across Essex Woods, downhill, to the wetlands below. This channel was never formally established aside from the initial point of the outflow, so the water has cut its own channel over time, reaching bedrock in some places. This has caused significant erosion in some places and has even washed out a bridge in the summer of 2025 that went across the channel and was used by recreationists. This bridge has since been replaced, and riprap was added to prevent further erosion.

The outflow has created several problems over the years that should be remediated over the next ten-year period of management at Essex Woods. The first is to better define the initial channel where the outflow begins before passing through a culvert under the improved Power Line Trail. Trees could be cut out of this channel to prevent them from falling into the trail in the future. New riprap could be added on either side of the culvert to prevent further erosion of the Power Line Trail. It may also be wise to reset and size up the current culvert, as it is undersized for the current channel and may be contributing to further erosion.

The outflow stream drains directly into the wooded wetland found in the northeastern corner of lot R48-007 (see Figure 34). For this reason, it's very important that all water coming out of the outflow is dechlorinated, which should be handled by Bangor Water District. As it travels across the property, it crosses several existing mountain biking trails. Whether or not culverts or other drainage measures should be taken across these trails is summarized in *Appendix H*. There are several points where the

topography allows the water to settle out before continuing down the hill, which is ideal, as this allows sediment to settle out before reaching the wetland. New trail construction should endeavor not to block these settling areas.

The wetland the outflow drains into is largely disconnected from the larger wetland on lots R55-012-A, B, D, and E. A single galvanized steel culvert was found connecting the two wetlands under the rail trail. It is too long and does not appear to be draining properly. This culvert should be replaced with an open-bottom drainage structure, or a larger culvert. This would prevent flooding across the trail during times when the water tank is draining.

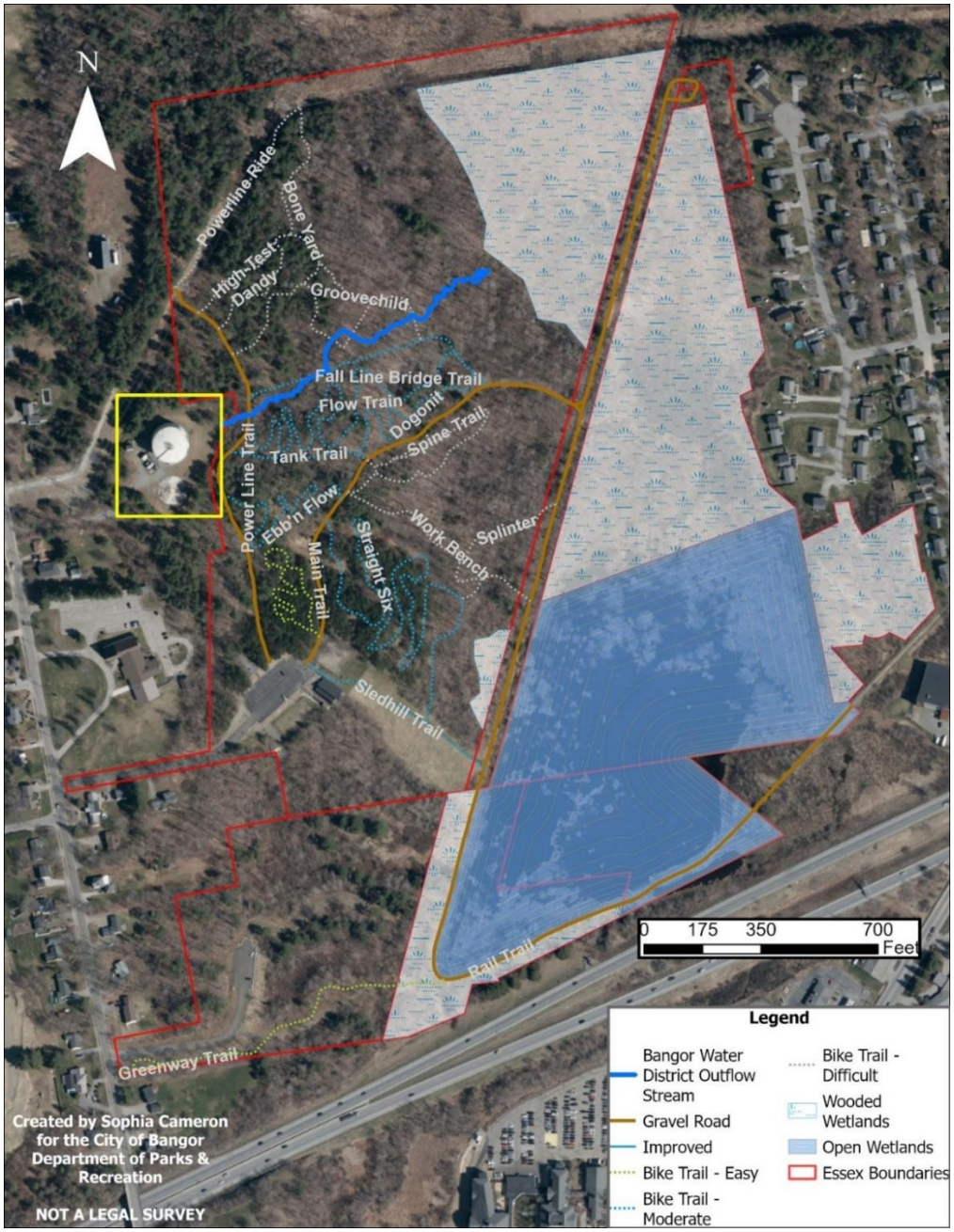



*Figure 34. Map of the Bangor Water District water tank outflow stream that travels across Essex Woods. The tank is shown in the yellow rectangle.*

# Laws Impacting Land Management

Local timber harvesting ordinance – Bangor has no unique regulations.

Local vegetation clearing ordinance—The clearing of vegetation for development is governed by Chapter 165 section 49 of the City Code. Details of this ordinance can be reviewed here.

• Statewide Standards for Timber Harvesting in Shoreland Areas (SWS) – Bangor is enrolled in SWS. These laws are administered and enforced by the Maine Forest Service.

• Natural Resources Protection Act (NRPA) – NRPA regulates disturbing soil adjacent to water bodies, including all brooks with well-defined channels and exposed mineral soil, as well as brooks with seasonal water flows. The law requires that concerted efforts be used to ensure that soils don't wash into the brooks. Working within guidelines described in the Maine Forest Service's Best Management Practices for Forestry should ensure compliance. This law also addresses harvesting within or adjacent to significant wildlife habitat such as significant vernal pools. Permitted activities may require permit-by-rule (PBR) or full permitting. In the case of timber harvesting near a significant vernal pool, no permit is currently required if the significant vernal pool is not mapped by either DEP or Inland Fisheries and Wildlife (IF&W). The pool should be maintained in an undisturbed state, and within an area 250’ from the high-water mark edges of the significant vernal pool, soil disturbance should be avoided and a partial overstory should be maintained for shade.

• Protection and Improvement of Water Law – The law regulates activities, which discharge or may potentially discharge materials (pollutants) into water bodies. In the context of forestry, the law addresses pollutants originating from non-point sources and addresses the impact, not the location, of an activity.

• Erosion and Sedimentation Control Law – The Law requires that measures be taken to prevent unreasonable erosion of soil or sediment beyond the site or into a protected natural resource, such as a river, stream, brook, lake, pond, or wetland. Erosion control measures must be installed before the activity begins, be maintained, kept in place and functional until the site is permanently stabilized.

• Forest Practices Act – FPA mandates adequate regeneration must be present within five years of any harvest, establishes rules relating to planning requirements, size, and spacing of clearcuts. All landowners must notify the Maine Forest Service prior to harvesting and then report volume and price information for any year in which harvesting occurred.

• Liquidation Harvesting Act – Within five years of acquiring a parcel of land, Maine landowners may not harvest timber and then sell or offer to sell the land unless certain exemptions apply, including proof that statewide the landowner owns less than 100 acres, the parcel is less than 20 acres, the owner retains at least 50% of the standing timber, or the owner is legally permitted to change the land’s use to something other than forest growth.

• Forest Operations Notifications (FON) and Landowner Report – Landowners must notify the Maine Forest Service of planned timber harvesting. A FON is valid for up to two years and is not a permit. Each FON has a unique number which is used to identify a harvest.

# Further Sources of Assistance

Maine Forest Service: A good source of educational material. Taxation and utilization specialists are also on staff. State House Station 22, Augusta, ME 04330. (207) 287-2791 or www.maine.gov/dacf/mfs/index.shtml

USDA-NRCS and Farm Service Agency: Information and applications for Federal forestry cost sharing programs, such as erosion control, road and trail repairs, tree planting, timber stand improvement, and management planning. www.me.nrcs.usda.

# Potential Partners

***Maine Forest Service***—22 State House Station, 18 Elkins Lane, Augusta, ME 04333. (207) 287-3200. dacf@maine.gov. https://www.maine.gov/dacf/mfs/

***Maine Department of Inland Fisheries & Wildlife***—353 Water Street, Augusta, ME 04333. (207) 287-8000. mackenzie.roeder@maine.gov. https://www.maine.gov/ifw/

***Maine Audubon***—Gilsand Farm Audubon Center, 20 Gilsland Farm Road, Falmouth, ME 04105. (207) 781-2330. etopper@maineaudubon.org. https://maineaudubon.org/

***University of Maine, School of Forest Resources***—5755 Nutting Hall, Orono, ME 04469. (207) 581-2887. sfr@maine.edu. https://forest.umaine.edu/

***Ag Allies/Somerset County Soil & Water Conservation District***—USDA Service Center, 70 East Madison Road, Skowhegan, ME 04976. (207) 474-8323. laura.lecker@me.nacdnet.net. https://www.somersetswcd.org/ag-allies

***Penobscot County Soil & Water Conservation District***—1423 Broadway, Suite 2, Bangor, ME 04401. (207) 947-6622 Ext. 3. https://www.penobscotswcd.org/

***Bangor Beautiful***— bangorbeautiful@gmail.com. https://www.bangorbeautiful.org/home

***New England Mountain Biking Association***—P.O. Box 2221, Acton, MA, 01720. (800) 57-NEMBA. office@NEMBA.org. https://www.nemba.org/

***Maine Big Night: Amphibian Migration Monitoring***— mbn@mainebignight.org. https://mainebignight.org/

***Maine Department of Environmental Protection***—17 State House Station, 28 Tyson Drive, Augusta, Maine, 04333. (207) 287-7688. https://www.maine.gov/dep/

***Penobscot Valley Ski Club***—P.O. Box 873, Bangor, ME 04402. skiclub@pvskiclub.org. https://www.pvskiclub.org/

***New England Nordic Ski Association***—P.O. Box 97, Lyme, NH 03768. (715) 579-0884. ben@nensa.net. https://nensa.net/

***Xerces Society for Invertebrate Conservation***—1631 NE Broadway Street, #821, Portland, OR 97232. (503) 232-6639. outreach@xerces.org. https://xerces.org/

***United Technologies Center***—200 Hogan Road, Bangor, ME 04401. (207) 942-5296. https://www.utc4me.org/

***Wabanaki Youth in Science***—P.O. Box 215, Old Town, ME 04468. waysprogram@wabankiyouthinscience.org. https://www.wabanakiyouthinscience.org/

# Appendix

## *Appendix A: Soils Report (Web Soil Survey, USDA)*



| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
|---|---|---|---|
| CTB | Telos-Chesuncook complex, 0 to 8 percent slopes, very stony | 5.3 | 4.9% |
| CuB | Chesuncook-Telos-Urban land association, 0 to 8 percent slopes | 0.2 | 0.2% |
| EIB | Elliottsville-Chesuncook association, 3 to 8 percent slopes, very stony | 1.0 | 0.9% |
| EIC | Elliottsville-Chesuncook association, 8 to 15 percent slopes, very stony | 10.2 | 9.6% |
| MeD | Monson-Elliottsville-Abram complex, 15 to 30 percent slopes, rocky | 32.1 | 30.0% |
| MOB | Monarda-Telos complex, 0 to 8 percent slopes, very stony | 0.2 | 0.2% |
| PsB | Pushaw-Swanville complex, 0 to 8 percent slopes | 15.4 | 14.4% |
| PuB | Pushaw-Swanville-Urban land association, 0 to 8 percent slopes | 1.5 | 1.4% |
| SQA | Swanville-Wonsqueak Association, 0 to 3 percent slopes | 41.2 | 38.5% |
| **Totals for Area of Interest** | | **107.1** | **100.0%** |

## Report—Forestland Harvesting (ME)

[Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. In the suitability for use of harvesting equipment and log landing columns, the larger the value, the greater the potential limitation. In the general harvest season column the value will always be 1.00. The table shows only the top five limitations for any given soil. The soil may have additional limitations]

| Forestland Harvesting (ME)–Penobscot County, Maine, Southern Part | | | | | | | |
|---|---|---|---|---|---|---|---|
| Map symbol and soil name | Pct. of map unit | General harvest season (ME) | | Suitability for use of harvesting equipment (ME) | | Suitability for log landings (ME) | |
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| SQA—Swanville-Wonsqueak Association, 0 to 3 percent slopes | | | | | | | |
| Swanville | 55 | Winter only | | Moderately suited | | Poorly suited | |
| | | Long term soil wetness | 1.00 | Wetness | 0.83 | Wetness | 1.00 |
| MOB—Monarda-Telos complex, 0 to 8 percent slopes, very stony | | | | | | | |
| Monarda | 50 | Winter only | | Poorly suited | | Poorly suited | |
| | | Long term soil wetness | 1.00 | Wetness | 1.00 | Wetness | 1.00 |
| | | | | | | Low strength | 0.50 |
| CuB—Chesuncook-Telos-Urban land association, 0 to 8 percent slopes | | | | | | | |
| Chesuncook | 45 | Summer & winter | | Moderately suited | | Moderately suited | |
| | | Seasonal soil wetness | 1.00 | Wetness | 0.50 | Wetness | 0.50 |
| | | | | | | Slope | 0.50 |
| EIC—Elliottsville-Chesuncook association, 8 to 15 percent slopes, very stony | | | | | | | |
| Elliottsville | 45 | Except spring | | Well suited | | Poorly suited | |
| | | Seasonal soil wetness | 1.00 | | | Slope | 1.00 |
| EIB—Elliottsville-Chesuncook association, 3 to 8 percent slopes, very stony | | | | | | | |
| Elliottsville | 45 | Except spring | | Well suited | | Well suited | |
| | | Seasonal soil wetness | 1.00 | | | | |

| Forestland Harvesting (ME)–Penobscot County, Maine, Southern Part | | | | | | | |
|---|---|---|---|---|---|---|---|
| Map symbol and soil name | Pct. of map unit | General harvest season (ME) | | Suitability for use of harvesting equipment (ME) | | Suitability for log landings (ME) | |
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| CTB—Telos-Chesuncook complex, 0 to 8 percent slopes, very stony | | | | | | | |
| Telos | 45 | Summer & winter | | Moderately suited | | Poorly suited | |
| | | Seasonal soil wetness | 1.00 | Wetness | 0.83 | Wetness | 1.00 |
| Chesuncook | 40 | Summer & winter | | Moderately suited | | Moderately suited | |
| | | Seasonal soil wetness | 1.00 | Wetness | 0.50 | Wetness | 0.50 |
| | | | | | | Slope | 0.50 |
| EIC—Elliottsville-Chesuncook association, 8 to 15 percent slopes, very stony | | | | | | | |
| Chesuncook | 40 | Summer & winter | | Moderately suited | | Moderately suited | |
| | | Seasonal soil wetness | 1.00 | Wetness | 0.50 | Slope | 0.50 |
| | | | | | | Wetness | 0.50 |
| EIB—Elliottsville-Chesuncook association, 3 to 8 percent slopes, very stony | | | | | | | |
| Chesuncook | 40 | Summer & winter | | Moderately suited | | Moderately suited | |
| | | Seasonal soil wetness | 1.00 | Wetness | 0.50 | Wetness | 0.50 |
| | | | | | | Slope | 0.50 |
| MeD—Monson-Elliottsville-Abram complex, 15 to 30 percent slopes, rocky | | | | | | | |
| Monson | 40 | Except spring | | Moderately suited | | Poorly suited | |
| | | Seasonal soil wetness | 1.00 | Slope | 0.50 | Slope | 1.00 |
| PsB—Pushaw-Swanville complex, 0 to 8 percent slopes | | | | | | | |
| Pushaw | 40 | Summer & winter | | Moderately suited | | Moderately suited | |
| | | Seasonal soil wetness | 1.00 | Wetness | 0.83 | Wetness | 0.67 |
| PuB—Pushaw-Swanville-Urban land association, 0 to 8 percent slopes | | | | | | | |
| Pushaw | 35 | Summer & winter | | Moderately suited | | Moderately suited | |
| | | Seasonal soil wetness | 1.00 | Wetness | 0.83 | Wetness | 0.67 |

| Forestland Harvesting (ME)–Penobscot County, Maine, Southern Part | | | | | | | |
|---|---|---|---|---|---|---|---|
| Map symbol and soil name | Pct. of map unit | General harvest season (ME) | | Suitability for use of harvesting equipment (ME) | | Suitability for log landings (ME) | |
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| PsB—Pushaw-Swanville complex, 0 to 8 percent slopes | | | | | | | |
| Swanville | 35 | Winter only | | Moderately suited | | Poorly suited | |
| | | Long term soil wetness | 1.00 | Wetness | 0.83 | Wetness | 1.00 |
| MOB—Monarda-Telos complex, 0 to 8 percent slopes, very stony | | | | | | | |
| Telos | 35 | Summer & winter | | Moderately suited | | Poorly suited | |
| | | Seasonal soil wetness | 1.00 | Wetness | 0.83 | Wetness | 1.00 |
| MeD—Monson-Elliottsville-Abram complex, 15 to 30 percent slopes, rocky | | | | | | | |
| Elliottsville | 30 | Except spring | | Moderately suited | | Poorly suited | |
| | | Seasonal soil wetness | 1.00 | Slope | 0.50 | Slope | 1.00 |
| PuB—Pushaw-Swanville-Urban land association, 0 to 8 percent slopes | | | | | | | |
| Swanville | 30 | Winter only | | Moderately suited | | Poorly suited | |
| | | Long term soil wetness | 1.00 | Wetness | 0.83 | Wetness | 1.00 |
| SQA—Swanville-Wonsqueak Association, 0 to 3 percent slopes | | | | | | | |
| Wonsqueak | 30 | Winter only | | Poorly suited | | Poorly suited | |
| | | Long term soil wetness | 1.00 | Wetness | 1.00 | Wetness | 1.00 |
| | | | | | | Ponding | 1.00 |
| | | | | | | Low strength | 0.50 |
| CuB—Chesuncook-Telos-Urban land association, 0 to 8 percent slopes | | | | | | | |
| Telos | 25 | Summer & winter | | Moderately suited | | Moderately suited | |
| | | Seasonal soil wetness | 1.00 | Wetness | 0.50 | Wetness | 0.50 |

| Forestland Harvesting (ME)–Penobscot County, Maine, Southern Part | | | | | | | |
|---|---|---|---|---|---|---|---|
| Map symbol and soil name | Pct. of map unit | General harvest season (ME) | | Suitability for use of harvesting equipment (ME) | | Suitability for log landings (ME) | |
| | | Rating class and limiting features | Value | Rating class and limiting features | Value | Rating class and limiting features | Value |
| MeD—Monson-Elliottsville-Abram complex, 15 to 30 percent slopes, rocky | | | | | | | |
| Abram | 20 | Except spring | | Well suited | | Poorly suited | |
| | | Seasonal soil wetness | 1.00 | | | Slope | 1.00 |
| PuB—Pushaw-Swanville-Urban land association, 0 to 8 percent slopes | | | | | | | |
| Urban land | 20 | Not Rated | | Not rated | | Not rated | |
| CuB—Chesuncook-Telos-Urban land association, 0 to 8 percent slopes | | | | | | | |
| Urban land | 15 | Not Rated | | Not rated | | Not rated | |

## Report—Forestland Productivity

| Forestland Productivity–Penobscot County, Maine, Southern Part | | | | |
|---|---|---|---|---|
| Map unit symbol and soil name | Potential productivity | | | Trees to manage |
| | Common trees | Site Index | Volume of wood fiber | |
| | | | *Cu ft/ac/yr* | |
| CTB—Telos-Chesuncook complex, 0 to 8 percent slopes, very stony | | | | |
| Telos | Balsam fir | 53 | 100.00 | Balsam fir, Red maple, Red spruce, White ash, White spruce, Yellow birch |
| | Eastern white pine | 67 | 114.00 | |
| | Red maple | 55 | 29.00 | |
| | Red spruce | 44 | 86.00 | |
| | White spruce | 55 | 129.00 | |
| Chesuncook | Balsam fir | 55 | 114.00 | American beech, Eastern white pine, Sugar maple, White ash, White spruce, Yellow birch |
| | Eastern white pine | 69 | 129.00 | |
| | Red maple | 55 | 29.00 | |
| | Red spruce | 47 | 100.00 | |
| | Sugar maple | 55 | 29.00 | |
| CuB—Chesuncook-Telos-Urban land association, 0 to 8 percent slopes | | | | |
| Chesuncook | — | — | — | — |
| Telos | — | — | — | — |
| Urban land | — | — | — | — |

| Forestland Productivity–Penobscot County, Maine, Southern Part | | | | |
|---|---|---|---|---|
| Map unit symbol and soil name | Potential productivity | | | Trees to manage |
| | Common trees | Site Index | Volume of wood fiber | |
| | | | *Cu ft/ac/yr* | |
| EIB—Elliottsville-Chesuncook association, 3 to 8 percent slopes, very stony | | | | |
| Elliottsville | American beech | 55 | 29.00 | American beech, Eastern white pine, Sugar maple, White ash, White spruce, Yellow birch |
| | Balsam fir | 55 | 114.00 | |
| | Eastern white pine | 69 | 129.00 | |
| | Paper birch | 55 | 57.00 | |
| | Red spruce | 47 | 100.00 | |
| | Sugar maple | 55 | 29.00 | |
| | White spruce | 55 | 129.00 | |
| | Yellow birch | 55 | 29.00 | |
| Chesuncook | Balsam fir | 55 | 114.00 | American beech, Eastern white pine, Sugar maple, White ash, White spruce, Yellow birch |
| | Eastern white pine | 69 | 129.00 | |
| | Red maple | 55 | 29.00 | |
| | Red spruce | 47 | 100.00 | |
| | Sugar maple | 55 | 29.00 | |
| EIC—Elliottsville-Chesuncook association, 8 to 15 percent slopes, very stony | | | | |
| Elliottsville | American beech | 55 | 29.00 | American beech, Eastern white pine, Sugar maple, White ash, White spruce, Yellow birch |
| | Balsam fir | 55 | 114.00 | |
| | Eastern white pine | 69 | 129.00 | |
| | Paper birch | 55 | 57.00 | |
| | Red spruce | 47 | 100.00 | |
| | Sugar maple | 55 | 29.00 | |
| | White spruce | 55 | 129.00 | |
| | Yellow birch | 55 | 29.00 | |
| Chesuncook | Balsam fir | 55 | 114.00 | American beech, Eastern white pine, Sugar maple, White ash, White spruce, Yellow birch |
| | Eastern white pine | 69 | 129.00 | |
| | Red maple | 55 | 29.00 | |
| | Red spruce | 47 | 100.00 | |
| | Sugar maple | 55 | 29.00 | |

| Forestland Productivity–Penobscot County, Maine, Southern Part | | | | |
|---|---|---|---|---|
| Map unit symbol and soil name | Potential productivity | | | Trees to manage |
| | Common trees | Site Index | Volume of wood fiber | |
| | | | *Cu ft/ac/yr* | |
| MeD—Monson-Elliottsville-Abram complex, 15 to 30 percent slopes, rocky | | | | |
| Monson | Balsam fir | 52 | 100.00 | Balsam fir, Red spruce, White spruce |
| | Red spruce | 40 | 86.00 | |
| | White spruce | 58 | 129.00 | |
| Elliottsville | American beech | 55 | 29.00 | American beech, Eastern white pine, Sugar maple, White ash, White spruce, Yellow birch |
| | Balsam fir | 55 | 114.00 | |
| | Eastern white pine | 69 | 129.00 | |
| | Paper birch | 55 | 57.00 | |
| | Red spruce | 47 | 100.00 | |
| | Sugar maple | 55 | 29.00 | |
| | White spruce | 55 | 129.00 | |
| | Yellow birch | 55 | 29.00 | |
| Abram | Balsam fir | 33 | 57.00 | Balsam fir, Black spruce, Red spruce, White spruce |
| | Red spruce | 34 | 57.00 | |
| | White spruce | 37 | 72.00 | |
| MOB—Monarda-Telos complex, 0 to 8 percent slopes, very stony | | | | |
| Monarda | Balsam fir | 45 | 86.00 | Balsam fir, Black spruce, Northern white cedar, Red maple, Red spruce |
| | Paper birch | 60 | 57.00 | |
| | Red spruce | 40 | 86.00 | |
| | White spruce | 53 | 114.00 | |
| Telos | Balsam fir | 53 | 100.00 | Balsam fir, Red maple, Red spruce, White ash, White spruce, Yellow birch |
| | Eastern white pine | 67 | 114.00 | |
| | Red maple | 55 | 29.00 | |
| | Red spruce | 44 | 86.00 | |
| | White spruce | 55 | 129.00 | |
| PsB—Pushaw-Swanville complex, 0 to 8 percent slopes | | | | |
| Pushaw | — | — | — | — |
| Swanville | — | — | — | — |

| Forestland Productivity–Penobscot County, Maine, Southern Part | | | | |
|---|---|---|---|---|
| Map unit symbol and soil name | Potential productivity | | | Trees to manage |
| | Common trees | Site Index | Volume of wood fiber | |
| | | | *Cu ft/ac/yr* | |
| PuB—Pushaw-Swanville-Urban land association, 0 to 8 percent slopes | | | | |
| Pushaw | — | — | — | — |
| Swanville | — | — | — | — |
| Urban land | — | — | — | — |
| SQA—Swanville-Wonsqueak Association, 0 to 3 percent slopes | | | | |
| Swanville | Balsam fir | 55 | 114.00 | Balsam fir, Red spruce |
| | Eastern white pine | 58 | 100.00 | |
| | Red maple | 56 | 29.00 | |
| | Red spruce | 40 | 86.00 | |
| | White spruce | 50 | 114.00 | |
| Wonsqueak | Balsam fir | 30 | 57.00 | Balsam fir, Black spruce, Northern whitecedar, Red maple, Red spruce, Tamarack |
| | Northern white cedar | 25 | 29.00 | |

## *Appendix B: Maine Natural Areas Program (MNAP) Review*

JANET T. MILLS
GOVERNOR

STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
353 WATER STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041

JUDITH CAMUSO
COMMISSIONER

January 22, 2026

Sophia Cameron
City of Bangor Department of Public Works/Parks & Recreation
sophia.cameron@bangormaine.gov

**RE: Forest Management Plan Review -** Essex Woods property in the Town of Bangor

Dear Sophia Cameron:

On behalf of the Maine Department of Inland Fisheries and Wildlife (MDIFW), the Beginning with Habitat program (BwH), and the Maine Natural Areas Program (MNAP) we have reviewed your request received on **December 19, 2025**. The review includes all of the resources listed in the Forest Management Plan Review Section below. Non-regulatory management recommendations are provided for natural resource features within the parcel, as well as those nearby, should the landowner wish to manage the property for important landscape-level features. Good management of natural resources is consistent with good forestry, and BwH has the tools to assist you with your habitat management goals and objectives while allowing for forest management and timber procurement. Please contact Joseph Roy, MDIFW Private Lands Wildlife Biologist, or the staff listed below with any questions or requests for assistance.

**NATURAL RESOURCES ON THE PROPERTY**

The following natural resource features are located at least partially within the property. Below are management standards we recommend you follow for these natural resources.

**Rare Animals**

**Upland Sandpiper**

Upland Sandpipers have been known to occur on/near the area of interest. Upland Sandpipers are a state-listed Threatened species (see attachment for description) and are protected from illegal take, which includes the nest, eggs, individual birds, or any disturbance that results in mortality or nesting failure. These large shorebirds are strongly associated with open grassland-type habitats. It is important to limit activities in these open areas associated with this parcel, particularly during nesting and brood-rearing seasons (May 1 -Aug 15), and most importantly, to avoid locating log-landings or storing equipment in these open areas during this period. For more information about this species, contact MDIFW Biologist Adrienne Leppold at (207) 941-4482.

**Wild Brook Trout**

The property includes a stream that provides habitat for Wild Brook Trout. Brook Trout prefer cool, well-oxygenated waters that benefit from intact riparian corridors. Any forest management activities planned for riparian zones should closely follow Maine's Best Management Practices (https://www.maine.gov/ifw/docs/brook_trout_factsheet_forestry.pdf), including appropriate buffer distances, shade retention, and minimization of sediment runoff. Sediment management and erosion control are key factors to maintaining healthy fisheries in high quality habitats. Please see the attached fact sheet for more information, visit https://www.maine.gov/ifw/fish-wildlife/fisheries/wild-brook-trout.html, or contact the MDIFW Fisheries Biologist in the Project Location/Contacts Table below.

## NATURAL RESOURCES NEAR THE PROPERTY

The following natural resource features are within 750 feet of the property. We have included these species and habitats to provide you with a landscape-level view of the important resources surrounding your management area. The management recommendations for these species are provided for your consideration.

**Rare Animals**

Upland Sandpiper
See recommendations above.

**Wild Brook Trout**
See recommendations above.

## ADDITIONAL NATURAL RESOURCES NEAR THE PROPERTY

- **Vernal Pools:**
  https://www.maine.gov/ifw/docs/Forest%20Management%20and%20Vernal%20Pools.pdf

## BEGINNING WITH HABITAT FOCUS AREA(S):

Beginning with Habitat Focus Areas are landscape-scale areas of conservations significance, containing exceptional concentrations of at-risk species/natural communities, high quality common natural communities, Significant Wildlife Habitats (as defined in Maine's Natural Resources Protection Act), and/or large blocks of undeveloped habitat. Additional information about Focus Areas is available at: https://www.maine.gov/dacf/mnap/focusarea. BwH Focus Areas associated with this property include:

- Caribou Bog Wetland Complex

## CONSERVED LANDS

- City of Bangor, Holding Type: Fee, HOLDER: Maine Minor Civil Division
- Essex St Recreation Area, Holding Type: Fee, HOLDER: Maine Minor Civil Division

Other than those described above or listed in the Forest Management Plan Review section, no other natural resources of statewide significance have been documented in the reviewed area. The "unconfirmed presence" for Endangered, Threatened, or Special Concern Animals; Rare, Threatened, or Endangered Plants; or Rare/Exemplary Natural Communities may be due to a lack of comprehensive data rather than the absence of those resources in the reviewed area.

Thank you for using BWH, MDIFW, and MNAP in the forest management planning process. If you have questions, or if you would like more information about this site, please feel free to contact me. You can also visit our webpage:
https://www.maine.gov/ifw/fish-wildlife/wildlife/beginning-with-habitat/index.html.

Sincerely,

*Joseph Roy*

Joseph Roy, CWB®
Private Lands Biologist | Maine Department of Inland Fisheries and Wildlife
joseph.roy@maine.gov | Phone: (207) 592-3344

## FOREST MANAGEMENT PLAN REVIEW

| General Information | | | |
|---|---|---|---|
| **Date Received** | 12/19/2025 | **Date Reviewed** | 1/22/2026 |
| **Tracking #** | 2026-01-16-KM-04 | **Reviewed By** | Joseph M. Roy |
| **Applicant/Landowner** | Essex Woods | **Forester** | Sophia Cameron |

| Project Location/Contacts | |
|---|---|
| **County** | Penobscot |
| **Town** | Bangor |
| **MDIFW Region** | B |
| **Wildlife Biologist** | Keel Kemper, (207) 287-5369, keel.kemper@maine.gov |
| **Fisheries Biologist** | Jason Seiders, (207) 287-5300, dwayne.j.seiders@maine.gov |
| **MNAP Ecologist** | Abby Stepanauskas, (207) 287-8048, abby.stepanauskas@maine.gov |

| Natural Resources | In[a] | Near[b] |
|---|---|---|
| **Animals:** Endangered, Threatened, or Special Concern (ETSC)[c] | **Yes** | **Yes** |
| **Canada Lynx Habitat**[d] | No | No |
| **Deer Wintering Areas (DWA)**[e] | Unknown | Unknown |
| **Inland Waterfowl/Wading Bird Habitat (IWWH)**[d] | No | No |
| **LUPC Protection Fish & Wildlife Zone**[d] | No | No |
| **Natural Communities:** rare and/or exemplary[c] | Unconfirmed | Unconfirmed |
| **Plants**[c] | Unconfirmed | Unconfirmed |
| **Shorebird Roosting Areas**[d] | No | No |
| **Signficant Vernal Pools**[e] | Unknown | Unknown |
| **Tidal Waterfowl/Wading Bird Habitat (TWWH)**[d] | No | No |
| **Wild Brook Trout Habitat**[e] | **Yes** | **Yes** |

a. Within the property.
b. Within 750 ft of the property.
c. "Yes" = observation data documents the presence of a species/natural community (see itemized table below for more details). "Unconfirmed" = there is insufficient data to document presence.
d. "Yes" = the habitat occurs there, "No" = it does not.
e. "Yes" = this potential habitat occurs there, "Unknown" = there is insufficient data to determine whether it occurs there.

| Landscape Context Features | In[a] | Near[b] |
|---|---|---|
| **Beginning with Habitat Focus Area(s)** | **Yes** | **Yes** |
| **Conserved Land(s)** | **Yes** | **Yes** |
| **New England Cottontail Focal Area(s)** | No | No |
| **MNAP Potential Inventory Sites** | No | No |

a. Within the property.
b. Within 750 ft of the property.

| Plants/Animals/Natural Communities | State Status[a] | State Rank[b] | Global Rank[b] | SGCN Priority[c] | EO Rank[d] |
|---|---|---|---|---|---|
| **RARE ANIMALS:** | | | | | |
| Sedge Wren[e] | E | S1B | G5 | 1 | Unknown |
| Upland Sandpiper[f] | T | S3B | G5 | 1 | Unknown |

[a] **State Status** - all species with E, T, or SC Status are listed as Species of Greatest Conservation Need (SGCN) in the State Wildlife Action Plan.
**E (Endangered)** = rare and may be lost from the state in the foreseeable future or federally listed as Endangered.
**T (Threatened)** = rare and, with further decline, could become endangered; or federally listed as Threatened.
**SC (Special Concern)** = a species that does not meet the criteria for E or T, but is particularly vulnerable and could easily become a Threatened, Endangered, or Extirpated species.

[b] **State / Global Rarity Rank**
**B** = breeding.
**N** = nesting.
**Q** = taxonomy questions.
**S1/G1** = Critically Imperiled.
**S2/G2** = Imperiled.
**S3/G3** = Vulnerable.
**S4/G4** = Apparently Secure.
**S5/G5** = Secure.
**T** = infraspecific taxonomy.
**?** = inexact rank.

[c] **SGCN Priority.** Describes the prioritization of Species of Greatest Conservation Need based primarily on risk of extirpation, population trend, endemicity, and regional conservation responsibility. For more information, please visit the State Wildlife Action Plan (SWAP) - 2015 at https://www.maine.gov/ifw/docs/2015%20ME%20WAP%20All_DRAFT.pdf
**1** = highest priority.
**2** = high priority.
**3** = moderate priority.

[d] **Element Occurrence (EO) Rank.** Describes the quality of a rare plant population or natural community based on size, condition and landscape context. Ranks range from A (excellent example of the community/population) to D (poor example of the community/population. E indicates that the community or population is Extant but there is not enough data to assign a quality rank.

[e] For more information, please contact Kenzie Roeder, (207) 941-4482.

[f] For more information, please contact Brad Zitske, (207) 485-1039.

STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
353 WATER STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041

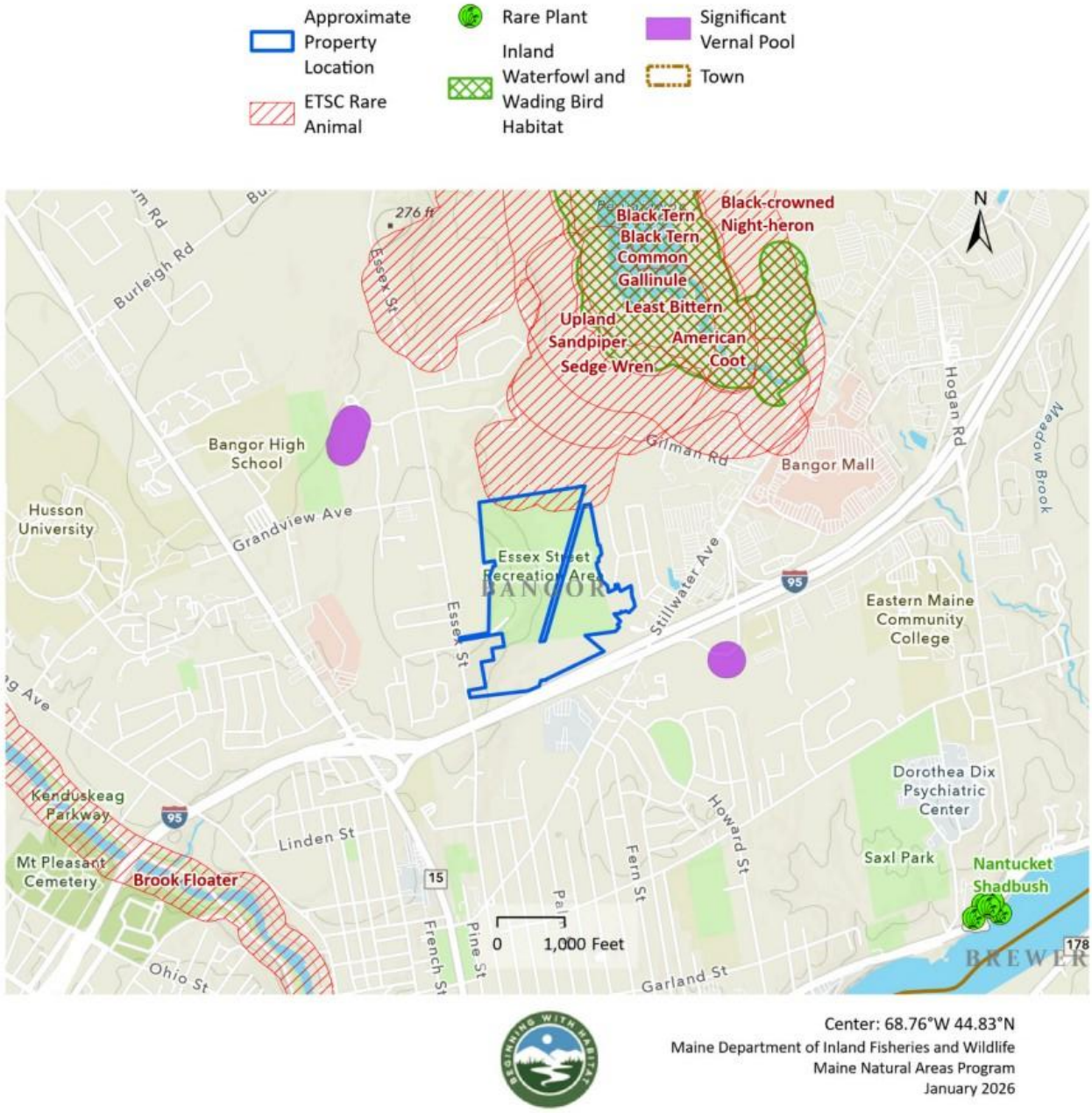
JANET T. MILLS
GOVERNOR

JUDITH CAMUSO
COMMISSIONER

# Forest Management Plan

**Essex Woods** **Forester:** **, ME**

**Sophia Cameron,**




Center: 68.76°W 44.83°N
Maine Department of Inland Fisheries and Wildlife
Maine Natural Areas Program
January 2026

## *Appendix C: Glossary of Common Forestry Terms*

The following glossary was taken from the Forest Management Plan for Essex Woods from 2003.

### GLOSSARY OF COMMON FORESTRY TERMS

**Acre** A unit of land measurement of 43,560 square feet; a square parcel of land approximately 208.5 feet on each side. A parcel of land ¼ mile on each side contains 40 acres.

**All-aged** A stand of trees theoretically including all ages from seedling to overmature.

**Aspect** Direction towards which a slope faces; orientation of a slope face.

**Available Water Capacity** The capacity of a soil to hold water in a form available to plants.

**Basal Area** Area in square feet of the cross section of a tree trunk at breast height most commonly used as an indicator of stand density and expressed as square feet per acre. A tree with a 14" diameter has a basal area of just over one square foot.

**Basal Area Factor 10 (20) Prism** An instrument used by foresters to determine the stocking of the forest.

**Best Management Practices (BMPs)** Guidelines for the reduction of erosion and sedimentation of water bodies (streams, ponds, lakes, rivers, etc.) from logging activities. A practice or combination of practices determined to be the most effective and practicable means of preventing negative impacts of silvicultural activities. Usually associated with erosion control measures and water quality practices.

**Blaze** To remove a spot of bark from a tree, usually with an axe, to make a semi-permanent mark. Commonly painted to indicate boundary lines.

**Blowdown** Any area on which (many of) the trees have been thrown or broken by the wind.

**Board Foot** A unit of measure 1 foot long, 1 foot wide, and 1 inch thick. Usually used for sawlog material only. A common symbol is MBF, which designates one thousand board feet. The average conversion commonly used is 2 cords = one thousand board feet.

**Breast Height** 4.5 feet above ground level. The diameter of a tree is usually determined at this height.

**Browse** Leaves, buds, and woody stems used as food by woodland mammals such as deer, moose, and snowshoe hare.

**Buffer Strip** Vegetation left along a stream, lake, or wetland to protect aquatic life and water quality. Buffer strips filter sediment, provide food, maintain cool water temperatures, and may increase diversity within a landscape.

**Bumper Tree** Poor quality, low value tree that grows in close proximity to higher value trees. Skid roads should be located next to bumper trees in order to protect residual trees from damage during a logging operation.

**Canopy** The cover of branches and foliage formed by the tree crown. The size varies from species to species and covers a much larger area of the forest floor than basal area.

**Clearcut** A forest harvesting practice in which most or all trees are removed from a site. Clearcuts are used for immediate commercial purposes and for regeneration of future forests. Clearcuts are defined by Maine State Statute as "any timber harvesting on a forested site greater than 5 acres in size that results in a residual basal area of trees over 4 ½ inches in diameter measured at 4 ½ feet above the ground of less than 30 square feet per acre, unless, after harvesting, the site has a well-distributed stand of acceptable growing stock, as defined by rule, of at least 3 feet in height for softwood trees and 5 feet in height for hardwood trees that meets the regeneration standards defined under section 8869, subsection 1."

## GLOSSARY OF COMMON FORESTRY TERMS

**Climax Forest** The final stage of a succession of forest tree species which continue to occupy an area as long as climate and soil conditions remain unchanged.

**Co-dominant** Trees with crowns forming the general level of the canopy which receive full light from above but comparatively little from the sides, usually with medium-sized crowns which are crowded on all sides.

**Coniferous** Commonly called softwoods or evergreens. Although there are exceptions, most coniferous trees have cones and keep their needles through the winter.

**Commercial Thinning** Harvests which are aimed primarily at controlling the growth of stands through adjustment in stand density. Trees removed are useful and of value for some purpose. Income from the sale or use of products produced exceeds ALL costs associated with harvesting and removing timber.

**Cord** A unit of volume used in measuring wood products. A standard cord occupies 128 cubic feet of space and contains approximately 85 cubic feet of wood. It is commonly described as a close piled stack of wood 4 feet high, 8 feet long, with sticks 4 feet in length.

**Crop Tree** Those trees in a stand destined to form the final crop, usually the highest quality and value of all the trees in a stand. Crop trees may be selected from an immature stand and carried through until the final harvest.

**Crown** Upper portion of a tree which includes the limbs, branches, buds, and leaves.

**Crown Closure** Usually expressed as the percent occupied, crown closure represents the percentage of the forest area occupied by tree crowns. This is a stocking measurement.

**Cruise** An organized survey of forest land to locate timber and estimate quantity by species, products, or other information; the estimate obtained in such a survey.

**Deciduous** Commonly referred to as hardwoods or broadleaved trees. In most cases they lose their leaves in the fall.

**Den Tree** A tree with a cavity or cavities used by wildlife.

**Density** A measurement of a stand in terms of square feet of basal area, number of trees, or volume per acres. It reflects the degree of crowding of the stems within the stand. Expressed as basal area, it is a measure of the portion of an area occupied by trees. Expressed as a percentage of crown closure, it is an estimate of the extent the site is occupied.

**Diameter Breast Height (DBH)** The diameter of a tree (outside bark) at a point 4 ½ feet above the ground.

**Dominant** Trees with crowns extending above the general level of the crown cover and receiving full light from above and partly from the side. Dominant trees are generally larger than average trees in the stand, with crowns well developed and partially crowded on the sides.

**Duff** Forest litter of organic debris (in various stages of decomposition) on top of the mineral soil.

**Epicormic Branching** The sprouting of dormant buds on the stem of a hardwood tree which can reduce the value of sawlogs from that tree.

## GLOSSARY OF COMMON FORESTRY TERMS

**Even-aged Management** Managing a forest or forest stand to product a forest of trees of the same relative age. Even-aged management techniques include intermediate treatments, clearcuts, patch clearcuts and shelterwood cuts.

**Even-aged Stand** A stand of trees in which relatively small age differences exist. A stand is considered even-aged if the difference in age between the oldest and the youngest trees do not exceed twenty percent of the length of the rotation. Stands stocked with two distinct age classes are considered even-aged.

**Forest Ecosystem** All the plants, animals, and chemical and physical processes which interact to sustain the forest. Trees and other organisms interact with each other and with the chemical and physical environment in complex ways.

**Forest Management** The application of sound forestry principles and practices to the operation of the woodlands.

**Forest Type** A group of trees, occupying a specific area and uniform in composition, species, age arrangement, and condition, as to be distinguished from other adjoining forested areas.

**Forester** A person who has been professionally educated in forestry and in some states required to possess a license in order to practice. Licensing is required in Maine.

**Girdle** The removal or killing of a ring of bark around the tree stem so that the flow of carbohydrates from crown to roots is blocked. The roots die and the whole tree is killed. Can be done with an axe. Usually used to create a snag for wildlife habitat or to eliminate the influence of a large tree presence in the canopy without actually felling the tree.

**Group Selection Harvesting Method** Removal of small groups of trees within a harvest area.

**Growing Stock** Trees capable of producing at least one 12 foot sawlog now or in the future.

**Hardwood** Used to designate all broadleaved or deciduous trees as a class. This would include maples, birches, ashes, oaks, aspens, cherries, beech, and other broadleaved trees.

**Hardwood Type** A forest in which hardwood tree species comprise at least 75% of the stand.

**Height Class** Used in defining a stand of trees. Height classes are usually divided into trees of less than 35 feet in height, trees from 35 feet to 64 feet, and trees greater than 65 feet in height.

**Highgrading** Selective removal of the most economically valuable trees without improvements in the remaining forest.

**Intermediate Tree** A tree shorter than a dominant but extending into the crown cover formed by the dominant and co-dominant trees; receiving some direct sunlight from above but none from the sides.

**Ingrowth** The volume or number of trees which have grown past an adopted lower limit of measurement during a specified time.

**Intolerance** The inability of a tree to develop and grow in the shade of and in competition with other trees.

**anding** A place where logs and pulp are assembled for loading and transportation to a mill

**Live Crown Ratio** The percentage of the length of a tree with living branches.

## GLOSSARY OF COMMON FORESTRY TERMS

**Mast** Any nut, seed, or fruit produced by woody plants and consumed by wildlife.

**Merchantable** Refers to forest products which can be harvested and sold; trees of commercial value.

**Mixedwood Type** Forest stands occupied by a mixture of softwood and hardwood tree species. Neither hardwood nor softwood tree species occupy more than 75% of the tree stocking.

**Natural Regeneration** Seedlings from natural seeding or sprouts and other plants representing vegetative reproduction.

**Overstory** That portion of the trees in a forest forming the upper crown.

**Overstory Removal** Removing overstory trees releasing established regeneration.

**Overtopped/Suppressed Tree** Trees with crowns entirely below the general level of the crown cover, receiving no direct light either from above or from the sides.

**Patch Cut/ Patch Clearcut** Removal of all trees within designated small areas in the harvest area. Areas are larger than those cut in a group selection method harvest. An even-aged management technique.

**Pole Size** A DBH size class representing trees that are usually more than 4 inches in DBH and less than 10 inches DBH; generally over 20 feet in height.

**Precommercial Thinning** Cuttings which are aimed primarily at controlling the growth of stands through adjustments in stand density. Income from the sale or use of products produced do not exceed costs associated with harvesting and removing timber.

**Pruning** Removal of a portion of tree limbs, branches, or tops to improve tree form, shape or health and increase quality or growth.

**Pulpwood** Wood cut primarily for the manufacture of paper, usually the lower quality portions of a tree.

**Regeneration** Young forest trees usually produced naturally from seed of mature trees but also includes hardwood stump sprouts and planting or seeding by artificial means. Advanced regeneration are seedlings or saplings that are already present in a forest stand.

**Residual Stand** Those trees remaining uncut (and hopefully undamaged) following a cutting operation.

**Release** The process by which young stands of desirable trees, not past the sapling stage, are freed from the competition of undesirable trees that threaten to suppress them.

**Rotation Age** The age at which the timber stand is considered ready for harvesting under the approved plan of management.

**Sanitation Cut** Removal of diseased, damaged, overmature, or undesirable stems from a stand.

**Sample Point** A location on a woodlot where tree measurements and other pertinent information is recorded. The measurements taken on each sample point are statistically analyzed to reflect the forest composition on the entire woodlot.

**Sapling** A young tree less than 4 inches DBH. The minimum size of saplings is usually placed at 1 inch DBH. Saplings are generally 3 to 20 feet tall.

**Sawlog/ Sawtimber** A log large enough to permit production of lumber or other products by sawing. Size and cull percent permitted must be specified in any contract and will vary with local practice. Usually greater than 10 inches DBH for softwoods and 12 inches DBH for hardwoods.

## GLOSSARY OF COMMON FORESTRY TERMS

**Scarification** The disturbance of the forest floor to expose areas of mineral soil. This is done to prepare a seedbed and encourage establishment of desired species of tree seedlings.

**Seed Tree Harvest** Removing trees in a mature stand so as to effect permanent opening of its canopy and so provide conditions for securing regeneration from the seed of trees retained for that purpose. An even-aged management technique.

**Seedling** Trees that are less than 3 feet tall.

**Selection Harvest** The removal of trees either as single scattered individuals or in small groups, at relatively short intervals repeated indefinitely so that the continuous establishment of regeneration is encouraged and an uneven-aged stand is maintained.

**Shelterwood** A system of management requiring the removal of the mature timber in a series of cuttings over a period of time which establishes essentially even-aged regeneration under the partial shelter of seed trees.

**Silviculture** The theory and practice of controlling forest establishment, composition, and growth.

**Single Tree Harvesting Method** Removal of single trees distributed throughout a harvest area.

**Site Index** A measure of site quality (productivity) for a given tree species or group of tree species. The site index is the average height of a tree species or group of species at a standard age (usually 50 years).

**Slash** The tops, branches, and defective/nonmerchantable parts of trees left on the ground after logging, pruning, thinning, or brush cutting.

**Snags** Dead standing trees, often with tops broken off, which serve as perches, lookouts, foraging, and home sites for wildlife.

**Softwood** Used to designate all coniferous (cone bearing) species as a class. This would include spruces, pines, balsam fir, hemlock, cedar, larch or hackmatack, and other cone bearing species.

**Softwood Type** A forest in which softwood tree species comprise at least 75% of the stocking.

**Springpole** Saplings or smaller trees that are bent over by a larger felled tree. They can be under extreme tension and are dangerous.

**Stand** See Forest Type

**Stocking** Density of tree growth in the stand (forest), expressed in terms of trees per acre, basal area per acre, volume per acre, or percent crown closure.

**Stumpage** Value of standing, uncut trees.

**Timber Stand Improvement (TSI)** Precommercial or non-commercial activity designed to improve tree and stand quality and/or release the potential crop trees in a stand. May include thinning, weeding, and pruning.

**Timber Type** See Forest Type

**Thinning** Removal of some trees in a stand to increase growing space thereby improving growth rate and/or quality in the remaining trees.

**Uneven-aged Management** Managing a forest or forest stand to produce three or more distinct age classes of trees.

## GLOSSARY OF COMMON FORESTRY TERMS

**Uneven-aged Stand** A forest or stand composed of intermingling trees that differ markedly in age.

**Vernal Pool** An ephemeral body of water that fills in the spring, holds water for at least 10 days, and dries up by fall some or all years and that does not contain fish.

**Weeding** The removal of all plants competing with a crop species, regardless of whether their crowns are above, beside, or below those of the desirable trees. Removal of diseased, damaged, and poor quality trees.

**Wildlife Habitat** Four basic components of habitat are food, water, cover, and space. Specific requirements for each of these components will vary with species, season of year, and the age and sex of the animal.

**Windfirm** The ability of the root system of a tree to withstand wind pressure and keep the tree upright.

**Wolf Tree** Usually large in size, limby, and poorly formed with little commercial value. Same function as snags, except the tree is still alive and possibly producing mast.

## *Appendix D: Common Maine Tree Species Codes*

| Species Code | Scientific Name | Common Name |
|---|---|---|
| BF | *Abies balsamea* | Balsam fir |
| TA | *Larix laricina* | Tamarack |
| WS | *Picea glauca* | White spruce |
| RS | *Picea rubens* | Red spruce |
| NS | *Picea abies* | Norway spruce |
| BS | *Picea mariana* | Black spruce |
| RP | *Pinus resinosa* | Red pine |
| WP | *Pinus strobus* | Eastern white pine |
| WC | *Thuja occidentalis* | Northern white cedar |
| EH | *Tsuga canadensis* | Eastern hemlock |
| JP | *Pinus banksiana* | Jack pine |
| OS | *N/A* | Other softwood |
| RM | *Acer rubrum* | Red maple |
| SM | *Acer saccharum* | Sugar maple |
| SV | *Acer saccharinum* | Silver maple |
| NM | *Acer plantanoides* | Norway maple |
| YB | *Betula allegheniensis* | Yellow birch |
| RB | *Betula nigra* | River birch/black birch |
| PB | *Betula papyrifera* | Paper birch/white birch |
| GB | *Betula populifolia* | Grey birch |
| AB | *Fagus grandifolia* | American beech |
| WA | *Fraxinus americana* | White ash |
| BA | *Fraxinus nigra* | Black ash |
| GA | *Fraxinus pennsylvanica* | Green ash |
| QA | *Populus tremuloides* | Quaking aspen |
| BP | *Populus balsamifera* | Balsam poplar |
| BT | *Populus grandidentata* | Bigtooth aspen |
| BC | *Prunus serotina* | Black cherry |
| WO | *Quercus alba* | White oak |
| SW | *Quercus bicolor* | Swamp white oak |
| BR | *Quercus macrocarpa* | Bur oak |
| RO | *Quercus rubra* | Northern red oak |
| OH | *N/A* | Other hardwood |

## *Appendix E: Maine Forest Service Boundary Line Information Sheet*



**INFORMATION SHEET 4**
**REVISED: DECEMBER 2022**

# Boundary Line Information

Maine Forest Service, DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
22 State House Station, Augusta, ME 04333

Robert Frost's observation "***good fences make good neighbors***" is as true today as when he wrote it. As land and timber values increase, good boundaries are even more important today than they were in the past. The following information will help landowners avoid boundary problems:

### Establishing boundaries:

**1. An "established property line" means a line demarcated by monuments, signs, markings, pins, reference points or other markers that denotes a change in ownership between abutting properties. These established property line markers must have been placed upon mutual agreement of the abutting landowners,** based on historical physical evidence of a preexisting boundary line or by a licensed professional land surveyor.

Only a licensed surveyor can establish a property line if there are no existing blazes or monuments. Surveyors are licensed in the state of Maine under 32 M.R.S. §18201 *et seq*. A roster of land surveyors licensed to practice in Maine is available online at:

https://www.pfr.maine.gov/ALMSOnline/ALMSQuery/SearchIndividual.aspx

2. A landowner or licensed forester may maintain a line where some monuments or blazes still exist. If you cannot sight from one blaze to another, you should get the line surveyed by a licensed surveyor. Previously marked lines may be incorrect and will be relocated after an accurate survey.

3. Monuments are relatively permanent features like stone posts, iron bars, etc., that are established by a surveyor. Tree blazes are not monuments, they are an approximate location of where the line lies. A cap listing the surveyor's license number must be placed on the lot's corner posts.

4. Line trees are trees where the actual boundary intersects any part of the tree, such that part of the tree is on either side of the boundary (17 M.R.S. §2511(1)(D). (See Tree A on the back of this sheet.) Because they may be evidence of a line, blazed trees on a property line serve as witness trees and should not be cut. They generally have little timber value as the blaze provides an avenue for bacteria and fungi to invade the tree and cause rot. Line trees may also have fencing tacked to them, which will cause them to be rejected at a sawmill. **Line trees may only be cut with the permission of the abutting landowner** (17 M.R.S. §2511(2)(B).

5. Before permanently marking a boundary by blazing or painting, the line should be walked with the adjoining landowner to ensure its location is mutually agreeable. If there is disagreement about a line, it should be surveyed. Landowners may agree to share the costs; however, this should be agreed to or otherwise determined before proceeding with the survey.

### Maintaining boundaries:

1. Boundaries should be painted with high grade, durable paint. Colors such as red, yellow, orange or blue are easily seen and visible for long distances. Paints specifically formulated for marking boundaries are available from forestry supply companies. Paint trees only when the bark is warm and dry.

2. In blazing and painting trees along the boundary line, the following rule is used:

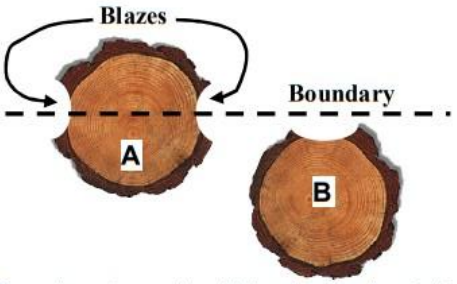
A. If the boundary line passes through the middle of a tree, blaze and paint on both sides of that tree where the line passes through it (Tree A).

B. Where the line passes adjacent to the tree, blaze and paint one point only, immediately adjacent to the line (Tree B).

C. Be sure to paint generously so that lines can be seen from either side. This will help prevent accidental trespass.

3. Avoid blazing well-formed, large, or valuable trees as blazing may degrade their value. Blazes should be over six inches long and located about five feet above the ground. Blaze often enough so that it is possible to see the next blaze easily. When re-blazing a line, blaze above or below the original blaze so that historical evidence is not lost.

*Practical advice for your land and trees from the Maine Forest Service*




4. Boundary lines should be brushed out for easy traveling and visibility. Prune limbs to head height and cut small trees along the line. Permission is required to cut vegetation on another's property. Check with the adjoining landowner before proceeding.

5. Missing corners should only be placed by a surveyor and be of permanent material, with the adjoining trees (witnesses) marked for easy locating. Deteriorating corner posts may be replaced with cedar or spruce posts, as other species it will quickly decay. Iron pipe is long lasting, easily transported, inexpensive, and easily driven into the ground. Where available, pile small stones around corner posts. Paint the stones and the corner post. Leave existing old posts as evidence.

6. High quality paint, properly applied, should last at least ten years in the woods; axe blazes should last longer. Lines should be checked and maintained annually or periodically. Lines and corners should be shown to family members so they can locate them in the future.

**Timber Harvesting and Boundaries:**

Maine law protects adjoining landowners from timber trespass and damages that occur during logging or wood harvesting operations. If you are considering harvesting timber, you should know and observe state and local timber harvesting regulations near property lines, trespass, and slash disposal laws.

1. Anyone who authorizes timber harvesting, or harvests timber shall **clearly mark with flagging or other temporary and visible means any established property lines within 200 feet of an area to be harvested**. Property lines must be marked prior to commencing a harvest. Parcels less than five acres are exempt. (17 M.R.S. §2511). Failure to clearly mark property lines may also make the person who authorized the cutting liable for forfeiture damages to an abutter if a timber trespass occurs (17 M.R.S. §2510(2).

2. Slash left from any cutting operations of forest growth must be disposed of according to the following regulations: (12 M.R.S. §9331-9336).

A. Along highways, slash must not be left in the right-of-way or within 50 feet of a public highway.

B. Along railroads and utility lines (pipeline, electric, telephone, telegraph, or cable) slash must be removed from in the right-of-way or within 25 feet of the nearer side of the right-of-way.

C. Slash that might constitute a fire hazard shall not be allowed to remain on the ground within 25 feet of the property line of land belonging to another.

**No Trespassing Marking:**

A landowner may mark their property with OSHA Safety Purple paint to indicate that access is by permission only. Paint should be a single stripe at least one inch wide and eight inches long and located between three and five feet off the ground (17-A M.R.S. §402). Stripes should be no further than 100 feet apart along the property line and at vehicular entries. This should be in addition to a properly marked and blazed boundary line.

**For more information, please contact:**
**Maine Forest Service**
**DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY**
**22 State House Station**
**Augusta, ME 04333-0022**
**(207) 287-2791**
**forestinfo@maine.gov**

**Be Woods Wise!**
Practical advice for your land and trees from the Maine Forest Service.
**www.maineforestservice.gov**

## *Appendix F: 1933 Deed from Ray D. Strickland to the City of Bangor*

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Vol. 1070

STRICKLAND to CITY OF BANGOR

**Know All Men By These Presents, That,**

I, Ray D. Strickland of Bangor, County of Penobscot and State of Maine,

NOT AN OFFICIAL COPY

in consideration of one dollar and other valuable consideration

paid by the City of Bangor, County of Penobscot and State of Maine,

the receipt whereof ~~I~~ do hereby acknowledge, do hereby give, grant, bargain, sell and convey unto the said City of Bangor, its successors ~~heirs~~ and assigns forever, a certain lot or parcel of land on the easterly side of Essex street in said Bangor bounded and described as follows: Beginning at a point in the easterly line of Essex Street seven hundred twenty-nine and two-tenths (729.2) feet northerly of the northerly line of land now or formerly owned or occupied by Carrie A. Gilbert, measured on said line of Essex street; thence easterly at right angles with said easterly line of Essex street two hundred seventy and two-tenths (270.2) feet to a point; thence S. 30° 28' E. two hundred and two-tenths (200.2) feet to a point; thence S. 73° 53' E. about one hundred four and three-tenths (104.3) feet to a point in the westerly line of land conveyed by Ray D. Strickland to City of Bangor by deed dated April 27, 1929 and recorded in Vol. 1031, page 456, Penobscot Registry of Deeds; thence northerly on said westerly line of land conveyed by Strickland to City of Bangor three hundred eighty (380) feet to a point; thence at right angles westerly two hundred three (203) feet to a point; thence S. 25° 47' W. one hundred seventy-six and one-tenth (176.1) feet to a point; thence westerly on a line which will be at right angles with the easterly line of Essex street two hundred eighty-four (284) feet to a point in said line of Essex street sixty (60) feet northerly of the place of beginning; thence southerly on and by the easterly line of Essex street sixty (60) feet to the point of beginning. Being a part of the same premises conveyed by Arthur B. Haskell to Ray D. Strickland by deed dated January 9, 1921 and recorded in Vol. 933, page 428 of said Registry.

**To Have and to Hold**, the aforegranted and bargained premises, with all the privileges and appurtenances thereof to the said City of Bangor, its successors ~~heirs~~ and assigns, to its and their use and behoof forever. And I do covenant with the said Grantee its successors ~~heirs~~ and assigns, that I am lawfully seized in fee of the premises; that they are free of all encumbrances; that I have good right to sell and convey the same to the said Grantee to hold as aforesaid; and that I and my heirs shall and will warrant and defend the same to the said Grantee its successors ~~heirs~~ and assigns forever, against the lawful claims and demands of all persons.

**In Witness Whereof**, I, the said Ray D. Strickland, and I, Maude J. Strickland, wife of the said Ray D. Strickland, in token of my release of all right of dower or title by descent and all other rights in the above described premises, have hereunto set our hands and seals this seventh day of April in the year of our Lord one thousand nine hundred and thirty-three.

*Signed, Sealed and delivered in presence of*

Roland Jones — Ray D. Strickland (LS)
Roland Jones — Maude J. Strickland (LS)

STATE OF MAINE
Penobscot ss. April 7, 1933. Personally appeared the above named Ray D. Strickland and acknowledged the above instrument to be his free act and deed.
Before me, Harold H. Colby, Notary Public

Notary Seal

Received April 25, 1933, 1 h 55 m P. M.

## *Appendix G: Letter from Thaxter R. Trafton to the Maine National Guard*

*Bangor, the center of Maine--the Gateway to Maine's North Woods and Seashore Resorts*

THAXTER R. TRAFTON
PARKS AND RECREATION DIRECTOR

RECREATION DIVISION
DALE W. THERIAULT
RECREATION SUPERINTENDENT
JOHN C. WISE
ASS'T RECREATION SUPERINTENDENT
GEORGE E. SEARWAY
SENIOR CITIZENS' DIRECTOR

**City of Bangor, Maine**
PARKS AND RECREATION DEPARTMENT

July 7, 1971

Maine National Guard

Att: Major L. K. Feeney

The City of Bangor is developing a winter recreation area on the old Essex Street Dump. The facilities will include a ski lodge, ski slope, sliding area, skating and snowmobile areas. The project will be done in two phases.

This summer an access road to the ski slope has been nearly completed and the brush has been cut off 25% of the ski slope. In order to complete the first phase of the project, the City of Bangor requests assistance from Maine National Guard in hauling 15,000 yards of fill to the ski slope. A front end loader, one bulldozer and several dump trucks will be needed. The bulldozer will be used to level the fill to rough grade on the ski slope. This phase of the project should be completed by December, 1971.

The City of Bangor will also seek assistance from the Maine National Guard in the second phase of its project, which should be completed by the fall of 1972. The Guards' involvement during this phase will include construction of the ski lodge and the ski tow facilities. Details on this phase will be submitted shortly.

Respectfully requested,

Thaxter R. Trafton

Thaxter R. Trafton
Parks & Recreation Director

TRT:q

## *Appendix H: Outdoor Sports Institute (OSI) Trail Plan*

*A summary of this plan will be added here once it is complete.*

***Appendix I: Notes from Essex Woods Visit with Mackenize Roeder, Ph. D., Songbird Specialist in the Wildlife Diversity Section of the Maine Department of Inland Fisheries and Wildlife***

**Red Pine Plantation**

- Continued removal and management of invasive plant species will benefit native understory regeneration and improve habitat quality for breeding birds.
- Ongoing efforts to transition portions of the plantation toward more natural forest cover types are encouraged, particularly through retention and promotion of native oak and pine species. Increasing structural and compositional diversity within the stand will likely improve habitat suitability for a broader suite of forest bird species compared to even-aged red pine monocultures.
- Retention of snags, cavity trees, coarse woody debris, and patches of dense understory vegetation, if they exist, where feasible would provide additional nesting and foraging opportunities for birds.
- Mountain biking and recreational trail use were identified as an important use of the property. To minimize additional fragmentation and disturbance impacts to nesting birds, particularly ground- and shrub-nesting species, establishment of new trails within this area is discouraged. Maintenance and use of existing trails is preferable to further trail expansion.
- If trail improvements are pursued, efforts should focus on maintaining the current footprint and avoiding widening, braiding, or creation of new connectors through intact habitat patches. This work should not be done during the following time period: 15 April - 15 September, when possible, to avoid disturbances to migratory and breeding birds. This window is conservative so if it causes any issues touch base with me and we can revisit.

**Invasive Species Removal:**

- Continued invasive species management targeting knotweed, Norway maple, buckthorn, and other nonnative species is encouraged and will provide substantial long-term benefits to native plant communities and associated wildlife habitat.
- Current treatment methods indicated include foliar herbicide application for knotweed and cut-stump treatments for woody invasive species
    - Because these areas support breeding birds, invasive species treatments should be planned with consideration for seasonal nesting activity where feasible. Conducting higher-disturbance activities outside of peak nesting periods, particularly in areas with dense shrub or ground cover, may help reduce the risk of disturbance to nesting birds. Birds like Gray Catbirds have been found nesting in Knotweed so please restrict activities outside the breeding season (window listed above).
- Herbicide applications should continue to follow label requirements and best management practices to minimize unintended impacts to adjacent native vegetation and habitat structure important for breeding birds and insect communities.
- Retention of some native shrub and understory structure during invasive species removal efforts is encouraged where possible, as dense low vegetation can provide important nesting and foraging habitat for many species.

**Scots Pine and Norway Spruce**

- In favor of these efforts. Gradually transitioning portions of these stands toward more natural and structurally diverse forest conditions would improve long-term habitat value for native wildlife.
- Removal of large Norway spruce and hazardous or declining trees in areas with regular public use is understandable from both invasive species management and public safety perspectives.
    - Where feasible, tree removal and other high-disturbance forestry activities should be timed outside of the peak bird breeding season to help minimize impacts to nesting birds.
- Retention of standing dead trees (snags), where they do not pose a safety risk, is encouraged. Snags provide important nesting, roosting, and foraging habitat for many bird species, including cavity nesters and insectivorous birds.
- Where complete snag retention is not possible, consideration could be given to retaining select "wildlife trees" or partial snags in lower-use areas to maintain some structural habitat features within the stand.

**Mature Softwood stand**

- A tucked-back mature softwood stand on the property appeared to provide particularly valuable habitat due to its mature forest structure, abundance of snags, and relatively low levels of anticipated human disturbance. Retention and protection of this area is encouraged, as older softwood stands provide important nesting and foraging habitat for many forest bird species.
- Avoiding new trail development and minimizing intensive management activities within this stand would help maintain its value as a low-disturbance refuge for breeding birds.
- Its proximity to the ROW makes me wonder about versant's herbicide application and its impacts on this section of forest. If there is any way to speak with them and learn when this occurs and what is being applied and how that would be helpful.
- Retention of mature cone-producing conifers where feasible will be especially beneficial for birds that rely on conifer seed resources (older trees = better cone crops).
- Concerns regarding Hemlock Woolly Adelgid are understandable; however, minimizing preemptive removal of healthy hemlock in the absence of confirmed infestation would help preserve important habitat structure and food resources while monitoring efforts continue.

**Rail Trail Wetland:**

- The wetland complex along the rail trail is fabulous. Appeared to provide excellent bird habitat and supported high levels of breeding bird activity during the site visit (amazing given how early in the season), including multiple counter-singing Swamp Sparrows. Maintaining the hydrology, shrub structure, and overall integrity of this wetland system should remain a priority given its apparent value to marsh- and wetland-associated bird species.

- The area also appears well-suited for birding and wildlife observation and clearly represents an opportunity for low-impact birding-focused recreation and outreach, particularly given existing public access via the rail trail.

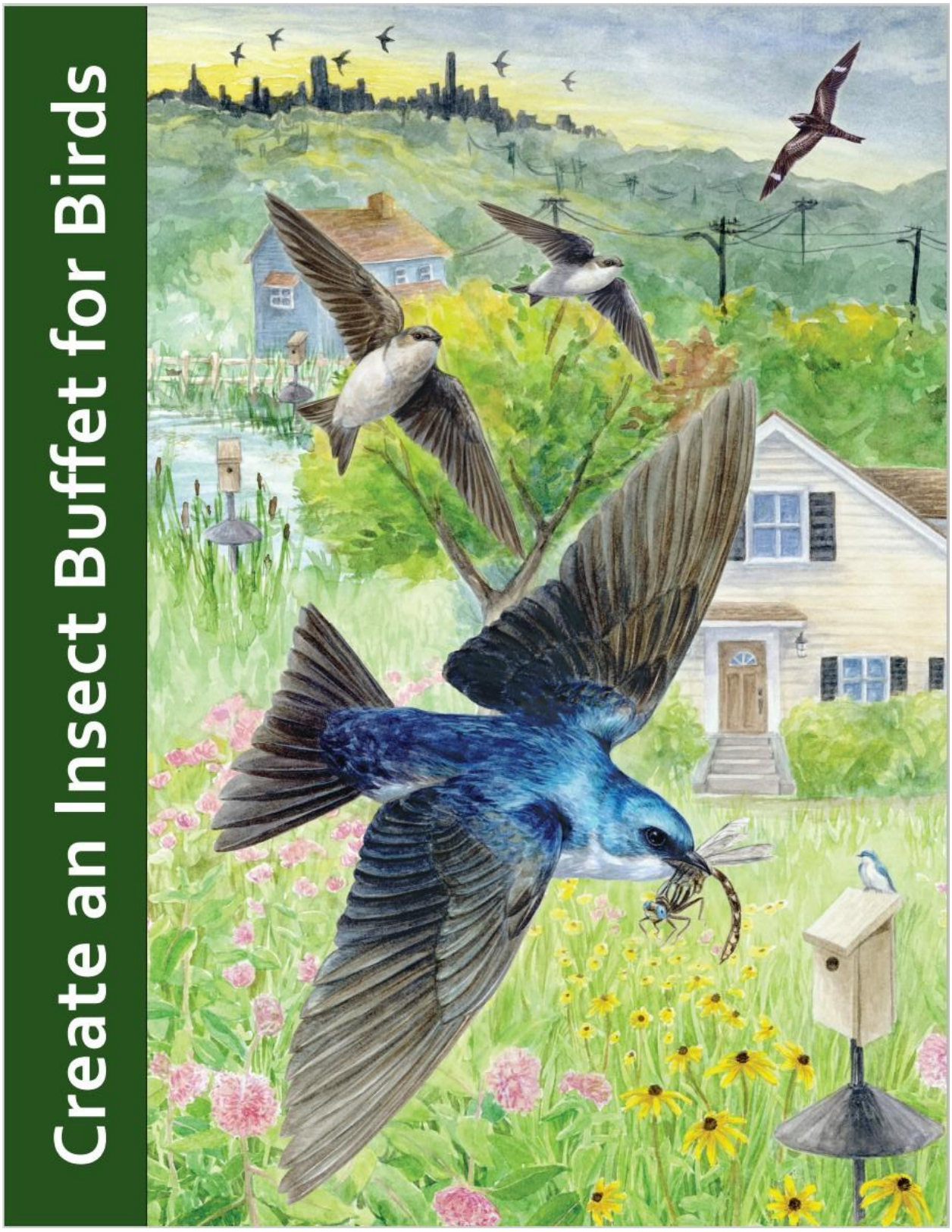
**Wetland across from sled hill**

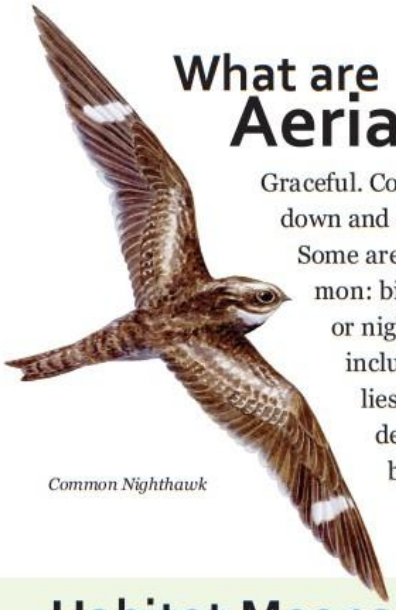
- Along the wetland corridor leading toward the sled hill, the selective cattail removal in portions of the more densely vegetated side that Bob suggested is a good idea.
- The broader open wetland habitat on the opposing side appeared to provide excellent habitat for species like Red-winged Blackbirds, while also likely supporting important insect production and foraging opportunities for aerial insectivores. Tree Swallows were seen foraging, and it was reported that Pied-billed Grebe, Green Heron, and Swamp Sparrows have been found utilizing this habitat. Maintaining the overall open wetland character and hydrology of this system is encouraged.

**Sled Hill**

- We've discussed this, I think the potential for Tree Swallow boxes here, and on the edges of the wetland would be of high value. If the switchback trail goes forward, we can plan accordingly.

***Appendix J: Cornell Lab of Ornithology's Aerial Insectivore Information Sheet***





*Common Nighthawk*

# What are Aerial Insectivores?

Graceful. Colorful. Helpful. You may have seen them in flight, swooping up and down and all around, on the hunt for their insect prey. Then again, maybe not. Some are nocturnal. Camouflaged. Elusive. But they all have one thing in common: birds which gulp down insects while flying—whether it's dawn, dusk, day or night—are known as "aerial insectivores." In North America, this group includes species in the swallow, swift, martin, nightjar, and flycatcher families. Unfortunately, many aerial insectivore populations have been steeply declining since the 1980s—as have insect populations. How can we help bring these agile fliers back to our yards, farms, cities, and wild spaces? This guide outlines actions we can collectively take to improve habitat for nature's bug-zappers.

## Habitat Means Food, Places to Nest, and Safety

Aerial insectivores eat flying insects as their primary food source year-round. If you have a yard, patio, or outdoor space that you manage, the choices you make matter for birds. Here's how to get started:

### Bird-friendly mowing

Grasses and wildflowers can provide excellent habitat. If you have a piece of your property that you can control the mowing schedule for, first try to reduce the frequency of mowing and leave the blades three inches tall or higher. This can ensure plants such as clovers retain their flowers, thus continuing to support pollinators.

If you have a large meadow or grassy area that you mow annually, make sure you avoid mowing during nesting season. This United States map will give you a sense of the duration of nesting season in your region. Meadows provide important habitat for insects and safe cover for ground-nesting birds. Finally, try to reduce the overall size of your lawn and leave buffer strips or areas with longer grass along the edges.

### Water resources

Insects tend to congregate over bodies of water. These irreplaceable "nutrient hotspots" need protection from disturbances like urbanization, agricultural pesticides, and fertilizers. If you have a backyard or farm pond, don't mow right up to the edge; leave a vegetation buffer around it to provide places for insects to feed, rest, and lay eggs. This will also attract aerial insectivores who may nest nearby.

### Native plants

Native plants are those that have been growing in your region for thousands of years. Evidence shows that native plants support more insects than non-native, exotic species. Online tools such as Pollinator Partnership or Lady Bird Johnson Wildflower Center will help you determine which plants are native to your region and which increase your property's value to birds, insects, and other wildlife.





*Tree Swallows chasing mayflies*

## A Place to Nest

Aerial insectivores nest in remarkably diverse locations—in tree hollows and nest boxes, on homes and buildings, on the ground, high on gravel rooftops, in sandy burrows, under bridges, in chimneys, inside caves, and even behind waterfalls! Human tolerance of their sometimes-inconvenient nesting sites is a big factor in helping populations recover. For instance, Chimney Swifts nest in urban masonry chimneys, creating noise that prompts some homeowners to block chimney access. With fewer natural nest sites available, they have come to rely on our chimneys as a replacement for large, hollow trees. Similarly, as many old rural barns fall into disrepair, Barn Swallows are making the switch to nesting on homes and businesses, sometimes leaving a mess below their nest. Simply placing a sheet of newspaper weighted with stones on the ground below the nest, or attaching a small wicker basket to the wall below the nest can make the temporary guests more welcome.

For some aerial insectivores, tolerance may be enough. But for others, actively creating new nest sites is needed. You can provide nest boxes for Tree Swallows and Violet-green Swallows in open areas like yards and fields. Be sure to attach predator guards to free-standing poles. It's also a great idea to leave dead trees standing when possible, as these make desirable natural nest sites. Barn Swallows can be attracted by a nesting shelf placed just underneath the eaves of a home, garage, school, or other building. Purple Martins rely almost entirely upon human-provided nesting sites and active management by those willing to become landlords. To download nest box plans for swallows, martins, and other species, check out NestWatch's Right Bird, Right House tool.

For urban Common Nighthawks, a flat gravel rooftop is a satisfactory place to nest. However, the conversion of gravel rooftops to smooth surfacing makes potential nesting sites unsuitable. Maintaining stone rooftops with pea gravel can support more urban Common Nighthawks. Identifying and protecting existing nest sites is important because the females will return to the same sites year after year.

In order to understand why aerial insectivores are declining, scientists need more data on their nesting biology. You can monitor the nests of any species you find (nest boxes are especially easy to visit) and report on the outcome to NestWatch, a citizen-science nest monitoring program. It's free to participate; **learn more and get certified as a NestWatcher on NestWatch.org.**

## Healthy Habitats

Part of a healthy habitat is minimizing everyday threats that birds face. For aerial insectivores, that means ensuring a plentiful supply of insects and a stable climate for both birds and their insect prey. Consider these best practices:

### Avoid pesticides

Applying broad-spectrum pesticides can harm birds that eat insects. A less harmful practice to control garden pests is applying soapy water directly to the affected plant. Encourage insects in your spheres of influence: turn off the bug zapper, put down the insecticide sprayer, and use protective clothing and bug spray to keep yourself protected.

### Be climate smart

Heat and drought can impair hatching and fledging success of nesting birds. Research shows that aquatic and terrestrial insects are emerging earlier as early spring temperatures get warmer. Some bird species are trying to keep up—that is, nesting earlier to keep pace with the insects—but they can only do so up to a point. Constraints on the other parts of their life cycle (e.g., migration, replenishing energy reserves) limit just how much they can "match" the changing pace of insect activity. Using clean energy, lowering your carbon footprint, and supporting policies that help reduce greenhouse gas emissions may delay climate warming.

# Attract an Aerial Insectivore

## Tree Swallow

*Tachycineta bicolor*




**Habitat:** grassland, lake, marsh, shore
**Breeding Range:** N. North America
**Diet:** dragonflies, damselflies, flies, mayflies, caddisflies, true bugs, bees, ants, wasps, beetles, butterflies, moths, spiders.
**Nesting period:** mid-May to Jul

Download a nest box plan

## Violet-green Swallow

*Tachycineta thalassina*




**Habitat:** grassland, lake, marsh, shore, mountain, open woodland
**Breeding Range:** W. North America
**Diet:** flies, leafhoppers, leafbugs, aphids, flying ants.
**Nesting period:** mid-May to Aug

Download a nest box plan

## Barn Swallow

*Hirundo rustica*



**Habitat:** grassland, lake, shore, town
**Breeding Range:** near-global distribution
**Diet:** mainly flies, also beetles, bees, wasps, ants, butterflies, moths.
**Nesting period:** early May to Aug

Download a nest box plan

## Purple Martin

*Progne subis*




**Habitat:** desert, town, lake
**Breeding Range:** North America
**Diet:** beetles, flies, dragonflies, leafhoppers, grasshoppers, crickets, butterflies, moths, wasps, bees, caddisflies, spiders, cicadas, termites, mayflies.
**Nesting period:** early Apr to Aug

Download a nest box plan

## Common Nighthawk

*Chordeiles minor*



**Habitat:** grassland, forest, open woodland, town, lake, shore
**Breeding Range:** North America, parts of Central America
**Diet:** queen ants, wasps, beetles, caddisflies, moths, mosquitoes, bugs, mayflies, flies, crickets, grasshoppers.
**Nesting period:** late May to Aug

*May nest on the ground or gravel rooftops*

## Lesser Nighthawk

*Chordeiles acutipennis*



**Habitat:** desert, grassland, open woodland, town, lake, shore
**Breeding Range:** SW North America, parts of Central and South America
**Diet:** flies, mosquitoes, moths, June bugs, leafhoppers.
**Nesting period:** mid-Apr to Aug

*May nest on the ground or gravel rooftops*

TheCornellLab NestWatch

NestWatch is a citizen science program that tracks status and trends in the reproductive biology of birds, including when nesting occurs, number of eggs laid, how many eggs hatch, and how many hatchlings survive. To learn how you can help, visit NestWatch.org.

The Cornell Lab of Ornithology is a nonprofit membership institution whose mission is to interpret and conserve the earth's biological diversity through research, education, and citizen science focused on birds.

This document includes accessibility features for those with visual impairments.

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Text by Robyn Bailey, Becca Rodomsky-Bish, and Holly Grant. Illustrations by Vera Ting, 2023 Bartels Science Illustrator; and Holly Grant. Graphic design by Holly Grant.

## *Appendix K: Recommendation for Essex Woods from Jerry Longcore of the U.S. Geological Survey from the 2003 Forest Management Plan*

**Potential Management Procedures to Enhance ESSEX WOODS for Public Recreation and Environmental Education**

On 17 April 03 accompanied by Chuck Simpson I visited the Essex Woods wetland. I walked the hiking trail from the kiosk at the end of Garden Way to the southernmost corner then northwest along part of the wetland to an ATV trail that extended north to the inlet stream, which was too deep to cross.

First Impression Observations

The area is essentially a palustrine, broad-leaved deciduous, forested wetland (as classified by Cowardin et al. 1979), with abundant dead-standing trees and living trees. Species of trees seem mostly of red maple (*Acer rubrum*), aspen (*Populus* sp.), and birch (*Betula* sp.), but other species are likely present that could not be identified from a distance. Shrub-like trees of willow (*Salix* sp.) and speckled alder (*Alnus incana*) were abundant in patches in the flooded sections and alder and aspen clones were dominant on upland sections along the south side and near the west side along the ATV trail. Much of the dead-standing and decaying timber seems too small (<6-8 in. diameter) to provide nest sites for cavity nesting waterfowl (i.e., wood duck [*Aix sponsa*] and hooded merganser [*Lophodytes cuculluata*]), but is suitable for foraging and nesting sites for woodpeckers, and other hole-nesting passerine birds.

Only one contiguous patch of persistent emergent vegetation seems to exist, that of cattail (*Typha* sp.), which is located in the wetland opposite the "sliding hill". This habitat will provide nesting sites for red-winged blackbirds (*Agelaius phoeniceus*), but is probably to limited in size for other marsh species such as sora rail (*Prozana carolina*) and American bittern (*Botaurus lentiginosus*). The flooded willow and alder, however, is suitable for the uncommon green heron (*Butorides virescens*). Because of the senescence of submergent aquatic plants during winter, not much evidence existed to identify them. The visit was too early in the season (and too cold) for most amphibians to be calling, but one can expect most of the local species of amphibians to be present.

Beaver activity was evident, which can enhance aspects of the wetland but can also substantially affect water regimes, culverts, and the boundary dikes. Along the "sliding hill" side of the wetland several large rubber tires were partly submerged with other smaller bits of trash and debris.

Potential Management Options for Essex Woods

If one assumes that the objectives for managing this area are (a) to perpetuate Essex Woods as a forested wetland for wildlife species, (b) to enhance the opportunity for the public to recreate and view wildlife in an urban setting, and (c) to inform and educate the public about management of wildlife and environmental issues, then the following management options may be considered.

*Remove old tires and trash*: For aesthetic reasons and to lessen potential sources of contaminants (heavy metals) all old tires should be removed and properly disposed.

*Establish control of the water level*: Because beaver have influenced water levels before and undoubtedly will again, the outflow culvert along the east side of the wetland needs continued attention to achieve either a stable water level or to allow managers to draw down the water for vegetation management. If water is kept at levels that kill most of the woody vegetation—probably about what they are now—the trees will be killed and the site will convert to an emergent marsh over the long-term. Conversion of some of the flooded timber habitat to an emergent marsh type may provide for more diversity of marsh birds, but the wetland may lose some of the passerine cavity-nesting species. For diversity of habitat and to maintain the life of some or the trees, the water level would need to be such that some trees were only inundated during spring run-off but not so during the growing season. It may take some observation of patches of trees during lower water levels to determine what the optimum water level should be to achieve that goal. To inform the public of the importance of water level management a water gauge and an interpretive sign could be placed near the outlet culvert to explain the management plan.

*Establish a nest box program for cavity-nesting waterfowl*: Although it is not certain that nesting pairs could be attracted, it may be possible to attract some pairs of wood ducks and hooded mergansers---probably not more than 4 –6 boxes would be needed for the limited area, but these boxes may attract some other cavity-nesting raptors such as eastern screech owls (*Otus asio*) or American kestrel (*Falco sparverius*).

*Establish a bluebird nest box program*: Eastern bluebird (*Sialia sialis*) nest boxes that have been erected in pairs have been successful in attracting a pair of bluebirds in one box with a tree swallow pair taking of the other box, thus protecting the bluebird pair from other tree swallow competitors. Even if bluebirds do not use the boxes, tree swallow will nest and consume countless numbers of dipterous flying insects (the kind that bite humans), thereby providing a benefit to neighboring residents and good public relations. Spacing and placement of boxes with adequate predator guards is important; that information can be provided later.

*Establish 1 Canada goose nesting platform (or tub)* : If a Canada goose (*Branta canadensis*) pair were attracted to the wetland---they often are found nesting on a beaver lodge in a flowage---they would be an attraction to the public, especially if a portion of the "sliding hill"area were to be managed to provide a grazing area by tilling and seeding the area with appropriate grass seeds. Canada geese, however, if too plentiful in an area can be a nuisance and foul walkways and even be aggressive toward humans in certain circumstances. Selecting this option should be done only after careful consideration of unintended consequences.

*Maintain American woodcock singing ground sites*: As part of providing recreation and to educate the public about a unique shorebird species that nests in alder habitats 2 or 3 openings in the alders could be maintained in the vicinity of the ATV trail on the west side. In spring through early summer male woodcock may display on these sites and be easily observed by the public without disturbing the courtship activity.

*Build an observation and interpretive station*: To clearly inform the public about what the City of Bangor is trying to accomplish and about wildlife in the urban setting build an elevated viewing platform (perhaps covered) in the vicinity of the "sliding hill" on the wetland side. This station could be the focal point of explaining all of the management activities and ecology of the wetland, including a map of the entire wetland. Even a log for turtles to bask on could be anchored in front of the viewing stand.

8) *Acquire the wetland area adjacent to Interstate 95* : If the City of Bangor has an interest in obtaining the property to the east of its property to consolidate the ownership for better management of the entire parcel, they may wish to discuss possibilities on working with the recently formed Bangor Land Trust (Lucy Quimby, President, Bangor Land Trust; telephone: 207 947-0637). They may be able to work with the landowner in conjunction with the City to obtain the land in such a way as to benefit everyone concerned, including the public.

These land management recommendations are based on a single visit to the site and may need to be revised after more intensive inventory and monitoring of the site and its wildlife populations during different times of the year.

Reference:

Cowardin, L. M., V. Carter, and E.T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Fish and Wildlife Service, FWS/OBS-79-31.

Prepared by: Jerry R. Longcore
17 April 2003

## *Appendix H: Lower Parking Lot DEP Approval and Plans*

CITY OF BANGOR

JOHN THERIAULT PE, PTOE
CITY ENGINEER

# DEPARTMENT OF ENGINEERING

October 1, 2020

James Beyer
Eastern Maine Regional Office
Maine Department of Environmental Protection
106 Hogan Road
Bangor, Maine 04401

RE: Stormwater PBR Application for Essex Street Trailhead Parking and Trails

Dear Jim:

The City of Bangor is submitting this Stormwater PBR Application to construct gravel trailhead parking and two trails to access the Essex Street Recreation Area which is a popular walking, biking, and birding area within the City of Bangor.

The project will be constructed making use of some of the excess excavation material from the Davis Brook CSO Storage Tank project that is currently under construction at the Bangor Waterfront. The trailhead parking project will disturb about 2.8 acres and add about 0.74 acres of impervious ground cover.

This project has received a wetland fill permit to alter approximately 11,904 square feet of forested wetland as well as received local Planning Board approval and a favorable finding from the Bangor Marsh/Mall Commission.

The City has applied for a Beneficial Use Permit from DEP to allow for the excavated material from the Bangor Waterfront to be utilized for fill at this Essex Street lot. We are anticipating approval of this permit/license in the very near future.

Because of current favorable weather conditions, the Contractor (S.E. MacMillan) has begun to clear the Essex Street site however no grubbing or filling has been allowed. This is a very important project for the City of Bangor that makes use of excavated material while also developing a much needed recreational amenity and saving the City of Bangor significant money for the disposal of the excess waterfront material. Should you have any questions concerning his project, please do not hesitate to call me at 992-4249.

Sincerely,

John Theriault, PE, PTOE
City Engineer

73 HARLOW STREET, BANGOR, ME 04401
TELEPHONE: (207) 992-4250 FAX: (207) 992-4194
WWW.BANGORMAINE.GOV

## STORMWATER PBR APPLICATION FORM

| | |
|---|---|
| [1] **Name of Applicant:** City of Bangor - John Theriault | [5] **Name of Agent:** |
| [2] **Applicant's Mailing Address:** 73 Harlow Street Bangor, Maine 04401 | [6] **Agent's Mailing Address:** |
| [3] **Applicant's Daytime Phone:** 207/992-4249 | [7] **Agent's Daytime Phone:** |
| [4] **Applicant's Email Address:** john.theriault@bangormaine.gov | [8] **Agent's Email Address:** |
| [9] **Location of Project: (Road, Street, Rt.#)** East side of Essex Street, north of I-95 bridge [10] **Town:** Bangor | [11] **County:** Penobscot |
| [12] **Is this PBR for renewal of an individual stormwater permit? If yes, skip to Block 29 and signature page.** | ☐ Yes ☑ No |
| [13] **Type of Direct Watershed: (Check all that apply.)** ☐ Lake not most at risk ☐ Lake most at risk ☐ Lake most at risk, severely blooming ☑ River, stream or brook ☐ Urban impaired stream ☑ Freshwater wetland ☐ Coastal wetland ☐ Wellhead of public water supply | [14] **Amount of Developed Area:** Total # of 2.8 acres OR Total # of _____ square feet<br>[15] **Amount of Impervious Area:** Total # of 0.74 acres OR Total # of _____ square feet |
| [16] **Part of a Subdivision?** ☐ Yes ☑ No | [17] **Is this Activity Part of a Larger Project?** ☑ Yes ☐ No |
| [18] **Name of Waterbody(ies) Drained to:** Kenduskeag Stream | [19] **Name of Impaired Waterbody (if applicable)** |
| [20] **Brief Project Description:** Construction of Trailhead gravel parking and gravel trails using excavation material from Davis Brook Tank project. | |
| [21] **Size of Lot or Parcel:** ☐ _____ square feet OR ☑ 11.33 acres | **UTM Northing, if known:** 44.82255 **UTM Easting, if known:** -68.76751 |
| [22] **Deed Reference Numbers:** Book#: 13011 Page#: 130 | [23] **Map and Lot Numbers:** Map #: R49 Lot #: 004 |
| [24] **DEP Staff Previously Contacted:** Karen Knuuti | [25] **Project started prior to application?** ☐ Yes ☑ No **If yes, Completed?** ☐ Yes ☐ No |
| [26] **Resubmission of PBR Application?** ☐ Yes ☑ No **If yes, prior application #:** | **Prior Project Manager:** |
| [27] **Written Notice of Violation?** ☐ Yes→ ☑ No | **If yes, name of DEP enforcement staff involved:** |
| [28] **Detailed Directions to the Project Site:** From State Street head north on Essex Street. Project site is locate 400' north of I-95 Bridge on Essex Street. | |
| [29] **Renewal of individual stormwater permit?** ☐ No ☐ Yes→ | DEP Permit No: Project Manager: |

[30] **SUBMISSIONS**

| | | | |
|---|---|---|---|
| ■ This form (signed and dated) ■ Fee | ■ Dept. of Inland Fisheries and Wildlife Approval (if in Essential Habitat) | ■ Photos of Area ■ ESC Plan ■ Location Map ■ Site Plan | **For Renewal of an individual Stormwater permit only:** ❒ This form (signed and dated) ❒ Copy of original stormwater permit ❒ Fee |

**FEE:** Pay by credit card at the Payment Portal. The Stormwater Permit-by-Rule fee may be found here: https://www.maine.gov/dep/feeschedule.pdf.

■ **Attach payment confirmation from the Payment Portal when filing this notification form.**

**Does the agent have an interest in this project? If yes, what is the interest?**

City of Bangor owns property.

Rev. 07-01-2020

## STORMWATER PBR APPLICATION FORM

### CERTIFICATIONS / SIGNATURES

**Applicant's Statement:**

I am applying for a Stormwater PBR and have attached the required PBR submissions. I have read the requirements herein and I affirm that my project satisfies the applicable stormwater management standards. I authorize staff of State and Federal agencies having jurisdiction over this activity, to access the project site for the purpose of determining compliance with the rules. *If typing your signature below, you are agreeing to and acknowledging the above information is true.*

Signature (may be typed): _____ Date: 10/1/2020

| | |
|---|---|
| **Notice of Intent to Comply with Maine Construction General Permit** | With this Stormwater PBR notification form and my signature below, I am filing notice of my intent to carry out work which meets the requirements of the Maine Construction General Permit. I have read and will comply with all of the MCGP standards. In addition, I will file a Notice of Termination (NOT) within 20 days of project completion.<br><br>If this form is not being signed by the landowner or lessee of the property, attach documentation showing authorization to sign. *If typing your signature below, you are agreeing to and acknowledging the above information is true.*<br><br>Signature (may be typed): _____ Date: 10/1/2020 |

Rev. 07-01-2020

# PROJECT LOCATION MAP




BANGOR GIS

JANET T. MILLS
GOVERNOR

STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
284 STATE STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041

JUDITH CAMUSO

September 21, 2020

David Moyse
Moyse Environmental Services, Inc.
42 Pleasant View Ave.
Bangor, ME 04401

**RE: Information Request – City of Bangor Essex Woods Project, Bangor**

Dear David:

Per your request received on September 14, 2020, we have reviewed current Maine Department of Inland Fisheries and Wildlife (MDIFW) information for known locations of Endangered, Threatened, and Special Concern species; designated Essential and Significant Wildlife Habitats; and inland fisheries habitat concerns within the vicinity of the *City of Bangor Essex Woods* project in Bangor. For purposes of this review we are assuming tree clearing will be part of your project.

Our Department has not mapped any Essential Habitats or inland fisheries habitats that would be directly affected by your project.

***Endangered, Threatened, and Special Concern Species***

Bat Species – Of the eight species of bats that occur in Maine, the three *Myotis* species are protected under Maine's Endangered Species Act (MESA) and are afforded special protection under 12 M.R.S §12801 - §12810. The three *Myotis* species include little brown bat (State Endangered), northern long-eared bat (State Endangered), and eastern small-footed bat (State Threatened). The five remaining bat species are listed as Special Concern: big brown bat, red bat, hoary bat, silver-haired bat, and tri-colored bat. While a comprehensive statewide inventory for bats has not been completed, based on historical evidence it is likely that several of these species occur within the project area during migration and/or the breeding season. However, our Agency does not anticipate significant impacts to any of the bat species as a result of this project.

***Significant Wildlife Habitat***

Significant Vernal Pools - At this time MDIFW Significant Wildlife Habitat (SWH) maps indicate no known presence of SWHs subject to protection under the Natural Resources Protection Act (NRPA) within the project area, which include Waterfowl and Wading Bird Habitats, Seabird Nesting Islands, Shorebird Areas, and Significant Vernal Pools. However, a comprehensive statewide inventory for Significant Vernal Pools has not been completed. Therefore, we recommend that surveys for vernal pools be conducted within the project boundary by qualified wetland scientists prior to final project design to determine whether there are Significant Vernal Pools present in the area. These surveys should extend up to 250 feet beyond the anticipated project footprint because of potential performance standard requirements for off-site Significant Vernal Pools, assuming such pools are located on land owned or controlled by the applicant. Once surveys are completed, survey forms should be submitted to our

Letter to David Moyse, Moyse Environmental Services, Inc.
Comments RE: City of Bangor Essex Woods, Bangor
September 21, 2020

Agency for review well before the submission of any necessary permits. Our Department will need to review and verify any vernal pool data prior to final determination of significance.

This consultation review has been conducted specifically for known MDIFW jurisdictional features and should not be interpreted as a comprehensive review for the presence of other regulated features that may occur in this area. Prior to the start of any future site disturbance we recommend additional consultation with the municipality, and other state resource agencies including the Maine Natural Areas Program, Maine Department of Marine Resources, and Maine Department of Environmental Protection in order to avoid unintended protected resource disturbance.

Please feel free to contact my office if you have any questions regarding this information, or if I can be of any further assistance.

Best regards,

Becca Settele
Wildlife Biologist

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
17 STATE HOUSE STATION AUGUSTA, MAINE 04333-0017

DEPARTMENT ORDER

IN THE MATTER OF

| | |
|---|---|
| CITY OF BANGOR | ) NATURAL RESOURCES PROTECTION ACT |
| Bangor, Penobscot County | ) FRESHWATER WETLAND ALTERATION |
| ACCESS ROAD AND PARKING | ) WATER QUALITY CERTIFICATION |
| L-28227-TC-A-N (approval) | ) FINDINGS OF FACT AND ORDER |

Project Description: The applicant proposes to alter 11,904 square feet of forested and scrub shrub wetlands to construct an access road and parking for a municipal recreation area. The road and parking are shown on a plan titled "Overall Impact Sheet," prepared by Moyse Environmental Services, Inc., and dated January 2020. The applicant has avoided and minimized wetland impacts to the greatest extent practicable by utilizing upland when possible and proposing steep side slopes for wetland crossings. According to the Department's Geographic Information System (GIS), there are no mapped essential or significant wildlife habitats associated with the project site. The proposed project is located on Essex Street in the City of Bangor.

| | | |
|---|---|---|
| **Permit for:** | [X] | Tier 1 |
| **DEP Decision:** | [X] | Approved [ ] Denied (see attached letter) |
| **CORPS Action:** | [X] | The Corps has been notified of your application. The following are subject to Federal screening: (1) projects with previously authorized or unauthorized work, in combination with a Tier 1 permit for a single and complete project, which total more than 15,000 square feet of altered area; (2) projects with multiple state permits and/or state exemptions which apply to a single and complete project that total more than 15,000 square feet of altered area; and (3) projects that may impact a vernal pool, as determined by the State of Maine or the Corps. If your activity is listed above, *Corps approval is required for your project*. For information regarding the status of your application contact the Corps' Maine Project Office at (207) 623-8367. |

Standard Conditions:

1) If construction or operation of the activity is not begun within four (4) years from the date signed, this permit shall lapse and the applicant shall reapply to the Department for a new permit. This permit is transferable only with prior approval from the Department. If the activity is associated with a larger project, starting any aspect of that project constitutes start of construction.
2) The project shall be completed according to the plans in the application. Any change in the project plans must be reviewed and approved by the Department.
3) Properly installed erosion control measures shall be installed prior to beginning the project, and all disturbed soil should be stabilized immediately upon project completion.
4) A copy of this approval will be sent to the City of Bangor. Department approval of your activity does not supersede or substitute the need for any necessary local approvals.

L-28227-TC-A-N 2 of 5

THIS APPROVAL DOES NOT CONSTITUTE OR SUBSTITUTE FOR ANY OTHER REQUIRED STATE, FEDERAL OR LOCAL APPROVALS NOR DOES IT VERIFY COMPLIANCE WITH ANY APPLICABLE SHORELAND ZONING ORDINANCES.

DONE AND DATED IN AUGUSTA, MAINE, THIS 2nd DAY OF March, 2020.

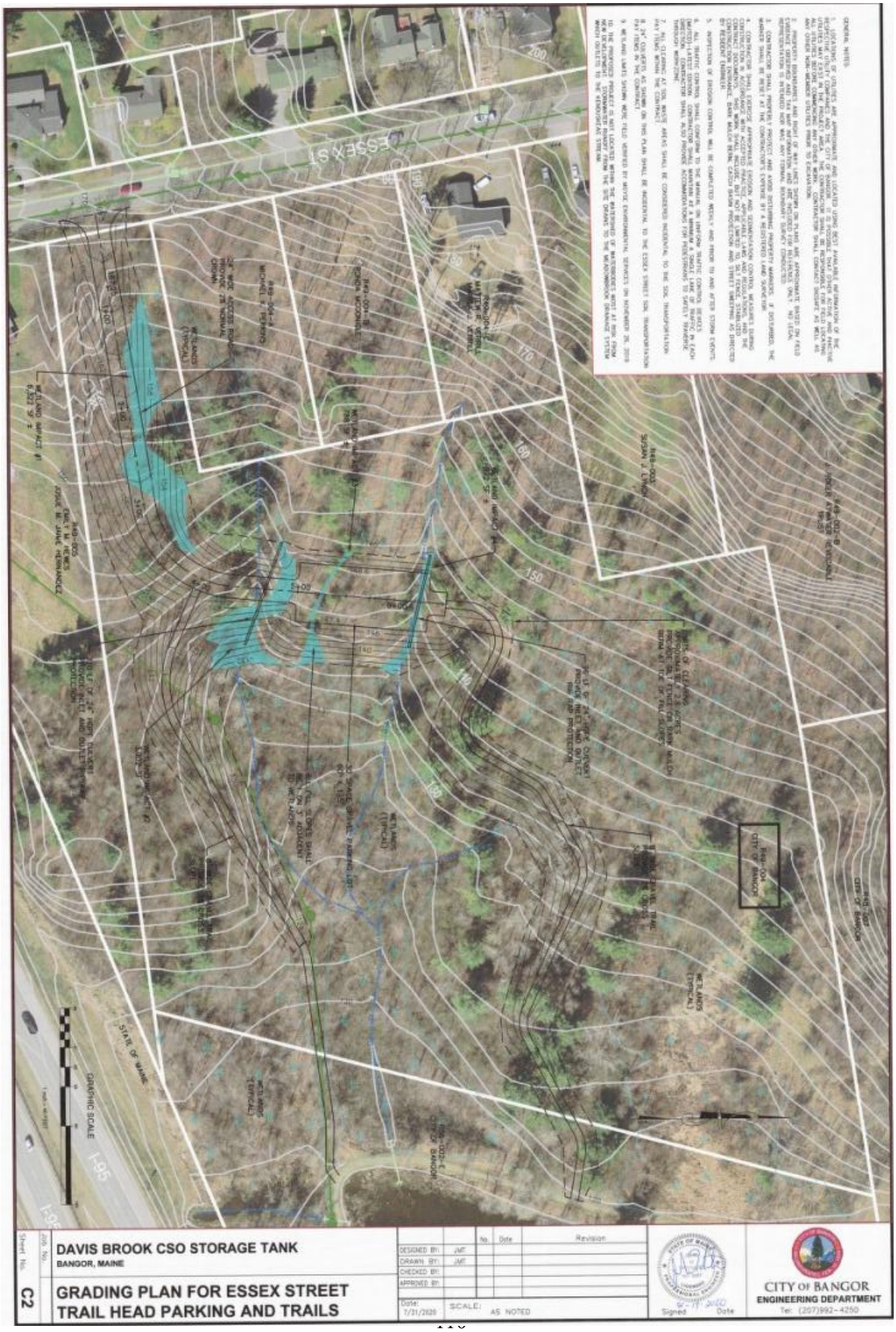
DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____
For: Gerald D. Reid, Commissioner

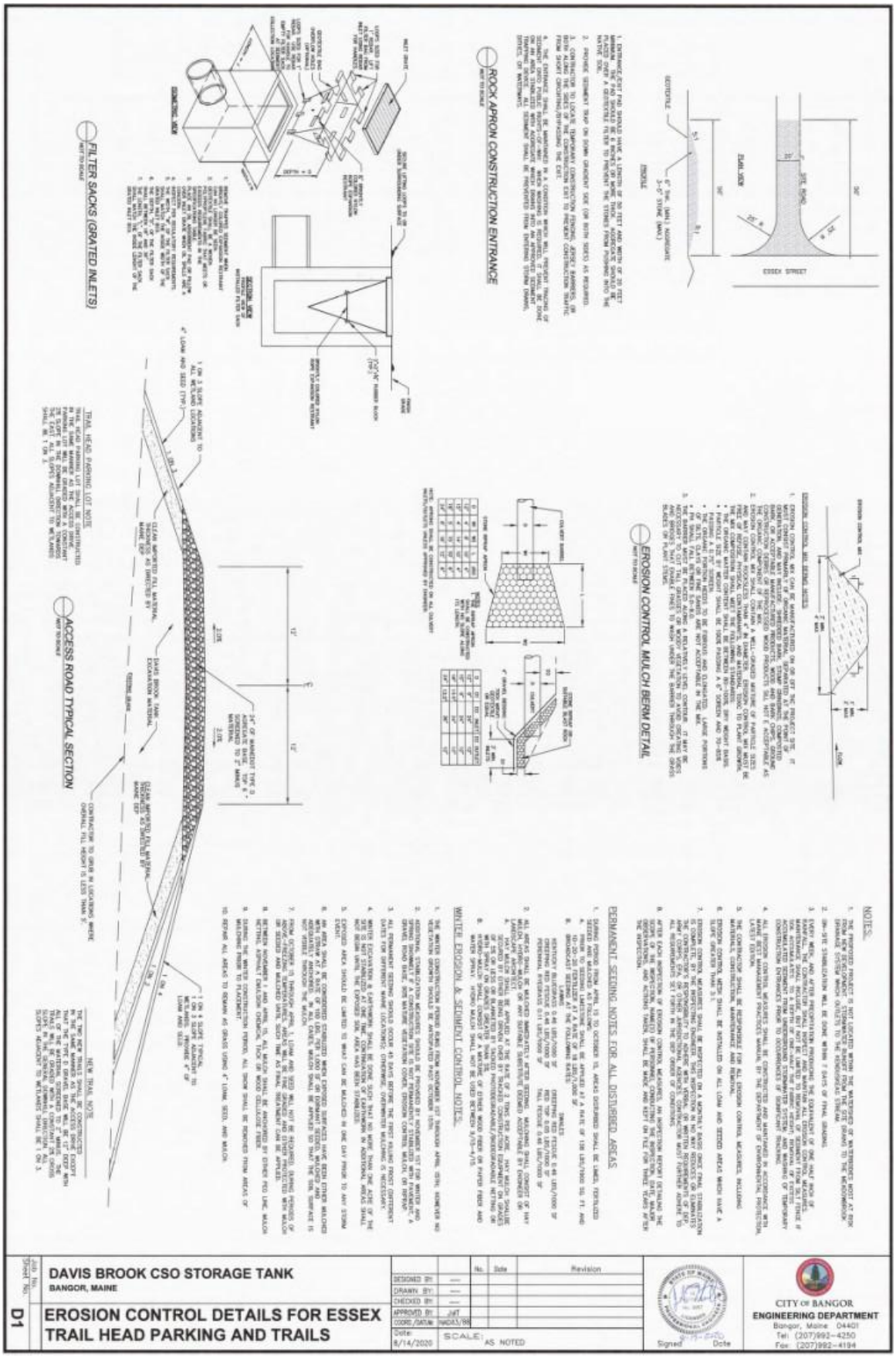
Filed
MAR 0 2 2020
State of Maine
Board of Environmental Protection

PLEASE NOTE THE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES.

ME/L28227AN/ATS#85609


ESSEX ST
I-95
GRAPHIC SCALE
DAVIS BROOK CSO STORAGE TANK
BANGOR, MAINE
GRADING PLAN FOR ESSEX STREET
TRAIL HEAD PARKING AND TRAILS
Sheet No. C2
DESIGNED BY: JMT
DRAWN BY: JMT
CHECKED BY:
APPROVED BY:
Date: 7/31/2020
SCALE: AS NOTED
No. Date Revision
Signed Date
CITY OF BANGOR
ENGINEERING DEPARTMENT
Tel: (207)992-4250

CITY OF BANGOR



## *Appendix M: Findings from Essex Woods Visit with Matt Young of the Maine Department of Environmental Protection*

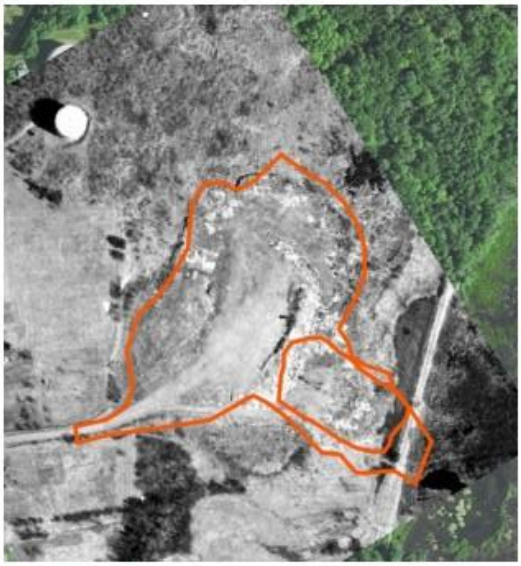
Bangor Essex Rd landfill off of Watchmaker.

The Landfill started in the 1930s, and covered in the 1970s. Please see the georeferenced photos below. Outlined on the photos is a rough outline of where the Department understands the waste boundary to be.

2018



1955



Page **1** of **2**

1966



Due to the amount of exposed glass metal and other waste, the Department strongly recommends that the city cover the exposed waste in any area that is not fenced off from recreational activity. The probability for a bicyclist or someone going off trail in this area should be expected, so the Department cannot recommend a safe distance from the trail for waste to be exposed.

The site walk on April 8th showed a good deal of exposed waste off the northern edge of the sledding hill, and continued on for 50 or so yards. There were also multiple trees that had fallen over exposing their rootballs which also created a source for waste to be exposed.

Please have the root balls removed (and disposed of as a controlled waste (I assume that a Construction and Demolition Debris landfill would be willing to take them).

Please let me know if you would like more information on any of these issues.

Best Regards,

Matt Young

Maine DEP

207-215-7841

Page **2** of **2**

***Appendix N: Maine Department of Environmental Protection Maintenance Requirements for Closed Municipal Landfills***

# MAINTENANCE REQUIREMENTS FOR CLOSED MUNICIPAL LANDFILLS

**Municipalities are responsible for inspecting and maintaining their closed landfills. Regular inspection and maintenance is vital to ensure the cover system remains effective at reducing the risk of groundwater contamination.**

## ANNUAL MOWING

Tree growth must be prevented on landfills, as the shallow cover material will not support trees as they mature. Blown over trees will damage the cover and expose waste. Deep roots of trees also provide a pathway for infiltration of water into the waste.

- Mow closed landfills at least once annually.
- Mowing in August or later avoids disturbing nesting birds.
- Mow to the base of the landfill and several feet beyond if possible.
- Cut back encroaching trees & brush at the landfill base and remove trees that have fallen onto the landfill cover.

## GAS VENTS

- Inspect gas vents and notify the Department of vents that are damaged or missing.
- Repair or replace them as directed. Avoid flames or sparks when near landfill vents.

## ANIMAL BURROWS

Animal burrows provide a direct pathway for water infiltration into the waste.

- If you find a burrow, trap or otherwise remove the occupant and fill in the burrow with loam. Do not use sandy or gravelly soil.

## INSPECTION and REPAIR

- Keep an eye on the condition of the landfill cover.
- A walkover inspection should be made at least twice a year. The best times are in the spring following snowmelt and after mowing.
- Check for dead grass, animal burrows, settlement and erosion.
- Prevent ATV-related damage by controlling access as necessary through fencing, gates, barriers or signage. The condition and effectiveness of access control measures should be checked during inspections and enhanced if necessary.

## SETTLEMENT

Waste can settle over time, causing depressions in the landfill surface and ponding water.

- Fill depressions with loam to restore positive drainage, then reseed and mulch the area as soon possible to reestablish the grass cover.
- Notify the department if any of the following conditions are encountered: differential (uneven) settlement; cracking of the cover soil; or sloughing of sideslopes. These conditions could indicate a landfill stability problem.

**Questions? Contact: Matt Young at (207) 215-7841 or-matthew.r.young@maine.gov**

MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION
www.maine.gov/dep

# MAINTENANCE REQUIREMENTS FOR CLOSED MUNICIPAL LANDFILLS

## EROSION CONTROL

Unchecked erosion will remove the cover material, eventually exposing the waste. Good grass cover is important to prevent soil erosion.

- Reseed areas of sparse grass growth or amend them with manure, fertilizer or another nutrient source to promote more vigorous growth.
- Continued stressed or dead vegetation may indicate the cover soils are saturated with landfill gas. If this problem persists, contact Department staff for assistance.
- Repair all eroded areas as soon as practical to prevent the problem from worsening.
- "Rill" type erosion—small, concentrated channels on the landfill surface that are no more than a few inches deep—can be repaired by raking out the rills and re-seeding.
- If deeper gullies have formed, contact the department for direction. Structural measures may be needed to repair gullies that have progressed down to the clayey barrier soils underlying the topsoil.

## STORMWATER MANAGEMENT

Many municipal landfills have engineered stormwater control features such as plunge pools, ditches, culverts and check dams.

- Check the condition of any such features during regular inspections and after major rainfall events.
- Look for obstructions, tree and shrub growth, erosion, sediment accumulation and displacement of riprap. Conduct any needed cleanout and repairs in a timely manner and remove encroaching trees and shrubs.

## LEACHATE BREAKOUTS

Leachate breakouts or "seeps" are common at closed landfills. Leachate is liquid, usually orange or rust-colored, that has been in contact with the landfill waste. Most breakouts occur at the base (or toe) of the landfill and do not usually require corrective action. If the breakout is through the landfill cover, contact the Department to determine if repairs are needed.

**Questions? Contact: Matt Young at (207) 215-7841 or matthew.r.young@maine.gov**

**Maine DEP Regional Offices**

Augusta (Central Maine Regional Office)287-7688; 800-452-1942

Bangor (Eastern Maine Regional Office) 941-4570; 888-769-1137

Portland (Southern Maine Regional Office) 822-6300; 888-769-1036

Presque Isle (Northern Maine Regional Office) 764-0477; 888-769-1053

MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION
www.maine.gov/dep

# References

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**Finance Committee Agenda**
**Monday, June 15, 2026**
*Immediately following Infrastructure Committee*
**City Hall, Council Chambers, 73 Harlow St.**

1. **Executive Session – 36 M.R.S.A. Section 841(2) – Hardship Abatement Application**

2. **Workout Agreement Follow-Up – 129 Bolling Drive – Khan**

3. **Workout Agreement – 88 Sidney Street – Shaw**

4. **Workout Agreement – 145 Thornton Road – Bowden**

5. **Personal Property Tax Write-Off Requests**

6. **Bids/Purchases**
    a. Audit Services – Finance – CBIZ CPAs - $210,000 (1-year option)
    b. Waive Bid Process – FBO Software Platform – Airport – GMSTEK, LLC - $280,644.71 (5-year contract)

# CITY OF BANGOR MAINE
# MATURED TAX OR UTILITY LIEN POLICY

It is the City of Bangor's policy to administer a tax and utility collection and lien policy that is fair and consistent for those that have fallen behind on taxes or utility charges and also for the residents and taxpayers of the City. Further, it is the City's policy to collect, to the greatest extent possible, all property taxes and utility charges due to the City in a timely manner, unless nonpayment of certain charges is deemed to be in the best interest of the City, and in accordance with applicable State statutes. In accordance with the policy, the City will work with individual taxpayers who make a good faith effort to meet their obligations. To ensure that system is fair, however, the City will not release its ownership interest in a property with matured liens, unless the taxpayer pays all amounts due to the City with respect to that property.

Per State law, the City becomes the owner of a property on the date of automatic foreclosure, whether or not the property remains occupied. This Policy will refer to the owner or owners of record at the time of foreclosure as the "taxpayer" or "former owner" of the property in order to avoid confusion.

## 1.0 Purpose

This policy does not affect the applicability of the Maine Statutes, case law of the State of Maine, or any other law governing tax or utility liens. Instead, it offers guidance on how staff should process any property with a matured tax or utility lien and informs taxpayers of how they can expect such a property to be processed. In that regard, this policy comes into effect only after a tax or utility lien has matured, said maturity renders title to and ownership of the property to the City. This policy deals only with two issues: (A) when the City should take possession of a property with matured liens, and (B) when the City should release its ownership in such a property.

## 2.0 Definitions

As used in this policy, the following terms have the following definitions:

Former owner(s): the owner or owners of record at the time of foreclosure or, if deceased, the former owner's heirs, devisees, or personal representatives.

Matured lien: a recorded tax or utility lien that has passed the allowed redemption period for the taxpayer to pay the outstanding amounts. Once matured, the lien automatically passes title ownership to the City.

Municipal Bill of Sale: the instrument used by the City to transfer ownership of a mobile home located on the land of another, which is considered personal property by statute, back to the taxpayer.

Possession: the City taking official action to take formal custody of a property with a matured lien. The City may have title ownership of a property without exercising its right to take possession of the property.

Quitclaim Deed: a term used in this policy as shorthand for "Municipal Quitclaim Deed," which is an instrument used by the City to release any title that it may have to a real property. This is the method by which the City will transfer its ownership rights to real property with a matured lien to another party.

Tax Acquired Property: property whose title has passed to the City due to a matured lien.

Tax lien: a recorded legal claim against the property of a taxpayer that fails to pay real estate or development district property taxes owed to the City.

Taxpayer(s): the term taxpayer(s) is used to describe the owner of the property prior to the tax or utility lien maturing. This term is used instead of "owner" to avoid confusion.

Utility lien: a recorded legal claim against the property of a taxpayer that fails to pay sewer or stormwater utility charges owed to the City.

Workout Agreement: an agreement between the City and a Taxpayer establishing conditions and payment of amounts owed.

# 3.0 Policy:

## 3.1. Release of Ownership Interest

The City will recommend releasing a matured lien before taking possession of a property if the taxpayer pays their taxes in full.

If a taxpayer has the opportunity to sell a property with a matured lien before the City takes possession, staff may recommend the sale without payment of all other charges due by the taxpayer. The City would require payment by the purchaser or the taxpayer in full of all charges related to the subject property.

The above requirement applies to any request for the City to release its interest in a property due to a matured lien.

## 3.2 Possession

A variety of factors will be considered in making determination as to whether or not the City should take possession of a property with a matured lien, such as:

- Willingness and demonstrated ability of the taxpayer(s) to pay all amounts on a subject property due to the City,
- The ratio of the amount owed the City to the assessed value of the property,
- The impact of the property within the neighborhood,
- The condition of the property including its overall appearance,
- Exploration of other options to meet obligations to the City, such as execution of a workout agreement,
- The property "type."

  The following are the various property types that will be considered:

  - Vacant - Buildings and land which are vacant.
    - If a building is vacant, consideration will be given to whether the taxpayer has registered under the City's

Vacant Building Registration Ordinance and paid all related registration fees.

- Commercial Properties - This category includes not only properties utilized in the conduct of business but also properties used for residential and commercial rental purposes.

- Taxpayer-Occupied Residences – These are single-family residences in which the taxpayer lives.

It is not the City's desire to take possession of taxpayer-occupied single-family residences unless the continued occupancy of the residence poses a direct and immediate threat to the health, safety and welfare of the residents or unless the City determines that the taxpayer/resident is unwilling or unable to meet their obligations to the City.

Staff will also take into consideration if possession of a property may create a significant legal or financial liability to the City such as, but not limited to, if a property may have hazardous material or other environmental impact issues.

The ultimate question in determining whether the City should take possession of a property is the following: what is in the best interest of the City and its residents at-large.

## 3.3 Partial Payment

The City will not accept partial payments on an account with a matured lien unless the taxpayer has entered into a payment arrangement with the City or they provide with the payment a signed Partial Payment Waiver form indicating they agree the City does not waive its rights or in the case of the taxpayer's primary residence, the Tax Collector may accept a partial payment if it is determined that the taxpayer is making a good faith effort to redeem the property. The City may also accept a partial payment received on behalf of the taxpayer(s) from a recorded[1] mortgage holder which is paying on the most recent tax or utility charges even if there are matured liens against the property. If the recorded mortgage holder attempts to pay any other charges, the same requirements described above will take effect.

[1] Recorded is defined as a documented mortgage interest in the property which has been filed at the Penobscot Registry of Deeds.

Should the taxpayer send partial payments, without signing a Partial Payment Waiver, of their tax or utility charges to the City, acceptance of these partial payments shall not be deemed a waiver of the City's right to foreclosure on any matured tax or utility liens. Staff will notify the taxpayer of the City's continued right to foreclose on the property, whether or not partial payments have been accepted by the City.

### 3.4 Exceptions

Exceptions to this policy may be made by the City Council or the Finance Committee on a case-by-case basis.

## 4.0 Procedure

### 4.1 Staff Responsibility

A review committee consisting of staff representatives from Treasury, Finance, Economic Development, and Legal will review a listing of all property with matured liens prepared by the Tax Collector. Staff will focus its review efforts on the most delinquent accounts first, beginning with vacant properties and then moving to occupied properties. Staff may also consult with other Departments as needed.

Once a preliminary list of properties has been identified, staff will move forward with the following procedures:

- Tax Collector will, through inquiry, determine whether or not the Police Department has had recent contact at the address.

- The Code Enforcement Officer and/or the Housing Officer, will determine if the property is occupied.

- The Code Enforcement Officer and/or Housing Officer will conduct an exterior assessment (i.e. drive by) to determine the apparent condition and status of the property. In addition, staff will leave notification, with contact information, at the property that the City is considering taking possession of the property.

- The Tax Collector will verify that all legally required notices have been sent. If necessary, the Tax Collector will take the necessary steps to remedy any notification issues.

- Staff will prepare a recommendation to retain or dispose of the property to present to the Finance Committee.

### 4.2 Finance Committee Review

The Finance Committee will review the information and determine what if any recommendation should be made to the City Council. Staff recommendations will typically take one of the following positions;

- Recommend taking Possession.
- Recommend entering into a Workout Agreement.

If the Staff recommendation is for the City to accept payment in full and release of the City's ownership interest back to the taxpayer, the item will be placed on an upcoming City Council agenda, without Finance Committee review.

### 4.3 Council Action

Nothing in this policy shall limit the discretion of the City Council to either take possession of a specific property or take some other action based upon the Council's evaluation of that property and its determination of what action, if any, is in the best interest of the City of Bangor and its citizens.

## 5.0 Disposition of Tax Acquired Property

### 5.1 The City Authorizes the Property to be Deeded Back to the Taxpayer

If the City Council authorizes the property be deeded back to the taxpayer or subsequent owner, the Legal Department should prepare a municipal quitclaim deed or municipal bill of sale. Further, the Legal Department should ensure that all documents are properly executed and that any quitclaim deed or municipal bill of sale is recorded with the Penobscot County Registry of Deeds.

### 5.2 The City Has Taken Possession of the Property

If the City Council authorizes taking possession of a property, the Tax Collector or Housing Officer must notify the Assessing, Code, Risk Management, Police, Fire, and Public Works Departments. This notification ensures that departments are aware of the ownership change and that the property is insured. Community and Economic Development shall be responsible for maintaining the property until disposition.

The Housing Officer, in association with the Code Enforcement Officer, should conduct a complete interior/exterior inspection and secure the property. The inspection shall be used to gauge the condition of the property for further recommendation of disposition as well as personal property notification, per the City's outlined disposition process in the Personal Property Process.

As needed, Staff may also recommend demolishing unsafe or dangerous buildings or portions of buildings on the property or may recommend that the demolition be a requirement of any disposal.

In determining its recommendation to retain or dispose of a property, Staff should consider what would be in the best interests of the City. A number of factors should guide staff in determining its recommendation for the appropriate disposition of the property. Those factors include, but are not limited to the following:

- Whether the property is a "buildable" lot;
- Design concept compatible with the neighborhood characteristics;
- The condition of any structures thereon;
- Neighborhood density;
- Zoning;
- The value of the lot;
- The City's long-term plans, if any, for the neighborhood.

At least 90 days prior to listing a tax-acquired property for sale, Staff shall send a written notice to the last known address of the former owner, by United States Postal Service certified mail, return receipt requested, and first-class mail, of the

sale process outlined in this section. The State Tax Assessor has prepared notices and instructions that must be used by Staff to inform former owners of this sales process.

When selling a tax-acquired property, Staff shall:

- List the property with the City's contracted real estate broker or agent at the highest reasonable price the broker or agent anticipates the property will sell at;
- Convey the property via quitclaim deed to the successful buyer within twelve months after listing; and
- Pay to the former owner any sale proceeds in excess of:
    - The sum of all taxes owed on the property;
    - The sum of all taxes that would have been assessed on the property during the period following foreclosure when the property is owned by the City;
    - All accrued interest;
    - Fees, including advertising, mailing, recording, property listing and real estate broker's or agent's fees;
    - Any other expenses incurred by the City in selling, maintaining, or improving the property, including, but not limited to, documented administrative costs and reasonable attorney's fees;
    - The cost to the City of the lien and foreclosure process, including, but not limited to, reasonable attorney's fees; and
    - Unpaid sewer and stormwater utility lien charges and reasonable fees imposed by the City; and

Provide to the former owner a written accounting of the amount of excess sale proceeds itemizing any of the foregoing deductions at the former owner's request.

If the City's contracted broker or agent is unwilling to list a property, the City will reach out to at least two other brokers or agents. If no broker or agent is willing to list the property or if a broker or agent is unable to sell the property within twelve months, staff may take the following steps to sell the property, as long as the City pays to the former owner any excess sales proceeds as calculated above:

a. If the lot for sale is a vacant, non-buildable lot, Staff may offer the property directly to an abutter(s) for proposals.

b. If (a) above does not apply and staff recommends that the property be sold, the Community & Economic Development Department should prepare and publish a Request for Proposals (RFP). As part of this process, Staff may consider requiring a minimum bid which factors in:

- The amounts written off upon taking possession,
- The assessed value of the property,
- The condition of the property and the costs incurred for securing and maintaining the property.

Upon review of the RFP submissions, Staff shall recommend the proposal that it believes best fits the interests and needs of the City. To that end, staff should consider the following factors before making a recommendation:

- The proposed uses of the land or property;
- The ability of the proposed buyer(s) to fund any necessary construction or rehabilitation;
- The amount the proposed buyer is willing to invest in the property;
- The design concept of any building or structure and only those concepts that best preserve the existing neighborhood characteristics;
- The experience or capability of the proposed buyer to complete the proposed project.

To be eligible for staff recommendation, the proposed buyer(s) or entity shall be current on all of its outstanding obligations to the City, including amounts due for taxes, utilities, code enforcement violations or liens, or any other amounts due.

All final decisions on the disposition of property shall be made by the City Council. The Community and Economic Development Department and Legal Department shall:

- Prepare all final sale documents;
- Prepare the Quitclaim Deed or Municipal Bill of Sale;
- Attend the sale closing;
- Ensure that all sale paperwork is executed;
- Ensure that full payment is received.

If the City chooses to retain a tax-acquired property for municipal use, the City shall procure an appraisal report from an appraiser licensed to provide real estate appraisals in Maine showing the value of the tax-acquired property being retained. The appraiser may not hold elected or appointed office in the City or be otherwise employed by the City. The City, after providing the notice required in Section 6.0, shall pay to the former owner any excess sale proceeds as calculated in this section, substituting the value of the tax-acquired property as shown in the appraisal report for the selling price of the tax-acquired property. The appraisal report must be prepared within 120 days before the time the excess sales proceeds are paid.

All documents between the City and the Buyer shall be executed within ninety days of the Council decision. Failure of the buyer(s) to execute said documents within the required timeline may result in the City retaining ownership of the property or disposing of it in another manner.

Any conveyance by the City shall be by a Municipal Quitclaim Deed or Municipal Bill of Sale.

## 6.0 Notices

If, after the sale of a tax-acquired property, there exist any sale proceeds as described in Section 5.2, the City shall send written notice of its intent to pay the former owner the excess sale proceeds at least 30 days prior to the disbursement of those proceeds. The notice must be sent by first-class mail and certified mail, return receipt requested, to the last known address of the former owner and the last known address of each record holder of an interest in the tax-acquired property.

If the City is unable to locate the former owner of a tax-acquired property after reasonable diligence in order to send the above notice, the City shall place a notice

in a newspaper of general circulation in Penobscot County once a week for three consecutive weeks. The notice shall include the name of the former owner, a description of the tax-acquired property that was sold, the amount of the excess sale proceeds (as calculated using the checklist attached to this policy), and the date by which the excess sale proceeds must be claimed.

If, after the City provides the notice as described in the above paragraph, a former owner fails to claim the excess sale proceeds within 30 days of the final published notice, the City shall transfer the excess sale proceeds to the Unclaimed Property Fund under Title 33 M.R.S. §2141.

Within 10 days of payment of any excess sale proceeds to the former owner, the City shall record in the Penobscot County Registry of Deeds a notice signed by the municipal officers. The notice must include the name of the former owner to whom the excess sale proceeds were paid, the amount of the excess sale proceeds, the date on which the excess sale proceeds were paid to the former owner, a description of the tax-acquired property that was sold, and a statement that receipt of the excess sale proceeds by the former owner is deemed to be a waiver of the former owner's right to commence any action challenging the taking pursuant to 36 M.R.S. §946-B.

## 7.0 Legal Rights

This policy is not intended to create legal rights on the part of Bangor residents or taxpayers. Failure of the City to follow the guidelines or procedures established by this policy shall not constitute a defense or bar to the City's foreclosure of matured tax or utility liens, or to any legal title derived from such foreclosures. Failure of the City to follow the guidelines or procedures established by this policy shall not constitute a defense or bar to the City's collection of any taxes, utility charges, or other charges owed.

## 8.0 Policy Administration

Annually, the Finance Committee shall review this policy and provide direction as to any proposed amendments.

Documenting Fees Associated with the Sale of Tax-Acquired Properties

Staff shall accurately document any fees associated with the tax lien, foreclosure, and sale of any tax-acquired property by utilizing this list of fees.

Per 36 M.R.S. §943-C, the City may charge for the following:

1. The sum of all taxes owed, including those taxes assessed on the property after the foreclosure by the City.
2. The sum of all sewer and stormwater utility charges, including those utility charges assessed on the property after the foreclosure by the City.
3. All accrued interest on the taxes and utility charges associated with a tax-acquired property.
4. Any advertising fees.
5. Mailing fees.
6. Recording fee for the cost of recording the notice at the Penobscot County Registry of Deeds.
7. Any property listing fees.
8. Real estate broker or agent fees, to the extent these fees are not included in the broker or agent fee agreement with the City.
9. Any fees associated with selling the property.
10. Any fees associated with maintaining the property, including insurance fees, mowing fees, etc.
11. Any fees associated with improving the property.
12. Documented administrative costs and reasonable attorney's fees.
13. Any costs to the City to lien the property.
14. Any costs to the City to foreclose on the property.

All fees associated with all tax-acquired properties should be documented. Some fees may need to be estimated and assessed prior to actually charging the fee, due to filing and notice requirements.

CITY OF BANGOR

# TREASURY DIVISION

To: Members of the Finance Committee
From: Janelle Emerson, Tax Collector
Date: June 15, 2026
Re: Workout Agreement – 129 Bolling Drive – Farzana Khan - Update

At the meeting dated May 18, 2026, the Finance Committee requested some additional information before making a decision on the request for a workout agreement for 129 Bolling Drive, assessed to Farzana Khan. This property currently has 13 years of outstanding taxes and owes approximately $66,050.00, with multiple matured tax and utility liens. The property's assessed value is currently $292,600.00

The original workout agreement request was for quarterly payments of $1,100.00 and in addition to the quarterly payments, it required all new charges to be paid on time.

After the meeting, the City's Tax Collector, contacted Mr. Khan, who is assisting his sister with this process and discussed the workout agreement request further. During this discussion we discussed that Ms. Khan was not receiving the Homestead Exemption, this application was mailed out and returned back to the City to take effect for future tax years. 129 Bolling Drive is the only property that Ms. Khan owns, however, it is a two unit building. She occupies one unit and the other unit is currently vacant. Per, Mr. Khan they had tenants occupying the unit approximately 4 or 5 years ago and they did significant damage to the unit. He is in hopes that eventually they can get the unit repaired and occupied to bring in further income. We also discussed the amount of their request for their quarterly payments. Where the quarterly payments totaled just shy of a tax year, we discussed if he thought it was possible to reconsider their payment amount. They were able to adjust the quarterly payment amount to $1,200.00, which totals enough to cover what they typically get billed for a tax year.

To summarize, they are requesting a workout agreement calling for an increased minimum payment of $1,200.00 per quarter. The terms of the agreement would also require all new charges to be paid on time. This agreement would be for a one year term and if all of the terms of the agreement are met, they may request a new agreement for the remainder of what is owed.

Staff recommends approval.

73 HARLOW STREET, BANGOR, ME 04401
TELEPHONE: (207) 992-4290 FAX: (207) 945-4449
WWW.BANGORMAINE.GOV

CITY OF BANGOR

# TREASURY DIVISION

To: Members of the Finance Committee
From: Janelle Emerson, Tax Collector
Date: June 15, 2026
Re: Workout Agreement – 88 Sidney Street - Edward Shaw

In an attempt to clean up the City's matured property, the Matured Property Group, made up of City staff, met and discussed properties with matured liens. We began with reviewing properties that were vacant land, then vacant buildings, and now we are working on properties that are occupied. The group agreed upon mailing out letters to a few taxpayers based mostly on the number of outstanding tax years owed.

After receiving this recent letter from the City's Tax Collector, Mr. Shaw contacted City staff regarding the delinquent taxes for his property located at 88 Sidney Street. This property currently has 11 years of outstanding taxes and owes approximately $20,500.00, including multiple matured tax and utility liens. Currently the property's assessed value is $122,400.00. Mr. Shaw is receiving the Homestead Exemption reducing his taxable value to $97,400.00.

Mr. Shaw is interested in redeeming his property and has proposed a workout agreement calling for a minimum payment of $600.00 per quarter, which totals enough to cover what he typically is billed for a tax year. The terms of the agreement would also require all new charges to be paid on time and the agreement would be for 1 year. If all terms of the agreement have been met at the end of the 1-year expiration, he may request a new agreement for the remainder of what is owed.

Staff recommends approval.

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CITY OF BANGOR

# TREASURY DIVISION

To: Members of the Finance Committee
From: Janelle Emerson, Tax Collector
Date: June 15, 2026
Re: Workout Agreement – 145 Thornton Road - Mary Grace Bowden

In an attempt to clean up the City's matured property, the Matured Property Group, made up of City staff, met and discussed properties with matured liens. We began with reviewing properties that were vacant land, then vacant buildings, and now we are working on properties that are occupied. The group agreed upon mailing out letters to a few taxpayers based mostly on the number of outstanding tax years owed.

After receiving this recent letter from the City's Tax Collector, Ms. Bowden contacted City staff regarding the delinquent taxes for her property located at 145 Thornton Road. This property currently has 18 years of outstanding taxes and owes approximately $69,500.00, including multiple matured tax and utility liens. Currently the property's assessed value is $178,600.00. Ms. Bowden is receiving the Homestead Exemption reducing her taxable value to $153,600.00.

Ms. Bowden is interested in redeeming her property and has proposed a workout agreement calling for a minimum payment of $650.00 per quarter, which totals enough to cover what she typically is billed for a tax year. The terms of the agreement would also require all new charges to be paid on time and the agreement would be for 1 year. If all terms of the agreement have been met at the end of the 1-year expiration, she may request a new agreement for the remainder of what is owed.

Staff recommends approval.

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CITY OF BANGOR

# TREASURY DIVISION

To: Members of the Finance Committee
From: Janelle Emerson, Tax Collector
Date: June 15, 2026
Re: Personal Property Tax Write-offs - Overlay Balance

The City's Overlay account, established during the budget process, is used to write-off assessment abatements, hardship abatements or other tax write-offs. If the account has an unused balance near the end of a fiscal year, staff recommends to the Council that the balance be used to write-off uncollectible accounts.

Currently, there is a balance of approximately $213,000 remaining in the account. Staff would recommend that a portion of this balance, approximately $128,806, be used to write-off uncollectible personal property accounts.

The accounts in question are no longer being assessed personal property. They represent businesses that are closed, were sold or previously owned by corporations that are now dissolved. There is little recourse a municipality can take for unpaid personal property and our previous attempts have been unsuccessful. Staff is recommending writing off these accounts as the cost of tracking down the related equipment and owners will most likely exceed any potential payments. The 91 accounts in question have an average balance due of just under $1,450.

If approved, this request will assist in staff's ongoing "clean up" of long term outstanding accounts and leave only accounts that were in business and assessed for Fiscal Year 2025 forward.

While write-offs such as these are unavoidable, it is important to note that the City's overall collection rate for personal property taxes is over 99%.

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# ***CITY OF BANGOR***
# ***AWARD RECOMMENDATION***

**BID ITEMS:** FY27 Audit Services

**DEPARTMENT:** City Wide

**BUDGET AMOUNT:** 210,000 **AMOUNT OF AWARD:** 210,000
(1-year option)

**ACCOUNT:** Various

**VENDOR(S) RECOMMENDED:** CBIZ CPAs

| | | | | | |
|---|---|---|---|---|---|
| **Past Experience with Vendor :** | | **Excellent** | | **Good** | | **Fair** |
| | | **Poor** | X | **None** | |

**OTHER COMMENTS:**

On March 6, 2026, the City issued a Request for Proposals (RFP) for independent audit services covering fiscal years 2026, 2027, and 2028. The selected auditor will be responsible for expressing an opinion on the fair presentation of the City's basic financial statements in accordance with generally accepted accounting principles (GAAP) and auditing standards applicable to governmental entities.

The City received two proposals. Pricing for a three-year contract ranged from $200,000 to $233,000 annually. Both firms also submitted optional pricing for a one-year contract, with costs ranging from $210,000 to $220,000.

Interviews were conducted with both firms. Both respondents provided complete and thorough proposals and demonstrated the qualifications and experience necessary to perform the required services. Following evaluation of the proposals and interviews, staff determined that awarding a one-year contract would best serve the City's interests at this time and recommends selecting CBIZ CPAs.

CITY OF BANGOR

**City of Bangor Bid Tabulation**
**Bid: Audit Services**
**Proposal No. P26-38**

**Bid Opening: April 1, 2026**

| | CBIZ CPAs | Runyan Kersteen Ouellette | Runyan Kersteen Ouellette |
|---|---|---|---|
| | Providence, RI | South Portland, ME | South Portland, ME |
| **Audit Services Year One Price** | $ 210,000.00 | $ 200,000.00 | $ 220,000.00 |
| **Audit Services Year Two Price** | $ 217,000.00 | $ 216,000.00 | |
| **Audit Services Year Three Price** | $ 224,000.00 | $ 233,000.00 | |

## Memorandum

To: Finance Committee

From: Jose F. Saavedra, Airport Director

CC: Stephanie Kimball, Interim City Finance Director
Carollyn Lear, City Manager

Re: Request to Waive Bid Process and Sole Source FBO Software Platform

Date: June 9, 2026

The Airport utilizes a specialized customer relationship management database and software to manage daily orders and sales transactions of the airport-owned Fixed Based Operator (FBO). Over time the system has experienced challenges and most recently has experienced significant failures that are preventing the deployment of updated rates and fees for FY27. While the airport was exploring replacement of the current software, the system failures and lack of timely technical support from the vendor have expedited the need to procure and transition to an alternate product.

Given the specialized nature of the system and the urgent need to deploy a replacement, staff reviewed potential options that would meet the Airport's operational needs and implementation timeline. Based on that evaluation, staff recommends waiving the bid process and sole sourcing the X-1 FBO software platform offered by GMSTEK, LLC, along with the associated maintenance and service programs required to support FBO operations and aircraft handling activities.

The new software will replace the Airport's existing FBO software and provide continued support for airport operations. Funding for this software is included in the Airport's annual operating budget and does not require additional budget appropriations. The total cost for software and equipment will be paid over a five-year period, with the first-year expense totaling $71,019, inclusive of start-up cost. The total cost is $280,644.71 (see table below).

| **X-1 Contract** | | | 5% | 5% | 5% | 5% |
|---|---|---|---|---|---|---|
| Cost | | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
| Start-Up | $ 24,699.68 | $ 24,699.68 | $ - | $ - | $ - | $ - |
| Montly Cost | $ 3,743.30 | $ 44,919.60 | $ 47,165.58 | $ 49,523.86 | $ 52,000.05 | $ 54,600.05 |
| Annual Fee | $ 1,400.00 | $ 1,400.00 | $ 1,470.00 | $ 1,543.50 | $ 1,620.68 | $ 1,701.71 |
| Yearly Total | | $ 71,019.28 | $ 48,635.58 | $ 51,067.36 | $ 53,620.73 | $ 56,301.76 |
| 5-Yr Contract Total | | | | | | $ 280,644.71 |

Airport staff will be available at the meeting to answer any questions.

**CITY COUNCIL ACTION** 06/22/2026

Council Meeting Date: 06/22/2026

Item No:

Responsible Dept: Airport

Requested Action: Order

Map/Lot: N/A

**Title, Order**

Authorizing Waiving the Bid Process and Sole Sourcing the X-1 FBO Software Platform offered by GMSTEK, LLC, along with the Associated Maintenance and Service Programs Required to Support FBO Operations and Aircraft Handling Activities for Bangor International Airport (BGR).

**Summary**

This order would waive the bid process and authorize the Airport to purchase the X-1 FBO software platform offered by GMSTEK, LLC, along with the associated maintenance and service programs required to support FBO operations and aircraft handling activities for Bangor International Airport.

The new software will replace the Airport's existing FBO software and provide continued support for airport operations. Funding for this software is included in the Airport's annual operating budget and does not require additional budget appropriations. The total cost for software and equipment will be paid over a five year period, with the first year expense totaling $71,019, inclusive of start-up cost. The total cost is $280,644.71.

Staff recommend waiving the bid process to sole source and award the X-1 FBO software platform offered by GMSTEK, LLC, along with the associated maintenance and service programs required to support FBO operations and aircraft handling activities for Bangor International Airport.

**Committee Action**

Committee: Finance Committee
Meeting Date: 06/15/2026
Action: Recommend for passage
For: Against:

**Staff Comments & Approvals**

City Manager | City Solicitor | Finance Director

**Introduced for:** Consent

**CITY OF BANGOR ORDER** 06/22/2026

Date: 06/22/2026

Item No:

Assigned to Councilor:

Authorizing Waiving the Bid Process and Sole Sourcing the X-1 FBO Software Platform offered by GMSTEK, LLC, along with the Associated Maintenance and Service Programs Required to Support FBO Operations and Aircraft Handling Activities for Bangor International Airport (BGR).

Be it Ordered by the City Council of the City of Bangor that the Airport is authorized to waive the bid process and purchase the X-1 FBO software platform offered by GMSTEK, LLC, along with the associated maintenance and service programs required to support FBO operations and aircraft handling activities for Bangor International Airport.

CITY OF BANGOR

# AGENDA

## Business & Economic Development Committee

Monday, June 15, 2026
73 Harlow Street – Council Chambers
Bangor, Maine
*Immediately following Finance Committee*

1. **Proposed Code Amendments**
   - **A. Mobile Home Park**
     *Action request: Send recommendation to full Council*

2. **Receipt of Housing Opportunity Program Municipal Ordinance Development grant**
   *Action request: Send recommendation to full Council*

3. **Presentation of Bangor HS Students of their work with Community Development Staff for CORE (Community Organizing for Representation and Engagement)** *Action Requested: Provide feedback to staff*

4. **Community Development Block Grant Action Plan 26/27**
   *Action request: Send recommendation to full Council*

5. **Director Updates**
   - **A. Background on Certified Local Governments**
   - **B. Resubmission of information on Tax Increment Financing, Credit Enhancement Agreements, and Assessment Districts**
   - **C. Maine Downtown Center Annual Conference in Bangor 2027**

6. **Executive Session:** *Acquisition of real property or economic development 1 M.R.S.A. § 405(6)(C) – 2 items*

7. **Possible Actions on Executive Session Items**
   *Action request: Forward to Council*

***Upcoming Items:***
*Short Term Rental Overview – July 2026*
*Code Division Overview of Procedures and Protocols – July 2026*
*Feasibility Study Work on City-Owned Properties – July 2026*

CITY OF BANGOR

ANNE M. KRIEG AICP
DIRECTOR

COMMUNITY & ECONOMIC DEVELOPMENT

# Memorandum

| | |
|---|---|
| To: | Business & Economic Development Committee |
| From: | Anja Collette, Planning Officer |
| Date: | June 4, 2026 |
| Regarding: | Proposed changes to manufactured home park ordinance |

The purpose of this memo is to discuss proposed changes to regulations on manufactured home parks in the Land Development Code.

Currently, the more flexible alternative development standards listed in the manufactured home park chapter of the Land Development Code only apply to parks existing before September 13, 1971. This poses issues for parks that were developed in the decades that followed 1971 since they have to follow the standards for new parks. In some cases, this is preventing the placement of homes on vacant lots, which affects the supply of affordable housing. Staff have drafted language, which is in your packets, that would apply the alternative development standards to all parks existing as of June 1, 2026.

Item No Date

**CITY COUNCIL ACTION**

Council Meeting Date: 6/22/2026

Item No:

Responsible Dept: Planning

Action Requested: Ordinance Map/Lot: N/A

**Title, Ordinance**

Amending Chapter 165, Land Development Code by Adding Flexibility for Manufactured Home Parks Existing as of January 1, 2026

**Summary**

This ordinance amendment would amend the Land Development Code by allowing manufactured home parks existing as of January 1, 2026 to use more flexible development standards. Currently, the alternative development standards listed in this chapter only apply to parks existing before September 13, 1971. This poses issues for parks that were developed in the decades that followed 1971 since they have to follow the standards for new parks and in some cases, this is preventing the placement of homes on vacant lots, which affects the supply of affordable housing.

**Committee Action**

Committee: Planning Board Meeting Date: 7/7/2026

Action: For: Against:

**Staff Comments & Approvals**

City Manager City Solicitor Finance Director

**Introduced for:** First Reading and Referral

Item No Date

**CITY COUNCIL ORDINANCE**

Date: 6/22/2026

Assigned to Councilor:

**ORDINANCE,** Amending Chapter 165, Land Development Code by Adding Flexibility for Manufactured Home Parks Existing as of January 1, 2026;

**WHEREAS,** at present, the current ordinance for manufactured home parks limits the more flexible, alternative development standards to parks existing before September 13, 1971;

**WHEREAS,** at present, this poses issues for parks that were developed in the decades that followed 1971 that have to meet the standards for new parks;

**BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF BANGOR AS FOLLOWS, THAT**

Chapter 165 of the Code of the City of Bangor is amended as follows:

**§ 165-121 Existing mobile home parks.**

…

B. Any mobile home park in existence prior to January 1, 2026 ~~the effective date of this chapter, but after September 13, 1971~~ must meet the development requirements of §165-121D below. ~~§165-120~~.

~~C. Any application for the reconstruction of an mobile home park under this chapter shall comply with the provisions of Article XVI and this article, are permitted to use the alternative development requirements outlined in Subsection E below.~~

D. Any existing mobile home park developed prior to January 1, 2026 ~~September 13, 1971~~, may be reconstructed in its entirety in accordance with the provisions of this subsection.

…

Additions are underlined, deletions ~~struck through~~.

CITY OF BANGOR

ANNE M. KRIEG AICP
DIRECTOR

COMMUNITY & ECONOMIC DEVELOPMENT

# Memorandum

| | |
|---|---|
| To: | Business & Economic Development Committee |
| From: | Planning Division |
| Date: | June 11, 2026 |
| Regarding: | Grant award from the State to reimburse for costs related to implementing LD 1829 and other housing-related laws |

Staff appeared before Council in April to request permission to apply for a grant from the State to reimburse for costs related to implementing LD 1829, the bill requiring municipalities to reduce lot size minimums and relax density limits among other stipulations, as well as other recent housing-related laws such as LD 997 and 427. Staff proceeded to apply and recently learned that the City was awarded this grant. Since the grant performance period lines up with the work we're doing to draft a new land development code, staff proposed to use the funds to cover the costs of that project that relate to the City's residential zoning districts. We will have a formal Council resolve on the next Council agenda to appropriate these funds.

73 HARLOW STREET, BANGOR, ME 04401
TELEPHONE: (207) 992-4280 FAX: (207) 945-4447
WWW.BANGORMAINE.GOV

CITY OF BANGOR

# COMMUNITY & ECONOMIC DEVELOPMENT

## Memorandum

| | |
|---|---|
| To: | Business and Economic Development Committee |
| From: | Robyn Stanicki, Community Development Officer |
| Date: | June 9, 2026 |
| Subject: | Community Development Division Update |

**Consolidated Plan Public Hearing**
The City's 2026-2030 Consolidated Plan is now complete and available for download on the City's website (https://bangormaine.gov/198/Community-Development-Block-Grant-CDBG) .

On June 22, the Bangor City Council will conduct a public hearing for interested citizens and community members to provide feedback on its contents. A copy of the Plan will also be provided for each Councilor to promote its use in community planning. The Community Development Officer would like to publicly thank the staff, business leaders, community service providers, and residents of Bangor for the immense effort undertaken to complete this Five-Year Plan in a time when just talking about these challenges were as overwhelming and insurmountable as finding solutions to address them.

Accompanying this memorandum is a letter summarizing the new process for evaluating the initiatives and program activities conducted by staff in direct response to the community needs and priorities in the Plan. The funding recommendations provided by the Community Development Officer to the Council via this process is intended to increase the level of engagement and public investment in the programs and services that the City provides with CDBG funds.

**C.O.R.E. Team Presentation**
Over the past several months, the Community Development Division has been working with a group of Bangor High School students participating in the C.O.R.E. Team, an initiative designed to strengthen connections between young people and local government while creating meaningful opportunities for civic engagement.

The idea for this project came from another community similar to Bangor which had formed a similar relationship with its young leaders, establishing a pathway for leadership and a way for City Councilors to ensure that the future they built was one that their young people could own. C.O.R.E., which stands for Community Organizing for Representation and Engagement, was established to provide students with firsthand experience in municipal government and to ensure that youth perspectives are included in discussions about Bangor's future.

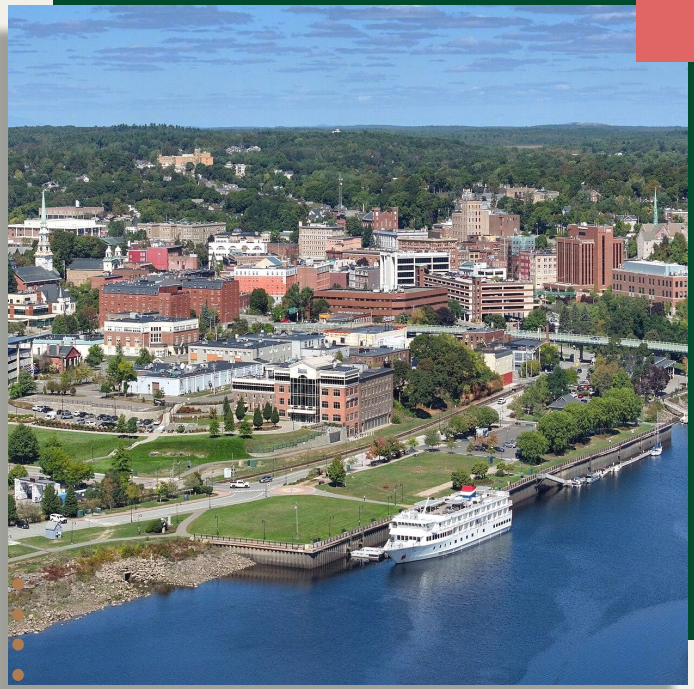
The students participating in this year's program have demonstrated a remarkable commitment to public service, thoughtful discussion, and community leadership. Their work reflects many hours of research, collaboration, and engagement with City departments and community stakeholders.

Following this introduction, members of the C.O.R.E. Team will present their findings and recommendations directly to the City Council. Their presentation represents the culmination of this year's program and provides an opportunity for Councilors to hear directly from some of Bangor's emerging civic leaders about their vision for a more engaged and connected community.

Staff would like to recognize and thank the students, Bangor High School, participating City departments, and community partners who contributed to the success of this inaugural effort.

# C.O.R.E

Community Organization for Representation Engagement



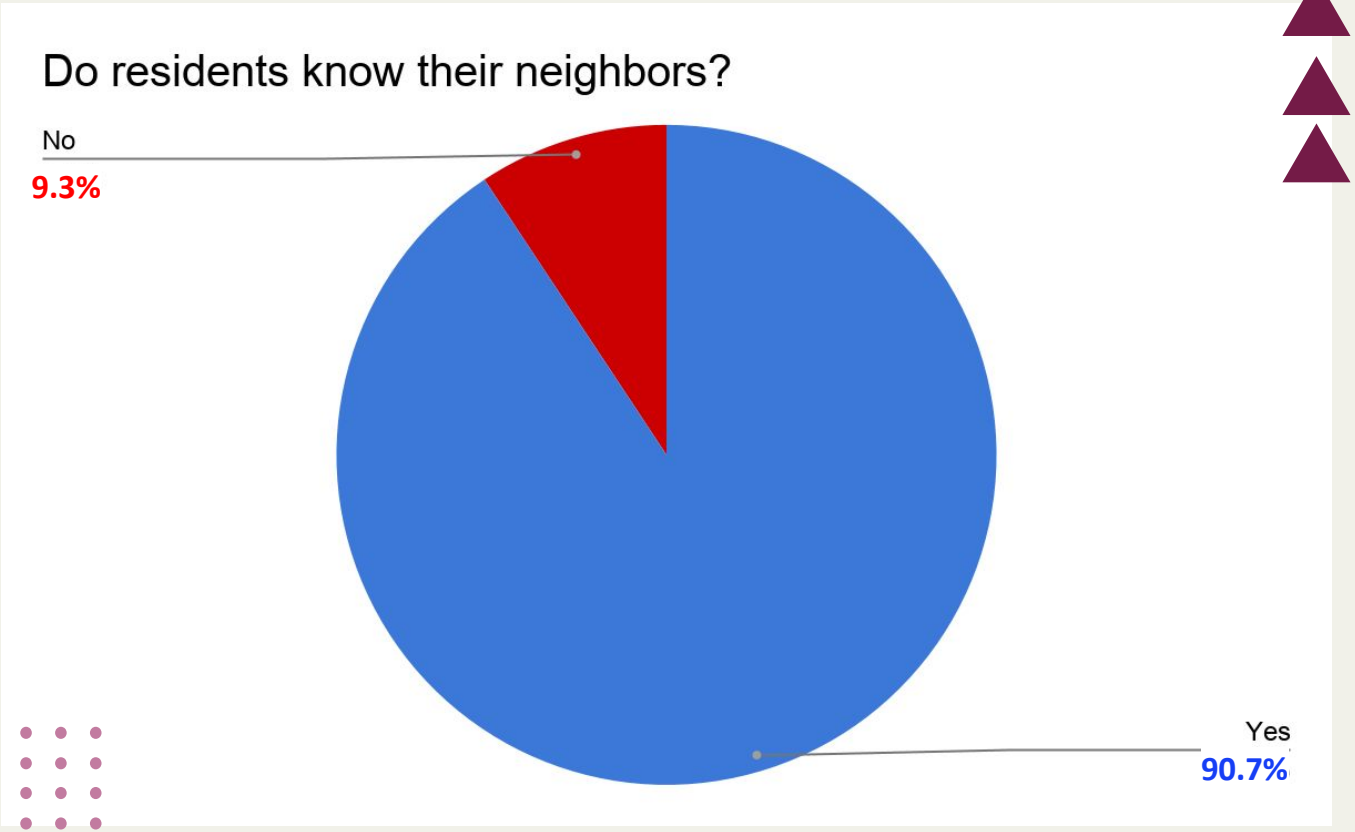
June 15 2026

# NEIGHBORHOOD

Total Responses: **86**

**78** responded that that they know their neighbors

**8** responded that they DO NOT know their neighbors



# CONCERNS IN COMMUNITY

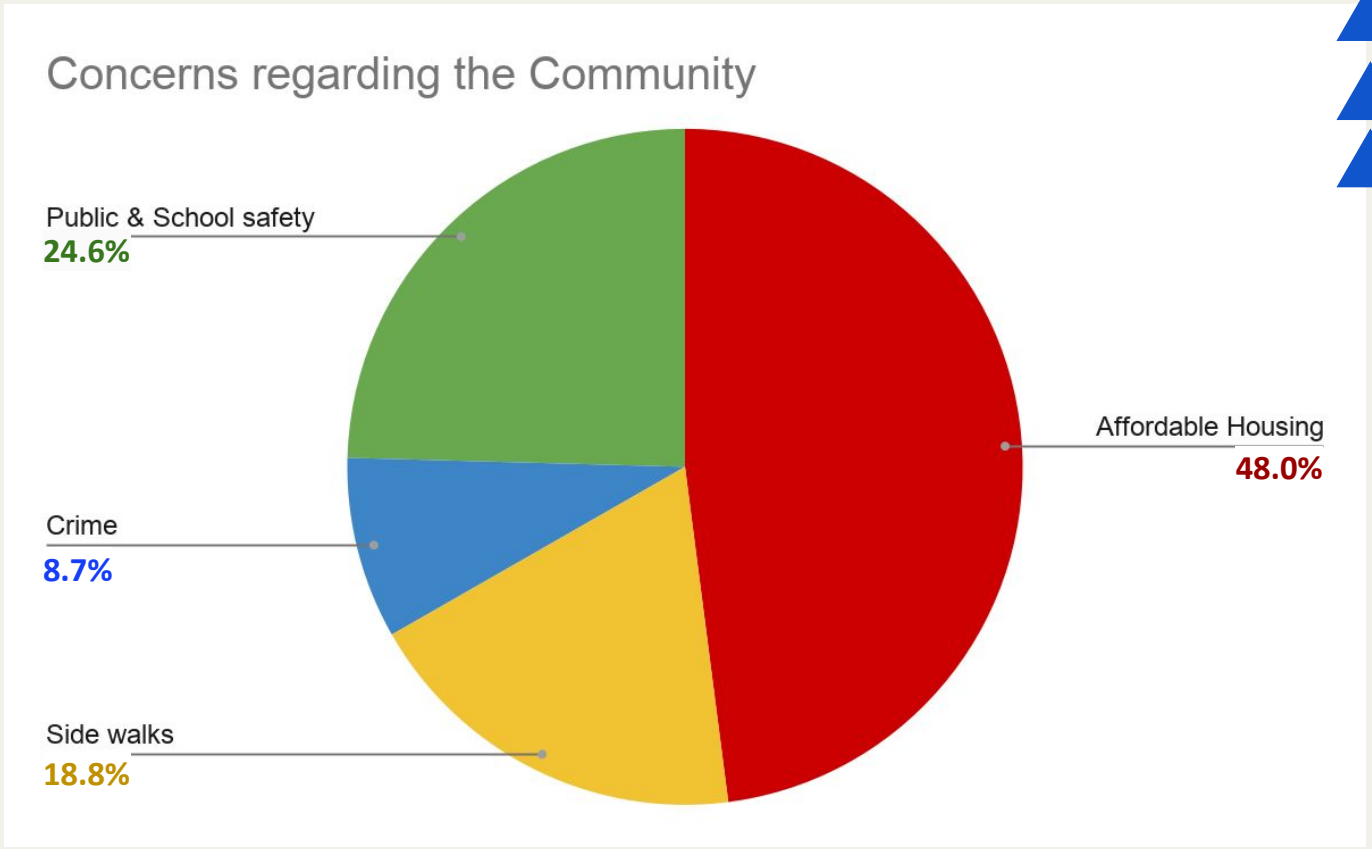
Total responses: 69

33 responses for **Affordable Housing**

13 responses for **Sidewalks**

17 responses for **Public & School Safety**

6 responses for **Crime**



# SAFETY

Total Responses: **70**

44 responded that **they feel safe**

6 responded that they **DO NOT feel safe**

20 responded that they **SOMETIMES feel safe**

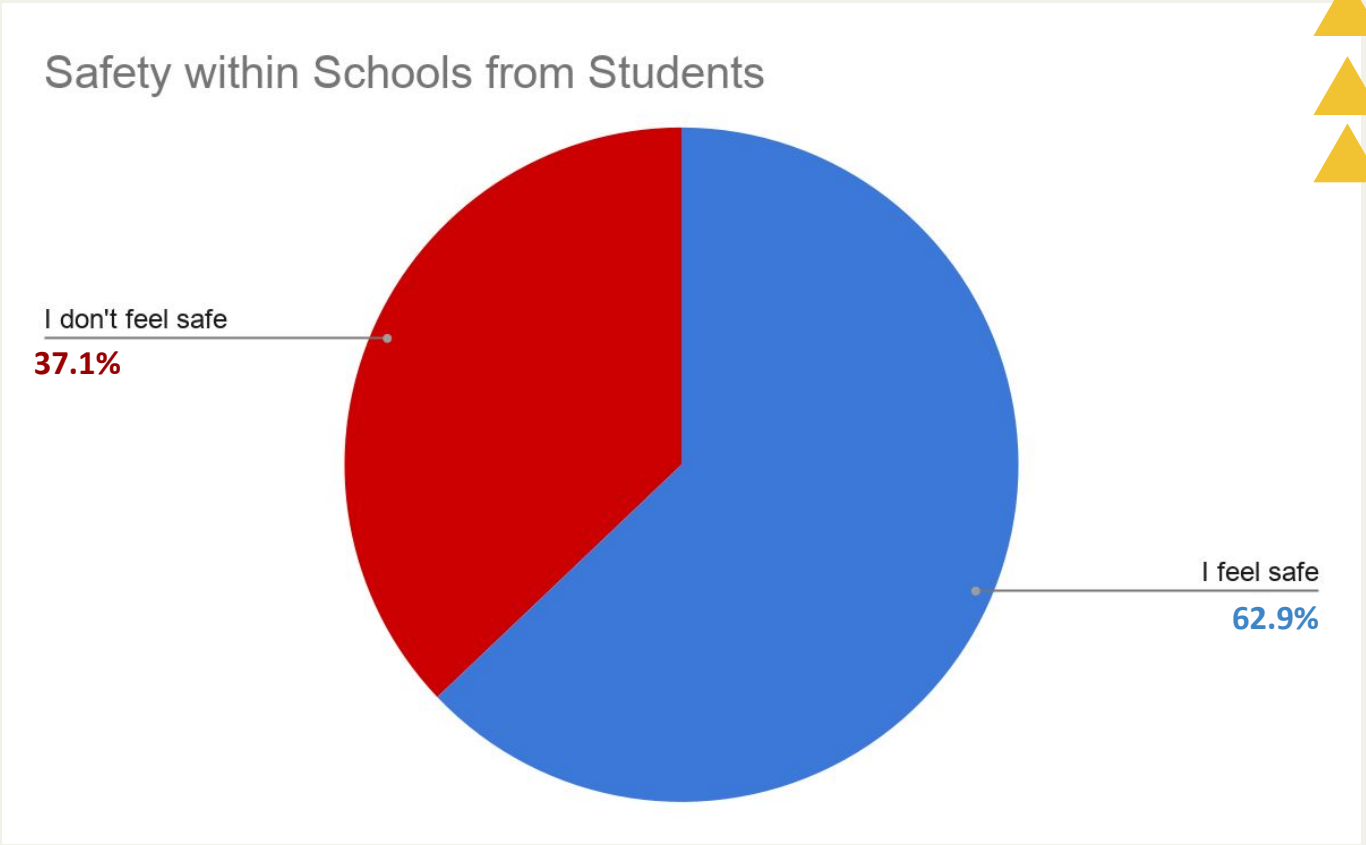
**More notes:**

**Would you feel safer if there was a resident officer?**

Total responses: **70**

43 responded **YES**

27 responded **NO**



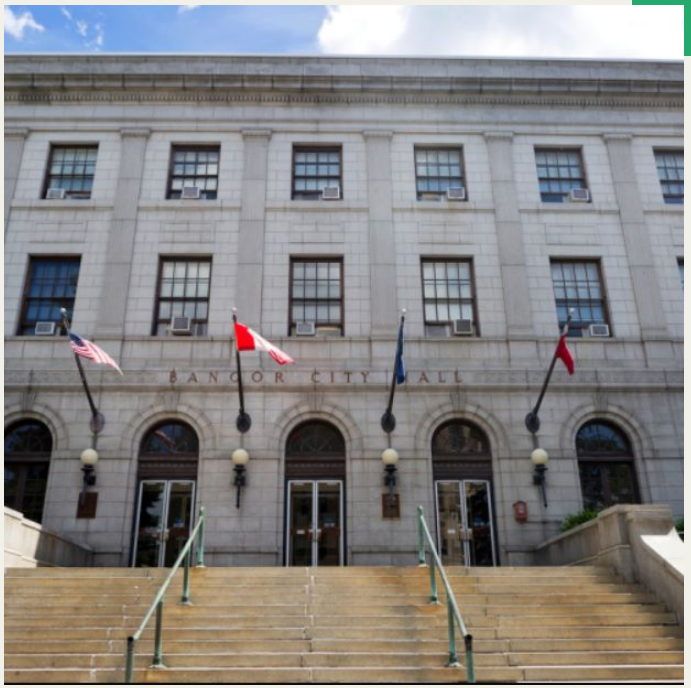
# CONCLUSION

Ultimately, the data shows that Bangor’s youth care deeply about their city.

They value the safety, peace, and sense of community that Bangor provides. They recognize challenges that still exist. Most importantly, they want opportunities to contribute and be part of the solution.

Through C.O.R.E., our goal is to transform student perspectives into meaningful action and create stronger connections between youth, residents, organizations, and local government.

# Thank You for listening to the voices of Bangor’s youth!



CITY OF BANGOR

ANNE M. KRIEG AICP
DIRECTOR

# COMMUNITY & ECONOMIC DEVELOPMENT

## Notice to City Council

We are pleased to submit the CDBG Annual Allocation Committee's recommended budget allocations for the Community Development Block Grant (CDBG) for the 2026-2027 Program Year. The information below is intended to provide context for the Committee's role, and explain how its feedback informed staff recommendations for this year's slate of activities. The committee's role was not to make final funding decisions, but rather to provide feedback, participate in guided discussions regarding community needs and priorities, and offer perspectives on the strengths, challenges, and potential impacts of proposed projects.

Committee members reviewed applications, attended applicant presentations, and engaged in structured discussions facilitated by City staff. Through this process, members were encouraged to consider how each proposal aligned with the goals of the City's Consolidated Plan, addressed identified community needs, and demonstrated the capacity to achieve measurable outcomes. The committee's observations and recommendations were then considered by staff as part of the development of the final funding recommendations presented to the City Council.

On April 17, 2026, HUD released the 2026-2027 CDBG allocations for Entitlement Communities. Together with a projection of unused funding carried over and estimations of funds for planning, administration, and public services, the City of Bangor's allocation is represented in the table below.

| CDBG ALLOCATION | Year 53<br>FY 26-27 |
|---|---|
| Planning and Administration Cap | $217,444 |
| Social Service Cap | $155,733 |
| Eligible Activities | $464,044 |
| Anticipated Program Income | $250,000 |
| Unused Funds Carried Forward | $390,439 |
| TOTAL | $1,462,015 |

The Agency's expenditure cap for planning and administration is equal to twenty percent of the total amount of entitlement funds, combined with the total amount of program income received in the current year. The statutory cap on expenditures for public service projects is equal to fifteen percent of the total amount of entitlement funds plus the total program income received in the preceding year. The total amount of unused funds, less unliquidated obligations, are reprogrammed for spending in FY 2026. Program Income projections are based on a five-year average of receipts sourced from revolving loan payments.

## APPLICATION PROCESS AND REVIEW

The City released its Notice of Funding Available (NOFA) on April 7, 2026, coinciding with Community Development Week. The mandatory applicant's meeting was held on April 24th in the Paul Bunyan Room of City Hall. The Neighborly Portal CDBG Application was active on April 9; Submissions were due on Friday, May 8, 2026 by 11:59 pm.

We received eight applications from external (non-City) applicants and four proposals from City Staff. Just one of the applications addressed a social service activity while the remainder were projects or programs addressing housing or infrastructure needs.

### The Allocation Committee Review and Funding Methods

The Committee first met for this funding year on April 24, 2026 to discuss the CDBG program, eligible activities, funding requests, and to interview the applicants. In future years, the Committee will begin these meetings earlier in the year to recruit new members. We would like to encourage anyone interested in serving on this committee to consider joining us in the fall during our planning meeting.

The Community Development Staff coordinated the applications with a technical overview during the pre-application period to ensure that each application met basic requirements. These findings were presented to the Committee before each individual applicant was invited to presentation their proposal during the annual "Open Mic Night" Committee members read each application individually prior to the meeting in which the application was to be reviewed and discussed as a group. When questions about the applications arose, staff documented the questions and forwarded them to the applicant to respond, and applicant responses were then shared with the Committee and reviewed. Allocation Committee members then scored each application individually, using the scoring matrix structured in accordance with the community needs identified in the Consolidated Action Plan and priorities established by the City Council.

## RECOMMENDATION SUMMARY

With the exception of projects proposed by the City, which were not scored, all applications considered complete received a passing score. Therefore, the Committee does not object to any proposal receiving funds. Where applicable, the Committee supports the full funding award for each request.

The Allocation process also evaluated the broad funding categories of Administration and Planning, or requests from City Departments. CDBG Programs such as the Homebuyer Assistance Program and Residential Rehabilitation are based on statutory restrictions on spending as well as typical demand for these services. The City's rehabilitation services are systematically funded by returning payments from previous customers. In recent years, demand for the program has been higher as costs become more difficult for homeowners to manage. In 2026-2027, the City hopes to support more homebuyers by allocating 50% more funding toward the program. The Community Development Division also designed a funding proposal on behalf of the Livable Communities Committee to address lifelong challenges of accessibility and community cohesion in Bangor.

Unused funding at the end of the year will be reprogrammed the following year by this Committee.

**1. Development Activities Funding**

The City received six (6) applications from external applicants requesting a total of $222,751, and one application from a City Departments to carry out $75,000 in eligible development activities.

| | |
|---|---|
| Window Dressers Community Build<br>*These funds will support volunteer efforts to coordinate and complete a community build of custom window inserts to increase energy efficiency in homes of low- to moderate-income people.* | $12,067 |
| Design Wall Housing Efficiency Project<br>*These funds will be used to complete a water line and run interior plumbing to two permanent supportive housing apartments on Smith Street.* | $25,000 |
| Fresh Start Peer Recovery Security Project<br>*These funds will be used to install a new security key system in all Fresh Start properties.* | $80,000 |
| Penobscot Community Health Care – Transitional Housing<br>*These funds will cover the cost of kitchenettes for all transitional housing units.* | $45,684 |
| YMCA Accessibility Project<br>*These funds will support the construction of accessibility modifications at the new downtown community facility.* | $35,000 |
| Shaw House Accessibility Project<br>*These funds will assist in the replacement of the shelter's elevator.* | $25,000 |
| Livable Communities Downtown Accessibility Project<br>*These funds will be used to support an initiative to install ADA-compliant threshold ramps in downtown businesses and shops.* | $75,000 |

**2. Social Services Funding**

The Committee received one application within this category totaling $25,000.

| | |
|---|---|
| Penobscot Community Health Care "Gaps in Care" Fund<br>*These funds will be used to pay for eligible costs that prevent or alleviate housing or social distress that contribute to poor health outcomes, when no other funding source can be identified.* | $25,000 |

**3. Internal/Program Funding**

In addition to grantmaking for subrecipients, the City of Bangor funds specific programs internally for its constituents and eligible beneficiaries. The Committee reviewed the remaining funds available to decide how to allocate toward these key programs.

| | |
|---|---|
| City of Bangor Parks and Recreation – Coe Park<br>*These funds will be used to replace aging playground equipment at Coe Park. Previously, funds were awarded for Williams Park in 2024, but the project was never completed.* | $233,000 |
| City of Bangor Public Works – Infrastructure<br>*This fund may be used for an infrastructure project in a low- to moderate-income neighborhood; the DPW has not yet identified an eligible project.* | $75,000 |

| | |
|---|---|
| City of Bangor Downtown Façade Program<br>*This set-aside will be used to offer a matching grant to an eligible downtown business to complete a project to address blighted conditions. The project has not yet been identified.* | $25,000 |
| City of Bangor Residential Rehabilitation Loan Program<br>*This program provides low-cost, accessible lending to low- and moderate-income property owners to make emergency repairs or accessibility modifications to make their homes safe and livable.* | $250,000 |
| City of Bangor Homebuyer Partnership Program<br>*This program offers eligible first-time homebuyers a grant toward the costs of purchasing a home within the City of Bangor.* | $150,000 |

REMAINING FUNDS IN RESERVE (After all funding requests) $305,311

**ADDITIONAL CONSIDERATIONS**

The FY 2026 CDBG allocation process represented a significant departure from prior years and was intentionally designed to increase transparency, public participation, and accountability in the use of federal community development funds. Historically, funding recommendations were developed through a more staff-driven process. While that approach met program requirements, it offered limited opportunities for residents and stakeholders to participate directly in funding discussions or to better understand how allocation decisions were made. In response, staff developed a structured public review process that included applicant presentations, committee deliberations, and opportunities for public input.

This process was intentionally designed to strengthen public trust by creating a clear connection among community needs, project outcomes, and funding decisions. Committee members were encouraged to evaluate proposals not only on organizational need but also on measurable community impact, alignment with Consolidated Plan priorities, and applicants' ability to demonstrate results and accountability.

The process also created a meaningful opportunity for civic engagement. Residents who care deeply about housing, neighborhood revitalization, economic opportunity, and public services were given a direct role in shaping how federal resources are invested in Bangor. Through their participation, committee members gained a deeper understanding of local challenges, the work of community organizations, and the difficult choices required when funding is limited.

While no allocation process is perfect, we believe this model represents an important step toward a more collaborative approach to community development. As the process evolves in future years, staff will continue to evaluate opportunities for improvement while preserving the core principles of openness, engagement, and public involvement that guided this year's effort.

Robyn Stanicki
Community Development Officer

CITY OF BANGOR
*Anne M Krieg, AICP - Director*

Community & Economic Development

# Memorandum

To: BED
From: Anne Krieg
Date: June 11, 2026
**Regarding: Historic Preservation in Bangor**

Please accept this memorandum as an overview of the Certified Local Government (CLG) program for Historic Preservation. At your last committee meeting, Planning Officer Collette reviewed draft changes to the code, which you are currently reviewing. A concerned citizen spoke about the need to be a Certified Local Government and the relationship between the certification and the code's requirements. This memo defines Certified Local Government, provides background on Bangor's participation and dedication to this program, and offers some thoughts on policy considerations for historic preservation.

The city has been a certified local government since 1985. Bangor was the first in the state to achieve this status, and the city is considered a leader in the historic preservation community for recognizing the importance of our past earlier than other communities in Maine.

From the National Park Service website:

> *The goal of the Certified Local Government (CLG) Program is to facilitate State and local government cooperation with Federal partners to promote nationwide preservation initiatives. Through the certification process, local communities make a commitment to national historic preservation standards. This commitment is key to America's ability to preserve, protect, and increase awareness of our unique cultural heritage found across the country.*

The Certified Local Government (CLG) program was established by Congress in 1980 through a series of amendments to the original National Historic Preservation Act (NHPA) of 1966. The program was designed to decentralize historic preservation, shifting what had been a federal- and state-system into a trilateral partnership that formally included local municipalities. To ensure the program had teeth, Congress required every SHPO to earmark at least 10% of its annual federal Historic Preservation Fund allocation exclusively for distribution to certified local governments. Localities were given a formalized role in reviewing and deciding whether a property in their jurisdiction should be nominated to the National Register.

Bangor's application to become a Certified Local Government in 1985 was a direct response to the scars left by urban renewal in the 1960s and 1970s. A large part of the downtown core was torn apart. What was left were unbuilt, empty spaces and parking lots where significant historic buildings once stood. Additionally, the opening of the Bangor Mall in 1978 created an economic hardship for the downtown that was left behind. The visual and economic loss prompted the public to protect the remaining architectural heritage.

Our predecessors in this department saw the opportunity to partner with historic preservation resources to leverage the remaining downtown assets, including a historic, walkable area with unique architectural styles.

During Urban Renewal, an inventory was conducted in 1975. Thereafter, historic preservation ordinances were created in the late 70s and into the early 80s. All the requirements for Certified Local Governments had already been met by the city, making it easy to join this program.

Thereafter, the city has invested Community Development Block Grant funds to help eliminate blight through the façade improvement program. Most of the façade uplifts in downtown have been accomplished with the assistance of this program. Because the program has been so successful, the city has lost its blighted status, and any use of the funds now requires a spot blight.

Staff fully appreciates the cost burden on property owners outside the downtown historic districts. The façade program cannot be used in these areas unless the project is for affordable housing. Grant funds from other sources for private property owners of residential buildings are limited. There aren’t enough artisans to perform specialized historic restoration or rehabilitation. This is why staff asked last year for permission to testify in support of bills that would provide tax credits to homeowners who undertake historic restoration and renovation projects.

Remaining a Certified Local Government (CLG) is a smart investment for Bangor because it strengthens the city's ability to preserve its historic assets and supports economic development, neighborhood revitalization, and community identity.

One of the most significant benefits of CLG status is eligibility for federal historic preservation grants that are available only to Certified Local Governments. These funds can support historic surveys, preservation planning, public education, National Register nominations, and rehabilitation projects that might otherwise require local funding.  We have used these and plan to use them in the future.

Historic preservation is economic development. Bangor's historic downtown, waterfront, neighborhoods, and landmark buildings contribute to the city's character and attractiveness. CLG status helps protect and enhance these assets, making Bangor more appealing to businesses, investors, residents, and visitors. Historic buildings often catalyze private investment and adaptive reuse projects. Our historic buildings have attracted outside investment, infusing new life into them.

As we continue downtown revitalization efforts, CLG participation provides access to technical assistance, preservation expertise, and planning resources that help ensure redevelopment respects the community's historic character while accommodating new growth. We know that communities with strong preservation programs often experience higher property values and greater investment in older commercial districts.

Bangor's history, from its lumber era and historic architecture to its role as a regional hub, is central to what distinguishes it from other communities. CLG status demonstrates a commitment to preserving the places and stories that define Bangor's sense of place and community pride.

Certified Local Governments receive technical assistance and training from preservation professionals at the state and federal levels. This support helps local officials, planning boards, and historic preservation commissions make informed decisions and stay current with best practices.

Heritage tourism remains one of the strongest segments of the tourism industry. Visitors are often drawn to authentic historic places. Maintaining CLG status helps Bangor protect the historic resources that contribute to tourism, visitor spending, and the city's reputation as a destination.

As a Certified Local Government, Bangor signals that it values thoughtful stewardship of its historic resources and is committed to balancing preservation with future growth. This designation reflects positively on the city as a leader, and aligns with the city’s broader goals of sustainability, economic vitality, and community development.

amk

CITY OF BANGOR
*Anne M Krieg, AICP - Director*

Community & Economic Development

# Memorandum

To: BED
From: Anne Krieg
Date: June 11, 2026
**Regarding: Tax Increment Financing, Credit Enhancement Agreements and Special Assessment Districts**

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Working with prospective developers and businesses, Economic Development staff use various tools to promote development and encourage start-up or relocation to Bangor. Some of these tools include financial supports for economic growth, infrastructure improvements, and redevelopment projects. Commonly used options are Tax Increment Financing (TIF), Credit Enhancement Agreements (CEAs), and Special Assessment Districts (SADs). Each tool offers different benefits and tradeoffs regarding fiscal impact, risk sharing, and public perception. This memorandum explains their purpose in preparation for the Council's future budget review.

## Tax Increment Financing (TIF)

*Overview*

Please find attached the city's current TIF policy.

TIF is authorized under Maine statute (30-A M.R.S. §5221 et seq.) and allows municipalities to capture the increased property tax revenue ("increment") from new development within a defined district and dedicate it to approved uses.

*Advantages*

- ✓ Shelters new value from state formulas: Captured value is excluded from calculations for state education aid, revenue sharing, and county taxes, helping municipalities avoid financial penalties from growth.
- ✓ Flexible use of funds: Revenues can support infrastructure, economic development programs, housing, arts & culture, staff time, and/or debt service.
- ✓ Encourages private investment: By reducing development costs or improving infrastructure, TIFs can stimulate job creation and expand the tax base. Property owners like the ability to use TIF funds for off-site improvements for their development or that there is a dedicated fund for their district for enhanced services and capital investments.

- ✓ Local control: Municipalities determine district boundaries, duration, and spending priorities (subject to state approval at the Maine Department of Economic and Community Development - DECD).

Disadvantages

- ➢ Revenue diversion: Funds that would otherwise support general municipal services are restricted to TIF purposes.
- ➢ Complex administration: Requires state approval, reporting, and long-term compliance.
- ➢ Long-term commitment: TIF districts can last up to 30 years, limiting fiscal flexibility.
- ➢ Equity concerns: Critics argue some projects would occur without TIF support, effectively subsidizing private development.

The policy, then, is that the city considers a development or a district so important to the overall economic health of the community that the use of TIF is in the general public interest.

The Downtown TIF exemplifies this increased support. The Downtown TIF funds improvements downtown, supports the work of the Downtown Bangor Partnership, and covers debt service for projects like the Cross Center. This TIF will conclude in 2036, after which the funds will transfer to the General Fund.

Note that TIFs can't be extended unless a large development is expected that would lead to the creation of a new district.

In Maine, TIFs can also be used for affordable housing projects. We have used this program with Penquis and the Bangor Housing Authority. It is expected that one will be requested for the Grandview project.

The annual budget for the use of TIF funds is reviewed by the City Council as part of your budget review and approval process. The TIF budget is prepared for the City Manager's review by staff in CED, Engineering, Public Works, and Parks & Recreation.

**2. Credit Enhancement Agreements (CEAs)**

*Overview*

CEAs are agreements within a TIF district where a municipality gives back a portion of the incremental taxes to a developer to help cover project costs.

*Advantages*

- ❑ Direct development incentive: Provides a predictable revenue stream to developers, improving project feasibility.

- ❑ Performance-based structure: Payments are typically tied to actual tax generation, reducing upfront municipal risk.
- ❑ Leverages private investment: Can attract large-scale or catalytic projects that might not otherwise occur.
- ❑ Reduces municipal bonding needs: Developers often finance improvements upfront instead of relying on public debt.

*Disadvantages*

- ❖ Perception of "giving money away": Public concern that tax dollars are being returned to private entities.
- ❖ Opportunity cost: Incremental revenue is not available for broader municipal uses during the agreement term.
- ❖ Negotiation complexity: Agreements require careful structuring to ensure public benefit (jobs, investment thresholds, etc.).
- ❖ Risk of underperformance: If a project under delivers, the municipality may receive less benefit than anticipated.

The policy directive with a CEA is that the particular project is important to the life of the district, such that the use of TIF funds to pay for the agreement is in the general public interest. Bangor currently requires applicants for a CEA to provide a pro forma so that the city can see the anticipated profit/loss margins as well as to avoid a failed project.

CEAs have been utilized in the downtown TIF as well as for the affordable housing TIFs. Typically, CEAs have a shorter duration than the TIF to lessen the burden on the rest of the district to support a single project. With construction costs high for renovations as well as new builds, particularly to bring existing buildings up to current codes, the profit/loss margins are wider, making CEA requests more common.

**Special Assessment Districts (SADs)**

*Overview*

Special Assessment Districts (sometimes called benefit assessment districts) are areas where property owners pay an additional assessment to fund specific projects or programs. Unlike TIF, they do not rely on incremental tax capture but on direct assessments tied to benefit received.

In 1991, the Assessment District was created in Bangor specifically for the Bangor Center Development Corporation, now known as the Downtown Bangor Partnership (DPB).

*Advantages*

- User-pay model: Costs are borne by those who directly benefit from the services.

- No impact on state valuation formulas: Unlike TIF, SADs do not affect education aid or revenue sharing calculations.
- Transparent funding: Clear linkage between assessment and services enhances accountability. The DBP budget is approved as part of the approval of the assessment on an annual basis.
- Useful for service gaps: Effective for financing specific services to reduce the burden on the General Fund.

Disadvantages

- Property owner resistance: Additional assessments can be politically difficult to implement. It is not known if the 1991 action was difficult, though it was not a unanimous vote. We do notify all property owners in the district if there is a proposal for a rate increase (such increase is considered as a separate Council Order.)
- Limited applicability: The district's applicability is established at its inception. To modify a district, it must be dissolved and then re-done.

The policy regarding an assessment district is that the district holds significant importance for the community but requires more attention, which the users should bear the cost of. This approach helps reduce the overall burden on taxpayers in Bangor.

Please find attached the Council Order establishing the district. The process for approving the assessment includes a noticed public hearing, a vote on the assessment, and a separate vote on the budget. Additionally, a vote is conducted to authorize the city manager to enter into a contract for disbursing funds. The budget is reviewed by the Business and Economic Development Committee before the public hearing. Comparative Summary.

Conclusion

In Bangor, TIFs and CEAs are effective, adaptable tools for economic development and expanding the tax base, especially because of the state-specific "shelter" benefit. However, they need careful planning to balance public and private interests. In contrast, Special Assessment Districts are more focused and transparent, offering management and marketing services to the district.

amk

# The City of Bangor Tax Increment Financing and Credit Enhancement Agreement Policy

## Tax Increment Financing (TIF)

### 1-101 Background.

Municipalities are authorized under Maine law to adopt Tax Increment Financing (TIF) districts by designating a boundary around a specific geographic area to promote local economic development and support municipal projects. Under the TIF laws, found at 30-A M.R.S. §5221 et seq (for general economic development TIFs) and 30-A M.R.S. §5245 et seq (for affordable housing TIFs), the original assessed value ("OAV") of property in a TIF district is fixed in time, and the municipality sets aside any increase in assessed value ("IAV") that occurs because of investment in the district. Tax revenues based on the OAV within a TIF District continue to flow to the general fund, while taxes paid on the difference between the OAV and IAV expressed as the captured assessed value ("CAV") become TIF Revenues. Municipalities may use TIF Revenues on projects authorized under the TIF statutes inside the TIF district, and projects outside the TIF district but "must be directly related to or made necessary by" the TIF district, and project costs unrelated to the location of the TIF district. Municipalities can also enter into credit enhancement agreements ("CEA") to provide a property tax reimbursement to a developer in order to incentivize the development and attract new investment in the local economy.

### 1-102 Purpose.

The Tax Increment Financing (TIF) policy outlines the standards and processes that will be used by the City Council, and staff in the Community & Economic Development Department, in initiating or considering applications to establish a TIF and/or to enter into CEA agreements within a newly established or existing TIF District. A TIF is important to municipalities as it helps promote economic development and revitalizes areas that may be underutilized, fund development costs/improvements needed to propel private development, and municipalities attract new businesses, create more jobs, more customers and, in turn more private investment. Regardless of, these guidelines, the creation of a TIF district or authorizing any agreement under this policy is at the sole discretion of the Bangor City Council.

Example:

Assumptions: 75% (varies) TIF Revenue Capture, Mil Rate of $18.55 per $1,000

TIF Formula: $2,000,000(IAV) – $1,000,000(OAV)= $1,000,000(CAV)
= $1,000,000 (CAV) ÷ $1,000
= $1,000 x $18.55
= $18,500 x 75%
= 13,912.50 (TIF Revenue)

### 1-103 General Principles.

The primary principles to consider for establishing a TIF District include:

1. To support Bangor's Economic Development Strategic Plan, capital improvement program, and other related City Plans and Policies;

2. To stimulate the expansion of the City's commercial and industrial tax base;
3. To create quality employment opportunities;
4. To encourage new affordable and market rate housing investment; and
5. To invest in infrastructure improvements.
6. Assist existing business to expand business opportunities
7. Create significant long-term employment
8. Support an emerging business sector
9. Introduce a unique or prestigious opportunity
10. Improve local economy
11. Improve blighted areas
12. Support community priorities
13. Create public benefits for other workers and/or businesses

1-104 Considerations.

*Minimum Real Property Investment*. A minimum of $1,000,000 in new real property investment for commercial and industrial development, taxable personal property, or 6 units of affordable housing development is needed to qualify for a TIF. This is the minimum investment which makes practical sense to consider use of the TIF program due to the amount of new municipal property tax revenue generated from new private investment.

*Job Creation.* Applicants for TIF participation that include the creation for jobs will be required to provide a plan outlining the number and quality of jobs retained or created associated with each TIF district. While there is not a specific formula for the numbers of jobs associated with the amount of TIF financial assistance, the number and quality of the jobs will be taken into consideration for each TIF district. Housing projects are exempt from these criteria.

## Part A - Establishing a TIF District

1-201 Application Process.

TIF District applications (whether initiated by the City or requested by a developer or business) will be initially reviewed and vetted by the City Manager and the Community & Economic Development Director. If found to be in keeping with the City policy and priorities, the applications will be presented to the Business and Economic Development Committee with final approval by the Bangor City Council. Approval of the City Council will result in the submission to the designated agency, whether that be the Maine Department of Economic and Community Development (DECD) for economic development projects or Maine State Housing Authority (MaineHousing) for affordable housing projects.

The Community & Economic Development Director will coordinate all activities regarding applications and will assist the applicant throughout the TIF application and approval process. The terms and specific details of each TIF district and any related CEA(s) will be developed on a

case-by-case basis. The City Manager and Community & Economic Development Director will negotiate on behalf of the City of Bangor, on the merits of the project and this policy, following the process identified within these guidelines. If an applicant is applying for a TIF and a CEA at the same time, the application requirements and fees for both must be submitted before approval of either. All representations of the City Manager and Community & Economic Development Director are subject to approval of the City Council.

1-202 Application Requirements.

TIF District applications not initiated by the City are subject to the following provisions:

1. Application fee. All applicants requesting the designation of a TIF District shall pay a non- refundable application fee of $1,500 at the time of application.
2. Documentation. An applicant must submit a letter with all supporting documents to the Community & Economic Development Director outlining the proposed project.
   a. Complete application
   b. Certificate of Good Standing
   c. Interior and Exterior photos
   d. Proof of site control such as a deed
   e. Architectural Renderings
   f. Detailed Project Budget
   g. Financial capacity demonstration
   h. Business plan
   i. Pro-forma
3. Costs and fees. Other fees such as legal ads and administration fees included in the application fee.
4. Performance Reporting. All TIF agreements are reported annually

1-203 Approval Process.

1. Pre-application meeting with staff
2. Submit application to the City Council
3. Submit application to Maine Department of Economic and Community Development (for economic development TIFs) or MaineHousing (for affordable housing TIFS) for final approval,

1-204 Tax Increment Financing Expenditures.

There are three categories of expenditures for revenues generated through TIF Districts, if authorized as approved project costs in a TIF District.:

1. City economic development programs funded directly through annual funding requests and/or appropriations. Examples of municipal economic development programs include paying for economic development staff, infrastructure costs, paying for costs related to the construction or operation of public safety facilities, costs associated with broadband infrastructure, costs related to planning, design, construction, maintenance grooming and improvements to new or existing

recreational trails, costs associated with the operation and financial support of affordable housing and housing programs and services to assist those experiencing homelessness, City and regional marketing/branding, and other activities allowed under the TIF statutes.

2. Projects financed by City bond or debt issuance. Issuance of municipal general obligation bonds or other financial instrument is a mechanism that may be used to pay for the cost of an allowable project.
3. Credit Enhancement Agreements (CEA). A CEA is a contract between a municipality and developer or other party to assist an individual development project by using an agreed-upon portion (up to all) of the tax increment revenue generated by the investment to pay certain authorized project costs, including site specific infrastructure or private individual project financing needs.

1-205 Guidelines for Municipal Economic Development Programs.

The process of allocating TIF revenues for approved project costs requires City staff to develop economic development programs and budgets, conducted through annual review by the Community & Economic Development Department, and ultimately approved by City Council.

1-206 Guidelines for Projects Financed by City bond or Debt issuance.

Investments should have benefits beyond one individual project with a focused emphasis on supporting business and commercial development, redevelopment, or to support buildings in need of redevelopment.

1-207 Guidelines for Credit Enhancement Agreements (CEA).

A Credit Enhancement Agreement (CEA) within a TIF district may be considered for investment in infrastructure within the site or project financing needs. The process and guidelines for issuing a CEA are outlined in the next sections of this document: Credit Enhancement Agreement Overview.

## Credit Enhancement Agreement (CEA)

2-101 Background.

A CEA is a financial mechanism that may be used as a stand-alone instrument. The CEA is a contract between the municipality and developer or business to assist the development project by using some or all the incremental tax revenues generated by the new investment to pay certain authorized project costs with payments made directly to the developer or business.

2-102 Purpose.

This policy outlines the standards and processes that the City of Bangor will use in initiating or considering CEAs within existing or proposed TIF Districts. A CEA is a financial mechanism, if approved by the City Council, to be one of Bangor's economic development tools for business attraction, retention, and expansion. Regardless of these guidelines, the creation of a CEA is a decision made by the City Council on a case-by- case basis. Obtaining a CEA is a not a right under Maine law, and meeting these guidelines should not be interpreted as creating any rights or entitlements in any application.

Example:
Assumptions: CEA = $70,000 (New Taxes) × 65% × 10 years

CEA = $70,000(New Taxes) × 65% × 10 years
= $70,000 × 65% × 10 years
= $45,500 × 10 years
= $455,000

This means that over 10 years, the developer will receive back $455,000 from the increased property taxes, which they can use to offset development costs.

2-103 General Principles.

The primary principles to consider for determining whether to create a CEA include:

1. To support Bangor's Economic Development Strategic Plan, capital improvement program, and other related City Plans and Policies;
2. To encourage new housing investment; and
3. Create new jobs
4. Assist existing business to expand business opportunities
5. Create significant long-term employment
6. Create or expands public infrastructure
7. Support an emerging business sector
8. Introduce a unique or prestigious opportunity
9. Improve the local economy
10. Broaden the tax base
11. Improve blighted areas and sites
12. Support community priorities; and
13. Create public benefits for other workers and/or businesses.

## Part A - Establishing a Credit Enhancement Agreement (CEA)

### 2-201 Considerations.

The following criteria shall be considered in authorizing CEA for economic development or affordable housing:

1. Would not likely occur otherwise
2. Creates housing developments
3. Creates or retains employment opportunities
4. Expands the City's tax base; and
5. Conforms to the quality and types of development sought by the City as outlined in the Land Development Ordinance, Comprehensive Plan, Economic Development Strategic Plan, the Tax Increment Financing District Development Programs, and/or other plans and policies adopted by the City Council.

### 2-202 Application Process.

CEA applications may be considered by the City Manager, Community & Economic Development Director, and the City Council, with all final approvals by City Council. The Community & Economic Development Director will coordinate all activities regarding applications and will assist the applicant throughout the process. The terms and specific details of each CEA will be developed on a case-by-case basis. The City Manager and Community & Economic Development Director will negotiate for the City based on the merits of the project and these guidelines following the process laid out in this document.

### 2-203 Application Requirements.

Applicants for a CEA are subject to the following provisions:

1. Application fee. All applicants requesting the designation of a CEA shall pay a non-refundable application fee of $500 at the time of application.
2. Documentation. The following documentation shall be included in all applications for a CEA
    - All financial disclosures, reporting, and other documentation the City of Bangor will be coordinated at pre-application meeting.

3. Financial Capacity. The applicant must demonstrate financial capacity to undertake the project. All financial disclosures and financial capacity determinations will be conducted, reviewed, and certified by pertinent staff. The applicant must be compliant with all statutory and regulatory guidelines of the City of Bangor and the State of Maine. The applicant shall not have engaged in illegal or unfair labor and employment practices, unsafe employment practices, or adverse or illegal environmental practices. No outstanding code violations shall be present without a

development agreement.

4. Terms. The specific terms of each CEA are negotiated on a case-by-case basis between the City and the applicant. As a general guideline any CEA should contain the following:
    - Financial Need: The applicant must demonstrate that the City's participation is financially necessary in order for the project to proceed.
    - Maximum Percentage: A maximum average percentage of 65% for the entire term associated with an individual CEA, except that the percentage reimbursement for affordable housing projects may be up to 100%.
    - Maximum Number of Years: negotiated to match individual private sector commercial financing terms.

5. Costs and fees. Other fees such as legal ads and administration fees included in application fee. All CEAs shall provide for an annual administrative fee due to the City of Bangor, equal to one percent (1%) of the obligated CEA payment due to the applicant, provided they follow all the terms and conditions of the CEA. Regardless of the amount derived using the one percent (1%) calculation, the minimum annual administration fee shall be two hundred and fifty dollars ($250). The fee shall be deducted from the tax recapture due to the applicant, prior to the remittance of any amounts to the applicant during the life of the CEA.
6. Performance reporting. All CEAs shall provide for the applicant to submit reports and documentation in a form satisfactory to the City supporting any amounts to be paid to the applicant per the terms of a CEA between the applicant and the City to assess an applicant's performance and compliance with the terms set forth in any CEA.

2-204 Approval Process.

1. Pre-application meeting with staff
2. Submit application to City Council

2-205 Guidelines for Level of Municipal Participation.

In addition to general principles, as applicable, the following shall be considered in determining the level of participation by the City of Bangor.

1. The project assists an established business in the City of Bangor, thus retaining existing employment opportunities;
2. The project supports or will support community projects, provides job training, provides student internships, supports local contractors and suppliers;
3. The developer has a responsible history with property tax payment and pledges continued responsibility.

(1)

Council Action

Date June ~~13~~ 24, 1991 Item No. 91-256

Item/Subject: Adopting Municipal Development Program and Budget for the Bangor Center Development District

Responsible Department: Community and Economic Development

Commentary:

(See Attached Memorandum)

HEARING - Prior to voting on this Order, the Council is required to hold a Public Hearing on the Municipal Development Program and Budget for the Bangor Center Development District.

The purpose of this Order is for the City Council to consider the Program to be implemented for the Bangor Center Development District. The Program has been prepared by the Municipal Development District Advisory Board.

Legal Notices

CITY OF BANGOR
NOTICE OF
PUBLIC HEARING

PLEASE TAKE NOTICE THAT the Bangor City Council, Municipal Officers of the City of Bangor, will hold a public hearing on June 24, 1991 at 7:30 P.M. in the City Council Chambers, Bangor City Hall, 73 Harlow Street, Bangor, Maine, for purposes of receiving public comment in accordance with 30-A M.R.S.A. Section 5253 (2) on a proposed program and budget for the Municipal Development District to be located in the downtown area, to be known as the Bangor Center Development District.

Russell J. McKenna,
City Clerk

June 13, 1991

Kenneth R. Webb
Department Head

Manager's Comments:

Acting Robert W. Farnan
City Manager

Associated Information:

Order, Program + Budget

Budget Approval:

Finance Director

Legal Approval:

City Solicitor

Introduced For

- [X] Passage
- [ ] First Reading
- [ ] Referral

91-256

Assigned to Councilor Sullivan, June 24, 1991

# CITY OF BANGOR

(TITLE.) Order, Adopting Municipal Development Program and Budget for the Bangor Center Development District

*By the City Council of the City of Bangor:*

**ORDERED,**

**THAT** WHEREAS, by action of the City Council a certain area in the downtown area has been designated as a Municipal Development District known as the Bangor Center Development District in accordance with 30-A M.R.S.A. § 5253(1); and

WHEREAS, 30-A M.R.S.A. § 5253(2) requires that the governing body of a Municipality shall adopt a development program for each development district; and

WHEREAS, the Municipal Development District Advisory Board has recommended a proposed development program to be adopted by the City Council,

NOW, THEREFORE, BY THE CITY COUNCIL OF THE CITY OF BANGOR:

ORDERED, THAT in accordance with 30-A M.R.S.A. § 5253(2), does hereby adopt the "Bangor Center Management Corporation Program and Budget, 1991-1992" as the development program for the Bangor Center Development District.

91-256

O R D E R

Title,

Adopting Municipal Development Program .....

and Budget for the Bangor Center Development District .....

**Assigned to**

.....Sullivan.....

Councilman

In City Council June 24,1991

Public hearing was held along with council orders 91- 257, 91-258, 91-259

Council voted No conflict for the following Councilors

Frankel,Baldacci,Sullivan, Cohen

Council Voted Conflict

for the following Councilors

Sawyer,Stone

Vote for Passage
5 yes ,2No 2 Abstained

voting Yes
Bragg,Frankel,Saxl, Sosnaud,Sullivan

voting No
Baldacci,Cohen,

Abstaining - Sawyer , Stone

Order Passed

Russell J McKenna

City Clerk

91-256

MEMORANDUM

June 13, 1991

TO: City Council

FROM: Rodney G. McKay, Community Development Director

RE: Bangor Center Development District

Four City Council Orders and two public hearings required to continue funding of the Bangor Center Management Corporation are scheduled for the June 24, 1991 City Council meeting.

The purpose of the first public hearing is to consider adoption of the proposed Development Program (the means and objectives, including the proposed budget, to be implemented within the Bangor Center Development District). Notice of this hearing was published in the June 13th edition of the Bangor Daily News (copy of Notice attached).

The second public hearing will be to consider implementation assessments. To comply with extensive statutory notice requirements, a public notice was published in the June 13, 1991 edition of the Bangor Daily News which included a list of all affected properties, estimated assessments for each, and a maximum rate of assessment of $0.99 per thousand dollars of assessed value. (A copy of the Notice, reduced in size, is attached.)

The City Council Agenda sequence for the required public hearings and four Council Orders should be as follows:

HEARING - Public Hearing on the Municipal Development Program and Budget for the Bangor Center Development District

91- ORDER - Adopting Municipal Development Program and Budget for the Bangor Center Development District

HEARING - Public Hearing on Establishment of Implementation Assessments for the Bangor Center Development District

91- ORDER - Bangor Center Development District - Establishment of Implementation Assessments

91- ORDER - Establishing the Amount of the Tax Rate and Overlay for the 1992 Fiscal Year for the Bangor Center Development District

91- ORDER - Authorizing Execution of Contract with Bangor Center Management Corporation.

The budget proposed by the Municipal Development District Advisory Board and the Bangor Center Management Corporation is $84,892.00, all of which is proposed to be raised from implementation assessments on property owners within the district.

The special assessment rate needed to fund the $84,892.00 district budget from implementation assessments in the coming year is $0.9499 per $1,000 of assessed value based on an estimated total district assessed value of $89,365,000. An overlay rate of $0.0401 (4 cents) per $1,000 of assessed valuation is recommended, resulting in a total implementation assessment rate of $0.9900 per $1,000 of assessed value, the amount indicated in the public hearing notice as the "Maximum Rate of Assessment" for the period commencing on July 1, 1991 and ending on June 30, 1992.

A comparison of prior years assessments and funding of the Bangor Center Management Corporation is attached.

RGM/lg

Attachments: AS

## BUDGETS / SPECIAL ASSESSMENTS / CITY PARTICIPATION
JULY 1, 1991 to JUNE 30, 1992

06/18/91
08:57 AM

| | PROPOSED CITY FY 1992 | CITY FY 1991 | % CHANGE |
|---|---|---|---|
| Bangor Center Management Corporation | | | |
| Total Budget | $84,892.00 | $111,473.00 | -23.8% |
| Carry Over From Previous Year | $0.00 | $15,000.00 | -100.0% |
| Amount from City General Fund | $0.00 | $28,000.00 | -100.0% |
| Special Tax Assessment Needed | $84,892.00 | $68,473.00 | 24.0% |
| | | | |
| Total Estimated Assessed Value of District | $89,365,000 | $90,668,700 | -1.4% |
| Special Tax Assessment Needed | $84,892 | $68,473 | 24.0% |
| Special Assessment Rate Needed per $1,000 of Valuation | $0.9499 | $0.7552 | 25.8% |
| Add: Overlay per $1,000 of Valuation at | $0.0401 | $0.0200 | 100.3% |
| MAXIMUM RATE OF ASSESSMENT TO BE EXTENDED | $0.9900 | $0.7752 | 27.7% |
| Total Amount of Special Assessment at Maximum Rate | $88,471.35 | $70,286 | 25.9% |

## BUDGETS / SPECIAL ASSESSMENTS / CITY PARTICIPATION
JULY 1, 1987 to June 30, 1992

| YEAR JUL - JUN | BCMC BUDGET | % CHANGE | $ SPECIAL ASSESSMENT | % CHANGE | $ GENERAL FUND | % CHANGE | DISTRICT ASSESSED VALUE | % CHANGE | ASSESSMENT RATE | % CHANGE |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |
| 1987-1988 | $120,000 | | $60,000 | | $60,000 | | $67,730,400 | | $0.9301 | |
| 1988-1989 | $140,000 | 16.67% | $78,000 | 30.00% | $52,000 | -13.3% | $79,558,100 | 17.46% | $1.0000 | 7.52% |
| 1989-1990 | $166,242 | 18.74% | $114,242 | 46.46% | $52,000 | 0.0% | $87,915,000 | 10.50% | $1.3000 | 30.00% |
| 1990-1991 | $111,473 | -32.95% | $70,286 | -38.48% | $28,000 | -46.2% | $90,668,700 | 3.13% | $0.7808 | -39.94% |
| 1991-1992 | $84,892 | -23.85% | $84,892 | 20.78% | $0 | -100.0% | $89,365,000 | -1.44% | $0.9900 | 26.79% |

91-256

# BANGOR CENTER MANAGEMENT CORPORATION

Program and Budget

1991-92

As we look at the downtown during this period of economic downturn, we find that most of the businesses are holding steady with some experiencing a slight growth. There are some, however, which have found that they could not maintain their overhead costs and have closed. Fortunately these have been very few. Everyone is cutting back, trimming costs and hoping for a better market to emerge in the near future. This seems to be occuring for some stores as many are reporting better spring sales.

It should also be noted that, even as some stores have found it difficult to continue, others are moving into the downtown. One store on Central Street doubled its size, another antique shop opened on a second floor and Mr. Paperback has opened another, slightly different, branch. Bett's Bookstore, although closing under present ownership, has been sold and the new owners are interested in remaining downtown. A small restaurant on Main Street has unfortunately left the downtown but, at least ismoving to larger quarters elsewhere.

In such times Bangor Center Management Corporation, ever mindful of the increased burden of escalating property taxes, has given great consideration to its budget with the intention of eliminating any expenditures possible and minimizing others.

We have researched the possibility of expanding our boundaries but have received many indications that this is not an appropriate time to do so. We will be looking at this action again some time in the future.

It is a part of our philosophy that we should serve as a catalyst for getting things started, to develop ideas and take the initiative. We are taking the approach this year, now that many projects are firmly in place, to let others assume responsibility for their continuation. This frees us up to undertake new projects. We are also very pleased to have been approached recently by three major organizations who would like to be co-sponsors in new events. As it is our major goal to "reawaken interest in downtown", this is a measure of success.

To speak briefly to the "reawakening of interest in downtown...if every event, every new development occured solely because BCMC generated the action it would be a sign that we were the only ones who were interested in the downtown and its economic health would be suspect. The fact that overall interest is increasing in the area is exactly what we are aiming for. The vitality of the Central Business District is a function of the number of persons and businesses who feel that it is the place to conduct their business, do their shopping, find entertainment and to live.

Major renovations to the Tarratine Club will provide a new home for an existing new business, the total rehabilitation and restoration of the Cyrus Clark double house at 128-130 Hammond Street are all signs that an optimistic outlook has returned to Downtown Bangor.

It is important that BCMC continue, particularly during difficult economic times. It is during this kind of an economy that we are having success in pulling retailers together to work for the common good. Joint advertising ventures and plans to promote the downtown as a whole can only benefit everyone. The emergence of the feeling that each business is a part of a greater whole is an important step and one which is resulting in an emphasis on the "downtown community".

**1991-1992 PROGRAM OF WORK**

I. Improve Downtown Bangor

**A. Design**

1. In order to demonstrate the viability of renovating upper story space into living quarters we will undertake a demonstration project which will take existing space and design an apartment and develop approximate cost figures.

2. As an element in our up-coming campaign to emphasize the historical content of downtown we will develop a series of placques for each building. It is planned that with each property owner's participation, these will be mounted on each structure of historical significance, thus providing identification for those interested in exploring the area from an historical perspective.

**B. Technical Assistance Program**

1. We will continue to make technical assistance available to any property or business owner suggesting to them sources of financing, design ideas or .

2. We will provide assistance in the application for Historic Tax Credits for building renovations. This may consist of assisting them with research or in actually filling out all required documentation.

3. A major item on our program agenda will be the development of a Retail Market Analysis. This will be done in-house with the cooperation of the City's Community Development Block Grant Program. Information gained from this will provide us with solid information with which to attract new businesses to the area. This value of this will be broad-based, as the resulting information will be of use in developing the waterfront area as well.

**C. Promotion**

1. In an effort to maximize the advertising dollars spent in the downtown we will work with the retail committee to develop an on-going program of joint advertising. In this way, we will be able to promote the downtown as a whole, while individual stores each contribute, thus creating the mass necessary to make an impact.

2. A continuous effort will be made to promote the downtown to residents of the Maritime Provinces in the upcoming year. As the result of a recently increased sales tax in that area, many more Canadian people will be shopping in the Bangor area and it is important that we attract these people to the downtown for shopping , dining and lodging.

3. We will be promoting special sales incentives which are necessitated by the weak economy and coordinating this effort among the many businesses so that it becomes evident that the downtown as a whole becomes an attractive shopping opportunity.

4. To promote the historical value of downtown, we will develop and distribute a brochure about the history of the individual buildings and specific sites to attract more visitors to the area.

**D. Communication**

1. Continue to seek opportunities to speak to civic and community groups to generate interest in the downtown.

2. Continue to serve as a liason between the downtown business community and city staff and elected officials.

3. Continue to publish the Downtown Bugle, possibly in a simplified format.

## III. Marketing and Promotion

### A. Advertising

1. The continued promotion and marketing of the downtown will be a major part of our program. We have facilitated some group advertising this past year and will continue to do so. This has involved emphasis on the area as a place for Christmas shopping and an attraction for tourists. Our emphasis will be on the total downtown of which each business is a part. This advertising will continue to promote the Parking Garage as a major element in making the downtown a convenient asset to the area.

2. We will increase our promotion of Downtown Bangor in the Maritime Provinces as this becomes a market with escalating potential for this area. We will develop a strategy with retailers to target these Canadian shoppers, many of whom, although they shop in other parts of Bangor have yet to become frequent visitors to the downtown.

B. **Events**

It is our philosophy that we should serve as a catalyst for getting things started, to develop ideas and take that early risk. The risk we take when we initiate events is not always financial; success or failure is often dependent upon whether enough people feel that it is an occasion which they wish to attend and it is difficult to make that determination in advance. Now that we have had a successful track record with some events, we feel confident that they will continue without our further participation. We have been fortunate to have co-sponsors for many of these events who will be able to continue as sole or prime sponsor. In addition, we have attracted the interest of several potential sponsors who are anxious to become involved in new events. This will permit us to continue to increase the "reasons and occasions" to come downtown without having to undertake every event ourselves.

* Among these events in which we have played a major role is the **Christmas Parade** which has been taken over by WVII-TV, allowing us to concentrate on other aspects of the Christmas season.

* We have instituted and sponsored the **World's Largest Garage Sale and the Downtown Sidewalk Art Festival** with WLBZ-TV. Both of these events have been highly successful and will likely continue to be so under the direction of WLBZ-TV.

* We are having discussions with a church to take over the sponsorship of the **Messiah Sing-Along.**

* **Paddlesport Weekend** was a large success under the sponsorship of Old Town Canoe and the Bangor Parks and Recreation Department. Although we were called upon to assist in making this happen this year, our assistance should not be needed in the future.

* Under the sponsorship of the Fourth of July Corporation, which is composed primarily of area-wide Kiwanis clubs, the **Fourth of July Celebration** is increasing in scope each year. BCMC plays a prime role in assisting with this event but is not called upon to provide financial assistance. For the 1991 celebration BCMC has coordinated all afternoon concerts, venders and events, a role which we will continue.

**Events which we will continue to sponsor or to initiate in the upcoming year with new co-sponsors.**

* Christmas Decorations
* Tree Lighting Ceremony
* Food Festival
* Re-enactment of an Historical Event as part of a History Day.

## IV. Public-Private Policy

A. Continue to work with City staff on issues which are of particular concern to the downtown.

B. Develop a particular role which the downtown can play in furthering good relations with our Canadian neighbors.

**BUDGET** for 1991-92 Program

| **Proposed** <u>Item</u> | | |
|---|---|---|
| Executive Director | $39,800.00 | |
| Part Time (Christmas) | 1,000.00 | |
| FICA | 3,024.00 | |
| FUTA | 60.00 | |
| SUTA | 220.00 | |
| Worker's Comp. Insururance | 600.00 | |
| Rent | 5,400.00 | |
| Utilities | 828.00 | |
| Telephone | 1,600.00 | |
| Health Insurance | 2,200.00 | |
| Office Equipment | 1,600.00 | |
| Postage | 1,000.00 | |
| Liability Insurance | 3,000.00 | |
| Publications | 0.00 | |
| Memberships | 200.00 | |
| Bank Charges | 160.00 | |
| Public Hearing Notice | 3,000.00 | |
| Market Analysis | 0.00 | * |
| Advertising | 12,500.00 | |
| Promotional Material | 3,000.00 | |
| Events | 3,000.00 | |
| Conferences/Meetings | 500.00 | |
| Travel | 500.00 | |
| Professional Services | 1,500.00 | |
| Bugle | 0.00 | |
| Miscellaneous | 200.00 | |
| Payroll Preparation | 0.00 | |
| | $84,892.00 | |

A Market Analysis will be done in cooperation with the City's Community Development Block Grant Program. The Director of BCMC will complete the work and CDBG will assist in obtaining demographic materials and in the final publication of the resulting report. It should be noted that this research will be applicable to the Waterfront development.

91-256

**BANGOR CENTER MANAGEMENT CORPORATION ACCOMPLISHMENTS**

**DEVELOPMENT** - NCUED grant to study proposal for enclosed glass public area on Broad St. * ME Arts Commission Grant-Downtown Design Issues * Maine Products Center Feasibility Report Committee * Opera House Preservation Committee * Downtown Developer's Kit * Inventory of Downtown Businesses Inventory of all Downtown Property * Customer Opinion Survey * Merchant Survey * On-going efforts with owner of vacant buildings * Assisted downtown owners with Historic Tax Credit Applications * Assisted in finding tenants for vacant spaces * Assisted tenants in permit process * On-going work with developers, realtors, property owners * Contact with potential downtown businesses * Liaison with Historic Preserv. Comm. * Assistance on Historic District

**PUBLIC SPACES** - Design input for Pickering Plaza * Coordination with Public Works on upgrade of Hamlin Park * Christmas Tree for West Market Square * Extensive Christmas decorations * Summer flower baskets on lamposts

**TRANSPORTATION/PARKING and PUBLIC SAFETY** -Instigation of Shuttle Bus Service * On-Going input into parking design and management plan * Promotion of parking garage * Promotion of Validation Parking System * Obtaining foot patrolman for summer months * On-going coord. with Police * Name the Garage Contest * Traffic Lights and Crosswalks

**PUBLIC POLICY** - Skateboard Ordinance * Input into Bangor Comprehensive Plan * Property Tax Relief Comm. *Candidate's Night * Liaison between City Hall and Downtown Community * Homeless Youth Task Force * Youth Shelter Committee

**PUBLIC RELATIONS** - Numerous speaking engagements promoting the downtown * Promotion of relations with Saint John and Fredicton, N.B * On-going information source * Development and publication of downtown newspaper "The Bugle" (15 issues) * Christmas Window Decorating Contest

**SEMINARS** - Advertising, Window Decorating, Facade Improvements, Merchandising Techniques and Store Hours

**PROMOTION** - Advertising in/on 4 Television stations / 11 radio stations / 9 newspapers / 5 magazines / 4 magazines / Meeting Planner's Guide / Extensive downtown advertising from sources other than our budget * Downtown Jingle Multi-colored brochure (40,000 copies distributed) * Seasonal map and calendar * Co-Sponsor Historic Walking Map

**EVENTS** - Christmas Parades (2) * World's Largest Garage Sale Sidewalk Art Festival * 4th of July - Assist Kiwanis in Parade / Waterfront Concert / Co-Sponsor Jazz Concert * Summer Lunchtime Concerts * Santa Claus * Blueberry Bazaar Applefest * Christmas Tree Lighting * Messiah Sing-Along Christmas Music * Camelot * Camelot Sunday * Carousel * Opening Night * Co-Sponsor Voyage 2000 * Co-Sponsor Paddlesport Weekend * Farmer's Market (upcoming)

CITY OF BANGOR
*Anne M Krieg, AICP - Director*

Community & Economic Development

# Memorandum

To: BED
From: Anne Krieg
Date: June 11, 2026
**Regarding: Maine Downtown Center event**

This memo is to inform the committee that the city will host the 2027 Conference of the Maine Downtown Center. The committee may recall that the city was recently added to the list of Downtown Affiliate Communities. This is the first step toward achieving the nationally accredited Main Street designation. You can read about this here: https://www.mdf.org/program-partnerships/maine-downtown-center/. This is a competitive process, and as an affiliate member, we are part of a network of communities lauded for their partnerships and commitment to downtown revitalization and development.

We are considering a range of downtown locations for workshops and walking tours. Typically, about 150 people attend the event. In recent years, the conference theme has focused on revitalization in action and on sharing practical solutions to strengthen downtowns. The city offers examples of:

- Downtown housing development
- Mixed-use redevelopment
- Historic preservation
- Arts and culture as economic drivers
- Regional tourism
- Entrepreneurship and small business growth

These are exactly the issues many Maine communities are addressing today.

Hosting the conference will showcase Bangor's enthusiasm and investment in the program and our partnerships while highlighting the progress already underway.

amk

CITY OF BANGOR

**Carollynn J. Lear**
City Manager

# OFFICE OF THE CITY MANAGER

Legislative Committee
Monday, June 15, 2026
73 Harlow Street – Council Chambers
Immediately following Business & Economic Development Committee

**AGENDA**

1. Legislative Committee Ordinance Amendments

2. Lobbyist Services

3. Other Updates

*Upcoming Items:*
*TBD*

**CITY COUNCIL ACTION**

Council Meeting Date: XXXX X, 2026

Item No: 26-

Responsible Dept: City Manager

Action Requested: Ordinance Map/Lot: N/A

**Title, Ordinance**

Amending the Code of the City of Bangor to Modify the Duties and Responsibilities of the Legislative Committee

**Summary**

On February 25, 2026 the Bangor City Council established a standing Legislative Committee to liaise with the City's state legislative delegation and other elected officials on legislative matters of City interest; provide the City's state legislative delegation and other elected officials with input on legislative proposals; and seek sponsorship of legislation in the City's interest.

Council wishes to include additional duties and responsibilities within the scope of the standing Legislative Committee to permit the Committee to engage in conversations with candidates for office, partners, and other stakeholders on topics falling within the purview of the Legislative Committee.

**Committee Action**

Committee: Legislative Committee Meeting Date: XXXX X, 2026

Action: For: Against:

**Staff Comments & Approvals**

City Manager City Solicitor Finance Director

**Introduced for:** First Reading

**CITY COUNCIL ORDINANCE**

Date: XXXX X, 2026

Assigned to Councilor: Carson

**ORDINANCE**, Amending the Code of the City of Bangor to Modify the Duties and Responsibilities of the Legislative Committee

**BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF BANGOR AS FOLLOWS, THAT**

The Code of the City of Bangor is amended as follows:

## Chapter 9. City Council

…

## Article I. Rules and Orders

…

## § 9-8. Standing committees.

…

H. Legislative Committee. The Legislative Committee shall have the following duties and responsibilities:

(1) To liaise with the City's state legislative delegation and other elected bodies on legislative matters of City interest.

(2) To provide the City's state legislative delegation and other elected bodies with input on legislative proposals.

(3) To seek sponsorship of legislation that is in the City's interest.

(4) To engage in conversations with candidates for office, partners, and other stakeholders on topics falling within the purview of the Legislative Committee.

(45) To keep the full Council apprised of the Committee's activities and obtain appropriate full Council approval prior to taking any action on behalf of the Council.

CITY OF BANGOR

OFFICE OF THE CITY MANAGER

**Carollynn J. Lear**
City Manager

To: Legislative Committee
From: Carollynn Lear, City Manager
Date: June 15, 2026
RE: Government Relations Services

During the inaugural meeting of the Legislative Committee on May 4, 2026, the Committee expressed interest in exploring the City's procurement of lobbying/government relations services. The following is an outline of what services the City already receives through various other groups:

Maine Municipal Association

The Maine Municipal Association's (MMA) Advocacy & Communications staff works with the State Legislature during each legislative session, and on related legislative matters between sessions, with the goal of advancing the interests of municipal government and working in a constructive way toward establishing an appropriate relationship between state and local government in the delivery of governmental services. Staff also advocate on behalf of municipalities in the state rulemaking process when it impacts municipalities and communicates with Maine Congressional delegation when federal proposals impact municipalities.

MMA discusses legislation and selects its legislative platforms, policies, and positions through a 70-member Legislative Policy Committee (LPC), which is made up of two municipal officials from each of the state's 35 Senate Districts. The LPC representatives are elected to that position by the municipal officers within their Senate District. This method of position development can dilute Bangor and other service centers' influence and as a result, the positions of MMA tend to reflect the positions and priorities of smaller towns. Often, Bangor's priorities are aligned with smaller towns, but sometimes it is not.

Bangor pays dues to MMA for a laundry list of very important services that we utilize extensively. The amount we pay for legislative advocacy is not separately stated and only makes up a small portion of how we utilize MMA.

Maine Service Centers Coalition

The Maine Service Centers Coalition (MSCC) is comprised of 27 towns and cities in Maine to articulate the importance of healthy and thriving service center communities, advocate for public policy that supports and contributes to the economic and social viability of our communities, and collaborates with municipal officials, legislators, state agencies and nonprofits to pursue quality of life. Bangor pays around $4,000 each year to participate in this group. The MSSC pays Jim Mitchell of Mitchell, Tardy and Jackson to advocate on its behalf.

Maine Mayors Coalition

The Maine Mayors Coalition (MMC) is a nonpartisan group representing the mayors of eleven Maine communities – Auburn, Bangor, Biddeford, Lewiston, Portland, Rockland, Saco, Sanford, South Portland, Waterville, and Westbrook. The MMC advocates for policies that recognize the vital services Maine cities

provide and the positive impact Maine cities have on the state, primarily at the state level. The MMC pays Jim Mitchell of Mitchell, Tardy and Jackson to advocate on its behalf.

Bangor pays around $4,000 each year to participate in this group.

Substantively, there is substantial overlap between the issues addressed by the MSCC and MMC. The primary difference is that the MSCC is intended as a forum for City Managers and the MMC is intended as a forum for elected mayors, however, I and a small number of other City Managers are permitted to participate. Additionally, because the MMC is a smaller group of the largest municipalities, the policy goals are the most aligned among all of the groups we participate in.

CITY OF BANGOR
PLANNING DIVISION

# COMMUNITY & ECONOMIC DEVELOPMENT

**PLANNING BOARD AGENDA**
**TUESDAY, JUNE 16, 2026, 7:00 P.M.**
**COUNCIL CHAMBERS, 1ST FLOOR OF CITY HALL, 73 HARLOW STREET**

**1. CHAIR INTRODUCTION**

**2. OLD BUSINESS**

**A. Meeting Minutes** – June 2, 2026

**3. NEW BUSINESS**

**A. Land Development Permits**

**i. Land Development Permit – Major Site Development, Conditional Use, and Major SLODA Modification – 205 Corporate Drive – Map-Lot R25-001-A –** Land Development Permit Application – Major Site Development, Conditional Use, and Major SLODA Modification for the construction of a 30-unit permanent supportive housing building with a total floor area of 19,100 square feet at property located at 205 Corporate Drive, Map-Lot R25-001-A, in the Government & Institutional Service District (G&ISD). Applicant: Bangor Housing Development Corporation. Owner: City of Bangor.

**B. Land Development Code Amendments**

**i. Amending the Land Development Code, §165-30, to Add a New Accessory Use for Farmstands and to Exempt Agricultural and Outdoor Recreational Uses from Paving Requirements**

**ii. Amending the Land Development Code, §165-26, to Add a New Seasonal Storage Use and to Add Flexibility for Temporary Storage Uses**

**4. OTHER BUSINESS**

**A. Workshop on Proposed Changes to Manufactured Home Ordinance**

**B. Follow-Up/Thoughts on Land Use Plan Updates**

**C. Adjournment**

73 HARLOW STREET, BANGOR, ME 04401
TELEPHONE: (207) 992-4280 FAX: (207) 945-4447
WWW.BANGORMAINE.GOV

CITY OF BANGOR
PLANNING DIVISION

# COMMUNITY & ECONOMIC DEVELOPMENT

**PLANNING BOARD MEMO**
**TUESDAY, JUNE 16, 2026, 7:00 P.M.**
**COUNCIL CHAMBERS, 1ST FLOOR OF CITY HALL, 73 HARLOW STREET**

**1. CHAIR INTRODUCTION**

**2. OLD BUSINESS**

**A. Meeting Minutes** – June 2, 2026

**3. NEW BUSINESS**

**A. Land Development Permits**

i. **Land Development Permit – Major Site Development, Conditional Use, and Major SLODA Modification – 205 Corporate Drive – Map-Lot R25-001-A –** Land Development Permit Application – Major Site Development, Conditional Use, and Major SLODA Modification for the construction of a 30-unit permanent supportive housing building with a total floor area of 19,100 square feet at property located at 205 Corporate Drive, Map-Lot R25-001-A, in the Government & Institutional Service District (G&ISD). Applicant: Bangor Housing Development Corporation. Owner: City of Bangor.

a. The applicant seeks to construct permanent supportive housing containing 30 units with a floor area of 19,100 square feet. Permanent supportive housing is a conditional use in the Government and Institutional Service District (G&ISD). This project is also located in the airport Site Location of Development (SLODA) area and therefore requires a modification of that permit.

b. Staff review focused primarily on providing one or more pedestrian connections to nearby sidewalk, clearance for the Fire Department's vehicles, Urban Impaired Stream Standards, and the location and species of plantings. The applicant resolved all questions regarding completeness and compliance for the project and therefore, staff have no further concerns.

## B. Land Development Code Amendments

i. **Amending the Land Development Code, §165-30, to Add a New Accessory Use for Farmstands and to Exempt Agricultural and Outdoor Recreational Uses from Paving Requirements**

This amendment would add a farmstand section to the Accessory Use and Structures section of the Land Development Code to allow for small-scale retail sales of food or non-food crops grown on a site (excluding cannabis). The amendments would require this use to be 200 square feet or less in area and would exempt it from land development permitting. This use would be allowed in the Rural Residence and Agricultural (RR&A), Neighborhood Service District (NSD), and Urban Service District (USD). The amendments would also remove the requirement to pave the driveway and parking areas of agricultural and outdoor recreational uses. These changes align with guidance in the 2022 Comprehensive Plan to revise zoning to provide flexibility for agricultural uses and the sale of agricultural products, including in urban areas.

After the workshops with Council and the Planning Board, staff discussed with Legal, Public Health, and Code staff the intersection of this amendment with food sovereignty laws at both the State and City level. Based on those conversations, staff left in the ability for someone to sell animal products or value-added products at farmstands, but added that applicants would need to comply with the City's food sovereignty laws, zoning restrictions on animal agriculture, and State laws regarding licensing for certain agricultural products, along with any other applicable laws.

ii. **Amending the Land Development Code, §165-26, to Add a New Seasonal Storage Use and to Add Flexibility for Temporary Storage Uses**

This amendment would add a new seasonal storage use to accommodate temporary storage uses that may not be present in a location year-round, but may require the flexibility to be placed on a lot for more than 2 years (since the current ordinance on temporary storage limits this use to being placed for a maximum of 2 years). Additionally, for temporary storage uses, the requirement to receive approval from Board of Appeals is unusual for a use in the Land Development Code and onerous for applicants. Some of the limitations on temporary storage are also either redundant or subjective (and therefore difficult to enforce). Therefore, these amendments propose to amend the

approval process and remove some limitations on this use that have been determined to be unnecessary or unenforceable.

Staff discussed with Code Enforcement whether it was necessary to add a provision onto these amendments that temporary or seasonal storage containers could not be lived in. Code Enforcement advised that this was already addressed under the building code and since these storage containers would still have to meet building code requirements, it wouldn't be necessary to add this language in the land development code.

## 4. OTHER BUSINESS

### A. Workshop on Proposed Changes to Manufactured Home Ordinance

Staff are proposing to allow the more flexible, alternative development requirements in the manufactured home park ordinance to apply to all parks existing as of 2026 rather than just those existing prior to 1971. There is a memo to the Business & Economic Development Committee and the proposed language change in your packets to provide more detail on this proposal.

### B. Follow-Up/Thoughts on Land Use Plan Updates

### C. Adjournment

CITY OF BANGOR
PLANNING DIVISION

COMMUNITY & ECONOMIC DEVELOPMENT

**PLANNING BOARD**
**TUESDAY, JUNE 2, 2026, 7:00 P.M.**
**COUNCIL CHAMBERS, 1ST FLOOR OF CITY HALL**
**73 HARLOW STREET**

**MEETING MINUTES**

**Board Members Present:**
Chair Jonathan Boucher
Ted Brush
Trish Hayes
Greg Hobson
Ken Huhn
Ross Whitford

**City Staff Present:**
Matt Altiero, Planning Analyst
Anja Collette, Planning Officer
Grace Innis, Assistant Solicitor

Chair Boucher called the meeting to order at 7:05 P.M.

## OLD BUSINESS

1. **Meeting Minutes** – May 19, 2026

Member Brush moved to approve the minutes of May 19, 2026, seconded by Member Hobson. Roll call vote conducted – all voting members in favor, none opposed. Motion passed.

2. **Adoption of Findings & Decision for 1011 Union Street, 375 Pushaw Road, and 10 Broadway**

Member Brush moved that the Board adopt the Findings & Decision for 1011 Union Street, 375 Pushaw Road, and 10 Broadway. Seconded by Member Hobson. Roll call vote conducted – all voting members in favor, none opposed. Motion passed.

## NEW BUSINESS

3. **Land Development Code Amendments:** Amending the Land Development Code Section 165-31 Temporary Sales of Food and Merchandise to Allow Increased Flexibility for this Use.

Chair Boucher introduced the agenda item.

Planning Officer Collette presented on the amendment to expand flexibility for temporary sales, providing food trucks and farm products as examples. Collette explained it would allow temporary sales of food outside the Waterfront Development District, including in the Neighborhood Service District and on vacant lots, as well as increase the maximum square footage of this use on a lot to 2,000 square feet in the primary commercial zones. Collette added that the amendment would eliminate parking requirements for this use, reduce setbacks to 10 feet from property lines, and prohibit drive through service.

Member Brush asked if it would be helpful to include a definition of what a lot is. Planning Officer Collette confirmed this is defined in the code. Collette and Brush discussed that a lot would still be limited to 2,000 square feet of the temporary sales use no matter the lot size.

Chair Boucher asked if parks are considered vacant lots under this purpose. Planning Officer Collette explained that parks are not, and that commercial uses are prohibited in parks except for the Waterfront Park. Collette also confirmed that commercial uses are not allowed in the Government & Institutional Service District (G&ISD) or residential zones.

Member Brush asked if temporary sellers are allowed to park on public streets. Planning Officer Collette answered they are not allowed to.

Chair Boucher opened the public comments – there were none. Public comments closed.

Chair Boucher asked staff for any comments – there were none.

Chair Boucher asked the Board for any questions or comments – there were none.

Member Brush moved that the Board recommends that City Council ought to pass the amendment to the Land Development Code Section 165-31 Temporary Sales of Food and Merchandise to Allow Increased Flexibility for this Use. Seconded by Member Hobson. Roll call vote conducted – all voting members in favor, none opposed. Motion passed.

## OTHER BUSINESS

### 4. Follow-Up/Thoughts on Land Use Plan Updates

Chair Boucher introduced the agenda item.

Planning Officer Collette said there is nothing new to report and staff continues to work on reviewing the Land Development Code.

Chair Boucher asked staff for any further comments – there were none.

Chair Boucher asked the Board for any questions or comments – there were none.

Meeting adjourned at 7:15 PM.

Respectfully submitted,
Kayleigh Rienas
Development Assistant
Planning Division

CITY OF BANGOR
PLANNING DIVISION

# COMMUNITY & ECONOMIC DEVELOPMENT

June 16, 2026

**Bangor Planning Board**

***Findings and Decision***

| | |
|---|---|
| **Applicant:** | Bangor Housing Development Corporation<br>Attn: Cindy Witas<br>86 Davis Road, Bangor, ME |
| **Owner:** | City of Bangor<br>73 Harlow Street, Bangor, ME |
| **Property Address:** | 205 Corporate Drive, Map-Lot R25-001-A |
| **Zoning District:** | Government & Institutional Service District (G&ISD) |
| **Permit Request:** | Land Development Permit for Conditional Use, Major Site Development, and Major SLODA Modification |
| **Description:** | Proposal to construct a 30-unit permanent supportive housing building with a total floor area of 19,100 square feet |
| **Public Hearing Date:** | June 16, 2026 |
| **Permitting Requirements:** | §165.111A(1)(5) and 38 M.R.S.A. §481-488 |
| **Board Members Present:** | _____ |
| **Board Vote:** | Motion carried ____ to approve the Land Development Permit |

## I. The Record

The Planning Board reviewed the following exhibits:

1. Land Development Permit application, submitted by Bangor Housing Development Corporation on 05.01.2026
2. Revised Plan Set, submitted on 05.29.2026
3. Proof of payment, submitted by Bangor Housing Development Corporation on

05.01.2026
4. Cover Letter, submitted by Sevee & Maher Engineers, Inc. on 05.01.2026
5. Revised Project Description and Site Map, submitted by Sevee & Maher Engineers, Inc. on 05.29.2026
6. Revised SLODA Narrative, submitted by Sevee & Maher Engineers, Inc. on 05.29.2026
7. [Deleted]
8. Department of Agriculture, Conservation, and Forestry response letter, submitted by Sevee & Maher Engineers, Inc. on 05.01.2026
9. Architectural Narrative, Drawings, and Renderings, submitted by Sevee & Maher Engineers, Inc. on 05.01.2026
10. BWD Capacity letter, submitted by Sevee & Maher Engineers, Inc. on 05.01.2026
11. Revised Construction Stormwater Pollution Prevention Plan, submitted by Sevee & Maher Engineers, Inc. on 05.29.2026
12. Deed & Interest, submitted by Sevee & Maher Engineers, Inc. on 05.01.2026
13. FEMA Map, submitted by Sevee & Maher Engineers, Inc. on 05.01.2026
14. Financial Capacity Letter, submitted by Sevee & Maher Engineers, Inc. on 05.01.2026
15. Department of Inland Fish and Wildlife Letter, submitted by Sevee & Maher Engineers, Inc. on 05.01.2026
16. Revised Inspection Checklist and Report Form, submitted by Sevee & Maher Engineers, Inc. on 05.29.2026
17. Lighting Details, submitted by Sevee & Maher Engineers, Inc. on 05.01.2026
18. Maine Historic Preservation Commission Letter, submitted by Sevee & Maher Engineers, Inc. on 05.01.2026
19. Revised Pre-development HydroCAD Calculations, submitted by Sevee & Maher Engineers, Inc. on 05.29.2026
20. Revised Post-development HydroCAD Calculations, submitted by Sevee & Maher Engineers, Inc. on 05.29.2026
21. Revised Redevelopment and Stormwater Summary and BMP Sizing, submitted by Sevee & Maher Engineers, Inc. on 05.29.2026
22. Sewer Capacity Letter, submitted by Sevee & Maher Engineers, Inc. on 05.01.2026
23. Revised NRCS SOIL REPORT, submitted by Sevee & Maher Engineers, Inc. on 05.29.2026
24. Revised Stormwater Management Report, submitted by Sevee & Maher Engineers, Inc. on 05.29.2026
25. Wetlands and Protected Natural Resources Report, submitted by Sevee & Maher Engineers, Inc. on 05.01.2026
26. Autoturn Figure, submitted by Sevee & Maher Engineers, Inc. on 05.29.2026
27. Urban Impaired Stream Watershed Maps, submitted by Sevee & Maher Engineers, Inc. on 05.29.2026
28. Land Development Permit checklist, sent to Sevee & Maher Engineers, Inc on 05.13.2026
29. Bangor Water District sign-off, received via email on 05.13.2026
30. Fire Comments, sent to Sevee & Maher Engineers, Inc on 05.13.2026
31. Fire Comments regarding clearance for trucks, sent to Sevee & Maher Engineers, Inc on 05.13.2026

32. Engineering Comments, sent to Sevee & Maher Engineers, Inc on 05.14.2026
33. Engineering Sewer Capacity Verification, received via email on 05.14.2026
34. Forestry Division Correspondence, received via email on 05.14.2026
35. Response to Staff Comments, submitted by Sevee & Maher Engineers, Inc on 05.29.2026
36. Code sign-off, received via email on 05.29.2026
37. Fire Prevention sign-off, received via email on 05.29.2026
38. Additional Planning Comments, sent to Sevee & Maher Engineers, Inc on 06.04.2026
39. Additional Engineering Comments, sent to Sevee & Maher Engineers, Inc on 06.04.2026
40. Engineering Sign-off and Correspondence, received via email on 06.10.2026
41. List of abutters within 500 ft of the subject property, generated by staff on 06.04.2026
42. Public notice sent to abutters within 500 ft on 06.05.2026
43. Notice of mailing by Walter Ryan via email on 06.05.2026
44. BDN Ad Proof, run by BDN on 06.06.2026

## II. Project Description and Permit Requirements

The Project will consist of constructing a 30-unit permanent supportive housing building with a total floor area of 19,100 square feet. The property is located at 205 Corporate Drive, Map-Lot R25-001-A, in the Government & Institutional Service District (G&ISD). This project will result in 84,750 square feet of developed area and 37,339 square feet of net new impervious area (due to the demolishment of an existing walkway and paved turnaround on the site).

As a conditional use in the Government and Institutional Service District, per §165-97B, the project must also meet the requirements of Article II through XII, any applicable development standards of Article XIX, and the Conditional Use standards of Chapter 165-9.

This project must also meet the land development approval standards in §165-114 and as a SLODA modification, the requirements of §38 M.R.S.A. § 484 and Department of Environmental Protection regulations, Chapters 371, 372, 373, 375, 376, 377, 500, 501. and 502. The SLODA permit being modified is the Post 1971 Bangor International Airport (BIA) Site Location of Development Permit, with local file number SLODA-BGR-00040 and DEP file number #L-2976-18-B-N.

## III. Procedural Background

1. The Application was deemed complete on June 16th, 2026.
2. The Applicant paid all applicable fees (Exhibit 3).
3. The proposed Project is a Major Site Development, Conditional Use, and Major SLODA Modification.

## IV. Applicable Provisions and Findings

**Part 1 – The Project meets the requirements of Articles II through XII**

1. The Board finds that, based on Exhibits 2,11, 16, and 24, the applicant satisfied §165-33.1 of the Land Development Code regarding best management practices of Erosion and Sediment Control.

2. The Board finds, that based on Exhibit 2, the applicant satisfied §165-62 of the Land Development Code regarding providing adequate visual clearance on corner lots, §165-64's requirements for side yard width, and §165-68's requirements of minimum lot frontage

3. The Board finds that, based on Exhibit 2, the applicant satisfied §165-72 of the Land Development Code regarding the required number of parking spaces, §165-73's requirements regarding parking area location and screening, and §165-74's requirements regarding parking area design, construction and maintenance.

4. The Board finds that, based on Exhibit 2, the applicant satisfied §165-76 of the Land Development Code regarding the required number of loading spaces, §165-77's requirements regarding loading space sizes, and §165-78's general requirements for loading spaces.

5. The Board finds that, based on Exhibits 2, 29, 33, and 40, the applicant satisfied §165-79 of the Land Development Code regarding providing the necessary utility services required, §165-80's requirements regarding providing adequate water and sewerage services, and 165-83's requirements regarding providing adequate electrical service.

6. The Board finds that, based on Exhibits 2 and 17, the applicant satisfied §165-81 of the Land Development Code regarding providing adequate lighting and preventing light pollution and trespass.

7. The Board finds that, based on Exhibits 2 and 37, the applicant satisfied §165-82's requirements regarding having adequate fire protection.

8. The Board finds that, based on Exhibits 2, 19-21, 24, 32, 39, and 40, the applicant satisfied §165-84 of the Land Development Code regarding providing adequate storm drainage and stormwater offset.

9. The Board finds that, based on Exhibits 22 and 33, the applicant satisfied §165-85 and §165-86 of the Land Development Code regarding providing information on sanitary flows and compliance with sewer regulations.

**Part 2 – The Project meets the District Site Development Standards under Article XIX**

The Board finds that, based on Exhibits 2 and 36, the applicant satisfied § 165-135 of the Land Development Code regarding height limit, floor area ratio, impervious surface ratio, and buffer yards.

**Part 3 – The Project meets the requirements of § 165-97 – Government and Institutional Service District (G&ISD)**

The Board finds that, based on the findings made in Parts 1 and 2 of this document, the Project meets the requirements of §165-97B for uses within the Government and Institutional Service District (G&ISD).

**Part 4 – The Project meets the requirements of §165-114 – Land Development Approval Standards**

1. The Board finds that, based on Exhibits 2, 35, and 40, the applicant satisfied Land Development Code §165-114B's requirement that the proposed parking and loading layout are arranged in a reasonable and safe configuration, including the provision for safe pedestrian travel to all on-site uses, and §165-114C's requirement that all proposed access drives are reasonably necessary and safe.

2. The Board finds that, based on Exhibits 2, 15, 21, 24, 25, 27, 32, and 40, the applicant satisfied Land Development Code §165-114D's requirement that the proposed development will not have unreasonable adverse effects on abutting or downstream properties or protected resources such as wetlands, lakes, streams or brooks, and that all downstream channels or municipal stormwater collection systems have adequate capacity to carry the flow without significant negative effects.

3. The Board finds that, based on Exhibits 2 and 17, the applicant satisfied Land Development Code §165-114E's requirements that all outdoor lighting shall be designed, installed and maintained to avoid unreasonable adverse effects from light pollution.

4. The Board finds that, based on Exhibits 2 and 35, the applicant satisfied Land Development Code §165-114F's requirements for landscaping.

5. The Board finds that, based on Exhibit 2, the applicant satisfied Land Development Code §165-114G, requiring buildings to be situated to avoid unreasonable adverse effects on adjacent properties or public rights-of-way.

6. The Board finds that, based on Exhibits 2, 6-27, 29, 33, 35, and 40, the applicant is in compliance with 38 M.R.S.A §484 and applicable Department of Environmental Protection regulations, which includes Chapters 371-373, 375-377, and 500-502.

**Part 5 – The Project meets the criteria for a Conditional Use under of §165-9A**

1. The Board finds that, based on the findings made in Parts 1-4 of Section IV of this document, the applicant satisfied Land Development Code §165-9A(1)'s requirements regarding not requiring a variance of development or other standards.

2. The Board finds that, based on Exhibits 2 and 5, the applicant satisfied Land Development Code §165-9A(2)'s requirements regarding not creating unreasonable traffic congestion or hazardous conditions on contiguous or adjacent streets.

3. The Board finds that, based on the findings made in Parts 1-4 of Section IV of this document, the applicant satisfied Land Development Code §165-9A(3)'s requirements for providing and maintaining adequate and appropriate utilities, fire protection, drainage, parking and loading and other necessary site improvements.

4. The Board finds that, based on Exhibits 2, 5, and 9, the applicant satisfied Land Development Code §165-9A(4)'s requirements regarding the proposed use being appropriate for the location in which it is sought because it conforms to the general physical development pattern of the immediate area.

## V. Decision

**The Board finds that the project meets the requirements for a Land Development Permit for a Major Site Development, Conditional Use, and Major SLODA Modification and therefore, the Board grants the Land Development Permit for the proposed project.**

## VI. General Permit Requirements:

A. This permit does not relieve the applicant from any other state or federal permits that may be required for the project.

B. Prior to construction, the applicant should contact the Code Enforcement Office and Engineering Office for any additional permits that may be required.

C. Applicant must commence construction within one year from the date of approval and complete the project by June 16, 2028, unless extensions of time are granted per the provisions of Chapter 165-113E.

D. No certificate of occupancy for any structure will be issued by the Code Enforcement Division until the property for which the certificate is sought is in compliance with all applicable regulations, including but not limited to building, zoning, and stormwater requirements. A temporary certificate of occupancy may be issued when necessary under the provisions of § 165-113G of the City's Land Development Code.

E. Upon completion, a digital as-built plan or plans shall be submitted to the Code Enforcement Officer. Additionally, a certificate of compliance stamped by a registered professional engineer or a registered land surveyor must be submitted to the Code Enforcement Office indicating that the site development has been completed in accordance with the approved revised plan.

F. No change shall be made to a property approved for a conditional use that would cause the property to fail to comply with the details of the Board's approval under the standards of §165-9A, unless approved by the Planning Board through a review of the changed conditional use.

(a) Building details. Changes to building elevations which impact the elements reviewed and approved by the Board may only be approved by the Planning Board. Changes to architectural details not within the scope of § **165-9A(4)** do not require Planning Board approval.

(b) Traffic analysis. Changes to trip generation or peak hour of generation do not require Planning Board approval if the following standards are met as determined by the Code Enforcement Officer in consultation with the City Engineer:

(1) The number of trips during the peak hour does not increase.
(2) The peak hour does not change to a different hour.
(3) The peak hour does not change from a weekday to a weekend day, or vice versa.

G. Conditional uses which are discontinued for more than 12 consecutive months are deemed abandoned.

Failure to comply with the conditions listed above constitutes a violation of the Bangor Land Development Code as prescribed in Chapter 165-10G.

This If you should have any questions or desire further information, please do not hesitate to give the Planning Division a call at 207.992.4280.

Sincerely,

City of Bangor Planning Board

CC: City of Bangor Planning Division

City of Bangor Code Enforcement Division

## Building Permit and Certificate of Occupancy Checklist

**Before applying for a Building Permit:**

- Please contact the Code Enforcement and Engineering Departments for any other permits that may be necessary.
- Please contact the Engineering Department for an E-911 address.

**Before applying for a Certificate of Occupancy:**

- Digital as-built plan or plans shall be submitted to the Code Enforcement Officer. Additionally, a certificate of compliance stamped by a registered professional engineer or a registered land surveyor must be submitted to the Code Enforcement Office indicating that the site development has been completed in accordance with the approved revised plan.

# CITY OF BANGOR
# LAND DEVELOPMENT PERMIT APPLICATION

Permit No.: _____

Date: _____

Site Development Plan: ✓ *Conditional Use: ✓ *Both: ✓

Subdivision Development: _____ *Preliminary: _____ Final: _____

*Mobilehome Park: _____

Applicant: Bangor Housing Development Corporation Telephone No.: 207-357-1280

Address: 86 Davis Road, Bangor, ME 04401

Location of Site: 205 Corporate Drive, Bangor, ME 04401 Map: R25 Lot: 001-A

Watershed: Sucker Brook Total Area Proposed to be Disturbed: 1.95 acres

Owner of Site if different from applicant: City Of Bangor Zoning District: G&ISD and T&S

Address: 73 Harlow Street, Bangor 04401

Primary Contact Person: Cindy Witas, cwitas@bangorhousing.org

Description of interest of applicant in site, if not owner (e.g., owner, lease, option, purchase & sales agreement): Option to Purchase If not owner include copy of said agreement

Describe proposed use and indicate floor area (If combination of uses, give floor area devoted to each):

30-unit Permanent Supportive Housing with a total floor area of 19,100 square feet.

**LID techniques** help retain stormwater on site. They include such things as pervious pavement, rain gardens, bioretention cells, and infiltration systems.

Were LID techniques used on this project? Yes If not, why? _____

Projected Starting Date: August 2026 Projected Completion Date: August 2027

Signature of applicant(s) or agent: _____ Printed Name: Michael Myatt

**Submittal Requirements**

Submittal Requirements of development types are described in the Land Development Code for:

1. Site Development Plan, Chapter 165, Article XVI, Section 112
2. Subdivisions, Chapter 165, Article XVIII, Sections 126 and 128
3. Mobilehome Parks, Chapter 165, Article XVIII, Section 19

Processing Fees: _____ Advertising Fees: _____

**A COMPLETED APPLICATION FORM, PLAN SUBMITTALS, EVIDENCE OF STANDING, PROCESSING AND ADVERTISING FEES ARE ALL REQUIRED IN ORDER TO HAVE A COMPLETE APPLICATION.**

Date Received by Planning Division Office: _____

Decision and reason of Code Enforcement Office for Conditional Use: _____

Action taken by Planning Board: _____

* Any advertising costs above the amount listed in Schedule of Fees must be paid by applicant

* There is no guarantee a project will be on a certain Planning Board meeting; agenda assignments depend on timing of application submission and extent of application completeness

**ATTACHMENT 6**

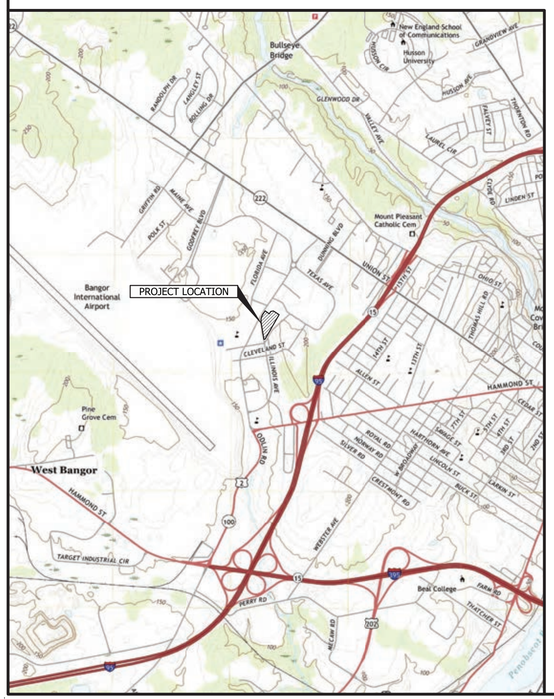
**REVISED PLAN SET**

SME
SEVEE & MAHER
ENGINEERS

# YELLEN PINES
# BANGOR HOUSING DEVELOPMENT CORPORATION
# 205 CORPORATE DRIVE
# BANGOR, MAINE

| TITLE | DWG NO |
|---|---|
| COVER SHEET | |
| GENERAL NOTES, LEGEND, AND ABBREVIATIONS | C-100 |
| EXISTING CONDITIONS AND DEMOLITION PLAN | C-101 |
| SITE OVERVIEW PLAN | C-102 |
| SITE LAYOUT AND UTILITY PLAN | C-103 |
| SITE GRADING AND DRAINAGE PLAN | C-104 |
| EROSION AND SEDIMENTATION CONTROL PLAN | C-105 |
| EROSION CONTROL NOTES AND DETAILS | C-300 |
| SECTIONS AND DETAILS | C-301 |
| SECTIONS AND DETAILS | C-302 |
| SECTIONS AND DETAILS | C-303 |
| STORMWATER MANAGEMENT PLAN PRE-DEVELOPMENT CONDITIONS | D-100 |
| STORMWATER MANAGEMENT PLAN POST-DEVELOPEMENT CONDITIONS | D-101 |
| PLANTING & SITE LAYOUT PLAN | L101 |
| SITE DETAIL | L200 |
| TOPOGRAPHIC SURVEY | |

## LOCATION MAP





APPLICANT/PROJECT OWNER

BANGOR HOUSING
DEVELOPMENT CORPORATION
86 DAVIS ROAD
BANGOR, ME 04401
(207) 942-6365

CIVIL ENGINEER

SEVEE & MAHER ENGINEERS, INC.
4 BLANCHARD ROAD
CUMBERLAND, ME 04021
(207) 829-5016

SURVEYOR

PLISGA & DAY LAND SURVEYING
72 MAIN STREET
BANGOR, ME 04401
(207) 947-0019

WETLAND SPECIALIST

WATERSHED RESOURCE CONSULTANTS, LLC
1366 STATE HIGHWAY 102, #6
BAR HARBOR, ME 04609
(207) 944-7288

LANDCAPE ARCHITECT

SASHIE MISNER
LANDSCAPE ARCHITECTURE, LLC
72 WALTON STREET
PORTLAND, MAINE 04103
(207) 406-0734

SME
SEVEE & MAHER
ENGINEERS

ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE

4 Blanchard Road, PO Box 85A, Cumberland, Maine 04021
Phone 207.829.5016 • Fax 207.829.5692 • smemaine.com


STATE OF MAINE
DANIEL J. DIFFIN
11841
LICENSED PROFESSIONAL ENGINEER

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## GENERAL SITE NOTES:

1. EXISTING SITE FEATURES AND TOPOGRAPHY FROM GPS SURVEY PERFORMED BY PLISGA & DAY LAND SURVEYORS, BANGOR, MAINE DURING THE MONTH OF JANUARY, 2026. ADDITIONAL TOPOGRAPHY OUTSIDE OF SURVEY LIMITS IS LIDAR FROM MAINE GIS DATA CATALOG. HORIZONTAL DATUM: ME WEST STATE PLANE COORDINATE SYSTEM NAD 1983. VERTICAL DATUM: NORTH AMERICAN VERTICAL DATUM 1988.
2. NATURAL RESOURCE INFORMATION FROM WATERSHED RESOURCE CONSULTANTS, LLC DATED JANUARY 14, 2025.
3. STANDARD PRACTICE DICTATES THAT PLANS COMPILED IN THIS MANNER SHOULD BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. REPORT ANY DISCREPANCIES TO ENGINEER. THE ACCURACY AND COMPLETENESS OF SUBSURFACE INFORMATION IS NOT GUARANTEED. VERIFY SITE CONDITIONS INCLUDING TEST PITS FOR LOCATIONS AND INVERTS OF UTILITIES AND REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO PROCEEDING WITH THAT PORTION OF THE WORK.
4. AERIAL IMAGE FROM GOOGLE EARTH DATED 9/11/2025.
5. EXCAVATE AND STOCKPILE ON-SITE TOPSOIL. TOPSOIL IS TO REMAIN ON THE PROPERTY OF THE OWNER DURING CONSTRUCTION, AND SHALL NOT BE REMOVED FROM THE SITE.
6. PAVEMENT EDGES SHALL BE TRUE TO LINE. SAWCUT EXISTING PAVEMENT IN SMOOTH STRAIGHT LINE WHERE NEW PAVEMENT JOINS, PROVIDE TACK COAT LAYER AS SPECIFIED.
7. THE PROPERTY IS LOCATED OUTSIDE OF THE 100-YEAR FLOOD ZONE.

## DIG SAFE NOTES:

PRIOR TO EXCAVATION, VERIFY THE UNDERGROUND UTILITIES, PIPES, STRUCTURES AND FACILITIES. PROVIDE THE FOLLOWING MINIMUM MEASURES:

1. PRE-MARK THE BOUNDARIES OF YOUR PLANNED EXCAVATION WITH WHITE PAINT, FLAGS OR STAKES, SO UTILITY CREWS KNOW WHERE TO MARK THEIR LINES.
2. CALL DIG SAFE, AT 811, AT LEAST THREE BUSINESS DAYS - BUT NO MORE THAN 30 CALENDAR DAYS - BEFORE STARTING WORK. DO NOT ASSUME SOMEONE ELSE WILL MAKE THE CALL.
3. IF BLASTING, NOTIFY DIG SAFE AT LEAST ONE BUSINESS DAY IN ADVANCE.
4. WAIT THREE BUSINESS DAYS FOR LINES TO BE LOCATED AND MARKED WITH COLOR-CODED PAINT, FLAGS OR STAKES. NOTE THE COLOR OF THE MARKS AND THE TYPE OF UTILITIES THEY INDICATE. TRANSFER THESE MARKS TO THE AS-BUILT DRAWINGS.
5. CONTACT THE LANDOWNER AND OTHER "NON-MEMBER" UTILITIES (WATER, SEWER, GAS, ETC.). FOR THEM TO MARK THE LOCATIONS OF THEIR UNDERGROUND FACILITIES. TRANSFER THESE MARKS TO THE AS-BUILT DRAWINGS.
6. RE-NOTIFY DIG SAFE AND THE NON-MEMBER UTILITIES IF THE DIGGING, DRILLING OR BLASTING DOES NOT OCCUR WITHIN 30 CALENDAR DAYS, OR IF THE MARKS ARE LOST DUE TO WEATHER CONDITIONS, SITE WORK ACTIVITY OR ANY OTHER REASON.
7. HAND DIG WITHIN 18 INCHES IN ANY DIRECTION OF ANY UNDERGROUND LINE UNTIL THE LINE IS EXPOSED. MECHANICAL METHODS MAY BE USED FOR INITIAL SITE PENETRATION, SUCH AS REMOVAL OF PAVEMENT OR ROCK.
8. DIG SAFE REQUIREMENTS ARE IN ADDITION TO CITY AND/OR STATE DOT STREET OPENING PERMIT REQUIREMENTS.
9. FOR COMPLETE DIG SAFE REQUIREMENTS, CALL THE PUBLIC UTILITIES COMMISSION (PUC) AT 1-800-452-4699 OR VISIT WWW.STATE.ME.US/MPUC
10. IF YOU DAMAGE, DISLOCATE OR DISTURB ANY UNDERGROUND UTILITY LINE, IMMEDIATELY NOTIFY THE AFFECTED UTILITY. IF DAMAGE CREATES SAFETY CONCERNS, CALL THE FIRE DEPARTMENT AND TAKE IMMEDIATE STEPS TO SAFEGUARD HEALTH AND PROPERTY.
11. ANY TIME AN UNDERGROUND LINE IS DAMAGED OR DISTURBED OR IF LINES ARE IMPROPERLY MARKED, YOU MUST FILE AN INCIDENT REPORT WITH THE PUC FOR AN INCIDENT REPORT FORM VISIT WWW.STATE.ME.US/MPUC OR CALL THE PUC AT 1-800-452-4699.

## GRADING NOTES:

1. ADD 6" LOAM, SEED AND MULCH TO DISTURBED AREAS UNLESS OTHERWISE NOTED. PROVIDE EROSION CONTROL MESH ON ALL SLOPES 3:1 OR STEEPER, AND ALONG DITCH CHANNELS.
2. MAINTAIN TEMPORARY EROSION CONTROL MEASURES FOR THE FULL DURATION OF CONSTRUCTION. INSPECT WEEKLY AND AFTER EACH STORM AND REPAIR AS NEEDED. PLACE IN AREA OF LOW EROSION POTENTIAL, AND STABILIZE WITH SEED AND MULCH.
3. PLACE TEMPORARY SOIL STABILIZATION WITHIN 14 DAYS OF INITIAL DISTURBANCE. PLACE PERMANENT SOIL STABILIZATION WITHIN 7 DAYS OF FINAL GRADING.

## TYPICAL ABBREVIATIONS:

| | | | | | |
|---|---|---|---|---|---|
| ACCMP | ASPHALT COATED CMP | EA | EACH | NITC | NOT IN THIS CONTRACT |
| ACP | ASBESTOS CEMENT PIPE | EG | EXISTING GROUND OR GRADE | NTS | NOT TO SCALE |
| AC | ACRE | ELEC | ELECTRIC | N/F | NOW OR FORMERLY |
| AGG | AGGREGATE | EL | ELEVATION | NO OR # | NUMBER |
| ALUM | ALUMINUM | ELB | ELBOW | | |
| APPD | APPROVED | EOP | EDGE OF PAVEMENT | OC | ON CENTER |
| APPROX | APPROXIMATE | EQUIP | EQUIPMENT | OD | OUTSIDE DIAMETER |
| ARMH | AIR RELEASE MANHOLE | EST | ESTIMATED | | |
| ASB | ASBESTOS | EXC | EXCAVATE | PC | POINT OF CURVE |
| ASP | ASPHALT | EXIST | EXISTING | PD | PERIMETER DRAIN |
| AUTO | AUTOMATIC | | | PI | POINT OF INTERSECTION |
| AUX | AUXILIARY | FI | FIELD INLET | PIV | POST INDICATOR VALVE |
| AVE | AVENUE | FG | FINISH GRADE | PJ | PACK JOINT |
| AZ | AZIMUTH | FBRGL | FIBERGLASS | PT | POINT OF TANGENT |
| | | FDN | FOUNDATION | PERF | PERFORATED |
| BCCMP | BITUMINOUS COATED CMP | FLEX | FLEXIBLE | PP | POWER POLE |
| BM | BENCH MARK | FLG | FLANGE | PSI | POUNDS PER SQUARE INCH |
| BIT | BITUMINOUS | FLR | FLOOR | PVC | POLYVINYL CHLORIDE |
| BLDG | BUILDING | FPS | FEET PER SECOND | PVMT | PAVEMENT |
| BOT | BOTTOM | FT OR ' | FEET | | |
| BRG | BEARING | FTG | FOOTING | QTY | QUANTITY |
| BV | BALL VALVE | | | | |
| | | GA | GAUGE | RCP | REINFORCED CONCRETE PIPE |
| CB | CATCH BASIN | GAL | GALLON | ROW | RIGHT OF WAY |
| CEN | CENTER | GALV | GALVANIZED | RAD | RADIUS |
| CEM LIN | CEMENT LINED | GPD | GALLONS PER DAY | REQD | REQUIRED |
| CMP | CORRUGATED METAL PIPE | GPM | GALLONS PER MINUTE | RT | RIGHT |
| CO | CLEAN OUT | | | RTE | ROUTE |
| CF | CUBIC FEET | HDPE | HIGH DENSITY POLYETHYLENE | | |
| CFS | CUBIC FEET PER SECOND | HORIZ | HORIZONTAL | S | SLOPE |
| CI | CAST IRON | HP | HORSEPOWER | SCH | SCHEDULE |
| CL | CLASS | HYD | HYDRANT | SF | SQUARE FEET |
| CONC | CONCRETE | | | SHT | SHEET |
| CONST | CONSTRUCTION | ID | INSIDE DIAMETER | SMH | SANITARY MANHOLE |
| CONTR | CONTRACTOR | IN OR " | INCHES | ST | STREET |
| CS | CURB STOP | INV | INVERT | STA | STATION |
| CTR | CENTER | INV EL | INVERT ELEVATION | SY | SQUARE YARD |
| CTS | COPPER TUBING SIZE | | | | |
| CU | COPPER | LB | POUND | TAN | TANGENT |
| CY | CUBIC YARD | LC | LEACHATE COLLECTION | TDH | TOTAL DYNAMIC HEAD |
| | | LD | LEAK DETECTION | TEMP | TEMPORARY |
| D | DEGREE OF CURVE | LF | LINEAR FEET | TYP | TYPICAL |
| DBL | DOUBLE | LOC | LOCATION | | |
| DEG OR ° | DEGREE | LT | LEACHATE TRANSPORT | UD | UNDERDRAIN |
| DEPT | DEPARTMENT | | | | |
| DI | DUCTILE IRON | MH | MANHOLE | V | VOLTS |
| DIA OR Ø | DIAMETER | MJ | MECHANICAL JOINT | VA TEE | VALVE ANCHORING TEE |
| DIM | DIMENSION | MATL | MATERIAL | VERT | VERTICAL |
| DIST | DISTANCE | MAX | MAXIMUM | | |
| DN | DOWN | MFR | MANUFACTURE | WG | WATER GATE |
| DR | DRAIN | MIN | MINIMUM | W/ | WITH |
| DWG | DRAWING | MIP | MALE IRON PIPE | W/O | WITHOUT |
| | | MISC | MISCELLANEOUS | | |
| | | MON | MONUMENT | YD | YARD |

## UTILITY NOTES:

1. THE ACCURACY AND COMPLETENESS OF SUBSURFACE INFORMATION IS NOT GUARANTEED. VERIFY SITE CONDITIONS INCLUDING TEST PITS FOR LOCATIONS AND INVERTS OF UTILITIES AND REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO PROCEEDING WITH THAT PORTION OF THE WORK.
2. COORDINATE WORK ON UTILITY LINES OR WITHIN ROAD RIGHT-OF-WAY WITH THE UTILITY COMPANIES AND CITY ROAD DEPARTMENT AND MAINE DOT.
3. ALL PIPING AND DRAINAGE STRUCTURES SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF BANGOR MUNICIPAL STANDARDS.
4. WATER LINES TO BE INSTALLED WITH BANGOR WATER DISTRICT SPECIFICATIONS.
5. PLACE 4-FOOT WIDE BY 2-INCH THICK TRENCH INSULATION CENTERED OVER SEWER LINES WHERE DEPTH OF COVER IS LESS THAN 5-FEET.
6. SLOPE CONDUITS AWAY FROM BUILDING TO HAND HOLE OF UTILITY POLE TO AVOID GROUNDWATER SEEPAGE INTO BUILDING.

## ZONING NOTES:

PROPERTY OWNER: CITY OF BANGOR
73 HARLOW STREET
BANGOR, MAINE

DEVELOPER/APPLICANT: BANGOR HOUSING DEVELOPMENT CORPORATION
86 DAVIS ROAD
BANGOR, MAINE

1. LOT INFORMATION - VOL/PAGE/MAP/LOT: 8107/215/R25/001-A
2. ZONING DISTRICT: GOVERNMENT AND INSTITUTIONAL SERVICES DISTRICT (G&IS) AND TECHNOLOGY AND SERVICE DISTRICT (T&S)
3. PROPOSED USE: TRANSITIONAL HOUSING, PERMANENT SUPPORTIVE HOUSING
4. ZONING REQUIREMENTS: DIMENSIONAL STANDARDS TO BE IN ACCORDANCE WITH THE APPROVED ZONE AS SHOWN BELOW:

| | CONDITIONAL USE | PROVIDED |
|---|---|---|
| MINIMUM LOT AREA | None | |
| MAXIMUM LOT COVERAGE | 30% | 12.8% |
| MINIMUM LOT WIDTH | None | 151 FT |
| FRONT SETBACK | 30 FT | 30 FT |
| SIDE SETBACK | 20 FT | >20 FT |
| REAR SETBACK | 30 FT | >30 FT |
| MAXIMUM BUILDING HEIGHT | 80 FT | <80 FT |
| MAXIMUM FLOOR AREA RATIO | 2.0 | 1 |

5. THERE ARE NO WETLANDS PRESENT ON SITE.
6. SITE UTILITIES WILL BE UNDERGROUND AND PROVIDED AS FOLLOWS:

| | |
|---|---|
| ELECTRIC/COMMUNICATIONS | NEW SERVICE |
| WATER | NEW " WATER SERVICE, AND NEW " DIA SPRINKLER WATER SERVICE |
| SEWER | NEW " SERVICE CONNECTION |
| GAS | NEW SERVICE CONNECTION |

7. EXISTING BUILDING AREA: 0 SF PROPOSED BUILDING AREA: 19,100 SF
8. PARKING REQUIREMENTS:

| REQUIRED | PROVIDED |
|---|---|
| 1 SPACE PER 6 CLIENTS TO BE HOUSED (5 PARKING SPACES) PLUS 1 SPACE PER STAFF PERSON TO BE ON PREMISES (4 PARKING SPACES) | 11 PARKING SPACES |

9. OFF STREET LOADING REQUIREMENTS:

| REQUIRED: | |
|---|---|
| 1 OFF STREET LOADING SPACE FOR APARTMENTS WITH 10 OR MORE UNITS (1 LOADING SPACE) | 1 OFF STREET LOADING SPACE |

## LEGEND

| EXISTING | | PROPOSED |
|---|---|---|
| | PROPERTY LINE | |
| | BUILDING | |
| | CONCRETE | |
| | EDGE OF PAVEMENT | |
| | CURB | |
| 100 | CONTOUR | 100 |
| | SPOT GRADE | 114.23 |
| | STORM DRAIN | SD |
| | UNDERDRAIN | UD |
| | CLEANOUT | |
| SS | SEWER LINE | S |
| UGU | UNDERGROUND UTILITY | UGU |
| OHU | OVERHEAD UTILITY | |
| | UTILITY POLE | |
| | LIGHT POLE | |
| S | SEWER MANHOLE | |
| MH | DRAINAGE MANHOLE | |
| | CATCH BASIN | |
| | WATER VALVE | |
| | SIGN | |
| | GUARDRAIL | |
| | DETECTABLE WARNING PAD | |
| | DEMOLITION AREA | |
| | SILT FENCE | |
| | RIPRAP | |
| | STABILIZED CONSTRUCTION ENTRANCE/EXIT | |

| REV. | BY | DATE | STATUS |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | DPD | 5/28/2026 | REISSUED TO CITY FOR REVIEW |
| | DPD | 5/1/2026 | ISSUED TO CITY FOR REVIEW |
| | DPD | 4/24/2026 | REISSUED FOR 50% REVIEW |
| | DPD | 2/9/2026 | ISSUED FOR 50% REVIEW |

STATE OF MAINE · DANIEL P. DIFFIN · 11841 · LICENSED PROFESSIONAL ENGINEER

# BANGOR HOUSING DEVELOPMENT CORPORATION
# YELLEN PINES
# 205 CORPORATE DRIVE
# BANGOR, ME

## GENERAL NOTES, LEGEND, AND ABBREVIATIONS

SME
SEVEE & MAHER ENGINEERS
ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE
4 Blanchard Road, PO Box 85A, Cumberland, Maine 04021
Phone 207.829.5016 • Fax 207.829.5692 • smemaine.com

| | |
|---|---|
| DESIGN BY: | AJD |
| DRAWN BY: | ZCF |
| DATE: | 5/28/2026 |
| CHECKED BY: | DPD |
| LMN: | NONE |
| CTB: | SME-STD.CTB |
| JOB NO. | 251269 |
| DWG FILE | GEN-NOTES |
| | C-100 |

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N/F
CITY OF BANGOR
BOOK 1419, PAGE 335
TAX MAP R25 - LOT 20

N/F
CITY OF BANGOR
BOOK 2148, PAGE 67
TAX MAP R25 - LOT 1A

GRANITE MONUMENT, FOUND

PROVIDE INSERTION VALVES AND REMOVE WATER LINE IN AREAS OF WORK (TYP)

EASEMENT TO BANGOR WATER DISTRICT BOOK 9770, PAGE 111

REMOVE PAVED APRON

MAINE AVENUE

18" CMP
INV 156.84

PROVIDE INSERTION VALVES AND REMOVE WATER LINE IN AREAS OF WORK (TYP)

NOW OR FORMERLY OF BANGOR WATER DISTRICT
BOOK 2211, PAGE 769
CITY OF BANGOR
TAX MAP R25 - LOT 1C

CB#1
RIM 157.96"

N 34°24'29" E
101.25'

12" CPP
INV 156.92

12" CPP
INV 157.58

SEWER MANHOLE-SMH#1
RIM 161.34

FIRE HYDRANT

RADIUS: 340.0'
ARC LENGTH: 259.17'

30" CPP
INV 154.15

¾" DIAMETER REBAR WITH CAP "PLISGA & DAY PLS 2404", FOUND

20' FRONT PARKING SETBACK

30' FRONT BUILDING SETBACK

REFER TO A NOTICE OF LAYOUT AND TAKING BOOK 2946, PAGE 200
REFER ALSO TO PLAN D92-83

UTILITY POLE (TYP)

REMOVE ABANDONED 10" DIA WATER LINE

REMOVE ABANDONED 8" DIA WATER LINE

REMOVE GRAVEL TURNAROUND AREA

N 54°29'57" W
140.02'

N/F
OHI
BOOK 1419, PAGE 335
TAX MAP R25 - LOT 21

12" CMP
INV 156.61

REMOVE EXISTING CULVERT

12" CMP
INV 156.51

20' SIDE BUILDING SETBACK

5' SIDE/REAR PARKING SETBACK

¾" DIAMETER REBAR WITH CAP "PLISGA & DAY PLS 2404", FOUND

N 34°21'11" E
79.07'

S 79°21'11" W
72.65'

ABANDONED 8" DIA WATER LINE

XX" DIA WATER MAIN

ABANDONED 12" DIA WATER LINE

16" DIA WATER MAIN

WATER GATE VALVE

REMOVE VEGETATION IN AREA OF DITCH IMPROVEMENTS

EXISTING VEGETATED DRAINAGE SWALE

CONCRETE WALKWAY

¾" DIAMETER REBAR WITH CAP "PLISGA & DAY PLS 2404", FOUND

¾" DIAMETER REBAR WITH CAP "PLISGA & DAY PLS 2404", FOUND

FENCE

N 09°19'01" W
511.16'

CORPORATE DRIVE

REMOVE VEGETATION IN AREA OF NEW ACCESS DRIVE

ABANDONED 10" DIA WATER LINE

N/F
CITY OF BANGOR
PORTION OF
BOOK 8107, PAGE 215
FOR CONVEYANCE TO BANGOR HOUSING AUTHORITY
AREA: 5.064 ACRES
CITY OF BANGOR
TAX MAP R25 - LOT 1A

N 34°29'57" W
151.21'

TREELINE (TYP)

INV. 8 INCH CAST IRON, ELEV.: 161.96'

CULVERT - ABANDONED 8" CAST IRON WATER LINE NOW USED AS STORM DRAIN

33.50'
S 80°43'59" W

789.84'
S 30°03'55" W

INV. 24 INCH CONCRETE, ELEV.: 165.33'

CULVERT

SMH #2
RIM 174.53

TEXAS AVENUE
SHOWN ON MAP FILE D655-76
NO LAYOUT WAS FOUND FOR THIS PORTION OF ROAD

N 30°03'55" E
377.37'

INV. 36 INCH CONCRETE, ELEV.: 165.64'

INV. 15 INCH CPP, ELEV.: 168.15'

¾" DIAMETER REBAR FOUND

S 30°03'55" E
559.48'

S 47°26'55" E
91.48'

N/F
CITY OF BANGOR
REMAINING PORTION OF
BOOK 8107, PAGE 215
REFER TO BOOK 2156, PAGE 449
CITY OF BANGOR
TAX MAP R25 - LOT 1A

REFER TO A LEASEHOLD / MORTGAGE MODIFICATION AGREEMENT BETWEEN PENOBSCOT COMMUNITY HEALTH CENTER & THE CITY OF BANGOR
BOOK 17445, PAGE 98
PARCEL ONE
CITY OF BANGOR
TAX MAP R25 - LOT 17

PENOBSCOT

REFER

15 0 30 60 FEET

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STATE OF MAINE
DANIEL P. DIFFIN
11841
LICENSED PROFESSIONAL ENGINEER

# BANGOR HOUSING DEVELOPMENT CORPORATION
# YELLEN PINES
# 205 CORPORATE DRIVE
# BANGOR, ME

## EXISTING CONDITIONS AND DEMOLITION PLAN

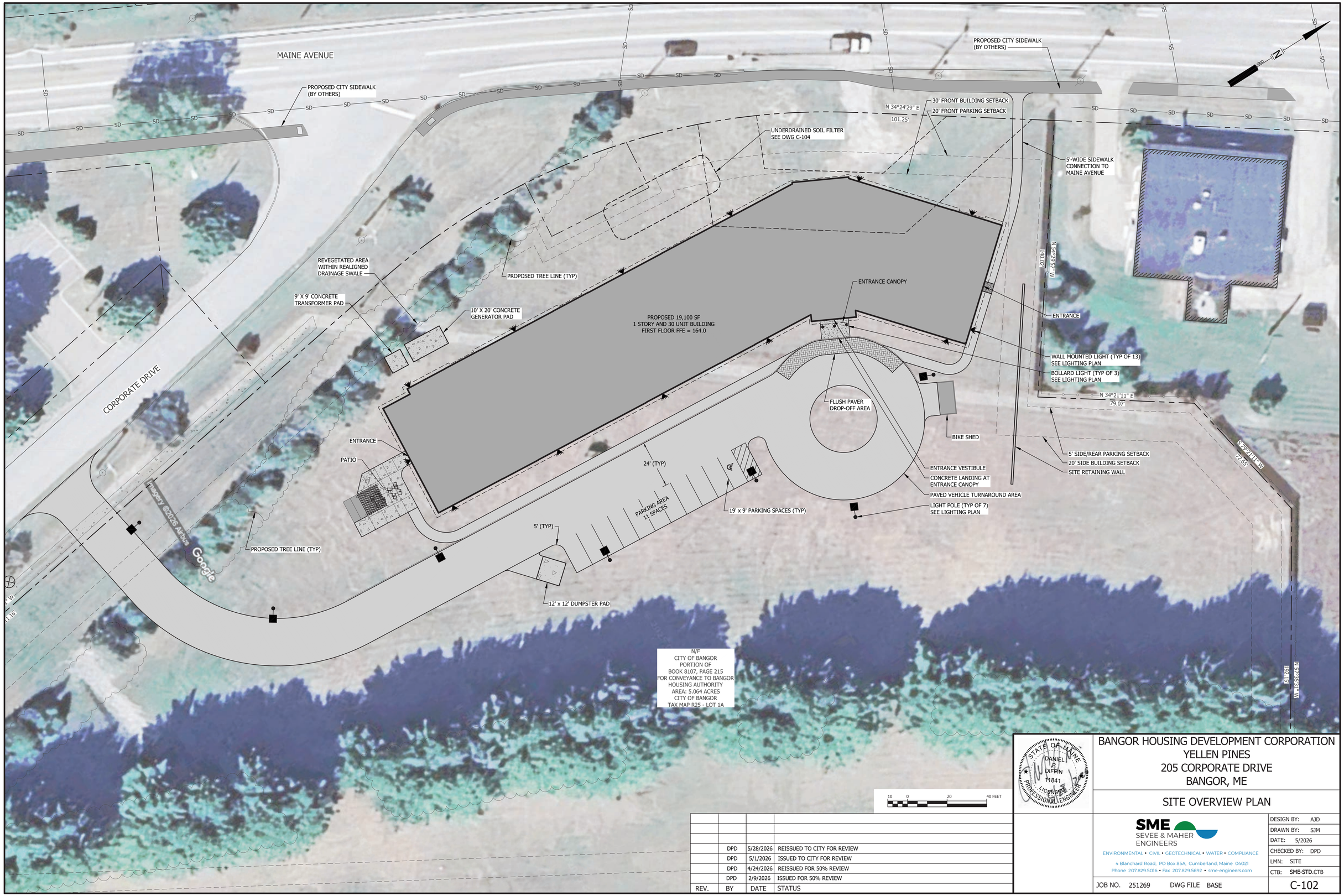
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JOB NO. 251269 DWG FILE BASE

C-101

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# BANGOR HOUSING DEVELOPMENT CORPORATION
# YELLEN PINES
# 205 CORPORATE DRIVE
# BANGOR, ME

## SITE OVERVIEW PLAN

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MAINE AVENUE

PROPOSED CITY SIDEWALK BY OTHERS

CB#1
RIM 157.96"

PROVIDE CURB TO MATCH EXISTING (BY OTHERS)

PROPOSED 6'-WIDE CITY SIDEWALK (BY OTHERS)

CORE HOLE AND GROUT NEW SEWER INLET

UNDERDRAINED SOIL FILTER
SEE DWG C-104

20' FRONT PARKING SETBACK
30' FRONT BUILDING SETBACK

CONNECT TO PROPOSED CITY SIDEWALK

R5' (TYP)

SEWER MANHOLE
SMH#1
RIM 161.34
INV IN 151.1
(EX) INV OUT 151.0

SMH-2 4' SEWER MANHOLE
RIM EL 159.5
INV IN 152.9
INV OUT 152.8

5'-WIDE PAVED WALKWAY (TYP)

6" DIA SANITARY SEWER LINE

6" SANITARY SEWER LINE
INV 153.5

N 415823.16
E 904705.35

EXISTING FIRE HYDRANT

EXISTING UTILITY POLE (TYP)

CONNECT TO EXISTING MAIN
COORDINATE WITH BANGOR WATER DISTRICT

TAPPING SLEEVE AND GATE VALVE FOR 4" DIA DOMESTIC WATER SERVICE

TAPPING SLEEVE AND GATE VALVE FOR 6" DIA SPRINKLER SERVICE

UNDERGROUND ELECTRICAL CONDUIT AND COMMUNICATIONS

10' X 20' CONCRETE GENERATOR PAD

9' X 9' CONCRETE TRANSFORMER PAD

PROVIDE ELECTRICAL HANDHOLE

MAIN ENTRANCE/EXIT

CANOPY

BUILDING ENTRANCE/EXIT

5'-WIDE PAVED WALKWAY (TYP)

PAVER ENTRANCE
SEE LANDSCAPE PLAN L101

PROPOSED 19,100 SF
1 STORY AND 30 UNIT BUILDING
FIRST FLOOR FFE = 164.0

ROOF DRIP LINE FILTER (TYP)
SEE DWG C-303

N 415508.94
E 904617.66

4" DIA DOMESTIC WATER SERVICE
COORDINATE BUILDING ENTRANCE
WITH MECHANICAL DWGS
INV 158.5

6" DIA SPRINKLER SERVICE
COORDINATE BUILDING ENTRANCE
WITH MECHANICAL DWGS
INV 158.5

BUILDING ENTRANCE/EXIT

EXISTING ABANDONED 8" DIA WATER LINE

EXISTING 12" DIA WATER MAIN

EXISTING 12" DIA WATER LINE

EXISTING 16" DIA DI WATER

WATER GATE VALVE

24'-WIDE PAVED DRIVE

DRAINAGE MANHOLE (TYP)

2- 1" DIA ELECTRICAL CONDUIT

R15'

R13'

R18'

R5'

R1'

R75'

R99'

11 TOTAL SPACES

18' (TYP)

NO PARKING
ACCESSIBLE PARKING SPACE

335 LF OF VERTICAL GRANITE CURB (TYP)
SEE DWG C-301

WALL MOUNTED LIGHT (TYP OF 13)
SEE LIGHTING PLAN

LIGHT POLE (TYP OF 7)
SEE LIGHTING PLAN

OUTDOOR PATIO SPACE
SEE DWG L101

CATCH BASIN (TYP)

12'x12' DUMPSTER ENCLOSURE
WITH SCREEN FENCE
SEE DWG C-302

R15.5'

R4'

R41'

34'

R7'

R12'

BIKE SHED

BOLLARD LIGHT (TYP OF 3)
SEE LIGHTING PLAN

24'-WIDE PAVED DROP-OFF CIRCLE

FIRE TRUCK CLEARANCE RADIUS

5' SIDE/REAR PARKING SETBACK

20' SIDE BUILDING SETBACK

RETAINING WALL (TYP)

CORPORATE DRIVE

EXISTING DRAINAGE SWALE

EXISTING 10" DIA WATER LINE

8" CAST IRON
INV 161.96

CULVERT - ABANDONED 8" CAST IRON WATER LINE
NOW USED AS STORM DRAIN

INV. 24 INCH CONCRETE, ELEV.: 165.33'

CULVERT

TEXAS AVENUE
SHOWN ON MAP FILE D655-76
NO LAYOUT WAS FOUND FOR THIS PORTION OF ROAD

INV. 36 INCH CONCRETE, ELEV.: 165.64'

INV. 15 INCH CPP, ELEV.: 168.15'

¾" DIAMETER REBAR FOUND

15 0 30 60 FEET

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DANIEL P. DIFFIN
11841
LICENSED PROFESSIONAL ENGINEER

# BANGOR HOUSING DEVELOPMENT CORPORATION
# YELLEN PINES
# 205 CORPORATE DRIVE
# BANGOR, ME

## SITE LAYOUT AND UTILITY PLAN


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| JOB NO. | 251269 |
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MAINE AVENUE

CORPORATE DRIVE

112 LF OF 15" DIA SD PIPE
INV OUT 155.5
4" INV OUT 155.5
4" INV OUT 154.25
N 34°24'29" E
101.25'
SMH 2
RIPRAP INLET/OUTLET PROTECTION (TYP)
INV IN 157.7
12" INV OUT 158.0
152 LF OF 12" DIA SD PIPE
GRADE SIDEWALK AT 5% MINIMUM
N 54°29'57" W
140.02'
TW 164.0
BW 163.0
RETAINING WALL
TW 168.0
BW 163.0
N 34°21'11" E
79.07'
S 79°21'11" W
72.55'
FI #2
RIM 161.5
4" INV IN 158.6
12" INV OUT 158.5
TW 172.5
BW 172.5
N 5°39'57" W
192.15'

RIP RAP OVERFLOW SPILLWAY EL 158.0
UNDERDRAIN SOIL FILTER BOTTOM EL 156.5
INV OUT 156.6
4'-WIDE ROOF DRIPLINE FILTER #2
4'-WIDE ROOF DRIPLINE FILTER #1
4'-WIDE ROOF DRIPLINE FILTER #4
4'-WIDE ROOF DRIPLINE FILTER #3
TRANSITION FROM FLUSH TO VERTICAL CURB
TC 163.1
BC 163.1
PROPOSED 19,100 SF
1 STORY AND 30 UNIT BUILDING
FIRST FLOOR FFE = 164.0
TRANSITION FROM VERTICAL TO FLUSH CURB
FLUSH CURB
TC 163.5
BC 163.0
CB #3
RIM 162.3
12" INV OUT 159.3
TC 162.9
BC 162.4
10' X 20' CONCRETE GENERATOR PAD
EL 159.3
9' X 9' CONCRETE TRANSFORMER PAD
EL 159.3
INV OUT 157.5
DMH #2
RIM 159.8
12" INV IN 157.3
12" INV OUT 157.2
REALIGN EXISTING DRAINAGE SWALE AND REVEGETATE SEE LANDSCAPE PLANS
GRADE AREA AROUND MANHOLE AT 159.8 AND SLOPING AWAY
CB #1
RIM 161.5
12" INV IN 158.6
12" INV OUT 158.5
12" DIA CULVERT
L=43'
INV IN 158.4
INV OUT 158.0
CB #2
RIM 163.8
12" INV IN 158.1
12" INV OUT 158.1
DMH #1
RIM 164.0
4" INV IN 160.0
12" INV IN 157.9
12" INV OUT 157.9
TC 165.5
BC 165.0
PARKING AREA
11 SPACES
TC 163.6
BC 163.1
R15'
116'
DOUBLE 24" DIA CULVERT
INV IN 160.0
INV OUT 159.5
12' X 12' CONCRETE DUMPSTER PAD
EL 163.0
3H:1V SLOPE
PROVIDE EROSION CONTROL MATTING ON ALL SLOPES STEEPER THAN 6H:1V
SEE DWG C-301
FI #1
RIM 161.5
12" INV OUT 158.5
6'-WIDE DRAINAGE SWALE (TYP)

N/F
CITY OF BANGOR
PORTION OF
BOOK 8107, PAGE 215
FOR CONVEYANCE TO BANGOR HOUSING AUTHORITY
AREA: 5.064 ACRES
CITY OF BANGOR
TAX MAP R25 - LOT 1A

10 0 20 40 FEET

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# YELLEN PINES
# 205 CORPORATE DRIVE
# BANGOR, ME

## SITE GRADING AND DRAINAGE PLAN

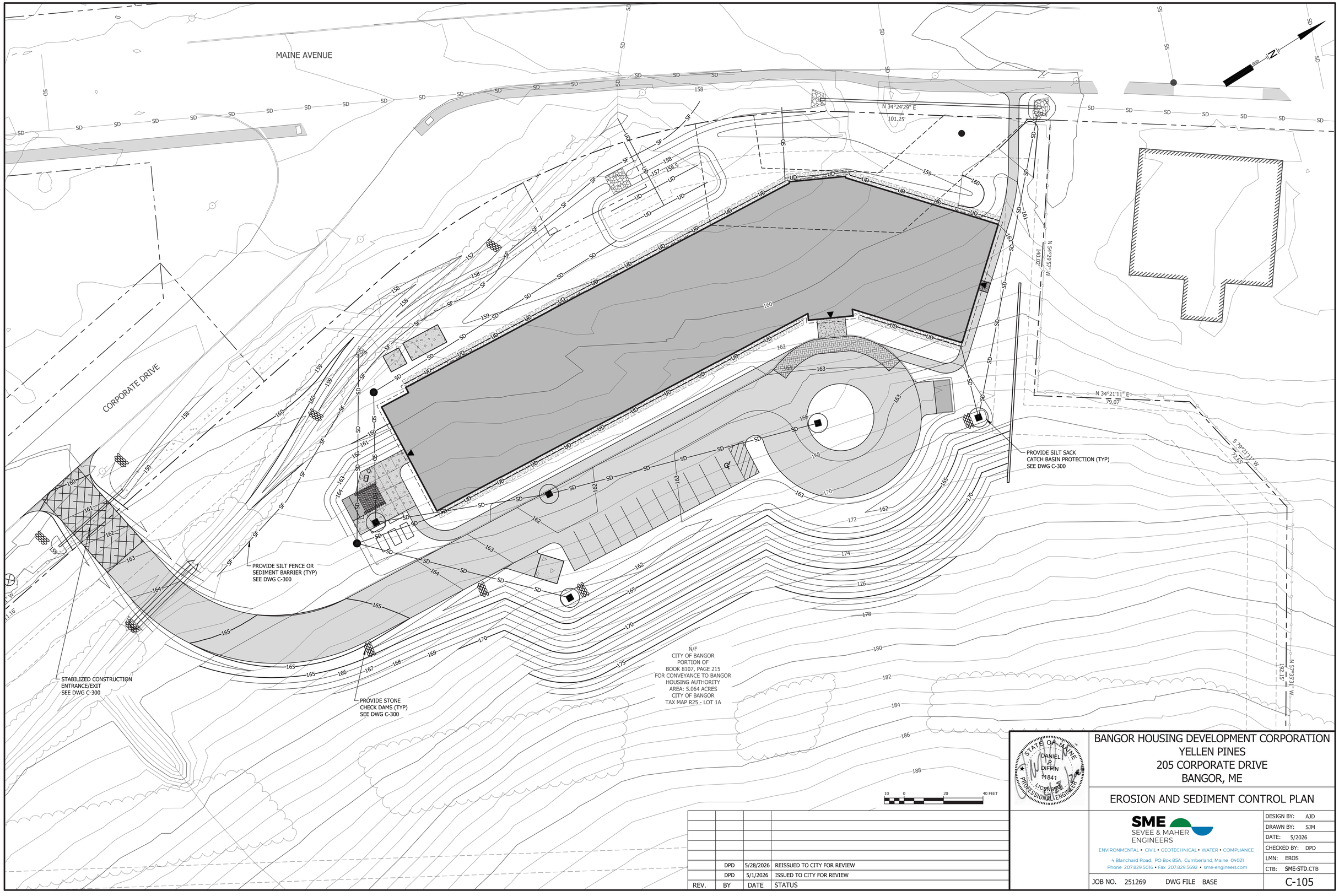
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JOB NO. 251269 DWG FILE BASE

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# YELLEN PINES
# 205 CORPORATE DRIVE
# BANGOR, ME

## EROSION AND SEDIMENT CONTROL PLAN

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JOB NO. 251269 DWG FILE BASE

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# EROSION CONTROL NOTES:

A. GENERAL

1. All soil erosion and sediment control will be done in accordance with: (1) the Maine Erosion and Sediment Control Handbook: Best Management Practices, Maine Department of Environmental Protection (MEDEP), October 2016.

2. The site Contractor (to be determined) will be responsible for the inspection and repair/replacement/maintenance of all erosion control measures, disturbed areas, material storage areas, and vehicle access points until all disturbed areas are stabilized.

3. Disturbed areas will be permanently stabilized within 7 days of final grading. Disturbed areas not to be worked upon within 14 days of disturbance will be temporarily stabilized within 7 days of the disturbance.

4. In all areas, removal of trees, bushes and other vegetation, as well as disturbance of topsoil will be kept to a minimum while allowing proper site operations.

5. Any suitable topsoil will be stripped and stockpiled for reuse as directed by the Owner. Topsoil will be stockpiled in a manner such that natural drainage is not obstructed and no off-site sediment damage will result. In any event, stockpiles will not be located within 100 feet of wetlands and will be at least 50 feet upgradient of the stockpile's perimeter silt fence. The sideslopes of the topsoil stockpile will not exceed 2:1. Silt fence will be installed around the perimeter of all topsoil stockpiles. Topsoil stockpiles will be surrounded with siltation fencing and will be temporarily seeded with Aroostook rye, annual or perennial ryegrass within 7 days of formation, or temporarily mulched.

6. Winter excavation and earthwork will be completed so as to minimize exposed areas while satisfactorily completing the project. Limit exposed areas to those areas in which work is to occur during the following 15 days and that can be mulched in one day. All areas will be considered denuded until the subbase gravel is installed in roadway areas or the areas of future loam and seed have been loamed, seeded, and mulched.

   Install any added measures necessary to control erosion/sedimentation. The particular measure used will be dependent upon site conditions, the size of the area to be protected, and weather conditions.

   To minimize areas without erosion control protection, continuation of earthwork operations on additional areas will not begin until the exposed soil surface on the area being worked has been stabilized.

B. TEMPORARY MEASURES

1. STABILIZED CONSTRUCTION ENTRANCE/EXIT

   A crushed stone stabilized construction entrance/exit will be placed at any point of vehicular access to the site, in accordance with the detail shown on this sheet.

2. SILT FENCE

   a. Silt fence will be installed prior to all construction activity, where soil disturbance may result in erosion. Silt fence will be erected at locations shown on the plans and/or downgradient of all construction activity.

   b. Silt fences will be removed when they have served their useful purpose, but not before the upgradient areas have been permanently stabilized.

   c. Silt fences will be inspected immediately after each rainfall and at least daily during prolonged rainfall. They will be inspected if there are any signs of erosion or sedimentation below them. Any required repairs will be made immediately. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind them, they will be replaced with a temporary crushed stone check dam.

   d. Sediment deposits will be removed after each storm event if significant build-up has occurred or if deposits exceed half the height of the barrier.

3. STONE CHECK DAMS

   Stone check dams should be installed before runoff is directed to the swale. Stone check dams will be installed in grass-lined swales and ditches during construction. Remove stone check dams when they have served their useful purpose, but not before upgradient areas have been permanently stabilized.

4. EROSION CONTROL MIX SEDIMENT BARRIER

   a. It may be necessary to cut, pack down, or remove tall grasses, brush, or woody vegetation to avoid voids and bridges that allow the washing away of fine soil particles.

   b. Where approved, erosion control mix sediment barriers may be used as a substitute for silt fence. See the details in this drawing set for specifications.

   c. Rock Filter Berms: To provide more filtering capacity or to act as a velocity check dam, a berm's center can be composed of clean crushed rock ranging in size from the french drain stone to riprap.

5. TEMPORARY SEEDING

   Stabilize disturbed areas that will not be brought to final grade and reduce problems associated with mud and dust production from exposed soil surface during construction with temporary vegetation.

6. TEMPORARY MULCHING

   Use temporary mulch in the following locations and/or circumstances:

   - In sensitive areas (within 100 feet of streams, wetlands and in lake watersheds) temporary mulch will be applied within 7 days of exposing spill or prior to any storm event.
   - Apply temporary mulch within 14 days of disturbance or prior to any storm event in all other areas.
   - Areas which have been temporarily or permanently seeded will be mulched immediately following seeding.
   - Areas which cannot be seeded within the growing season will be mulched for over-winter protection and the area will be seeded at the beginning of the growing season.
   - Mulch can be used in conjunction with tree, shrub, vine, and ground cover plantings.
   - Mulch anchoring will be used on slopes greater than 5 percent in late fall (past October 15), and over-winter (October 15 - April 15).

   The following materials may be used for temporary mulch:

   a. Hay or Straw material shall be air-dried, free of seeds and coarse material. Apply 2 bales/1,000 sf or 1.5 to 2 tons/acre to cover 90% of ground surface.

   b. Erosion Control Mix: It can be used as a stand-alone reinforcement:
      - 2-inches thick for slopes flatter than 3H:1V;
      - 4-inches thick for slopes greater than 3H:1V;
      - on slopes 2 horizontal to 1 vertical or less;
      - on frozen ground or forested areas; and
      - at the edge of gravel parking areas and areas under construction.

   c. Erosion control mix alone is not suitable:
      - on slopes with groundwater seepage;
      - at low points with concentrated flows and in gullies;
      - at the bottom of steep perimeter slopes exceeding 100 feet in length;
      - below culvert outlet aprons; and around catch basins and closed storm systems.

   d. Chemical Mulches and Soil Binders: Wide ranges of synthetic spray-on materials are marketed to protect the soil surface. These are emulsions that are mixed with water and applied to the soil. They may be used alone, but most often are used to hold wood fiber, hydro-mulches or straw to the soil surface.

   e. Erosion Control Blankets and Mats: Mats are manufactured combinations of mulch and netting designed to retain soil moisture and modify soil temperature. During the growing season (April 15th to November 1st) use mats indicated on drawings or North American Green (NAG) S75 (or mulch and netting) on:
      - the base of grassed waterways;
      - steep slopes (15 percent or greater); and
      - any disturbed soil within 100 feet of lakes, streams, or wetlands.

   During the late fall and winter (November 1st to April 15th) use heavy grade mats indicated on drawings for NAG SC250 on all areas noted above plus use lighter grade mats NAG S75 (or mulch and netting) on:
      - sideslopes of grassed waterways; and moderate slopes (between 8 and 15 percent).

C. TEMPORARY DUST CONTROL

To prevent the blowing and movement of dust from exposed soil surfaces, and reduce the presence of dust, use water or calcium chloride to control dusting by preserving the moisture level in the road surface materials.

D. CONSTRUCTION DE-WATERING

1. Water from construction de-watering operations shall be cleaned of sediment before reaching wetlands, water bodies, streams or site boundaries. Utilize temporary sediment basins, erosion control soil filter berms backed by staked hay bales, A Dirt Bag 55" sediment filter bag by ACF Environmental, or other approved Best Management Practices (BMP's).

2. In sensitive areas near streams or ponds, discharge the water from the de-watering operation into a temporary sediment basin created by a surrounding filter berm of uncompacted erosion control mix immediately backed by staked hay bales (see the site details). Locate the temporary sediment basin at lease 100 feet from the nearest water body, such that the filtered water will flow through undisturbed vegetated soil areas prior to reaching the water body or property line.

E. PERMANENT MEASURES

1. Riprapped Aprons: All storm drain pipe outlets and the inlet and outlet of culverts will have riprap aprons to protect against scour and deterioration.

2. Topsoil, Seed, and Mulch: All areas disturbed during construction, but not subject to other restoration (paving, riprap, etc.) will be loamed, limed, fertilized, seeded, and mulched.

   Seeded Preparation: Use stockpiled materials spread to the depths shown on the plans, if available. Approved topsoil substitutes may be used. Grade the site as needed.

   a. Seeding will be completed by August 15 of each year. Late season seeding may be done between August 15 and October 15. Areas not seeded or which do not obtain satisfactory growth by October 15, will be seeded with Aroostook Rye or mulched. After November 1, or the first killing frost, disturbed areas will be seeded at double the specified application rates, mulched, and anchored.

   PERMANENT SEEDING SPECIFICATIONS

| Mixture: | Roadside (lbs/acre) | Lawn (lbs/acre) |
|---|---|---|
| Kentucky Bluegrass | 20 | 55 |
| White Clover | 5 | 0 |
| Creeping Red Fescue | 20 | 55 |
| Perennial Ryegrass | 5 | 15 |

   b. Mulch in accordance with specifications for temporary mulching.

   c. If permanent vegetated stabilization cannot be established due to the season of the year, all exposed and disturbed areas not to undergo further disturbance are to have dormant seeding applied and be temporarily mulched to protect the site.

3. Ditches and Channels: All ditches on-site will be lined with North American Green S75 erosion control mesh (or an approved equal) upon installation of loam and seed.

F. WINTER CONSTRUCTION AND STABILIZATION

1. Natural Resource Protection: During winter construction, a double-row of sediment barriers (i.e., silt fence backed with hay bales or erosion control mix) will be placed between any natural resource and the disturbed area. Projects crossing the natural resource will be protected a minimum distance of 100 feet on either side from the resource.

2. Sediment Barriers: During frozen conditions, sediment barriers may consist of erosion control mix berms or any other recognized sediment barriers as frozen soil prevents the proper installation of hay bales or silt fences.

3. Mulching:

   - All areas will be considered to be denuded until seeded and mulched. Hay and straw mulch will be applied at a rate of twice the normal accepted rate.
   - Mulch will not be spread on top of snow.
   - After each day of final grading, the area will be properly stabilized with anchored hay or straw or erosion control matting.
   - Between the dates of November 1 and April 15, all mulch will be anchored by either mulch netting, emulsion chemical, tracking or wood cellulose fiber.

5. Soil Stockpiling: Stockpiles of soil or subsoil will be mulched for over-winter protection with hay or straw at twice the normal rate or with a 4-inch layer of erosion control mix. This will be done within 24 hours of stocking and re-established prior to any rainfall or snowfall. Any soil stockpiles shall not be placed (even covered with mulch) within 100 feet from any natural resources. Sediment barriers should be installed downgradient of stockpiles. Stormwater shall be directed away from stockpiles.

6. Seeding: Dormant seeding may be placed prior to the placement of mulch or erosion control blankets. If dormant seeding is used for the site, all disturbed areas will receive 4 inches of loam and seed at an application rate of three times the rate for permanent seeding. All areas seeded during the winter will be inspected in the spring for adequate catch. All areas insufficiently vegetated (less than 75 percent catch) will be revegetated by replacing loam, seed, and mulch.

   If dormant seeding is not used for the site, all disturbed areas will be revegetated in the spring.

7. Maintenance: Maintenance measures will be applied as needed during the entire construction season. After each rainfall, snow storm, or period of thawing and runoff, and at least once a week, the site Contractor will perform a visual inspection of all installed erosion control measures and perform repairs as needed to ensure their continuous function.

8. Identified repairs will be started no later than the end of the net work day and be completed within seven (7) calendar days.

   Following the temporary and/or final seeding and mulching, the Contractor will, in the spring, inspect and repair any damages and/or bare spots. An established vegetative cover means a minimum of 85 to 90 percent of areas vegetated with vigorous growth.

G. OVER-WINTER CONSTRUCTION EROSION CONTROL MEASURES

1. Stabilization of Disturbed Soil: By October 15, all disturbed soils on areas having a slope less than 15 percent will be seeded and mulched. If the Contractor fails to stabilize these soils by this date, then the Contractor shall stabilize the soil for late fall and winter, by using either temporary seeding or mulching.

2. Stabilization of Disturbed Slopes: All slopes to be vegetated will be completed by October 15. The Owner will consider any area having a grade greater than 15 percent (6.5H:1V) to be a slope. Slopes not vegetated by October 15 will receive one of the following actions to stabilize the slope for late fall and winter:

   a. Stabilize the soil with temporary vegetation and erosion control mesh.
   b. Stabilize the slope with erosion control mix.
   c. Stabilize the slope with stone riprap.
   d. Slopes steeper than 1.5:1 are prohibited.

3. Stabilization of Ditches and Channels: All stone-lined ditches and channels to be used to convey runoff through the winter will be constructed and stabilized by November 15. Grass-lined ditches and channels will be complete by September 15. Grass-lined ditches not stabilized by September 15 shall be lined with either sod or riprap.

H. MAINTENANCE PLAN

1. Routine Maintenance: Inspection will be performed as outlined in the project's Erosion Control Plan. Inspection will be by a qualified person during wet weather to ensure that the facility performs as intended. Inspection priorities will include checking erosion controls for accumulation of sediments.

I. Housekeeping

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

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

3. Fugitive sediment and dust. Actions must be taken to ensure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil may not be used for dust control. If off-site tracking occurs roadways should be swept immediately and no loss once a week and prior to significant storm events.

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

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

6. Authorized Non-stormwater discharges. Identify and prevent contamination by non-stormwater discharges. Where allowed non-stormwater discharges exist, they must be identified and steps should be taken to ensure the implementation of appropriate pollution prevention measures for the non-stormwater component(s) of the discharge. Authorized non-stormwater discharges are:

   (a) Discharges from firefighting activity;

   (b) Fire hydrant flushings;

   (c) Vehicle washwater if detergents are not used and washing is limited to the exterior of vehicles (engine, undercarriage and transmission washing is prohibited);

   (d) Dust control runoff in accordance with permit conditions and section I3;

   (e) Routine external building washdown, not including surface paint removal, that does not involve detergents;

   (f) Pavement washwater (where spills/leaks of toxic or hazardous materials have not occurred, unless all spilled material had been removed) if detergents are not used;

   (g) Uncontaminated air conditioning or compressor condensate;

   (h) Uncontaminated groundwater or spring water;

   (i) Foundation or footer drain-water where flows are not contaminated;

   (j) Uncontaminated excavation dewatering (see requirements in section I5);

   (k) Potable water sources including waterline flushings; and

   (l) Landscape irrigation.

7. Unauthorized non-stormwater discharges. The Department's approval under this Chapter does not authorize a discharge that is mixed with a source of non stormwater, other than those discharges in compliance with section I6. Specifically, the Department's approval does not authorize discharges of the following:

   (a) Wastewater from the washout or cleanout of concrete, stucco, paint, form release oils, curing compounds or other construction materials;

   (b) Fuels, oils or other pollutants used in vehicle and equipment operation and maintenance;

   (c) Soaps, solvents, or detergents used in vehicle and equipment washing; and

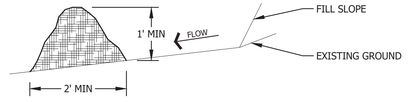
   (d) Toxic or hazardous substances from a spill or other release.

8. Additional requirements. Additional requirements may be applied on a site-specific basis.

J. CONSTRUCTION SEQUENCE

In general, the expected sequence of construction for each phase is provided below. Construction is proposed to start in Fall 2026 and end in Fall 2027.

- Mobilization
- Install temporary erosion control measures
- Site Grading
- Construct storm drains
- Install retaining walls/site utilities
- Construct building
- Site stabilization, pavement, loam and seed, and landscaping
- Remove temporary erosion control




## EROSION CONTROL MIX SEDIMENT BARRIER

NOTES:

1. EROSION CONTROL MIX CAN BE MANUFACTURED ON OR OFF THE SITE. IT MUST CONSIST PRIMARILY OF ORGANIC MATERIAL SEPARATED AT THE POINT OF GENERATION, AND MAY INCLUDE: SHREDDED BARK, STUMP GRINDINGS, COMPOSTED BARK, OR FLUME GRIT AND FRAGMENTED WOOD GENERATED FROM WATER-FLUME LOG HANDLING SYSTEMS. WOOD CHIPS, GROUND CONSTRUCTION DEBRIS, REPROCESSED WOOD PRODUCTS OR BARK CHIPS WILL NOT BE ACCEPTABLE AS THE ORGANIC COMPONENT OF THE MIX. EROSION CONTROL MIX SHALL CONTAIN A WELL-GRADED MIXTURE OF PARTICLE SIZES AND MAY CONTAIN ROCKS LESS THAN 4" IN DIAMETER. EROSION CONTROL MIX MUST BE FREE OF REFUSE, PHYSICAL CONTAMINANTS, AND MATERIAL TOXIC TO PLANT GROWTH.

   THE MIX COMPOSITION SHALL MEET THE FOLLOWING STANDARDS:
   A. ORGANIC MATERIAL: BETWEEN 20% - 100% (DRY WEIGHT BASIS)
   B. PARTICLE SIZE: BY WEIGHT, 100% PASSING 6" SCREEN, 70-85% PASSING 0.75" SCREEN
   C. THE ORGANIC PORTION NEEDS TO BE FIBROUS AND ELONGATED.
   D. LARGE PORTIONS OF SILTS, CLAYS OR FINE SANDS ARE NOT ACCEPTABLE IN THE MIX.
   E. SOLUBLE SALTS CONTENT SHALL BE LESS THAN 4.0 MMHOS/CM.
   F. PH: 5.0 - 8.0

2. ON SLOPES LESS THAN 5% OR AT THE BOTTOM OF SLOPES 2:1 OR LESS UP TO 20 FEET LONG, THE BARRIER MUST CONFORM TO THE ABOVE DIMENSIONS. ON THE LONGER OR STEEPER SLOPES, THE BARRIER SHOULD BE WIDER TO ACCOMMODATE THE ADDITIONAL FLOW.

3. THE BARRIER MUST BE PLACED ALONG A RELATIVELY LEVEL ELEVATION. IT MAY BE NECESSARY TO CUT TALL GRASSES OR WOODY VEGETATION TO AVOID CREATING VOIDS AND BRIDGES THAT WOULD ENABLE FINES TO WASH UNDER THE BARRIER THROUGH THE GRASS BLADES OR PLANT STEMS.

4. LOCATIONS WHERE OTHER BMP'S SHOULD BE USED:
   A. AT LOW POINTS OF CONCENTRATED FLOW
   B. BELOW CULVERT OUTLET APRONS
   C. WHERE A PREVIOUS STAND-ALONE EROSION CONTROL MIX APPLICATION HAS FAILED
   D. AT THE BOTTOM OF STEEP PERIMETER SLOPES THAT ARE MORE THAN 50 FEET FROM TOP TO BOTTOM (LARGE UPGRADIENT WATERSHED)
   E. AROUND CATCH BASINS AND CLOSED STORM DRAIN SYSTEMS

5. THE EROSION CONTROL MIX BARRIERS SHOULD BE INSPECTED REGULARLY AND AFTER EACH LARGE RAINFALL. REPAIR ALL DAMAGED SECTIONS OF BERM IMMEDIATELY BY REPLACING OR ADDING ADDITIONAL MATERIAL PLACED ON THE BERM TO THE DESIRED HEIGHT AND WIDTH.

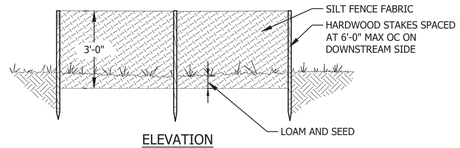
6. IT MAY BE NECESSARY TO REINFORCE THE BARRIER WITH SILT FENCE OR STONE CHECK DAMS IF THERE ARE SIGNS OF UNDERCUTTING OR THE IMPOUNDMENT OF LARGE VOLUMES OF WATER.

7. SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN THEY REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.

8. REPLACE SECTIONS OF BERM THAT DECOMPOSE, BECOME CLOGGED WITH SEDIMENT OR OTHERWISE BECOME INEFFECTIVE. THE BARRIER SHOULD BE RESHAPED AS NEEDED.

9. EROSION CONTROL MIX BARRIERS CAN BE LEFT IN PLACE AFTER CONSTRUCTION. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER BARRIER IS NO LONGER REQUIRED SHOULD BE SPREAD TO CONFORM TO THE EXISTING GRADE AND BE SEEDED AND MULCHED. WOODY VEGETATION CAN BE PLANTED INTO THE BARRIERS, OR THEY CAN BE OVER-SEEDED WITH LEGUMES. IF THE BARRIER NEEDS TO BE REMOVED, IT CAN BE SPREAD OUT INTO THE LANDSCAPE.

10. IF TEMPORARY BERMS ARE USED AS SILT BARRIERS, THEY ARE PROHIBITED AT THE BASE OF SLOPES STEEPER THAN 8% OR WHERE THERE IS FLOWING WATER WITHOUT THE SUPPORT OF ADDITIONAL MEASURES SUCH AS SILT FENCE.

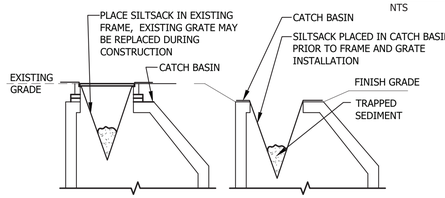


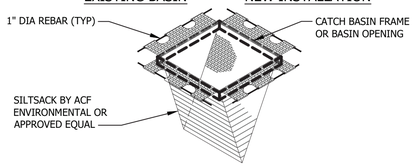

## SILT FENCE

NOTE:
CONTRACTORS OPTION TO USE SEDIMENT BARRIER OR SILT FENCE FOR SLOPE PROTECTION.

## SURFACE DRAINAGE SEDIMENT CONTROL

NTS



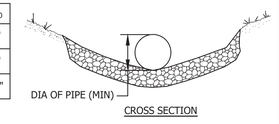



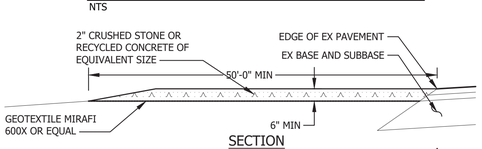

## SILTSACK CATCH BASIN PROTECTION

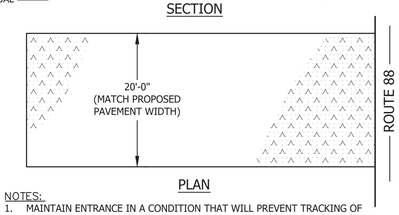
NTS

RIPRAP PAD MUST BE INSTALLED WITHIN 48 HOURS OF INSTALLING NEW PIPE OR CULVERT.

| PIPE DIA | A | B | C | D | E | PAD DEPTH | $D_{50}$ |
|---|---|---|---|---|---|---|---|
| 12" OR LESS | 3 FT. | 2 FT. | 3 FT. | 4 FT. | 6 FT. | 10" | 5" |
| 15" | 3.75 FT. | 2.5 FT. | 3.75 FT. | 5 FT. | 8 FT. | 16" | 8" |
| 24" | 6 FT. | 4 FT. | 6 FT. | 10 FT. | 12 FT. | 20" | 10" |



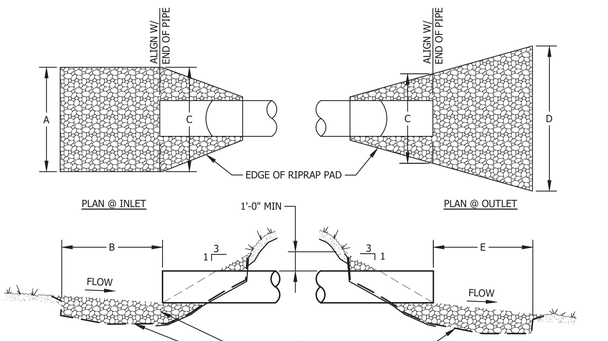




NOTES:
1. MAINTAIN ENTRANCE IN A CONDITION THAT WILL PREVENT TRACKING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY. IF WASHING IS REQUIRED PREVENT SEDIMENT FROM ENTERING WATERWAYS, DITCHES OR STORM DRAINS.
2. REMOVE STABILIZED CONSTRUCTION ENTRANCE TO FINISH ROAD CONSTRUCTION AND PAVEMENT.

## STABILIZED CONSTRUCTION ENTRANCE DETAIL

NTS




## RIPRAP INLET/OUTLET PROTECTION

NTS

| REV. | BY | DATE | STATUS |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | DPD | 5/28/2026 | REISSUED TO CITY FOR REVIEW |
| | DPD | 5/1/2026 | ISSUED TO CITY FOR REVIEW |
| | DPD | 4/24/2026 | REISSUED FOR 50% REVIEW |
| | DPD | 2/9/2026 | ISSUED TO CITY FOR REVIEW |

STATE OF MAINE — DANIEL J. DIFFIN — 11841 — LICENSED PROFESSIONAL ENGINEER

BANGOR HOUSING DEVELOPMENT CORPORATION
YELLEN PINES
205 CORPORATE DRIVE
BANGOR, ME

EROSION CONTROL NOTES AND DETAILS

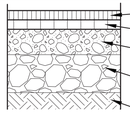
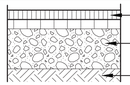
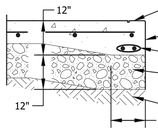
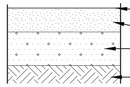
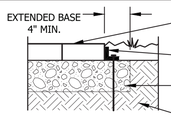
SME
SEVEE & MAHER ENGINEERS
ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE
4 Blanchard Road, PO Box 85A, Cumberland, Maine 04021
Phone 207.829.5016 • Fax 207.829.5692 • sme-engineers.com

| | |
|---|---|
| DESIGN BY: | AJD |
| DRAWN BY: | ZCF |
| DATE: | 5/2026 |
| CHECKED BY: | DPD |
| LMN: | LMN |
| CTB: | SME-STD.CTB |

JOB NO. 251269 DWG FILE DETAILS

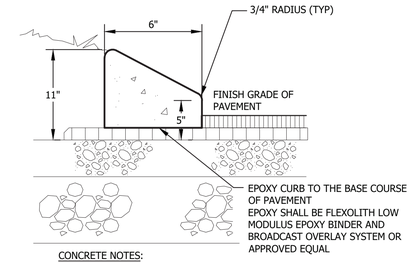
C-300

C:\Users\jmh\OneDrive - SME\SHARED\NOTGowen Turgeon - Bangor Housing\Plans\ZTALS.dwg, G-300, 6/8/2026 12:12:29 PM, kjm

| CONSTRUCTION | USE |
|---|---|
|  | BITUMINOUS<br><br>ACCESS ROAD<br>PARKING LOT |
|  | BITUMINOUS<br><br>PEDESTRIAN WALK |
|  | CONCRETE<br><br>EQUIPMENT PADS<br>DUMPSTER PAD<br>DOOR STOOP |
|  | GRASS<br><br>ALL DISTURBED AREAS OTHER THAN PLAY FIELDS |
|  | CONCRETE PAVERS<br><br>PLAZA AREAS |

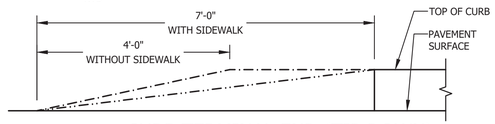
NOTES:
1. HMA = HOT MIX ASPHALT.
   MDOT = MAINE DEPARTMENT OF TRANSPORTATION.
2. ALL COURSE THICKNESS AFTER FINAL COMPACTION.

## SCHEDULE OF SURFACE FINISHES
NTS

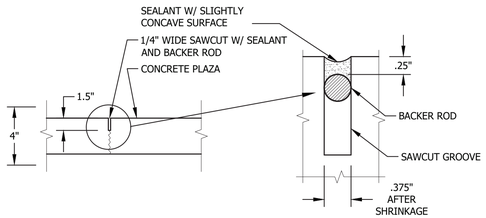



CONCRETE NOTES:
1. MINIMUM 28 DAY COMPRESSIVE STRENGTH: 4,000 PSI
2. AIR ENTRAINMENT: 4% TO 6%
3. REINFORCING: FIBERMESH OR EQUIVALENT GRACE PRODUCT
4. STRAND LENGTH 1-1/2", 1" TO 1-1/2 LB/CUBIC YARD
5. SLUMP: 1" TO 1-1/2"
6. FINISH:
   a. VERTICAL AND TOP FACES: SMOOTH SLIPFORM
   b. SLOPED FACES: BROOM
7. JOINTS: SAWCUT 10' OC 3" DEEP THE DAY AFTER PLACING
8. SEALER: SALTGUARD OR EQUAL WATER BASED SEALER

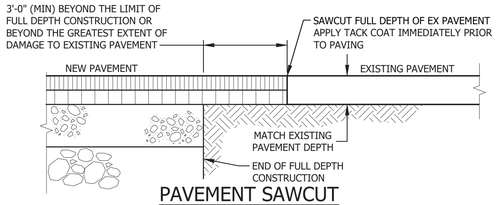
## SLIPFORM CONCRETE CURB
NTS



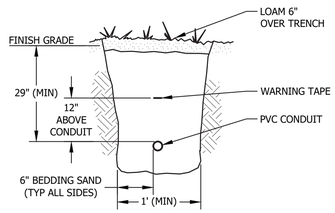

## CURB TERMINAL END (TIP DOWN)
NTS



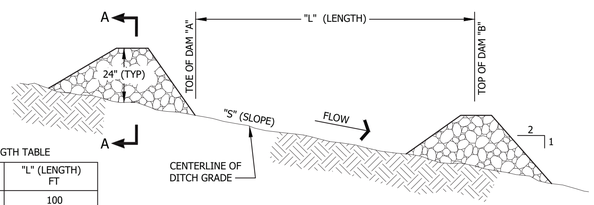

## SAWCUT CONTROL JOINT FOR CONCRETE WALKS AND SLABS-ON-GRADE
NTS




## PAVEMENT SAWCUT
NTS




## UNDERGROUND LIGHTING CONDUIT
NTS

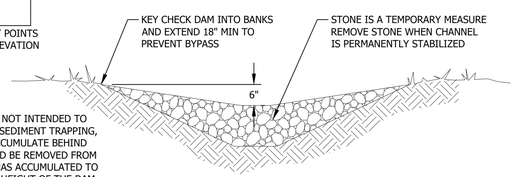



SLOPE & LENGTH TABLE

| "S" (SLOPE) FT/FT | "L" (LENGTH) FT |
|---|---|
| 0.020 | 100 |
| 0.030 | 66 |
| 0.040 | 50 |
| 0.050 | 40 |
| 0.080 | 25 |
| 0.100 | 20 |
| 0.120 | 17 |
| 0.150 | 13 |

L= THE DISTANCE SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION

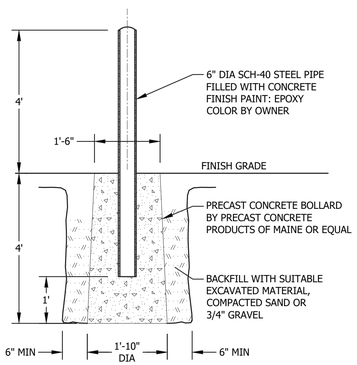
## ELEVATION VIEW



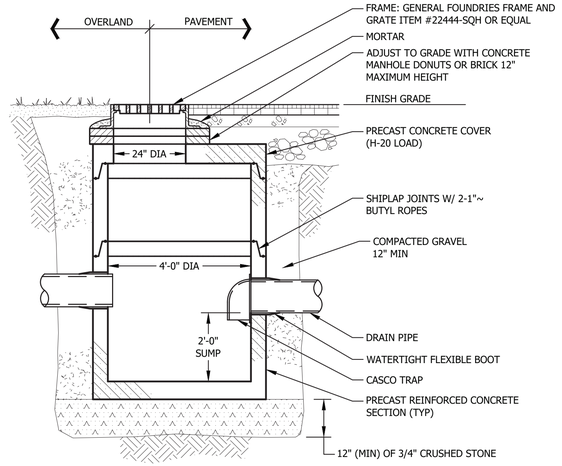

NOTES:
1. WHILE THIS PRACTICE IS NOT INTENDED TO BE USED PRIMARILY FOR SEDIMENT TRAPPING, SOME SEDIMENT WILL ACCUMULATE BEHIND DAMS. SEDIMENT SHOULD BE REMOVED FROM BEHIND DAMS WHEN IT HAS ACCUMULATED TO ONE HALF THE ORIGINAL HEIGHT OF THE DAM.
2. STONE: 1"-6" WELL GRADED CRUSHED STONE

## SECTION A-A

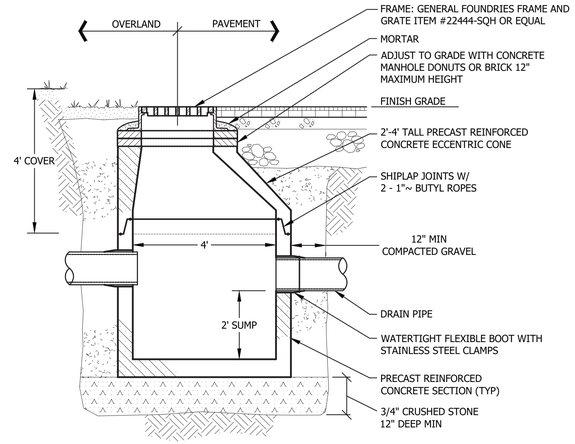
## STONE CHECK DAM
NTS



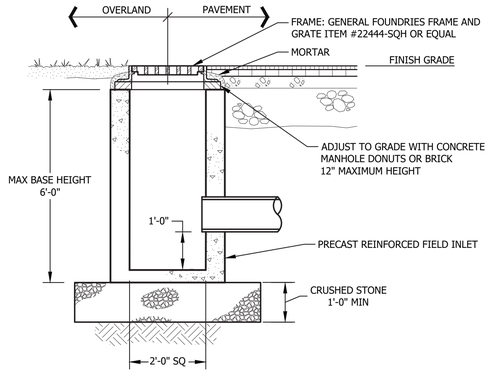

## STEEL BOLLARD
NTS



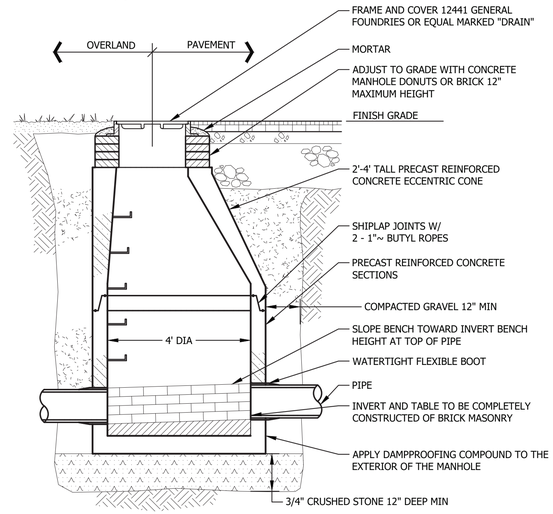

## TYPICAL FLAT TOP CATCH BASIN
NTS



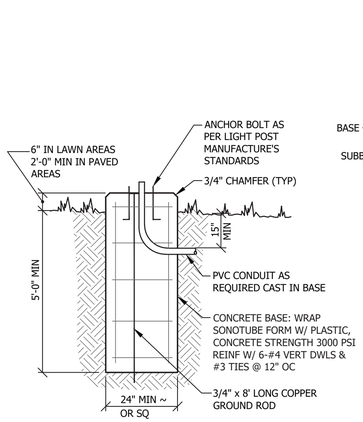

## CATCH BASIN
NTS



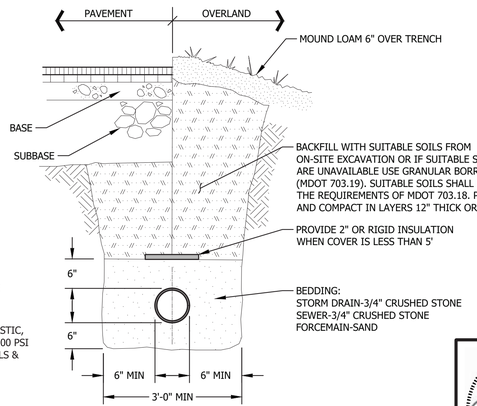

## FIELD INLET
NTS




## CONCRETE MANHOLE
NTS




## LIGHT POLE BASE
NTS




## TYPICAL TRENCH SECTION
NTS

MANHOLE AND CATCH BASIN ANTI-FLOTATION NOTES:
THE CONTRACTOR SHALL PROVIDE SUBMITTALS TO THE ENGINEER FOR APPROVAL. SUBMITTALS SHALL INCLUDE BUT NOT LIMITED TO THE FOLLOWING:

PRODUCT DATA: SUBMIT PRODUCT DATA FOR ALL MATERIALS USED ON THE JOB FOR REVIEW FOR LIMITED PURPOSE OF CHECKING FOR CONFORMANCE WITH INFORMATION GIVEN AND DESIGN CONCEPT EXPRESSED IN CONTRACT DOCUMENTS.

SHOP DRAWINGS: SUBMIT FOR REVIEW SHOP DRAWINGS OF ALL PRECAST UNITS. MANUFACTURER'S INFORMATION SHALL BE SUBMITTED FOR JOINT SEALANTS AND WATERPROOFING. MANUFACTURE SHALL PROVIDE ANTI-FLOTATION DESIGN SHOP DRAWINGS AND CALCULATIONS, INCLUDING ANY EXTENDED BASE SLABS AS NECESSARY, FOR PROPOSED MANHOLES. MANUFACTURER SHALL ASSUME GROUNDWATER LEVELS EQUAL TOP OF GROUND ELEVATIONS AND PROVIDE FOR A 1.2 FACTOR OF SAFETY AGAINST FLOTATION.

| REV. | BY | DATE | STATUS |
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| | DPD | 5/28/2026 | REISSUED TO CITY FOR REVIEW |
| | DPD | 5/1/2026 | ISSUED TO CITY FOR REVIEW |
| | DPD | 4/24/2026 | REISSUED FOR 50% REVIEW |
| | DPD | 2/9/2026 | ISSUED FOR 50% REVIEW |

STATE OF MAINE — DANIEL P. DIFFIN 11841 LICENSED PROFESSIONAL ENGINEER

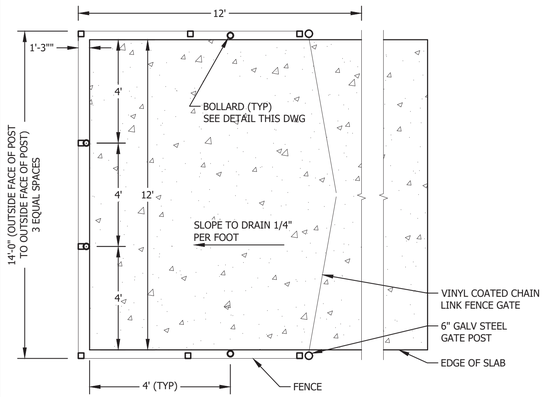
BANGOR HOUSING DEVELOPMENT CORPORATION
YELLEN PINES
205 CORPORATE DRIVE
BANGOR, ME

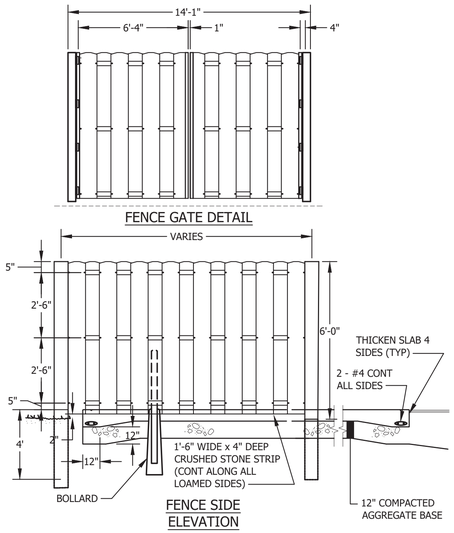
SECTIONS AND DETAILS

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4 Blanchard Road, PO Box 85A, Cumberland, Maine 04021
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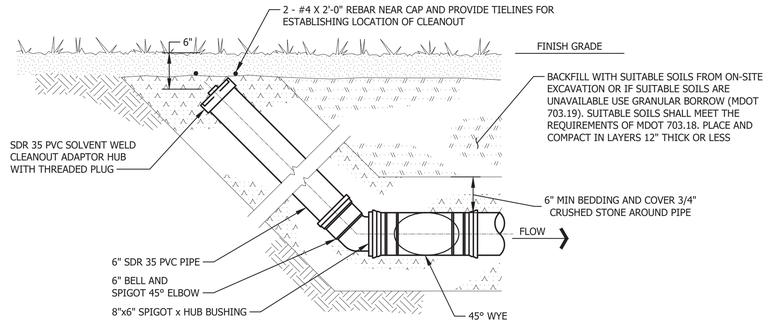
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| DRAWN BY: | ZCF |
| DATE: | 5/2026 |
| CHECKED BY: | DPD |
| LMN: | LMN |
| CTB: | SME-STD.CTB |
| JOB NO. | 251269 |
| DWG FILE | DETAILS |
| | C-301 |

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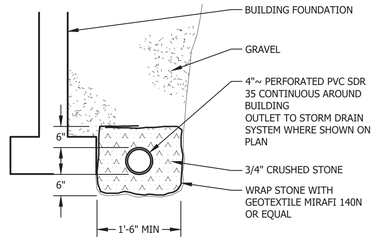


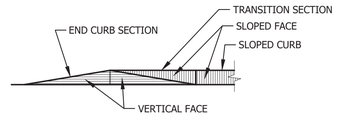

## DUMPSTER ENCLOSURE AND STOCKADE FENCE
NTS



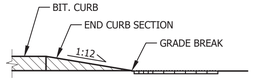

## TYPICAL CLEANOUT DETAIL
NTS



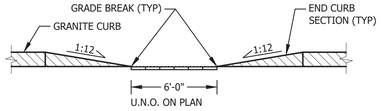

## FOUNDATION DRAIN @ BUILDING SECTION
NTS



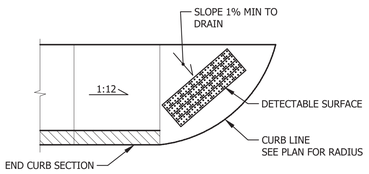

## TRANSITION STONE



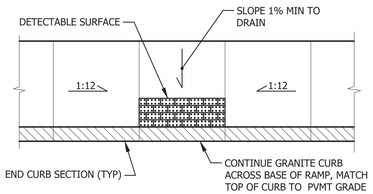

ELEVATION




ELEVATION

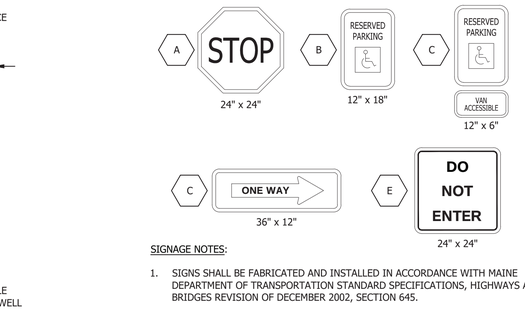



RAMP WITH END LANDING - PLAN

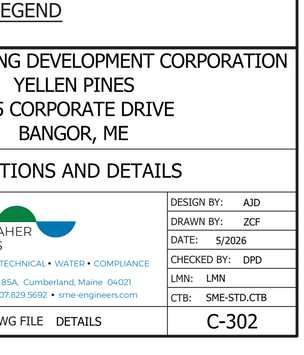



FLARED SIDE RAMP - PLAN

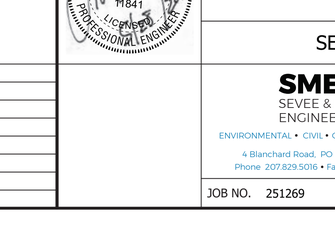
## SIDEWALK RAMP WITH DETECTABLE WARNING
NTS




NO PARKING




PAINTED STOP BAR




CROSSWALK




PARKING SPACE




ADA ACCESSIBLE PARKING

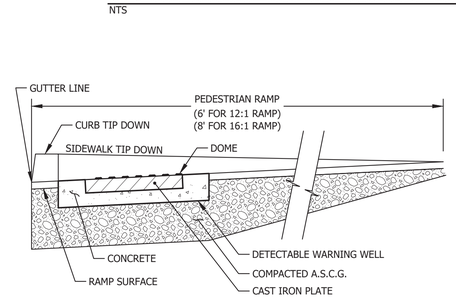
## STRIPING DETAILS
NTS



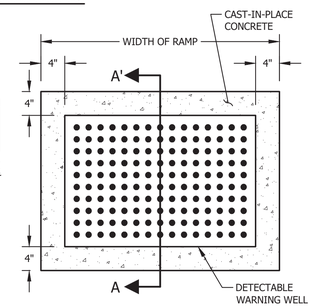

SIGNAGE NOTES:

1. SIGNS SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH MAINE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, HIGHWAYS AND BRIDGES REVISION OF DECEMBER 2002, SECTION 645.
2. ALL PERMANENT SIGNS ON THIS PROJECT ARE CLASSIFIED UNDER SECTION 645.03(b) TYPE 1 REGULATORY WARNING AND ROUTE MARKER ASSEMBLY SIGNS.
3. SIGN MATERIAL SHALL BE AS SPECIFIED IN SECTION 719 OF THE MDOT STANDARD SPECIFICATIONS.

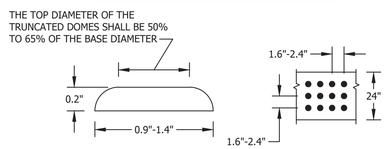
## SIGN LEGEND
NTS



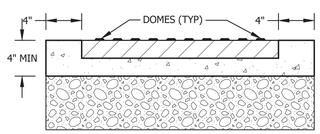

SIDE SECTION VIEW OF DETECTABLE WARNING, WELL, CURB AND GUTTER




PLAN VIEW OF DETECTABLE WARNING AND WELL




DOME AND DETECTABLE WARNING DETAILS




SECTION A-A'

## DETECTABLE WARNING SECTIONS
NTS




1. PREPARE BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP'S). INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECP'S IN A 6"DEEPx6"WIDE TRENCH WITH APPROXIMATELY 12" OF RECP'S EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP'S WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF RECP'S BACK OVER SEED AND COMPACTED SOIL. SECURE RECP'S OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE RECP'S.
3. ROLL THE RECP'S (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. RECP'S WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP'S MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM™, STAPLES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL RECP'S MUST BE STAPLED WITH APPROXIMATELY 2"-5" OVERLAP DEPENDING ON RECP'S TYPE.
5. CONSECUTIVE RECP'S SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE RECP'S WIDTH.

*IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE RECP'S.

## SLOPE INSTALLATION
NTS


NORTH AMERICAN GREEN
EROSION CONTROL *Products Guaranteed* SOLUTIONS
14649 HIGHWAY 41 NORTH
EVANSVILLE, IN 47725
800-772-2040
www.nagreen.com


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STATE OF MAINE DANIEL P. DIFFIN 11841 LICENSED PROFESSIONAL ENGINEER

# BANGOR HOUSING DEVELOPMENT CORPORATION
# YELLEN PINES
# 205 CORPORATE DRIVE
# BANGOR, ME

## SECTIONS AND DETAILS


SME SEVEE & MAHER ENGINEERS
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| DRAWN BY: | ZCF |
| DATE: | 5/2026 |
| CHECKED BY: | DPD |
| LMN: | LMN |
| CTB: | SME-STD.CTB |

JOB NO. 251269 DWG FILE DETAILS

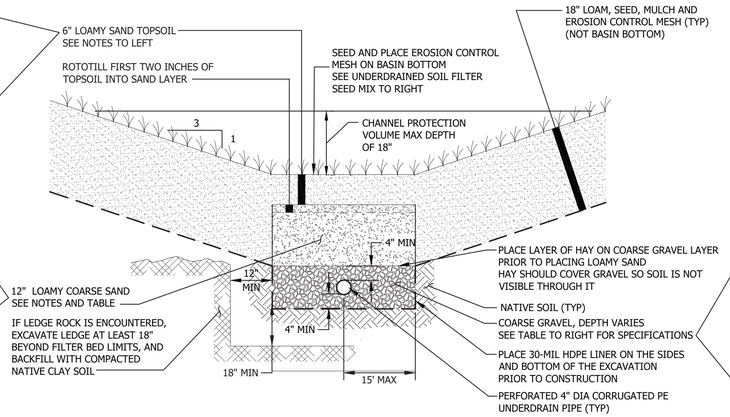
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THE LOAMY SAND TOPSOIL SHALL BE TESTED AT A SOIL TESTING LAB AND:

- MATCH THE USDA SANDY LOAM TOPSOIL CLASSIFICATION
- HAVE 5-8% HUMIFIED ORGANIC MATTER
- HAVE A CLAY CONTENT OF LESS THAN 2%
- BE FREE OF STONES, STUMPS, ROOTS OR OTHER OBJECTS GREATER THAN 2".

IF THE TOPSOIL DOES NOT CONTAIN SUFFICIENT NUTRIENT CONTENT TO SUPPORT GRASS GROWTH, SUPPLEMENT WITH SUPERHUMUS ORGANIC MATTER AND RETEST ORGANIC MATTER AND CLAY CONTENT.




| UNDERDRAINED SOIL FILTER SEED MIX | |
|---|---|
| Name | LBS/ACRE |
| Creeping Red Fescue | 20 |
| Tall Fescue | 20 |
| Birdsfoot trefoil | 8 |
| Total | 48 |

| SOIL FOR 12" LOAMY COARSE SAND LAYER (MEDOT #703.01) | |
|---|---|
| SIEVE SIZE | % BY WEIGHT |
| #10 | 85-100 |
| #20 | 70-100 |
| #60 | 15-40 |
| #200 | 8-15 |
| #200 (CLAY SIZE) | < 2.0 |

| COARSE GRAVEL<br>MEDOT SPECIFICATIONS FOR UNDERDRAINS (MEDOT #703.22) | |
|---|---|
| SIEVE SIZE | % PASSING BY WEIGHT |
| UNDERDRAIN TYPE B | |
| 1" | 95-100 |
| 1/2" | 75-100 |
| #4 | 50-100 |
| #20 | 15-80 |
| #50 | 0-15 |
| #200 | 0-5 |

CONSTRUCTION OVERSIGHT:

CONSTRUCTION SEQUENCE: THE SOIL FILTER MEDIA AND VEGETATION MUST NOT BE INSTALLED UNTIL THE AREA THAT DRAINS TO THE FILTER HAS BEEN PERMANENTLY STABILIZED WITH PAVEMENT OR OTHER STRUCTURE, 90% VEGETATION COVER, OR OTHER PERMANENT STABILIZATION UNLESS THE RUNOFF FROM THE CONTRIBUTING DRAINAGE AREA IS DIVERTED AROUND THE FILTER UNTIL STABILIZATION IS COMPLETE.

COMPACTION OF SOIL FILTER: FILTER SOIL MEDIA AND UNDERDRAIN BEDDING MATERIAL MUST BE COMPACTED TO BETWEEN 90% AND 92% STANDARD PROCTOR.

CONSTRUCTION OVERSIGHT: INSPECTION BY A PROFESSIONAL ENGINEER FAMILIAR WITH CONSTRUCTION REQUIREMENTS OF OF UNDERDRAINED SOIL FILTERS WILL OCCUR AT A MINIMUM:

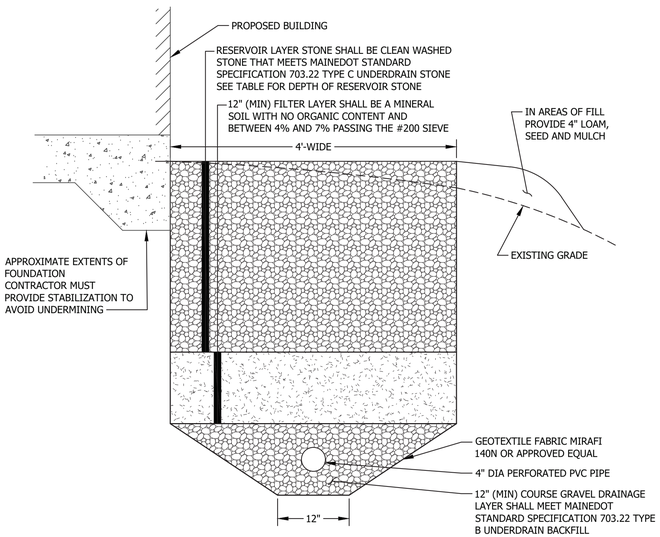
- AFTER THE PRELIMINARY CONSTRUCTION OF THE FILTER GRADES AND ONCE THE UNDERDRAIN PIPES ARE INSTALLED BUT NOT BACKFILLED,
- AFTER THE DRAINAGE LAYER IS CONSTRUCTED AND PRIOR TO THE INSTALLATION OF THE FILTER MEDIA,
- AFTER THE FILTER MEDIA HAS BEEN INSTALLED AND SEEDED.
- AFTER ONE YEAR TO INSPECT HEALTH OF THE VEGETATION AND MAKE CORRECTIONS, AND
- ALL THE MATERIAL USED FOR THE CONSTRUCTION OF THE FILTER BASIN MUST BE CONFIRMED AS SUITABLE BY THE DESIGN ENGINEER. TESTING MUST BE DONE BY A CERTIFIED LABORATORY TO SHOW THAT THEY ARE PASSING DEP SPECIFICATIONS.
- WITHIN 30 DAYS OF COMPLETION OF THE UNDERDRAINED FILTER BASIN, THE APPLICANT MUST SUBMIT A LOG OF INSPECTION REPORTS DETAILING THE ITEMS INSPECTED, PHOTOS TAKEN, AND THE DATES OF EACH INSPECTION TO THE BUREAU OF LAND RESOURCES FOR REVIEW.

TESTING AND SUBMITTALS: THE CONTRACTOR SHALL IDENTIFY THE LOCATION OF THE SOURCE OF EACH COMPONENT OF THE FILTER MEDIA. ALL RESULTS OF FIELD AND LABORATORY TESTING SHALL BE SUBMITTED TO THE PROJECT ENGINEER FOR CONFIRMATION. THE CONTRACTOR SHALL:

- SELECT SAMPLES OF EACH TYPE OF MATERIAL TO BE BLENDED FOR THE MIXED FILTER MEDIA AND SAMPLES OF THE UNDERDRAIN BEDDING MATERIAL. SAMPLES MUST BE A COMPOSITE OF THREE DIFFERENT LOCATIONS (GRABS) FROM THE STOCKPILE OR PIT FACE. SAMPLE SIZE REQUIRED WILL BE DETERMINED BY THE TESTING LABORATORY.
- PERFORM A SIEVE ANALYSIS CONFORMING TO ASTM C136 (STANDARD TEST METHOD FOR SIEVE ANALYSIS OF FINE AND COARSE AGGREGATES 1996A) ON EACH TYPE OF THE SAMPLE MATERIAL.

## TYPICAL UNDERDRAINED SOIL FILTER

NTS




| RESERVOIR STONE DEPTH | |
|---|---|
| ROOF DRIPLINE FILTER | RESERVOIR DEPTH |
| #1 | 2.25 FEET |
| #2 | 2.25 FEET |
| #3 | 2.00 FEET |
| #4 | 2.75 FEET |

## ROOF DRIPLINE FILTER

NTS

| REV. | BY | DATE | STATUS |
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STATE OF MAINE
DANIEL P. DIFFIN
11841
LICENSED PROFESSIONAL ENGINEER

BANGOR HOUSING DEVELOPMENT CORPORATION
YELLEN PINES
205 CORPORATE DRIVE
BANGOR, ME

SECTIONS AND DETAILS

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| CTB: | SME-STD.CTB |
| JOB NO. | 251269 |
| DWG FILE | DETAILS |

C-303

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ANALYSIS POINT 1 (AP-1)

ANALYSIS POINT 2 (AP-2)

SC-1A

SC-1

SC-2

SC-1B

TCC

CTB

1A-R

1B-R

1C-R

Shc L=205' S=0.060

Shc L=288' S=0.024

Shc L=320' S=0.066

Shc L=311' S=0.077

Shc L=159' S=0.097

Shc L=35' S=0.114

Shc L=31' S=0.119

Shc L=5' S=0.080

Shc L=44' S=0.091

Shc L=4' S=0.060

Sht L=100' S=0.080

Shc L=100' S=0.077

Sht L=100' S=0.060

Shc L=23' S=0.020

Shc L=35' S=0.072

Sht L=100' S=0.030

CF L=79' S=0.020

Shc L=28' S=0.089

Shc L=117' S=0.034

Shc L=219' S=0.041

Shc L=34' S=0.088

Shc L=147' S=0.104

Shc L=79' S=0.044

Sht L=100' S=0.033

N 57°35'31" W 719.75'

## STORMWATER MANAGEMENT LEGEND

| | |
|---|---|
| SC-1 | SUBCATCHMENT DESIGNATION |
| | SUBCATCHMENT BOUNDARY |
| A B C | TIME OF CONCENTRATION SEGMENT DESIGNATION<br>TIME OF CONCENTRATION PATH |
| Sht L=50' S=0.005 | TIME OF CONCENTRATION TYPE, LENGTH AND SLOPE |
| Sht | SHEET FLOW |
| Shc | SHALLOW CONCENTRATED FLOW |
| Cf | CHANNEL FLOW |
| | DRAINAGE REACH |
| R4 | REACH DESIGNATION (HYDROCAD) |
| P9 | POND/STRUCTURE DESIGNATION (HYDROCAD) |
| tc 1 | TIME OF CONCENTRATION WITH SUBCATCHMENT DESIGNATION |
| | SOIL TYPE BOUNDARY |
| Sn | SOIL TYPE DESIGNATION |

25 0 50 100 FEET

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STATE OF MAINE
DANIEL P. DIFFIN
11841
LICENSED PROFESSIONAL ENGINEER

# BANGOR HOUSING DEVELOPMENT CORPORATION
# YELLEN PINES
# 205 CORPORATE DRIVE
# BANGOR, ME

## STORMWATER MANAGEMENT PLAN
## PRE-DEVELOPMENT CONDITIONS

SME
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| LMN: | SMP-E |
| CTB: | SME-STD.CTB |
| JOB NO. | 251269 |
| DWG FILE | BASE |
| | D-100 |

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## STORMWATER MANAGEMENT LEGEND

- SC-2 — SUBCATCHMENT DESIGNATION
- SUBCATCHMENT BOUNDARY
- A B C — TIME OF CONCENTRATION SEGMENT DESIGNATION / TIME OF CONCENTRATION PATH
- Sht L=100' S=0.035 — TIME OF CONCENTRATION TYPE, LENGTH AND SLOPE
- Sht — SHEET FLOW
- Shc — SHALLOW CONCENTRATED FLOW
- Cf — CHANNEL FLOW
- DRAINAGE REACH
- R4 — REACH DESIGNATION (HYDROCAD)
- P3 — POND/STRUCTURE DESIGNATION (HYDROCAD)
- tc 2 — TIME OF CONCENTRATION WITH SUBCATCHMENT DESIGNATION
- SOIL TYPE BOUNDARY
- Sn — SOIL TYPE DESIGNATION

25 0 50 100 FEET

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STATE OF MAINE — DANIEL J. DIFFIN 11841 — LICENSED PROFESSIONAL ENGINEER

# BANGOR HOUSING DEVELOPMENT CORPORATION
# YELLEN PINES
# 205 CORPORATE DRIVE
# BANGOR, ME

## STORMWATER MANAGEMENT PLAN POST-DEVELOPMENT CONDITIONS

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| DESIGN BY: | AJD |
| DRAWN BY: | SJM |
| DATE: | 5/2026 |
| CHECKED BY: | DPD |
| LMN: | UTIL |
| CTB: | SME-STD.CTB |

JOB NO. 251269 DWG FILE BASE

D-101

C:\Users\jim\OneDrive - SME\SHARE\TONY\Downs Turpen - Bangor Housing\Plans\BASE.dwg, D-101, 5/28/2026 12:25:28 PM, ajm

## GENERAL PLANTING NOTES

1. CALL DIG-SAFE (1-888-344-7233) PRIOR TO BEGINNING WORK. THE LANDSCAPE CONTRACTOR IS ADVISED OF THE PRESENCE OF UNDERGROUND UTILITIES AND SHALL VERIFY THE EXISTENCE AND LOCATION OF SAME BEFORE COMMENCING AND DIGGING OPERATIONS. THE LANDSCAPE CONTRACTOR SHALL REPLACE OR REPAIR UTILITIES PAVING, WALKS, CURBING, ETC. DAMAGED IN PERFORMANCE OF THIS JOB AT NO ADDITIONAL COST TO OWNER.
2. CONTRACTOR SHALL THOROUGHLY FAMILIARIZE HIMSELF WITH SITE CONDITIONS PRIOR TO CONSTRUCTION BIDDING.
3. DO NOT SCALE FROM DRAWINGS. ANY OMISSIONS IN DIMENSIONING SHALL BE REPORTED IMMEDIATELY TO THE LANDSCAPE ARCHITECT. ANY DISCREPANCIES BETWEEN DRAWINGS, DETAILS, NOTES AND SPECIFICATIONS SHALL BE IMMEDIATELY REPORTED TO THE LANDSCAPE ARCHITECT FOR FURTHER DIRECTION AND RESOLUTION BEFORE ANY ADDITIONAL WORK PROCEEDS.
4. PROVIDE SMOOTH TRANSITION WHERE NEW WORK MEETS EXISTING CONDITIONS.
5. CONTRACTOR SHALL FURNISH AND PLACE 12 INCHES OF LOAM IN SHRUB BEDS, 30 INCHES IN L TREE PITS, AND 6 INCHES UNDER TURF AREAS. THE LANDSCAPE CONTRACTOR SHALL COORDINATE SUBGRADE PREPARATION WITH THE GENERAL CONTRACTOR PRIOR TO PLACING LOAM.
6. PLANT MATERIAL INSTALLED SHALL MEET THE SPECIFICATIONS OF "AMERICAN STANDARDS FOR NURSERY STOCK BY THE AMERICAN ASSOCIATION OF NURSERYMEN".
7. PLANT MATERIAL SHALL BE FREE FROM INSECTS AND DISEASE.
8. PLANTING SHALL BE DONE IN ACCORDANCE WITH ACCEPTABLE HORTICULTURAL PRACTICES. THIS IS TO INCLUDE PROPER PLANTING MIX, PLANT BED AND TREE PIT PREPARATION, PRUNING STAKING OR GUYING WRAPPING, SPRAYING, FERTILIZATION, PLANTING AND ADEQUATE MAINTENANCE UNTIL ACCEPTANCE FROM THE OWNER.
9. GRASS, OTHER VEGETATION AND DEBRIS SHALL BE REMOVED FROM PLANTING AREAS PRIOR TO PLANTING.
10. SHRUB BEDS AND TREE PITS SHALL BE MULCHED WITH 3" CLEAN SHREDDED BLACK MULCH.
11. ANY DEVIATION FROM THE LANDSCAPE PLAN, INCLUDING PLANT LOCATION, SELECTION, SIZE, QUANTITY, OR CONDITION SHALL BE REVIEWED AND APPROVED BY THE OWNER AND LANDSCAPE ARCHITECT (AND MUNICIPAL AUTHORITY, IF APPLICABLE) PRIOR TO INSTALLATION ON SITE.
12. WHERE INDICATED ON PLAN, PLANTING SOIL MIXTURE FOR GROUND COVER AND PERENNIAL BED AREAS SHALL CONSIST OF FOUR PARTS TOPSOIL, TWO PARTS SPHAGNUM PEAT MOSS, AND ONE PART HORTICULTURAL PERLITE BY VOLUME. PEAT MOSS MAY BE SUBSTITUTED WITH WELL-ROTTED OR DEHYDRATED MANURE OR COMPOST. ROTOTILL BEDS TO A DEPTH OF 8 INCHES.
13. DAMAGE TO EXISTING SITE IMPROVEMENTS DURING INSTALLATION OF LANDSCAPE MATERIAL SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR.
14. BOULDERS SHOWN WITHIN PLANT BEDS AND WITHIN EDGING REPRESENT THE QUANTITY OF BOULDERS EXPECTED. BOULDERS SHALL BE FIELD LOCATED AND PLACED TO APPEAR NATURALLY WITHIN PLANTED AREAS.
15. PLANT QUANTITIES ARE PROVIDED FOR REFERENCE ONLY. CONTRACTOR RESPONSIBLE FOR TAKEOFFS OF PLANT QUANTITIES.

SEED MIX SLOPES

NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DRY SITES
APPLICATION RATE: 35 lb/acre | 1250 sq ft/lb

SPECIES: Red Fescue (Festuca rubra), Canada Wild Rye (Elymus canadensis), Annual Ryegrass (Lolium multiflorum), Perennial Ryegrass (Lolium perenne), Little Bluestem (Schizachyrium scoparium), Indian Grass (Sorghastrum nutans), Switch Grass (Panicum virgatum), Upland Bentgrass (Agrostis perennans).

LAWN

PARK MIX
APPLICATION RATE: 1LB PER 200 SQ. FT

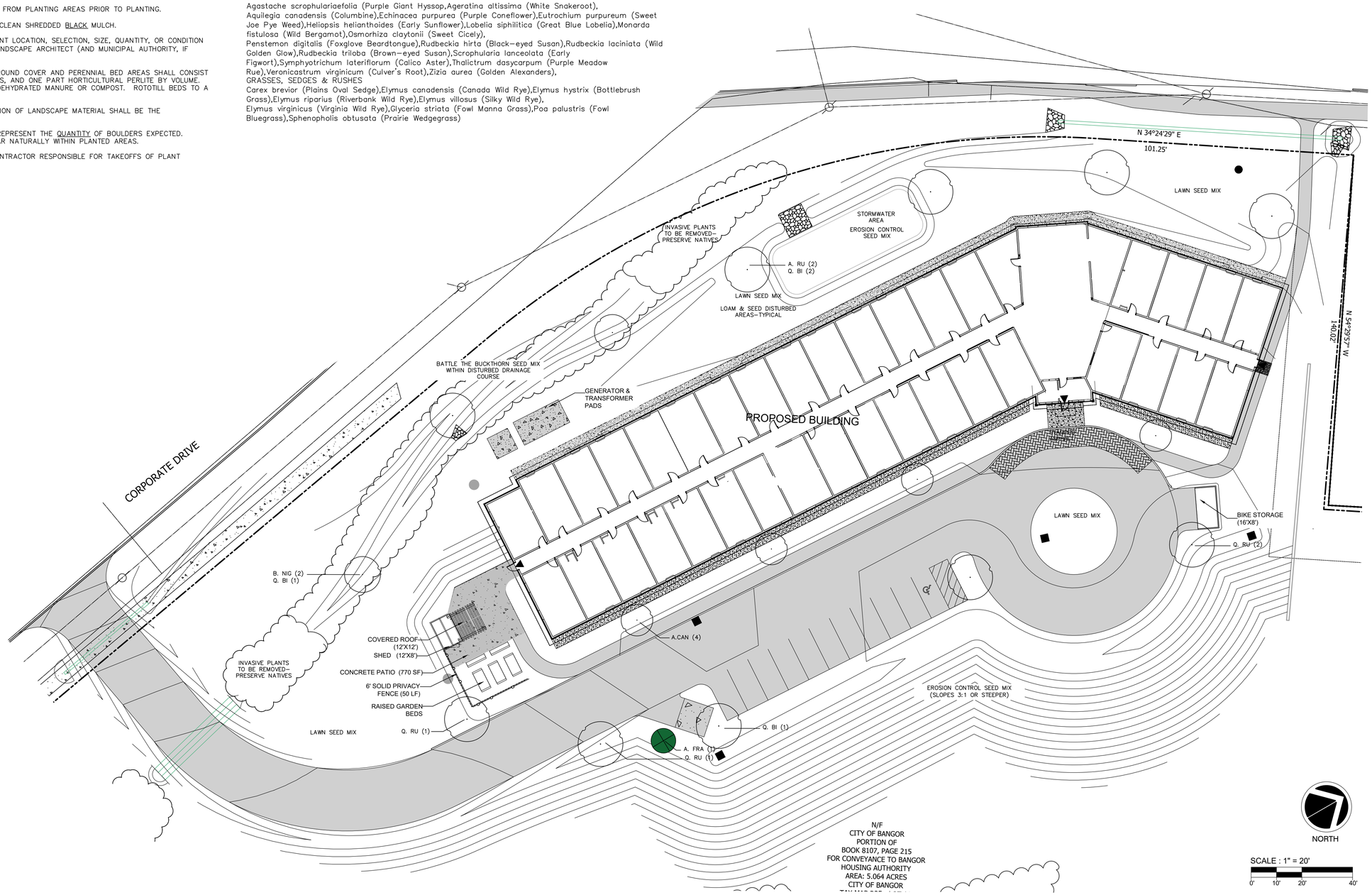
SPECIES: 35% VNS Kentucky Bluegrass, 20% VNS Creeping Red Fescue, 15% Improved Turf Type Tri-Rye, 15% VNS Chewings Fescue, 15% VNS Annual Ryegrass

EXISTING DRAINAGE COURSE
BATTLE THE BUCKTHORN - UNDERSTORY REVEGETATION SEED MIX
PRAIRIE MOON®NURSERY
APPLICATION RATE:14.35 LBS PER ACRE | 115 SEEDS PER SQ/FT

SPECIES
WILDFLOWERS
Agastache scrophulariaefolia (Purple Giant Hyssop,Ageratina altissima (White Snakeroot), Aquilegia canadensis (Columbine),Echinacea purpurea (Purple Coneflower),Eutrochium purpureum (Sweet Joe Pye Weed),Heliopsis helianthoides (Early Sunflower),Lobelia siphilitica (Great Blue Lobelia),Monarda fistulosa (Wild Bergamot),Osmorhiza claytonii (Sweet Cicely), Penstemon digitalis (Foxglove Beardtongue),Rudbeckia hirta (Black-eyed Susan),Rudbeckia laciniata (Wild Golden Glow),Rudbeckia triloba (Brown-eyed Susan),Scrophularia lanceolata (Early Figwort),Symphyotrichum lateriflorum (Calico Aster),Thalictrum dasycarpum (Purple Meadow Rue),Veronicastrum virginicum (Culver's Root),Zizia aurea (Golden Alexanders),
GRASSES, SEDGES & RUSHES
Carex brevior (Plains Oval Sedge),Elymus canadensis (Canada Wild Rye),Elymus hystrix (Bottlebrush Grass),Elymus riparius (Riverbank Wild Rye),Elymus villosus (Silky Wild Rye), Elymus virginicus (Virginia Wild Rye),Glyceria striata (Fowl Manna Grass),Poa palustris (Fowl Bluegrass),Sphenopholis obtusata (Prairie Wedgegrass)

## PLANT SCHEDULE

| KEY | QTY | BOTANICAL NAME | COMMON NAME | SIZE |
|---|---|---|---|---|
| TREES | | | | |
| A. RU | 2 | ACER RUBRUM | RED MAPLE | 2.75" CAL |
| A. CAN | 4 | AMELANCHIER 'ROBIN HILL' | COLUMNAR SHADBLOW | 1.75" CAL SINGLE STEM |
| A. FRA | 1 | ABIES FRASERI | FRASER FIR | 7'-8' HT |
| B. NIG | 2 | BETULA NIGRA | NATIVE RIVER BIRCH | 7'-8' HT |
| Q. BI | 4 | QUERCUS BICOLOR | SWAMP WHITE OAK | 3" CAL |
| Q. RU | 4 | QUERCUS RUBRUM | RED OAK | 2.75" CAL |




LICENSED LANDSCAPE ARCHITECT
SARAH E. MISNER
No. 3657
STATE OF MAINE


Sashie Misner Landscape Architecture LLC
www.landscapeplay.com | 207-406-0734
GAWRON TURGEON DILLON ARCHITECTS, P.C.


# BANGOR HOUSING DEVELOPMENT CORPORATION: YELLEN PINES
## 236 MAINE AVENUE
## BANGOR, MAINE

### REVISIONS

| # | DATE | DESCRIPTION |
|---|---|---|
| 1 | 05-29-26 | Per staff comments |

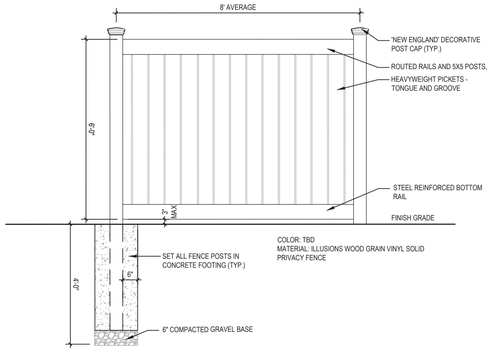
| | |
|---|---|
| DATE: | 04-30-26 |
| PROJECT # | 2517 |
| DRAWN BY: | |
| CHECKED BY: | |
| DRAWING SCALE | AS NOTED |

NOT FOR CONSTRUCTION

PLANTING & SITE LAYOUT PLAN

L101


THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SASHIE MISNER LANDSCAPE ARCHITECTS. ALTERATIONS AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO SASHIE MISNER LANDSCAPE ARCHITECTURE.




FENCE SECTION/ELEVATION

1 L200 PRIVACY FENCE

NOT TO SCALE

LICENSED LANDSCAPE ARCHITECT
SARAH E. MISNER
No. 3657
STATE OF MAINE

Sashie Misner Landscape Architecture LLC
www.landscapeplay.com | 207-406-0734
GAWRON TURGEON DILLON ARCHITECTS P.C.

BANGOR HOUSING DEVELOPMENT CORPORATION: YELLEN PINES
236 MAINE AVENUE
BANGOR, MAINE

REVISIONS

| # | DATE | DESCRIPTION |
|---|---|---|
| | | |

| | |
|---|---|
| DATE: | 04-30-26 |
| PROJECT # | 2517 |
| DRAWN BY: | |
| CHECKED BY: | |
| DRAWING SCALE | AS NOTED |

NOT FOR CONSTRUCTION

SITE DETAIL

L200

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM SASHIE MISNER LANDSCAPE ARCHITECTS. ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO SASHIE MISNER LANDSCAPE ARCHITECTURE.

## NOTES

(1) Documents referenced on this plan are recorded in the Penobscot County Registry of Deeds unless otherwise noted.

(2) Coordinate values and North orientation reference the Maine Coordinate System of 1983, East Zone with units of U.S. Survey Feet, NAD_83(2011)(EPOCH:2010.0000). Coordinate values shown are provided as an aid in location. The physical location of a coordinate labeled point supercedes said coordinate values.

(3) Formerly known as Illinois Avenue and Texas Avenue, 80 feet wide. Refer to City of Bangor Road Book 5, Page 101 & 103. Refer to a layout in Book 2179, Page 200 (65 feet wide). Refer also to Map File 2021-100.

(4) Formerly known as Illinois Avenue, Refer to layout in Book 2179, Page 200 and also refer to City of Bangor Road Book 5, Page 101.

(5) The deed from the City of Bangor to Bangor Water District, dated April 30, 1971, and recorded at the Penobscot County Registry of Deeds in Book 2211, Page 769, paragraph 4, describes "*the right of access to all existing water distribution and transmission systems at Bangor International Airport, subject to the condition that no construction, maintenance or repairs shall be done by the Bangor Water District to said systems beyond a distance of 15 feet measured from the center line of any water line conveyed herein. There is further granted to the District the right to access to any and all surface structures in said water distribution and transmission systems, such as hydrants, post indicators, valves, manholes and other water distribution and transmission fixtures, facilities and equipment located at Bangor International Airport.*" Book 2211, Page 769 is a quit claim deed. Records found at the Penobscot County Registry of Deeds indicate that the proposed lot for conveyance to Bangor Housing Authority was owned by the United States of America at the time the deed recorded at said Registry of Deeds in Book 2211, Page 769 was executed. A confirmatory easement is recommended to confirm the easements (as noted) to Bangor Water District.

(6) The Bangor Water GIS sketch, dated December 1, 2025, shows an inactive line in this area. Portions of this section of water line have been removed.

(7) Paper streets exist on the proposed property for conveyance (not shown on this survey) and are shown on the plan referenced below as plan reference #5.

(8) Any airport easements that may exist on the subject property were not investigated.

(9) Refer to a deed from City of Bangor to Bangor Water District recorded at the Penobscot County Registry of Deeds in Book 1582, Page 265, dated May 27, 1957.

(10) The location shown on this plan for above and underground utilities, including water, electricity, telephone, sewer, and storm drains are approximate and should be verified before any excavation. Federal and state laws require anyone performing any sort of excavation, including digging, boring, backfilling or grading to notify "dig safe", (1-888-344-7233), at least 72 hours before they begin work. The underground utilities shown have been located using visible surface structures, paint markings, and data downloaded from the City of Bangor GIS. Plisga & Day Land Surveyors (P&D) makes no guarantee that the underground utilities shown comprise all such utilities in the area, either in service or abandoned. P&D further does not warrant that the underground utilities are in the exact location indicated, although P&D does certify that they are located as accurately as possible from information available. P&D has not physically located the underground utilities.

(11) Visible features shown hereon were located on the ground by Plisga & Day Land Surveyors, January 2, 2026 under snow and ice conditions using a network corrected RTK GPS with a 2drms horizontal precision of 0.1 feet.

(12) Spot elevations and contours shown reference the North American Vertical Datum of 1988 [NAVD88 (computed using geoid18)] based on a MDOT network gps position on point number 1 observed on November 11, 2023.

(13) The LIDAR contour lines shown are based on data downloaded from noaa data access viewer at: https://coast.noaa.gov/dataviewer/#/. the elevations shown reference navd88, were collected in 2021 and in 2022 under no snow conditions, and have an estimated vertical accuracy of 7.54 cm at 95% confidence level in open terrain.

## PLAN REFERENCES


(1) "*BOUNDARY SURVEY OF MPBC FACILITIES PREPARED FOR MAINE PUBLIC BROADCASTING CORP.*", by Shyka, Sheppard & Garster, dated May 10, 2001 and recorded at the Penobscot County Registry of Deeds, Map File 2001-37 and 2001-38.

(2) "*STATE OF MAINE DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAYS RIGHT OF WAY MAP STATE AID HIGHWAY NO. 20*", D.O.T. FILE NO. 10-251, dated November 1978, and recorded at the Penobscot County Registry of Deeds as Plan Book D92, Page 83.

(3) "*Water Supply System, Dow Air Force Base*", dated January 5, 1960, on file at the City Engineer's Office.
NOTE: PLAN WAS NOT FOUND

(4) "*REVISION BANGOR INTERNATIONAL AIRPORT PROPERTY MAP*", dated December 10,1968, Plan no. G-791, on file at the City Engineer's Office.

(5) "*MAP OF WESTLAND PARK BANGOR, MAINE OWNED AND DEVELOPED BY THE GRAHAM IVERS COMPANY FIRST NATIONAL BANK BLDG. BANGOR, MAINE, BY DAVID J. NASON C.E. OCTOBER 31, 1921 REVISED JAN. 1926*", recorded at the Penobscot County Registry of Deeds as Plan Book 13, Page 3.


## LEGEND

- ¾ INCH IRON ROD SET (CAPPED PLS 2404)
- IRON ROD, FOUND
- IRON PIPE, FOUND
- UTILITY POLE
- ANCHOR
- HYDRANT
- SEWER MANHOLE
- MANHOLE
- CATCH BASIN
- WATER GATE / VALVE
- SIGN
- LAMP
- BOUNDARY LINE
- EASEMENT LINE
- ADJOINER, INTERIOR LOT LINE
- EDGE OF GRAVEL OR PAVEMENT
- OVERHEAD WIRES
- WATER LINE (BANGOR WATER DISTRICT, DIGITIZED)
- WATER LINE (BANGOR WATER DISTRICT, ABANDONED, DIGITIZED)
- SEWER LINE (BANGOR GIS)
- STORM DRAIN LINE (BANGOR GIS)
- TREE LINE / VEGETATION LINE
- GROUND CONTOUR LINE (1' INTERVAL)
- LIDAR CONTOUR LINE (1' INTERVAL)

Now or formerly of
***City of Bangor***
***Bangor International Airport***
Book 2148, Page 67
TRACT ONE

from the
United States of America
dated December 18, 1968
Refer also to
Book 2156, Page 449
TRACT ONE

GRID NORTH
MAINE COORDINATE SYSTEM OF 1983
EAST ZONE

Maine Avenue
Refer to note #4

Rim Elev.: 161.34'

Rim Elev.: 157.96'

Curb

Digitized location of a pump house (demolished)

Inv. 18 inch CMP, Elev.: 156.84'

Inv. 12 inch CPP, Elev.: 156.92'

Inv. 30 inch CPP, Elev.: 154.15'

Inv. 12 inch CPP, Elev.: 157.58'

N 34°24'29" E
101.25'

16" Abandoned

10" Abandoned

8" Abandoned

Easement to Bangor Water District
Book 9770, Page 111

Refer to a Notice of Layout and Taking
Book 2946, Page 200
Refer also to Plan D92-83

Radius: 340.0 feet
arc length: 259.17 feet

Inv. 12 inch CMP, Elev.: 156.61'

Now or formerly of
***Bangor Water District***
Book 2211, Page 769
Paragraph #2
Confirmatory deed recommended
See note #5
*City of Bangor*
*Tax Map R25 - Lot 1C*

Inv. 12 inch CMP, Elev.: 156.51'

concrete walkway

140.02'
S 54°29'57" E

N 34°21'11" E
79.07'

N 79°21'11" E
72.65'

S 57°35'31" E
192.15'

Refer to Book 14189, Page 273 for an amendment to the easement described in Book 2211, Page 769

8" Abandoned

Curb

12" Abandoned

N 09°16'01" W
470.26'

drainage

See note #5, rights may exist 15' from a water line
Confirmatory deed recommended

10" Abandoned

See note #5

Now or formerly of
***City of Bangor***
portion of
Book 8107, Page 215
from the United States of America
dated March 7, 2002
for conveyance to
Bangor Housing Development Corporation
**AREA:** 5.013 ACRES
*City of Bangor*
*Tax Map R25 - Lot 1A*

Corporate Drive
see note #3

**TBM #1**: 6 inch spike set in utility pole #298251 elev.(NAVD88): 162.76'

Inv. 8 inch cast iron, Elev.: 161.96'

Culvert (abandoned water line, now used as a storm drain) marked by Bangor Water District December 4, 2025 (Confirmatory deed recommended, See note #5)

S 60°43'59" W
33.50'

789.84'
S 30°03'55" W

Now or formerly of
***University of Maine System***
Book 8224, Page 118
recorded June 6, 2002
from the City of Bangor
*City of Bangor*
*Tax Map R25 - Lot 25*

Inv. 24 inch concrete, Elev.: 165.33'

Rim Elev.: 174.53'

Texas Avenue (O Street)
shown on map file D655-76
no layout was found for this portion of road

Culvert

Ground contours

LIDAR contours

Inv. 36 inch concrete, Elev.: 165.64'

Inv. 15 inch CPP, Elev.: 168.15'

Refer to a leasehold / mortgage modification agreement between
***Penobscot Community Health Center***
**&**
***the City of Bangor***
Book 17445, Page 98
Parcel One
*City of Bangor*
*Tax Map R25 - Lot 17*

Now or formerly of
***City of Bangor***
remaining portion of
Book 8107, Page 215
*City of Bangor*
*Tax Map R25 - Lot 1A*
*Refer to a deed from the*
City of Bangor
to the
United States of America
Book 1205, Page 345


PLISGA & DAY
LAND SURVEYORS
72 MAIN STREET
BANGOR, MAINE
DATE: JANUARY 7, 2026
PROJ. NO. 25299
Email: info@WeMapIt.com
Phone: (207) 947-0019
Toll-Free: 1-800-734-0019
DRAWING FILE: 25299.DWG
www.WeMapIt.com


SCALE: 1"= 30'

30' 0' 30' 60' 90' 120'

**grid distances listed**
ground to grid scale factor: 0.999902509

# TOPOGRAPHIC SURVEY

SHOWING A PORTION OF PROPERTY OF THE
CITY OF BANGOR
**MAINE AVENUE & CORPORATE DRIVE**
**BANGOR, MAINE**
PENOBSCOT COUNTY REGISTRY OF DEEDS
PORTION OF BOOK 8107, PAGE 215
FOR
**BANGOR HOUSING DEVELOPMENT CORPORATION**

Bangor Housing Development Corp.

**City of Bangor** **Check Number: 100001503** **Date: 4/30/2026** **Amount: $2,613.00**

| *Invoice Number* | *Date* | *PO Number* | *Item Description* | *Item Amount* | *Discount* | *Paid* |
|---|---|---|---|---|---|---|
| 04/30/2026 | 04/30/2026 | | Application Fee-Yellen Pines 205 Corporate Dr | $2,613.00 | | $2,613.00 |

SME
SEVEE & MAHER
ENGINEERS

4 Blanchard Road, P.O. Box 85A
Cumberland, ME 04021
Tel: 207.829.5016 ○ Fax: 207.829.5692
info@smemaine.com
smemaine.com

May 1, 2026

Anja Collete, Planning Officer
City of Bangor
262 Harlow Street
Bangor, ME 04401

Subject: Land Development and Conditional Use Permit Application
Bangor Housing Development Corporation
Yellen Pines
205 Corporate Drive
Bangor, Maine

Dear Anja:

On behalf of Bangor Housing Development Corporation (BHDC), Sevee & Maher Engineers, Inc. (SME) is pleased to submit the attached Land Development Permit and Conditional Use Application for a permanent supportive housing project at 205 Corporate Drive in Bangor, Maine. Please consider this project for placement on the Planning Board meeting agenda for June 2, 2026.

The Bangor Housing property is regulated under an existing Maine Department of Environmental Protection (MEDEP) Site Location of Development Act (SLODA) permit, which is required to be amended for changes to the property including redevelopment. Since the City of Bangor has Delegated Authority from MEDEP to review SLODA projects, the SLODA Amendment has been included with the Land Development Application.

In accordance with submission requirements, we are including five (5) hard copies of the Application and supporting documents for Staff and Planning Board review. An electronic copy of the Application materials will be forwarded to your office via email later this afternoon.

We appreciate your consideration of our Application and look forward to reviewing the project in more detail with the Planning Board on June 2, 2026. Please feel free to contact me at 207.829.5016 or dpd@smemaine.com if you have any questions or need additional information.

Very truly yours,

SEVEE & MAHER ENGINEERS, INC.

Daniel P. Diffin, P.E., LEED AP BD+C
Vice President/Senior Civil Engineer

Attachments

**LAND DEVELOPMENT AND CONDITIONAL USE PERMIT APPLICATION**
**BANGOR HOUSING DEVELOPMENT CORPORATION**
**YELLEN PINES**
**205 CORPORATE DRIVE**
**BANGOR, MAINE**

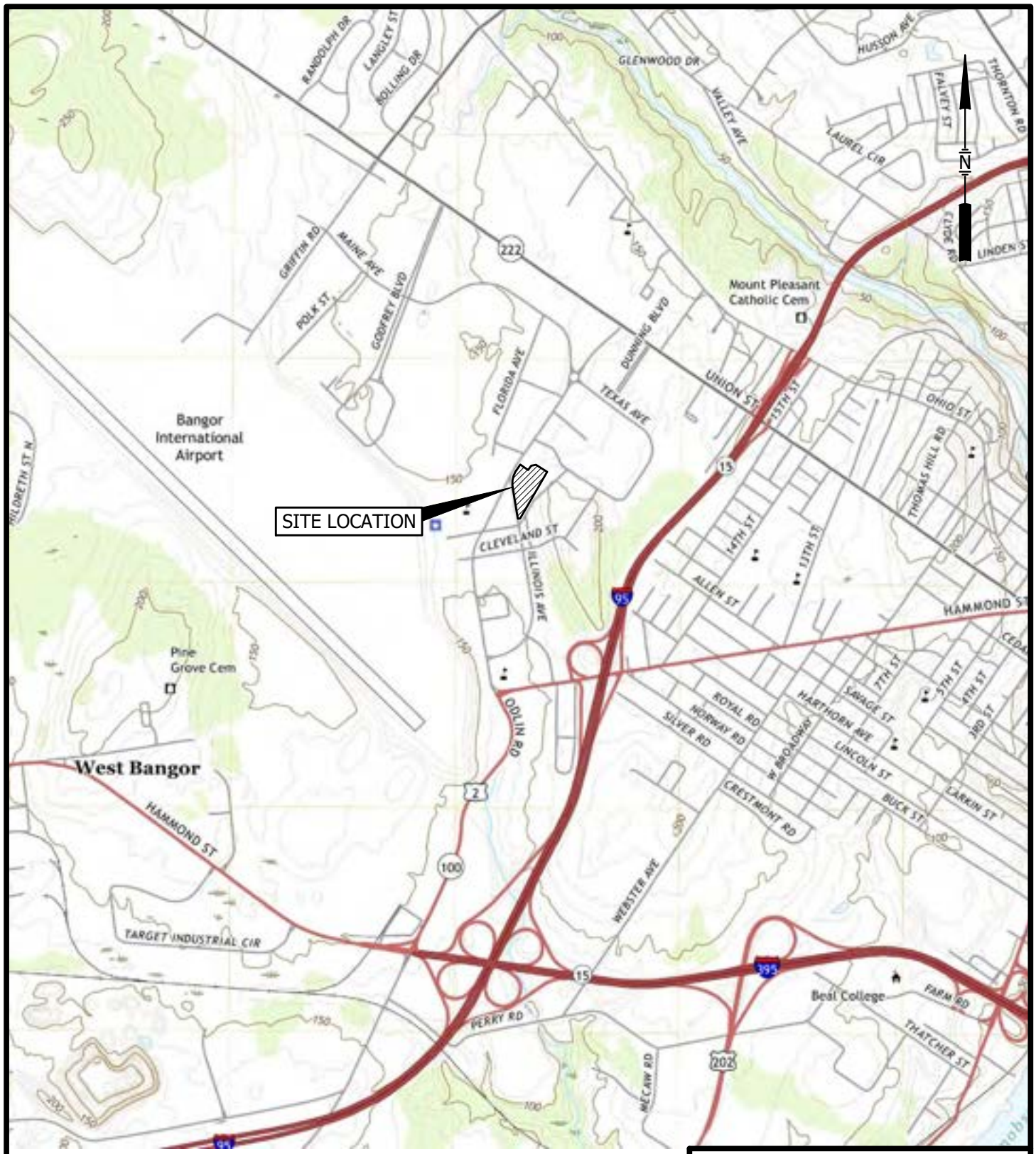
## PROJECT DESCRIPTION

Bangor Housing Development Corporation (BHDC) proposes to develop a new 30-unit permanent supportive housing building called Yellen Pines on property currently at 205 Corporate Drive. The location of the project is shown in Figure 1, Site Location Map. The project is subject to a Land Development Permit from the City of Bangor Planning Board. This application provides detailed project information and outlines compliance with the applicable sections of the City Ordinance.

The project is located on the 5.05-acre parcel identified as Lot 001-A on City Tax Map R25 within the Government and Institutional Services District (G&ISD) and Technology and Service District (T&S) on the City's Official Zoning Map. A copy of the deed is provided in Appendix A, as well as the Option to Purchase the property between the City and BHDC. The property is bounded by Maine Avenue to the west, Texas Avenue to the east, Corporate Drive to the south, and a developed University of Maine Office Building property to the north. The property is currently developed as a vegetated slope maintained as lawn with a row of trees, a concrete walkway and a paved entrance off of Maine Avenue. The property is within the Urban Impaired Stream of Birch Stream and is primarily developed land.

The permanent supportive housing project will include a single story 19,100-square-foot building that will include thirty (30) one-bed units with support offices and lounge area. The construction will include area for eleven (11) parking spaces with one (1) ADA accessible parking space. The project will have a new 24-foot paved access drive from Corporate Drive sized for access by City fire and emergency vehicles. Additional site improvements include a patio along the southern side of the building, public water and sewer, underground utilities, stormwater management, site lighting, and landscaping.

The housing project will result in approximately 84,740 square feet of developed area, all of which will be considered redevelopment given the nature of the existing site. This redeveloped area will include 41,156 square feet of new impervious area. The existing concrete walkway and paved turnaround on-site will be demolished, resulting in a net increase of approximately 37,339 square feet of impervious area post-redevelopment.




BASE MAP ADAPTED FROM 7.5 MIN USGS TOPO QUADS
BANGOR, ME - 2021

1000 0 2000 FEET

DWG: SITELOC LMN: NONE CTB: SME-STD REV: 5/1/2026

FIGURE 1
SITE LOCATION MAP
BANGOR HOUSING DEVELOPMENT CORPORATION
YELLEN PINES
205 CORPORATE DRIVE
BANGOR, ME

SME
SEVEE & MAHER ENGINEERS

C:\Users\zander.foster\OneDrive - SME_SP\Civil-ME\Gawron Turgeon\Bangor Housing\Acad\Figures\SITELOC.dwg, A_FIG 1, 5/1/2026 9:08:56 AM, Zander.Foster

The Bangor Housing property is regulated under an existing Maine Department of Environmental Protection (MEDEP) Site Location of Development Act (SLODA) permit, which is required to be amended for changes to the property including redevelopment. Since the City of Bangor has Delegated Authority from the MEDEP to review SLODA projects, standards are addressed in Appendix B.

As a result of the SLODA Amendment, the project is subject to the redevelopment standards of MEDEP Chapter 500 for treating stormwater runoff. Stormwater management for this project will be accomplished using a closed stormwater management system including catch basins, storm drains, roof dripline filters, and a grassed underdrained soil filter. The redevelopment and treatment calculations are included in Appendix F – Stormwater Management.

The following sections outline additional project details and conformance with applicable Chapters of the Bangor Ordinance.

## CHAPTER 165, PART 1, LEGAL PROVISIONS, ORGANIZATIONS AND ADMINISTRATION

### Article I: General Provisions

§ 165-9 Conditional uses

The project requires conditional use approval from the Planning Board for permanent supportive housing in the G&ISD zone.

(1) Development Standards and Use Conditions: The proposed development will consist of a permanent supportive housing building and associated site improvements. Permanent supportive housing buildings are a conditional use in the G&ISD. Proposed construction complies with standards and use conditions of the G&ISD;

(2) Traffic congestion or Hazardous Conditions: There will be limited vehicular use for this project for staff, resident, and visitor traffic; therefore, the proposed use will not create unreasonable traffic congestion or hazardous conditions on contiguous or adjacent streets;

(3) Proper Operation: The property will be owned and operated by Bangor Housing Development Corporation. Utilities, fire protection, drainage, parking and loading, and other necessary site improvements are designed to provide adequate service for the proposed development. Long-term maintenance and operation will be managed by Bangor Housing Development Corporation; and

(4) Appropriate for Location: An Architectural Narrative and Plan is provided in Appendix D, which demonstrates conformance with this Standard.

## CHAPTER 165, PART 2, GENERAL REQUIREMENTS

### Article VI: Quarries, Excavations and Earthmoving Activities

§165-33 Filling, Grading, and Earthmoving Activities

This project will disturb more than 10,000 square feet of land and qualifies as a Major Site Plan as defined by Section 165-11 of the Municipal Land Development Ordinance. The project will be reviewed by City staff and the Planning Board as part of the Land Development Permit application process.

### Article VIA: Erosion and Sediment Control

§165-33.1 Best Management Practices

All grading, filling, and associated site construction will be conducted in accordance with the Maine Erosion and Sediment Control Best Management Practices (BMPs), latest edition dated October 2016. This will be the minimum standard for erosion and sedimentation control for the project, as adopted by the

City of Bangor from the MEDEP standards. Erosion and sedimentation control notes and details are included on Drawing C-104, and Drawing C-300 in Appendix H.

**Article VII: Height Regulations**

§165-58 Airport Glide Zones

The project is within 10,000 feet of the Bangor International Airport. The proposed permanent supportive housing building will be 29.5 feet tall and well below the 80-foot maximum height requirement for the G&ISD.

**Article X: Off Street Parking**

§165-72 Required Number of Spaces

The proposed project will service up to 30 clients at one time with four staff on premises during the peak shift. The ordinance requires one space for every six clients, plus one space for each staff person to be on the premises during the peak shift for a group home, halfway house, community living facility, or emergency shelter uses. Therefore, the project will require five parking spaces for the number of clients and four parking spaces for staff, totaling nine spaces. The project is designed to provide 11 total spaces with one of those being an ADA accessible space and meets the parking requirements.

§165-73 Parking Area Location and Screening

Parking will be located more than 20 feet from the closest street line and more than 5 feet from any other lot line and conform to the minimum distances from the street line, side lot line, and rear lot line outlined for Government & Institutional Services District. The proposed parking lot will be primarily screened from views by the proposed building and by the plantings designed by a registered landscape architect. Buffer yards and screening are shown on the Site Planting Plan included in the project plan set.

§165-74 Design, Construction and Maintenance

The proposed parking area was designed to meet the requirements for off-street parking and provide well-defined circulation routes for vehicles and pedestrians. Traffic control signs and pedestrian crossings are included to minimize points of conflict between traffic and pedestrians. The Site Layout and Utility Plan, Drawing C 103, outlines design and construction for the proposed parking lot

**Article XI: Off Street Loading**

§ 165-76 Required loading spaces

The supportive housing building requires one (1) space for off-street loading. This will be accomplished using the proposed circular entry plaza of the access drive which is reserved for drop off and pick up, emergency vehicle access, and off-street loading. Based on building use, deliveries are limited to box trucks, vans, and smaller vehicles.

§ 165-77 Size of loading spaces

The existing entry plaza is adequately sized to provide 10 feet by 50 feet loading space to accommodate delivery vehicles anticipated for this facility. Minimum clearance in the loading area will be 10 feet. The loading spaces meet the requirements for off-street loading for buildings with a gross floor area of 10,000 square feet or more.

**Article XII: Utility Service**

§ 165-79 Utilities required

The proposed building will be served by major utilities, including domestic and fire protection water services, sewer, and electric. Proposed catch basins have been located to meet the grading requirements for proposed site improvements. Site lighting is designed to comply with State and local codes to provide safe access to and from the building and parking areas. Proposed utilities are outlined on the Site Layout and Utility Plan, Drawing C-103.

§ 165-80 Water and sewage

The building will be served by public water through connection to the Bangor Water District's 16-inch water main in Corporate Drive. The proposed water services will include a 4-inch domestic water service and a 6-inch-diameter sprinkler service. The building sewer will connect with the 8-inch sewer main in Maine Avenue as shown on the Site Layout and Utility Plan, Drawing C-103.

§ 165-81 Lighting

Exterior site lighting was designed to address safety, efficiency, the environment, and aesthetics. The lighting will include wall-mounted lights along the building, and new light poles and fixtures within the parking area to provide visibility and safe passage during nighttime use.

Exterior lighting will include shielded, full cut-off fixtures to ensure no undesirable illumination or glare will be produced on adjacent streets or abutting properties. The Photometrics Plan included in Appendix E

demonstrates light levels of half-foot-candle or less at the property line in accordance with lighting requirements. Cut sheets for the poles and fixtures planned for the project are included in Appendix E.

§ 165-82 Fire hydrants

There are existing fire hydrants adjacent to the proposed development on the north side of Corporate Drive, approximately 325 feet from proposed building and to the east side of Maine Avenue approximately 94 feet from the proposed building. These are shown within the plan set provided with this application.

The proposed building will be sprinkled and served by a new 6-inch service connection from the 16-inch Bangor Water District water main in Corporate Drive. No new hydrants are planned for this project.

§ 165-83 Electricity

The building will be powered through the connection to the existing overhead service lines along Corporate Drive. The primary power connection is proposed at the utility pole near the intersection of Corporate Drive and Maine Avenue and will connect to the proposed transformer near the western corner of the building.

§ 165-84 Storm drainage and stormwater offset

Site improvements have been designed to ensure the stormwater flows from the development does not result in impacts to abutting properties or off-site drainage infrastructure. Stormwater management is detailed in the Stormwater Management Report included in Appendix F.

§ 165-85 Sanitary sewage discharge information

The proposed building will include 30, one-bedroom units with approximately four employees at a given time. Based on design flows from the Maine Subsurface Wastewater Disposal Rules, the anticipated sewer flows for the project are estimated at 120 gallons per day (gpd) per each one bedroom unit and 12 gpd per employee. Therefore, the estimated sanitary flow from the project is 3,648 gpd. To convey this flow, a 6-inch sewer service from the building will connect into a proposed sewer manhole northwest of the building and then connect into an existing manhole and 8-inch sewer main that flows along Maine Avenue.

§ 165-86 Compliance with sewer regulations

The project and sewer connection will be completed in conformance with the requirements of the Bangor City Code Chapter 252, Sewers and Drains. Improvements are outlined on the Site Utility Plan, Drawing C-103.

**CHAPTER 165, PART 4, LAND DEVELOPMENT PERMIT**

**Article XVI: Land Development Permit**

§165-114 Land Development Approval Standards

A. Subdivision

This project is a Site Development project. Criteria established under 30-A M.R.S.A. § 4404, and the requirements of Article XVIII of the Land Development Ordinance do not apply to this project.

B. On-Site Parking, Loading, and Access

As previously described, the project will include an 11-space parking lot to provide the required parking for the residents, employees and visitors. The primary access to the site will be through a new curb cut on Corporate Drive as outlined in the Site Layout and Utility Plan, Drawing C-103.

The proposed parking area will include an 82-foot-radius drop-off area to provide adequate access for fire trucks and emergency vehicles. The drop off area will also accommodate deliveries to the building, which are anticipated to be from box trucks or smaller vehicles only.

C. Driveways

Traffic will access the site from the proposed curb cut off Corporate Drive. The single point of access will have adequate sight distance in both directions along Corporate Drive, and conforms to the requirements of Chapter 271, Streets, Article VIII, Curb Cuts. Corporate Drive does not have a posted speed limit, so the minimum required sight distance is 250 feet. Sight distance to the north along Corporate Drive is approximately 280 feet and ends with the intersection with Maine Avenue. Sight distance to the south exceeds 1,000 feet. The site has an existing curb cut off Maine Avenue that used to provide access to Bangor Water District buildings which have now been abandoned and demolished. This project will remove the curb cut and revegetate the area.

The projected traffic for this type of development is seven trips during the a.m. peak hour and 10 trips during the p.m. peak hour, which is well below the 100 trips that would require further review or a Traffic Impact Study.

D. Stormwater Management

The stormwater management for this project is described further in the Stormwater Management Report included in Appendix F.

The construction will be completed in accordance with the most recent version of the Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices and as detailed on Drawings C-104 and C-300 included in the drawing set.

E. Outdoor Display Storage and Lighting

Proposed dumpsters are enclosed with fencing designed to fully screen the dumpsters from adjacent properties as shown on the drawings included in this application.

Site lighting will include shielded, full cut-off fixtures to ensure light levels at the property line do not exceed half-foot-candle or less in accordance with the Photometrics Plan included in Appendix E.

F. Landscaping of Unpaved Areas or Other Treatment of the Site

Screening, buffering, and landscaping on the property are designed by a registered landscape architect in accordance with the standards outlined in this section. Buffer yards and screening are shown on the Site Planting Plan included in the project plan set.

G. Building Location

The building was sited on the parcel to minimize impacts and impervious areas, match into the grades on the property to limit cuts and fills and provide the site program needed to support the use of the building.

H. Environment Impacts.

The site is currently developed and located in an urban area. There are no historic sites, significant wildlife habitats, or rare and irreplaceable natural areas within a 250-foot radius of the proposed redevelopment. A copy of the wetlands delineation and report documenting the lack of natural resources on the property is included in Appendix C.

I. Water Resource and Shoreline Preservation

There are no ponds, lakes, rivers, streams, or tidal waters within 250 feet of the limits of the proposed development. This section does not apply to this project. A copy of the FEMA floodplain map is included in Appendix G for reference.

J. Approval Under 38 M.R.S.A. §§ 481 through 488

This site requires approval under the provisions of 38 M.R.S.A. §§ 481 through 488. The Bangor Housing property is regulated under an existing Maine Department of Environmental Protection (MEDEP) Site

Location of Development Act (SLODA) permit, which is required to be amended for changes to the property including redevelopment. Since the City of Bangor has Delegated Authority from the MEDEP to review SLODA projects, standards are addressed in Appendix B.

§165-114 Impact Fees

As a site development project with minimal impact to infrastructure in the area, impact fees are not anticipated for this project.

**CHAPTER 271, STREETS**

**Article VIII: CURB Cuts**

271- 45 – Width

The maximum curb cut for a driveway allowed by the City ordinance is 36 feet. However, this does not provide enough width at this project site to allow a fire truck to turn into the driveway. The proposed curb cut at Corporate Drive is 54 feet wide at the curb line and 24-feet wide at the tangent point of the curb radius

**SITE LOCATION OF DEVELOPMENT ACT AMENDMENT APPLICATION NARATIVE**
**BANGOR HOUSING DEVELOPMENT CORPORATION**
**YELLEN PINES**
**236 MAINE AVENUE**
**BANGOR, MAINE**

## SITE LOCATION OF DEVELOPMENT ACT AMENDMENT NARATIVE

This narrative has been prepared in accordance with Maine Department of Environmental Protection (MEDEP) Site Location of Development Act (SLODA) amendment application for Bangor Housing Development Corporation (the Applicant) for new building and associated site improvements on a 5.05-acre parcel of land at 236 Maine Avenue in Bangor, Maine.

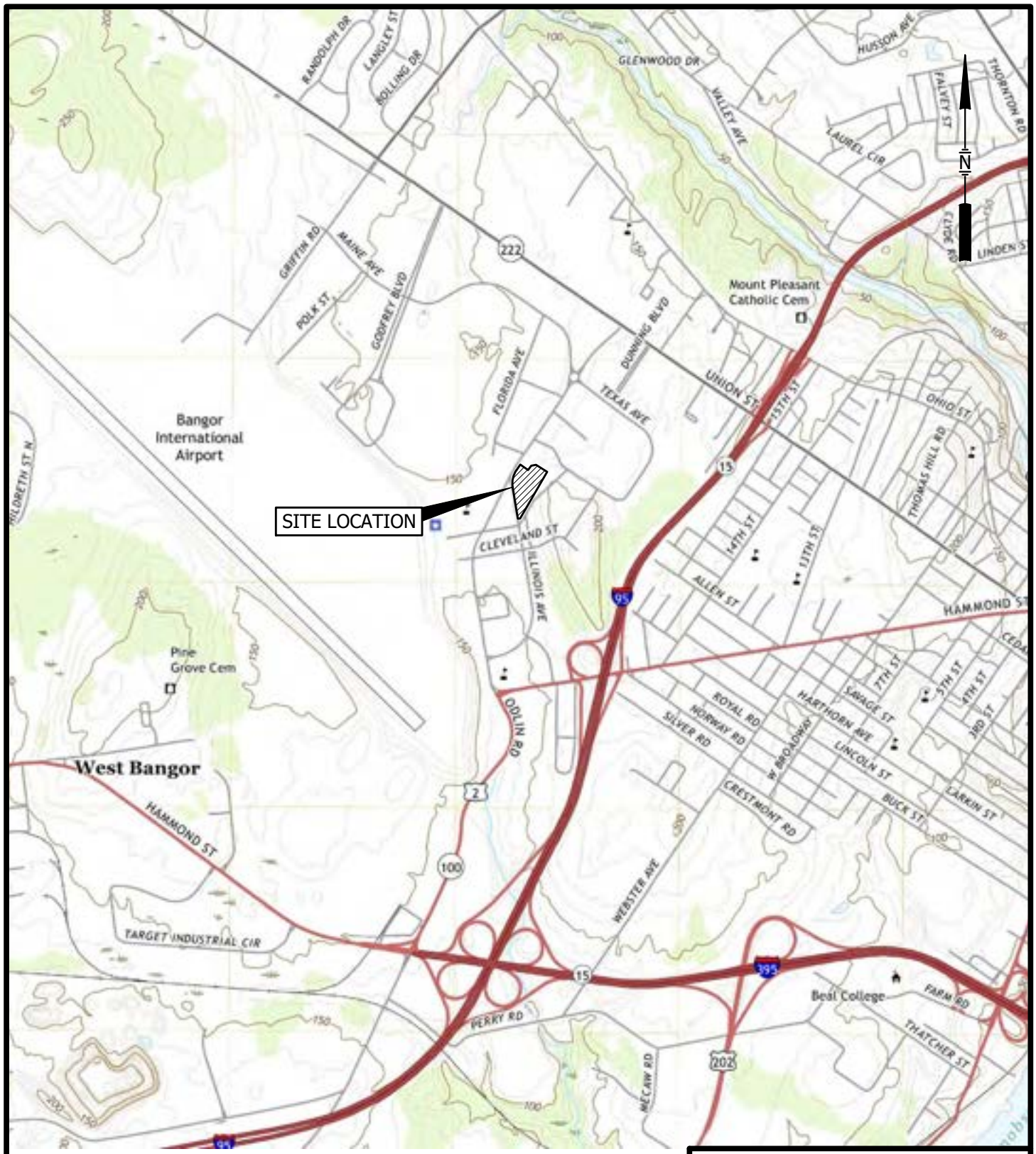
## SLODA SECTIONS

### Section 1 – Development Description

Bangor Housing Development Corporation (BHDC) proposes to develop a new 30-unit permanent supportive housing building called Yellen Pines on property currently at 236 Maine Avenue. The location of the project is shown in Figure 1, Site Location Map. The project is subject to a Land Development Permit from the City of Bangor Planning Board. This application provides detailed project information and outlines compliance with the applicable sections of the City Ordinance.

The project is located on the 5.05-acre parcel identified as Lot 001-A on City Tax Map R25 within the Government and Institutional Services District (G&ISD) and Technology and Service District (T&S) on the City's Official Zoning Map. A copy of the deed is provided in Appendix A, as well as the Option to Purchase the property between the City and BHDC. The property is bounded by Maine Avenue to the west, Texas Avenue to the east, Corporate Drive to the south, and a developed University of Maine Office Building property to the north. The property is currently developed as a vegetated slope maintained as lawn with a row of trees, a concrete walkway and a paved entrance off Maine Avenue. The property is within the Urban Impaired Stream of Birch Stream and is primarily developed land.

The permanent supportive housing project will include a single story 19,100-square-foot building that will include thirty (30) one-bed units with support offices and lounge area. The construction will include area for eleven (11) parking spaces with one (1) ADA accessible parking space. The project will have a new 24-foot paved access drive from Corporate Drive sized for access by City fire and emergency vehicles. Additional site improvements include a patio along the southern side of the building, public water and sewer, underground utilities, stormwater management, site lighting, and landscaping.




BASE MAP ADAPTED FROM 7.5 MIN USGS TOPO QUADS
BANGOR, ME - 2021

1000 0 2000 FEET

DWG: SITELOC LMN: NONE CTB: SME-STD REV: 5/1/2026

FIGURE 1
SITE LOCATION MAP
BANGOR HOUSING DEVELOPMENT CORPORATION
YELLEN PINES
205 CORPORATE DRIVE
BANGOR, ME

SME
SEVEE & MAHER ENGINEERS

C:\Users\zander.foster\OneDrive - SME_SP\Civil-ME\Gawron Turgeon\Bangor Housing\Acad\Figures\SITELOC.dwg, A_FIG 1, 5/1/2026 9:08:56 AM, Zander.Foster

The housing project will result in approximately 84,740 square feet of developed area, all of which will be considered redevelopment given the nature of the existing site. This redeveloped area will include 41,156 square feet of new impervious area. The existing concrete walkway and paved turnaround on-site will be demolished, resulting in a net increase of approximately 37,339 square feet of impervious area post-redevelopment.

The Bangor Housing property is regulated under an existing Maine Department of Environmental Protection (MEDEP) Site Location of Development Act (SLODA) permit, which is required to be amended for changes to the property including redevelopment.

As a result of the SLODA Amendment, the project is subject to the redevelopment standards of MEDEP Chapter 500 for treating stormwater runoff. Stormwater management for this project will be accomplished using a closed stormwater management system including catch basins, storm drains, roof dripline filters, and a grassed underdrained soil filter. The redevelopment and treatment calculations are included in Appendix F – Stormwater Management.

Section 2: Title, Right or Interest

The property deed conveying the property to City of Bangor is provided in Appendix A to show the current ownership of the property. Appendix A also includes an Option to Purchase agreement from City of Bangor to Bangor Housing Development Corporation, a not-for-profit corporation for a parcel of land containing approximately 5.05 acres of land.

Section 3: Financial Capacity

The anticipated construction cost for the project will total approximately $6.5 million. Appendix B includes a letter outlining the Applicant's financial capacity to complete the proposed project.

Section 4: Technical Ability

BHDC has contracted with Sevee & Maher Engineers, Inc. (SME) to assist with project design and permitting. The following personnel are integral to the site planning, design and permitting of the housing project in Bangor.

Daniel P. Diffin, P.E., LEED AP - Site Design and Permitting
Sevee & Maher Engineers, Inc.

Dan Diffin has more than 22 years of experience on a wide variety of civil engineering design and construction management projects for private and public sector clients. Dan has been responsible for the engineering, design and oversight, and construction services for land development projects, commercial,

industrial, and medical site developments, educational campuses, stormwater management and erosion control projects, and local, state, and federal permitting. Typical projects include: Bath Iron Works, Bath, Maine – Facility Build-out Plan; Bangor Savings Bank, Bangor, Maine – Headquarters Campus Redevelopment; Estabrook's Farms and Greenhouse, Pownal, Maine – Commercial Greenhouse Development and Irrigation Pond; Washington County Council of Governments, multiple towns – Coastal resilience and public safety projects; and PK Realty, South Portland, Maine – Liberty Shipyard Redevelopment engineering and permitting services. Dan Diffin also oversees various projects in his role as the Town Engineer for the Town of Cumberland, including roadway improvements, public facilities projects, and recreational areas.

SME is working with the following subconsultants to support the SLODA Permit application:

- Aleita Berman, LSS, LSE, NH CWS – Natural Resource Identification and Delineation, Watershed Resource Consultants, LLC (WRC);
- Jon P. Pinkham, LSE – Surveyor, Plisga &Day Land Surveyors (P&DS);
- Building Architect, Gawron Turgeon Dillon Architects, P.C. (GTDA); and
- Sashie Misner - Landscape Architect – Land and Play (L&P)

Section 5: Noise

The noise levels of the proposed project will meet the requirements of the municipal ordinance. Anticipated sound levels will be under 60 decibels (dB).

Section 6: Visual Quality and Scenic Character

The proposed project will look very similar to the existing Hope House and properties within the UMA Bangor campus and Bangor International Airport areas. The project will not have any negative aesthetic impacts on the area.

Section 7: Wildlife and Fisheries

The Maine Department of Inland Fisheries and Wildlife (MDIFW) did not map any Essential Habitats within the project area or in vicinity of the property. MDIFW identified Bats as species protected under Maine's Endangered Species Act; however, it also states that significant impacts are not anticipated as a result of this project.

A copy of the MDIFW review letter is in Appendix C for review. Copies of the Environmental Review of Fish and Wildlife Observations and Priority Habitats map and the MDIFW Information for Planning and Consultation (IPaC) official species list are also Appendix C for reference.

Section 8: Historic Sites

The Maine Historic Preservation Commission (MHPC) has determined that no historic properties (archaeological or architectural) will be affected by this project. A copy of the MHPC review letter is in Appendix D for reference.

Section 9: Unusual Natural Areas

The Maine Natural Areas Program (MNAP) was contacted and has determined that there are no rare and exemplary botanical features documented specifically within the project parcel. A copy of their review letter and email correspondence is in Appendix E for review.

Section 10: Buffers

There are no existing or proposed buffers on the site.

Section 11: Soils

On-site soils were identified using the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil information for Penobscot County, Maine, Southern Part. A copy of the custom Soil Resource Report is included in Appendix F – Stormwater Management Report. The soil in the area of work consists of Chesuncook-Telos complex (TcC), Telos-Chesnucook complex (CTB), Elliottsville-Chesuncook association (ElB), and Pushaw-Swanville-Urban land association (PuB). The soil natural drainage classifications are “Moderately well drained,” “well drained,“ and “somewhat poorly drained.” The hydrologic soil groups are Type C/D, D, C, and C/D, respectively.

Section 12: Stormwater Management

A Stormwater Management Report and Construction Stormwater Pollution Prevention Plan (SWPPP) is in Appendix F.

Section 13: Urban Impaired Streams

The property is within the delineated boundary of an Urban Impaired Stream, Birch Stream. The project will not have any impact on the Urban Impaired Stream. Stormwater treatment will be provided through a combination of roof dripline filters and an underdrained grass soil filter to capture and treat runoff from the redevelopment areas. Additional details on compliance with the Urban Impaired Stream standards is included in the Stormwater management Report included as Appendix F.

Section 14: Basic Standards

A Stormwater Pollution Prevention Plan (SWPPP) is included with the Stormwater Management Report in Appendix F.

Section 15: Groundwater

There will not be any impact on the groundwater resources from the project.

Section 16: Water Supply

The building will require 2-inch domestic and 6-inch sprinkler water services. Public water will be provided with connections into the existing 16-inch water main in Corporate Drive. The design of the connection has been coordinated with the Bangor Water District (BWD). BWD has verified they have capacity to serve the project. A copy of their letter is included in Appendix G.

Section 17: Wastewater Disposal

The apartment building will require a 6-inch sewer service into the existing 8-inch sewer main in Maine Avenue. The design of the connection has been coordinated with the City of Bangor Engineering Department – Sewer (BED). A letter of request has been sent to BED to verify they have capacity to serve the project. A copy of the request letter is included in Appendix H. A copy of the capacity to serve letter will be provided upon receipt.

Section 18: Solid Waste

Solid waste from normal building operations will be disposed of at a dumpster located on the east end of the Corporate Drive parking lot. The solid waste will be removed through a contract with a private waste hauler such as Pine Tree Waste or Waste Management of Maine.

Section 19: Flooding

The Federal Emergency Management Agency (FEMA) map for this area, included in Appendix I shows that the project site is located within Zone X, an area of minimal flooding. The site areas are shown on the outlined Firm Panel (see attached Panel 14 of 20) on FEMA Map 23019C 2116 D, effective July 19, 2023.

The proposed project will not cause or increase flooding or cause an unreasonable flood hazard to any structure on the property or on abutting parcels. See the Stormwater Management Report in Appendix F for additional detail.

Section 20: Blasting

The geotechnical investigations at this property did not identify ledge or large boulders in the area of excavation that would require blasting. This section is not applicable to this project.

Section 21: Air Emissions

This section is not applicable to this project.

Section 22: Odors

This section is not applicable to this project.

Section 23: Water Vapor

This section is not applicable to this project.

Section 24: Sunlight

This section is not applicable to this project.

Section 25: Notices

The City of Bangor will have a public hearing for the Land Development Permit as a public informational meeting. The public hearing will be notified by the City per the requirements of this application.

A list of the names and addresses of properties within 1,000 feet from the project site and abutting property owners to the overall property is included in Appendix J.

**STATE OF MAINE**
**DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY**
177 STATE HOUSE STATION
AUGUSTA, MAINE 04333

**JANET T. MILLS**
**GOVERNOR**

**AMANDA E. BEAL**
**COMMISSIONER**

February 13, 2026

Anna Dedon
Sevee & Maher Engineers, Inc.
4 Blanchard Road, P.O. Box 85A
Cumberland, ME 04021

Via email: Anna.Dedon@smemaine.com

Re: Rare and exemplary botanical features in proximity to: #251269.05, Bangor Housing Development Corporation, Home for Good Bangor, 236 Maine Avenue, Bangor, Maine

Dear Anna Dedon:

I have searched the Maine Natural Areas Program's Biological and Conservation Data System files in response to your request received February 10, 2026 for information on the presence of rare or unique botanical features documented from the vicinity of the project in Bangor, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. This lack of data may indicate minimal survey efforts rather than confirm the absence of rare botanical features. You may want to have the site inventoried by a qualified field biologist to ensure that no undocumented rare features are inadvertently harmed.

If a field survey of the project area is conducted, please refer to the enclosed supplemental information regarding rare and exemplary botanical features documented to occur in the vicinity of the project site. The list may include information on features that have been known to occur historically in the area as well as recently field-verified information. While historic records have not been documented in several years, they may persist in the area if suitable habitat exists. The enclosed list identifies features with potential to occur in the area, and it should be considered if you choose to conduct field surveys.

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

**MOLLY DOCHERTY, DIRECTOR**
MAINE NATURAL AREAS PROGRAM
90 BLOSSOM LANE, DEERING BUILDING

PHONE: (207) 287-8044
WWW.MAINE.GOV/DACF/MNAP

The Maine Natural Areas Program (MNAP) is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. MNAP welcomes coordination with individuals or organizations proposing environmental alteration or conducting environmental assessments. If, however, data provided by MNAP are to be published in any form, the Program should be informed at the outset and credited as the source.

The Maine Natural Areas Program has instituted a fee structure of $75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for $150.00 for two hours of our services.

Thank you for using MNAP in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,

*Abby Stepanauskas*

Abby Stepanauskas | Ecologist | Maine Natural Areas Program
207-287-8048 | abby.stepanauskas@maine.gov

**Rare and Exemplary Botanical Features within 4 miles of**

**Project: #251269.05, Bangor Housing Development Corporation, 236 Maine Avenue, Bangor, Maine.**

| Common Name | State Status | State Rank | Global Rank | Date Last Observed | Occurrence Number | Habitat |
|---|---|---|---|---|---|---|
| Bicknell's Sedge | | | | | | |
| | E | S1 | G5 | 1931-06-26 | 1 | Old field/roadside (non-forested, wetland or upland) |
| Estuary Bur-marigold | | | | | | |
| | SC | S3 | G4 | 2005-09-19 | 34 | Tidal wetland (non-forested, wetland) |
| Mudwort | | | | | | |
| | SC | S3 | G5 | 2005-09-19 | 36 | Tidal wetland (non-forested, wetland) |
| Nantucket Shadbush | | | | | | |
| | T | S2 | G3Q | 2017-05-16 | 5 | Dry barrens (partly forested, upland),Non-tidal rivershore (non-forested, seasonally wet),Old field/roadside (non-forested, wetland or upland) |
| Orono Sedge | | | | | | |
| | T | S3 | G3 | 1908-07-07 | 2 | Old field/roadside (non-forested, wetland or upland) |
| Parker's Pipewort | | | | | | |
| | SC | S3 | G3 | 2005-09-19 | 36 | Tidal wetland (non-forested, wetland) |
| Purple Clematis | | | | | | |
| | SC | S3 | G5T5 | 1916-08 | 14 | Non-tidal rivershore (non-forested, seasonally wet),Hardwood to mixed forest (forest, upland) |

| | | | | | |
|---|---|---|---|---|---|
| Pygmyweed | | | | | |
| SC | S2S3 | G5 | 2005-09-19 | 26 | Open water (non-forested, wetland) |
| Raised Level Bog Ecosystem | | | | | |
| | S4 | GNR | 2002 | 12 | |
| Showy Lady's-slipper | | | | | |
| SC | S3 | G4G5 | 1906-07-13 | 25 | Forested wetland,Open wetland, not coastal nor rivershore (non-forested, wetland) |
| Sparse-flowered Sedge | | | | | |
| SC | S3 | G5 | 1905-06-25 | 11 | Forested wetland,Open wetland, not coastal nor rivershore (non-forested, wetland) |
| Spongy-leaved Arrowhead | | | | | |
| SC | S3 | G5T4 | 1937-08-16 | 24 | Tidal wetland (non-forested, wetland) |
| SC | S3 | G5T4 | 1958-08-20 | 23 | Tidal wetland (non-forested, wetland) |

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# Conservation Status Ranks

**State and Global Ranks**: This ranking system facilitates a quick assessment of a species' or habitat type's rarity and is the primary tool used to develop conservation, protection, and restoration priorities for individual species and natural habitat types. Each species or habitat is assigned both a state (S) and global (G) rank on a scale of critically imperiled (1) to secure (5). Factors such as range extent, the number of occurrences, intensity of threats, etc., contribute to the assignment of state and global ranks. The definitions for state and global ranks are comparable but applied at different geographic scales; something that is state imperiled may be globally secure.

The information supporting these ranks is developed and maintained by the Maine Natural Areas Program (state ranks) and NatureServe (global ranks).

| Rank | Definition |
|---|---|
| **S1**<br>**G1** | **Critically Imperiled** – At very high risk of extinction or elimination due to very restricted range, very few populations or occurrences, very steep declines, very severe threats, or other factors. |
| **S2**<br>**G2** | **Imperiled** – At high risk of extinction or elimination due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors. |
| **S3**<br>**G3** | **Vulnerable** – At moderate risk of extinction or elimination due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors. |
| **S4**<br>**G4** | **Apparently Secure** – At fairly low risk of extinction or elimination due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors. |
| **S5**<br>**G5** | **Secure** – At very low risk of extinction or elimination due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats. |
| **SX**<br>**GX** | **Presumed Extinct** – Not located despite intensive searches and virtually no likelihood of rediscovery. |
| **SH**<br>**GH** | **Possibly Extinct** – Known from only historical occurrences but still some hope of rediscovery. |
| **S#S#**<br>**G#G#** | **Range Rank** – A numeric range rank (e.g., S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the species or ecosystem. |
| **SU**<br>**GU** | **Unrankable** – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends. |
| **GNR**<br>**SNR** | **Unranked** – Global or subnational conservation status not yet assessed. |
| **SNA**<br>**GNA** | **Not Applicable** – A conservation status rank is not applicable because the species or ecosystem is not a suitable target for conservation activities (e.g., non-native species or ecosystems. |
| **Qualifier** | **Definition** |
| **S#?**<br>**G#?** | **Inexact Numeric Rank** – Denotes inexact numeric rank. |
| **Q** | **Questionable taxonomy that may reduce conservation priority** – Distinctiveness of this entity as a taxon or ecosystem type at the current level is questionable. The "Q" modifier is only used at a global level. |
| **T#** | **Infraspecific Taxon (trinomial)** – The status of infraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' global rank. |

**State Status**: Endangered and Threatened are legal status designations authorized by statute. Please refer to MRSA Title 12, §544 and §544-B.

| Status | Definition |
|---|---|
| **E** | **Endangered** – Any native plant species in danger of extinction throughout all or a significant portion of its range within the State or Federally listed as Endangered. |
| **T** | **Threatened** – Any native plant species likely to become endangered within the foreseeable future throughout all or a significant portion of its range in the State or Federally listed as Threatened. |
| **SC** | **Special Concern** – A native plant species that is rare in the State, but not rare enough to be considered Threatened or Endangered. |
| **PE** | **Potentially Extirpated** – A native plant species that has not been documented in the State in over 20 years, or loss of the last known occurrence. |

**Element Occurrence (EO) Ranks**: Quality assessments that designate viability of a population or integrity of habitat. These ranks are based on size, condition, and landscape context. Range ranks (e.g., AB, BC) and uncertainty ranks (e.g., B?) are allowed. The Maine Natural Areas Program tracks all occurrences of rare plants and natural communities/ecosystems (S1-S3) as well as exemplary common natural community types (S4-S5 with EO ranks A/B).

| Rank | Definition |
|---|---|
| **A** | **Excellent** – Excellent estimated viability/ecological integrity. |
| **B** | **Good** – Good estimated viability/ecological integrity. |
| **C** | **Fair** – Fair estimated viability/ecological integrity. |
| **D** | **Poor** – Poor estimated viability/ecological integrity. |
| **E** | **Extant** – Verified extant, but viability/ecological integrity not assessed. |
| **H** | **Historical** – Lack of field information within past 20 years verifying continued existence of the occurrence, but not enough to document extirpation. |
| **X** | **Extirpated** – Documented loss of population/destruction of habitat. |
| **U** | **Unrankable** – Occurrence unable to be ranked due to lack of sufficient information (e.g., possible mistaken identification). |
| **NR** | **Not Ranked** – An occurrence rank has not been assigned. |

Visit the Maine Natural Areas Program website for more information
http://www.maine.gov/dacf/mnap

GAWRON TURGEON DILLON ARCHITECTS, P.C.

ARCHITECTURE
INTERIOR DESIGN
PLANNING

March 03, 2026

RE: Section 165-9. Conditional Uses

To Whom it May Concern:

The use, architectural style, and bulk of our proposed building is appropriate for this location. Within the 500 foot radius defined as the "immediate area," there is minimal architectural context aside from a single story, flat roof brick office building currently occupied by the University of Maine. Beyond this radius, development is uniformly low in scale due to the site's proximity to the airport, consisting mainly of single story residential and 1 to 2 story office buildings with simple sloped roofs and brick or clapboard siding—materials and forms that match those proposed for the project.

The building's architectural style aligns with this context through the use of similar exterior materials, modest massing, and a compatible roof form. Its single-story height and footprint conform to the low building to land ratio characteristic of nearby properties. The proposed use also reflects the low intensity pattern of surrounding office and residential activity, ensuring seamless integration into the existing development pattern.

Overall, the project appropriately fits the physical and architectural character of all properties within the same block and within 500 feet of the site, meeting the requirements of this section.

Devin Cough

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# BHDC YELLEN PINES

## 236 MAINE AVENUE — BANGOR, MAINE



## SITE LOCATION MAP

## PHASING PLAN/ KEY PLAN

## DRAWING INDEX

| | | | 04.03.2026 50% PROGRESS SET | 04.24.2026 REVISED 50% PROGRESS SET | | | |
|---|---|---|---|---|---|---|---|
| GENERAL | G101 | COVER SHEET | • | • | | | |
| | G102 | CODE REVIEW - RESIDENTIAL APARTMENTS (RA) | • | • | | | |
| | G103 | CODE PLAN | • | • | | | |
| | G104 | ADA DETAILS | • | • | | | |
| SITE/CIVIL | C100 | Unnamed | | | | | |
| | C200 | Unnamed | | | | | |
| | C300 | Unnamed | | | | | |
| | C400 | Unnamed | | | | | |
| LANDSCAPING | L100 | Unnamed | | | | | |
| | L200 | Unnamed | | | | | |
| | L300 | Unnamed | | | | | |
| | L400 | Unnamed | | | | | |
| STRUCTURAL | S100 | Unnamed | | | | | |
| | S200 | Unnamed | | | | | |
| | S300 | Unnamed | | | | | |
| | S400 | Unnamed | | | | | |
| ARCHITECTURAL | A001 | ASSEMBLY TYPES AND NOTES | • | • | | | |
| | A101 | OVERALL PLANS | • | • | | | |
| | A110 | PARTIAL FIRST FLOOR PLAN - EAST | • | • | | | |
| | A111 | PARTIAL FIRST FLOOR PLAN - WEST | • | • | | | |
| | A120 | ENLARGED UNIT PLANS & ELEVATIONS | • | • | | | |
| | A200 | ATTIC PLAN | • | • | | | |
| | A201 | OVERALL ROOF PLAN | • | • | | | |
| | A202 | ROOF DETAILS | • | • | | | |
| | A301 | PARTIAL FIRST FLOOR RCP - WEST | • | • | | | |
| | A302 | PARTIAL FIRST FLOOR RCP - EAST | • | • | | | |
| | A401 | BUILDING ELEVATIONS | • | • | | | |
| | A402 | BUILDING ELEVATIONS | • | • | | | |
| | A501 | BUILDING SECTIONS | • | • | | | |
| | A502 | BUILDING SECTIONS | • | • | | | |
| | A601 | WALL SECTIONS | • | • | | | |
| | A602 | WALL SECTION & DETAILS | • | • | | | |
| | A603 | WALL DETAILS | • | • | | | |
| | A801 | DOOR SCHEDULE, TYPES, & FRAMES | • | • | | | |
| | A802 | WINDOW SCHEDULES & DETAILS | • | • | | | |
| | A901 | PARTIAL FIRST FLOOR FINISH PLAN - WEST | • | • | | | |
| | A902 | PARTIAL FIRST FLOOR FINISH PLAN - EAST | • | • | | | |
| | A920 | INTERIOR ELEVATIONS | • | • | | | |
| | A921 | INTERIOR ELEVATIONS | • | • | | | |
| | A930 | INTERIOR DETAILS | | | | | |
| | A941 | INTERIOR SCHEDULES | • | • | | | |
| MECH/PLUMBING | M100 | Unnamed | | | | | |
| | M200 | Unnamed | | | | | |
| | M300 | Unnamed | | | | | |
| | M400 | Unnamed | | | | | |
| | P100 | Unnamed | | | | | |
| | P200 | Unnamed | | | | | |
| | P300 | Unnamed | | | | | |
| | P400 | Unnamed | | | | | |
| ELECTRICAL | E100 | Unnamed | | | | | |
| | E200 | Unnamed | | | | | |
| | E300 | Unnamed | | | | | |
| | E400 | Unnamed | | | | | |

## ABBREVIATIONS

| | | | | | |
|---|---|---|---|---|---|
| ADA | AMERICANS WITH DISABILITIES ACT (COMPLIANT) | FO | FACE OF | PTD | PAINTED |
| ALUM | ALUMINUM | FR | FIRE RATING | PL | PLATE |
| AL | ALIGN | FRMG | FRAMING | PLAM | PLASTIC LAMINATE |
| AWP | ACOUSTICAL WALL PANEL | FT | FEET (FOOT) | PLY WD | PLYWOOD |
| ACT | ACOUSTICAL CEILING TILE | FV | FIELD VERIFY | PKT | POCKET |
| BIT | BITUMINOUS | FWC | FABRIC WALL COVERING | PNL | PANEL |
| BM | BENCH MARK | G | GROUT | PT | PRESSURE TREATED |
| BOT | BOTTOM | GA | GAUGE | PT & D | PAPER TOWEL AND WASTE DISP. |
| BRG | BEARING | GALV | GALVANIZED | PTN | PARTITION |
| BRK | BRICK | GB | GRAB BARS | PTRY | PANTRY |
| C | CARPET | GC | GENERAL CONTRACTOR | RD | ROOF DRAIN |
| CAB | CABINET | GWB | GYPSUM WALL BOARD | RE | REFER |
| CB | CHALK BOARD | HD WD | HARDWOOD | REF | REFRIGERATOR |
| CC | CENTER TO CENTER | HDR | HEADER | REINF | REINFORCED |
| CH | CONCRETE HARDENER | HDWE | HARDWARE | REQD | REQUIRED |
| CIRC | CIRCULATION | HH | HEAD HEIGHT | RM | ROOM |
| CJ | CONTROL JOINT | HM | HOLLOW METAL | RO | ROUGH OPENING |
| CL | CENTER LINE | HORZ | HORIZONTAL | RR | RESTROOM |
| CLG | CEILING | HT | HEIGHT | RTS | REFER TO SCHEDULE |
| CM | CONSTRUCTION MANAGER | HW | HAND WASHING | S | SOUTH |
| CMU | CONCRETE MASONRY UNITS | ID | INSIDE DIAMETER | SC | SEALED CONCRETE |
| CONC | CONCRETE | IF | INSIDE FACE | SD | SOAP DISPENSER |
| CONT | CONTINUOUS | IN | INCHES | SCHED | SCHEDULE |
| CONST | CONSTRUCTION | INSUL | INSULATION | SECT | SECTION |
| CONTR | CONTRACTOR | INT | INTERIOR | SHT | SHEET |
| CORR | CORRIDOR | LOC | LOCATION | SIM | SIMILAR |
| CT | CERAMIC TILE | M | MARBLE | SND | SANITARY NAPKIN DISPOSAL |
| DBL | DOUBLE | MAS | MASONRY | SQ | SQUARE |
| DF | DRINKING FOUNTAIN | MAX | MAXIMUM | SSS | SYNTHETIC SPORTS SURFACE |
| DIA | DIAMETER | MB | MARKER BOARD | STD | STANDARD |
| DIM | DIMENSION | MECH | MECHANICAL | STL | STEEL |
| DNA | DOES NOT APPLY | MFGR | MANUFACTURER | STOR | STORAGE |
| DTL | DETAIL | MICRO | MICROWAVE | STRUCT | STRUCTURAL |
| DWG | DRAWING | MIN | MINIMUM | SV | SHEET VINYL |
| E | EAST | MIR | MIRROR | T | TILE |
| EA | EACH | MISC | MISCELLANEOUS | TEMP | TEMPERED (GLASS) |
| EF | EACH FACE | MO | MASONRY OPENING | TB | TILE BASE |
| EJ | EXPANSION JOINT | MR | MOP RECEPTOR | TBD | TO BE DETERMINED |
| EL | ELEVATION | MRGB | MOISTURE RESISTANT GYPSUM BOARD | THK | THICKNESS |
| ELEC | ELECTRICAL | MTL | METAL | TO | TOP OF |
| ELEV | ELEVATOR | N | NORTH | TOB | TOP OF BEAM |
| EMHO | ELECTROMAGNETIC HOLD OPEN | NA | NOT APPLICABLE | TOM | TOP OF MASONRY |
| EP | ELECTRICAL PANEL | NBHD | NEIGHBORHOOD | TOW | TOP OF WALL |
| EQ | EQUAL | NIC | NOT IN CONTACT | TP | TOILET PAPER DISPENSER |
| ETR | EXISTING TO REMAIN | NO | NUMBER | TYP | TYPICAL |
| EW | EACH WAY | NOM | NOMINAL | UNO | UNLESS NOTED OTHERWISE |
| EWC | ELECTRIC WATER COOLER | NTS | NOT TO SCALE | VPB | VAPOR BARRIER |
| EXIST OR (E) | EXISTING | OA | OVERALL | VCT | VINYL COMPOSITION TILE |
| EXP | EXPANSION | OC | ON CENTER | VERT | VERTICAL |
| EXT | EXTERIOR | OD | OUTSIDE DIAMETER | VEST | VESTIBULE |
| FD | FLOOR DRAIN | OF | OUTSIDE FACE | VWC | VINYL WALL COVERING |
| FDN | FOUNDATION | OFCI | OWNER FURNISHED, CONTRACTOR INSTALLED | W | WEST |
| FE | FIRE EXTINGUISHER | | | W/ | WITH |
| FFE | FINISH FLOOR ELEVATION | OH | OVERHANG | WC | WATER CLOSET |
| FIN | FINISH | OPNG | OPENING | WD | WOOD |
| FIN FL OR FF | FINISH FLOOR | OPP | OPPOSITE | WDW | WINDOW |
| FIN GR | FINISH GRADE | | | WP | WALL PAPER |
| FL | FLOOR | | | VIF | VERIFY IN FIELD |

## LEGEND

- Room name / 101 — ROOM LABEL
- 101 — DOOR TAG
- 1 — WINDOW TYPE
- EW6 / TYPE HGT. — WALL TYPE
- CEILING LABEL
- 01 — DEMO LABEL
- 0 — COLUMN LINE LABEL
- Ref / 1 / A101 — BUILDING ELEVATION
- SIM / 1 / A101 — BUILDING SECTION
- 1 / A101 — WALL SECTION
- SIM / 1 / A101 — DETAIL SECTION
- Ref / 1 / A101 — INTERIOR ELEVATION
- NAME / ELEVATION — VERTICAL ELEVATION
- CLEAR FLOOR AREA FOR DOOR, APPLIANCES, FIXTURES, ETC.

- F.E. FIRE EXTINGUISHER
- P.P. ADA PUSH PAD
- E.H.O. ELECTRIC HOLD OPEN
- CHAIR RAIL
- HANDRAIL
- FLOOR DRAIN

## GENERAL NOTES

1. THE BUILDING SHALL BE CONSTRUCTED TO CONFORM WITH ALL APPLICABLE CODES INCLUDING, BUT NOT LIMITED TO, THE LATEST EDITIONS OF MUBEC, IBC, NFPA 101, & ANSI.
2. THE LOCATIONS OF DOORS NOT DIMENSIONED SHALL BE 4 INCHES AS MEASURED FROM THE DOOR LEAF TO THE ADJACENT WALL FINISH ON THE HINGE SIDE.
3. ALL WOOD IN CONTACT WITH CONCRETE SHALL BE PRESSURE PRESERVATIVE TREATED & ALL CONNECTIONS TO BE STAINLESS STEEL.
4. CONTRACTOR SHALL WORK FROM GIVEN DIMENSIONS AND LARGE SCALE DETAILS ONLY. DO NOT SCALE THE DRAWINGS.
5. INSTALL BLOCKING BEHIND ALL SURFACE APPLIED FIXTURES, TRIM, CABINETS, COUNTER TOPS, SIGNAGE, SECURITY DEVICES, AND GRAB BARS WHEN MOUNTED ON STUD WALLS.
6. INSTALL MOISTURE RESISTANT GYPSUM BOARD IN LAVATORIES, JANITOR CLOSETS, INTERIOR FACES OF EXTERIOR WALLS, AND ALL OTHER HIGH HUMIDITY AREAS.
7. ALL EXPOSED SURFACES ARE TO BE PAINTED, WHETHER OR NOT INDICATED ON THE DRAWINGS, EXCEPT AS FOLLOWS: WHERE SPECIAL COATINGS ARE INDICATED; PREFINISHED ITEMS, CONCEALED SURFACES, OPERATING PARTS, AND LABELS. IF PREFINISHED, PAINTING THE FOLLOWING: EXPOSED MECHANICAL DUCTWORK, WALL DIFFUSERS, GRILLES AND LOUVERS, ROOF TOP MECHANICAL EQUIPMENT, AND SPEAKER GRILLES. FINISHED METAL SURFACES, EXCEPT AS LISTED ABOVE. SEE SPECIFICATIONS ON DRAWINGS IDENTIFYING THE TYPES OF PAINTS AND SPECIALTY COATINGS TO BE USED IN ACCORDANCE WITH MATERIAL BEING PAINTED OR COATED.
8. BUILDING INSULATION: PROVIDE AS INDICATED ON WALL DETAILS AND IN ACCORDANCE WITH PARTITION TYPES, WHETHER OR NOT SHOWN IN DETAILS AND DRAWINGS. FOR DRAWING CLARITY, INSULATION MAY NOT BE SHOWN, EVEN IF IT IS PROVIDED.
9. CONTRACTOR SHALL SUBMIT SAMPLES OF ALL INTERIOR FINISHES FOR ARCHITECT'S REVIEW.
10. CONSTRUCTION MANAGER/ GENERAL CONTRACTOR SHALL PROVIDE A SCHEDULE FOR ALL WORK TO BE COMPLETED.
11. EACH CONTRACTOR SHALL PROVIDE, INSTALL, AND MAINTAIN, FOR THE DURATION OF CONSTRUCTION, ALL REQUIRED SCAFFOLDS, TARPAULINS, WARNING SIGNS, FENCES, AND OTHER TEMPORARY CONSTRUCTION ITEMS FOR THE PROPER AND SAFE COMPLETION OF THE WORK AND FOR COMPLIANCE WITH ALL APPLICABLE REGULATIONS, INCLUDING OSHA.
12. PRE-CONSTRUCTION MEETING - A PRE-CONSTRUCTION MEETING WITH CONTRACTOR, OWNER, AND ARCHITECT SHALL BE SCHEDULED TO REVIEW PROJECT TEAM, PROJECT/ WORK SCHEDULE AND PROCEDURES, BUILDING ACCESS, OWNER RULES AND GUIDELINES FOR CONSTRUCTION, SPECIALITY REQUIREMENTS, INITIAL CLEANING OF INTERIOR FINISHES.
13. THE DESIGN AND INSTALLATION OF THE LIFE SAFETY AND FIRE ALARM SYSTEM SHALL MEET THE LATEST EDITION OF NFPA PER THE STATE FIRE MARSHALS OFFICE.
14. ALL MATERIALS, FABRICATION, AND/OR INSTALLATION SHALL COMPLY WITH ALL TECHNICAL AND INDUSTRY STANDARDS AND SPECIFICATIONS FOR EACH DIVISION OF WORK.
15. ALL GRAB BARS SHALL BE ABLE TO SUPPORT A DEAD WEIGHT OF 250 LBS AT ANY POINT.
16. ALL FLOORS SHALL BE LEVELED TO A TOLERANCE OF 1/8" IN 10'-0" WHEN CHECKED AT ANY AREA WITH A 10' STRAIGHT EDGE (EXCEPT AS REQUIRED WHERE SLOPED TO DRAIN).
17. COORDINATE LOCATION OF FLOOR DRAINS WITH PLUMBING DRAWINGS.
18. ALL AREAS WITH FLOOR DRAINS SHALL HAVE POSITIVE PITCH TO AVOID STANDING WATER.

## PROJECT DIRECTORY

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4/22/2026 10:27:26 AM DML, BVV


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BHDC YELLEN PINES
HOME FOR GOOD
205 CORPORATE DRIVE, BANGOR ME

### REVISIONS

| # | DATE | DESCRIPTION |
|---|---|---|
| A | 02.09.2026 | 50% PROGRESS SET |
| B | 04.24.2026 | REVISED 50% PROGRESS SET |

| | |
|---|---|
| DATE: | 04.24.26 |
| PROJECT # | 050725 |
| DRAWN BY: | DML, BVV |
| CHECKED BY: | DEC |
| DRAWING SCALE | As indicated |

SHEET TITLE
COVER SHEET

NOT FOR CONSTRUCTION

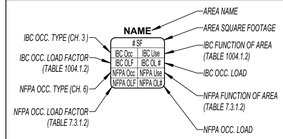
G101


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**FAIR HOUSING ACT (FHAG) REQUIREMENTS:**

- *ALL HOUSING PROJECTS WITH 4 OR MORE UNITS UNDER THE SAME ROOF NEED TO MEET FHAG:*
  - *HTTPS://WWW.HUDUSER.GOV/PORTAL/PUBLICATIONS/PDF/FAIRHOUSING/FAIRFULL.PDF*
  - *COVERED UNITS ARE ALL THOSE ON GROUND FLOOR IF THERE IS NO ELEVATOR. IF THERE IS AN ELEVATOR, ALL DWELLING UNITS ARE COVERED.*
- *AT LEAST 1 BUILDING ENTRANCE SHALL BE ON AN ACCESSIBLE ROUTE*
- *PUBLIC AND COMMON USE AREAS SHALL BE ACCESSIBLE AND USABLE (INCLUDING COMMON HALLWAYS, LOUNGES, LOBBIES, LAUNDRY ROOMS, REFUSE ROOMS, MAIL ROOMS, RECREATIONAL AREAS, STORAGE ROOMS, TOILET ROOMS, AND PASSAGEWAYS BETWEEN BUILDINGS)*
- *ALL DOORS DESIGNED TO ALLOW PASSAGE INTO AND WITHIN ALL PREMISES MUST BE USABLE BY PEOPLE IN WHEELCHAIRS (MIN. 32" CLEAR OPENING)*
  - *ACCESSIBLE DOORS - DOORS IN ACCESSIBLE ROUTE IN PUBLIC/ COMMON SPACES AND PRIMARY ENTRY DOORS TO DWELLING UNITS - EXTERIOR SIDE ONLY - MUST MEET ANSI A 4.13 REQUIREMENTS FOR CLEAR WIDTH, MANEUVERING CLEARANCES, THRESHOLDS, HARDWARE, AND OPENING FORCE.*
  - *USABLE DOORS - WITHIN DWELLING UNIT AND SECONDARY EXTERIOR DOORS. INTENDED FOR USER PASSAGE - MIN 32" CLEAR WIDTH, LOW THRESHOLD*
- *THERE MUST BE AN ACCESSIBLE ROUTE INTO AND THROUGH THE DWELLING UNITS.*
- *ALL PREMISES WITHIN THE DWELLING UNITS MUST CONTAIN LIGHT SWITCHES, ELECTRICAL OUTLETS, THERMOSTATS, AND OTHER OPERABLE ENVIRONMENTAL CONTROLS IN ACCESSIBLE LOCATIONS.*
- *ALL PREMISES WITHIN DWELLING UNITS MUST CONTAIN REINFORCEMENTS IN BATHROOM WALLS TO ALLOW LATER INSTALLATION OF GRAB BARS AROUND TOILET, TUB, SHOWER STALL, AND SHOWER SEAT, WHERE SUCH FACILITIES ARE PROVIDED.*
  - *PROVIDE REINFORCING MIN 24" LONG BEHIND & BESIDE TOILETS - HEIGHT FROM 30" MAX A.F.F. TO 36" MIN. A.F.F.*
  - *PREFERRED REINFORCING BEHIND TOILET - LENGTH OF 38", HEIGHT FROM 30" MAX A.F.F. TO 38" MIN A.F.F.*
  - *PREFERRED TOILET SIDE WALL REINFORCING - LENGTH OF 42" MAX 12" FROM BACK WALL, HEIGHT FROM 30" MAX A.F.F. TO 38" MIN A.F.F.*
  - *WHERE TOILETS DON'T HAVE FULL SIDE WALLS, REINFORCING BEHIND TOILET MUST BE ENLARGED TO SUPPORT A FOLDING GRAB BAR, PER MANUFACTURER'S INSTRUCTIONS.*
  - *PROVIDE REINFORCING FOR GRAB BARS IN SHOWERS ON BACK & SIDE WALLS - HEIGHT FROM 32" MAX A.F.F. (30" MAX. PREFERRED) TO 38" MIN A.F.F.*
  - *PROVIDE REINFORCING FOR WALL-HUNG SHOWER SEAT IN 36" X 36" SHOWERS, LOCATED ON WALL OPPOSITE CONTROLS AND RUNNING FULLL WIDTH OF STALL - HEIGHT FROM FLOOR TO MIN. 24" A.F.F.*
- *DWELLING UNITS MUST CONTAIN USABLE KITCHENS AND BATHROOMS SUCH THAT AN INDIVIDUAL WHO USES A WHEELCHAIR CAN MANEUVER ABOUT THE SPACE.*
  - *KITCHENS:*
    - *ADEQUATE SPACE WITHIN KITCHEN TO PROVIDE 30" X 48" CLEAR FLOOR SPACE AT OVEN, DISHWASHER, REFRIGERATOR, FREEZER, TRASH COMPACTOR, SINK, OVEN, AND MICROWAVE - POSITIONED EITHER PARALLEL OR PERPENDICULAR TO AND CENTERED ON THE APPLIANCE OR FIXTURE*
    - *MIN. 40" CLEAR BETWEEN ALL OPPOSING BASE CABINETS, COUNTERTOPS, APPLIANCES, AND WALLS*
    - *WHERE KNEE SPACES ARE PROVIDED BELOW SINKS AND COOKTOPS, PROVIDE PIPE INSULATION OR ENCLOSURE. KNEE SPACE SHALL BE MIN. 30" WIDE BY 27" HIGH. WALL AND FLOOR SURFACES AT KNEE SPACES MUST BE FINISHED.*
  - *BATHROOMS:*
    - *30" X 48" MIN. CLEAR FLOOR SPACE OUTSIDE SWING OF DOOR REQUIRED*
    - *CLEAR FLOOR SPACE REQUIRED AT EACH FIXTURE. CLEAR SPACES PERMITTED TO OVERLAP EACH OTHER. DOORS MAY SWING INTO CLEAR FLOOR SPACE AT FIXTURES, PROVIDED THERE IS A 30"X48" MIN. CLEAR SPACE OUTSIDE THE SWING OF THE DOOR*
      - *CLEAR FLOOR SPACE AT TOILET: 48" X 66", 48" X 56", OR 60" X 56". LAVATORY OR VANITY PERMITTED TO OVERLAP CLEAR FLOOR SPACE AT TOILET AS LONG AS THERE IS MIN. 15" CLEAR FROM THE CENTERLINE OF THE TOILET TO THE EDGE OF THE LAVATORY VANITY.*
      - *CLEAR FLOOR SPACE AT SINK: 30" X 48", PARALLEL TO AND CENTERED ON BASIN. BASE CABINETS BELOW SINKS MUST BE REMOVABLE WHERE THERE IS INSUFFICIENT SPACE FOR PARALLEL APPROACH CENTERED ON BASIN, WALLS AND FLOOR IN KNEE SPACE MUST BE FINISHED, AND PLUMBING BELOW LAVATORY SHOULD BE COVERED FOR PROTECTION.*
      - *CLEAR FLOOR SPACE AT SHOWER: 30" X 48", FLUSH AND PARALLEL WITH CONTROL WALL. SHOWERS ARE NOT PERMITTED TO BE INSTALLED ADJACENT TO TOILETS.*

## CODE REVIEW PLAN LEGEND




*PROPOSED:*

- *NON-RATED WALL*
- *NON-RATED SMOKE PARTITION*
- *1 HOUR RATED SMOKE BARRIER*
- *2 HOUR RATED SMOKE BARRIER*
- *1 HOUR RATED FIRE BARRIER*
- *1 HOUR RATED FIRE PARTITION*
- *1 HOUR RATED BEARING WALL*

- *AREA BOUNDARY*
- *LONGEST DIAGONAL DIMENSION/ DISTANCE BETWEEN EXITS*
- *TRAVEL DISTANCE TO EXIT*
- *COMMON PATH OF TRAVEL*
- *TRAVEL DISTANCE TO FIRE EXTINGUISHER / FEC*
- *1 HOUR RATED ROOM ENCLOSURE*
- *FE — FIRE EXTINGUISHER- NO CABINET*
- *FEC — SEMI-RECESSED FIRE EXTINGUISHER- IN CABINET. FIRE RATED CABINET REQUIRED IN RATED WALLS.*

*NOTE: COORDINATE FIRE EXTINGUISHER LOCATIONS WITH LOCAL AHJ PRIOR TO INSTALLATION.*

- *P.P. — ADA PUSHPAD*
- *K.P. — KEYPAD*
- *CP — CARD READER*

*(E) DENOTES DEVICES EXISTING TO REMAIN,*
*(N) DENOTES NEW DEVICES,*
*(RL) DENOTES RELOCATED DEVICES*

- *EXIT SIGN*
- *HORN/ STROBE*
- *STROBE*
- *PS — PULL STATION*
- *EMERGENCY BATTERY WALL LIGHT UNIT*
- *SD — SMOKE DETECTOR*
- *EXIT SIGN/ EMERGENCY LIGHT COMBO*

- *A — ASSEMBLY A-3 OCCUPANCY*
- *B — BUSINESS OCCUPANCY*
- *R-2 — RESIDENTIAL R-2 OCCUPANCY*
- *S-1 — STORAGE S-1 OCCUPANCY*
- *S-2 — STORAGE S-2 OCCUPANCY*

**IECC 2021 - PRESCRIPTIVE COMPLIANCE PATH**
**CLIMATE ZONE 6**

**(TABLE C402.1.3):**
*ROOFS*
*INSULATION ENTIRELY ABOVE ROOF DECK: R-30 CI*
*ATTIC AND OTHER : R-49*

*WALLS, ABOVE GRADE*
*MASS - RESIDENTIAL: R-15.2 CI*
*WOOD FRAMED AND OTHER: R-13 + R-7.5 CI*

*WALLS, BELOW GRADE*
*BELOW-GRADE WALL: R-10 CI*

*SLAB-ON-GRADE FLOORS:*
*UNHEATED SLABS : R-20 FOR 24" BELOW*

**(TABLE C402.1.4):**
*OPAQUE DOORS:*
*NON-SWINGING: U-0.31*
*SWINGING: U-0.37*
*GARAGE DOOR <14% GLAZING: U-0.31*

**(TABLE C402.4):**
*VERTICAL FENESTRATION MAXIMUM U-FACTOR:*
*FIXED FENESTRATION: .34*
*OPERABLE FENESTRATION: .42*
*ENTRANCE DOORS: .63*

*SHGC:*
*PF< 2: .38 FIXED, .34 OPERABLE*
*.2<=PF <.5: .46 FIXED, .41 OPERABLE*
*PF >/= .5: .61 FIXED, .54 OPERABLE*

*SKYLIGHTS:*
*U-FACTOR: .50*
*SHGC: .40*

**ICC A117.1 2017 CHAPTER 11 DWELLING/ SLEEPING UNIT REQUIREMENTS - TYPE A UNITS:**

- *PRIMARY ENTRANCE ON ACCESSIBLE ROUTE FROM PUBLIC/ COMMON AREAS*
- *ALL ROOMS SERVED BY AN ACCESSIBLE ROUTE SHALL PROVIDE A TURNING SPACE (EXCEPT FOR SECONDARY BATHROOMS AND CLOSETS OR PANTRIES <48" DEEP). (* **TURNING SPACE** *SHALL BE 67" MIN DIAMETER FOR NEW BUILDINGS OR 60" MIN DIAMETER FOR EXISTING BUILDINGS)*
- *PRIMARY ENTRANCE DOOR TO UNIT AND ALL OTHER DOORWAYS INTENDED FOR USER PASSAGE SHALL COMPLY WITH SECTION 404 - MIN 32" CLEAR WIDTH, MANEUVERING CLEARANCES PER 404.2.3, THRESHOLD HEIGHT MAX 1/2"*
- *ALL BATHROOMS SHALL COMPLY WITH 1103.11.1:*
  - *1103.11.1: PROVIDE REINFORCEMENT FOR FUTURE INSTALLATION OF:*
    - *GRAB BARS AT WATER CLOSETS TO COMPLY WITH SECTION 604.5:*
      - *SIDE WALL - HORIZONTAL GRAB BAR 42" MIN LONG, LOCATED 12" MAX FROM REAR WALL AND EXTEND 54" MIN FROM REAR WALL*
      - *(NOT REQUIRED FOR TYPE A/B UNITS:) SIDE WALL - VERTICAL GRAB BAR 18" MIN LONG, MOUNTED WITH BOTTOM OF BAR AT 39" - 41" A.F.F., CENTERLINE OF BAR LOCATED 39" - 41" FROM REAR WALL*
      - *REAR WALL - HORIZONTAL GRAB BAR 36" MIN LONG, LOCATED 6" MAX FROM SIDE WALL, EXTEND 42" MIN FROM SIDE WALL. PERMITTED TO BE 24" MIN LONG, CENTERED ON WATER CLOSET, WHERE WALL SPACE DOESN'T PERMIT A GRAB BAR 36" LONG DUE TO THE LOCATION OF A RECESSED FIXTURE ADJACENT TO THE WATER CLOSET OR THE LAVATORY OVERLAPS THE WATER CLOSET CLEARANCE IN ACCORDANCE WITH THE EXCEPTION TO SECTION 1103.11.2.4.4*
    - *GRAB BARS AT BATHTUBS TO COMPLY WITH SECTION 607.4.*
    - *GRAB BARS AND SHOWER SEATS AT SHOWERS TO COMPLY WITH SECTIONS 608.3, 608.2.1.3, 608.2.2.3, 608.2.3.2*
  - *MIN 1 BATHROOM PER UNIT TO COMPLY WITH SECTION 1103.11.2.*
    - *DOOR SHALL NOT SWING INTO CLEAR FLOOR SPACE FOR ANY FIXTURE. UNLESS THE BATHROOM IS FOR INDIVIDUAL USE AND* **CLEAR FLOOR SPACE** *(30" X 52" FOR NEW BUILDINGS, 30" X 48" FOR EXISTING BUILDINGS) IS PROVIDED WITHIN THE ROOM BEYOND THE ARC OF THE DOOR SWING.*
    - *LAVATORY SHALL COMPLY WITH SECTION 606, EXCEPT THAT CABINETRY IS PERMITTED UNDER THE LAVATORY AS LONG AS IT IS REMOVABLE AND THE FLOORS AND WALLS UNDER AND SURROUNDING THE CABINETRY ARE FINISHED.*
    - *MIRROR ABOVE LAVATORY - BOTTOM EDGE OF REFLECTING SURFACE SHALL BE LOCATED AT 40" MAX. A.F.F.*
    - *WATER CLOSET SHALL BE LOCATED WITH A WALL TO THE REAR AND TO ONE SIDE. WITH ITS CENTERLINE 16" - 18" FROM THE SIDE WALL.*
      - *CLEARANCE AROUND WATER CLOSET SHALL BE 60" MIN WIDE. MEASURED PERPENDICULAR FROM THE SIDE WALL, AND 56" MIN DEEP, MEASURED PERPENDICULAR FROM THE REAR WALL.*
        - *PER 1103.11.2.4 (C), THE LAVATORY IS PERMITTED TO OVERLAP THE WATER CLOSET CLEARANCE AS LONG AS THERE IS MIN 18" FROM CENTERLINE OF TOILET TO SIDE OF LAVATORY AND THERE IS MIN 66" CLEARANCE MEASURED PERPENDICULAR FROM THE REAR WALL.*
      - *THE HEIGHT OF THE SEAT SHALL BE 15" - 19" A.F.F., MEASURED TO TOP OF SEAT.*
      - *HAND-OPERATED FLUSH CONTROLS SHALL BE LOCATED ON THE OPEN SIDE OF THE WATER CLOSET.*
    - *BATHTUBS SHALL COMPLY WITH SECTION 607, EXCEPT THAT COUNTERTOPS AND CABINETRY SHALL BE PERMITTED AT ONE END OF THE CLEARANCE, AS LONG AS THE COUNTERTOP AND CABINETRY ARE REMOVABLE AND THE FLOORS AND WALLS UNDER AND SURROUNDING THE CABINETRY ARE FINISHED.*
      - *CLEARANCE IN FRONT OF BATHTUBS EXTENDING LENGTH OF BATHTUB AND MIN 30" DEEP.*
      - *A PERMANENT SEAT AT THE HEAD END OF THE BATHTUB OR A REMOVABLE IN-TUB SEAT SHALL BE PROVIDED. SEATS TO COMPLY WITH SECTION 610.*
      - *GRAB BARS SHALL COMPLY WITH EITHER SECTION 607.4.1 OR 607.4.2*
    - *SHOWERS SHALL COMPLY WITH SECTION 608, EXCEPT THAT AT STANDARD ROLL-IN SHOWER COMPARTMENTS COMPLYING WITH 608.2.2, LAVATORIES, COUNTERTOPS, AND CABINETRY SHALL BE PERMITTED AT ONE END OF THE CLEARANCE, AS LONG AS THE COUNTERTOP AND CABINETRY ARE REMOVABLE AND THE FLOORS AND WALLS UNDER AND SURROUNDING THE CABINETRY ARE FINISHED.*
      - *TRANSFER-TYPE SHOWERS SHALL HAVE A CLEAR INSIDE DIMENSION OF 30" X 36". AN ENTRY 36" MIN WIDE SHALL BE PROVIDED.*
        - *CLEARANCE (MIN 52" LONG X 36" DEEP IN NEW BUILDINGS OR MIN 48" LONG X 36" DEEP IN EXISTING BUILDINGS) SHALL BE PROVIDED ADJACENT TO THE OPEN FACE OF THE COMPARTMENT, MEASURED PERPENDICULAR FROM THE CONTROL WALL*
        - *A FOLDING OR NON-FOLDING SEAT COMPLYING WITH SECTION 610 SHALL BE PROVIDED ON THE WALL OPPOSITE THE CONTROL WALL*
      - *ROLL-IN SHOWERS SHALL HAVE A CLEAR INSIDE DIMENSION OF 60" MIN WIDE BY 30" MIN DEEP, AN ENTRY 60" MIN WIDE SHALL BE PROVIDED.*
        - *PROVIDE CLEARANCE OF 60" MIN LENGTH ADJACENT TO THE 60" WIDTH OF THE OPEN FACE OF THE SHOWER AND MIN 30" DEEP.*
          - *A LAVATORY COMPLYING WITH SECTION 606 IS PERMITTED AT THE END OF THE CLEARANCE OPPOSITE THE SEAT.*
        - *A FOLDING SEAT COMPLYING WITH SECTION 610 SHALL BE PROVIDED ON AN END WALL.*
          - *A FIXED SEAT SHALL BE PERMITTED WHERE THE SEAT DOES NOT OVERLAP THE MINIMUM CLEAR DIMENSION.*
        - *ALTERNATE ROLL-IN SHOWERS SHALL COMPLY WITH SECTION 608.2.3*
- *KITCHENS SHALL COMPLY WITH SECTION 1103.12:*
  - *CLEAR SPACE BETWEEN OPPOSING BASE CABINETS, COUNTERTOPS, APPLIANCES, OR WALLS WITHIN KITCHEN WORK AREAS - MIN 40" IN ALL KITCHENS, MIN. 60" IN U-SHAPED KITCHENS*
  - *AT LEAST 1 SECTION OF COUNTER SHALL PROVIDE AN ACCESSIBLE WORK SURFACE 30" MIN. IN LENGTH. CABINETRY AT ACCESSIBLE WORK SURFACE SHALL BE REMOVABLE. AND FLOOR AND WALLS BELOW AND SURROUNDING THE CABINETRY SHALL BE FINISHED. THE WORK SURFACE SHALL BE 34" MAX A.F.F. OR ADJUSTABLE IN HEIGHT. THERE SHALL BE NO SHARP OR ABRASIVE SURFACES UNDER EXPOSED PORTIONS OF WORK SURFACE COUNTERS.*
  - *KITCHEN SINK - PROVIDE CLEAR FLOOR SPACE POSITIONED FOR FORWARD APPROACH, AS WELL AS KNEE AND TOE CLEARANCE COMPLYING WITH SECTION 306. CABINETRY IS PERMITTED UNDER THE SINK AS LONG AS IT IS REMOVABLE REMOVABLE AND THE FLOOR AND WALLS BELOW AND SURROUNDING THE CABINETRY ARE FINISHED. CLEAR FLOOR SPACE PROVIDING PARALELL APPROACH AND CENTERED ON THE SINK SHALL BE PERMITTED AT A KITCHEN SINK IN A SPACE WHERE A COOK TOP OR CONVENTIONAL RANGE IS NOT PROVIDED. THE FRONT OF THE SINK SHALL BE 34" MAX. A.F.F. OR ADJUSTABLE IN HEIGHT. WATER SUPPLY AND DRAIN PIPES UNDER SINKS SHALL BE PROTECTED.*
  - *AT EACH KITCHEN APPLIANCE, PROVIDE CLEAR FLOOR SPACE POSITIONED FOR PARALELL OR FORWARD APPROACH, CENTERED ON THE APPLIANCE.*
    - *PROVIDE CLEAR FLOOR SPACE ADJACENT TO THE DISHWASHER DOOR. THE DISHWASHER DOOR IN THE OPEN POSITION SHALL NOT OBSTRUCT THE CLEAR FLOOR SPACE FOR THE DISHWASHER OR AN ADJACENT SINK.*
    - *WHERE THE CLEAR FLOOR SPACE FOR A COOKTOP IS POSITIONED FOR A FORWARD APPROACH, KNEE AND TOE CLEARANCE SHALL BE PROVIDED AND THE UNDERSIDE OF THE COOKTOP SHALL BE INSULATED OR OTHERWISE PROTECTED.*
    - *COMBINATION REFRIGERATORS AND FREEZERS SHALL HAVE AT LEAST 50% OF THE FREEZER COMPARTMENT SHELVES, INCLUDING THE BOTTOM OF THE FREEZER, 54" MAX. A.F.F. WHEN THE SHELVES ARE INSTALLED AT THE MAXIMUM HEIGHTS POSSIBLE.*
- *OPERABLE WINDOWS REQUIRED TO PROVIDE NATURAL VENTILATION SHALL COMPLY WITH SECTION 309.2 AND 309.3. OPERABLE WINDOWS REQUIRED TO PROVIDE AN EMERGENCY ESCAPE AND RESCUE OPENING SHALL COMPLY WITH SECTION 309.2. WINDOWS IN KITCHENS AND BATHROOMS ARE NOT REQUIRED TO COMPLY.*
- *WHERE STORAGE FACILITIES ARE PROVIDED, AT LEAST 1 OF EACH TYPE SHALL COMPLY WITH SECTION 905. KITCHEN CABINETS ARE NOT REQUIRED TO COMPLY.*

## CODE REVIEW - LIFE SAFETY OCCUPANT LOAD SCHEDULE

| Name | Area | IBC Occ. Type | IBC Use | IBC O.L.F. | IBC O.L. | NFPA Occ. Type | NFPA Use | NFPA O.L.F. | NFPA O.L. |
|---|---|---|---|---|---|---|---|---|---|
| STORAGE | 7788 SF | S1 | STORAGE | 500 | 16 | STORAGE | STORAGE | 500 | 16 |
| Area | 798 SF | S1 | | | | | | | |
| APPROX. GRADE AT MAINE AVE | 8586 SF | | | | 16 | | | | 16 |
| COMMUNITY KITCHEN | 2407 SF | A3 | UNC.ASSY | 15 | 161 | RES APT | ASSY | 15 | 161 |
| APARTMENTS | 11549 SF | R2 | RES | 200 | 58 | RES APT | RES APT | 200 | 58 |
| APARTMENTS | 3986 SF | R2 | RES | 200 | 20 | RES APT | RES APT | 200 | 20 |
| OFFICES | 283 SF | R2 | BUS | 150 | 2 | RES APT | BUS | 150 | 2 |
| OFFICES | 299 SF | R2 | BUS | 150 | 2 | BUS | BUS | 150 | 2 |
| OFFICES | 780 SF | R2 | BUS | 150 | 6 | RES APT | BUS | 150 | 6 |
| T.O. SLAB | 19305 SF | | | | 249 | | | | 249 |
| Total | 27891 SF | | | | 265 | | | | 265 |

**CODE REVIEW ABBREVIATIONS:**

| | | | |
|---|---|---|---|
| *A* | *ASSEMBLY GROUP* | *IND.* | *INDUSTRIAL* |
| *ACC.* | *ACCESSORY* | *INP.* | *INPATIENT* |
| *A.H.C.* | *AMBULATORY HEALTH CAR* | *M* | *MERCANTILE GROUP* |
| *A.H.J.* | *AUTHORITY HAVING JURISDICTION* | *MAX* | *MAXIMUM* |
| | | *MIN* | *MINIMUM* |
| *B* | *BUSINESS GROUP* | *OCC.* | *OCCUPANT(S)/ OCCUPANCY* |
| *C.K.* | *COMMERCIAL KITCHEN* | *O.L.* | *OCCUPANT LOAD* |
| *COLLAB.* | *COLLABORATION* | *O.L.F.* | *OCCUPANT LOAD FACTOR* |
| *COMM.* | *COMMERCIAL* | *O.P.* | *OUTPATIENT* |
| *D.C.* | *DAYCARE* | *R* | *RESIDENTIAL GROUP* |
| *D.F.* | *DRINKING FOUNTAIN/ BOTTLE FILLER* | *RB&C* | *RESIDENTIAL BOARD & CARE* |
| | | *RM* | *ROOM* |
| *E* | *EDUCATIONAL GROUP* | *REQD* | *REQUIRED* |
| *F* | *FACTORY GROUP* | *S* | *STORAGE GROUP* |
| *H* | *HIGH HAZARD GROUP* | *SMK CMP* | *SMOKE COMPARTMENT* |
| *H.C.* | *HEALTHCARE* | *U* | *UTILITY & MISC. GROUP* |
| *I* | *INSTITUTIONAL GROUP* | *UNC.* | *UNCONCENTRATED (IBC) / LESS CONCENTRATED (NFPA)* |
| *INC.* | *INCIDENTAL* | *W.C.* | *WATER CLOSET (TOILET)* |

**CODE REVIEW GENERAL NOTES:**

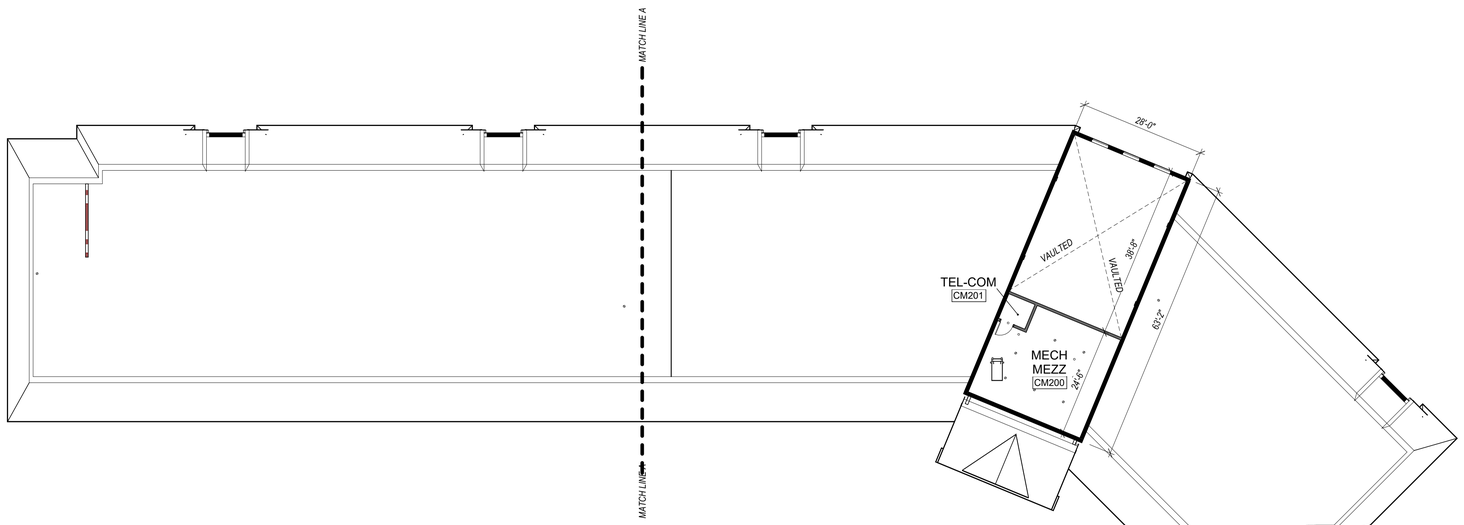
1. *CODE REVIEW SHEET SHALL BE PRINTED IN COLOR.*
2. *ALL PENETRATIONS OF SMOKE BARRIERS, PARTITIONS, FIRE RATED WALLS AND FLOORS SHALL BE SEALED WITH PROPER APPROVED MATERIALS*
3. *ALL WORK SHALL CONFORM TO LOCAL AND STATE CODES, ORDINANCES, AND REQUIREMENTS, ACCESSIBILITY PER A.D.A.A.G.*
4. *REFER TO SHEET G103 FOR ADA DETAILS.*
5. *CODE ANALYSIS FOR REFERENCE ONLY. SEE ALL OTHER PLAN SHEETS FOR CONTRACT DOCUMENT INFORMATION.*
6. *THIS CODE ANALYSIS IDENTIFIES SOME SPECIFIC BUILDING CODE REQUIREMENTS BUT IS NOT INTENDED TO LIST ALL BUILDING CODE REQUIREMENTS.*
7. *SEE PLANS AND OTHER DETAIL SHEETS FOR ACCESSIBILITY CONFORMANCE.*
8. *MAINTAIN FIRE RATING AND AIR SEALING OF WALLS AROUND FIRE EXTINGUISHERS, CABINETS, AND OTHER RECESSED ITEMS.*
9. *PROVIDE ACOUSTICAL SEALANT AT FLOOR / CEILING/ WALL TRANSITIONS, RECESSED BOXES, AND PENETRATIONS OF ALL ASSEMBLIES AND OTHER CONSTRUCTION AS REQUIRED TO ACHIEVE NOTED STC RATINGS.*
10. *CONTRACTOR TO FIELD VERIFY FIRE EXTINGUISHER LOCATIONS AND COORDINATE WITH LOCAL A.H.J.; ARCHITECT TO REVIEW AND APPROVE NEW FEC LOCATIONS AS REQUIRED.*
11. *DOORS IN MEANS OF EGRESS, IN EXIT ENCLOSURES, AND IN EXIT PASSAGEWAYS SHALL BE EQUIPPED WITH DOOR CLOSERS AS REQUIRED BY CODE.*
12. *BUILDING AND AREA SQUARE FOOTAGES ARE CALCULATED FROM INTERIOR FINISH FACES OF EXTERIOR WALLS AND INCLUDE PORCHES/ PATIOS COVERED BY ROOFS.*

## CODE REVIEW - MAINE UNIFORM BUILDING CODE - IBC 2021 - RESIDENTIAL APARTMENTS

| Code Description IBC | Code Data IBC - RA |
|---|---|
| *USE GROUP CLASSIFICATION(S)* | *(CHAPTER 3) RESIDENTIAL APARTMENTS (R-2)* |
| *ACCESSORY OCCUPANCIES* | *(CHAPTER 3, 508.2)* |
| *OCCUPANT LOAD FACTOR(S)* | *(TABLE 1004.5) RESIDENTIAL AREAS - 200 GROSS, STORAGE AREAS/ MECH EQUIPMENT ROOMS - 300 GROSS, ASSEMBLY AREAS - 15 NET* |
| *CALCULATED OCCUPANT LOAD* | *271* |
| *TYPE OF CONSTRUCTION* | *(TABLE 601) TYPE 5B* |
| *PROPOSED BUILDING AREA* | *30231 SF* |
| *ALLOWABLE AREA FACTOR* | *(TABLE 506.2) 21,000 SF* |
| *CALCULATED MAXIMUM ALLOWABLE BUILDING AREA* | *(506.2) 82,0000 SF* |
| *PROPOSED BUILDING HEIGHT ABOVE GRADE* | *38'-9 1/4", 2 STORIES* |
| *ALLOWABLE BUILDING HEIGHT ABOVE GRADE* | *(TABLE 504.3, TABLE 504.4) 60'-0", 3 STORIES* |
| *FIRE EXTINGUISHERS* | *LOCATIONS TO BE VERIFIED BY LOCAL AHJ PRIOR TO INSTALLATION - MAX 75' TRAVEL DISTANCE FROM ANYWHERE IN BUILDING TO FE AT CLASS A HAZARD, TYPE K EXTINGUISHER IN COMMERCIAL KITCHEN - 30' MAX TRAVEL DISTANCE TO FE* |
| *FIRE SUPPRESSION:* | *(420.4) TOTAL BUILDING AUTOMATIC SPRINKLER SYSTEM REQUIRED FOR R OCCUPANCY* |
| | *NOTE: FIRE ALARM SYSTEM, SMOKE DETECTION, CO2 AND SMOKE ALARMS TO MEET MUBC 420.6 AND NFPA 101 32.3.3.4* |
| *FIRE ALARM & DETECTION SYSTEM* | *(420.5) REQUIRED* |
| *EXIT WIDTH FACTORS* | *(1005.3.1, 1005.3.2) STAIRS. OCC. LOAD x .3" , OTHER EGRESS COMPONENTS (DOORS): OCCUPANT LOAD X .2"* |
| *SPACES REQUIRING 2 EXITS* | *(TABLE 1006.2.1) R-2 OCC. LOAD > 20, STORAGE OCC LOAD> 29* |
| *MAXIMUM COMMON PATH OF TRAVEL TO EXIT* | *(TABLE 1006.2.1) R-2 - 125' w/ SPRINKLER SYSTEM* |
| *MINIMUM NUMBER OF EXITS PER FLOOR* | *(TABLE 1006.3.3) 2 FOR STORY OCC. LOAD 1-500, 3 FOR STORY OCC. LOAD 501 - 1000, 4 FOR STORY OCC LOAD > 1,000, EXCEPT WHERE SINGLE EXIT PERMITTED BY 1006.3.4* |
| *MAXIMUM TRAVEL DISTANCE TO EXIT* | *(TABLE 1017.2) R - 200' / 250' W/ SPRINKLER SYSTEM)* |
| *MINIMUM CORRIDOR WIDTH* | *(TABLE 1020.3) 36" WHERE OCC. LOAD SERVED <50, 44" OTHERWISE* |
| *MAXIMUM DEAD END CORRIDOR LENGTH* | *(1020.5) 20' OR 50' W/ SPRINKLER SYSTEM IN OCCUPANCY R-2* |
| *RATING REQUIREMENTS:* | |
| *OCCUPANCY SEPARATION* | *(TABLE 508.4) # HOUR RATING* |
| *UNIT SEPARATION* | *(420.2) FIRE PARTITION PER 708 - 30 MIN RATING (W/ SPRINKLER SYSTEM)* |
| *PRIMARY STRUCTURAL FRAME* | *(TABLE 601) 0 HOUR RATING* |
| *BEARING WALLS EXTERIOR* | *(TABLE 601) 0 HOUR RATING* |
| *BEARING WALLS INTERIOR* | *(TABLE 601) 0 HOUR RATING* |
| *NON BEARING WALLS AND PARTITIONS - EXTERIOR* | *(TABLE 705.5) 0 HOUR RATING* |
| *NON BEARING WALLS AND PARTITIONS - INTERIOR* | *(TABLE 601) 0 HOUR RATING* |
| *FLOOR CONSTRUCTION & ASSOCIATED SECONDARY MEMBERS* | *(TABLE 601) 0 HOUR RATING* |
| *ROOF/CEILING CONSTRUCTION & ASSOCIATED SECONDARY MEMBERS* | *(TABLE 601)0 HOUR RATING* |
| *MECHANICAL ROOMS* | *(TABLE 509.1) NON-RATED (W/ AUTOMATIC SPRINKLER SYSTEM)* |
| *LAUNDRY ROOMS > 100 SF* | *(TABLE 509.1) NON-RATED (W/ AUTOMATIC SPRINKLER SYSTEM)* |
| *WASTE AND LINEN COLLECTION ROOMS > 100 SF* | *(TABLE 509.1) NON-RATED (W/ AUTOMATIC SPRINKLER SYSTEM)* |
| *SHAFTS* | *(713.4) [1 HOUR WHERE CONNECTING LESS THAN 4 STORIES, 2 HOURS WHERE CONNECTING 4 STORIES OR MORE]* |
| *EXIT STAIR ENCLOSURES* | *(1019.3) 1 HOUR RATING* |
| *EXIT ACCESS CORRIDORS* | *(TABLE 1020.2) R: 30 MIN RATING (W/ SPRINKLER SYSTEM)* |
| *FLAME SPREAD RATINGS:* | |
| *INTERIOR WALL AND CEILING FINISH REQUIREMENTS:* | |
| *..INTERIOR EXIT STAIRWAYS & RAMPS & EXIT PASSAGEWAYS* | *(TABLE 803.13) R-2 W/ SPRINKLER SYSTEM: CLASS C* |
| *..CORRIDORS & ENCLOSURE FOR EXIT ACCESS STAIRWAYS AND RAMPS* | *(TABLE 803.13) R-2 W/ SPRINKLER SYSTEM: CLASS C* |
| *..ROOMS & ENCLOSED SPACES* | *(TABLE 803.13) R-2 W/ SPRINKLER SYSTEM: CLASS C* |
| *INTERIOR FLOOR FINISH REQUIREMENTS:* | *(804.4.2) R-2: DOC FF-1 PILL TEST (w/ SPRINKLER SYSTEM)* |
| *REQUIRED NUMBER OF TYPE A UNITS (TO COMPLY W/ APPLICABLE ICC A117.1 CH 11 REQUIREMENTS)* | *(1108.6.2.2.1) R-2: MIN 2% OF TOTAL # UNITS / MIN 1 TYPE A UNIT REQUIRED WHERE MIN 20 DWELLING/ SLEEPING UNITS ON SITE* |
| *REQUIRED NUMBER OF TYPE B UNITS (TO COMPLY W/ APPLICABLE ICC A117.1 CH 11 REQUIREMENTS)* | *(1108.6.2.2.2) R-2: EVERY DWELLING/ SLEEPING UNIT REQUIRED TO BE TYPE B WHERE MIN 4 UNITS IN SINGLE STRUCTURE* |
| *REQUIRED NUMBER OF ACCESSIBLE UNITS (TO COMPLY W/ APPLICABLE ICC A117.1 CH11 REQUIREMENTS)* | *(1108.6.2.3.1, TABLE 1108.6.1.1)* |

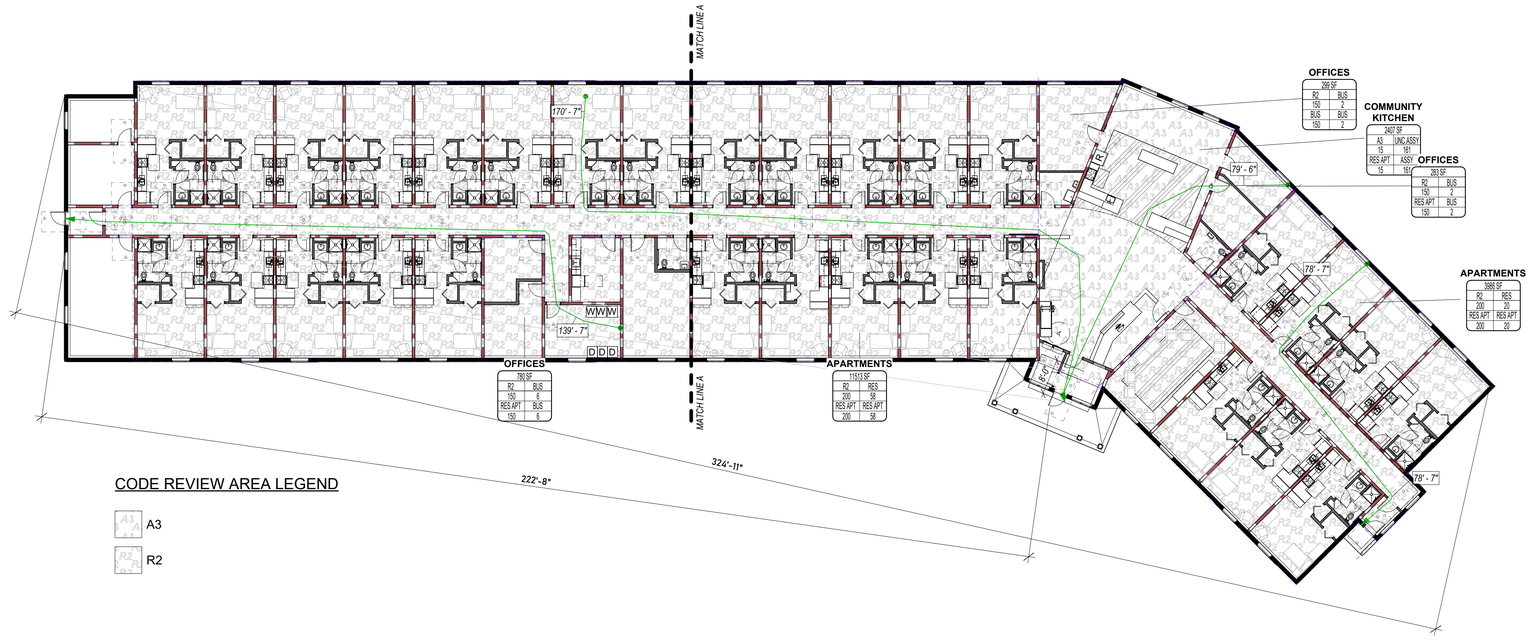
## CODE REVIEW - 2018 NFPA 101 - RESIDENTIAL APARTMENTS

| CODE DESCRIPTION NFPA | CODE DATA NFPA |
|---|---|
| *USE GROUP CLASSIFICATION(S)* | *NEW APARTMENT BUILDING - CHAPTER 30* |
| *OCCUPANT LOAD FACTOR(S)* | *(TABLE 7.3.1.2) APARTMENT BUILDINGS - 200, STORAGE - 500* |
| *CALCULATED OCCUPANT LOAD* | *271* |
| *TYPE OF CONSTRUCTION* | *TYPE V(000)* |
| *PROPOSED BUILDING AREA* | *30,231 SF* |
| *PROPOSED BUILDING HEIGHT* | *39'-9 1/2", 2 STORIES* |
| *FIRE SUPPRESSION:* | *(30.3.5.1) APPROVED, SUPERVISED AUTOMATIC SPRINKLER SYSTEM* |
| | *NOTE: FIRE ALARM SYSTEM, SMOKE DETECTION, CO2 AND SMOKE ALARMS TO MEET MUBC 420.6 AND NFPA 101 32.3.3.4* |
| *FIRE ALARM DETECTION* | *(30.3.4.1.1) APARTMENTS - FIRE ALARM SYSTEM REQUIRED (FOR > 11 UNITS)* |
| *FIRE EXTINGUISHERS* | *LOCATIONS TO BE VERIFIED BY LOCAL AHJ PRIOR TO INSTALLATION - MAX 75' TRAVEL DISTANCE FROM ANYWHERE IN BUILDING TO FE. TYPE K IN COMMERCIAL KITCHEN - 30' MAX TRAVEL DISTANCE TO FE* |
| *MAXIMUM COMMON PATH OF TRAVEL* | *(30.2.5.3.2) APARTMENTS - 50' NOT INCLUDING TRAVEL WITHIN UNIT (W/ SPRINKLER SYSTEM)* |
| *MINIMUM EGRESS CORRIDOR WIDTH* | *(30.2.3.4) APARTMENTS - 36" F




## J1 MEZZANINE CODE PLAN

1/16" = 1'-0"




CODE REVIEW AREA LEGEND

A3

R2

## A1 FIRST FLOOR CODE PLAN

1/16" = 1'-0"

4/22/2026 10:27:42 AM Author


OFFICE: 29 BLACK POINT ROAD
SCARBOROUGH, MAINE 04074
MAIL: PO BOX #776
SCARBOROUGH, MAINE 04070
PHONE: 207-883-6307
WWW.GTDARCHITECTS.COM

GAWRON TURGEON DILLON ARCHITECTS PC


BHDC YELLEN PINES

HOME FOR GOOD

205 CORPORATE DRIVE, BANGOR ME

REVISIONS

| # | DATE | DESCRIPTION |
|---|---|---|
| B | 04.20.2026 | REVISED 50% PROGRESS SET |

| | |
|---|---|
| DATE: | 04.24.26 |
| PROJECT # | 050725 |
| DRAWN BY: | Author |
| CHECKED BY: | Checker |
| DRAWING SCALE | 1/16" = 1'-0" |

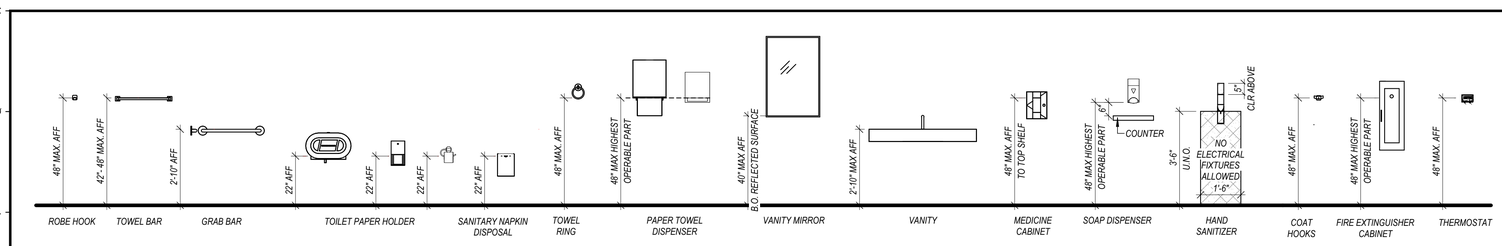
SHEET TITLE

CODE PLAN

NOT FOR CONSTRUCTION

G103


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## O1 ACCESSIBLE MOUNTING AND CLEARANCE REQUIREMENTS

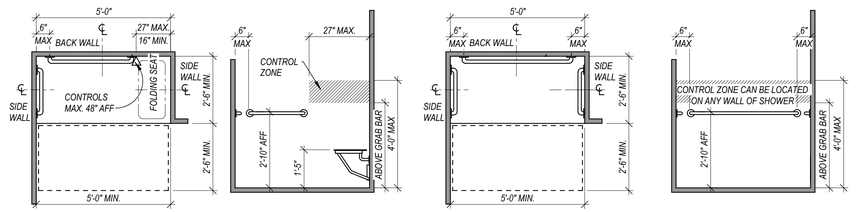
**NOTE:**

1. *VERIFY ALL ACCESSIBILITY REQUIREMENTS WITH CURRENT CODE AND LOCAL JURISDICTION.*
2. *DIAGRAMS ARE INTENDED AS A REFERENCE ONLY AND ARE NOT ALL INCLUSIVE. REFERENCE CURRENT CODE AND PROJECT DOCUMENTATION FOR ADDITIONAL REQUIREMENTS.*
3. *CROSS CHECK WITH ALL INTERIOR ELEVATIONS FOR DEVIATIONS TO TYPICAL LOCATIONS.*
4. *NOTIFY ARCHITECT OF ANY DISCREPANCIES BETWEEN DIMENSIONS SHOWN HERE AND PROPOSED WORK.*
5. *INSTALL BLOCKING AS REQUIRED FOR ALL GRAB BARS AND TOILET ACCESSORIES.*

**2010 ADA STANDARD:**

*A1 - SECTION 404: MANEUVERING CLEARANCES AT MANUAL SWINGING DOORS*
*A8 - SECTION 308: REACH RANGE APPROACH*
*A13 - SECTION 307: PROTRUDING OBJECTS*
*A16 - SECTION 607: BATHTUBS*
*D13 - SECTION 305 ALCOVES*
*D16 - SECTION 608: SHOWER - TRANSFER TYPE SHOWER*
*E1 - SECTION 306: KNEE AND TOE CLEARANCE*
*H1 - SECTION 606: LAVATORIES AND SINKS*
*H5 - SECTION 602: DRINKING FOUNTAINS*
*H10 - SECTION 308: REACH RANGE APPROACH AND SECTION 306: KNEE AND TOE CLEARANCE*
*G13 - SECTION 608: SHOWER - ALTERNATIVE ROLL-IN TYPE SHOWER*
*L1 - SECTION 603, 604, 609: WATER CLOSET / GRAB BARS / ACCESSORIES*
*L8 - SECTION 605: URINALS*
*L10 - DIAPER CHANGING STATION*
*L14 - SECTION 608: SHOWER - STANDARD ROLL-IN TYPE SHOWER*
*O1 - ADA ACCESSIBLE MOUNTING HEIGHTS*
*O14 - GENERAL NOTES*

## O14 GENERAL SHEET NOTES



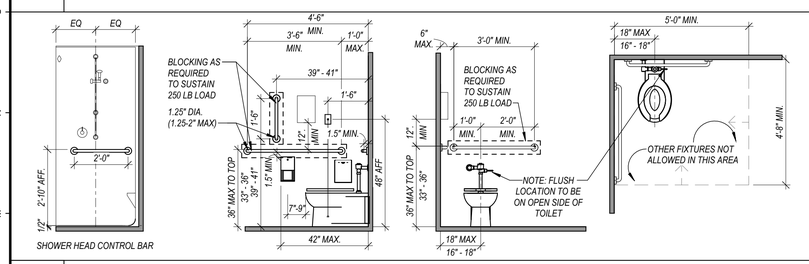

**PLAN - WITH SEAT**
*STANDARD ROLL-IN TYPE SHOWER COMPARTMENT SIZE & CLEARANCE*

**BACK WALL - WITH SEAT**
*STANDARD ROLL-IN SHOWER CONTROLS AND HAND SHOWER LOCATION*

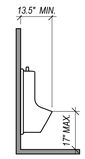
**PLAN - WITHOUT SEAT**
*STANDARD ROLL-IN TYPE SHOWER WITHOUT SEAT COMPARTMENT SIZE & CLEARANCE*

**BACK WALL - WITHOUT SEAT**
*STANDARD ROLL-IN SHOWER CONTROLS AND HAND SHOWER LOCATION*

## L1 WATER CLOSET / GRAB BARS / ACCESSORIES

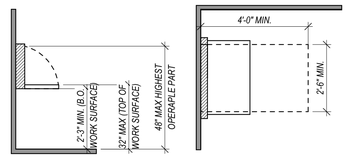



## L8 URINAL

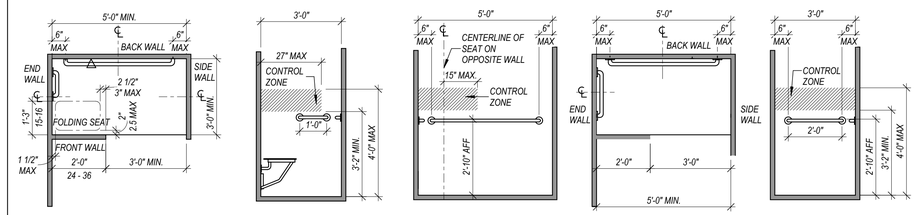



WALL HUNG TYPE

## L9 DIAPER CHANGING STATION




## L14 SHOWER - STANDARD ROLL-IN TYPE SHOWER




**PLAN - WITH SEAT**
*ALTERNATIVE ROLL-IN TYPE SHOWER*

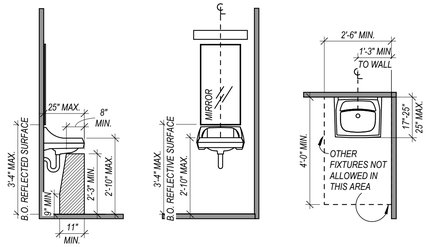
**END WALL - WITH SEAT**
*ALTERNATIVE ROLL-IN TYPE SHOWER CONTROL AND HAND SHOWER LOCATION*

**BACK WALL - WITH SEAT**
*ALTERNATIVE ROLL-IN TYPE SHOWER CONTROL AND HAND SHOWER LOCATION*

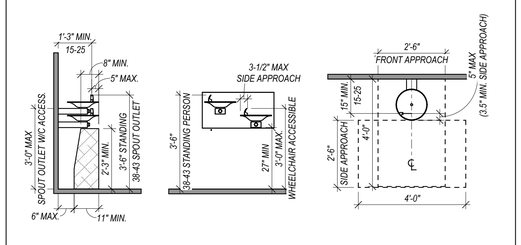
**PLAN - WITHOUT SEAT**
*ALTERNATIVE ROLL-IN TYPE SHOWER*

**END WALL - WITHOUT SEAT**
*ALTERNATIVE ROLL-IN TYPE SHOWER CONTROL AND HAND SHOWER LOCATION*

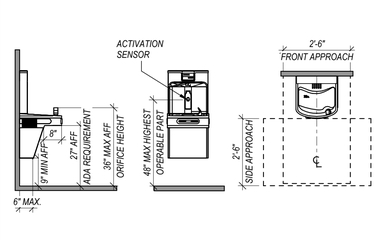
## H1 LAVATORIES AND SINKS



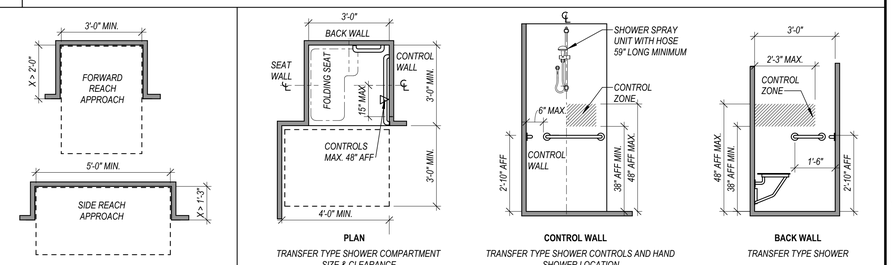

## H5 DRINKING FOUNTAIN




## H10 BOTTLE FILLING STATION




## G13 SHOWER - ALTERNATIVE ROLL-IN TYPE SHOWER

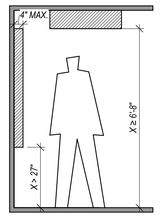



**PLAN**
*TRANSFER TYPE SHOWER COMPARTMENT SIZE & CLEARANCE*

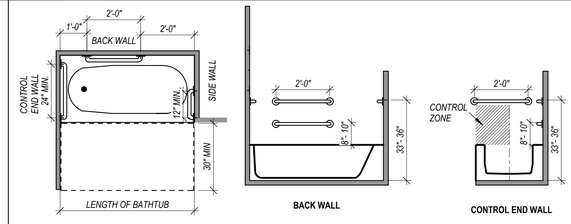
**CONTROL WALL**
*TRANSFER TYPE SHOWER CONTROLS AND HAND SHOWER LOCATION*

**BACK WALL**
*TRANSFER TYPE SHOWER*

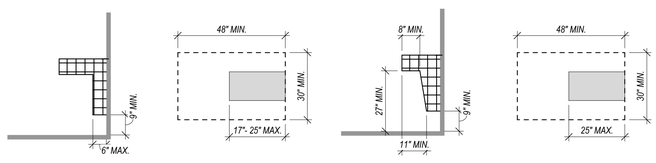
## D13 ALCOVE



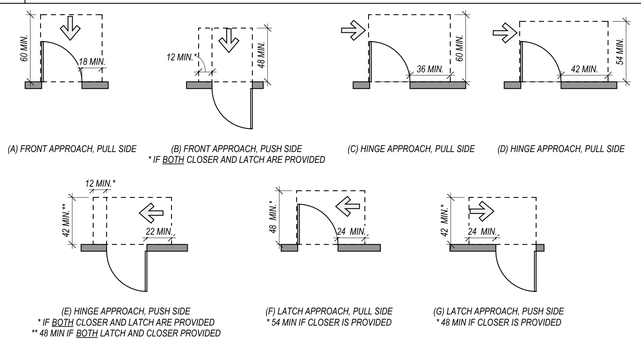

## D16 SHOWER - TRANSFER TYPE SHOWER



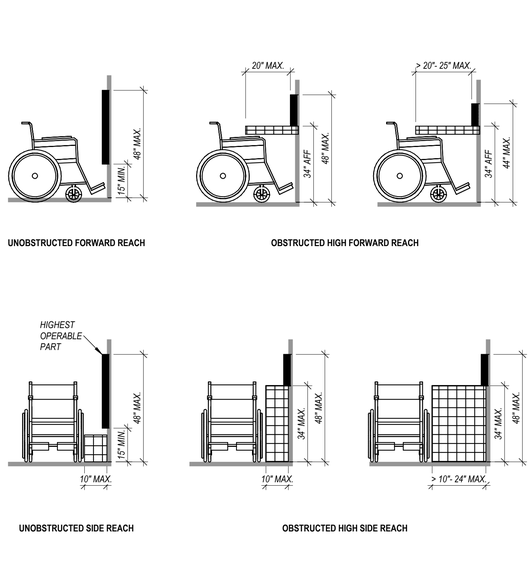

## E1 KNEE AND TOE CLEARANCE




## A1 MANEUVERING CLEARANCE AT MANUAL SWING DOORS




## A8 ADA REACH RANGE APPROACH




## A13 PROTRUDING OBJECT

## A16 BATHTUB - WITHOUT PERMANENT SEAT


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|---|---|---|
| A | 02.09.2026 | 50% PROGRESS SET |

| | |
|---|---|
| DATE: | 04.24.26 |
| PROJECT # | 050725 |
| DRAWN BY: | KMD, BW |
| CHECKED BY: | RLD |
| DRAWING SCALE | 3/8" = 1'-0" |

SHEET TITLE

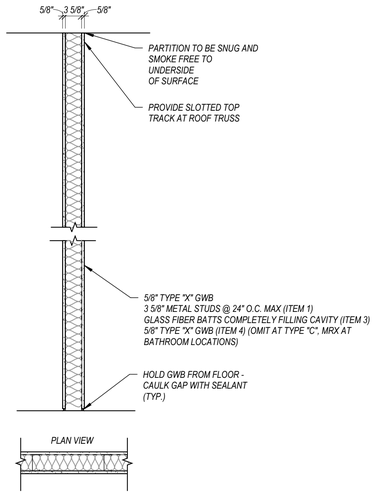
ADA DETAILS

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G104


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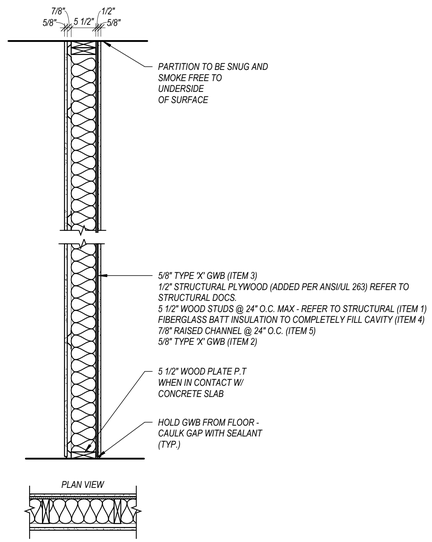

4/23/2026 10:27:50 AM BW



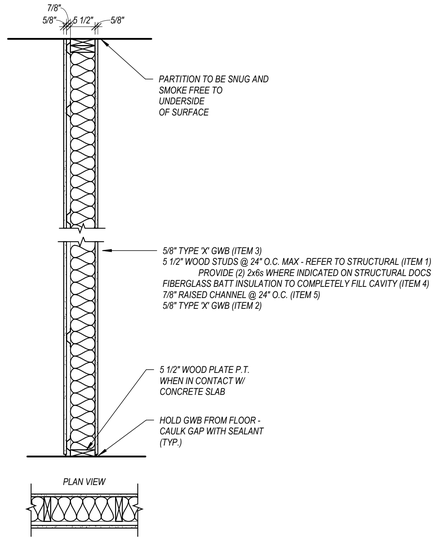

W1 WALL DETAIL (NON RATED) SCALE 3/4"=1'-0"

W1B WALL DETAIL (NON RATED) SCALE 3/4"=1'-0"
OMIT GWB FROM ONE SIDE

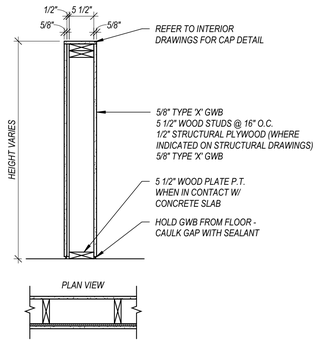
W1C WALL DETAIL (NON RATED) SCALE 3/4"=1'-0"
W/ 6" METAL STUD




W2 UNIT SEPARATION WALL (1-1/2HR RATED) SCALE 3/4"=1'-0"
U.L. DES: U309
STC: 52 +/-




W3 CORRIDOR WALL DETAIL (1HR RATED) SCALE 3/4"=1'-0"
U.L. DES: U304
STC: 52 +/-




W5 HALF WALL DETAIL (NON RATED) SCALE 3/4"=1'-0"

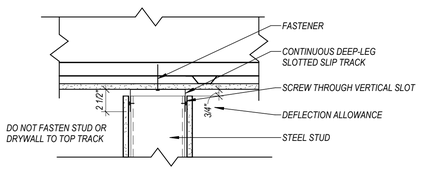
**GENERAL PARTITION NOTES:**

1. PROVIDE 5/8" TYPE "MRX" GWB AT ALL BATHROOMS, LAUNDRY ROOMS, KITCHENS, INTERIOR FACES OF EXTERIOR WALLS, AND AREAS OF EXCESSIVE MOISTURE WHETHER INDICATED IN DRAWINGS OR NOT.
2. SEAL ALL PENETRATIONS THROUGH ALL RATED WALL ASSEMBLIES UTILIZING U.L. DESIGN DETAILING AND APPLICABLE MATERIALS. SUBMIT ALL DETAILS TO ARCHITECT FOR APPROVAL. ENGINEERING JUDGEMENTS WILL NOT BE ACCEPTED UNLESS ADDRESSING NOVEL CONDITIONS.
3. SEAL TOP AND BOTTOM OF RATED PARTITIONS UTILIZING U.L. DESIGN DETAILING AND APPLICABLE MATERIALS.
4. REFER TO FINISH SCHEDULE FOR WALL FINISHES.
5. WALL BASES, LEAN RAILS, CHAIR RAILS AND TRIM NOT SHOWN FOR CLARITY. REFER TO FINISH SCHEDULE FOR SELECTIONS AND LOCATIONS.
6. REFER TO STRUCTURAL DRAWINGS FOR SHEAR WALL AND LOAD-BEARING WALL LOCATIONS.
7. DOUBLE TOP PLATE AT ALL WOOD-FRAMED WALLS. REFER TO STRUCTURAL DOCUMENTS FOR T.O. NON-BEARING WALLS ATTACHMENT TO TRUSS/FRAMING.
8. RATED WALLS TO CONTINUE TO BOTTOM OF SHEATHING AT ALL FLOORS AND ROOF.
9. ALL FRAMING AND FINISHES OF INTERIOR WALLS TO EXTEND TO THE UNDERSIDE OF STRUCTURE ABOVE UNLESS NOTED OTHERWISE.
10. FIBERGLASS MESH DRYWALL TAPE SHALL NOT BE PERMITTED.
11. INSTALL GWB PANELS UTILIZING FASTENERS AND SPACING SPECIFIED IN UL ASSEMBLY OR PER SPECIFICATIONS.
12. PROVIDE CONTROL JOINTS IN GWB PER ASTM C840. ALIGN W/ DOOR FRAMES WHERE POSSIBLE, REVIEW LOCATIONS W/ ARCHITECT.
13. ALL STEEL STUDS SHALL BE 20-GAUGE U.N.O.
14. PREFILL AND SETTING OF TAPE SHALL BE IN SETTING TYPE COMPOUND.
15. MAINTAIN FIRE RATING OF WALLS AROUND FIRE EXTINGUISHERS, CABINETS, AND OTHER RECESSED ITEMS WITH CONTINUOUS GYPSUM WALLBOARD MEMBRANES.
16. PROVIDE ACOUSTICAL SEALANT AT FLOOR / CEILING / WALL TRANSITIONS, RECESSED BOXES, AND PENETRATIONS OF SOUND RATED ASSEMBLIES AND OTHER CONSTRUCTION AS REQUIRED TO ACHIEVE NOTED STC RATINGS.
17. METAL STUD FRAMING ATTACHED TO WOOD TRUSSES TO RECEIVE SLOTTED DEFLECTION RECEIVER TRACK. DO NOT ATTACH GWB TO DEFLECTION TRACK.
18. SEE REFERENCED UL/GA ASSEMBLY LISTING FOR ADDITIONAL INFORMATION AND REQUIREMENTS OF ASSEMBLY.
19. ALL WOOD IN CONTACT WITH CONCRETE OR MASONRY TO BE PRESSURE TREATED.
20. WHERE PARTITIONS ARE SOUND OR FIRE RATED AND INCLUDE PROPRIETARY MANUFACTURERS, NO SUBSTITUTION ALLOWED.
21. WALLS OVER 13' HIGH REQUIRE BLOCKING AT MID-SPAN.

OCCASIONAL NOTES:
1. PROVIDE FULL LAYER OF TYPE X GWB AT SHOWER FLANGE WHERE SHOWER IS AGAINST SOUND/ FIRE-RATED WALLS - REFER TO DETAIL:

NOTE:
- PROJECT ARCHITECT/ MANAGER TO REVIEW ABOVE NOTES - WE MAY NOT NEED ALL/ ANY OF THESE NOTES ON PROJECTS WHERE WE HAVE SPECIFICATIONS.
- FOR SMALLER PROJECTS WHERE WE PUT WALL DETAILS ON ANOTHER SHEET, COPY THESE NOTES TO THE SAME SHEET WHERE YOUR PARTITION DETAILS ARE GOING.
-GO TO NETWORK REVIT DRIVE FOR TYPICAL PARTITIONS - OR REFER TO DRAFTING DETAILS

## G1 INTERIOR PARTITION TYPES




## A1 SLOTTED SLIP TRACK

1 1/2" = 1'-0"

**BUILDING AIR SEALING NOTES:**

1. SEAL ALL PENETRATIONS THROUGH THE BUILDING AIR BARRIER.
2. SEAL ALL POLYVAPOR BARRIER OR DRYWALL.
3. PROVIDE GASKETS OR SILL SEALS UNDER MUD SILLS ALONG FOUNDATION WALLS.
4. USE CONSTRUCTION ADHESIVE OR CAULKING BETWEEN MULTIPLE SILL PLATES.
5. WINDOW FRAMES AND DOOR JAMBS MUST BE SEALED TO THEIR ROUGH OPENINGS USING BACKER ROD AND CAULK.
6. ALL PENETRATIONS THROUGH THE BUILDING ENVELOPE MUST BE CAREFULLY SEALED AS DETAILED, OR WITH EXPANDING SPRAY FOAM IF NOT NOTED. TYPICAL PENETRATIONS INCLUDE CHIMNEY, DUCT & PLUMBING CHASES, AND PENETRATIONS OF PIPES AND WIRES THROUGH THE TOP PLATES OF TOP STORY WALLS. IT IS PARTICULARLY IMPORTANT TO SEAL ALL POSSIBLE AIR PATHS TO THE ATTIC.
7. ELECTRICAL BOXES ON EXTERIOR WALLS AND CEILINGS TO EITHER BE AIR-SEALED OR PLACED IN AIRTIGHT ENCLOSURES (LESSCO BOX OR EQUIVALENT).
8. DO NOT STUFF BATT INSULATION INTO SPACES THAT ARE TOO NARROW. CUT BATTS TO FIT EXACT WIDTH TO FIT SNUG AND AVOID COMPRESSING THE INSULATION. NOTCH BATTS AROUND ELECTRICAL BOXES AND SPLIT BATTS AROUND CABLES AND PIPES.

## A18 NOTES

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| B | 04.20.2026 | REVISED 50% PROGRESS SET |

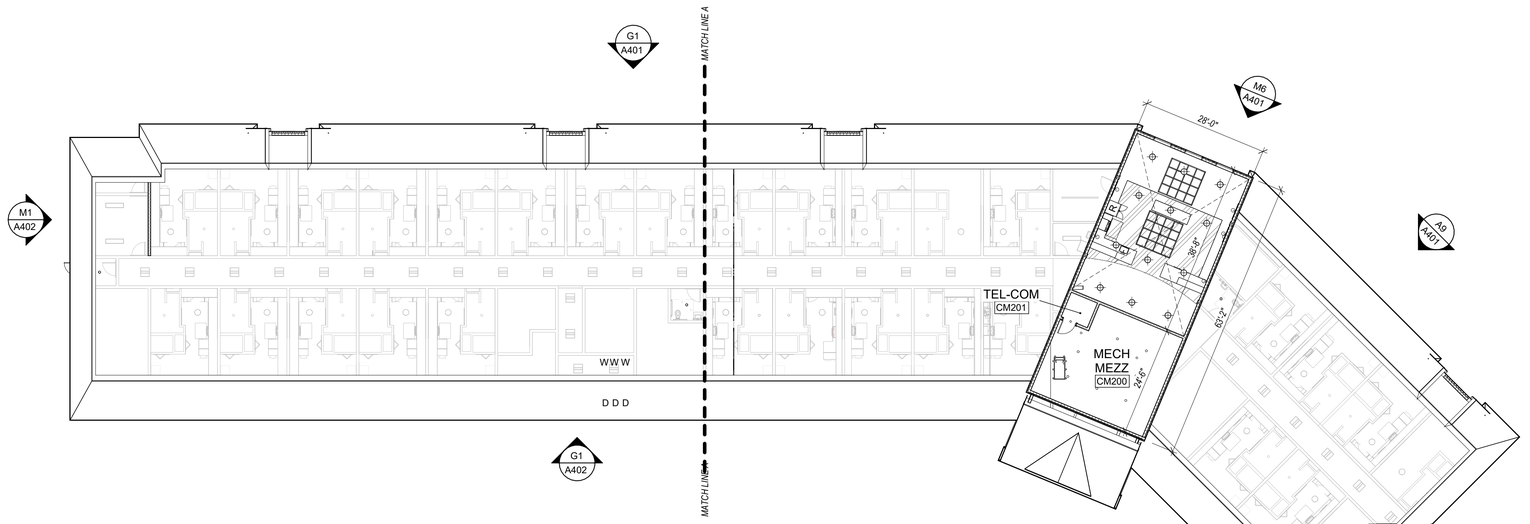
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| DATE: | |
| PROJECT # | 050725 |
| DRAWN BY: | Author |
| CHECKED BY: | Checker |
| DRAWING SCALE | As indicated |

SHEET TITLE
ASSEMBLY TYPES AND NOTES
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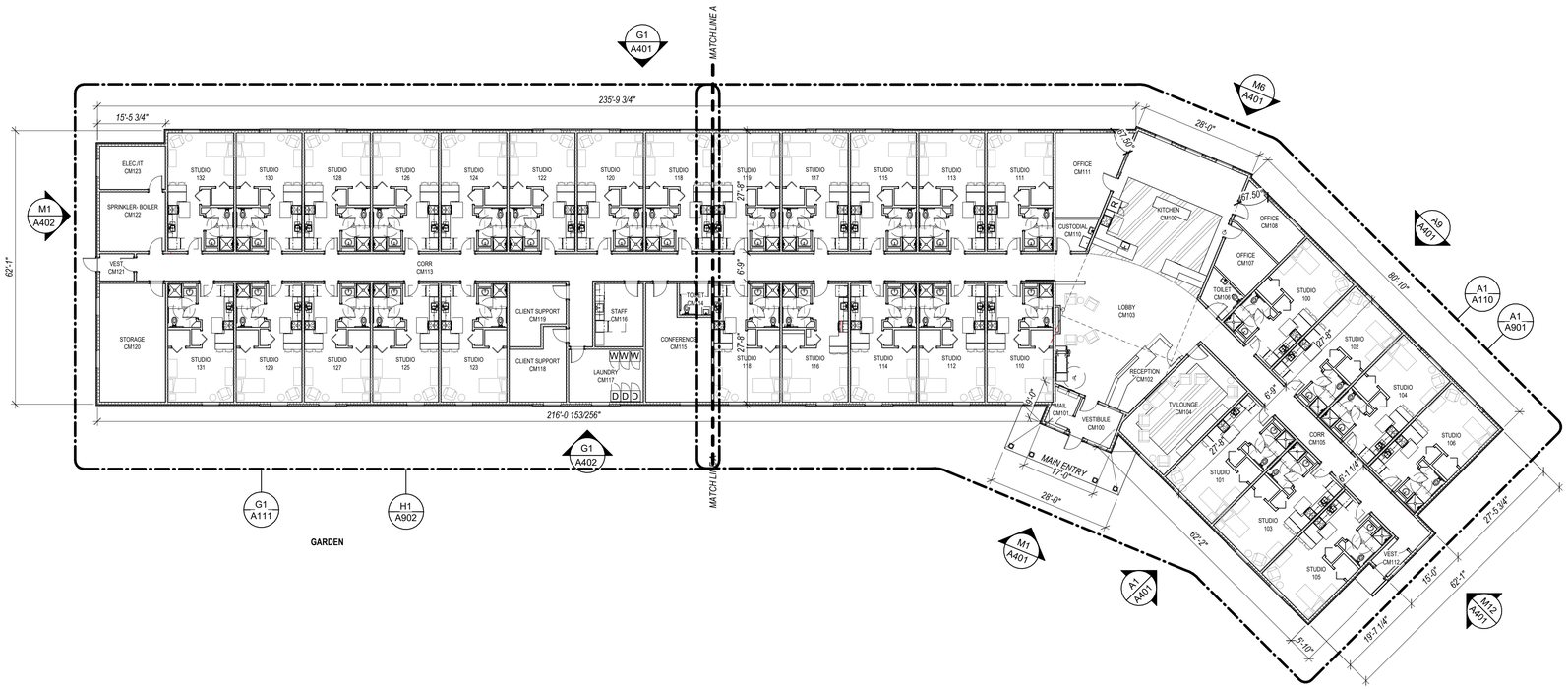
4/22/2026 10:27:58 AM Author




## J1 MEZZANINE PLAN

1/16" = 1'-0"

NORTH PLAN




## A1 OVERALL FIRST FLOOR PLAN

1/16" = 1'-0"

NORTH PLAN

4/22/2026 10:28:09 AM Author


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| B | 04.20.2026 | REVISED 50% PROGRESS SET |

| | |
|---|---|
| DATE: | 04.24.26 |
| PROJECT # | 050725 |
| DRAWN BY: | Author |
| CHECKED BY: | Checker |
| DRAWING SCALE | 1/16" = 1'-0" |

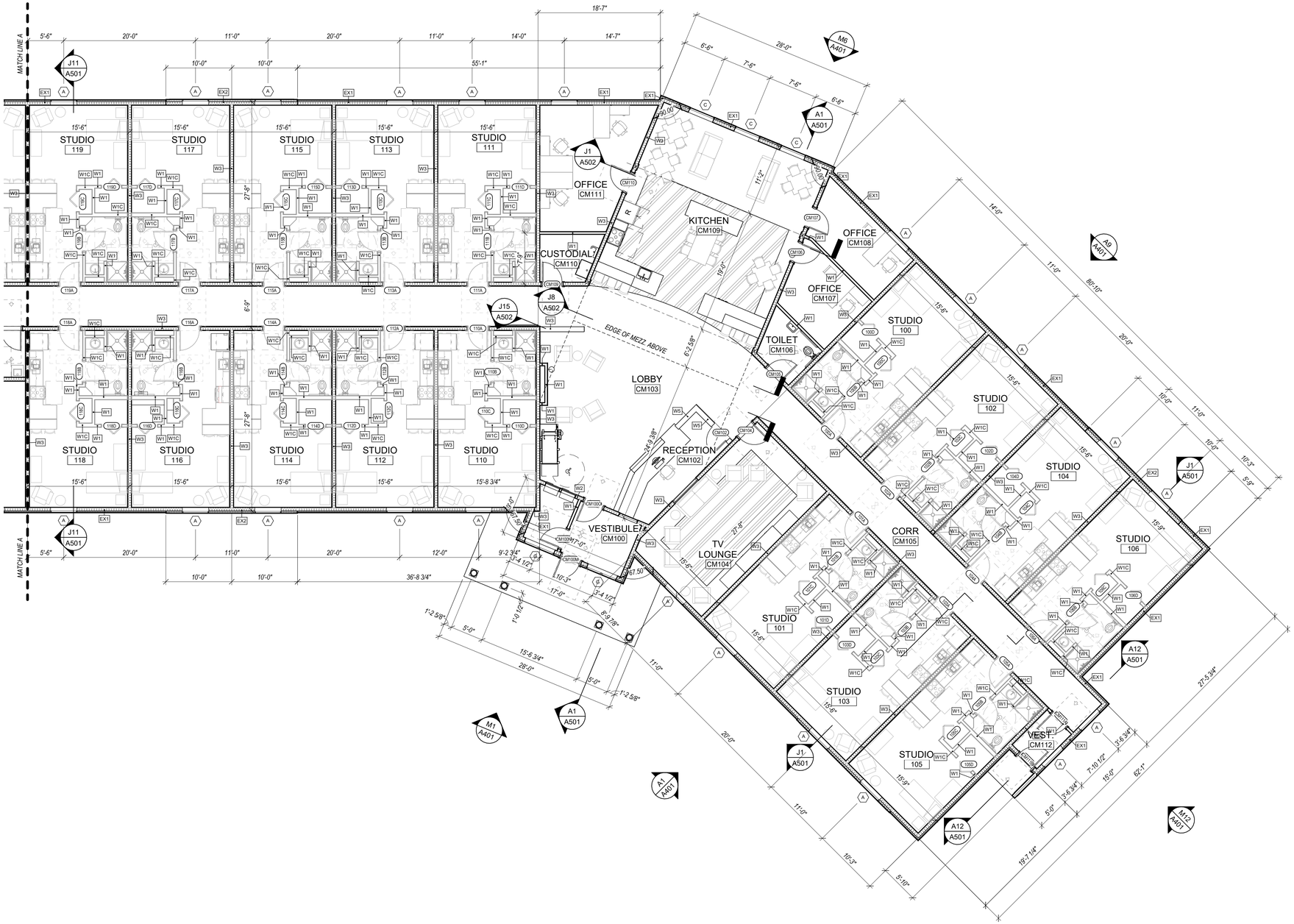
SHEET TITLE

OVERALL PLANS

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# A1 PARTIAL FIRST FLOOR PLAN - EAST

1/8" = 1'-0"

NORTH PLAN


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| | |
|---|---|
| DATE: | 04.24.26 |
| PROJECT # | 050725 |
| DRAWN BY: | Author |
| CHECKED BY: | Checker |
| DRAWING SCALE | 1/8" = 1'-0" |

SHEET TITLE

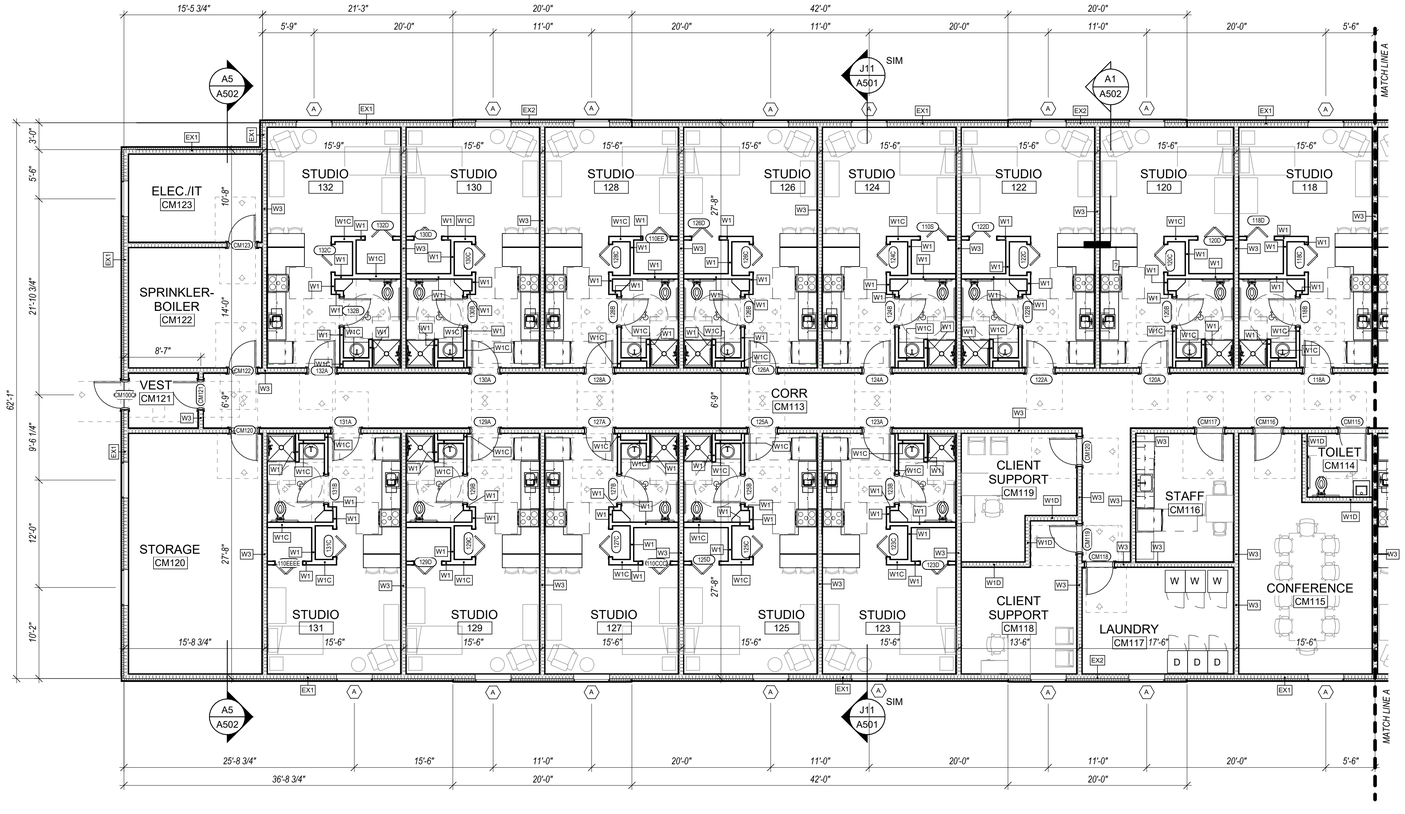
PARTIAL FIRST FLOOR PLAN - EAST

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# G1 PARTIAL FIRST FLOOR PLAN - WEST

1/8" = 1'-0"

NORTH PLAN


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REVISIONS

| # | DATE | DESCRIPTION |
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| A | 02.09.2026 | 50% PROGRESS SET |
| B | 04.20.2026 | REVISED 50% PROGRESS SET |

| | |
|---|---|
| DATE: | 04.24.26 |
| PROJECT # | 050725 |
| DRAWN BY: | Author |
| CHECKED BY: | Checker |
| DRAWING SCALE | 1/8" = 1'-0" |

SHEET TITLE

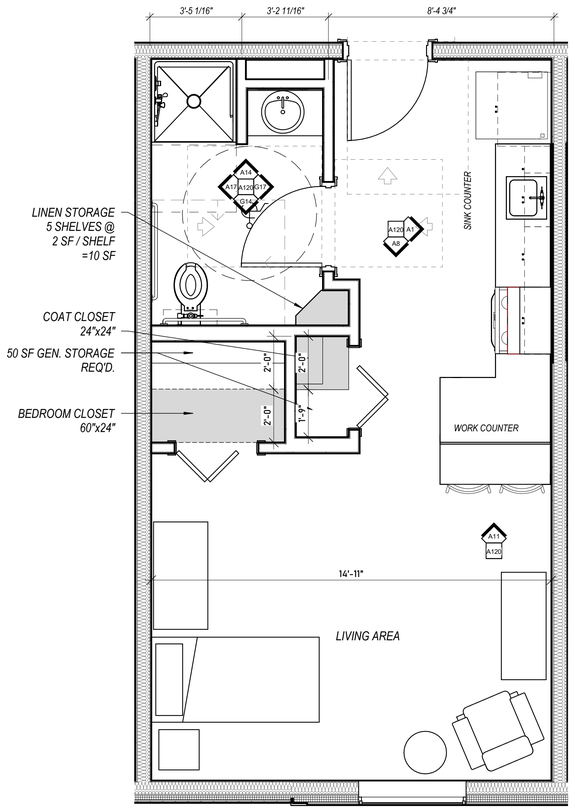
PARTIAL FIRST FLOOR PLAN - WEST

NOT FOR CONSTRUCTION

AIII

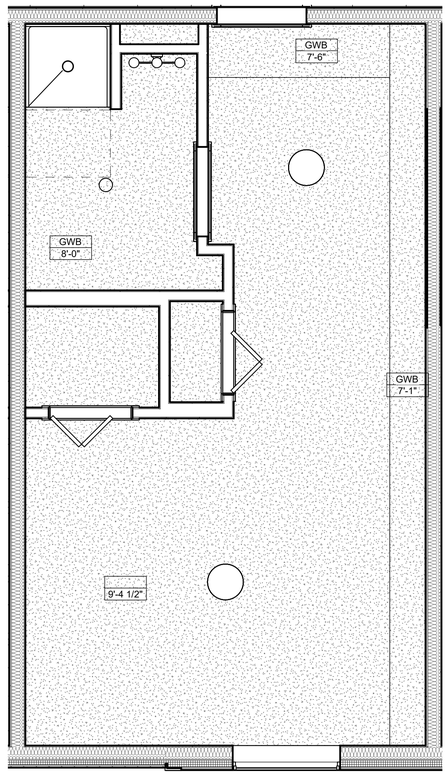

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## G1 ENLARGED UNIT PLAN

3/8" = 1'-0"




## G7 ENLARGED UNIT RCP

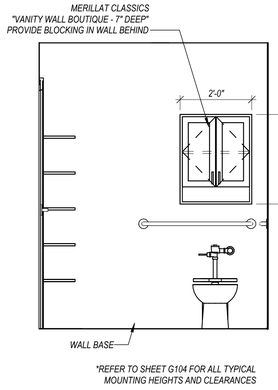
3/8" = 1'-0"

### BATHROOM/ UNIT ACCESSORY LEGEND

- (C.S.C.) CEILING TRACK WITH HOOKS AND SHOWER CURTAIN
- (C.H.) COAT HOOK
- (CNTR) SOLID SURFACE COUNTERTOP - RADIUS ANY INSIDE AND OUTSIDE CORNERS
- (F.D.) FLOOR DRAIN - SLOPE FLOOR TO DRAIN
- (G.B.-F) FLIP DOWN GRAB BARS
- (G.B.-H) HORIZONTAL GRAB BARS
- (G.B.-V) VERTICAL GRAB BAR
- (LITE) DECORATIVE VANITY LIGHT - CENTER OVER SINK
- (M.C.) RECESSED MEDICINE CABINET - NO MIRROR. PROVIDE GWB RATED SURROUND AS REQUIRED IF RECESSED IN RATED WALLS.
- (MIR) 24"W X 36"H BEVELED EDGE WALL MIRROR - CENTER OVER SINK
- (P.T.D.) PAPER TOWEL DISPENSER
- (R.H.) ROBE HOOK
- (SCTRL) ADA HAND HELD SHOWER CONTROLS
- (S.D.) SOAP DISPENSER
- (SHLVS) (5) 18" DEEP ADJUSTABLE SHELVES
- (SHWR) ADA COMPLIANT ROLL-IN FIBERGLASS SHOWER UNIT W/ GRAB BARS, SEAT, & SOAP SHELF
- (S.N.D.) SANITARY NAPKIN DISPOSAL (FEMALE & UNISEX RR'S ONLY, PROVIDE 1 PER STALL IN MULTI-FIXTURE FEMALE RR'S)
- (S.R.C.) SHOWER ROD AND CURTAIN WITH HOOKS (FACTORY INSTALLED)
- (S&R) CLOSET SHELF & ROD
- (T.B.) 18" TOWEL BAR
- (T.P.) TOILET PAPER HOLDER
- (T.R.) TOWEL RING

*BATHROOM/ UNIT NOTES:*

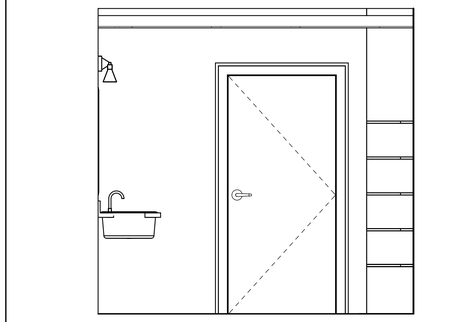
1. *REFER TO ADA DETAILS (SHEET **G103**) FOR ACCESSORY MOUNTING LOCATIONS & FIXTURE LOCATIONS.*
2. *INSTALL BLOCKING BEHIND ALL SURFACE MOUNTED ACCESSORIES, CABINETS, GRAB BARS, ETC.*
3. *ALL CLOSETS TO HAVE CLEAR DEPTH OF 2'-0" (U.N.O.). PROVIDE SHELF & ROD AT 5'-3" A.F.F. TO TOP OF SHELF TYPICAL (U.N.O.). ALL ADA UNITS TO HAVE SHELF & ROD AT 4'-0" AFF TO TOP OF SHELF.*
4. *REFER TO FLOOR PLANS FOR DIMENSIONS OF DEMISING WALLS, EXTERIOR WALLS, & EXTERIOR WINDOW/ DOOR LOCATIONS*
5. *PROVIDE FINISHED END PANELS FOR ALL EXPOSED CABINETRY EDGES.*
6. *VERIFY ALL DIMENSIONS PRIOR TO ORDERING/ MANUFACTURING CABINETRY.*
7. *G.C. TO COORDINATE RECESSED MEDICINE CABINETS DURING CONSTRUCTION TO AVOID FRAMING / ELECTRICAL CONFLICTS.*
8. *SLOPE SLAB TO FLOOR DRAINS.*
9. *SHOWER THRESHOLDS TO MEET ADA - SHOWERS TO BE RECESSED IN SLAB / FEATHER FLOOR UP TO SHOWER/ REFER TO TRANSITION DETAIL: ___/___. G.C. TO COORDINATE WITH FLOOR FINISH.*
10. *CONTINUE FLOORING UNDER VANITY AND BASE CABINETS - TYP. ALL RESIDENT UNITS.*
11. *COORDINATE SHOWER WALLS & ADJACENT SHELVING WITH SHOWER UNIT SELECTED.*




**REFER TO SHEET G104 FOR ALL TYPICAL MOUNTING HEIGHTS AND CLEARANCES*

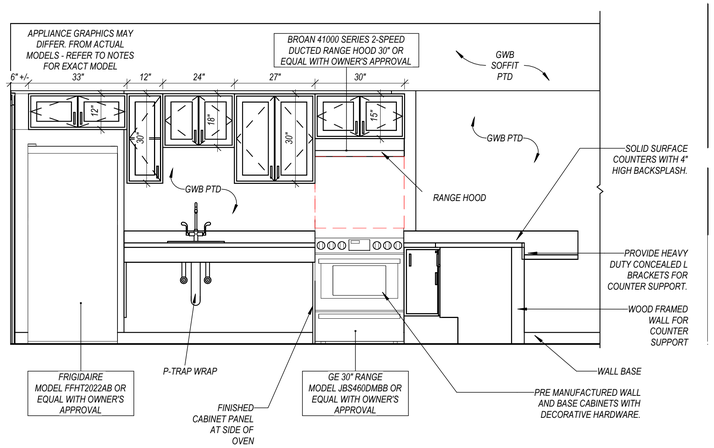
## G14 BATHROOM - C

1/2" = 1'-0"



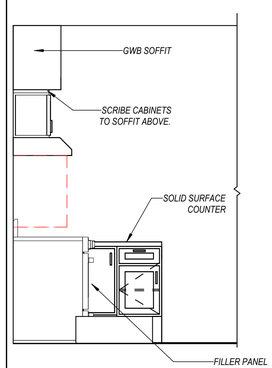
## G17 BATHROOM - D

1/2" = 1'-0"



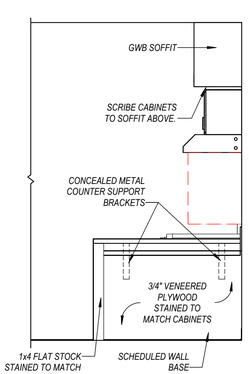

## A1 TYPICAL UNIT KITCHEN - A

1/2" = 1'-0"



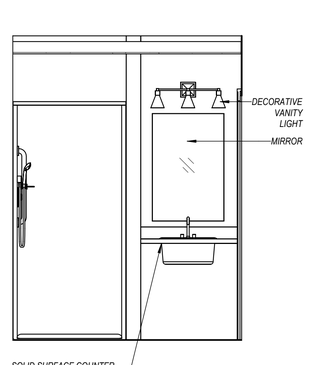

## A8 KITCHEN - B

1/2" = 1'-0"




## A11 KITCHEN - C

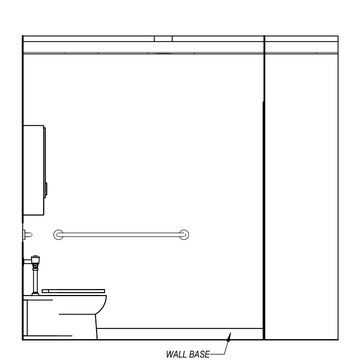
1/2" = 1'-0"




**REFER TO SHEET G104 FOR ALL TYPICAL MOUNTING HEIGHTS AND CLEARANCES*

## A14 BATHROOM - A

1/2" = 1'-0"




**REFER TO SHEET G104 FOR ALL TYPICAL MOUNTING HEIGHTS AND CLEARANCES*

## A17 BATHROOM - B

1/2" = 1'-0"


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SHEET TITLE

ENLARGED UNIT PLANS & ELEVATIONS

# A120


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**IBC SECTION 1203 VENTILATION REQUIREMENTS:**

*1203.2: ENCLOSED ATTICS & RAFTER SPACES SHALL HAVE CROSS-VENTILATION FOR EACH SEPARATE SPACE BY VENTILATION OPENINGS PROTECTED AGAINST PRECIPITATION. BLOCKING AND BRIDGING SHALL BE ARRANGED SO AS NOT TO INTERFERE WITH THE MOVEMENT OF AIR. AN AIRSPACE OF MIN 1" SHALL BE PROVIDED BETWEEN THE INSULATION AND ROOF SHEATHING. THE NET FREE VENTILATING AREA SHALL BE MIN 1/300 OF THE AREA OF THE SPACE VENTILATED, IF A VAPOR RETARDER IS INSTALLED ON THE WARM-IN-WINTER SIDE OF THE CEILING, AND AT LEAST 40% BUT NOT MORE THAN 50% IS PROVIDED BY VENTILATORS IN THE UPPER PART OF THE VENTILATED SPACE.*

*ATTIC AREA: SF*
*REQUIRED VENTILATION: SF / 300 = SF*
*PROVIDED VENTILATION:*
*RIDGE VENTS - ' AGGREGATE LENGTH x .25 SF / LIN. FT. (ASSUMED NFA FOR 3" WIDE RIDGE VENT) = SF*
*INTAKE VENTILATION - SOFFITS: SF X 10 sq. in. (0.069 SF) NFA PER SF (ASSUMED) = SF*

MATCH LINE A

220'-4"
21'-3" 10'-0" 10'-0" 42'-0" 10'-0" 10'-0" 42'-0" 10'-0" 10'-0" 55'-1"
3'-0" 3'-0"
62'-1"
A5 A502
J11 A501
EX1 EX2 D

6'-6" 7'-6" 7'-6" 6'-6" 28'-0"
B A1 A501
MECH MEZZ CM200
55'-1" 80'-10" 10'-0" 10'-0" 5'-9"
J1 A501
A12 A501
1'-0" 26'-0" 1'-0" 26'-0"
A1 A501
J1 A501
A12 A501
27'-5 3/4" 15'-0" 6'-8 1/2" 12'-10 3/4"

A1 ATTIC PLAN
3/32" = 1'-0"
NORTH PLAN

4/22/2026 10:28:45 AM Author


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REVISIONS

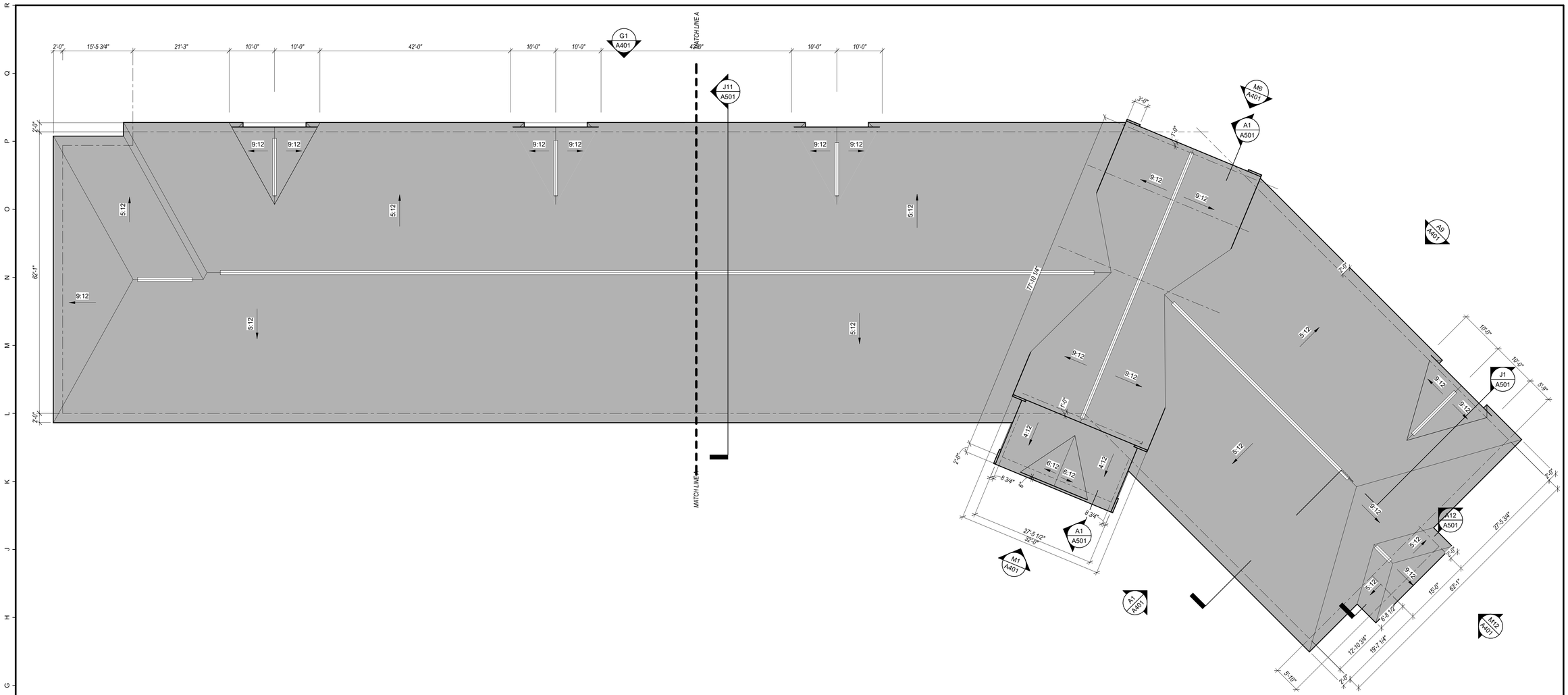
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SHEET TITLE
ATTIC PLAN
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A200


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## ROOF PLAN LEGEND

NOTE: REFER TO EXTERIOR ELEVATIONS FOR COLORS (TYP.)

- ASPHALT SHINGLE ROOF
- RIDGE VENT
- EXTERIOR FACE OF FOUNDATION/ FRAMING BELOW
- (RG) ROOF GUTTER
- (GDS) GUTTER DOWNSPOUT
- (CAN) CANOPY ROOF
- ICE & WATER SHIELD
- ROOF VENT UNIT

**ROOFING NOTES:**

1. ICE & WATER SHIELD - MIN. 6' UP ROOF FROM INSIDE FACE OF EXTERIOR WALL. MIN. 3' FROM RAKE EDGE, MIN. 4' - 6" UP EACH SIDE @VALLEY & 18" MIN. UP WALLS ABOVE LOW ROOF. PROVIDE COMPLETE ICE & WATER SHIELD COVERAGE TO ENTIRE CANOPY OR PORCH ROOF(S).
2. INSTALL SELF-ADHERING SHEET UNDERLAYMENT, WRINKLE FREE ON ROOF DECK. COMPLY WITH LOW-TEMPERATURE INSTALLATION RESTRICTIONS OF UNDERLAYMENT MANUFACTURER IF APPLICABLE. INSTALL AT LOCATIONS INDICATED BELOW AND ON DRAWINGS, LAPPED IN DIRECTION TO SHED WATER. APPLY IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS. LAP SIDES NOT LESS THAN 3-1/2 INCHES. LAP ENDS NOT LESS THAN 6 INCHES STAGGERED 24 INCHES BETWEEN COURSES. ROLL LAPS WITH ROLLER.
3. EAVES: EXTEND FROM EDGE OF EAVES UP SLOPE NOT LESS THAN 6 FEET BEYOND INTERIOR FACE OF EXTERIOR WALL.
4. RAKES: EXTEND FROM EDGES OF RAKE 36 INCHES BEYOND INTERIOR FACE OF EXTERIOR WALL.
5. VALLEYS: EXTEND FROM LOWEST TO HIGHEST POINT NOT LESS THAN 3 FEET OUT FROM EACH SIDE OF VALLEY CENTERLINE. LAP ROOF UNDERLAYMENT OVER VALLEY UNDERLAYMENT NOT LESS THAN 6 INCHES AND SEAL WITH ASPHALT PLASTIC CEMENT.
6. RIDGES: EXTEND 36 INCHES ON EACH SIDE WITHOUT OBSTRUCTING CONTINUOUS RIDGE VENT SLOT.
7. SIDEWALLS: EXTEND BEYOND SIDEWALL NOT LESS THAN 3 FEET AND RETURN VERTICALLY AGAINST SIDEWALL NOT LESS THAN 18 INCHES.
8. HIPS: EXTEND 18 INCHES ON EACH SIDE.
9. DORMERS, CHIMNEYS, SKYLIGHTS, AND OTHER ROOF-PENETRATING ELEMENTS: EXTEND BEYOND PENETRATING ELEMENT NOT LESS THAN 3 FEET AND RETURN VERTICALLY AGAINST PENETRATING ELEMENT NOT LESS THAN 8 INCHES.
10. RIDGE VENT(S) NOT REQUIRED AT "HOT" (UNVENTED) ROOFS.

# A1 OVERALL ROOF PLAN

3/32" = 1'-0"

NORTH PLAN

4/22/2026 10:28:54 AM Author


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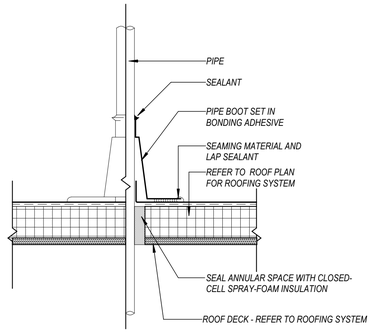
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OVERALL ROOF PLAN

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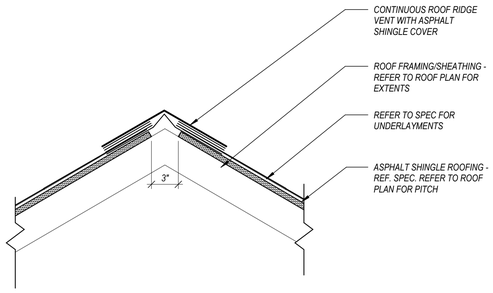
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## N1 PIPE BOOT DETAIL

1 1/2" = 1'-0"




## J1 RIDGE VENT DETAIL

1 1/2" = 1'-0"

LICENSED ARCHITECT
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No. 3044
STATE OF MAINE

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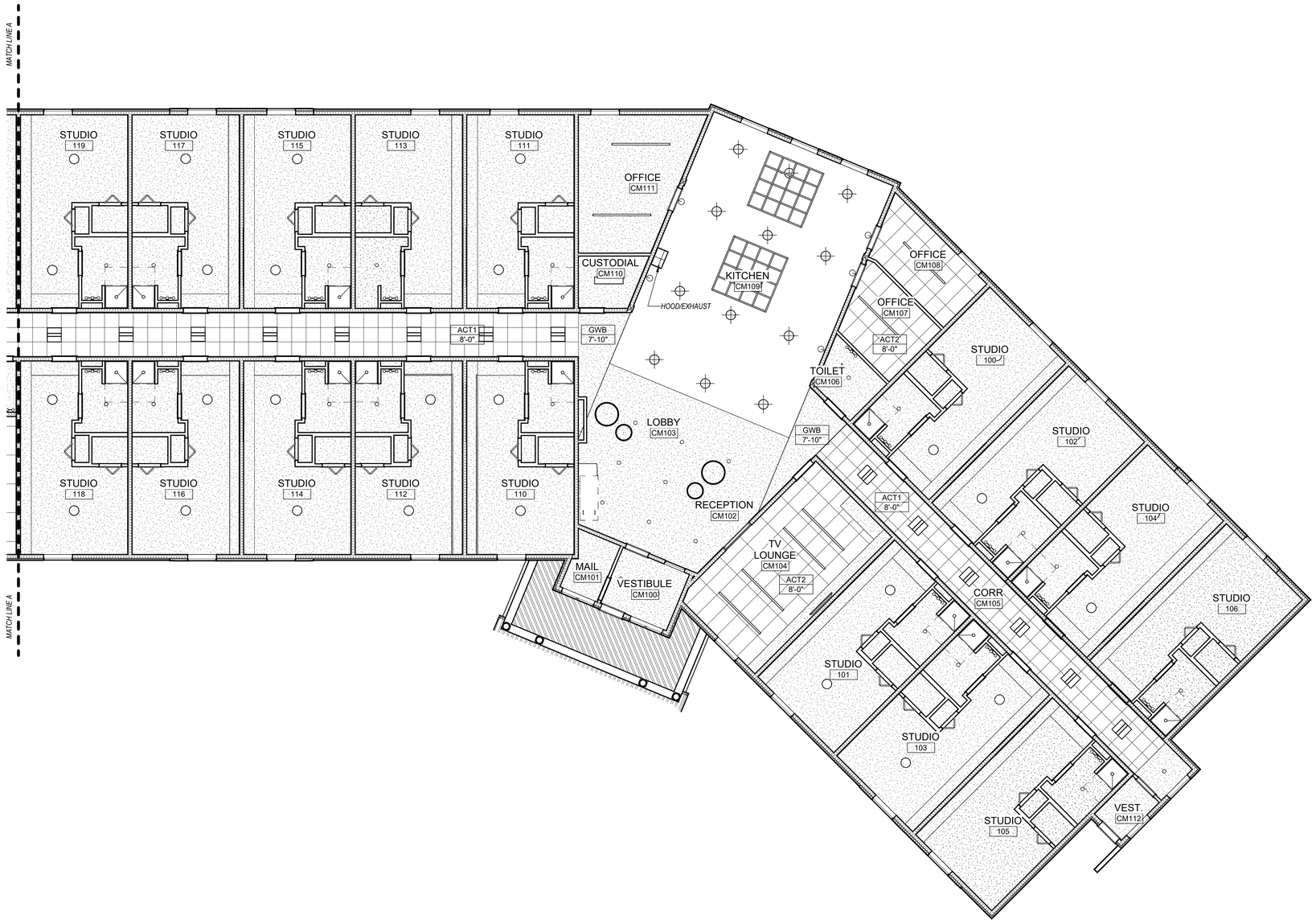
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ROOF DETAILS

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**CEILING LEGEND**

- GWB CEILING
- EXTERIOR VINYL CEILING/ SOFFIT
- 2X2 ACT CEILING
- SUSPENDED ACOUSTICAL BAFFLE SYSTEM
- 2X4 ACT CEILING

**LIGHTING LEGEND**

- VANITY LIGHT
- ACOUSTICAL DRUM STYLE PENDANT LIGHT (28" AND 40" DIA.)
- RECESSED LED CAN LIGHT
- WALL SCONCE LIGHT
- 2X4 DIRECT/INDIRECT LIGHT
- 2X2 DIRECT/INDIRECT LIGHT
- LINEAR PENDANT - LENGTHS VARY
- 1X4 LINEAR BOX LIGHT
- SURFACE-MOUNTED CEILING LIGHT
- UC — UNDER-CABINET LIGHT
- CEILING FAN
- HIGH BAY PENDANT FIXTURE

**KEYED NOTES**

- 01 EXISTING CEILING TO REMAIN - NEW LIGHTING
- 02 EXISTING CEILING GRID TO REMAIN - NEW TILES & LIGHTING
- 03 EXTEND EXISTING GRID AS REQUIRED FOR NEW CONSTRUCTION
- 04 NEW CEILING GRID, TILES, & LIGHTING

**NOTE:**

1. ALL NEW GRID TO BE CENTERED IN EACH ROOM, U.N.O.
2. REFER TO ELECTRICAL DRAWINGS FOR LIGHTING FIXTURE SCHDULE
3. REFER TO INTERIOR ELEVATIONS FOR WALL SCONCE HEIGHTS
4. PROVIDE AND INSTALL NEW BUILDING STANDARD EXIT SIGNS AND EMERGENCY LIGHTING AS REQUIRED BY DESIGN, CODE, AND NEW LAYOUT. RELOCATE AND REUSE EXIT SIGNS, WHERE APPLICABLE
5. REFER TO TYP. UNIT ELNARGED RCP'S FOR IN-UNIT CEILINGS.
6. ALL EXTERIOR LIGHTS SHALL BE EXTERIOR-RATED.
7. ALL LIGHTS IN BATHROOMS SHALL BE MOISTURE-RATED.

A1 PARTIAL FIRST FLOOR RCP - WEST
1/8" = 1'-0"

NORTH PLAN

A18 LEGEND


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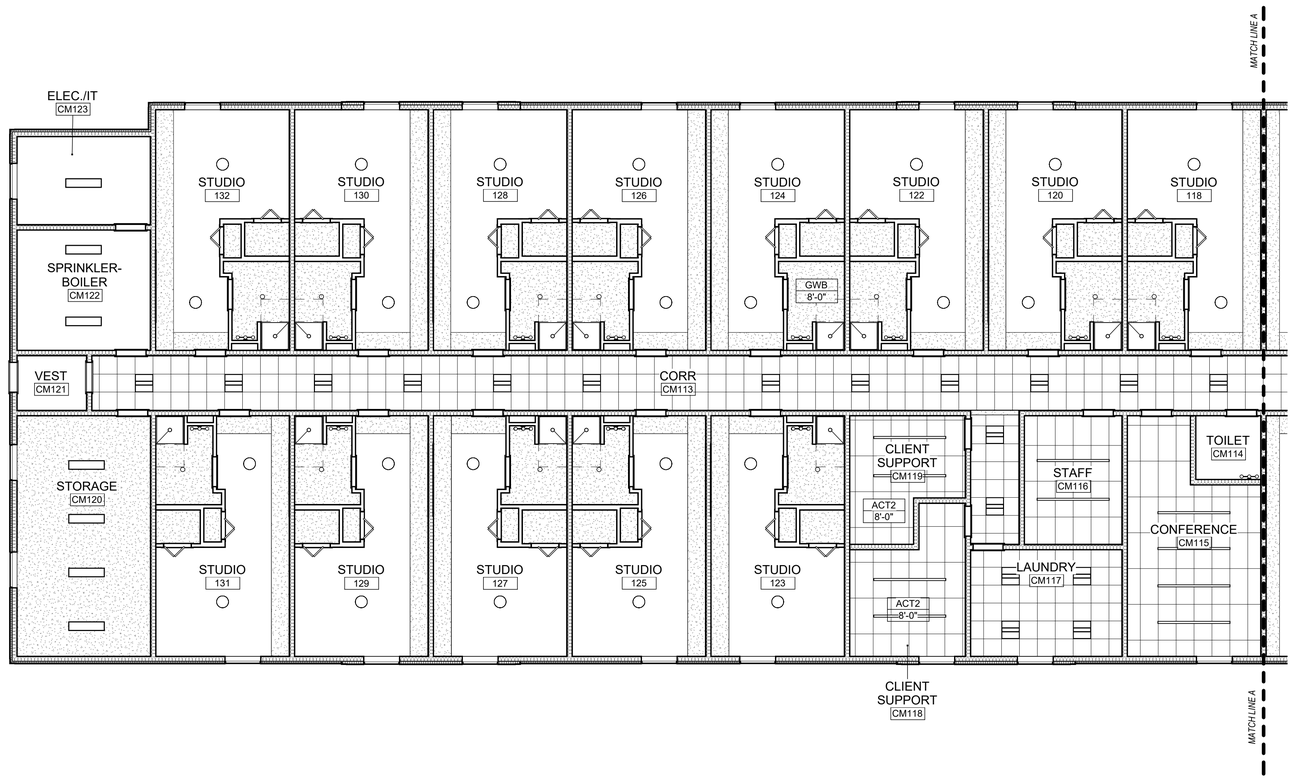
PARTIAL FIRST FLOOR RCP - WEST

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# H1 PARTIAL FIRST FLOOR RCP - EAST

1/8" = 1'-0"

NORTH PLAN

**CEILING LEGEND**

- GWB CEILING
- EXTERIOR VINYL CEILING/ SOFFIT
- 2X2 ACT CEILING
- SUSPENDED ACOUSTICAL BAFFLE SYSTEM
- 2X4 ACT CEILING

**LIGHTING LEGEND**

- VANITY LIGHT
- ACOUSTICAL DRUM STYLE PENDANT LIGHT (28" AND 40" DIA.)
- RECESSED LED CAN LIGHT
- WALL SCONCE LIGHT
- 2X4 DIRECT/INDIRECT LIGHT
- 2X2 DIRECT/INDIRECT LIGHT
- LINEAR PENDANT - LENGTHS VARY
- 1X4 LINEAR BOX LIGHT
- SURFACE-MOUNTED CEILING LIGHT
- UNDER-CABINET LIGHT
- CEILING FAN
- HIGH BAY PENDANT FIXTURE

**KEYED NOTES**

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**NOTE:**

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2. REFER TO ELECTRICAL DRAWINGS FOR LIGHTING FIXTURE SCHEDULE
3. REFER TO INTERIOR ELEVATIONS FOR WALL SCONCE HEIGHTS
4. PROVIDE AND INSTALL NEW BUILDING STANDARD EXIT SIGNS AND EMERGENCY LIGHTING AS REQUIRED BY DESIGN, CODE, AND NEW LAYOUT. RELOCATE AND REUSE EXIT SIGNS, WHERE APPLICABLE
5. REFER TO TYP. UNIT ELNARGED RCP'S FOR IN-UNIT CEILINGS.
6. ALL EXTERIOR LIGHTS SHALL BE EXTERIOR-RATED.
7. ALL LIGHTS IN BATHROOMS SHALL BE MOISTURE-RATED.

A18 LEGEND


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SHEET TITLE

PARTIAL FIRST FLOOR RCP - EAST

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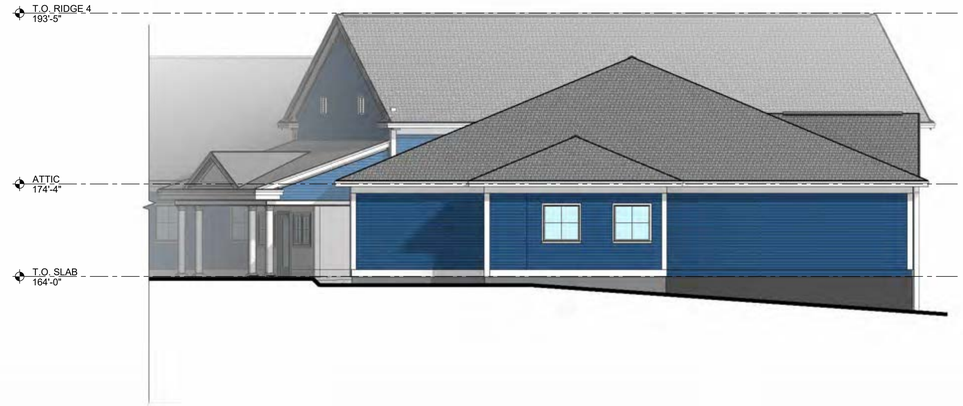

M1 BUILDING ELEVATIONS

1/8" = 1'-0"




M6 BUILDING ELEVATIONS

1/8" = 1'-0"




M12 BUILDING ELEVATIONS

1/8" = 1'-0"



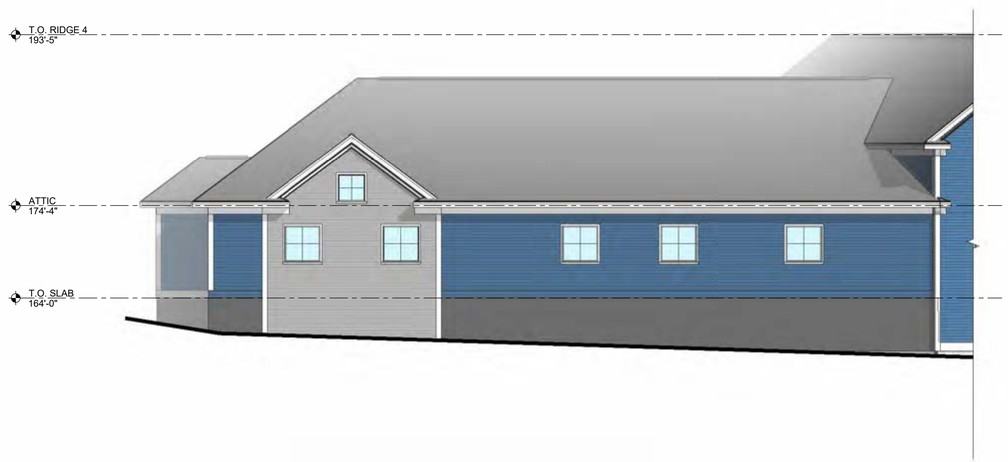

G1 BUILDING ELEVATIONS

1/8" = 1'-0"




A1 BUILDING ELEVATIONS

1/8" = 1'-0"




A9 BUILDING ELEVATIONS

1/8" = 1'-0"

*EXTERIOR ELEVATION NOTES :*

1. *COLORS ARE FOR GRAPHICAL PURPOSES ONLY. ACTUAL COLORS MAY VARY.*
2. *GRADES MAY VARY FROM SHOWN - REFER TO CIVIL / SITE.*

**EXTERIOR MATERIALS LEGEND**

*ROOFING - ASPHALT SHINGLES, COLOR TO BE SELECTED (TYP)*

*SYNTHETIC FASCIA - SIZE, COLOR TO BE SELECTED (TYP)*

*EXTERIOR COLUMN - TO BE SELECTED (TYP)*

*SYNTHETIC TRIM - CORNERBOARD - SIZE, COLOR TO BE SELECTED (TYP)*

*SIDING - VINYL CLAPBOARD, PRIMARY COLOR TO BE SELECTED (TYP)*

*SIDING - VINYL CLAPBOARD, ACCENT COLOR TO BE SELECTED*

*SIDING - VINYL STONE VENEER-LOOK, COLOR TO BE SELECTED (LOWER LEVEL)*

*EXTERIOR DOORS - HOLLOW METAL, PTD COLOR TO BE SELECTED (TYP)*

*TRIM: SIZE, MATERIAL, COLOR TO BE SELECTED (TYP)*

*WINDOWS - MATERIAL, COLOR, AND TRIM TO BE SELECTED*

A18 LEGEND


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REVISIONS

| # | DATE | DESCRIPTION |
|---|---|---|
| A | 02.09.2026 | 50% PROGRESS SET |
| B | 04.20.2026 | REVISED 50% PROGRESS SET |

| | |
|---|---|
| DATE: | 04.24.26 |
| PROJECT # | 050725 |
| DRAWN BY: | Author |
| CHECKED BY: | Checker |
| DRAWING SCALE | 1/8" = 1'-0" |

SHEET TITLE

BUILDING ELEVATIONS

NOT FOR CONSTRUCTION

A401

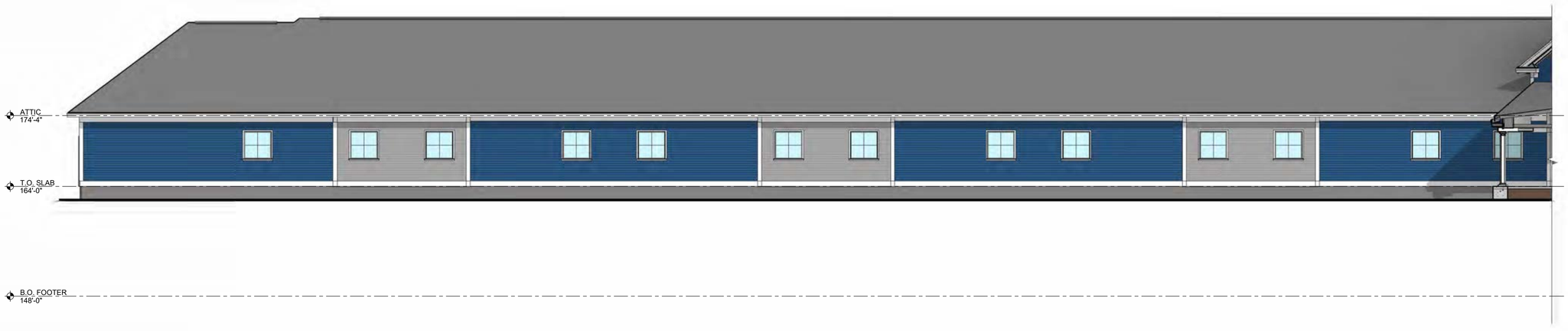

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## M1 BUILDING ELEVATIONS

1/8" = 1'-0"




## G1 BUILDING ELEVATIONS

1/8" = 1'-0"

*EXTERIOR ELEVATION NOTES :*

1. *COLORS ARE FOR GRAPHICAL PURPOSES ONLY. ACTUAL COLORS MAY VARY.*
2. *GRADES MAY VARY FROM SHOWN - REFER TO CIVIL / SITE.*

**EXTERIOR MATERIALS LEGEND**

- *ROOFING - ASPHALT SHINGLES, COLOR TO BE SELECTED (TYP)*
- *SYNTHETIC FASCIA - SIZE, COLOR TO BE SELECTED (TYP)*
- *EXTERIOR COLUMN - TO BE SELECTED (TYP)*
- *SYNTHETIC TRIM - CORNERBOARD - SIZE, COLOR TO BE SELECTED (TYP)*
- *SIDING - VINYL CLAPBOARD, PRIMARY COLOR TO BE SELECTED (TYP)*
- *SIDING - VINYL CLAPBOARD, ACCENT COLOR TO BE SELECTED*
- *SIDING - VINYL STONE VENEER-LOOK, COLOR TO BE SELECTED (LOWER LEVEL)*
- *EXTERIOR DOORS - HOLLOW METAL, PTD COLOR TO BE SELECTED (TYP)*
- *TRIM: SIZE, MATERIAL, COLOR TO BE SELECTED (TYP)*
- *WINDOWS - MATERIAL, COLOR, AND TRIM TO BE SELECTED*

## A18 LEGEND


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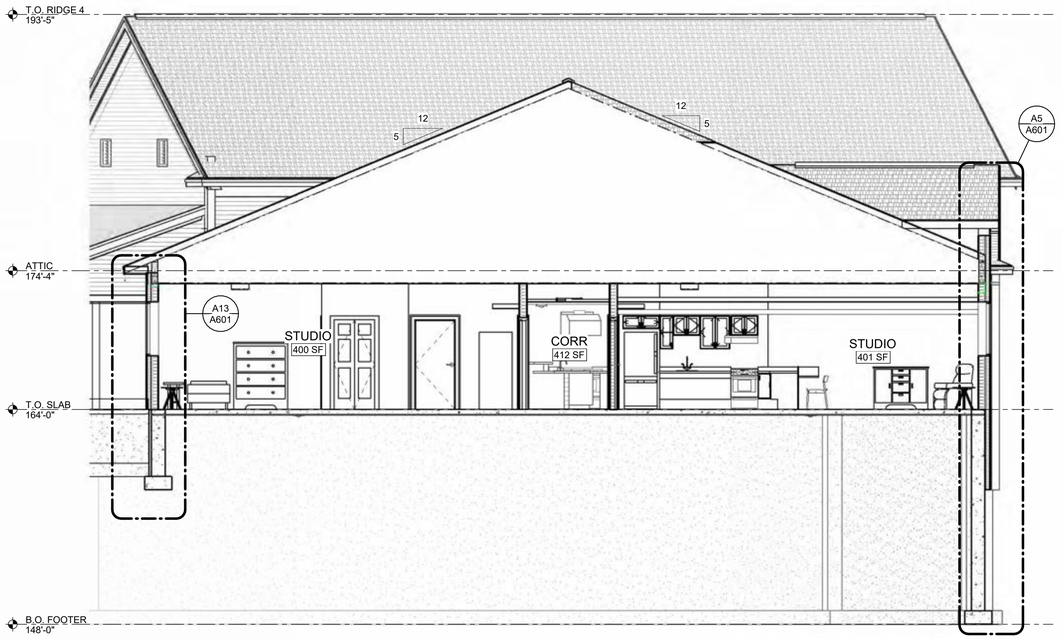
BUILDING ELEVATIONS

NOT FOR CONSTRUCTION

A402

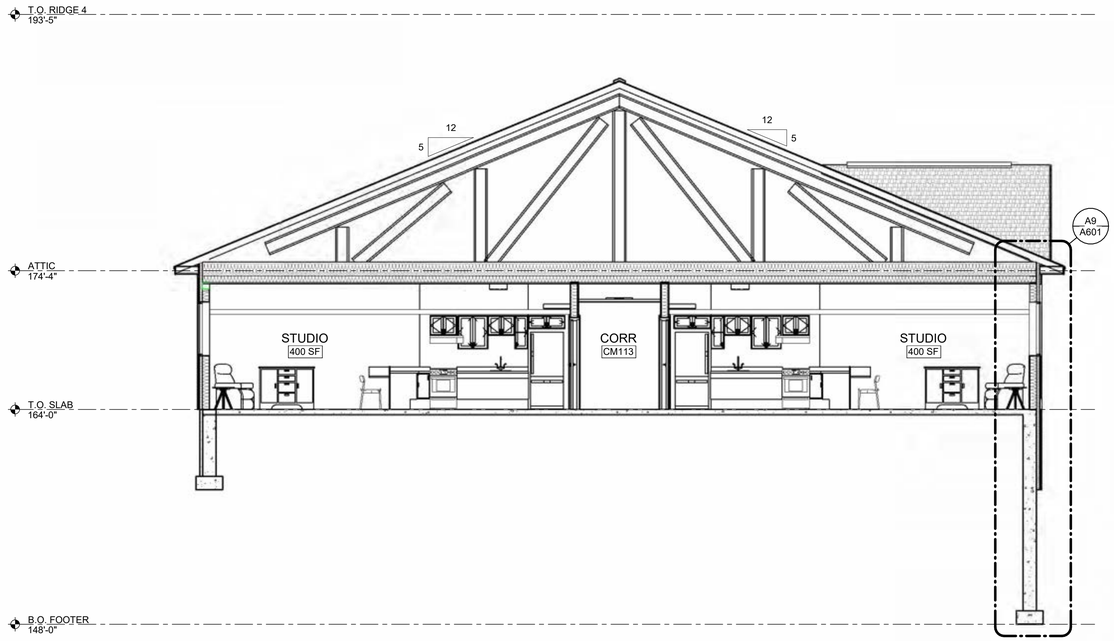

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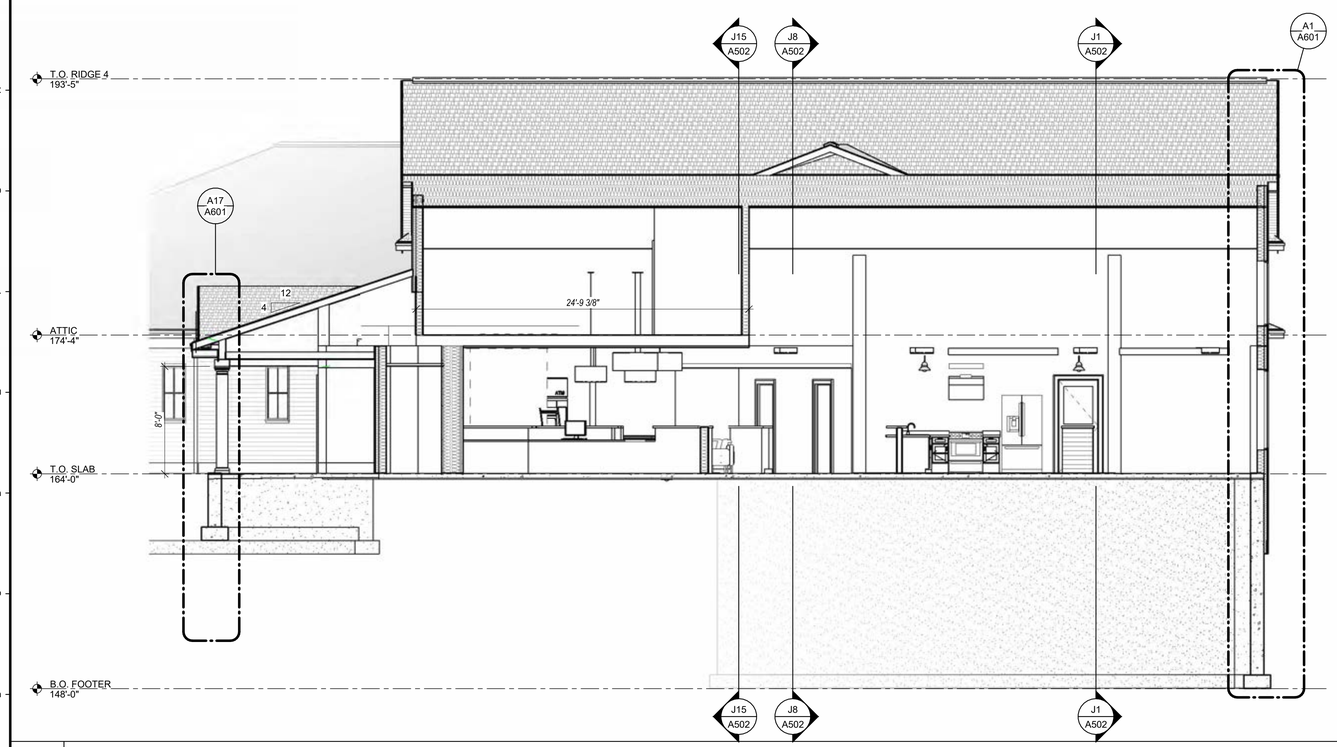

## J1 BUILDING SECTION

3/16" = 1'-0"



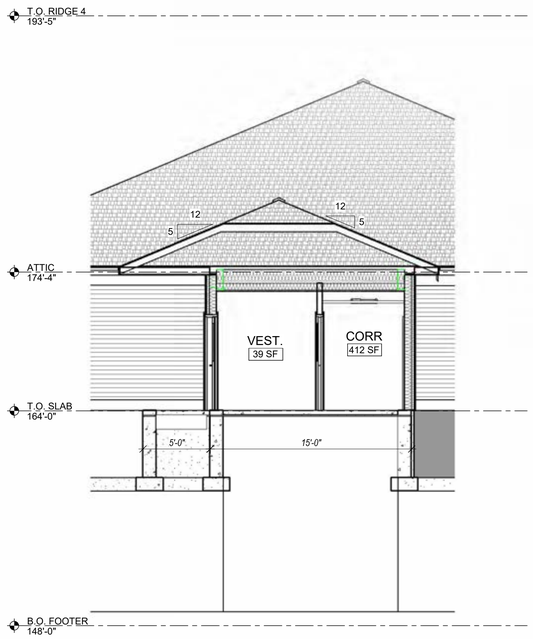

## J11 BUILDING SECTION

3/16" = 1'-0"




## A1 BUILDING SECTION

3/16" = 1'-0"




## A12 BUILDING SECTION

3/16" = 1'-0"

### BUILDING SECTION LEGEND

*DELINIATES THERMAL BUILDING ENVELOPE (INTERIOR SIDE)*

**NOTES:**

1. *THE AIR BARRIER SHALL BE CONTINUOUS FOR ALL ASSEMBLIES THAT ARE THE THERMAL ENVELOPE OF THE BUILDING AND ACROSS THE JOINTS AND ASSEMBLIES.*
2. *AIR BARRIER JOINTS AND SEAMS SHALL BE SEALED, INCLUDING SEALING TRANSITIONS IN PLACES AND CHANGES IN MATERIALS. THE JOINTS AND SEALS SHALL BE SECURELY INSTALLED IN OR ON THE JOINT FOR ITS ENTIRE LENGTH SO AS NOT TO DISLODGE, LOOSEN, OR OTHERWISE IMPAIR ITS ABILITY TO RESIST POSITIVE AND NEGATIVE PRESSURE FROM WIND, STACK EFFECT, AND MECHANICAL VENTILATION.*
3. *PENETRATIONS OF THE AIR BARRIER SHALL BE CAULKED, GASKETED, OR OTHERWISE SEALED IN A MANNER COMPATIBLE WITH THE CONSTRUCTION MATERIALS AND LOCATION. JOINTS AND SEALS ASSOCIATED WITH PENETRATIONS SHALL BE SEALED IN THE SAME MANNER OR TAPED OR COVERED WITH MOISTURE VAPOR-PERMEABLE WRAPPING MATERIAL. SEALING MATERIALS SHALL BE APPROPRIATE TO THE CONSTRUCTION MATERIALS BEING SEALED AND SHALL BE SECURELY INSTALLED AROUND THE PENETRATION SO AS NOT TO DISLODGE, LOOSEN, OR OTHERWISE IMPAIR THE PENETRATIONS' ABILITY TO RESIST POSITIVE AND NEGATIVE PRESSURE FROM WIND, STACK EFFECT, AND MECHANICAL VENTILATION. SEALING OF CONCEALED FIRE SPRINKLERS, WHERE REQUIRED, SHALL BE IN A MANNER THAT IS RECOMMENDED BY THE MANUFACTURER. CAULKING OR OTHER ADHESIVE SEALANTS SHALL NOT BE USED TO FILL VOIDS BETWEEN FIRE SPRINKLER COVER PLATES AND WALLS OR CEILINGS.*
4. *RECESSED LIGHTING FIXTURES SHALL COMPLY WITH IECC. WHERE SIMILAR OBJECTS ARE INSTALLED THAT PENETRATE THE AIR BARRIER, PROVISIONS SHALL BE MADE TO MAINTAIN THE INTEGRITY OF THE AIR BARRIER.*
5. *REFER TO BUILDING AIR SEALING NOTES ON SHEET A001 FOR MORE INFORMATION.*
6. *INSULATION MAY NOT BE SHOWN ON BUILDING SECTIONS - REFER TO ASSEMBLIES AND DETAILS.*

## A18 LEGEND


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| DRAWING SCALE | As indicated |

SHEET TITLE

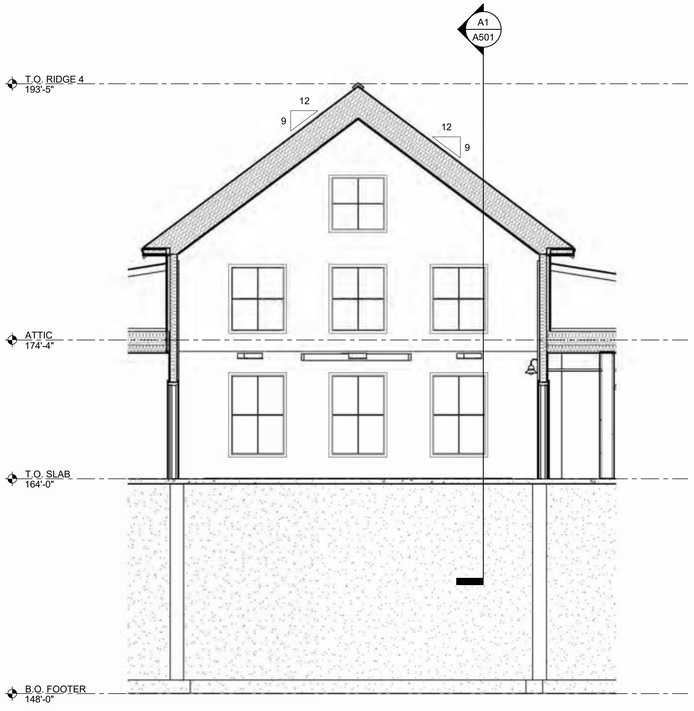
BUILDING SECTIONS

NOT FOR CONSTRUCTION

A501

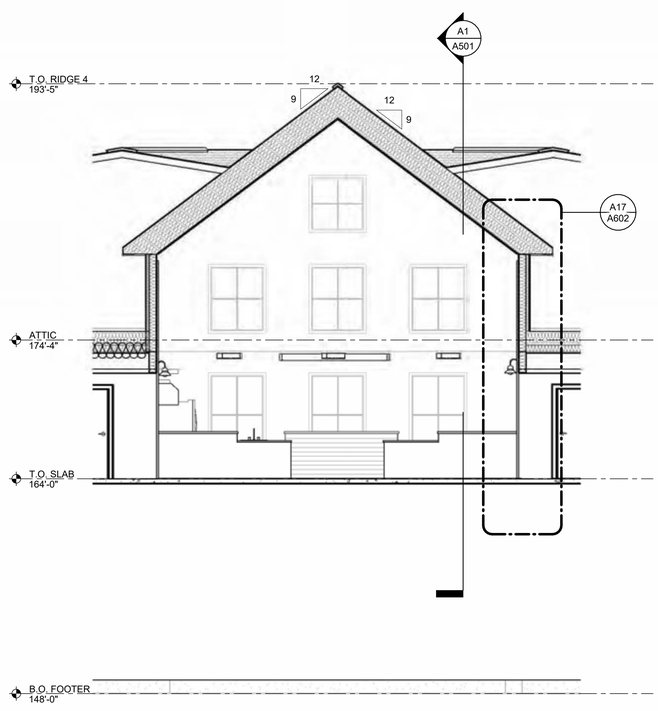

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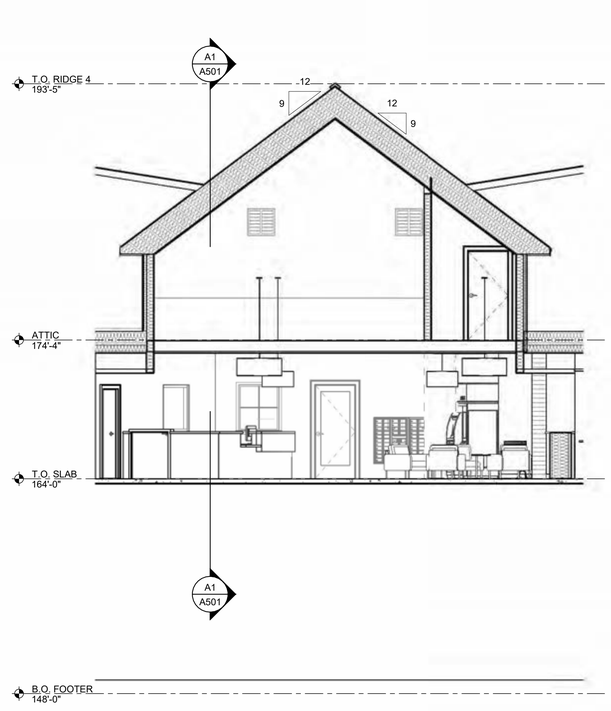

J1 BUILDING SECTION

3/16" = 1'-0"



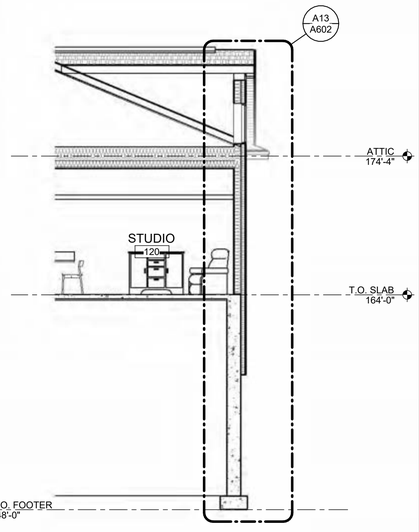

J8 BUILDING SECTION

3/16" = 1'-0"



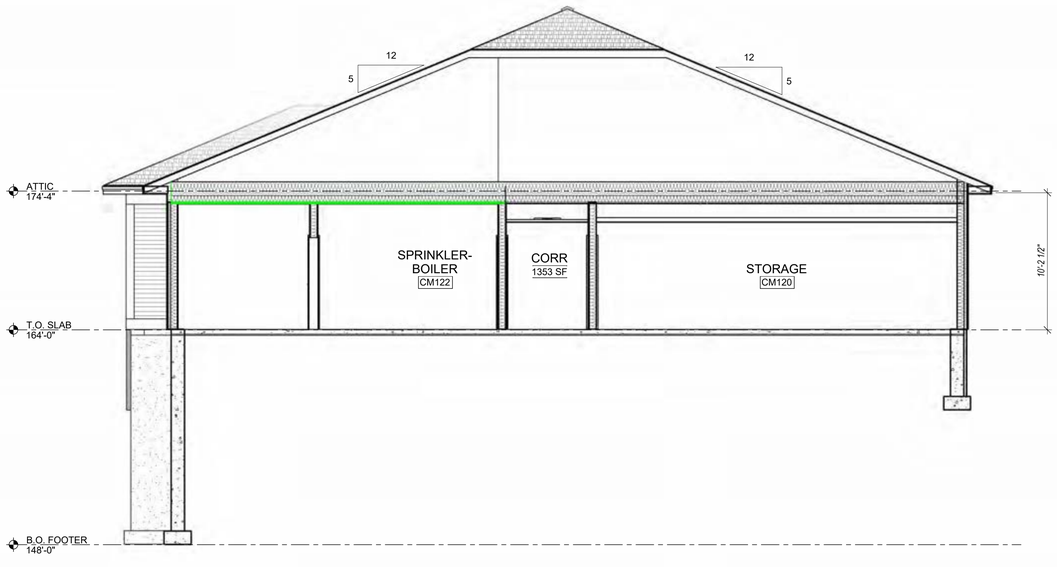

J15 BUILDING SECTION

3/16" = 1'-0"




A1 BUILDING SECTION

3/16" = 1'-0"




A5 BUILDING SECTION

3/16" = 1'-0"

**BUILDING SECTION LEGEND**

| | |
|---|---|
| -·-·- | *DELINIATES THERMAL BUILDING ENVELOPE (INTERIOR SIDE)* |

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5. *REFER TO BUILDING AIR SEALING NOTES ON SHEET A001 FOR MORE INFORMATION.*
6. *INSULATION MAY NOT BE SHOWN ON BUILDING SECTIONS - REFER TO ASSEMBLIES AND DETAILS.*

A18 LEGEND


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SHEET TITLE

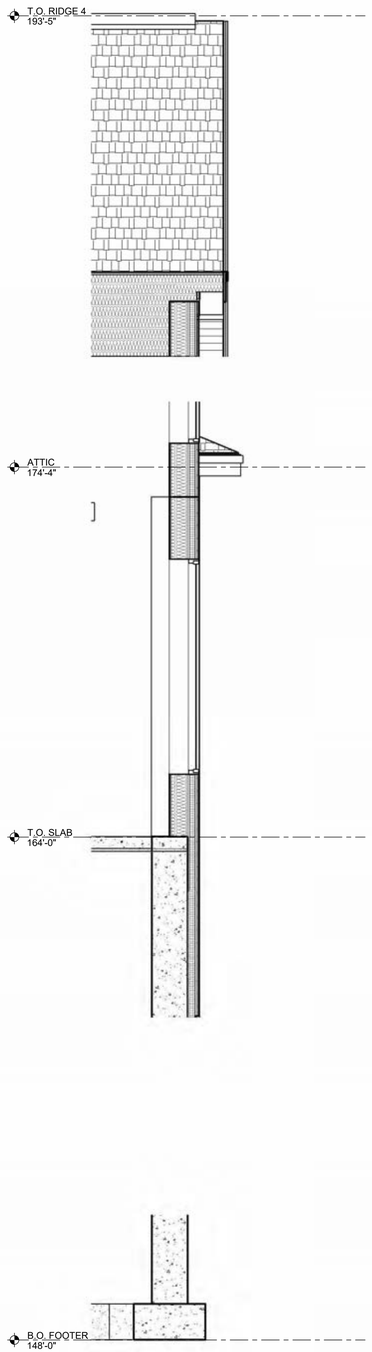
BUILDING SECTIONS

NOT FOR CONSTRUCTION

A502

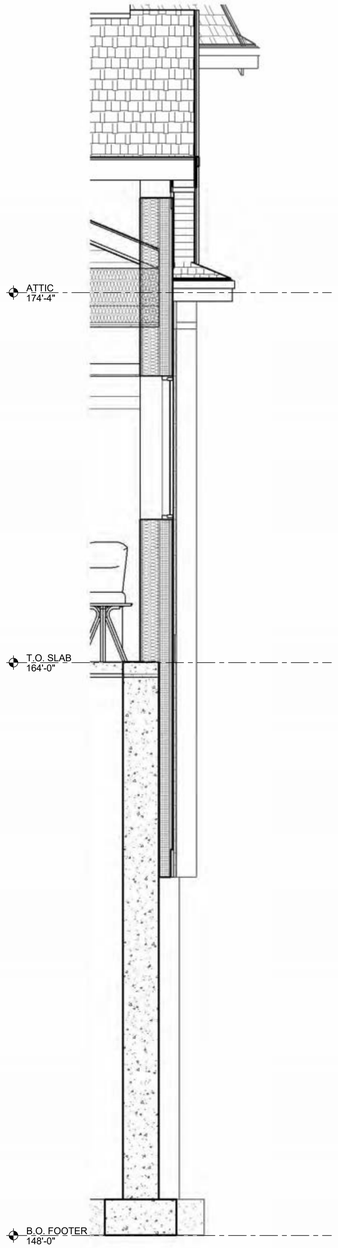

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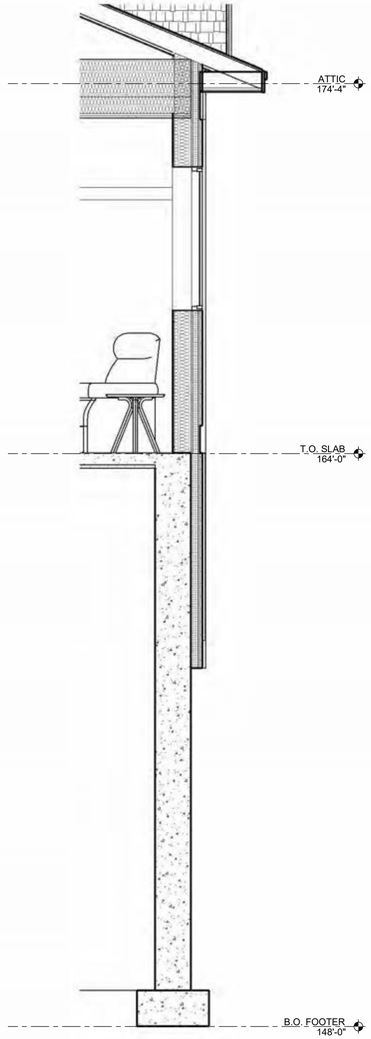

A1 WALL SECTION

1/2" = 1'-0"



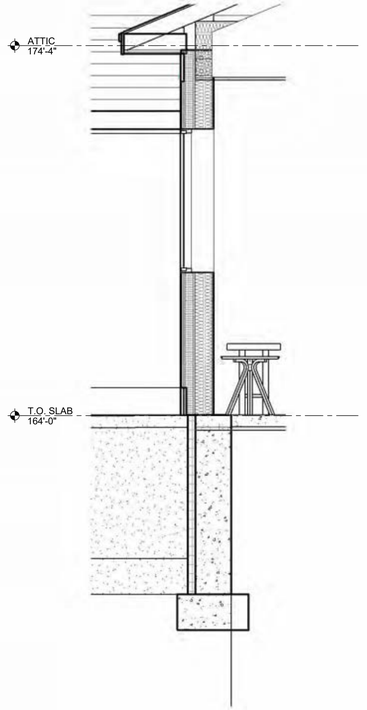

A5 WALL SECTION

1/2" = 1'-0"



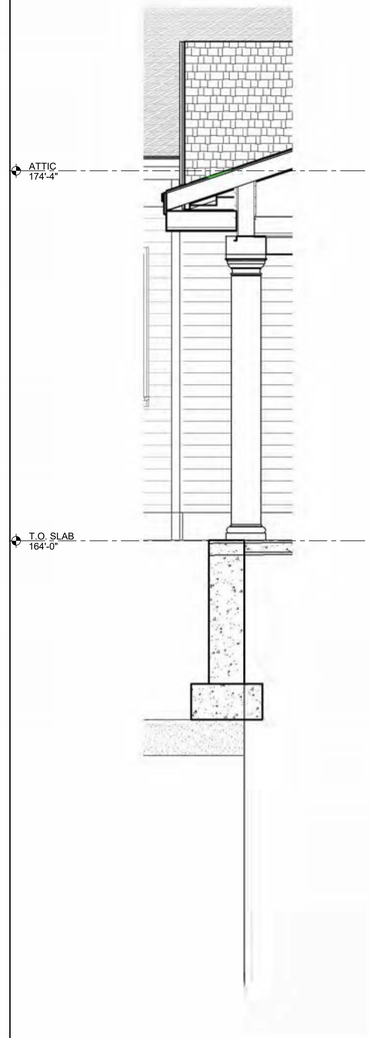

A9 WALL SECTION

1/2" = 1'-0"




A13 WALL SECTION

1/2" = 1'-0"




A17 WALL SECTION

1/2" = 1'-0"


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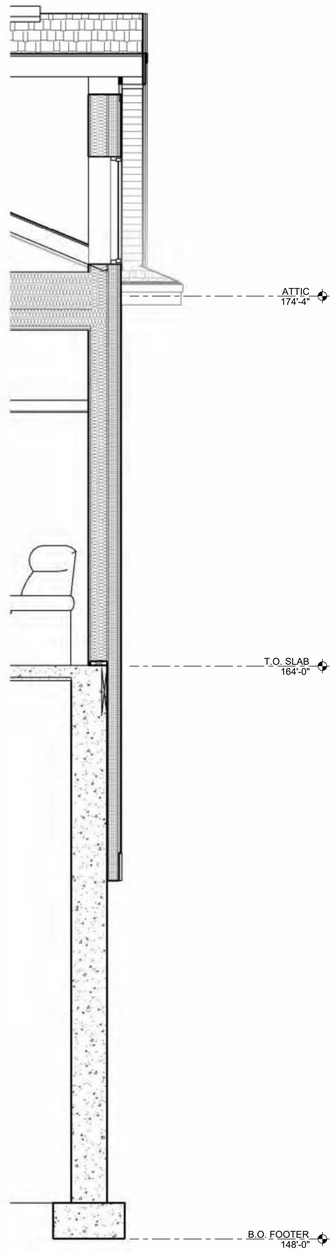
SHEET TITLE

WALL SECTIONS

A601

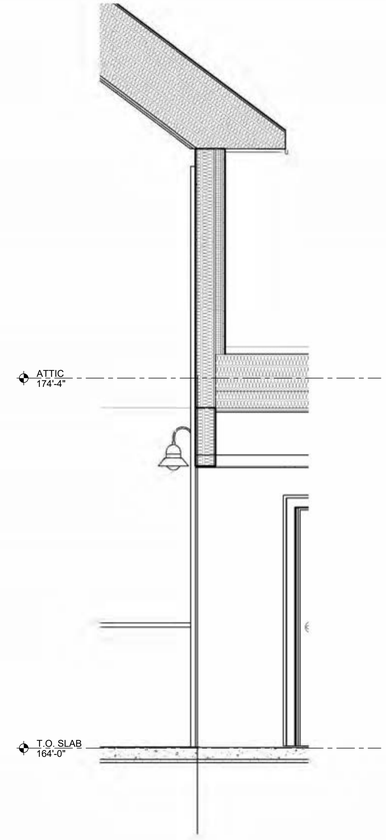

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A13 WALL SECTION

1/2" = 1'-0"




A17 WALL SECTION

1/2" = 1'-0"

4/22/2026 10:30:41 AM Author

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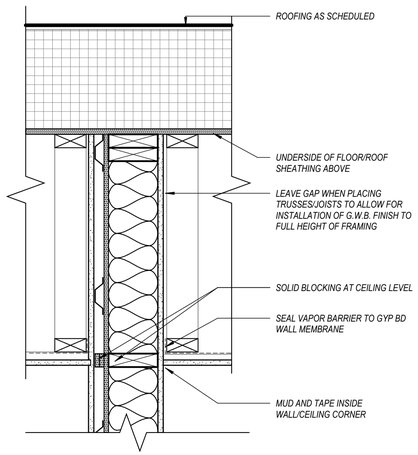
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| CHECKED BY: | Checker |
| DRAWING SCALE | 1/2" = 1'-0" |

SHEET TITLE

WALL SECTION & DETAILS

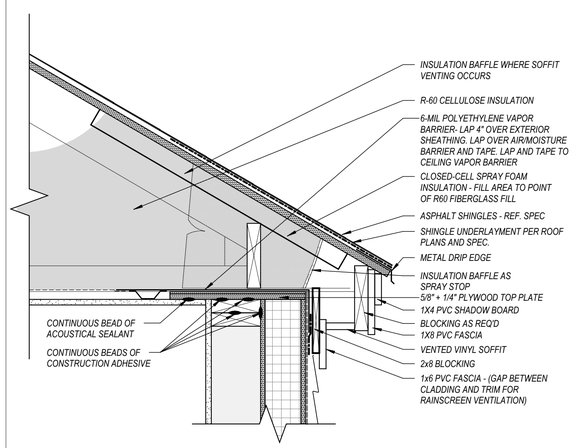
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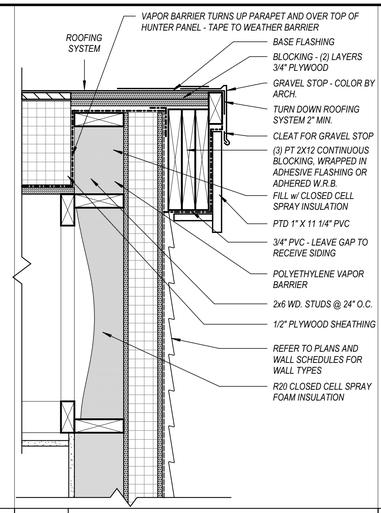

M1 T.O. DEMISING WALL PAR'L TO FRMNG

1 1/2" = 1'-0"



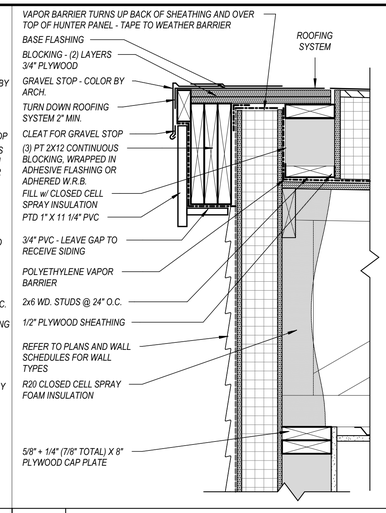

M9 EAVE DETAIL

1 1/2" = 1'-0"



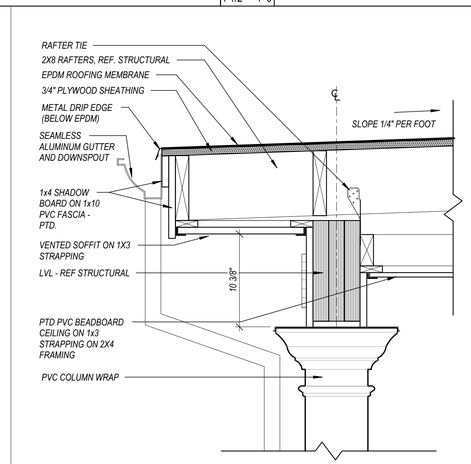

M14 T.O. EXT. WALL

1 1/2" = 1'-0"



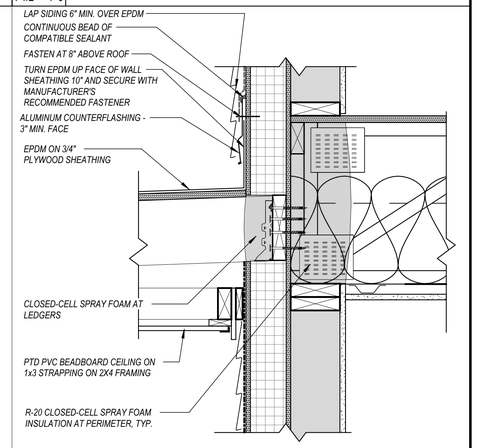

M17 TOP OF EXT. WALL

1 1/2" = 1'-0"



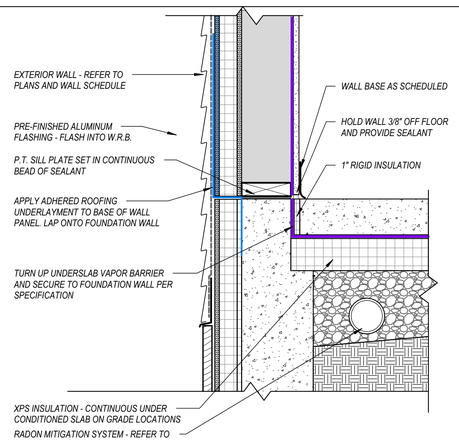

F12 PORCH EAVE DETAIL

1 1/2" = 1'-0"



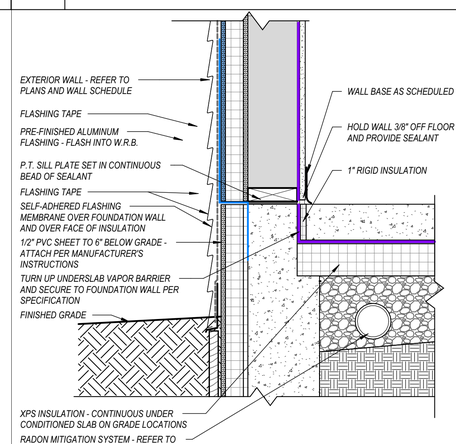

F17 PORCH HEADWALL DETAIL

1 1/2" = 1'-0"



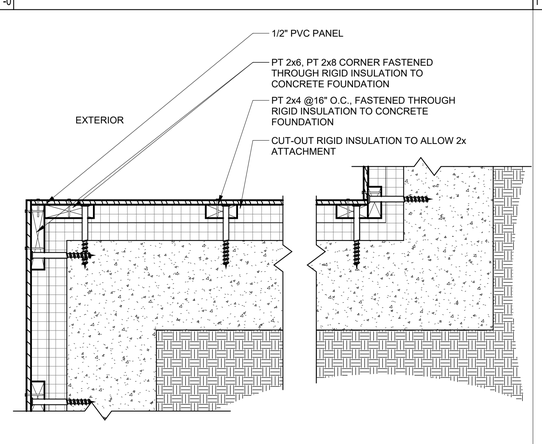

1 BASE OF EXT WALL AT GRADE Copy 1

1 1/2" = 1'-0"



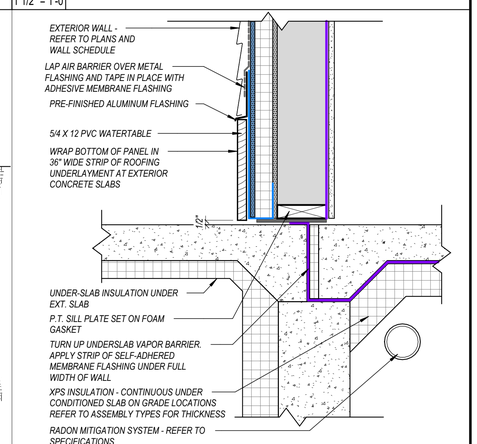

A8 BASE OF EXT WALL AT GRADE

1 1/2" = 1'-0"




A12 FOUNDATION INSUL. ATTACHMENT DET.

1 1/2" = 1'-0"




A17 BASE OF WALL DETAIL

1 1/2" = 1'-0"

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REVISIONS

| # | DATE | DESCRIPTION |
|---|---|---|
| B | 04.20.2026 | REVISED 50% PROGRESS SET |

| | |
|---|---|
| DATE: | 04.24.26 |
| PROJECT # | 050725 |
| DRAWN BY: | DEC |
| CHECKED BY: | RLD |
| DRAWING SCALE | 1 1/2" = 1'-0" |

SHEET TITLE

WALL DETAILS

A603

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4/22/2026 10:30:49 AM

R Q P O N M L K J H G F E D C B A

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

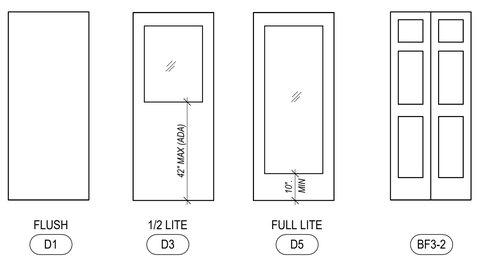
# DOOR SCHEDULE

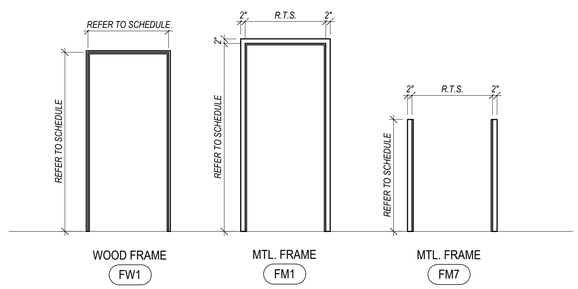
| DOOR SCHEDULE ABBREVATIONS | | | | | | | |
|---|---|---|---|---|---|---|---|
| ALUM | ALUMINUM | FBGL | FIBERGLASS | MTL | METAL | SCW | SOLID CORE WOOD |
| ANO | ANODIZED | HGT | HEIGHT | OHD | OVERHEAD DOOR | SL | SIDELITE |
| CL | CLOSET | HM | HOLLOW METAL | NO | NUMBER | TEMP | TEMPERED |
| CR | CARD READER | HCW | HOLLOW CORE WOOD | PKT | POCKET | THK | THICKNESS |
| EHO | ELECTRIC HOLD OPENER | IHM | INSULATED HOLLOW METAL | PP | PUSH PAD | WD | WOOD (SOLID) |
| EXT | EXTERIOR | INS | INSULATED | PTD | PAINTED | WG | WIRE GLASS |
| FA | FACTORY FINISH | KP | KEY PAD | S | STAIN | | |

| DOOR | | | | | | | | DOOR HARDWARE | FRAME | | | | | | SILL CONDITIONS | | | RATING |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | DETAILS | | | | DETAILS | | | |
| NO | TYPE | WIDTH | HGT. | THK. | MAT. | FINISH | REMARKS | | TYPE | MAT. | HEAD | JAMB | FINISH | REMARKS | MAT. | SILL | HEIGHT | |
| 100A | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 100B | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 100C | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 100D | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 101A | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 101B | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 101C | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 101D | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 102A | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 102B | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 102C | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 102D | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 103A | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 103B | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 103C | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 103D | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 104A | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 104B | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 104C | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 104D | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 105A | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 105B | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 105C | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 105D | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 106A | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 106B | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 106C | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 106D | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 110A | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 110B | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 110C | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 110CCC | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 110D | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 110EE | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 110EEEE | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 110S | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 111A | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 111B | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 111C | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 111D | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 112A | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 112B | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 112C | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 112D | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 113A | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 113B | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 113C | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 113D | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 114A | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 114B | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 114C | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 114D | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 115A | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 115B | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 115C | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 115D | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 116A | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 116B | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 116C | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 116D | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 117A | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 117B | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 117C | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 117D | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 118A | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 118A | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 118B | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 118B | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 118C | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 118C | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 118D | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 118D | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |

| DOOR | | | | | | | | DOOR HARDWARE | FRAME | | | | | | SILL CONDITIONS | | | RATING |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | DETAILS | | | | DETAILS | | | |
| NO | TYPE | WIDTH | HGT. | THK. | MAT. | FINISH | REMARKS | | TYPE | MAT. | HEAD | JAMB | FINISH | REMARKS | MAT. | SILL | HEIGHT | |
| 119A | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 119B | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 119C | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 119D | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 120A | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 120B | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 120C | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 120D | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 122A | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 122B | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 122C | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 122D | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 123A | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 123B | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 123C | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 123D | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 124A | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 124B | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 124C | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 125A | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 125B | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 125C | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 125D | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 126A | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 126B | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 126C | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 126D | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 127A | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 127B | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 127C | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 128A | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 128B | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 128C | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 129A | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 129B | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 129C | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 129D | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 130A | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 130B | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 130C | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 130D | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 131A | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 131B | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 131C | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 132A | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 132B | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| 132C | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| 132D | BF3-2 | 3'-0" | 6'-8" | 1 3/8" | | | | | FW1 | WD | | | PTD | | | | | |
| CM100M | D5 | 3'-0" | 7'-0" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| CM100N | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| CM100O | D5 | 3'-0" | 7'-0" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| CM100Q | D3 | 3'-0" | 7'-0" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| CM102 | D1 | 3'-0" | 3'-6" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| CM104 | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| CM105 | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| CM106 | D3 | 3'-0" | 7'-0" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| CM107 | D3 | 3'-0" | 7'-0" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| CM109 | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| CM110 | D3 | 3'-0" | 7'-0" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| CM111A | D3 | 3'-0" | 7'-0" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| CM111B | D3 | 3'-0" | 7'-0" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| CM115 | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| CM116 | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| CM117 | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| CM118 | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| CM119 | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| CM120 | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| CM120 | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| CM121 | D3 | 3'-0" | 7'-0" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| CM122 | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| CM123 | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |
| CM123 | D1 | 3'-0" | 6'-8" | 1 3/4" | | | | | FM1 | HM | | | PTD | | | | | |

## E1 DOOR SCHEDULE




## A1 DOOR TYPES & FRAMES

## A16 DOOR NOTES

**GENERAL DOOR NOTES:**

1. GC TO COORDINATE ALL HARDWARE AND LOCKING FUNCTIONS WITH OWNER/ TENANT.
2. GLAZING IN RATED DOORS SHALL BE RATED PER CODE.
3. PROVIDE TEMPERED GLASS WHERE REQUIRED BY CODE.
4. REFER TO **A802** FOR ALL DOOR DETAILS.
5. ALL DOORS AND FRAMES WHICH ARE EXISTING TO REMAIN SHALL BE PAINTED PER FINISH SCHEDULE.
6. ALL EXTERIOR DOORS SHALL BE INSULATED DOOR WITH WEATHER GASKETS - GLASS SHALL BE TEMPERED & INSULATED.
7. ALL EXTERIOR DOORS & FRAMES SHALL BE GALVANIZED & PAINTED.
8. ALL INTERIOR DOORS & FRAMES TO BE PAINTED.
9. GC SHALL COORDINATE OHD DOOR TRACKS WITH ALL TRADES TO ENSURE OPEN DOORS. DO NOT INTERFERE OR BLOCK OVERHEAD LIGHT FIXTURES OR MECHANICAL EQUIPMENT.
10. TAPE ALL KNOCK-OUTS IN METAL STUDS AND OTHERWISE AIR SEAL R.O. AROUND DOOR WITH CAULK TO PREVENT AIR INFILTRATION FROM OTHER INTERIOR SPACES.
11. CAULK ALL DOOR FRAME EDGES. AT TILE LOCATIONS, OMIT GROUT AND FILL JOINT WITH SEALANT.


GAWRON TURGEON DILLON ARCHITECTS PC
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WWW.GTDARCHITECTS.COM


BHDC YELLEN PINES
HOME FOR GOOD
205 CORPORATE DRIVE, BANGOR ME

| REVISIONS | | |
|---|---|---|
| # | DATE | DESCRIPTION |
| A | 02.09.2026 | 50% PROGRESS SET |
| B | 04.20.2026 | REVISED 50% PROGRESS SET |

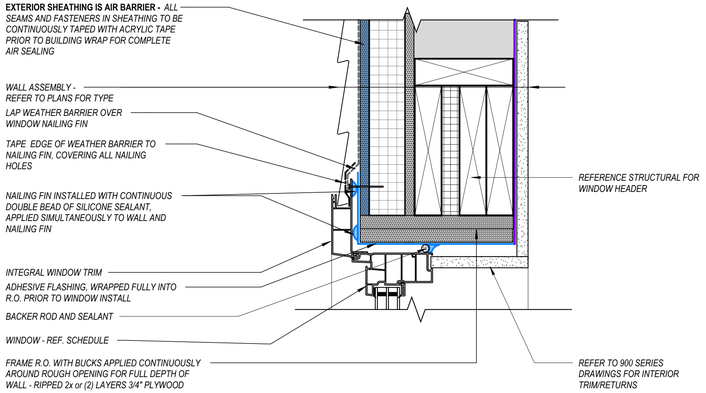
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| DRAWING SCALE | As indicated |

SHEET TITLE
DOOR SCHEDULE, TYPES, & FRAMES
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A801

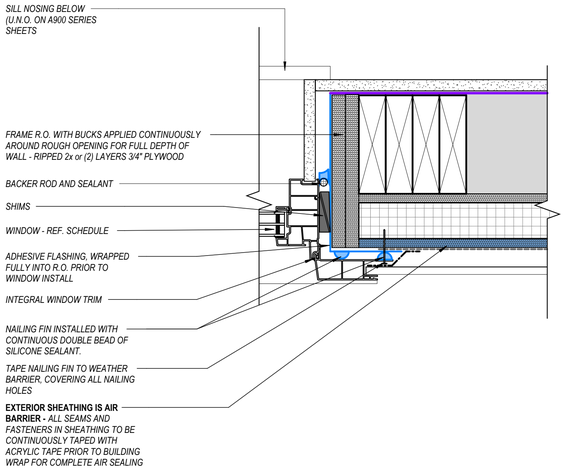

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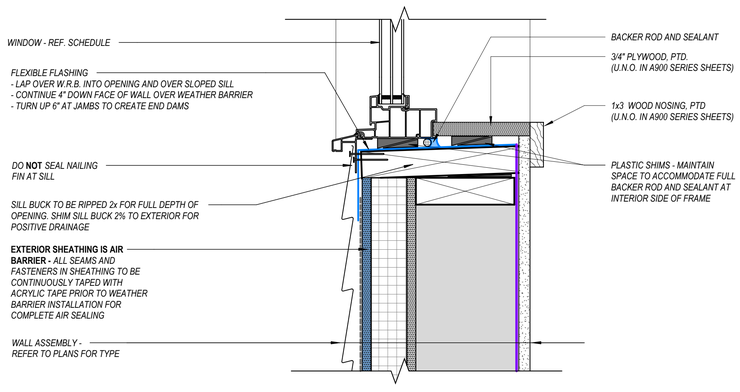

## M1 FIXED WINDOW HEAD

3" = 1'-0"




## F1 FIXED WINDOW JAMB

3" = 1'-0"



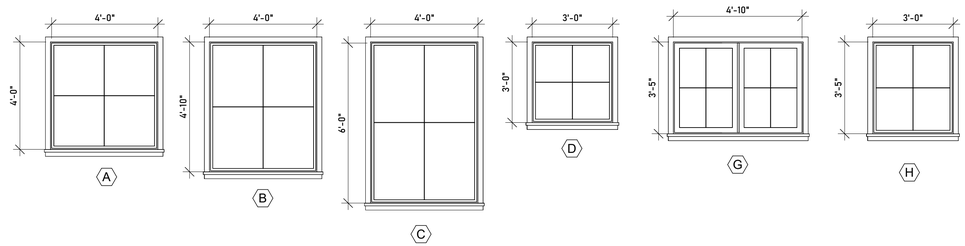

## A1 FIXED WINDOW SILL

3" = 1'-0"

# WINDOW SCHEDULE

| WINDOW SCHEDULE ABBREVATIONS | | | | | |
|---|---|---|---|---|---|
| ALUM | ALUMINUM | MTL | METAL | TEMP | TEMPERED |
| ANO | ANODIZED | NO | NUMBER | THK | THICKNESS |
| FA | FACTORY FINISH | PTD | PAINTED | VNL | VINYL |
| HM | HOLLOW METAL | S | STAIN | WD | WOOD (SOLID) |
| INS | INSULATED | SS | SOLID SURFACE | | |

| TYPE MARK | UNIT DIM. Width | Height | TYPE | COMMENTS |
|---|---|---|---|---|
| A | 4'-0" | 4'-0" | Window-Fixed | |
| B | 4'-0" | 4'-10" | Window-Fixed | |
| C | 4'-0" | 6'-0" | Window-Fixed | |
| D | 3'-0" | 3'-0" | Window-Fixed | |
| G | 4'-10" | 3'-5" | Window-Fixed-Double-Horizontal | |
| H | 3'-0" | 3'-5" | Window-Fixed | |
| O | 2'-0" | 2'-0" | Louver_Double_17897 | |




**WINDOW NOTES:**

1. *PROVIDE TEMPERED GLAZING IN WINDOWS WHERE REQUIRED BY CODE.*
2. *PROVIDE RATED GLAZING WHERE REQUIRED BY CODE.*
3. *ALL CAULKING AROUND WINDOWS SHALL BE NON-HARDENING TYPE SEALANT.*


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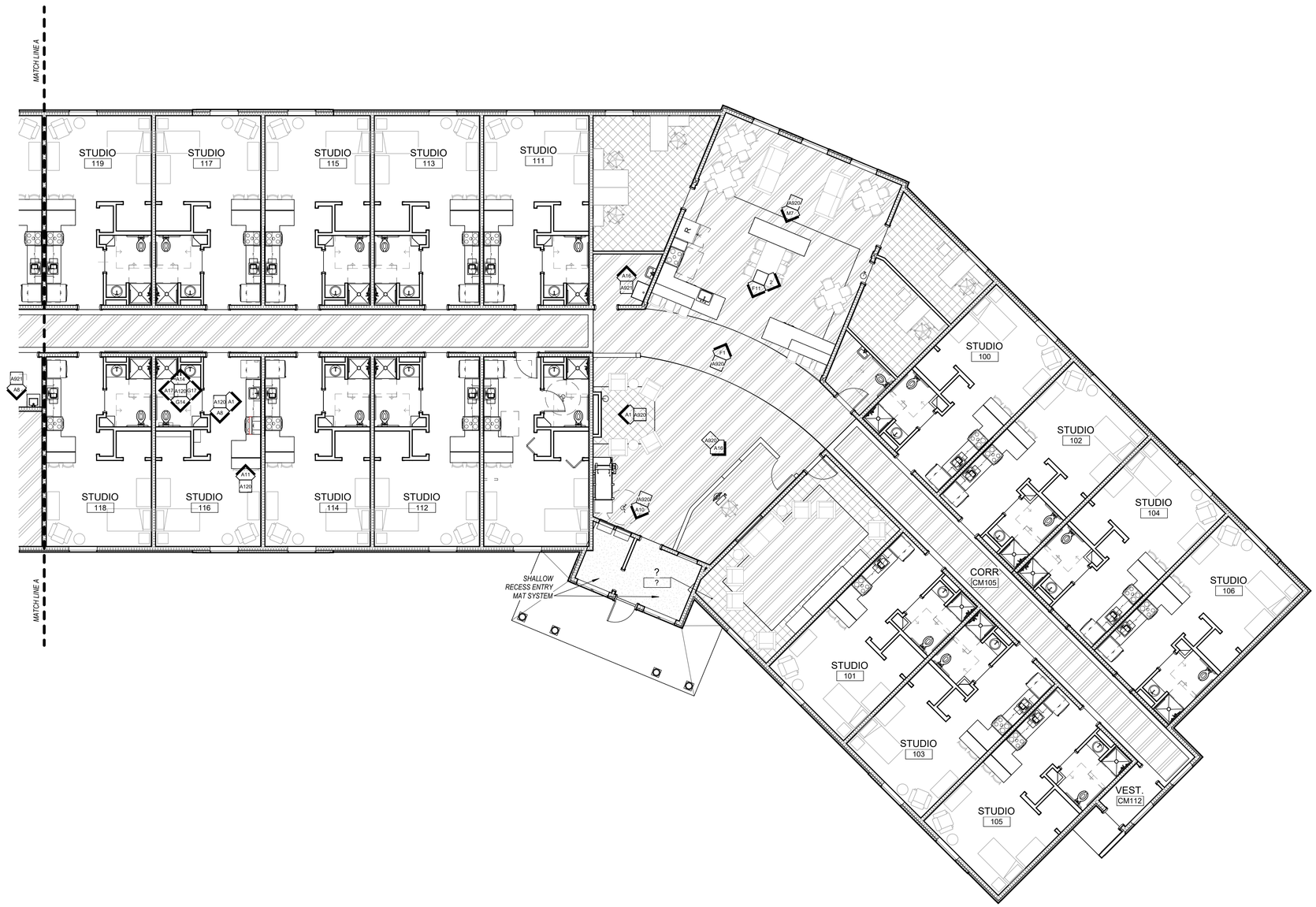
WINDOW SCHEDULES & DETAILS

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A802


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## MATERIALS

- RUBBER PLANK FLOORING
- PORCELAIN FLOOR TILE
- WALK OFF MAT

# A1 PARTIAL FIRST FLOOR FINISH PLAN - EASTT

1/8" = 1'-0"

NORTH


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| DRAWING SCALE | 1/8" = 1'-0" |

SHEET TITLE

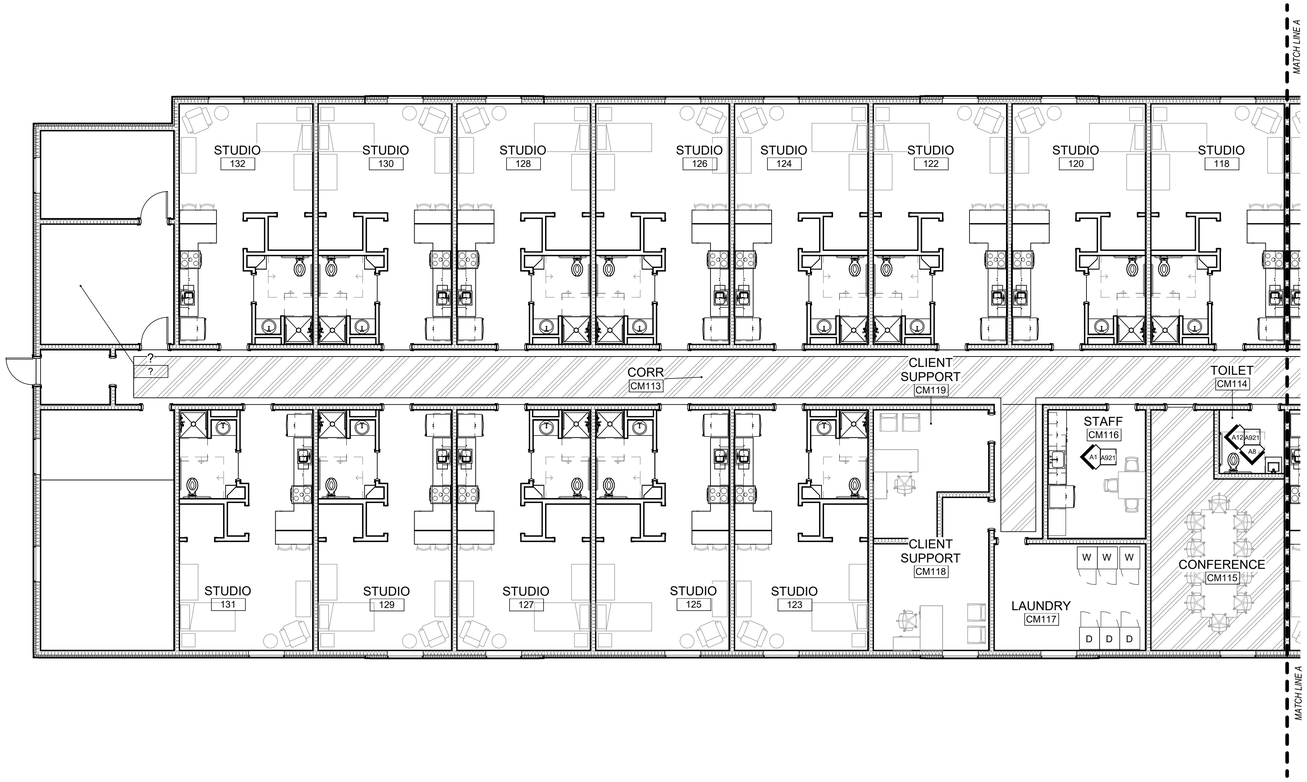
PARTIAL FIRST FLOOR FINISH PLAN - WEST

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**MATERIALS**

- *RUBBER PLANK FLOORING*
- *PORCELAIN FLOOR TILE*
- *WALK OFF MAT*

## H1 PARTIAL FIRST FLOOR FINISH PLAN - EAST

1/8" = 1'-0"

NORTH PLAN


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| DRAWING SCALE | I/8" = I'-0" |

SHEET TITLE

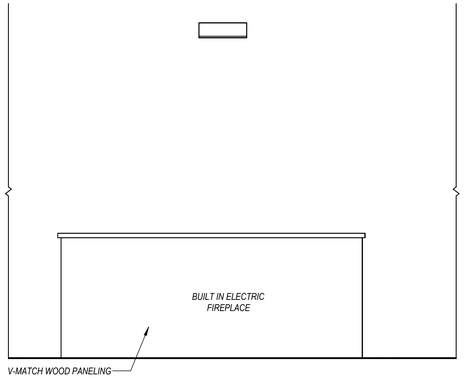
PARTIAL FIRST FLOOR FINISH PLAN - EAST

NOT FOR CONSTRUCTION

A902

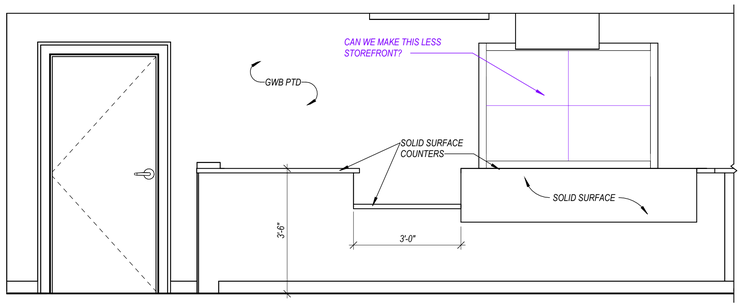

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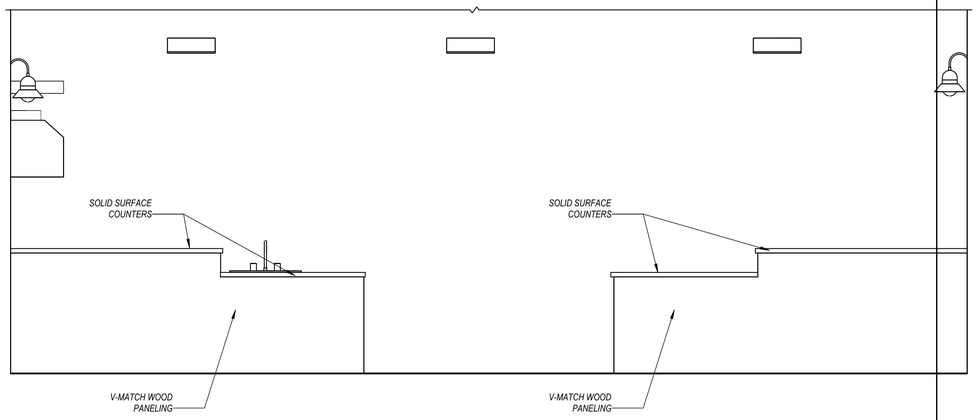

## M7 COMMON AREA FIREPLACE

1/2" = 1'-0"



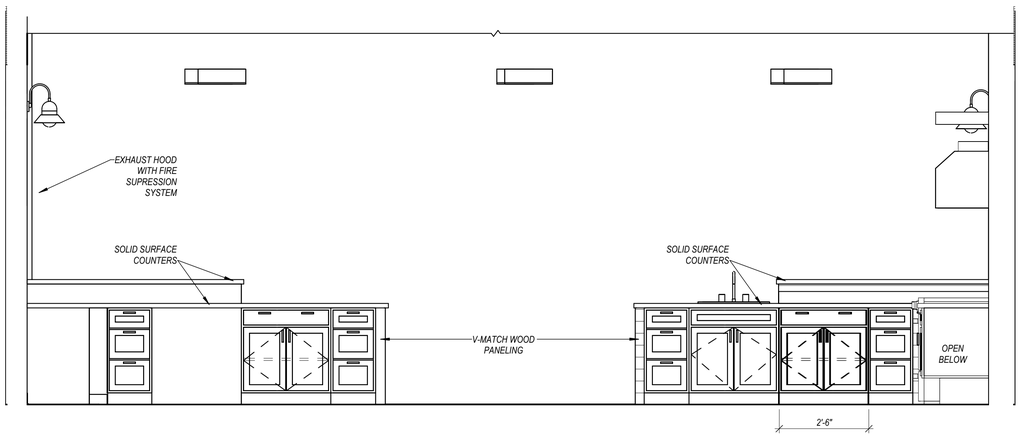

## A16 RECEPTION FRONT

1/2" = 1'-0"



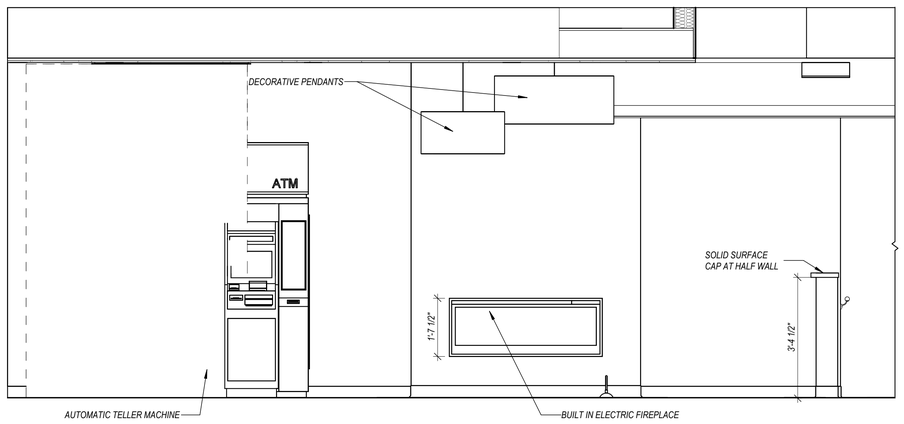

## F1 COMMON KITCHEN ENTRY

1/2" = 1'-0"



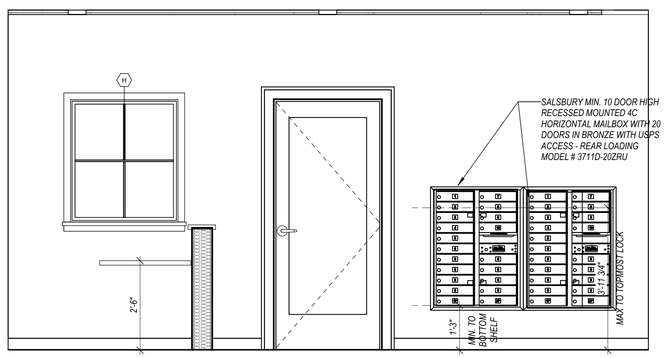

## F11 COMMON KITCHEN - S

1/2" = 1'-0"




## A1 ENTRY - SITTING AREA

1/2" = 1'-0"




## A10 MAILBOXES

1/2" = 1'-0"

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| DRAWING SCALE | 1/2" = 1'-0" |

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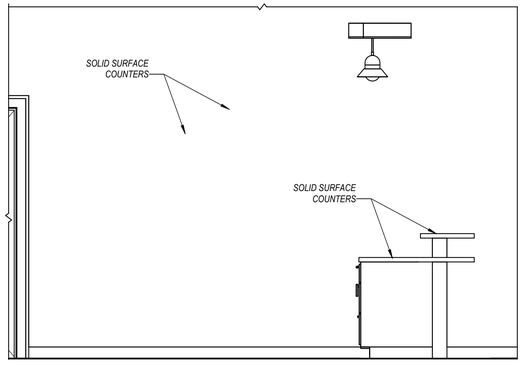
INTERIOR ELEVATIONS

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A920

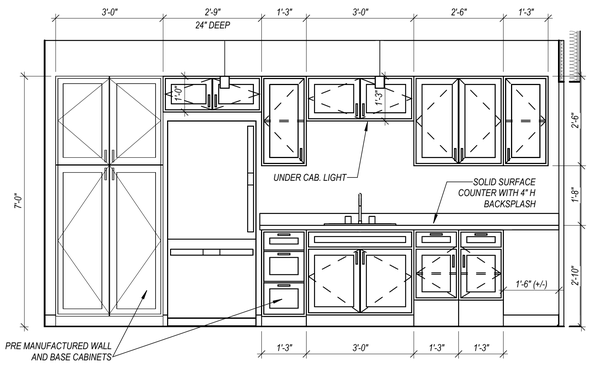
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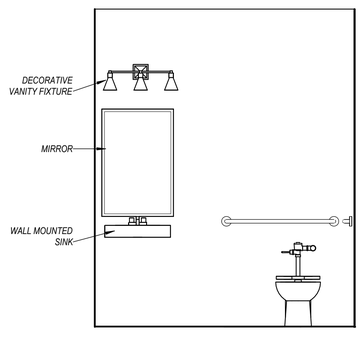

2 KITCHEN - WEST

1/2" = 1'-0"



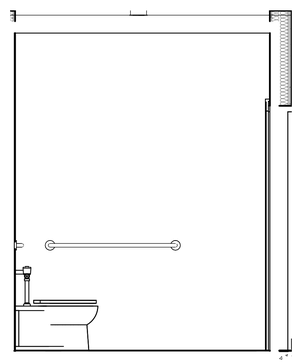

A1 STAFF BREAK

1/2" = 1'-0"



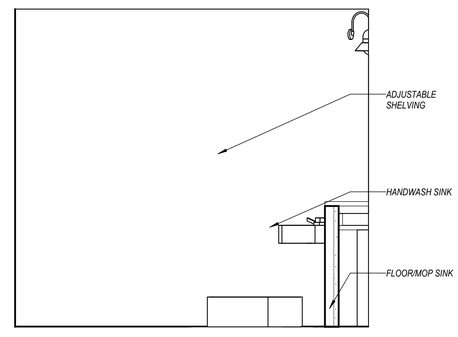

A8 TLT 114 - A

1/2" = 1'-0"



A12 TLT 114 - B

1/2" = 1'-0"




A16 CUSTODIAL - A

1/2" = 1'-0"

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## INTERIOR FINISH LEGEND

| CODE | MATERIAL | MANUFACTURER | PRODUCT STYLE & COLOR | REMARKS & NOTES |
|---|---|---|---|---|
| CAB1 | CABINETS | MERILLAT CLASSICS | STYLE: MARLIN ON MAPLE - STAINED FINISH TBD | TYPICAL KITCHEN CABINETS IN RESIDENT UNITS |
| CAB2 | CABINETS | MERILLAT CLASSICS | STYLE: MARLIN ON MAPLE - FINISH TBD | COMMON KITCHEN AREA CABINETS, STAFF BREAK CABINETS |
| EM | ENTRY MAT | MATTER SURFACES | "ULTRA ENTRY" SURFACE/SHALLOW RECESSED SYSTEM | |
| FRP1 | FIBER REINFORCED PLASTIC | INPRO CORP | PALLADIUM RIGID SHEET WALL PROTECTION | LAUNDRY ROOM, CUSTODIAL |
| LVP1 | LUXURY VINYL PLANK | TARKETT | EVEN PLANE WOOD | TYPICAL RESIDENT FLOORING |
| LVP2 | LUXURY VINYL PLANK | TARKETT | EVEN PLANE STONE | TYPICAL RESIDENT BATHROOM FLOORING |
| P1 | PAINT | | | |
| P2 | PAINT | | | |
| P3 | PAINT | | | |
| P4 | PAINT | | | |
| P5 | PAINT | | | |
| P6 | PAINT | | | |
| P7 | PAINT | | | |
| R1 | RUBBER FLOOR | MANNINGTON | "OPEN RANGE" RUBBER PLANKS - COLOR TBD | CORRIDORS, COMMON AREAS |
| SS1 | SOLID SURFACE | CORIAN | | TYPICAL KITCHEN COUNTERS IN RESIDENT UNITS |
| SS2 | SOLID SURFACE | CORIAN | | TYPICAL BATHROOM COUNTERS IN RESIDENT UNITS (WITH INTEGRAL CORIAN SINK) |
| SS3 | SOLID SURFACE | WILSONART | | COMMON AREAS, RECEPTION DESK |
| T1 | PORCELAIN TILE, FLOOR | CROSSVILLE | ACCESS POINT, 12" X 24" TILE | COMMON TOILET ROOMS |
| TB1 | TILE WALL BASE | CROSSVILLE | ACCESS POINT TILE | W/ T1 |
| VB1 | VINYL BASE | JOHNSONITE | TRADITIONAL VINYL 4" HIGH W/ TOE, COLOR TBD | TYPICAL WALL BASE IN COMMON AREAS |
| VB2 | VINYL BASE | JOHNSONITE | TRADITIONAL VINYL 4" HIGH W/ TOE, COLOR TBD | TYPICAL WALL BASE IN RESIDENT UNITS |
| WD | WOOD | | V-MATCH SOLID WOOD PANELING - STAINED | COMMON AREA ACCENTS AND RECEPTION DESK |
| WP1 | WALL PROTECTION | WOLF GORDON | RAMPART FLEXIBLE WALL PROTECTION, STYLE "ENNIS" COLOR TBD | CORRIDOR WALLS, PARTIAL HEIGHT |

## INTERIOR FINISH SCHEDULE (N)

| ROOM INFORMATION | | FLOOR | | WALLS - CODE ORDER: ABOVE CHAIR RAIL / BELOW CHAIR RAIL | | | | | TRIM | | | | COUNTERTOP / WORKSURFACE / CABINETS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ROOM # | ROOM NAME | CODE ORDER: PRIMARY / SECONDARY OR ACCENT FLOOR | GROUT | NORTH WALL | EAST WALL | SOUTH WALL | WEST WALL | CEILING | BASE | DECORATIVE TRIM | DOOR(S) | DOOR & WINDOW MOULDING | HORIZONTAL PLANE | VERTICAL PLANE | CURTAINS | REMARKS |
| T.O. SLAB | | | | | | | | | | | | | | | | |
| 100 | STUDIO | | | | | | | | | | | | | | | |
| 101 | STUDIO | | | | | | | | | | | | | | | |
| 102 | STUDIO | | | | | | | | | | | | | | | |
| 103 | STUDIO | | | | | | | | | | | | | | | |
| 104 | STUDIO | | | | | | | | | | | | | | | |
| 105 | STUDIO | | | | | | | | | | | | | | | |
| 106 | STUDIO | | | | | | | | | | | | | | | |
| 110 | STUDIO | | | | | | | | | | | | | | | |
| 111 | STUDIO | | | | | | | | | | | | | | | |
| 112 | STUDIO | | | | | | | | | | | | | | | |
| 113 | STUDIO | | | | | | | | | | | | | | | |
| 114 | STUDIO | | | | | | | | | | | | | | | |
| 115 | STUDIO | | | | | | | | | | | | | | | |
| 116 | STUDIO | | | | | | | | | | | | | | | |
| 117 | STUDIO | | | | | | | | | | | | | | | |
| 118 | STUDIO | | | | | | | | | | | | | | | |
| 118 | STUDIO | | | | | | | | | | | | | | | |
| 119 | STUDIO | | | | | | | | | | | | | | | |
| 120 | STUDIO | | | | | | | | | | | | | | | |
| 122 | STUDIO | | | | | | | | | | | | | | | |
| 123 | STUDIO | | | | | | | | | | | | | | | |
| 124 | STUDIO | | | | | | | | | | | | | | | |
| 125 | STUDIO | | | | | | | | | | | | | | | |
| 126 | STUDIO | | | | | | | | | | | | | | | |
| 127 | STUDIO | | | | | | | | | | | | | | | |
| 128 | STUDIO | | | | | | | | | | | | | | | |
| 129 | STUDIO | | | | | | | | | | | | | | | |
| 130 | STUDIO | | | | | | | | | | | | | | | |
| 131 | STUDIO | | | | | | | | | | | | | | | |
| 132 | STUDIO | | | | | | | | | | | | | | | |
| CM100 | VESTIBULE | | | | | | | | | | | | | | | |
| CM101 | MAIL | | | | | | | | | | | | | | | |
| CM102 | RECEPTION | | | | | | | | | | | | | | | |
| CM103 | LOBBY | | | | | | | | | | | | | | | |
| CM104 | TV LOUNGE | | | | | | | | | | | | | | | |
| CM105 | CORR | | | | | | | | | | | | | | | |
| CM106 | TOILET | | | | | | | | | | | | | | | |
| CM107 | OFFICE | | | | | | | | | | | | | | | |
| CM108 | OFFICE | | | | | | | | | | | | | | | |
| CM109 | KITCHEN | | | | | | | | | | | | | | | |
| CM110 | CUSTODIAL | | | | | | | | | | | | | | | |
| CM111 | OFFICE | | | | | | | | | | | | | | | |
| CM112 | VEST. | | | | | | | | | | | | | | | |
| CM113 | CORR | | | | | | | | | | | | | | | |
| CM114 | TOILET | | | | | | | | | | | | | | | |
| CM115 | CONFERENCE | | | | | | | | | | | | | | | |
| CM116 | STAFF | | | | | | | | | | | | | | | |
| CM117 | LAUNDRY | | | | | | | | | | | | | | | |
| CM118 | CLIENT SUPPORT | | | | | | | | | | | | | | | |
| CM119 | CLIENT SUPPORT | | | | | | | | | | | | | | | |
| CM120 | STORAGE | | | | | | | | | | | | | | | |
| CM121 | VEST | | | | | | | | | | | | | | | |
| CM122 | SPRINKLER- BOILER | | | | | | | | | | | | | | | |
| CM123 | ELEC./IT | | | | | | | | | | | | | | | |
| ATTIC | | | | | | | | | | | | | | | | |
| CM200 | MECH MEZZ | | | | | | | | | | | | | | | |
| CM201 | TEL-COM | | | | | | | | | | | | | | | |

## INTERIOR FINISH ABBREVATIONS

| | |
|---|---|
| ACT | ACOUSTICAL CEILING TILE |
| C | CARPET |
| CAB | CABINETS |
| EM | ENTRY MAT |
| FRP | FIBERGLASS-REINFORCED PANELS |
| G | GROUT |
| GWB | GYPSUM WALL BOARD |
| LVP | LUXURY VINYL PLANK |
| M | MARMOLEUM |
| N/A | NOT APPLICABLE |
| PC | PRIVACY CURTAIN |
| PLAM | PLASTIC LAMINATE |
| PTD | PAINTED |
| QT | QUARTZ TILE |
| R | RESILIENT/ RUBBER/ RUBBER TREAD |
| SC | SEALED CONCRETE |
| SF | SQUARE FEET |
| SS | SOLID SURFACE/ NATURAL STONE/ QUARTZ |
| ST | STAGE CURTAIN |
| SV | SHEET VINYL |
| SYD | SQUARE YARD(S) |
| T | TILE |
| TB | TILE BASE |
| TBS | TO BE SELECTED |
| VB | VINYL BASE |
| VCT | VINYL COMPOSITION TILE |
| WC | WALL COVERING |
| TB | TILE BASE |
| WD | WOOD |
| WP | WALL PROTECTION |


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BHDC YELLEN PINES

HOME FOR GOOD

205 CORPORATE DRIVE, BANGOR ME

### REVISIONS

| # | DATE | DESCRIPTION |
|---|---|---|
| A | 02.09.2026 | 50% PROGRESS SET |
| B | 04.20.2026 | REVISED 50% PROGRESS SET |

| | |
|---|---|
| DATE: | 04.24.26 |
| PROJECT # | 050725 |
| DRAWN BY: | Author |
| CHECKED BY: | Checker |
| DRAWING SCALE | 12" = 1'-0" |

SHEET TITLE

INTERIOR SCHEDULES

NOT FOR CONSTRUCTION

A941


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A1 INTERIOR SCHEDULES

4/22/2026 10:31:57 AM Author

**BANGOR WATER DISTRICT**
P.O. BOX 1129 · BANGOR, ME 04402-1129
TEL: (207) 947-4516 · FAX: (207) 947-5707
www.bangorwater.org

Chuck Harrison
General Manager

March 3, 2026

Anna Dedon, P.E.
Sevee & Maher Engineers, INC.
4 Blanchard Road
P.O. Box 85A
Cumberland, ME 04021

**Subject: Maine Avenue, Bangor, Maine; Tax Map R25, Lot 001-A; Proposed 19,500SF, thirty (30) unit rehabilitation apartment building – Ability to Serve**

To whom it may concern:

The Bangor Water District possesses the capacity to serve the estimated daily water usage of 3,708 gallons per day for the proposed thirty (30) unit rehabilitation apartment building ~ Tax Map R25-001-A on Maine Avenue in Bangor Maine. The scope of the project as we understand is the construction of a 19,500SF, thirty (30) unit rehabilitation apartment building with a staff of nine (9) employees and will be supplied with a domestic water service and a fire suppression service.

The project's water will be supplied from our 16" ductile iron pipe located along the easterly side of Corporate Drive past said property. The District's line pressure is approximately 55 psi static. All lines and structures used to supply water to your facility will be considered a service and will remain in private ownership. Installation of service lines will be required to comply with the construction standards established by the District.

Before any construction begins on new water lines or appurtenances, please submit a project application, updated flow information, and updated plans for Bangor Water District review. **Please note that this capacity-to-serve letter does not imply final project approval.**

If you have any questions, please call or email.

Kind regards,
Bangor Water District

Vaughan Littlefield
Project Manager

# APPENDIX E

# CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN

SME
SEVEE & MAHER
ENGINEERS

# CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN (SWPPP)
# YELLEN PINES
# 205 CORPORATE DRIVE
# BANGOR, MAINE

Prepared for

**BANGOR HOUSING CORPORATION**
Bangor, Maine

May 2026

4 Blanchard Road
P.O. Box 85A
Cumberland, ME 04021

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SME
SEVEE & MAHER
ENGINEERS

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**CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN**
**BANGOR HOUSING DEVELOPMENT CORPORATION**
**YELLEN PINES**
**205 CORPORATE DRIVE**
**BANGOR, MAINE**

## 1.0 INTRODUCTION

This Stormwater Pollution Prevention Plan (Plan) was prepared for the construction of the proposed Bangor Housing Development Corporation Yellen Pines located at 205 Corporate Drive in Bangor, Maine (Project) in accordance with the Maine Department of Environmental Protection (MEDEP) Erosion and Sediment Control BMP Manual, and Maine Construction General Permit (MCGP).

## 2.0 PROJECT DESCRIPTION

Bangor Housing Development Corporation (BHDC) proposes to develop a new 30-unit permanent supportive housing building called Yellen Pines on property currently at 205 Corporate Drive. The location of the project is shown in Figure 1, Site Location Map. The project is subject to a Land Development Permit from the City of Bangor Planning Board. This application provides detailed project information and outlines compliance with the applicable sections of the City Ordinance.

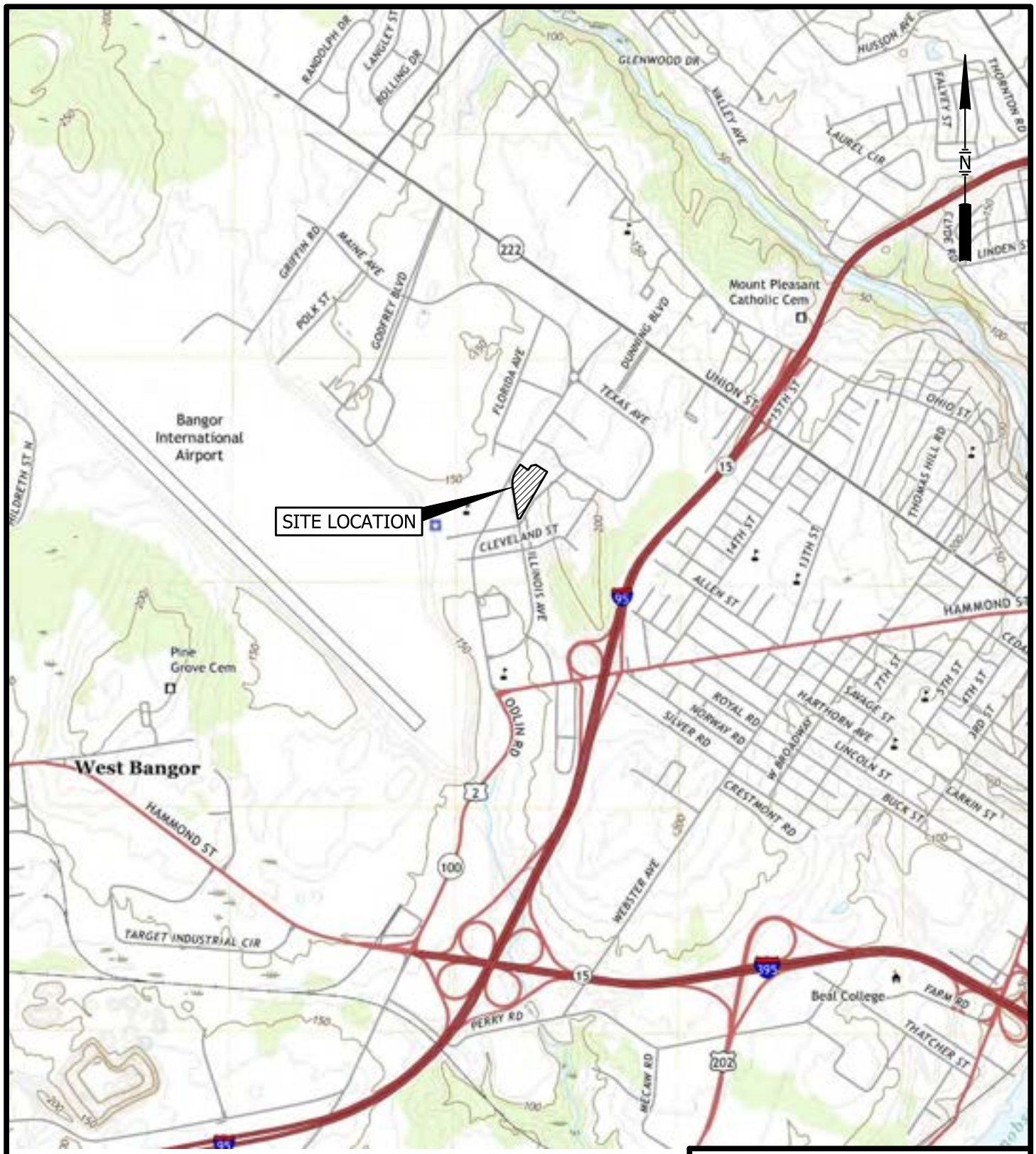
The project is located on the 5.05-acre parcel identified as Lot 001-A on City Tax Map R25 within the Government and Institutional Services District (G&ISD) and Technology and Service District (T&S) on the City's Official Zoning Map. The property is bounded by Maine Avenue to the west, Texas Avenue to the east, Corporate Drive to the south, and a developed University of Maine Office Building property to the north. The property is currently developed as a vegetated slope maintained as lawn with a row of trees, a concrete walkway, and a paved entrance off Maine Avenue. The property is within the Urban Impaired Stream of Birch Stream and is primarily developed land.

The permanent supportive housing project will include a single story 19,100-square-foot building that will include thirty (30) one-bed units with support offices and lounge area. The construction will include area for eleven (11) parking spaces with one (1) ADA accessible parking space. The project will have a new 24-foot paved access drive from Corporate Drive sized for access by City fire and emergency vehicles. Additional site improvements include a patio along the southern side of the building, public water and sewer, underground utilities, stormwater management, site lighting, and landscaping.

The housing project will result in approximately 84,740 square feet of developed area, all of which will be considered redevelopment given the nature of the existing site. This redeveloped area will include 41,156 square feet of new impervious area. The existing concrete walkway and paved turnaround on site will be demolished, resulting in a net increase of approximately 37,339 square feet of impervious area post-redevelopment.

The Bangor Housing property is regulated under an existing Maine Department of Environmental Protection (MEDEP) Site Location of Development Act (SLODA) permit, which is required to be amended for changes to the property including redevelopment.

As a result of the SLODA Amendment, the project is subject to the redevelopment standards of MEDEP Chapter 500 for treating stormwater runoff. Stormwater management for this project will be accomplished using a closed stormwater management system including catch basins, storm drains, roof dripline filters, and a grassed underdrained soil filter.




BASE MAP ADAPTED FROM 7.5 MIN USGS TOPO QUADS
BANGOR, ME - 2021

1000 0 2000 FEET

DWG: SITELOC LMN: NONE CTB: SME-STD REV: 5/1/2026

FIGURE 1
SITE LOCATION MAP
BANGOR HOUSING DEVELOPMENT CORPORATION
YELLEN PINES
205 CORPORATE DRIVE
BANGOR, ME

SME
SEVEE & MAHER ENGINEERS

C:\Users\zander.foster\OneDrive - SME_SP\Civil-ME\Gawron Turgeon\Bangor Housing\Acad\Figures\SITELOC.dwg, A_FIG 1, 5/1/2026 9:08:56 AM, Zander.Foster

## 3.0 EROSION AND SEDIMENTATION CONTROL (MCGP APPENDIX A)

This section has been prepared to address Appendix A of the MCGP and provide further project details to demonstrate compliance with the requirements.

### 3.1 Pollution Prevention

The project has been designed to minimize disturbed areas and protect the natural downgradient buffers as much as practicable. The Contractor will provide the appropriate Erosion Control Best Management Practices (BMPs) to control the stormwater volume and velocity within the site to minimize soil erosion. This will include minimizing impacts to steep slopes, controlling stormwater discharges; including both peak flow rates and volume to minimize erosion at outlets. The discharge from the site will be controlled to: prevent erosion of any open drainage channels, swales, stream channels, or stream banks; and upland, coastal, or freshwater wetlands off the project site.

#### 3.1.1 Buffers and Perimeter Controls

There will be no project disturbance within 50 feet of a protected natural resource other than what has been shown on the provided drawing set. BMP perimeter controls will be installed downslope from any exposed soil or disturbed areas within the project area. In areas of disturbance within 50 feet of a protected natural resource, perimeter controls will be doubled. All erosion and sedimentation control measures will be followed throughout this document and as shown within the approved drawing set.

### 3.2 Preserve Native Topsoil, Unless Infeasible

Suitable topsoil within the project disturbance limits will be stripped and stockpiled for reuse in reclaiming disturbed land areas. When project construction results in excess topsoil, the Contractor will make every effort to spread it within the project site or will take it off-site after completion of final site reclamation. Topsoil will be stockpiled in a manner such that natural drainage is not obstructed, and no off-site sedimentation will occur. Stockpiles will not be located within 100 feet of wetlands and will be at least 50 feet upgradient of any perimeter silt fence. Stockpiles not actively being used shall be seeded and mulched to help prevent erosion and pollution.

### 3.3 Minimize Soil Compaction

In areas of the site where vegetation will be established, vehicle and equipment use will be restricted, or the soils will be rehabilitated through tilling or ripping to a depth that will leave an uncompacted root zone. In areas where new topsoil will be installed, topsoil will be lightly compacted to ensure a uniform and firm seedbed (excessive compaction will increase runoff and prevent seed rooting). Seeding and mulching will be applied as soon as possible upon final grading or as a temporary cover if final grading will not occur before 14 days.

| Topsoil Loam and Seed | |
|---|---|
| **Description:** | Topsoil provides a loose medium for root development, and a good quality-topsoil will contain decomposed organic matter which retains nutrients and water for plant growth. The topsoil should be friable, loamy, and should be free of debris, trash, stumps, rocks, roots, weeds, or any substance that is toxic to plant growth. |
| **Maintenance and Compaction Requirements** | • Topsoil should not be placed on frozen, muddy, or an extremely wet subgrade.<br>• Prior to spreading the topsoil, the subgrade should be loosened or scarified to a depth of at least 2 inches to ensure bonding.<br>• The topsoil should be 4 inches deep and uniform. Rototilling for a deeper rooting zone on poor subsoils (sloping wet sites or with sand and gravels) is recommended.<br>• Lightly compact the topsoil to ensure a uniform and firm seedbed (excessive compaction will increase runoff and prevent seed rooting).<br>• The sideslopes of the topsoil stockpile will not exceed 2:1. Topsoil stockpiles will be surrounded with siltation fencing and will be temporarily seeded with Aroostook rye, annual, or perennial ryegrass within seven days of formation, or temporarily mulched.<br>• Inspected after a 1-inch rain event, replace loam and seed on bare soils |
| **Design Specifications** | • See Drawing C-300 and C-301 |

## 3.4 High Infiltration Capacity Soils

The proposed project will preserve the natural landscape and Hydrologic Soil Groups A and B as much as practicable, and to the extents shown on the plans. There will be no further disturbance to HSG A and B soils outside of the proposed project limits.

In areas where the project site will be worked on for longer than seven (7) days, temporary sediment traps and basins will be constructed over HSG A and B soils, where possible to promote infiltration of construction site runoff.

## 3.5 Sediment Barriers

Sediment barriers will be installed prior to any soil disturbance at the project site in accordance with the attached drawings. Sediment barriers (i.e., silt fence, erosion control berm, and silt socks) will be monitored on a regular basis. The contractor will ensure that structures are functioning properly and will perform necessary maintenance described in the Maine Construction General Permit and the MEDEP Erosion Control BMP Manual. The details and specifications for all temporary and permanent erosion controls to be installed at the site are provided in Drawing C-300, Erosion Control Notes and Details in the project plan set.

**SPECIFIC PERIMETER CONTROLS**

| SILT FENCE | |
|---|---|
| **Description:** | Silt fence is a permeable geotextile fabric which intercepts overland runoff, reduces flow velocity, and promotes the settlement of sediments. The geotextile fabric will degrade due to sun exposure, and its life span is approximately one field season. Pre-manufactured silt fencing with attached posts is used in most situations. |
| **Maintenance Requirements** | The following actions are recommended after storm events:<br>• Repair and replace damaged silt fence prior to next storm event;<br>• Remove sediment build-up once sediment reaches half-way up the fence; and<br>• Signs of undercutting at the center or edges of fencing, replace with stone check dam. |
| **Design Specifications** | See Drawing C-300 – Erosion and Sediment Control Notes |

| EROSION CONTROL MIX SEDIMENT BARRIER | |
|---|---|
| **Description:** Berms of erosion control mix (ECM) are effective on frozen ground, outcrops of bedrock, and heavily rooted forested areas, or when other temporary erosion and sediment control measures are not practicable | |
| **Maintenance Requirements** | • Sediment deposits should be removed when they reach approximately one-half the height of the barrier.<br>• Replace sections of berm that decompose, become clogged with sediment, or otherwise become ineffective. The barrier should be reshaped as needed.<br>• Erosion control mix barriers can be removed or spread into the landscape after construction. Any sediment deposits remaining in place after the barrier is no longer required should be spread to conform to existing grade, seeded, and mulched. |
| **Design Specifications** | See Drawing C-300 – Erosion and Sediment Control Notes |

## 3.6 Stabilized Construction Entrance

Prior to construction, stabilized construction entrances will be installed wherever construction vehicles will access and egress from the site. The construction entrance will be stabilized to reduce the tracking of sediment off-site.

| STABILIZED CONSTRUCTION ENTRANCE | |
|---|---|
| **Description:** | A pad of coarse aggregate at the construction entrance/exit will reduce the tracking of soil from construction traffic onto a public street. Sediments from the tire treads are knocked loose by the angular stones and are trapped in the voids between the stones. |
| **Maintenance Requirements** | • Maintain 6-inch thick of 2-inch crushed stone.<br>• Sweep or shovel to paved road to remove sediment, complete within same day observed. |
| **Design Specifications** | See Drawing C-300 – Erosion and Sediment Control Notes |

## 3.7 Temporary Sediment Basins

Where required, temporary sediment basins will be sized to store the 2-year/24-hour storm or provide 3,600 cubic feet of storage per acre draining to the basin. Erosion controls (i.e., sediment barriers, etc.) and velocity dissipation (i.e., riprap outlet protection, riprap overflows) will be used at the discharge of the sediment basin to dissipate velocity and prevent erosion.

Sediment basins, where required, will be equipped with an outlet control structure per the MEDEP Erosion Control BMP Manual, and will discharge to a stabilized riprap apron in a natural drainage channel, or

undisturbed area. Exceptions may include periods of extended cold weather, where alternate outlets are required during frozen periods. If the outlet control structure is infeasible for a portion of, or the entire construction period, the Contractor shall document the site conditions that prevent it from being a viable solution.

Accumulated sediment must be removed when needed to maintain at least half of the design capacity of the basin and respread on-site and stabilized with temporary seed.

### 3.8 Cationic Treatment Chemicals

The project does not anticipate the use of cationic treatment chemicals to control turbidity in the construction site stormwater. If polymers, flocculants, or other positively charged chemicals are required to reduce turbidity in stormwater, the Contractor will notify MEDEP in advance and obtain authorization for the use. The request for approval will include appropriate controls and implementation procedures to ensure the use will not lead to a violation of water quality standards. In addition, the request will include:

- The types of soil likely to be treated;
- The chemicals to be used;
- The method and quantity of the application;
- Manufacturer's recommendations for use; and
- Proof of training by personnel who will handle and apply the chemicals.

### 3.9 Temporary Stabilization

Disturbed areas not to be worked on within 14 days of disturbance will be temporarily stabilized within seven (7) days of the disturbance. Areas within 75 feet of a downgradient protected natural resources will be temporarily stabilized within 48 hours of disturbance or prior to any storm event, whichever comes first.

### 3.10 Removal of Temporary Measures

Removal of temporary erosion control measures shall remain in-place and be maintained by the Contractor until all related construction is complete, and the drainage area is stable. An area is considered stable if 90 percent of grass cover has been established or riprap or other permanent measures are in-place and functioning properly.

Silt barriers shall be removed and disposed of legally and properly off-site. Sediment trapped behind these controls shall be distributed to an area undergoing final grading and graded in an aesthetic manner to conform to the topography and fertilized, seeded, and mulched in accordance with the "PERMANENT

SEEDING" specifications included on the drawings provided and presented in Section 3.11 of this Plan. The sediment trapped by these devices shall not be regraded within the existing drainageways.

Once the trapped sediments have been removed from the temporary sedimentation devices, the disturbed areas must be loamed (if necessary), fertilized, seeded, and mulched.

## 3.11 Permanent Stabilization

If the project area will not be worked for more than one (1) year, or has been brought to final grade, the Contractor will permanently stabilize the area within seven (7) days by planting vegetation, seeding, sod, or through the use of permanent mulch, riprap, road subbase, or other final surface finishes. If using vegetation for stabilization, select the proper vegetation for the light, moisture, and soil conditions; amend areas of disturbed subsoils with topsoil, compost, or fertilizers; protect seeded areas with mulch or, if necessary, erosion control blankets; and schedule sodding, planting, and seeding so as to avoid die-off from summer drought and fall frosts. Newly seeded or sodded areas must be protected from vehicle traffic, excessive pedestrian traffic, and concentrated runoff until the vegetation is well-established. If necessary, areas must be reworked and restabilized if germination is sparse, plant coverage is spotty, or topsoil erosion is evident. One or more of the following may apply to a particular site.

- Seeded areas. For seeded areas, permanent stabilization means a 90 percent cover of the disturbed area with mature, healthy plants with no evidence of washing or riling of the topsoil.
- Sodded areas. For sodded areas, permanent stabilization means the complete binding of the sod roots into the underlying soil with no slumping of the sod or die-off.
- Permanent Mulch. For mulched areas, permanent mulching means total coverage of the exposed area with approved mulch material. Erosion Control Mix may be used as mulch for permanent stabilization according to the approved application rates and limitations.
- Riprap. For areas stabilized with riprap, permanent stabilization means that slopes stabilized with riprap have an appropriate backing of a well-graded gravel or approved geotextile to prevent soil movement from behind the riprap. Stone must be sized appropriately. It is recommended that angular stone be used.
- Agricultural Use. For construction projects on land used for agricultural purposes (e.g., pipelines across crop land), permanent stabilization may be accomplished by returning the disturbed land to agricultural use.
- Paved Areas. For paved areas, permanent stabilization means the placement of the compacted gravel subbase is completed.
- Ditches, Channels, and Swales. For open channels, permanent stabilization means the channel is stabilized with mature vegetation at least three inches in height, with well-graded riprap lining, or with another non-erosive lining capable of withstanding the anticipated flow velocities and

flow depths without reliance on check dams to slow flow. There must be no evidence of slumping of the lining, undercutting of the banks, or downcutting of the channel.

Permanent erosion control measures will be implemented during site construction. Materials and construction methods for permanent measures shall be as specified on Drawing C-300.

## 3.12 Winter Construction

The winter construction season is from November 1 through April 15 of each year, OR outside of the period if the ground is frozen or snow covered. If construction areas are not stabilized with temporary or permanent measures by November 15, then the site will be protected with additional stabilization measures as outlined below.

- Site Stabilization. For winter stabilization, hay mulch is applied at twice the standard temporary stabilization rate. At the end of each construction day, areas that have been brought to final grade must be stabilized. Mulch may not be spread on top of snow.
- Sediment Barriers. All areas within 75 feet of a protected natural resource must be protected with a double row of sediment barriers.
- Ditch. All vegetated ditch lines that have not been stabilized by November 1, or will be worked during the winter construction period, must be stabilized with an appropriate stone lining backed by an appropriate gravel bed or geotextile unless specifically released from this standard by the department.
- Slopes. Mulch netting must be used to anchor mulch on all slopes greater than 8 percent unless erosion control blankets or erosion control mix is being used on these slopes.

Winter excavation and earthwork will be completed so as to minimize exposed areas while satisfactorily completing the project. Limit exposed areas to those areas in which work is to occur during the following 15 days and that can be mulched in one day. All areas will be considered denuded until the subbase gravel is installed in roadway areas, or the areas of future loam and seed have been loamed, seeded, and mulched.

## 3.13 Laydown and Staging Areas

Construction laydown areas will occur on existing impervious surfaces where possible, or if within the limits of disturbance of the project, will be:

- On an upland area outside of existing drainage patterns where possible;

- Outside of any wet areas hydraulically connected to downgradient protected natural resources and/or justified use of these areas based on site limitations. Temporary structures (e.g., swales, dikes) will be provided to intercept upgradient stormwater and divert it away; and
- Designed to provide stormwater quality treatment in compliance with the Application Chapter 500 standard for areas which will be used for more than 12 months.

The laydown areas within the project footprint that are not to remain as a finished surface after construction shall be removed, the soil below ripped or tilled, and the area loamed, seeded, and mulched.

## 3.14 Parking Area

During construction, the site will be accessed by pick-up trucks, delivery trucks, and vehicles daily to deliver and install equipment. Construction crews will park on the paved and gravel maneuvering areas installed for the Facility. After construction, permanent employee parking will be located on pavement and drain to the adjacent catch basin and drainage system, as shown in the included engineering drawings.

## 3.15 Roads

The proposed roads on-site have been designed with crowns and/or graded for stormwater to be directed to stabilized drainage measures immediately adjacent as shown on the drawings attached to this Plan.

## 3.16 Culverts

The project culverts have been designed for a 10-year/24-hour storm in accordance with the requirements of MEDEP Chapter 500 Section 4(F)(2)(b). The culverts will avoid unintended flooding of upstream areas or frequent overtopping of roadways. The required riprap inlet/outlet protection is detailed on the attached drawing set and designed to control the expected entrance velocity and to prevent scouring of the downstream drainage channels. Culvert inlet and outlet protection will be installed within 48 hours of culvert installation or prior to a storm event, whichever is sooner.

## 3.17 Stormwater Channels

All ditches, swales, and other open stormwater channels will be stabilized at the end of each workday and maintained on a daily basis.

The proposed ditches, swales, and other open stormwater channels have been designed, and will be constructed, and stabilized using measures that achieve long-term erosion control. Ditches, swales, and other open stormwater channels shown on the project drawings have been sized for the expected volume of runoff. The construction of each channel will be completed in sections so that each section's grading, shaping, and installation of the permanent lining can be completed the same day. If the channel's final

grading or permanent lining installation must be delayed, then diversion berms will be used to divert stormwater away from the channel, properly spaced check dams will be installed in the channel to slow the water velocity, and a temporary lining installed along the channel to prevent scouring.

The following describes specific stormwater facility maintenance requirements and minimum schedule of inspection and maintenance.

- Open swales and ditches need to be inspected in the spring and fall, or after a major rainfall event, to assure that debris or sediments do not reduce the effectiveness of the system. Debris needs to be removed at that time. Signs of erosion or blockage shall be immediately repaired to assure a vigorous growth of vegetation for the stability of the structure and proper functioning. Swales that show newly formed channels or gullies will be immediately repaired by reseeding/sodding of bare spots, removal of trash, leaves, and/or accumulated sediments, and the control of woody or other undesirable vegetation.
- Vegetated ditches should be mowed at least once during the growing season. Larger brush or trees must not be allowed to become established in the channel. Any areas where the vegetation fails will be subject to erosion and should be repaired and revegetated.
- If sediment in culverts or piped drainage systems exceeds 20 percent of the diameter of the pipe, it should be removed. This may be accomplished by hydraulic flushing or other mechanical means; however, care should be taken to not flush the sediments into the filter basins or retention/detention pond as it will reduce the pond's capacity and hasten the time when it must be cleaned. Storm pipes should be inspected on an annual basis.
- Outlet control structures shall be cleaned of debris and sediment at least annually to minimize clogging and transportation of sediment during rainfall events.

## 3.18 Utility Trench

All trenches will be backfilled and temporarily stabilized, including spoil and/or backfill piles, at the end of each workday.

## 3.19 Additional Requirements

There are no additional requirements identified for this specific site.

## 4.0 INSPECTION AND MAINTENANCE (MCGP APPENDIX B)

The following standards will be met during construction of this project.

### 4.1 Inspection

Inspections will be undertaken by the Contractor's resident environmental inspector certified by MEDEP for erosion control BMPs to assure that the controls are properly installed and correctly functioning, and that additional erosion control measures are installed if needed. A series of routine inspections shall be completed to allow for the early identification of potential problems, and to guide routine maintenance activities. Such inspections will occur weekly and within 24 hours after each rainfall event during construction until permanent stabilization measures have been properly installed. Inspections of specific measures will be carried out in accordance with the Schedule included in Appendix A of this Plan. Dates and observations shall be recorded for each inspection on an improved Inspection Log for the site specific BMPs.

### 4.2 Maintenance and Corrective Action

Routine maintenance activities are designed to ensure proper function of the erosion control measures and minimize pollutant transport from the site. During construction, inspections will be undertaken by the Contractor's Representative to assure that temporary or permanent erosion and sedimentation controls are property installed and functioning correctly and will be completed at the frequency outlined in the inspection checklist included in Appendix A. Corrective actions (supplemental maintenance activities or repairs) should be started within the following workday and should be completed within seven days of the inspection identifying the problem. Each maintenance activity will be recorded on the attached inspection report included in Appendix A.

If the same routine maintenance requirements are needed repeatedly, the Contractor will either complete work to fix any subsequent repeat occurrences of the same problem, or document in the inspection report why the specific reoccurrence should still be addressed as a routine maintenance item.

If BMPs need significant repair or if additional BMPs are necessary, implementation will be completed within seven calendar days and will be documented in the inspection log why it is infeasible to complete the repair or installation, and document the schedule for installing the BMP and making it operational.

The maintenance needs for most vegetative and stabilization measures may be found in the Maine Erosion and Sediment Control BMPs manual as published in 2016 (or latest version) and/or the Maine Stormwater Best Management Practices Manual.

## 4.3 Documentation

The Contractor will keep a log summarizing the inspections and corrective action taken in accordance with the log included in Appendix A.

The inspection log will be maintained on-site and made accessible to MEDEP staff upon request. The log shall be maintained for a minimum of three (3) years from the completion of permanent stabilization.

## 4.4 Perimeter Fence

Perimeter fences will be installed where shown on plans and will not limit access to the erosion control measures for inspection and maintenance. If installed before permanent stabilization, access points will be provided along the fence line for vehicles and equipment to maintain the BMP.

## 4.5 Additional Requirements

There are no additional requirements for this specific project.

## 5.0 HOUSEKEEPING (MCGP APPENDIX C)

The following details the anticipated requirements for Housekeeping during construction activity at the project site.

### 5.1 Spill Prevention

The following measures are proposed to prevent pollutants from construction and waste materials stored on-site from entering stormwater. It outlines the necessary controls, preventive measures, and response strategies to manage spills effectively.

- Identification of Potential Spill Sources;
  - Site Assessment: Conduct a thorough assessment to identify areas where spills are likely to occur, such as storage locations for construction materials and waste,
  - Inventory Management: Maintain an up-to-date inventory of all hazardous materials stored on-site, including their quantities and storage conditions;
- Preventive Measures;
  - Proper Storage:
    - Store materials in covered areas or containers to minimize exposure to stormwater; and
    - Use weather-resistant and leak-proof containers for hazardous materials.
  - Handling Procedures:
    - Implement safe handling procedures to reduce the risk of spills during transportation and use as specified by the manufacturer; and
    - Ensure that all containers are properly labeled and secured.
- Containment Strategies;
  - Physical Barriers:
    - Install barriers such as berms or dikes around storage areas to contain spills and prevent them from spreading.
  - Secondary Containment:
    - Use spill pallets, containment sumps, or other secondary containment systems to capture any leaks or spills.
- Response Procedures;
  - Immediate Actions:
    - Ensure that spill kits are readily available next to all chemicals on-site.

- Notification Protocols:
  - Notify the site supervisor or foreman of the spill immediately.
- Documentation:
  - Keep detailed records of spill incidents, including the cause, response actions taken, and any follow-up measures; and
  - Conduct post-incident reviews to identify areas for improvement.

- Training and Communication;
  - Training Programs:
    - Conduct regular training sessions for all personnel on spill prevention and response protocols; and
    - Include spill response drills to ensure readiness.
  - Communication Channels:
    - Maintain clear communication channels for reporting spills and coordinating response efforts; and
    - Emergency contact information and spill response procedures will be located around all chemicals.

- Implementation and Maintenance;
  - Regular Inspections:
    - Perform regular inspections of storage areas and containment systems to ensure they are in good condition and functioning properly; and
    - Address any deficiencies promptly.
  - Plan Updates:
    - Review and update the spill prevention plan periodically to incorporate new information, changes in site conditions, or lessons learned from previous spill incidents.
  - Emergency Drills:
    - Conduct emergency drills to test the effectiveness of the spill response procedures and ensure personnel are prepared to handle real spill events.

- Regulatory Compliance;
  - Adherence to Regulations:
    - Ensure compliance with relevant regulations, such as the Spill Prevention, Control, and Countermeasure (SPCC) rule; and

- Stay informed about any changes in regulations and update the plan accordingly.

By developing and implementing these spill prevention guidelines, operators can effectively manage and mitigate the risks associated with spills, ensuring environmental protection and compliance with regulations.

Any spill or release of toxic or hazardous substances must be reported to the Department.

- For oil spills, call 1-800-482-0777, which is available 24 hours a day.
- For spills of toxic or hazardous material, call 1-800-452-4664, which is available 24 hours a day.
- For more information, visit the Department's website at: http://www.maine.gov/dep/spills/emergspillresp/

## 5.2 Groundwater Protection

Liquid petroleum products and other hazardous materials with the potential to contaminate groundwater will not be handled or stored in areas of the site draining to an infiltration area. An "infiltration area" is any area of the site that by design or as a result of soils, topography, and other relevant factors accumulates runoff that infiltrates into the soil. Dikes, berms, sumps, and other forms of secondary containments that prevent discharge to groundwater as described in Section 5.1 of this Plan will be provided to isolate portions of the site for the purposes of storage and handling of these materials.

## 5.3 Fugitive Sediment and Dust

Measures will be provided to ensure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil will not be used for dust control. If off-site tracking occurs, the roadway will be swept immediately and no less than once a week prior to a significant stormwater event. Dust control methods shall entail:

- Stabilize all laydown areas and all unpaved surfaces with a base gravel or coarse gravel as soon as possible;
- Use traffic control to restrict speed and route;
- Water Application with frequent reapplication during warm sunny days will mitigate dust. The distribution of water should not cause turbid runoff; and
- Sweep and vacuum paved road surface when dry. Sweep from the centerline to the edge of the travel way. Do not sweep into a waterbody or wetland.

The public roadway may also require sweeping.

## 5.4 Debris and Other Materials

Construction waste will be contained in a dumpster and hauled off. Waste containers will be provided by the contractor on-site to collect the construction waste. Construction and demolition debris will be disposed of off-site by a commercial hauler. The construction debris will be hauled to a licensed landfill. Waste containers will prevent litter, construction debris, and chemicals exposed to stormwater from becoming a pollutant source.

## 5.5 Excavation Dewatering

Water collected through excavation dewatering will be spread through natural wooded buffers or routed to a sedimentation basin. The water will not be allowed to flow over disturbed areas of the site. Dewatering water will be collected from the ponded area and disposed of in accordance with notes on Drawing C-300 and the drawings attached to this Plan.

## 5.6 Vehicle and Equipment Washing

Equipment and vehicles will be washed outside of natural resources and out of the drainage patterns to the natural resource. The polluted water will be contained on-site in designated areas. No soaps, solvents, detergents, or other cleaning solutions will be used on-site.

When washing applicators and containers for concrete applications, wash wastewater will be directed into a leak-proof lined pit. The washout area will not be located adjacent to site drainage features, storm inlets, and receiving waters in accordance with the drawings provided with this Plan.

## 5.7 Authorized Non-Stormwater Discharges

Identify and prevent contamination by non-stormwater discharges. Where allowed non-stormwater discharges exist, they must be identified, and steps should be taken to ensure the implementation of appropriate pollution prevention measures for the non-stormwater component(s) of the discharge. Authorized non-stormwater discharges are:

- Discharges from firefighting activity;
- Fire hydrant flushing;
- Vehicle wash water if detergents are not used and washing is limited to the exterior of vehicles (engine, undercarriage, and transmission washing is prohibited);
- Dust control runoff in accordance with permit conditions and Section 5.3 of this Plan;
- Routine external building washdown, not including surface paint removal, that does not involve detergents;

- Pavement wash water (where spills/leaks of toxic or hazardous materials have not occurred unless all spilled material has been removed) if detergents are not used;
- Uncontaminated air conditioning or compressor condensate;
- Uncontaminated groundwater or spring water;
- Foundation or footer drain-water where flows are not contaminated;
- Uncontaminated excavation dewatering;
- Potable water sources including waterline flushing; and
- Landscape irrigation.

Allowable non-stormwater discharges cannot be authorized under this permit unless they are directly related to and originate from a construction site or dedicated support activity (e.g., a pressure washing company cannot broadly use this general permit for their business operations, because general vehicle washing is not associated with a construction site).

## 5.8 Unauthorized Non-Stormwater Discharges

The Department's approval under this Chapter does not authorize a discharge that is mixed with a source of non-stormwater, other than those discharges in compliance with Section 5.7 of this Plan. Specifically, the Department's approval does not authorize discharges of the following:

- Wastewater from the washout or cleanout of concrete, stucco, paint, form release oils, curing compounds, or other construction materials;
- Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance; and
- Soaps, solvents, or detergents used in vehicle and equipment washing.

## 5.9 Additional Requirements

There are no additional requirements specific to this project.

## 6.0 LARGE CONSTRUCTION ACTIVITIES (MCGP APPENDIX D)

This construction project will include approximately 2.03 acres of Total Disturbed Area; therefore this section does not apply.

Bk 8107 Pg215 #8632
03-08-2002 @ 12:54p

# DEED

KNOW ALL MEN BY THESE PRESENTS, that the UNITED STATES OF AMERICA, acting by and through the Administrator of General Services, under and pursuant to the powers and authority contained in the provisions of the Federal Property and Administrative Services Act of 1949, 63 Stat. 377, as amended, (40 USC § 484 (k) (3)) and regulations and orders promulgated thereunder (the "Grantor"), having an address of General Services Administration, New England Region, Thomas P. O'Neill, Jr. Federal Building, 10 Causeway Street, Boston, Massachusetts 02222, for and in consideration of the reversionary provisions of a Quitclaim Deed from the City of Bangor to the United States of America, dated December 29, 1942 and recorded at the Penobscot Registry of Deeds in Volume 1205, Page 345, does hereby GRANT, GIVE, REMISE, AND RELEASE, without covenants, warranties or representations of any kind or nature, express or implied, unto the City of Bangor, a municipal corporation having an address of 73 Harlow Street, Bangor, Maine 04401 (the "Grantee"), its successors and assigns all such right, title and interest as Grantor has in and to that certain parcel of land, being a portion of the former Dow Air Force Base, and more particularly described in Exhibit 'A' of this Deed (the "Property").

The Property is conveyed subject to any and all existing reservations, easements, restrictions, covenants, and rights, recorded or unrecorded, including those for roads, highways, streets, railroads, power lines, telephone lines and equipment, pipelines, drainage, sewer and water mains and lines, public utilities and rights-of-way; any state of facts that would be disclosed by a physical examination of the Property; any state of facts that an accurate and adequate survey of the Property would disclose; and any and all other matters of record.

**NOTICE REGARDING HAZARDOUS SUBSTANCE ACTIVITY**. Pursuant to 40 CFR 373.2 and Section 120 (h) (3) (A) (i) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (CERCLA) (42 USC 9620 (h) (3) (A) (i)), and based upon a complete search of agency files, the United States gives notice that no hazardous substances have been released or disposed of or stored for one year or more on the Property.

TO HAVE AND TO HOLD the Property with all privileges and appurtenances thereunto belonging to said Grantee.

IN WITNESS WHEREOF, the UNITED STATES OF AMERICA, acting by and through the Administrator of General Services has caused these presents to be duly executed for and in its name and behalf by Dennis R. Smith, Regional Administrator, New England Region, General Services Administration, who has this 7th day of March, 2002, hereunto set his hand and seal.

UNITED STATES OF AMERICA
Acting by and through the
Administrator of General Services

By _____
DENNIS R. SMITH
Regional Administrator
General Services Administration
New England Region, Boston, MA

Witnesses:

_____

_____

ACKNOWLEDGEMENT

Commonwealth of Massachusetts )

County of Suffolk ) ss.

In Boston, in said County and State, on this 7th day of March, 2002, before me personally appeared Dennis R. Smith, Regional Administrator, General Services Administration, Boston, Massachusetts, duly empowered and authorized, known by me to be the party executing the foregoing instrument and by him duly executed, to be his free act and deed in his capacity as Regional Administrator, General Services Administration, Boston, Massachusetts.

_____
Carol H. Chirico
Notary Public
My commission expires 5/31/2002

**EXHIBIT A**

Beginning at a point on the easterly side of Maine Avenue (formerly Illinois Avenue) at the southwest corner of a parcel of land described in a deed from the United States of America to the University of Maine dated April 7, 1973 and recorded in the Penobscot County Registry of Deeds in Volume 2214, Page 285; thence S 34° 21' 11" W, by and along the east side of Maine Avenue, one thousand three hundred eleven and eighty-seven one hundredths (1311.87) feet to a point; thence by and along a compound curve to the left with a radius of one thousand eight hundred sixty-nine and eighty-six one hundredths (1869.86) feet one hundred fourteen and forty-three one hundredths (114.43) feet to the beginning of a curve to the left with a radius of three hundred forty (340) feet; thence by and along said curve two hundred thirty-eight (238) feet to a point on the east side of Texas Avenue; thence S 9° 15' 39" E, by and along said Texas Avenue, six hundred fifty-seven and seventy-eight one hundredths (657.78) feet to an angle in said Texas Avenue; thence S 80° 20' 17" W, by and along the south side of Texas Avenue and its continuation across Maine Avenue eight hundred two and six one hundredths (802.06) feet to a point; thence S 9° 45' 53" E across Maine Avenue and by and along the east side of Maine Avenue, two thousand two hundred sixty-six and thirty-four one hundredths (2266.34) feet to a point on the north side of Hammond Street; thence N 81° 12' 12" E, by and along said Hammond Street, five hundred twelve and sixty-nine one hundredths (512.69) feet to a point; thence N 12° 04' 24" W one hundred ninety-nine and eighty-four one hundredths (199.84) feet to a point; thence N 81° 12' 12" E two hundred ninety-seven and five tenths (297.50) feet to a point; thence S 12° 47' 18" E two hundred (200) feet to the north side of said Hammond Street; thence N 81° 12' 12" E, by and along said Hammond Street, one hundred and twenty-five one hundredths (100.25) feet; thence N 12° 47' 18" W one hundred (100) feet to a point; thence N 77° 12' 18" E two hundred (200) feet to a point; thence N 12° 47' 18" W six hundred eighty-one and seventy-three one hundredths (681.73) feet to monument #52 as shown on a survey plan of the "South Campus" made by James W. Sewall Co. dated February 20, 1968, said monument #52 also marking the southwest corner of a parcel of land described in a deed from the United States of America to the University of Maine dated April 7, 1973 and recorded in the Penobscot County Registry of Deeds in Volume 2214, Page 285; thence N 12° 47' 18" W, by and along said University of Maine, seven hundred eighteen and nine tenths (718.90) feet to a point; thence northerly, by and along the said University of Maine and a curve to the right, three hundred eighty-three and two tenths (383.20) to a point; thence easterly, crossing Hersey Avenue, twenty

(20) feet to a point; thence southeasterly by and along the northeasterly line of Hersey Avenue one hundred forty-five and one tenth (145.10) feet to the west line of Roosevelt Street; thence N 33° 45' 10" E, by and along the west side of Roosevelt Street, one thousand three hundred ninety-two and nine tenths (1392.90) feet to an angle in said street; thence N 29° 30' 25" E, by and along said Roosevelt Street, three hundred seven (307) feet to an angle in said street; thence N 21° 33' 29" E two hundred eighty-nine and seventy-three one hundredths (289.73) feet to a point in the south line of a parcel of land described in a deed from the United States of America to the University of Maine dated April 7, 1973 and recorded in the Penobscot County Registry of Deeds in Volume 2214, Page 285; thence N 81° 03' 40" W two hundred twenty-two and seventy-eight one hundredths (222.78) feet to a point; thence N 37° 33' 39" W one hundred three and eight tenths (103.80) feet to a point; thence by and along a curve to the left with a chord of N 55° 48' 39" W three hundred two and eight tenths (302.80) feet to a point; thence N 37° 11' 39" W one hundred three and eight tenths (103.80) feet to a point; thence N 16° 31' 39" W four hundred twenty-three and eight tenths (423.80) feet to the point of beginning.

No Transfer Tax Paid

PENOBSCOT COUNTY, MAINE

Susan F. Bulay

Register of Deeds

## Option to Purchase Real Property

This Option to Purchase Real Property (the "Agreement") is made by and between the **City of Bangor**, a body public and corporate with a mailing address and place of business at 73 Harlow Street, Bangor, Maine, ("Seller") and Bangor Housing Development Corporation, a Maine non-profit corporation having a place of business at 86 Davis Road, Bangor, Maine, its successors and assigns ("Buyer" and with Seller the "Party" or "Parties").

In consideration of the payment of $10.00 paid by Buyer to Seller, the receipt and sufficiency of which is hereby acknowledged, the Parties agree as follows:

1. **Exclusive Option to Purchase.** Seller grants to Buyer the exclusive right and option to purchase the Premises, as that term is defined herein, on the terms and conditions set forth in this Agreement (the "Option"). The Option may be exercised by Buyer, if at all, during the Option Period, which is defined as 6 months from the Effective Date of this Agreement.

2. **Exercise of Option.** The Option may be exercised by Buyer by giving notice to Seller at any time prior to the expiration of the Option Period in the manner for giving notices as set forth in this Agreement.

3. **Desirability of Premises.** The Parties expressly understand and agree that Buyer's exercise of the Option hereunder is subject, among other things, to a determination by Buyer on the desirability of the Premises for a project as a result of the completion of an environmental review in accordance with 24 C.F.R. Part 50.

4. **Premises.** The real property that is subject to the Option and this Agreement is an approximately 5.064 acre portion of the real estate, together with any buildings and improvements located thereon, at about 55 Cleveland Street, Bangor, Maine, being a portion of the premises more particularly described in a Deed from the United States of America to the City of Bangor, dated March 7, 2002 and recorded in the Penobscot County Registry of Deeds at Book 8107, Page 215, together with all rights, easements, and appurtenances thereto, as depicted in the attached **Exhibit 1** (the "Premises").

5. **Purchase Price.** If Buyer exercises the Option, Buyer shall purchase from Seller and Seller shall sell to Buyer the Premises for the sum of $120,000.00, subject to any adjustments and prorations described below, payable as follows:

   a. The sum of $10.00 paid as consideration for the Option (the "Option Consideration"), which shall be credited toward the Purchase Price.

   b. The sum of $1,000.00 as a deposit (the "Deposit"), to be paid within 5 business days of the exercise of the Option and which shall be credited

toward the Purchase Price at closing.

c. The balance of the Purchase Price, $118,990.00 shall be paid by certified check, bank cashier's check, or by wire transfer in accordance with wiring instructions provided by Seller within a reasonable time prior to the time of closing.

6. **Title.** Seller shall convey the Premises at closing by quitclaim deed. Should Buyer identify any title defects, Seller may attempt to remedy, but if these defects are not remedied within thirty (30) days from the date of such notice, then the Option Consideration and Deposit shall be returned to Buyer and this Agreement and the Parties' respective obligations hereunder will terminate. Buyer may, at its option, elect to close notwithstanding such defects as may exist.

7. **Closing.** Closing shall take place within 3 months of the exercise of the Option at the offices of Buyer, 86 Davis Road, Bangor, Maine, or, if the Buyer and the Seller shall mutually agree in advance and in writing, at another time and place ("Closing"). At Closing, Seller shall execute and deliver to Buyer, against payment of the Purchase Price, a Quitclaim Deed to the Premises conveying the interest the Seller has in the Premises. Seller is conveying the interest Seller has in the Premises, and the Premises is being conveyed "as is," with no warranties or guarantees of title or status.
Seller further agrees to execute and deliver to Buyer at the closing documents reasonably required by Buyer for the transfer of the Premises, including the following: (i) a Certificate of Non-Foreign Status, as required by the Internal Revenue Service; (ii) the "Seller's Affidavit" regarding mechanics liens and persons-in-possession; and (iii) an affidavit regarding underground storage tanks, as required by Maine law.

8. **Risk of Loss, Damage, Insurance.** All risk of loss to the Premises prior to Closing shall be borne by Seller, except and unless the loss was caused by Buyer. In the event of any casualty loss, Buyer shall have the alternative of either terminating this Agreement by written notice, whereupon Buyer shall receive back the Deposit, or of accepting the insurance proceeds made available and close notwithstanding such loss.

9. **Due Diligence.** Buyer's obligation to purchase the Premises under this Agreement following exercise of the Option are contingent upon satisfactory results of its due diligence.

At any time while this Agreement is in effect, including before Buyer has exercised the Option, Buyer may conduct due diligence of whatever items, kind or nature that Buyer deems necessary, including but not limited to assessments, tests, surveys, studies and other investigations of the Premises; any permits, licenses, or approvals required by any governmental entity for Buyer's intended use; a Phase I environmental site assessment; an appraisal; a title search; and any other matters as Buyer or its counsel and advisors deem relevant and appropriate. ln the event the results of such due diligence are

unsatisfactory to Buyer, in Buyer's sole discretion, Buyer shall notify Seller of the unsatisfactory results in writing and Buyer may, at Buyer's option, (a) accept the Premises subject to the unsatisfactory results or (b) terminate this Agreement and receive back the Option Consideration and Deposit, whereupon all parties shall be released from their obligations under this Agreement (except those specifically provided as surviving closing or termination hereof).

Seller hereby grants to Buyer, its agents, employees, contractors, and subcontractors, a license to enter the Premises, at all reasonable times, to perform such due diligence. It is understood and agreed that the Premises shall not be damaged or left in a disorderly or unsightly condition from such entry, for breach of which Buyer shall be responsible for repairing and for removing the disorderly or unsightly condition.

As part of Buyer's due diligence under this Agreement, Buyer agrees to cause to be completed a boundary survey of the entirety of the property containing the Premises. Following the completion of the boundary survey, Buyer will apply to the Planning Board for the City of Bangor to divide this property into two parcels, one of which shall be the Premises containing the approximately 5.064-acre parcel to be sold by Buyer pursuant to this Agreement.

10. **Representations of Seller.** Seller represents to Buyer the following:

a. There is no litigation, administrative hearing, arbitration, or any other proceeding pending or, to Seller' knowledge, threatened against Seller with respect to the Premises, with respect to any violation of law, rule, or regulation.

b. Seller has received no notice from any governmental body or agency alleging a violation of any environmental, zoning, or land use law, regulation, or ordinance.

Buyer's obligation to close is contingent upon all representations and warranties of Seller being true as of the Closing Date and Seller shall remake these representations and warranties at closing.

11. **Conditions Precedent to Buyer's Obligation to Close.** In addition to any other conditions specified in this Agreement, the obligation of Buyer to close is subject to the satisfaction at or before Closing of all the following conditions:

a. As of the date hereof, and as of the date of Closing, all of Seller's representations and warranties shall be true and correct in all material respects.

b. As of Closing, there shall have been no material adverse change in

the Premises.

c. As of Closing, the Planning Board for the City of Bangor shall have approved the division of the property containing the Premises into two parcels, one of which shall be the Premises containing the approximately 5.064-acre parcel to be sold to Buyer pursuant to this Agreement. In the event the Planning Board does not approve the division of the parcel into the 5.064-acre parcel contemplated by this agreement, the Seller may also decline to close under this agreement, and the return of the Option Consideration and Deposit, if applicable, to the Buyer, are the Buyer's only remedy under this agreement.

d. Buyer shall have received authorization from its Board of Directors to purchase the Premises.

e. Buyer has determined that the Premises is desirable for a project following the completion of an environmental review in accordance with 24 C.F.R. Part 50.

If any condition is not satisfied, then Buyer shall have the option to notify Seller and this Agreement shall be terminated with the Option Consideration and Deposit returned to Buyer, in which event neither party shall have any further obligations hereunder.

12. **Adjustments, Prorations, and Closing Costs.** Real estate taxes, assessments, rentals, common area maintenance charges and utilities shall be prorated as of Closing.

a. Unless an exemption under 36 M.R.S. § 4641-C applies, Maine real estate transfer taxes shall be paid by Buyer in accordance with 36 M.R.S. § 4641-A. Seller is exempt from Maine real estate transfer taxes pursuant to 36 M.R.S. § 4641-C.

b. All reasonable legal fees including, without limitation, the preparation of documents, review of documents and attendance at Closing, incurred by either party in connection with the transfer of the property shall be paid by the respective Party at the Closing.

13. **Notice.** All notices, demands and other communications hereunder shall be in writing and shall be deemed to have been duly given on the date of service if served personally on the party to whom notice is to be given or on the date of mailing. If mailed, all notices are to be sent by first class mail, postage prepaid, certified, return receipt requested, addressed as follows:

To Seller: City of Bangor
c/o Anne Krieg

73 Harlow Street
Bangor, Maine 04401

To Buyer: Bangor Housing Development Corporation
Attention: Michael Myatt
86 Davis Road
Bangor, Maine 04401

Either party may change its address for purposes of this paragraph by giving the other party notice of the new address in the manner described herein.

14. **Assignment**. Neither party hereto may assign this Agreement without the other party's consent. Should Buyer seek Seller' consent to assign this Agreement and its rights and obligations hereunder to an entity owned or controlled by Buyer, such consent shall not be unreasonably withheld.

15. **General Provisions.** This instrument may be executed in multiple originals and is to be construed under the laws of Maine. The use of the masculine gender shall include the feminine and neuter where appropriate. If two or more persons are named herein as Buyer, their obligations hereunder shall be joint and several. Time is of the essence of this Agreement. This Agreement is binding upon and inures to the benefit of the parties hereto, their respective heirs, successors and assigns, and may be canceled, modified, or amended only by a writing executed by the parties hereto or their legal representatives. If any provision of this Agreement is determined to be invalid or unenforceable, it shall not affect the validity and enforcement of the remaining provisions hereof. This Agreement sets forth the entire agreement between the parties and there are no other representations, agreements or understandings with respect to the subject matter of this Agreement.

16. **Signature.** The Parties agree that this Agreement may be electronically signed. The Parties Agree that the electronic signatures appearing on this Agreement are the same as handwritten signatures for purposes of validity, enforceability, and/or admissibility.

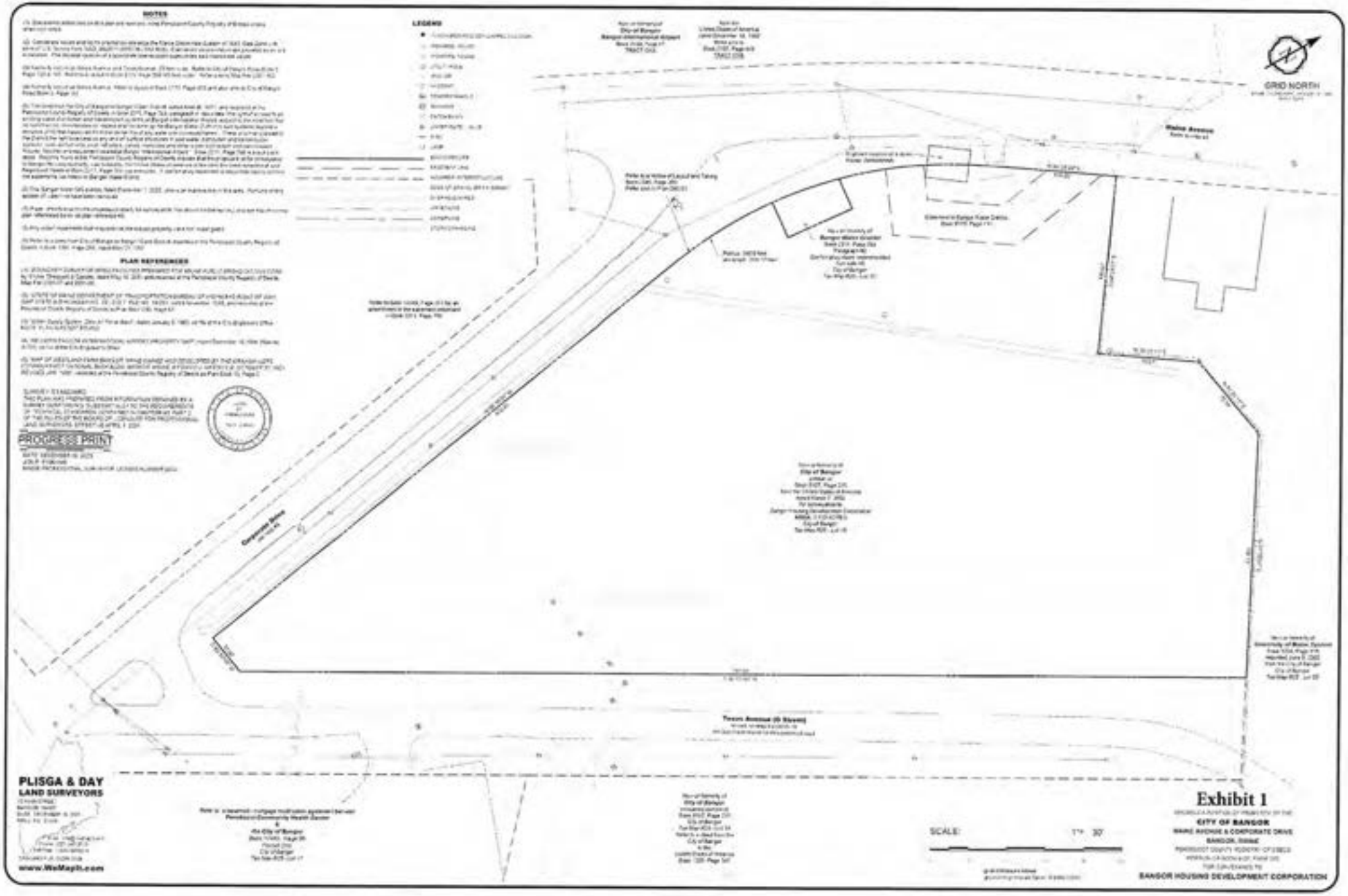
17. **Effective Date.** This Agreement will become effective when all the Parties have signed it. The date this Agreement is signed by the last Party to sign it, as indicated by the date stated under that Party's signature, will be deemed the Effective Date of this Agreement.

**Bangor Housing Development Corporation**

Michael Myatt
Its: Treasurer
Date: 12/22/2025

**City of Bangor**

Carollynn Lear
Its: City Manager
Date: 12/30/2025


NOTES
PLAN REFERENCES
LEGEND
GRID NORTH
Maine Avenue
Corporate Drive
Texas Avenue (0 Width)
PROGRESS PRINT
PLISGA & DAY
LAND SURVEYORS
www.WeMapIt.com
Exhibit 1
CITY OF BANGOR
MAINE AVENUE & CORPORATE DRIVE
BANGOR, MAINE
SCALE: 1" = 30'
BANGOR HOUSING DEVELOPMENT CORPORATION

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

Corporate Name Search

# Information Summary

Subscriber activity report

**This record contains information from the CEC database and is accurate as of: Tue Feb 03 2026 16:47:57. Please print or save for your records.**

| Legal Name | Charter Number | Filing Type | Status |
|---|---|---|---|
| BANGOR HOUSING DEVELOPMENT CORPORATION | 19880137ND | NON-PROFIT CORPORATION (UNDER TITLE 13-B) | GOOD STANDING |

| Filing Date | Expiration Date | Jurisdiction |
|---|---|---|
| 07/17/1987 | N/A | MAINE |

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

NONE

**Principal Home Office Address**

| Physical | Mailing |
|---|---|
| 133 DAVIS ROAD<br>BANGOR, ME 04401 | 133 DAVIS ROAD<br>BANGOR, ME 04401 |

**Clerk/Registered Agent**

| Physical | Mailing |
|---|---|
| MICHAEL MYATT<br>133 DAVIS ROAD<br>BANGOR, ME 04401 | MICHAEL MYATT<br>133 DAVIS ROAD<br>BANGOR, ME 04401 |

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New Search

**Click on a link to obtain additional information.**

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| Certificate of Legal Existence (more info) | Short Form without amendments ($10.00) | Long Form with amendments ($10.00) |
|---|---|---|

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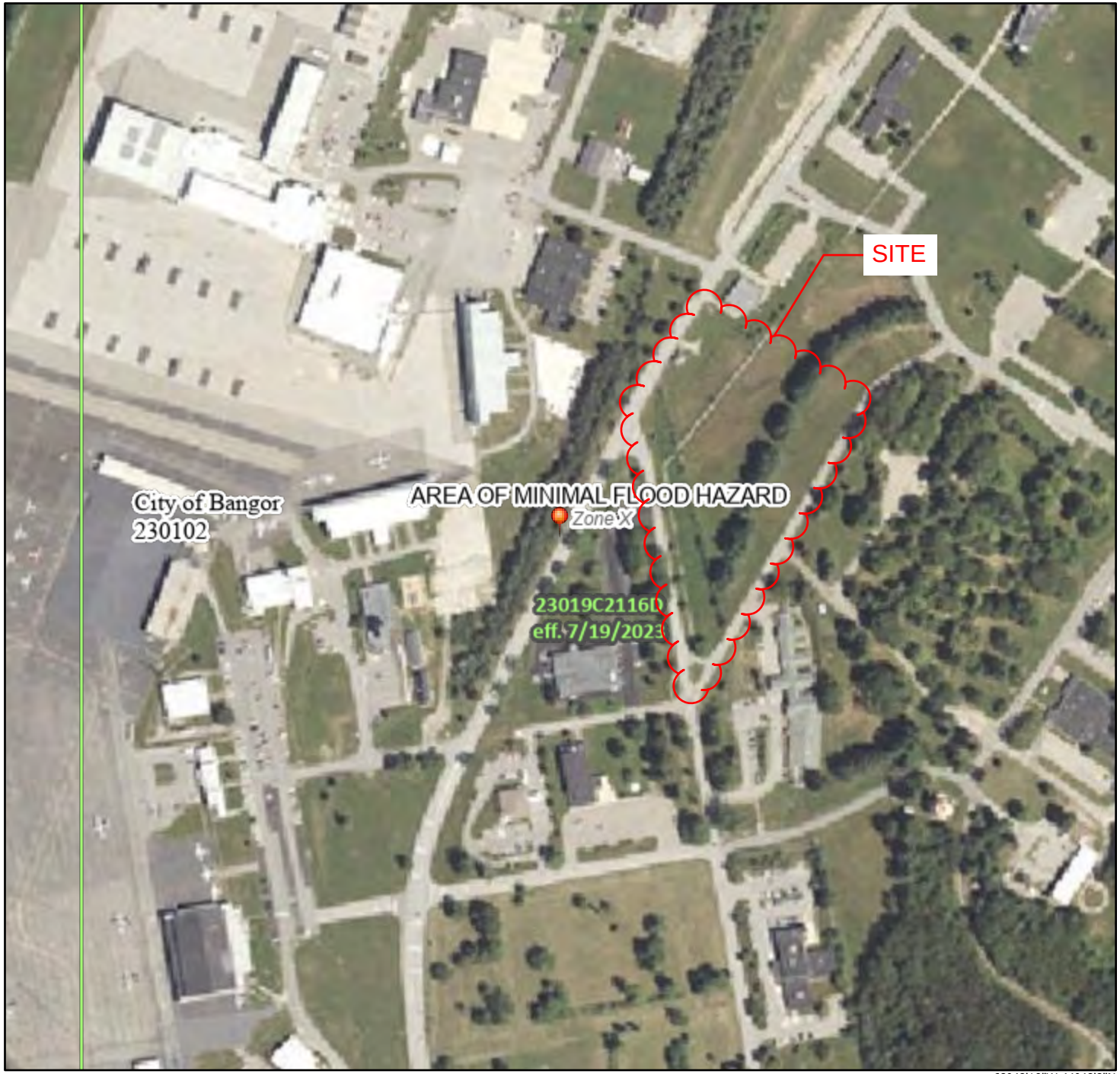



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© Department of the Secretary of State

# National Flood Hazard Layer FIRMette

68°48'48"W 44°48'33"N




68°48'10"W 44°48'8"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

*Basemap Imagery Source: USGS National Map 2023*

## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

**SPECIAL FLOOD HAZARD AREAS**
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

**OTHER AREAS OF FLOOD HAZARD**
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

**OTHER AREAS**
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

**GENERAL STRUCTURES**
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

**OTHER FEATURES**
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

**MAP PANELS**
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 1/27/2026 at 2:16 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

MaineHousing
MAINE STATE HOUSING AUTHORITY

April 18, 2025

Michael Myatt
Bangor Housing Development Corporation
133 Davis Road
Bangor, ME 04401

Dear Mike:

Congratulations! Your proposed Bangor Site-Based Housing First project has been selected as one of five first round projects in the State's *Home for Good* program to provide permanent supportive housing to individuals experiencing chronic homelessness.

This award is contingent upon MaineHousing approving the site, building plans, operating plans, and ultimately the underwriting of the project. This award is also contingent upon Preble Street successfully contracting with the State of Maine Department of Health and Human Services, Office of Behavioral Health, for the required on-site 24-hour services.

The next step in this process will be a meeting at 1:00 on May 12th at MaineHousing where your entire team will meet with MaineHousing, DHHS, and the other four selected teams for the first round. DHHS and MaineHousing are planning to develop this first round of projects in close collaboration with the selected teams to create the model that will be used for future projects.

We thank you for your interest and enthusiasm as shown in your proposal.

Sincerely,

Adam S. Krea
Sr. Director of Finance & Lending

JANET T. MILLS
GOVERNOR

STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
353 WATER STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041

JUDITH CAMUSO
COMMISSIONER

February 19, 2026

Anna Dedon
Sevee & Maher Engineers
4 Blanchard Road
Cumberland, ME 04021

**RE: Information Request - 236 Maine Avenue, Apartments, Bangor Project ID 9859-11461**

Dear Anna:

Per your request received on **February 10, 2026**, we have reviewed current Maine Department of Inland Fisheries and Wildlife (MDIFW) information sources for known locations of Endangered, Threatened, and Special Concern (Rare) species; designated Essential and Significant Wildlife Habitats; inland fisheries and aquatic habitats; and other protected natural resource concerns within the vicinity of the ***236 Maine Avenue, Apartments, Bangor*** project, pursuant to MDIFW's authority. Please note that as project details are lacking, our comments should be considered preliminary.

Our Department has not mapped any Essential or Significant Wildlife Habitats or inland fisheries habitats that would be directly affected by your project.

***ENDANGERED, THREATENED, AND SPECIAL CONCERN SPECIES***

**Bat Species**
Of the eight species of bats that occur in Maine, four species are afforded protection under the Maine Endangered Species Act (MESA, 12 M.R.S 12801 et. seq.): little brown bat (State Endangered), northern long-eared bat (State Endangered), eastern small-footed bat (State Threatened), and tri-colored bat (State Threatened). The four remaining bat species are designated as Species of Special Concern: big brown bat, red bat, hoary bat, and silver-haired bat. While a comprehensive statewide inventory for bats has not been completed, based on historical evidence it is likely that several of these species occur within the project area during spring/fall migration, the summer breeding season, and/or for overwintering. However, our Department does not anticipate significant impacts to any of the bat species as a result of project activities.

This consultation review has been conducted specifically for known MDIFW jurisdictional features and should not be interpreted as a comprehensive review for the presence of other regulated features that may occur in this area. Prior to the start of any future site disturbance, we recommend additional consultation with the municipality, and other state resource and regulatory agencies including the Maine Natural Areas Program and Maine Department of Environmental Protection in order to avoid unintended protected resource disturbance. For information on federally listed species, contact the U.S. Fish and Wildlife Service's Maine Field Office (207-469-7300, mainefieldoffice@fws.gov).

Please feel free to contact my office if you have any questions regarding this information, or if I can be of any further assistance.

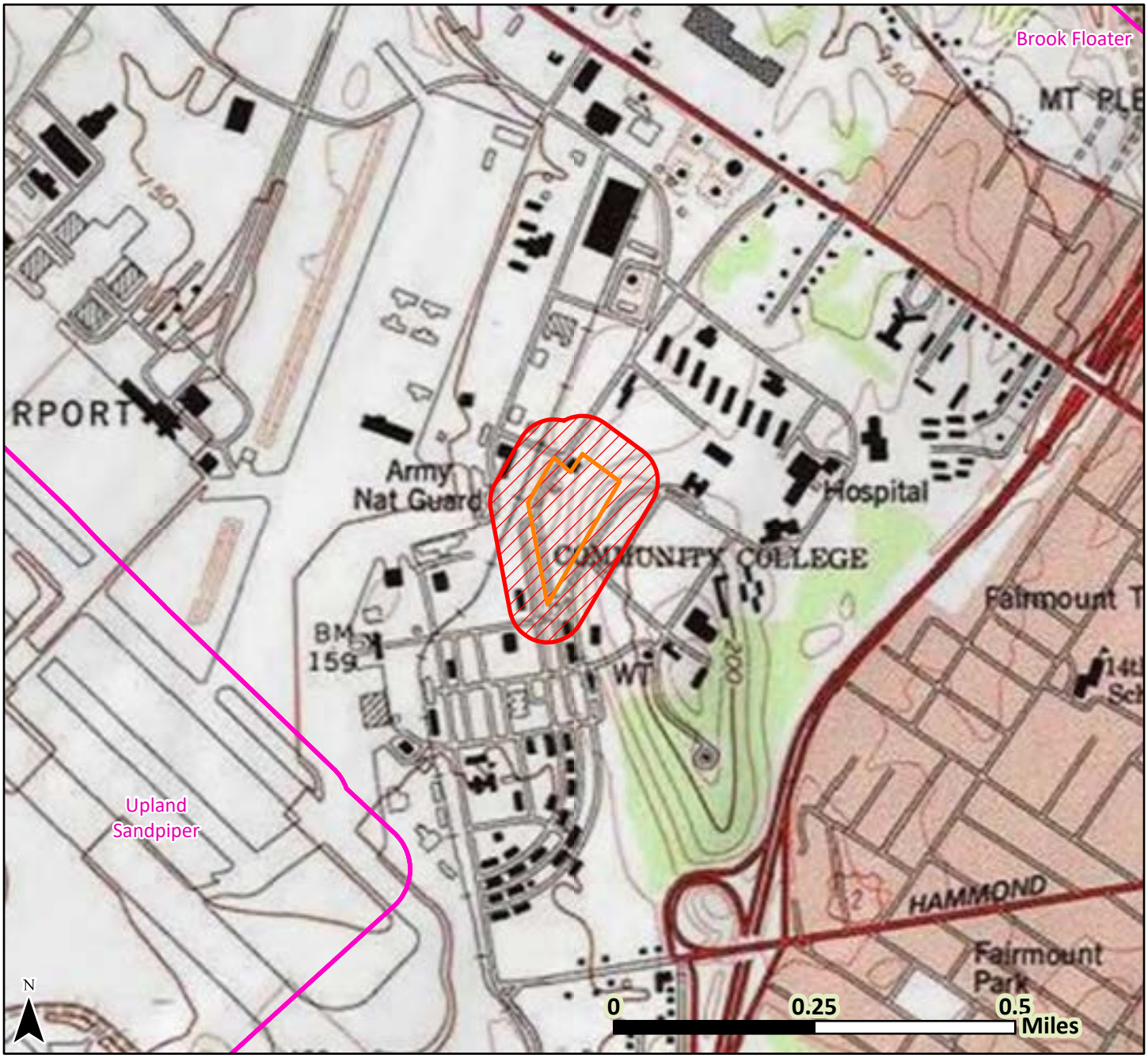
Best regards,

Laura Hatmaker
Natural Resource Biologist

**Maine Department of Inland Fisheries and Wildlife**
**Project Area Review of Fish and Wildlife Observations and Priority Habitats**

# 236 Maine Avenue, Apartments, Bangor

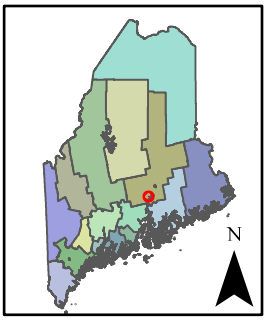
Project ID 9859, Version ID 11461




*Legend only lists resources visible in the map; see response letter for all resources that were evaluated.*

- County Boundary
- Township Boundary
- Project Footprint
- Search Area
- E, T, & SC Species

Date: 2/13/2026
UTM Zone 19N, NAD83




***This map contains sensitive information - do not distribute it beyond the project applicant, consultant, or the permitting agency.***

# United States Department of the Interior

FISH AND WILDLIFE SERVICE
Maine Ecological Services Field Office
P. O. Box A
East Orland, ME 4431
Phone: (207) 469-7300 Fax: (207) 902-1588

In Reply Refer To: 02/03/2026 18:48:34 UTC
Project Code: 2026-0044707
Project Name: Bangor Housinig

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

**Migratory Birds**: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

# OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**Maine Ecological Services Field Office**
P. O. Box A
East Orland, ME 4431
(207) 469-7300

# PROJECT SUMMARY

Project Code: 2026-0044707
Project Name: Bangor Housinig
Project Type: Residential Construction
Project Description: 19,000 SF of building with 13 parking spaces
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@44.8053205,-68.8065926121651,14z




Counties: Penobscot County, Maine

# ENDANGERED SPECIES ACT SPECIES

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

## MAMMALS

| NAME | STATUS |
|---|---|
| Tricolored Bat *Perimyotis subflavus*<br>No critical habitat has been designated for this species.<br>Species profile: https://ecos.fws.gov/ecp/species/10515 | Proposed Endangered |

## FISHES

| NAME | STATUS |
|---|---|
| Atlantic Salmon *Salmo salar*<br>Population: Gulf of Maine DPS<br>There is **final** critical habitat for this species. Your location overlaps the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/2097 | Endangered |

## INSECTS

| NAME | STATUS |
|---|---|
| Monarch Butterfly *Danaus plexippus*<br>There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat.<br>Species profile: https://ecos.fws.gov/ecp/species/9743 | Proposed Threatened |

## CRITICAL HABITATS

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

| NAME | STATUS |
|---|---|
| Atlantic Salmon *Salmo salar*<br>https://ecos.fws.gov/ecp/species/2097#crithab | Final |

# USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

# BALD & GOLDEN EAGLES

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts

activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

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1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are Bald Eagles and/or Golden Eagles in your project area.

**Measures for Proactively Minimizing Eagle Impacts**
For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the National Bald Eagle Management Guidelines. You may employ the timing and activity-specific distance recommendations in this document when designing your project/ activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to Bald Eagle Nesting and Sensitivity to Human Activity.

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

If disturbance or take of eagles cannot be avoided, an incidental take permit may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the Do I Need A Permit Tool. For assistance making this determination for golden eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

**Ensure Your Eagle List is Accurate and Complete**
If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

| NAME | BREEDING SEASON |
|---|---|
| Bald Eagle *Haliaeetus leucocephalus*<br>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.<br>https://ecos.fws.gov/ecp/species/1626 | Breeds Dec 1 to Aug 31 |

# PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

**Probability of Presence** (■)

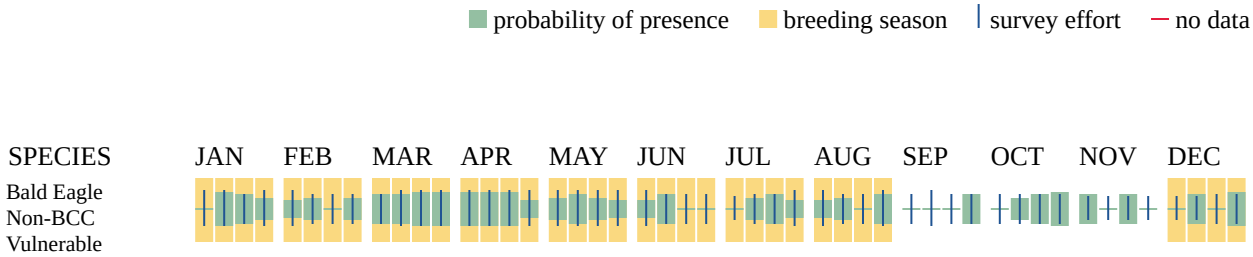
Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

**Breeding Season** (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

**Survey Effort** (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

**No Data** (–)
A week is marked as having no data if there were no survey events for that week.

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Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

# MIGRATORY BIRDS

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

| NAME | BREEDING SEASON |
|---|---|
| Bald Eagle *Haliaeetus leucocephalus*<br>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.<br>https://ecos.fws.gov/ecp/species/1626 | Breeds Dec 1 to Aug 31 |
| Bay-breasted Warbler *Setophaga castanea*<br>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA<br>https://ecos.fws.gov/ecp/species/9583 | Breeds May 25 to Aug 1 |
| Black-billed Cuckoo *Coccyzus erythropthalmus*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/9399 | Breeds May 15 to Oct 10 |
| Bobolink *Dolichonyx oryzivorus*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/9454 | Breeds May 20 to Jul 31 |
| Canada Warbler *Cardellina canadensis*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/9643 | Breeds May 20 to Aug 10 |
| Cape May Warbler *Setophaga tigrina*<br>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA<br>https://ecos.fws.gov/ecp/species/10571 | Breeds Jun 1 to Jul 31 |

| NAME | BREEDING SEASON |
|---|---|
| Chimney Swift *Chaetura pelagica*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/9406 | Breeds Mar 15 to Aug 25 |
| Eastern Whip-poor-will *Antrostomus vociferus*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/10678 | Breeds May 1 to Aug 20 |
| Evening Grosbeak *Coccothraustes vespertinus*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/9465 | Breeds May 15 to Aug 10 |
| Lesser Yellowlegs *Tringa flavipes*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/9679 | Breeds elsewhere |
| Olive-sided Flycatcher *Contopus cooperi*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/3914 | Breeds May 20 to Aug 31 |
| Prairie Warbler *Setophaga discolor*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/9513 | Breeds May 1 to Jul 31 |
| Rose-breasted Grosbeak *Pheucticus ludovicianus*<br>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA<br>https://ecos.fws.gov/ecp/species/11965 | Breeds May 15 to Jul 31 |
| Semipalmated Sandpiper *Calidris pusilla*<br>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA<br>https://ecos.fws.gov/ecp/species/9603 | Breeds elsewhere |
| Veery *Catharus fuscescens fuscescens*<br>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA<br>https://ecos.fws.gov/ecp/species/11987 | Breeds May 15 to Jul 15 |
| Wood Thrush *Hylocichla mustelina*<br>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.<br>https://ecos.fws.gov/ecp/species/9431 | Breeds May 10 to Aug 31 |

# PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

**Probability of Presence** (■)

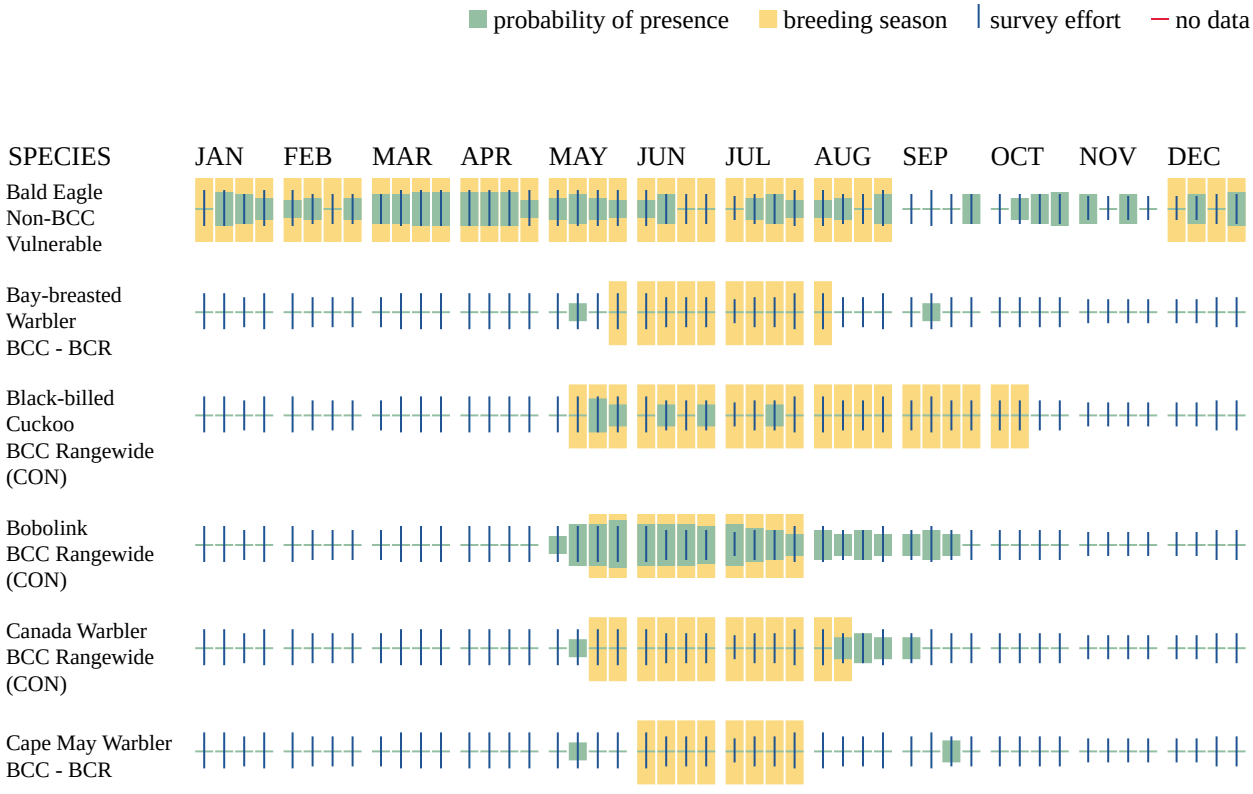
Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

**Breeding Season** (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

**Survey Effort** (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

**No Data** (–)
A week is marked as having no data if there were no survey events for that week.

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Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

# WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

THERE ARE NO WETLANDS WITHIN YOUR PROJECT AREA.

# IPAC USER CONTACT INFORMATION

Agency: Sevee . Maher Engineers
Name: Abigail Latulippe
Address: 4 Blanchard Road
City: Cumberland
State: ME
Zip: 04021
Email aml@smemaine.com
Phone: 2078295016

| EROSION AND SEDIMENT CONTROL MEASURES AND ACTIVITY | INSPECTION FREQUENCY | | |
|---|---|---|---|
| | Weekly | Before and After a Storm | After Construction |
| **SEDIMENT BARRIERS** | | | |
| Sediment barriers are installed prior to soil disturbances | X | X | |
| Silt fences are keyed in and tight | X | X | |
| Barriers are repaired and replaced as necessary | X | X | |
| Barriers are removed when the site is stabilized - Silt fence should be cut at the ground surface | | | X |
| **TEMPORARY STABILIZATION** | | | |
| Areas are stabilized if idle for 14 days or more | X | X | |
| Daily stabilization within 100 ft of a natural resource | X | X | |
| **MULCH** | | | |
| Seed and mulch within 7 days of final grading. Ground is not visible | X | X | |
| Erosion control mix is 4-6 inch thick | X | X | |
| Erosion control blankets or hay mulch are anchored | X | X | |
| **VEGETATION** | | | |
| Vegetation provides 90% soil cover | X | | X |
| Loam or soil amendment were provided | X | | X |
| New seeded areas are mulched and protected from vehicle, foot traffic and runoff | X | X | X |
| Areas that will remain unworked for more than 1 year are vegetated with grass | X | | |
| **SLOPES AND EMBANKMENTS** | | | |
| Final graded slopes and embankments are stabilized | X | X | X |
| Diversions are provided for areas with rill erosion | X | X | X |
| Areas steeper than 2:1 are riprapped | X | | |
| Stones are angular, durable and various in size | X | | |
| Riprap is underlain with a gravel layer or filter fabric | X | | |
| **STORMWATER CHANNELS AND CULVERTS** | | | |
| Ditches and swales are permanently stabilized–channels that will be riprapped have been over-excavated | X | X | X |
| Ditches are clear of obstructions, accumulated sediments or debris | X | X | X |
| Ditch lining/bottoms are free of erosion | X | X | X |
| Check dams are spaced correctly to slow flow velocity | X | | |
| Underlying filter fabric or gravel is not visible | X | X | X |
| Culvert aprons and plunge pools are sized for expected flows volume and velocity | X | | |
| Stones are angular, durable and various in size | X | | |
| Culverts are sized to avoid upgradient flooding | X | X | |
| Culvert protection extends to the maximum flow elevation within the ditch | X | X | X |
| Culvert is embedded, not hanging | X | X | X |

| | | | |
|---|---|---|---|
| **CATCH BASIN SYSTEMS** | | | |
| Catch basins are built properly | X | | |
| Accumulated sediments and debris are removed from sump, grate and collection area | | X | X |
| Floating debris and floating oils are removed from trap | | | X |
| **ROADWAYS AND PARKING SURFACES** | | | |
| The gravel pad at the construction entrance is clear from sediments | X | X | |
| Roads are crowned | | X | X |
| Cross drainage (culvert) is provided | X | | |
| False ditches (from winter sand) are graded | | X | X |
| **BUFFERS** | | | |
| Buffers are free of erosion or concentrated flows | | X | X |
| The downgradient of spreaders and turnouts is stable | | X | X |
| Level spreaders are on the contour | | | X |
| The number of spreaders and ditch turnouts is adequate for flow distribution | | X | X |
| Any sediment accumulation is removed from within spreader or turnouts | | X | X |
| **STORMWATER BASINS AND TRAPS** | | | |
| Embankments are free of settlement, slope erosion, internal piping, and downstream swamping | | X | X |
| All flow control structure or orifices are operational and clear of debris or sediments | | X | X |
| Any pre-treatment structure that collects sediment or hydrocarbons is clean or maintained | | X | X |
| Vegetated filters and infiltration basins have adequate grass growth | | | X |
| Any impoundment or forebay is free of sediment | | X | X |
| **WINTER CONSTRUCTION (November 1st-April15th)** | | | |
| Final graded areas are mulched daily at twice the normal rate with hay, and anchor (not on snow) | Daily | | |
| A double row of sediment barrier is provided for all areas within 100 ft of a sensitive resource (use erosion control mix on frozen ground) | Daily | | |
| Newly constructed ditches are riprapped | Daily | | |
| Slopes greater than 8% are covered with an erosion control blanket or a 4-inch layer of erosion control mix | Daily | | |
| **HOUSEKEEPING PUNCH LIST** | | | |
| All disturbed areas are permanently stabilized, and plantings are established (grass seeds have germinated with 90% vegetative cover) | | | X |
| All trash, sediments, debris or any solid waste have been removed from stormwater channels, catch basins, detention structures, discharge points, etc. | | | X |
| All ESC devices have been removed: (silt fence and posts, diversions and sediment structures, etc.) | | | X |
| All deliverables (certifications, survey information, as-built plans, reports, notice of termination (NOT), etc.) in accordance with all permit requirements have been submitted to town, Maine DEP, association, owner, etc. | | | X |

| CONSTRUCTION INSPECTION FORM FOR EROSION AND SEDIMENT CONTROL | | | | | |
|---|---|---|---|---|---|
| **General Information:** | | | | | |
| Site Name: | Date: | | Inspected by: | | |
| Owner: | | | | | |
| Retained 3PI: | Last Rain Date: | | | Amount: | |
| Reason for Inspection: | Weekly | Winter | Final | Rain Event | Complaint |
| Description of disturbed area: | | | | | |
| Photos: | | | | | |

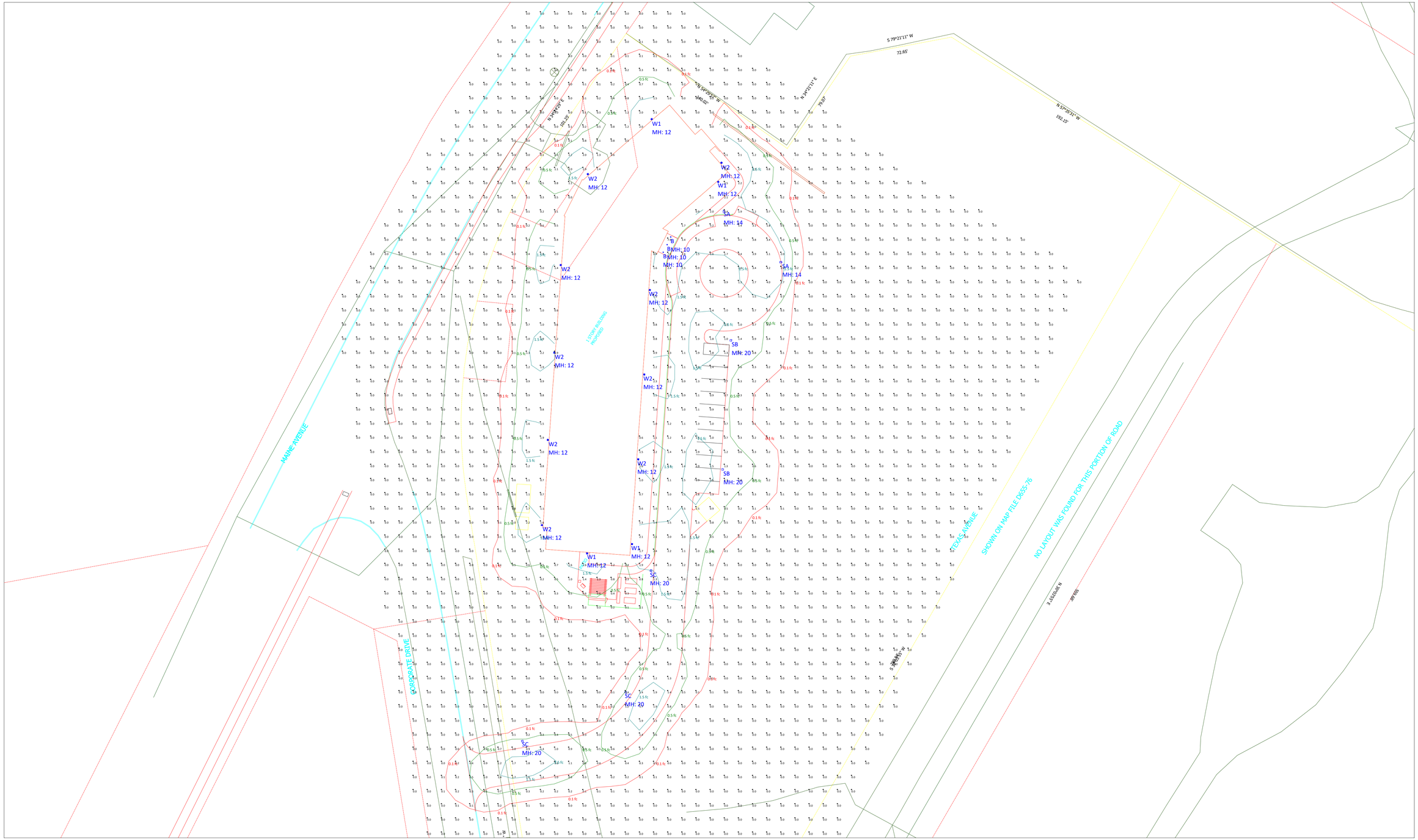
| | YES/NO/NA | COMMENTS |
|---|---|---|
| **1. Is an Erosion and Sediment Control Plan available?** | | |
| ESC plan on-site and followed | | |
| Other: | | |
| **2. Are all erosion control practices installed properly, maintained and functioning?** | | |
| Disturbed areas stable | | |
| Concentrated flow inlet/outlet protection | | |
| All areas at final grade | | |
| Disturbed dormant areas stabilized | | |
| Access roads and parking | | |
| Hillsides and stockpiles | | |
| Other: | | |
| **3. Are all sedimentation control practices installed properly, maintained and functioning?** | | |
| Construction entrance | | |
| Sedimentation basins/traps/diversions | | |
| Perimeter controls | | |
| Check dams | | |
| Other: | | |
| **4. Is maintenance of ESC measures, construction activities and housekeeping kept-up?** | | |
| Sedimentation/erosion in ditches | | |
| Tracked Sediment or dust at exits | | |
| Hazardous material storage and spill control practices | | |
| Waste management (concrete, hazardous material, etc.) | | |
| Other: | | |
| **5. Violation, Corrective Actions, Recommendations** | | |
| Sediment discharged from site? | | |
| Corrective action required? | | |
| Site compliant with all permits? | | |
| Notice of violation or stop work order issued? | | |
| Comments/Corrective Actions (complete corrective actions before the next rain event and within 7 day) | | |

| Calculation Summary | | | | | |
|---|---|---|---|---|---|
| **Label** | **Avg** | **Max** | **Min** | **Avg/Min** | **Max/Min** |
| site | 0.3 | 7.9 | 0.0 | N.A. | N.A. |

Luminaire Schedule (note fixture catalogue numbers are not complete)

| Type | Qty | Lum. Lumens | LLF | Lum. Watts | MANUFAC | Description | Mounting Height |
|---|---|---|---|---|---|---|---|
| B | 3 | 1251 | 0.900 | 14.6 | NICOR,INC. | REL6FR1120SRD9WH-2700K | 10 |
| SA | 2 | 5534 | 0.900 | 63 | LSI INDUSTRIES, INC. | MRS-LED-09L-SIL-4-30-70CRI-IL | 14 |
| SB | 2 | 6017 | 0.900 | 39 | LSI INDUSTRIES, INC. | MRS-LED-06L-SIL-3-30-70CRI | 20 |
| SC | 3 | 4030 | 0.900 | 39 | LSI INDUSTRIES, INC. | MRS-LED-06L-SIL-3-30-70CRI-IL | 20 |
| W1 | 4 | 2772 | 0.900 | 19 | LSI INDUSTRIES, INC. | XWS-LED-03L-SIL-4-30-70CRI | 12 |
| W2 | 9 | 2884 | 0.900 | 19 | LSI INDUSTRIES, INC. | XWS-LED-03L-SIL-3-30-70CRI | 12 |

**NOTES:**
1) EXACT MOUNTING DETAILS TO BE DETERMINED AT JOBSITE BY OTHERS.
2) CALCULATIONS MAY or MAY NOT SHOW THE EFFECT OF SHADOWING CAUSED BY BUILDINGS AND OBJECTS WITHIN THE CALCULATED SPACE OR IN THE SITE AREA.
3) READINGS SHOWN ARE INITIAL HORIZONTAL FOOTCANDLES ON A FLAT SITE WITHOUT REFLECTIONS OR OBSTRUCTIONS UNLESS OTHERWISE INDICATED.
4) THIS CALCULATION IS BASED ON LIMITED INFORMATION SUPPLIED BY OTHERS TO EXPOSURE/ESS AND STANDARD ASSUMPTIONS OF THE SPACE AND/OR SITE.
5) CONFORMANCE TO CODES AND OTHER LOCAL REQUIREMENTS AS DETERMINED BY THE AHJ ARE THE RESPONSIBILITY OF THE OWNER AND/OR THE OWNER'S REPRESENTATIVE.
6) THIS LAYOUT DRAWING MUST BE COORDINATED WITH THE SITE LOCATION FOR CORRECT FIXTURE ORIENTATION.
7) DOCUMENTS PRINTED OR PLOTTED FROM ELECTRONIC FILES MAY APPEAR AT OTHER THAN THE DESIRED OR ASSUMED GRAPHIC SCALES. IT IS THE RESPONSIBILITY OF THE RECIPIENT TO VERIFY THAT THE PRINTED OR PLOTTED-TO-SCALE DRAWING IS PRINTED TO SCALE.




PLAN VIEW

NOTICE: THIS DRAWING IS THE EXCLUSIVE PROPERTY OF EXPOSURE/ESS. ITS ACCEPTANCE CONSTITUTES AN AGREEMENT THAT THE DRAWING WILL BE TREATED AS CONFIDENTIAL. THIS DRAWING IS TO BE USED FOR NO PURPOSE OTHER THAN AS DETAILED IN WRITING BY EXPOSURE/ESS AND IS NOT TO BE REPRODUCED, CHANGED OR COPIED IN ANY FORM OR MANNER WHATSOEVER, NOR ARE ANY RIGHTS TO BE CONVEYED TO ANY OTHER PARTY, WHETHER SHOWN OR NOT, UNLESS AGREED TO IN WRITING BY EXPOSURE/ESS. RETURNED UPON REQUEST AND IS NOT TO BE COMMUNICATED, DISCLOSED OR COPIED; EXCEPT AS HEREIN EXPRESSLY PROVIDED, WITHOUT THE PRIOR WRITTEN CONSENT OF EXPOSURE/ESS.
ANY USE OF THIS LIGHTING LAYOUT IS TO SUGGEST THE BEST UTILIZATION OF LIGHTING FIXTURES INCLUDED IN THIS DRAWING. IT IS PROVIDED USING FIXTURE PHOTOMETRICS AS SUPPLIED BY THE MANUFACTURER. ANY LIGHTING LAYOUT IN THIS DRAWING THAT DIFFERS FROM PERFORMANCE SHOWN IN IES FILE IS NOT THE RESPONSIBILITY OF THE MANUFACTURER, IT'S USE FOR ANY OTHER PURPOSE IS NOT AUTHORIZED BY EXPOSURE/ESS.

TITLE
**236 MAINE AVE - HOME FOR GOOD**
**BANGOR, ME**
**SITE LIGHTING LAYOUT**

SITE LTG 4-27-26.AGI

GENERATED BY EXPOSURE/ESS, PORTSMOUTH, NH - 603-601-8080 - exposure2lighting.com

GENERATED FOR:
SME - SEVEE & MAHER

SCALE NOT TO SCALE

Page 1 of 1

Date:4/27/2026

EXPOSURE — LIGHTING — CONTROLS — ELECTRICAL

Catalog # : _____ Project : _____ Type : _____

Prepared By : _____ Date : _____

# Mirada Small Silicone (XWS SIL)

## Outdoor Wall Sconce



| OVERVIEW | |
|---|---|
| Lumen Package (lm) | 1,000 - 8,000 |
| Wattage Range (W) | 10 - 61 |
| Efficacy Range (LPW) | 124 - 162 |
| Weight lbs (kg) | 10 (4.5) |
| Control Options | IMSBT, ALB, ALS, PCI |

## QUICK LINKS

Ordering Guide | Performance | Photometrics | Dimensions

## FEATURES & SPECIFICATIONS

### Construction

- Rugged die-cast aluminum housing.
- 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.
- Extended housing available with 1/2" threaded hubs for surface conduit and rated wire.
- Standard luminaire shipping weight: TBD lbs in carton.
- Max luminaire shipping weight: 12 lbs in carton (20 lbs w/EH option)

### Optical System

- State-of-the-Art one piece silicone optic provides industry leading optical control while also acting as an integrated gasket reducing system complexity and improving fixture reliability.
- Proprietary silicone refractor optics provide exceptional coverage and uniformity in distribution types 2, 3, 4, and FT.
- Silicone optical material does not yellow or crack with age and provides a typical light transmittance of 93%.
- Zero uplight.
- 5000K, 4000K, 3500K, 3000K, and 2700K color temperatures per ANSI C78.377. Also available in Phosphor Converted Amber with peak intensity at 610nm.
- 70 or 80CRI Minimum.

### 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
- Total harmonic distortion (THD): <20%
- Operating temperature: -40°C to 40°C (-40°F to +104°F)
- Power factor (PF): >.90
- Input power stays constant over life.
- Optional 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 via hinged door.
- Optional integral emergency battery pack provides 90-minutes of constant power to the LED system, ensuring code compliance. A test switch/indicator button is installed on the housing for ease of maintenance. The fixture delivers 1500 lumens during emergency mode.

### Controls

- Integral passive infrared Bluetooth™ motion sensor options. Fixtures operate independently and can be commissioned via an iOS or Android configuration app. Updates and modifications to the control strategy are easily implemented via an intuitive app.
- AirLink™ Blue wireless control system with technology partner Silvair incorporates Luminaire Level Lighting Controls (LLLC) and high-end trim

### Installation

- Universal wall mounting plate easily mounts directly to 4" octagonal or square junction box.
- 2 fasteners secure the hinged door underneath the housing and provide quick & easy access to the electrical compartment for installing/servicing.
- Optional terminal block accepts up to 12 ga wire.

### Warranty

- LSI luminaires carry a 5-year limited warranty. Refer to https://www.lsicorp.com/resources/terms-conditions-warranty/ for more information.

### Listings

- Listed to UL 1598 and UL 8750.
- Meets Buy American Act requirements.
- DarkSky approved with 3000K or warmer color temperature selection and fixed mounting.
- Title 24 Compliant; see local ordinance for qualification information.
- Suitable for wet locations.
- IP65 rated luminaire per IEC 60598-1.
- 3G rated for ANSI C136.31 high vibration applications when pole mounted (using optional XPMA bracket) or wall mounted.
- IK10 rated luminiare per IEC 66262 mechanical impact code.
- DesignLights Consortium® (DLC) Premium qualified product. Not all versions of this product may be DLC Premium qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.


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# Mirada Small Silicone (XWS SIL)

Type : _____

**Have questions?** Call us at (800) 436-7800

## ORDERING GUIDE

Back to Quick Links

**TYPICAL ORDER EXAMPLE: XWS LED 6L SIL FT UNV DIM 40 70CRI ALBMR1LR BLK CWBB**

| Prefix | Light Source | Lumen Package | Lens | Distribution | Voltage | Driver |
|---|---|---|---|---|---|---|
| **XWS** - Mirada Small Wall Sconce | **LED** | **1L** - 1,000 (10w) UNV Only<br>**2L** - 2,000 (13w)<br>**3L** - 3,000 (19w)<br>**5L** - 5,000 (35w)<br>**6L** - 6,000 (43w)<br>**8L** - 8,000 (61w)<br>**Custom Lumen Packages**[1] | **SIL** - Silicone | **2** - Type 2<br>**3** - Type 3<br>**4** - Type 4<br>**FT** - Forward Throw | **UNV** - Universal Voltage (120-277V)<br>**HV** - High Voltage (347-480V) | **DIM** - 0-10v Dimming (0-10%) |

| Color Temperature | Color Rendering | Controls | Finish | Options |
|---|---|---|---|---|
| **50** - 5,000 CCT<br>**40** - 4,000 CCT<br>**35** - 3,500 CCT (80 CRI only)<br><br>DarkSky Approved CCT's<br>**30** - 3,000 CCT<br>**27**- 2,700 CCT (80 CRI only) | **70CRI** - 70 CRI<br>**80CRI** - 80 CRI | **Blank** - None<br>**Wireless Controls**<br>**ALBMR1LR** - AirLink Blue Long Range Wireless Multi-Range Sensor Controller (8-15' MH)[2,3]<br>**ALBMR2LR** - AirLink Blue Long Range Wireless Multi-Range Sensor Controller (16 - 40' mounting height)[2,3]<br>**Standalone Controls**<br>**EXT** - 0-10v Dimming leads extended to housing exterior<br>**IMSBT1L** - Integral Bluetooth™ Motion Sensor 8-24' MH[2,3]<br>**Button Type Photocells**<br>**PCI120** - 120V<br>**PCI208-277** - 208 -277V<br>**PCI347** - 347V | **BLK** - Black<br>**BRZ** - Dark Bronze<br>**GMG** - Gun Metal Gray<br>**GPT** - Graphite<br>**MSV** - Metallic Silver<br>**PLP** - Platinum Plus<br>**SVG** - Satin Verde Green<br>**WHT** - White | **Blank** - None<br>**BB** - 10w Battery Back-up (0°C)[4]<br>**CWBB** - 10w Cold Weather Battery Backup (-20°C)[4]<br>**BB20** - 20W Battery Back-up (0°C)[4]<br>**EH** - Extended Housing[5]<br>**SP1** - 10kV Surge Protection Device |

**Need more information?**
Click here for our glossary

**Have additional questions?**
Call us at (800) 436-7800

## ACCESSORY ORDERING INFORMATION*

| Part Number | Description |
|---|---|
| **758274CLR** | XWS Extended Housing/Surface Conduit Wiring Box |
| **760159CLR** | XWS Spacer Plate/Wiring Box |

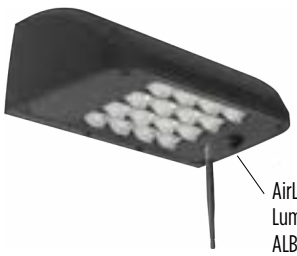
*Accessories are shipped separately and field installed.

### Battery Backup

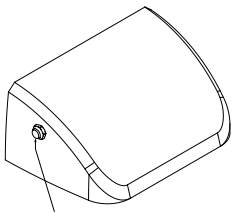
- Emergency battery system provides 90-minutes of constant power to the LED system, ensuring code compliance.
- A test switch/indicator button is installed on the housing for ease of maintenance.
- 10w battery delivers ~1,500 lumens during emergency mode.
- 20w battery delivers ~3,000 lumens during emergency mode.



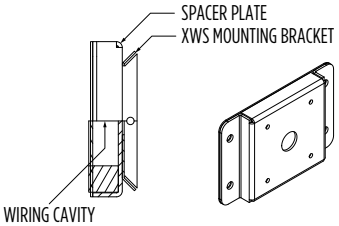
Luminaire shown with battery backup



AirLink Wireless Control Luminaire shown with ALBMR1LR



**BUTTON PHOTOCELL**
LUMINAIRE SHOWN WITH PCI




1 Custom lumen and wattage packages available, consult factory. Values are within industry standard tolerances but not DLC listed.
2 When high voltage (HV) is specified, IMSBT and ALBMRxLR control options are limited to 6L and 8L lumen packages.
3 Sensors are field configurable via a phone app that can be downloaded from your smartphone's native app store.
4 Universal Voltage Only (120-277V). 20W Battery Backup only available 1L - 6L.
5 For applications with surface conduit.


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# Mirada Small Silicone (XWS SIL)

Type : _____

**Have questions?** Call us at (800) 436-7800

## PERFORMANCE

Back to Quick Links

**Delivered Lumens[1]**

| Lumen Package | Distribution | CRI | 3000K CCT (70 CRI) | | | 4000K CCT (70 CRI) | | | 5000K CCT (70 CRI) | | | Wattage |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Delivered Lumens | Efficacy | Bug Rating | Delivered Lumens | Efficacy | Bug Rating | Delivered Lumens | Efficacy | Bug Rating | |
| 1L | 2 | 70 | 1,429 | 143 | B1-U0-G1 | 1,524 | 152 | B1-U0-G1 | 1,526 | 153 | B1-U0-G1 | 10 |
| | 3 | | 1,491 | 149 | B0-U0-G1 | 1,590 | 159 | B0-U0-G1 | 1,592 | 159 | B0-U0-G1 | |
| | 4 | | 1,433 | 143 | B0-U0-G1 | 1529 | 153 | B0-U0-G1 | 1530 | 153 | B0-U0-G1 | |
| | FT | | 1,459 | 146 | B0-U0-G1 | 1,556 | 156 | B1-U0-G1 | 1,557 | 156 | B1-U0-G1 | |
| 2L | 2 | 70 | 1,851 | 142 | B1-U0-G1 | 1,974 | 152 | B1-U0-G1 | 1,976 | 152 | B1-U0-G1 | 13 |
| | 3 | | 1,930 | 148 | B1-U0-G1 | 2,058 | 158 | B1-U0-G1 | 2,060 | 158 | B1-U0-G1 | |
| | 4 | | 1884 | 145 | B0-U0-G1 | 2010 | 152 | B0-U0-G1 | 2012 | 155 | B0-U0-G1 | |
| | FT | | 1,889 | 145 | B1-U0-G1 | 2,015 | 155 | B1-U0-G1 | 2,017 | 155 | B1-U0-G1 | |
| 3L | 2 | 70 | 2,765 | 146 | B1-U0-G1 | 2,950 | 155 | B1-U0-G1 | 2,953 | 155 | B1-U0-G1 | 19 |
| | 3 | | 2,884 | 152 | B1-U0-G1 | 3,077 | 162 | B1-U0-G1 | 3,079 | 162 | B1-U0-G1 | |
| | 4 | | 2,772 | 146 | B1-U0-G2 | 2957 | 156 | B1-U0-G2 | 2959 | 156 | B1-U0-G2 | |
| | FT | | 2,822 | 149 | B1-U0-G1 | 3,010 | 158 | B1-U0-G1 | 3,012 | 159 | B1-U0-G1 | |
| 5L | 2 | 70 | 4,655 | 133 | B2-U0-G1 | 4,965 | 142 | B2-U0-G1 | 4,970 | 142 | B2-U0-G1 | 35 |
| | 3 | | 4,855 | 139 | B1-U0-G1 | 5,179 | 148 | B1-U0-G1 | 5,184 | 148 | B1-U0-G1 | |
| | 4 | | 4,666 | 133 | B1-U0-G2 | 4978 | 142 | B1-U0-G2 | 4983 | 142 | B1-U0-G2 | |
| | FT | | 4,750 | 136 | B1-U0-G2 | 5,067 | 145 | B1-U0-G2 | 5,072 | 145 | B1-U0-G2 | |
| 6L | 2 | 70 | 5,578 | 130 | B2-U0-G1 | 5,950 | 138 | B2-U0-G2 | 5,956 | 139 | B2-U0-G2 | 43 |
| | 3 | | 5,819 | 135 | B1-U0-G2 | 6,207 | 144 | B1-U0-G2 | 6,214 | 145 | B1-U0-G2 | |
| | 4 | | 5,298 | 123 | B1-U0-G2 | 5966 | 139 | B1-U0-G2 | 5972 | 139 | B1-U0-G3 | |
| | FT | | 5,693 | 132 | B1-U0-G2 | 6,073 | 141 | B1-U0-G2 | 6,079 | 141 | B1-U0-G2 | |
| 8L | 2 | 70 | 7,531 | 123 | B2-U0-G2 | 8,034 | 132 | B2-U0-G2 | 8,041 | 132 | B2-U0-G2 | 61 |
| | 3 | | 7,856 | 129 | B2-U0-G2 | 8,380 | 137 | B2-U0-G2 | 8,388 | 138 | B2-U0-G2 | |
| | 4 | | 7,552 | 124 | B1-U0-G3 | 8055 | 132 | B1-U0-G3 | 8063 | 132 | B1-U0-G3 | |
| | FT | | 7,687 | 126 | B2-U0-G2 | 8,199 | 134 | B2-U0-G2 | 8,207 | 135 | B2-U0-G2 | |

**LUMEN SCALING FACTOR**

| 70CRI - 80CRI | 3000K 70CRI - 3500K 80CRI | 3000K 70CRI - 2700K 80CRI |
|---|---|---|
| 0.93 | 1.00 | 0.86 |

**Electrical Data - Current Draw AMPS[2]**

| Lumen Package | 120V | 208V | 240V | 277V | 347V | 480V |
|---|---|---|---|---|---|---|
| 1L | 0.08 | 0.05 | 0.04 | 0.04 | 0.03 | 0.02 |
| 2L | 0.11 | 0.06 | 0.05 | 0.05 | 0.04 | 0.03 |
| 3L | 0.16 | 0.09 | 0.08 | 0.07 | 0.05 | 0.04 |
| 5L | 0.29 | 0.17 | 0.15 | 0.13 | 0.10 | 0.07 |
| 6L | 0.36 | 0.21 | 0.18 | 0.16 | 0.12 | 0.09 |
| 8L | 0.51 | 0.29 | 0.25 | 0.22 | 0.18 | 0.13 |

**Recommended Lumen Maintenance - XWS[3]**

| Ambient Temperature C° | Initial[4] | 25K hrs.[4] | 50K hrs.[4] | 75K hrs.[5] | 100K hrs.[5] |
|---|---|---|---|---|---|
| 25 | 100% | 95% | 90% | 85% | 80% |
| 40 | 100% | 91% | 82% | 73% | 65% |

1 1L not available in HV
2 1L not available with controls.
3 Lumen maintenance values at 25°C are calculated per TM-21 based on LM-80 data and in-situ luminaire testing.
4 In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times (6X)the IESNA LM-80-08 total test duration (in hours) for the device under testing ((DUT) i.e. the packaged LED chip).
5 In accordance with IESNA TM-21-11, Calculated Values represent time durations that exceed six times NA LM-80-08 total test duration (in hours) for the device under testing ((DUT) i.e. the packaged LED chip).


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## PHOTOMETRICS

Luminaire photometry has been conducted by a NVLAP accredited testing laboratory in accordance with IESNA LM-79-08. As specified by IESNA LM-79-08 the entire luminaire is tested as the source resulting in a luminaire efficiency of 100%.

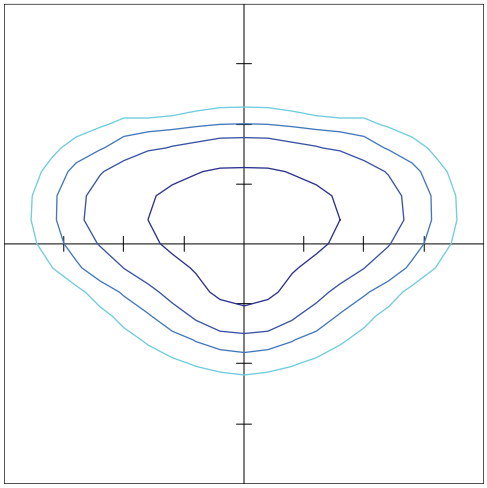
See the individual product page on https://www.lsicorp.com/ for detailed photometric data.

### XWS-LED-6L-SIL-2-40-70CRI

| Luminaire Data | |
|---|---|
| **Type 2 Distribution** | |
| **Description** | 4000 Kelvin, 70 CRI |
| **Delivered Lumens** | 5,951 |
| **Watts** | 42.5 |
| **Efficacy** | 138 |
| **IES Type** | Type II - Short |
| **BUG Rating** | B1-U0-G1 |

| Zonal Lumen Summary | | |
|---|---|---|
| **Zone** | **Lumens** | **% Luminaire** |
| **Low (0-30°)** | 834 | 20% |
| **Medium (30-60°)** | 3,379 | 50% |
| **High (60-80°)** | 1,647 | 28% |
| **Very High (80-90°)** | 91 | 1% |
| **Uplight (90-180°)** | 0 | 0% |
| **Total Flux** | 5,951 | 100% |

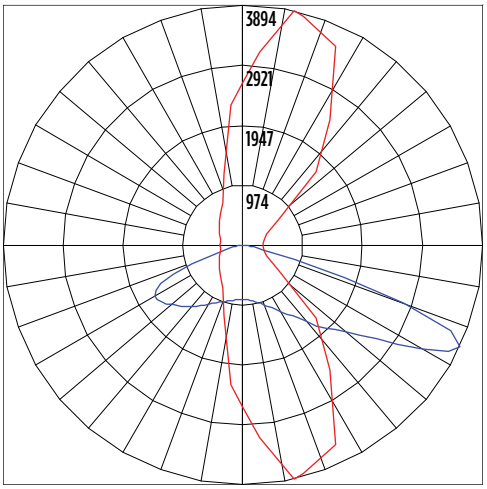
**ISO Footcandle**



10' Mounting Height / 10' Grid Spacing

5 FC 2 FC 1 FC 0.5 FC

**Polar Curve**



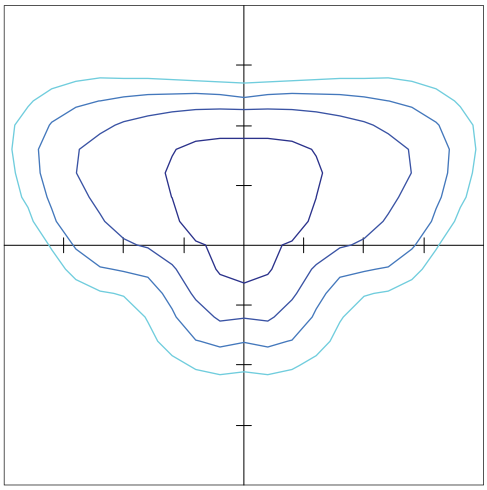

Vertical Plane Horizontal Cone

### XWS-LED-6L-SIL-3-40-70CRI

| Luminaire Data | |
|---|---|
| **Type 3 Distribution** | |
| **Description** | 4000 Kelvin, 70 CRI |
| **Delivered Lumens** | 6,208 |
| **Watts** | 42.5 |
| **Efficacy** | 146 |
| **IES Type** | Type III - Medium |
| **BUG Rating** | B1-U0-G2 |

| Zonal Lumen Summary | | |
|---|---|---|
| **Zone** | **Lumens** | **% Luminaire** |
| **Low (0-30°)** | 582 | 9% |
| **Medium (30-60°)** | 2,997 | 48% |
| **High (60-80°)** | 2,506 | 40% |
| **Very High (80-90°)** | 124 | 2% |
| **Uplight (90-180°)** | 0 | 0% |
| **Total Flux** | 6,208 | 100% |

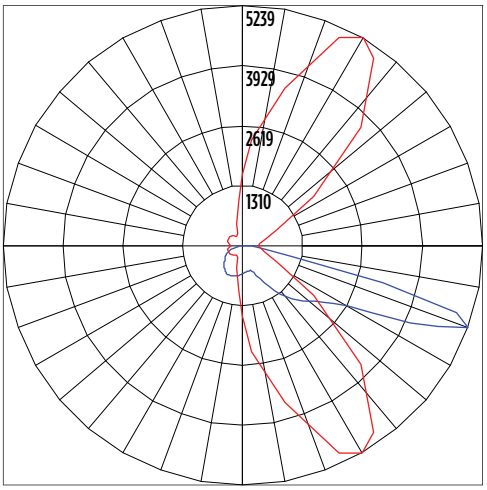
**ISO Footcandle**



10' Mounting Height / 10' Grid Spacing

5 FC 2 FC 1 FC 0.5 FC

**Polar Curve**




Vertical Plane Horizontal Cone



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# Mirada Small Silicone (XWS SIL)

Type : _____

**Have questions?** Call us at (800) 436-7800

## PHOTOMETRICS

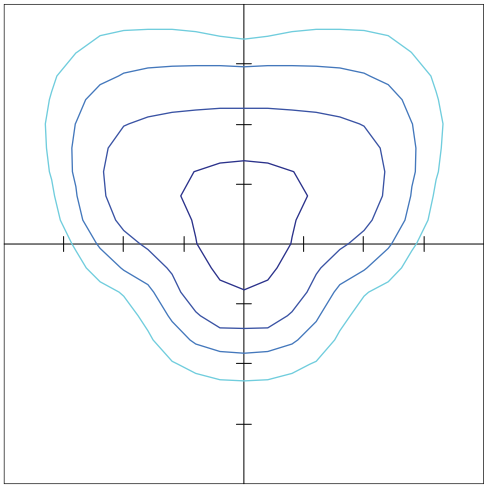
Back to Quick Links

### XWS-LED-6L-SIL-FT-40-70CRI

| Luminaire Data | |
|---|---|
| **Type FT Distribution** | |
| **Description** | 4000 Kelvin, 70 CRI |
| **Delivered Lumens** | 6,073 |
| **Watts** | 42.5 |
| **Efficacy** | 143 |
| **IES Type** | Type IV - Short |
| **BUG Rating** | B1-U0-G2 |

| Zonal Lumen Summary | | |
|---|---|---|
| **Zone** | **Lumens** | **% Luminaire** |
| **Low (0-30°)** | 708.3 | 12% |
| **Medium (30-60°)** | 2,715.5 | 45% |
| **High (60-80°)** | 2,475.4 | 41% |
| **Very High (80-90°)** | 173.6 | 3% |
| **Uplight (90-180°)** | 0 | 0% |
| **Total Flux** | 6,073 | 100% |

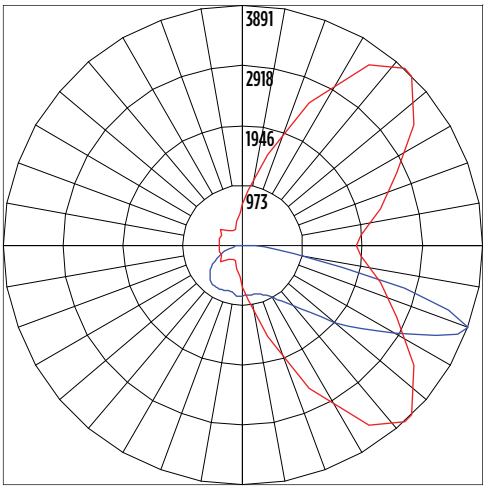
**ISO Footcandle**



10' Mounting Height / 10' Grid Spacing

5 FC 2 FC 1 FC 0.5 FC

**Polar Curve**



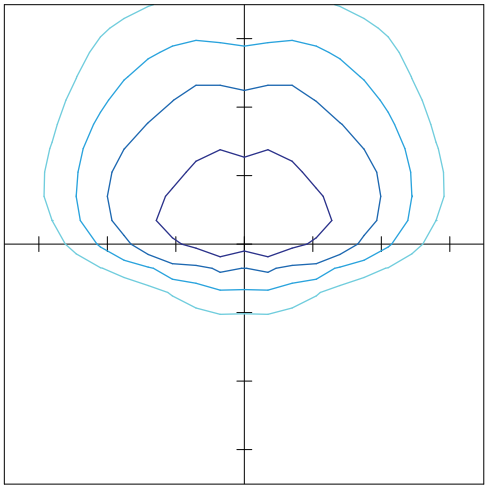

Vertical Plane Horizontal Cone

### XWS-LED-6L-SIL-4-40-70CRI

| Luminaire Data | |
|---|---|
| **Type 4 Distribution** | |
| **Description** | 4000 Kelvin, 70 CRI |
| **Delivered Lumens** | 5,966 |
| **Watts** | 42.5 |
| **Efficacy** | 139 |
| **IES Type** | Type IV - Very Short |
| **BUG Rating** | B1-U0-G2 |

| Zonal Lumen Summary | | |
|---|---|---|
| **Zone** | **Lumens** | **% Luminaire** |
| **Low (0-30°)** | 544.6 | 9% |
| **Medium (30-60°)** | 2,524.2 | 42% |
| **High (60-80°)** | 2,624.8 | 44% |
| **Very High (80-90°)** | 272.8 | 5% |
| **Uplight (90-180°)** | 0 | 0% |
| **Total Flux** | 5,966 | 100% |

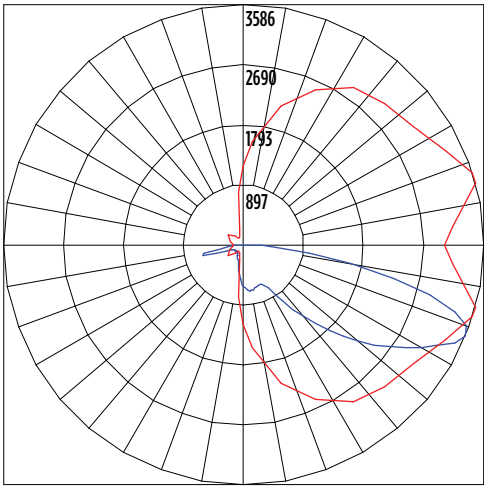
**ISO Footcandle**



10' Mounting Height / 10' Grid Spacing

5 FC 2 FC 1 FC 0.5 FC

**Polar Curve**

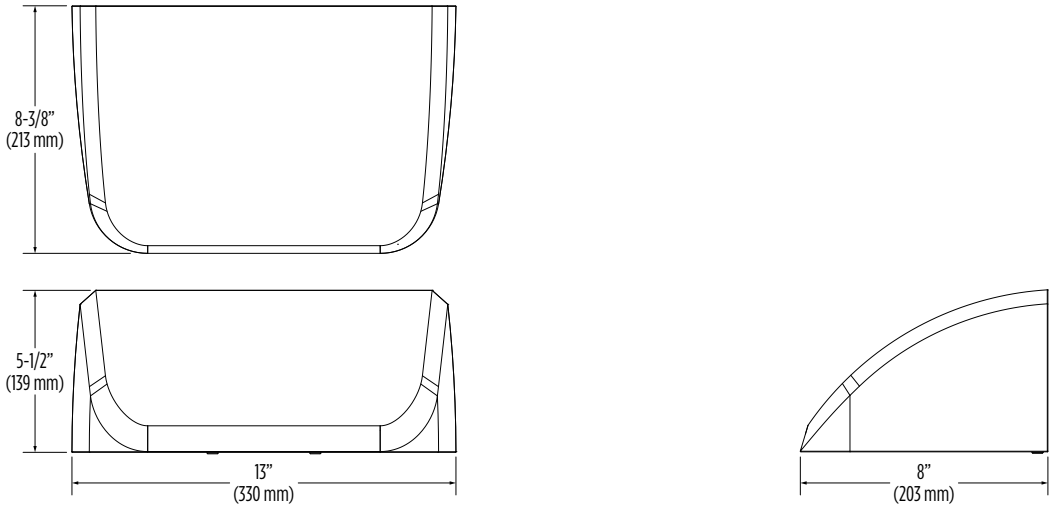



Vertical Plane Horizontal Cone

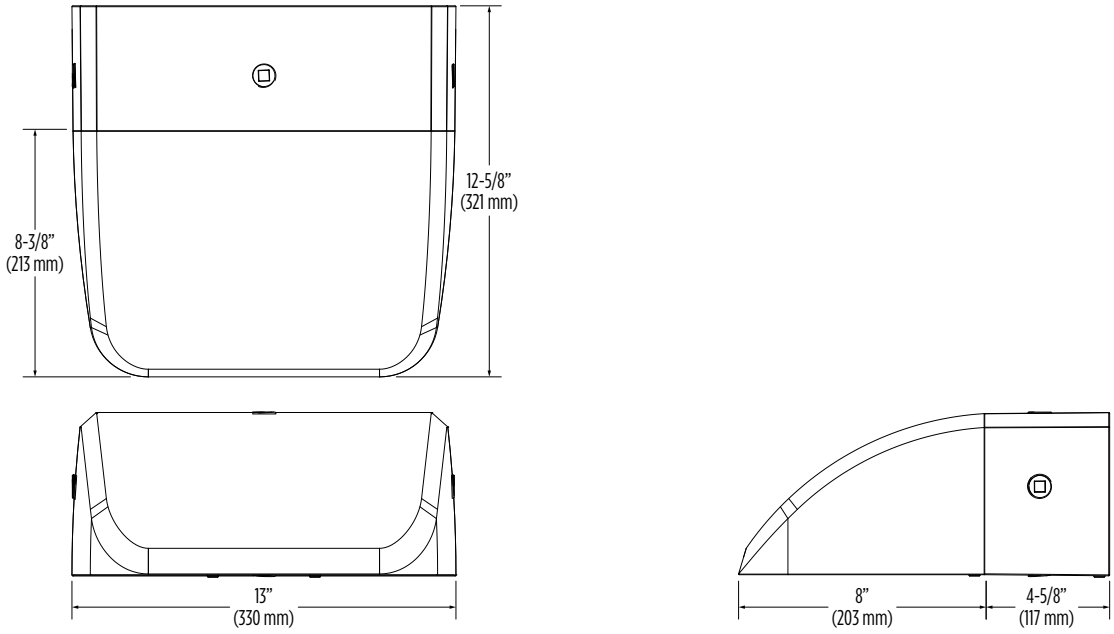

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## PRODUCT DIMENSIONS

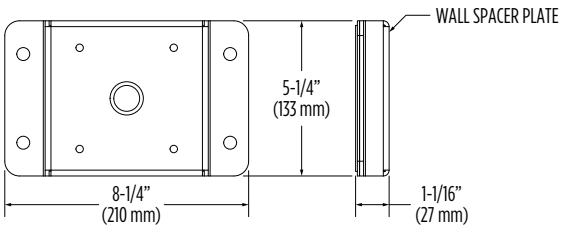
### STANDARD HOUSING
(XWS)




### SCWB EXTENDED HOUSING
(XWS 758274CLR)




### XWS SPACER PLATE/WIRING BOX
(XWS 760159CLR)




***NOTE:*** Wall spacer plate allows the luminaire to float off the wall and provides space for securing wires (8.25" X 5.25" X 1.07").



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## CONTROLS

Back to Quick Links

### Integral Bluetooth™ Motion and Photocell Sensor (IMSBTxL)

Slim low profile sensor provides multi-level control based on motion and/or daylight. Sensor controls 0-10 VDC LED drivers and is IP66 rated for cold and wet locations (-40°F to 167°F). Two unique PIR lenses are available and used based on fixture mounting height. All control parameters are adjustable via an iOS or Android App capable of storing and transmitting sensor profiles.

Click here to learn more details about IMSBT

LEVITON App Apple Android

### AirLink Wireless Lighting Controller (ALSC, ALSCS)

The AirLink integrated controller is a California Title 24 compliant lighting controller that provides real-time light monitoring and control with utility-grade power monitoring. It includes a 24V sensor input and power supply to connect a sensor into the outdoor AirLink wireless lighting system. The wireless integrated controller is compatible with this fixture.

Click here to learn more details about AirLink

### AirLink Blue (ALBMRxLR)

Wireless Bluetooth Mesh Lighting Control System that incorporates Luminaire Level Lighting Controls (LLLC) and high-end trim to provide energy savings code compliance and enhanced safety/security for parking lots and parking garages. Three key components; Bluetooth wireless radio/sensor controller, Time Keeper and an iOS App with technology partner Silvair. Capable of grouping multiple fixtures and sensors as well as scheduling time-based events by zone. Radio/Sensor Controller is factory integrated into Area/Site, Wall Mounted, Parking Garage and Canopy luminaires.

Click here to learn more details about AirLink Blue

AirLink Blue App Apple

### Sensor Sequence of Operations

| Standard Programming | On Event | Off Event | On Light Level | Dim Light Level | Daylight Harvesting | Delay To Off | Sensitivity |
|---|---|---|---|---|---|---|---|
| IMSBTxL | Motion | No Motion | 100% | N/A | On; Auto Calibration | 20 minutes | High |

| Operation | Description |
|---|---|
| On Event | Trigger that activates lights to turn on; either automatic via motion detected or manually activated via push of button. |
| Off Event | Trigger that activates lights to turn off; either automatic via no motion detected or manually activated via push of button. |
| On Light Level | The light level that the fixtures will turn on to when ON EVENT occurs. |
| Dim Light Level | The light level that the fixtures will dim down to when no motion is detected. |
| Delay to Dim | The amount of time after which no motion is detected that the fixtures will be triggered to dim down. This sequence is optional, and sensor can be programmed to only trigger the fixture to turn off by entering 100% in this field. |
| Delay to Off | The amount of time after which no motion is detected that the fixtures will be triggered to turn off. If delay to dim is part of the programmed functionality, this is the amount of time after which no motion is detected after the fixture have already dimmed down. |
| Sensitivity | The sensitivity can be set to high, medium, low, or auto where applicable. High will detect smaller, simple motions. Low will only detect larger more complex motions. Auto temperature calibration adjusts the PIR sensitivity as ambient temperature rises to increase detection of heat movement through the field of view. |



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Catalog # : _____ Project : _____

Prepared By : _____ Date : _____

# Mirada Small Area (MRS)

## Outdoor LED Area Light



MANUFACTURED IN THE USA | TITLE 24 COMPLIANT | c UL us LISTED | DARKSKY APPROVED | DLC LISTED PREMIUM | RoHS COMPLIANT | IP66 | IK10

| OVERVIEW | |
|---|---|
| Lumen Package | 6,000 - 30,000 |
| Wattage Range | 39 - 209 |
| Efficacy Range (LPW) | 112 - 163 |
| Weight lbs(kg) | 20 (9.1) |
| Control Options | IMSBT, ALB, ALS, 7-Pin, PCI |

### 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.
- 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: 27 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 seal.
- Proprietary silicone refractor optics provide exceptional coverage and uniformity in distribution types 2, 3, 4, 5W, FT, and LC/RC.
- Silicone optical material does not yellow or crack with age and provides a typical light transmittance of 93-95%.
- Zero uplight.
- Available in 5000K, 4000K, 3500K, 3000K and 2700K color temperatures per ANS C78.377.
- 70 or 80CRI Minimum.
- Integral louver (IL) and integral half louver (IH) options available for enhanced backlight control.

### Electrical

- High-performance driver features over-voltage, under-voltage, short-circuit and over temperature protection.
- 0-10V dimming (10% - 100%) standard.
- Standard Universal Voltage (120-277 VAC) Input 50/60 Hz or optional High Voltage (347-480 VAC).
- L70 Calculated Life: >60k Hours
- Total harmonic distortion: <20%
- Operating temperature: -40°C to +50°C (-40°F to +122°F). 30L lumen packages rated to +40°C.
- 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
- Driver is fully encased in potting material for moisture resistance and complies with FCC standards. Driver and key electronic components can easily be accessed.

### Controls

- Optional integral passive infrared Bluetooth™ motion and photocell sensor. Fixtures operate independently and can be commissioned via iOS or Android configuration app.
- AirLink™ Blue wireless control system with technology partner Silvair incorporates Luminaire Level Lighting Controls (LLLC) and high-end trim

### 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 B3 drill pattern.

### Warranty

- LSI luminaires carry a 5-year limited warranty. Refer to https://www.lsicorp.com/resources/terms-conditions-warranty/ for more information.

### Listings

- Listed to UL 1598 and UL 8750.
- Meets Buy American Act requirements.
- DarkSky approved with 3000K color temperature selection and fixed mounting.
- Title 24 Compliant; see local ordinance for qualification information.
- RoHS compliant.
- Suitable for wet locations.
- IP66 rated Luminaire per IEC 60598-1.
- 3G rated for ANSI C136.31 high vibration applications are qualified.
- IK10 rated luminiare per IEC 66262 mechanical impact code.
- 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.



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# Mirada Small Area Light (MRS)

Type: _____

**Have questions?** Call us at (800) 436-7800

## ORDERING GUIDE

Back to Quick Links

**TYPICAL ORDER EXAMPLE: MRS LED 18L SIL FT UNV DIM 40 70CRI ALBMR1LR BLK IH**

| Prefix | Light Source | Lumen Package | Lens | Distribution | Orientation[2] | Voltage | Driver |
|---|---|---|---|---|---|---|---|
| **MRS** - Mirada Small Area Light | **LED** | **6L** - 6,000 lms, 39W<br>**9L** - 9,000 lms, 63W<br>**12L** - 12,000 lms, 86W<br>**15L** - 15,000 lms, 111W<br>**18L** - 18,000 lms, 135W<br>**21L** - 21,000 lms, 165W<br>**24L** - 24,000 lms, 196W<br>**30L** - 30,000 lms, 209W[8]<br>Custom Lumen Packages[1] | **SIL** - Silicone | **2** - Type 2<br>**3** - Type 3<br>**4** - Type 4<br>**5W** - Type 5 Wide<br>**FT** - Forward Throw<br>**LC** - Left Corner<br>**RC** - Right Corner | **(blank)** - standard<br>**L**- Optics rotated left 90°<br>**R** - Optics rotated right 90° | **UNV** - Universal Voltage (120-277V)<br>**HV** - High Voltage (347-480V) | **DIM** - 0-10V Dimming (0-10%) |

| Color Temp | Color Rendering | Controls (Choose One) | Finish | Options |
|---|---|---|---|---|
| **50** - 5,000 CCT<br>**40** - 4,000 CCT<br>**35** - 3,500 CCT (80 CRI only)<br><br>DarkSky Approved CCT's<br>**30** - 3,000 CCT<br>**27**- 2,700 CCT (80 CRI only) | **70CRI** - 70 CRI<br>**80CRI** - 80 CRI | **(Blank)** - None<br><br>**Wireless Controls System**<br>**ALSC** - AirLink Synapse Control System<br>**ALSCS2** - AirLink Synapse Control System with 12-20' MH Motion Sensor[8]<br>**ALSCS4** - AirLink Synapse Control System with 20-40' MH Motion Sensor[8]<br>**ALBMR1LR** - AirLink Blue Long Range Wireless Motion & Photo Sensor Controller (8-15' MH)[4,8]<br>**ALBMR2LR** - AirLink Blue Long Range Wireless Motion & Photo Sensor Controller (16-40' MH)[4,8]<br><br>**Stand-Alone Controls**<br>**EXT** - 0-10v Dimming leads extended to housing exterior<br>**CR7P** - 7 Pin Control Receptacle ANSI C136.41[3]<br>**IMSBT1L** - Integral Bluetooth™ Motion and Photocell Sensor (8-24' MH)[4,8]<br>**IMSBT2L** - Integral Bluetooth™ Motion and Photocell Sensor (25-40' MH)[4,8] | **BLK -** Black<br>**BRZ -** Dark Bronze<br>**GMG -** Gun Metal Gray<br>**GPT -** Graphite<br>**MSV -** Metallic Silver<br>**PLP -** Platinum Plus<br>**SVG -** Satin Verde Green<br>**WHT -** White | **(Blank)** - None<br><br>**IH -** Integral Half Louver (Moderate Spill Light Cutoff)[2]<br><br>**IL -** Integral Louver (Sharp Spill Light Cutoff)[2] |

**Need more information?**
Click here for our glossary

**Have additional questions?**
Call us at (800) 436-7800

### Accessory Ordering Information[5]

| CONTROLS ACCESSORIES | |
|---|---|
| **Description** | **Order Number** |
| Twist Lock Photocell (120V) for use with CR7P | **122514** |
| Twist Lock Photocell (208-277) for use with CR7P | **122515** |
| Twist Lock Photocell (347V) for use with CR7P | **122516** |
| Twist Lock Photocell (480V) for use with CR7P | **1225180** |
| AirLink 5 Pin Twist Lock Controller | **661409** |
| AirLink 7 Pin Twist Lock Controller | **661410** |
| Shorting Cap for use with CR7P | **149328** |
| Adjustable Output Module | **734263** |

| FUSING OPTIONS[7] | |
|---|---|
| **Description** | **Order Number** |
| Single Fusing (120V) | See Fusing Accessory Guide |
| Single Fusing (277V) | |
| Double Fusing (208V, 240V) | |
| Double Fusing (480V) | |
| Double Fusing (347V) | |

| EXTERNAL SHIELDING OPTIONS | |
|---|---|
| 3" External Shield | See Shielding Guide |
| 6" External Shield | |

1. Custom lumen and wattage packages available, consult factory. Values are within industry standard tolerances but not DLC listed.
2. Not available on "Type 5W" distribution.
3. Control device or shorting cap must be ordered separately. See Accessory Ordering Information.
4. Motion sensors are field configurable via the LSI app that can be downloaded from your smartphone's native app store.
5. Accessories are shipped separately and field installed.
6. "CLR" denotes finish. See Finish options.
7. Fusing must be located in hand hole of pole. See Fusing Accessory Guide for compatability.
8. ALSC, ALB, and IMSBT not available with 30L HV.


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# Mirada Small Area Light (MRS)

Type: _____

**Have questions?** Call us at (800) 436-7800

## ACCESSORIES

Back to Quick Links

### MOUNTING ACCESSORIES

**Side Arm**

**Universal Mounting Bracket**
Mounts to ≥ 3" square or round (tapered/straight) poles with (2) mounting hole spaces between 3.5" to 5"

**Part Number: BKA UMB CLR**



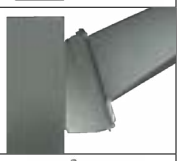
**Quick Mount Plate**
True one person installation to existing/new contruction poles with hole spaces beteen 2.4 to 4.6"

**Part Number: BKS PQMH B3B5 XX CLR**



**15° Tilt Quick Mount Plate**
True one person installation to existing/new contruction poles with hole spaces beteen 2.4 to 4.6"

**Part Number: BKS PQM15 B3B5 XX CLR**



**Tenon / Slipfitter**

**Adjustable Slipfitter**
Mounts onto a 2" (51mm) IP, 2.375" (60mm) O.D. tenon and provides 180° of tilt (max 45° above horizontal)

**Part Number: BKA ASF CLR**



**Square Tenon Top**
Mounts onto a 2" (51mm) IP, 2.375" (60mm) O.D. tenon and allows for mounting up to 4 luminaires

**Part Number: BKA XNM ***



**Square Internal Slipfitter**
Mounts inside 4" or 5" square pole and allows for mounting up to 4 lumianires

**Part Number: BKA X_ISF * CLR**



**Wall Mount/ Wood Pole**

**Wall Mount Bracket**
Mounts onto vertical wall surface ( hardware/anchors not included)

**Part Number: BKS XBO WM CLR**
**Part Number: BKS B3 WM CLR** (Includes surface conduit punchouts)



**Wood Pole Bracket**
Mounts onto wooden poles (6" minimum OD, hardware/anchors not included)

**Part Number: BKS XBO WP CLR** (Includes surface conduit punchouts)



### SHIELDING, POLES & MISC. ACCESSORIES

**Shielding**

**Integral Louver**
Field Install Integral Louver provides maximum backlight control by shiedling each individual row of LEDS

**Part Number: 763445**



**Integral Half Louver**
Field Install Integral Half Louver provides great backlight control without impacting front side distribution.

**Part Number: 763446**



**External Shield**
External shield blocks view of light source from anyside of luminaire, additional shielding configurations available

**Part Number: 783607BLK (3") / 776538BLK (6")**



**Poles**

**Square Poles**
14 - 39' steel and aluminum poles in 4", 5" and 6" sizes for retrofit and new construction

**Part Number: 4SQ/5SQ/6SQ**



**Round Poles**
10 - 30' steel and aluminum poles in 4" and 5" sizes for retrofit and new construction

**Part Number: 4RP/5RP**



**Tapered Poles**
20' - 39' steel and aluminum poles for retrofit and new construction

**Part Number: RTP**



**Misc.**

**Bird Spikes**
10' linear bird spike (2' recommended per luminaire) silcone adhesive (covers approximately 25' linear fee of bird spike) and application tool

**Spike Part Number: 751631**
**Adhesive Part Number: 751632**
**Caulk Gun Part Number: 751636**



Replace CLR with paint finish description

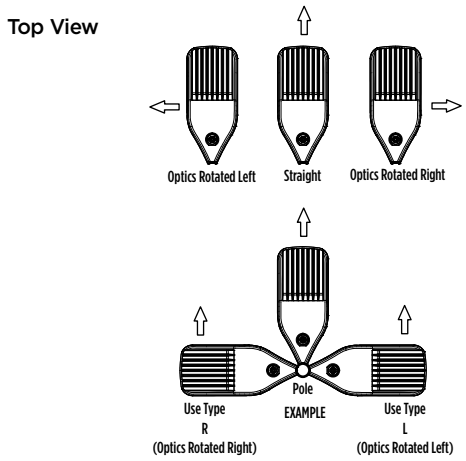
Replace X with: 2'

Replace XX with SQ for square pole or RD for round pole (≥3" OD)

Replace * with S (Single), D180 (Double @180°), D90 (Double @90°), T90 (Triple), Q90 (Quad)

Replace _ with 4 (4" square pole) or 5 (5" square pole)

## OPTICS ROTATION




## ACCESSORIES/OPTIONS

### Integral Louver (IL) and House-Side Shield (IH)

Integral louver (IL) and half louver (IH) accessory shields available for improved backlight control without sacrificing street side performance. LSI's Integral Louver (IL) and Integral House-Side Shield (IH) options deliver backlight control that significantly reduces spill light behind the poles for applications with pole locations close to adjacent properties. The design maximizes forward reflected light while reducing glare, maintaining the optical distribution selected, and most importantly eliminating light trespass. Both options rotate with the optical distribution.

Luminaire Shown with Integral Louver (IL)



Luminaire Shown with IMSBT Option




### 7 Pin Photoelectric Control

7-pin ANSI C136.41-2013 control receptacle option available for twist lock photocontrols or wireless control modules. Control accessories sold separately. Dimming leads from the receptacle will be connected to the driver dimming leads (Consult factory for alternate wiring).

Luminaire Shown with CR7P




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# Mirada Small Area Light (MRS)

Type: _____

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## PERFORMANCE

Back to Quick Links

**DELIVERED LUMENS***

| Lumen Package | Distribution | CRI | 3000K CCT | | | 4000K CCT | | | 5000K CCT | | | Wattage |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Delivered Lumens | Efficacy | BUG Rating | Delivered Lumens | Efficacy | BUG Rating | Delivered Lumens | Efficacy | BUG Rating | |
| 6L | 2 | 70 | 5918 | 149 | B2-U0-G1 | 6136 | 155 | B2-U0-G1 | 6122 | 155 | B2-U0-G1 | 39 |
| | 3 | | 6016 | 152 | B1-U0-G2 | 6238 | 158 | B1-U0-G2 | 6224 | 157 | B1-U0-G2 | |
| | 4 | | 5967 | 153 | B1-U0-G2 | 6333 | 162 | B1-U0-G3 | 6136 | 157 | B1-U0-G2 | |
| | 5W | | 5690 | 144 | B3-U0-G1 | 5899 | 149 | B3-U0-G1 | 5886 | 149 | B3-U0-G1 | |
| | FT | | 5822 | 147 | B1-U0-G1 | 6037 | 152 | B1-U0-G1 | 6023 | 152 | B1-U0-G1 | |
| | LC | | 6003 | 154 | B1-U0-G2 | 6371 | 163 | B1-U0-G2 | 6173 | 158 | B1-U0-G2 | |
| | RC | | 5964 | 153 | B1-U0-G2 | 6329 | 162 | B1-U0-G2 | 6132 | 157 | B1-U0-G2 | |
| 9L | 2 | 70 | 9091 | 145 | B2-U0-G2 | 9484 | 152 | B2-U0-G2 | 9462 | 151 | B2-U0-G2 | 63 |
| | 3 | | 9241 | 148 | B2-U0-G2 | 9641 | 154 | B2-U0-G2 | 9619 | 154 | B2-U0-G2 | |
| | 4 | | 9214 | 146 | B2-U0-G3 | 9778 | 155 | B2-U0-G3 | 9474 | 150 | B2-U0-G3 | |
| | 5W | | 8740 | 140 | B3-U0-G2 | 9118 | 146 | B3-U0-G2 | 9097 | 144 | B3-U0-G2 | |
| | FT | | 8943 | 143 | B2-U0-G2 | 9330 | 149 | B2-U0-G2 | 9308 | 149 | B2-U0-G2 | |
| | LC | | 9269 | 147 | B2-U0-G3 | 9837 | 156 | B2-U0-G3 | 9531 | 151 | B2-U0-G3 | |
| | RC | | 9208 | 146 | B2-U0-G2 | 9772 | 155 | B2-U0-G3 | 9468 | 150 | B2-U0-G3 | |
| 12L | 2 | 70 | 12132 | 141 | B3-U0-G2 | 12685 | 148 | B3-U0-G2 | 12514 | 146 | B3-U0-G2 | 86 |
| | 3 | | 12333 | 143 | B2-U0-G2 | 12894 | 150 | B2-U0-G2 | 12721 | 148 | B2-U0-G2 | |
| | 4 | | 12277 | 143 | B2-U0-G3 | 13029 | 152 | B2-U0-G3 | 12623 | 147 | B2-U0-G3 | |
| | 5W | | 11664 | 136 | B4-U0-G2 | 12195 | 142 | B4-U0-G2 | 12031 | 140 | B4-U0-G2 | |
| | FT | | 11935 | 139 | B2-U0-G2 | 12479 | 145 | B2-U0-G2 | 12311 | 143 | B2-U0-G2 | |
| | LC | | 12351 | 144 | B2-U0-G3 | 13108 | 152 | B2-U0-G3 | 12700 | 148 | B2-U0-G3 | |
| | RC | | 12271 | 143 | B2-U0-G3 | 13022 | 151 | B2-U0-G3 | 12617 | 147 | B2-U0-G3 | |
| 15L | 2 | 70 | 14220 | 128 | B3-U0-G2 | 15167 | 137 | B3-U0-G2 | 14488 | 131 | B3-U0-G2 | 111 |
| | 3 | | 14938 | 135 | B2-U0-G2 | 15933 | 144 | B2-U0-G2 | 15219 | 137 | B2-U0-G2 | |
| | 4 | | 14792 | 133 | B2-U0-G4 | 15698 | 141 | B2-U0-G4 | 15209 | 137 | B2-U0-G4 | |
| | 5W | | 14304 | 129 | B4-U0-G2 | 15257 | 137 | B4-U0-G2 | 14574 | 131 | B4-U0-G2 | |
| | FT | | 14342 | 129 | B2-U0-G2 | 15297 | 138 | B2-U0-G2 | 14612 | 132 | B2-U0-G2 | |
| | LC | | 14881 | 134 | B2-U0-G3 | 15793 | 142 | B2-U0-G3 | 15301 | 138 | B2-U0-G3 | |
| | RC | | 14784 | 133 | B2-U0-G3 | 15689 | 141 | B2-U0-G3 | 15201 | 137 | B2-U0-G3 | |
| 18L | 2 | 70 | 16438 | 122 | B3-U0-G2 | 17532 | 130 | B3-U0-G3 | 16747 | 124 | B3-U0-G2 | 135 |
| | 3 | | 17267 | 128 | B3-U0-G3 | 18417 | 137 | B3-U0-G3 | 17592 | 131 | B3-U0-G3 | |
| | 4 | | 17101 | 127 | B3-U-G4 | 18149 | 134 | B3-U-G4 | 17584 | 130 | B3-U-G4 | |
| | 5W | | 16535 | 123 | B4-U0-G2 | 17636 | 133 | B5-U0-G2 | 16846 | 125 | B4-U0-G2 | |
| | FT | | 16578 | 123 | B3-U0-G2 | 17682 | 131 | B3-U0-G2 | 16890 | 125 | B3-U0-G2 | |
| | LC | | 17204 | 127 | B3-U0-G3 | 18258 | 135 | B3-U0-G3 | 17689 | 131 | B3-U0-G3 | |
| | RC | | 17091 | 127 | B2-U0-G3 | 18138 | 134 | B2-U0-G3 | 17574 | 130 | B2-U0-G3 | |
| 21L | 2 | 70 | 19488 | 118 | B3-U0-G3 | 20786 | 126 | B3-U0-G3 | 19885 | 120 | B3-U0-G3 | 165 |
| | 3 | | 20472 | 124 | B3-U0-G3 | 21835 | 132 | B3-U0-G3 | 20857 | 126 | B3-U0-G3 | |
| | 4 | | 20279 | 123 | B3-U0-G4 | 21521 | 130 | B3-U0-G5 | 20851 | 126 | B3-U0-G5 | |
| | 5W | | 19604 | 119 | B5-U0-G3 | 20909 | 126 | B5-U0-G3 | 19973 | 121 | B5-U0-G3 | |
| | FT | | 19655 | 119 | B3-U0-G3 | 20964 | 127 | B3-U0-G3 | 20025 | 121 | B3-U0-G3 | |
| | LC | | 20401 | 124 | B3-U0-G4 | 21651 | 131 | B3-U0-G4 | 20977 | 127 | B3-U0-G4 | |
| | RC | | 20268 | 123 | B3-U0-G3 | 21509 | 130 | B3-U0-G4 | 20840 | 126 | B3-U0-G3 | |

*LEDs are frequently updated therefore values are nominal.


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# Mirada Small Area Light (MRS)

Type: _____

**Have questions?** Call us at (800) 436-7800

## PERFORMANCE

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**DELIVERED LUMENS***

| Lumen Package | Distribution | CRI | 3000K CCT | | | 4000K CCT | | | 5000K CCT | | | Wattage |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Delivered Lumens | Efficacy | BUG Rating | Delivered Lumens | Efficacy | BUG Rating | Delivered Lumens | Efficacy | BUG Rating | |
| 24L | 2 | 70 | 21976 | 112 | B3-U0-G3 | 23439 | 120 | B3-U0-G3 | 22390 | 114 | B3-U0-G3 | 196 |
| | 3 | | 23085 | 118 | B3-U0-G3 | 24622 | 126 | B3-U0-G3 | 23519 | 120 | B3-U0-G3 | |
| | 4 | | 23190 | 117 | B3-U0-G5 | 24758 | 124 | B3-U0-G5 | 23888 | 120 | B3-U0-G5 | |
| | 5W | | 22105 | 113 | B5-U0-G3 | 23578 | 120 | B5-U0-G3 | 22522 | 115 | B5-U0-G3 | |
| | FT | | 22164 | 113 | B3-U0-G3 | 23640 | 121 | B3-U0-G3 | 22581 | 115 | B3-U0-G3 | |
| | LC | | 23330 | 117 | B3-U0-G4 | 24907 | 125 | B3-U0-G4 | 24032 | 121 | B3-U0-G4 | |
| | RC | | 23117 | 117 | B3-U0-G4 | 24744 | 124 | B3-U0-G4 | 23874 | 120 | B3-U0-G4 | |
| 30L | 2 | 70 | 30078 | 144 | B4-U0-G3 | 29485 | 143 | B4-U0-G4 | 30697 | 147 | B4-U0-G3 | 209 |
| | 3 | | 31711 | 154 | B3-U0-G3 | 31086 | 151 | B3-U0-G3 | 32364 | 157 | B3-U0-G3 | |
| | 4 | | 30459 | 148 | B4-U0-G5 | 29858 | 145 | B4-U0-G5 | 31085 | 151 | B4-U0-G5 | |
| | 5W | | 30588 | 149 | B5-U0-G3 | 29985 | 146 | B5-U0-G3 | 31218 | 152 | B5-U0-G3 | |
| | FT | | 31585 | 153 | B3-U0-G4 | 30962 | 150 | B3-U0-G4 | 32235 | 156 | B4-U0-G4 | |
| | LC | | 32303 | 155 | B3-U0-G5 | 31666 | 152 | B3-U0-G5 | 32968 | 158 | B3-U0-G5 | |
| | RC | | 31943 | 153 | B3-U0-G4 | 31313 | 150 | B3-U0-G4 | 32600 | 156 | B3-U0-G5 | |

*LEDs are frequently updated therefore values are nominal.

**LUMEN SCALING FACTOR**

| 70CRI - 80CRI | 3000K 70CRI - 3500K 80CRI | 3000K 70CRI - 2700K 80CRI |
|---|---|---|
| 0.93 | 1.00 | 0.86 |

**ELECTRICAL DATA (AMPS)***

| Lumens | 120V | 208V | 240V | 277V | 347V | 480V |
|---|---|---|---|---|---|---|
| 6L | 0.34 | 0.20 | 0.17 | 0.15 | 0.12 | 0.09 |
| 9L | 0.52 | 0.30 | 0.26 | 0.23 | 0.18 | 0.13 |
| 12L | 0.72 | 0.41 | 0.36 | 0.31 | 0.25 | 0.18 |
| 15L | 0.93 | 0.53 | 0.46 | 0.40 | 0.32 | 0.23 |
| 18L | 1.12 | 0.65 | 0.56 | 0.49 | 0.39 | 0.28 |
| 21L | 1.38 | 0.80 | 0.69 | 0.60 | 0.48 | 0.34 |
| 24L | 1.63 | 0.94 | 0.82 | 0.71 | 0.56 | 0.41 |
| 30L | 1.74 | 1.00 | 0.87 | 0.75 | 0.60 | 0.43 |

*Electrical data at 25°C (77°F). Actual wattage may differ by +/-10%

**RECOMMENDED LUMEN MAINTENANCE[1]**

| Ambient Temp | Lumen Multiplier | | | | |
|---|---|---|---|---|---|
| C | 0 hrs.[2] | 25K hrs.[2] | 50K hrs.[2] | 75K hrs.[3] | 100K hrs.[3] |
| 0 C - 25 C | 100% | 95% | 89% | 84% | 79% |
| 40 C | 100% | 94% | 87% | 80% | 74% |

1. Lumen maintenance values at 25°C are calculated per TM-21 based on LM-80 data and in-situ luminaire testing.
2. In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times (6X)the IESNA LM-80-08 total test duration (in hours) for the device under testing ((DUT) i.e. the packaged LED chip).
3. In accordance with IESNA TM-21-11, Calculated Values represent time durations that exceed six times NA LM-80-08 total test duration (in hours) for the device under testing ((DUT) i.e. the packaged LED chip).


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## PHOTOMETRICS

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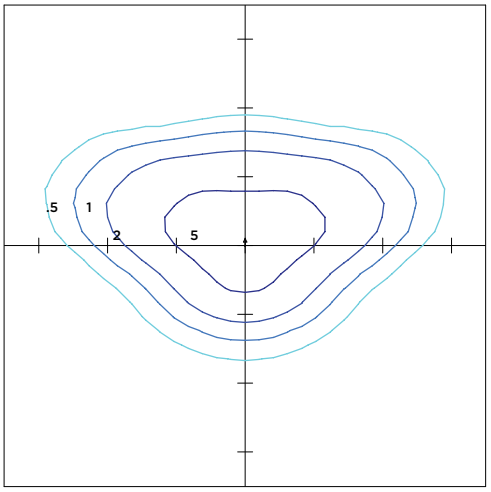
Luminaire photometry has been conducted by an accredited laboratory in accordance with IESNA LM-79. As specified by IESNA LM-79 the entire luminaire is tested as the source resulting in a luminaire efficiency of 100%.

### MRS-LED-18L-SIL-2-40-70CRI

| Luminaire Data | |
|---|---|
| **Type 2 Distribution** | |
| **Description** | 4000 Kelvin, 70 CRI |
| **Delivered Lumens** | 17,532 |
| **Watts** | 135 |
| **Efficacy** | 130 |
| **IES Type** | Type II - Short |
| **BUG Rating** | B3-U0-G3 |

| Zonal Lumen Summary | | |
|---|---|---|
| **Zone** | **Lumens** | **% Luminaire** |
| **Low (0-30)°** | 2831 | 16% |
| **Medium (30-60)°** | 10310 | 59% |
| **High (60-80)°** | 4208 | 24% |
| **Very High (80-90)°** | 184 | 1% |
| **Uplight (90-180)°** | 0 | 0% |
| **Total Flux** | 17532 | 100% |

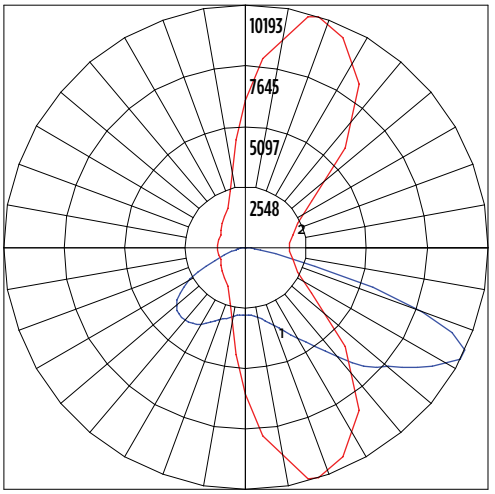
**ISO Footcandle**




20' Mounting Height / 20' Grid Spacing

5 FC 2 FC 1 FC 0.5 FC

**Polar Curve**



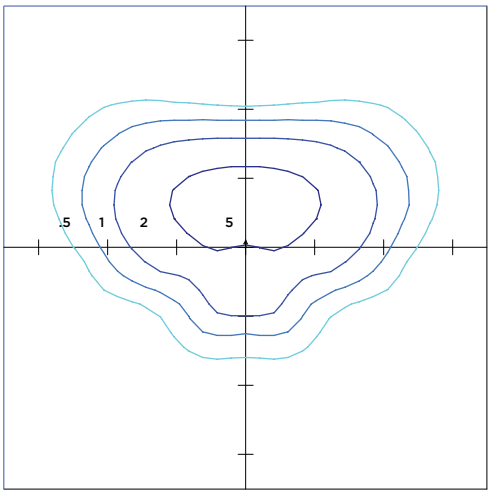

Vertical Plane Horizontal Cone

### MRS-LED-18L-SIL-3-40-70CRI

| Luminaire Data | |
|---|---|
| **Type 3 Distribution** | |
| **Description** | 4000 Kelvin, 70 CRI |
| **Delivered Lumens** | 18,417 |
| **Watts** | 135 |
| **Efficacy** | 137 |
| **IES Type** | Type III - Short |
| **BUG Rating** | B3-U0-G3 |

| Zonal Lumen Summary | | |
|---|---|---|
| **Zone** | **Lumens** | **% Luminaire** |
| **Low (0-30)°** | 2329 | 13% |
| **Medium (30-60)°** | 10634 | 61% |
| **High (60-80)°** | 5246 | 30% |
| **Very High (80-90)°** | 208 | 1% |
| **Uplight (90-180)°** | 0 | 0% |
| **Total Flux** | 18417 | 100% |

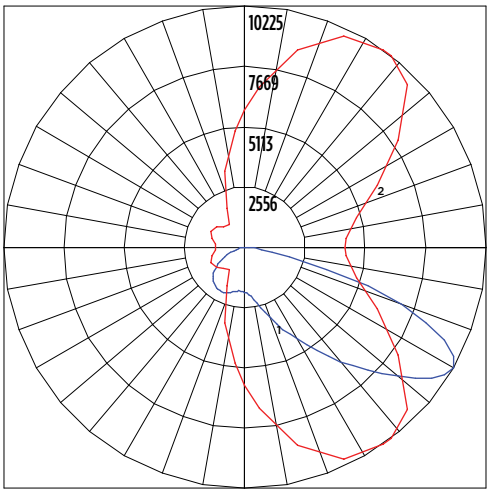
**ISO Footcandle**




20' Mounting Height / 20' Grid Spacing

5 FC 2 FC 1 FC 0.5 FC

**Polar Curve**




Vertical Plane Horizontal Cone



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## PHOTOMETRICS (CONT)

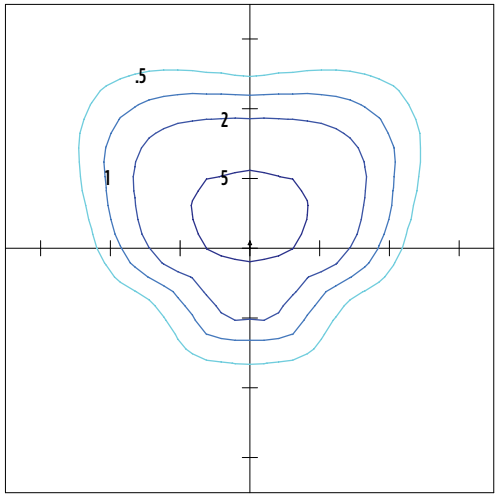
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### MRS-LED-18L-SIL-FT-40-70CRI

| Luminaire Data | |
|---|---|
| **Type FT Distribution** | |
| **Description** | 4000 Kelvin, 70 CRI |
| **Delivered Lumens** | 17,682 |
| **Watts** | 135 |
| **Efficacy** | 131 |
| **IES Type** | Type III - Short |
| **BUG Rating** | B3-U0-G2 |

| Zonal Lumen Summary | | |
|---|---|---|
| **Zone** | **Lumens** | **% Luminaire** |
| **Low (0-30)°** | 2255 | 13% |
| **Medium (30-60)°** | 9463 | 54% |
| **High (60-80)°** | 5696 | 32% |
| **Very High (80-90)°** | 268 | 2% |
| **Uplight (90-180)°** | 0 | 0% |
| **Total Flux** | 17682 | 100% |

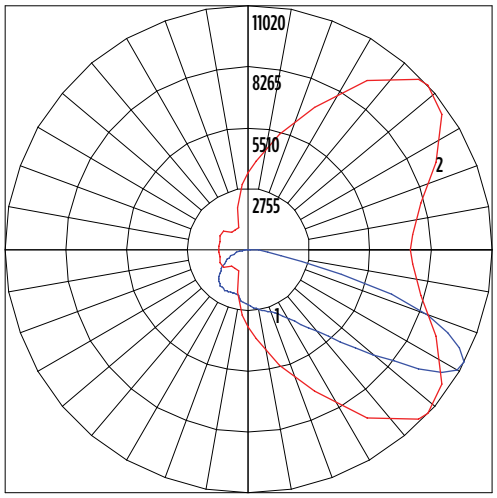
**ISO Footcandle**




20' Mounting Height / 20' Grid Spacing

5 FC 2 FC 1 FC 0.5 FC

**Polar Curve**



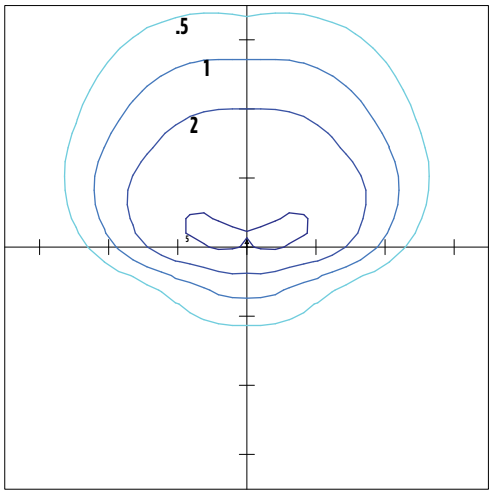

Vertical Plane Horizontal Cone

### MRS-LED-18L-SIL-4-40-70CRI

| Luminaire Data | |
|---|---|
| **Type 4 Distribution** | |
| **Description** | 4000 Kelvin, 70 CRI |
| **Delivered Lumens** | 18,149 |
| **Watts** | 135 |
| **Efficacy** | 134 |
| **IES Type** | Type IV - Very Short |
| **BUG Rating** | B3-U0-G4 |

| Zonal Lumen Summary | | |
|---|---|---|
| **Zone** | **Lumens** | **% Luminaire** |
| **Low (0-30)°** | 1671 | 9% |
| **Medium (30-60)°** | 7615 | 42% |
| **High (60-80)°** | 8074 | 44% |
| **Very High (80-90)°** | 790 | 4% |
| **Uplight (90-180)°** | 0 | 0% |
| **Total Flux** | 18149 | 100% |

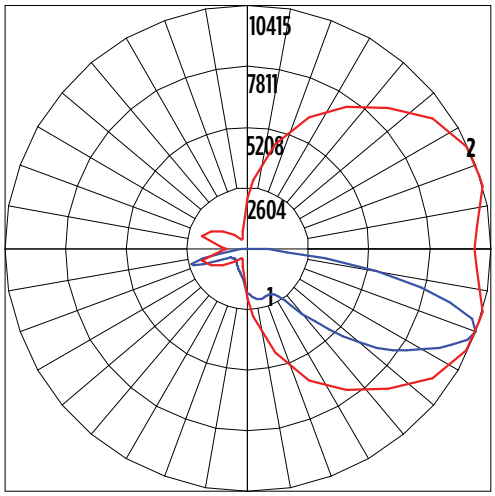
**ISO Footcandle**




20' Mounting Height / 20' Grid Spacing

5 FC 2 FC 1 FC 0.5 FC

**Polar Curve**




Vertical Plane Horizontal Cone



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## PHOTOMETRICS (CONT)

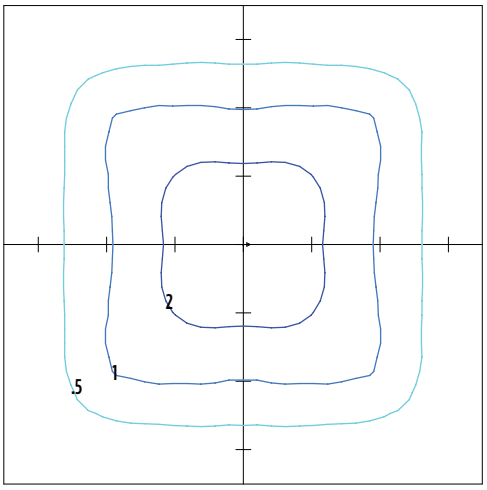
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### MRM-LED-30L-SIL-5W-40-70CRI

| Luminaire Data | |
|---|---|
| **Type 5W Distribution** | |
| **Description** | 4000 Kelvin, 70 CRI |
| **Delivered Lumens** | 17,636 |
| **Watts** | 135 |
| **Efficacy** | 131 |
| **IES Type** | Type VS - Short |
| **BUG Rating** | B4-U0-G2 |

| Zonal Lumen Summary | | |
|---|---|---|
| **Zone** | **Lumens** | **% Luminaire** |
| **Low (0-30)°** | 1646 | 9% |
| **Medium (30-60)°** | 7453 | 43% |
| **High (60-80)°** | 8405 | 48% |
| **Very High (80-90)°** | 132 | 1% |
| **Uplight (90-180)°** | 0 | 0% |
| **Total Flux** | 17636 | 100% |

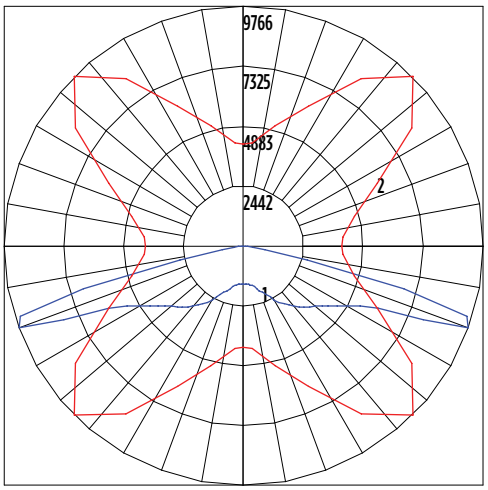
**ISO Footcandle**




20' Mounting Height / 20' Grid Spacing

5 FC 2 FC 1 FC 0.5 FC

**Polar Curve**



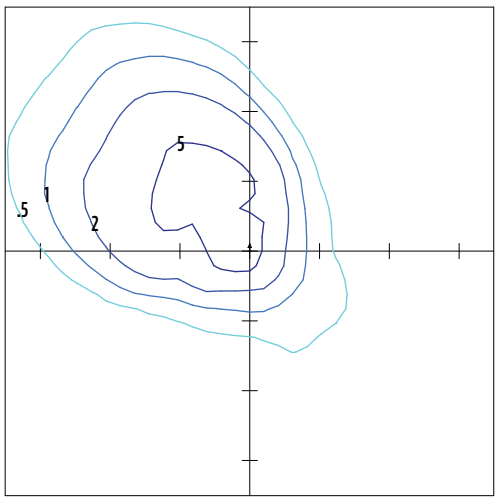

Vertical Plane Horizontal Cone

### MRS-LED-18L-SIL-LC-40-70CRI

| Luminaire Data | |
|---|---|
| **Left Corner Distribution** | |
| **Description** | 4000 Kelvin, 70 CRI |
| **Delivered Lumens** | 18,258 |
| **Watts** | 135 |
| **Efficacy** | 135 |
| **IES Type** | N/A |
| **BUG Rating** | B3-U0-G3 |

| Zonal Lumen Summary | | |
|---|---|---|
| **Zone** | **Lumens** | **% Luminaire** |
| **Low (0-30)°** | 2412 | 13% |
| **Medium (30-60)°** | 7504 | 41% |
| **High (60-80)°** | 7698 | 42% |
| **Very High (80-90)°** | 644 | 4% |
| **Uplight (90-180)°** | 0 | 0% |
| **Total Flux** | 18258 | 100% |

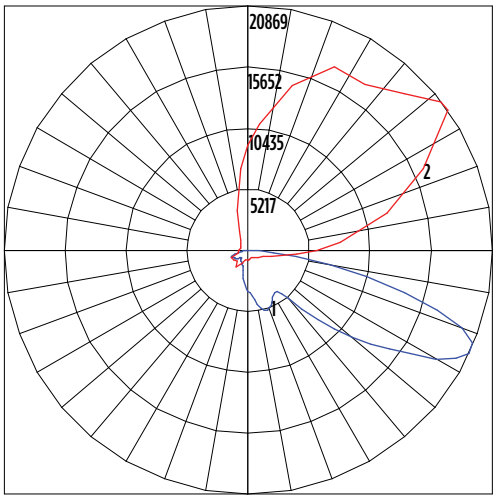
**ISO Footcandle**




20' Mounting Height / 20' Grid Spacing

5 FC 2 FC 1 FC 0.5 FC

**Polar Curve**




Vertical Plane Horizontal Cone



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## PHOTOMETRICS (CONT)

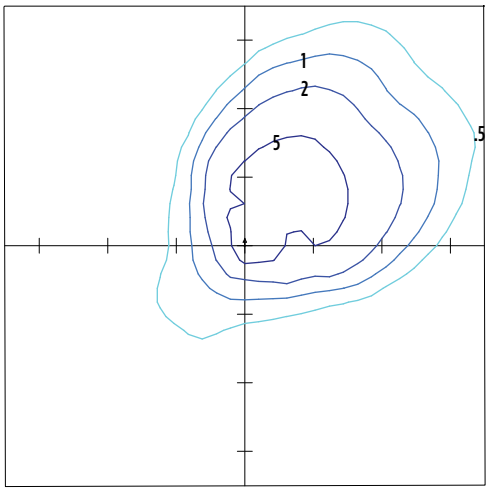
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### MRM-LED-30L-SIL-5W-40-70CRI

| Luminaire Data | |
|---|---|
| **Right Corner Distribution** | |
| **Description** | 4000 Kelvin, 70 CRI |
| **Delivered Lumens** | 18,138 |
| **Watts** | 135 |
| **Efficacy** | 134 |
| **IES Type** | N/A |
| **BUG Rating** | B3-U0-G3 |

| Zonal Lumen Summary | | |
|---|---|---|
| **Zone** | **Lumens** | **% Luminaire** |
| **Low (0-30)°** | 2317 | 13% |
| **Medium (30-60)°** | 8066 | 44% |
| **High (60-80)°** | 7214 | 40% |
| **Very High (80-90)°** | 541 | 3% |
| **Uplight (90-180)°** | 0 | 0% |
| **Total Flux** | 18138 | 100% |

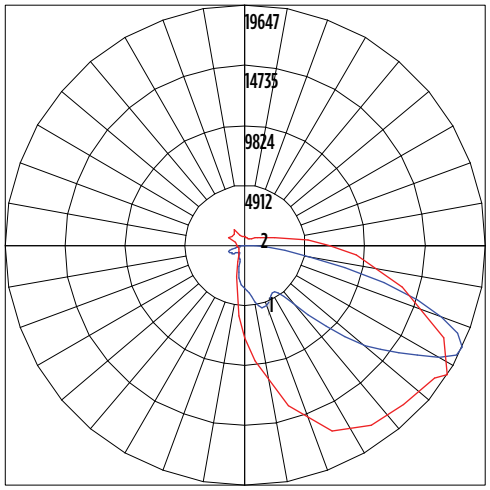
**ISO Footcandle**




20' Mounting Height / 20' Grid Spacing

5 FC 2 FC 1 FC 0.5 FC

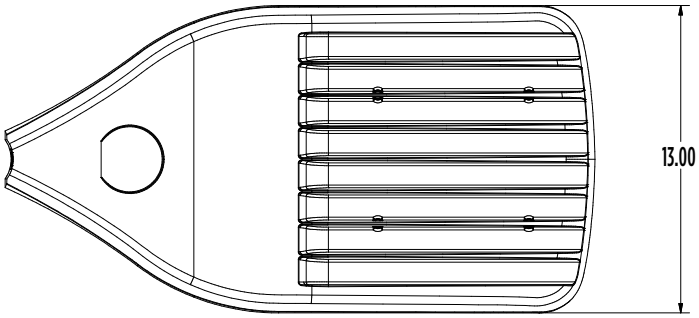
**Polar Curve**

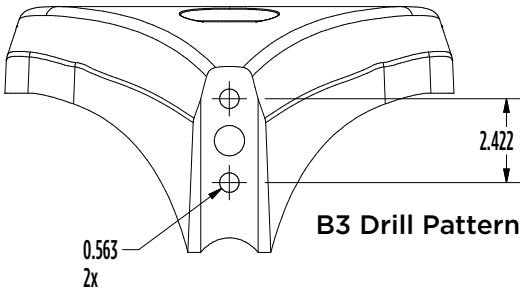


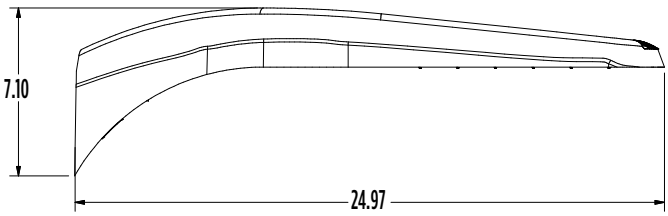

Vertical Plane Horizontal Cone

## PRODUCT DIMENSIONS

Back to Quick Links




| Luminaire EPA Chart | | | | | |
|---|---|---|---|---|---|
| **Tilt Degree** | | **0°** | **15°** | **30°** | **45°** |
| | **Single** | 0.4 | 0.7 | 1.1 | 1.5 |
| | **D180°** | 0.8 | 1.5 | 1.9 | 2.4 |
| | **D90°** | 0.9 | 1.5 | 1.9 | 2.4 |
| | **T90°** | 0.9 | 1.6 | 21 | 2.5 |
| | **TN120°** | 0.9 | 1.9 | 2.7 | 3.0 |
| | **Q90°** | 0.9 | 1.6 | 2.1 | 2.5 |



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## CONTROLS

Back to Quick Links

### Integral Bluetooth™ Motion and Photocell Sensor (IMSBTxL)

Slim low profile sensor provides multi-level control based on motion and/or daylight. Sensor controls 0-10 VDC LED drivers and is IP66 rated for cold and wet locations (-40°F to 167°F). Two unique PIR lenses are available and used based on fixture mounting height. All control parameters are adjustable via an iOS or Android App capable of storing and transmitting sensor profiles.

Click here to learn more details about IMSBT

LEVITON App Apple Android

### AirLink Blue (ALBMRxLR, ALBCSx)

Wireless Bluetooth Mesh Lighting Control System that incorporates Luminaire Level Lighting Controls (LLLC) and high-end trim to provide energy savings code compliance and enhanced safety/security for parking lots and parking garages. Three key components; Bluetooth wireless radio/sensor controller, Time Keeper and an iOS App with technology partner Silvair. Capable of grouping multiple fixtures and sensors as well as scheduling time-based events by zone. Radio/Sensor Controller is factory integrated into Area/Site, Wall Mounted, Parking Garage and Canopy luminaires.

Click here to learn more details about AirLink Blue

AirLink Blue App Apple

### Sensor Sequence of Operations

| Standard Programming | On Event | Off Event | On Light Level | Dim Light Level | Daylight Harvesting | Delay To Off | Sensitivity |
|---|---|---|---|---|---|---|---|
| **IMSBTxL** | Motion | No Motion | 100% | N/A | On; Auto Calibration | 20 minutes | High |

| Operation | Description |
|---|---|
| **On Event** | Trigger that activates lights to turn on; either automatic via motion detected or manually activated via push of button. |
| **Off Event** | Trigger that activates lights to turn off; either automatic via no motion detected or manually activated via push of button. |
| **On Light Level** | The light level that the fixtures will turn on to when ON EVENT occurs. |
| **Dim Light Level** | The light level that the fixtures will dim down to when no motion is detected. |
| **Delay to Dim** | The amount of time after which no motion is detected that the fixtures will be triggered to dim down. This sequence is optional, and sensor can be programmed to only trigger the fixture to turn off by entering 100% in this field. |
| **Delay to Off** | The amount of time after which no motion is detected that the fixtures will be triggered to turn off. If delay to dim is part of the programmed functionality, this is the amount of time after which no motion is detected after the fixture have already dimmed down. |
| **Sensitivity** | The sensitivity can be set to high, medium, low, or auto where applicable. High will detect smaller, simple motions. Low will only detect larger more complex motions. Auto temperature calibration adjusts the PIR sensitivity as ambient temperature rises to increase detection of heat movement through the field of view. |



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# REL-FR

Fire Rated, Recessed LED Downlight

Project

Catalog

Type

Date

## Product Description

The Fire Rated REL Recessed Downlight meets the latest codes for multi-family fire rating with a 2-hour certification per UL263. The edge-lit technology makes it a practical solution with high performance and five CCT selectability options (2700K, 3000K, 3500K, 4000K, and 5000K) for ultimate customization. Adjustable spring-loaded retention tabs allow a secure fit for easy installation in both new construction and remodel applications. The REL-FR is an ideal solution for apartment buildings, townhomes, condos, and commercial applications.

**Construction**
- Steel housing provides durability and fire resistance
- Edge-lit technology allows for extremely thin fixture depth
- Off-board driver minimizes installation height and maximizes fixture life through improved heat management

**Optical System**
- Precision engineered optical stack creates uniform light distribution that maximizes lumen output
- Offered with 5CCT selection of 2700K, 3000K, 3500K, 4000K, and 5000K
- Utilizes high performing LEDs with 90+ CRI and an R9 > 60

**Electrical**
- Input voltage of 120VAC, 60Hz
- Dimmable to 5% with compatible leading edge (TRIAC) or trailing edge (ELV) dimmers
- Operating temperature rating of -4°F to 104°F (-20°C to 40°C)

**Finish**
- White powder coat finish trim
- Red powder coat finish backside to denote fire resistance

**Mounting and Installation**
- Spring-loaded retention tabs allow for easy installation into ceilings up to 3/4" thick with no need for recessed housing.
- Remote driver/junction box includes four 1/2" KOs and three-port poke-in connectors
- Included paper cut-out template
- Accessory steel rough-in frames and templates available
- Accessory extension power cables (2' and 10) are available.
- For installations where power surges may be possible, NICOR recommends installing additional surge protection at the electrical distribution panel.

**Listings**
- UL 1598 listed for wet locations
- UL263 certified for 2hr fire resistance
- Energystar listed
- CA Title 24 compliant (JA8)
- Certified for direct contact with insulation (IC-rated)
- Meets Air Tight requirements per ASTM E283
- Compliant with NFPA® 70, NEC® Section 410.16 (A)(3) and 410.16 (C)(5) for closet use
- RoHS Compliant: Free from harmful and hazardous materials
- Meets FCC Part 15, Subpart B, Class B standards for conducted and radiated emissions
- LED lumen maintenance: L70(9k)>72,000 hrs
- LM-79, LM-80 testing performed in accordance with IESNA standards

**Warranty**
- 5-year limited system warranty standard
- Warranty does not cover product failure due to an overvoltage event (power surge)





## REL-FR

**4" & 6" Fire Rated Edgelit LED Downlight**

900, 1200 lumen

# Ordering

## Ordering Information

*Example : REL6FR1120SRD9WH*

| Series | Version | Voltage | CCT's | Trim Shape | CRI | Trim Color |
|---|---|---|---|---|---|---|
| ☐ **REL4** | **FR1** (Fire Rated) | **120** | **S** (Selectable) | **RD** (Round) | **9** (90) | **WH** (White) |
| ○ **REL6** | | | | | | |

*Specifications and dimensions subject to change without notice*

## Accessories

*accessories sold separately*

| | |
|---|---|
| 2' Extension Cable | ☐ EXTCABLE-SELECT-02 |
| 10' Extension Cable | ☐ EXTCABLE-SELECT-10 |
| 3", 4", 6" Multi-Diameter Frame | ☐ MULTIFRAME-346-1 |
| 4" Rough-in Frame with Lip | ☐ DLE4-ROUGHIN-FRAME |
| 6" Rough-in Frame with Lip | ☐ DLE6-ROUGHIN-FRAME |
| 3", 4", 6" Rough In Flat Template | ☐ ROUGHIN-TEMPLATE-346 |
| 4" White Goof Ring | ☐ REL4-1-GR-RD-WH |

# Performance Data and Dimming

## Performance Data

| Model Number | CCT | Lumens | Watts | Lumens/Watt |
|---|---|---|---|---|
| REL4FR1120SRD9WH | 2700 | 914 | 10.9 | 83.9 |
| | 3000 | 957 | | 87.8 |
| | 3500 | 1001 | | 91.8 |
| | 4000 | 1007 | | 92.4 |
| | 5000 | 958 | | 87.9 |
| REL6FR1120SRD9WH | 2700 | 1251 | 14.6 | 85.7 |
| | 3000 | 1281 | | 87.7 |
| | 3500 | 1327 | | 90.9 |
| | 4000 | 1338 | | 91.6 |
| | 5000 | 1279 | | 87.6 |

## Recommended Dimmers*

Lutron Skylark SELV-300P
Lutron Skylark SCL-153P
Lutron DIVA DVCL-153P
Lutron DIVA DVELV-300P
Lutron MAELV-600
Lutron PD-10NXD

**Not a complete list. Check compatibility before installation.*

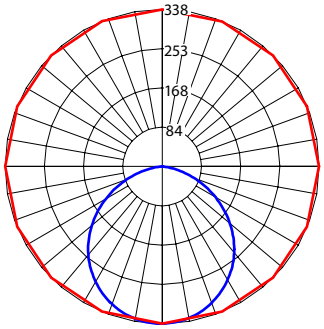
# Photometric Data

## REL4FR1 (2700K)

| | |
|---|---|
| Input Voltage (VAC) | 120 |
| System Level Power (W) | 10.9 |
| Delivered Lumens (Lm) | 914 |
| System Efficacy (Lm/W) | 83.9 |
| Correlated Color Temp (K) | 2745 |
| Color Rendering Index (CRI) | 95 R9=71 |
| Beam Angle (°) | 109 |
| Spacing Criteria | 1.25 |

## CCT Data Multiplier

| | |
|---|---|
| 3000K | 1.047 |
| 3500K | 1.095 |
| 4000K | 1.102 |
| 5000K | 1.048 |




## Intensity Summary (Candle Power)

| Angle | Mean CP |
|---|---|
| 0 | 338 |
| 5 | 336 |
| 15 | 323 |
| 25 | 298 |
| 35 | 263 |
| 45 | 217 |
| 55 | 163 |
| 65 | 104 |
| 75 | 46 |
| 85 | 5 |
| 90 | 0 |

## Cone of Light Tabulation

| Mounted height (Feet) | Footcandles Beam Center | Diameter (Feet) |
|---|---|---|
| 4 | 21.1 | 11.3 |
| 6 | 9.4 | 17.0 |
| 8 | 5.3 | 22.7 |
| 10 | 3.4 | 28.4 |

## Zonal Lumen Summary

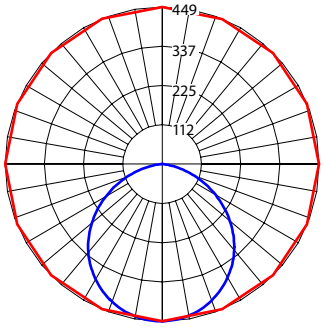
| Zone | Lumens | % of Luminaire |
|---|---|---|
| 0-30 | 262 | 28.6% |
| 0-40 | 428 | 46.8% |
| 0-60 | 747 | 81.7% |
| 0-90 | 914 | 100% |
| 90-180 | 0 | 0% |
| 0-180 | 914 | 100% |

## Photometric Data

### REL6FR1 (2700K)

| | |
|---|---|
| Input Voltage (VAC) | 120 |
| System Level Power (W) | 14.6 |
| Delivered Lumens (Lm) | 1251 |
| System Efficacy (Lm/W) | 85.7 |
| Correlated Color Temp (K) | 2739 |
| Color Rendering Index (CRI) | 93 R9=64 |
| Beam Angle (°) | 111 |
| Spacing Criteria | 1.27 |

| CCT Data Multiplier | |
|---|---|
| 3000K | 1.024 |
| 3500K | 1.061 |
| 4000K | 1.070 |
| 5000K | 1.022 |



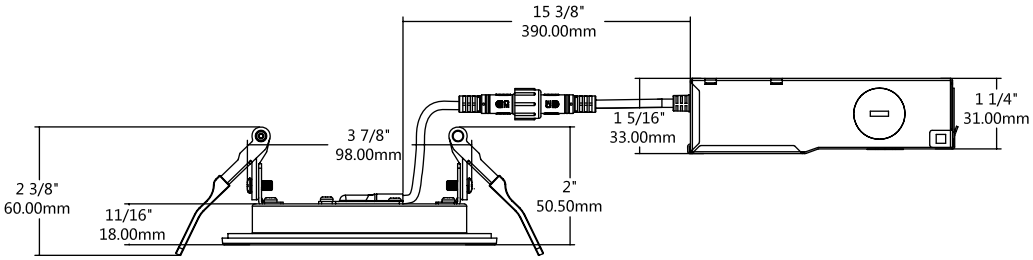

| Intensity Summary (Candle Power) | |
|---|---|
| Angle | Mean CP |
| 0 | 449 |
| 5 | 447 |
| 15 | 431 |
| 25 | 400 |
| 35 | 355 |
| 45 | 298 |
| 55 | 230 |
| 65 | 154 |
| 75 | 78 |
| 85 | 14 |
| 90 | 0 |

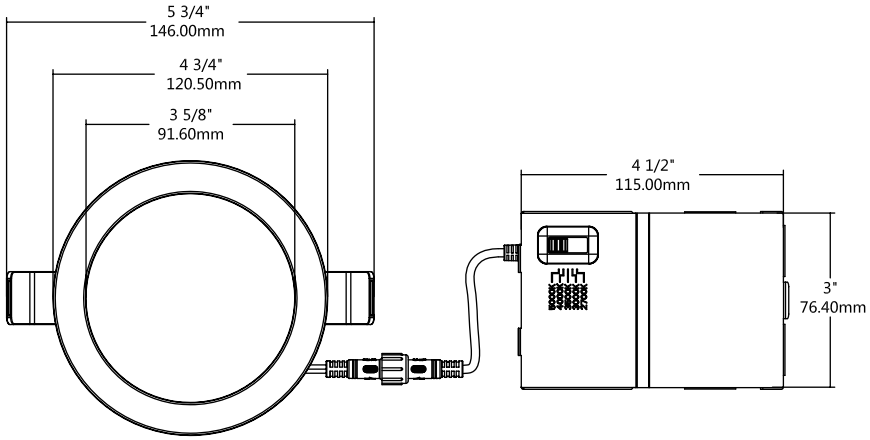
| Cone of Light Tabulation | | |
|---|---|---|
| Mounted height (Feet) | Footcandles Beam Center | Diameter (Feet) |
| 4 | 28.1 | 11.6 |
| 6 | 12.5 | 17.4 |
| 8 | 7.0 | 23.2 |
| 10 | 4.5 | 29.0 |

| Zonal Lumen Summary | | |
|---|---|---|
| Zone | Lumens | % of Luminaire |
| 0-30 | 348 | 27.8% |
| 0-40 | 569 | 45.5% |
| 0-60 | 1002 | 80.1% |
| 0-90 | 1251 | 100% |
| 90-180 | 0 | 0% |
| 0-180 | 1251 | 100% |

## Dimensions

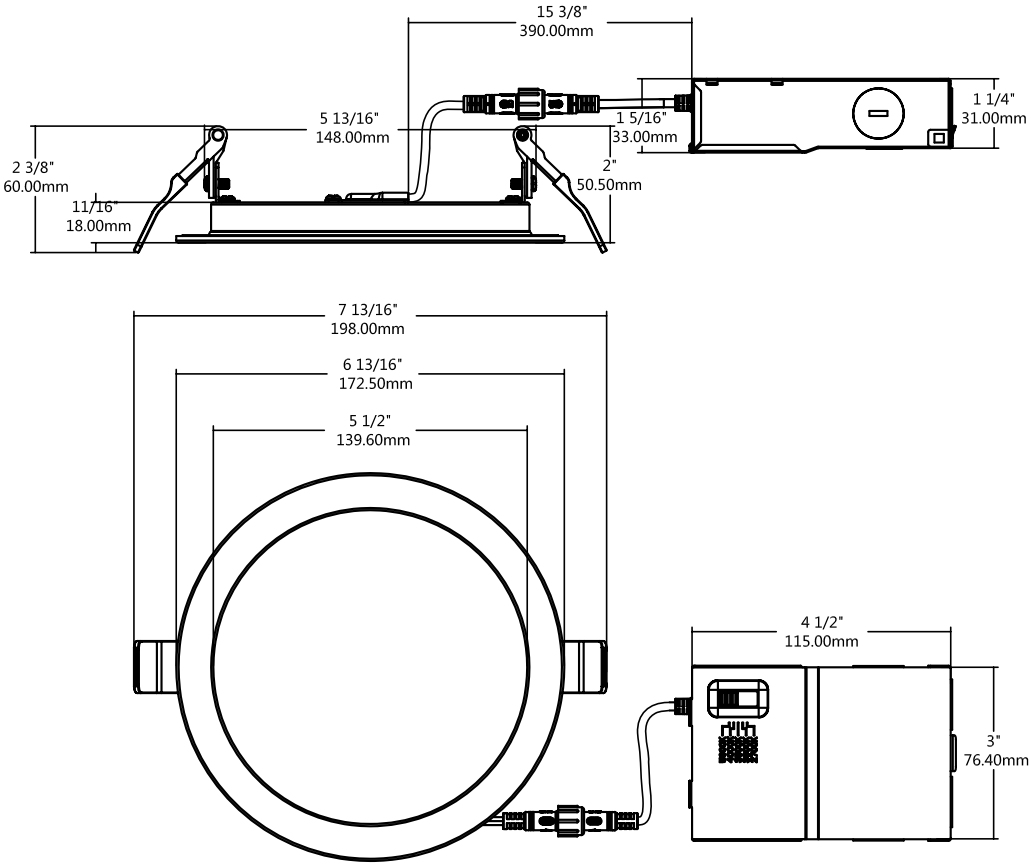
### REL4FR1



## **Dimensions** (continued)

# REL6FR1




This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help.

SME
SEVEE & MAHER
ENGINEERS

4 Blanchard Road, P.O. Box 85A
Cumberland, ME 04021
Tel: 207.829.5016 • Fax: 207.829.5692
info@smemaine.com
smemaine.com

February 10, 2026

RECEIVED
FEB 11 2026
By 0237-26

Kirk F. Mohney, Director
Maine Historic Preservation Commission
55 Capitol Street
65 State House Station
Augusta, ME 04333-0065

Subject: Bangor Housing Development Corporation – Home for Good Bangor
236 Maine Avenue
Bangor, Maine

Dear Kirk:

Bangor Housing Development Corporation is seeking approval for construction of a thirty (30)-unit apartment building at 236 Maine Avenue in Bangor, Maine under the City of Bangor Land Development Permit Application.

**PROJECT DESCRIPTION**

Bangor Housing Development Corporation is proposing to construct a 19,500-square-foot apartment building with thirty (30) one-bedroom units and a fourteen (14) space parking lot. Additional site improvements include a 6-foot-wide paved walkway from the Maine Avenue Parking lot to the Corporate Drive building entrance, a patio along the eastern side of the building, public water and sewer, underground utilities, stormwater management, site lighting, and landscaping.

The 5-acre parcel is bound by Maine Avenue to the west, Texas Avenue to the east, Corporate Drive to the south, and a developed University of Maine Office Building property to the north. The project location is outlined in the attached Figure 1 - Site Location Map.

**HISTORICAL FINDINGS**

A search of the National Register of Historic Places online maps did not identify any historic places adjacent to the 5-acre parcel.

In addition to searching the National Register of Historic Places, records of neighboring properties were searched for any buildings over fifty (50) years old. There were four properties that are 50 years old or older. All properties with such buildings are listed below with photos attached and their location keyed to Figure 2.

- 50 Cleveland Street (1958)
- 1 University Drive (Unknown)

SME
SEVEE & MAHER
ENGINEERS

- 97 Venture Way (1944)
- 120 Venture Way (1968)

Please feel free to contact me at 207.829.5016 or anna.dedon@smemaine.com if you have any questions or need additional information.

Sincerely,

SEVEE & MAHER ENGINEERS, INC.

Anna Dedon
Civil Engineer

Attachments

Based on the information submitted, I have concluded that there will be no historic properties affected by the proposed undertaking, as defined by Section 106 of the National Historic Preservation Act. Consequently, pursuant to 36 CFR 800.4(d)(1), no further Section 106 consultation is required unless additional resources are discovered during project implementation pursuant to 36 CFR 800.13.

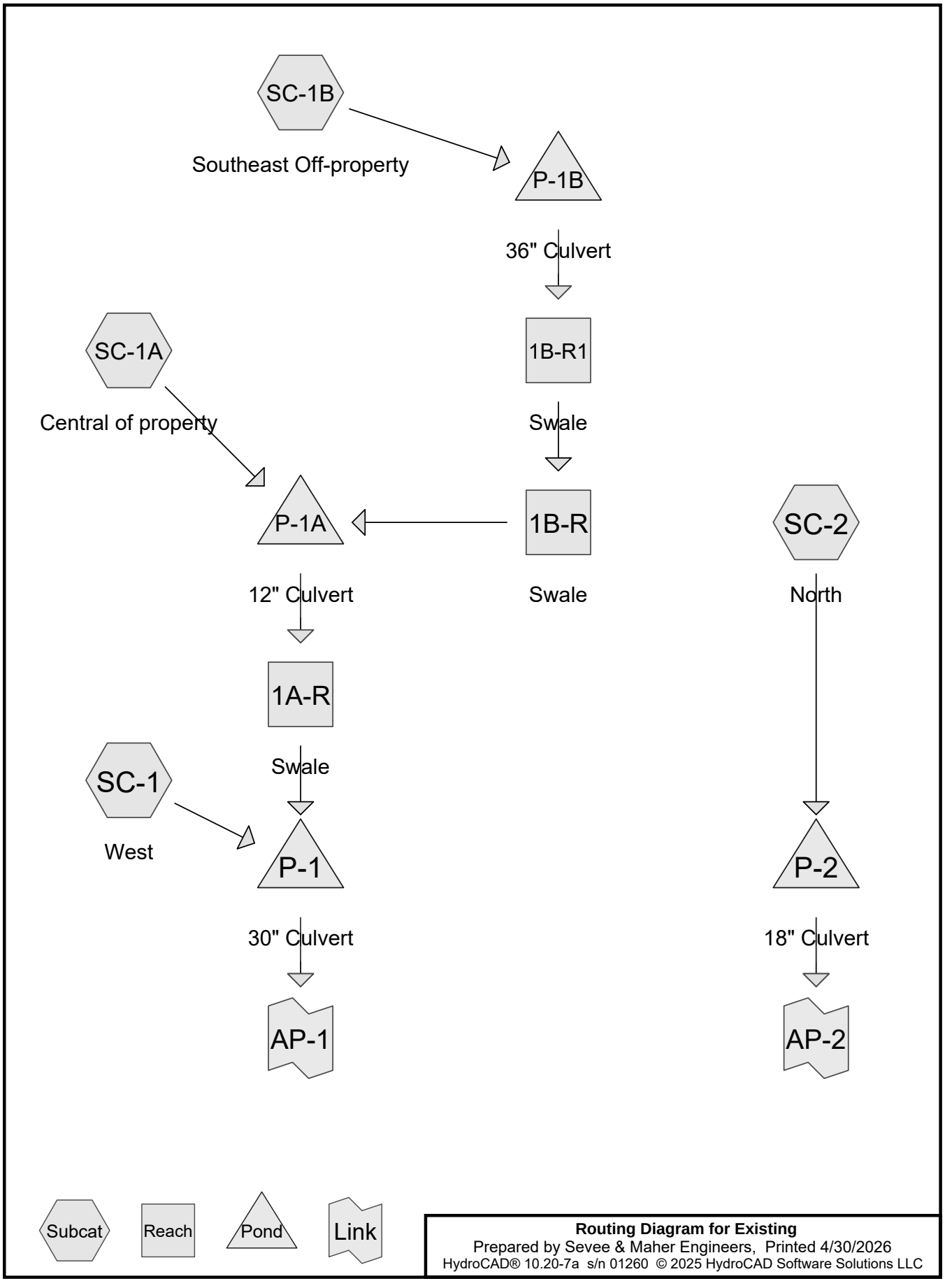
Kirk F. Mohney — 3/2/26
State Historic Preservation Officer — Date
Maine Historic Preservation Commission

MHPC 0237-26

# APPENDIX B

# PRE-DEVELOPMENT HYDROCAD CALCULATIONS

SME
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ENGINEERS




**Routing Diagram for Existing**

Prepared by Sevee & Maher Engineers, Printed 4/30/2026

HydroCAD® 10.20-7a s/n 01260 © 2025 HydroCAD Software Solutions LLC

## Area Listing (all nodes)

| Area (acres) | CN | Description (subcatchment-numbers) |
|---|---|---|
| 0.555 | 96 | Gravel surface (SC-1, SC-1B, SC-2) |
| 0.261 | 74 | Pasture/grassland/range, Good, HSG C (SC-1B) |
| 8.994 | 80 | Pasture/grassland/range, Good, HSG D (SC-1, SC-1A, SC-1B) |
| 2.762 | 89 | Pasture/grassland/range, Poor, HSG D (SC-2) |
| 0.920 | 98 | Paved parking (SC-1, SC-1B, SC-2) |
| 0.621 | 98 | Paved roads w/curbs & sewers (SC-1, SC-1A, SC-1B) |
| 0.238 | 98 | Roads (SC-2) |
| 0.584 | 98 | Roofs (SC-1B, SC-2) |
| 1.718 | 79 | Woods/grass comb., Good, HSG D (SC-1, SC-1A, SC-1B, SC-2) |

## Summary for Subcatchment SC-1: West

Runoff = 3.16 cfs @ 12.26 hrs, Volume= 0.325 af, Depth= 1.15"
Routed to Pond P-1 : 30" Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Year Rainfall=2.70"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 4,507 | 98 | Paved parking |
| * | 13,861 | 98 | Paved roads w/curbs & sewers |
| * | 1,421 | 96 | Gravel surface |
| | 125,331 | 80 | Pasture/grassland/range, Good, HSG D |
| | 3,140 | 79 | Woods/grass comb., Good, HSG D |
| | 148,260 | 82 | Weighted Average |
| | 129,892 | | 87.61% Pervious Area |
| | 18,368 | | 12.39% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 13.2 | 100 | 0.0300 | 0.13 | | **Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.70" |
| 0.3 | 35 | 0.0721 | 1.88 | | **Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps |
| 0.1 | 23 | 0.0200 | 2.87 | | **Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps |
| 1.0 | 114 | 0.0772 | 1.94 | | **Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps |
| 0.3 | 31 | 0.1194 | 1.73 | | **Shallow Concentrated Flow, E-F** Woodland Kv= 5.0 fps |
| 1.2 | 159 | 0.0975 | 2.19 | | **Shallow Concentrated Flow, F-G** Short Grass Pasture Kv= 7.0 fps |
| 2.0 | 205 | 0.0602 | 1.72 | | **Shallow Concentrated Flow, G-H** Short Grass Pasture Kv= 7.0 fps |
| 18.1 | 667 | Total | | | |

## Summary for Subcatchment SC-1A: Central of property

Runoff = 2.61 cfs @ 12.17 hrs, Volume= 0.234 af, Depth= 1.03"
Routed to Pond P-1A : 12" Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Year Rainfall=2.70"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 1,968 | 98 | Paved roads w/curbs & sewers |
| | 96,225 | 80 | Pasture/grassland/range, Good, HSG D |
| | 20,374 | 79 | Woods/grass comb., Good, HSG D |
| | 118,567 | 80 | Weighted Average |
| | 116,599 | | 98.34% Pervious Area |
| | 1,968 | | 1.66% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 8.9 | 100 | 0.0800 | 0.19 | | **Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.70" |
| 0.1 | 6 | 0.0800 | 1.98 | | **Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps |
| 0.3 | 35 | 0.1143 | 1.69 | | **Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps |
| 2.7 | 311 | 0.0772 | 1.94 | | **Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps |
| 12.0 | 452 | Total | | | |

## Summary for Subcatchment SC-1B: Southeast Off-property

Runoff = 6.68 cfs @ 12.28 hrs, Volume= 0.712 af, Depth= 1.27"
Routed to Pond P-1B : 36" Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Year Rainfall=2.70"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 20,275 | 98 | Roofs |
| * | 19,477 | 98 | Paved parking |
| | 11,200 | 98 | Paved roads w/curbs & sewers |
| * | 19,494 | 96 | Gravel surface |
| | 11,386 | 74 | Pasture/grassland/range, Good, HSG C |
| | 170,243 | 80 | Pasture/grassland/range, Good, HSG D |
| | 40,129 | 79 | Woods/grass comb., Good, HSG D |
| | 292,204 | 84 | Weighted Average |
| | 241,252 | | 82.56% Pervious Area |
| | 50,952 | | 17.44% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 12.8 | 100 | 0.0325 | 0.13 | | **Sheet Flow, A-B**<br>Grass: Dense n= 0.240 P2= 2.70" |
| 0.9 | 79 | 0.0443 | 1.47 | | **Shallow Concentrated Flow, B-C**<br>Short Grass Pasture Kv= 7.0 fps |
| 1.5 | 147 | 0.1041 | 1.61 | | **Shallow Concentrated Flow, C-D**<br>Woodland Kv= 5.0 fps |
| 0.3 | 34 | 0.0882 | 2.08 | | **Shallow Concentrated Flow, D-E**<br>Short Grass Pasture Kv= 7.0 fps |
| 3.6 | 219 | 0.0411 | 1.01 | | **Shallow Concentrated Flow, E-F**<br>Woodland Kv= 5.0 fps |
| 0.7 | 117 | 0.0342 | 2.77 | | **Shallow Concentrated Flow, F-G**<br>Grassed Waterway Kv= 15.0 fps |
| 0.2 | 79 | 0.0200 | 8.06 | 9.90 | **Pipe Channel, G-H**<br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'<br>n= 0.012 Corrugated PP, smooth interior |
| 0.1 | 28 | 0.0896 | 4.49 | | **Shallow Concentrated Flow, H-I**<br>Grassed Waterway Kv= 15.0 fps |
| 20.1 | 803 | Total | | | |

## Summary for Subcatchment SC-2: North

Runoff = 5.71 cfs @ 12.21 hrs, Volume= 0.545 af, Depth= 1.71"
Routed to Pond P-2 : 18" Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Year Rainfall=2.70"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 5,185 | 98 | Roofs |
| * | 10,374 | 98 | Roads |
| * | 16,108 | 98 | Paved parking |
| * | 3,267 | 96 | Gravel surface |
| | 120,323 | 89 | Pasture/grassland/range, Poor, HSG D |
| | 11,205 | 79 | Woods/grass comb., Good, HSG D |
| | 166,462 | 90 | Weighted Average |
| | 134,795 | | 80.98% Pervious Area |
| | 31,667 | | 19.02% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | 100 | 0.0600 | 0.17 | | **Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.70" |
| 0.0 | 4 | 0.0600 | 1.71 | | **Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps |
| 0.5 | 44 | 0.0909 | 1.51 | | **Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps |
| 3.0 | 320 | 0.0656 | 1.79 | | **Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps |
| 2.0 | 288 | 0.0249 | 2.37 | | **Shallow Concentrated Flow, E-F** Grassed Waterway Kv= 15.0 fps |
| 15.5 | 756 | Total | | | |

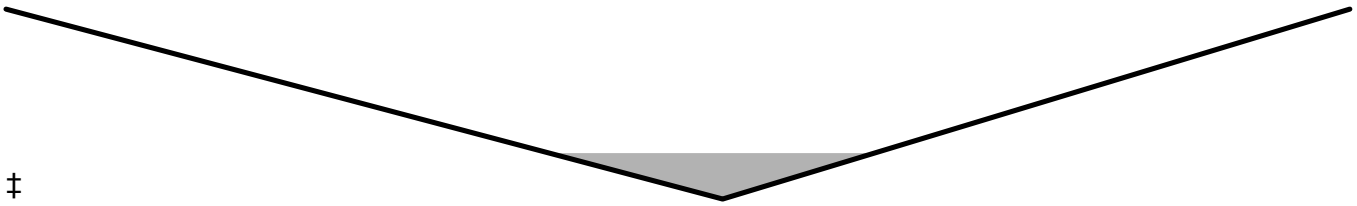
## Summary for Reach 1A-R: Swale

Inflow Area = 9.430 ac, 12.88% Impervious, Inflow Depth = 1.20" for 2-Year event
Inflow = 8.54 cfs @ 12.28 hrs, Volume= 0.943 af
Outflow = 8.53 cfs @ 12.31 hrs, Volume= 0.943 af, Atten= 0%, Lag= 1.5 min
Routed to Pond P-1 : 30" Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Max. Velocity= 4.34 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.72 fps, Avg. Travel Time= 1.4 min

Peak Storage= 278 cf @ 12.31 hrs
Average Depth at Peak Storage= 0.72' , Surface Width= 5.43'
Bank-Full Depth= 3.00' Flow Area= 33.8 sf, Capacity= 377.41 cfs

0.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 4.0 3.5 '/' Top Width= 22.50'
Length= 141.2' Slope= 0.0167 '/'
Inlet Invert= 156.51', Outlet Invert= 154.15'



‡

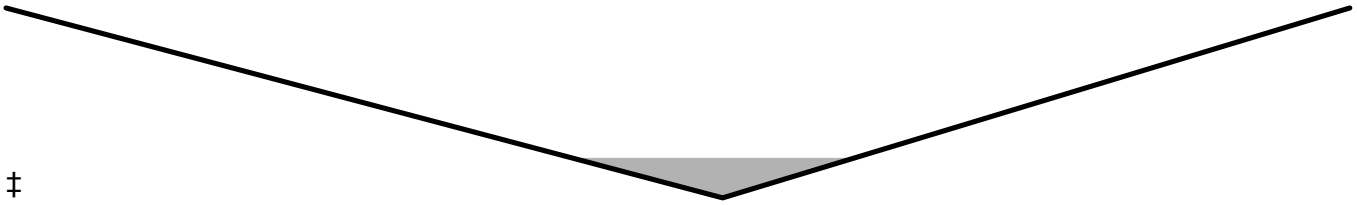
## Summary for Reach 1B-R: Swale

Inflow Area = 6.708 ac, 17.44% Impervious, Inflow Depth = 1.27" for 2-Year event
Inflow = 6.64 cfs @ 12.32 hrs, Volume= 0.710 af
Outflow = 6.63 cfs @ 12.33 hrs, Volume= 0.710 af, Atten= 0%, Lag= 0.6 min
Routed to Pond P-1A : 12" Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Max. Velocity= 4.43 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 1.78 fps, Avg. Travel Time= 2.0 min

Peak Storage= 320 cf @ 12.33 hrs
Average Depth at Peak Storage= 0.63' , Surface Width= 4.74'
Bank-Full Depth= 3.00' Flow Area= 33.8 sf, Capacity= 422.76 cfs

0.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 4.0 3.5 '/' Top Width= 22.50'
Length= 214.1' Slope= 0.0210 '/'
Inlet Invert= 161.00', Outlet Invert= 156.51'



‡

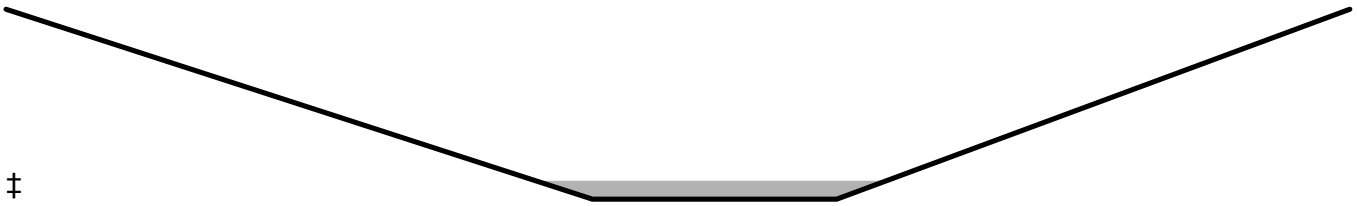
## Summary for Reach 1B-R1: Swale

Inflow Area = 6.708 ac, 17.44% Impervious, Inflow Depth = 1.27" for 2-Year event
Inflow = 6.65 cfs @ 12.30 hrs, Volume= 0.710 af
Outflow = 6.64 cfs @ 12.32 hrs, Volume= 0.710 af, Atten= 0%, Lag= 0.7 min
Routed to Reach 1B-R : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Max. Velocity= 3.74 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 1.28 fps, Avg. Travel Time= 2.8 min

Peak Storage= 383 cf @ 12.32 hrs
Average Depth at Peak Storage= 0.29' , Surface Width= 7.18'
Bank-Full Depth= 3.00' Flow Area= 48.8 sf, Capacity= 670.12 cfs

5.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 4.0 3.5 '/' Top Width= 27.50'
Length= 216.0' Slope= 0.0200 '/'
Inlet Invert= 165.33', Outlet Invert= 161.00'



‡

## Summary for Pond P-1: 30" Culvert

Inflow Area = 12.834 ac, 12.75% Impervious, Inflow Depth = 1.19" for 2-Year event
Inflow = 11.62 cfs @ 12.29 hrs, Volume= 1.268 af
Outflow = 11.60 cfs @ 12.30 hrs, Volume= 1.268 af, Atten= 0%, Lag= 0.7 min
Primary = 11.60 cfs @ 12.30 hrs, Volume= 1.268 af
Routed to Link AP-1 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link AP-1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Peak Elev= 155.78' @ 12.30 hrs Surf.Area= 453 sf Storage= 217 cf

Plug-Flow detention time= 0.1 min calculated for 1.267 af (100% of inflow)
Center-of-Mass det. time= 0.1 min ( 858.2 - 858.0 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 154.15' | 16,642 cf | **Custom Stage Data (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 154.15 | 0 | 0 | 0 |
| 155.00 | 50 | 21 | 21 |
| 156.00 | 569 | 310 | 331 |
| 157.00 | 5,902 | 3,236 | 3,566 |
| 158.00 | 20,250 | 13,076 | 16,642 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 154.15' | **30.0" Round Culvert**<br>L= 75.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 154.15' / 153.00' S= 0.0153 '/' Cc= 0.900<br>n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf |
| #2 | Secondary | 157.50' | **30.0' long x 5.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88 |

**Primary OutFlow** Max=11.60 cfs @ 12.30 hrs HW=155.78' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 11.60 cfs @ 3.43 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=154.15' TW=0.00' (Dynamic Tailwater)
└**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Summary for Pond P-1A: 12" Culvert

Inflow Area = 9.430 ac, 12.88% Impervious, Inflow Depth = 1.20" for 2-Year event
Inflow = 8.54 cfs @ 12.30 hrs, Volume= 0.943 af
Outflow = 8.54 cfs @ 12.28 hrs, Volume= 0.943 af, Atten= 0%, Lag= 0.0 min
Primary = 0.19 cfs @ 12.31 hrs, Volume= 0.009 af
Routed to Reach 1A-R : Swale
Secondary = 8.35 cfs @ 12.28 hrs, Volume= 0.934 af
Routed to Reach 1A-R : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Peak Elev= 157.25' @ 12.32 hrs Surf.Area= 179 sf Storage= 112 cf

Plug-Flow detention time= 0.9 min calculated for 0.942 af (100% of inflow)
Center-of-Mass det. time= 0.6 min ( 857.9 - 857.3 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 156.00' | 1,138 cf | **Custom Stage Data (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 156.00 | 0 | 0 | 0 |
| 158.00 | 286 | 286 | 286 |
| 159.00 | 1,417 | 852 | 1,138 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 156.61' | **12.0" Round Culvert**<br>L= 19.9' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 156.61' / 156.51' S= 0.0050 '/' Cc= 0.900<br>n= 0.025 Corrugated metal, Flow Area= 0.79 sf |
| #2 | Secondary | 156.00' | **10.0' long x 5.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88 |

**Primary OutFlow** Max=0.19 cfs @ 12.31 hrs HW=157.25' TW=157.23' (Dynamic Tailwater)
└**1=Culvert** (Outlet Controls 0.19 cfs @ 0.51 fps)

**Secondary OutFlow** Max=7.52 cfs @ 12.28 hrs HW=157.25' TW=157.23' (Dynamic Tailwater)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 7.52 cfs @ 0.60 fps)

## Summary for Pond P-1B: 36" Culvert

Inflow Area = 6.708 ac, 17.44% Impervious, Inflow Depth = 1.27" for 2-Year event
Inflow = 6.68 cfs @ 12.28 hrs, Volume= 0.712 af
Outflow = 6.65 cfs @ 12.30 hrs, Volume= 0.710 af, Atten= 0%, Lag= 1.2 min
Primary = 6.65 cfs @ 12.30 hrs, Volume= 0.710 af
Routed to Reach 1B-R1 : Swale
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1B-R1 : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Peak Elev= 166.71' @ 12.30 hrs Surf.Area= 756 sf Storage= 648 cf

Plug-Flow detention time= 5.2 min calculated for 0.710 af (100% of inflow)
Center-of-Mass det. time= 3.3 min ( 854.0 - 850.7 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 165.00' | 7,542 cf | **Custom Stage Data (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 165.00 | 0 | 0 | 0 |
| 168.00 | 1,323 | 1,985 | 1,985 |
| 170.00 | 4,234 | 5,557 | 7,542 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 165.64' | **36.0" Round Culvert**<br>L= 48.0' RCP, sq.cut end projecting, Ke= 0.500<br>Inlet / Outlet Invert= 165.64' / 165.33' S= 0.0065 '/' Cc= 0.900<br>n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf |
| #2 | Secondary | 169.00' | **20.0' long x 6.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83 |

**Primary OutFlow** Max=6.64 cfs @ 12.30 hrs HW=166.71' TW=165.62' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 6.64 cfs @ 4.35 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=165.00' TW=165.33' (Dynamic Tailwater)
└**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Summary for Pond P-2: 18" Culvert

Inflow Area = 3.821 ac, 19.02% Impervious, Inflow Depth = 1.71" for 2-Year event
Inflow = 5.71 cfs @ 12.21 hrs, Volume= 0.545 af
Outflow = 5.71 cfs @ 12.21 hrs, Volume= 0.545 af, Atten= 0%, Lag= 0.0 min
Primary = 3.72 cfs @ 12.21 hrs, Volume= 0.509 af
Routed to Link AP-2 :
Secondary = 1.99 cfs @ 12.21 hrs, Volume= 0.036 af
Routed to Link AP-2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Peak Elev= 156.93' @ 12.21 hrs Surf.Area= 2 sf Storage= 0 cf

Plug-Flow detention time= 0.0 min calculated for 0.545 af (100% of inflow)
Center-of-Mass det. time= 0.0 min ( 822.4 - 822.4 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 156.84' | 944 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 156.84 | 0 | 0 | 0 |
| 157.00 | 4 | 0 | 0 |
| 158.00 | 187 | 96 | 96 |
| 159.00 | 1,509 | 848 | 944 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 155.84' | **18.0" Round Culvert**<br>L= 135.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 155.84' / 153.80' S= 0.0151 '/' Cc= 0.900<br>n= 0.025 Corrugated metal, Flow Area= 1.77 sf |
| #2 | Secondary | 156.84' | **32.0' long x 5.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 |

2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

**Primary OutFlow** Max=3.72 cfs @ 12.21 hrs HW=156.93' TW=0.00' (Dynamic Tailwater)
**1=Culvert** (Barrel Controls 3.72 cfs @ 3.78 fps)

**Secondary OutFlow** Max=1.98 cfs @ 12.21 hrs HW=156.93' TW=0.00' (Dynamic Tailwater)
**2=Broad-Crested Rectangular Weir** (Weir Controls 1.98 cfs @ 0.70 fps)

## Summary for Link AP-1:

Inflow Area = 12.834 ac, 12.75% Impervious, Inflow Depth = 1.19" for 2-Year event
Inflow = 11.60 cfs @ 12.30 hrs, Volume= 1.268 af
Primary = 11.60 cfs @ 12.30 hrs, Volume= 1.268 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

## Summary for Link AP-2:

Inflow Area = 3.821 ac, 19.02% Impervious, Inflow Depth = 1.71" for 2-Year event
Inflow = 5.71 cfs @ 12.21 hrs, Volume= 0.545 af
Primary = 5.71 cfs @ 12.21 hrs, Volume= 0.545 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

## Summary for Subcatchment SC-1: West

Runoff = 6.42 cfs @ 12.25 hrs, Volume= 0.649 af, Depth= 2.29"
Routed to Pond P-1 : 30" Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Year Rainfall=4.10"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 4,507 | 98 | Paved parking |
| * | 13,861 | 98 | Paved roads w/curbs & sewers |
| * | 1,421 | 96 | Gravel surface |
| | 125,331 | 80 | Pasture/grassland/range, Good, HSG D |
| | 3,140 | 79 | Woods/grass comb., Good, HSG D |
| | 148,260 | 82 | Weighted Average |
| | 129,892 | | 87.61% Pervious Area |
| | 18,368 | | 12.39% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 13.2 | 100 | 0.0300 | 0.13 | | **Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.70" |
| 0.3 | 35 | 0.0721 | 1.88 | | **Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps |
| 0.1 | 23 | 0.0200 | 2.87 | | **Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps |
| 1.0 | 114 | 0.0772 | 1.94 | | **Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps |
| 0.3 | 31 | 0.1194 | 1.73 | | **Shallow Concentrated Flow, E-F** Woodland Kv= 5.0 fps |
| 1.2 | 159 | 0.0975 | 2.19 | | **Shallow Concentrated Flow, F-G** Short Grass Pasture Kv= 7.0 fps |
| 2.0 | 205 | 0.0602 | 1.72 | | **Shallow Concentrated Flow, G-H** Short Grass Pasture Kv= 7.0 fps |
| 18.1 | 667 | Total | | | |

## Summary for Subcatchment SC-1A: Central of property

Runoff = 5.56 cfs @ 12.17 hrs, Volume= 0.482 af, Depth= 2.12"
Routed to Pond P-1A : 12" Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Year Rainfall=4.10"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 1,968 | 98 | Paved roads w/curbs & sewers |
| | 96,225 | 80 | Pasture/grassland/range, Good, HSG D |
| | 20,374 | 79 | Woods/grass comb., Good, HSG D |
| | 118,567 | 80 | Weighted Average |
| | 116,599 | | 98.34% Pervious Area |
| | 1,968 | | 1.66% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 8.9 | 100 | 0.0800 | 0.19 | | **Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.70" |
| 0.1 | 6 | 0.0800 | 1.98 | | **Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps |
| 0.3 | 35 | 0.1143 | 1.69 | | **Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps |
| 2.7 | 311 | 0.0772 | 1.94 | | **Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps |
| 12.0 | 452 | Total | | | |

## Summary for Subcatchment SC-1B: Southeast Off-property

Runoff = 13.00 cfs @ 12.27 hrs, Volume= 1.375 af, Depth= 2.46"
Routed to Pond P-1B : 36" Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Year Rainfall=4.10"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 20,275 | 98 | Roofs |
| * | 19,477 | 98 | Paved parking |
| | 11,200 | 98 | Paved roads w/curbs & sewers |
| * | 19,494 | 96 | Gravel surface |
| | 11,386 | 74 | Pasture/grassland/range, Good, HSG C |
| | 170,243 | 80 | Pasture/grassland/range, Good, HSG D |
| | 40,129 | 79 | Woods/grass comb., Good, HSG D |
| | 292,204 | 84 | Weighted Average |
| | 241,252 | | 82.56% Pervious Area |
| | 50,952 | | 17.44% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 12.8 | 100 | 0.0325 | 0.13 | | **Sheet Flow, A-B**<br>Grass: Dense n= 0.240 P2= 2.70" |
| 0.9 | 79 | 0.0443 | 1.47 | | **Shallow Concentrated Flow, B-C**<br>Short Grass Pasture Kv= 7.0 fps |
| 1.5 | 147 | 0.1041 | 1.61 | | **Shallow Concentrated Flow, C-D**<br>Woodland Kv= 5.0 fps |
| 0.3 | 34 | 0.0882 | 2.08 | | **Shallow Concentrated Flow, D-E**<br>Short Grass Pasture Kv= 7.0 fps |
| 3.6 | 219 | 0.0411 | 1.01 | | **Shallow Concentrated Flow, E-F**<br>Woodland Kv= 5.0 fps |
| 0.7 | 117 | 0.0342 | 2.77 | | **Shallow Concentrated Flow, F-G**<br>Grassed Waterway Kv= 15.0 fps |
| 0.2 | 79 | 0.0200 | 8.06 | 9.90 | **Pipe Channel, G-H**<br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'<br>n= 0.012 Corrugated PP, smooth interior |
| 0.1 | 28 | 0.0896 | 4.49 | | **Shallow Concentrated Flow, H-I**<br>Grassed Waterway Kv= 15.0 fps |
| 20.1 | 803 | Total | | | |

## Summary for Subcatchment SC-2: North

Runoff = 9.90 cfs @ 12.21 hrs, Volume= 0.960 af, Depth= 3.01"
Routed to Pond P-2 : 18" Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Year Rainfall=4.10"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 5,185 | 98 | Roofs |
| * | 10,374 | 98 | Roads |
| * | 16,108 | 98 | Paved parking |
| * | 3,267 | 96 | Gravel surface |
| | 120,323 | 89 | Pasture/grassland/range, Poor, HSG D |
| | 11,205 | 79 | Woods/grass comb., Good, HSG D |
| | 166,462 | 90 | Weighted Average |
| | 134,795 | | 80.98% Pervious Area |
| | 31,667 | | 19.02% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | 100 | 0.0600 | 0.17 | | **Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.70" |
| 0.0 | 4 | 0.0600 | 1.71 | | **Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps |
| 0.5 | 44 | 0.0909 | 1.51 | | **Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps |
| 3.0 | 320 | 0.0656 | 1.79 | | **Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps |
| 2.0 | 288 | 0.0249 | 2.37 | | **Shallow Concentrated Flow, E-F** Grassed Waterway Kv= 15.0 fps |
| 15.5 | 756 | Total | | | |

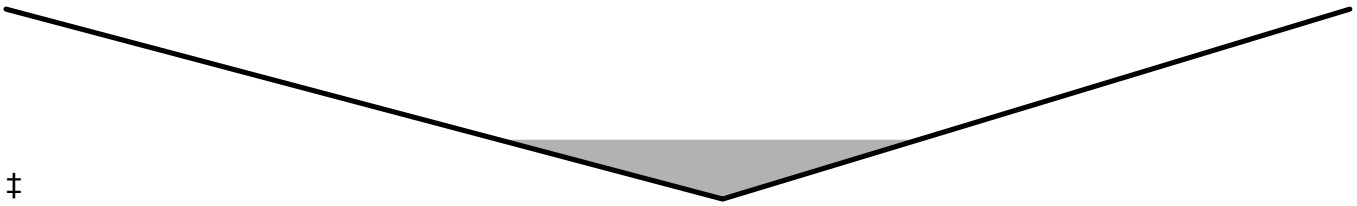
## Summary for Reach 1A-R: Swale

Inflow Area = 9.430 ac, 12.88% Impervious, Inflow Depth = 2.36" for 10-Year event
Inflow = 16.95 cfs @ 12.28 hrs, Volume= 1.854 af
Outflow = 16.95 cfs @ 12.29 hrs, Volume= 1.854 af, Atten= 0%, Lag= 0.3 min
Routed to Pond P-1 : 30" Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Max. Velocity= 5.15 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.98 fps, Avg. Travel Time= 1.2 min

Peak Storage= 465 cf @ 12.29 hrs
Average Depth at Peak Storage= 0.94' , Surface Width= 7.03'
Bank-Full Depth= 3.00' Flow Area= 33.8 sf, Capacity= 377.41 cfs

0.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 4.0 3.5 '/' Top Width= 22.50'
Length= 141.2' Slope= 0.0167 '/'
Inlet Invert= 156.51', Outlet Invert= 154.15'



‡

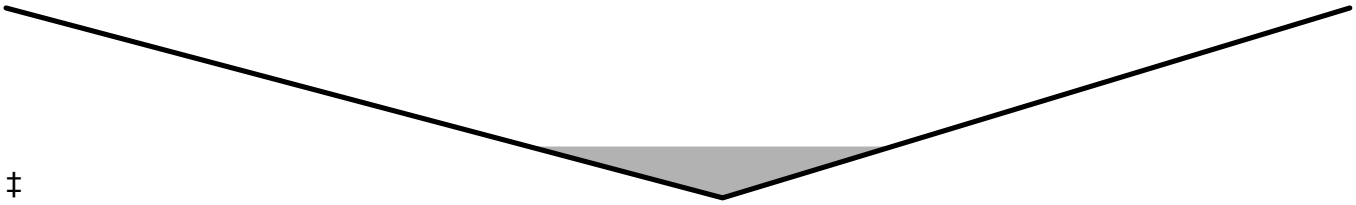
## Summary for Reach 1B-R: Swale

Inflow Area = 6.708 ac, 17.44% Impervious, Inflow Depth = 2.46" for 10-Year event
Inflow = 12.92 cfs @ 12.30 hrs, Volume= 1.373 af
Outflow = 12.91 cfs @ 12.31 hrs, Volume= 1.373 af, Atten= 0%, Lag= 0.5 min
Routed to Pond P-1A : 12" Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Max. Velocity= 5.24 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 2.03 fps, Avg. Travel Time= 1.8 min

Peak Storage= 528 cf @ 12.31 hrs
Average Depth at Peak Storage= 0.81' , Surface Width= 6.08'
Bank-Full Depth= 3.00' Flow Area= 33.8 sf, Capacity= 422.76 cfs

0.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 4.0 3.5 '/' Top Width= 22.50'
Length= 214.1' Slope= 0.0210 '/'
Inlet Invert= 161.00', Outlet Invert= 156.51'



‡

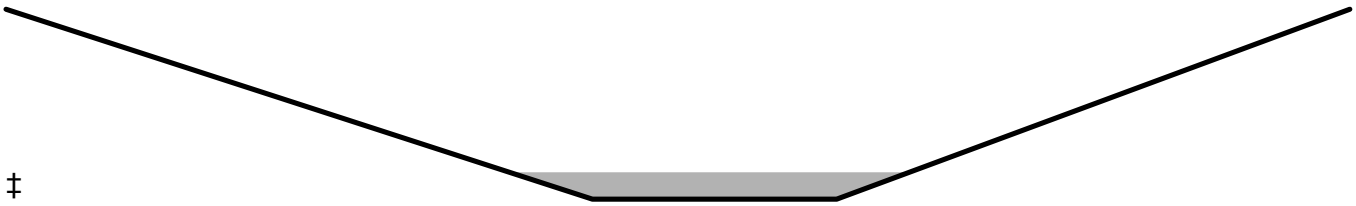
## Summary for Reach 1B-R1: Swale

Inflow Area = 6.708 ac, 17.44% Impervious, Inflow Depth = 2.46" for 10-Year event
Inflow = 12.93 cfs @ 12.30 hrs, Volume= 1.373 af
Outflow = 12.92 cfs @ 12.30 hrs, Volume= 1.373 af, Atten= 0%, Lag= 0.6 min
Routed to Reach 1B-R : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Max. Velocity= 4.63 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 1.51 fps, Avg. Travel Time= 2.4 min

Peak Storage= 603 cf @ 12.30 hrs
Average Depth at Peak Storage= 0.42' , Surface Width= 8.18'
Bank-Full Depth= 3.00' Flow Area= 48.8 sf, Capacity= 670.12 cfs

5.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 4.0 3.5 '/' Top Width= 27.50'
Length= 216.0' Slope= 0.0200 '/'
Inlet Invert= 165.33', Outlet Invert= 161.00'



‡

## Summary for Pond P-1: 30" Culvert

Inflow Area = 12.834 ac, 12.75% Impervious, Inflow Depth = 2.34" for 10-Year event
Inflow = 23.27 cfs @ 12.27 hrs, Volume= 2.503 af
Outflow = 21.56 cfs @ 12.36 hrs, Volume= 2.503 af, Atten= 7%, Lag= 5.3 min
Primary = 21.56 cfs @ 12.36 hrs, Volume= 2.503 af
Routed to Link AP-1 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link AP-1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Peak Elev= 156.74' @ 12.36 hrs Surf.Area= 4,489 sf Storage= 2,190 cf

Plug-Flow detention time= 0.5 min calculated for 2.502 af (100% of inflow)
Center-of-Mass det. time= 0.5 min ( 837.9 - 837.5 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 154.15' | 16,642 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 154.15 | 0 | 0 | 0 |
| 155.00 | 50 | 21 | 21 |
| 156.00 | 569 | 310 | 331 |
| 157.00 | 5,902 | 3,236 | 3,566 |
| 158.00 | 20,250 | 13,076 | 16,642 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 154.15' | **30.0" Round Culvert**<br>L= 75.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 154.15' / 153.00' S= 0.0153 '/' Cc= 0.900<br>n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf |
| #2 | Secondary | 157.50' | **30.0' long x 5.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88 |

**Primary OutFlow** Max=21.56 cfs @ 12.36 hrs HW=156.73' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 21.56 cfs @ 4.39 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=154.15' TW=0.00' (Dynamic Tailwater)
└**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Summary for Pond P-1A: 12" Culvert

Inflow Area = 9.430 ac, 12.88% Impervious, Inflow Depth = 2.36" for 10-Year event
Inflow = 16.96 cfs @ 12.28 hrs, Volume= 1.855 af
Outflow = 16.95 cfs @ 12.28 hrs, Volume= 1.854 af, Atten= 0%, Lag= 0.1 min
Primary = 0.56 cfs @ 12.28 hrs, Volume= 0.028 af
Routed to Reach 1A-R : Swale
Secondary = 16.39 cfs @ 12.28 hrs, Volume= 1.827 af
Routed to Reach 1A-R : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Peak Elev= 157.51' @ 12.30 hrs Surf.Area= 215 sf Storage= 162 cf

Plug-Flow detention time= 0.7 min calculated for 1.854 af (100% of inflow)
Center-of-Mass det. time= 0.4 min ( 837.2 - 836.8 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 156.00' | 1,138 cf | **Custom Stage Data (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 156.00 | 0 | 0 | 0 |
| 158.00 | 286 | 286 | 286 |
| 159.00 | 1,417 | 852 | 1,138 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 156.61' | **12.0" Round Culvert**<br>L= 19.9' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 156.61' / 156.51' S= 0.0050 '/' Cc= 0.900<br>n= 0.025 Corrugated metal, Flow Area= 0.79 sf |
| #2 | Secondary | 156.00' | **10.0' long x 5.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88 |

**Primary OutFlow** Max=0.55 cfs @ 12.28 hrs HW=157.50' TW=157.45' (Dynamic Tailwater)
└**1=Culvert** (Outlet Controls 0.55 cfs @ 0.99 fps)

**Secondary OutFlow** Max=16.14 cfs @ 12.28 hrs HW=157.50' TW=157.45' (Dynamic Tailwater)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 16.14 cfs @ 1.07 fps)

## Summary for Pond P-1B: 36" Culvert

Inflow Area = 6.708 ac, 17.44% Impervious, Inflow Depth = 2.46" for 10-Year event
Inflow = 13.00 cfs @ 12.27 hrs, Volume= 1.375 af
Outflow = 12.93 cfs @ 12.30 hrs, Volume= 1.373 af, Atten= 0%, Lag= 1.3 min
Primary = 12.93 cfs @ 12.30 hrs, Volume= 1.373 af
Routed to Reach 1B-R1 : Swale
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1B-R1 : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Peak Elev= 167.22' @ 12.30 hrs Surf.Area= 977 sf Storage= 1,082 cf

Plug-Flow detention time= 3.5 min calculated for 1.372 af (100% of inflow)
Center-of-Mass det. time= 2.6 min ( 834.4 - 831.7 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 165.00' | 7,542 cf | **Custom Stage Data (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 165.00 | 0 | 0 | 0 |
| 168.00 | 1,323 | 1,985 | 1,985 |
| 170.00 | 4,234 | 5,557 | 7,542 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 165.64' | **36.0" Round Culvert**<br>L= 48.0' RCP, sq.cut end projecting, Ke= 0.500<br>Inlet / Outlet Invert= 165.64' / 165.33' S= 0.0065 '/' Cc= 0.900<br>n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf |
| #2 | Secondary | 169.00' | **20.0' long x 6.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83 |

**Primary OutFlow** Max=12.92 cfs @ 12.30 hrs HW=167.21' TW=165.75' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 12.92 cfs @ 5.00 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=165.00' TW=165.33' (Dynamic Tailwater)
└**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Summary for Pond P-2: 18" Culvert

Inflow Area = 3.821 ac, 19.02% Impervious, Inflow Depth = 3.01" for 10-Year event
Inflow = 9.90 cfs @ 12.21 hrs, Volume= 0.960 af
Outflow = 9.90 cfs @ 12.21 hrs, Volume= 0.960 af, Atten= 0%, Lag= 0.0 min
Primary = 4.22 cfs @ 12.21 hrs, Volume= 0.805 af
Routed to Link AP-2 :
Secondary = 5.68 cfs @ 12.21 hrs, Volume= 0.155 af
Routed to Link AP-2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Peak Elev= 157.02' @ 12.21 hrs Surf.Area= 8 sf Storage= 0 cf

Plug-Flow detention time= 0.0 min calculated for 0.960 af (100% of inflow)
Center-of-Mass det. time= 0.0 min ( 806.5 - 806.5 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 156.84' | 944 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 156.84 | 0 | 0 | 0 |
| 157.00 | 4 | 0 | 0 |
| 158.00 | 187 | 96 | 96 |
| 159.00 | 1,509 | 848 | 944 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 155.84' | **18.0" Round Culvert**<br>L= 135.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 155.84' / 153.80' S= 0.0151 '/' Cc= 0.900<br>n= 0.025 Corrugated metal, Flow Area= 1.77 sf |
| #2 | Secondary | 156.84' | **32.0' long x 5.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 |

2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

**Primary OutFlow** Max=4.22 cfs @ 12.21 hrs HW=157.02' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 4.22 cfs @ 3.89 fps)

**Secondary OutFlow** Max=5.66 cfs @ 12.21 hrs HW=157.02' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 5.66 cfs @ 0.99 fps)

## Summary for Link AP-1:

Inflow Area = 12.834 ac, 12.75% Impervious, Inflow Depth = 2.34" for 10-Year event
Inflow = 21.56 cfs @ 12.36 hrs, Volume= 2.503 af
Primary = 21.56 cfs @ 12.36 hrs, Volume= 2.503 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

## Summary for Link AP-2:

Inflow Area = 3.821 ac, 19.02% Impervious, Inflow Depth = 3.01" for 10-Year event
Inflow = 9.90 cfs @ 12.21 hrs, Volume= 0.960 af
Primary = 9.90 cfs @ 12.21 hrs, Volume= 0.960 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

## Summary for Subcatchment SC-1: West

Runoff = 8.13 cfs @ 12.25 hrs, Volume= 0.823 af, Depth= 2.90"
Routed to Pond P-1 : 30" Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Year Rainfall=4.80"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 4,507 | 98 | Paved parking |
| * | 13,861 | 98 | Paved roads w/curbs & sewers |
| * | 1,421 | 96 | Gravel surface |
| | 125,331 | 80 | Pasture/grassland/range, Good, HSG D |
| | 3,140 | 79 | Woods/grass comb., Good, HSG D |
| | 148,260 | 82 | Weighted Average |
| | 129,892 | | 87.61% Pervious Area |
| | 18,368 | | 12.39% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 13.2 | 100 | 0.0300 | 0.13 | | **Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.70" |
| 0.3 | 35 | 0.0721 | 1.88 | | **Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps |
| 0.1 | 23 | 0.0200 | 2.87 | | **Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps |
| 1.0 | 114 | 0.0772 | 1.94 | | **Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps |
| 0.3 | 31 | 0.1194 | 1.73 | | **Shallow Concentrated Flow, E-F** Woodland Kv= 5.0 fps |
| 1.2 | 159 | 0.0975 | 2.19 | | **Shallow Concentrated Flow, F-G** Short Grass Pasture Kv= 7.0 fps |
| 2.0 | 205 | 0.0602 | 1.72 | | **Shallow Concentrated Flow, G-H** Short Grass Pasture Kv= 7.0 fps |
| 18.1 | 667 | Total | | | |

## Summary for Subcatchment SC-1A: Central of property

Runoff = 7.12 cfs @ 12.17 hrs, Volume= 0.617 af, Depth= 2.72"
Routed to Pond P-1A : 12" Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Year Rainfall=4.80"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 1,968 | 98 | Paved roads w/curbs & sewers |
| | 96,225 | 80 | Pasture/grassland/range, Good, HSG D |
| | 20,374 | 79 | Woods/grass comb., Good, HSG D |
| | 118,567 | 80 | Weighted Average |
| | 116,599 | | 98.34% Pervious Area |
| | 1,968 | | 1.66% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 8.9 | 100 | 0.0800 | 0.19 | | **Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.70" |
| 0.1 | 6 | 0.0800 | 1.98 | | **Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps |
| 0.3 | 35 | 0.1143 | 1.69 | | **Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps |
| 2.7 | 311 | 0.0772 | 1.94 | | **Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps |
| 12.0 | 452 | Total | | | |

## Summary for Subcatchment SC-1B: Southeast Off-property

Runoff = 16.29 cfs @ 12.27 hrs, Volume= 1.726 af, Depth= 3.09"
Routed to Pond P-1B : 36" Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Year Rainfall=4.80"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 20,275 | 98 | Roofs |
| * | 19,477 | 98 | Paved parking |
| | 11,200 | 98 | Paved roads w/curbs & sewers |
| * | 19,494 | 96 | Gravel surface |
| | 11,386 | 74 | Pasture/grassland/range, Good, HSG C |
| | 170,243 | 80 | Pasture/grassland/range, Good, HSG D |
| | 40,129 | 79 | Woods/grass comb., Good, HSG D |
| | 292,204 | 84 | Weighted Average |
| | 241,252 | | 82.56% Pervious Area |
| | 50,952 | | 17.44% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 12.8 | 100 | 0.0325 | 0.13 | | **Sheet Flow, A-B**<br>Grass: Dense n= 0.240 P2= 2.70" |
| 0.9 | 79 | 0.0443 | 1.47 | | **Shallow Concentrated Flow, B-C**<br>Short Grass Pasture Kv= 7.0 fps |
| 1.5 | 147 | 0.1041 | 1.61 | | **Shallow Concentrated Flow, C-D**<br>Woodland Kv= 5.0 fps |
| 0.3 | 34 | 0.0882 | 2.08 | | **Shallow Concentrated Flow, D-E**<br>Short Grass Pasture Kv= 7.0 fps |
| 3.6 | 219 | 0.0411 | 1.01 | | **Shallow Concentrated Flow, E-F**<br>Woodland Kv= 5.0 fps |
| 0.7 | 117 | 0.0342 | 2.77 | | **Shallow Concentrated Flow, F-G**<br>Grassed Waterway Kv= 15.0 fps |
| 0.2 | 79 | 0.0200 | 8.06 | 9.90 | **Pipe Channel, G-H**<br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'<br>n= 0.012 Corrugated PP, smooth interior |
| 0.1 | 28 | 0.0896 | 4.49 | | **Shallow Concentrated Flow, H-I**<br>Grassed Waterway Kv= 15.0 fps |
| 20.1 | 803 | Total | | | |

## Summary for Subcatchment SC-2: North

Runoff = 11.99 cfs @ 12.21 hrs, Volume= 1.173 af, Depth= 3.68"
Routed to Pond P-2 : 18" Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Year Rainfall=4.80"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 5,185 | 98 | Roofs |
| * | 10,374 | 98 | Roads |
| * | 16,108 | 98 | Paved parking |
| * | 3,267 | 96 | Gravel surface |
| | 120,323 | 89 | Pasture/grassland/range, Poor, HSG D |
| | 11,205 | 79 | Woods/grass comb., Good, HSG D |
| | 166,462 | 90 | Weighted Average |
| | 134,795 | | 80.98% Pervious Area |
| | 31,667 | | 19.02% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | 100 | 0.0600 | 0.17 | | **Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.70" |
| 0.0 | 4 | 0.0600 | 1.71 | | **Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps |
| 0.5 | 44 | 0.0909 | 1.51 | | **Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps |
| 3.0 | 320 | 0.0656 | 1.79 | | **Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps |
| 2.0 | 288 | 0.0249 | 2.37 | | **Shallow Concentrated Flow, E-F** Grassed Waterway Kv= 15.0 fps |
| 15.5 | 756 | Total | | | |

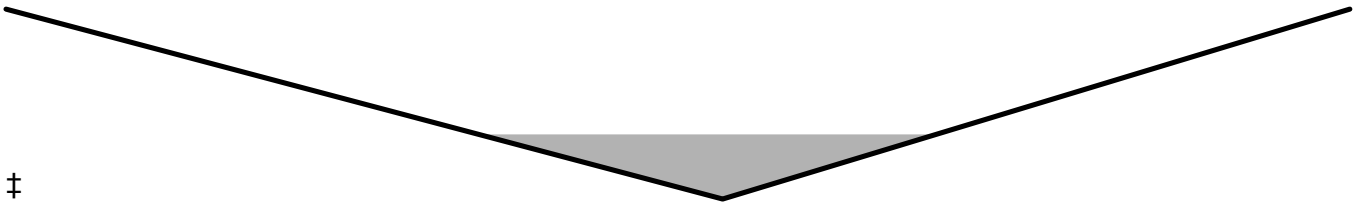
## Summary for Reach 1A-R: Swale

Inflow Area = 9.430 ac, 12.88% Impervious, Inflow Depth = 2.98" for 25-Year event
Inflow = 21.35 cfs @ 12.27 hrs, Volume= 2.341 af
Outflow = 21.34 cfs @ 12.28 hrs, Volume= 2.341 af, Atten= 0%, Lag= 0.4 min
Routed to Pond P-1 : 30" Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Max. Velocity= 5.45 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.07 fps, Avg. Travel Time= 1.1 min

Peak Storage= 553 cf @ 12.28 hrs
Average Depth at Peak Storage= 1.02' , Surface Width= 7.66'
Bank-Full Depth= 3.00' Flow Area= 33.8 sf, Capacity= 377.41 cfs

0.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 4.0 3.5 '/' Top Width= 22.50'
Length= 141.2' Slope= 0.0167 '/'
Inlet Invert= 156.51', Outlet Invert= 154.15'



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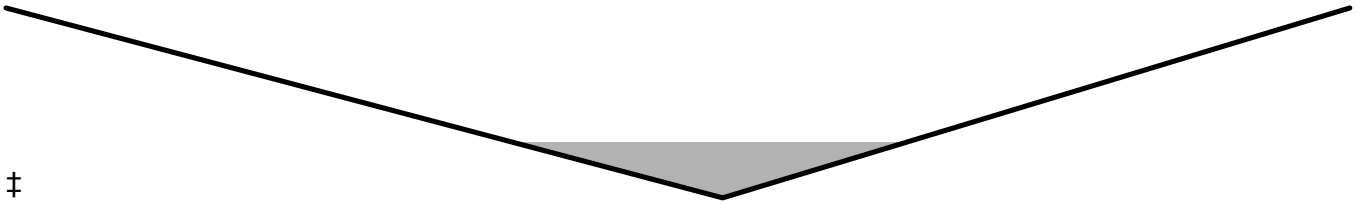
## Summary for Reach 1B-R: Swale

Inflow Area = 6.708 ac, 17.44% Impervious, Inflow Depth = 3.08" for 25-Year event
Inflow = 16.17 cfs @ 12.30 hrs, Volume= 1.724 af
Outflow = 16.16 cfs @ 12.31 hrs, Volume= 1.724 af, Atten= 0%, Lag= 0.5 min
Routed to Pond P-1A : 12" Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Max. Velocity= 5.54 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 2.12 fps, Avg. Travel Time= 1.7 min

Peak Storage= 625 cf @ 12.31 hrs
Average Depth at Peak Storage= 0.88' , Surface Width= 6.61'
Bank-Full Depth= 3.00' Flow Area= 33.8 sf, Capacity= 422.76 cfs

0.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 4.0 3.5 '/' Top Width= 22.50'
Length= 214.1' Slope= 0.0210 '/'
Inlet Invert= 161.00', Outlet Invert= 156.51'



‡

## Summary for Reach 1B-R1: Swale

Inflow Area = 6.708 ac, 17.44% Impervious, Inflow Depth = 3.08" for 25-Year event
Inflow = 16.19 cfs @ 12.29 hrs, Volume= 1.724 af
Outflow = 16.17 cfs @ 12.30 hrs, Volume= 1.724 af, Atten= 0%, Lag= 0.5 min
Routed to Reach 1B-R : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Max. Velocity= 4.96 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 1.60 fps, Avg. Travel Time= 2.3 min

Peak Storage= 704 cf @ 12.30 hrs
Average Depth at Peak Storage= 0.48' , Surface Width= 8.60'
Bank-Full Depth= 3.00' Flow Area= 48.8 sf, Capacity= 670.12 cfs

5.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 4.0 3.5 '/' Top Width= 27.50'
Length= 216.0' Slope= 0.0200 '/'
Inlet Invert= 165.33', Outlet Invert= 161.00'



‡

## Summary for Pond P-1: 30" Culvert

Inflow Area = 12.834 ac, 12.75% Impervious, Inflow Depth = 2.96" for 25-Year event
Inflow = 29.38 cfs @ 12.27 hrs, Volume= 3.163 af
Outflow = 25.12 cfs @ 12.40 hrs, Volume= 3.163 af, Atten= 14%, Lag= 8.0 min
Primary = 25.12 cfs @ 12.40 hrs, Volume= 3.163 af
Routed to Link AP-1 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link AP-1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Peak Elev= 157.21' @ 12.40 hrs Surf.Area= 8,956 sf Storage= 5,147 cf

Plug-Flow detention time= 0.9 min calculated for 3.161 af (100% of inflow)
Center-of-Mass det. time= 0.9 min ( 831.4 - 830.5 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 154.15' | 16,642 cf | **Custom Stage Data (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 154.15 | 0 | 0 | 0 |
| 155.00 | 50 | 21 | 21 |
| 156.00 | 569 | 310 | 331 |
| 157.00 | 5,902 | 3,236 | 3,566 |
| 158.00 | 20,250 | 13,076 | 16,642 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 154.15' | **30.0" Round Culvert**<br>L= 75.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 154.15' / 153.00' S= 0.0153 '/' Cc= 0.900<br>n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf |
| #2 | Secondary | 157.50' | **30.0' long x 5.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88 |

**Primary OutFlow** Max=25.12 cfs @ 12.40 hrs HW=157.21' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 25.12 cfs @ 5.12 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=154.15' TW=0.00' (Dynamic Tailwater)
└**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Summary for Pond P-1A: 12" Culvert

Inflow Area = 9.430 ac, 12.88% Impervious, Inflow Depth = 2.98" for 25-Year event
Inflow = 21.36 cfs @ 12.27 hrs, Volume= 2.341 af
Outflow = 21.35 cfs @ 12.27 hrs, Volume= 2.341 af, Atten= 0%, Lag= 0.1 min
Primary = 0.78 cfs @ 12.28 hrs, Volume= 0.040 af
Routed to Reach 1A-R : Swale
Secondary = 20.56 cfs @ 12.27 hrs, Volume= 2.301 af
Routed to Reach 1A-R : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Peak Elev= 157.62' @ 12.29 hrs Surf.Area= 231 sf Storage= 187 cf

Plug-Flow detention time= 0.5 min calculated for 2.339 af (100% of inflow)
Center-of-Mass det. time= 0.4 min ( 830.3 - 829.9 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 156.00' | 1,138 cf | **Custom Stage Data (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 156.00 | 0 | 0 | 0 |
| 158.00 | 286 | 286 | 286 |
| 159.00 | 1,417 | 852 | 1,138 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 156.61' | **12.0" Round Culvert**<br>L= 19.9' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 156.61' / 156.51' S= 0.0050 '/' Cc= 0.900<br>n= 0.025 Corrugated metal, Flow Area= 0.79 sf |
| #2 | Secondary | 156.00' | **10.0' long x 5.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88 |

**Primary OutFlow** Max=0.77 cfs @ 12.28 hrs HW=157.62' TW=157.53' (Dynamic Tailwater)
└**1=Culvert** (Outlet Controls 0.77 cfs @ 1.21 fps)

**Secondary OutFlow** Max=20.32 cfs @ 12.27 hrs HW=157.62' TW=157.53' (Dynamic Tailwater)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 20.32 cfs @ 1.26 fps)

## Summary for Pond P-1B: 36" Culvert

Inflow Area = 6.708 ac, 17.44% Impervious, Inflow Depth = 3.09" for 25-Year event
Inflow = 16.29 cfs @ 12.27 hrs, Volume= 1.726 af
Outflow = 16.19 cfs @ 12.29 hrs, Volume= 1.724 af, Atten= 1%, Lag= 1.4 min
Primary = 16.19 cfs @ 12.29 hrs, Volume= 1.724 af
Routed to Reach 1B-R1 : Swale
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1B-R1 : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Peak Elev= 167.44' @ 12.29 hrs Surf.Area= 1,076 sf Storage= 1,312 cf

Plug-Flow detention time= 3.2 min calculated for 1.723 af (100% of inflow)
Center-of-Mass det. time= 2.4 min ( 827.7 - 825.2 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 165.00' | 7,542 cf | **Custom Stage Data (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 165.00 | 0 | 0 | 0 |
| 168.00 | 1,323 | 1,985 | 1,985 |
| 170.00 | 4,234 | 5,557 | 7,542 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 165.64' | **36.0" Round Culvert**<br>L= 48.0' RCP, sq.cut end projecting, Ke= 0.500<br>Inlet / Outlet Invert= 165.64' / 165.33' S= 0.0065 '/' Cc= 0.900<br>n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf |
| #2 | Secondary | 169.00' | **20.0' long x 6.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83 |

**Primary OutFlow** Max=16.17 cfs @ 12.29 hrs HW=167.44' TW=165.81' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 16.17 cfs @ 5.25 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=165.00' TW=165.33' (Dynamic Tailwater)
└**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Summary for Pond P-2: 18" Culvert

Inflow Area = 3.821 ac, 19.02% Impervious, Inflow Depth = 3.68" for 25-Year event
Inflow = 11.99 cfs @ 12.21 hrs, Volume= 1.173 af
Outflow = 11.99 cfs @ 12.21 hrs, Volume= 1.173 af, Atten= 0%, Lag= 0.0 min
Primary = 4.42 cfs @ 12.21 hrs, Volume= 0.946 af
Routed to Link AP-2 :
Secondary = 7.57 cfs @ 12.21 hrs, Volume= 0.227 af
Routed to Link AP-2 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Peak Elev= 157.06' @ 12.21 hrs Surf.Area= 14 sf Storage= 1 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.0 min ( 800.9 - 800.9 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 156.84' | 944 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 156.84 | 0 | 0 | 0 |
| 157.00 | 4 | 0 | 0 |
| 158.00 | 187 | 96 | 96 |
| 159.00 | 1,509 | 848 | 944 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 155.84' | **18.0" Round Culvert**<br>L= 135.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 155.84' / 153.80' S= 0.0151 '/' Cc= 0.900<br>n= 0.025 Corrugated metal, Flow Area= 1.77 sf |
| #2 | Secondary | 156.84' | **32.0' long x 5.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 |

2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

**Primary OutFlow** Max=4.42 cfs @ 12.21 hrs HW=157.06' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 4.42 cfs @ 3.93 fps)

**Secondary OutFlow** Max=7.55 cfs @ 12.21 hrs HW=157.06' TW=0.00' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 7.55 cfs @ 1.09 fps)

## Summary for Link AP-1:

Inflow Area = 12.834 ac, 12.75% Impervious, Inflow Depth = 2.96" for 25-Year event
Inflow = 25.12 cfs @ 12.40 hrs, Volume= 3.163 af
Primary = 25.12 cfs @ 12.40 hrs, Volume= 3.163 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

## Summary for Link AP-2:

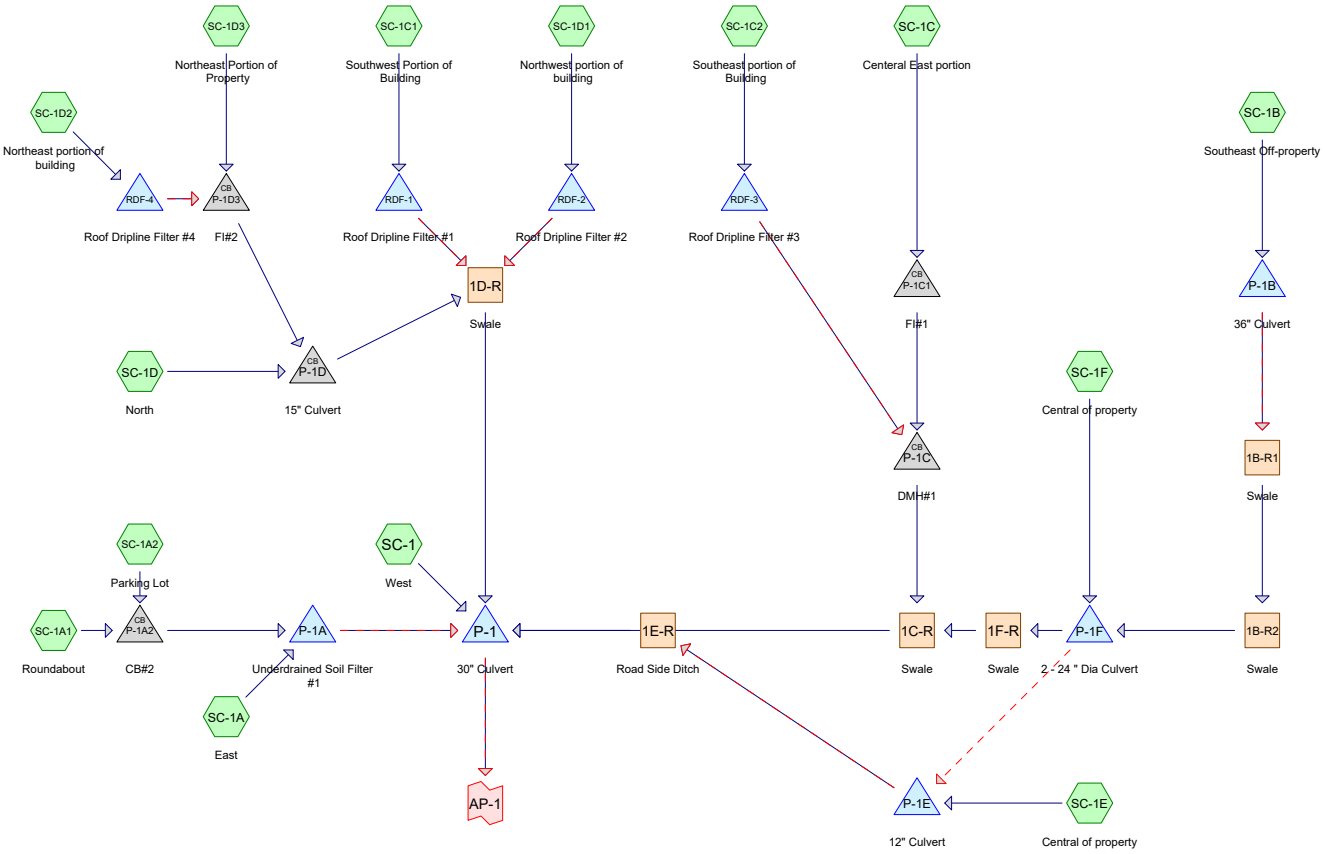
Inflow Area = 3.821 ac, 19.02% Impervious, Inflow Depth = 3.68" for 25-Year event
Inflow = 11.99 cfs @ 12.21 hrs, Volume= 1.173 af
Primary = 11.99 cfs @ 12.21 hrs, Volume= 1.173 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

# APPENDIX C

# POST-DEVELOPMENT HYDROCAD CALCULATIONS

SME
SEVEE & MAHER
ENGINEERS




Subcat Reach Pond Link

**Routing Diagram for Proposed**
Prepared by Sevee & Maher Engineers, Printed 5/27/2026
HydroCAD® 10.20-8a s/n 01260 © 2025 HydroCAD Software Solutions LLC

## Area Listing (all nodes)

| Area (acres) | CN | Description (subcatchment-numbers) |
|---|---|---|
| 0.261 | 74 | >75% Grass cover, Good, HSG C (SC-1B) |
| 9.672 | 80 | >75% Grass cover, Good, HSG D (SC-1A, SC-1A1, SC-1A2, SC-1B, SC-1C, SC-1D, SC-1D3, SC-1F) |
| 0.448 | 96 | Gravel surface (SC-1B) |
| 1.310 | 80 | Pasture/grassland/range, Good, HSG D (SC-1, SC-1E) |
| 1.289 | 98 | Paved parking (SC-1, SC-1A1, SC-1A2, SC-1B, SC-1D, SC-1E, SC-1F) |
| 0.846 | 98 | Paved roads w/curbs & sewers (SC-1, SC-1B, SC-1D, SC-1D3, SC-1E, SC-1F) |
| 0.960 | 98 | Roofs (SC-1B, SC-1C1, SC-1C2, SC-1D1, SC-1D2) |
| 0.120 | 98 | Roofs, (SC-1, SC-1D) |
| 1.749 | 79 | Woods/grass comb., Good, HSG D (SC-1, SC-1B, SC-1C, SC-1D, SC-1D3, SC-1E, SC-1F) |
| **16.655** | **84** | **TOTAL AREA** |

Time span=0.00-40.00 hrs, dt=0.01 hrs, 4001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment SC-1: West** Runoff Area=49,436 sf 24.20% Impervious Runoff Depth=1.27"
Tc=5.0 min CN=84 Runoff=1.75 cfs 0.120 af

**Subcatchment SC-1A: East** Runoff Area=8,840 sf 0.00% Impervious Runoff Depth=1.03"
Tc=5.0 min CN=80 Runoff=0.25 cfs 0.017 af

**Subcatchment SC-1A1: Roundabout** Runoff Area=7,782 sf 70.79% Impervious Runoff Depth=1.97"
Tc=5.0 min CN=93 Runoff=0.42 cfs 0.029 af

**Subcatchment SC-1A2: Parking Lot** Runoff Area=11,875 sf 84.34% Impervious Runoff Depth=2.16"
Tc=5.0 min CN=95 Runoff=0.68 cfs 0.049 af

**Subcatchment SC-1B: Southeast** Runoff Area=292,074 sf 17.44% Impervious Runoff Depth=1.27"
Flow Length=803' Tc=20.1 min CN=84 Runoff=6.68 cfs 0.711 af

**Subcatchment SC-1C: Centeral East portion** Runoff Area=43,437 sf 0.00% Impervious Runoff Depth=1.03"
Flow Length=319' Tc=9.5 min CN=80 Runoff=1.04 cfs 0.086 af

**Subcatchment SC-1C1: Southwest Portion** Runoff Area=8,150 sf 100.00% Impervious Runoff Depth=2.47"
Tc=5.0 min CN=98 Runoff=0.51 cfs 0.039 af

**Subcatchment SC-1C2: Southeast portion** Runoff Area=7,751 sf 100.00% Impervious Runoff Depth=2.47"
Tc=5.0 min CN=98 Runoff=0.48 cfs 0.037 af

**Subcatchment SC-1D: North** Runoff Area=164,122 sf 19.24% Impervious Runoff Depth=1.21"
Flow Length=670' Tc=13.5 min CN=83 Runoff=4.16 cfs 0.380 af

**Subcatchment SC-1D1: Northwest portion** Runoff Area=3,005 sf 100.00% Impervious Runoff Depth=2.47"
Tc=5.0 min CN=98 Runoff=0.19 cfs 0.014 af

**Subcatchment SC-1D2: Northeast portion** Runoff Area=2,657 sf 100.00% Impervious Runoff Depth=2.47"
Tc=5.0 min CN=98 Runoff=0.16 cfs 0.013 af

**Subcatchment SC-1D3: Northeast Portion of** Runoff Area=51,502 sf 0.24% Impervious Runoff Depth=1.03"
Flow Length=450' Tc=12.6 min CN=80 Runoff=1.12 cfs 0.101 af

**Subcatchment SC-1E: Central of property** Runoff Area=30,712 sf 18.79% Impervious Runoff Depth=1.21"
Flow Length=351' Tc=10.5 min CN=83 Runoff=0.85 cfs 0.071 af

**Subcatchment SC-1F: Central of property** Runoff Area=44,150 sf 5.87% Impervious Runoff Depth=1.09"
Flow Length=317' Tc=11.1 min CN=81 Runoff=1.07 cfs 0.092 af

**Reach 1B-R1: Swale** Avg. Flow Depth=0.29' Max Vel=3.74 fps Inflow=6.65 cfs 0.709 af
n=0.022 L=216.0' S=0.0200 '/' Capacity=670.12 cfs Outflow=6.63 cfs 0.709 af

**Reach 1B-R2: Swale** Avg. Flow Depth=1.13' Max Vel=1.38 fps Inflow=6.63 cfs 0.709 af
n=0.022 L=214.1' S=0.0009 '/' Capacity=89.22 cfs Outflow=6.54 cfs 0.709 af

**Reach 1C-R: Swale** Avg. Flow Depth=0.76' Max Vel=4.68 fps Inflow=8.02 cfs 0.923 af
n=0.022 L=178.0' S=0.0188 '/' Capacity=316.53 cfs Outflow=8.02 cfs 0.923 af

**Reach 1D-R: Swale** Avg. Flow Depth=0.71' Max Vel=3.09 fps Inflow=5.78 cfs 0.546 af
n=0.022 L=154.0' S=0.0088 '/' Capacity=273.33 cfs Outflow=5.76 cfs 0.546 af

**Reach 1E-R: Road Side Ditch** Avg. Flow Depth=0.32' Max Vel=1.67 fps Inflow=0.80 cfs 0.071 af
n=0.030 L=317.0' S=0.0137 '/' Capacity=16.16 cfs Outflow=0.76 cfs 0.071 af

**Reach 1F-R: Swale** Avg. Flow Depth=0.80' Max Vel=3.77 fps Inflow=7.20 cfs 0.801 af
n=0.022 L=132.0' S=0.0114 '/' Capacity=245.96 cfs Outflow=7.20 cfs 0.801 af

**Pond P-1: 30" Culvert** Peak Elev=155.99' Storage=327 cf Inflow=14.17 cfs 1.757 af
Primary=14.15 cfs 1.757 af Secondary=0.00 cfs 0.000 af Outflow=14.15 cfs 1.757 af

**Pond P-1A: Underdrained Soil Filter #1** Peak Elev=158.01' Storage=2,342 cf Inflow=1.35 cfs 0.096 af
Primary=0.04 cfs 0.092 af Secondary=0.04 cfs 0.004 af Outflow=0.08 cfs 0.096 af

**Pond P-1A2: CB#2** Peak Elev=158.67' Inflow=1.10 cfs 0.078 af
15.0" Round Culvert n=0.013 L=211.0' S=0.0071 '/' Outflow=1.10 cfs 0.078 af

**Pond P-1B: 36" Culvert** Peak Elev=166.71' Storage=648 cf Inflow=6.68 cfs 0.711 af
Primary=6.65 cfs 0.709 af Secondary=0.00 cfs 0.000 af Outflow=6.65 cfs 0.709 af

**Pond P-1C: DMH#1** Peak Elev=158.67' Inflow=1.29 cfs 0.122 af
12.0" Round Culvert n=0.013 L=94.0' S=0.0043 '/' Outflow=1.29 cfs 0.122 af

**Pond P-1C1: FI#1** Peak Elev=159.17' Inflow=1.04 cfs 0.086 af
15.0" Round Culvert n=0.013 L=156.0' S=0.0038 '/' Outflow=1.04 cfs 0.086 af

**Pond P-1D: 15" Culvert** Peak Elev=159.08' Inflow=5.38 cfs 0.494 af
18.0" Round Culvert n=0.025 L=120.0' S=0.0183 '/' Outflow=5.38 cfs 0.494 af

**Pond P-1D3: FI#2** Peak Elev=159.45' Inflow=1.24 cfs 0.114 af
12.0" Round Culvert n=0.013 L=151.0' S=0.0033 '/' Outflow=1.24 cfs 0.114 af

**Pond P-1E: 12" Culvert** Peak Elev=159.04' Storage=108 cf Inflow=0.85 cfs 0.071 af
Primary=0.80 cfs 0.071 af Secondary=0.00 cfs 0.000 af Outflow=0.80 cfs 0.071 af

**Pond P-1F: 2 - 24 " Dia Culvert** Peak Elev=160.91' Storage=11 cf Inflow=7.20 cfs 0.801 af
Primary=7.20 cfs 0.801 af Secondary=0.00 cfs 0.000 af Outflow=7.20 cfs 0.801 af

**Pond RDF-1: Roof Dripline Filter #1** Peak Elev=157.19' Storage=168 cf Inflow=0.51 cfs 0.039 af
Primary=0.26 cfs 0.039 af Secondary=0.00 cfs 0.000 af Outflow=0.26 cfs 0.039 af

**Pond RDF-2: Roof Dripline Filter #2** Peak Elev=156.81' Storage=0.000 af Inflow=0.19 cfs 0.014 af
Primary=0.16 cfs 0.014 af Secondary=0.00 cfs 0.000 af Outflow=0.16 cfs 0.014 af

**Pond RDF-3: Roof Dripline Filter #3** Peak Elev=161.64' Storage=0.003 af Inflow=0.48 cfs 0.037 af
Primary=0.26 cfs 0.037 af Secondary=0.00 cfs 0.000 af Outflow=0.26 cfs 0.037 af

**Pond RDF-4: Roof Dripline Filter #4** Peak Elev=160.53' Storage=0.000 af Inflow=0.16 cfs 0.013 af
Primary=0.15 cfs 0.013 af Secondary=0.00 cfs 0.000 af Outflow=0.15 cfs 0.013 af

**Link AP-1:** Inflow=14.15 cfs 1.757 af
Primary=14.15 cfs 1.757 af

**Total Runoff Area = 16.655 ac Runoff Volume = 1.759 af Average Runoff Depth = 1.27"**
**80.69% Pervious = 13.440 ac 19.31% Impervious = 3.215 ac**

## Summary for Subcatchment SC-1: West

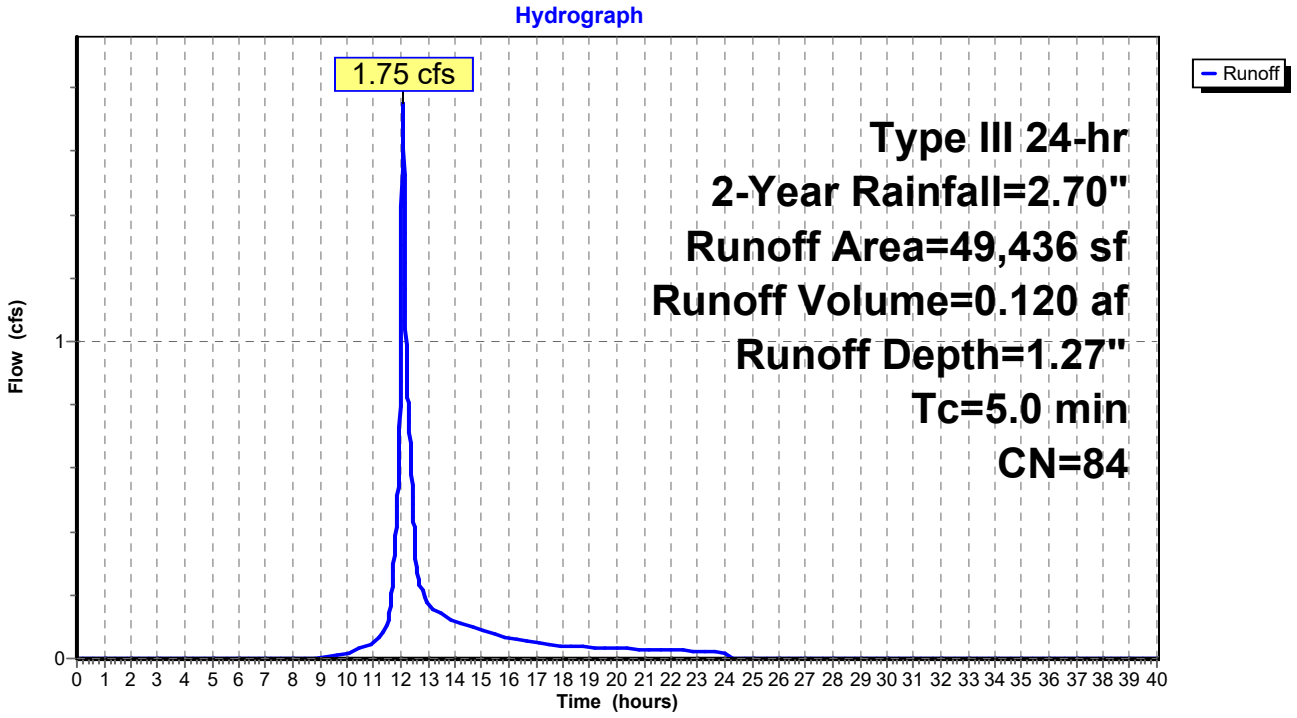
Runoff = 1.75 cfs @ 12.08 hrs, Volume= 0.120 af, Depth= 1.27"
Routed to Pond P-1 : 30" Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=2.70"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 3,926 | 98 | Paved parking |
| * | 62 | 98 | Roofs, |
| * | 7,976 | 98 | Paved roads w/curbs & sewers |
| | 32,330 | 80 | Pasture/grassland/range, Good, HSG D |
| | 5,142 | 79 | Woods/grass comb., Good, HSG D |
| | 49,436 | 84 | Weighted Average |
| | 37,472 | | 75.80% Pervious Area |
| | 11,964 | | 24.20% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, 5 Minutes Minimum** |

### Subcatchment SC-1: West



## Summary for Subcatchment SC-1A: East

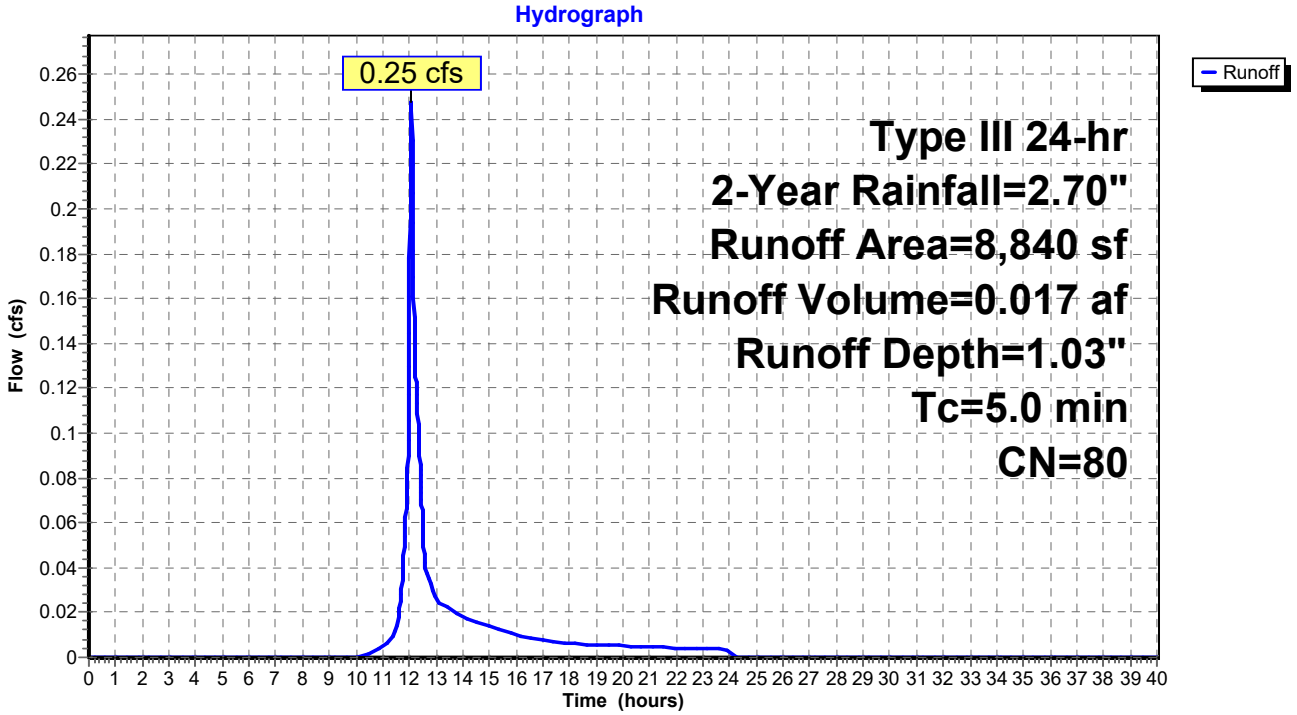
Runoff = 0.25 cfs @ 12.08 hrs, Volume= 0.017 af, Depth= 1.03"
Routed to Pond P-1A : Underdrained Soil Filter #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=2.70"

| Area (sf) | CN | Description |
|---|---|---|
| 8,840 | 80 | >75% Grass cover, Good, HSG D |
| 8,840 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

### Subcatchment SC-1A: East



## Summary for Subcatchment SC-1A1: Roundabout

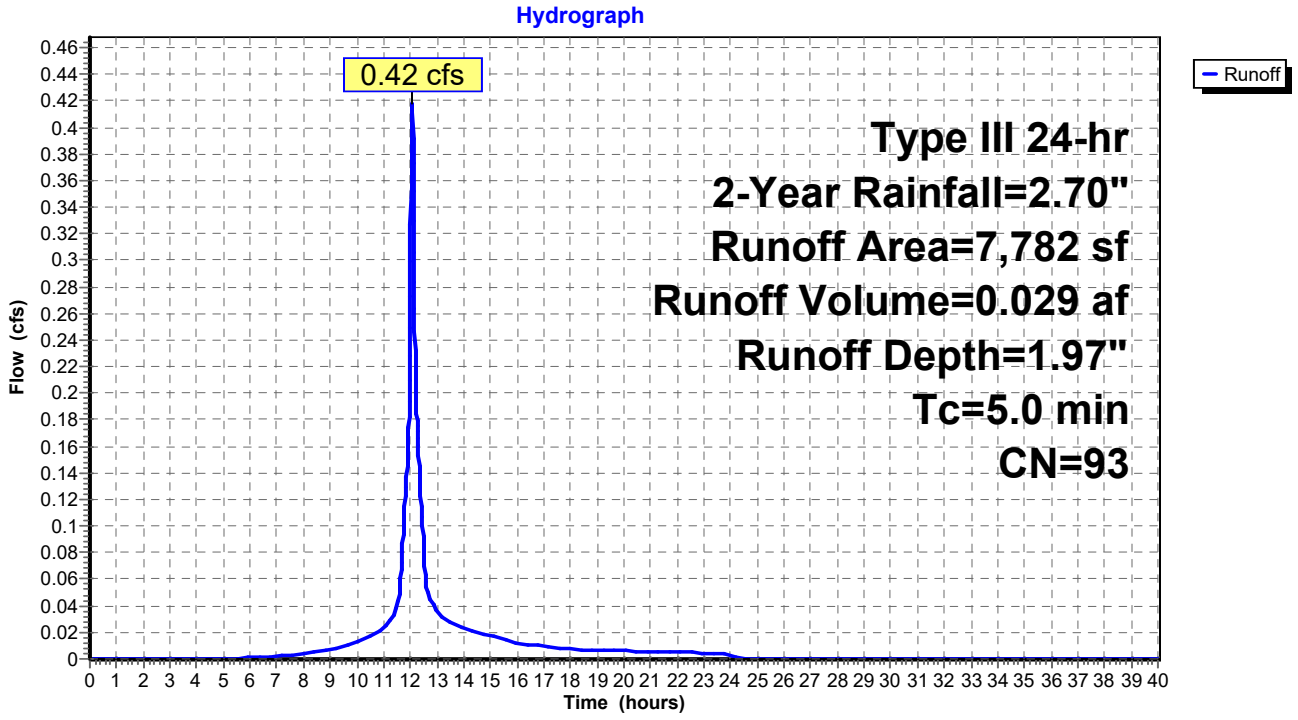
Runoff = 0.42 cfs @ 12.07 hrs, Volume= 0.029 af, Depth= 1.97"
Routed to Pond P-1A2 : CB#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=2.70"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 5,509 | 98 | Paved parking |
| | 2,273 | 80 | >75% Grass cover, Good, HSG D |
| | 7,782 | 93 | Weighted Average |
| | 2,273 | | 29.21% Pervious Area |
| | 5,509 | | 70.79% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, 5 Minutes Minimum** |

## Subcatchment SC-1A1: Roundabout



## Summary for Subcatchment SC-1A2: Parking Lot

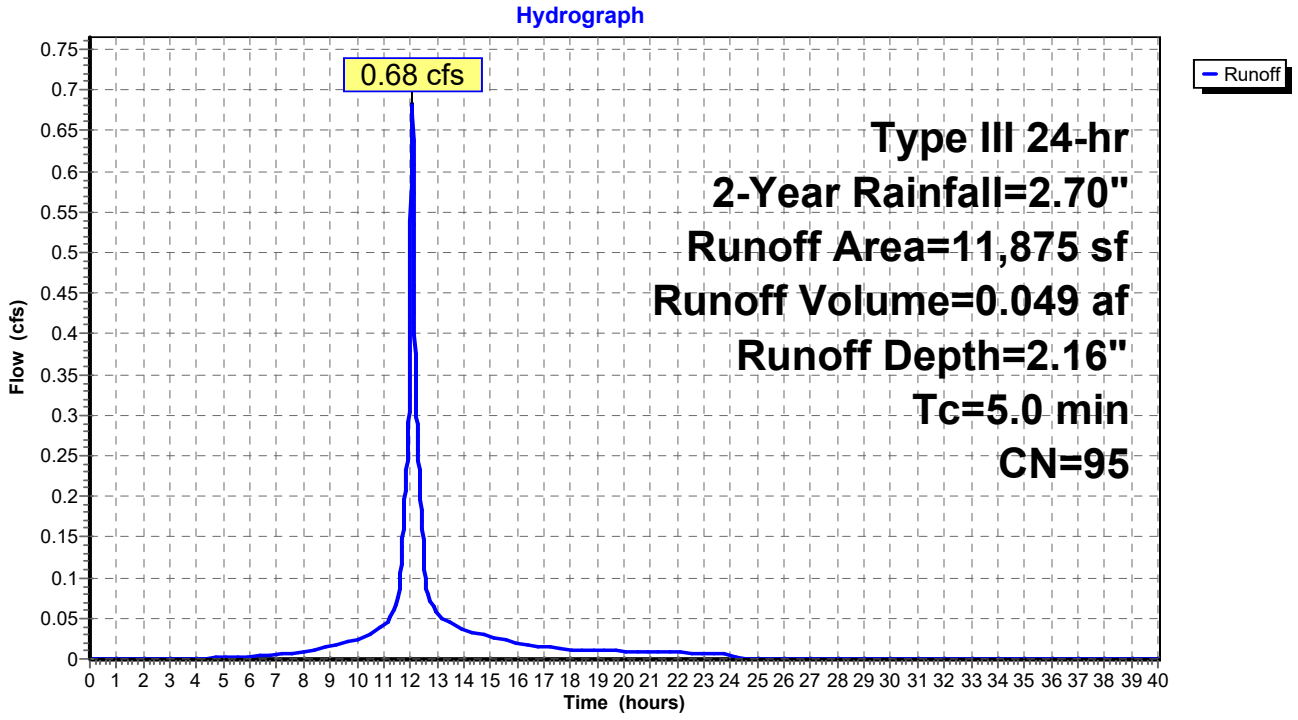
Runoff = 0.68 cfs @ 12.07 hrs, Volume= 0.049 af, Depth= 2.16"
Routed to Pond P-1A2 : CB#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=2.70"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 10,015 | 98 | Paved parking |
| | 1,860 | 80 | >75% Grass cover, Good, HSG D |
| | 11,875 | 95 | Weighted Average |
| | 1,860 | | 15.66% Pervious Area |
| | 10,015 | | 84.34% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

## Subcatchment SC-1A2: Parking Lot



## Summary for Subcatchment SC-1B: Southeast Off-property

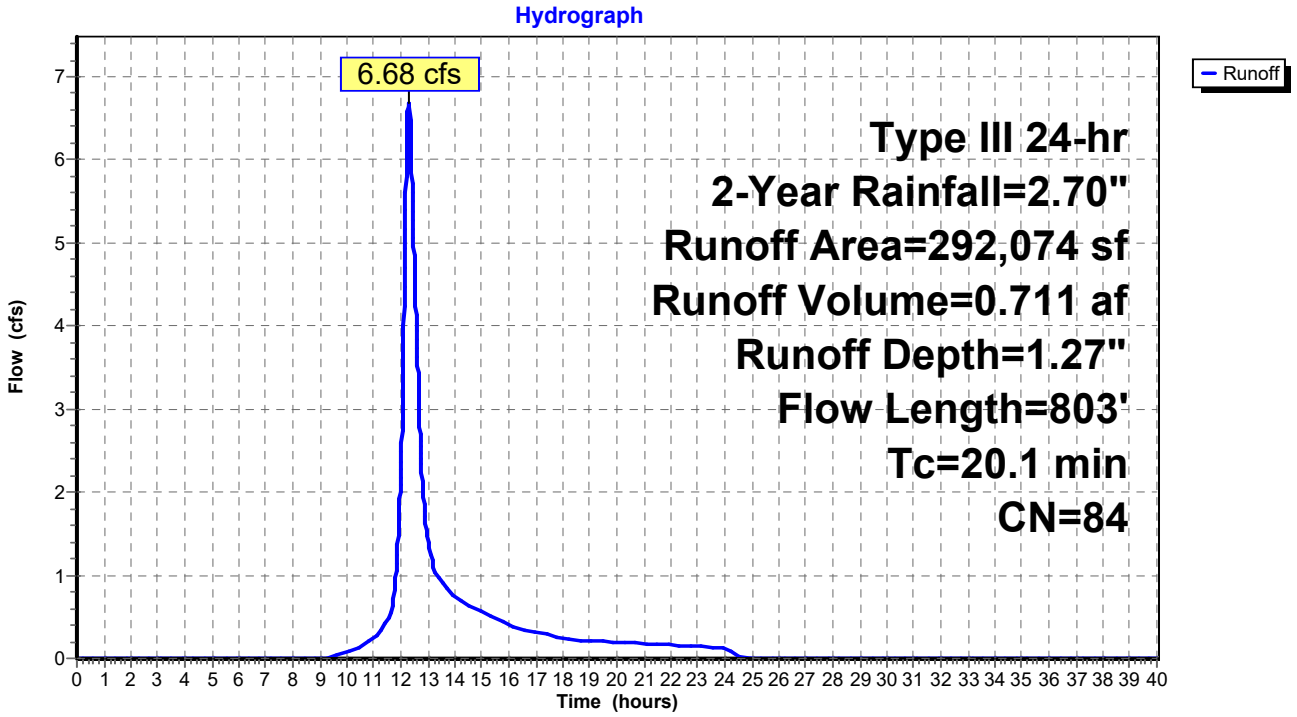
Runoff = 6.68 cfs @ 12.28 hrs, Volume= 0.711 af, Depth= 1.27"
Routed to Pond P-1B : 36" Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=2.70"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 20,275 | 98 | Roofs |
| | 11,200 | 98 | Paved roads w/curbs & sewers |
| * | 19,477 | 98 | Paved parking |
| * | 19,494 | 96 | Gravel surface |
| | 11,386 | 74 | >75% Grass cover, Good, HSG C |
| | 170,113 | 80 | >75% Grass cover, Good, HSG D |
| | 40,129 | 79 | Woods/grass comb., Good, HSG D |
| | 292,074 | 84 | Weighted Average |
| | 241,122 | | 82.56% Pervious Area |
| | 50,952 | | 17.44% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 12.8 | 100 | 0.0325 | 0.13 | | **Sheet Flow, A-B**<br>Grass: Dense n= 0.240 P2= 2.70" |
| 0.9 | 79 | 0.0443 | 1.47 | | **Shallow Concentrated Flow, B-C**<br>Short Grass Pasture Kv= 7.0 fps |
| 1.5 | 147 | 0.1041 | 1.61 | | **Shallow Concentrated Flow, C-D**<br>Woodland Kv= 5.0 fps |
| 0.3 | 34 | 0.0882 | 2.08 | | **Shallow Concentrated Flow, D-E**<br>Short Grass Pasture Kv= 7.0 fps |
| 3.6 | 219 | 0.0411 | 1.01 | | **Shallow Concentrated Flow, E-F**<br>Woodland Kv= 5.0 fps |
| 0.7 | 117 | 0.0342 | 2.77 | | **Shallow Concentrated Flow, F-G**<br>Grassed Waterway Kv= 15.0 fps |
| 0.2 | 79 | 0.0200 | 8.06 | 9.90 | **Pipe Channel, G-H**<br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'<br>n= 0.012 Corrugated PP, smooth interior |
| 0.1 | 28 | 0.0896 | 4.49 | | **Shallow Concentrated Flow, H-I**<br>Grassed Waterway Kv= 15.0 fps |
| 20.1 | 803 | Total | | | |

## Subcatchment SC-1B: Southeast Off-property



## Summary for Subcatchment SC-1C: Centeral East portion

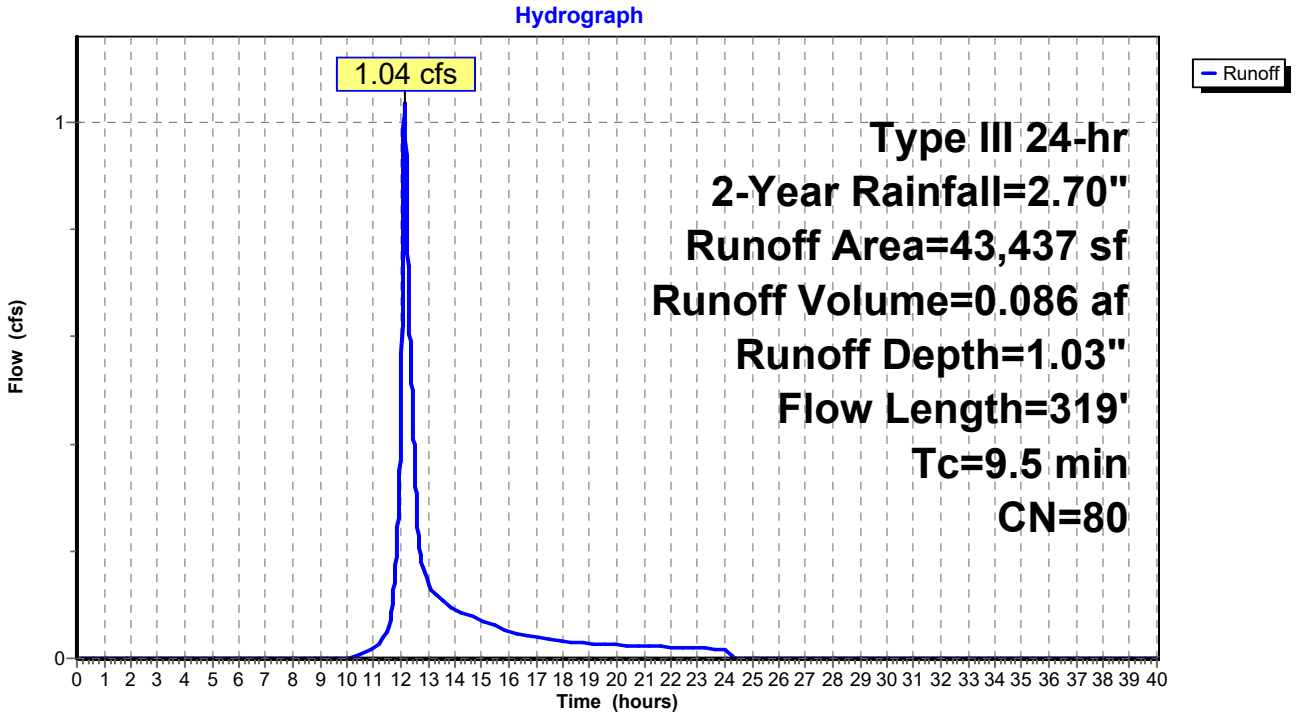
Runoff = 1.04 cfs @ 12.14 hrs, Volume= 0.086 af, Depth= 1.03"
Routed to Pond P-1C1 : FI#1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=2.70"

| Area (sf) | CN | Description |
|---|---|---|
| 37,473 | 80 | >75% Grass cover, Good, HSG D |
| 5,964 | 79 | Woods/grass comb., Good, HSG D |
| 43,437 | 80 | Weighted Average |
| 43,437 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.1 | 100 | 0.0800 | 0.27 | | **Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.70" |
| 0.0 | 5 | 0.0800 | 1.98 | | **Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps |
| 0.3 | 35 | 0.1140 | 1.69 | | **Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps |
| 0.3 | 57 | 0.2110 | 3.22 | | **Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps |
| 0.1 | 35 | 0.3428 | 4.10 | | **Shallow Concentrated Flow, E-F** Short Grass Pasture Kv= 7.0 fps |
| 2.7 | 87 | 0.0057 | 0.53 | | **Shallow Concentrated Flow, F-G** Short Grass Pasture Kv= 7.0 fps |
| 9.5 | 319 | Total | | | |

## Subcatchment SC-1C: Centeral East portion



## Summary for Subcatchment SC-1C1: Southwest Portion of Building

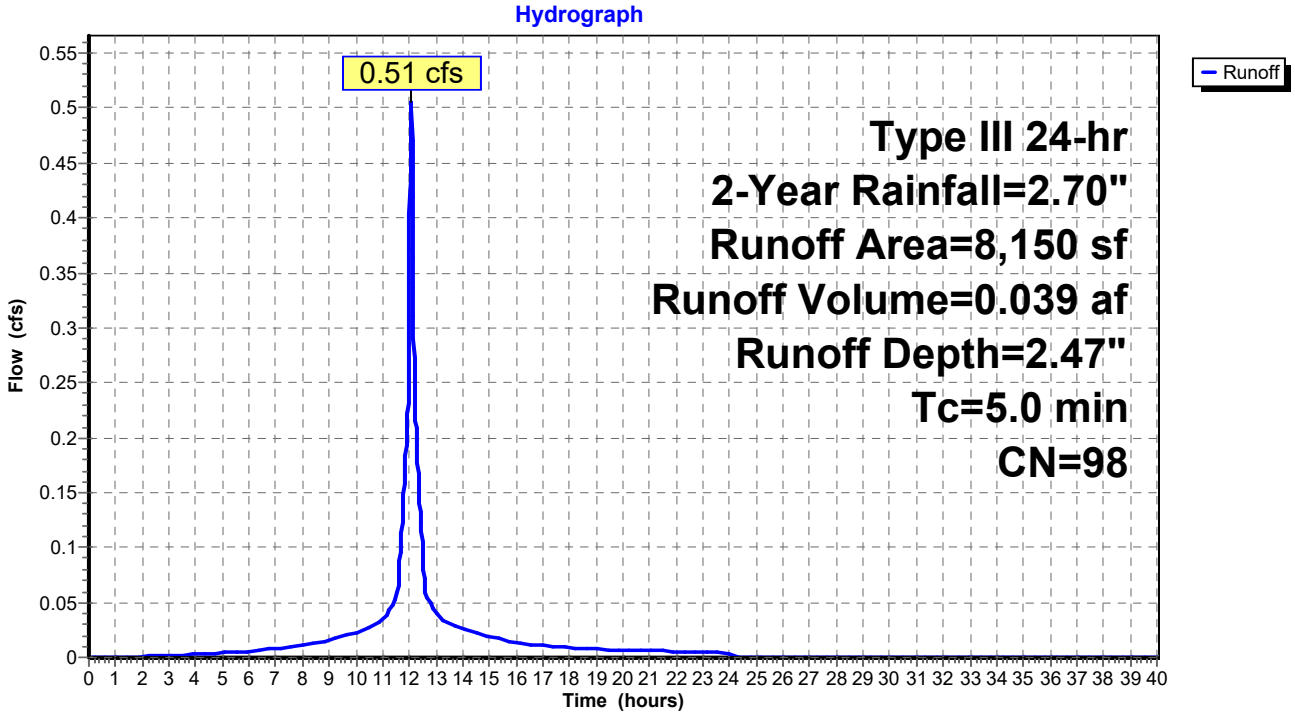
Runoff = 0.51 cfs @ 12.07 hrs, Volume= 0.039 af, Depth= 2.47"
Routed to Pond RDF-1 : Roof Dripline Filter #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=2.70"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 8,150 | 98 | Roofs |
| | 8,150 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, 5 Minutes Minimum** |

## Subcatchment SC-1C1: Southwest Portion of Building



## Summary for Subcatchment SC-1C2: Southeast portion of Building

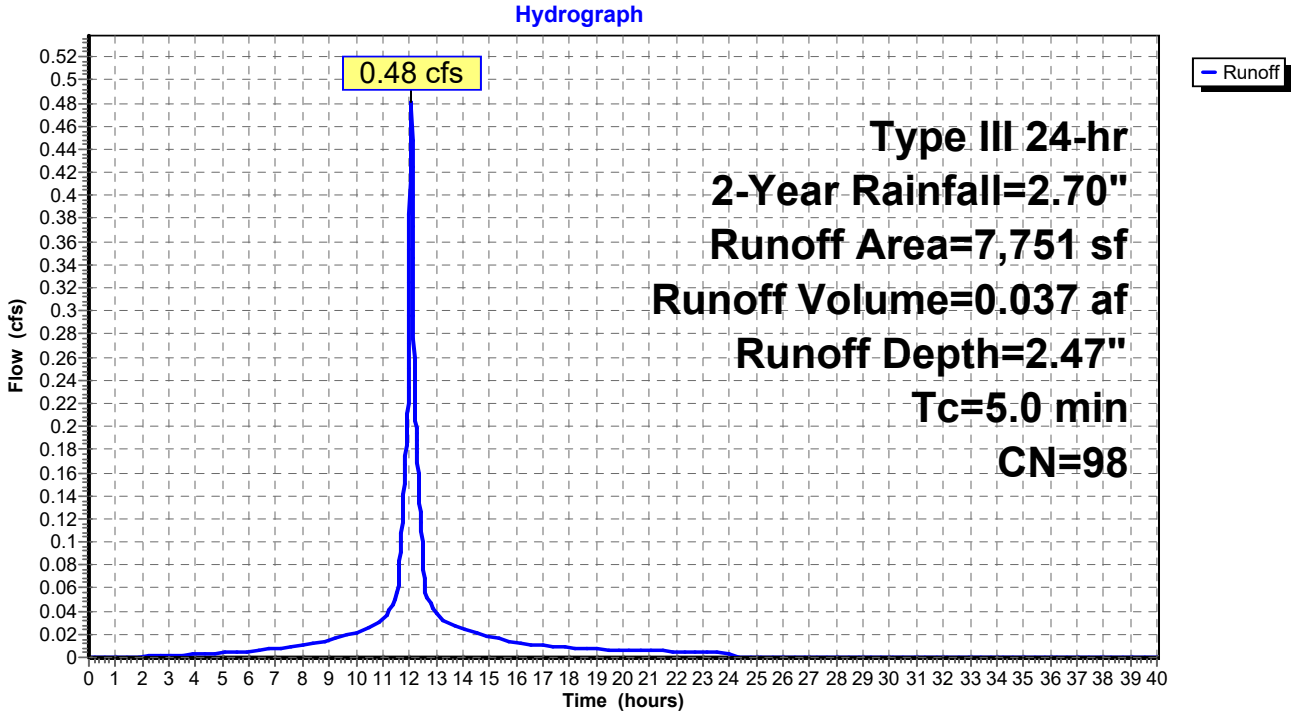
Runoff = 0.48 cfs @ 12.07 hrs, Volume= 0.037 af, Depth= 2.47"
Routed to Pond RDF-3 : Roof Dripline Filter #3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=2.70"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 7,751 | 98 | Roofs |
| | 7,751 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, 5 Minutes Minimum** |

## Subcatchment SC-1C2: Southeast portion of Building



## Summary for Subcatchment SC-1D: North

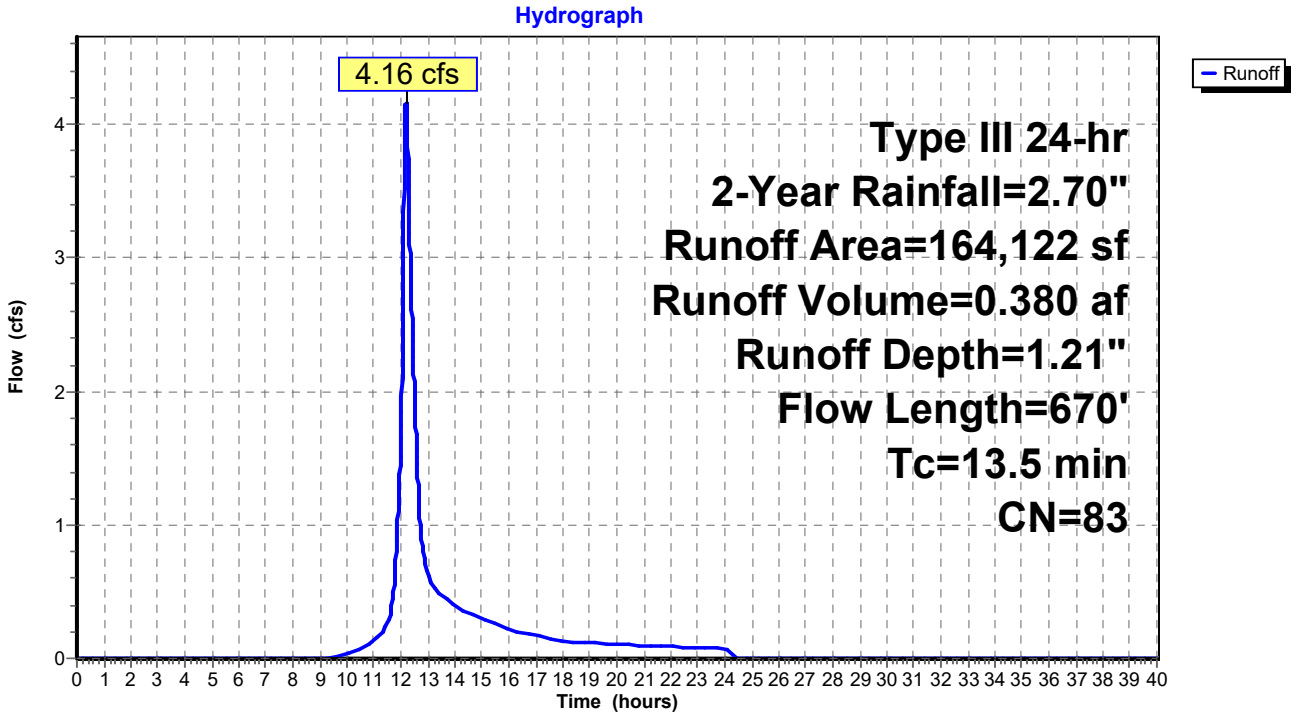
Runoff = 4.16 cfs @ 12.19 hrs, Volume= 0.380 af, Depth= 1.21"
Routed to Pond P-1D : 15" Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=2.70"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 16,493 | 98 | Paved parking |
| * | 5,185 | 98 | Roofs, |
| * | 9,894 | 98 | Paved roads w/curbs & sewers |
| | 121,345 | 80 | >75% Grass cover, Good, HSG D |
| | 11,205 | 79 | Woods/grass comb., Good, HSG D |
| | 164,122 | 83 | Weighted Average |
| | 132,550 | | 80.76% Pervious Area |
| | 31,572 | | 19.24% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.9 | 100 | 0.0600 | 0.24 | | **Sheet Flow, A-B**<br>Grass: Short n= 0.150 P2= 2.70" |
| 0.0 | 4 | 0.0600 | 1.71 | | **Shallow Concentrated Flow, B-C**<br>Short Grass Pasture Kv= 7.0 fps |
| 0.5 | 44 | 0.0910 | 1.51 | | **Shallow Concentrated Flow, C-D**<br>Woodland Kv= 5.0 fps |
| 3.0 | 320 | 0.0660 | 1.80 | | **Shallow Concentrated Flow, D-E**<br>Short Grass Pasture Kv= 7.0 fps |
| 3.1 | 202 | 0.0240 | 1.08 | | **Shallow Concentrated Flow, E-F**<br>Short Grass Pasture Kv= 7.0 fps |
| 13.5 | 670 | Total | | | |

## Subcatchment SC-1D: North



## Summary for Subcatchment SC-1D1: Northwest portion of building

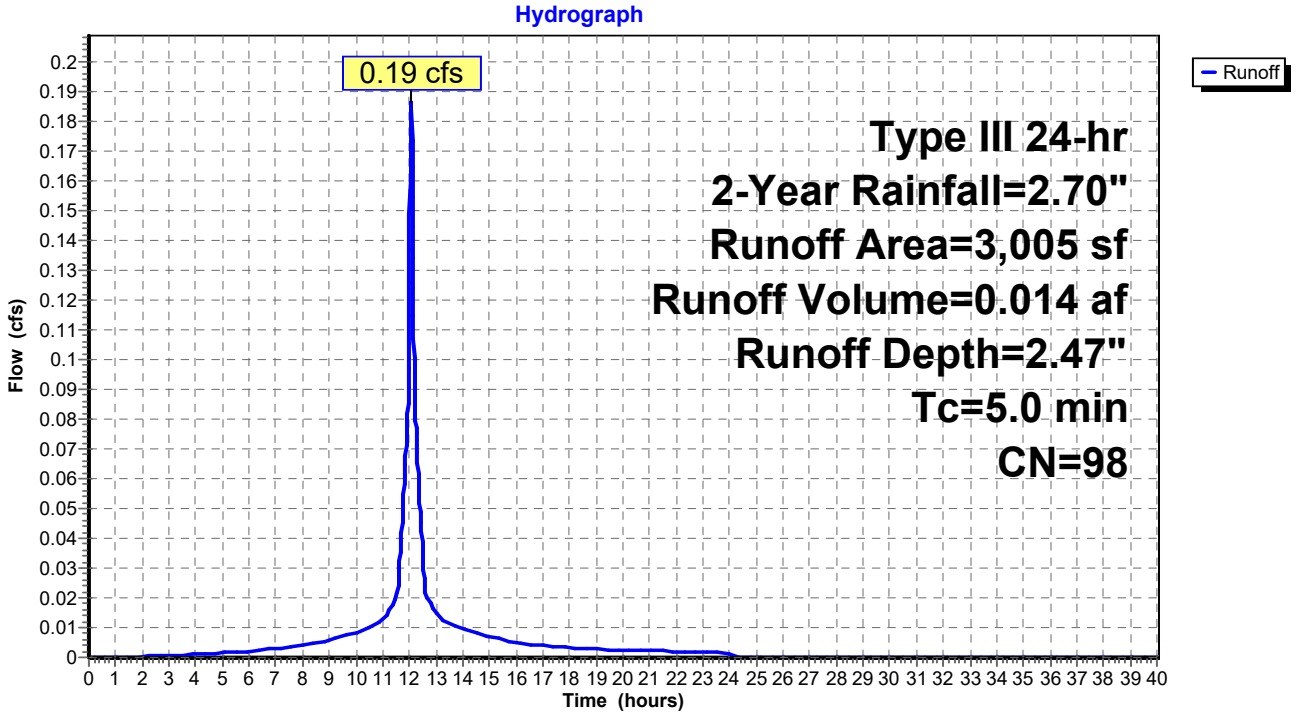
Runoff = 0.19 cfs @ 12.07 hrs, Volume= 0.014 af, Depth= 2.47"
Routed to Pond RDF-2 : Roof Dripline Filter #2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=2.70"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 3,005 | 98 | Roofs |
| | 3,005 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, 5 Minutes Minimum** |

## Subcatchment SC-1D1: Northwest portion of building



## Summary for Subcatchment SC-1D2: Northeast portion of building

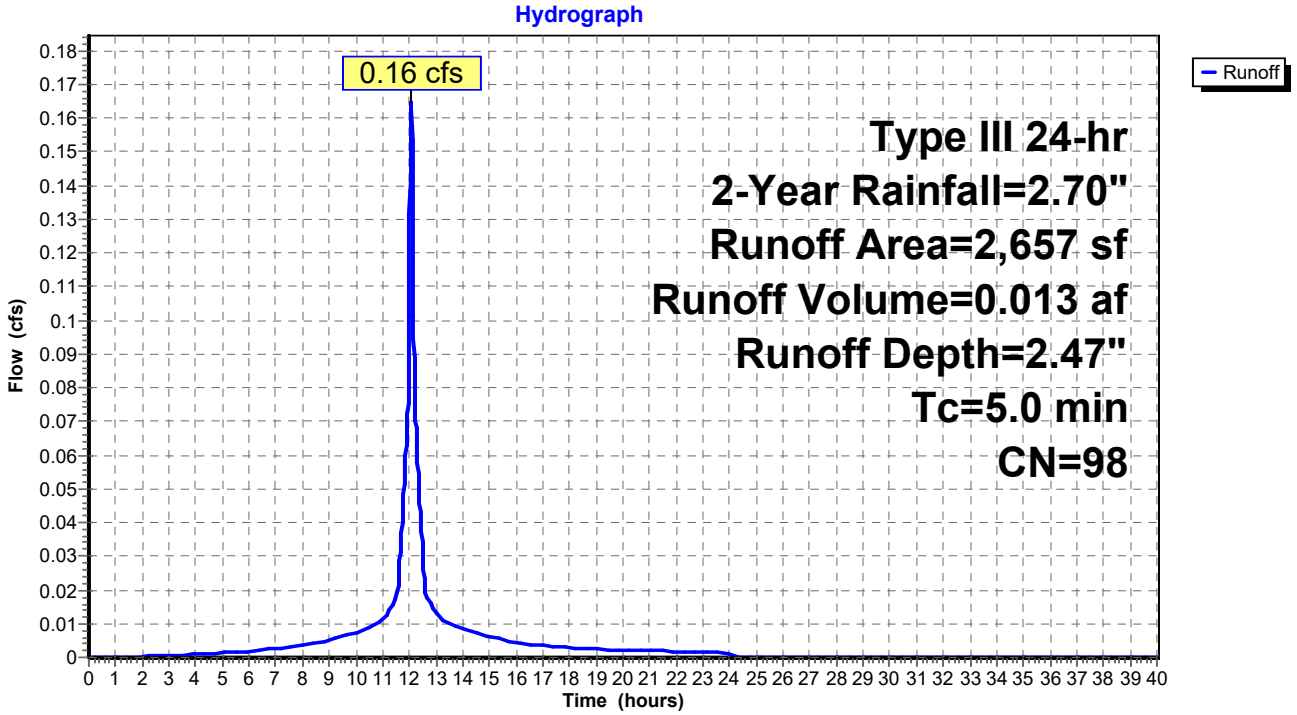
Runoff = 0.16 cfs @ 12.07 hrs, Volume= 0.013 af, Depth= 2.47"
Routed to Pond RDF-4 : Roof Dripline Filter #4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=2.70"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 2,657 | 98 | Roofs |
| | 2,657 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, 5 Minutes Minimum** |

## Subcatchment SC-1D2: Northeast portion of building



## Summary for Subcatchment SC-1D3: Northeast Portion of Property

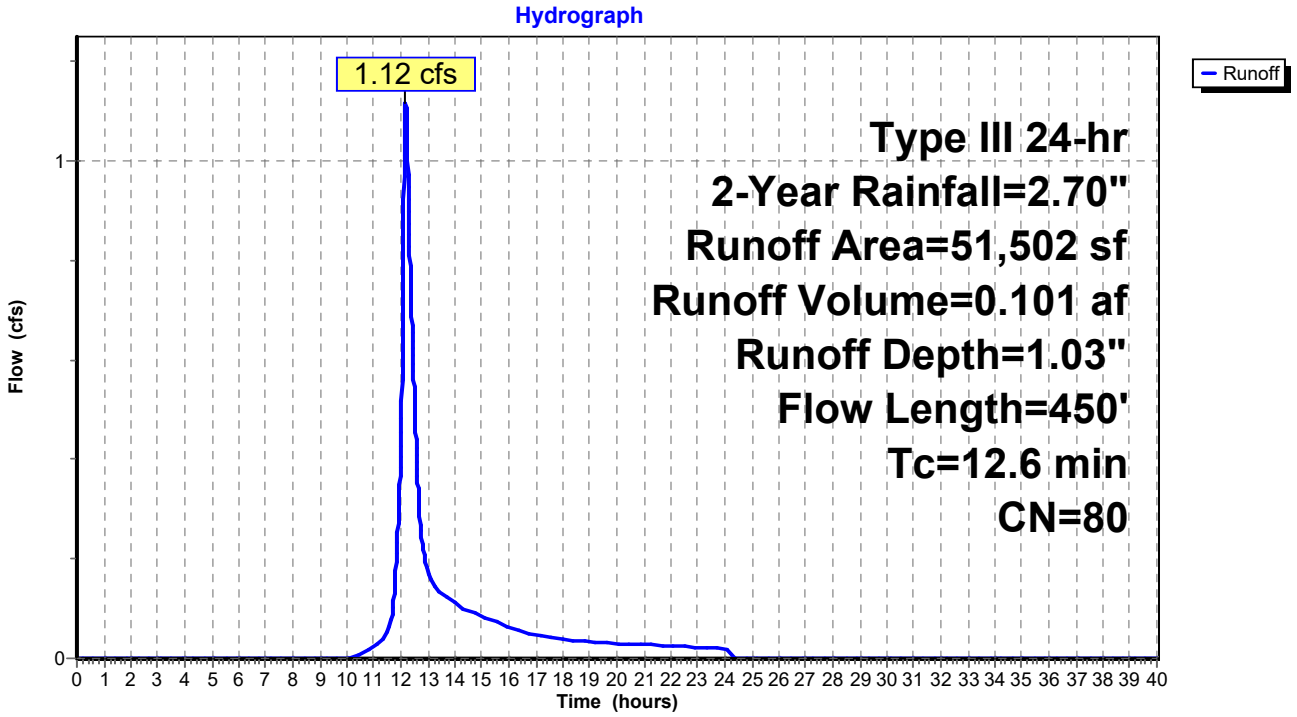
Runoff = 1.12 cfs @ 12.18 hrs, Volume= 0.101 af, Depth= 1.03"
Routed to Pond P-1D3 : FI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=2.70"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 122 | 98 | Paved roads w/curbs & sewers |
| | 48,321 | 80 | >75% Grass cover, Good, HSG D |
| | 3,059 | 79 | Woods/grass comb., Good, HSG D |
| | 51,502 | 80 | Weighted Average |
| | 51,380 | | 99.76% Pervious Area |
| | 122 | | 0.24% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 9.1 | 100 | 0.0300 | 0.18 | | **Sheet Flow, A-B**<br>Grass: Short n= 0.150 P2= 2.70" |
| 0.3 | 35 | 0.0720 | 1.88 | | **Shallow Concentrated Flow, B-C**<br>Short Grass Pasture Kv= 7.0 fps |
| 0.1 | 23 | 0.0200 | 2.87 | | **Shallow Concentrated Flow, C-D**<br>Paved Kv= 20.3 fps |
| 0.9 | 100 | 0.0770 | 1.94 | | **Shallow Concentrated Flow, D-E**<br>Short Grass Pasture Kv= 7.0 fps |
| 0.3 | 31 | 0.1190 | 1.72 | | **Shallow Concentrated Flow, E-F**<br>Woodland Kv= 5.0 fps |
| 0.6 | 109 | 0.1827 | 2.99 | | **Shallow Concentrated Flow, F-G**<br>Short Grass Pasture Kv= 7.0 fps |
| 1.3 | 52 | 0.0097 | 0.69 | | **Shallow Concentrated Flow, G-H**<br>Short Grass Pasture Kv= 7.0 fps |
| 12.6 | 450 | Total | | | |

## Subcatchment SC-1D3: Northeast Portion of Property



## Summary for Subcatchment SC-1E: Central of property

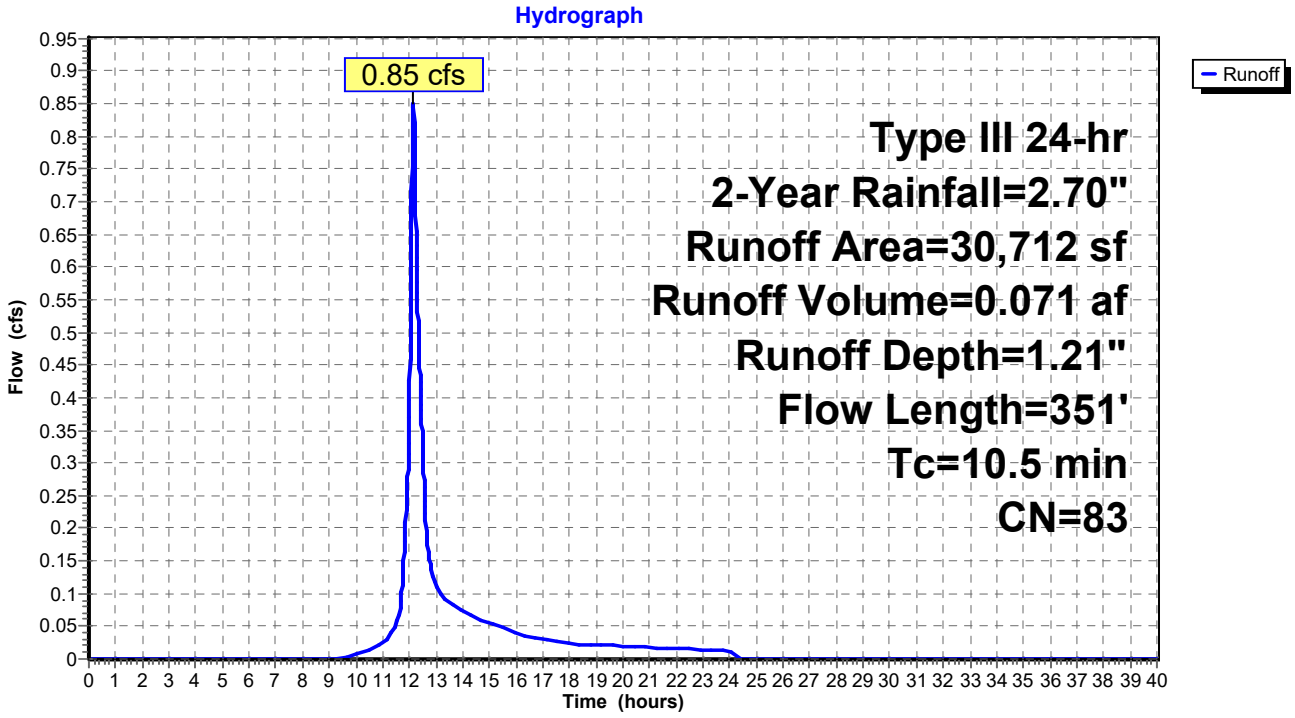
Runoff = 0.85 cfs @ 12.15 hrs, Volume= 0.071 af, Depth= 1.21"
Routed to Pond P-1E : 12" Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=2.70"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 5,682 | 98 | Paved roads w/curbs & sewers |
| * | 89 | 98 | Paved parking |
| | 24,741 | 80 | Pasture/grassland/range, Good, HSG D |
| | 200 | 79 | Woods/grass comb., Good, HSG D |
| | 30,712 | 83 | Weighted Average |
| | 24,941 | | 81.21% Pervious Area |
| | 5,771 | | 18.79% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 9.2 | 100 | 0.0750 | 0.18 | | **Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.70" |
| 1.3 | 251 | 0.0103 | 3.16 | 39.16 | **Channel Flow, B-C** Area= 12.4 sf Perim= 24.9' r= 0.50' n= 0.030 Earth, grassed & winding |
| 10.5 | 351 | Total | | | |

## Subcatchment SC-1E: Central of property



## Summary for Subcatchment SC-1F: Central of property

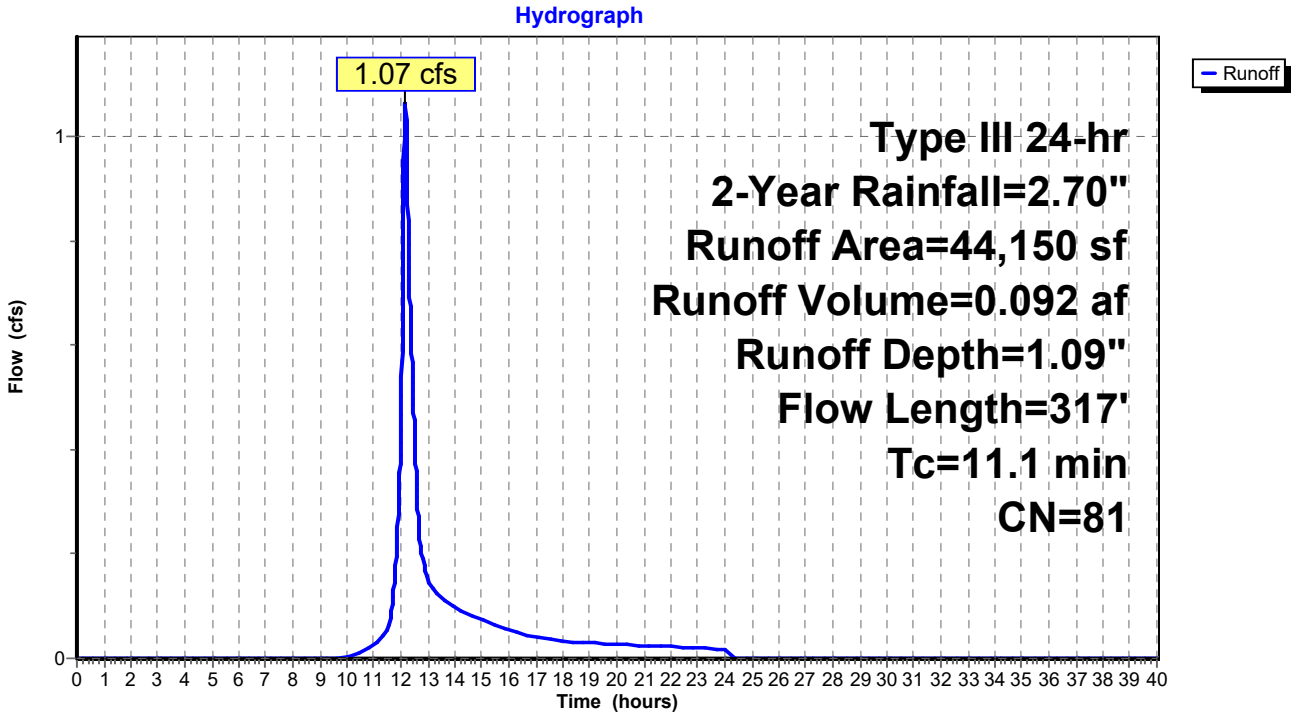
Runoff = 1.07 cfs @ 12.16 hrs, Volume= 0.092 af, Depth= 1.09"
Routed to Pond P-1F : 2 - 24 " Dia Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=2.70"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 1,971 | 98 | Paved roads w/curbs & sewers |
| * | 620 | 98 | Paved parking |
| | 31,090 | 80 | >75% Grass cover, Good, HSG D |
| | 10,469 | 79 | Woods/grass comb., Good, HSG D |
| | 44,150 | 81 | Weighted Average |
| | 41,559 | | 94.13% Pervious Area |
| | 2,591 | | 5.87% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | 100 | 0.0600 | 0.17 | | **Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.70" |
| 1.0 | 147 | 0.1292 | 2.52 | | **Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps |
| 0.1 | 70 | 0.0714 | 8.07 | 24.21 | **Channel Flow, C-D** Area= 3.0 sf Perim= 6.3' r= 0.48' n= 0.030 Earth, grassed & winding |
| 11.1 | 317 | Total | | | |

## Subcatchment SC-1F: Central of property



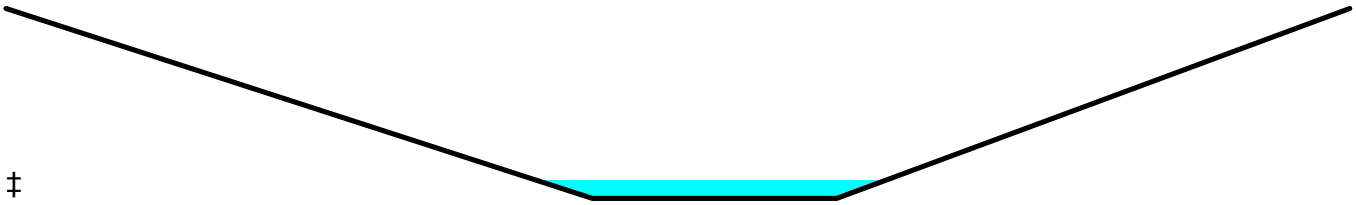
## Summary for Reach 1B-R1: Swale

Inflow Area = 6.705 ac, 17.44% Impervious, Inflow Depth = 1.27" for 2-Year event
Inflow = 6.65 cfs @ 12.30 hrs, Volume= 0.709 af
Outflow = 6.63 cfs @ 12.32 hrs, Volume= 0.709 af, Atten= 0%, Lag= 0.6 min
Routed to Reach 1B-R2 : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.74 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 1.28 fps, Avg. Travel Time= 2.8 min

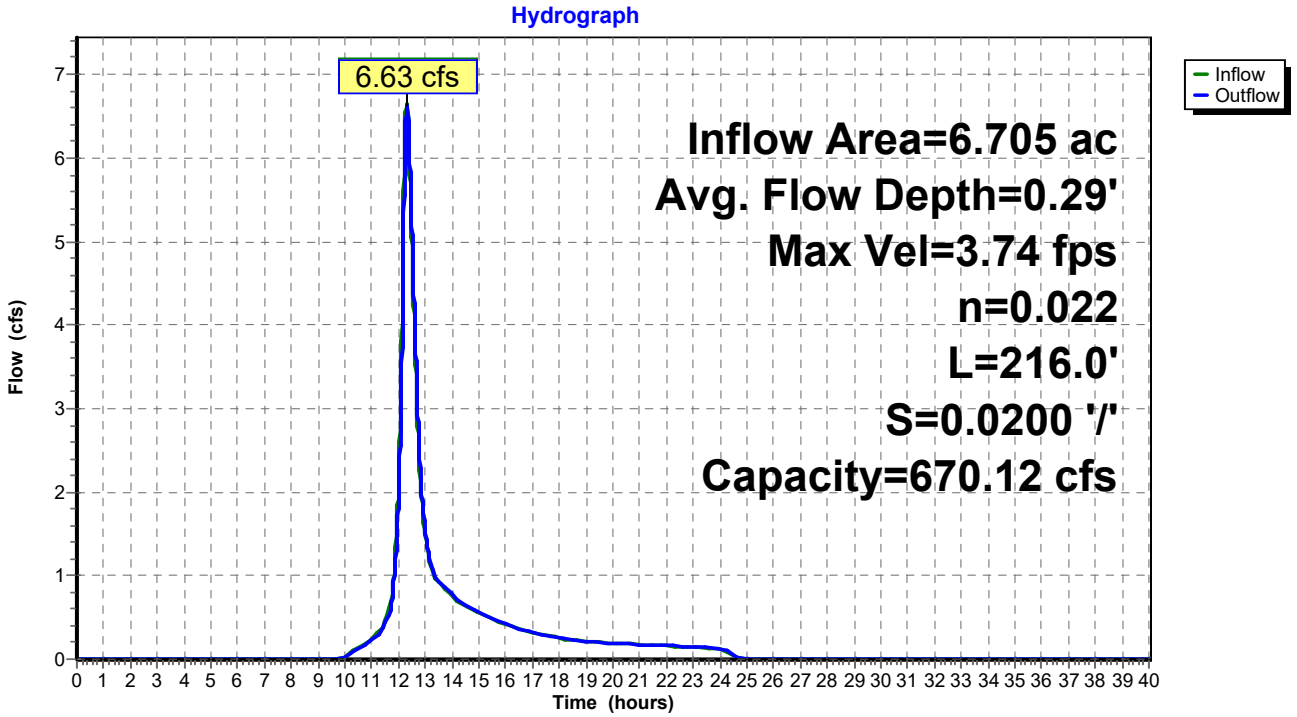
Peak Storage= 383 cf @ 12.32 hrs
Average Depth at Peak Storage= 0.29' , Surface Width= 7.18'
Bank-Full Depth= 3.00' Flow Area= 48.8 sf, Capacity= 670.12 cfs

5.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 4.0 3.5 '/' Top Width= 27.50'
Length= 216.0' Slope= 0.0200 '/'
Inlet Invert= 165.33', Outlet Invert= 161.00'



‡

**Reach 1B-R1: Swale**



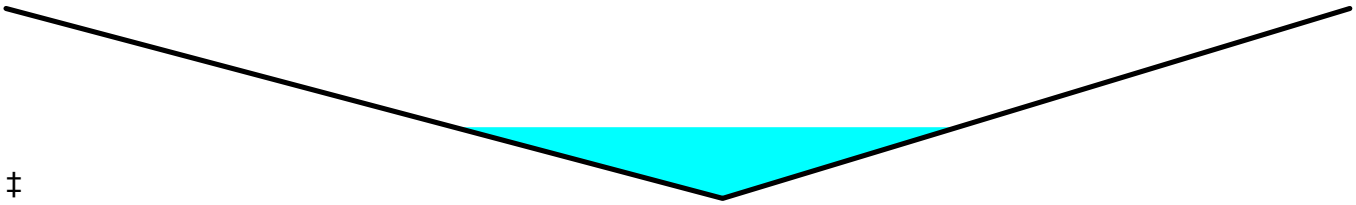
## Summary for Reach 1B-R2: Swale

Inflow Area = 6.705 ac, 17.44% Impervious, Inflow Depth = 1.27" for 2-Year event
Inflow = 6.63 cfs @ 12.32 hrs, Volume= 0.709 af
Outflow = 6.54 cfs @ 12.35 hrs, Volume= 0.709 af, Atten= 2%, Lag= 2.1 min
Routed to Pond P-1F : 2 - 24 " Dia Culvert

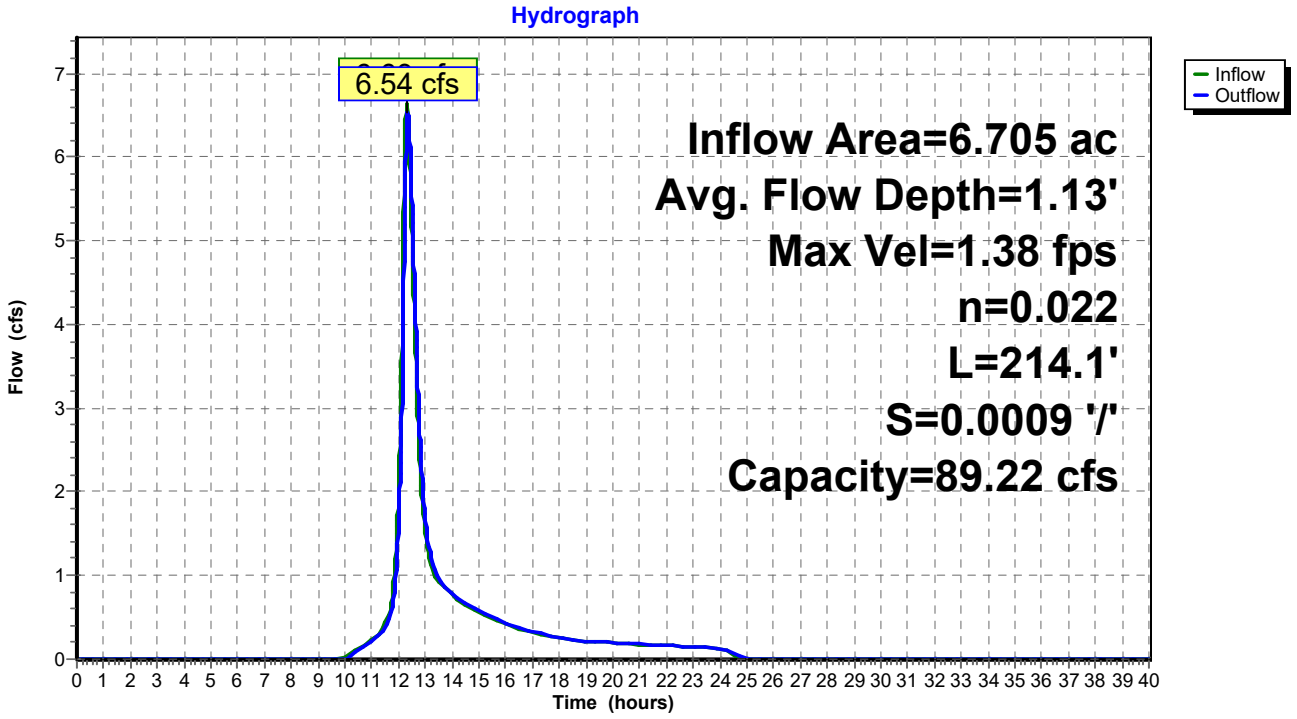
Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.38 fps, Min. Travel Time= 2.6 min
Avg. Velocity = 0.44 fps, Avg. Travel Time= 8.1 min

Peak Storage= 1,017 cf @ 12.35 hrs
Average Depth at Peak Storage= 1.13' , Surface Width= 8.44'
Bank-Full Depth= 3.00' Flow Area= 33.8 sf, Capacity= 89.22 cfs

0.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 4.0 3.5 '/' Top Width= 22.50'
Length= 214.1' Slope= 0.0009 '/'
Inlet Invert= 161.00', Outlet Invert= 160.80'



‡



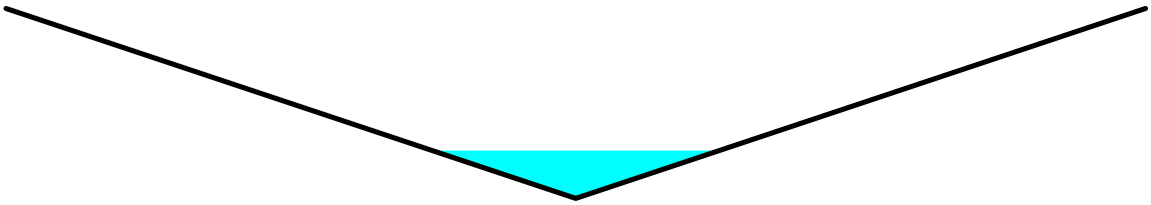
## Summary for Reach 1C-R: Swale

Inflow Area = 8.894 ac, 15.82% Impervious, Inflow Depth = 1.25" for 2-Year event
Inflow = 8.02 cfs @ 12.34 hrs, Volume= 0.923 af
Outflow = 8.02 cfs @ 12.35 hrs, Volume= 0.923 af, Atten= 0%, Lag= 0.5 min
Routed to Pond P-1 : 30" Culvert

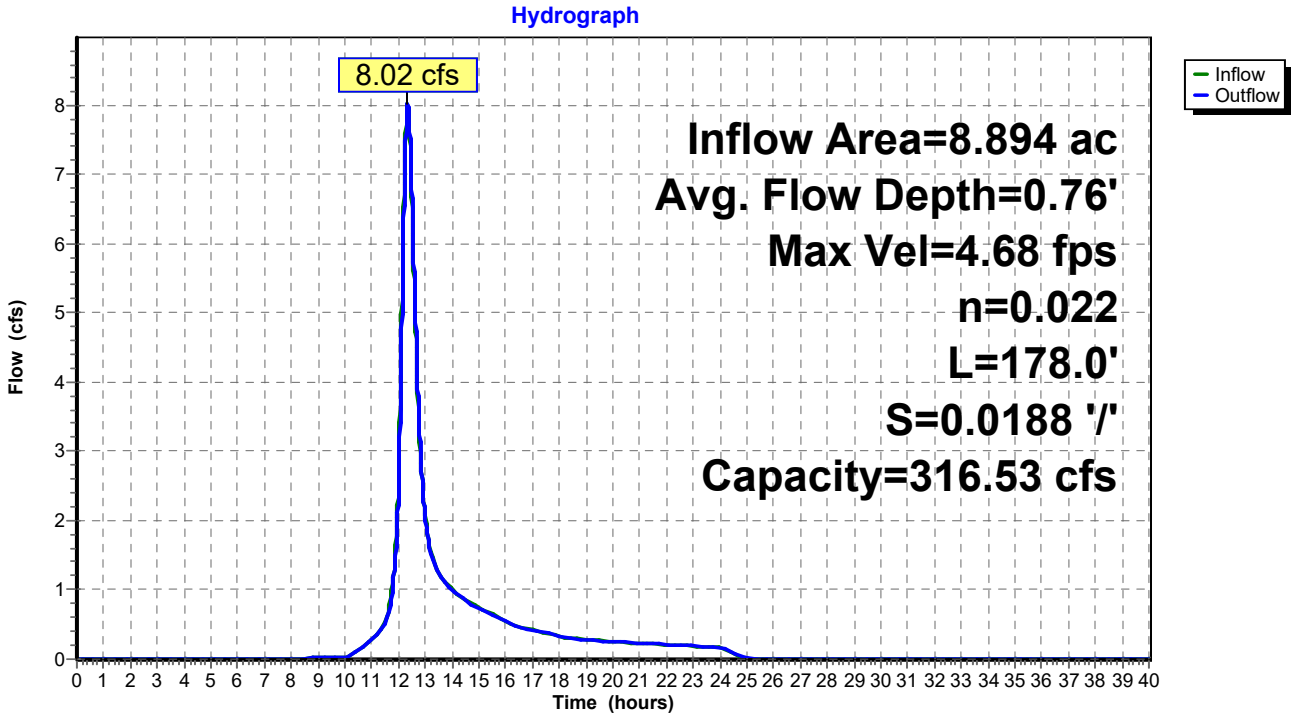
Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.68 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 1.53 fps, Avg. Travel Time= 1.9 min

Peak Storage= 305 cf @ 12.35 hrs
Average Depth at Peak Storage= 0.76' , Surface Width= 4.53'
Bank-Full Depth= 3.00' Flow Area= 27.0 sf, Capacity= 316.53 cfs

0.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 3.0 '/' Top Width= 18.00'
Length= 178.0' Slope= 0.0188 '/'
Inlet Invert= 157.50', Outlet Invert= 154.15'



**Reach 1C-R: Swale**



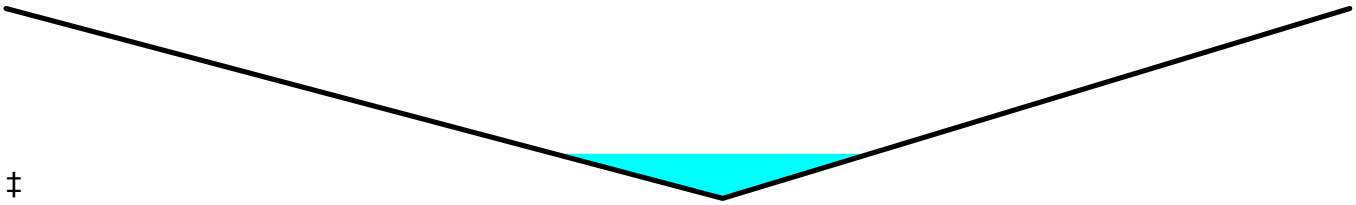
## Summary for Reach 1D-R: Swale

Inflow Area = 5.267 ac, 19.83% Impervious, Inflow Depth = 1.24" for 2-Year event
Inflow = 5.78 cfs @ 12.18 hrs, Volume= 0.546 af
Outflow = 5.76 cfs @ 12.19 hrs, Volume= 0.546 af, Atten= 0%, Lag= 0.7 min
Routed to Pond P-1 : 30" Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.09 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 1.13 fps, Avg. Travel Time= 2.3 min

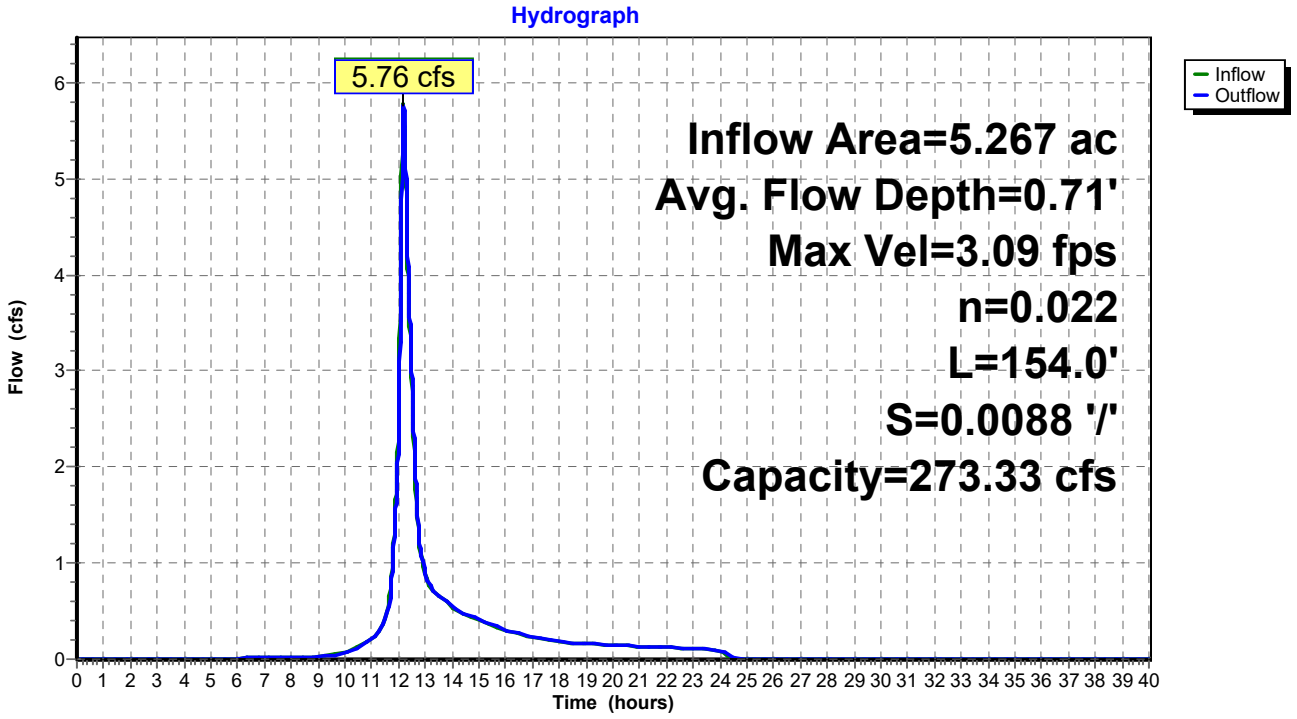
Peak Storage= 287 cf @ 12.19 hrs
Average Depth at Peak Storage= 0.71' , Surface Width= 5.29'
Bank-Full Depth= 3.00' Flow Area= 33.8 sf, Capacity= 273.33 cfs

0.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 4.0 3.5 '/' Top Width= 22.50'
Length= 154.0' Slope= 0.0088 '/'
Inlet Invert= 155.50', Outlet Invert= 154.15'



‡

**Reach 1D-R: Swale**



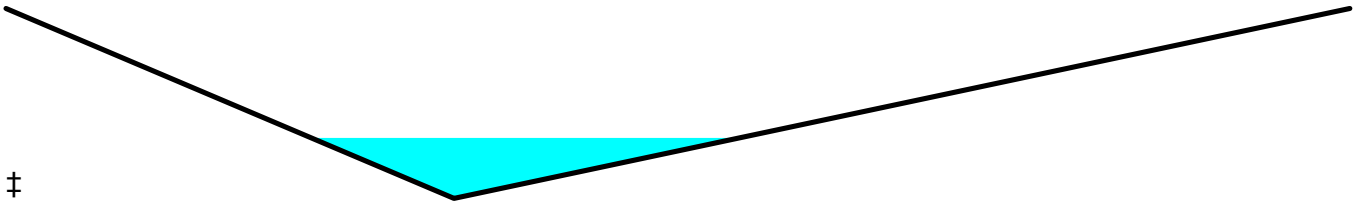
## Summary for Reach 1E-R: Road Side Ditch

Inflow Area = 0.705 ac, 18.79% Impervious, Inflow Depth = 1.21" for 2-Year event
Inflow = 0.80 cfs @ 12.18 hrs, Volume= 0.071 af
Outflow = 0.76 cfs @ 12.22 hrs, Volume= 0.071 af, Atten= 5%, Lag= 2.5 min
Routed to Pond P-1 : 30" Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.67 fps, Min. Travel Time= 3.2 min
Avg. Velocity = 0.61 fps, Avg. Travel Time= 8.7 min

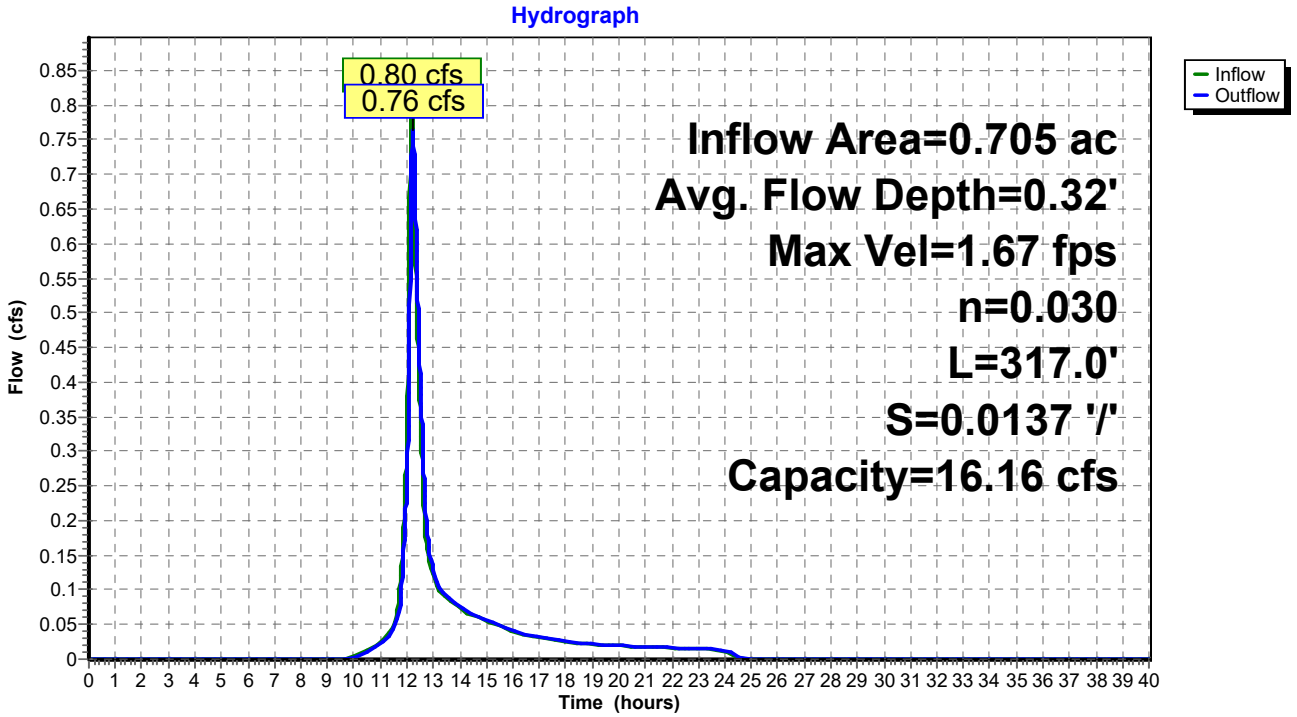
Peak Storage= 145 cf @ 12.22 hrs
Average Depth at Peak Storage= 0.32' , Surface Width= 2.87'
Bank-Full Depth= 1.00' Flow Area= 4.5 sf, Capacity= 16.16 cfs

0.00' x 1.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 6.0 '/' Top Width= 9.00'
Length= 317.0' Slope= 0.0137 '/'
Inlet Invert= 158.50', Outlet Invert= 154.15'



‡

### Reach 1E-R: Road Side Ditch



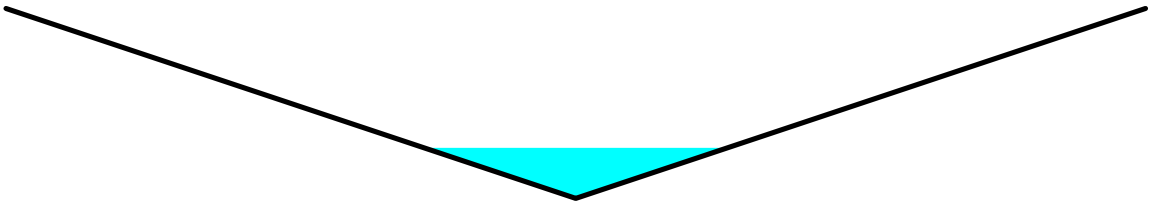
## Summary for Reach 1F-R: Swale

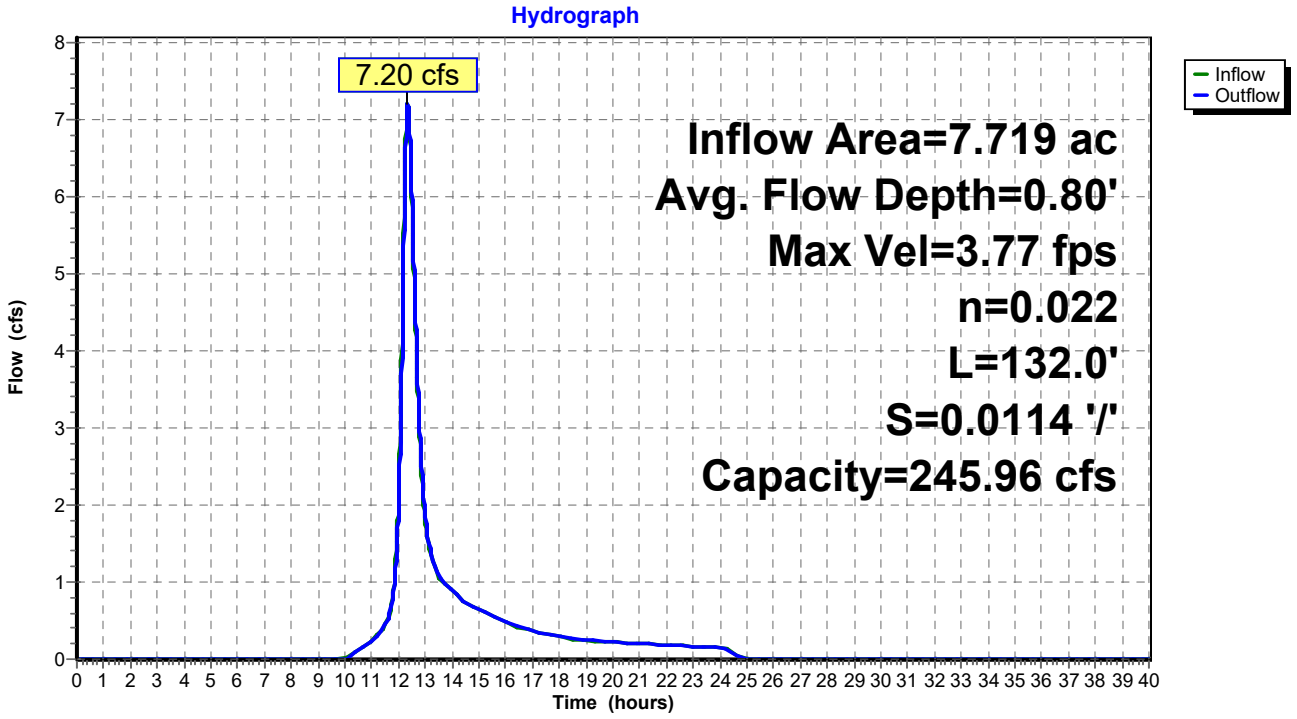
Inflow Area = 7.719 ac, 15.92% Impervious, Inflow Depth = 1.25" for 2-Year event
Inflow = 7.20 cfs @ 12.34 hrs, Volume= 0.801 af
Outflow = 7.20 cfs @ 12.35 hrs, Volume= 0.801 af, Atten= 0%, Lag= 0.4 min
Routed to Reach 1C-R : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.77 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 1.43 fps, Avg. Travel Time= 1.5 min

Peak Storage= 252 cf @ 12.35 hrs
Average Depth at Peak Storage= 0.80' , Surface Width= 4.79'
Bank-Full Depth= 3.00' Flow Area= 27.0 sf, Capacity= 245.96 cfs

0.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 3.0 '/' Top Width= 18.00'
Length= 132.0' Slope= 0.0114 '/'
Inlet Invert= 159.00', Outlet Invert= 157.50'





## Summary for Pond P-1: 30" Culvert

Inflow Area = 16.655 ac, 19.31% Impervious, Inflow Depth = 1.27" for 2-Year event
Inflow = 14.17 cfs @ 12.26 hrs, Volume= 1.757 af
Outflow = 14.15 cfs @ 12.27 hrs, Volume= 1.757 af, Atten= 0%, Lag= 0.8 min
Primary = 14.15 cfs @ 12.27 hrs, Volume= 1.757 af
Routed to Link AP-1 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link AP-1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 155.99' @ 12.27 hrs Surf.Area= 565 sf Storage= 327 cf

Plug-Flow detention time= 0.2 min calculated for 1.756 af (100% of inflow)
Center-of-Mass det. time= 0.2 min ( 877.0 - 876.8 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 154.15' | 16,642 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc) |

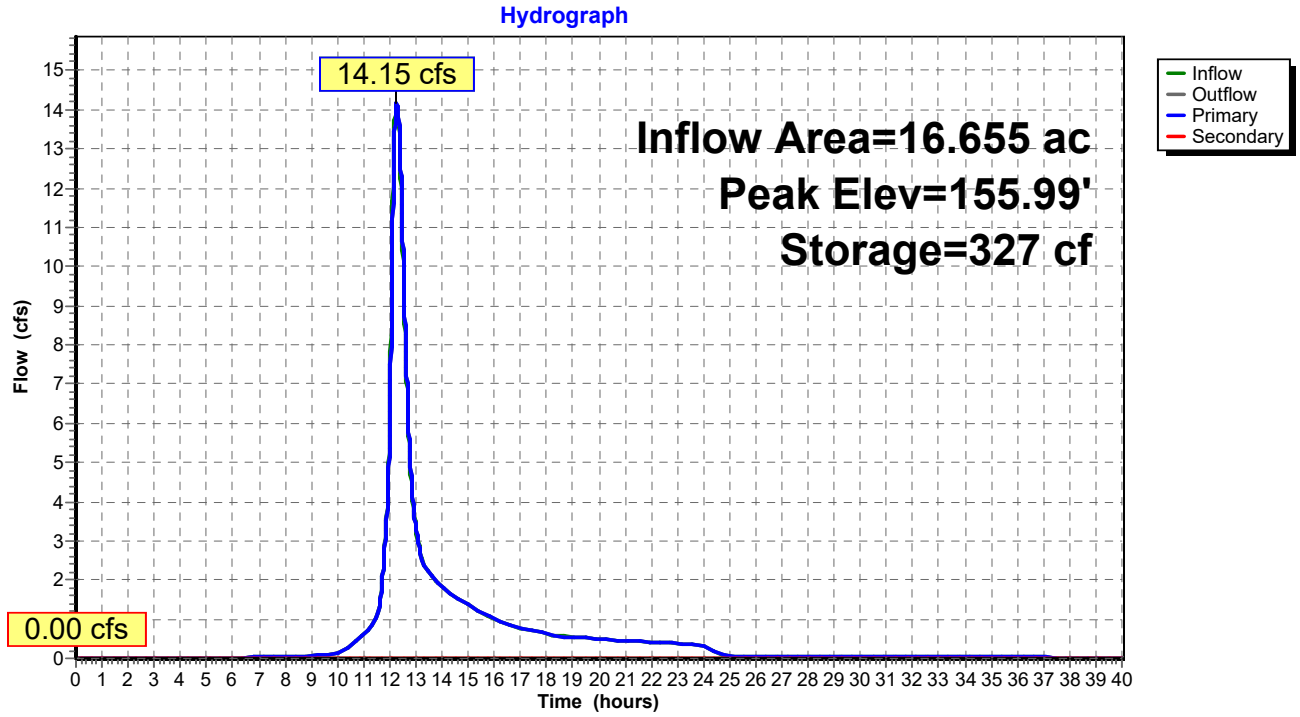
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 154.15 | 0 | 0 | 0 |
| 155.00 | 50 | 21 | 21 |
| 156.00 | 569 | 310 | 331 |
| 157.00 | 5,902 | 3,236 | 3,566 |
| 158.00 | 20,250 | 13,076 | 16,642 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 154.15' | **30.0" Round Culvert**<br>L= 75.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 154.15' / 153.00' S= 0.0153 '/' Cc= 0.900<br>n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf |
| #2 | Secondary | 157.50' | **30.0' long x 5.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88 |

**Primary OutFlow** Max=14.15 cfs @ 12.27 hrs HW=155.99' TW=0.00' (Dynamic Tailwater)
**1=Culvert** (Inlet Controls 14.15 cfs @ 3.65 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=154.15' TW=0.00' (Dynamic Tailwater)
**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Pond P-1: 30" Culvert



## Summary for Pond P-1A: Underdrained Soil Filter #1

Inflow Area = 0.654 ac, 54.48% Impervious, Inflow Depth = 1.76" for 2-Year event
Inflow = 1.35 cfs @ 12.07 hrs, Volume= 0.096 af
Outflow = 0.08 cfs @ 14.05 hrs, Volume= 0.096 af, Atten= 94%, Lag= 118.8 min
Primary = 0.04 cfs @ 18.25 hrs, Volume= 0.092 af
Routed to Pond P-1 : 30" Culvert
Secondary = 0.04 cfs @ 14.05 hrs, Volume= 0.004 af
Routed to Pond P-1 : 30" Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 158.01' @ 14.05 hrs Surf.Area= 1,935 sf Storage= 2,342 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 539.3 min ( 1,340.4 - 801.1 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 154.40' | 3,384 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc) |

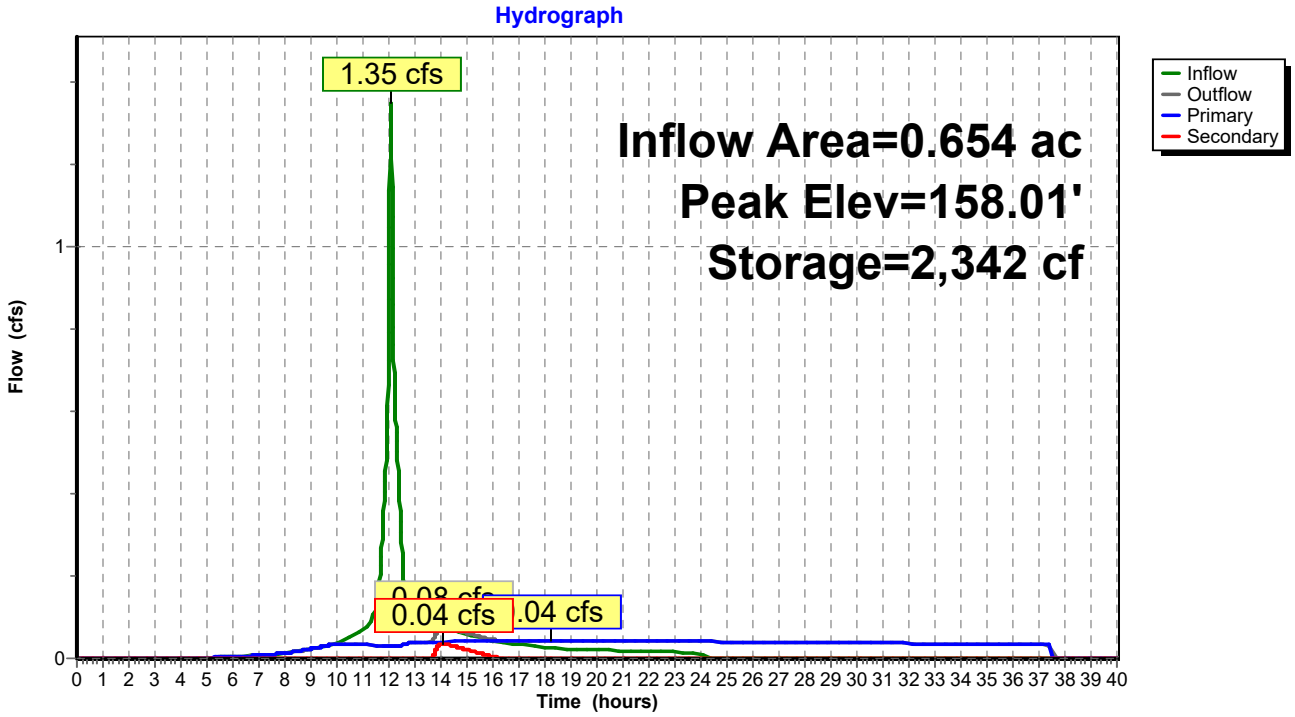
| Elevation (feet) | Surf.Area (sq-ft) | Voids (%) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|---|
| 154.40 | 1,179 | 0.0 | 0 | 0 |
| 156.50 | 1,179 | 0.0 | 0 | 0 |
| 157.00 | 1,413 | 100.0 | 648 | 648 |
| 158.00 | 1,924 | 100.0 | 1,669 | 2,317 |
| 158.50 | 2,344 | 100.0 | 1,067 | 3,384 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 154.40' | **1.4" Round Culvert**<br>L= 40.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 154.40' / 154.25' S= 0.0038 '/' Cc= 0.900<br>n= 0.010 PVC, smooth interior, Flow Area= 0.01 sf |
| #2 | Secondary | 158.00' | **10.0' long x 4.5' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.36 2.52 2.70 2.68 2.67 2.67 2.65 2.66 2.66 2.67 2.70 2.70 2.72 2.75 2.81 2.93 3.10 |

**Primary OutFlow** Max=0.04 cfs @ 18.25 hrs HW=157.96' TW=154.48' (Dynamic Tailwater)
**1=Culvert** (Outlet Controls 0.04 cfs @ 3.88 fps)

**Secondary OutFlow** Max=0.04 cfs @ 14.05 hrs HW=158.01' TW=154.73' (Dynamic Tailwater)
**2=Broad-Crested Rectangular Weir** (Weir Controls 0.04 cfs @ 0.27 fps)

## Pond P-1A: Underdrained Soil Filter #1



## Summary for Pond P-1A2: CB#2

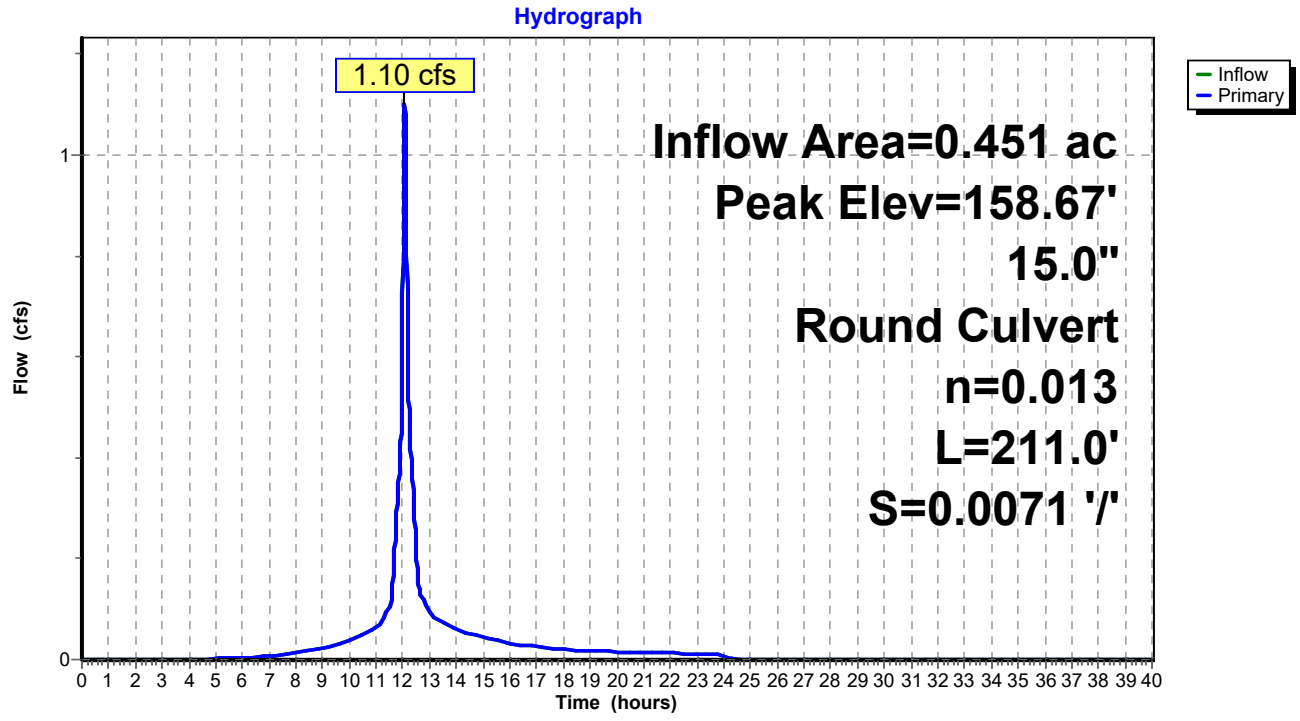
Inflow Area = 0.451 ac, 78.97% Impervious, Inflow Depth = 2.08" for 2-Year event
Inflow = 1.10 cfs @ 12.07 hrs, Volume= 0.078 af
Outflow = 1.10 cfs @ 12.07 hrs, Volume= 0.078 af, Atten= 0%, Lag= 0.0 min
Primary = 1.10 cfs @ 12.07 hrs, Volume= 0.078 af
Routed to Pond P-1A : Underdrained Soil Filter #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 158.67' @ 12.07 hrs
Flood Elev= 170.10'

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 158.10' | **15.0" Round Culvert**<br>L= 211.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 158.10' / 156.60' S= 0.0071 '/' Cc= 0.900<br>n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf |

**Primary OutFlow** Max=1.10 cfs @ 12.07 hrs HW=158.67' TW=157.25' (Dynamic Tailwater)
**1=Culvert** (Inlet Controls 1.10 cfs @ 2.03 fps)

### Pond P-1A2: CB#2



## Summary for Pond P-1B: 36" Culvert

Inflow Area = 6.705 ac, 17.44% Impervious, Inflow Depth = 1.27" for 2-Year event
Inflow = 6.68 cfs @ 12.28 hrs, Volume= 0.711 af
Outflow = 6.65 cfs @ 12.30 hrs, Volume= 0.709 af, Atten= 0%, Lag= 1.3 min
Primary = 6.65 cfs @ 12.30 hrs, Volume= 0.709 af
Routed to Reach 1B-R1 : Swale
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1B-R1 : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 166.71' @ 12.30 hrs Surf.Area= 756 sf Storage= 648 cf

Plug-Flow detention time= 5.2 min calculated for 0.709 af (100% of inflow)
Center-of-Mass det. time= 3.4 min ( 854.1 - 850.7 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 165.00' | 7,542 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc) |

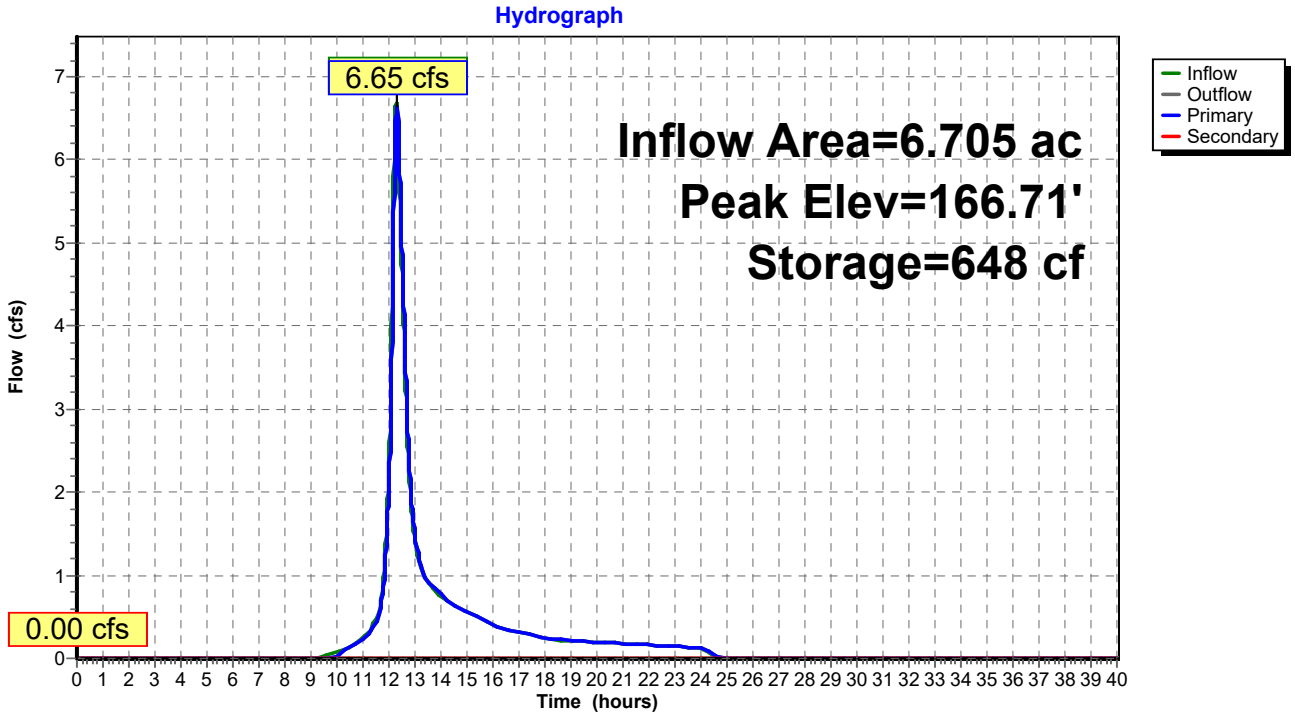
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 165.00 | 0 | 0 | 0 |
| 168.00 | 1,323 | 1,985 | 1,985 |
| 170.00 | 4,234 | 5,557 | 7,542 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 165.64' | **36.0" Round Culvert**<br>L= 48.0' RCP, sq.cut end projecting, Ke= 0.500<br>Inlet / Outlet Invert= 165.64' / 165.33' S= 0.0065 '/' Cc= 0.900<br>n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf |
| #2 | Secondary | 169.00' | **20.0' long x 6.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83 |

**Primary OutFlow** Max=6.64 cfs @ 12.30 hrs HW=166.71' TW=165.62' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 6.64 cfs @ 4.35 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=165.00' TW=165.33' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Pond P-1B: 36" Culvert



## Summary for Pond P-1C: DMH#1

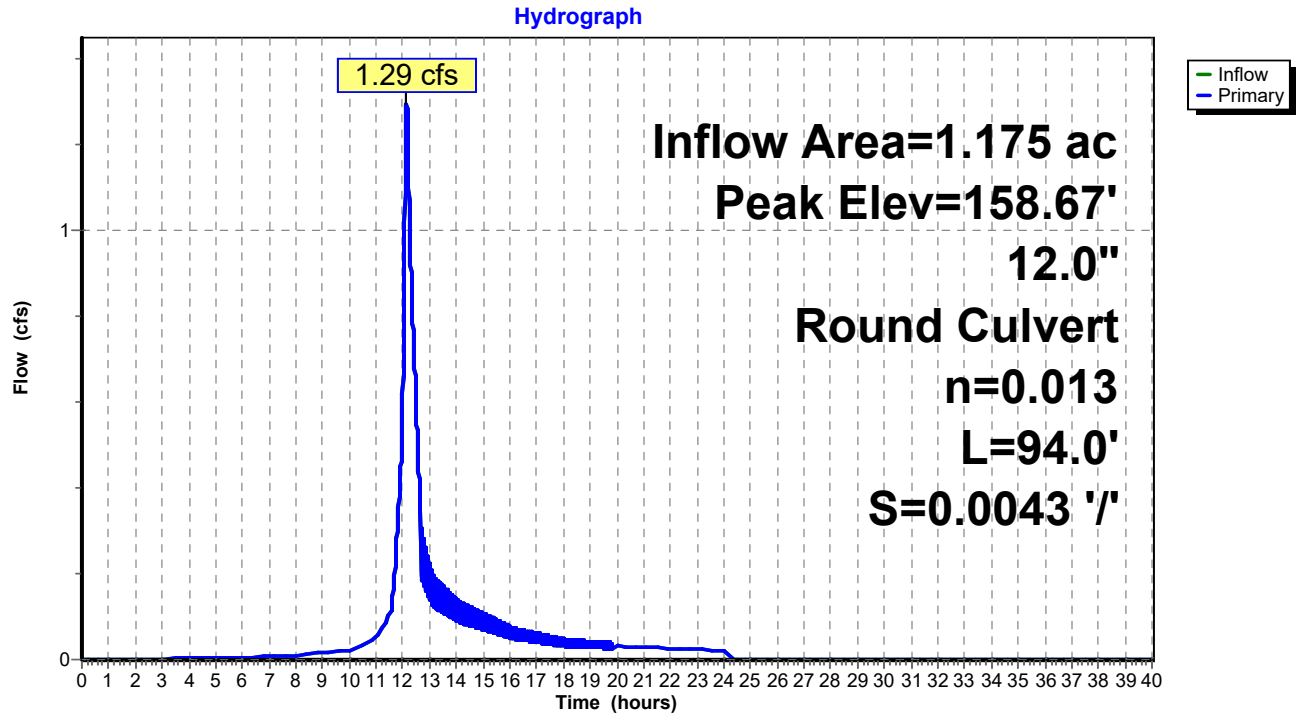
Inflow Area = 1.175 ac, 15.14% Impervious, Inflow Depth = 1.25" for 2-Year event
Inflow = 1.29 cfs @ 12.14 hrs, Volume= 0.122 af
Outflow = 1.29 cfs @ 12.14 hrs, Volume= 0.122 af, Atten= 0%, Lag= 0.0 min
Primary = 1.29 cfs @ 12.14 hrs, Volume= 0.122 af
Routed to Reach 1C-R : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 158.67' @ 12.15 hrs
Flood Elev= 170.10'

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 157.90' | **12.0" Round Culvert**<br>L= 94.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 157.90' / 157.50' S= 0.0043 '/' Cc= 0.900<br>n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf |

**Primary OutFlow** Max=1.28 cfs @ 12.14 hrs HW=158.67' TW=158.15' (Dynamic Tailwater)
**1=Culvert** (Outlet Controls 1.28 cfs @ 2.73 fps)

### Pond P-1C: DMH#1



## Summary for Pond P-1C1: FI#1

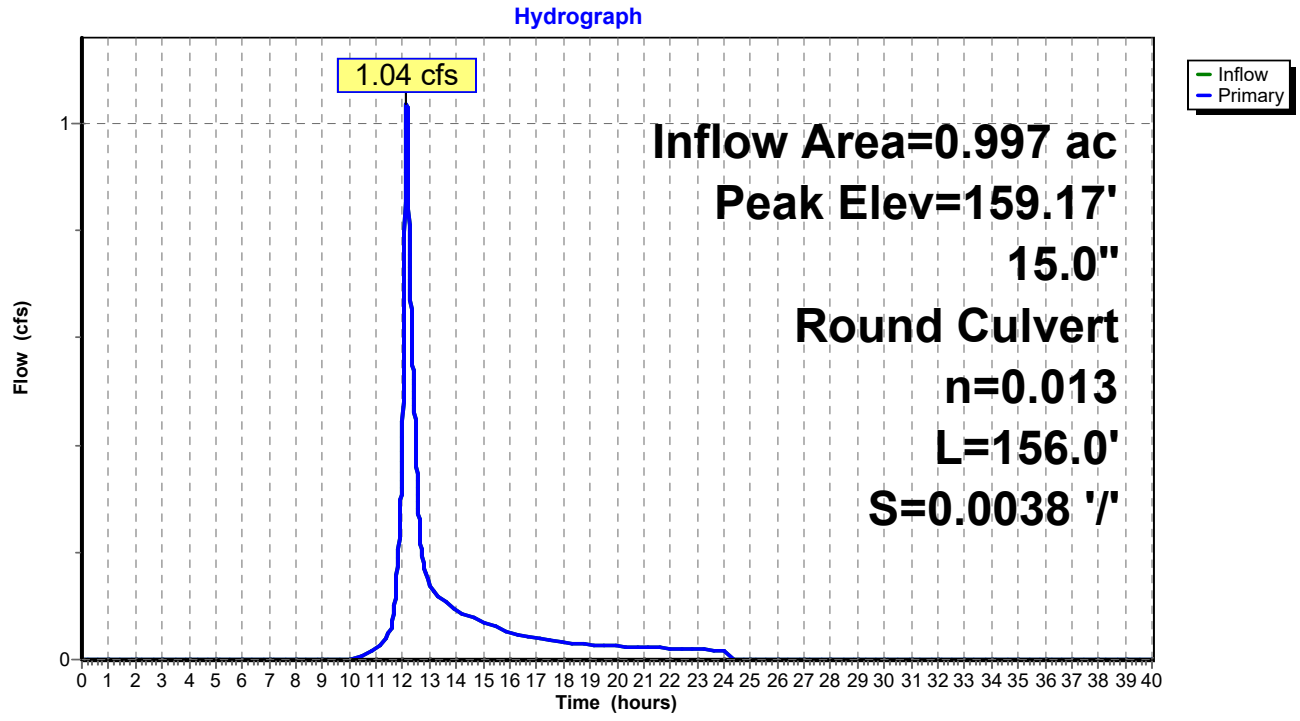
Inflow Area = 0.997 ac, 0.00% Impervious, Inflow Depth = 1.03" for 2-Year event
Inflow = 1.04 cfs @ 12.14 hrs, Volume= 0.086 af
Outflow = 1.04 cfs @ 12.14 hrs, Volume= 0.086 af, Atten= 0%, Lag= 0.0 min
Primary = 1.04 cfs @ 12.14 hrs, Volume= 0.086 af
Routed to Pond P-1C : DMH#1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 159.17' @ 12.15 hrs
Flood Elev= 170.10'

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 158.50' | **15.0" Round Culvert**<br>L= 156.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 158.50' / 157.90' S= 0.0038 '/' Cc= 0.900<br>n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf |

**Primary OutFlow** Max=1.03 cfs @ 12.14 hrs HW=159.17' TW=158.67' (Dynamic Tailwater)
**1=Culvert** (Outlet Controls 1.03 cfs @ 2.25 fps)

### Pond P-1C1: FI#1



## Summary for Pond P-1D: 15" Culvert

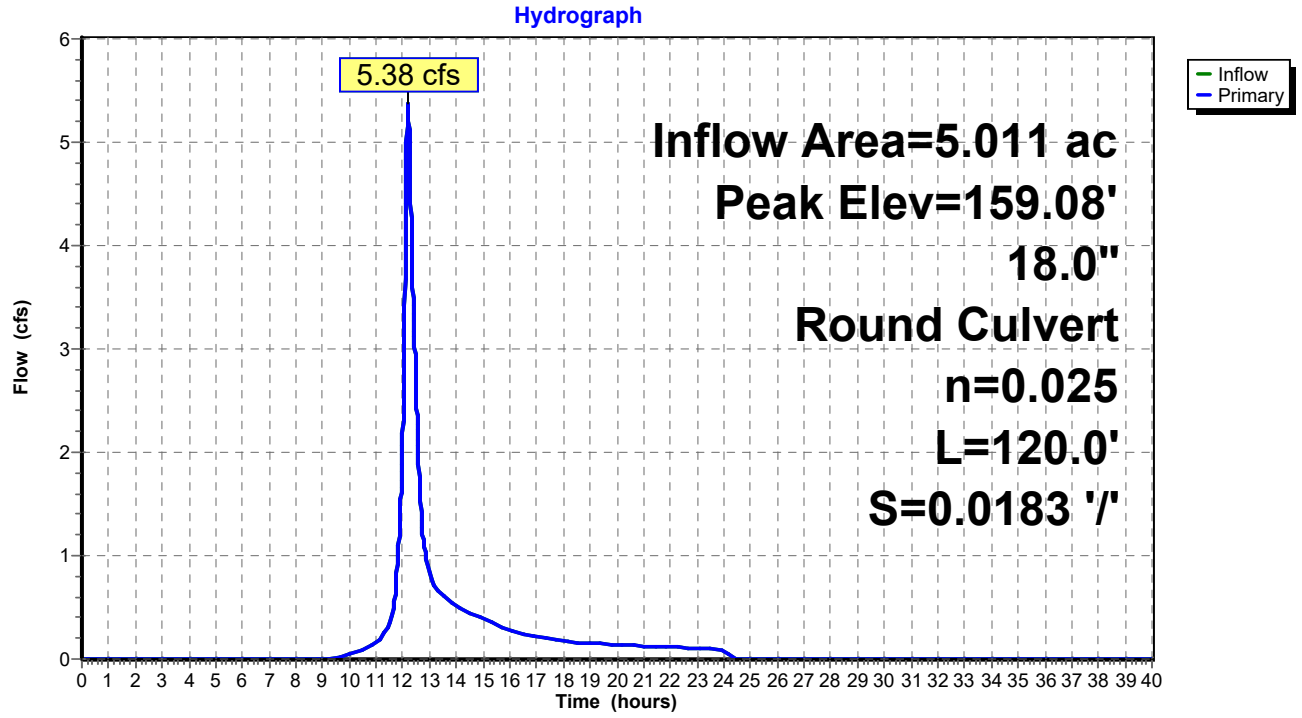
Inflow Area = 5.011 ac, 15.74% Impervious, Inflow Depth = 1.18" for 2-Year event
Inflow = 5.38 cfs @ 12.18 hrs, Volume= 0.494 af
Outflow = 5.38 cfs @ 12.18 hrs, Volume= 0.494 af, Atten= 0%, Lag= 0.0 min
Primary = 5.38 cfs @ 12.18 hrs, Volume= 0.494 af
Routed to Reach 1D-R : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 159.08' @ 12.18 hrs

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 157.70' | **18.0" Round Culvert**<br>L= 120.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 157.70' / 155.50' S= 0.0183 '/' Cc= 0.900<br>n= 0.025 Corrugated metal, Flow Area= 1.77 sf |

**Primary OutFlow** Max=5.37 cfs @ 12.18 hrs HW=159.08' TW=156.20' (Dynamic Tailwater)
**1=Culvert** (Inlet Controls 5.37 cfs @ 3.16 fps)

### Pond P-1D: 15" Culvert



## Summary for Pond P-1D3: FI#2

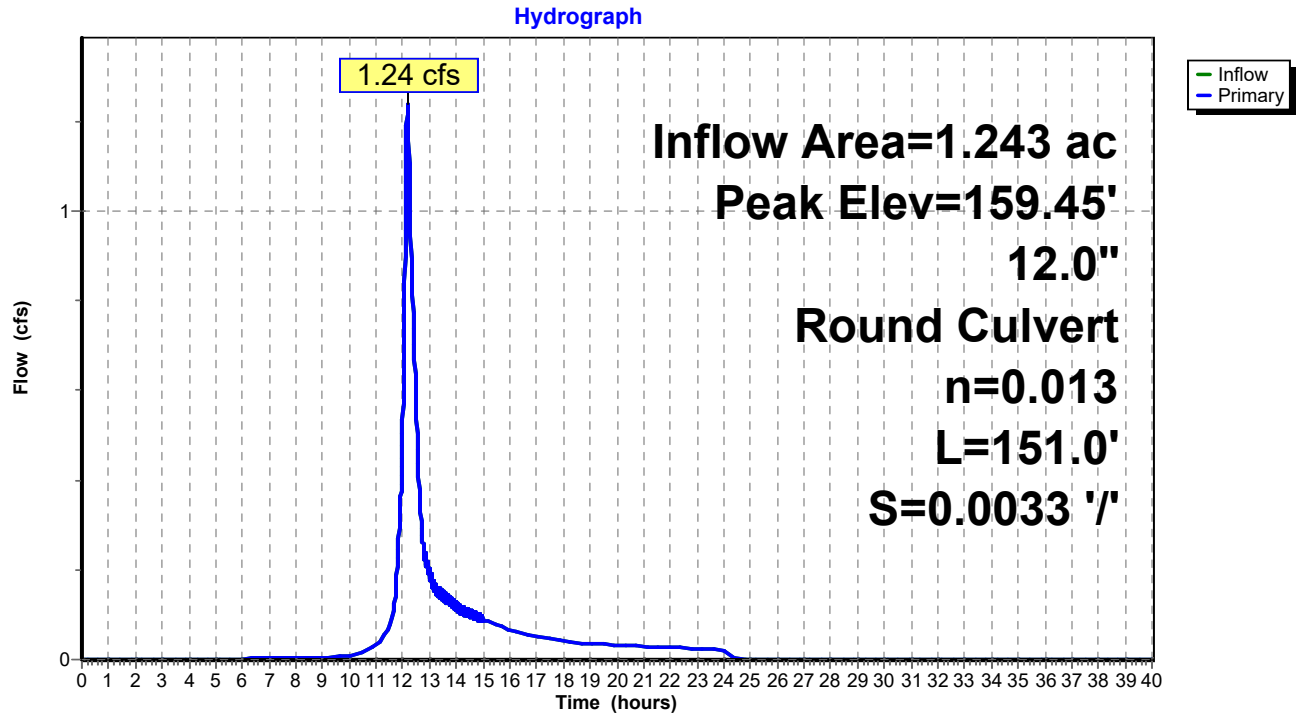
Inflow Area = 1.243 ac, 5.13% Impervious, Inflow Depth = 1.10" for 2-Year event
Inflow = 1.24 cfs @ 12.17 hrs, Volume= 0.114 af
Outflow = 1.24 cfs @ 12.17 hrs, Volume= 0.114 af, Atten= 0%, Lag= 0.0 min
Primary = 1.24 cfs @ 12.17 hrs, Volume= 0.114 af
Routed to Pond P-1D : 15" Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 159.45' @ 12.18 hrs
Flood Elev= 170.10'

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 158.50' | **12.0" Round Culvert**<br>L= 151.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 158.50' / 158.00' S= 0.0033 '/' Cc= 0.900<br>n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf |

**Primary OutFlow** Max=1.22 cfs @ 12.17 hrs HW=159.44' TW=159.08' (Dynamic Tailwater)
**1=Culvert** (Outlet Controls 1.22 cfs @ 2.05 fps)

### Pond P-1D3: FI#2



## Summary for Pond P-1E: 12" Culvert

Inflow Area = 0.705 ac, 18.79% Impervious, Inflow Depth = 1.21" for 2-Year event
Inflow = 0.85 cfs @ 12.15 hrs, Volume= 0.071 af
Outflow = 0.80 cfs @ 12.18 hrs, Volume= 0.071 af, Atten= 6%, Lag= 1.8 min
Primary = 0.80 cfs @ 12.18 hrs, Volume= 0.071 af
Routed to Reach 1E-R : Road Side Ditch
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1E-R : Road Side Ditch

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 159.04' @ 12.19 hrs Surf.Area= 365 sf Storage= 108 cf

Plug-Flow detention time= 4.3 min calculated for 0.071 af (100% of inflow)
Center-of-Mass det. time= 3.8 min ( 849.3 - 845.4 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 158.40' | 5,001 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc) |

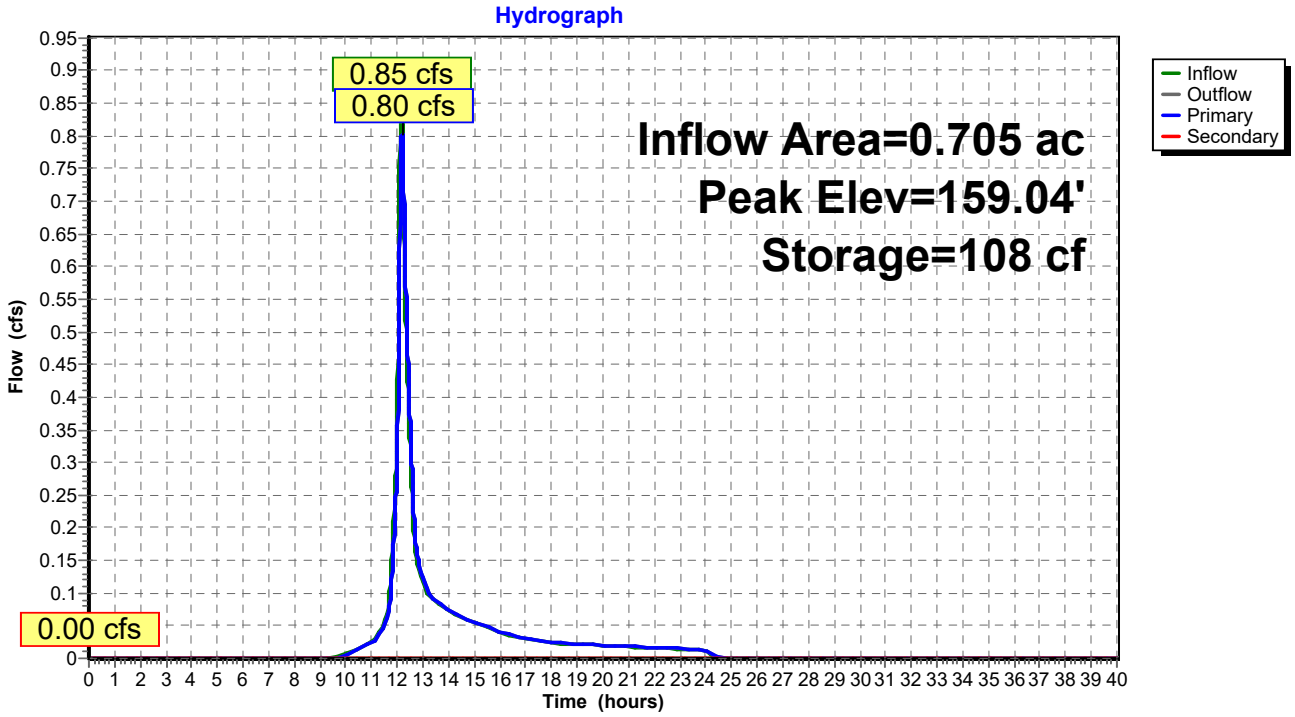
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 158.40 | 0 | 0 | 0 |
| 159.00 | 315 | 94 | 94 |
| 160.00 | 1,555 | 935 | 1,029 |
| 161.00 | 6,388 | 3,972 | 5,001 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 158.40' | **12.0" Round Culvert**<br>L= 40.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 158.40' / 158.00' S= 0.0100 '/' Cc= 0.900<br>n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf |
| #2 | Secondary | 160.80' | **31.0' long x 11.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60<br>Coef. (English) 2.53 2.59 2.70 2.68 2.67 2.68 2.66 2.64 |

**Primary OutFlow** Max=0.80 cfs @ 12.18 hrs HW=159.04' TW=158.81' (Dynamic Tailwater)
**1=Culvert** (Outlet Controls 0.80 cfs @ 2.14 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=158.40' TW=158.50' (Dynamic Tailwater)
**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Pond P-1E: 12" Culvert



## Summary for Pond P-1F: 2 - 24 " Dia Culvert

Inflow Area = 7.719 ac, 15.92% Impervious, Inflow Depth = 1.25" for 2-Year event
Inflow = 7.20 cfs @ 12.34 hrs, Volume= 0.801 af
Outflow = 7.20 cfs @ 12.34 hrs, Volume= 0.801 af, Atten= 0%, Lag= 0.0 min
Primary = 7.20 cfs @ 12.34 hrs, Volume= 0.801 af
Routed to Reach 1F-R : Swale
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond P-1E : 12" Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 160.91' @ 12.34 hrs Surf.Area= 24 sf Storage= 11 cf

Plug-Flow detention time= 0.0 min calculated for 0.801 af (100% of inflow)
Center-of-Mass det. time= 0.0 min ( 859.3 - 859.3 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 160.00' | 4,221 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc) |

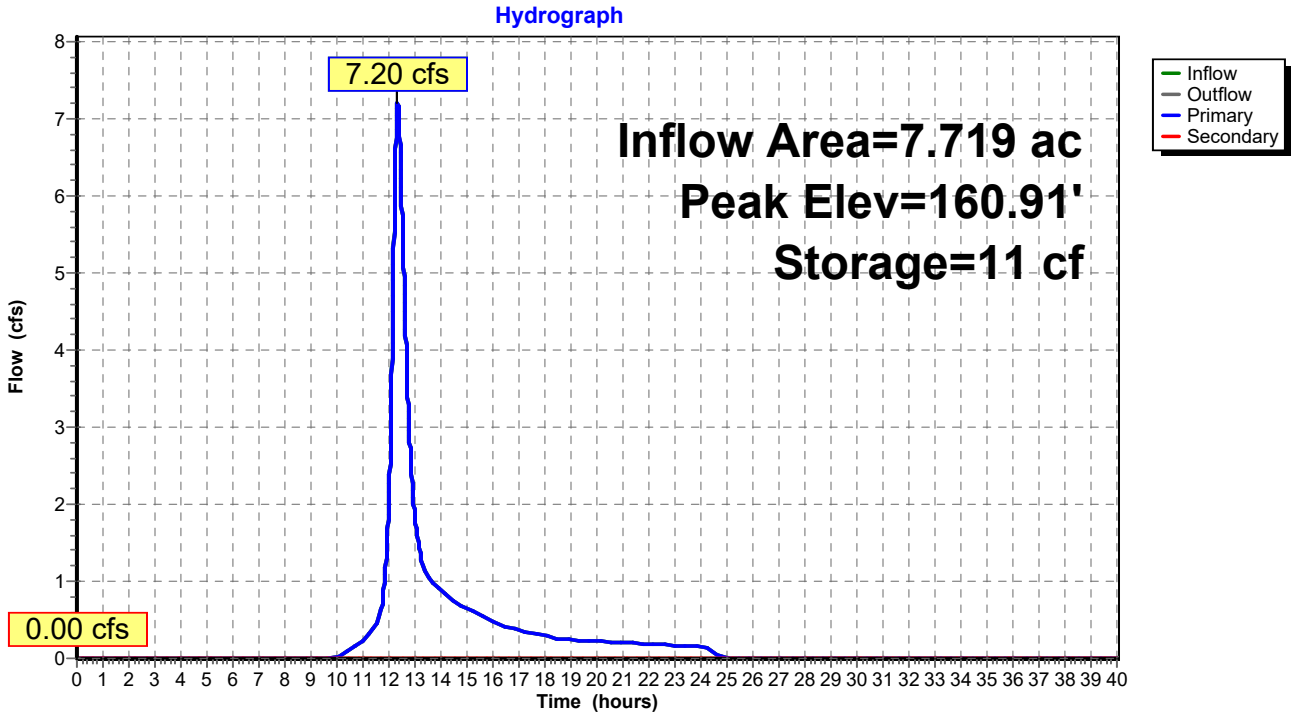
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 160.00 | 0 | 0 | 0 |
| 161.00 | 26 | 13 | 13 |
| 162.00 | 707 | 367 | 380 |
| 163.00 | 1,746 | 1,227 | 1,606 |
| 164.00 | 3,484 | 2,615 | 4,221 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 160.00' | **24.0" Round Culvert X 2.00**<br>L= 40.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 160.00' / 159.50' S= 0.0125 '/' Cc= 0.900<br>n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf |
| #2 | Secondary | 163.50' | **58.0' long x 11.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60<br>Coef. (English) 2.53 2.59 2.70 2.68 2.67 2.68 2.66 2.64 |

**Primary OutFlow** Max=7.20 cfs @ 12.34 hrs HW=160.91' TW=159.80' (Dynamic Tailwater)
**1=Culvert** (Inlet Controls 7.20 cfs @ 2.57 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=160.00' TW=158.40' (Dynamic Tailwater)
**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Pond P-1F: 2 - 24 " Dia Culvert



## Summary for Pond RDF-1: Roof Dripline Filter #1

Inflow Area = 0.187 ac,100.00% Impervious, Inflow Depth = 2.47" for 2-Year event
Inflow = 0.51 cfs @ 12.07 hrs, Volume= 0.039 af
Outflow = 0.26 cfs @ 12.19 hrs, Volume= 0.039 af, Atten= 49%, Lag= 7.3 min
Primary = 0.26 cfs @ 12.19 hrs, Volume= 0.039 af
Routed to Reach 1D-R : Swale
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1D-R : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 157.19' @ 12.19 hrs Surf.Area= 952 sf Storage= 168 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 2.9 min ( 762.1 - 759.2 )

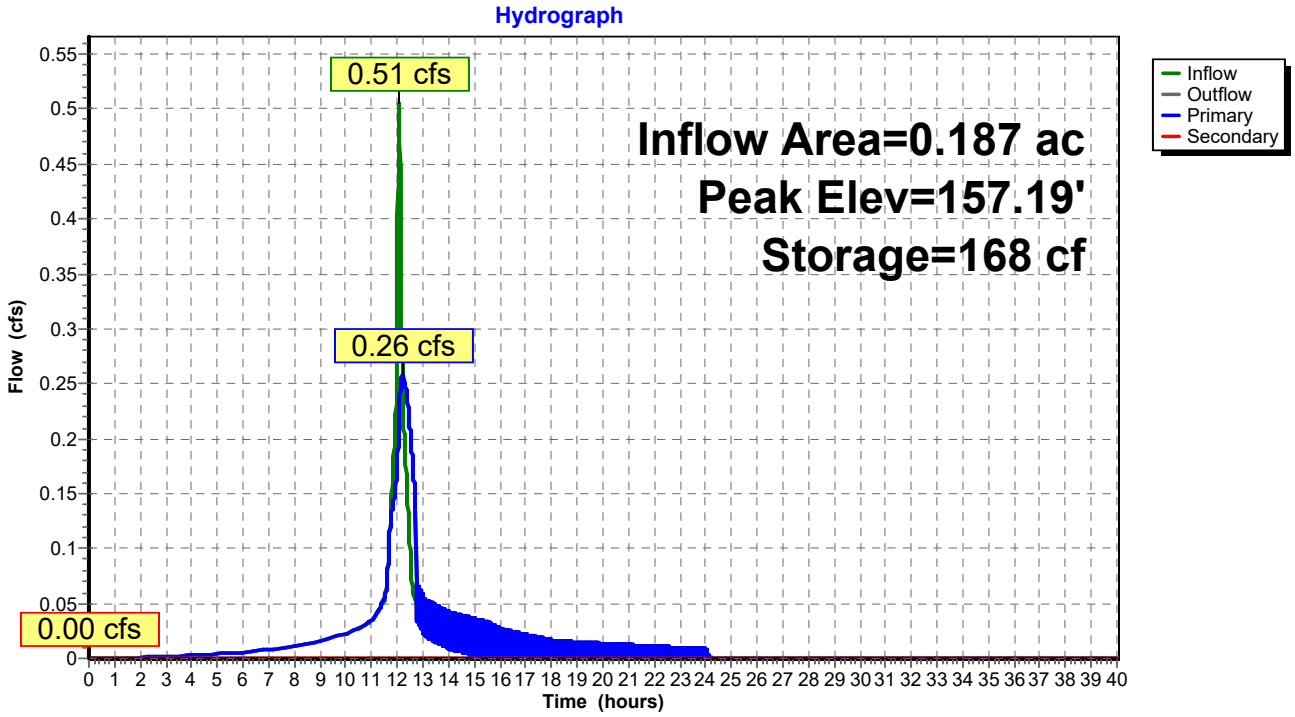
| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 156.75' | 857 cf | **4.00'W x 238.00'L x 2.25'H Coarse Gravel**<br>2,142 cf Overall x 40.0% Voids |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 156.42' | **4.0" Round Culvert**<br>L= 36.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 156.42' / 155.50' S= 0.0256 '/' Cc= 0.900<br>n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf |
| #2 | Secondary | 159.00' | **193.0' long x 4.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32 |

**Primary OutFlow** Max=0.26 cfs @ 12.19 hrs HW=157.19' TW=156.20' (Dynamic Tailwater)
**1=Culvert** (Inlet Controls 0.26 cfs @ 2.96 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=156.75' TW=155.50' (Dynamic Tailwater)
**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Pond RDF-1: Roof Dripline Filter #1



## Summary for Pond RDF-2: Roof Dripline Filter #2

Inflow Area = 0.069 ac,100.00% Impervious, Inflow Depth = 2.47" for 2-Year event
Inflow = 0.19 cfs @ 12.07 hrs, Volume= 0.014 af
Outflow = 0.16 cfs @ 12.12 hrs, Volume= 0.014 af, Atten= 15%, Lag= 2.8 min
Primary = 0.16 cfs @ 12.12 hrs, Volume= 0.014 af
Routed to Reach 1D-R : Swale
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1D-R : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 156.81' @ 12.12 hrs Surf.Area= 0.008 ac Storage= 0.000 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.2 min ( 759.4 - 759.2 )

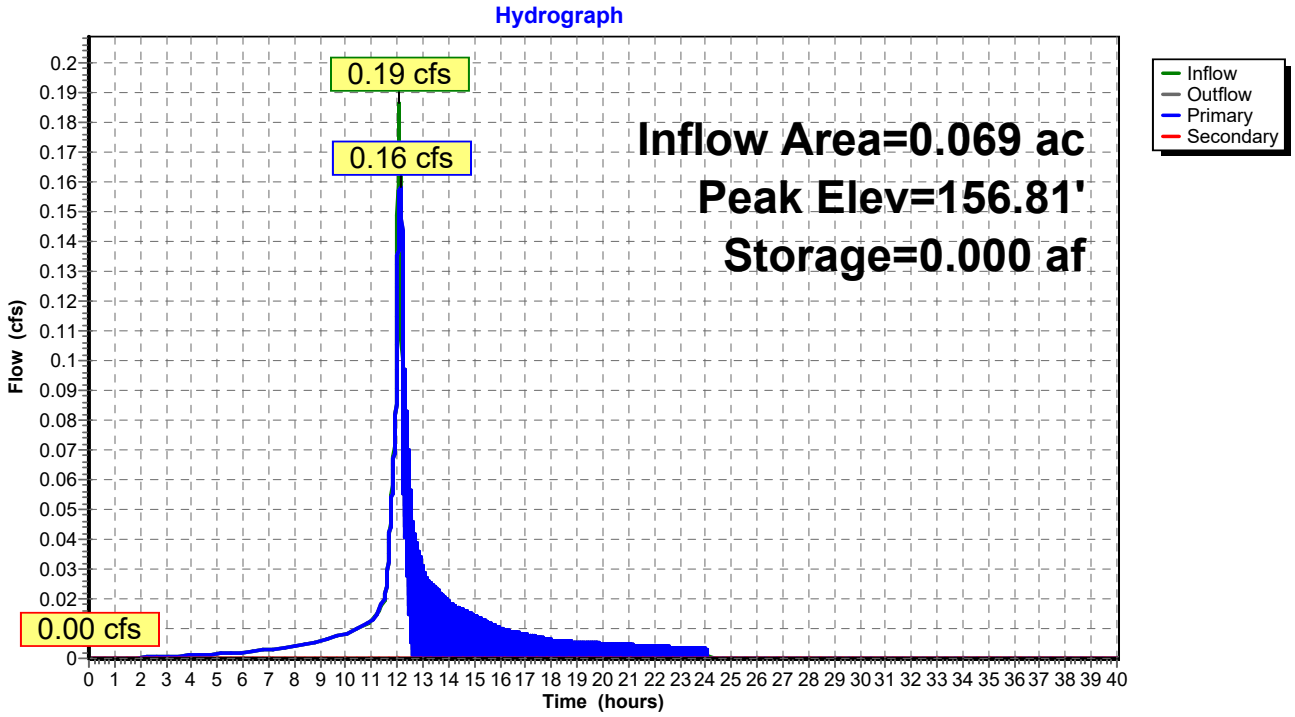
| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 156.75' | 0.008 af | **4.00'W x 92.00'L x 2.25'H Coarse Gravel**<br>0.019 af Overall x 40.0% Voids |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 156.42' | **4.0" Round Culvert**<br>L= 36.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 156.42' / 155.50' S= 0.0256 '/' Cc= 0.900<br>n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf |
| #2 | Secondary | 159.00' | **92.0' long x 4.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32 |

**Primary OutFlow** Max=0.16 cfs @ 12.12 hrs HW=156.81' TW=156.15' (Dynamic Tailwater)
**1=Culvert** (Inlet Controls 0.16 cfs @ 1.81 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=156.75' TW=155.50' (Dynamic Tailwater)
**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Pond RDF-2: Roof Dripline Filter #2



## Summary for Pond RDF-3: Roof Dripline Filter #3

Inflow Area = 0.178 ac,100.00% Impervious, Inflow Depth = 2.47" for 2-Year event
Inflow = 0.48 cfs @ 12.07 hrs, Volume= 0.037 af
Outflow = 0.26 cfs @ 12.18 hrs, Volume= 0.037 af, Atten= 46%, Lag= 6.7 min
Primary = 0.26 cfs @ 12.18 hrs, Volume= 0.037 af
Routed to Pond P-1C : DMH#1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond P-1C : DMH#1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 161.64' @ 12.18 hrs Surf.Area= 0.019 ac Storage= 0.003 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 2.5 min ( 761.6 - 759.2 )

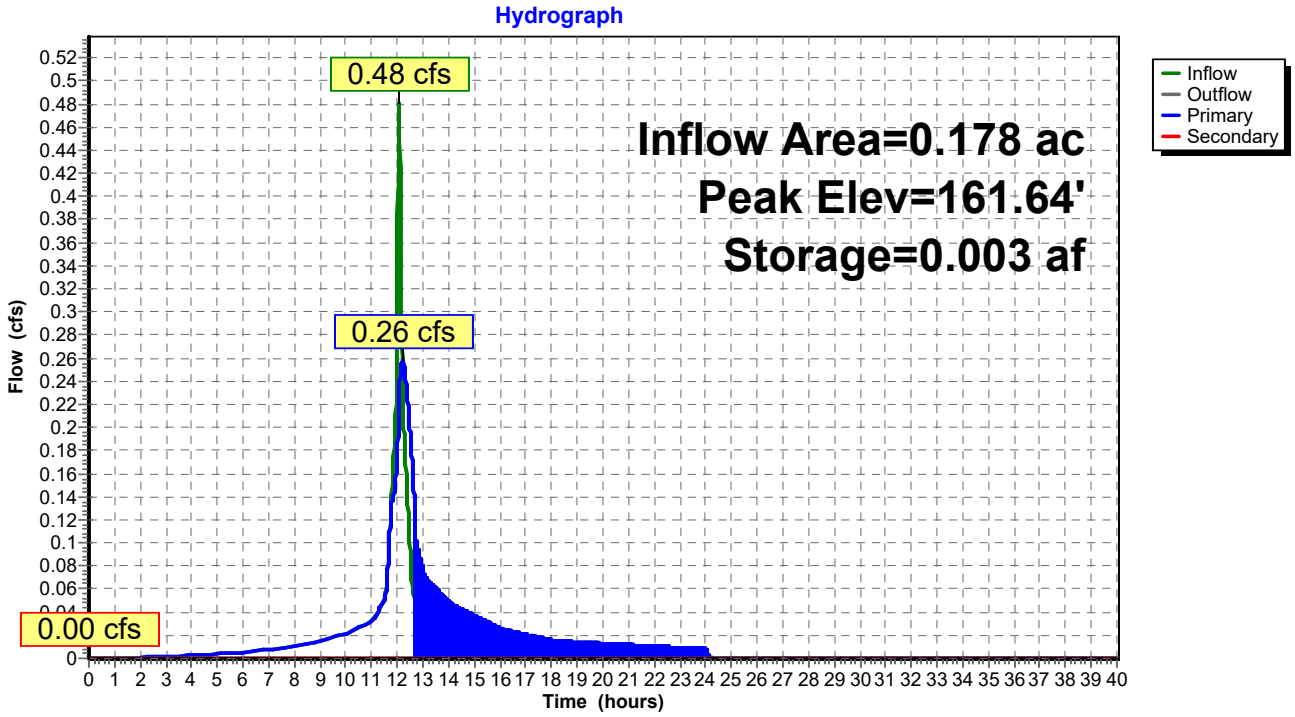
| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 161.20' | 0.015 af | **4.00'W x 208.00'L x 2.00'H Coarse Gravel**<br>0.038 af Overall x 40.0% Voids |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 160.87' | **4.0" Round Culvert**<br>L= 38.5' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 160.87' / 160.00' S= 0.0226 '/' Cc= 0.900<br>n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf |
| #2 | Secondary | 163.20' | **208.0' long x 4.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32 |

**Primary OutFlow** Max=0.26 cfs @ 12.18 hrs HW=161.64' TW=158.66' (Dynamic Tailwater)
**1=Culvert** (Inlet Controls 0.26 cfs @ 2.96 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=161.20' TW=157.90' (Dynamic Tailwater)
**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Pond RDF-3: Roof Dripline Filter #3



## Summary for Pond RDF-4: Roof Dripline Filter #4

Inflow Area = 0.061 ac,100.00% Impervious, Inflow Depth = 2.47" for 2-Year event
Inflow = 0.16 cfs @ 12.07 hrs, Volume= 0.013 af
Outflow = 0.15 cfs @ 12.11 hrs, Volume= 0.013 af, Atten= 11%, Lag= 2.3 min
Primary = 0.15 cfs @ 12.11 hrs, Volume= 0.013 af
Routed to Pond P-1D3 : FI#2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond P-1D3 : FI#2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 160.53' @ 12.11 hrs Surf.Area= 0.005 ac Storage= 0.000 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.2 min ( 759.4 - 759.2 )

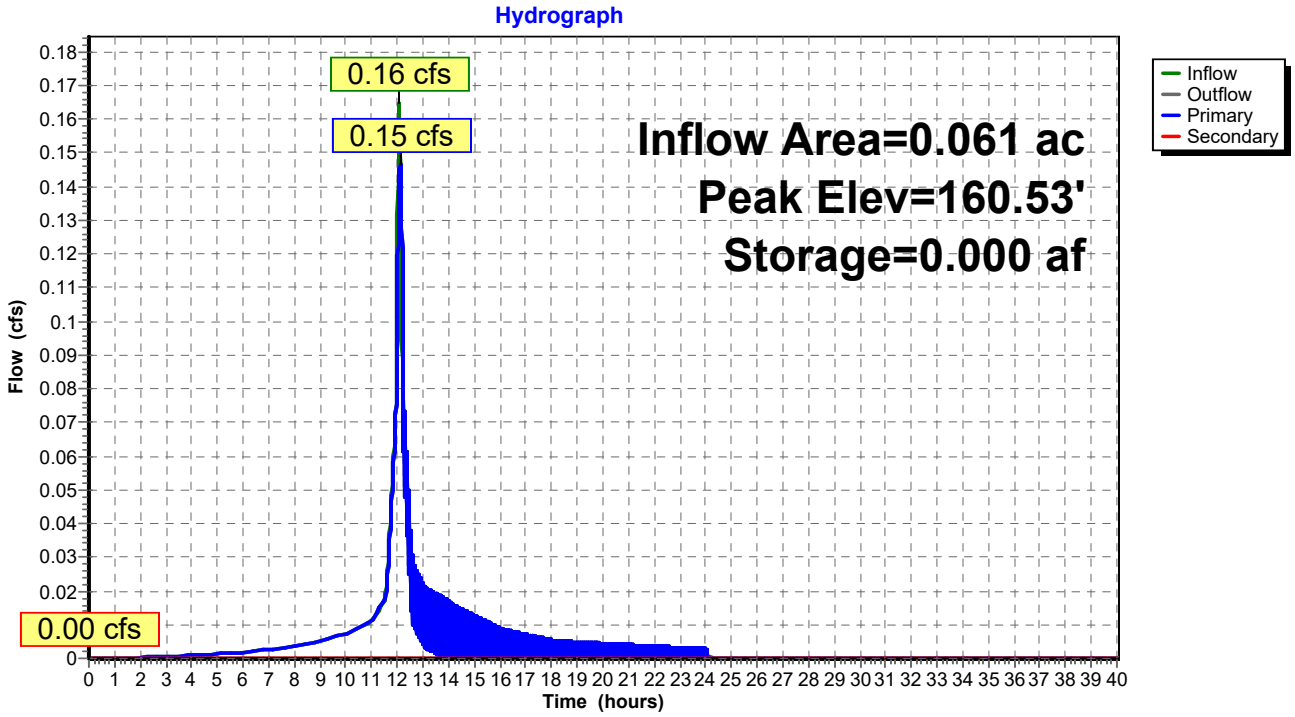
| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 160.45' | 0.005 af | **4.00'W x 54.00'L x 2.75'H Coarse Gravel**<br>0.014 af Overall x 40.0% Voids |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 160.12' | **4.0" Round Culvert**<br>L= 35.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 160.12' / 160.00' S= 0.0034 '/' Cc= 0.900<br>n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf |
| #2 | Secondary | 163.20' | **208.0' long x 4.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32 |

**Primary OutFlow** Max=0.15 cfs @ 12.11 hrs HW=160.53' TW=159.29' (Dynamic Tailwater)
**1=Culvert** (Barrel Controls 0.15 cfs @ 1.76 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=160.45' TW=158.50' (Dynamic Tailwater)
**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Pond RDF-4: Roof Dripline Filter #4

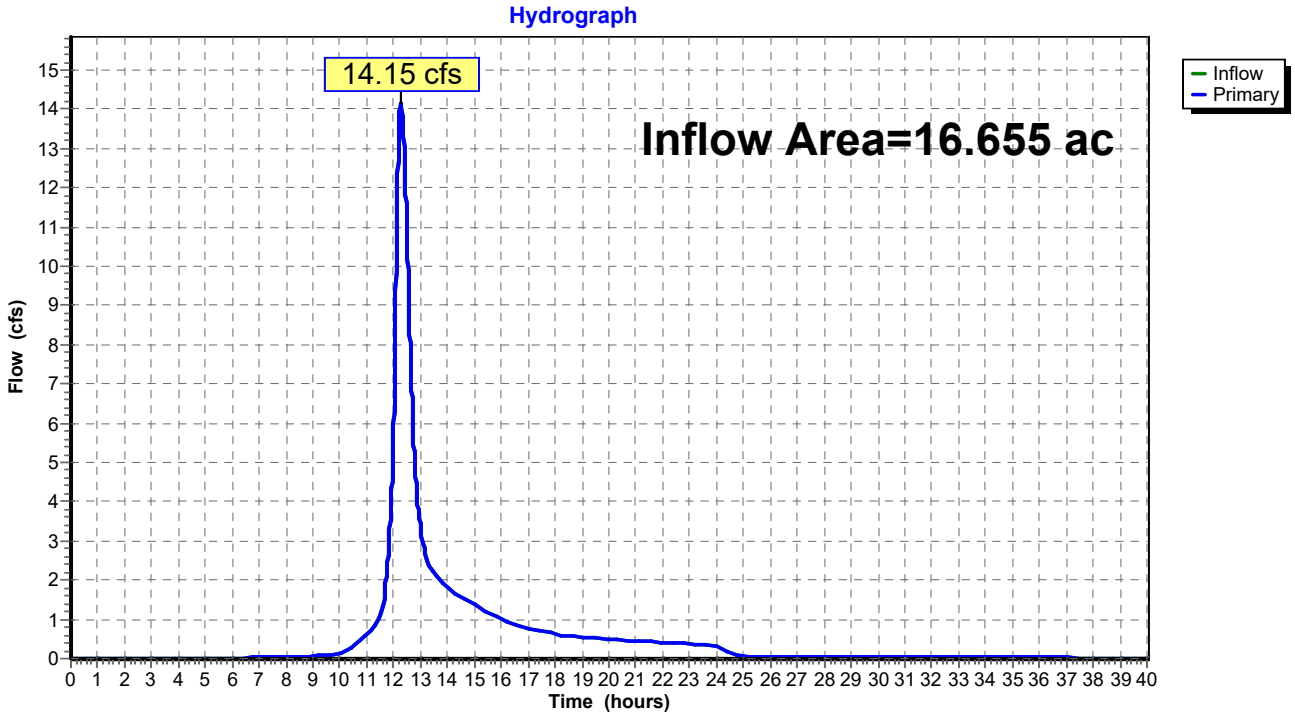


## Summary for Link AP-1:

Inflow Area = 16.655 ac, 19.31% Impervious, Inflow Depth = 1.27" for 2-Year event
Inflow = 14.15 cfs @ 12.27 hrs, Volume= 1.757 af
Primary = 14.15 cfs @ 12.27 hrs, Volume= 1.757 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

## Link AP-1:



Time span=0.00-40.00 hrs, dt=0.01 hrs, 4001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment SC-1: West** Runoff Area=49,436 sf 24.20% Impervious Runoff Depth=2.46"
Tc=5.0 min CN=84 Runoff=3.39 cfs 0.233 af

**Subcatchment SC-1A: East** Runoff Area=8,840 sf 0.00% Impervious Runoff Depth=2.12"
Tc=5.0 min CN=80 Runoff=0.52 cfs 0.036 af

**Subcatchment SC-1A1: Roundabout** Runoff Area=7,782 sf 70.79% Impervious Runoff Depth=3.32"
Tc=5.0 min CN=93 Runoff=0.69 cfs 0.049 af

**Subcatchment SC-1A2: Parking Lot** Runoff Area=11,875 sf 84.34% Impervious Runoff Depth=3.53"
Tc=5.0 min CN=95 Runoff=1.09 cfs 0.080 af

**Subcatchment SC-1B: Southeast** Runoff Area=292,074 sf 17.44% Impervious Runoff Depth=2.46"
Flow Length=803' Tc=20.1 min CN=84 Runoff=13.00 cfs 1.374 af

**Subcatchment SC-1C: Centeral East portion** Runoff Area=43,437 sf 0.00% Impervious Runoff Depth=2.12"
Flow Length=319' Tc=9.5 min CN=80 Runoff=2.20 cfs 0.177 af

**Subcatchment SC-1C1: Southwest Portion** Runoff Area=8,150 sf 100.00% Impervious Runoff Depth=3.86"
Tc=5.0 min CN=98 Runoff=0.78 cfs 0.060 af

**Subcatchment SC-1C2: Southeast portion** Runoff Area=7,751 sf 100.00% Impervious Runoff Depth=3.86"
Tc=5.0 min CN=98 Runoff=0.74 cfs 0.057 af

**Subcatchment SC-1D: North** Runoff Area=164,122 sf 19.24% Impervious Runoff Depth=2.37"
Flow Length=670' Tc=13.5 min CN=83 Runoff=8.26 cfs 0.745 af

**Subcatchment SC-1D1: Northwest portion** Runoff Area=3,005 sf 100.00% Impervious Runoff Depth=3.86"
Tc=5.0 min CN=98 Runoff=0.29 cfs 0.022 af

**Subcatchment SC-1D2: Northeast portion** Runoff Area=2,657 sf 100.00% Impervious Runoff Depth=3.86"
Tc=5.0 min CN=98 Runoff=0.25 cfs 0.020 af

**Subcatchment SC-1D3: Northeast Portion of** Runoff Area=51,502 sf 0.24% Impervious Runoff Depth=2.12"
Flow Length=450' Tc=12.6 min CN=80 Runoff=2.38 cfs 0.209 af

**Subcatchment SC-1E: Central of property** Runoff Area=30,712 sf 18.79% Impervious Runoff Depth=2.37"
Flow Length=351' Tc=10.5 min CN=83 Runoff=1.69 cfs 0.139 af

**Subcatchment SC-1F: Central of property** Runoff Area=44,150 sf 5.87% Impervious Runoff Depth=2.21"
Flow Length=317' Tc=11.1 min CN=81 Runoff=2.21 cfs 0.186 af

**Reach 1B-R1: Swale** Avg. Flow Depth=0.42' Max Vel=4.63 fps Inflow=12.93 cfs 1.372 af
n=0.022 L=216.0' S=0.0200 '/' Capacity=670.12 cfs Outflow=12.92 cfs 1.372 af

**Reach 1B-R2: Swale** Avg. Flow Depth=1.45' Max Vel=1.63 fps Inflow=12.92 cfs 1.372 af
n=0.022 L=214.1' S=0.0009 '/' Capacity=89.22 cfs Outflow=12.78 cfs 1.372 af

**Reach 1C-R: Swale** Avg. Flow Depth=0.97' Max Vel=5.53 fps Inflow=15.69 cfs 1.792 af
n=0.022 L=178.0' S=0.0188 '/' Capacity=316.53 cfs Outflow=15.68 cfs 1.792 af

**Reach 1D-R: Swale** Avg. Flow Depth=0.90' Max Vel=3.64 fps Inflow=11.16 cfs 1.057 af
n=0.022 L=154.0' S=0.0088 '/' Capacity=273.33 cfs Outflow=11.14 cfs 1.057 af

**Reach 1E-R: Road Side Ditch** Avg. Flow Depth=0.41' Max Vel=1.98 fps Inflow=1.55 cfs 0.139 af
n=0.030 L=317.0' S=0.0137 '/' Capacity=16.16 cfs Outflow=1.51 cfs 0.139 af

**Reach 1F-R: Swale** Avg. Flow Depth=1.03' Max Vel=4.46 fps Inflow=14.14 cfs 1.558 af
n=0.022 L=132.0' S=0.0114 '/' Capacity=245.96 cfs Outflow=14.14 cfs 1.558 af

**Pond P-1: 30" Culvert** Peak Elev=157.24' Storage=5,365 cf Inflow=29.19 cfs 3.386 af
Primary=25.29 cfs 3.386 af Secondary=0.00 cfs 0.000 af Outflow=25.29 cfs 3.386 af

**Pond P-1A: Underdrained Soil Filter #1** Peak Elev=158.14' Storage=2,594 cf Inflow=2.30 cfs 0.166 af
Primary=0.04 cfs 0.102 af Secondary=1.23 cfs 0.063 af Outflow=1.26 cfs 0.166 af

**Pond P-1A2: CB#2** Peak Elev=158.90' Inflow=1.77 cfs 0.130 af
15.0" Round Culvert n=0.013 L=211.0' S=0.0071 '/' Outflow=1.77 cfs 0.130 af

**Pond P-1B: 36" Culvert** Peak Elev=167.21' Storage=1,082 cf Inflow=13.00 cfs 1.374 af
Primary=12.93 cfs 1.372 af Secondary=0.00 cfs 0.000 af Outflow=12.93 cfs 1.372 af

**Pond P-1C: DMH#1** Peak Elev=159.29' Inflow=2.54 cfs 0.234 af
12.0" Round Culvert n=0.013 L=94.0' S=0.0043 '/' Outflow=2.54 cfs 0.234 af

**Pond P-1C1: FI#1** Peak Elev=159.69' Inflow=2.20 cfs 0.177 af
15.0" Round Culvert n=0.013 L=156.0' S=0.0038 '/' Outflow=2.20 cfs 0.177 af

**Pond P-1D: 15" Culvert** Peak Elev=162.62' Inflow=10.62 cfs 0.974 af
18.0" Round Culvert n=0.025 L=120.0' S=0.0183 '/' Outflow=10.62 cfs 0.974 af

**Pond P-1D3: FI#2** Peak Elev=163.55' Inflow=2.38 cfs 0.229 af
12.0" Round Culvert n=0.013 L=151.0' S=0.0033 '/' Outflow=2.38 cfs 0.229 af

**Pond P-1E: 12" Culvert** Peak Elev=159.27' Storage=227 cf Inflow=1.69 cfs 0.139 af
Primary=1.55 cfs 0.139 af Secondary=0.00 cfs 0.000 af Outflow=1.55 cfs 0.139 af

**Pond P-1F: 2 - 24 " Dia Culvert** Peak Elev=161.35' Storage=65 cf Inflow=14.15 cfs 1.558 af
Primary=14.14 cfs 1.558 af Secondary=0.00 cfs 0.000 af Outflow=14.14 cfs 1.558 af

**Pond RDF-1: Roof Dripline Filter #1** Peak Elev=157.67' Storage=350 cf Inflow=0.78 cfs 0.060 af
Primary=0.34 cfs 0.060 af Secondary=0.00 cfs 0.000 af Outflow=0.34 cfs 0.060 af

**Pond RDF-2: Roof Dripline Filter #2** Peak Elev=157.00' Storage=0.001 af Inflow=0.29 cfs 0.022 af
Primary=0.21 cfs 0.022 af Secondary=0.00 cfs 0.000 af Outflow=0.21 cfs 0.022 af

**Pond RDF-3: Roof Dripline Filter #3** Peak Elev=162.13' Storage=0.007 af Inflow=0.74 cfs 0.057 af
Primary=0.35 cfs 0.057 af Secondary=0.00 cfs 0.000 af Outflow=0.35 cfs 0.057 af

**Pond RDF-4: Roof Dripline Filter #4** Peak Elev=161.83' Storage=0.003 af Inflow=0.25 cfs 0.020 af
Primary=0.30 cfs 0.020 af Secondary=0.00 cfs 0.000 af Outflow=0.30 cfs 0.020 af

**Link AP-1:** Inflow=25.29 cfs 3.386 af
Primary=25.29 cfs 3.386 af

**Total Runoff Area = 16.655 ac Runoff Volume = 3.389 af Average Runoff Depth = 2.44"**
**80.69% Pervious = 13.440 ac 19.31% Impervious = 3.215 ac**

## Summary for Subcatchment SC-1: West

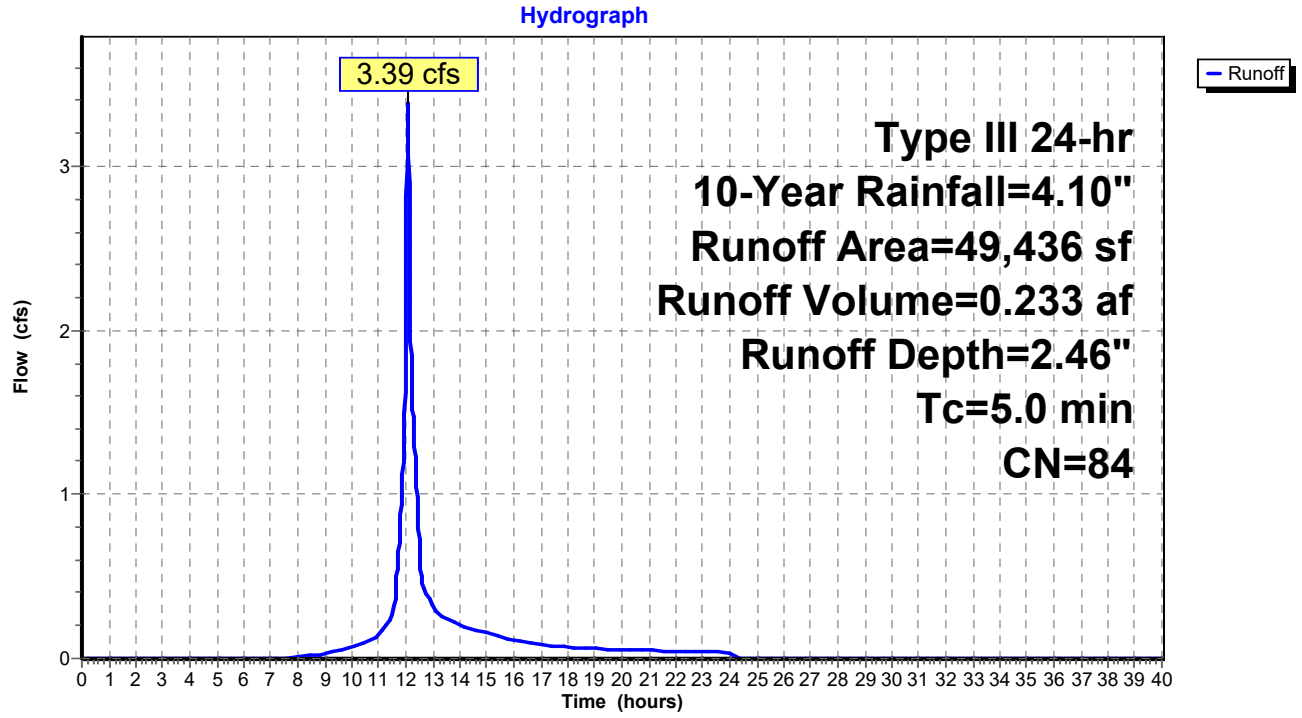
Runoff = 3.39 cfs @ 12.07 hrs, Volume= 0.233 af, Depth= 2.46"
Routed to Pond P-1 : 30" Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.10"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 3,926 | 98 | Paved parking |
| * | 62 | 98 | Roofs, |
| * | 7,976 | 98 | Paved roads w/curbs & sewers |
| | 32,330 | 80 | Pasture/grassland/range, Good, HSG D |
| | 5,142 | 79 | Woods/grass comb., Good, HSG D |
| | 49,436 | 84 | Weighted Average |
| | 37,472 | | 75.80% Pervious Area |
| | 11,964 | | 24.20% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, 5 Minutes Minimum** |

### Subcatchment SC-1: West



## Summary for Subcatchment SC-1A: East

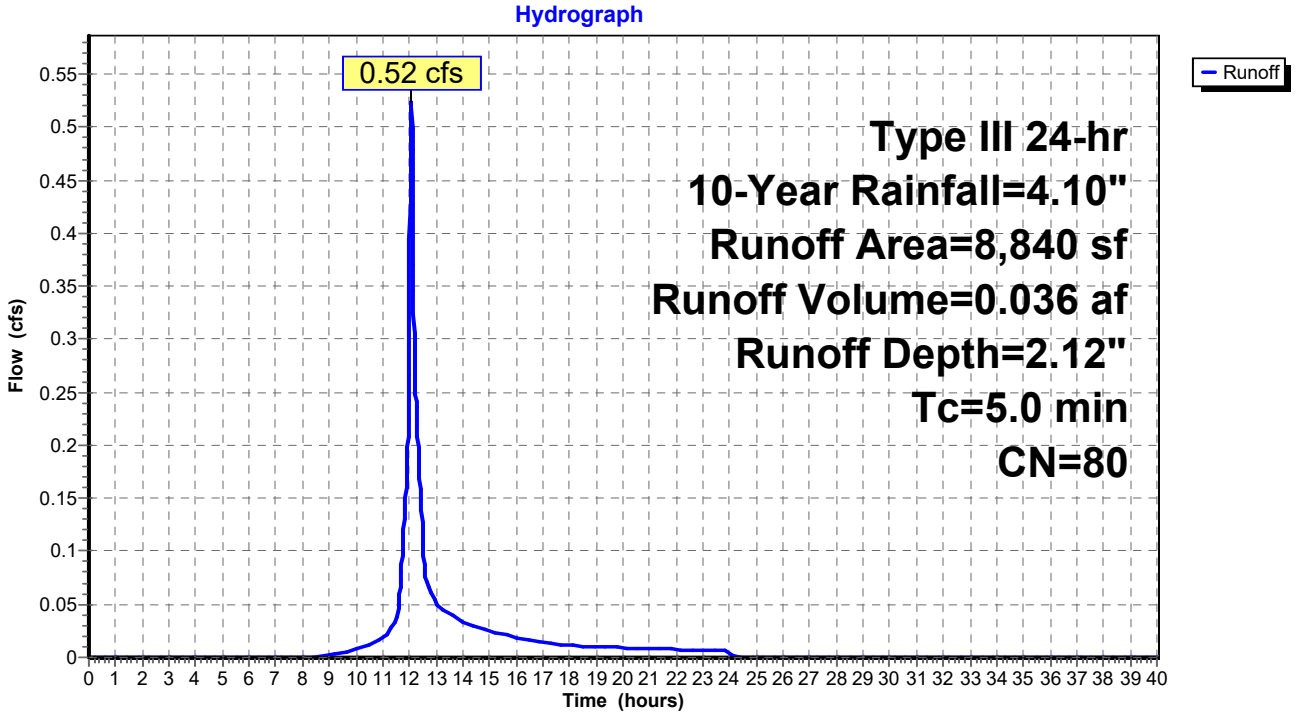
Runoff = 0.52 cfs @ 12.08 hrs, Volume= 0.036 af, Depth= 2.12"
Routed to Pond P-1A : Underdrained Soil Filter #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.10"

| Area (sf) | CN | Description |
|---|---|---|
| 8,840 | 80 | >75% Grass cover, Good, HSG D |
| 8,840 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

### Subcatchment SC-1A: East



## Summary for Subcatchment SC-1A1: Roundabout

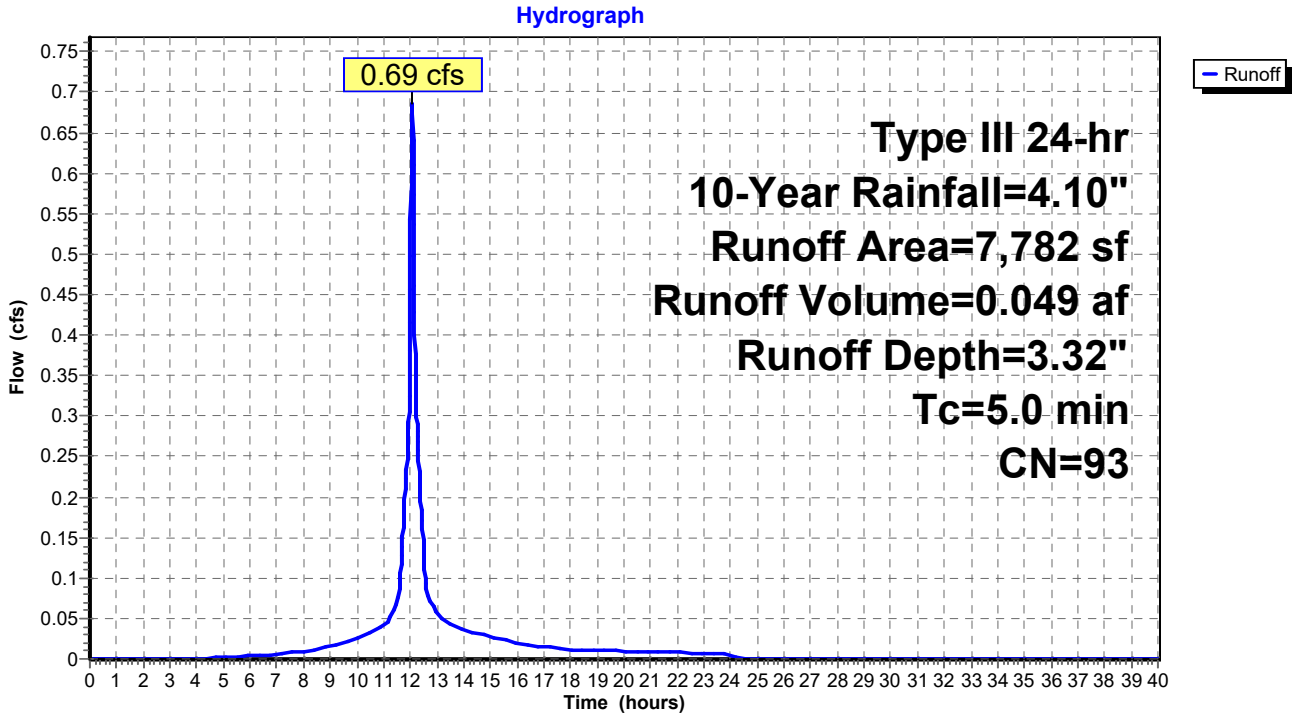
Runoff = 0.69 cfs @ 12.07 hrs, Volume= 0.049 af, Depth= 3.32"
Routed to Pond P-1A2 : CB#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.10"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 5,509 | 98 | Paved parking |
| | 2,273 | 80 | >75% Grass cover, Good, HSG D |
| | 7,782 | 93 | Weighted Average |
| | 2,273 | | 29.21% Pervious Area |
| | 5,509 | | 70.79% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, 5 Minutes Minimum** |

## Subcatchment SC-1A1: Roundabout



## Summary for Subcatchment SC-1A2: Parking Lot

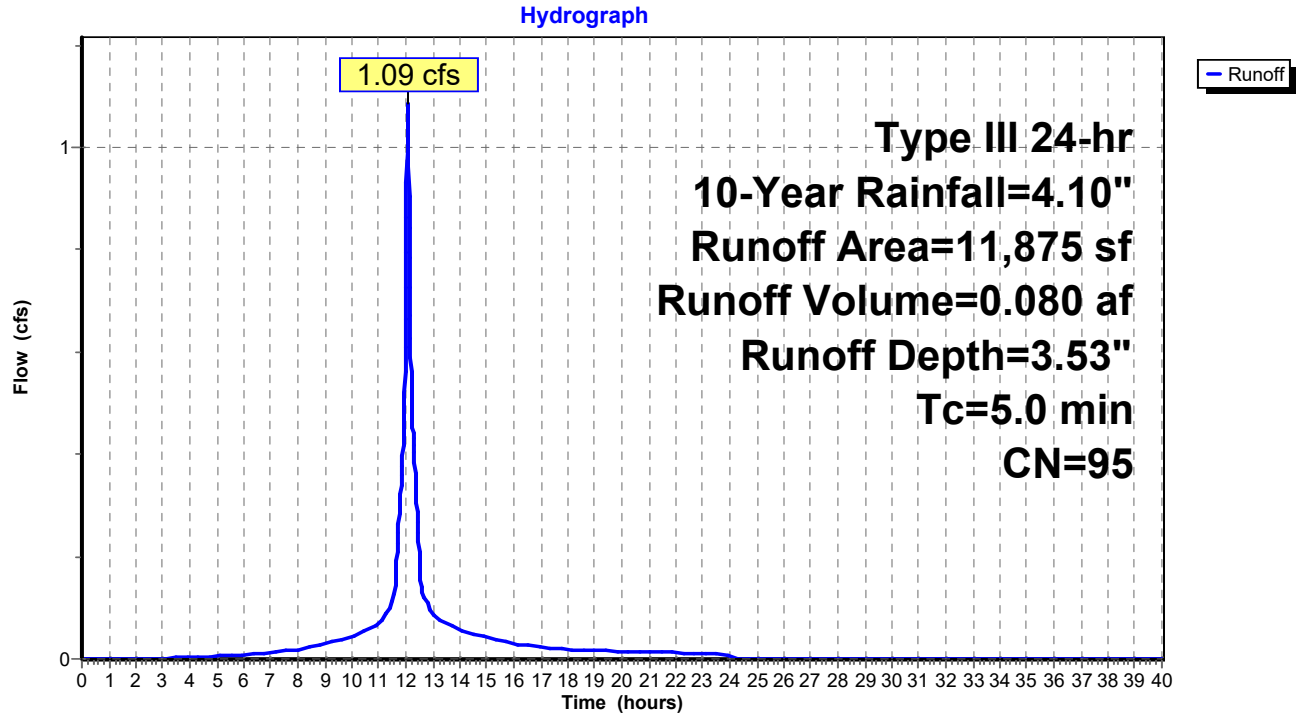
Runoff = 1.09 cfs @ 12.07 hrs, Volume= 0.080 af, Depth= 3.53"
Routed to Pond P-1A2 : CB#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.10"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 10,015 | 98 | Paved parking |
| | 1,860 | 80 | >75% Grass cover, Good, HSG D |
| | 11,875 | 95 | Weighted Average |
| | 1,860 | | 15.66% Pervious Area |
| | 10,015 | | 84.34% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

## Subcatchment SC-1A2: Parking Lot



## Summary for Subcatchment SC-1B: Southeast Off-property

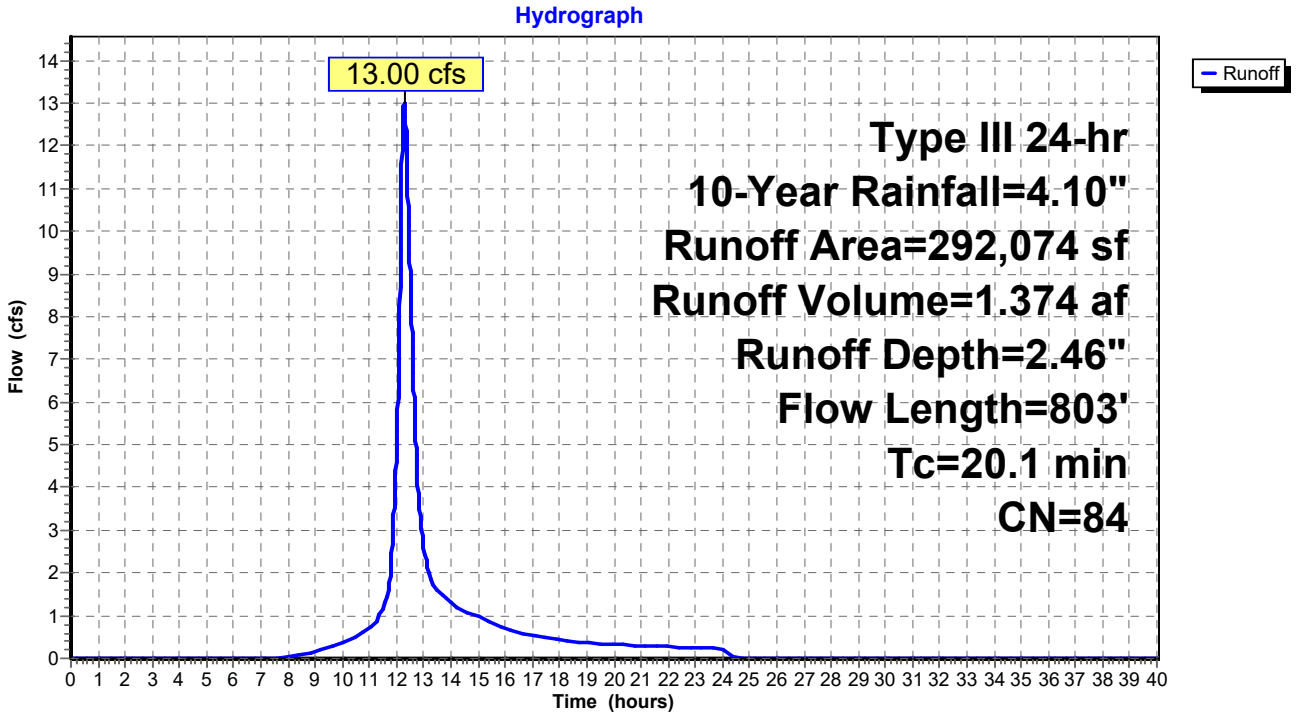
Runoff = 13.00 cfs @ 12.27 hrs, Volume= 1.374 af, Depth= 2.46"
Routed to Pond P-1B : 36" Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.10"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 20,275 | 98 | Roofs |
| | 11,200 | 98 | Paved roads w/curbs & sewers |
| * | 19,477 | 98 | Paved parking |
| * | 19,494 | 96 | Gravel surface |
| | 11,386 | 74 | >75% Grass cover, Good, HSG C |
| | 170,113 | 80 | >75% Grass cover, Good, HSG D |
| | 40,129 | 79 | Woods/grass comb., Good, HSG D |
| | 292,074 | 84 | Weighted Average |
| | 241,122 | | 82.56% Pervious Area |
| | 50,952 | | 17.44% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 12.8 | 100 | 0.0325 | 0.13 | | **Sheet Flow, A-B**<br>Grass: Dense n= 0.240 P2= 2.70" |
| 0.9 | 79 | 0.0443 | 1.47 | | **Shallow Concentrated Flow, B-C**<br>Short Grass Pasture Kv= 7.0 fps |
| 1.5 | 147 | 0.1041 | 1.61 | | **Shallow Concentrated Flow, C-D**<br>Woodland Kv= 5.0 fps |
| 0.3 | 34 | 0.0882 | 2.08 | | **Shallow Concentrated Flow, D-E**<br>Short Grass Pasture Kv= 7.0 fps |
| 3.6 | 219 | 0.0411 | 1.01 | | **Shallow Concentrated Flow, E-F**<br>Woodland Kv= 5.0 fps |
| 0.7 | 117 | 0.0342 | 2.77 | | **Shallow Concentrated Flow, F-G**<br>Grassed Waterway Kv= 15.0 fps |
| 0.2 | 79 | 0.0200 | 8.06 | 9.90 | **Pipe Channel, G-H**<br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'<br>n= 0.012 Corrugated PP, smooth interior |
| 0.1 | 28 | 0.0896 | 4.49 | | **Shallow Concentrated Flow, H-I**<br>Grassed Waterway Kv= 15.0 fps |
| 20.1 | 803 | Total | | | |

## Subcatchment SC-1B: Southeast Off-property



## Summary for Subcatchment SC-1C: Centeral East portion

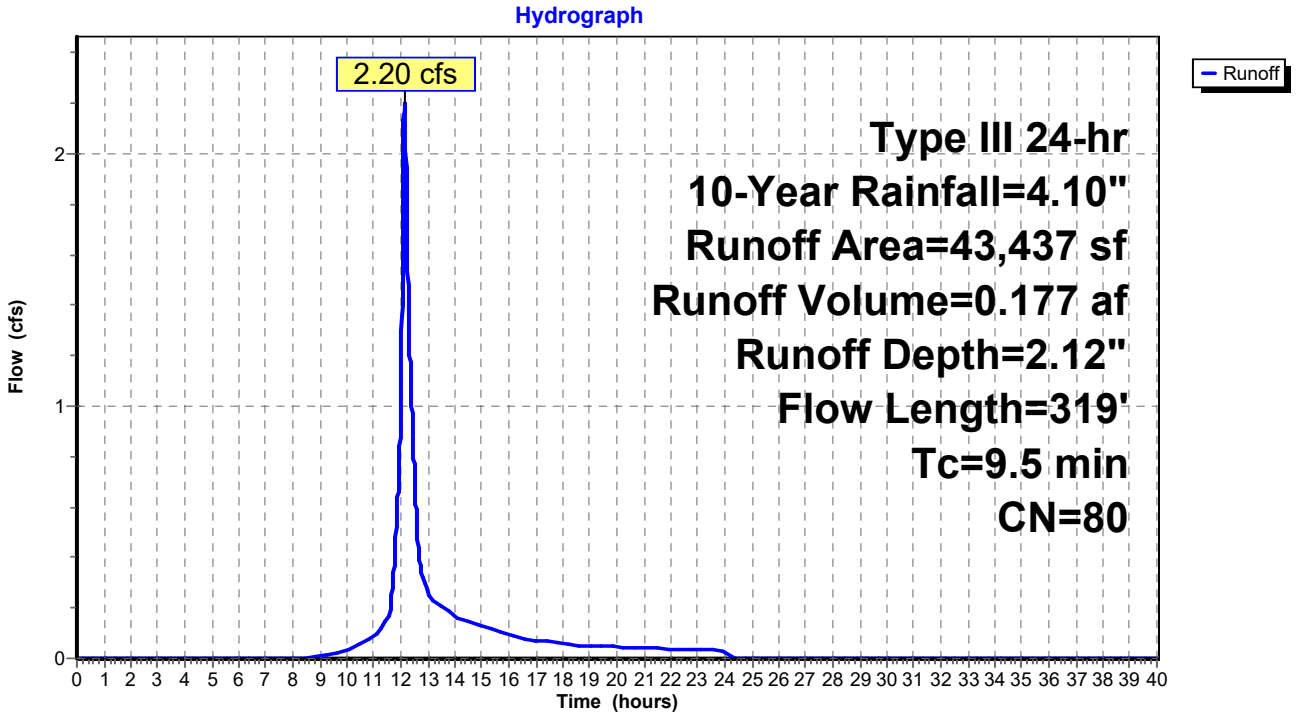
Runoff = 2.20 cfs @ 12.13 hrs, Volume= 0.177 af, Depth= 2.12"
Routed to Pond P-1C1 : FI#1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.10"

| Area (sf) | CN | Description |
|---|---|---|
| 37,473 | 80 | >75% Grass cover, Good, HSG D |
| 5,964 | 79 | Woods/grass comb., Good, HSG D |
| 43,437 | 80 | Weighted Average |
| 43,437 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.1 | 100 | 0.0800 | 0.27 | | **Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.70" |
| 0.0 | 5 | 0.0800 | 1.98 | | **Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps |
| 0.3 | 35 | 0.1140 | 1.69 | | **Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps |
| 0.3 | 57 | 0.2110 | 3.22 | | **Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps |
| 0.1 | 35 | 0.3428 | 4.10 | | **Shallow Concentrated Flow, E-F** Short Grass Pasture Kv= 7.0 fps |
| 2.7 | 87 | 0.0057 | 0.53 | | **Shallow Concentrated Flow, F-G** Short Grass Pasture Kv= 7.0 fps |
| 9.5 | 319 | Total | | | |

## Subcatchment SC-1C: Centeral East portion



## Summary for Subcatchment SC-1C1: Southwest Portion of Building

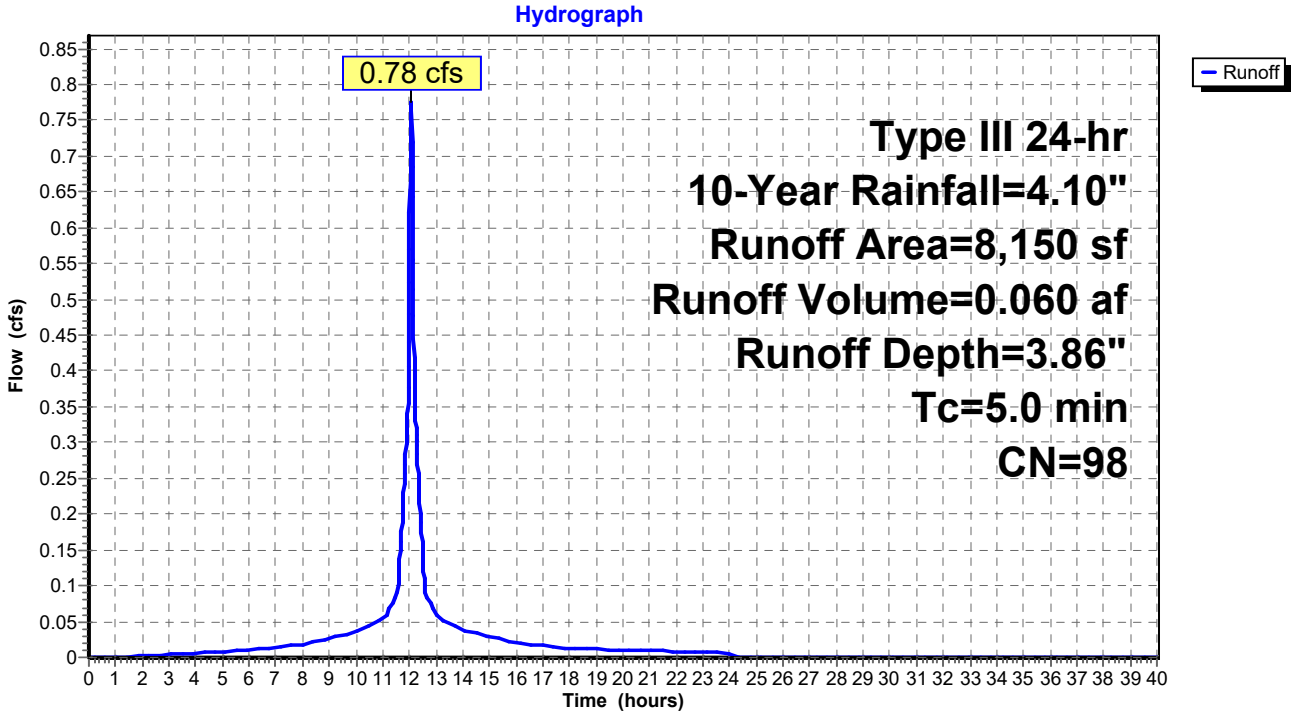
Runoff = 0.78 cfs @ 12.07 hrs, Volume= 0.060 af, Depth= 3.86"
Routed to Pond RDF-1 : Roof Dripline Filter #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.10"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 8,150 | 98 | Roofs |
| | 8,150 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, 5 Minutes Minimum** |

## Subcatchment SC-1C1: Southwest Portion of Building



## Summary for Subcatchment SC-1C2: Southeast portion of Building

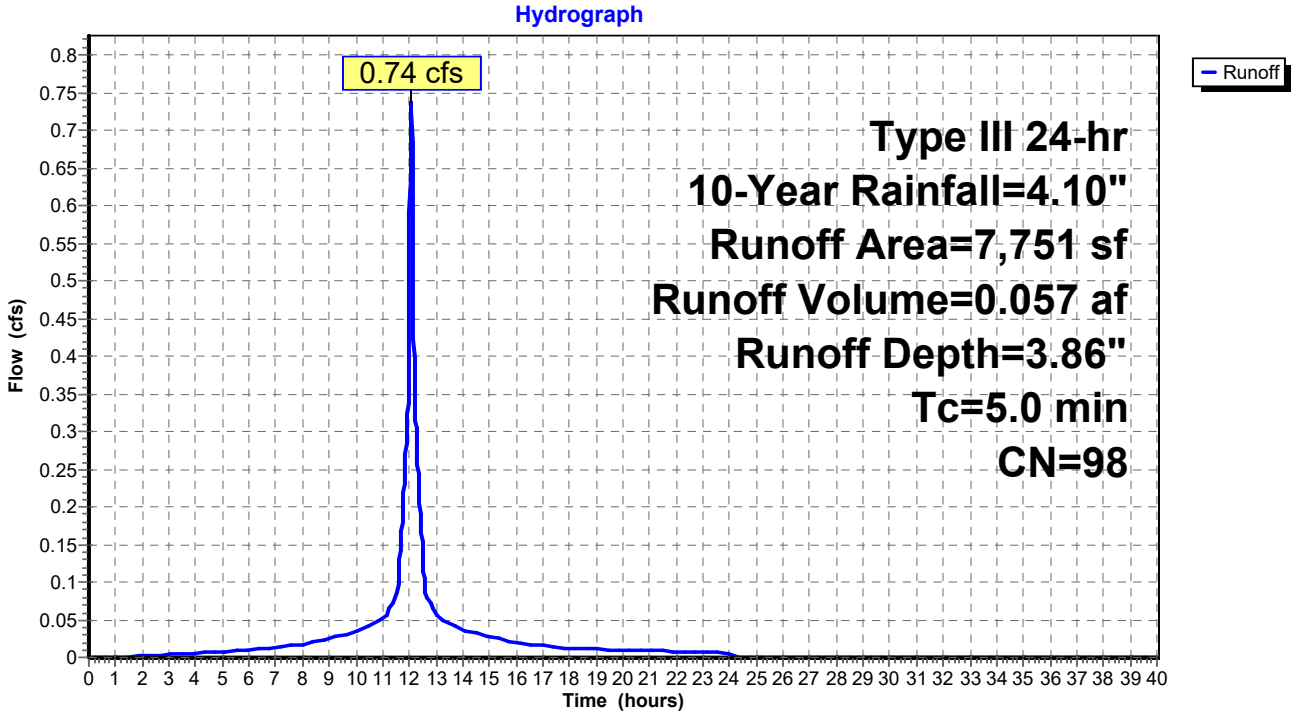
Runoff = 0.74 cfs @ 12.07 hrs, Volume= 0.057 af, Depth= 3.86"
Routed to Pond RDF-3 : Roof Dripline Filter #3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.10"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 7,751 | 98 | Roofs |
| | 7,751 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, 5 Minutes Minimum** |

## Subcatchment SC-1C2: Southeast portion of Building



## Summary for Subcatchment SC-1D: North

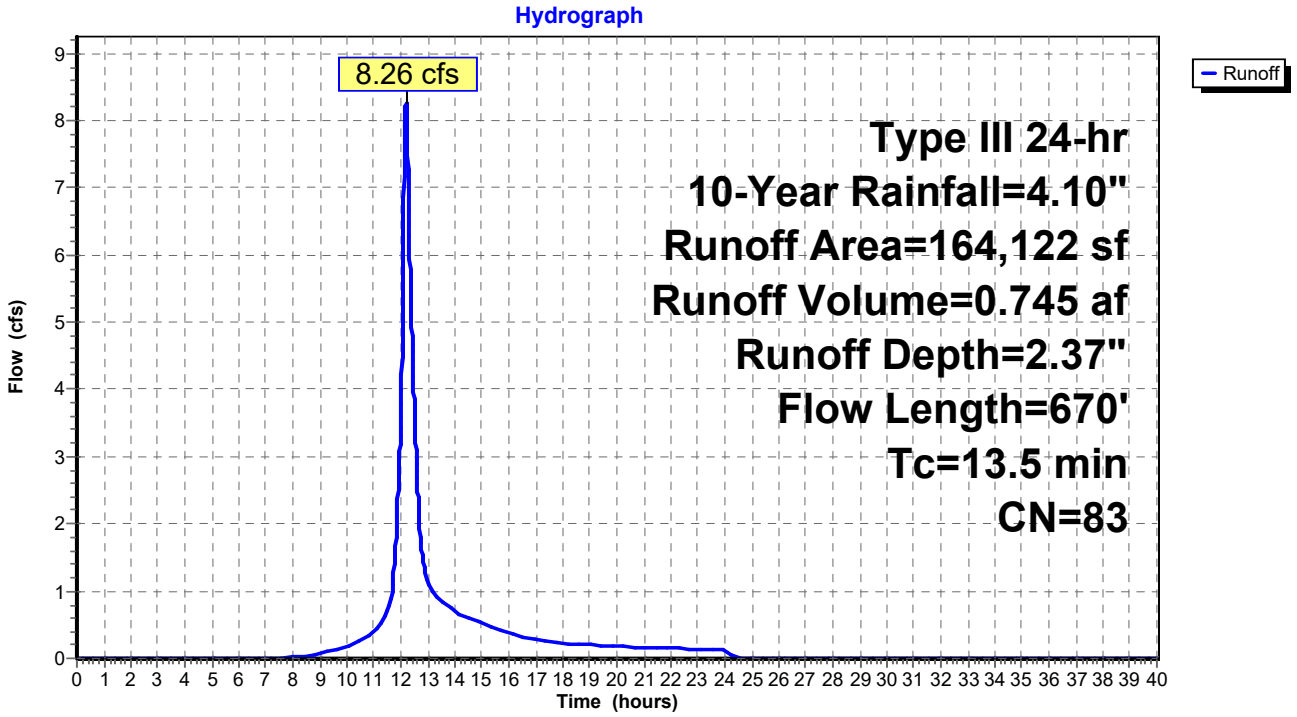
Runoff = 8.26 cfs @ 12.19 hrs, Volume= 0.745 af, Depth= 2.37"
Routed to Pond P-1D : 15" Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.10"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 16,493 | 98 | Paved parking |
| * | 5,185 | 98 | Roofs, |
| * | 9,894 | 98 | Paved roads w/curbs & sewers |
| | 121,345 | 80 | >75% Grass cover, Good, HSG D |
| | 11,205 | 79 | Woods/grass comb., Good, HSG D |
| | 164,122 | 83 | Weighted Average |
| | 132,550 | | 80.76% Pervious Area |
| | 31,572 | | 19.24% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.9 | 100 | 0.0600 | 0.24 | | **Sheet Flow, A-B**<br>Grass: Short n= 0.150 P2= 2.70" |
| 0.0 | 4 | 0.0600 | 1.71 | | **Shallow Concentrated Flow, B-C**<br>Short Grass Pasture Kv= 7.0 fps |
| 0.5 | 44 | 0.0910 | 1.51 | | **Shallow Concentrated Flow, C-D**<br>Woodland Kv= 5.0 fps |
| 3.0 | 320 | 0.0660 | 1.80 | | **Shallow Concentrated Flow, D-E**<br>Short Grass Pasture Kv= 7.0 fps |
| 3.1 | 202 | 0.0240 | 1.08 | | **Shallow Concentrated Flow, E-F**<br>Short Grass Pasture Kv= 7.0 fps |
| 13.5 | 670 | Total | | | |

## Subcatchment SC-1D: North



## Summary for Subcatchment SC-1D1: Northwest portion of building

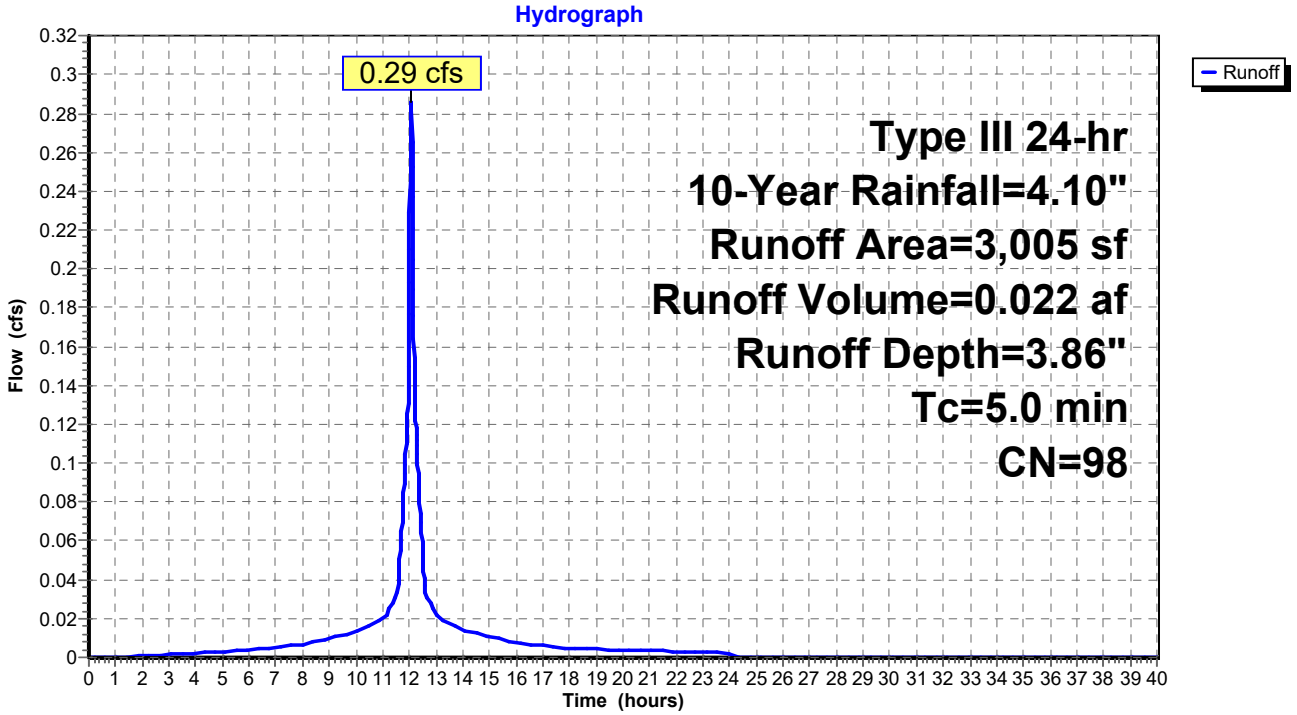
Runoff = 0.29 cfs @ 12.07 hrs, Volume= 0.022 af, Depth= 3.86"
Routed to Pond RDF-2 : Roof Dripline Filter #2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.10"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 3,005 | 98 | Roofs |
| | 3,005 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, 5 Minutes Minimum** |

## Subcatchment SC-1D1: Northwest portion of building



## Summary for Subcatchment SC-1D2: Northeast portion of building

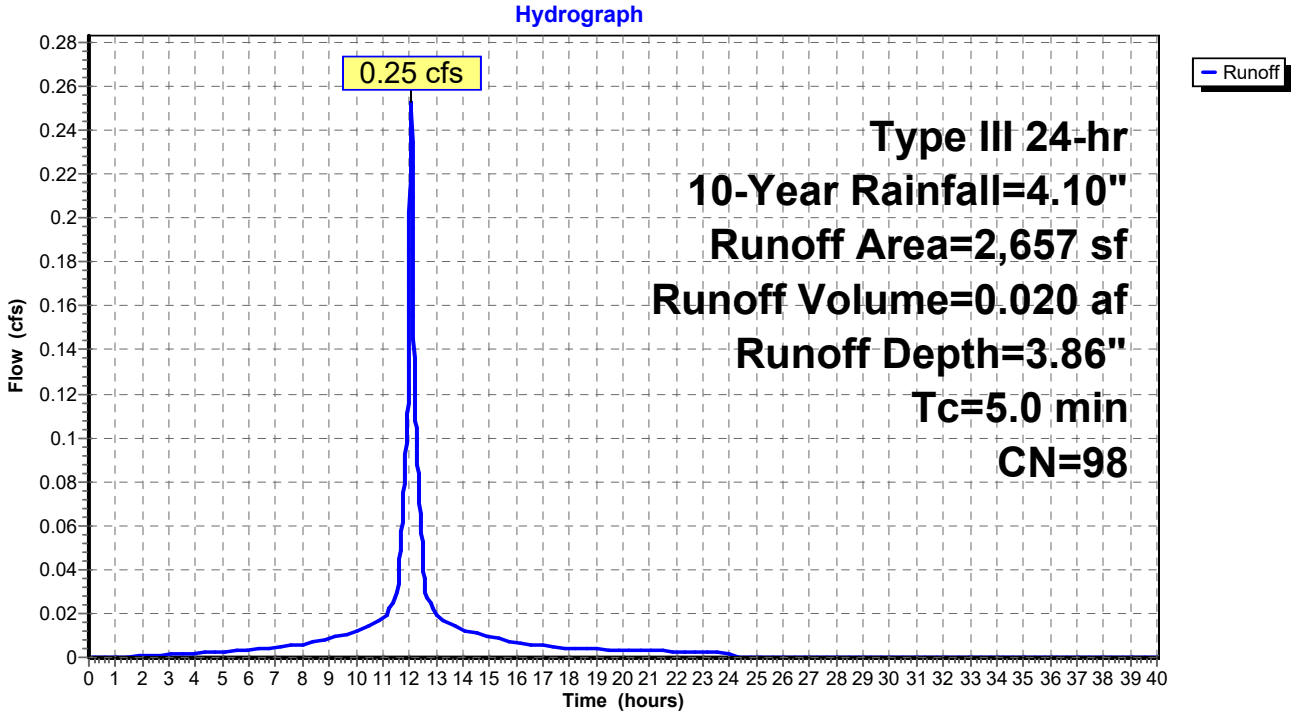
Runoff = 0.25 cfs @ 12.07 hrs, Volume= 0.020 af, Depth= 3.86"
Routed to Pond RDF-4 : Roof Dripline Filter #4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.10"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 2,657 | 98 | Roofs |
| | 2,657 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, 5 Minutes Minimum** |

## Subcatchment SC-1D2: Northeast portion of building



## Summary for Subcatchment SC-1D3: Northeast Portion of Property

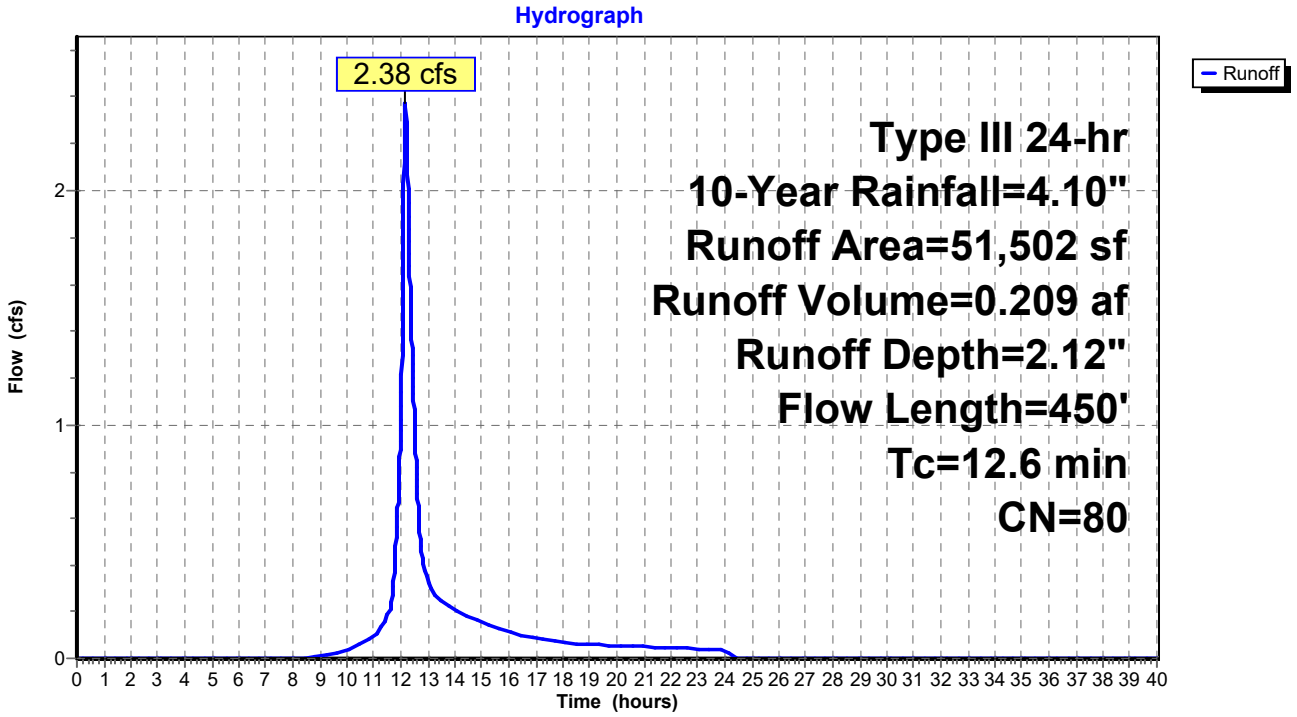
Runoff = 2.38 cfs @ 12.17 hrs, Volume= 0.209 af, Depth= 2.12"
Routed to Pond P-1D3 : FI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.10"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 122 | 98 | Paved roads w/curbs & sewers |
| | 48,321 | 80 | >75% Grass cover, Good, HSG D |
| | 3,059 | 79 | Woods/grass comb., Good, HSG D |
| | 51,502 | 80 | Weighted Average |
| | 51,380 | | 99.76% Pervious Area |
| | 122 | | 0.24% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 9.1 | 100 | 0.0300 | 0.18 | | **Sheet Flow, A-B**<br>Grass: Short n= 0.150 P2= 2.70" |
| 0.3 | 35 | 0.0720 | 1.88 | | **Shallow Concentrated Flow, B-C**<br>Short Grass Pasture Kv= 7.0 fps |
| 0.1 | 23 | 0.0200 | 2.87 | | **Shallow Concentrated Flow, C-D**<br>Paved Kv= 20.3 fps |
| 0.9 | 100 | 0.0770 | 1.94 | | **Shallow Concentrated Flow, D-E**<br>Short Grass Pasture Kv= 7.0 fps |
| 0.3 | 31 | 0.1190 | 1.72 | | **Shallow Concentrated Flow, E-F**<br>Woodland Kv= 5.0 fps |
| 0.6 | 109 | 0.1827 | 2.99 | | **Shallow Concentrated Flow, F-G**<br>Short Grass Pasture Kv= 7.0 fps |
| 1.3 | 52 | 0.0097 | 0.69 | | **Shallow Concentrated Flow, G-H**<br>Short Grass Pasture Kv= 7.0 fps |
| 12.6 | 450 | Total | | | |

## Subcatchment SC-1D3: Northeast Portion of Property



## Summary for Subcatchment SC-1E: Central of property

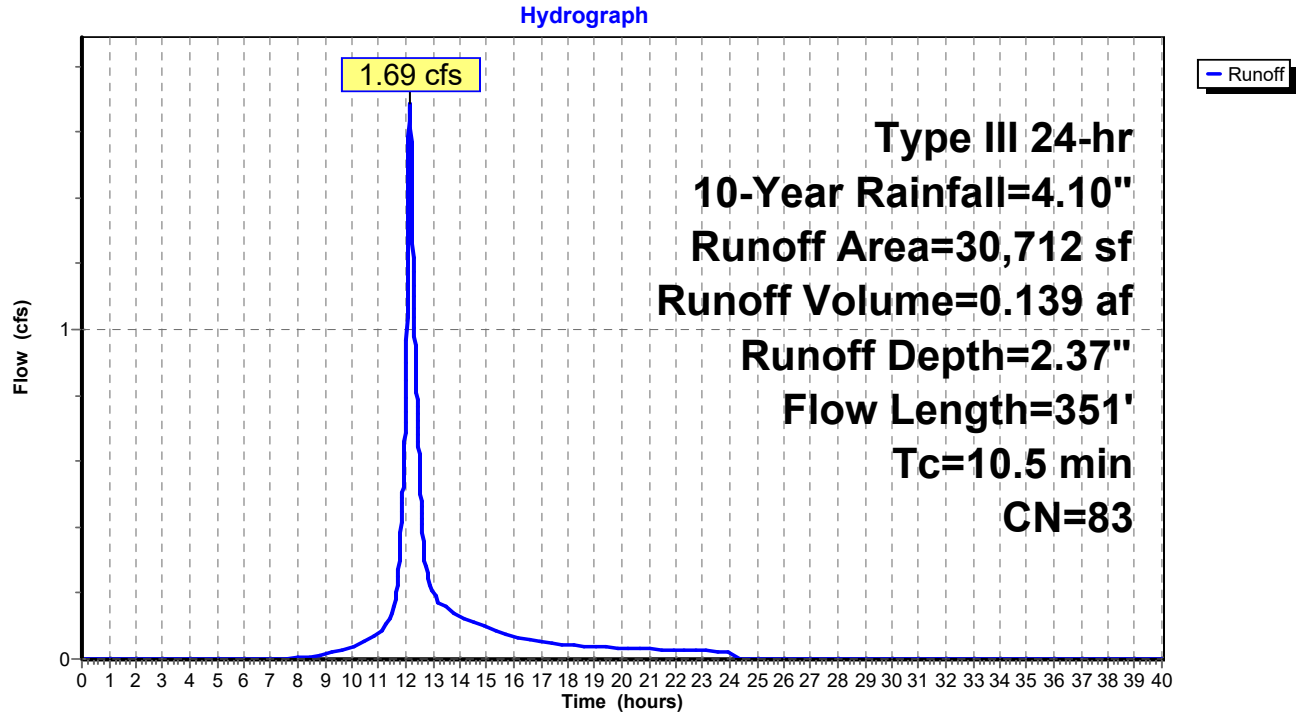
Runoff = 1.69 cfs @ 12.15 hrs, Volume= 0.139 af, Depth= 2.37"
Routed to Pond P-1E : 12" Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.10"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 5,682 | 98 | Paved roads w/curbs & sewers |
| * | 89 | 98 | Paved parking |
| | 24,741 | 80 | Pasture/grassland/range, Good, HSG D |
| | 200 | 79 | Woods/grass comb., Good, HSG D |
| | 30,712 | 83 | Weighted Average |
| | 24,941 | | 81.21% Pervious Area |
| | 5,771 | | 18.79% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 9.2 | 100 | 0.0750 | 0.18 | | **Sheet Flow, A-B**<br>Grass: Dense n= 0.240 P2= 2.70" |
| 1.3 | 251 | 0.0103 | 3.16 | 39.16 | **Channel Flow, B-C**<br>Area= 12.4 sf Perim= 24.9' r= 0.50'<br>n= 0.030 Earth, grassed & winding |
| 10.5 | 351 | Total | | | |

## Subcatchment SC-1E: Central of property



## Summary for Subcatchment SC-1F: Central of property

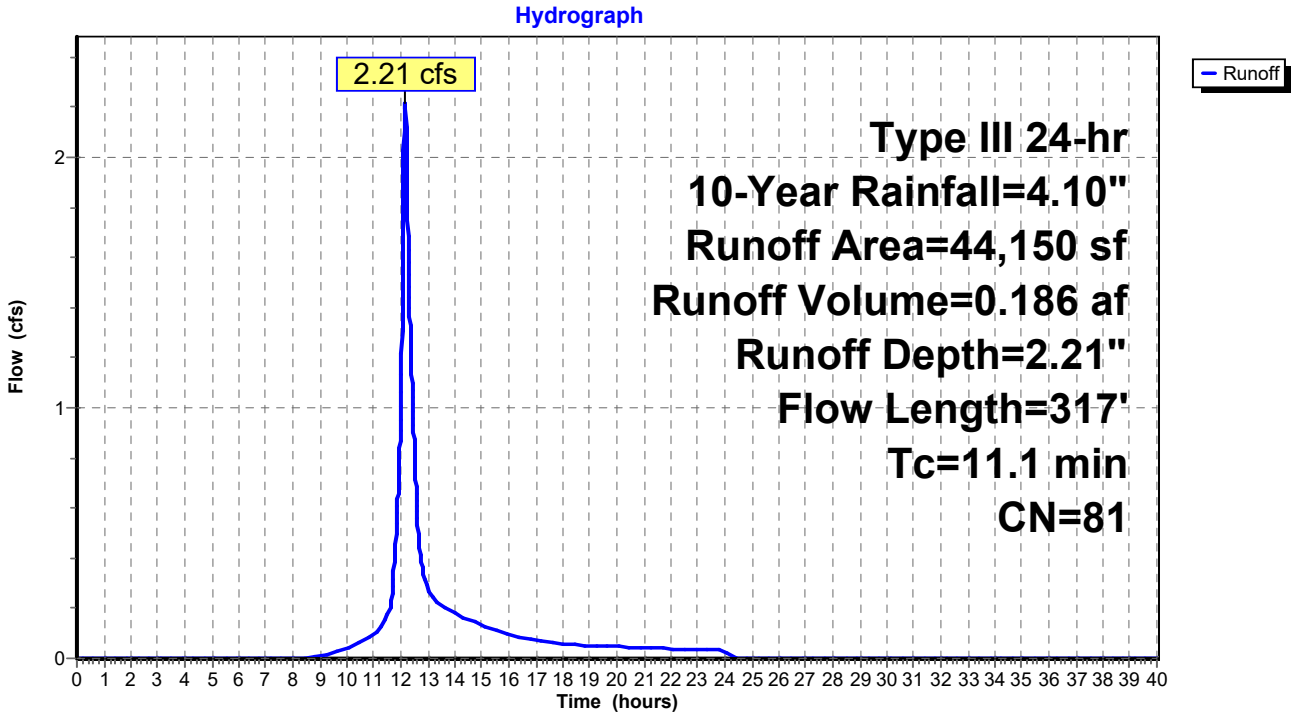
Runoff = 2.21 cfs @ 12.15 hrs, Volume= 0.186 af, Depth= 2.21"
Routed to Pond P-1F : 2 - 24 " Dia Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.10"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 1,971 | 98 | Paved roads w/curbs & sewers |
| * | 620 | 98 | Paved parking |
| | 31,090 | 80 | >75% Grass cover, Good, HSG D |
| | 10,469 | 79 | Woods/grass comb., Good, HSG D |
| | 44,150 | 81 | Weighted Average |
| | 41,559 | | 94.13% Pervious Area |
| | 2,591 | | 5.87% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | 100 | 0.0600 | 0.17 | | **Sheet Flow, A-B**<br>Grass: Dense n= 0.240 P2= 2.70" |
| 1.0 | 147 | 0.1292 | 2.52 | | **Shallow Concentrated Flow, B-C**<br>Short Grass Pasture Kv= 7.0 fps |
| 0.1 | 70 | 0.0714 | 8.07 | 24.21 | **Channel Flow, C-D**<br>Area= 3.0 sf Perim= 6.3' r= 0.48'<br>n= 0.030 Earth, grassed & winding |
| 11.1 | 317 | Total | | | |

## Subcatchment SC-1F: Central of property



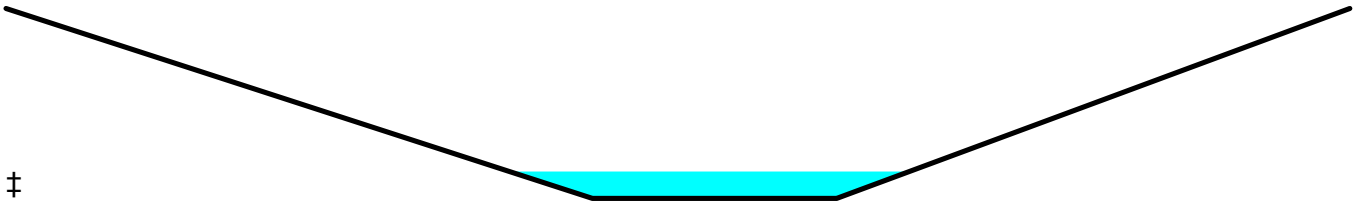
## Summary for Reach 1B-R1: Swale

Inflow Area = 6.705 ac, 17.44% Impervious, Inflow Depth = 2.46" for 10-Year event
Inflow = 12.93 cfs @ 12.29 hrs, Volume= 1.372 af
Outflow = 12.92 cfs @ 12.30 hrs, Volume= 1.372 af, Atten= 0%, Lag= 0.6 min
Routed to Reach 1B-R2 : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.63 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 1.51 fps, Avg. Travel Time= 2.4 min

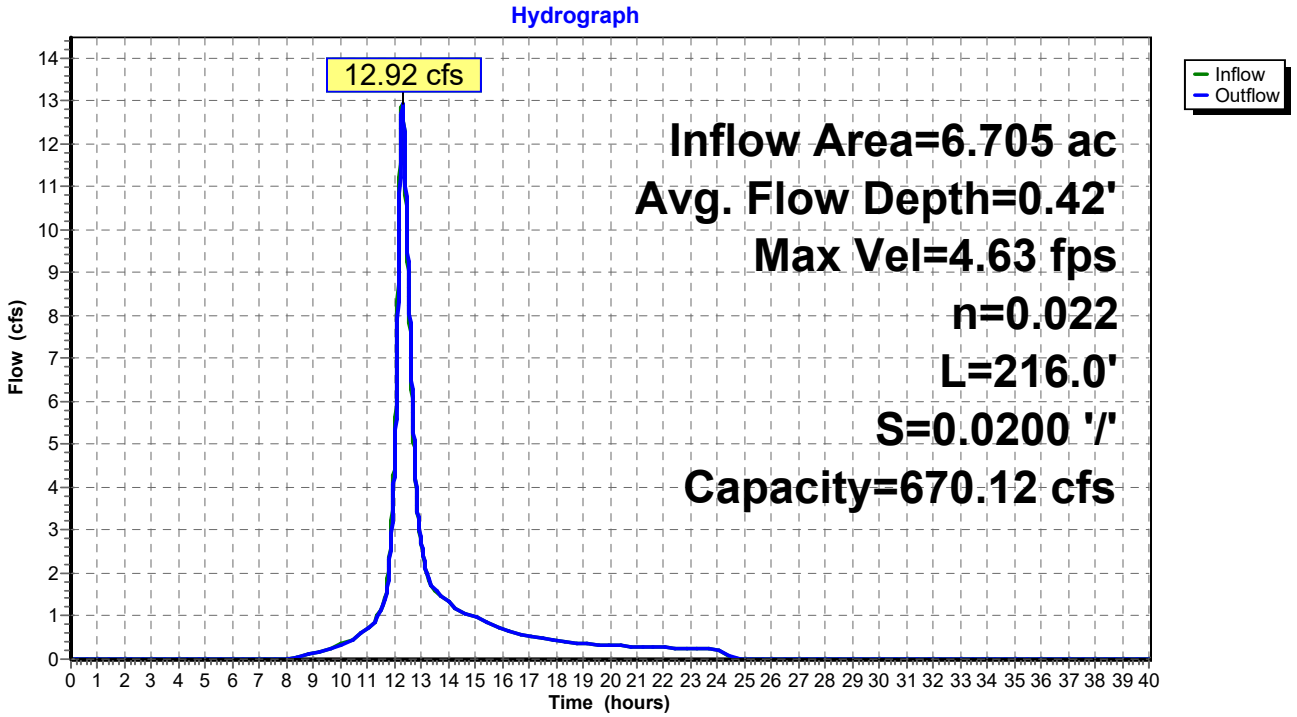
Peak Storage= 603 cf @ 12.30 hrs
Average Depth at Peak Storage= 0.42' , Surface Width= 8.18'
Bank-Full Depth= 3.00' Flow Area= 48.8 sf, Capacity= 670.12 cfs

5.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 4.0 3.5 '/' Top Width= 27.50'
Length= 216.0' Slope= 0.0200 '/'
Inlet Invert= 165.33', Outlet Invert= 161.00'



‡

**Reach 1B-R1: Swale**



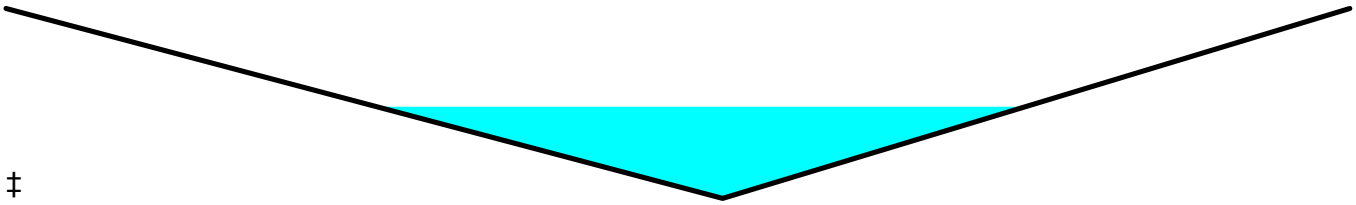
## Summary for Reach 1B-R2: Swale

Inflow Area = 6.705 ac, 17.44% Impervious, Inflow Depth = 2.46" for 10-Year event
Inflow = 12.92 cfs @ 12.30 hrs, Volume= 1.372 af
Outflow = 12.78 cfs @ 12.33 hrs, Volume= 1.372 af, Atten= 1%, Lag= 1.7 min
Routed to Pond P-1F : 2 - 24 " Dia Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.63 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 0.51 fps, Avg. Travel Time= 7.0 min

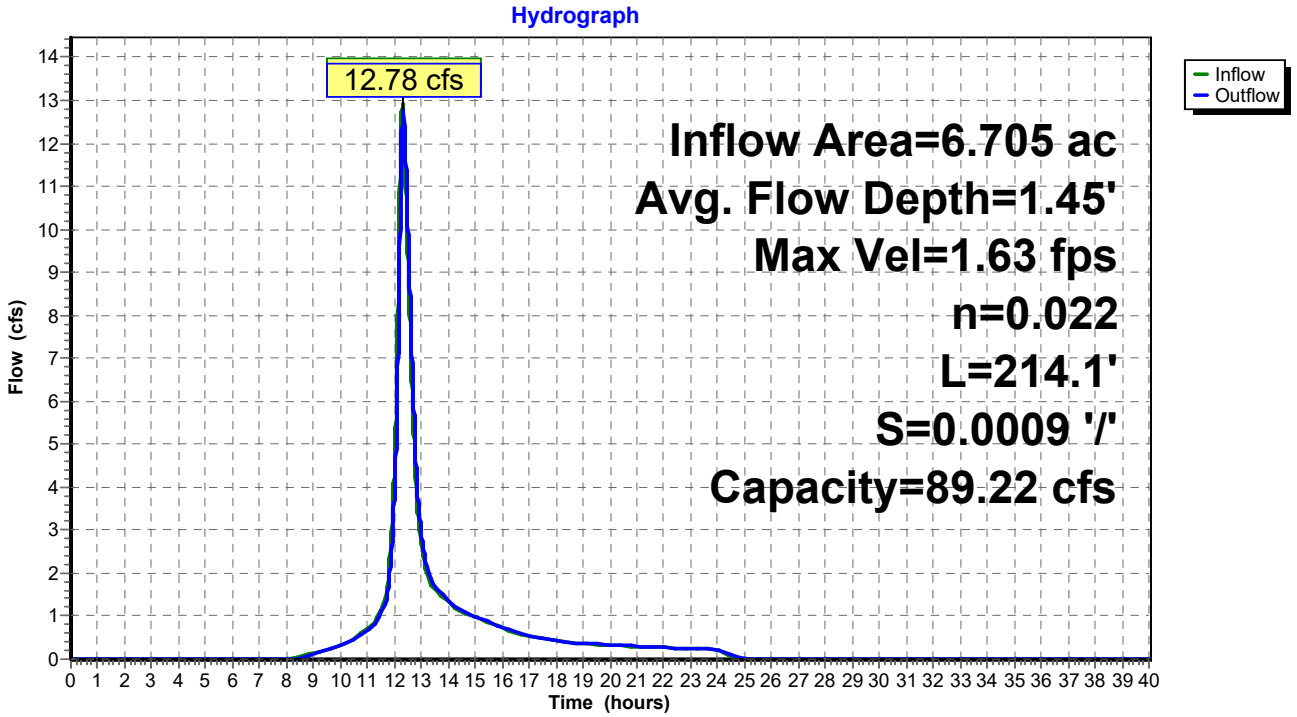
Peak Storage= 1,682 cf @ 12.33 hrs
Average Depth at Peak Storage= 1.45' , Surface Width= 10.86'
Bank-Full Depth= 3.00' Flow Area= 33.8 sf, Capacity= 89.22 cfs

0.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 4.0 3.5 '/' Top Width= 22.50'
Length= 214.1' Slope= 0.0009 '/'
Inlet Invert= 161.00', Outlet Invert= 160.80'



‡

**Reach 1B-R2: Swale**



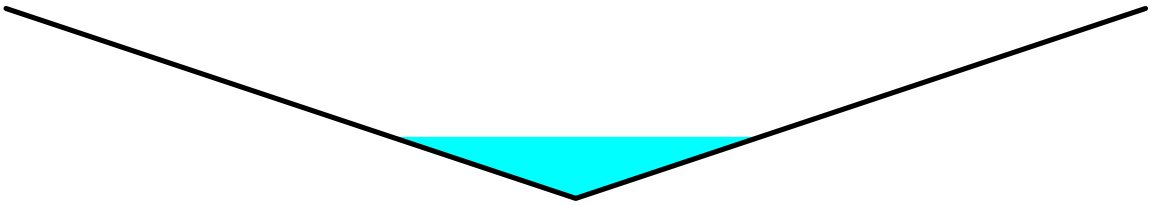
## Summary for Reach 1C-R: Swale

Inflow Area = 8.894 ac, 15.82% Impervious, Inflow Depth = 2.42" for 10-Year event
Inflow = 15.69 cfs @ 12.32 hrs, Volume= 1.792 af
Outflow = 15.68 cfs @ 12.33 hrs, Volume= 1.792 af, Atten= 0%, Lag= 0.4 min
Routed to Pond P-1 : 30" Culvert

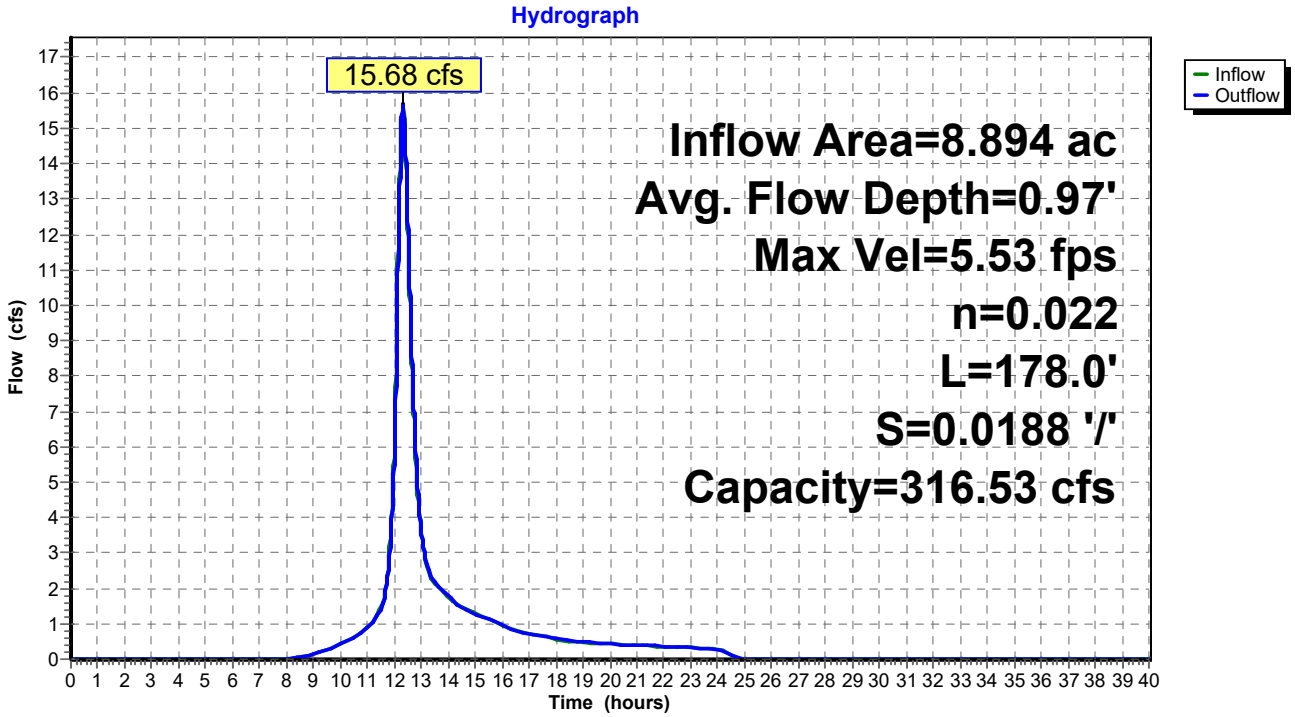
Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.53 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.79 fps, Avg. Travel Time= 1.7 min

Peak Storage= 505 cf @ 12.33 hrs
Average Depth at Peak Storage= 0.97' , Surface Width= 5.83'
Bank-Full Depth= 3.00' Flow Area= 27.0 sf, Capacity= 316.53 cfs

0.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 3.0 '/' Top Width= 18.00'
Length= 178.0' Slope= 0.0188 '/'
Inlet Invert= 157.50', Outlet Invert= 154.15'



**Reach 1C-R: Swale**



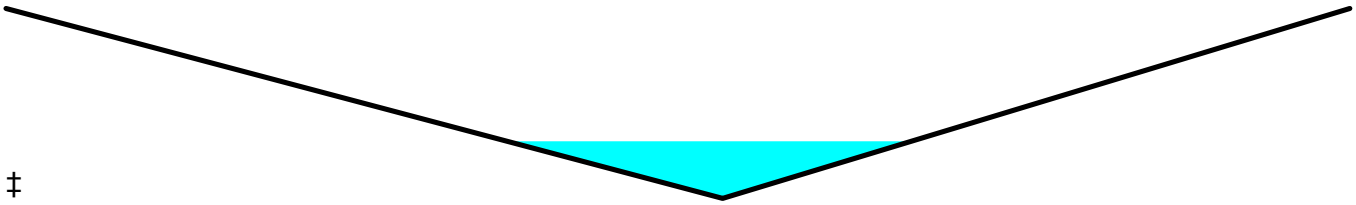
## Summary for Reach 1D-R: Swale

Inflow Area = 5.267 ac, 19.83% Impervious, Inflow Depth = 2.41" for 10-Year event
Inflow = 11.16 cfs @ 12.18 hrs, Volume= 1.057 af
Outflow = 11.14 cfs @ 12.19 hrs, Volume= 1.057 af, Atten= 0%, Lag= 0.5 min
Routed to Pond P-1 : 30" Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.64 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 1.32 fps, Avg. Travel Time= 2.0 min

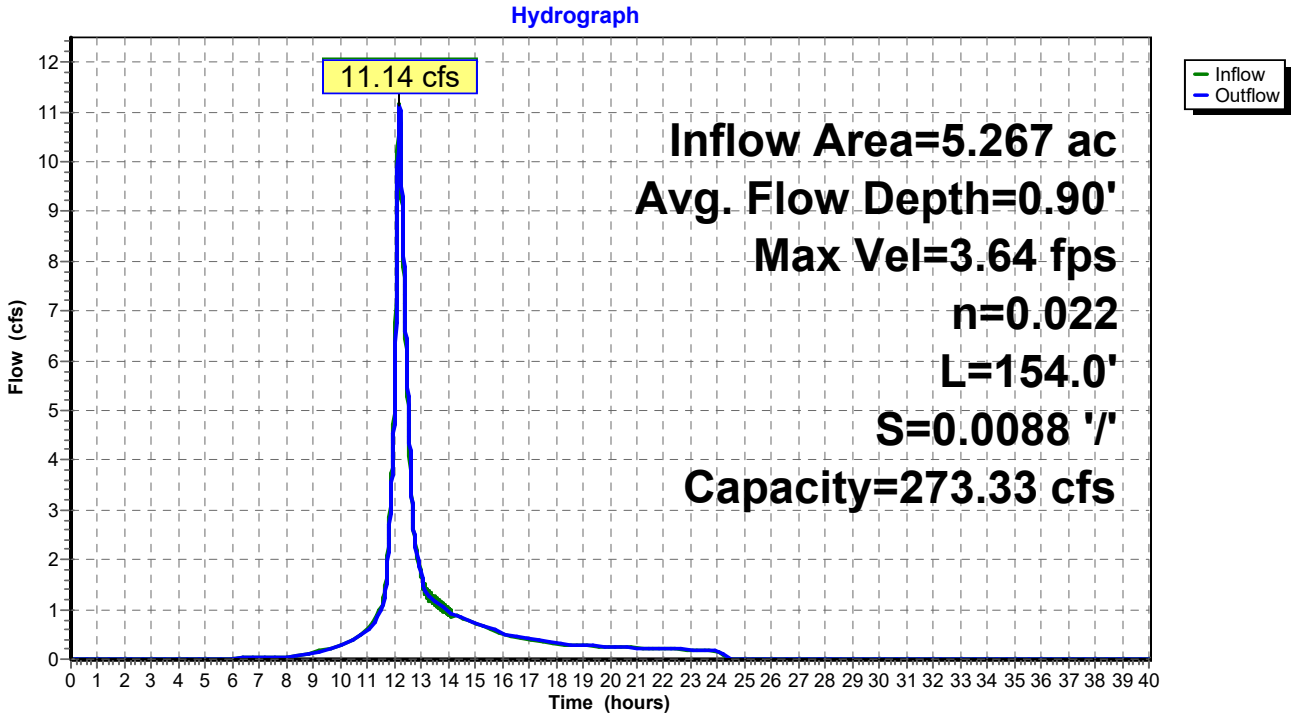
Peak Storage= 471 cf @ 12.19 hrs
Average Depth at Peak Storage= 0.90' , Surface Width= 6.78'
Bank-Full Depth= 3.00' Flow Area= 33.8 sf, Capacity= 273.33 cfs

0.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 4.0 3.5 '/' Top Width= 22.50'
Length= 154.0' Slope= 0.0088 '/'
Inlet Invert= 155.50', Outlet Invert= 154.15'



‡

**Reach 1D-R: Swale**



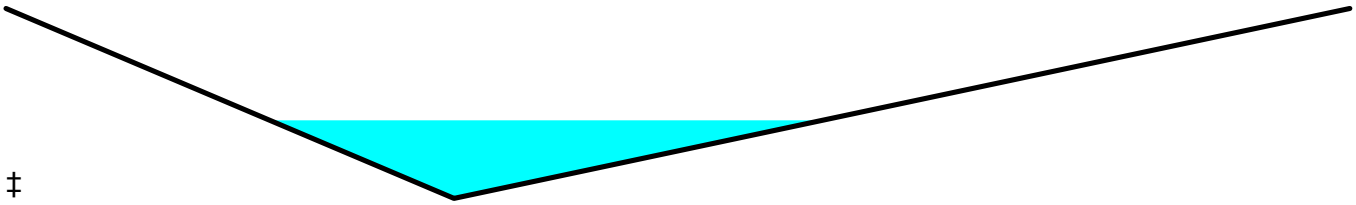
## Summary for Reach 1E-R: Road Side Ditch

Inflow Area = 0.705 ac, 18.79% Impervious, Inflow Depth = 2.37" for 10-Year event
Inflow = 1.55 cfs @ 12.19 hrs, Volume= 0.139 af
Outflow = 1.51 cfs @ 12.22 hrs, Volume= 0.139 af, Atten= 3%, Lag= 2.1 min
Routed to Pond P-1 : 30" Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.98 fps, Min. Travel Time= 2.7 min
Avg. Velocity = 0.70 fps, Avg. Travel Time= 7.6 min

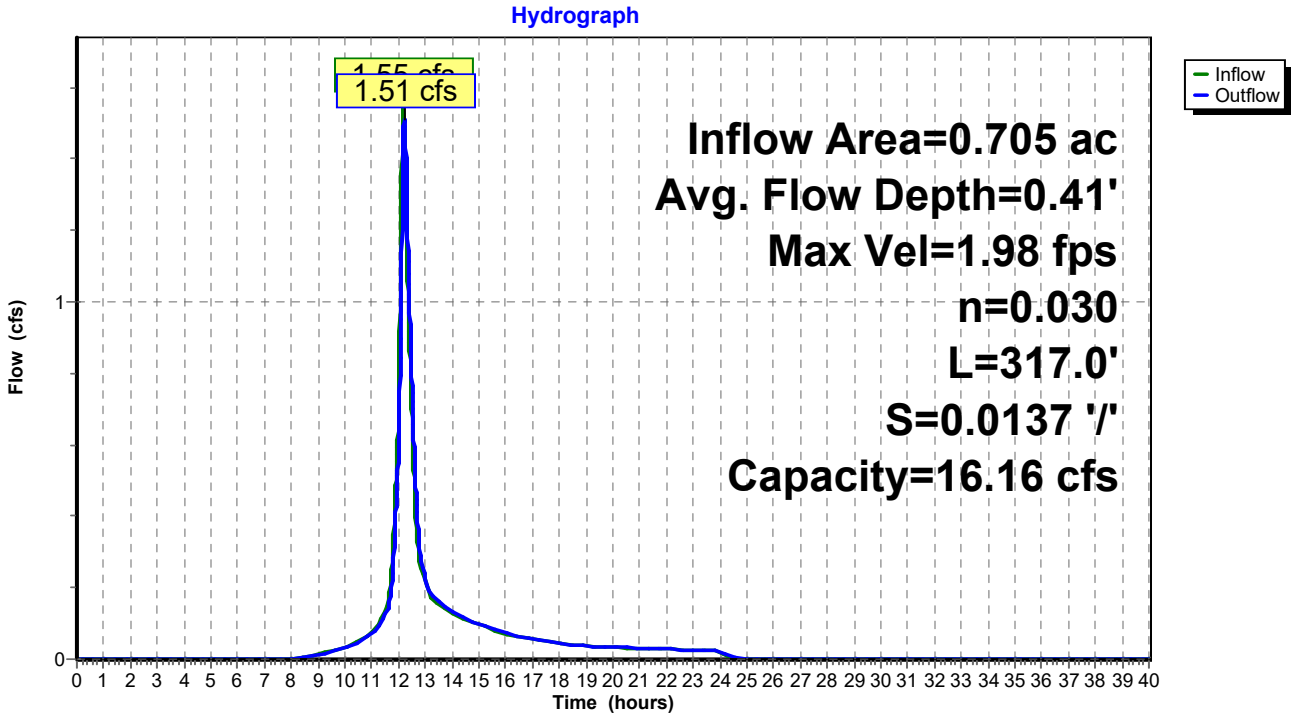
Peak Storage= 241 cf @ 12.22 hrs
Average Depth at Peak Storage= 0.41' , Surface Width= 3.70'
Bank-Full Depth= 1.00' Flow Area= 4.5 sf, Capacity= 16.16 cfs

0.00' x 1.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 6.0 '/' Top Width= 9.00'
Length= 317.0' Slope= 0.0137 '/'
Inlet Invert= 158.50', Outlet Invert= 154.15'



‡

## Reach 1E-R: Road Side Ditch



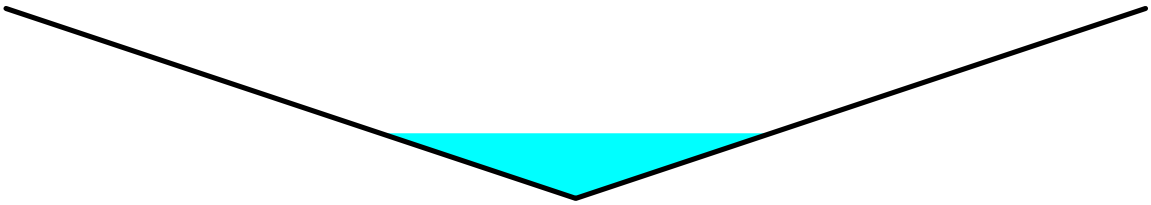
## Summary for Reach 1F-R: Swale

Inflow Area = 7.719 ac, 15.92% Impervious, Inflow Depth = 2.42" for 10-Year event
Inflow = 14.14 cfs @ 12.33 hrs, Volume= 1.558 af
Outflow = 14.14 cfs @ 12.33 hrs, Volume= 1.558 af, Atten= 0%, Lag= 0.4 min
Routed to Reach 1C-R : Swale

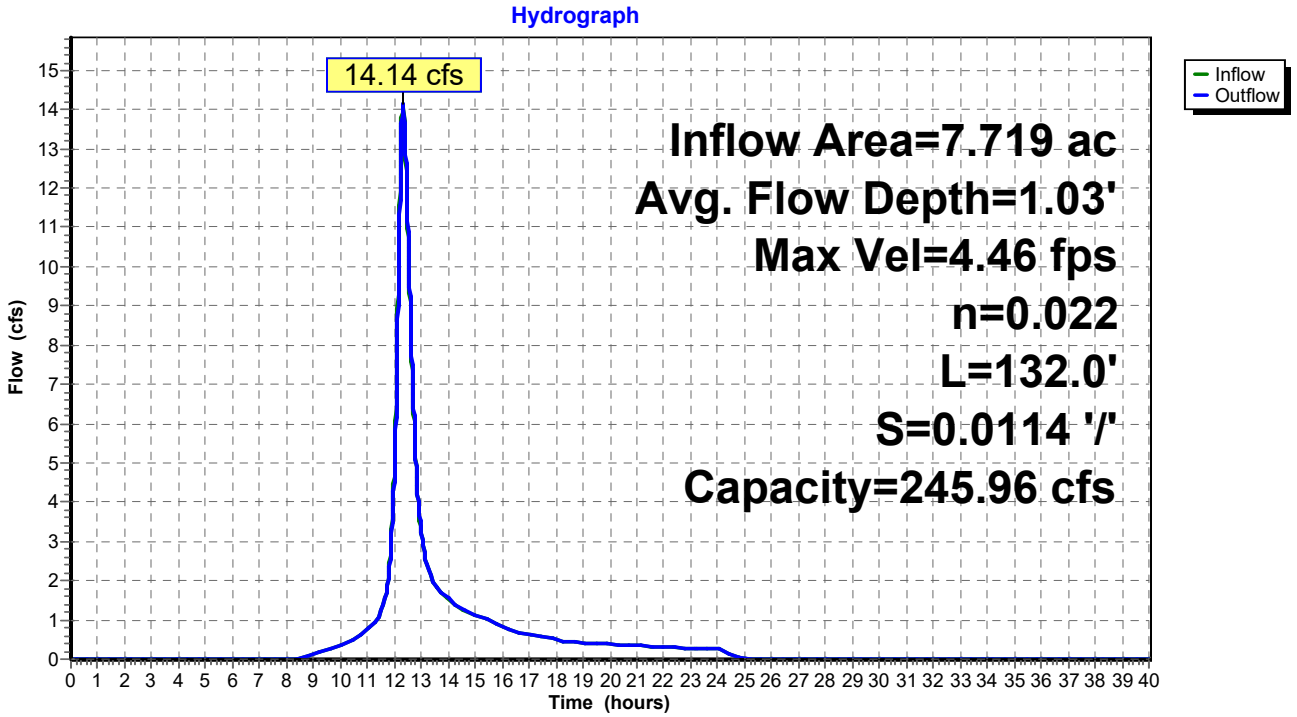
Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.46 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.64 fps, Avg. Travel Time= 1.3 min

Peak Storage= 418 cf @ 12.33 hrs
Average Depth at Peak Storage= 1.03' , Surface Width= 6.17'
Bank-Full Depth= 3.00' Flow Area= 27.0 sf, Capacity= 245.96 cfs

0.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 3.0 '/' Top Width= 18.00'
Length= 132.0' Slope= 0.0114 '/'
Inlet Invert= 159.00', Outlet Invert= 157.50'



**Reach 1F-R: Swale**



## Summary for Pond P-1: 30" Culvert

Inflow Area = 16.655 ac, 19.31% Impervious, Inflow Depth = 2.44" for 10-Year event
Inflow = 29.19 cfs @ 12.23 hrs, Volume= 3.386 af
Outflow = 25.29 cfs @ 12.39 hrs, Volume= 3.386 af, Atten= 13%, Lag= 9.7 min
Primary = 25.29 cfs @ 12.39 hrs, Volume= 3.386 af
Routed to Link AP-1 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link AP-1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 157.24' @ 12.39 hrs Surf.Area= 9,298 sf Storage= 5,365 cf

Plug-Flow detention time= 0.9 min calculated for 3.386 af (100% of inflow)
Center-of-Mass det. time= 0.9 min ( 848.2 - 847.2 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 154.15' | 16,642 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc) |

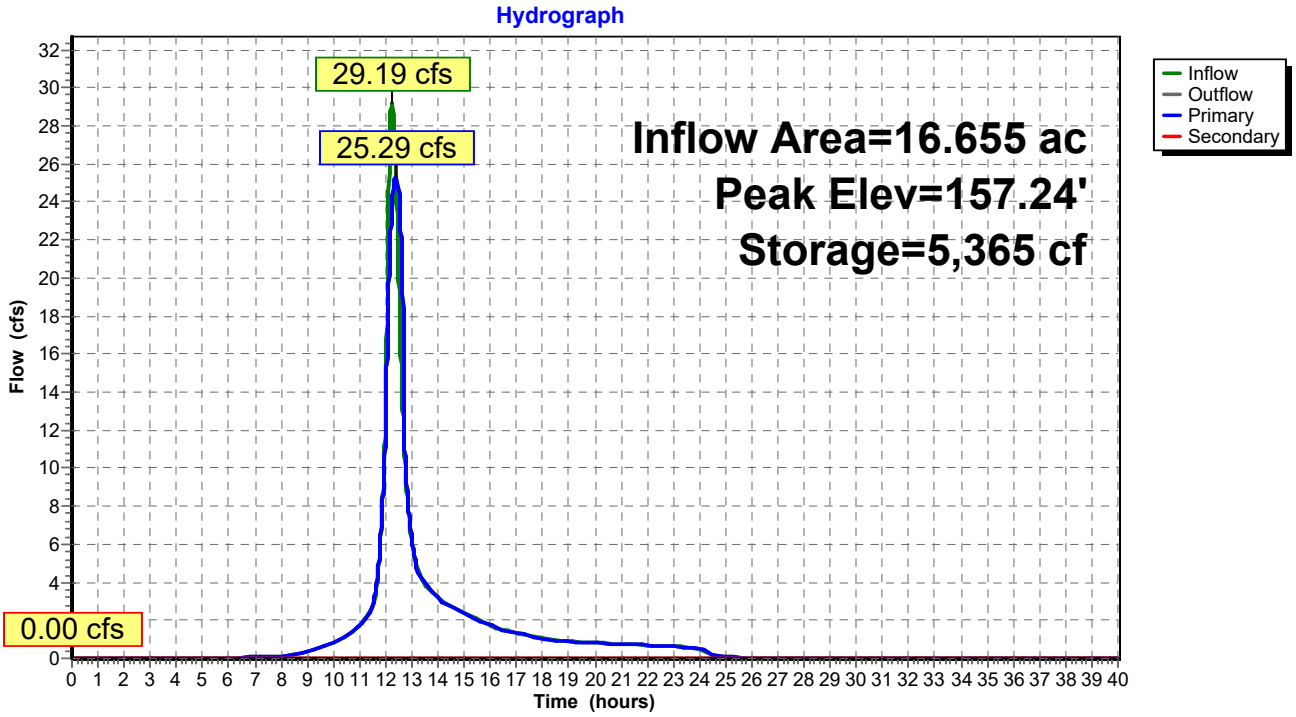
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 154.15 | 0 | 0 | 0 |
| 155.00 | 50 | 21 | 21 |
| 156.00 | 569 | 310 | 331 |
| 157.00 | 5,902 | 3,236 | 3,566 |
| 158.00 | 20,250 | 13,076 | 16,642 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 154.15' | **30.0" Round Culvert**<br>L= 75.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 154.15' / 153.00' S= 0.0153 '/' Cc= 0.900<br>n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf |
| #2 | Secondary | 157.50' | **30.0' long x 5.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88 |

**Primary OutFlow** Max=25.29 cfs @ 12.39 hrs HW=157.24' TW=0.00' (Dynamic Tailwater)
**1=Culvert** (Inlet Controls 25.29 cfs @ 5.15 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=154.15' TW=0.00' (Dynamic Tailwater)
**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Pond P-1: 30" Culvert



## Summary for Pond P-1A: Underdrained Soil Filter #1

Inflow Area = 0.654 ac, 54.48% Impervious, Inflow Depth = 3.04" for 10-Year event
Inflow = 2.30 cfs @ 12.07 hrs, Volume= 0.166 af
Outflow = 1.26 cfs @ 12.18 hrs, Volume= 0.166 af, Atten= 45%, Lag= 6.6 min
Primary = 0.04 cfs @ 24.35 hrs, Volume= 0.102 af
Routed to Pond P-1 : 30" Culvert
Secondary = 1.23 cfs @ 12.18 hrs, Volume= 0.063 af
Routed to Pond P-1 : 30" Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 158.14' @ 12.18 hrs Surf.Area= 2,041 sf Storage= 2,594 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 368.3 min ( 1,156.6 - 788.3 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 154.40' | 3,384 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc) |

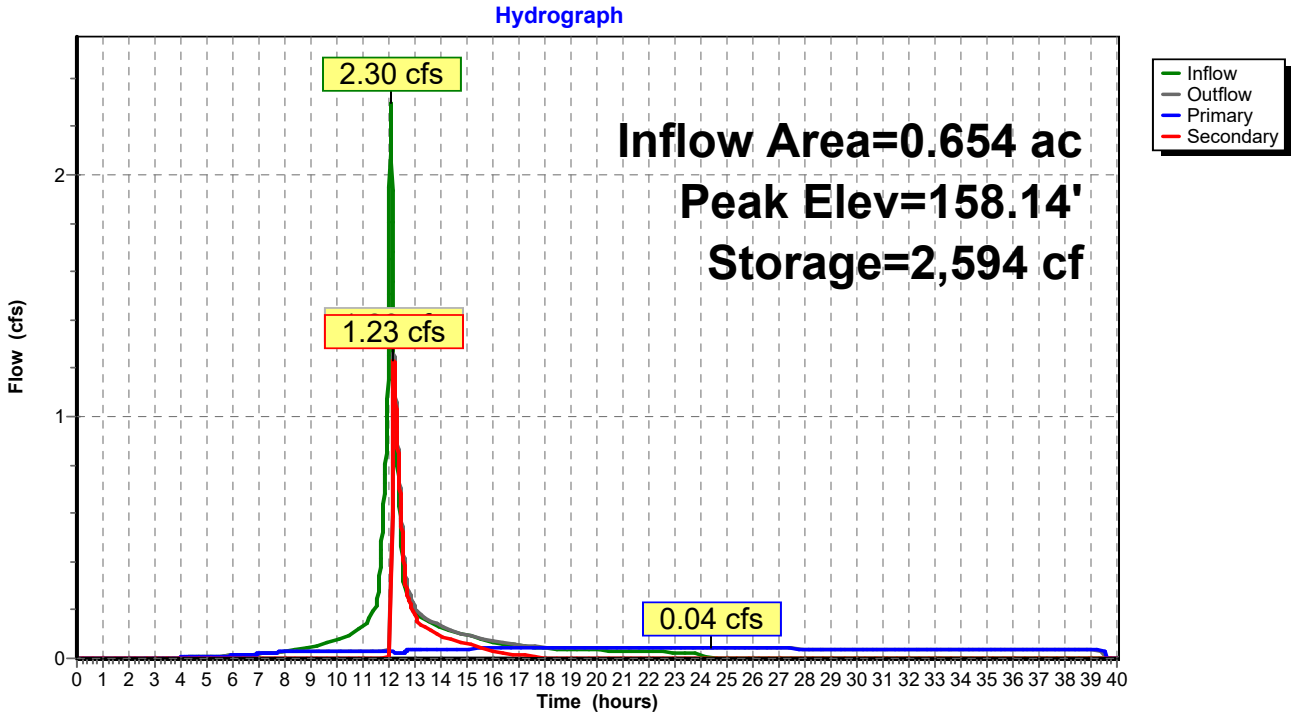
| Elevation (feet) | Surf.Area (sq-ft) | Voids (%) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|---|
| 154.40 | 1,179 | 0.0 | 0 | 0 |
| 156.50 | 1,179 | 0.0 | 0 | 0 |
| 157.00 | 1,413 | 100.0 | 648 | 648 |
| 158.00 | 1,924 | 100.0 | 1,669 | 2,317 |
| 158.50 | 2,344 | 100.0 | 1,067 | 3,384 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 154.40' | **1.4" Round Culvert**<br>L= 40.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 154.40' / 154.25' S= 0.0038 '/' Cc= 0.900<br>n= 0.010 PVC, smooth interior, Flow Area= 0.01 sf |
| #2 | Secondary | 158.00' | **10.0' long x 4.5' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.36 2.52 2.70 2.68 2.67 2.67 2.65 2.66 2.66 2.67 2.70 2.70 2.72 2.75 2.81 2.93 3.10 |

**Primary OutFlow** Max=0.04 cfs @ 24.35 hrs HW=157.86' TW=154.36' (Dynamic Tailwater)
**1=Culvert** (Barrel Controls 0.04 cfs @ 3.88 fps)

**Secondary OutFlow** Max=1.23 cfs @ 12.18 hrs HW=158.14' TW=156.82' (Dynamic Tailwater)
**2=Broad-Crested Rectangular Weir** (Weir Controls 1.23 cfs @ 0.88 fps)

## Pond P-1A: Underdrained Soil Filter #1



## Summary for Pond P-1A2: CB#2

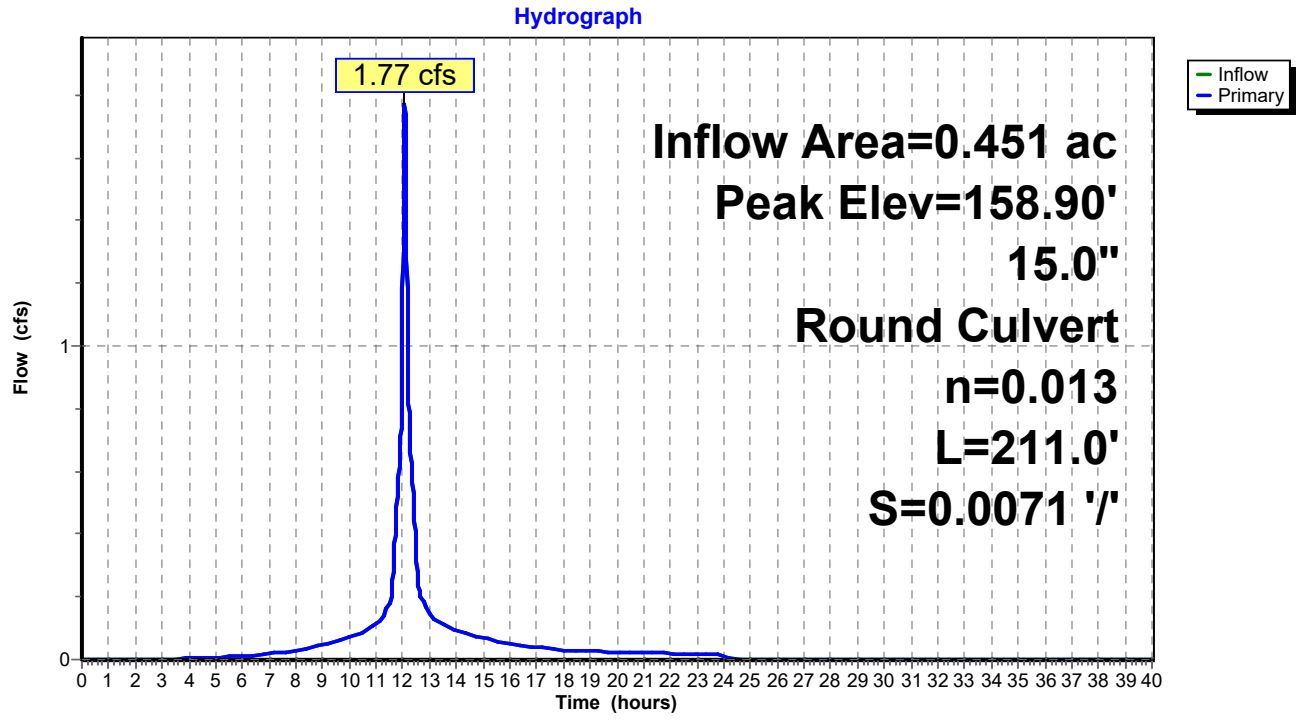
Inflow Area = 0.451 ac, 78.97% Impervious, Inflow Depth = 3.45" for 10-Year event
Inflow = 1.77 cfs @ 12.07 hrs, Volume= 0.130 af
Outflow = 1.77 cfs @ 12.07 hrs, Volume= 0.130 af, Atten= 0%, Lag= 0.0 min
Primary = 1.77 cfs @ 12.07 hrs, Volume= 0.130 af
Routed to Pond P-1A : Underdrained Soil Filter #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 158.90' @ 12.08 hrs
Flood Elev= 170.10'

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 158.10' | **15.0" Round Culvert**<br>L= 211.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 158.10' / 156.60' S= 0.0071 '/' Cc= 0.900<br>n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf |

**Primary OutFlow** Max=1.73 cfs @ 12.07 hrs HW=158.89' TW=157.90' (Dynamic Tailwater)
**1=Culvert** (Outlet Controls 1.73 cfs @ 3.01 fps)

### Pond P-1A2: CB#2



## Summary for Pond P-1B: 36" Culvert

Inflow Area = 6.705 ac, 17.44% Impervious, Inflow Depth = 2.46" for 10-Year event
Inflow = 13.00 cfs @ 12.27 hrs, Volume= 1.374 af
Outflow = 12.93 cfs @ 12.29 hrs, Volume= 1.372 af, Atten= 1%, Lag= 1.4 min
Primary = 12.93 cfs @ 12.29 hrs, Volume= 1.372 af
Routed to Reach 1B-R1 : Swale
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1B-R1 : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 167.21' @ 12.29 hrs Surf.Area= 977 sf Storage= 1,082 cf

Plug-Flow detention time= 3.6 min calculated for 1.372 af (100% of inflow)
Center-of-Mass det. time= 2.6 min ( 834.4 - 831.7 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 165.00' | 7,542 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc) |

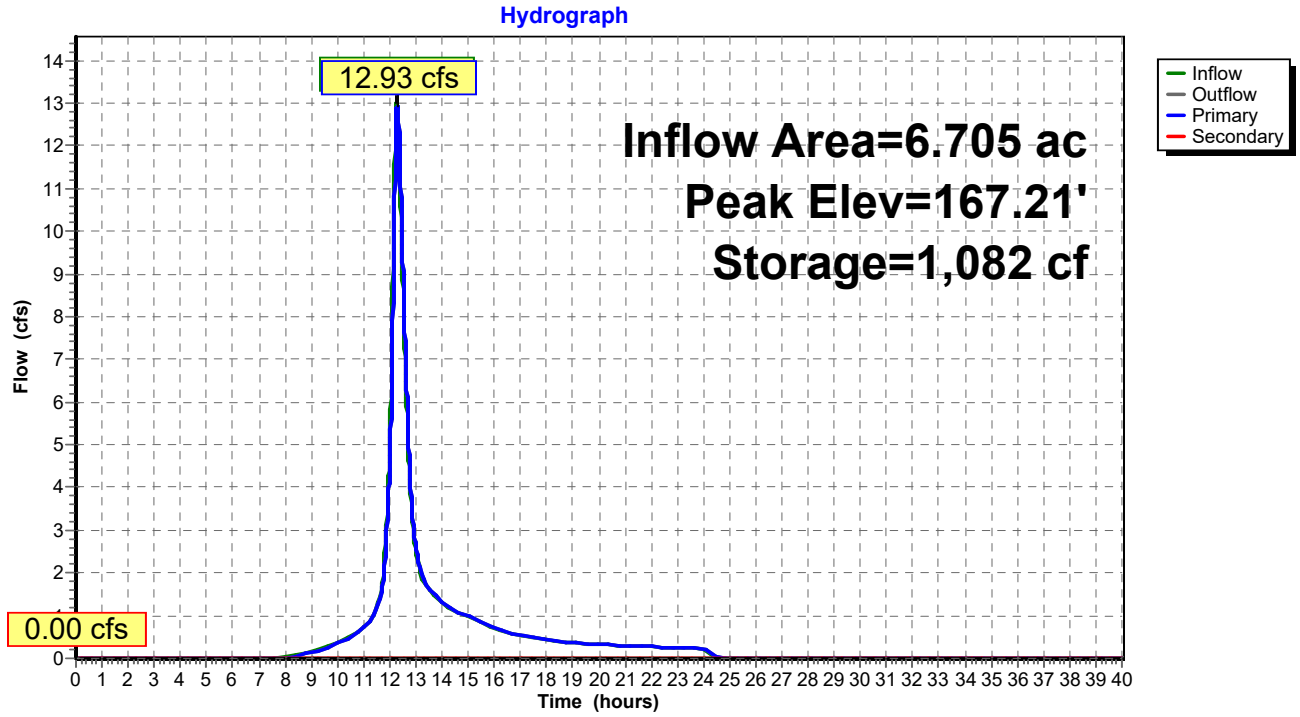
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 165.00 | 0 | 0 | 0 |
| 168.00 | 1,323 | 1,985 | 1,985 |
| 170.00 | 4,234 | 5,557 | 7,542 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 165.64' | **36.0" Round Culvert**<br>L= 48.0' RCP, sq.cut end projecting, Ke= 0.500<br>Inlet / Outlet Invert= 165.64' / 165.33' S= 0.0065 '/' Cc= 0.900<br>n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf |
| #2 | Secondary | 169.00' | **20.0' long x 6.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83 |

**Primary OutFlow** Max=12.92 cfs @ 12.29 hrs HW=167.21' TW=165.75' (Dynamic Tailwater)
**1=Culvert** (Barrel Controls 12.92 cfs @ 5.00 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=165.00' TW=165.33' (Dynamic Tailwater)
**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Pond P-1B: 36" Culvert



## Summary for Pond P-1C: DMH#1

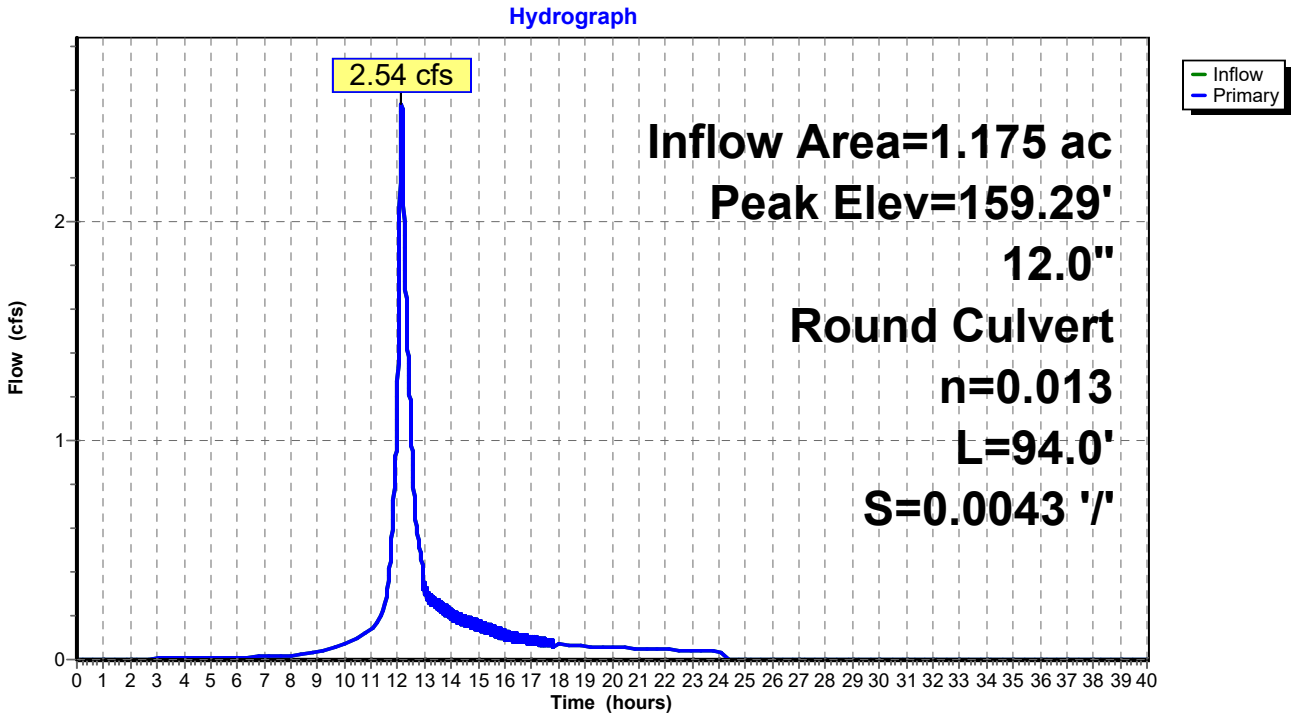
Inflow Area = 1.175 ac, 15.14% Impervious, Inflow Depth = 2.39" for 10-Year event
Inflow = 2.54 cfs @ 12.14 hrs, Volume= 0.234 af
Outflow = 2.54 cfs @ 12.14 hrs, Volume= 0.234 af, Atten= 0%, Lag= 0.0 min
Primary = 2.54 cfs @ 12.14 hrs, Volume= 0.234 af
Routed to Reach 1C-R : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 159.29' @ 12.14 hrs
Flood Elev= 170.10'

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 157.90' | **12.0" Round Culvert**<br>L= 94.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 157.90' / 157.50' S= 0.0043 '/' Cc= 0.900<br>n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf |

**Primary OutFlow** Max=2.53 cfs @ 12.14 hrs HW=159.28' TW=158.35' (Dynamic Tailwater)
**1=Culvert** (Barrel Controls 2.53 cfs @ 3.23 fps)

### Pond P-1C: DMH#1



## Summary for Pond P-1C1: FI#1

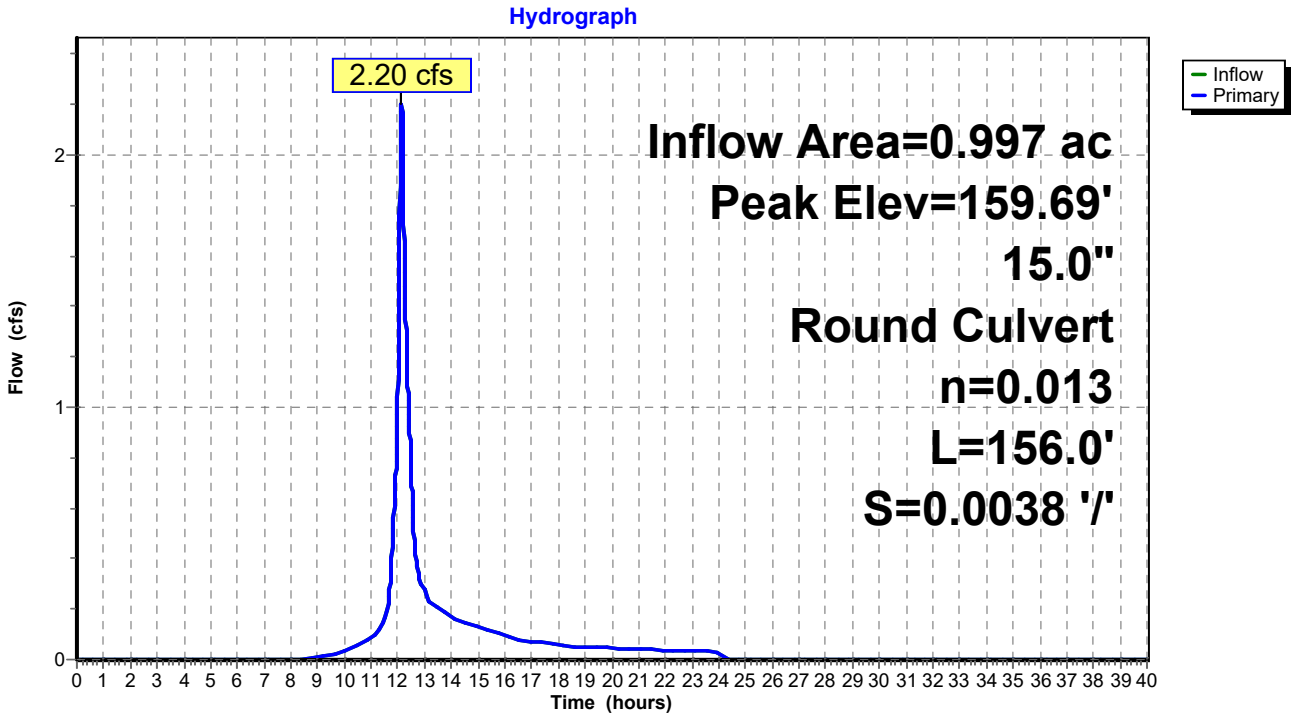
Inflow Area = 0.997 ac, 0.00% Impervious, Inflow Depth = 2.12" for 10-Year event
Inflow = 2.20 cfs @ 12.13 hrs, Volume= 0.177 af
Outflow = 2.20 cfs @ 12.13 hrs, Volume= 0.177 af, Atten= 0%, Lag= 0.0 min
Primary = 2.20 cfs @ 12.13 hrs, Volume= 0.177 af
Routed to Pond P-1C : DMH#1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 159.69' @ 12.14 hrs
Flood Elev= 170.10'

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 158.50' | **15.0" Round Culvert**<br>L= 156.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 158.50' / 157.90' S= 0.0038 '/' Cc= 0.900<br>n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf |

**Primary OutFlow** Max=2.17 cfs @ 12.13 hrs HW=159.69' TW=159.28' (Dynamic Tailwater)
**1=Culvert** (Outlet Controls 2.17 cfs @ 2.32 fps)

### Pond P-1C1: FI#1



## Summary for Pond P-1D: 15" Culvert

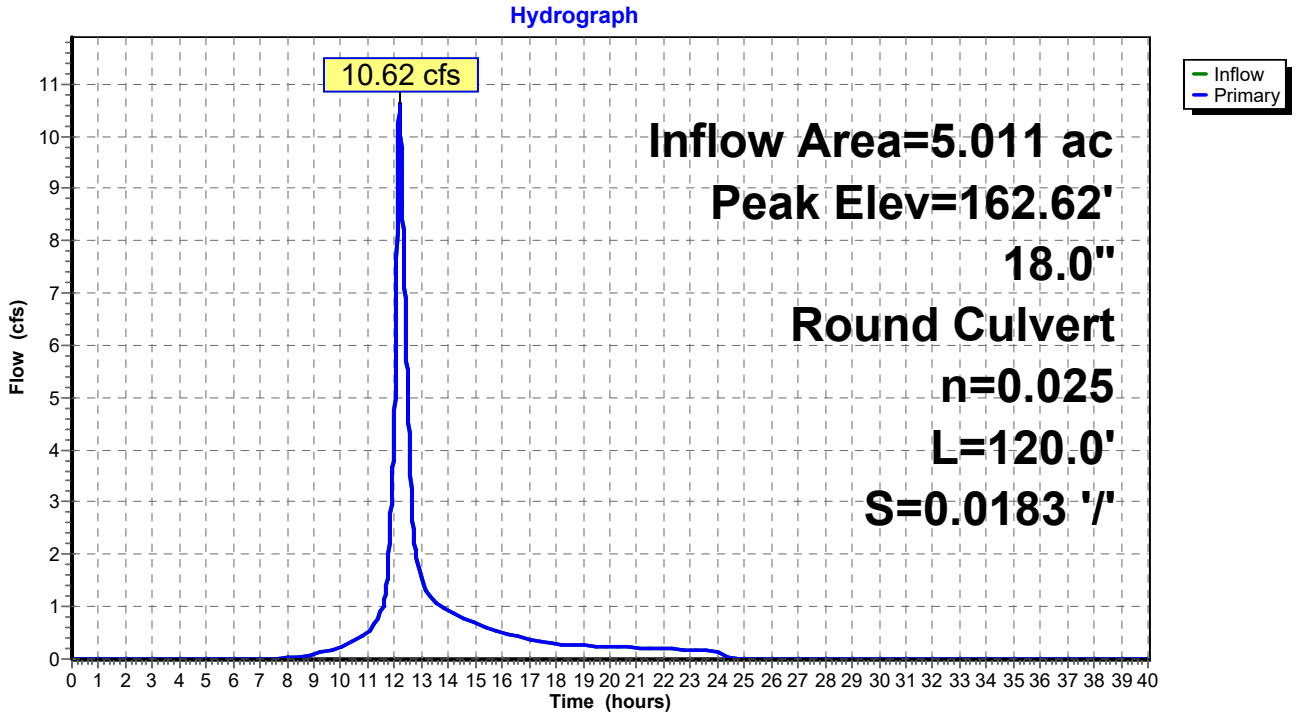
Inflow Area = 5.011 ac, 15.74% Impervious, Inflow Depth = 2.33" for 10-Year event
Inflow = 10.62 cfs @ 12.18 hrs, Volume= 0.974 af
Outflow = 10.62 cfs @ 12.18 hrs, Volume= 0.974 af, Atten= 0%, Lag= 0.0 min
Primary = 10.62 cfs @ 12.18 hrs, Volume= 0.974 af
Routed to Reach 1D-R : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 162.62' @ 12.18 hrs

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 157.70' | **18.0" Round Culvert**<br>L= 120.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 157.70' / 155.50' S= 0.0183 '/' Cc= 0.900<br>n= 0.025 Corrugated metal, Flow Area= 1.77 sf |

**Primary OutFlow** Max=10.62 cfs @ 12.18 hrs HW=162.61' TW=156.40' (Dynamic Tailwater)
**1=Culvert** (Barrel Controls 10.62 cfs @ 6.01 fps)

### Pond P-1D: 15" Culvert



## Summary for Pond P-1D3: FI#2

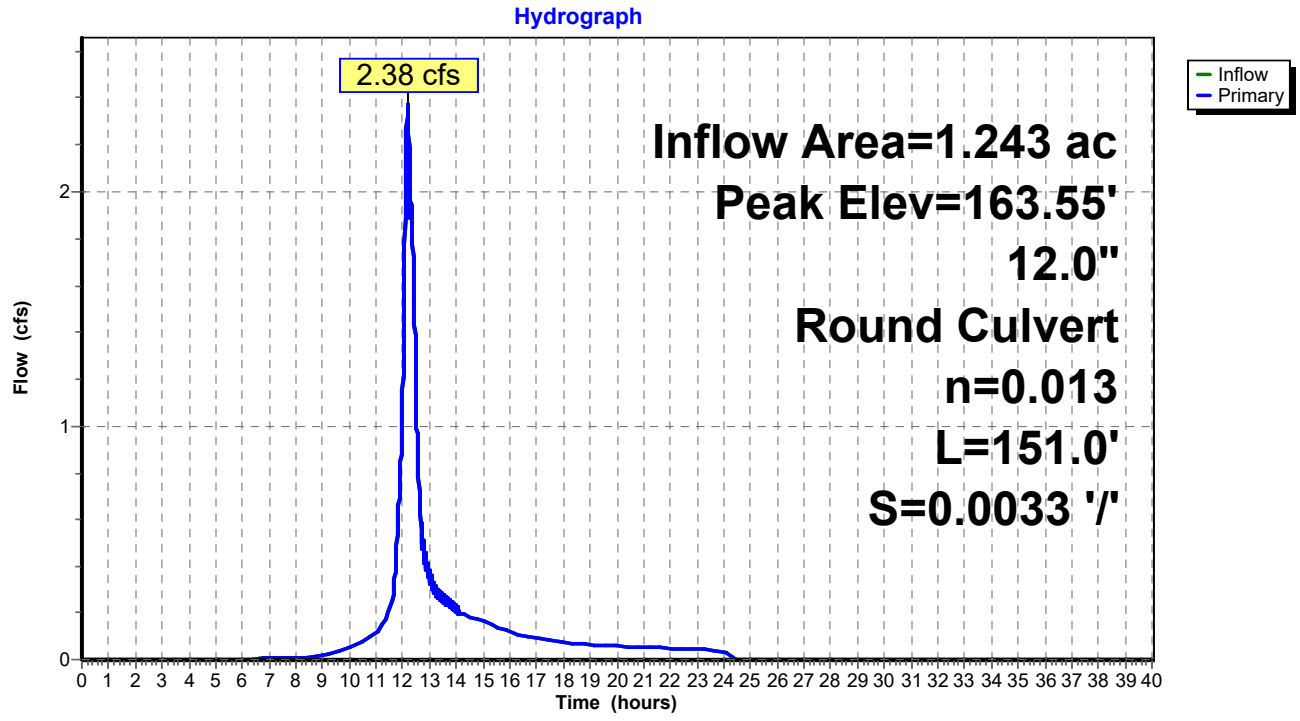
Inflow Area = 1.243 ac, 5.13% Impervious, Inflow Depth = 2.21" for 10-Year event
Inflow = 2.38 cfs @ 12.17 hrs, Volume= 0.229 af
Outflow = 2.38 cfs @ 12.17 hrs, Volume= 0.229 af, Atten= 0%, Lag= 0.0 min
Primary = 2.38 cfs @ 12.17 hrs, Volume= 0.229 af
Routed to Pond P-1D : 15" Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 163.55' @ 12.19 hrs
Flood Elev= 170.10'

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 158.50' | **12.0" Round Culvert**<br>L= 151.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 158.50' / 158.00' S= 0.0033 '/' Cc= 0.900<br>n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf |

**Primary OutFlow** Max=2.25 cfs @ 12.17 hrs HW=163.43' TW=162.59' (Dynamic Tailwater)
**1=Culvert** (Outlet Controls 2.25 cfs @ 2.86 fps)

### Pond P-1D3: FI#2



## Summary for Pond P-1E: 12" Culvert

Inflow Area = 0.705 ac, 18.79% Impervious, Inflow Depth = 2.37" for 10-Year event
Inflow = 1.69 cfs @ 12.15 hrs, Volume= 0.139 af
Outflow = 1.55 cfs @ 12.19 hrs, Volume= 0.139 af, Atten= 8%, Lag= 2.4 min
Primary = 1.55 cfs @ 12.19 hrs, Volume= 0.139 af
Routed to Reach 1E-R : Road Side Ditch
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1E-R : Road Side Ditch

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 159.27' @ 12.19 hrs Surf.Area= 655 sf Storage= 227 cf

Plug-Flow detention time= 3.6 min calculated for 0.139 af (100% of inflow)
Center-of-Mass det. time= 3.3 min ( 829.2 - 825.9 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 158.40' | 5,001 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc) |

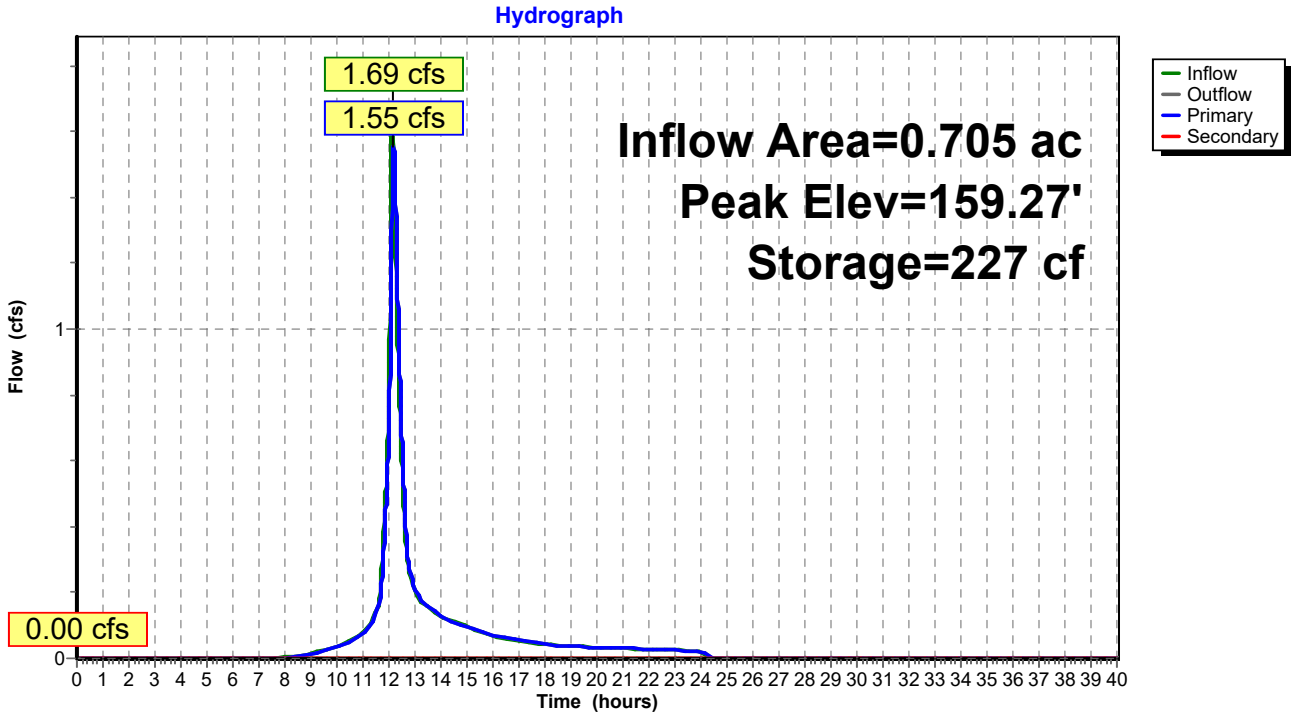
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 158.40 | 0 | 0 | 0 |
| 159.00 | 315 | 94 | 94 |
| 160.00 | 1,555 | 935 | 1,029 |
| 161.00 | 6,388 | 3,972 | 5,001 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 158.40' | **12.0" Round Culvert**<br>L= 40.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 158.40' / 158.00' S= 0.0100 '/' Cc= 0.900<br>n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf |
| #2 | Secondary | 160.80' | **31.0' long x 11.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60<br>Coef. (English) 2.53 2.59 2.70 2.68 2.67 2.68 2.66 2.64 |

**Primary OutFlow** Max=1.55 cfs @ 12.19 hrs HW=159.27' TW=158.91' (Dynamic Tailwater)
**1=Culvert** (Outlet Controls 1.55 cfs @ 2.84 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=158.40' TW=158.50' (Dynamic Tailwater)
**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Pond P-1E: 12" Culvert



## Summary for Pond P-1F: 2 - 24 " Dia Culvert

Inflow Area = 7.719 ac, 15.92% Impervious, Inflow Depth = 2.42" for 10-Year event
Inflow = 14.15 cfs @ 12.32 hrs, Volume= 1.558 af
Outflow = 14.14 cfs @ 12.33 hrs, Volume= 1.558 af, Atten= 0%, Lag= 0.3 min
Primary = 14.14 cfs @ 12.33 hrs, Volume= 1.558 af
Routed to Reach 1F-R : Swale
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond P-1E : 12" Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 161.35' @ 12.33 hrs Surf.Area= 266 sf Storage= 65 cf

Plug-Flow detention time= 0.0 min calculated for 1.558 af (100% of inflow)
Center-of-Mass det. time= 0.0 min ( 838.7 - 838.6 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 160.00' | 4,221 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc) |

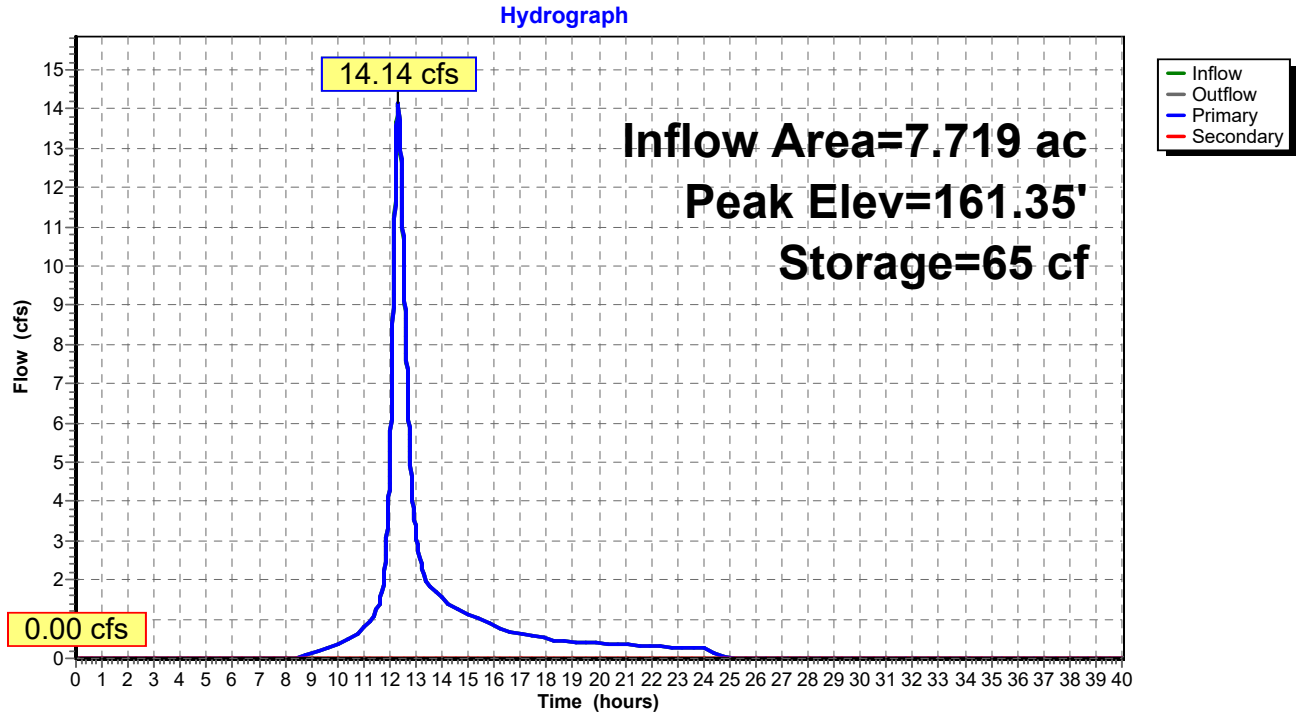
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 160.00 | 0 | 0 | 0 |
| 161.00 | 26 | 13 | 13 |
| 162.00 | 707 | 367 | 380 |
| 163.00 | 1,746 | 1,227 | 1,606 |
| 164.00 | 3,484 | 2,615 | 4,221 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 160.00' | **24.0" Round Culvert X 2.00**<br>L= 40.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 160.00' / 159.50' S= 0.0125 '/' Cc= 0.900<br>n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf |
| #2 | Secondary | 163.50' | **58.0' long x 11.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60<br>Coef. (English) 2.53 2.59 2.70 2.68 2.67 2.68 2.66 2.64 |

**Primary OutFlow** Max=14.14 cfs @ 12.33 hrs HW=161.35' TW=160.03' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 14.14 cfs @ 3.13 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=160.00' TW=158.40' (Dynamic Tailwater)
↑**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Pond P-1F: 2 - 24 " Dia Culvert



## Summary for Pond RDF-1: Roof Dripline Filter #1

Inflow Area = 0.187 ac,100.00% Impervious, Inflow Depth = 3.86" for 10-Year event
Inflow = 0.78 cfs @ 12.07 hrs, Volume= 0.060 af
Outflow = 0.34 cfs @ 12.28 hrs, Volume= 0.060 af, Atten= 56%, Lag= 12.6 min
Primary = 0.34 cfs @ 12.28 hrs, Volume= 0.060 af
Routed to Reach 1D-R : Swale
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1D-R : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 157.67' @ 12.23 hrs Surf.Area= 952 sf Storage= 350 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 5.1 min ( 755.7 - 750.6 )

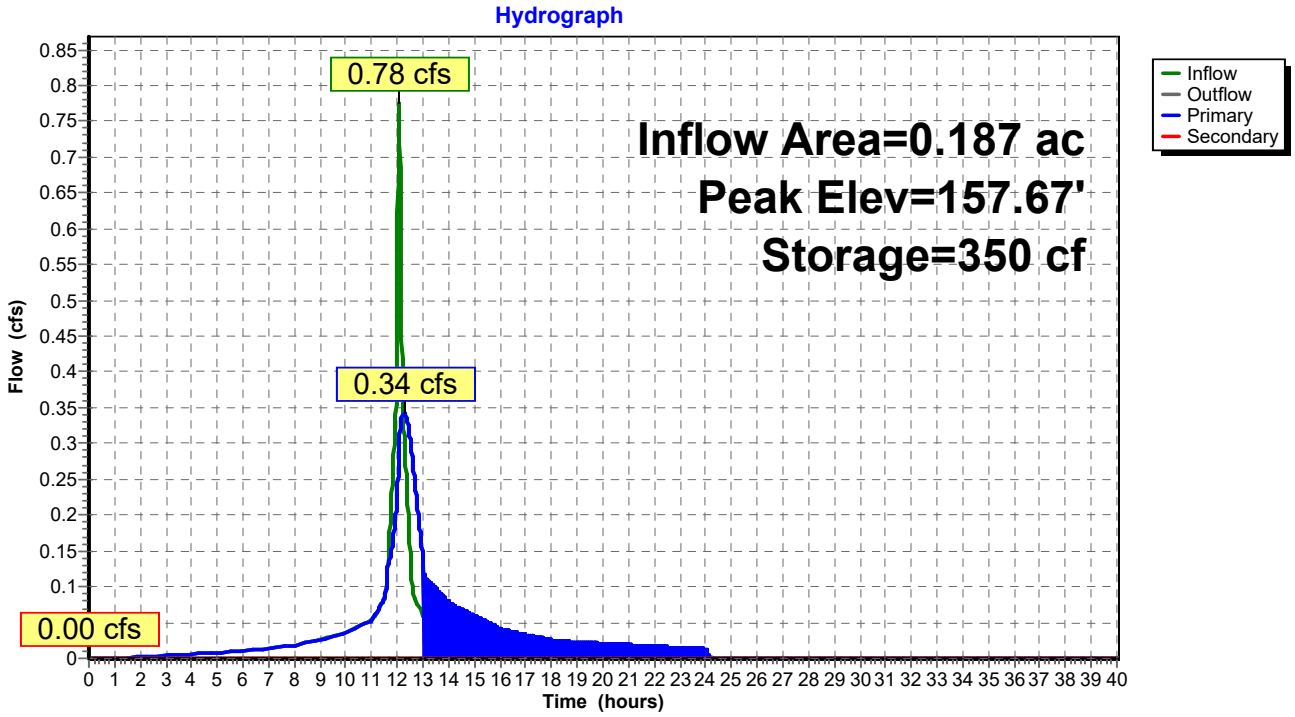
| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 156.75' | 857 cf | **4.00'W x 238.00'L x 2.25'H Coarse Gravel**<br>2,142 cf Overall x 40.0% Voids |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 156.42' | **4.0" Round Culvert**<br>L= 36.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 156.42' / 155.50' S= 0.0256 '/' Cc= 0.900<br>n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf |
| #2 | Secondary | 159.00' | **193.0' long x 4.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32 |

**Primary OutFlow** Max=0.34 cfs @ 12.28 hrs HW=157.66' TW=156.35' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.34 cfs @ 3.93 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=156.75' TW=155.50' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Pond RDF-1: Roof Dripline Filter #1



## Summary for Pond RDF-2: Roof Dripline Filter #2

Inflow Area = 0.069 ac,100.00% Impervious, Inflow Depth = 3.86" for 10-Year event
Inflow = 0.29 cfs @ 12.07 hrs, Volume= 0.022 af
Outflow = 0.21 cfs @ 12.13 hrs, Volume= 0.022 af, Atten= 25%, Lag= 3.9 min
Primary = 0.21 cfs @ 12.13 hrs, Volume= 0.022 af
Routed to Reach 1D-R : Swale
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1D-R : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 157.00' @ 12.13 hrs Surf.Area= 0.008 ac Storage= 0.001 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.5 min ( 751.1 - 750.6 )

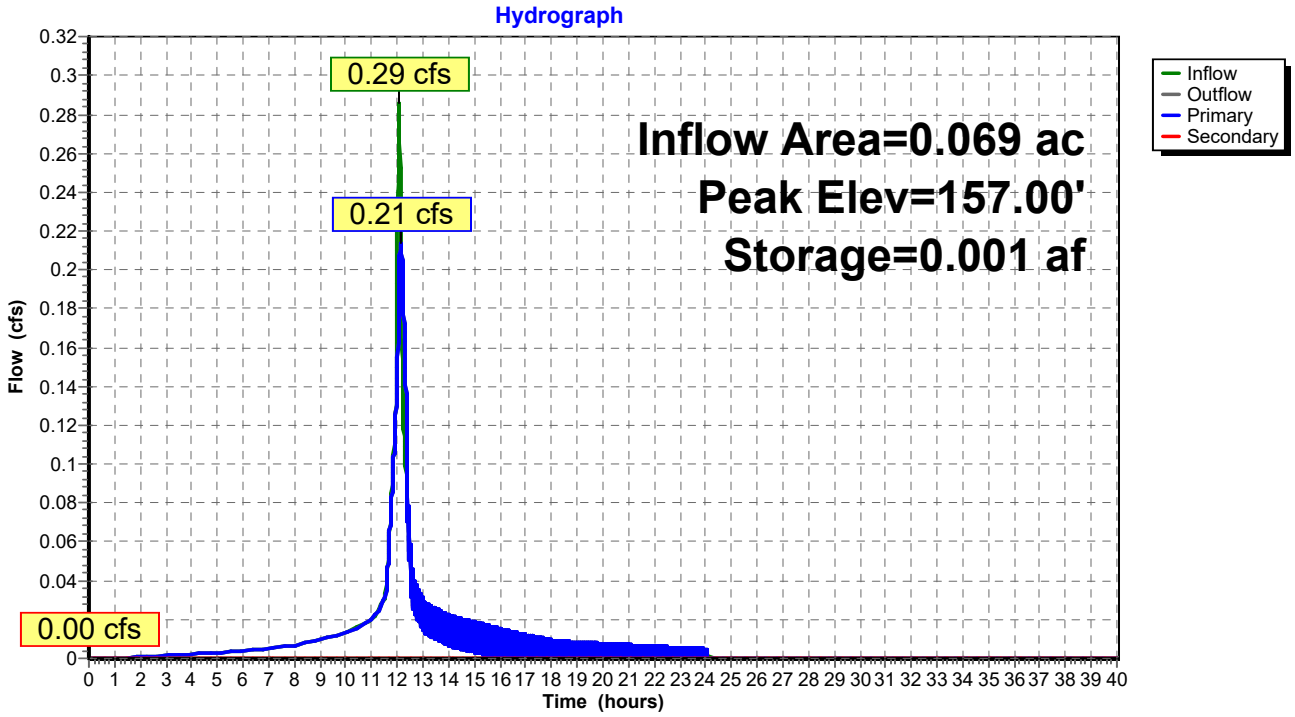
| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 156.75' | 0.008 af | **4.00'W x 92.00'L x 2.25'H Coarse Gravel**<br>0.019 af Overall x 40.0% Voids |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 156.42' | **4.0" Round Culvert**<br>L= 36.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 156.42' / 155.50' S= 0.0256 '/' Cc= 0.900<br>n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf |
| #2 | Secondary | 159.00' | **92.0' long x 4.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32 |

**Primary OutFlow** Max=0.21 cfs @ 12.13 hrs HW=157.00' TW=156.37' (Dynamic Tailwater)
**1=Culvert** (Inlet Controls 0.21 cfs @ 2.45 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=156.75' TW=155.50' (Dynamic Tailwater)
**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Pond RDF-2: Roof Dripline Filter #2



## Summary for Pond RDF-3: Roof Dripline Filter #3

Inflow Area = 0.178 ac,100.00% Impervious, Inflow Depth = 3.86" for 10-Year event
Inflow = 0.74 cfs @ 12.07 hrs, Volume= 0.057 af
Outflow = 0.35 cfs @ 12.21 hrs, Volume= 0.057 af, Atten= 53%, Lag= 8.4 min
Primary = 0.35 cfs @ 12.21 hrs, Volume= 0.057 af
Routed to Pond P-1C : DMH#1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond P-1C : DMH#1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 162.13' @ 12.21 hrs Surf.Area= 0.019 ac Storage= 0.007 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 4.4 min ( 755.0 - 750.6 )

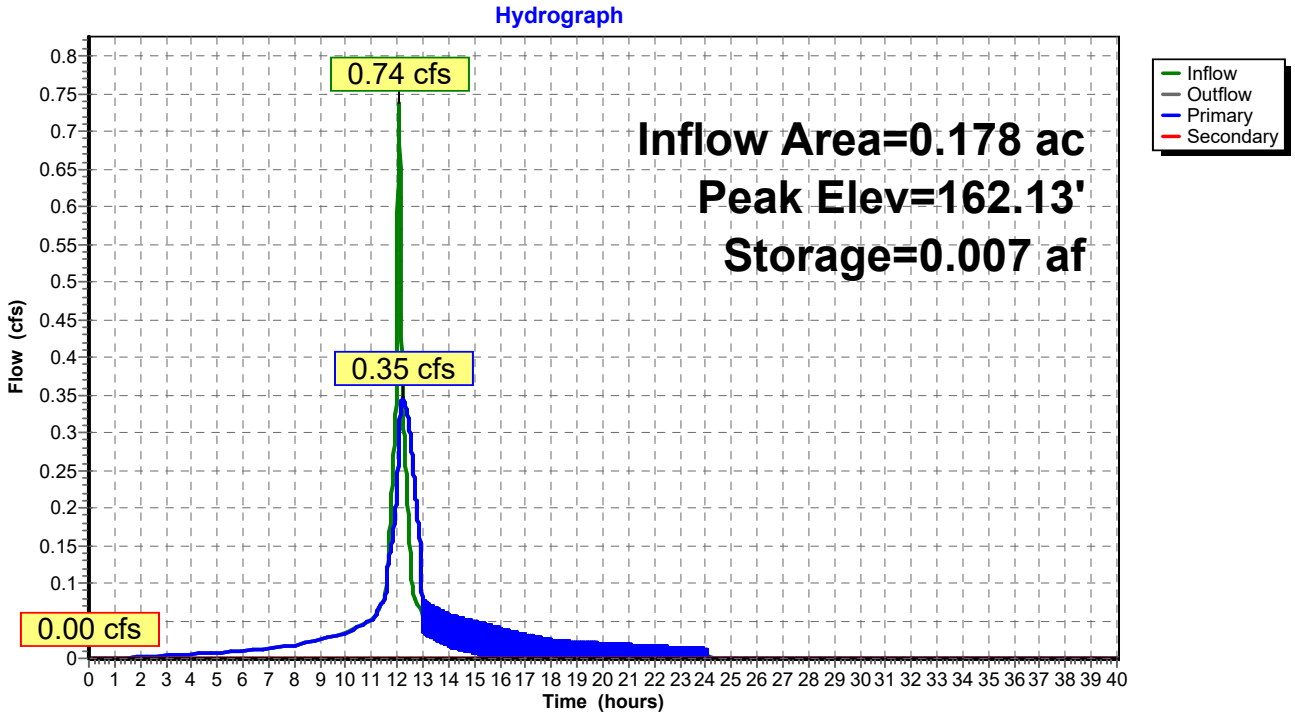
| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 161.20' | 0.015 af | **4.00'W x 208.00'L x 2.00'H Coarse Gravel**<br>0.038 af Overall x 40.0% Voids |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 160.87' | **4.0" Round Culvert**<br>L= 38.5' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 160.87' / 160.00' S= 0.0226 '/' Cc= 0.900<br>n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf |
| #2 | Secondary | 163.20' | **208.0' long x 4.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32 |

**Primary OutFlow** Max=0.35 cfs @ 12.21 hrs HW=162.13' TW=159.02' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.35 cfs @ 3.97 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=161.20' TW=157.90' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Pond RDF-3: Roof Dripline Filter #3



## Summary for Pond RDF-4: Roof Dripline Filter #4

Inflow Area = 0.061 ac,100.00% Impervious, Inflow Depth = 3.86" for 10-Year event
Inflow = 0.25 cfs @ 12.07 hrs, Volume= 0.020 af
Outflow = 0.30 cfs @ 12.37 hrs, Volume= 0.020 af, Atten= 0%, Lag= 17.9 min
Primary = 0.30 cfs @ 12.37 hrs, Volume= 0.020 af
Routed to Pond P-1D3 : FI#2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond P-1D3 : FI#2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 161.83' @ 12.29 hrs Surf.Area= 0.005 ac Storage= 0.003 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 2.2 min ( 752.7 - 750.6 )

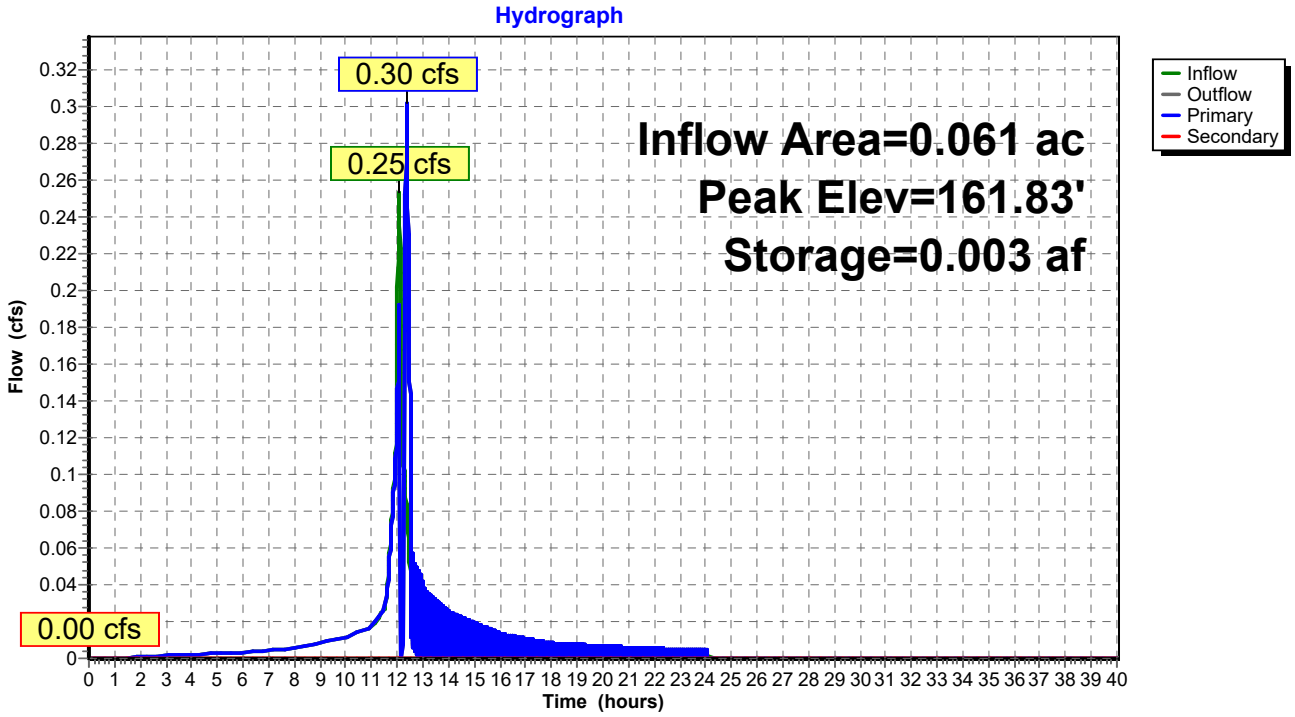
| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 160.45' | 0.005 af | **4.00'W x 54.00'L x 2.75'H Coarse Gravel**<br>0.014 af Overall x 40.0% Voids |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 160.12' | **4.0" Round Culvert**<br>L= 35.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 160.12' / 160.00' S= 0.0034 '/' Cc= 0.900<br>n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf |
| #2 | Secondary | 163.20' | **208.0' long x 4.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32 |

**Primary OutFlow** Max=0.30 cfs @ 12.37 hrs HW=161.33' TW=160.18' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 0.30 cfs @ 3.49 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=160.45' TW=158.50' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Pond RDF-4: Roof Dripline Filter #4

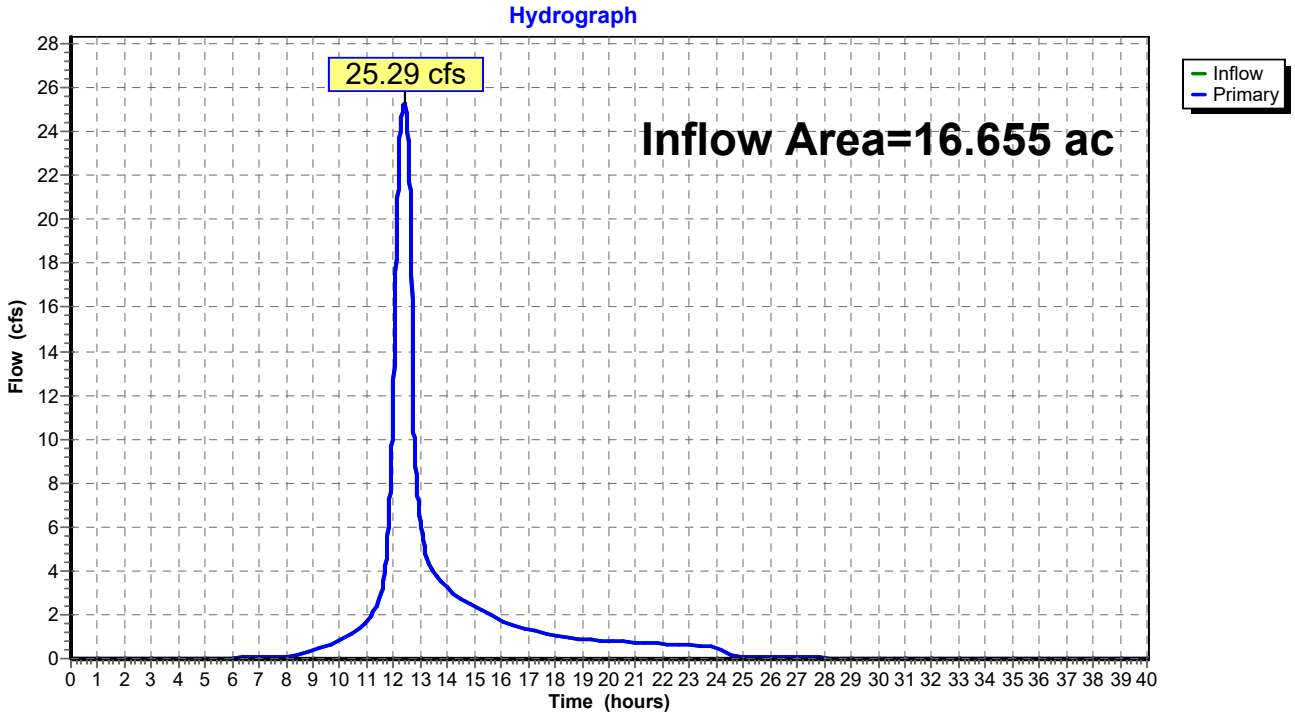


## Summary for Link AP-1:

Inflow Area = 16.655 ac, 19.31% Impervious, Inflow Depth = 2.44" for 10-Year event
Inflow = 25.29 cfs @ 12.39 hrs, Volume= 3.386 af
Primary = 25.29 cfs @ 12.39 hrs, Volume= 3.386 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

## Link AP-1:



Time span=0.00-40.00 hrs, dt=0.01 hrs, 4001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment SC-1: West** Runoff Area=49,436 sf 24.20% Impervious Runoff Depth=3.09"
Tc=5.0 min CN=84 Runoff=4.24 cfs 0.292 af

**Subcatchment SC-1A: East** Runoff Area=8,840 sf 0.00% Impervious Runoff Depth=2.72"
Tc=5.0 min CN=80 Runoff=0.67 cfs 0.046 af

**Subcatchment SC-1A1: Roundabout** Runoff Area=7,782 sf 70.79% Impervious Runoff Depth=4.00"
Tc=5.0 min CN=93 Runoff=0.82 cfs 0.060 af

**Subcatchment SC-1A2: Parking Lot** Runoff Area=11,875 sf 84.34% Impervious Runoff Depth=4.22"
Tc=5.0 min CN=95 Runoff=1.29 cfs 0.096 af

**Subcatchment SC-1B: Southeast** Runoff Area=292,074 sf 17.44% Impervious Runoff Depth=3.09"
Flow Length=803' Tc=20.1 min CN=84 Runoff=16.28 cfs 1.725 af

**Subcatchment SC-1C: Centeral East portion** Runoff Area=43,437 sf 0.00% Impervious Runoff Depth=2.72"
Flow Length=319' Tc=9.5 min CN=80 Runoff=2.82 cfs 0.226 af

**Subcatchment SC-1C1: Southwest Portion** Runoff Area=8,150 sf 100.00% Impervious Runoff Depth=4.56"
Tc=5.0 min CN=98 Runoff=0.91 cfs 0.071 af

**Subcatchment SC-1C2: Southeast portion** Runoff Area=7,751 sf 100.00% Impervious Runoff Depth=4.56"
Tc=5.0 min CN=98 Runoff=0.87 cfs 0.068 af

**Subcatchment SC-1D: North** Runoff Area=164,122 sf 19.24% Impervious Runoff Depth=2.99"
Flow Length=670' Tc=13.5 min CN=83 Runoff=10.39 cfs 0.940 af

**Subcatchment SC-1D1: Northwest portion** Runoff Area=3,005 sf 100.00% Impervious Runoff Depth=4.56"
Tc=5.0 min CN=98 Runoff=0.34 cfs 0.026 af

**Subcatchment SC-1D2: Northeast portion** Runoff Area=2,657 sf 100.00% Impervious Runoff Depth=4.56"
Tc=5.0 min CN=98 Runoff=0.30 cfs 0.023 af

**Subcatchment SC-1D3: Northeast Portion of** Runoff Area=51,502 sf 0.24% Impervious Runoff Depth=2.72"
Flow Length=450' Tc=12.6 min CN=80 Runoff=3.05 cfs 0.268 af

**Subcatchment SC-1E: Central of property** Runoff Area=30,712 sf 18.79% Impervious Runoff Depth=2.99"
Flow Length=351' Tc=10.5 min CN=83 Runoff=2.12 cfs 0.176 af

**Subcatchment SC-1F: Central of property** Runoff Area=44,150 sf 5.87% Impervious Runoff Depth=2.81"
Flow Length=317' Tc=11.1 min CN=81 Runoff=2.82 cfs 0.237 af

**Reach 1B-R1: Swale** Avg. Flow Depth=0.48' Max Vel=4.96 fps Inflow=16.18 cfs 1.723 af
n=0.022 L=216.0' S=0.0200 '/' Capacity=670.12 cfs Outflow=16.17 cfs 1.723 af

**Reach 1B-R2: Swale** Avg. Flow Depth=1.58' Max Vel=1.72 fps Inflow=16.17 cfs 1.723 af
n=0.022 L=214.1' S=0.0009 '/' Capacity=89.22 cfs Outflow=16.01 cfs 1.723 af

**Reach 1C-R: Swale** Avg. Flow Depth=1.06' Max Vel=5.85 fps Inflow=19.65 cfs 2.254 af
n=0.022 L=178.0' S=0.0188 '/' Capacity=316.53 cfs Outflow=19.65 cfs 2.254 af

**Reach 1D-R: Swale** Avg. Flow Depth=0.98' Max Vel=3.85 fps Inflow=14.02 cfs 1.328 af
n=0.022 L=154.0' S=0.0088 '/' Capacity=273.33 cfs Outflow=13.99 cfs 1.328 af

**Reach 1E-R: Road Side Ditch** Avg. Flow Depth=0.45' Max Vel=2.10 fps Inflow=1.93 cfs 0.176 af
n=0.030 L=317.0' S=0.0137 '/' Capacity=16.16 cfs Outflow=1.88 cfs 0.176 af

**Reach 1F-R: Swale** Avg. Flow Depth=1.12' Max Vel=4.72 fps Inflow=17.74 cfs 1.961 af
n=0.022 L=132.0' S=0.0114 '/' Capacity=245.96 cfs Outflow=17.74 cfs 1.961 af

**Pond P-1: 30" Culvert** Peak Elev=157.64' Storage=10,252 cf Inflow=36.77 cfs 4.251 af
Primary=27.91 cfs 4.200 af Secondary=3.60 cfs 0.051 af Outflow=31.51 cfs 4.251 af

**Pond P-1A: Underdrained Soil Filter #1** Peak Elev=158.21' Storage=2,738 cf Inflow=2.78 cfs 0.201 af
Primary=0.04 cfs 0.105 af Secondary=2.27 cfs 0.095 af Outflow=2.29 cfs 0.201 af

**Pond P-1A2: CB#2** Peak Elev=159.03' Inflow=2.11 cfs 0.155 af
15.0" Round Culvert n=0.013 L=211.0' S=0.0071 '/' Outflow=2.11 cfs 0.155 af

**Pond P-1B: 36" Culvert** Peak Elev=167.44' Storage=1,311 cf Inflow=16.28 cfs 1.725 af
Primary=16.18 cfs 1.723 af Secondary=0.00 cfs 0.000 af Outflow=16.18 cfs 1.723 af

**Pond P-1C: DMH#1** Peak Elev=159.75' Inflow=3.20 cfs 0.294 af
12.0" Round Culvert n=0.013 L=94.0' S=0.0043 '/' Outflow=3.20 cfs 0.294 af

**Pond P-1C1: FI#1** Peak Elev=160.20' Inflow=2.82 cfs 0.226 af
15.0" Round Culvert n=0.013 L=156.0' S=0.0038 '/' Outflow=2.82 cfs 0.226 af

**Pond P-1D: 15" Culvert** Peak Elev=165.98' Inflow=13.43 cfs 1.231 af
18.0" Round Culvert n=0.025 L=120.0' S=0.0183 '/' Outflow=13.43 cfs 1.231 af

**Pond P-1D3: FI#2** Peak Elev=167.50' Inflow=3.05 cfs 0.291 af
12.0" Round Culvert n=0.013 L=151.0' S=0.0033 '/' Outflow=3.05 cfs 0.291 af

**Pond P-1E: 12" Culvert** Peak Elev=159.38' Storage=303 cf Inflow=2.12 cfs 0.176 af
Primary=1.93 cfs 0.176 af Secondary=0.00 cfs 0.000 af Outflow=1.93 cfs 0.176 af

**Pond P-1F: 2 - 24 " Dia Culvert** Peak Elev=161.57' Storage=137 cf Inflow=17.75 cfs 1.961 af
Primary=17.74 cfs 1.961 af Secondary=0.00 cfs 0.000 af Outflow=17.74 cfs 1.961 af

**Pond RDF-1: Roof Dripline Filter #1** Peak Elev=157.95' Storage=456 cf Inflow=0.91 cfs 0.071 af
Primary=0.37 cfs 0.071 af Secondary=0.00 cfs 0.000 af Outflow=0.37 cfs 0.071 af

**Pond RDF-2: Roof Dripline Filter #2** Peak Elev=157.11' Storage=0.001 af Inflow=0.34 cfs 0.026 af
Primary=0.24 cfs 0.026 af Secondary=0.00 cfs 0.000 af Outflow=0.24 cfs 0.026 af

**Pond RDF-3: Roof Dripline Filter #3** Peak Elev=162.39' Storage=0.009 af Inflow=0.87 cfs 0.068 af
Primary=0.39 cfs 0.068 af Secondary=0.00 cfs 0.000 af Outflow=0.39 cfs 0.068 af

**Pond RDF-4: Roof Dripline Filter #4** Peak Elev=162.71' Storage=0.004 af Inflow=0.30 cfs 0.023 af
Primary=0.35 cfs 0.023 af Secondary=0.00 cfs 0.000 af Outflow=0.35 cfs 0.023 af

**Link AP-1:** Inflow=31.51 cfs 4.251 af
Primary=31.51 cfs 4.251 af

**Total Runoff Area = 16.655 ac Runoff Volume = 4.254 af Average Runoff Depth = 3.07"**
**80.69% Pervious = 13.440 ac 19.31% Impervious = 3.215 ac**

## Summary for Subcatchment SC-1: West

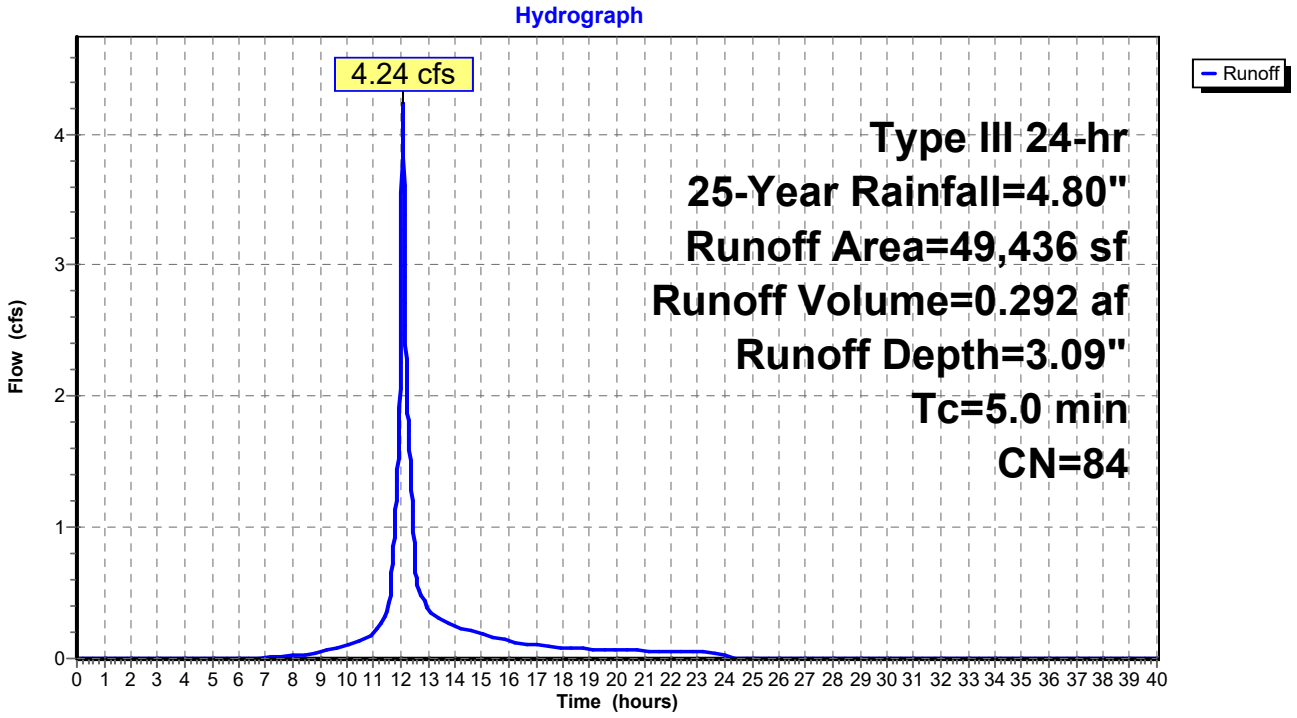
Runoff = 4.24 cfs @ 12.07 hrs, Volume= 0.292 af, Depth= 3.09"
Routed to Pond P-1 : 30" Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=4.80"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 3,926 | 98 | Paved parking |
| * | 62 | 98 | Roofs, |
| * | 7,976 | 98 | Paved roads w/curbs & sewers |
| | 32,330 | 80 | Pasture/grassland/range, Good, HSG D |
| | 5,142 | 79 | Woods/grass comb., Good, HSG D |
| | 49,436 | 84 | Weighted Average |
| | 37,472 | | 75.80% Pervious Area |
| | 11,964 | | 24.20% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, 5 Minutes Minimum** |

### Subcatchment SC-1: West



## Summary for Subcatchment SC-1A: East

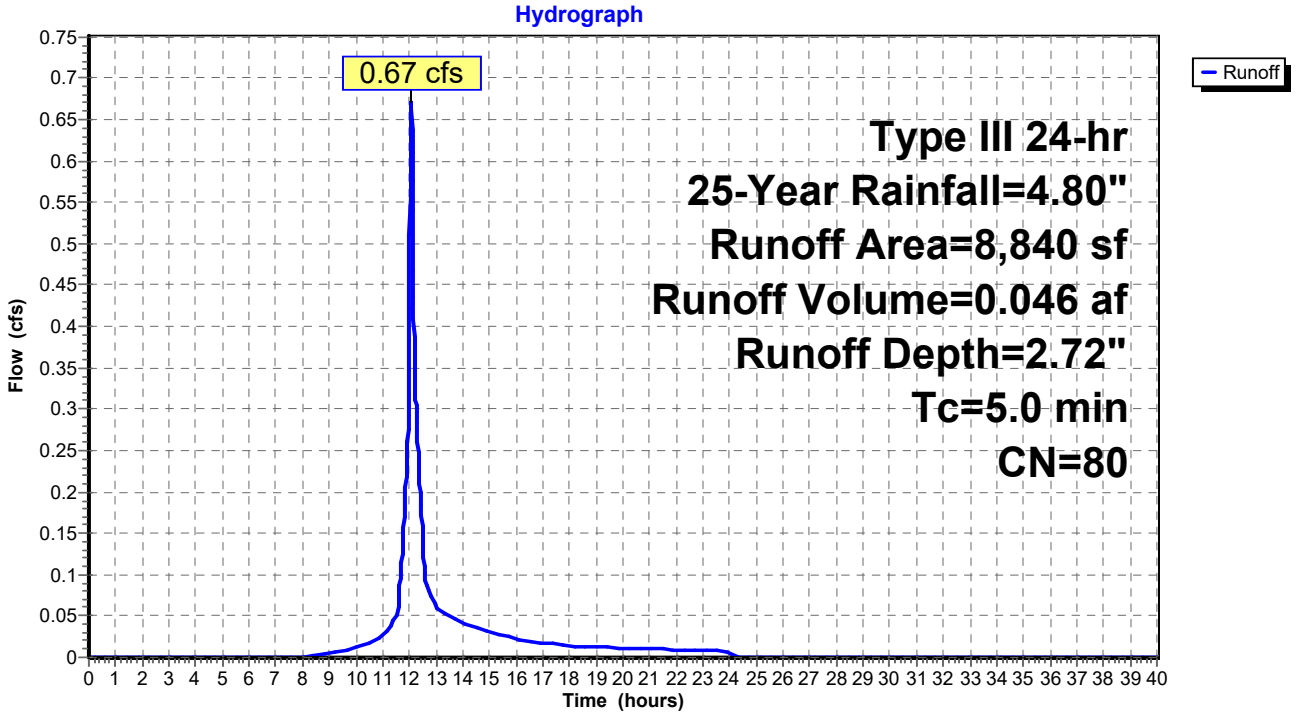
Runoff = 0.67 cfs @ 12.07 hrs, Volume= 0.046 af, Depth= 2.72"
Routed to Pond P-1A : Underdrained Soil Filter #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=4.80"

| Area (sf) | CN | Description |
|---|---|---|
| 8,840 | 80 | >75% Grass cover, Good, HSG D |
| 8,840 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

### Subcatchment SC-1A: East



## Summary for Subcatchment SC-1A1: Roundabout

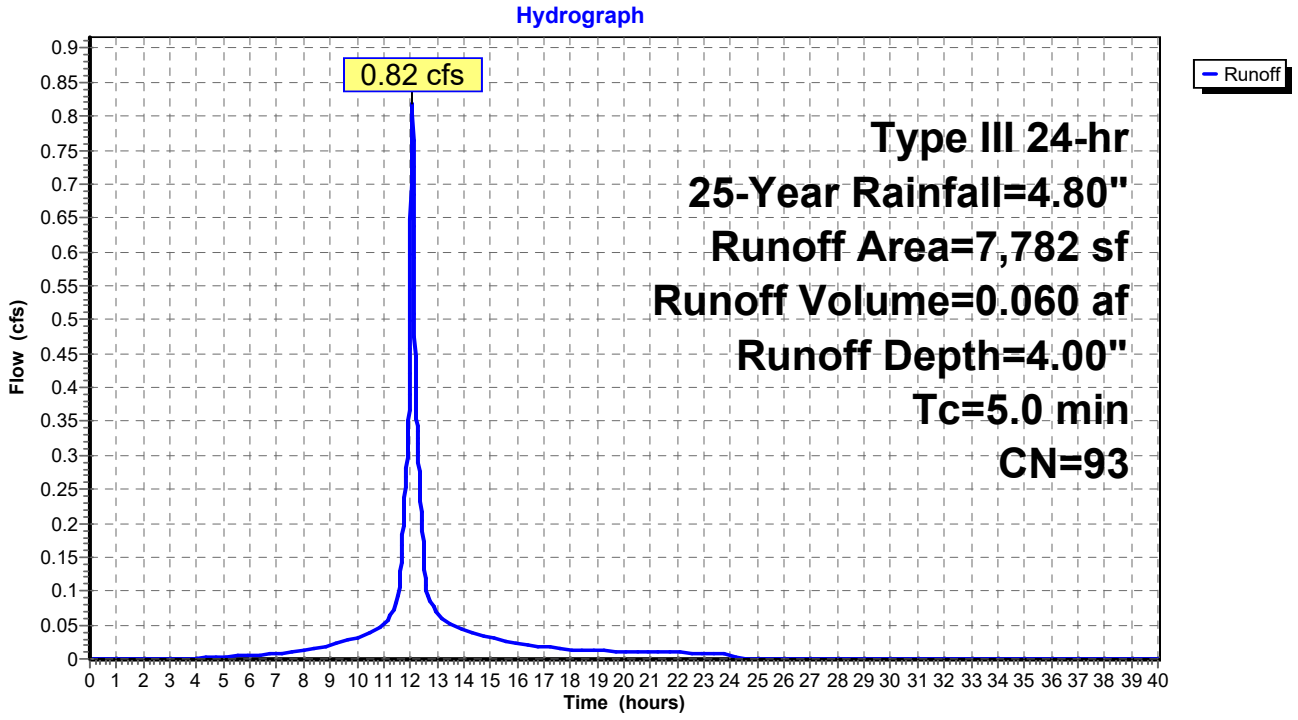
Runoff = 0.82 cfs @ 12.07 hrs, Volume= 0.060 af, Depth= 4.00"
Routed to Pond P-1A2 : CB#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=4.80"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 5,509 | 98 | Paved parking |
| | 2,273 | 80 | >75% Grass cover, Good, HSG D |
| | 7,782 | 93 | Weighted Average |
| | 2,273 | | 29.21% Pervious Area |
| | 5,509 | | 70.79% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, 5 Minutes Minimum** |

## Subcatchment SC-1A1: Roundabout



## Summary for Subcatchment SC-1A2: Parking Lot

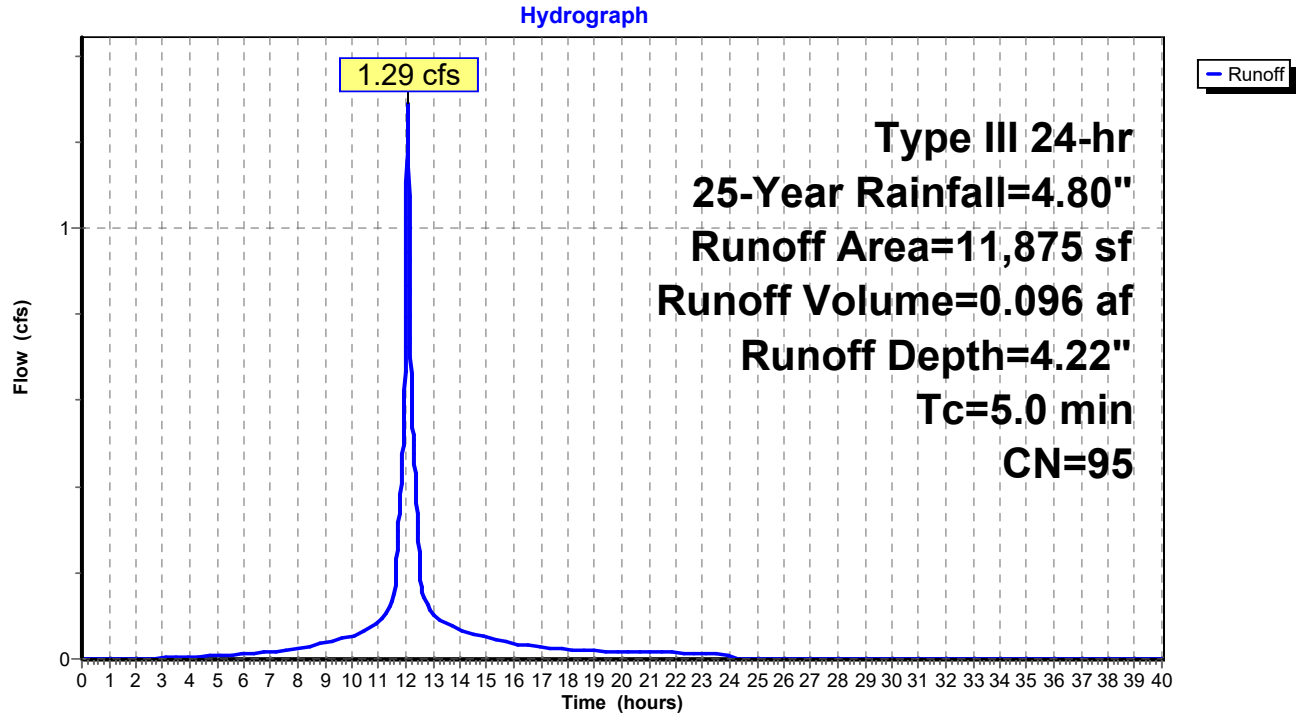
Runoff = 1.29 cfs @ 12.07 hrs, Volume= 0.096 af, Depth= 4.22"
Routed to Pond P-1A2 : CB#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=4.80"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 10,015 | 98 | Paved parking |
| | 1,860 | 80 | >75% Grass cover, Good, HSG D |
| | 11,875 | 95 | Weighted Average |
| | 1,860 | | 15.66% Pervious Area |
| | 10,015 | | 84.34% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry,** |

## Subcatchment SC-1A2: Parking Lot



## Summary for Subcatchment SC-1B: Southeast Off-property

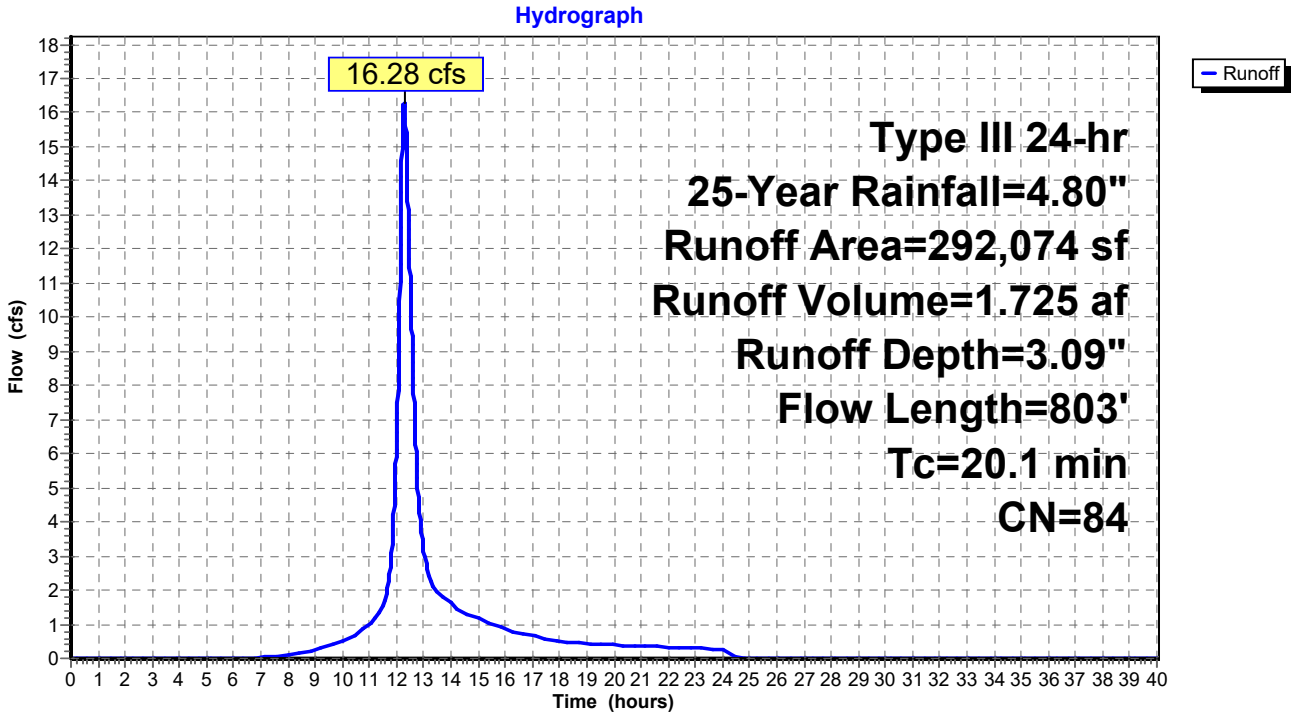
Runoff = 16.28 cfs @ 12.27 hrs, Volume= 1.725 af, Depth= 3.09"
Routed to Pond P-1B : 36" Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=4.80"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 20,275 | 98 | Roofs |
| | 11,200 | 98 | Paved roads w/curbs & sewers |
| * | 19,477 | 98 | Paved parking |
| * | 19,494 | 96 | Gravel surface |
| | 11,386 | 74 | >75% Grass cover, Good, HSG C |
| | 170,113 | 80 | >75% Grass cover, Good, HSG D |
| | 40,129 | 79 | Woods/grass comb., Good, HSG D |
| | 292,074 | 84 | Weighted Average |
| | 241,122 | | 82.56% Pervious Area |
| | 50,952 | | 17.44% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 12.8 | 100 | 0.0325 | 0.13 | | **Sheet Flow, A-B**<br>Grass: Dense n= 0.240 P2= 2.70" |
| 0.9 | 79 | 0.0443 | 1.47 | | **Shallow Concentrated Flow, B-C**<br>Short Grass Pasture Kv= 7.0 fps |
| 1.5 | 147 | 0.1041 | 1.61 | | **Shallow Concentrated Flow, C-D**<br>Woodland Kv= 5.0 fps |
| 0.3 | 34 | 0.0882 | 2.08 | | **Shallow Concentrated Flow, D-E**<br>Short Grass Pasture Kv= 7.0 fps |
| 3.6 | 219 | 0.0411 | 1.01 | | **Shallow Concentrated Flow, E-F**<br>Woodland Kv= 5.0 fps |
| 0.7 | 117 | 0.0342 | 2.77 | | **Shallow Concentrated Flow, F-G**<br>Grassed Waterway Kv= 15.0 fps |
| 0.2 | 79 | 0.0200 | 8.06 | 9.90 | **Pipe Channel, G-H**<br>15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31'<br>n= 0.012 Corrugated PP, smooth interior |
| 0.1 | 28 | 0.0896 | 4.49 | | **Shallow Concentrated Flow, H-I**<br>Grassed Waterway Kv= 15.0 fps |
| 20.1 | 803 | Total | | | |

## Subcatchment SC-1B: Southeast Off-property



## Summary for Subcatchment SC-1C: Centeral East portion

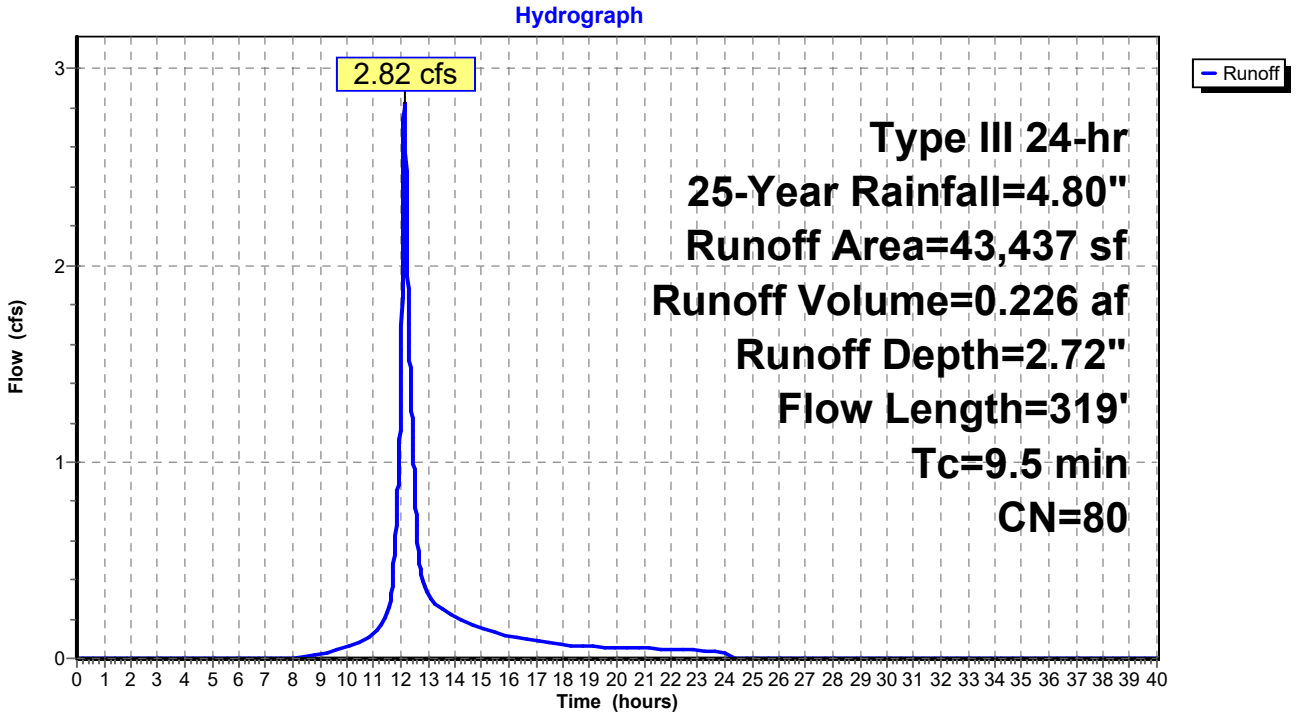
Runoff = 2.82 cfs @ 12.13 hrs, Volume= 0.226 af, Depth= 2.72"
Routed to Pond P-1C1 : FI#1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=4.80"

| Area (sf) | CN | Description |
|---|---|---|
| 37,473 | 80 | >75% Grass cover, Good, HSG D |
| 5,964 | 79 | Woods/grass comb., Good, HSG D |
| 43,437 | 80 | Weighted Average |
| 43,437 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.1 | 100 | 0.0800 | 0.27 | | **Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.70" |
| 0.0 | 5 | 0.0800 | 1.98 | | **Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps |
| 0.3 | 35 | 0.1140 | 1.69 | | **Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps |
| 0.3 | 57 | 0.2110 | 3.22 | | **Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps |
| 0.1 | 35 | 0.3428 | 4.10 | | **Shallow Concentrated Flow, E-F** Short Grass Pasture Kv= 7.0 fps |
| 2.7 | 87 | 0.0057 | 0.53 | | **Shallow Concentrated Flow, F-G** Short Grass Pasture Kv= 7.0 fps |
| 9.5 | 319 | Total | | | |

## Subcatchment SC-1C: Centeral East portion



## Summary for Subcatchment SC-1C1: Southwest Portion of Building

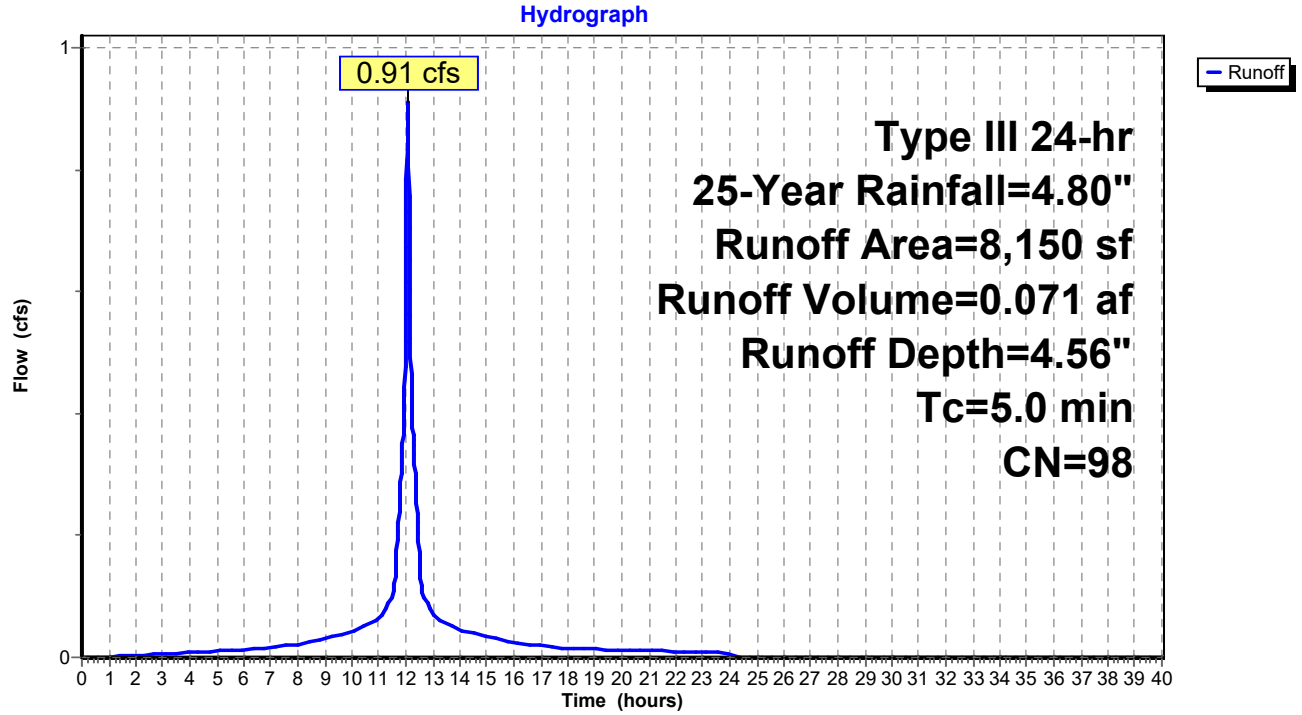
Runoff = 0.91 cfs @ 12.07 hrs, Volume= 0.071 af, Depth= 4.56"
Routed to Pond RDF-1 : Roof Dripline Filter #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=4.80"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 8,150 | 98 | Roofs |
| | 8,150 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, 5 Minutes Minimum** |

## Subcatchment SC-1C1: Southwest Portion of Building



## Summary for Subcatchment SC-1C2: Southeast portion of Building

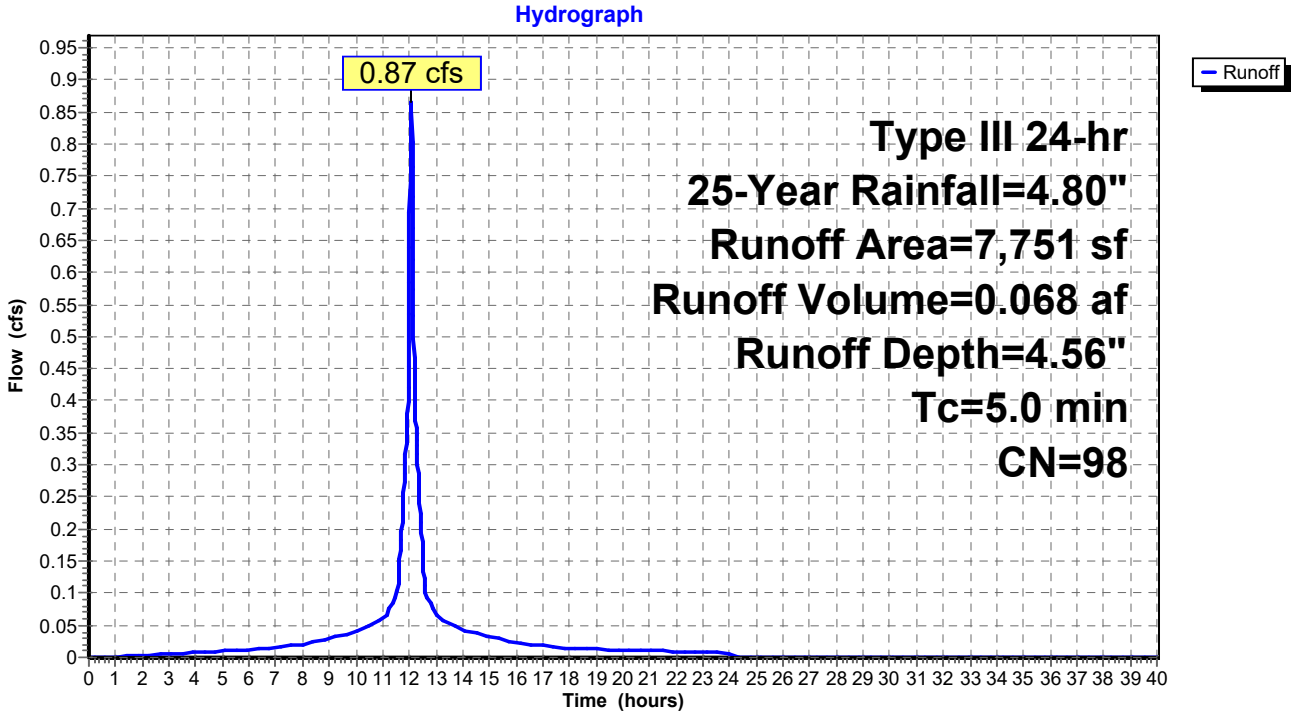
Runoff = 0.87 cfs @ 12.07 hrs, Volume= 0.068 af, Depth= 4.56"
Routed to Pond RDF-3 : Roof Dripline Filter #3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=4.80"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 7,751 | 98 | Roofs |
| | 7,751 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, 5 Minutes Minimum** |

## Subcatchment SC-1C2: Southeast portion of Building



## Summary for Subcatchment SC-1D: North

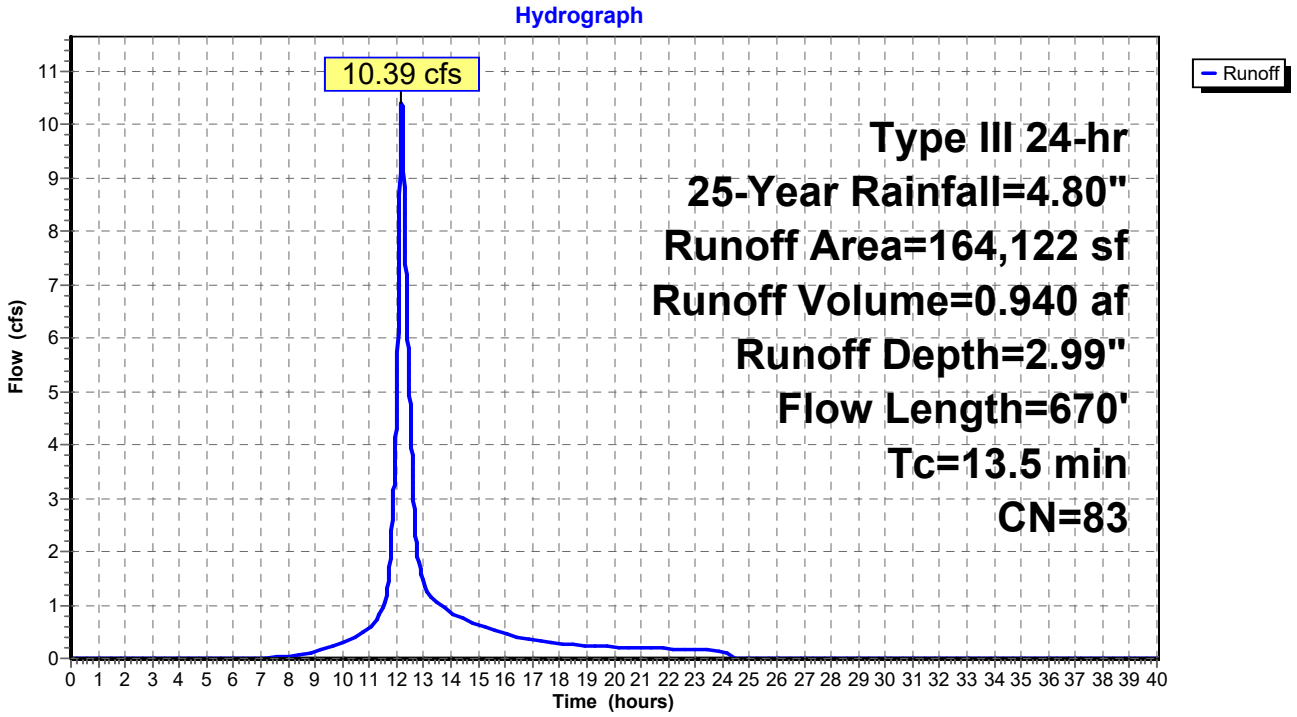
Runoff = 10.39 cfs @ 12.19 hrs, Volume= 0.940 af, Depth= 2.99"
Routed to Pond P-1D : 15" Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=4.80"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 16,493 | 98 | Paved parking |
| * | 5,185 | 98 | Roofs, |
| * | 9,894 | 98 | Paved roads w/curbs & sewers |
| | 121,345 | 80 | >75% Grass cover, Good, HSG D |
| | 11,205 | 79 | Woods/grass comb., Good, HSG D |
| | 164,122 | 83 | Weighted Average |
| | 132,550 | | 80.76% Pervious Area |
| | 31,572 | | 19.24% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 6.9 | 100 | 0.0600 | 0.24 | | **Sheet Flow, A-B**<br>Grass: Short n= 0.150 P2= 2.70" |
| 0.0 | 4 | 0.0600 | 1.71 | | **Shallow Concentrated Flow, B-C**<br>Short Grass Pasture Kv= 7.0 fps |
| 0.5 | 44 | 0.0910 | 1.51 | | **Shallow Concentrated Flow, C-D**<br>Woodland Kv= 5.0 fps |
| 3.0 | 320 | 0.0660 | 1.80 | | **Shallow Concentrated Flow, D-E**<br>Short Grass Pasture Kv= 7.0 fps |
| 3.1 | 202 | 0.0240 | 1.08 | | **Shallow Concentrated Flow, E-F**<br>Short Grass Pasture Kv= 7.0 fps |
| 13.5 | 670 | Total | | | |

## Subcatchment SC-1D: North



## Summary for Subcatchment SC-1D1: Northwest portion of building

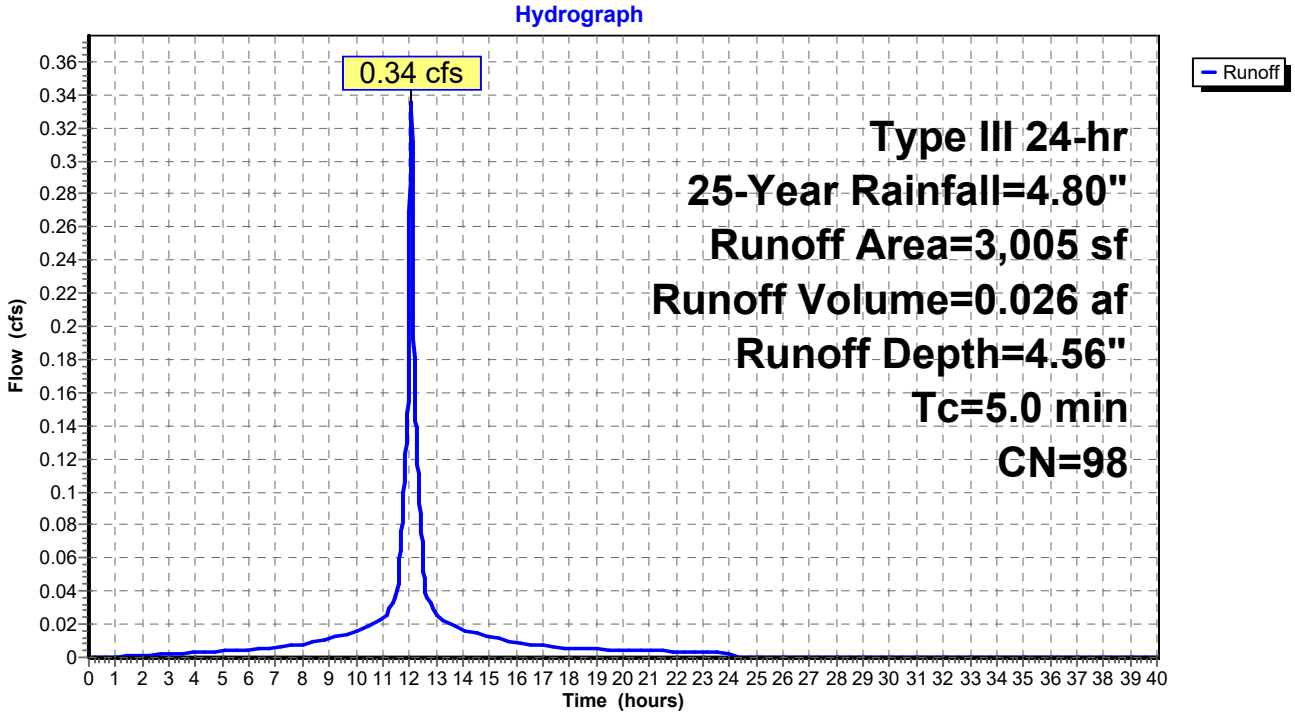
Runoff = 0.34 cfs @ 12.07 hrs, Volume= 0.026 af, Depth= 4.56"
Routed to Pond RDF-2 : Roof Dripline Filter #2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=4.80"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 3,005 | 98 | Roofs |
| | 3,005 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, 5 Minutes Minimum** |

## Subcatchment SC-1D1: Northwest portion of building



## Summary for Subcatchment SC-1D2: Northeast portion of building

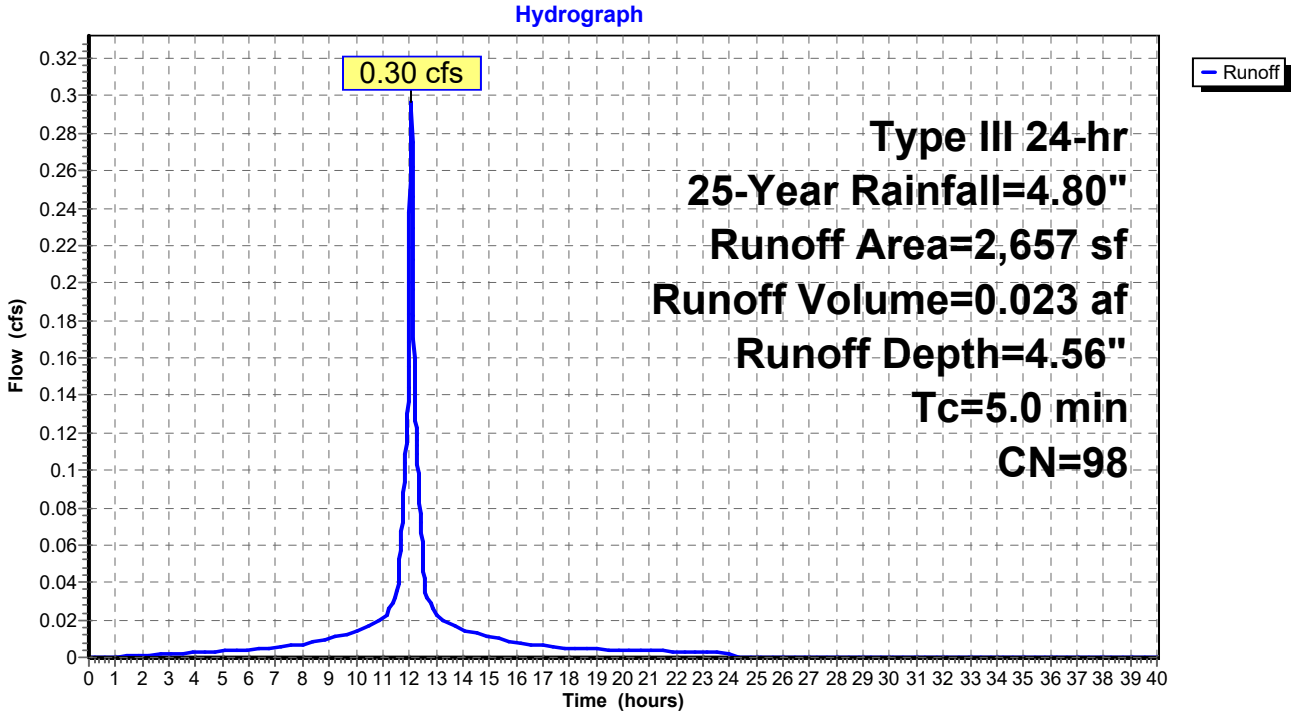
Runoff = 0.30 cfs @ 12.07 hrs, Volume= 0.023 af, Depth= 4.56"
Routed to Pond RDF-4 : Roof Dripline Filter #4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=4.80"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 2,657 | 98 | Roofs |
| | 2,657 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 5.0 | | | | | **Direct Entry, 5 Minutes Minimum** |

## Subcatchment SC-1D2: Northeast portion of building



## Summary for Subcatchment SC-1D3: Northeast Portion of Property

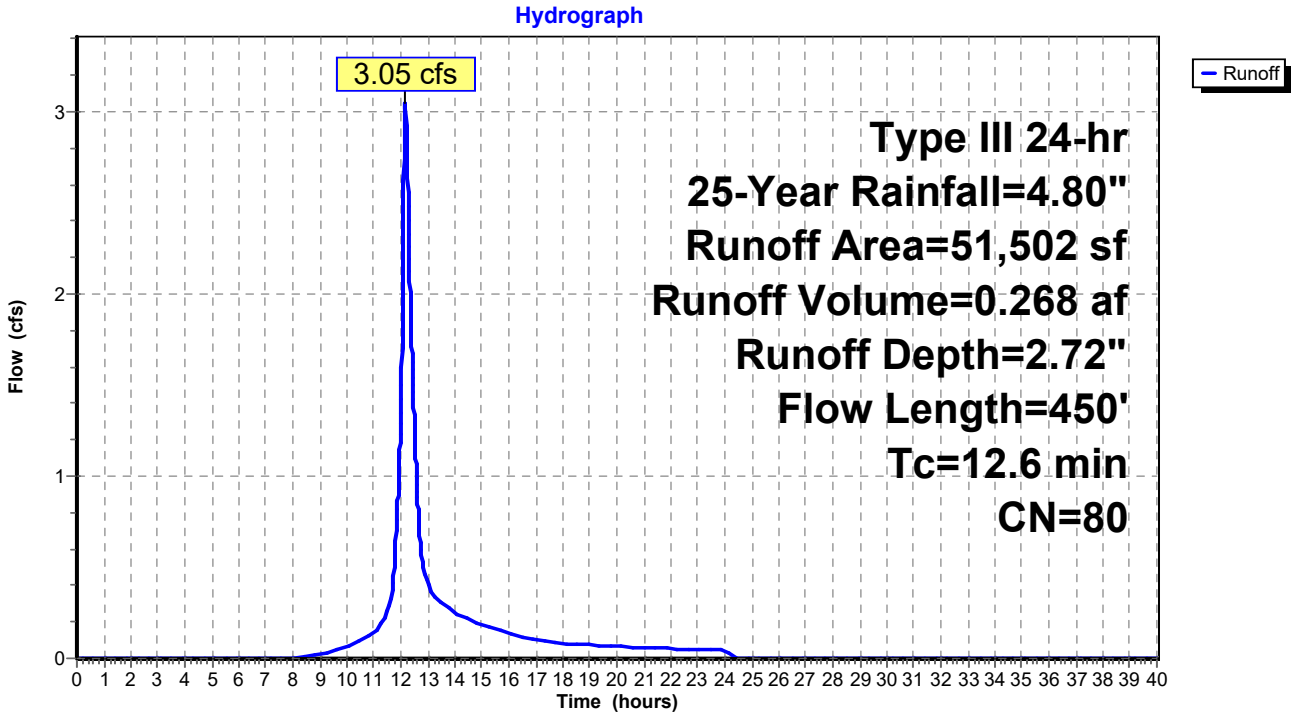
Runoff = 3.05 cfs @ 12.17 hrs, Volume= 0.268 af, Depth= 2.72"
Routed to Pond P-1D3 : FI#2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=4.80"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 122 | 98 | Paved roads w/curbs & sewers |
| | 48,321 | 80 | >75% Grass cover, Good, HSG D |
| | 3,059 | 79 | Woods/grass comb., Good, HSG D |
| | 51,502 | 80 | Weighted Average |
| | 51,380 | | 99.76% Pervious Area |
| | 122 | | 0.24% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 9.1 | 100 | 0.0300 | 0.18 | | **Sheet Flow, A-B** Grass: Short n= 0.150 P2= 2.70" |
| 0.3 | 35 | 0.0720 | 1.88 | | **Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps |
| 0.1 | 23 | 0.0200 | 2.87 | | **Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps |
| 0.9 | 100 | 0.0770 | 1.94 | | **Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps |
| 0.3 | 31 | 0.1190 | 1.72 | | **Shallow Concentrated Flow, E-F** Woodland Kv= 5.0 fps |
| 0.6 | 109 | 0.1827 | 2.99 | | **Shallow Concentrated Flow, F-G** Short Grass Pasture Kv= 7.0 fps |
| 1.3 | 52 | 0.0097 | 0.69 | | **Shallow Concentrated Flow, G-H** Short Grass Pasture Kv= 7.0 fps |
| 12.6 | 450 | Total | | | |

## Subcatchment SC-1D3: Northeast Portion of Property



## Summary for Subcatchment SC-1E: Central of property

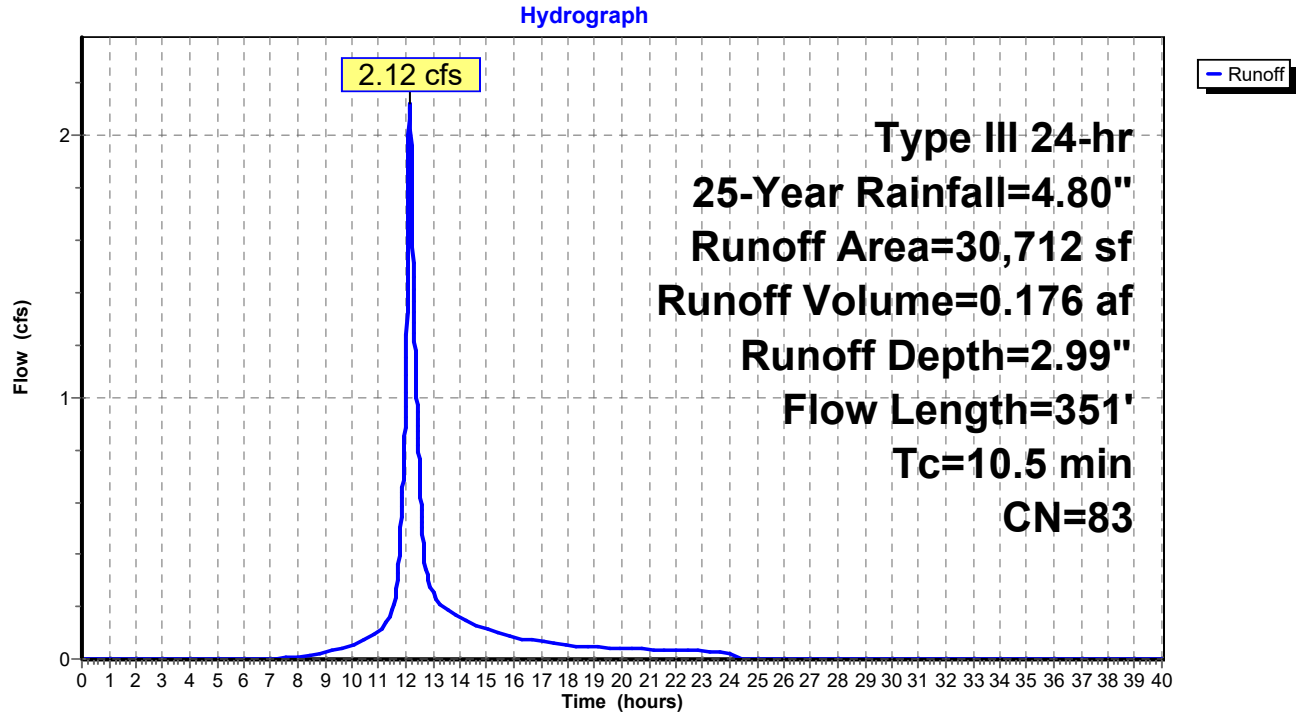
Runoff = 2.12 cfs @ 12.14 hrs, Volume= 0.176 af, Depth= 2.99"
Routed to Pond P-1E : 12" Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=4.80"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 5,682 | 98 | Paved roads w/curbs & sewers |
| * | 89 | 98 | Paved parking |
| | 24,741 | 80 | Pasture/grassland/range, Good, HSG D |
| | 200 | 79 | Woods/grass comb., Good, HSG D |
| | 30,712 | 83 | Weighted Average |
| | 24,941 | | 81.21% Pervious Area |
| | 5,771 | | 18.79% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 9.2 | 100 | 0.0750 | 0.18 | | **Sheet Flow, A-B**<br>Grass: Dense n= 0.240 P2= 2.70" |
| 1.3 | 251 | 0.0103 | 3.16 | 39.16 | **Channel Flow, B-C**<br>Area= 12.4 sf Perim= 24.9' r= 0.50'<br>n= 0.030 Earth, grassed & winding |
| 10.5 | 351 | Total | | | |

## Subcatchment SC-1E: Central of property



## Summary for Subcatchment SC-1F: Central of property

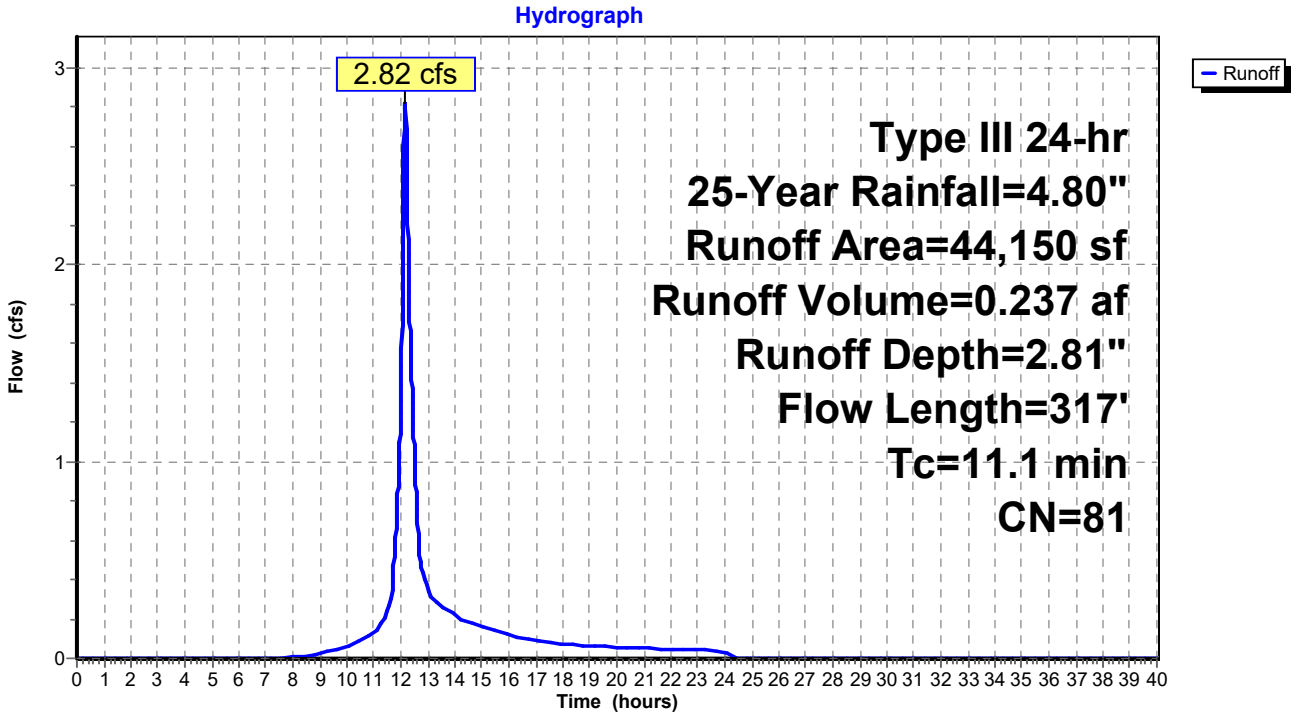
Runoff = 2.82 cfs @ 12.15 hrs, Volume= 0.237 af, Depth= 2.81"
Routed to Pond P-1F : 2 - 24 " Dia Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=4.80"

| | Area (sf) | CN | Description |
|---|---|---|---|
| * | 1,971 | 98 | Paved roads w/curbs & sewers |
| * | 620 | 98 | Paved parking |
| | 31,090 | 80 | >75% Grass cover, Good, HSG D |
| | 10,469 | 79 | Woods/grass comb., Good, HSG D |
| | 44,150 | 81 | Weighted Average |
| | 41,559 | | 94.13% Pervious Area |
| | 2,591 | | 5.87% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 10.0 | 100 | 0.0600 | 0.17 | | **Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 2.70" |
| 1.0 | 147 | 0.1292 | 2.52 | | **Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps |
| 0.1 | 70 | 0.0714 | 8.07 | 24.21 | **Channel Flow, C-D** Area= 3.0 sf Perim= 6.3' r= 0.48' n= 0.030 Earth, grassed & winding |
| 11.1 | 317 | Total | | | |

## Subcatchment SC-1F: Central of property



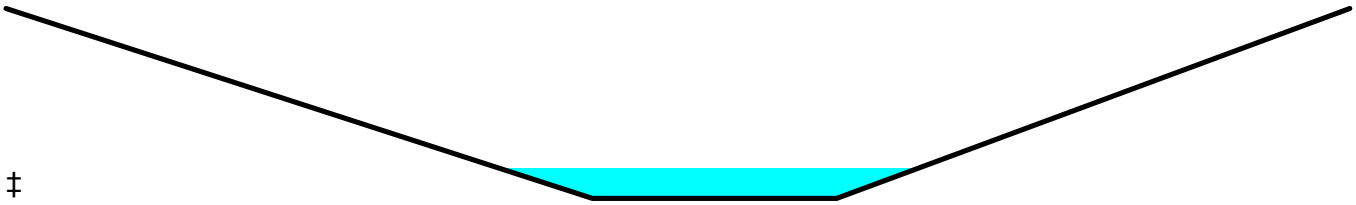
## Summary for Reach 1B-R1: Swale

Inflow Area = 6.705 ac, 17.44% Impervious, Inflow Depth = 3.08" for 25-Year event
Inflow = 16.18 cfs @ 12.29 hrs, Volume= 1.723 af
Outflow = 16.17 cfs @ 12.30 hrs, Volume= 1.723 af, Atten= 0%, Lag= 0.5 min
Routed to Reach 1B-R2 : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.96 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 1.59 fps, Avg. Travel Time= 2.3 min

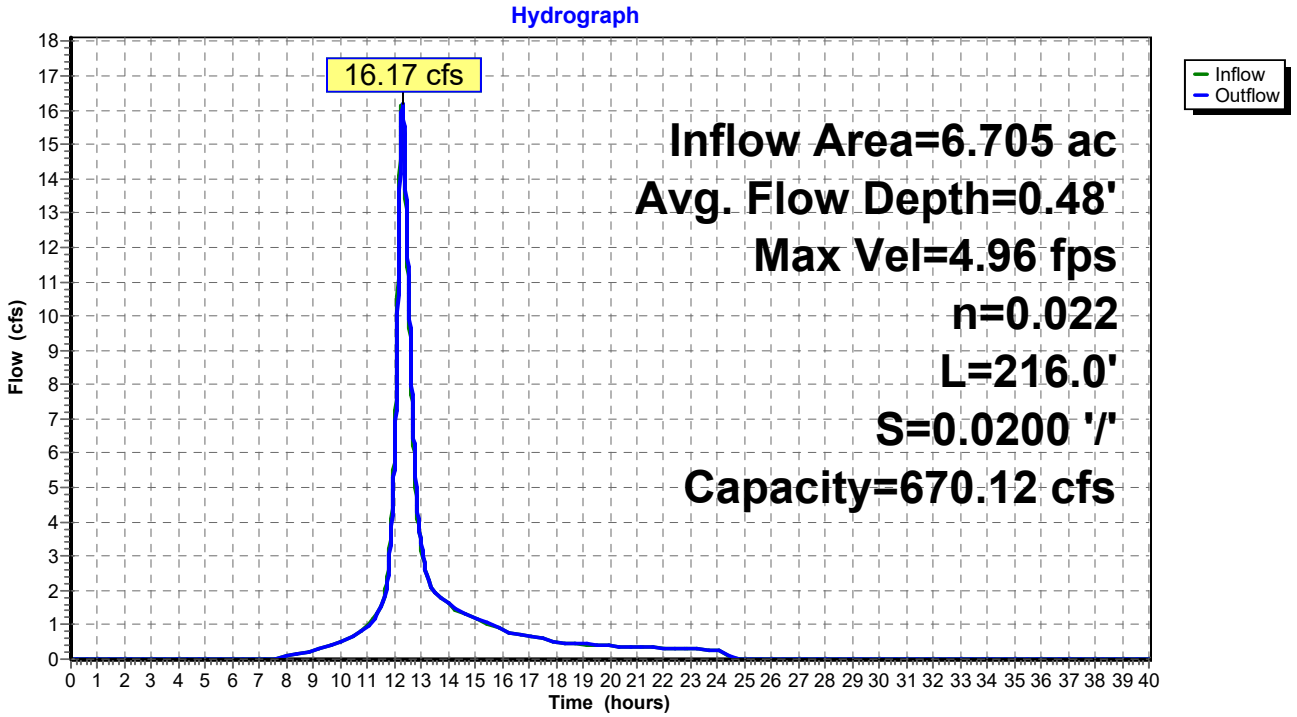
Peak Storage= 704 cf @ 12.30 hrs
Average Depth at Peak Storage= 0.48' , Surface Width= 8.60'
Bank-Full Depth= 3.00' Flow Area= 48.8 sf, Capacity= 670.12 cfs

5.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 4.0 3.5 '/' Top Width= 27.50'
Length= 216.0' Slope= 0.0200 '/'
Inlet Invert= 165.33', Outlet Invert= 161.00'



‡

**Reach 1B-R1: Swale**



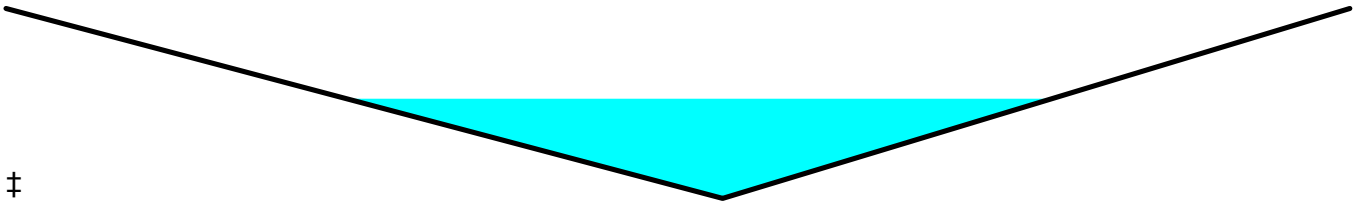
## Summary for Reach 1B-R2: Swale

Inflow Area = 6.705 ac, 17.44% Impervious, Inflow Depth = 3.08" for 25-Year event
Inflow = 16.17 cfs @ 12.30 hrs, Volume= 1.723 af
Outflow = 16.01 cfs @ 12.33 hrs, Volume= 1.723 af, Atten= 1%, Lag= 1.6 min
Routed to Pond P-1F : 2 - 24 " Dia Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.72 fps, Min. Travel Time= 2.1 min
Avg. Velocity = 0.53 fps, Avg. Travel Time= 6.7 min

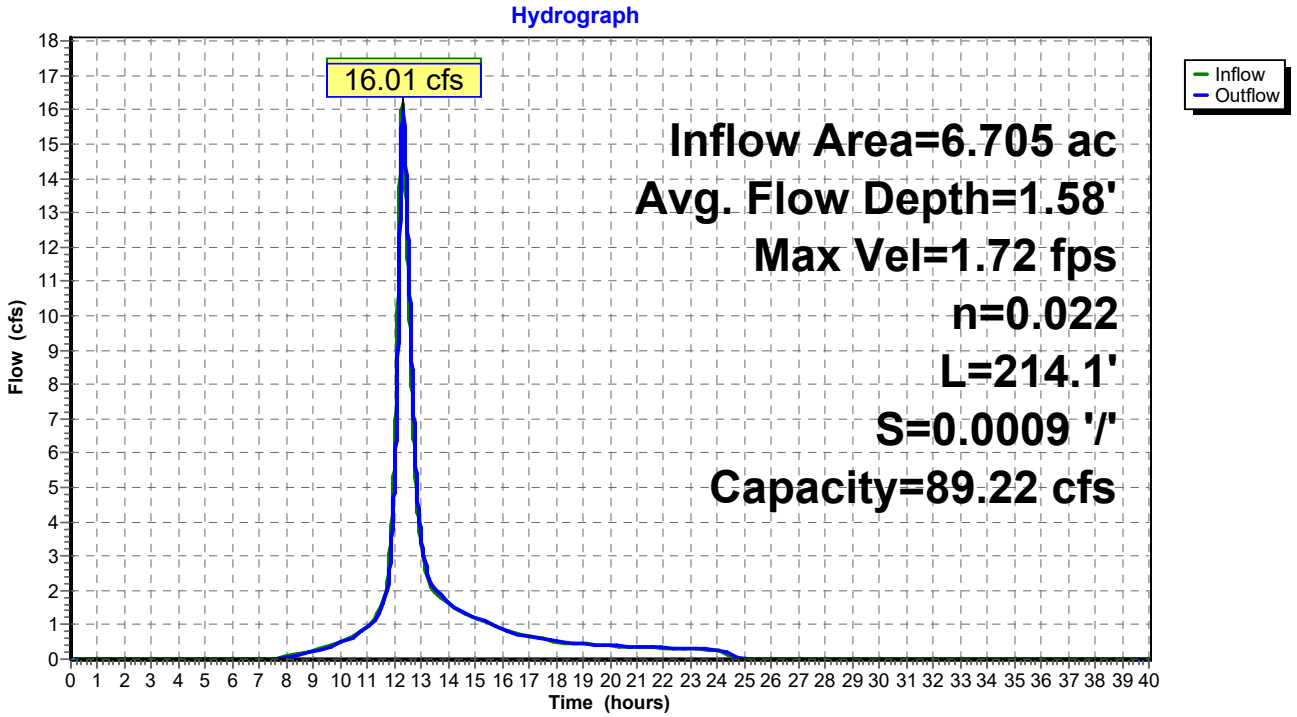
Peak Storage= 1,992 cf @ 12.33 hrs
Average Depth at Peak Storage= 1.58' , Surface Width= 11.81'
Bank-Full Depth= 3.00' Flow Area= 33.8 sf, Capacity= 89.22 cfs

0.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 4.0 3.5 '/' Top Width= 22.50'
Length= 214.1' Slope= 0.0009 '/'
Inlet Invert= 161.00', Outlet Invert= 160.80'



‡

**Reach 1B-R2: Swale**



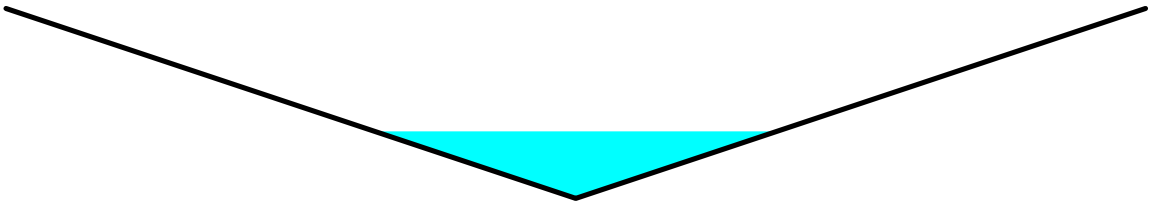
## Summary for Reach 1C-R: Swale

Inflow Area = 8.894 ac, 15.82% Impervious, Inflow Depth = 3.04" for 25-Year event
Inflow = 19.65 cfs @ 12.32 hrs, Volume= 2.254 af
Outflow = 19.65 cfs @ 12.33 hrs, Volume= 2.254 af, Atten= 0%, Lag= 0.4 min
Routed to Pond P-1 : 30" Culvert

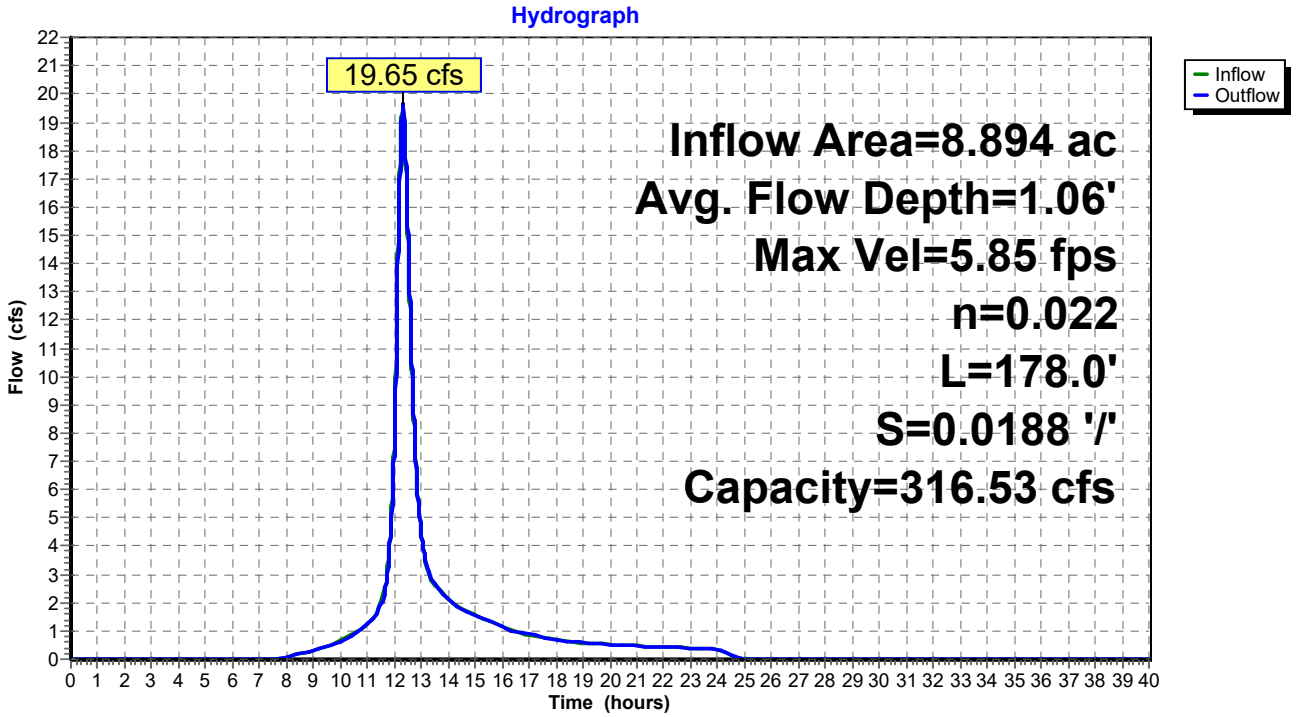
Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.85 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.89 fps, Avg. Travel Time= 1.6 min

Peak Storage= 598 cf @ 12.33 hrs
Average Depth at Peak Storage= 1.06' , Surface Width= 6.35'
Bank-Full Depth= 3.00' Flow Area= 27.0 sf, Capacity= 316.53 cfs

0.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 3.0 '/' Top Width= 18.00'
Length= 178.0' Slope= 0.0188 '/'
Inlet Invert= 157.50', Outlet Invert= 154.15'



**Reach 1C-R: Swale**



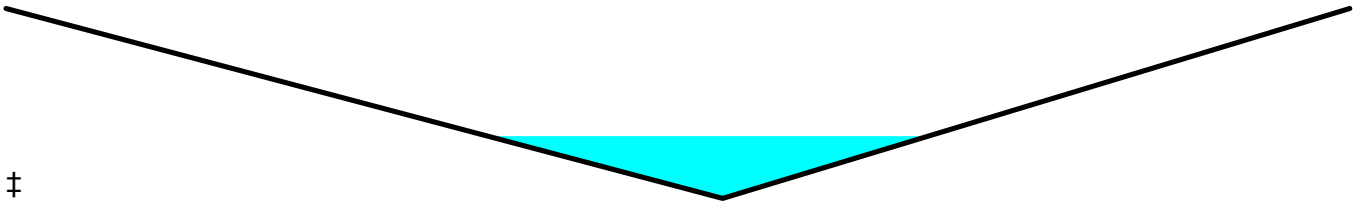
## Summary for Reach 1D-R: Swale

Inflow Area = 5.267 ac, 19.83% Impervious, Inflow Depth = 3.03" for 25-Year event
Inflow = 14.02 cfs @ 12.18 hrs, Volume= 1.328 af
Outflow = 13.99 cfs @ 12.19 hrs, Volume= 1.328 af, Atten= 0%, Lag= 0.5 min
Routed to Pond P-1 : 30" Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.85 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 1.39 fps, Avg. Travel Time= 1.8 min

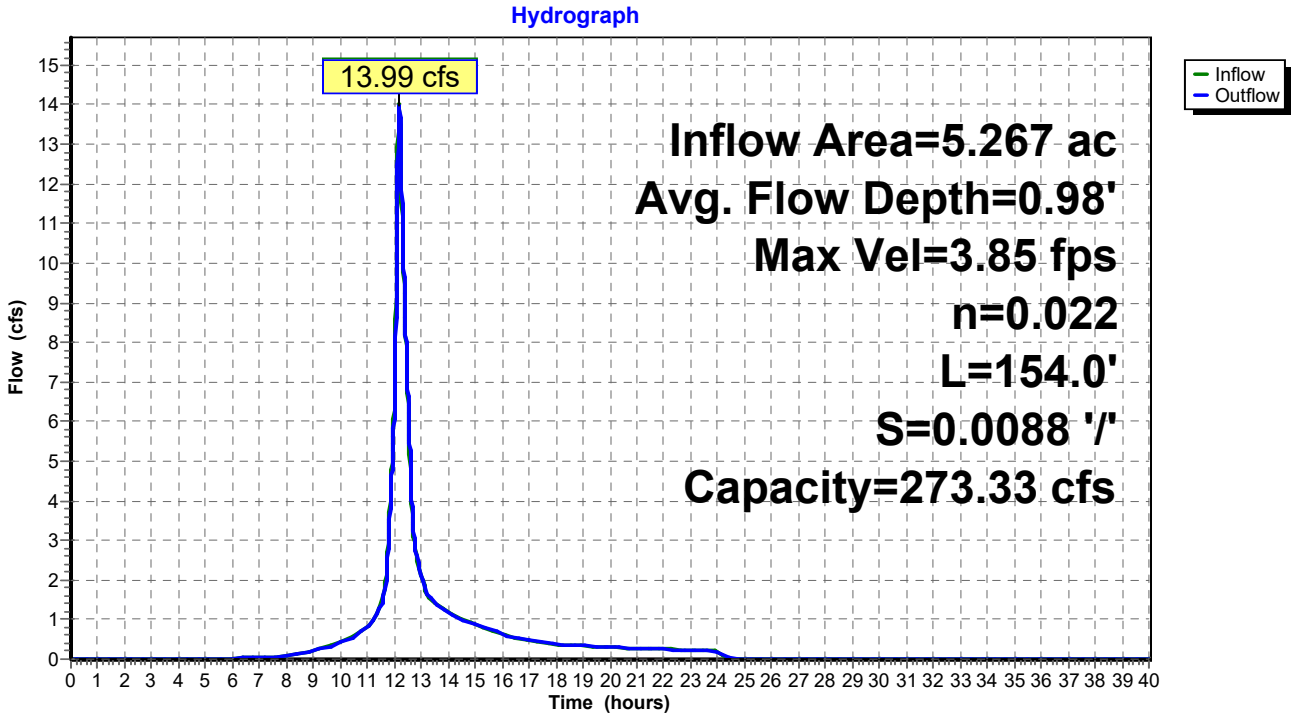
Peak Storage= 559 cf @ 12.19 hrs
Average Depth at Peak Storage= 0.98' , Surface Width= 7.38'
Bank-Full Depth= 3.00' Flow Area= 33.8 sf, Capacity= 273.33 cfs

0.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 4.0 3.5 '/' Top Width= 22.50'
Length= 154.0' Slope= 0.0088 '/'
Inlet Invert= 155.50', Outlet Invert= 154.15'



‡

**Reach 1D-R: Swale**



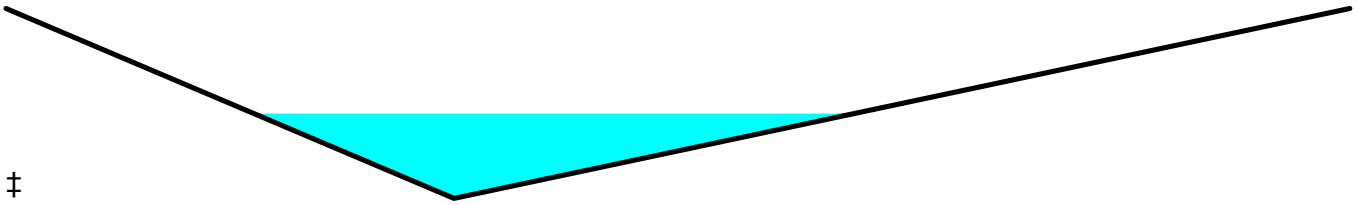
## Summary for Reach 1E-R: Road Side Ditch

Inflow Area = 0.705 ac, 18.79% Impervious, Inflow Depth = 2.99" for 25-Year event
Inflow = 1.93 cfs @ 12.19 hrs, Volume= 0.176 af
Outflow = 1.88 cfs @ 12.22 hrs, Volume= 0.176 af, Atten= 3%, Lag= 2.0 min
Routed to Pond P-1 : 30" Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.10 fps, Min. Travel Time= 2.5 min
Avg. Velocity = 0.73 fps, Avg. Travel Time= 7.2 min

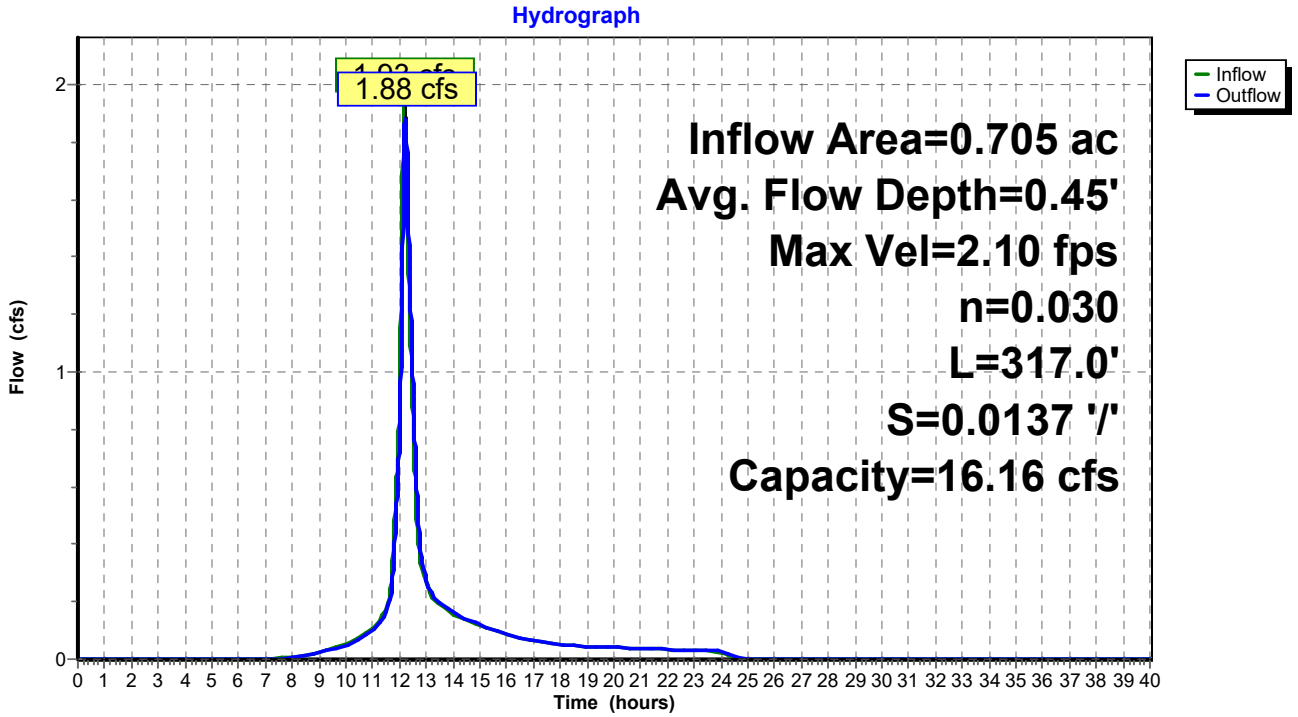
Peak Storage= 285 cf @ 12.22 hrs
Average Depth at Peak Storage= 0.45' , Surface Width= 4.02'
Bank-Full Depth= 1.00' Flow Area= 4.5 sf, Capacity= 16.16 cfs

0.00' x 1.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 6.0 '/' Top Width= 9.00'
Length= 317.0' Slope= 0.0137 '/'
Inlet Invert= 158.50', Outlet Invert= 154.15'



‡

### Reach 1E-R: Road Side Ditch



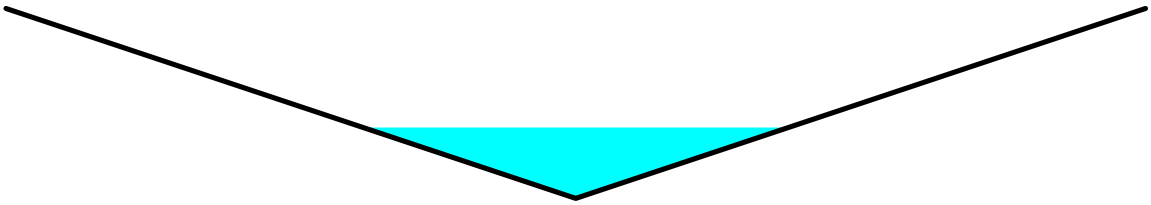
## Summary for Reach 1F-R: Swale

Inflow Area = 7.719 ac, 15.92% Impervious, Inflow Depth = 3.05" for 25-Year event
Inflow = 17.74 cfs @ 12.32 hrs, Volume= 1.961 af
Outflow = 17.74 cfs @ 12.33 hrs, Volume= 1.961 af, Atten= 0%, Lag= 0.3 min
Routed to Reach 1C-R : Swale

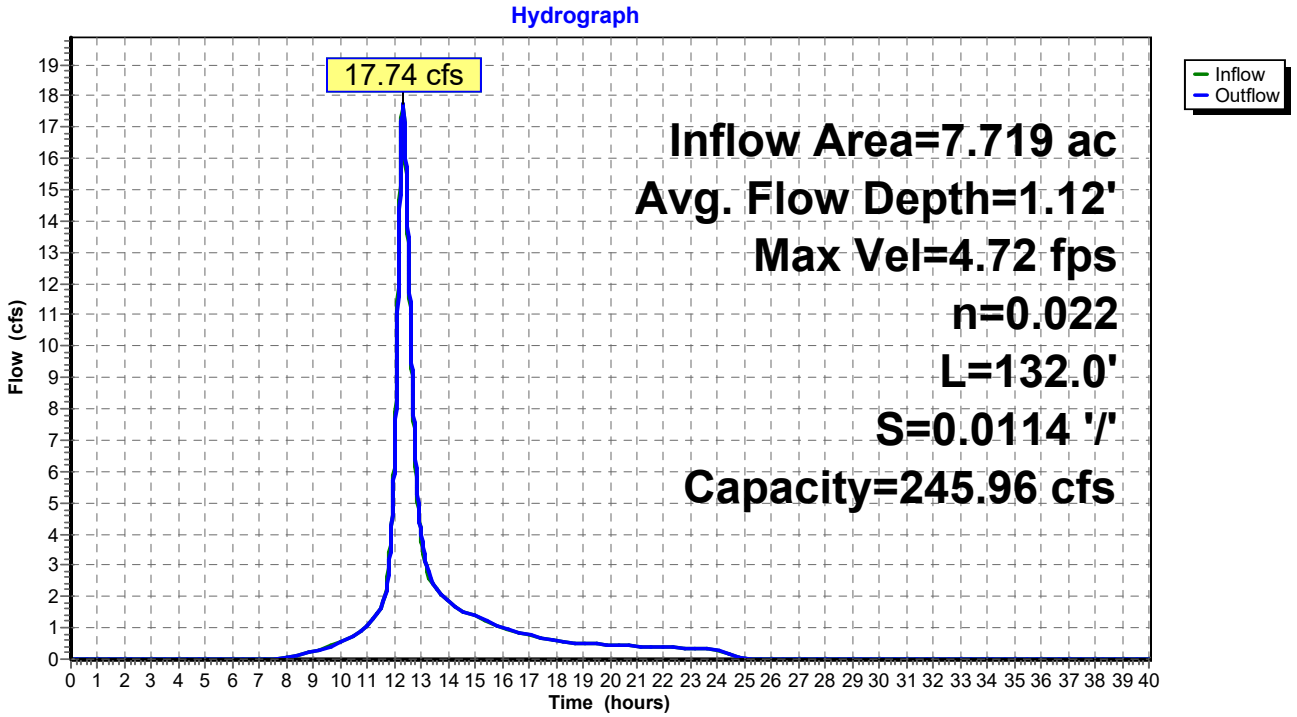
Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.72 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.72 fps, Avg. Travel Time= 1.3 min

Peak Storage= 496 cf @ 12.33 hrs
Average Depth at Peak Storage= 1.12' , Surface Width= 6.71'
Bank-Full Depth= 3.00' Flow Area= 27.0 sf, Capacity= 245.96 cfs

0.00' x 3.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 3.0 '/' Top Width= 18.00'
Length= 132.0' Slope= 0.0114 '/'
Inlet Invert= 159.00', Outlet Invert= 157.50'



**Reach 1F-R: Swale**



## Summary for Pond P-1: 30" Culvert

Inflow Area = 16.655 ac, 19.31% Impervious, Inflow Depth > 3.06" for 25-Year event
Inflow = 36.77 cfs @ 12.22 hrs, Volume= 4.251 af
Outflow = 31.51 cfs @ 12.39 hrs, Volume= 4.251 af, Atten= 14%, Lag= 10.2 min
Primary = 27.91 cfs @ 12.39 hrs, Volume= 4.200 af
Routed to Link AP-1 :
Secondary = 3.60 cfs @ 12.39 hrs, Volume= 0.051 af
Routed to Link AP-1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 157.64' @ 12.39 hrs Surf.Area= 15,056 sf Storage= 10,252 cf

Plug-Flow detention time= 1.7 min calculated for 4.251 af (100% of inflow)
Center-of-Mass det. time= 1.7 min ( 839.5 - 837.8 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 154.15' | 16,642 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc) |

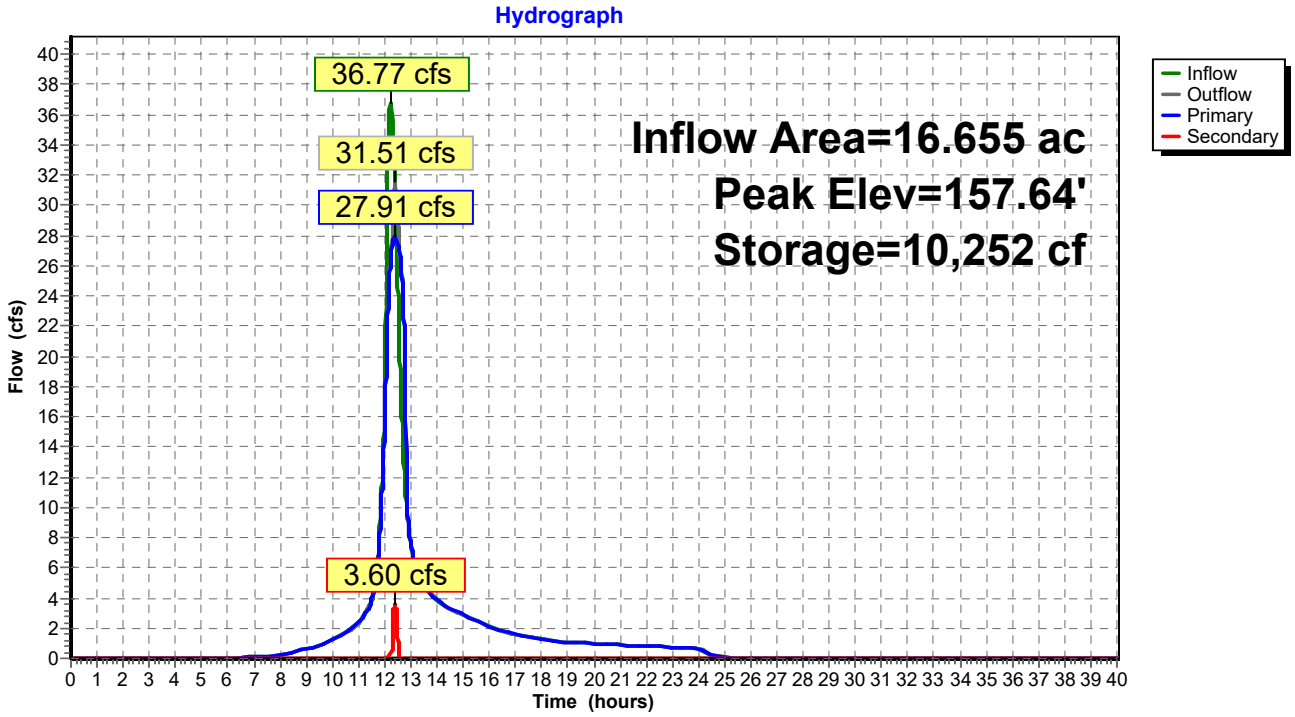
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 154.15 | 0 | 0 | 0 |
| 155.00 | 50 | 21 | 21 |
| 156.00 | 569 | 310 | 331 |
| 157.00 | 5,902 | 3,236 | 3,566 |
| 158.00 | 20,250 | 13,076 | 16,642 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 154.15' | **30.0" Round Culvert**<br>L= 75.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 154.15' / 153.00' S= 0.0153 '/' Cc= 0.900<br>n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf |
| #2 | Secondary | 157.50' | **30.0' long x 5.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88 |

**Primary OutFlow** Max=27.91 cfs @ 12.39 hrs HW=157.64' TW=0.00' (Dynamic Tailwater)
**1=Culvert** (Inlet Controls 27.91 cfs @ 5.69 fps)

**Secondary OutFlow** Max=3.60 cfs @ 12.39 hrs HW=157.64' TW=0.00' (Dynamic Tailwater)
**2=Broad-Crested Rectangular Weir** (Weir Controls 3.60 cfs @ 0.87 fps)

## Pond P-1: 30" Culvert



## Summary for Pond P-1A: Underdrained Soil Filter #1

Inflow Area = 0.654 ac, 54.48% Impervious, Inflow Depth = 3.70" for 25-Year event
Inflow = 2.78 cfs @ 12.07 hrs, Volume= 0.201 af
Outflow = 2.29 cfs @ 12.12 hrs, Volume= 0.201 af, Atten= 17%, Lag= 3.1 min
Primary = 0.04 cfs @ 24.40 hrs, Volume= 0.105 af
Routed to Pond P-1 : 30" Culvert
Secondary = 2.27 cfs @ 12.12 hrs, Volume= 0.095 af
Routed to Pond P-1 : 30" Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 158.21' @ 12.12 hrs Surf.Area= 2,100 sf Storage= 2,738 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 314.9 min ( 1,098.7 - 783.8 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 154.40' | 3,384 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc) |

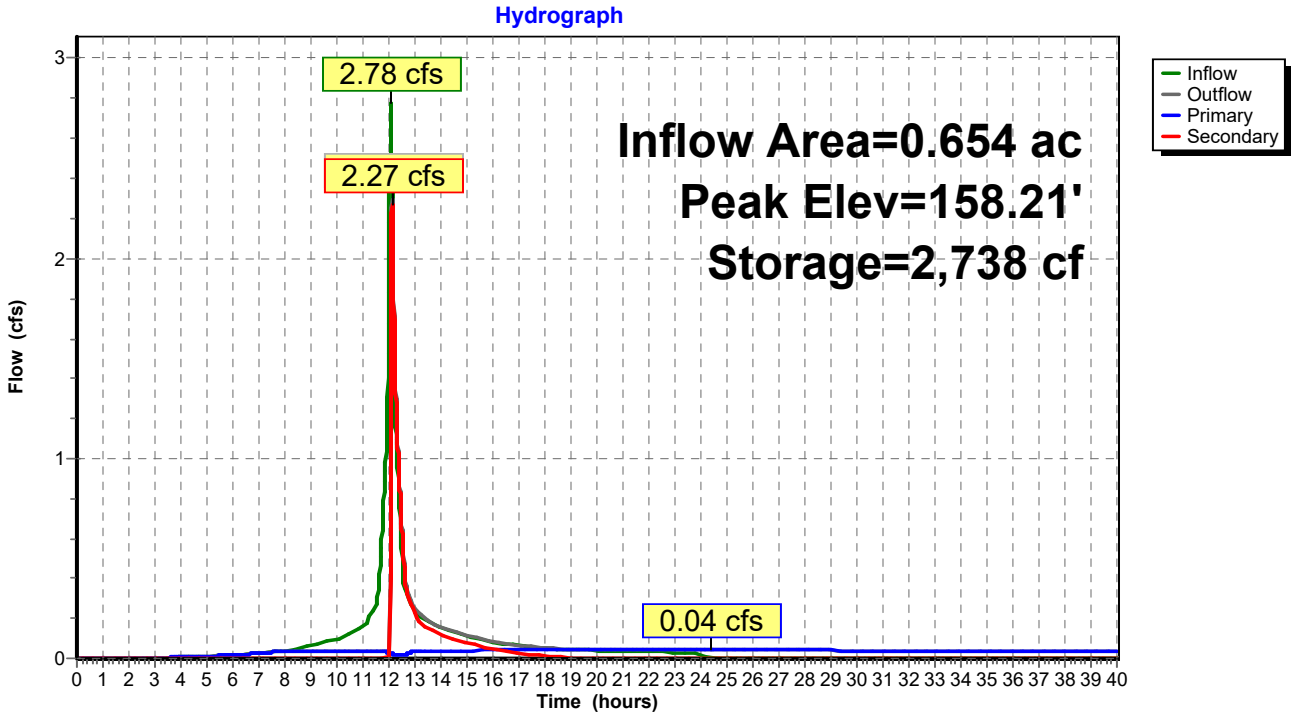
| Elevation (feet) | Surf.Area (sq-ft) | Voids (%) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|---|
| 154.40 | 1,179 | 0.0 | 0 | 0 |
| 156.50 | 1,179 | 0.0 | 0 | 0 |
| 157.00 | 1,413 | 100.0 | 648 | 648 |
| 158.00 | 1,924 | 100.0 | 1,669 | 2,317 |
| 158.50 | 2,344 | 100.0 | 1,067 | 3,384 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 154.40' | **1.4" Round Culvert**<br>L= 40.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 154.40' / 154.25' S= 0.0038 '/' Cc= 0.900<br>n= 0.010 PVC, smooth interior, Flow Area= 0.01 sf |
| #2 | Secondary | 158.00' | **10.0' long x 4.5' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.36 2.52 2.70 2.68 2.67 2.67 2.65 2.66 2.66 2.67 2.70 2.70 2.72 2.75 2.81 2.93 3.10 |

**Primary OutFlow** Max=0.04 cfs @ 24.40 hrs HW=157.91' TW=154.36' (Dynamic Tailwater)
**1=Culvert** (Barrel Controls 0.04 cfs @ 3.91 fps)

**Secondary OutFlow** Max=2.26 cfs @ 12.12 hrs HW=158.21' TW=156.90' (Dynamic Tailwater)
**2=Broad-Crested Rectangular Weir** (Weir Controls 2.26 cfs @ 1.08 fps)

## Pond P-1A: Underdrained Soil Filter #1



## Summary for Pond P-1A2: CB#2

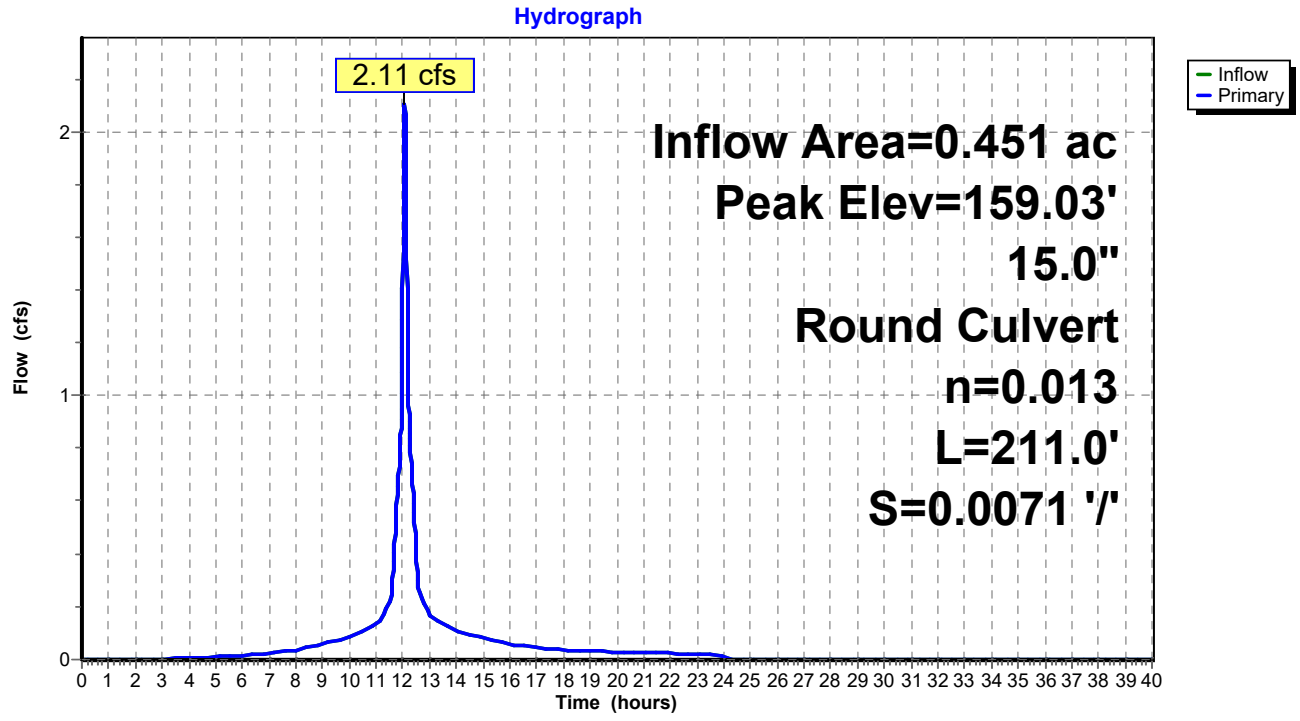
Inflow Area = 0.451 ac, 78.97% Impervious, Inflow Depth = 4.13" for 25-Year event
Inflow = 2.11 cfs @ 12.07 hrs, Volume= 0.155 af
Outflow = 2.11 cfs @ 12.07 hrs, Volume= 0.155 af, Atten= 0%, Lag= 0.0 min
Primary = 2.11 cfs @ 12.07 hrs, Volume= 0.155 af
Routed to Pond P-1A : Underdrained Soil Filter #1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 159.03' @ 12.08 hrs
Flood Elev= 170.10'

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 158.10' | **15.0" Round Culvert**<br>L= 211.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 158.10' / 156.60' S= 0.0071 '/' Cc= 0.900<br>n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf |

**Primary OutFlow** Max=2.08 cfs @ 12.07 hrs HW=159.03' TW=158.16' (Dynamic Tailwater)
**1=Culvert** (Outlet Controls 2.08 cfs @ 2.95 fps)

### Pond P-1A2: CB#2



## Summary for Pond P-1B: 36" Culvert

Inflow Area = 6.705 ac, 17.44% Impervious, Inflow Depth = 3.09" for 25-Year event
Inflow = 16.28 cfs @ 12.27 hrs, Volume= 1.725 af
Outflow = 16.18 cfs @ 12.29 hrs, Volume= 1.723 af, Atten= 1%, Lag= 1.5 min
Primary = 16.18 cfs @ 12.29 hrs, Volume= 1.723 af
Routed to Reach 1B-R1 : Swale
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1B-R1 : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 167.44' @ 12.29 hrs Surf.Area= 1,075 sf Storage= 1,311 cf

Plug-Flow detention time= 3.3 min calculated for 1.723 af (100% of inflow)
Center-of-Mass det. time= 2.4 min ( 827.7 - 825.2 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 165.00' | 7,542 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc) |

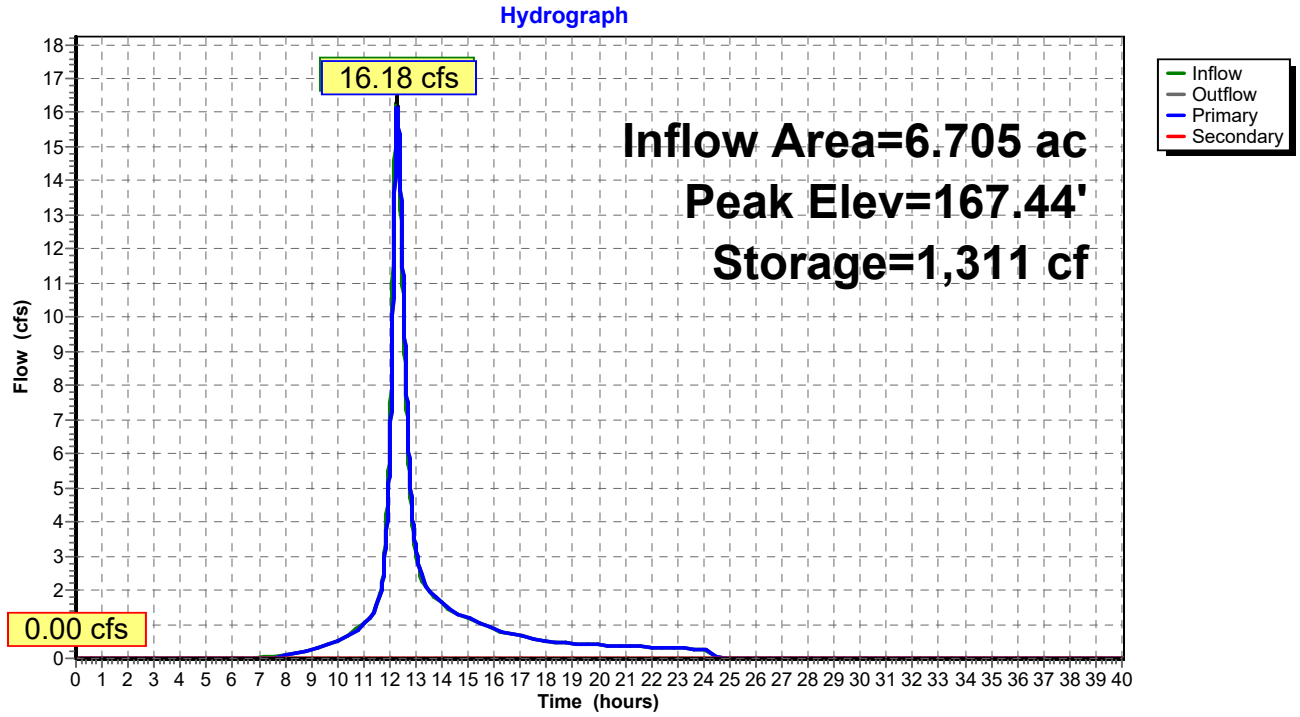
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 165.00 | 0 | 0 | 0 |
| 168.00 | 1,323 | 1,985 | 1,985 |
| 170.00 | 4,234 | 5,557 | 7,542 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 165.64' | **36.0" Round Culvert**<br>L= 48.0' RCP, sq.cut end projecting, Ke= 0.500<br>Inlet / Outlet Invert= 165.64' / 165.33' S= 0.0065 '/' Cc= 0.900<br>n= 0.011 Concrete pipe, straight & clean, Flow Area= 7.07 sf |
| #2 | Secondary | 169.00' | **20.0' long x 6.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83 |

**Primary OutFlow** Max=16.18 cfs @ 12.29 hrs HW=167.44' TW=165.81' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 16.18 cfs @ 5.25 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=165.00' TW=165.33' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Pond P-1B: 36" Culvert



## Summary for Pond P-1C: DMH#1

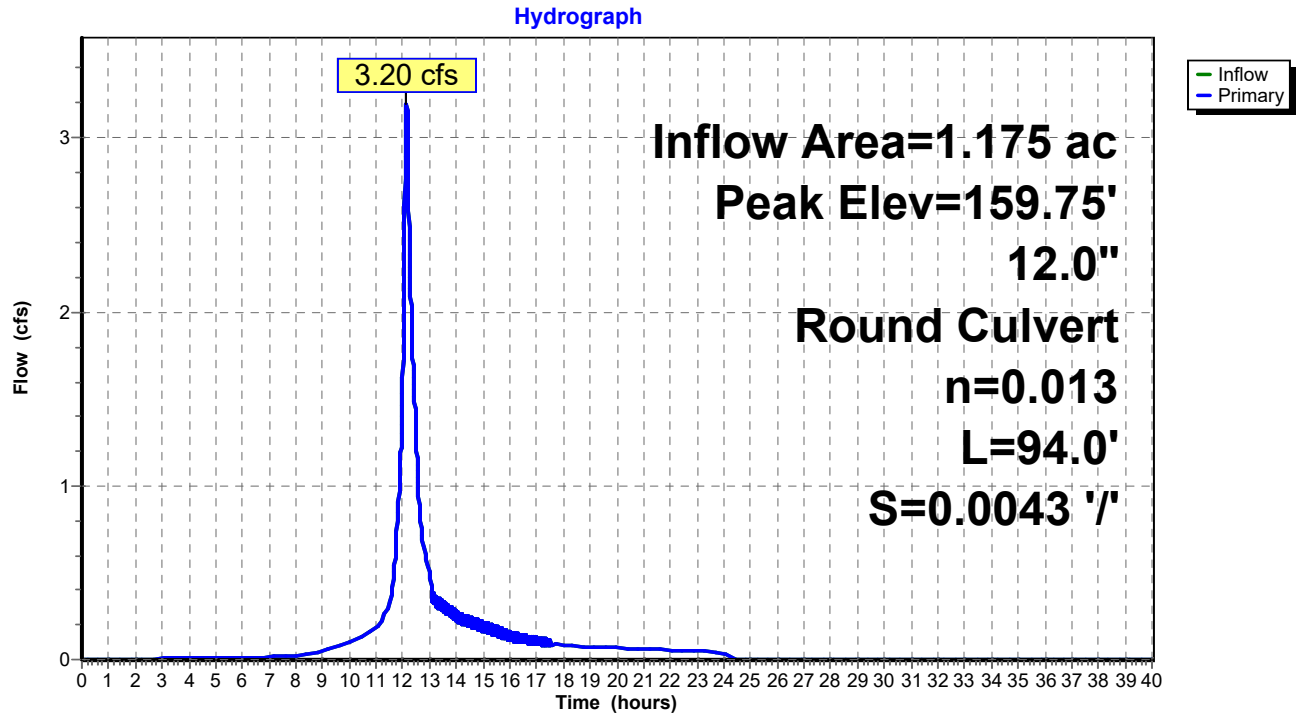
Inflow Area = 1.175 ac, 15.14% Impervious, Inflow Depth = 3.00" for 25-Year event
Inflow = 3.20 cfs @ 12.13 hrs, Volume= 0.294 af
Outflow = 3.20 cfs @ 12.13 hrs, Volume= 0.294 af, Atten= 0%, Lag= 0.0 min
Primary = 3.20 cfs @ 12.13 hrs, Volume= 0.294 af
Routed to Reach 1C-R : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 159.75' @ 12.13 hrs
Flood Elev= 170.10'

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 157.90' | **12.0" Round Culvert**<br>L= 94.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 157.90' / 157.50' S= 0.0043 '/' Cc= 0.900<br>n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf |

**Primary OutFlow** Max=3.19 cfs @ 12.13 hrs HW=159.74' TW=158.44' (Dynamic Tailwater)
**1=Culvert** (Barrel Controls 3.19 cfs @ 4.06 fps)

### Pond P-1C: DMH#1



## Summary for Pond P-1C1: FI#1

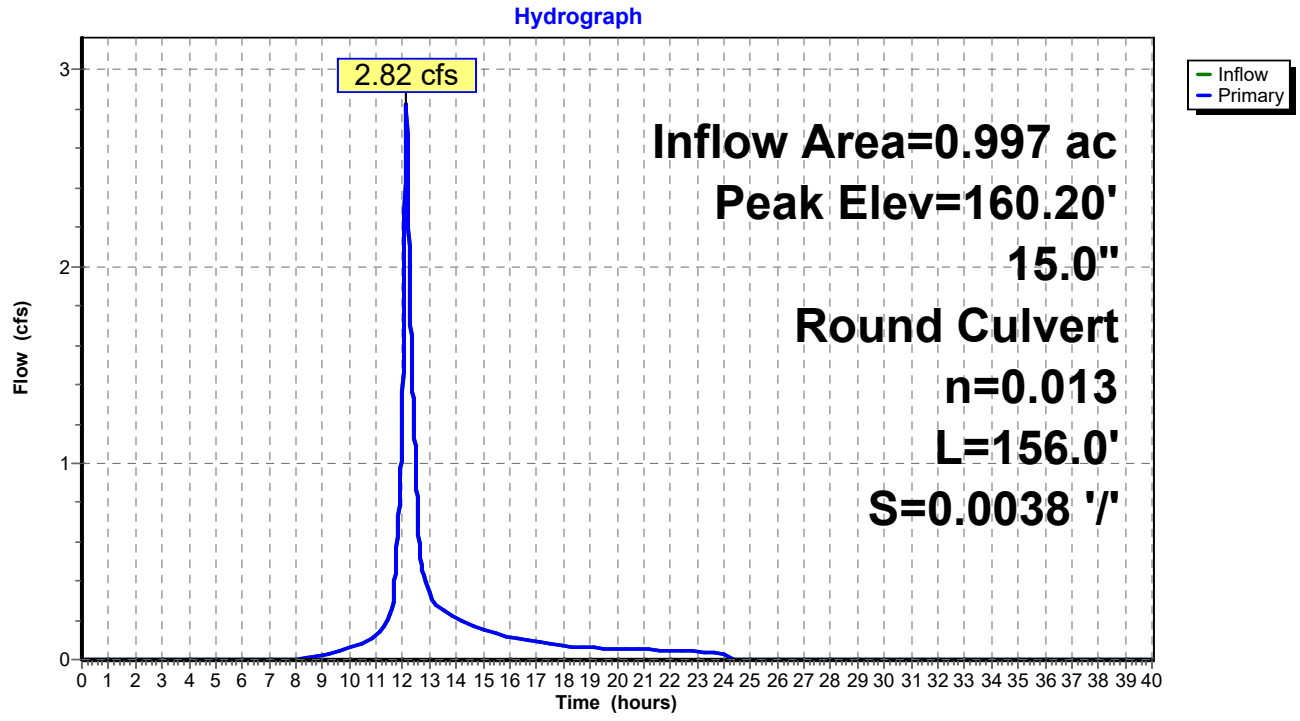
Inflow Area = 0.997 ac, 0.00% Impervious, Inflow Depth = 2.72" for 25-Year event
Inflow = 2.82 cfs @ 12.13 hrs, Volume= 0.226 af
Outflow = 2.82 cfs @ 12.13 hrs, Volume= 0.226 af, Atten= 0%, Lag= 0.0 min
Primary = 2.82 cfs @ 12.13 hrs, Volume= 0.226 af
Routed to Pond P-1C : DMH#1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 160.20' @ 12.14 hrs
Flood Elev= 170.10'

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 158.50' | **15.0" Round Culvert**<br>L= 156.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 158.50' / 157.90' S= 0.0038 '/' Cc= 0.900<br>n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf |

**Primary OutFlow** Max=2.74 cfs @ 12.13 hrs HW=160.17' TW=159.74' (Dynamic Tailwater)
**1=Culvert** (Outlet Controls 2.74 cfs @ 2.23 fps)

### Pond P-1C1: FI#1



## Summary for Pond P-1D: 15" Culvert

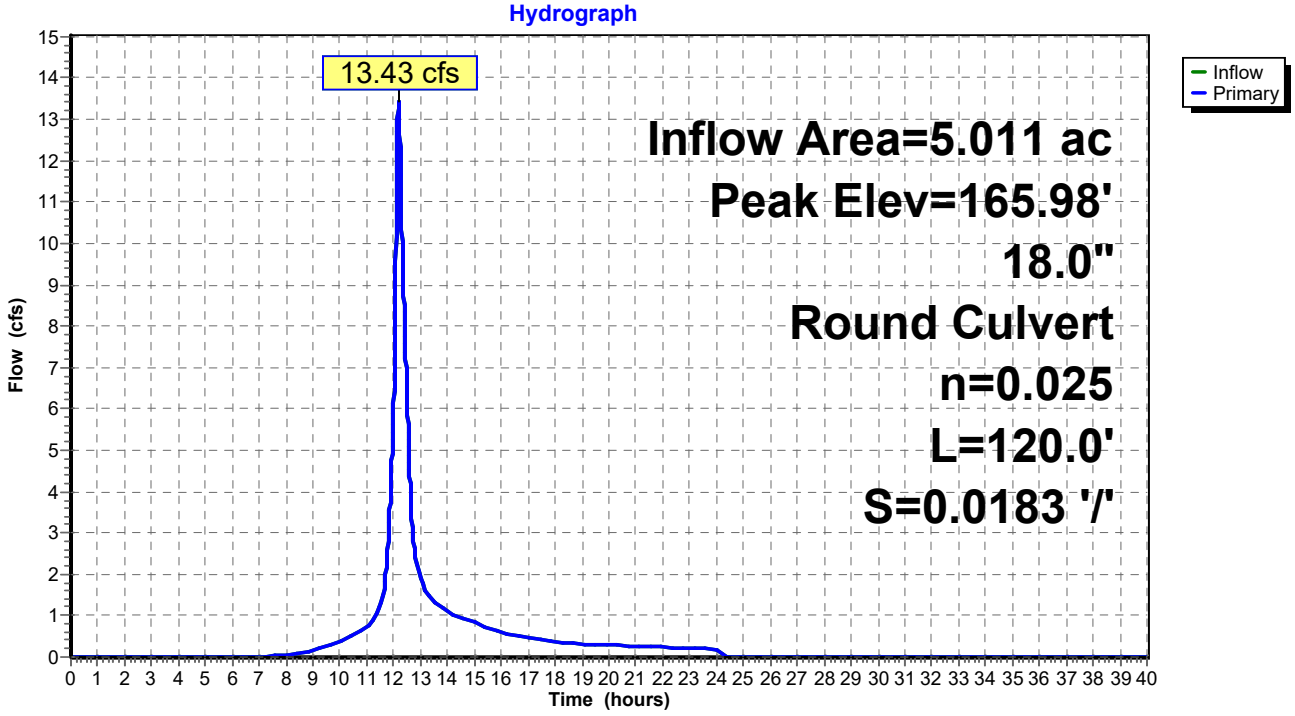
Inflow Area = 5.011 ac, 15.74% Impervious, Inflow Depth = 2.95" for 25-Year event
Inflow = 13.43 cfs @ 12.18 hrs, Volume= 1.231 af
Outflow = 13.43 cfs @ 12.18 hrs, Volume= 1.231 af, Atten= 0%, Lag= 0.0 min
Primary = 13.43 cfs @ 12.18 hrs, Volume= 1.231 af
Routed to Reach 1D-R : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 165.98' @ 12.18 hrs

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 157.70' | **18.0" Round Culvert**<br>L= 120.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 157.70' / 155.50' S= 0.0183 '/' Cc= 0.900<br>n= 0.025 Corrugated metal, Flow Area= 1.77 sf |

**Primary OutFlow** Max=13.42 cfs @ 12.18 hrs HW=165.97' TW=156.48' (Dynamic Tailwater)
↳**1=Culvert** (Barrel Controls 13.42 cfs @ 7.59 fps)

### Pond P-1D: 15" Culvert



## Summary for Pond P-1D3: FI#2

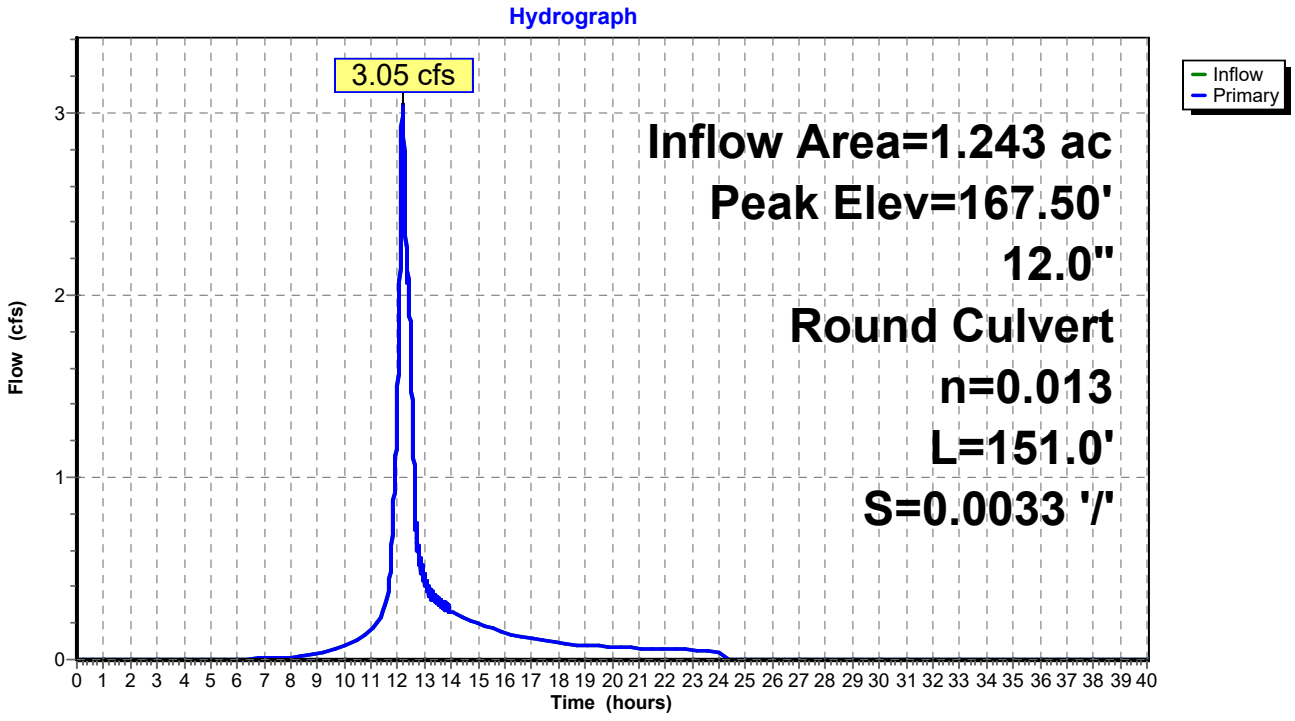
Inflow Area = 1.243 ac, 5.13% Impervious, Inflow Depth = 2.81" for 25-Year event
Inflow = 3.05 cfs @ 12.17 hrs, Volume= 0.291 af
Outflow = 3.05 cfs @ 12.17 hrs, Volume= 0.291 af, Atten= 0%, Lag= 0.0 min
Primary = 3.05 cfs @ 12.17 hrs, Volume= 0.291 af
Routed to Pond P-1D : 15" Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 167.50' @ 12.19 hrs
Flood Elev= 170.10'

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 158.50' | **12.0" Round Culvert**<br>L= 151.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 158.50' / 158.00' S= 0.0033 '/' Cc= 0.900<br>n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf |

**Primary OutFlow** Max=2.89 cfs @ 12.17 hrs HW=167.33' TW=165.94' (Dynamic Tailwater)
**1=Culvert** (Outlet Controls 2.89 cfs @ 3.68 fps)

### Pond P-1D3: FI#2



## Summary for Pond P-1E: 12" Culvert

Inflow Area = 0.705 ac, 18.79% Impervious, Inflow Depth = 2.99" for 25-Year event
Inflow = 2.12 cfs @ 12.14 hrs, Volume= 0.176 af
Outflow = 1.93 cfs @ 12.19 hrs, Volume= 0.176 af, Atten= 9%, Lag= 2.6 min
Primary = 1.93 cfs @ 12.19 hrs, Volume= 0.176 af
Routed to Reach 1E-R : Road Side Ditch
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1E-R : Road Side Ditch

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 159.38' @ 12.20 hrs Surf.Area= 784 sf Storage= 303 cf

Plug-Flow detention time= 3.4 min calculated for 0.176 af (100% of inflow)
Center-of-Mass det. time= 3.2 min ( 822.5 - 819.3 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 158.40' | 5,001 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc) |

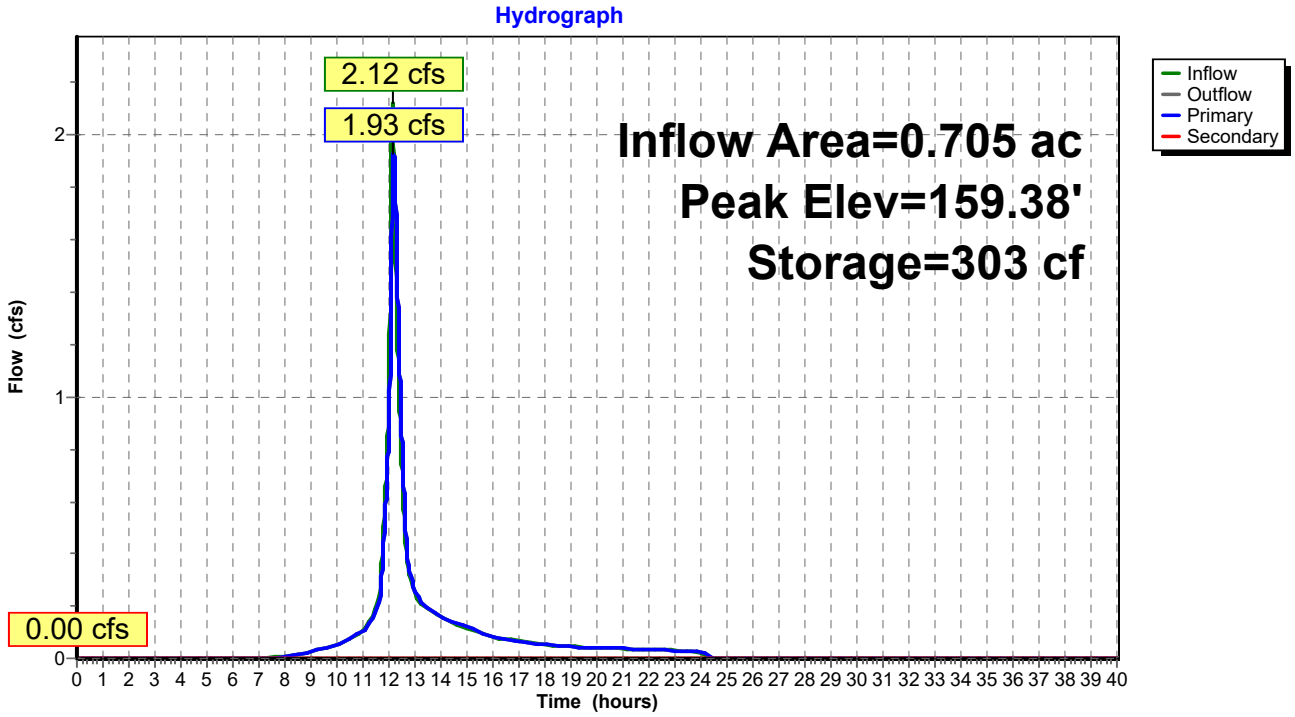
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 158.40 | 0 | 0 | 0 |
| 159.00 | 315 | 94 | 94 |
| 160.00 | 1,555 | 935 | 1,029 |
| 161.00 | 6,388 | 3,972 | 5,001 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 158.40' | **12.0" Round Culvert**<br>L= 40.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 158.40' / 158.00' S= 0.0100 '/' Cc= 0.900<br>n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf |
| #2 | Secondary | 160.80' | **31.0' long x 11.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60<br>Coef. (English) 2.53 2.59 2.70 2.68 2.67 2.68 2.66 2.64 |

**Primary OutFlow** Max=1.92 cfs @ 12.19 hrs HW=159.38' TW=158.94' (Dynamic Tailwater)
**1=Culvert** (Outlet Controls 1.92 cfs @ 3.12 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=158.40' TW=158.50' (Dynamic Tailwater)
**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Pond P-1E: 12" Culvert



## Summary for Pond P-1F: 2 - 24 " Dia Culvert

Inflow Area = 7.719 ac, 15.92% Impervious, Inflow Depth = 3.05" for 25-Year event
Inflow = 17.75 cfs @ 12.32 hrs, Volume= 1.961 af
Outflow = 17.74 cfs @ 12.32 hrs, Volume= 1.961 af, Atten= 0%, Lag= 0.4 min
Primary = 17.74 cfs @ 12.32 hrs, Volume= 1.961 af
Routed to Reach 1F-R : Swale
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond P-1E : 12" Culvert

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 161.57' @ 12.32 hrs Surf.Area= 411 sf Storage= 137 cf

Plug-Flow detention time= 0.0 min calculated for 1.960 af (100% of inflow)
Center-of-Mass det. time= 0.0 min ( 831.7 - 831.7 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 160.00' | 4,221 cf | **Custom Stage Data (Prismatic)**Listed below (Recalc) |

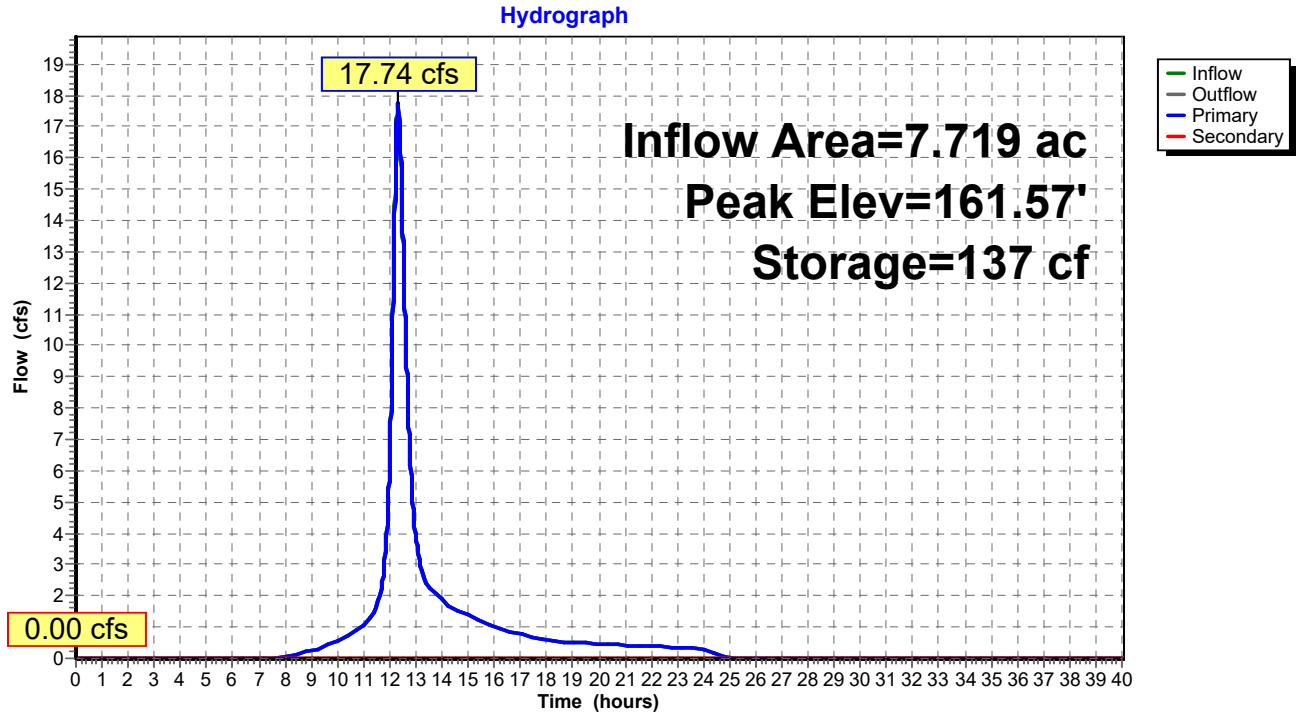
| Elevation (feet) | Surf.Area (sq-ft) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|
| 160.00 | 0 | 0 | 0 |
| 161.00 | 26 | 13 | 13 |
| 162.00 | 707 | 367 | 380 |
| 163.00 | 1,746 | 1,227 | 1,606 |
| 164.00 | 3,484 | 2,615 | 4,221 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 160.00' | **24.0" Round Culvert X 2.00**<br>L= 40.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 160.00' / 159.50' S= 0.0125 '/' Cc= 0.900<br>n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf |
| #2 | Secondary | 163.50' | **58.0' long x 11.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60<br>Coef. (English) 2.53 2.59 2.70 2.68 2.67 2.68 2.66 2.64 |

**Primary OutFlow** Max=17.74 cfs @ 12.32 hrs HW=161.57' TW=160.12' (Dynamic Tailwater)
**1=Culvert** (Inlet Controls 17.74 cfs @ 3.36 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=160.00' TW=158.40' (Dynamic Tailwater)
**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Pond P-1F: 2 - 24 " Dia Culvert



## Summary for Pond RDF-1: Roof Dripline Filter #1

Inflow Area = 0.187 ac,100.00% Impervious, Inflow Depth = 4.56" for 25-Year event
Inflow = 0.91 cfs @ 12.07 hrs, Volume= 0.071 af
Outflow = 0.37 cfs @ 12.34 hrs, Volume= 0.071 af, Atten= 59%, Lag= 16.4 min
Primary = 0.37 cfs @ 12.34 hrs, Volume= 0.071 af
Routed to Reach 1D-R : Swale
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1D-R : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 157.95' @ 12.26 hrs Surf.Area= 952 sf Storage= 456 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 6.2 min ( 754.0 - 747.8 )

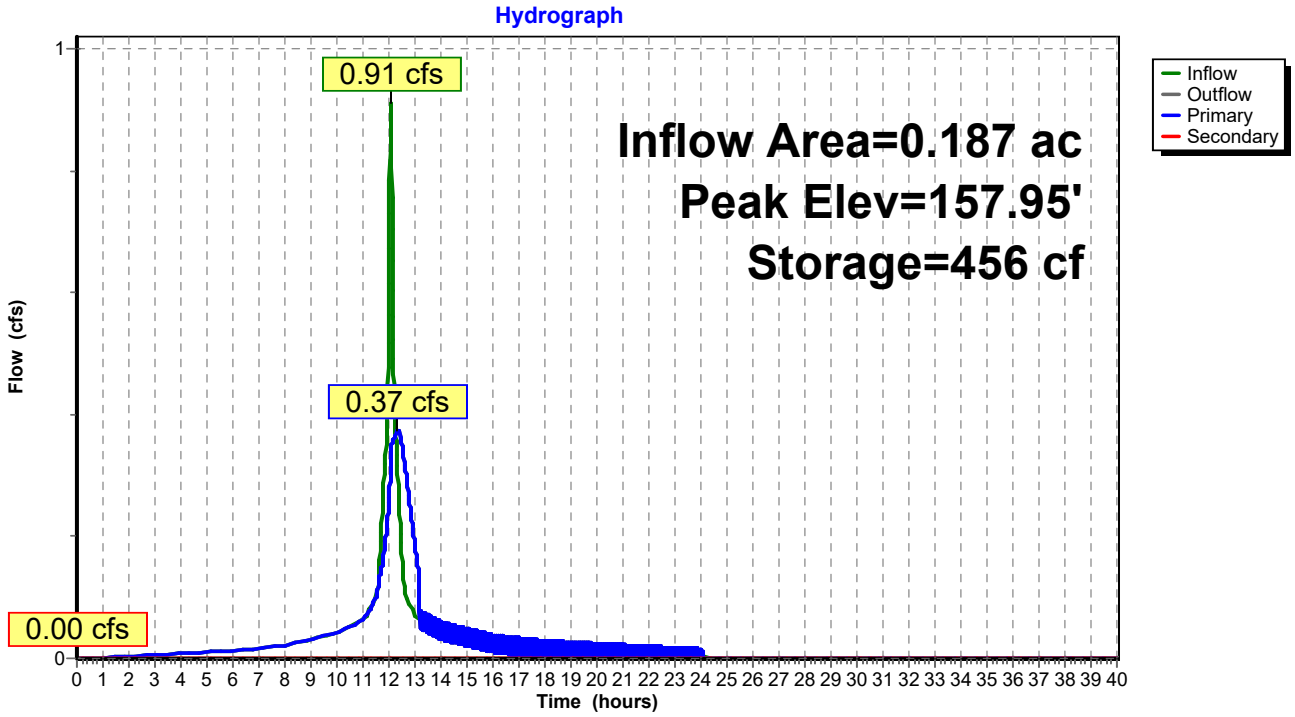
| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 156.75' | 857 cf | **4.00'W x 238.00'L x 2.25'H Coarse Gravel**<br>2,142 cf Overall x 40.0% Voids |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 156.42' | **4.0" Round Culvert**<br>L= 36.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 156.42' / 155.50' S= 0.0256 '/' Cc= 0.900<br>n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf |
| #2 | Secondary | 159.00' | **193.0' long x 4.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32 |

**Primary OutFlow** Max=0.37 cfs @ 12.34 hrs HW=157.91' TW=156.37' (Dynamic Tailwater)
**1=Culvert** (Outlet Controls 0.37 cfs @ 4.29 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=156.75' TW=155.50' (Dynamic Tailwater)
**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Pond RDF-1: Roof Dripline Filter #1



## Summary for Pond RDF-2: Roof Dripline Filter #2

Inflow Area = 0.069 ac,100.00% Impervious, Inflow Depth = 4.56" for 25-Year event
Inflow = 0.34 cfs @ 12.07 hrs, Volume= 0.026 af
Outflow = 0.24 cfs @ 12.14 hrs, Volume= 0.026 af, Atten= 28%, Lag= 4.2 min
Primary = 0.24 cfs @ 12.14 hrs, Volume= 0.026 af
Routed to Reach 1D-R : Swale
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1D-R : Swale

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 157.11' @ 12.14 hrs Surf.Area= 0.008 ac Storage= 0.001 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.7 min ( 748.5 - 747.8 )

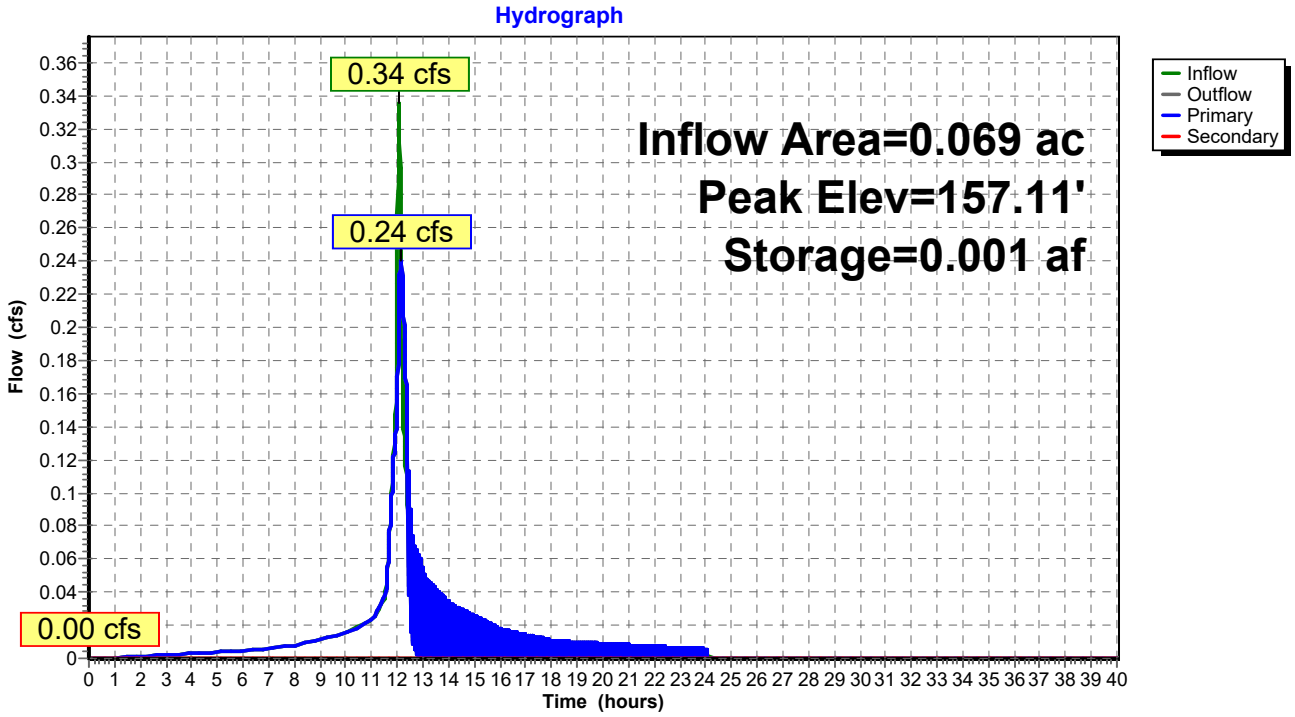
| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 156.75' | 0.008 af | **4.00'W x 92.00'L x 2.25'H Coarse Gravel**<br>0.019 af Overall x 40.0% Voids |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 156.42' | **4.0" Round Culvert**<br>L= 36.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 156.42' / 155.50' S= 0.0256 '/' Cc= 0.900<br>n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf |
| #2 | Secondary | 159.00' | **92.0' long x 4.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32 |

**Primary OutFlow** Max=0.24 cfs @ 12.14 hrs HW=157.11' TW=156.46' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.24 cfs @ 2.75 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=156.75' TW=155.50' (Dynamic Tailwater)
↑—**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Pond RDF-2: Roof Dripline Filter #2



## Summary for Pond RDF-3: Roof Dripline Filter #3

Inflow Area = 0.178 ac,100.00% Impervious, Inflow Depth = 4.56" for 25-Year event
Inflow = 0.87 cfs @ 12.07 hrs, Volume= 0.068 af
Outflow = 0.39 cfs @ 12.22 hrs, Volume= 0.068 af, Atten= 55%, Lag= 9.3 min
Primary = 0.39 cfs @ 12.22 hrs, Volume= 0.068 af
Routed to Pond P-1C : DMH#1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond P-1C : DMH#1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 162.39' @ 12.22 hrs Surf.Area= 0.019 ac Storage= 0.009 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 5.3 min ( 753.1 - 747.8 )

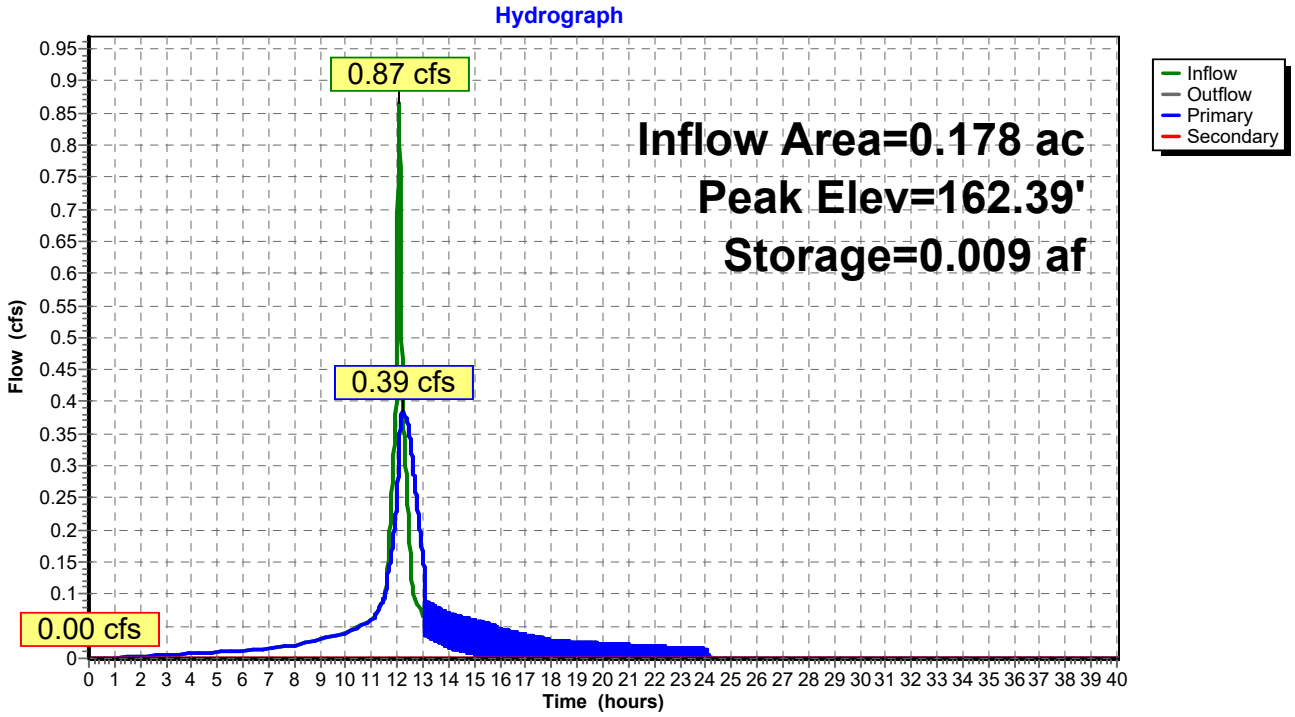
| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 161.20' | 0.015 af | **4.00'W x 208.00'L x 2.00'H Coarse Gravel**<br>0.038 af Overall x 40.0% Voids |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 160.87' | **4.0" Round Culvert**<br>L= 38.5' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 160.87' / 160.00' S= 0.0226 '/' Cc= 0.900<br>n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf |
| #2 | Secondary | 163.20' | **208.0' long x 4.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32 |

**Primary OutFlow** Max=0.39 cfs @ 12.22 hrs HW=162.39' TW=159.30' (Dynamic Tailwater)
**1=Culvert** (Inlet Controls 0.39 cfs @ 4.42 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=161.20' TW=157.90' (Dynamic Tailwater)
**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Pond RDF-3: Roof Dripline Filter #3



## Summary for Pond RDF-4: Roof Dripline Filter #4

Inflow Area = 0.061 ac,100.00% Impervious, Inflow Depth = 4.56" for 25-Year event
Inflow = 0.30 cfs @ 12.07 hrs, Volume= 0.023 af
Outflow = 0.35 cfs @ 12.45 hrs, Volume= 0.023 af, Atten= 0%, Lag= 23.0 min
Primary = 0.35 cfs @ 12.45 hrs, Volume= 0.023 af
Routed to Pond P-1D3 : FI#2
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond P-1D3 : FI#2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 162.71' @ 12.34 hrs Surf.Area= 0.005 ac Storage= 0.004 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 3.9 min ( 751.6 - 747.8 )

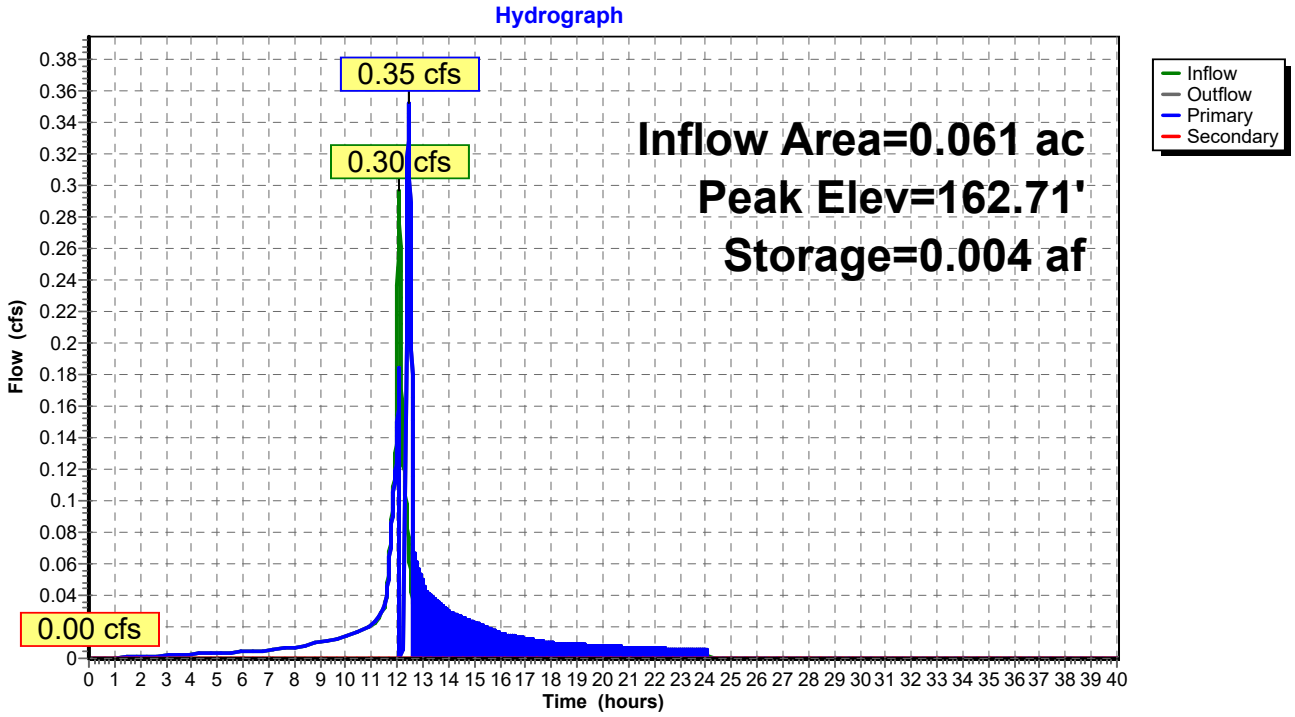
| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 160.45' | 0.005 af | **4.00'W x 54.00'L x 2.75'H Coarse Gravel**<br>0.014 af Overall x 40.0% Voids |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 160.12' | **4.0" Round Culvert**<br>L= 35.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 160.12' / 160.00' S= 0.0034 '/' Cc= 0.900<br>n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf |
| #2 | Secondary | 163.20' | **208.0' long x 4.0' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50<br>Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32 |

**Primary OutFlow** Max=0.36 cfs @ 12.45 hrs HW=161.74' TW=160.20' (Dynamic Tailwater)
**1=Culvert** (Barrel Controls 0.36 cfs @ 4.14 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=160.45' TW=158.50' (Dynamic Tailwater)
**2=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Pond RDF-4: Roof Dripline Filter #4

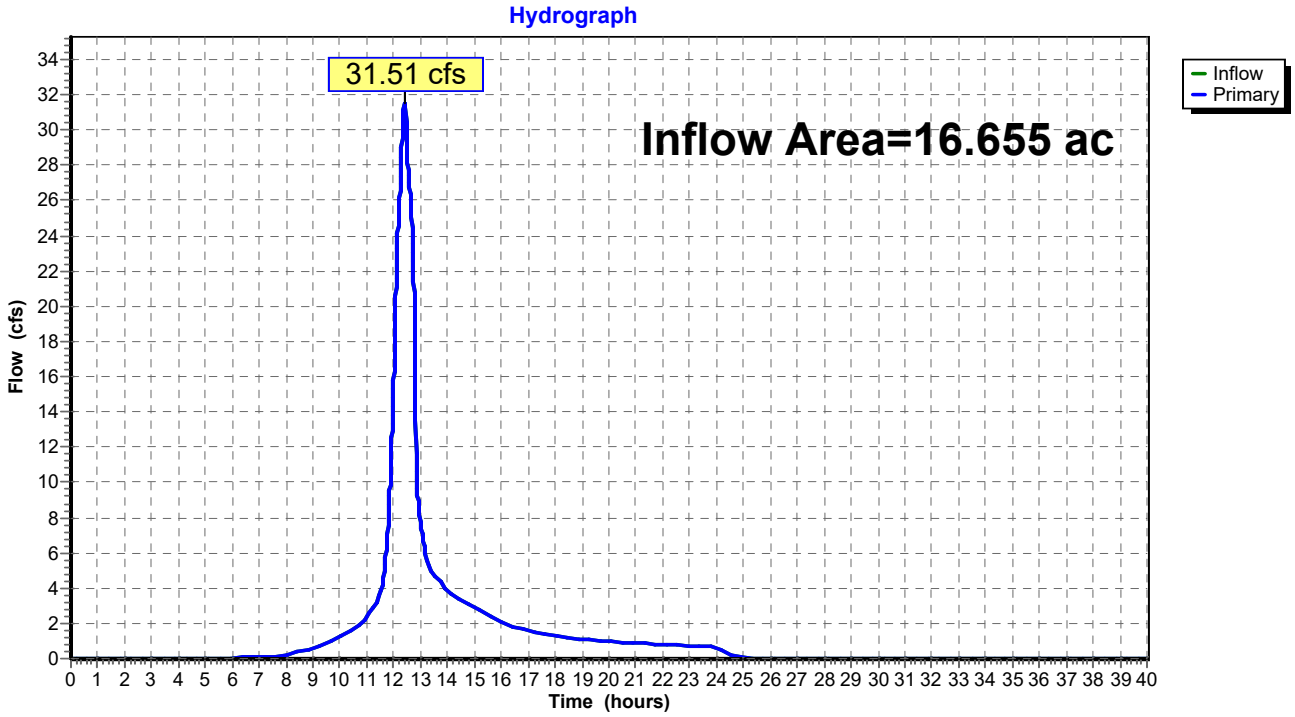


## Summary for Link AP-1:

Inflow Area = 16.655 ac, 19.31% Impervious, Inflow Depth > 3.06" for 25-Year event
Inflow = 31.51 cfs @ 12.39 hrs, Volume= 4.251 af
Primary = 31.51 cfs @ 12.39 hrs, Volume= 4.251 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

## Link AP-1:



# APPENDIX D

## REDEVELOPMENT AND STORMWATER SUMMARY AND BMP TREATMENT SIZING

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# REDEVELOPMENT TREATMENT LEVEL CALCULATIONS

**Project Name:** Bangor Housing Development Corporation -Yellen Pines
**Project Location:** 236 Maine Ave, Bangor, ME
**Project No:** 251269.01
**By:** AML
**Date:** 4/30/2026
**Checked By:** AJD
**Date:** 5/27/2026

**LISTING OF AREAS - EXISTING**

| Area | Pollutant Ranking | | | | | | Notes |
|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | |
| Pavement/Concrete | | | 1,972 | | | | Walkway |
| Landscaped/Trees | | 3,992 | | | | | |
| Gravel | | | | 1,110 | | | Driveway |
| Lawn | | | 76,339 | | | | Lawn |
| **Total** | **0** | **3,992** | **78,311** | **1,110** | **0** | **0** | **83,412 TOTAL** |

**LISTING OF AREAS - PROPOSED**

| Area | Pollutant Ranking | | | | | | Notes |
|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | |
| Corporate Drive Parking Lot Pavement | | | | 16,858 | | | Parking lot area |
| Walkways and Patio Areas | | | 2,818 | | | | Parking lot area |
| Building | | | 21,686 | | | | |
| Concrete Pads | | | | 425 | | | |
| Landscaping/Trees | | 7,881 | | | | | |
| Lawn | | | 32,566 | | | | |
| Stormwater Areas | | 1,179 | | | | | |
| **Total** | **0** | **9,059** | **57,070** | **17,283** | **0** | **0** | **83,412 TOTAL** |

**EXISTING POLLUTANT RANKING CALCULATIONS**

| Land Use Type (from MEDEP Chapter 500) | Area to be Redeveloped | Area to be Redeveloped | Pollutant Ranking | Total Score |
|---|---|---|---|---|
| High Use Parking Lots | 0 | 0.00 | 5 | 0.00 |
| Other Roads/Medium Use Parking Lots | 0 | 0.00 | 4 | 0.00 |
| Other Parking Lots/Driveways | 1,110 | 0.03 | 3 | 0.08 |
| Other Rooftop/Walking Paths/Lawn/Landscaped Area | 78,311 | 1.80 | 2 | 3.60 |
| Non-Grass Landscaped/ Stormwater Treatment System | 3,992 | 0.09 | 1 | 0.09 |
| Forest; Meadow mowed no more than twice per year | 0 | 0.00 | 0 | 0.00 |
| **Total** | **83412** | **1.91** | **EIR** | **3.76** |

**PROPOSED POLLUTANT RANKING CALCULATIONS**

| Land Use Type (from MEDEP Chapter 500) | Area to be Redeveloped | Area to be Redeveloped | Pollutant Ranking | Total Score |
|---|---|---|---|---|
| High Use Parking Lots | 0 | 0.00 | 5 | 0.00 |
| Other Roads/Medium Use Parking Lots | 0 | 0.00 | 4 | 0.00 |
| Other Parking Lots/Driveways | 17,283 | 0.40 | 3 | 1.19 |
| Other Rooftop/Walking Paths/Lawn/Landscaped Area | 57,070 | 1.31 | 2 | 2.62 |
| Non-Grass Landscaped/ Stormwater Treatment System | 9,059 | 0.21 | 1 | 0.21 |
| Forest; Meadow mowed no more than twice per year | 0 | 0.00 | 0 | 0.00 |
| **Total** | **83,412** | **1.91** | **PIR** | **4.02** |

| | |
|---|---|
| **EIR / Redeveloped Acres =** | **2.0** |
| **PIR / Redeveloped Acres =** | **2.1** |
| **Ranked Impact Change Due to Redevelopment =** | **0.1** |

**60% treatment is required per Table 3 of Chapter 500 = 50,047 sq ft (1.17 acres)**

| | |
|---|---|
| Total Redeveloped Area (from above table) = | 83,412 |
| Developed Area Treated = | **50,061** |

| | | |
|---|---|---|
| **Treatment Percentage Provided =** | **60.0%** | See Stormwater Master Plan Calculations |

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**STORMWATER BMP TREATMENT SUMMARY**

**Project Name:** Bangor Housing Development Corporation - Yellen Pines
**Project Location:** 236 Maine Ave, Bangor, ME
**Project No:** 251269.01
**By:** AML
**Date:** 4/30/2026
**Checked By:** AJD
**Date:** 5/27/2026

## STORMWATER BMP TREATMENT SUMMARY

| | Treated Impervious Area (sf) | Treated Landscaped Area (sf) | Treated Developed Area (sf) | Subcatchment ID |
|---|---|---|---|---|
| *Roof Dripline Filter 1* | 8,150 | 0 | 8,150 | SC-1C1 |
| *Roof Dripline Filter 2* | 3,005 | 0 | 3,005 | SC-1D1 |
| *Roof Dripline Filter 3* | 7,751 | 0 | 7,751 | SC-1C2 |
| *Roof Dripline Filter 4* | 2,657 | 0 | 2,657 | SC-1D2 |
| *Underdrained Soil filter* | 15,525 | 12,973 | 28,498 | SC-1A, SC-1A1 & SC-1A2 |
| **Proposed Treatment Area (sf)** | **37,088** | **12,973** | **50,061** | |
| **Proposed Treatment Area (ac)** | **0.85** | **0.30** | **1.15** | |

| | |
|---|---|
| **Total Impervious Area Treated** | **88.8%** |
| **Total Developed Area Treated** | **60.02%** |

## TREATMENT SUMMARY FOR REDEVELOPMENT

| | Total Project Redevelopment Areas | Required Treatment Area (60%) | Total Area Treated (SF) |
|---|---|---|---|
| **Impervious Area (SF)** | 41,787 | | 50,061 |
| **Landscaped Area (SF)** | 41,625 | | |
| **Redeveloped Area (SF)** | 83,412 | **50,047** | |
| **Percent of Total Redeveloped Area Treated** | | | **60.0%** |

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# STORMWATER TREATMENT SIZING CALCULATIONS

**Project Name:** Bangor Housing Development Corporation - Yellen Pines
**Project Location:** 236 Maine Ave, Bangor, ME
**Project No:** 251269.01
**By:** AML
**Date:** 4/30/2026
**Checked By:** AJD
**Date:** 5/27/2026

**Stormwater Treatment: Underdrained Soil Filter #1** Parking Area and Landscaped area

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | DEVELOPED AREA | = | 28,498 | sf | |
| | | | | IMPERVIOUS AREAS CAPTURED | = | 15525 | sf | |
| | | | | NON-IMPERVIOUS AREAS CAPTURED | = | 12,973 | sf | |
| | | | | TOTAL AREA CAPTURED | = | 28,498 | sf | |
| | | | | REQUIRED TREATMENT VOLUME | | | | |
| (1"/12") | 14,928 | + | (0.4"/12") | 12,973 | = | 1,676 | cf | 2,317 cf provided |
| | | | | CHANNEL PROTECTION VOLUME (DEPTH) | = | 1.5 | ft | 1.5 ft provided |
| | | | | REQUIRED FILTER SURFACE AREA | | | | |
| (0.05) | 14,928 | + | (0.2) | 12,973 | = | 1,006 | sf | 1,179 sf provided |
| | | | | SEDIMENT TRAP VOLUME | | | | |
| (10.00) | 0.356 | (500 lbs per acre-storm) : ( 90 lb /ft$^3$ ) | | | = | 20 | cf | |
| | | | | CUMULATIVE STORAGE | = | 3,384 | cf | |
| | | | | FLOW AT UNDERDRAIN OUTLET | = | 0.04 | cfs | |
| | | | | DRAIN TIME | | | | |
| 3384 | cf | / | 0.04 | / 3,600 | = | 24 | hours | |

**Stormwater Treatment: Roof Dripline Filter #1** Southwest Side of Building

| | | | |
|---|---|---|---|
| ROOF AREAS CAPTURED | = | 8,150 | sf |
| GRASS AREAS CAPTURED | = | N/A | |
| MINIMUM STORAGE VOLUME | | | |
| 1 inch x Impervious Area | = | 679 | cf |
| PROPOSED FILTER SIZE | = | 4 feet wide by 2.25 feet deep by 238 feet long (with 40% voids in stone) | |
| Storage Volume Provided | = | 857 | cf |

**Stormwater Treatment: Roof Dripline Filter #2** Northwest Side of Building

| | | | |
|---|---|---|---|
| ROOF AREAS CAPTURED | = | 3,005 | sf |
| GRASS AREAS CAPTURED | = | N/A | |
| MINIMUM STORAGE VOLUME | | | |
| 1 inch x Impervious Area | = | 250 | cf |
| PROPOSED FILTER SIZE | = | 4 feet wide by 2.25 feet deep by 92 feet long (with 40% voids in stone) | |

| | | |
|---|---|---|
| ACTUAL VOLUME PROPOSED | = | 331 cf |

**Stormwater Treatment: Roof Dripline Filter #3** Southeast Side of Building

| | | |
|---|---|---|
| ROOF AREAS CAPTURED | = | 7,751 sf |
| GRASS AREAS CAPTURED | = | N/A |
| MINIMUM STORAGE VOLUME | | |
| 1 inch x Impervious Area | = | 646 cf |
| PROPOSED FILTER SIZE | = | 4 feet wide by 2 feet deep by 208 feet long (with 40% voids in stone) |
| ACTUAL VOLUME PROPOSED | = | 665.6 cf |

**Stormwater Treatment: Roof Dripline Filter #4** Northeast Side of Building

| | | |
|---|---|---|
| ROOF AREAS CAPTURED | = | 2,657 sf |
| GRASS AREAS CAPTURED | = | N/A |
| MINIMUM STORAGE VOLUME | | |
| 1 inch x Impervious Area | = | 221 cf |
| PROPOSED FILTER SIZE | = | 4 feet wide by 2.75 feet deep by 54 feet long (with 40% voids in stone) |
| Storage Volume Provided | = | 237.6 cf |

# APPENDIX D

# REDEVELOPMENT AND STORMWATER SUMMARY AND BMP TREATMENT SIZING

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# REDEVELOPMENT TREATMENT LEVEL CALCULATIONS

**Project Name:** Bangor Housing Development Corporation -Yellen Pines
**Project Location:** 236 Maine Ave, Bangor, ME
**Project No:** 251269.01
**By:** AML
**Date:** 4/30/2026
**Checked By:** AJD
**Date:** 5/27/2026

| LISTING OF AREAS - EXISTING | | | | | | | |
|---|---|---|---|---|---|---|---|
| Area | Pollutant Ranking | | | | | | Notes |
| | 0 | 1 | 2 | 3 | 4 | 5 | |
| Pavement/Concrete | | | 1,972 | | | | Walkway |
| Landscaped/Trees | | 3,992 | | | | | |
| Gravel | | | | 1,110 | | | Driveway |
| Lawn | | | 76,339 | | | | Lawn |
| **Total** | **0** | **3,992** | **78,311** | **1,110** | **0** | **0** | **83,412 TOTAL** |

| LISTING OF AREAS - PROPOSED | | | | | | | |
|---|---|---|---|---|---|---|---|
| Area | Pollutant Ranking | | | | | | Notes |
| | 0 | 1 | 2 | 3 | 4 | 5 | |
| Corporate Drive Parking Lot Pavement | | | | 16,858 | | | Parking lot area |
| Walkways and Patio Areas | | | 2,818 | | | | Parking lot area |
| Building | | | 21,686 | | | | |
| Concrete Pads | | | | 425 | | | |
| Landscaping/Trees | | 7,881 | | | | | |
| Lawn | | | 32,566 | | | | |
| Stormwater Areas | | 1,179 | | | | | |
| **Total** | **0** | **9,059** | **57,070** | **17,283** | **0** | **0** | **83,412 TOTAL** |

| EXISTING POLLUTANT RANKING CALCULATIONS | | | | |
|---|---|---|---|---|
| **Land Use Type (from MEDEP Chapter 500)** | **Area to be Redeveloped** | **Area to be Redeveloped** | **Pollutant Ranking** | **Total Score** |
| High Use Parking Lots | 0 | 0.00 | 5 | 0.00 |
| Other Roads/Medium Use Parking Lots | 0 | 0.00 | 4 | 0.00 |
| Other Parking Lots/Driveways | 1,110 | 0.03 | 3 | 0.08 |
| Other Rooftop/Walking Paths/Lawn/Landscaped Area | 78,311 | 1.80 | 2 | 3.60 |
| Non-Grass Landscaped/ Stormwater Treatment System | 3,992 | 0.09 | 1 | 0.09 |
| Forest; Meadow mowed no more than twice per year | 0 | 0.00 | 0 | 0.00 |
| **Total** | **83412** | **1.91** | **EIR** | **3.76** |

| PROPOSED POLLUTANT RANKING CALCULATIONS | | | | |
|---|---|---|---|---|
| **Land Use Type (from MEDEP Chapter 500)** | **Area to be Redeveloped** | **Area to be Redeveloped** | **Pollutant Ranking** | **Total Score** |
| High Use Parking Lots | 0 | 0.00 | 5 | 0.00 |
| Other Roads/Medium Use Parking Lots | 0 | 0.00 | 4 | 0.00 |
| Other Parking Lots/Driveways | 17,283 | 0.40 | 3 | 1.19 |
| Other Rooftop/Walking Paths/Lawn/Landscaped Area | 57,070 | 1.31 | 2 | 2.62 |
| Non-Grass Landscaped/ Stormwater Treatment System | 9,059 | 0.21 | 1 | 0.21 |
| Forest; Meadow mowed no more than twice per year | 0 | 0.00 | 0 | 0.00 |
| **Total** | **83,412** | **1.91** | **PIR** | **4.02** |

| | |
|---|---|
| **EIR / Redeveloped Acres =** | **2.0** |
| **PIR / Redeveloped Acres =** | **2.1** |
| **Ranked Impact Change Due to Redevelopment =** | **0.1** |

**60% treatment is required per Table 3 of Chapter 500 = 50,047 sq ft (1.17 acres)**

| | |
|---|---|
| Total Redeveloped Area (from above table) = | 83,412 |
| Developed Area Treated = | **50,061** |

| | | |
|---|---|---|
| **Treatment Percentage Provided =** | **60.0%** | See Stormwater Master Plan Calculations |

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**STORMWATER BMP TREATMENT SUMMARY**

**Project Name:** Bangor Housing Development Corporation - Yellen Pines
**Project Location:** 236 Maine Ave, Bangor, ME
**Project No:** 251269.01
**By:** AML
**Date:** 4/30/2026
**Checked By:** AJD
**Date:** 5/27/2026

## STORMWATER BMP TREATMENT SUMMARY

| | Treated Impervious Area (sf) | Treated Landscaped Area (sf) | Treated Developed Area (sf) | Subcatchment ID |
|---|---|---|---|---|
| *Roof Dripline Filter 1* | 8,150 | 0 | 8,150 | SC-1C1 |
| *Roof Dripline Filter 2* | 3,005 | 0 | 3,005 | SC-1D1 |
| *Roof Dripline Filter 3* | 7,751 | 0 | 7,751 | SC-1C2 |
| *Roof Dripline Filter 4* | 2,657 | 0 | 2,657 | SC-1D2 |
| *Underdrained Soil filter* | 15,525 | 12,973 | 28,498 | SC-1A, SC-1A1 & SC-1A2 |
| **Proposed Treatment Area (sf)** | **37,088** | **12,973** | **50,061** | |
| **Proposed Treatment Area (ac)** | **0.85** | **0.30** | **1.15** | |

| | |
|---|---|
| **Total Impervious Area Treated** | **88.8%** |
| **Total Developed Area Treated** | **60.02%** |

## TREATMENT SUMMARY FOR REDEVELOPMENT

| | Total Project Redevelopment Areas | Required Treatment Area (60%) | Total Area Treated (SF) |
|---|---|---|---|
| **Impervious Area (SF)** | 41,787 | | 50,061 |
| **Landscaped Area (SF)** | 41,625 | | |
| **Redeveloped Area (SF)** | 83,412 | **50,047** | |
| **Percent of Total Redeveloped Area Treated** | | | **60.0%** |

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# STORMWATER TREATMENT SIZING CALCULATIONS

**Project Name:** Bangor Housing Development Corporation - Yellen Pines
**Project Location:** 236 Maine Ave, Bangor, ME
**Project No:** 251269.01
**By:** AML
**Date:** 4/30/2026
**Checked By:** AJD
**Date:** 5/27/2026

**Stormwater Treatment: Underdrained Soil Filter #1** Parking Area and Landscaped area

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | DEVELOPED AREA | = | 28,498 | sf | |
| | | | | IMPERVIOUS AREAS CAPTURED | = | 15525 | sf | |
| | | | | NON-IMPERVIOUS AREAS CAPTURED | = | 12,973 | sf | |
| | | | | TOTAL AREA CAPTURED | = | 28,498 | sf | |
| | | | | REQUIRED TREATMENT VOLUME | | | | |
| (1"/12") | 14,928 | + | (0.4"/12") | 12,973 | = | 1,676 | cf | 2,317 cf provided |
| | | | | CHANNEL PROTECTION VOLUME (DEPTH) | = | 1.5 | ft | 1.5 ft provided |
| | | | | REQUIRED FILTER SURFACE AREA | | | | |
| (0.05) | 14,928 | + | (0.2) | 12,973 | = | 1,006 | sf | 1,179 sf provided |
| | | | | SEDIMENT TRAP VOLUME | | | | |
| (10.00) | 0.356 | (500 lbs per acre-storm) : ( 90 lb /ft$^3$ ) | | | = | 20 | cf | |
| | | | | CUMULATIVE STORAGE | = | 3,384 | cf | |
| | | | | FLOW AT UNDERDRAIN OUTLET | = | 0.04 | cfs | |
| | | | | DRAIN TIME | | | | |
| 3384 | cf | / | 0.04 | / 3,600 | = | 24 | hours | |

**Stormwater Treatment: Roof Dripline Filter #1** Southwest Side of Building

| | | | |
|---|---|---|---|
| ROOF AREAS CAPTURED | = | 8,150 | sf |
| GRASS AREAS CAPTURED | = | N/A | |
| MINIMUM STORAGE VOLUME | | | |
| 1 inch x Impervious Area | = | 679 | cf |
| PROPOSED FILTER SIZE | = | 4 feet wide by 2.25 feet deep by 238 feet long (with 40% voids in stone) | |
| Storage Volume Provided | = | 857 | cf |

**Stormwater Treatment: Roof Dripline Filter #2** Northwest Side of Building

| | | | |
|---|---|---|---|
| ROOF AREAS CAPTURED | = | 3,005 | sf |
| GRASS AREAS CAPTURED | = | N/A | |
| MINIMUM STORAGE VOLUME | | | |
| 1 inch x Impervious Area | = | 250 | cf |
| PROPOSED FILTER SIZE | = | 4 feet wide by 2.25 feet deep by 92 feet long (with 40% voids in stone) | |

| | | |
|---|---|---|
| ACTUAL VOLUME PROPOSED | = | 331 cf |

| | | |
|---|---|---|
| **Stormwater Treatment: Roof Dripline Filter #3** | | Southeast Side of Building |
| ROOF AREAS CAPTURED | = | 7,751 sf |
| GRASS AREAS CAPTURED | = | N/A |
| MINIMUM STORAGE VOLUME | | |
| 1 inch x Impervious Area | = | 646 cf |
| PROPOSED FILTER SIZE | = | 4 feet wide by 2 feet deep by 208 feet long (with 40% voids in stone) |
| ACTUAL VOLUME PROPOSED | = | 665.6 cf |

| | | |
|---|---|---|
| **Stormwater Treatment: Roof Dripline Filter #4** | | Northeast Side of Building |
| ROOF AREAS CAPTURED | = | 2,657 sf |
| GRASS AREAS CAPTURED | = | N/A |
| MINIMUM STORAGE VOLUME | | |
| 1 inch x Impervious Area | = | 221 cf |
| PROPOSED FILTER SIZE | = | 4 feet wide by 2.75 feet deep by 54 feet long (with 40% voids in stone) |
| Storage Volume Provided | = | 237.6 cf |

SME
SEVEE & MAHER
ENGINEERS

4 Blanchard Road, P.O. Box 85A
Cumberland, ME 04021
Tel: 207.829.5016 • Fax: 207.829.5692
info@smemaine.com
smemaine.com

February 10, 2026

Jefferson Davis
City of Bangor Engineering Department – Sewer
73 Harlow Street
Bangor, ME 04401

Subject: Bangor Housing Development Corporation
Home for Good Bangor
236 Maine Avenue, Bangor, Maine

Dear Jefferson:

On behalf of Bangor Housing Development Corporation (BHDC), Sevee & Maher Engineers, Inc. (SME) is requesting a letter from the Bangor Engineering Department (BED) to outline sewer capacity to serve the thirty (30)-unit rehabilitation apartment building at 236 Maine Avenue in Bangor, Maine.

BHDC is proposing to build a new 19,500-square-foot, thirty (30)-unit rehabilitation apartment building to be served by the new 6-inch public sewer service in Maine Avenue. The building is anticipated to have a maximum of thirty (30) single-bedroom units and nine (9) employees. We anticipate the daily sewer demand to be approximately 3,708 gallons per day.

Please contact me at 207.829.5016 or Anna.Dedon@smemaine.com if you have any questions or need additional information regarding this project. Thank you in advance for your attention to this matter.

Very truly yours,

SEVEE & MAHER ENGINEERS, INC.

Anna Dedon, P.E.
Civil Engineer

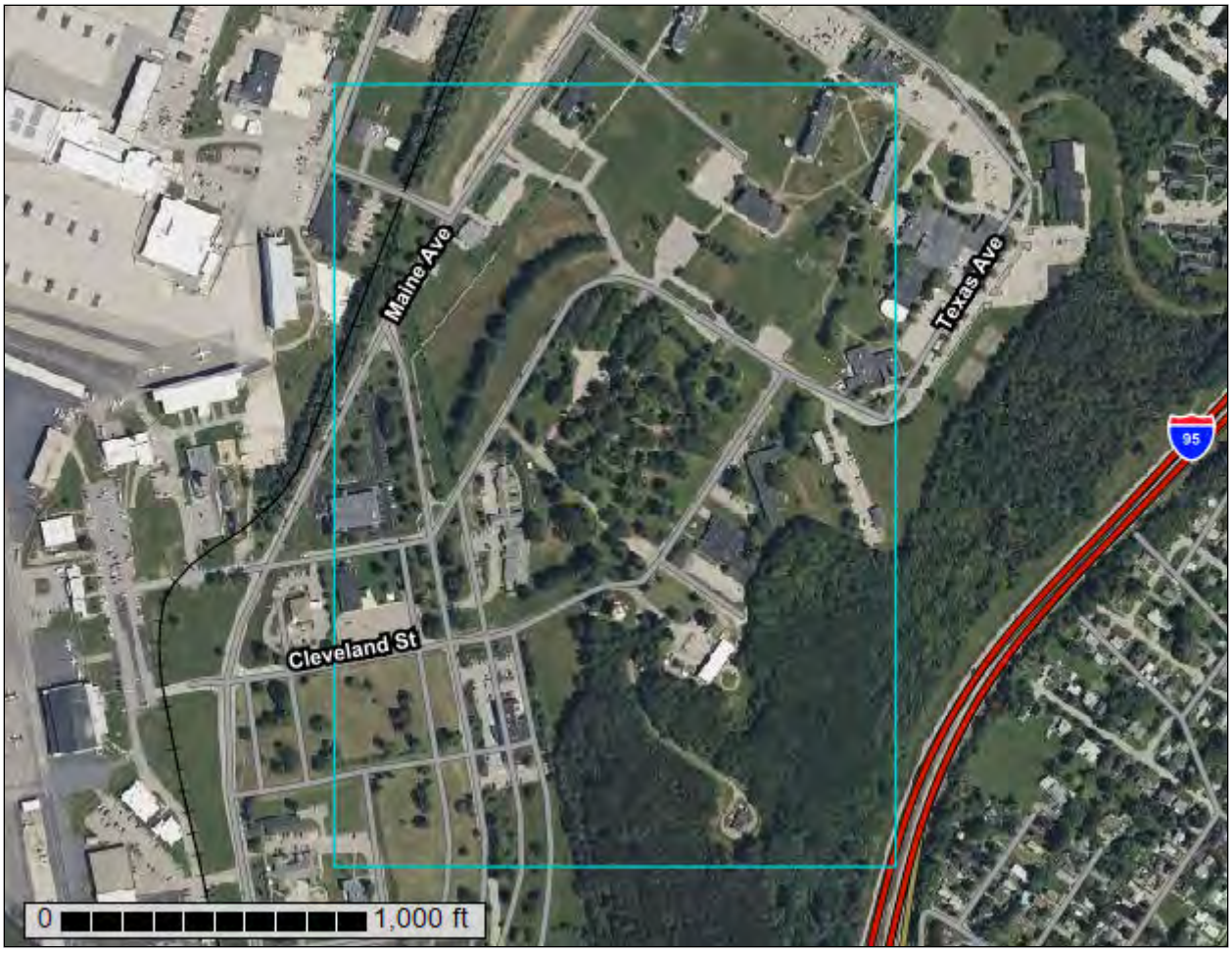
United States Department of Agriculture

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 Penobscot County, Maine, Southern Part




January 21, 2026

# Preface

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

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

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

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

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

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

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# How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

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

# Soil Map

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

# Custom Soil Resource Report
## Soil Map




Map Scale: 1:4,560 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 200 400 800 1200

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: Penobscot County, Maine, Southern Part
Survey Area Data: Version 11, Aug 29, 2025

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

Date(s) aerial images were photographed: Jul 11, 2021—Oct 29, 2021

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 |
|---|---|---|---|
| CTB | Telos-Chesuncook complex, 0 to 8 percent slopes, very stony | 22.0 | 20.3% |
| CuB | Chesuncook-Telos-Urban land association, 0 to 8 percent slopes | 0.4 | 0.3% |
| ElB | Elliottsville-Chesuncook association, 3 to 8 percent slopes, very stony | 11.5 | 10.6% |
| PuB | Pushaw-Swanville-Urban land association, 0 to 8 percent slopes | 49.4 | 45.6% |
| SvA | Swanville silt loam, 0 to 3 percent slopes | 2.2 | 2.0% |
| TcC | Chesuncook-Telos complex, 8 to 15 percent slopes, very stony | 22.2 | 20.5% |
| UrB | Urban land-Anthroportic Udorthents complex, 0 to 8 percent slopes | 0.7 | 0.6% |
| **Totals for Area of Interest** | | **108.4** | **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.

# Penobscot County, Maine, Southern Part

## CTB—Telos-Chesuncook complex, 0 to 8 percent slopes, very stony

### Map Unit Setting

*National map unit symbol:* 1ls99
*Elevation:* 50 to 750 feet
*Mean annual precipitation:* 39 to 45 inches
*Mean annual air temperature:* 42 to 45 degrees F
*Frost-free period:* 115 to 155 days
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Telos and similar soils:* 45 percent
*Chesuncook and similar soils:* 40 percent
*Minor components:* 6 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Telos

#### Setting

*Landform:* Ground moraines
*Landform position (two-dimensional):* Backslope, footslope
*Landform position (three-dimensional):* Side slope, base slope
*Down-slope shape:* Linear
*Across-slope shape:* Concave
*Parent material:* Loamy lodgment till

#### Typical profile

*Oa - 0 to 3 inches:* highly decomposed plant material
*E - 3 to 5 inches:* silt loam
*Bs - 5 to 11 inches:* silt loam
*BC - 11 to 16 inches:* gravelly loam
*Cd - 16 to 65 inches:* gravelly loam

#### Properties and qualities

*Slope:* 0 to 6 percent
*Surface area covered with cobbles, stones or boulders:* 1.5 percent
*Depth to restrictive feature:* 14 to 23 inches to densic material
*Drainage class:* Somewhat poorly drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low (0.01 to 0.14 in/hr)
*Depth to water table:* About 6 to 20 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)
*Available water supply, 0 to 60 inches:* Low (about 3.5 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 6s
*Hydrologic Soil Group:* D
*Ecological site:* F144BY501ME - Loamy Slope (Northern Hardwoods), F144BY503ME - Loamy Flat
*Hydric soil rating:* No

### Description of Chesuncook

#### Setting

*Landform:* Ground moraines
*Landform position (two-dimensional):* Backslope, footslope
*Landform position (three-dimensional):* Side slope, base slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Coarse-loamy lodgment till

#### Typical profile

*Oe - 0 to 2 inches:* moderately decomposed plant material
*E - 2 to 5 inches:* silt loam
*Bs - 5 to 18 inches:* gravelly silt loam
*BC - 18 to 24 inches:* cobbly silt loam
*Cd - 24 to 65 inches:* cobbly loam

#### Properties and qualities

*Slope:* 3 to 8 percent
*Surface area covered with cobbles, stones or boulders:* 1.5 percent
*Depth to restrictive feature:* 21 to 31 inches to densic material
*Drainage class:* Moderately well drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low (0.01 to 0.14 in/hr)
*Depth to water table:* About 16 to 28 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 5.0 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 6s
*Hydrologic Soil Group:* C/D
*Ecological site:* F144BY501ME - Loamy Slope (Northern Hardwoods)
*Hydric soil rating:* No

### Minor Components

#### Monarda

*Percent of map unit:* 6 percent
*Landform:* Ground moraines
*Landform position (two-dimensional):* Backslope, footslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Concave
*Hydric soil rating:* Yes

## CuB—Chesuncook-Telos-Urban land association, 0 to 8 percent slopes

### Map Unit Setting

*National map unit symbol:* 2lfb7
*Elevation:* 50 to 750 feet
*Mean annual precipitation:* 39 to 45 inches
*Mean annual air temperature:* 42 to 45 degrees F
*Frost-free period:* 115 to 155 days
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Chesuncook and similar soils:* 45 percent
*Telos and similar soils:* 25 percent
*Urban land:* 15 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Chesuncook

#### Setting

*Landform:* Ground moraines
*Landform position (two-dimensional):* Backslope, footslope
*Landform position (three-dimensional):* Side slope, base slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Coarse-loamy lodgment till

#### Typical profile

*Ap - 0 to 10 inches:* silt loam
*Bs - 10 to 17 inches:* silt loam
*BC - 17 to 24 inches:* gravelly silt loam
*Cd - 24 to 65 inches:* gravelly loam

#### Properties and qualities

*Slope:* 3 to 8 percent
*Depth to restrictive feature:* 20 to 29 inches to densic material
*Drainage class:* Moderately well drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low (0.01 to 0.14 in/hr)
*Depth to water table:* About 16 to 28 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 4.5 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 2w
*Hydrologic Soil Group:* C/D
*Ecological site:* F144BY501ME - Loamy Slope (Northern Hardwoods)

*Hydric soil rating:* No

### Description of Telos

#### Setting

*Landform:* Ground moraines
*Landform position (two-dimensional):* Footslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Concave
*Parent material:* Loamy lodgment till

#### Typical profile

*Ap - 0 to 7 inches:* silt loam
*Bs - 7 to 11 inches:* silt loam
*BC - 11 to 15 inches:* silt loam
*Cd - 15 to 65 inches:* loam

#### Properties and qualities

*Slope:* 2 to 8 percent
*Depth to restrictive feature:* 13 to 19 inches to densic material
*Drainage class:* Somewhat poorly drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low (0.01 to 0.14 in/hr)
*Depth to water table:* About 6 to 20 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)
*Available water supply, 0 to 60 inches:* Low (about 3.1 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 3w
*Hydrologic Soil Group:* D
*Ecological site:* F144BY501ME - Loamy Slope (Northern Hardwoods), F144BY503ME - Loamy Flat
*Hydric soil rating:* No

### Description of Urban Land

#### Setting

*Landform:* Ground moraines
*Landform position (two-dimensional):* Summit, backslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 8s
*Hydric soil rating:* Unranked

## ElB—Elliottsville-Chesuncook association, 3 to 8 percent slopes, very stony

### Map Unit Setting

*National map unit symbol:* 2p9q8
*Elevation:* 50 to 750 feet
*Mean annual precipitation:* 39 to 45 inches
*Mean annual air temperature:* 42 to 45 degrees F
*Frost-free period:* 115 to 155 days
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Elliottsville and similar soils:* 45 percent
*Chesuncook and similar soils:* 40 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Elliottsville

#### Setting

*Landform:* Ground moraines
*Landform position (two-dimensional):* Footslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Convex
*Across-slope shape:* Linear
*Parent material:* Coarse-loamy subglacial till

#### Typical profile

*Oa - 0 to 2 inches:* highly decomposed plant material
*E - 2 to 5 inches:* silt loam
*Bs - 5 to 14 inches:* silt loam
*BC - 14 to 23 inches:* silt loam
*C - 23 to 30 inches:* gravelly silt loam
*R - 30 to 79 inches:* bedrock

#### Properties and qualities

*Slope:* 3 to 8 percent
*Surface area covered with cobbles, stones or boulders:* 1.5 percent
*Depth to restrictive feature:* 21 to 43 inches to lithic bedrock
*Drainage class:* Well drained
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to low (0.00 to 0.01 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)
*Available water supply, 0 to 60 inches:* Moderate (about 6.6 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 6s
*Hydrologic Soil Group:* C
*Ecological site:* F144BY501ME - Loamy Slope (Northern Hardwoods), F144BY702ME - Shallow and Moderately-deep Till
*Hydric soil rating:* No

**Description of Chesuncook**

**Setting**

*Landform:* Ground moraines
*Landform position (two-dimensional):* Footslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Coarse-loamy lodgment till

**Typical profile**

*Oe - 0 to 2 inches:* moderately decomposed plant material
*E - 2 to 5 inches:* silt loam
*Bs - 5 to 18 inches:* gravelly silt loam
*BC - 18 to 24 inches:* cobbly silt loam
*Cd - 24 to 65 inches:* cobbly loam

**Properties and qualities**

*Slope:* 3 to 8 percent
*Surface area covered with cobbles, stones or boulders:* 1.5 percent
*Depth to restrictive feature:* 21 to 31 inches to densic material
*Drainage class:* Moderately well drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low (0.01 to 0.14 in/hr)
*Depth to water table:* About 16 to 28 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 5.0 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 6s
*Hydrologic Soil Group:* C/D
*Ecological site:* F144BY501ME - Loamy Slope (Northern Hardwoods)
*Hydric soil rating:* No

## PuB—Pushaw-Swanville-Urban land association, 0 to 8 percent slopes

**Map Unit Setting**

*National map unit symbol:* 1ls77
*Elevation:* 20 to 300 feet

*Mean annual precipitation:* 39 to 45 inches
*Mean annual air temperature:* 42 to 45 degrees F
*Frost-free period:* 115 to 155 days
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Pushaw and similar soils:* 35 percent
*Swanville and similar soils:* 30 percent
*Urban land:* 20 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Pushaw**

**Setting**

*Landform:* River valleys, marine terraces
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Base slope, side slope, rise
*Down-slope shape:* Linear
*Across-slope shape:* Convex
*Parent material:* Fine-silty glaciomarine deposits

**Typical profile**

*Ap - 0 to 7 inches:* silt loam
*Bw - 7 to 15 inches:* silt loam
*BCg - 15 to 18 inches:* silt loam
*C - 18 to 65 inches:* silty clay loam

**Properties and qualities**

*Slope:* 3 to 8 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Somewhat poorly drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low (0.01 to 0.14 in/hr)
*Depth to water table:* About 6 to 17 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)
*Available water supply, 0 to 60 inches:* High (about 9.7 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 2w
*Hydrologic Soil Group:* C/D
*Ecological site:* F144BY401ME - Clay Flat
*Hydric soil rating:* No

**Description of Swanville**

**Setting**

*Landform:* River valleys, marine terraces
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Talf
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Fine-silty glaciomarine deposits

**Typical profile**

*Ap - 0 to 6 inches:* silt loam
*Bg - 6 to 18 inches:* silt loam
*BCg - 18 to 24 inches:* silt loam
*C - 24 to 65 inches:* silty clay loam

**Properties and qualities**

*Slope:* 0 to 5 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Poorly drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low (0.01 to 0.14 in/hr)
*Depth to water table:* About 0 to 12 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)
*Available water supply, 0 to 60 inches:* High (about 10.2 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 4w
*Hydrologic Soil Group:* D
*Ecological site:* F144BY001ME - Marine Terrace Flat, F144BY304ME - Wet Clay Flat, F144BY401ME - Clay Flat
*Hydric soil rating:* Yes

**Description of Urban Land**

**Setting**

*Landform:* — error in exists on —
*Landform position (two-dimensional):* Summit, backslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 8s
*Hydric soil rating:* Unranked

## SvA—Swanville silt loam, 0 to 3 percent slopes

**Map Unit Setting**

*National map unit symbol:* svyb
*Elevation:* 20 to 300 feet
*Mean annual precipitation:* 39 to 45 inches
*Mean annual air temperature:* 42 to 45 degrees F
*Frost-free period:* 115 to 155 days
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Swanville and similar soils:* 80 percent
*Minor components:* 5 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Swanville**

**Setting**

*Landform:* Marine terraces, lakebeds (relict)
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Talf
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Fine-silty glaciomarine deposits

**Typical profile**

*Ap - 0 to 6 inches:* silt loam
*Bg - 6 to 18 inches:* silt loam
*BCg - 18 to 24 inches:* silt loam
*C - 24 to 65 inches:* silty clay loam

**Properties and qualities**

*Slope:* 0 to 3 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Poorly drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low (0.01 to 0.14 in/hr)
*Depth to water table:* About 0 to 12 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)
*Available water supply, 0 to 60 inches:* High (about 10.2 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 4w
*Hydrologic Soil Group:* D
*Ecological site:* F144BY001ME - Marine Terrace Flat, F144BY304ME - Wet Clay Flat, F144BY305ME - Wet Loamy Flat
*Hydric soil rating:* Yes

**Minor Components**

**Biddeford**

*Percent of map unit:* 5 percent
*Landform:* Lakebeds (relict), marine terraces
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Dip
*Down-slope shape:* Linear
*Across-slope shape:* Concave
*Ecological site:* F144BY002ME - Marine Terrace Depression
*Hydric soil rating:* Yes

## TcC—Chesuncook-Telos complex, 8 to 15 percent slopes, very stony

### Map Unit Setting

*National map unit symbol:* 1ls4z
*Elevation:* 50 to 900 feet
*Mean annual precipitation:* 39 to 45 inches
*Mean annual air temperature:* 42 to 45 degrees F
*Frost-free period:* 115 to 155 days
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Chesuncook and similar soils:* 45 percent
*Telos and similar soils:* 40 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Chesuncook

#### Setting

*Landform:* Drumlinoid ridges
*Landform position (two-dimensional):* Backslope
*Landform position (three-dimensional):* Side slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Coarse-loamy lodgment till

#### Typical profile

*Oe - 0 to 2 inches:* moderately decomposed plant material
*E - 2 to 5 inches:* silt loam
*Bs - 5 to 18 inches:* gravelly silt loam
*BC - 18 to 24 inches:* cobbly silt loam
*Cd - 24 to 65 inches:* cobbly loam

#### Properties and qualities

*Slope:* 8 to 15 percent
*Surface area covered with cobbles, stones or boulders:* 1.5 percent
*Depth to restrictive feature:* 21 to 31 inches to densic material
*Drainage class:* Moderately well drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low (0.01 to 0.14 in/hr)
*Depth to water table:* About 16 to 28 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 5.0 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 6s
*Hydrologic Soil Group:* C/D
*Ecological site:* F144BY501ME - Loamy Slope (Northern Hardwoods)

*Hydric soil rating:* No

**Description of Telos**

**Setting**

*Landform:* Drumlinoid ridges
*Landform position (two-dimensional):* Footslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Concave
*Parent material:* Loamy lodgment till

**Typical profile**

*Oa - 0 to 3 inches:* highly decomposed plant material
*E - 3 to 5 inches:* silt loam
*Bs - 5 to 11 inches:* silt loam
*BC - 11 to 16 inches:* gravelly loam
*Cd - 16 to 65 inches:* gravelly loam

**Properties and qualities**

*Slope:* 8 to 15 percent
*Surface area covered with cobbles, stones or boulders:* 1.5 percent
*Depth to restrictive feature:* 14 to 23 inches to densic material
*Drainage class:* Somewhat poorly drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low (0.01 to 0.14 in/hr)
*Depth to water table:* About 6 to 20 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Maximum salinity:* Nonsaline (0.0 to 1.9 mmhos/cm)
*Available water supply, 0 to 60 inches:* Low (about 3.5 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 6s
*Hydrologic Soil Group:* D
*Ecological site:* F144BY501ME - Loamy Slope (Northern Hardwoods), F144BY502ME - Loamy Till Toeslope
*Hydric soil rating:* No

## UrB—Urban land-Anthroportic Udorthents complex, 0 to 8 percent slopes

**Map Unit Setting**

*National map unit symbol:* sw80
*Elevation:* 20 to 1,200 feet
*Mean annual precipitation:* 39 to 45 inches
*Mean annual air temperature:* 42 to 45 degrees F
*Frost-free period:* 115 to 155 days
*Farmland classification:* Not prime farmland

**Map Unit Composition**

*Urban land:* 70 percent
*Anthroportic udorthents and similar soils:* 15 percent
*Minor components:* 3 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Urban Land**

**Setting**

*Landform:* Marine terraces, ground moraines
*Landform position (two-dimensional):* Summit, backslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 8s
*Hydric soil rating:* Unranked

**Description of Anthroportic Udorthents**

**Setting**

*Landform:* Marine terraces, ground moraines
*Landform position (two-dimensional):* Summit, backslope
*Landform position (three-dimensional):* Base slope
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Parent material:* Loamy till

**Typical profile**

*^A - 0 to 30 inches:* silt loam
*C - 30 to 65 inches:* gravelly silt loam

**Properties and qualities**

*Slope:* 0 to 8 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Moderately well drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to very high (0.01 to 99.90 in/hr)
*Depth to water table:* About 24 to 39 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:* Moderate (about 7.8 inches)

**Interpretive groups**

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 8s
*Hydrologic Soil Group:* C
*Ecological site:* F144BY501ME - Loamy Slope (Northern Hardwoods)
*Hydric soil rating:* No

**Minor Components**

**Swanville**

*Percent of map unit:* 3 percent

*Landform:* Marine terraces, river valleys
*Landform position (two-dimensional):* Toeslope
*Landform position (three-dimensional):* Talf
*Down-slope shape:* Linear
*Across-slope shape:* Linear
*Ecological site:* F144BY001ME - Marine Terrace Flat
*Hydric soil rating:* Yes

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# STORMWATER MANAGEMENT REPORT
# YELLEN PINES
# 205 CORPORATE DRIVE
# BANGOR, MAINE

Prepared for

**BANGOR HOUSING DEVELOPMENT CORPORATION**

Bangor, Maine

May 2026

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**STORMWATER MANAGEMENT REPORT**
**BANGOR HOUSING DEVELOPMENT CORPORATION**
**YELLEN PINES**
**BANGOR, MAINE**

## 1.0 INTRODUCTION

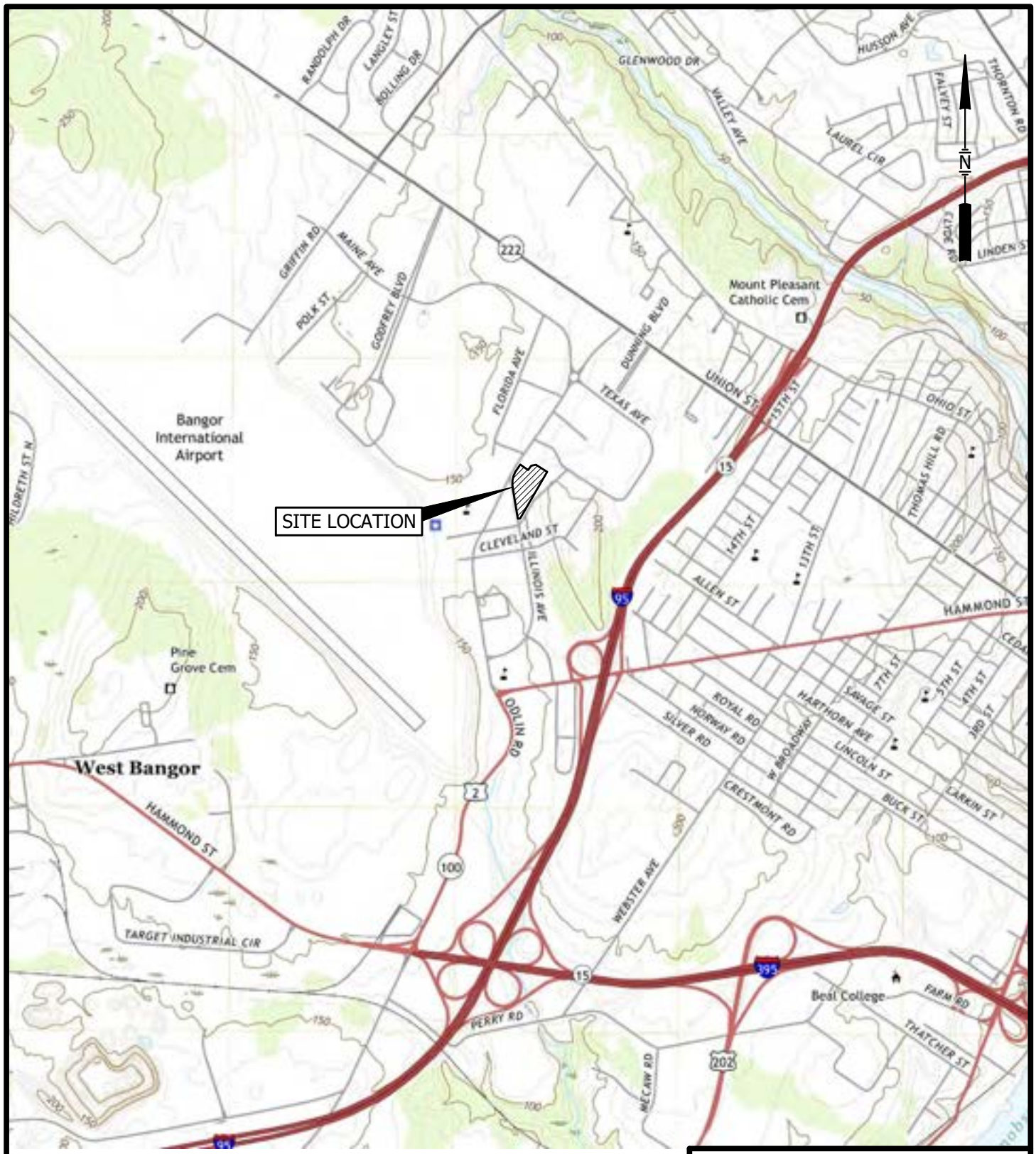
The following outlines the Stormwater Management Design for the Bangor Housing Development Corporation (BHDC) Yellen Pines project at 205 Corporate Drive in Bangor, Maine. The stormwater design prepared by Sevee & Maher Engineers, Inc. (SME) is based on the water quality and quantity objectives identified by the City of Bangor (City) Land Use Ordinance and Maine Department of Environmental Protection (MEDEP) Chapter 500 Standards.

## 2.0 PROJECT DESCRIPTION

BHDC proposes to develop a new 30-unit permanent supportive housing building called Yellen Pines on property currently at 205 Corporate Drive. The location of the project is shown in Figure 1, Site Location Map. The project is subject to a Land Development Permit from the City of Bangor Planning Board. This application provides detailed project information and outlines compliance with the applicable sections of the City Ordinance.

The project is located on the 5.05-acre parcel identified as Lot 001-A on City Tax Map R25 within the Government and Institutional Services District (G&ISD) and Technology and Service District (T&S) on the City's Official Zoning Map. The property is bounded by Maine Avenue to the west, Texas Avenue to the east, Corporate Drive to the south, and a developed University of Maine Office Building property to the north. The property is currently developed as a vegetated slope maintained as lawn with a row of trees, a concrete walkway, and a paved entrance off of Maine Avenue. The property is within the Urban Impaired Stream of Birch Stream and is primarily developed land.

The project will include a single story 19,100-square-foot building that will include thirty (30) one-bed units with support offices and lounge area. The construction will include area for eleven (11) parking spaces with one (1) ADA accessible parking space. The project will have a new 24-foot paved access drive from Corporate Drive sized for access by City fire and emergency vehicles. Additional site improvements include a patio along the southern side of the building, public water and sewer, underground utilities, stormwater management, site lighting, and landscaping.




BASE MAP ADAPTED FROM 7.5 MIN USGS TOPO QUADS
BANGOR, ME - 2021

1000 0 2000 FEET

DWG: SITELOC LMN: NONE CTB: SME-STD REV: 5/1/2026

FIGURE 1
SITE LOCATION MAP
BANGOR HOUSING DEVELOPMENT CORPORATION
YELLEN PINES
205 CORPORATE DRIVE
BANGOR, ME

SME
SEVEE & MAHER ENGINEERS

C:\Users\zander.foster\OneDrive - SME_SP\Civil-ME\Gawron Turgeon\Bangor Housing\Acad\Figures\SITELOC.dwg, A_FIG 1, 5/1/2026 9:08:56 AM, Zander.Foster

The housing project will result in approximately 84,740 square feet of developed area, all of which will be considered redevelopment given the nature of the existing site. This redeveloped area will include 41,156 square feet of new impervious area. The existing concrete walkway and paved turnaround on-site will be demolished, resulting in a net increase of approximately 37,339 square feet of impervious area post-redevelopment.

The Bangor Housing property is regulated under an
existing Maine Department of Environmental Protection (MEDEP) Site Location of Development Act (SLODA) permit, which is required to be amended for changes to the property including redevelopment.

As a result of the SLODA Amendment, the project is subject to the redevelopment standards of MEDEP Chapter 500 for treating stormwater runoff. Stormwater management for this project will be accomplished using a closed stormwater management system including catch basins, storm drains, roof dripline filters, and a grassed underdrained soil filter.

## 3.0 SITE WATERSHED

On-site soils were identified using the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) soil information for Penobscot County, Maine, Southern Part. A copy of the custom Soil Resource Report is included in Appendix A. The soil in the area of work consists of Chesuncook-Telos complex (TcC), Telos-Chesnucook complex (CTB), Elliottsville-Chesuncook association (ElB), and Pushaw-Swanville-Urban land association (PuB). The soil natural drainage classifications are "Moderately well drained," "well drained," and "somewhat poorly drained." The hydrologic soil groups are Type C/D, D, C, and C/D, respectively.

The property is currently developed as a vegetated slope maintained as lawn with a row of trees, a concrete walkway, and a paved entrance off of Maine Avenue. There is a vegetated swale along the western edge of the property which conveys runoff to Maine Avenue. The ground surface generally slopes from east to west at grades ranging from 2 to 10 percent.

The central portion of the site drains to a 30-inch culvert under Maine Avenue. The southern portion of the site drains west into a vegetated swale which passes through a 12-inch culvert before connecting to the 30-inch culvert under Maine Avenue. The off-site areas east of Texas Avenue drain to a roadside swale that outlets through a 24-inch culvert beneath Texas Avenue into the vegetated swale. These areas are all modeled as draining to the culvert under Maine Avenue, which serves as Analysis Point 1 (AP-1) in this report.

The northeast off-site and northeast portion of the site drain east to west to a roadside swale and an 18-inch culvert under Maine Avenue. This 18-inch culvert has been identified as the second Analysis Point (AP-2) for this report.

In developed conditions, stormwater runoff drainage patterns will be similar to existing conditions. The proposed roof is pitched to directly flow to roof dripline filters, and the driveway, parking lot, and sidewalk flow to a series of catch basins which connect to an underdrained soil filter (UDSF). The filters are located to optimize the collection of runoff from the new buildings, parking lots and roadways, and discharge to existing drainage features to the greatest extent possible. The 18-inch culvert under Maine Avenue will be plugged or removed by the City prior to project completion. The flow from the northeast off-site and northeast portion of the site will be routed to the 30-inch culvert under Maine Avenue.

Stormwater management plans identify the on-site drainage patterns before and after site redevelopment (see Drawings D-100 and D-101). Appendix B and Appendix C provide pre- and post-development stormwater calculations, respectively, using TR-20 methodologies prepared with the HydroCAD Version 10.20-2f computer stormwater modeling system by Applied Microcomputer Systems of Chocorua, New Hampshire.

## 4.0 STORMWATER QUALITY ANALYSIS

The project is required to meet the redevelopment portions of the General Standards since the site is developed as a grassed hill with a walkway in existing conditions. The areas considered as redevelopment on the site are shown on Figure 2 and Figure 3, and total approximately 84,740 square feet (1.95 acres). The Redevelopment Treatment Level Calculations are included in Appendix D of this report and show the project must provide treatment for 60 percent of the redeveloped area or approximately 50,843 square feet (1.17 acres).

Proposed stormwater best management practices (BMPs) will treat approximately 50,854 square feet of redevelopment, which accounts for 60 percent of redeveloped area. This treatment will be provided through construction of three roof dripline filters surrounding the building and a grassed underdrained soil filter.

The roof dripline filters have been designed to capture runoff from the roof of the building. Roof dripline filters will treat a total of 21,843 square feet of impervious area and 0 square feet of landscaped area, for a total of 21,843 square feet of treatment.

The underdrained soil filter has been designed to capture runoff from the driveway, the turnaround, and various landscaped areas around the building. The soil filter will treat 15,100 square feet of impervious area and 13,933 square feet of landscaped area, for a total of 29,033 square feet of treatment.

The sizing calculations for the Stormwater BMPs and overall Treatment Summary are included in Appendix D of this report.

| EXISTING IMPERVIOUS AREA | | |
|---|---|---|
| OTHER PARKING LOTS/DRIVEWAYS | 3 | 1,110 |
| OTHER ROOFTOP/WALKING PATHS/LAWN/LANDSCAPED AREAS | 2 | 79,638 |
| NON-GRASS LANDSCAPED/STORMWATER TREATMENT SYSTEM | 1 | 3,992 |
| | TOTAL | 84,740 |

30 0 60 FEET

FIGURE 2
REDEVELOPMENT EXISTING CONDITIONS
BANGOR HOUSING DEVELOPMENT CORPORATION
YELLEN PINES
205 CORPORATE DRIVE
BANGOR, ME

SME
SEVEE & MAHER ENGINEERS

DWG: BASE LMN: REDEV-E CTB: SME-STD.CTB JOB#: 251269 REV: 5/1/2026

C:\Users\zander.foster\OneDrive - SME_SP\Civil-ME\Gawron Turgeon\Bangor Housing\Acad\Plans\BASE.dwg, B_REDEV-EXIST, 5/1/2026 8:32:23 AM, Zander.Foster

MAINE AVENUE

CORPORATE DRIVE

N/F
CITY OF BANGOR
PORTION OF
BOOK 8107, PAGE 215
FOR CONVEYANCE TO BANGOR
HOUSING AUTHORITY
AREA: 5.064 ACRES
CITY OF BANGOR
TAX MAP #25 - LOT 1A

| PROPOSED REDEVELOPMENT AREAS | | |
|---|---|---|
| OTHER PARKING LOTS/DRIVEWAYS | 3 | 16,199 |
| OTHER ROOFTOP/WALKING PATHS/LAWN/LANDSCAPED AREAS | 2 | 59,482 |
| NON-GRASS LANDSCAPED/STORMWATER TREATMENT SYSTEM | 1 | 9,059 |
| | TOTAL | 87,739 |

30 0 60 FEET

FIGURE 3
PROPOSED REDEVELOPMENT
BANGOR HOUSING DEVELOPMENT CORPORATION
YELLEN PINES
205 CORPORATE DRIVE
BANGOR, ME

SME
SEVEE & MAHER
ENGINEERS

DWG: BASE LMN: REDEV-P CTB: SME-STD.CTB JOB#: 251269 REV: 5/1/2026

C:\Users\zander.foster\OneDrive - SME_SP\Civil-ME\Gawron Turgeon\Bangor Housing\Acad\Plans\BASE.dwg, B_REDEV-PROP, 5/1/2026 8:49:00 AM, Zander.Foster

## 5.0 STORMWATER QUANTITY ANALYSIS

Stormwater quantity is managed to the maximum extent practicable by minimizing the amount of impervious area required for site redevelopment.

Stormwater peak flow rates were modeled for the 2-, 10-, and 25-year/24-hour storm events with Type III Soil Conservation Service rainfall distribution using the HydroCAD computer modeling system by Applied Microcomputer Systems of Chocorua, New Hampshire. The peak flow rates at the Analysis Point are summarized in Table 1. Copies of the calculations for the pre-development and post-development models are provided in Appendices B and C.

**TABLE 1**

**STORMWATER QUANTITY SUMMARY**

| AP | 2-yr Storm | | 10-yr Storm | | 25-yr Storm | |
|---|---|---|---|---|---|---|
| | Pre- (cfs) | Post- (cfs) | Pre- (cfs) | Post- (cfs) | Pre- (cfs) | Post- (cfs) |
| 1 | 11.60 | 14.15 | 21.56 | 25.29 | 25.12 | 31.51 |
| 2 | 5.71 | 0 | 9.90 | 0 | 11.99 | 0 |

Site drainage from the proposed redevelopment will generally follow the pre-development conditions. As outlined in Table 1, our model indicates an increase in peak flow rates at AP-1 for the post-development conditions and a decrease to 0 at AP-2. As noted above, the 18-inch culvert under Maine Avenue identified as AP-2 will be capped by the City and will no longer be useable. All runoff previously routed to AP-2 will now be routed to AP-1. The flow rates at AP-1 in post-development conditions will be less than the combined flows of AP-1 and AP-2 in pre-development conditions, indicating that the total flow from the site will be reduced in post-development conditions.

## 6.0 SUMMARY

The stormwater management for this project was designed in accordance with the water quality and quantity objectives identified by the City of Bangor Land Use Ordinance and MEDEP Chapter 500 requirements for development projects. There will be no adverse impact to adjacent properties or downstream structures as a result of this project.

WATERSHED RESOURCE CONSULTANTS, LLC
NATURAL RESOURCE AND SOIL SCIENCE CONSULTING

WRC 25132
November 3, 2025

Sevee & Maher Engineers
Attention: Daniel P. Diffin, P.E., Vice President/Senior Civil Engineer
4 Blanchard Road, P.O. Box 85A
Cumberland, ME 04021
Via email: *dpd@smemaine.com*

Subject: Summary Report of Protected Natural Resources
Bangor Housing Development Corporation
Maine Ave, Bangor, Maine

Dear Daniel,

This Summary Report of Protected Natural Resources Services presents a summary of the findings of protected natural resource field-delineation services conducted by Watershed Resource Consultants, LLC (WRC) within an approximately 1-acre area of the 20+/-acre property (R25-001-A) at the corner of Maine Avenue and Corporate Drive in Bangor, Maine (i.e., the "site"). The purpose of the services was to identify and delineate field-observable protected natural resources on the site. A sketch showing the approximate site is attached at the end of this Report.

The property is located on the toe slope of a shallow hill and hillside, with evidence of previous use, filling and grading. Maine Avenue is along the northwestern boundary, Corporate Drive is along the western boundary, and a commercial development is along the northern boundary. The site is mostly mowed lawn or field with an apparently man-made drainage swale parallelling Corporate Drive on the western side of the site. There is a paved walking path cutting through the site from northeast to southwest, which turns to parallel Corporate Drive.

**Methodology**

Watershed Resource Consultants, LLC (WRC) visited the site on October 23, 2025, to identify and delineate field-observable protected natural resources. Protected Natural Resources were identified as defined by the Maine Department of Environmental Protection[1] (MDEP) and U.S. Army Corps of Engineers[2] (Corps). Wetland delineation was conducted using the 1987 Corps Wetland Delineation Manual[3] and Northeast

[1] State of Maine, Department of Environmental Protection, Natural Resources Protection Act Statute, 38 M.R.S.A. §480-A to 480-HH, DEPLW284-W2010, Revised August 12, 2011.
[2] United States Department of the Army, General Permit, State of Maine, Effective: October 15, 2025 to October 15, 2030.
[3] Environmental Laboratory. 1987. "Corps of Engineers Wetland Delineation Manual", Technical Report Y-87-1, U.S. Army Engineers Waterways Experiment Station, Vicksburg, Miss.

Regional Supplement[4]. Stream identification was conducted using the MDEP Natural Resources Protection Act Statute and the Corps General Permit. Potential vernal pool identification was conducted using MDEP Chapter 335[5], the 2014 Maine Association of Wetlands Scientist (MAWS) Vernal Pool Survey Protocol, and the Corps General Permit. WRC surveyed the site for wetlands, streams and potential vernal pools, and also surveyed for streams within 75-feet of the site and potential vernal pools within 250-feet of the site, where on the larger property.

**Findings**

WRC did not identify field-observable Protected Natural Resources on the site. A constructed stormwater drainage feature is located along the southwestern portion of the property adjacent to Corporate Drive. The feature conveys flow under Maine Avenue through a culvert. Along Maine Avenue, ditches are present to divert stormwater from the roadway. The lawn in this area is maintained, and no hydrophytic vegetation was observed. Evidence of previous fill was noted within the site.

To identify if non-field observable Protected Natural Resources are mapped on the site by resource agencies, WRC reviewed published mapping for the site including USGS Topographic, USDA NRCS Soil Survey, USFWS National Wetlands Inventory, MDIFW Beginning with Habitat and Environmental Mapping Tool, and USFWS Information for Planning and Consultation (IPaC).

No Rare, Threatened, Endangered, Significant, Essential or S1/S2 species, habitats or communities are mapped by MDIFW or MNAP on or adjacent to the site based on publicly available databases.

USFWS IPaC indicates that three federally listed species should be considered as part of an effect analysis for a project on this site: the Proposed Endangered tricolored bat, the Endangered Atlantic salmon, and the Proposed Endangered monarch butterfly. Because the project site does not contain trees (bats), does not contain and is not adjacent to streams (Atlantic salmon), and is mowed regularly (milkweed), it is unlikely that any of these species are of concern to USFWS on this site. If the project will require a federal permit or will use federal funding, the federal action agency will determine if there are concerns regarding the project affecting these mapped habitats.

WRC's services included delineation of field-observable MDEP and Corps defined Protected Natural Resources only. Services did not include resource agency contact regarding mapped T&E, Significant, Essential, or S1/S2 species/habitats, regulations review, permitting assistance, wildlife or botanical assessments, or a full report.

[4] U.S. Army Corps of Engineers. 2011. Regional Supplement to the Corps of Engineers Wetland Delineation Manual:Northcentral and Northeast Region (Version 2.0), ed. J. S. Wakeley, R. W. Lichvar, C. V. Noble, and J. F. Berkowitz.ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
[5] State of Maine, Department of Environmental Protection, Chapter 335 Significant Wildlife Habitat, amended January 7, 2014.

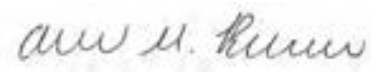
**Closing**

WRC appreciates the opportunity to assist you during this phase of the project. If you have any questions, please contact us.

Sincerely,

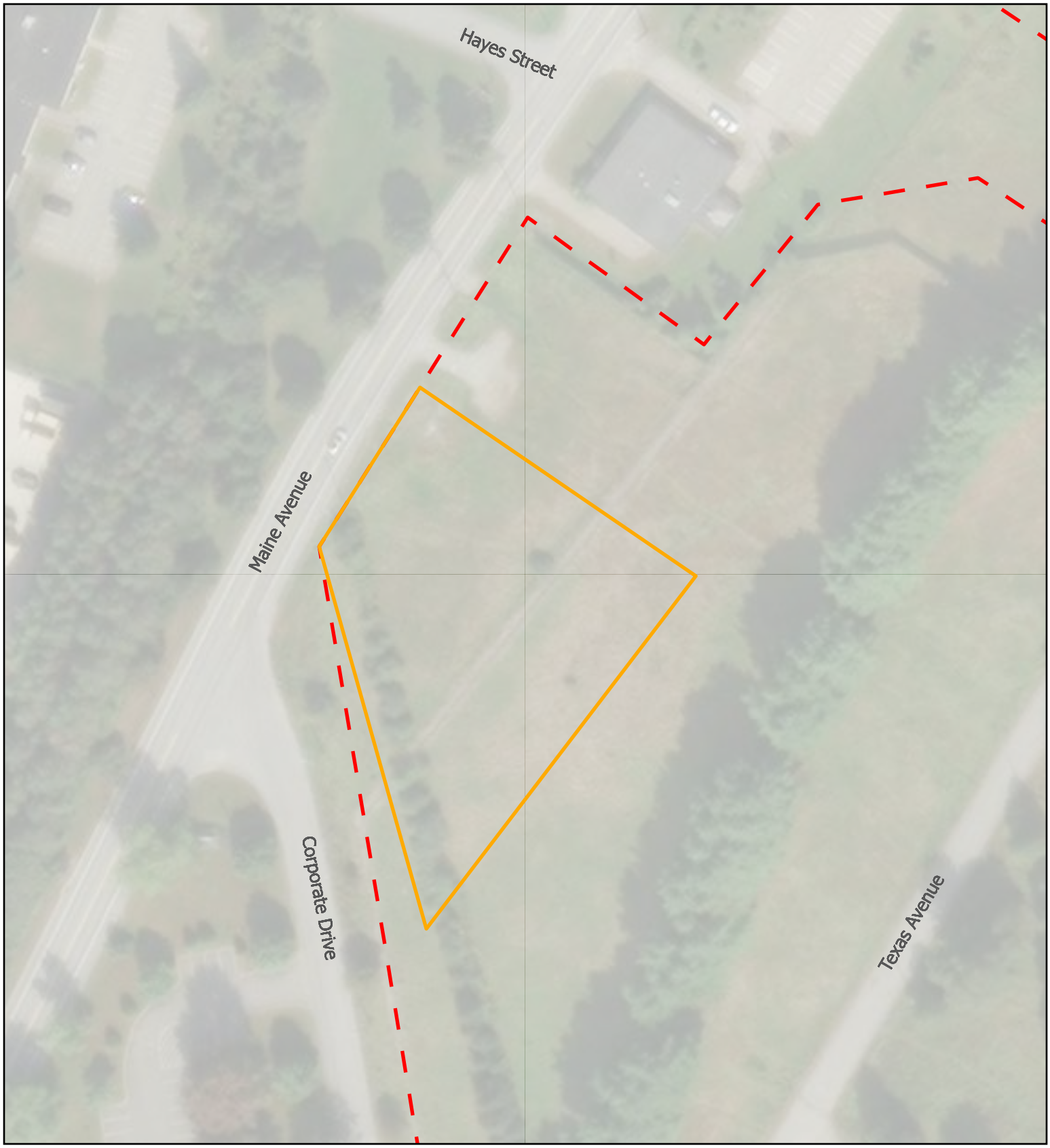


Abigail A. Lewis
**Wetland and Soil Scientist | Watershed Resource Consultants, LLC**



Aleita M. Burman, L.S.S., L.S.E., NH CWS
**Principal and Member | *Watershed Resource Consultants, LLC***

cc: Cindy Witas, Bangor Housing Development Corporation




WRC

2025-11-03
WWW.WRCMAINE.COM
NOT A LEGAL SURVEY

N

## Legend

PNR Delineation Limit of Service

Project Patcel (MEGIS)

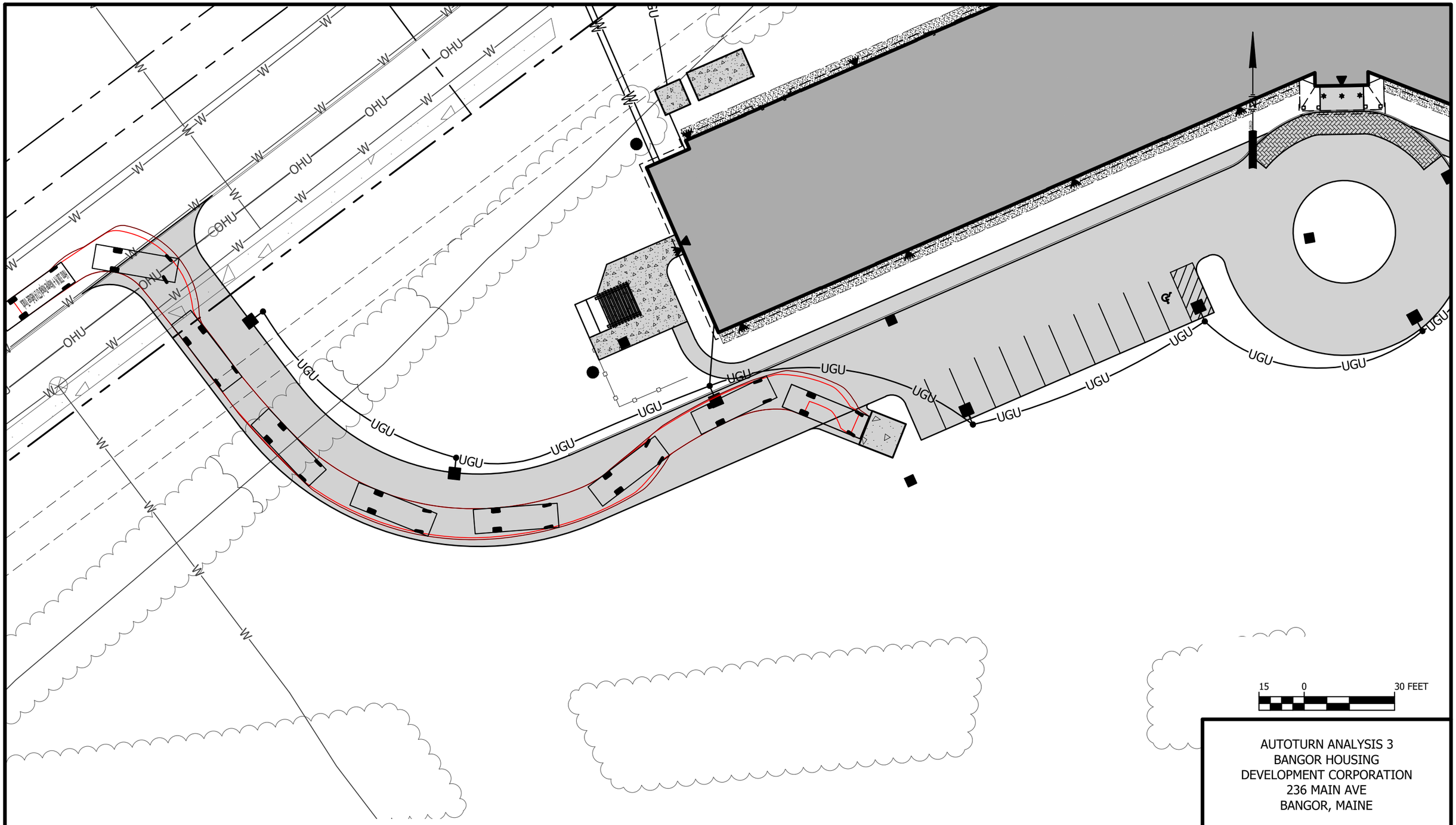
0 20 40 80 120 160
Feet

68.8067447°W 44.8064694°N
SITE LOCATION MAP
PROPOSED DEVELOPMENT
MAINE AVENUE
BANGOR, MAINE

**ATTACHMENT 5**

**AUTOTURN FIGURE**

SME
SEVEE & MAHER
ENGINEERS




15 0 30 FEET

AUTOTURN ANALYSIS 3
BANGOR HOUSING
DEVELOPMENT CORPORATION
236 MAIN AVE
BANGOR, MAINE

SME
SEVEE & MAHER
ENGINEERS

NOTE:
ANALYSIS DEPICTS 100' AERIAL LADDER DRIVING FORWARD TO THE END OF THE LOT AND BACKING OUT, TURNING AROUND IN THE DROP-OFF AREA.

DWG: BASE | LMN: ATURN 2 | CTB: SME-STD.CTB | JOB#: JOB# | REV: 5/21/2026

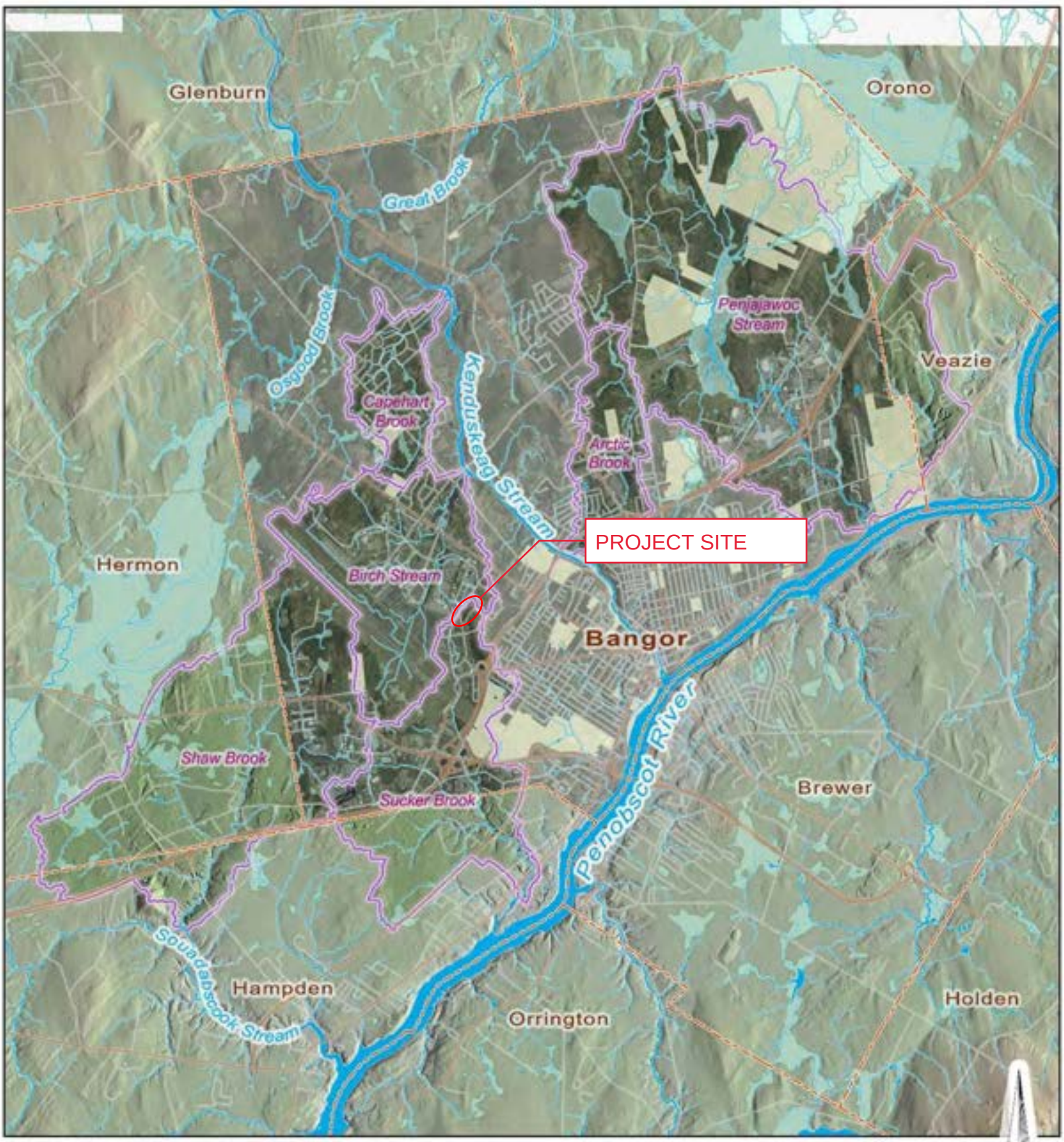
C:\Users\sjm\OneDrive - SME\SHAREPOINT\Gawron Turgeon - Bangor Housing\Plans\BASE.dwg, B_ATURN-3, 5/21/2026 8:51:47 AM, sjm

**ATTACHMENT 4**

**URBAN IMPAIRED STREAM WATERSHED MAPS**

SME
SEVEE & MAHER
ENGINEERS

# Urban Impaired Streams in Bangor, Maine




Data: City of Bangor; Maine State Geolibrary; Maine DEP; USGS NHD Plus; USGS StreamStats; USFWS NWI.
Author: City of Bangor, Department of Engineering - GIS.
Last Edited: Friday, June 2, 2023

# Urban Impaired Streams

## *Sucker Brook Watershed*

Data: City of Bangor; Maine State Geolibrary; Maine DEP; USGS NHD Plus; USGS StreamStats; USFWS NWI.
Author: City of Bangor, Department of Engineering - GIS.
Last Edited: Friday, June 2, 2023

0 — ¼ — ½ — 1 Miles

**Legend**

- Roads
- Town Boundary
- Streams
- Water Areas
- Wetlands
- Protected Areas
- Watershed Boundary

**Watershed Extent**






CITY OF BANGOR

Planning Division
Checklist for Land Development Applications

Pre-application Meeting Date: 01.12.26

Date submitted: 05.01.26

Date Reviewed: 05.05.26

Initials: MRA, ABC

Project: Yellen Pines

Project Location: 205 Corporate Dr

Applicant: Bangor Housing

Applicant Representative: Cindy Witas

Phone Number or Email: cwitas@bangorhousing.org

Project Zoning District: G&ISD

Conditional Use: Permanent supportive housing

| Yes | No | Not applicable / Other | Site Plan Element |
|---|---|---|---|
| X | | | Scale |
| X | | | North Arrow |
| X | | | Building/Lot dimensions |
| X | | | Building locations/uses |
| | | See Comments | Parking/access/loading locations |
| | | X | Signage |
| x | | | Lighting |
| | | See Comments | Screening and Buffer |
| X | | | Erosion and sedimentation |
| X | | | Stormwater |
| X | | | Manholes/catch basins |

CITY OF BANGOR

Planning Division
Checklist for Land Development Applications

| Yes | No | Not applicable / Other | Site Plan Element |
|---|---|---|---|
| | X | | Sewer |
| X | | | Water |
| X | | | Fire Hydrants / fire pond |
| X | | | Electric/Communication |
| X | | | Curbs and gutters |
| X | | | Paved/un-vegetated/vegetated areas |
| X | | | Trash |
| | | X | Outdoor display/storage |
| X | | | Existing trees |
| X | | | Deed or other instrument allowing pursuit of permits |
| X | | | Topo |
| X | | | Adjacent buildings and features |
| | | See Comments | Traffic |
| X | | | Location sketch |
| | | | Post Construction Stormwater Maintenance Plan |
| | | | Fire Comments |
| | | X | Shoreland delineation/zoning compliance |
| | | X | Floodplain location |
| | | X | Effects on scenic, etc |
| x | | | Table showing compliance with dimensional Requirements |
| | | See comments | Table showing compliance with Parking Requirements |
| | x | See Comments | **Additional Conditional Use General Requirements** Traffic Study |
| | X | | **Additional Conditional Use Specific Requirements for Use or District** |
| | | | |

| | | | |
|---|---|---|---|
| | | **x** | **Additional Subdivision Requirements**<br>Lot lines<br>Existing street connections<br>Open space reservation<br>Abutters<br>Onsite wastewater<br>Easements<br>Soils<br>Wetlands |
| | | x | **Additional Solar applications**<br>Height<br>Yard<br>Buffers<br>Glare<br>Decommissioning plan<br>Utility Connections<br>Confirmation of use |
| | | | |
| | | | |
| | | | |

**Staff Comments**

Please provide a pedestrian access point to Maine Ave. § 165-114B requires safe and adequate pedestrian connection. Two pedestrian access points would be best (Engineering will be sending comments related to this).

The table showing parking says 14 spaces provided, but the plan shows 11 spaces. Also, this needs a minimum of 12 parking spots.

The proposed tree line on C-102 does not match L101.

Need to show documentation for technical capacity.

Will the circular island at the building entrance be landscaped? The architectural drawings show it being completely concrete, but the site drawings indicate that it will be pervious. If proposed to be fully concrete, we would suggest making it landscaped, which may reduce costs due to less concrete being needed, and would also reduce impervious area.

Where red maple is proposed next to the driveway, we would suggest a more salt tolerant species, such as one of the oaks that are proposed to be used, or an alternative species such as hackberry, Kentucky coffee tree, black gum/tupelo, sassafrass, or honeylocust.

Conditional use narrative – for standard §165-9A(4), there needs to be a comparison between the proposed building and buildings within 500' of the site.

The project narrative states that the project isn't subject to 38 M.R.S.A. §§ 481 through 488, which is for SLODA, which the project is subject to since it's modifying the airport SLODA. Please modify this statement.

*Engineering checking sewer capacity; sending other comments

---

***Please do not submit hard copies until we have notified you that the plans are good to go for a Planning Board agenda.**

**Possible Planning Board agenda:** 6/16/2026

**Deadline to advertise:** 6/5/2026 to post, 6/2/2026 to send to BDN

**Deadline to post to abutters:** 6/5/2026

**Deadline for edits or amendments:** 5/28/2026

Outlook

## Re: 205 Corporate Dr

**From** Vaughan Littlefield <vaughan@bangorwater.org>
**Date** Wed 5/13/2026 3:10 PM
**To** Collette, Anja <anja.collette@bangormaine.gov>; Altiero, Matthew <Matthew.Altiero@bangormaine.gov>; Davis, Jefferson <jefferson.davis@bangormaine.gov>; May, Richard <richard.may@bangormaine.gov>; Vachon, Adam <adam.vachon@bangormaine.gov>

**WARNING: EXTERNAL EMAIL** - DOUBLE CHECK THE SENDER'S ADDRESS BEFORE OPENING LINKS OR ATTACHMENTS.

No comments from Bangor Water District.

Regards,
**Vaughan Littlefield**
*Project Manager*
Bangor Water District

PO Box 1129
Bangor, ME 04402-1129
TEL (207)947-4516 EXT. 208
FAX (207)947-5707
CELL (207)299-6309
EMAIL: vaughan@bangorwater.org

---

**From:** Collette, Anja <anja.collette@bangormaine.gov>
**Sent:** Wednesday, May 13, 2026 2:55 PM
**To:** Altiero, Matthew <Matthew.Altiero@bangormaine.gov>; Davis, Jefferson <jefferson.davis@bangormaine.gov>; May, Richard <richard.may@bangormaine.gov>; Vachon, Adam <adam.vachon@bangormaine.gov>; Vaughan Littlefield <vaughan@bangorwater.org>
**Subject:** Re: 205 Corporate Dr

Hi all, just following up on this. We need to get them all comments as soon as possible.

CITY OF BANGOR

**Anja Collette, AICP**
***Planning Officer***
*Community & Economic Development*
*Planning Division*

Outlook

---

**Fw: 205 Corporate Dr**

---

**From** Collette, Anja <anja.collette@bangormaine.gov>
**Date** Wed 5/13/2026 3:26 PM
**To** Altiero, Matthew <Matthew.Altiero@bangormaine.gov>


CITY OF BANGOR

**Anja Collette, AICP**
***Planning Officer***
*Community & Economic Development*
*Planning Division*

73 Harlow Street
Bangor, ME 04401
anja.collette@bangormaine.gov
Phone: 207.992.4280


---

**From:** Vachon, Adam <adam.vachon@bangormaine.gov>
**Sent:** Wednesday, May 13, 2026 3:01 PM
**To:** Collette, Anja <anja.collette@bangormaine.gov>
**Subject:** Re: 205 Corporate Dr

Hey Anja, I just have the comments from our in-person meeting. The turn around they are showing is large enough basically to handle the wheels on the truck but doesn't show that it can accommodate the nose of the truck which hangs out beyond the wheels. I will forward you the email I sent to Anna on it from their design team. I have not heard back from her yet.
Thank you!
Adam


CITY OF BANGOR

Outlook

## Fw: Site Plan for Home For Good

**From** Collette, Anja <anja.collette@bangormaine.gov>
**Date** Wed 5/13/2026 3:27 PM
**To** Altiero, Matthew <Matthew.Altiero@bangormaine.gov>


CITY OF BANGOR

**Anja Collette, AICP**
***Planning Officer***
*Community & Economic Development*
*Planning Division*

73 Harlow Street
Bangor, ME 04401
anja.collette@bangormaine.gov
Phone: 207.992.4280


---

**From:** Vachon, Adam <adam.vachon@bangormaine.gov>
**Sent:** Wednesday, May 13, 2026 3:02 PM
**To:** Collette, Anja <anja.collette@bangormaine.gov>
**Subject:** Fw: Site Plan for Home For Good

Please see below.
Thank you!
Adam


CITY OF BANGOR

**Adam Vachon**
***Fire Inspector, CFI-1***

*Fire Prevention Division*
Phone: 207-992-4180
Fax: 207-942-8213

http://www.bangormaine.gov

adam.vachon@bangormaine.gov

---

**From:** Vachon, Adam <adam.vachon@bangormaine.gov>
**Sent:** Wednesday, April 29, 2026 9:06 AM
**To:** Anna Dedon <Anna.Dedon@smemaine.com>
**Cc:** Daniel Diffin <dpd@smemaine.com>
**Subject:** Re: Site Plan for Home For Good

Good morning, Anna, this would work as long as there is an area outside the curb-to-curb radius to accommodate the additional footage needed for the chassis overhang. This area can be over a curb or walking surface as long as those areas are low enough to avoid contact the front of the truck and are kept clear of snow and other things. Light pole placement may need to be reconsidered as the "wall to wall" distance needed for the chassis overhang is 95'10" minimum. The flush paver area out front of the entrance canopy would still need to be capable of holding the 84,000 pounds required for access roads.

Thank you!
Adam

CITY OF BANGOR

**Adam Vachon**
***Fire Inspector, CFI-1***
*Fire Prevention Division*
Phone: 207-992-4180
Fax: 207-942-8213

http://www.bangormaine.gov

adam.vachon@bangormaine.gov

**From:** Anna Dedon <Anna.Dedon@smemaine.com>
**Sent:** Monday, April 27, 2026 2:12 PM
**To:** Vachon, Adam <adam.vachon@bangormaine.gov>
**Cc:** Daniel Diffin <dpd@smemaine.com>
**Subject:** RE: Site Plan for Home For Good

**WARNING: EXTERNAL EMAIL** - DOUBLE CHECK THE SENDER'S ADDRESS BEFORE OPENING LINKS OR ATTACHMENTS.

Hi Adam,

We resized the turnaround to provide an 82’ curb to curb width. See attached for a site plan. Is this acceptable to you guys?

Thanks,
Anna

**Anna Dedon, PE**
*Civil Engineer*

SME
SEVEE & MAHER ENGINEERS

**Sevee & Maher Engineers, Inc.**
4 Blanchard Road, P.O. Box 85A
Cumberland, ME 04021
Office: 207.829.5016
Cell: 207.831.4072

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---

**From:** Vachon, Adam <adam.vachon@bangormaine.gov>
**Sent:** Wednesday, April 22, 2026 8:07 AM
**To:** Anna Dedon <Anna.Dedon@smemaine.com>
**Cc:** Daniel Diffin <dpd@smemaine.com>
**Subject:** Re: Site Plan for Home For Good

Good morning, Anna, for this layout we would need the curb-to-curb dimension of 81'4" or more to approve. The removal of the island to allow us to drive across the middle would not work for us.

Thank you!
Adam

CITY OF BANGOR

**Adam Vachon**
***Fire Inspector, CFI-1***
*Fire Prevention Division*
Phone: 207-992-4180
Fax: 207-942-8213

http://www.bangormaine.gov

adam.vachon@bangormaine.gov

---

**From:** Anna Dedon <Anna.Dedon@smemaine.com>
**Sent:** Thursday, April 16, 2026 9:57 AM
**To:** Vachon, Adam <adam.vachon@bangormaine.gov>
**Cc:** Daniel Diffin <dpd@smemaine.com>
**Subject:** RE: Site Plan for Home For Good

**WARNING: EXTERNAL EMAIL** - DOUBLE CHECK THE SENDER'S ADDRESS BEFORE OPENING LINKS OR ATTACHMENTS.

Thanks Adam. We updated the turning radius of our model fire truck based on those specs. Increasing the whole turnaround to meet that radius would make it pretty huge, and it would require us to cut into the hill further. Instead, if you were able to drive across the center island and back up across the turnaround, would that work? We ran it on our end and it seems doable. Please see attached.

Thanks,
Anna

**Anna Dedon, PE**
*Civil Engineer*

SME
SEVEE & MAHER ENGINEERS

**Sevee & Maher Engineers, Inc.**
4 Blanchard Road, P.O. Box 85A
Cumberland, ME 04021
Office: 207.829.5016
Cell: 207.831.4072

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**From:** Vachon, Adam <adam.vachon@bangormaine.gov>
**Sent:** Wednesday, April 15, 2026 11:29 AM
**To:** Anna Dedon <Anna.Dedon@smemaine.com>
**Cc:** Daniel Diffin <dpd@smemaine.com>
**Subject:** Re: Site Plan for Home For Good

Hey Anna, where this is different from the previous design and ends at the turn around, we would hold this to the specs laid out by Pierce of a wall to wall radius of 47'11" (95'10" diameter), a curb to curb radius of 40'8" (81'4" diameter). The middle island area could not exceed the inside turning radius needs.

Adam

CITY OF BANGOR
**Adam Vachon**
***Fire Inspector, CFI-1***
*Fire Prevention Division*
Phone: 207-992-4180
Fax: 207-942-8213

http://www.bangormaine.gov

adam.vachon@bangormaine.gov

---

**From:** Anna Dedon <Anna.Dedon@smemaine.com>
**Sent:** Monday, April 13, 2026 11:01 AM
**To:** Vachon, Adam <adam.vachon@bangormaine.gov>
**Cc:** Daniel Diffin <dpd@smemaine.com>
**Subject:** RE: Site Plan for Home For Good

**WARNING: EXTERNAL EMAIL** - DOUBLE CHECK THE SENDER'S ADDRESS BEFORE OPENING LINKS OR ATTACHMENTS.

Hi Adam,

The site plan for the proposed Home for Good project has changed. The building was moved closer to Corporate Drive and the driveway and parking area were redesigned to follow the new shape of the building. We ran a vehicle path with a firetruck to see if the turnaround would work, and it looks like we'll have enough space. Can you review this with the fire chief to confirm?

Let me know if you have any questions.

Thanks,
Anna

**Anna Dedon, PE**
*Civil Engineer*

**Sevee & Maher Engineers, Inc.**
4 Blanchard Road, P.O. Box 85A
Cumberland, ME 04021
Office: 207.829.5016
Cell: 207.831.4072

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---

**From:** Anna Dedon
**Sent:** Wednesday, February 4, 2026 10:10 AM
**To:** Vachon, Adam <adam.vachon@bangormaine.gov>
**Cc:** Daniel Diffin <dpd@smemaine.com>
**Subject:** RE: Site Plan for Home For Good

Great, thanks very much Adam. We will update our plans to show this.

**Anna Dedon, PE**
*Civil Engineer*

**Sevee & Maher Engineers, Inc.**
4 Blanchard Road, P.O. Box 85A
Cumberland, ME 04021
Office: 207.829.5016
Cell: 207.831.4072

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---

**From:** Vachon, Adam <adam.vachon@bangormaine.gov>
**Sent:** Tuesday, February 3, 2026 2:17 PM
**To:** Anna Dedon <Anna.Dedon@smemaine.com>
**Cc:** Daniel Diffin <dpd@smemaine.com>
**Subject:** Re: Site Plan for Home For Good

Good afternoon Anna, if you can give us the bump out you added to this plan, and remove the island in the middle, we can make that work.
Thank you!
Adam

CITY OF BANGOR
**Adam Vachon**

***Fire Inspector, CFI-1***

*Fire Prevention Division*

Phone: 207-992-4180

Fax: 207-945-4449

http://www.bangormaine.gov
adam.vachon@bangormaine.gov

---

**From:** Anna Dedon <Anna.Dedon@smemaine.com>
**Sent:** Monday, February 2, 2026 1:10 PM
**To:** Vachon, Adam <adam.vachon@bangormaine.gov>
**Cc:** Daniel Diffin <dpd@smemaine.com>
**Subject:** RE: Site Plan for Home For Good

**WARNING: EXTERNAL EMAIL** - DOUBLE CHECK THE SENDER'S ADDRESS BEFORE OPENING LINKS OR ATTACHMENTS.

Hi Adam,

Just wanted to follow up on this. Have you had a chance to take a look at the expanded radius option with the chief?

Thanks,
Anna

**Anna Dedon, PE**
*Civil Engineer*

SME
SEVEE & MAHER ENGINEERS

**Sevee & Maher Engineers, Inc.**
4 Blanchard Road, P.O. Box 85A
Cumberland, ME 04021
Office: 207.829.5016
Cell: 207.831.4072

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---

**From:** Anna Dedon
**Sent:** Wednesday, January 21, 2026 5:07 PM
**To:** 'Vachon, Adam' <adam.vachon@bangormaine.gov>
**Cc:** Daniel Diffin <dpd@smemaine.com>
**Subject:** RE: Site Plan for Home For Good

Hi Adam,

Attached is a mock up that shows the additional 5' radius in red.

The bump out/T turnaround isn't ideal because the site is on a hill, and the steepest part of the hill is just behind the roundabout. We're trying to avoid cutting into it and possibly needing a retaining wall. I made the contours visible in this version so hopefully it's a little easier to visualize.

Thanks,
Anna

**Anna Dedon, PE**
*Civil Engineer*

SME
SEVEE & MAHER
ENGINEERS

**Sevee & Maher Engineers, Inc.**
4 Blanchard Road, P.O. Box 85A
Cumberland, ME 04021
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**From:** Vachon, Adam <adam.vachon@bangormaine.gov>
**Sent:** Tuesday, January 20, 2026 2:37 PM
**To:** Anna Dedon <Anna.Dedon@smemaine.com>
**Cc:** Daniel Diffin <dpd@smemaine.com>
**Subject:** Re: Site Plan for Home For Good

Good afternoon Anna, I showed the provided mock ups to the Deputy Chief and we have a few questions:
Can you show us the mockup with the additional 5 feet on the outside radius?
Is there a reason why you couldn't put in the additional bump out we suggested to meet the turnaround need for our ladder? Or make the roundabout smaller but still create a "T" turn around in that area?

Thank you!
Adam

CITY OF BANGOR
**Adam Vachon**

***Fire Inspector, CFI-1***

*Fire Prevention Division*

Phone: 207-992-4180

Fax: 207-945-4449

http://www.bangormaine.gov
adam.vachon@bangormaine.gov

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**From:** Anna Dedon <Anna.Dedon@smemaine.com>
**Sent:** Thursday, January 15, 2026 4:14 PM
**To:** Vachon, Adam <adam.vachon@bangormaine.gov>
**Cc:** Daniel Diffin <dpd@smemaine.com>
**Subject:** RE: Site Plan for Home For Good

**WARNING: EXTERNAL EMAIL** - DOUBLE CHECK THE SENDER'S ADDRESS BEFORE OPENING LINKS OR ATTACHMENTS.

Thanks Adam. We ran an Autoturn analysis with the fire truck specs you provided, one turning around and backing in, and one driving in and backing out. Please see attached.

We would like to avoid the additional pavement off the roundabout if possible, and we can pave the center of the roundabout so you can drive across it. Do you think it's doable as shown? The tires are able to stay within the pavement and only the back of the truck goes beyond it. We can also bump out the outside radius another 5 feet to give a little more maneuverability.

Let me know if you'd like to jump on a teams call to go over the driving paths shown in the pdfs.

Thanks,
Anna

**Anna Dedon, PE**
*Civil Engineer*

SME
SEVEE & MAHER ENGINEERS
**Sevee & Maher Engineers, Inc.**

4 Blanchard Road, P.O. Box 85A
Cumberland, ME 04021
Office: 207.829.5016
Cell: 207.831.4072

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**From:** Vachon, Adam <adam.vachon@bangormaine.gov>
**Sent:** Tuesday, January 13, 2026 12:21 PM
**To:** Anna Dedon <Anna.Dedon@smemaine.com>
**Cc:** Daniel Diffin <dpd@smemaine.com>
**Subject:** Re: Site Plan for Home For Good

Hey Anna, after meeting with the Deputy Chief, some sort of turn around would be needed for the main entrance. See attached for my markups. I have also included specs for our ladder truck. My thought is it may be able to go is off the drop-off circle. This wouldn't interfere with the existing tree buffer.
Thank you!
Adam

CITY OF BANGOR

**Adam Vachon**

***Fire Inspector, CFI-1***

*Fire Prevention Division*

Phone: 207-992-4180

Fax: 207-945-4449

http://www.bangormaine.gov
adam.vachon@bangormaine.gov

---

**From:** Vachon, Adam <adam.vachon@bangormaine.gov>
**Sent:** Tuesday, January 13, 2026 8:08 AM
**To:** Anna Dedon <Anna.Dedon@smemaine.com>
**Cc:** Daniel Diffin <dpd@smemaine.com>
**Subject:** Re: Site Plan for Home For Good

Thank you Anna, we will review this and get back to you soon.

Adam

CITY OF BANGOR

**Adam Vachon**

***Fire Inspector, CFI-1***

*Fire Prevention Division*

Phone: 207-992-4180

Fax: 207-945-4449

http://www.bangormaine.gov
adam.vachon@bangormaine.gov

---

**From:** Anna Dedon <Anna.Dedon@smemaine.com>
**Sent:** Monday, January 12, 2026 5:18 PM
**To:** Vachon, Adam <adam.vachon@bangormaine.gov>
**Cc:** Daniel Diffin <dpd@smemaine.com>
**Subject:** Site Plan for Home For Good

**WARNING: EXTERNAL EMAIL** - DOUBLE CHECK THE SENDER'S ADDRESS BEFORE OPENING LINKS OR ATTACHMENTS.

Hi Adam,

It was nice meeting you today. Please see attached for a pdf of our current site plan for you to pass along to the Chief. Please let me know if you need anything else from us.

Thanks,
Anna

**Anna Dedon, PE**
*Civil Engineer*

SME
SEVEE & MAHER ENGINEERS

**Sevee & Maher Engineers, Inc.**
4 Blanchard Road, P.O. Box 85A
Cumberland, ME 04021
Office: 207.829.5016
Cell: 207.831.4072

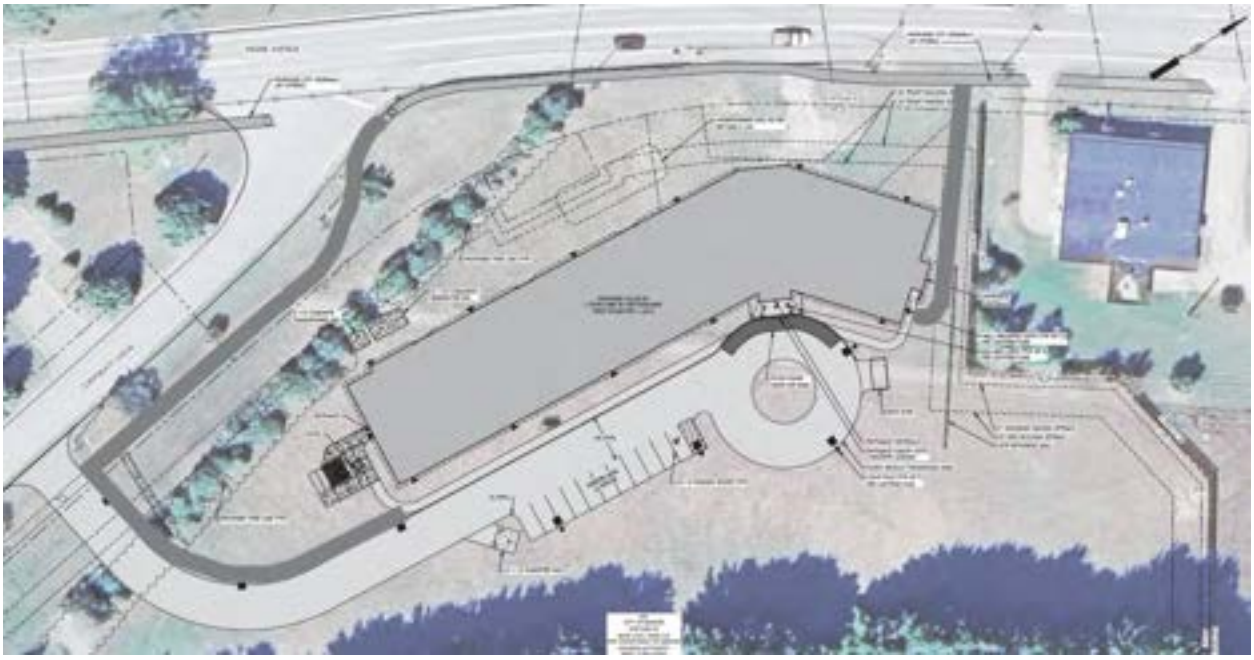
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Engineering Comments

205 Corporate Drive

BHDC SDP

1. On page 5 of the LDP, in section 13, the narrative states that the proposed development is in the watershed of Sucker Brook. The proposed project is in the watershed of Birch Stream, which is also an Urban Impaired Stream. Please correct all instances of this throughout the application.
2. Please provide a Post-Construction Stormwater Maintenance Plan.
3. Show outlet locations for Dripline filters 1 and 2.
4. Consider adding underdrain to ditch line or gravel sub grade in cut area above parking and turnaround.
5. Add one or more walkway connections such as these:



6. Sewer service appears to be proposed running through a ditch in a location near the intersection of three storm drains. It will be relatively shallow, depending on slope, and could potentially be damaged easily during future stormwater maintenance activities. Can alternate stormdrain configurations be considered here to place the sewer under storm drain pipes rather than open ditch areas that may need sediment removal in the future? If the sewer will be deep enough not to be a concern through this area, please specify inverts at connection point to the City sewer to clarify the depth of the proposed sewer service.
7. Consider modifying the dumpster pad area to provide enough pavement for a truck to stay on a hard surface during loading. It looks like a truck would not be able to "square up" with the pad without using the entire roadway.
8. Please review grading and drainage plan. Multiple constructability issues and grading issues.
   Pipe from CB1-CB2 will be going through foundation.
   Cover issues with 12" driveway culvert (only a foot of cover)
   DMH 2 cannot be built with the proposed inverts. Pipe only has 6" over cover.
   ADA parking is not graded at 2% with spot grade labeled at 164'

Check grade at main building entrance. Spot grade labeled has the front entrance slab graded at 12%. Is a tip down being proposed?
Review sidewalk grading in front of building, showing granite curb but grades do not represent curbing.

9. Please submit ITE trip generation calculations for backup to the traffic statement provided in application.

Outlook

## RE: 205 Corporate Dr

**From** Davis, Jefferson <jefferson.davis@bangormaine.gov>
**Date** Thu 5/14/2026 12:12 PM
**To** Collette, Anja <anja.collette@bangormaine.gov>; Holmquist, Jim <jim.holmquist@bangormaine.gov>
**Cc** Altiero, Matthew <Matthew.Altiero@bangormaine.gov>

Hi Anja,

Jim did a capacity study for that subsection and there is enough capacity to serve this development.

Jefferson Davis, PLA
Director of Engineering
Maine Licensed Landscape Architect
City of Bangor
73 Harlow Street
Bangor, Maine 04401
207-992-4244
jefferson.davis@bangormaine.gov

**From:** Collette, Anja <anja.collette@bangormaine.gov>
**Sent:** Tuesday, May 12, 2026 8:46 AM
**To:** Davis, Jefferson <jefferson.davis@bangormaine.gov>; Holmquist, Jim <jim.holmquist@bangormaine.gov>
**Cc:** Altiero, Matthew <Matthew.Altiero@bangormaine.gov>
**Subject:** Fw: 205 Corporate Dr

Hi, I think Jeff said you guys were checking the sewer capacity here; is there any update on that?

CITY OF BANGOR

**Anja Collette, AICP**
***Planning Officer***
*Community & Economic Development*
*Planning Division*

73 Harlow Street

Outlook

**RE: 205 Corporate Dr Staff Comments**

**From** Cindy Witas <cwitas@bangorhousing.org>
**Date** Fri 5/15/2026 2:41 PM
**To** Collette, Anja <anja.collette@bangormaine.gov>; Altiero, Matthew <Matthew.Altiero@bangormaine.gov>

**WARNING: EXTERNAL EMAIL** - DOUBLE CHECK THE SENDER'S ADDRESS BEFORE OPENING LINKS OR ATTACHMENTS.

Anja,

Moving the trees should not be a problem. Thank you for allowing us to remove shrubs in the swale. I will forward the comments to SME, the civil engineer, and we will submit a revised plan when all comments are incorporated. Can we expect more staff comments?

Thanks!

Cindy Witas| Development Director
Housing Authority of the City of Bangor
86 Davis Rd. Bangor, Maine 04401
Cell: 207-357-1280

Bangor Housing

BANGOR HOUSING DEVELOPMENT CORP.

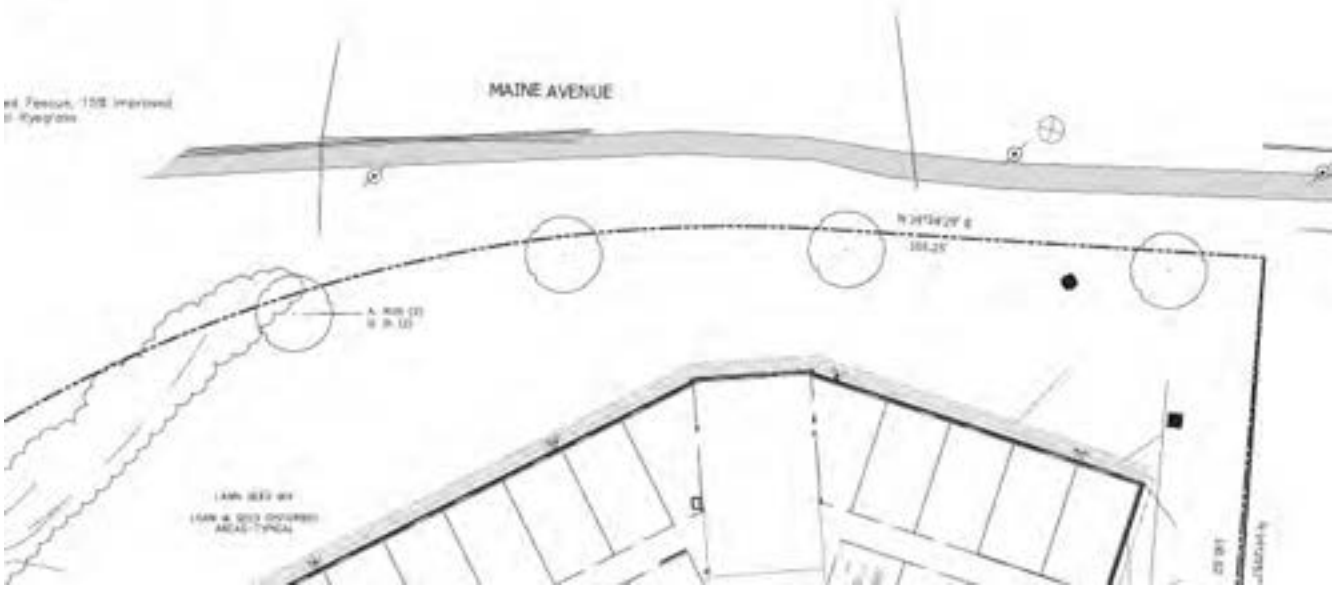
**Bangor Housing Development Corporation is an affiliate of the Housing Authority of the City of Bangor.**

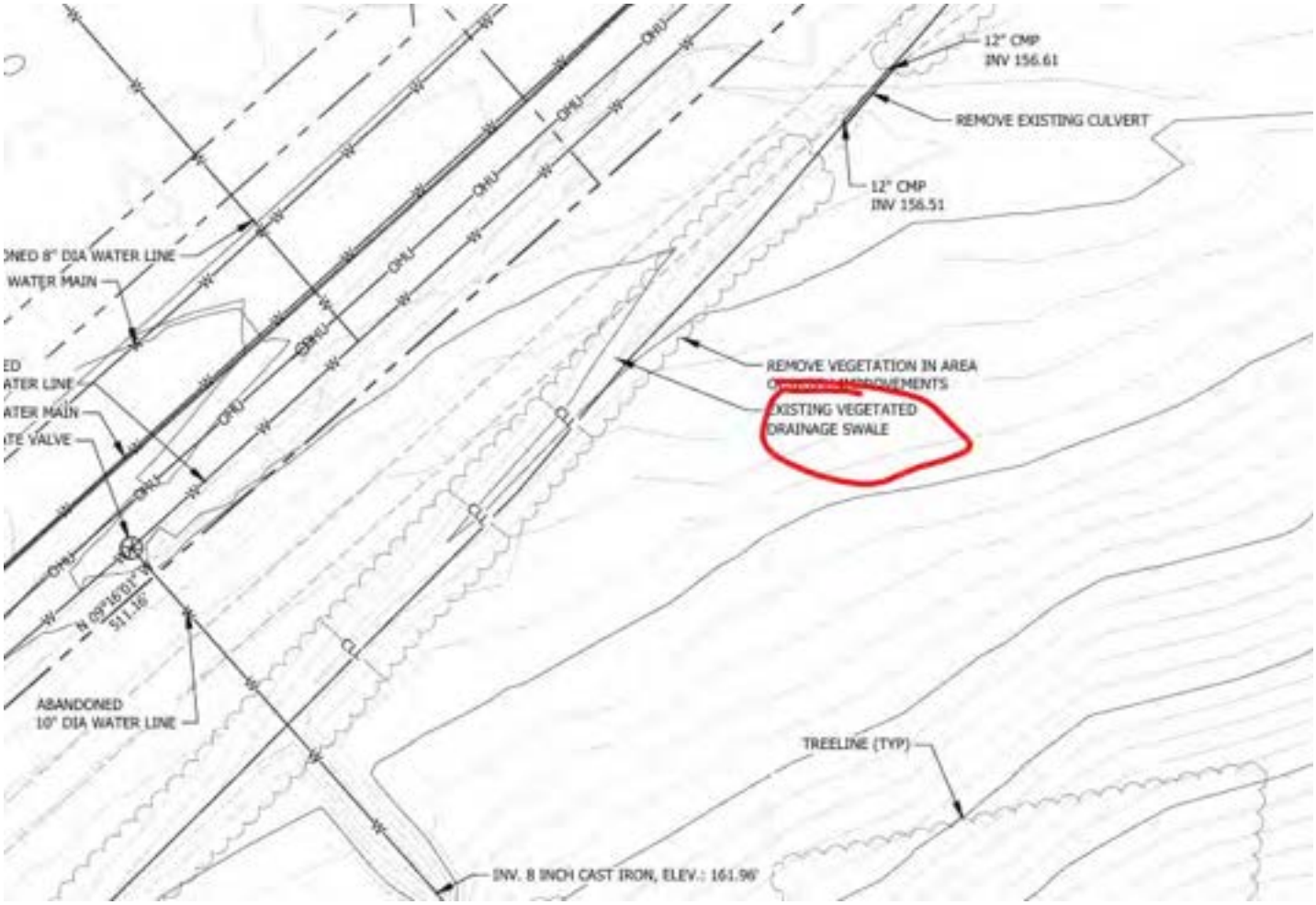
---

**From:** Collette, Anja <anja.collette@bangormaine.gov>
**Sent:** Friday, May 15, 2026 2:27 PM
**To:** Cindy Witas <cwitas@bangorhousing.org>; Altiero, Matthew <Matthew.Altiero@bangormaine.gov>
**Subject:** Re: 205 Corporate Dr Staff Comments

Hi Cindy, our Forestry Division had some requests/comments on the proposed landscaping:

- Could the 4 proposed trees shown below be moved further back? They're concerned about proximity to the utility lines and appropriate clearance, as well as leaving enough space for the City to also plant some trees along the right-of-way.
- They've indicated that most of the shrubs in the swale below (2nd picture) are invasive, so if you did want to remove them, it wouldn't be frowned upon.




CITY OF BANGOR

SME
SEVEE & MAHER ENGINEERS

4 Blanchard Road, P.O. Box 85A
Cumberland, ME 04021
Tel: 207.829.5016 • Fax: 207.829.5692
info@sme-engineers.com
sme-engineers.com

May 28, 2026

**VIA EMAIL**
Matthew Altiero
Planning Analyst, City of Bangor

Email: Matthew.Altiero@bangormaine.gov

Subject: Yellen Pines
205 Corporate Drive, Bangor, Maine
Response to City Comments

Dear Matthew,

On behalf of Bangor Housing Development Corporation (BHDC), Sevee & Maher Engineers, Inc. (SME) has prepared the following response to the review comments by the City of Bangor for the Yellen Pines Housing Project at 205 Corporate Drive in Bangor.

Review comments by City Planning Staff are outlined in bold and SME responses are listed below:

**STAFF COMMENTS**

1. **Please provide a pedestrian access point to Maine Ave. § 165-114B requires safe and adequate pedestrian connection. Two pedestrian access points would be best (Engineering will be sending comments related to this).**

   SME Response: The 5-foot sidewalk that wraps around the east side of the building has been extended to connect to the proposed sidewalk along Maine Avenue. Please see the revised plan set attached at the end of this document for details.

2. **The table showing parking says 14 spaces provided, but the plan shows 11 spaces. Also, this needs a minimum of 12 parking spots.**

   SME Response: Eleven spaces have been provided. The table on C-100 has been updated to reflect this. Ordinance § 165-72D states that a group home, halfway house, community living facility or emergency shelter is required to provide one space for each six clients to be housed plus one space for each staff person to be on the premises during the peak shift. The proposed project will service 30 clients at one time with four staff on premises during the peak shift. Therefore, the project will require five parking spaces for the number of clients and four parking spaces for staff, totaling nine spaces. Eleven spaces have been provided.

3. **The proposed tree line on C-102 does not match L101.**

   SME Response: The proposed tree lines on C-102 through C-105 have been corrected to match L-101. Vegetation in the swale will only be removed and replaced where the alignment of the swale is being changed or where the proposed driveway passes over the swale.

4. **Need to show documentation for technical capacity.**

   SME Response: Documentation for technical capacity is provided in Section 4 of Appendix B, the SLODA Amendment.

5. **Will the circular island at the building entrance be landscaped? The architectural drawings show it being completely concrete, but the site drawings indicate that it will be pervious. If proposed to be fully concrete, we would suggest making it landscaped, which may reduce costs due to less concrete being needed, and would also reduce impervious area.**

   SME Response: The island at the center of the turnaround will be landscaped. This will reduce cost and reduce the amount of stormwater treatment needed.

6. **Where red maple is proposed next to the driveway, we would suggest a more salt tolerant species, such as one of the oaks that are proposed to be used, or an alternative species such as hackberry, Kentucky coffee tree, black gum/tupelo, sassafrass, or honeylocust.**

   SME Response: The red maples have been changed to red oak.

7. **Conditional use narrative – for standard §165-9A(4), there needs to be a comparison between the proposed building and buildings within 500' of the site.**

   SME Response: A comparison between the proposed building and buildings within 500 feet of the site was provided in the Architectural Narrative in Appendix D. It discusses the architectural styles of the surrounding buildings as they compare to the proposed building.

8. **The project narrative states that the project isn't subject to 38 M.R.S.A. §§ 481 through 488, which is for SLODA, which the project is subject to since it's modifying the airport SLODA. Please modify this statement.**

   SME Response: Section J of the application narrative has been revised below to state that the project is subject to 38 M.R.S.A. §§ 481 through 488. The project will amend the existing SLODA permit for the airport per the application materials provided. Please see Attachment 1.

**FIRE DEPARTMENT COMMENTS**

1. **The turn around they are showing is large enough basically to handle the wheels on the truck but doesn't show that it can accommodate the nose of the truck which hangs out beyond the wheels.**

   SME Response: The awning overhang above the entrance slab has been reduced to provide the necessary clearance, and the light poles have been relocated to be outside of the truck's wall-to-wall radius. The location of the turnaround has also been relocated slightly further away from the building to provide more room for the awning. Please see the updated Plan Set.

**ENGINEERING COMMENTS**

1. **On page 5 of the LDP, in section 13, the narrative states that the proposed development is in the watershed of Sucker Brook. The proposed project is in the watershed of Birch Stream, which is also an Urban Impaired Stream. Please correct all instances of this throughout the application.**

SME Response: All instances of Sucker Brook have been changed to Birch Stream in the Narrative, the SLODA Amendment, and the Stormwater Report. Please see Attachments 1, 2, and 3. However, the development appears to be in the watershed of Sucker Brook per the maps provided on the City of Bangor's Urban Impaired Streams website. Please see Attachment 4 for the maps with the project's location circled.

2. **Please provide a Post-Construction Stormwater Maintenance Plan.**

   SME Response: A Post-Construction Stormwater Maintenance Plan has been included in the revised Post-Construction Stormwater Management Report in Attachment 3. The Stormwater Management Report has been revised to incorporate changes made per the City's review comments.

3. **Show outlet locations for Dripline filters 1 and 2.**

   SME Response: Roof dripline filters #1 and #2 drain toward the middle of the north side of the building and outlet through a storm drain pipe to the ditch along Maine Avenue.

4. **Consider adding underdrain to ditch line or gravel sub grade in cut area above parking and turnaround.**

   SME Response: An underdrain or gravel sub grade is not needed in this area. The drainage swale has been graded to flow toward the catch basins at either end and has been sized to handle the uphill runoff from the area south of the project.

5. **Add one or more walkway connections such as these:**

   SME Response: Please see response #1 in the Staff Comments section above.

6. **Sewer service appears to be proposed running through a ditch in a location near the intersection of three storm drains. It will be relatively shallow, depending on slope, and could potentially be damaged easily during future stormwater maintenance activities. Can alternate stormdrain configurations be considered here to place the sewer under storm drain pipes rather than open ditch areas that may need sediment removal in the future? If the sewer will be deep enough not to be a concern through this area, please specify inverts at connection point to the City sewer to clarify the depth of the proposed sewer service.**

   SME Response: The sewer configuration was chosen to avoid crossing through the neighboring property before connecting to the city sewer. The invert elevations have been revised to make the sewer line deeper, connecting at the elevation of the existing City sewer. This will avoid any potential conflict from maintenance activities to the storm system. Please see the revised Drawing C-103.

7. **Consider modifying the dumpster pad area to provide enough pavement for a truck to stay on a hard surface during loading. It looks like a truck would not be able to "square up" with the pad without using the entire roadway.**

   SME Response: The dumpster pad is angled to allow a garbage truck to pull in as it comes up the driveway. The truck is able to stay on pavement during loading and there is an 8-foot gap behind it that will allow a car to pass through. After loading, the truck can then pull back slightly, straighten out, and continue on to the turnaround. This is expected to be a low-traffic site and

the garbage truck would only impede traffic for a few minutes at a time. Please see the Autoturn figure provided in Attachment 5 for reference.

8. **Please review grading and drainage plan. Multiple constructability issues and grading issues.**

   a. **Pipe from CB1-CB2 will be going through foundation.**

      SME Response: The pipe crosses under the dripline filter but does not intersect with the building foundation. The dashed line around the building represents the roof edge, not the foundation.

   b. **Cover issues with 12" driveway culvert (only a foot of cover)**

      SME Response: The culvert has been lowered one foot and shifted up the road gradient slightly to maximize cover over the pipe to approximately two feet. The grading in the roadside swale has been adjusted to accommodate this. The driveway is already sloped at 6 percent in the area over the culvert and cannot be raised higher.

   c. **DMH 2 cannot be built with the proposed inverts. Pipe only has 6" over cover.**

      SME Response: The rim of the manhole has been raised to 159.8 and the inverts lowered to 157.3. The outlet of the pipe to the soil filter has been lowered to 156.6 to maintain a 0.5 percent slope. This will give 1.5 feet of cover over the pipes. The manhole type has also been changed to a flat-top manhole for constructability.

   d. **ADA parking is not graded at 2% with spot grade labeled at 164'**

      SME Response: The spot grade has been reduced to 163.8 to give a slope of two percent across the ADA spot.

   e. **Check grade at main building entrance. Spot grade labeled has the front entrance slab graded at 12%. Is a tip down being proposed?**

      SME Response: The spot grade has been revised to 163.8 to give a slope of two percent across the entrance slab.

   f. **Review sidewalk grading in front of building, showing granite curb but grades do not represent curbing.**

      SME Response: There will be a curb along the sidewalk. Top of curb and bottom of curb elevations have been added to make this clearer, and the proposed contour lines have been updated. Please see Drawing C-104 in the revised plan set.

9. **Please submit ITE trip generation calculations for backup to the traffic statement provided in application.**

   SME Response: The ITE Trip Generation Manual, 11th Edition, Volume 3 was used for these calculations. The project falls under the definition of both "Congregate Care Facility" and "Assisted Living." The Assisted Living data was used, as it gives a more conservative answer. Calculations are shown below.

AM Peak Hour: 0.22 Trips per Bed x 30 beds = 6.6 trips -> **7 trips**
PM Peak Hour: 0.33 Trips per Bed x 30 beds = 9.9 trips -> **10 trips**

**LANDSCAPING COMMENTS**

1. **Could the 4 proposed trees shown below be moved further back? They're concerned about proximity to the utility lines and appropriate clearance, as well as leaving enough space for the City to also plant some trees along the right-of-way.**

   SME Response: The trees have been shifted further into the site to provide more clearance.

2. **They've indicated that most of the shrubs in the swale below (2nd picture) are invasive, so if you did want to remove them, it wouldn't be frowned upon.**

   SME Response: Invasive plant material shall be removed from the swale in the area where the alignment of the swale is being changed.

SME has provided this comment response to the City's Review Comments and requests that the project be scheduled for the next available Planning Board meeting. If you have any questions or comments, please do not hesitate to contact me at 207.829.5016.

Sincerely,

SEVEE & MAHER ENGINEERS, INC.

Daniel P. Diffin, P.E., LEED AP BD+C
Vice President/Senior Civil Engineer

Attachments:
1 – Revised Application Narrative
2 – Revised SLODA Amendment Narrative
3 – Revised Stormwater Management Report
4 – Urban Impaired Stream Watershed Maps
5 – Autoturn Figure
6 – Revised Plan Set

Outlook

## Re: Response to City Comments - 205 Corporate Drive

**From** Hanscom Bilotta, Brenda <Brenda.hanscombilotta@bangormaine.gov>
**Date** Fri 5/29/2026 8:31 AM
**To** Altiero, Matthew <Matthew.Altiero@bangormaine.gov>

All set

Best Regards,


CITY OF BANGOR

**Brenda Hanscom Bilotta**
***Deputy Director of Code Enforcement***
*Code Enforcement Office*
Phone: 207-992-4224
Fax: 207-992-4196
http://www.bangormaine.gov


---

**From:** Altiero, Matthew <Matthew.Altiero@bangormaine.gov>
**Sent:** Thursday, May 28, 2026 3:18 PM
**To:** Davis, Jefferson <jefferson.davis@bangormaine.gov>; May, Richard <richard.may@bangormaine.gov>; LaBree, Jeff <jeff.labree@bangormaine.gov>; Hanscom Bilotta, Brenda <Brenda.hanscombilotta@bangormaine.gov>; Vachon, Adam <adam.vachon@bangormaine.gov>; Vaughan Littlefield <vaughan@bangorwater.org>; Holmquist, Jim <jim.holmquist@bangormaine.gov>; Peasley, Hannah <Hannah.Peasley@bangormaine.gov>
**Cc:** Collette, Anja <anja.collette@bangormaine.gov>; Rienas, Kayleigh <Kayleigh.Rienas@bangormaine.gov>; Mooney, Amelia <amelia.mooney@bangormaine.gov>
**Subject:** Fw: Response to City Comments - 205 Corporate Drive

Hi all,
Attached are the responses for the application on 205 Corporate Dr. If you have no further comments, please send a sign off. Thanks in advance!
Best,

Outlook

---

**Re: Response to City Comments - 205 Corporate Drive**

---

**From** Vachon, Adam <adam.vachon@bangormaine.gov>
**Date** Fri 5/29/2026 11:22 AM
**To** Altiero, Matthew <Matthew.Altiero@bangormaine.gov>

Fire is good with this one.
Adam


CITY OF BANGOR

**Adam Vachon**
***Fire Inspector, CFI-1***
*Fire Prevention Division*
Phone: 207-992-4180
Fax: 207-942-8213

http://www.bangormaine.gov

adam.vachon@bangormaine.gov


---

**From:** Altiero, Matthew <Matthew.Altiero@bangormaine.gov>
**Sent:** Thursday, May 28, 2026 3:18 PM
**To:** Davis, Jefferson <jefferson.davis@bangormaine.gov>; May, Richard <richard.may@bangormaine.gov>; LaBree, Jeff <jeff.labree@bangormaine.gov>; Hanscom Bilotta, Brenda <Brenda.hanscombilotta@bangormaine.gov>; Vachon, Adam <adam.vachon@bangormaine.gov>; Vaughan Littlefield <vaughan@bangorwater.org>; Holmquist, Jim <jim.holmquist@bangormaine.gov>; Peasley, Hannah <Hannah.Peasley@bangormaine.gov>
**Cc:** Collette, Anja <anja.collette@bangormaine.gov>; Rienas, Kayleigh <Kayleigh.Rienas@bangormaine.gov>; Mooney, Amelia <amelia.mooney@bangormaine.gov>
**Subject:** Fw: Response to City Comments - 205 Corporate Drive

Hi all,
Attached are the responses for the application on 205 Corporate Dr. If you have no further comments, please send a sign off. Thanks in advance!

Outlook

## Re: Response to City Comments - 205 Corporate Drive

**From** Altiero, Matthew <Matthew.Altiero@bangormaine.gov>
**Date** Thu 6/4/2026 8:08 AM
**To** Anna Dedon <Anna.Dedon@smemaine.com>
**Cc** Cindy Witas <cwitas@bangorhousing.org>; Bob Rhodes <brhodes@bangorhousing.org>; Daniel Diffin <dpd@smemaine.com>; Collette, Anja <anja.collette@bangormaine.gov>; Rienas, Kayleigh <Kayleigh.Rienas@bangormaine.gov>

Good morning,
Copied below are comments from staff regarding the revisions.

- The 205 Corporate Drive project must meet the Urban Impaired Stream Standard. They may deduct the impervious area that is being replaced from their calculations, which is not very much on this particular site. If they choose to pay the compensation fee, the City of Bangor can collect the fee and add it to the Birch Stream Compensation Fee Fund.
- Red maple still shown next to driveway.
- On the landscape plan, it doesn't look like the trees have been pulled back like Public Works requested.

Best,

CITY OF BANGOR
**Matthew Altiero, Planning Analyst**
**Community & Economic Development Department**
matthew.altiero@bangormaine.gov

*Some people have received emails or letters from an unknown source pretending to be the municipality, stating that additional, exorbitant fees are required to finish processing applications. Please know that our fee schedule is available on the City's website, and we always require fees up front before reviewing an application, not after it's been put on a Planning Board agenda.*

*Please also call our office at 207-992-4280 or email us at planning@bangormaine.gov if you're unsure or if you have any questions.*

---

**From:** Anna Dedon <Anna.Dedon@smemaine.com>
**Sent:** Thursday, May 28, 2026 3:08 PM
**To:** Altiero, Matthew <Matthew.Altiero@bangormaine.gov>
**Cc:** Cindy Witas <cwitas@bangorhousing.org>; Bob Rhodes <brhodes@bangorhousing.org>; Daniel Diffin

Outlook

## FW: 205 Corporate Drive

**From** Davis, Jefferson <jefferson.davis@bangormaine.gov>
**Date** Wed 6/3/2026 4:41 PM
**To** Collette, Anja <anja.collette@bangormaine.gov>; Altiero, Matthew <Matthew.Altiero@bangormaine.gov>
**Cc** May, Richard <richard.may@bangormaine.gov>; Rienas, Kayleigh <Kayleigh.Rienas@bangormaine.gov>; Mooney, Amelia <amelia.mooney@bangormaine.gov>

Engineering has reviewed the applicants revised plans and responses. The only comment we have is that the applicant must meet the Urban Impaired Stream Standard. See a statement from Rich below. Thank you.

Jefferson Davis, PLA
Director of Engineering
Maine Licensed Landscape Architect
City of Bangor
73 Harlow Street
Bangor, Maine 04401
207-992-4244
jefferson.davis@bangormaine.gov

**From:** May, Richard <richard.may@bangormaine.gov>
**Sent:** Wednesday, June 3, 2026 4:01 PM
**To:** Davis, Jefferson <jefferson.davis@bangormaine.gov>
**Subject:** 205 Corporate Drive

The 205 Corporate Drive project must meet the Urban Impaired Stream Standard. They may deduct the impervious area that is being replaced from their calculations, which is not very much on this particular site. If they choose to pay the compensation fee, the City of Bangor can collect the fee and add it to the Birch Stream Compensation Fee Fund.

Rich

Outlook

## RE: Response to City Comments - 205 Corporate Drive

**From** May, Richard <richard.may@bangormaine.gov>
**Date** Wed 6/10/2026 10:49 AM
**To** Collette, Anja <anja.collette@bangormaine.gov>; Altiero, Matthew <Matthew.Altiero@bangormaine.gov>; Davis, Jefferson <jefferson.davis@bangormaine.gov>
**Cc** Rienas, Kayleigh <Kayleigh.Rienas@bangormaine.gov>

Sorry, forgot to send a response. The applicant's response is acceptable. Thanks.

Rich

---

**From:** Collette, Anja <anja.collette@bangormaine.gov>
**Sent:** Wednesday, June 10, 2026 10:48 AM
**To:** Altiero, Matthew <Matthew.Altiero@bangormaine.gov>; Davis, Jefferson <jefferson.davis@bangormaine.gov>; May, Richard <richard.may@bangormaine.gov>
**Cc:** Rienas, Kayleigh <Kayleigh.Rienas@bangormaine.gov>
**Subject:** Re: Response to City Comments - 205 Corporate Drive

Hi all, just following up on this. The ad is due to be posted for this tomorrow.

CITY OF BANGOR


**Anja Collette, AICP**

***Planning Officer***

*Community & Economic Development*

*Planning Division*

73 Harlow Street

Bangor, ME 04401

anja.collette@bangormaine.gov

Phone: 207.992.4280

**From:** Altiero, Matthew <Matthew.Altiero@bangormaine.gov>
**Sent:** Monday, June 8, 2026 9:41 AM
**To:** Davis, Jefferson <jefferson.davis@bangormaine.gov>; May, Richard <richard.may@bangormaine.gov>
**Cc:** Collette, Anja <anja.collette@bangormaine.gov>; Rienas, Kayleigh <Kayleigh.Rienas@bangormaine.gov>
**Subject:** Fw: Response to City Comments - 205 Corporate Drive

Hi all,
Attached is the response to the Urban Impaired Stream Standard comment. If this satisfies that comment, can you send over your sign-off?
Thank you,

CITY OF BANGOR
**Matthew Altiero, Planning Analyst**
**Community & Economic Development Department**
matthew.altiero@bangormaine.gov

*Some people have received emails or letters from an unknown source pretending to be the municipality, stating that additional, exorbitant fees are required to finish processing applications. Please know that our fee schedule is available on the City's website, and we always require fees up front before reviewing an application, not after it's been put on a Planning Board agenda.*

*Please also call our office at 207-992-4280 or email us at planning@bangormaine.gov if you're unsure or if you have any questions.*

---

**From:** Anna Dedon <Anna.Dedon@smemaine.com>
**Sent:** Monday, June 8, 2026 9:27 AM
**To:** Altiero, Matthew <Matthew.Altiero@bangormaine.gov>
**Cc:** Cindy Witas <cwitas@bangorhousing.org>; Bob Rhodes <brhodes@bangorhousing.org>; Daniel Diffin <dpd@smemaine.com>; Collette, Anja <anja.collette@bangormaine.gov>; Rienas, Kayleigh <Kayleigh.Rienas@bangormaine.gov>
**Subject:** RE: Response to City Comments - 205 Corporate Drive

**WARNING: EXTERNAL EMAIL** - DOUBLE CHECK THE SENDER'S ADDRESS BEFORE OPENING LINKS OR ATTACHMENTS.

Hi Matthew,

Following up on the final outstanding comment from the city – We will opt to pay the compensation fee to meet the Urban Impaired Stream Standard. We have calculated the anticipated fee below based

on proposed and existing impervious area at the site. I spoke with Rich May at the stormwater department who confirmed we do not need to include our lawn areas in this calculation, as the site is already maintained as lawn.

| Compensation | SF | AC | |
|---|---|---|---|
| Non-roof Impervious | 16,543 | 0.38 | $ 4,747.31 |
| Roof | 21,720 | 0.50 | $ 2,493.09 |
| Landscaped | 462 | 0.01 | $ 26.52 |
| Total | 38,725 | 0.89 | **$ 7,266.92** |

Please reach out with any questions.

Best,

Anna

**Anna Dedon, PE**

*Civil Engineer*

SME
SEVEE & MAHER ENGINEERS

**Sevee & Maher Engineers, Inc.**

4 Blanchard Road, P.O. Box 85A

Cumberland, ME 04021

Office: 207.829.5016

Cell: 207.831.4072

This electronic message contains information from Sevee & Maher Engineers, Inc. (SME), which may be confidential, privileged, or otherwise protected from disclosure. The information is intended to be used solely by the recipient(s) named. If you are not an intended recipient, be aware that any review, disclosure, copying, distribution, or use of this transmission or its contents is prohibited. If you have received this transmission in error, please notify SME immediately at postmaster@smemaine.com.

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**From:** Anna Dedon
**Sent:** Thursday, June 4, 2026 2:03 PM
**To:** 'Altiero, Matthew' <Matthew.Altiero@bangormaine.gov>
**Cc:** Cindy Witas <cwitas@bangorhousing.org>; Bob Rhodes <brhodes@bangorhousing.org>; Daniel Diffin <dpd@smemaine.com>; Collette, Anja <anja.collette@bangormaine.gov>; Rienas, Kayleigh <Kayleigh.Rienas@bangormaine.gov>
**Subject:** RE: Response to City Comments - 205 Corporate Drive

Great! Thanks very much for reaching out to them. We look forward to attending the planning board meeting on the 16th. I will follow up with any questions.

Best,

Anna

**Anna Dedon, PE**

*Civil Engineer*

**Sevee & Maher Engineers, Inc.**

4 Blanchard Road, P.O. Box 85A

Cumberland, ME 04021

Office:  207.829.5016

Cell: 207.831.4072

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**From:** Altiero, Matthew <Matthew.Altiero@bangormaine.gov>
**Sent:** Thursday, June 4, 2026 1:59 PM
**To:** Anna Dedon <Anna.Dedon@smemaine.com>
**Cc:** Cindy Witas <cwitas@bangorhousing.org>; Bob Rhodes <brhodes@bangorhousing.org>; Daniel Diffin <dpd@smemaine.com>; Collette, Anja <anja.collette@bangormaine.gov>; Rienas, Kayleigh <Kayleigh.Rienas@bangormaine.gov>
**Subject:** Re: Response to City Comments - 205 Corporate Drive

Hi Anna,

I will circulate that to staff now.

Regarding the meeting date, I just heard back from BDN. They will be able to run the ad on Saturday, so we can get this on the 6/16 Planning Board agenda as long as we receive the revisions within the next couple of days. In the meantime, if you have any questions, please feel free to reach out.

Best,

CITY OF BANGOR

**Matthew Altiero, Planning Analyst**

**Community & Economic Development Department**

matthew.altiero@bangormaine.gov

*Some people have received emails or letters from an unknown source pretending to be the municipality, stating that additional, exorbitant fees are required to finish processing applications. Please know that our fee schedule is available on the City's website, and we always require fees up front before reviewing an application, not after it's been put on a Planning Board agenda.*

*Please also call our office at 207-992-4280 or email us at planning@bangormaine.gov if you're unsure or if you have any questions.*

| Owner | Owner 2 |
| --- | --- |
| BANGOR NURSING & REHABILITATION CENTER | |
| OHI | |
| EASTERN MAINE MEDICAL CENTER | |
| BANGOR CITY OF | |
| UNIVERSITY COLLEGE OF BANGOR | |
| BANGOR FEDERAL CREDIT UNION | |
| UNIVERSITY OF MAINE SYSTEMS | |
| PENOBSCOT COMMUNITY HEALTH CENTER (PARTY IN POSSESSION) | |
| PENQUIS DEVELOPMENT, INC | |
| BANGOR WATER DISTRICT | |
| STATE OF MAINE DEPT OF DEFENSE & VETERANS SERVICES BUREAU | |
| BANGOR CITY OF | |

| Owner Address 1 | Owner Address 2 |
| --- | --- |
| 103 TEXAS AVENUE | BANGOR ME 04401 |
| 203 MAINE AVENUE | BANGOR ME 04401 |
| c/o AP DEPT. INFOR CONTRACT #4030 43 WHITING HILL ROAD, SUITE 350 | BREWER ME 04412 |
| ATTN CITY HALL FINANCE DEPT 73 HARLOW ST | BANGOR ME 04401 |
| C/O UNIVERSITY OF MAINE SYSTEMS 46 UNIVERSITY DRIVE | AUGUSTA ME 04330 |
| PO BOX 1161 | BANGOR ME 04402-1161 |
| 46 UNIVERSITY DRIVE | AUGUSTA ME 04330 |
| P O BOX 2100 | BANGOR ME 04402-2100 |
| 262 HARLOW STREET | BANGOR ME 04401 |
| 614 STATE STREET | BANGOR ME 04401 |
| ATTN: DFE ACCOUNTING 194 WINTHROP STREET | AUGUSTA ME 04330 |
| ATTN: BANGOR INTERNATIONAL AIRPORT 287 GODFREY BLVD | BANGOR ME 04401 |

CITY OF BANGOR
PLANNING DIVISION

# COMMUNITY & ECONOMIC DEVELOPMENT

June 4, 2026

Dear Property Owner,

Please be advised that the Planning Board of the City of Bangor will hold a public hearing on Tuesday, June 16th, 2026, beginning at 7 PM in the Council Chambers on the 1st floor of City Hall (73 Harlow Street) and will consider the following application:

**Land Development Permit Application – Major Site Development, Conditional Use, and Major SLODA Modification for the construction of a 30-unit permanent supportive housing building with a total floor area of 19,100 square feet at property located at 205 Corporate Drive, Map-Lot R25-001-A, in the Government & Institutional Service District (G&ISD). Applicant: Bangor Housing Development Corporation. Owner: City of Bangor.**

A full copy of the application can be emailed or mailed to any interested party by emailing a request to planning@bangormaine.gov or calling the office at 207.992.4257. Copies of the application can also be picked up at City Hall. To submit comments in writing, please email comments to planning@bangormaine.gov or mail to 73 Harlow Street before 4 PM, June 15th, 2026. Interested parties can also make an appointment by email or phone to meet with Planning Division staff in person or on Zoom.

The public is welcome to attend the meeting in person or via Zoom. Public comments are allowed over Zoom; however, you must register before 9 AM, June 16th at https://bangormaine.gov/504/Meeting-Participation. Zoom details can be found at the city's website under www.bangormaine.gov/calendar. The Planning Board meeting may be streamed live via the City of Bangor's YouTube page; however, comments are not enabled during streaming. Please call our office if you have questions about the process or participation in the hearing process.

Anja Collette
Planning Officer
207-992-4280
planning@bangormaine.gov

BLUEPRINT BANGOR
LAND DEVELOPMENT CODE UPDATE

**Bangor is rewriting its Land Development Code! For more details and to sign up for updates, visit www.blueprintbangor.com**

Outlook

**RE: 205 Abutters and Public Notice**

**From** Ryan, Walter <walter.ryan@bangormaine.gov>
**Date** Fri 6/5/2026 8:47 AM
**To** Rienas, Kayleigh <Kayleigh.Rienas@bangormaine.gov>

Mailed

CITY OF BANGOR
**Walter E. Ryan**
***Print Shop Foreman***
*Central Services Division*
*73 Harlow Street*
*Bangor, ME 04401*
Phone: 207-992-4181
Fax: 207-945-4449
www.bangormaine.gov

***FY26 NOTE: LAST DAY OF PRINTING FOR FY26 IS JUNE 19TH !!!!!***

********PLEASE NOTE: CENTRAL SERVICES WILL BE CLOSED STARTING JUNE 24TH. WE WILL RESUME NORMAL OPERATIONS ON JULY 6TH. ********

---

**From:** Rienas, Kayleigh <Kayleigh.Rienas@bangormaine.gov>
**Sent:** Thursday, June 4, 2026 4:15 PM
**To:** Ryan, Walter <walter.ryan@bangormaine.gov>
**Cc:** Altiero, Matthew <Matthew.Altiero@bangormaine.gov>; Ryan, Walter <walter.ryan@bangormaine.gov>
**Subject:** 205 Abutters and Public Notice

Hi Walter,

Attached are the abutters and public notice for 205 Corporate Dr. If you have a chance, would you be able to work on this tomorrow? If not, no worries — we can complete it internally.

Thank you for all of your help!

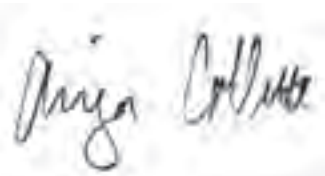
Kayleigh

CITY OF BANGOR

Please be advised that the Planning Board of the City of Bangor will hold a public hearing on Tuesday, June 16th, 2026, beginning at 7 p.m. in the Council Chambers on the 1st floor of City Hall (73 Harlow Street) and will consider the following application:

**Land Development Permit Application – Major Site Development, Conditional Use, and Major SLODA Modification for the construction of a 30-unit permanent supportive housing building with a total floor area of 19,100 square feet at property located at 205 Corporate Drive, Map-Lot R25-001-A, in the Government & Institutional Service District (G&ISD). Applicant: Bangor Housing Development Corporation. Owner: City of Bangor.**

To receive a copy of the proposed amendments or to submit comments, please call 207.992.4257 or email: planning@bangormaine.gov. Please submit any comments by 4 p.m. on June 15th, 2026. Interested parties can also make an appointment by email or phone to meet with Planning Division staff. The public is welcome to attend the meeting in person or viz Zoom. Public comments are allowed over Zoon; however, you must register before 9 a.m., June 16 at:
https://bangormaine.gov/504/Meeting-Participation.
Zoom details can be found at the city's website under: bangormaine.gov/calendar. The meeting may also be streamed live via the City of Bangor's YouTube page; however, comments are not enabled on this page. Please call our office if you have questions about the process or participation in the hearing process.



Anja Collette
Planning Officer

June 6, 2026

**CITY COUNCIL ACTION**

Council Meeting Date: June 8, 2026

Item No: 26-

Responsible Dept: Planning

Action Requested: Ordinance Map/Lot: n/a

**Title, Ordinance**

Amending the Land Development Code, §165-30, to Add a New Accessory Use for Farmstands and to Exempt Agricultural and Outdoor Recreational Uses from Paving Requirements

**Summary**

This amendment would add a farmstand section to the Accessory Use and Structures section of the Land Development Code to allow for small-scale retail sales of food or non-food crops grown on a site (excluding cannabis). The amendments would require this use to be 200 square feet or less in area and would exempt it from land development permitting. This use would be allowed in the Rural Residence and Agricultural (RR&A), Neighborhood Service District (NSD), and Urban Service District (USD). The amendments would also remove the requirement to pave the driveway and parking areas of agricultural and outdoor recreational uses. These changes align with guidance in the 2022 Comprehensive Plan to revise zoning to provide flexibility for agricultural uses and the sale of agricultural products, including in urban areas.

**Committee Action**

Committee: Planning Board Meeting Date: 06/16/2026

Action: For: Against:

**Staff Comments & Approvals**

City Manager City Solicitor Finance Director

**Introduced for:** First Reading

**CITY COUNCIL ORDINANCE**

Date: June 8, 2026

Assigned to Councilor:

**ORDINANCE,** Amending the Land Development Code, to Add a New Accessory Use for Farmstands and to Exempt Agricultural and Outdoor Recreational Uses from Paving Requirements.

**WHEREAS,** the Land Development Code currently contains barriers for agricultural uses to sell farm products, such as requiring a Land Development Permit for farmstands in certain zones and requiring paving of driveways and parking areas in most districts; and

**WHEREAS,** this limits opportunities for farmers who may be looking to sell farm products on the same property where they grow crops; and

**WHEREAS,** the proposed amendments allow additional flexibility for agriculture operations to expand in the City and would align with recommendations in the 2022 Comprehensive Plan;

**Be it Ordered by the City Council of the City of Bangor that,**

The Land Development Code shall be amended as shown below:

…

**§ 165-30. Farmstand.**

1. A farmstand that is less than 200 square feet in area and that is for the sale of food or non-food crops, excluding cannabis, grown or produced only on the premises, is exempt from land development permitting.
2. A farmstand may be located in a required front setback, but must be set back a minimum of 10 feet from a street right-of-way.
3. Farmstands shall only be permitted in the following districts: Rural Residence and Agricultural (RR&A), Neighborhood Service District (NSD), and Urban Service District (USD).
4. All other local and State laws must be followed, including, but not limited to, building permit requirements, zoning restrictions on animal agriculture, licensing for State-regulated agricultural products, and local food sovereignty licensing.

…

**§ 165-74. Design, construction and maintenance.**

…

C. Paving. Parking lot paving will be required in accordance with the following schedule, except that parking lots associated with agricultural and outdoor recreational uses are not required to be paved:

| District | Extent of Paving Required | |
|---|---|---|
| URD-2, M & SD, NSD, USD, DDD, WDD, G & ISD, LDR, HDR, T & S and S & PS | All parking, loading, display and maneuvering surfaces[1] | |
| ADD, UID, GC & S and I & S | All front yard display, maneuvering and | |

| | | |
|---|---|---|
| | parking area surfaces[1] | |

**CITY COUNCIL ACTION**

Council Meeting Date: June 8, 2026

Item No: 26-

Responsible Dept: Planning

Action Requested: Ordinance Map/Lot: n/a

**Title, Ordinance**

Amending the Land Development Code, §165-26, to Add a New Seasonal Storage Use and to Add Flexibility for Temporary Storage Uses.

**Summary**

This amendment would add a new seasonal storage use to accommodate temporary storage uses that may not be present in a location year-round, but may require the flexibility to be placed on a lot for more than 2 years (since the current ordinance on temporary storage limits this use to being placed for a maximum of 2 years). Additionally, for temporary storage uses, the requirement to receive approval from Board of Appeals is unusual for a use in the Land Development Code and onerous for applicants. Some of the limitations on temporary storage are also either redundant or subjective (and therefore difficult to enforce). Therefore, these amendments propose to amend the approval process and remove some limitations on this use that have been determined to be unnecessary or unenforceable.

**Committee Action**

Committee: Planning Board Meeting Date: 6/16/2026

Action: For: Against:

**Staff Comments & Approvals**

City Manager
Director

City Solicitor

Finance

**Introduced for:** First Reading

**CITY COUNCIL ORDINANCE**

Date: June 8, 2026

Assigned to Councilor:

**ORDINANCE,** Amending the Land Development Code, §165-26, to Add a New Seasonal Storage Use and to Add Flexibility for Temporary Storage Uses.

**WHEREAS,** a need has been expressed to accommodate temporary storage uses that would be placed in a location for more than 2 years, but are only present on a lot seasonally; and

**WHEREAS,** a need has also been expressed to change the approval process for temporary storage uses and to amend certain limitations that are redundant or subjective;

**Be it Ordered by the City Council of the City of Bangor that,**

The Land Development Code shall be amended as shown below:

**§ 165-26 Temporary and seasonal storage.**

A. Temporary Storage.

~~Portable or mobile trailers, vans and similar vehicles~~ Shipping containers or temporary ~~buildings~~ structures may be used for storage ~~or display only upon approval of the Board of Appeals and only~~ for a temporary period not to exceed one year, with the following provisions:~~.~~

~~A.~~(1) ~~Such a~~Approval for this use may be granted through the process for a certificate of occupancy ~~by the Board of Appeals~~, and may be extended for one additional period of one year only, if it is found that ~~the Board finds~~ that:

~~(1)~~(a) The use, in combination with the primary use and accessory uses on the same lot, does not exceed maximum lot coverage requirements as set forth in this chapter for the district in which it is to be located.

~~(2) There is a valid temporary need which cannot be met within the principal structure and that an adequate operational hardship can be shown if the request is not granted.~~

~~(3) The initial approval, or any renewal, of the use will not in any way be detrimental to the neighboring properties, including aesthetic impact.~~

~~(4)~~(b) The use is not intended as a permanent or long-term use.

~~(5) The use is not intended to circumvent building area limitations for that district.~~

~~(6) The use will be adequately screened from neighborhood properties and the street.~~

~~(7)~~(c) The use will not be used as or intended for advertising for on- or off-premises purposes.

~~(8)~~(d) The use is not intended for retail sales.

(e) The storage unit or structure shall be located no closer than ten (10) feet to any adjacent property line.

~~B.~~(2) ~~Exceptions to the requirements of Subsection A(1)(a-h) above may be permitted by the Code Enforcement Officer for a single period not to exceed 30 days in any one calendar year, provided that such use is for temporary retail sales only.~~

~~C.~~(2) The above provisions do not prohibit the use of such temporary facilities as construction or job site office or equipment storage facilities during construction, provided that no advertising other

than the contractor's name shall be on the vehicle or facility and that such signs meet the requirements of Chapter 260, Signs.

B. Seasonal Storage.

Shipping containers or temporary structures may be used for seasonal storage, subject to the following conditions:

(1) The proposed use must comply with the requirements of Subsection A(1)(a) and (c-d) above. The requirement set forth in Subsections A(1)(b) shall not apply, as seasonal storage can be applied for biannually.

(2) Such use shall be permitted for a period not to exceed one hundred eighty (180) days within any calendar year.

(3) Seasonal storage uses shall not be permitted in any residential zoning district.

(4) The storage unit or structure shall be located no closer than ten (10) feet to any adjacent property line.

(5) The storage unit or structure shall not be located within a designated floodplain or flood hazard area.

(6) Approval shall be granted through the process for a certificate of occupancy, and these certificates of occupancy must be applied for biannually for approval from the Code Enforcement Division.

CITY OF BANGOR

Please be advised that the Planning Board of the City of Bangor will hold a public hearing on Tuesday, June 16th, 2026, beginning at 7 p.m. in the Council Chambers on the 1st floor of City Hall (73 Harlow Street) and will consider the following amendments to the Land Development Code:

**To amend the Land Development Code, §165-26, to Add a New Seasonal Storage Use and to Add Flexibility for Temporary Storage Uses.**

**To amend the Land Development Code, §165-30, to Add a New Accessory Use for Farmstands and to Exempt Agricultural and Outdoor Recreational Uses from Paving Requirements.**

To receive a copy of the proposed amendments or to submit comments, please call 207.992.4257 or email: planning@bangormaine.gov. Please submit any comments by 4 p.m. on June 15th, 2026. Interested parties can also make an appointment by email or phone to meet with Planning Division staff. Bangor City Hall is open to attend the meeting in person. Interested parties may also attend the meeting on Zoom. Public comments are allowed over Zoom; however, you must register before 9 a.m. on June 16th at: https://bangormaine.gov/504/Meeting-Participation. Zoom details can be found at the city's website under www.bangormaine.gov/calendar. The meeting may also be streamed live via the City of Bangor's YouTube page; however, comments are not enabled on this page. Please call our office if you have questions about the process or participation in the hearing process.



Anja Collette, AICP
Planning Officer

June 4, 9, 2026

CITY OF BANGOR
ANNE M. KRIEG AICP
DIRECTOR

COMMUNITY & ECONOMIC DEVELOPMENT

# Memorandum

To: Business & Economic Development Committee
From: Anja Collette, Planning Officer
Date: June 4, 2026
Regarding: Proposed changes to manufactured home park ordinance

The purpose of this memo is to discuss proposed changes to regulations on manufactured home parks in the Land Development Code.

Currently, the more flexible alternative development standards listed in the manufactured home park chapter of the Land Development Code only apply to parks existing before September 13, 1971. This poses issues for parks that were developed in the decades that followed 1971 since they have to follow the standards for new parks. In some cases, this is preventing the placement of homes on vacant lots, which affects the supply of affordable housing. Staff have drafted language, which is in your packets, that would apply the alternative development standards to all parks existing as of June 1, 2026.

73 HARLOW STREET, BANGOR, ME 04401
TELEPHONE: (207) 992-4280 FAX: (207) 945-4447
WWW.BANGORMAINE.GOV

Item No Date

## CITY COUNCIL ACTION

Council Meeting Date: 6/22/2026

Item No:

Responsible Dept: Planning

Action Requested: Ordinance Map/Lot: N/A

**Title, Ordinance**

Amending Chapter 165, Land Development Code by Adding Flexibility for Manufactured Home Parks Existing as of January 1, 2026

**Summary**

This ordinance amendment would amend the Land Development Code by allowing manufactured home parks existing as of January 1, 2026 to use more flexible development standards. Currently, the alternative development standards listed in this chapter only apply to parks existing before September 13, 1971. This poses issues for parks that were developed in the decades that followed 1971 since they have to follow the standards for new parks and in some cases, this is preventing the placement of homes on vacant lots, which affects the supply of affordable housing.

**Committee Action**

Committee: Planning Board Meeting Date: 7/7/2026

Action: For: Against:

**Staff Comments & Approvals**

City Manager City Solicitor Finance Director

**Introduced for:** First Reading and Referral

Item No Date

**CITY COUNCIL ORDINANCE**

Date: 6/22/2026

Assigned to Councilor:

**ORDINANCE,** Amending Chapter 165, Land Development Code by Adding Flexibility for Manufactured Home Parks Existing as of January 1, 2026;

**WHEREAS,** at present, the current ordinance for manufactured home parks limits the more flexible, alternative development standards to parks existing before September 13, 1971;

**WHEREAS,** at present, this poses issues for parks that were developed in the decades that followed 1971 that have to meet the standards for new parks;

**BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF BANGOR AS FOLLOWS, THAT**

Chapter 165 of the Code of the City of Bangor is amended as follows:

**§ 165-121 Existing mobile home parks.**

…

B. Any mobile home park in existence prior to January 1, 2026 ~~the effective date of this chapter, but after September 13, 1971~~ must meet the development requirements of §165-121D below. ~~§165-120~~.

~~C. Any application for the reconstruction of an mobile home park under this chapter shall comply with the provisions of Article XVI and this article, are permitted to use the alternative development requirements outlined in Subsection E below.~~

D. Any existing mobile home park developed prior to January 1, 2026 ~~September 13, 1971~~, may be reconstructed in its entirety in accordance with the provisions of this subsection.

…

Additions are underlined, deletions ~~struck through~~.

**CITY COUNCIL BUDGET WORKSHOP**
**AGENDA**
**City Hall, Council Chambers 73 Harlow St.**
**June 17, 2026 @ 5:15 pm**

*The City's Proposed Budget is available here:*
*FY27 Budget Proposal.pdf (bangormaine.gov). The Table of Contents, page 3, is hyperlinked for ease of access. Click on the section you'd like to view to be brought to that section.*

1. **City Manager Budget Updates**

2. **Review of City Budget**

3. **Next Steps**

# OFFICE OF THE CITY MANAGER

CITY OF BANGOR

**Carollynn J. Lear**
City Manager

To: City Council
From: Carollynn Lear, City Manager
Date: June 17, 2026
RE: Prioritization of New Positions

At the request of City Council, City staff have attempted to prioritize the new position requests within the proposed budget. New positions have been listed in three priority categories, but we have not attempted to further prioritize the positions within each priority category.

## Critical Priority

Without added resources, basic public service expectations may not be met or there may be a palpable impact on residents or the City.

| | |
|---|---|
| 4 Firefighters | Administrative Clerk – Treasury |
| IT Cyber Security Analyst | Finance Staff Accountant |
| Code Enforcement Inspector | Housing Support Navigator |
| Homeless Response Coordinator | Transit Drivers Full Time |

## High Priority

Added position will maintain current service levels given increased demand, decrease costly staff burnout and turnover, or show a clear monetary return on investment.

| | |
|---|---|
| 8 Firefighters (4 additional) | Fire Department Training Officer |
| 2 Fleet Mechanics | Administrative Clerk for City Clerk |
| *Downtown Patrol Officer (Funded w/ TIF)* | Second Asst. City Solicitor & PT Paralegal |
| Housing Rehab Coordinator | Park Ranger (Currently PT, make FT) |
| Engineering Assistant/Inspector | *Asst. Airport Dir., Finance & Bus Develop.* |
| *Tank Farm Field Maintenance Technician* | |

## Priority

Added position will improve customer service or ensure uninterrupted and prompt service delivery.

| | |
|---|---|
| Urban Development Officer | Rec Sports Coord (Currently PT, make FT) |
| IT Cloud Security Analyst | |

*Italicized positions utilize non-property tax funding sources.*

# CITY OF BANGOR

# PROPOSED BUDGET CHANGES FISCAL YEAR 2026-2027 (6/17/2026)

**UPDATED - 4 FF**
**6/17/2026**

**Estimated General Fund**
**Municipal Property Tax Rate Calculation**
**2026 and 2027**

| | Adopted FY 26 | Proposed FY 27 | $ Change | % Change |
|---|---|---|---|---|
| City Expenses | | | | |
| Operating Expenses | 66,726,702 | 72,721,352 | 5,994,650 | 9.0% |
| Capital Expenses/New Positions | 1,260,900 | 1,815,505 | 554,605 | 44.0% |
| Debt Service/TIF | 4,197,910 | 4,582,582 | 384,672 | 9.2% |
| Pension Obligation Debt Service | 3,000,251 | - | (3,000,251) | -100.0% |
| Voter Approved Debt Service | 196,125 | - | (196,125) | -100.0% |
| Total City Expenses | 75,381,888 | 79,119,439 | 3,737,551 | 5.0% |
| School Expenses | | | | |
| Operating Expenses | 59,663,968 | 63,127,201 | 3,463,233 | 5.8% |
| Debt Service | 2,380,000 | 2,380,000 | - | 0.0% |
| Local Share Adult Education | 278,023 | 292,843 | 14,820 | 5.3% |
| Total School Expenses | 62,321,991 | 65,800,044 | 3,478,053 | 5.6% |
| Total Expenses | 137,703,879 | 144,919,483 | 7,215,604 | 5.2% |
| Less: Non-Tax Revenues | | | | |
| City | 44,512,814 | 46,409,013 | 1,896,199 | 4.3% |
| School | 31,912,480 | 34,571,020 | 2,658,540 | 8.3% |
| Total Non-Tax Revenues | 76,425,294 | 80,980,033 | 4,554,739 | 6.0% |
| Proposed Tax Levy | | | | |
| City | 30,869,074 | 32,710,426 | 1,841,352 | 6.0% |
| School | 30,409,511 | 31,229,024 | 819,513 | 2.7% |
| County | 5,171,827 | 6,082,901 | 911,074 | 17.6% |
| Overlay | 315,000 | 484,000 | 169,000 | 53.7% |
| Total Tax Levy | 66,765,412 | 70,506,351 | 3,740,939 | 5.6% |
| Total Assessed Value | 4,299,438,400 | 4,734,525,700 | 435,087,300 | 10.1% |
| Less Downtown DD | 243,446,300 | 310,756,800 | 67,310,500 | 27.6% |
| Less Homestead | 128,558,200 | 125,992,100 | (2,566,100) | -2.0% |
| Less BETE Exempt | 155,587,300 | 205,395,500 | 49,808,200 | 32.0% |
| Net Available Taxable Assessed Value | 3,771,846,600 | 4,092,381,300 | 320,534,700 | 8.5% |
| Proposed Tax Rate | | | | |
| City (Including Overlay) | 8.27 | 8.11 | (0.16) | -1.9% |
| School | 8.06 | 7.63 | (0.43) | -5.3% |
| County | 1.37 | 1.49 | 0.12 | 8.4% |
| Total | 17.70 | 17.22 | (0.48) | -2.7% |

**UPDATED - 8 FF**
**6/17/2026**

**Estimated General Fund**
**Municipal Property Tax Rate Calculation**
**2026 and 2027**

| | Adopted FY 26 | Proposed FY 27 | $ Change | % Change |
|---|---|---|---|---|
| City Expenses | | | | |
| Operating Expenses | 66,726,702 | 72,721,352 | 5,994,650 | 9.0% |
| Capital Expenses/New Positions | 1,260,900 | 2,211,779 | 950,879 | 75.4% |
| Debt Service/TIF | 4,197,910 | 4,582,582 | 384,672 | 9.2% |
| Pension Obligation Debt Service | 3,000,251 | - | (3,000,251) | -100.0% |
| Voter Approved Debt Service | 196,125 | - | (196,125) | -100.0% |
| Total City Expenses | 75,381,888 | 79,515,713 | 4,133,825 | 5.5% |
| School Expenses | | | | |
| Operating Expenses | 59,663,968 | 63,127,201 | 3,463,233 | 5.8% |
| Debt Service | 2,380,000 | 2,380,000 | - | 0.0% |
| Local Share Adult Education | 278,023 | 292,843 | 14,820 | 5.3% |
| Total School Expenses | 62,321,991 | 65,800,044 | 3,478,053 | 5.6% |
| Total Expenses | 137,703,879 | 145,315,757 | 7,611,878 | 5.5% |
| Less: Non-Tax Revenues | | | | |
| City | 44,512,814 | 46,409,013 | 1,896,199 | 4.3% |
| School | 31,912,480 | 34,571,020 | 2,658,540 | 8.3% |
| Total Non-Tax Revenues | 76,425,294 | 80,980,033 | 4,554,739 | 6.0% |
| Proposed Tax Levy | | | | |
| City | 30,869,074 | 33,106,700 | 2,237,626 | 7.2% |
| School | 30,409,511 | 31,229,024 | 819,513 | 2.7% |
| County | 5,171,827 | 6,082,901 | 911,074 | 17.6% |
| Overlay | 315,000 | 484,000 | 169,000 | 53.7% |
| Total Tax Levy | 66,765,412 | 70,902,625 | 4,137,213 | 6.2% |
| Total Assessed Value | 4,299,438,400 | 4,734,525,700 | 435,087,300 | 10.1% |
| Less Downtown DD | 243,446,300 | 310,756,800 | 67,310,500 | 27.6% |
| Less Homestead | 128,558,200 | 125,992,100 | (2,566,100) | -2.0% |
| Less BETE Exempt | 155,587,300 | 205,395,500 | 49,808,200 | 32.0% |
| Net Available Taxable Assessed Value | 3,771,846,600 | 4,092,381,300 | 320,534,700 | 8.5% |
| Proposed Tax Rate | | | | |
| City (Including Overlay) | 8.27 | 8.21 | (0.06) | -0.7% |
| School | 8.06 | 7.63 | (0.43) | -5.3% |
| County | 1.37 | 1.49 | 0.12 | 8.4% |
| Total | 17.70 | 17.32 | (0.39) | -2.2% |

**FY27 NEW PROGRAM AND CAPITAL REQUESTS**

| Department | Request | New Program | Other | Capital | Funded | Operating Budget | Improvement Reserve | Bond Issue | Other | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| Records | | | | | | | | | | |
| | Administrative clerk for City Clerks | 60,136 | | | Y | 60,136 | | | | |
| | Administrative clerk for Treasury | 60,136 | | | Y | 60,136 | | | | |
| Legal | | | | | | | | | | |
| | Part time assistant | 17,160 | | | Y | 17,160 | | | | |
| | Full time Assistant City Solicitor | 102,929 | | | Y | 102,929 | | | | |
| | Computer equipment | | | 2,038 | Y | | | | 2,038 | Unassigned Fund Balance |
| Executive | | | | | | | | | | |
| | Emergency Management Director | 220,000 | | | N | | | | | |
| Central Services | | | | | | | | | | |
| | Die Cutter | 35,000 | | | Y | | | | 35,000 | Unassigned Fund Balance |
| | Print MIS System | 8,000 | | | Y | | | | 8,000 | Unassigned Fund Balance |
| | Wide format printer | 15,000 | | | Y | | | | 15,000 | Unassigned Fund Balance |
| Info Services | | | | | | | | | | |
| | IT Cyber Security Analyst Position | 96,926 | | | Y | 96,926 | | | | |
| | IT Cloud Security Analyst Position | 96,926 | | | Y | 96,926 | | | | |
| | Financial/Land Use/Human Resource System Replacement | | | 250,000 | Y | | | | 250,000 | Unassigned Fund Balance |
| | Upgrade/Replacement of Avigilon camera server | | | 20,000 | Y | | | | 20,000 | Unassigned Fund Balance |
| | PC Capital Replacments | | | 50,000 | Y | | | | 50,000 | Unassigned Fund Balance |
| | Expand Fiber Network for Redundancy | | | 130,000 | Y | | | | 130,000 | Unassigned Fund Balance |
| | City Wide Disk Storage SANs Upgrade(City Hall and PD) | | | 165,000 | Y | | | | 165,000 | Unassigned Fund Balance |
| | IT Department remodel of old council chambers for IT Office space | | | 25,000 | Y | | | | 25,000 | Unassigned Fund Balance |
| | FIRE/PD - Expand Fiber RADIO Network for Redundancy | | | 30,000 | Y | | | | 30,000 | Unassigned Fund Balance |
| | City Wide replacement of Hikevision Cameras | | | 42,000 | Y | | | | 42,000 | Unassigned Fund Balance |
| | Upgrade of City Wide Wifi | | | 32,000 | Y | | | | 32,000 | Unassigned Fund Balance |
| | YUBIKEY Security Key for MFA and secure logins (not Airport) | | | 22,500 | Y | | | | 22,500 | Unassigned Fund Balance |
| Comm Connect | | | | | | | | | | |
| | Transit Drivers & Full-Time | 112,519 | | | Y | 112,519 | | | | |
| | Facilities Upgrades | | | 50,000 | N | | | | - | |
| | Annual Replacement Reserve Funding | | | 550,000 | P | | | | 125,000 | Bus Operating |
| | | | | | | | | | | 125,658 - FTA |
| | ADA Vans | | | 157,073 | Y | | | | 157,073 | 31,415 Bus Operating |
| | | | | | | | | | | 7,852,320 - FTA |
| | | | | | | | | | | 981,540 - MDOT |
| | | | | | | | | | | 275,000 - Bus Operating |
| | Rehab of Cold Bus Barn (1980) Local Only | | | 9,833,860 | Y | | | | 9,833,860 | 725,000 - Existing Funds |
| | Service Vehicle | | | 40,000 | N | | | | - | |
| | Transit Technology (Moblie fare ticketing) | | | 100,000 | P | | | | 75,000 | Bus Operating |
| | Cold Bus Barn extras | | | 300,000 | N | | | | - | |
| | | | | | | | | | | 1,200,000 - grant opportunity |
| | Transit Buses (Hybrid/Electric) (MDOT anticipated grant opportunity) | | | 1,500,000 | Y | | | | 1,500,000 | 300,000 - Community Connector Reserve |
| Finance | | | | | | | | | | |
| | Staff Accountant | 92,166 | | | Y | 92,166 | | | | |
| Planning | | | | | | | | | | |
| | Digitizing planning files | 50,000 | | | N | | | | | |
| Community & Economic Development | | | | | | | | | | |
| | Urban Development Officer | 93,779 | | | Y | 93,779 | | | | |
| | Housing Rehab Coordinator (split 50/50 with Code) | 33,900 | | | Y | 33,900 | | | | Split 50/50 with Code |
| | Quality Housing Provider program | 300,000 | | | Y | | | | 300,000 | Unassigned Fund Balance |
| | Mall redevelopment plan | 200,000 | | | Y | | | | 200,000 | Unassigned Fund Balance |
| | Affordable housing fund | 2,000,000 | | | N | | | | | |
| Code Enforce | | | | | | | | | | |
| | Code Enforcement Inspector Position | 63,488 | | | Y | 63,488 | | | | |
| | Housing Rehab Coordinator (split 50/50 with Code) | 33,900 | | | Y | 33,900 | | | | Split 50/50 with CED |
| | Vehicle Replacement | | | 60,000 | Y | | | | 60,000 | Unassigned Fund Balance |
| | Permitting, Code, Planning, Fire Inspection, Licensing Software | | | 85,000 | Y | | | | 85,000 | Unassigned Fund Balance |

**FY27 NEW PROGRAM AND CAPITAL REQUESTS**

| Department | Request | New Program | Other | Capital | Funded | Operating Budget | Improvement Reserve | Bond Issue | Other | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| Police | | | | | | | | | | |
| | Patrol Vehicle Replacement | | | 280,000 | Y | | | | 280,000 | Unassigned Fund Balance |
| | Services Vehicle Replacement | | | 45,000 | Y | | | | 45,000 | Unassigned Fund Balance |
| | Detective Vehicle Replacement | | | 80,000 | Y | | | | 80,000 | Unassigned Fund Balance |
| | Employee Hiring Program | | | 40,000 | Y | | | | 40,000 | Unassigned Fund Balance |
| | Mobile Data Terminal Replacement/Maintenance | | | 57,400 | Y | | | | 57,400 | Unassigned Fund Balance |
| | Electronic Fingerprint System | | | 22,000 | Y | | | | 22,000 | Unassigned Fund Balance |
| | Body Worn Camera | | | 74,000 | Y | | | | 74,000 | Unassigned Fund Balance |
| | Facility Infrastructure and Equipment Improvement | | | 15,000 | Y | | | | 15,000 | Unassigned Fund Balance |
| | Electric Patrol Vehicle - Downtown Patrol | | | 72,000 | Y | | | | 72,000 | Unassigned Fund Balance |
| | Uniform/Equipment/CID/Winter Wear Gear | | | 15,000 | Y | | | | 15,000 | Unassigned Fund Balance |
| | IT - Monitors/Hard Drive/Forensic Computer | | | 12,500 | Y | | | | 12,500 | Unassigned Fund Balance |
| Fire | | | | | | | | | | |
| | 4 Firefighter/Paramedics (528,365) or | 396,274 | | | Y | 396,274 | | | | |
| | 8 Firefighter/Paramedics (1,056,731) | 792,548 | | | N | | | | | |
| | Training Officer (137,110) | 102,833 | | | Y | 102,833 | | | | |
| | Station 5 and 6 Climate Control | | | 100,000 | Y | | | | 100,000 | Unassigned Fund Balance |
| | Supervisor Vehicle | | | 210,000 | Y | | | | 210,000 | Unassigned Fund Balance |
| | Engine Replacement | | | 260,000 | Y | | | | 260,000 | Unassigned Fund Balance |
| | Fit Test Machine | | | 16,000 | Y | | | | 16,000 | Unassigned Fund Balance |
| | Ladder Replacement | | | 562,500 | Y | | | | 562,500 | Unassigned Fund Balance |
| Health & Commun | | | | | | | | | | |
| | Housing Support Navigator | 42,000 | | | Y | 42,000 | | | | |
| | Homeless Response Coordinator | 46,500 | | | Y | 46,500 | | | | |
| Parks | | | | | | | | | | |
| | Park Ranger to full time | 34,875 | | | Y | 34,875 | | | | |
| | Recreation Sport Coordinator | 47,250 | | | Y | 47,250 | | | | |
| | Parks and Rec Ranger Vehicle | | | 60,000 | Y | | | | 60,000 | Unassigned Fund Balance |
| | Utility Vehicle Replacement | | | 30,000 | Y | | | | 30,000 | Unassigned Fund Balance |
| | Zero Turn Mower Replacement | | | 15,000 | Y | | | | 15,000 | Unassigned Fund Balance |
| | Parks and Rec Vehicle Replacement(#55) | | | 80,000 | Y | | | | 80,000 | Unassigned Fund Balance |
| | Robotic Mowers | | | 16,000 | Y | | | | 16,000 | Unassigned Fund Balance |
| | Playstructure Replacement (Coe Park) | | | 233,000 | Y | | | | 233,000 | Unassigned Fund Balance |
| | Parks and Rec Vehicle Replacement(#80) | | | 75,000 | Y | | | | 75,000 | Unassigned Fund Balance |
| | Mansfield Stadium LED Light Replacement | | | 45,000 | Y | | | | 45,000 | Unassigned Fund Balance |
| | 4WD Mower Replacement | | | 50,000 | Y | | | | 50,000 | Unassigned Fund Balance |
| | Resurface Pool Surface Pancoe Pool | | | 400,000 | Y | | | | 400,000 | Unassigned Fund Balance |
| | Fence and Backstop Replacement Union Street | | | 30,000 | Y | | | | 30,000 | Unassigned Fund Balance |
| | Utility Vehicle Replacement | | | 30,000 | Y | | | | 30,000 | Unassigned Fund Balance |
| | Coummunity Garden Parking Lot/Walkway | | | 235,000 | Y | | | | 235,000 | Unassigned Fund Balance |
| | Rolland Perry City Forest Parking Expansion Study | | | 15,000 | Y | | | | 15,000 | Unassigned Fund Balance |
| | Parks and Rec Trailers | | | 15,000 | Y | | | | 15,000 | Unassigned Fund Balance |
| | Robotic Painter | | | 50,000 | Y | | | | 50,000 | Unassigned Fund Balance |
| Engineering | | | | | | | | | | |
| | Additional Engineering Assistant II/Inspector | 75,545 | | | Y | 75,545 | | | | |
| City Hall | | | | | | | | | | |
| | 2nd & 3rd Floor Renovations | | | 100,000 | Y | | | | 100,000 | Unassigned Fund Balance |
| | Basement Renovations | | | 50,000 | Y | | | | 50,000 | Unassigned Fund Balance |
| | Exterior Improvements | | | 50,000 | Y | | | | 50,000 | Unassigned Fund Balance |
| | Repointing Exterior | | | 400,000 | Y | | | | 400,000 | Unassigned Fund Balance |
| | Interior Wall Displays | | | 35,000 | Y | | | | 35,000 | Unassigned Fund Balance |
| Fleet Maintenance | | | | | | | | | | |
| | Replace Rental Van | | | 50,000 | Y | | | | 50,000 | Unassigned Fund Balance |
| | Replace Gas and Diesel Dispensers | | | 50,000 | Y | | | | 50,000 | Unassigned Fund Balance |
| | Upgrade Fleet Management Program | | | 165,000 | Y | | | | 165,000 | Unassigned Fund Balance |
| | Two Fleet Mechanics | 165,000 | | | N | 165,000 | | | | |

**FY27 NEW PROGRAM AND CAPITAL REQUESTS**

| Department | Request | New Program | Other | Capital | Funded | Operating Budget | Improvement Reserve | Bond Issue | Other | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| Public Services | | | | | | | | | | |
| | Annual Street paving (Minus URIP) | | | 1,500,000 | Y | | | | 1,500,000 | $1.15 mil Unassigned Fund, 350,000 URIP |
| | Annual sidewalk paving | | | 225,000 | Y | | | | 225,000 | Unassigned Fund Balance |
| | Traffic signal upgrades | | | 100,000 | N | | | | | |
| | Plow Trucks | | | 572,881 | Y | | | | 572,881 | Unassigned Fund Balance |
| | Light-Duty Pick Up Trucks | | | 124,000 | Y | | | | 124,000 | Unassigned Fund Balance |
| | Large Front End Loaders & Backhoes | | | 155,000 | Y | | | | 155,000 | Unassigned Fund Balance |
| | Flail Mower Replacement | | | 10,000 | Y | | | | 10,000 | Unassigned Fund Balance |
| | Mt. Hope Cemetery Repairs | | | 15,000 | Y | | | | 15,000 | Unassigned Fund Balance |
| | Equipment Trailers | | | 15,000 | Y | | | | 15,000 | Unassigned Fund Balance |
| | Leaf Vacuum Replacement | | | 90,000 | Y | | | | 90,000 | Unassigned Fund Balance |
| | Compressors | | | 40,000 | Y | | | | 40,000 | Unassigned Fund Balance |
| | Power Screen | | | 100,000 | N | | | | | |
| | Sidewalk Plows | | | 255,000 | Y | | | | 255,000 | Unassigned Fund Balance |
| | Vibratory Roller | | | 60,000 | Y | | | | 60,000 | Unassigned Fund Balance |
| | Trailer Mounted Pulp Loader | | | 40,000 | Y | | | | 40,000 | Unassigned Fund Balance |
| | Pavement Striping Machine | | | 15,000 | Y | | | | 15,000 | Unassigned Fund Balance |
| | Snow Blower | | | 225,000 | Y | | | | 225,000 | Unassigned Fund Balance |
| | Small Front End Loaders | | | 150,000 | Y | | | | 150,000 | Unassigned Fund Balance |
| | Latex Printer | | | 40,000 | Y | | | | 40,000 | Unassigned Fund Balance |
| | Catch Basin Vacuum | | | 300,000 | Y | | | | 300,000 | Unassigned Fund Balance |
| | Street Sweepers | | | 285,000 | Y | | | | 285,000 | Unassigned Fund Balance |
| | Telematics Fleet Management with Dash Cam | | | 69,172 | Y | | | | 69,172 | Unassigned Fund Balance |
| | Design - Replace Sand Shed/Storage 150x60 | | | 100,000 | Y | | | | 100,000 | Unassigned Fund Balance |
| | Snow Pusher Blade Replacement | | | 15,000 | Y | | | | 15,000 | Unassigned Fund Balance |
| | DPW Facitiy Roof Repairs (Moderate) 12Ksqft | | | 100,000 | Y | | | | 100,000 | Unassigned Fund Balance |
| | Flex Wing Mower PTO Mower - Forestry | | | 30,000 | Y | | | | 30,000 | Unassigned Fund Balance |
| | Compact Forestry Tractor | | | 40,000 | Y | | | | 40,000 | Unassigned Fund Balance |
| | Boom Flail for road side mowing | | | 30,000 | Y | | | | 30,000 | Unassigned Fund Balance |
| | Decorative Street Light Fixtures | | | 150,000 | Y | | | | 150,000 | Unassigned Fund Balance |
| | Pavement Marking | | | 200,000 | Y | | | | 200,000 | Unassigned Fund Balance |
| | Miovision | | | 297,440 | Y | | | | 297,440 | Unassigned Fund Balance |
| | Hydo Seeder | | | 75,000 | Y | | | | 75,000 | Unassigned Fund Balance |
| Infrastructure/Other | | | | | | | | | | |
| | Broadway Corridor Improvements | | | 100,000 | Y | | | | 100,000 | Unassigned Fund Balance |
| | Ohio St Bridge Repair | | | 100,000 | Y | | | | 100,000 | Unassigned Fund Balance |
| | BACTS Projects | | | 407,617 | Y | | | | 407,617 | Unassigned Fund Balance |
| | MaineDOT MPI Projects | | | 75,051 | Y | | | | 75,051 | Unassigned Fund Balance |
| | Pedestrian/Intersection Improvements | | | 120,000 | Y | | | | 120,000 | Unassigned Fund Balance |
| | Miscellaneous Drainage Improvements | | | 50,000 | Y | | | | 50,000 | Unassigned Fund Balance |
| | Fiber Connection Transit to PD | | | 50,000 | Y | | | | 50,000 | Unassigned Fund Balance |
| | City GIS Update | | | 20,000 | Y | | | | 20,000 | Unassigned Fund Balance |
| | Climate Action Plan | | | 30,000 | Y | | | | 30,000 | Unassigned Fund Balance |
| Downtown TIF | | | | | | | | | | |
| | Downtown Patrol Officer | 110,852 | | | Y | | | | 110,852 | Downtown TIF |
| | Downtown Patrol Officer | 110,852 | | | Y | | | | 110,852 | Downtown TIF |
| | Columbia Street Deck Debt Service | | | 50,500 | Y | | | | 50,500 | Downtown TIF |
| | Arena Debt Service | | | 1,500,000 | Y | | | | 1,500,000 | Downtown TIF |
| | Downtown TIF Develop Agreements | | | 391,806 | Y | | | | 391,806 | Downtown TIF |
| | Court St Demo | | | 95,075 | Y | | | | 95,075 | Downtown TIF |
| | Village Partnership | | | 175,000 | Y | | | | 175,000 | Downtown TIF |
| | Downtown Sidewalks - PW Repairs | | | 100,000 | Y | | | | 100,000 | Existing Funds (7813) |
| | Downtown Sidewalks - Replacement | | | 100,000 | Y | | | | 100,000 | Existing Funds (7813) |
| | Downtown Pedestrian Improve | | | 25,000 | Y | | | | 25,000 | Downtown TIF |
| | Downtown Traffic Signals/Electrical | | | 50,000 | Y | | | | 50,000 | Downtown TIF |
| | Downtown Landscaping & Amenities | | | 30,000 | Y | | | | 30,000 | Downtown TIF |
| | Downtown Marketing | | | 30,000 | Y | | | | 30,000 | Downtown TIF |
| | City Waterfront Parcel - Redevelop/Bulkhead | | | 200,000 | y | | | | 200,000 | Downtown TIF |
| | KD Stream Retaining Walls | | | 500,000 | Y | | | | 500,000 | Downtown TIF |
| | Economic Development Support | | | 15,000 | Y | | | | 15,000 | Downtown TIF |
| | Downtown Electric Upgrades | | | 50,000 | y | | | | 50,000 | Downtown TIF |
| | Cultural Commission Strategy Plan | | | 30,000 | Y | | | | 30,000 | Downtown TIF |
| | Penobscot River Remediation | | | 100,000 | Y | | | | 100,000 | Downtown TIF |

**FY27 NEW PROGRAM AND CAPITAL REQUESTS**

| Department | Request | New Program | Other | Capital | Funded | Operating Budget | Improvement Reserve | Bond Issue | Other | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| Downtown TIF (cont'd) | | | | | | | | | | |
| | Cross Insurance Center Reserve | | | 350,000 | Y | | | | 350,000 | Downtown TIF |
| | Monument Restoration | | | 25,000 | Y | | | | 25,000 | Downtown TIF |
| | Kenduskeag Stream Trail/Fence Repair | | | 25,000 | Y | | | | 25,000 | Downtown TIF |
| | Dock 4 Replacement | | | 200,000 | y | | | | 200,000 | Downtown TIF |
| | Downtown Bgr Partnership - Position | | | 51,100 | Y | | | | 51,100 | Downtown TIF |
| | Paver Replacement - Hamlin | | | 130,000 | y | | | | 130,000 | Downtown TIF |
| | Columbia Street Retaining Wall | | | 300,000 | Y | | | | 300,000 | Downtown TIF |
| | Streets Plus | | | 230,000 | Y | | | | 230,000 | Downtown TIF |
| | Pickering Square Parking Garage Maintenance | | | 300,000 | P | | | | 300,000 | Downtown TIF, remainder in parking |
| | Cultural Commission Grant Program | | | 20,000 | Y | | | | 20,000 | Downtown TIF |
| | Install New Fiber Waterfront - Parks & Rec | | | 100,000 | Y | | | | 100,000 | Downtown TIF |
| Other Agencies | | | | | | | | | | |
| | Bangor Public Library | | 2,463,692 | | Y | 2,463,692 | | | | |
| | PB Snowmobile Club | | 3,000 | | Y | 3,000 | | | | |
| | Cultural Commission - Annual budget + $2,500 ARTober | | 22,500 | | Y | 22,500 | | | | |
| | Tourism Support or Meeting Support | | 50,000 | | Y | 50,000 | | | | |
| | City Wide Dues (MMA etc) | | 50,000 | | Y | 50,000 | | | | |
| | | 5,616,494 | 2,589,192 | 28,365,975 | | 4,363,434 | - | - | 28,874,217 | |

Y - Funded, N -Not Recommended for Funding, P - Partial Funding, TBD - To be Determined Pending Other Action

**FY27 NEW PROGRAM AND CAPITAL REQUESTS**

| Department | Request | New Program | Other | Capital | Funded | Operating Budget | Improvement Reserve | Bond Issue | Other | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| Airport | | | | | | | | | | |
| | Tank Farm Feuld Maintenance Technician | 86,579 | | | Y | 86,579 | | | | |
| | Assistant Airport Director, Finance and Business Development | 181,082 | | | Y | 181,082 | | | | |
| | **AIP/BIL/AIG/ATP Grants** | | | | | | | | | |
| | Taxiway A - Final Design & Construction | | | 14,600,000 | Y | 462,500 | | | 14,137,500 | 13,775,000 FAA, 362,500 MDOT |
| | Taxiway M - Final Design & Construction | | | 2,100,000 | Y | 150,000 | | | 1,950,000 | 1,900,000 FAA, 50,000 MDOT |
| | **PFC & CFC Projects** | | | | | | | | | |
| | TSA Checkpoint Relocation & Expansion-Design & Construction | | | 17,315,800 | Y | 866,387 | | | 16,449,413 | PFC Revenues |
| | **Building & Infrastructure Improvements** | | | | | | | | | |
| | Hydro Testing - JETA Fuel Pipeline | | | 32,050 | Y | | | | 32,050 | Unassigned Fund Balance |
| | JETA Tank #1 - Floating Suction Replacement & Tank Cleaning | | | 35,000 | Y | | | | 35,000 | Unassigned Fund Balance |
| | JETA Tank #2 - 653 Inspection & Cleaning | | | 30,000 | Y | | | | 30,000 | Unassigned Fund Balance |
| | Replacement of 1 of 3 IAB Roof Top Air Handlers | | | 800,000 | Y | | | | 800,000 | Unassigned Fund Balance |
| | Relocate CBP Conference Room | | | 35,000 | Y | | | | 35,000 | Unassigned Fund Balance |
| | Replacement of Airline Common Use Podiums | | | 92,000 | Y | | | | 92,000 | Unassigned Fund Balance |
| | Dock 10 - Repiping of Subslab Radiant Heat System | | | 25,000 | Y | | | | 25,000 | Unassigned Fund Balance |
| | Dock 13 - Roof Coating Repair | | | 200,000 | Y | | | | 200,000 | Unassigned Fund Balance |
| | Building 96 Replace Carpet & Flooring (Leased to FAA) | | | 60,000 | Y | | | | 60,000 | Unassigned Fund Balance |
| | **Computer/Security System Upgrades** | | | | | | | | | |
| | Fiber Optic Cabling - Airport Campus | | | 250,000 | Y | 130,000 | | | 120,000 | Existing Funds |
| | Airport wide Computer/Monitor/Printer Upgrades | | | 28,000 | Y | 28,000 | | | | |
| | Upgrade Public Wifi Service | | | 45,000 | Y | 45,000 | | | | |
| | Replace Terminal Paging System | | | 35,000 | Y | 35,000 | | | | |
| | Replace CBP Network Router & Switches | | | 84,620 | Y | 84,620 | | | | |
| | **Equipment/Machinery** | | | | | | | | | |
| | Generator for BGR Aviation Building | | | 35,000 | Y | | | | 35,000 | Unassigned Fund Balance |
| | Additional High Reach Deicer (will make total of 2) | | | 945,000 | Y | | | | 945,000 | Unassigned Fund Balance |
| | Flowmeter Kits (3) for Global Fuel Tankers | | | 35,000 | Y | | | | 35,000 | Unassigned Fund Balance |
| | **Grounds/Studies/Other** | | | | | | | | | |
| | Airport Planning Services | | | 200,000 | Y | 147,907 | | | 52,093 | Unassigned Fund Balance |
| | Conceptual Planning & Design - New General Aviation Hangar | | | 150,000 | Y | 150,000 | | | | |
| | | 267,661 | - | 37,132,470 | | 2,367,075 | - | - | 35,033,056 | |
| WWTP | | | | | | | | | | |
| | SCADA Instrumentation & Control Phase C (final) | | | 385,000 | Y | 385,000 | | | | |
| | AERATION OVERBID | | | 500,000 | Y | | | 500,000 | GOB | |
| | AECOM LTCP | | | 40,000 | Y | 40,000 | | | | |
| | Perry Rd. Pump Station Upgrade Acquisition/Design | | | 540,000 | Y | | | 540,000 | SRF | |
| | CCTV Van Replacement | | | 580,000 | Y | 580,000 | | | | |
| | Sewer Software Replacement | | | 100,000 | Y | 100,000 | | | | |
| | Meadowbrook Separation | | | 75,000 | Y | 75,000 | | | | |
| | K-Mart Pump Station Elimination (Design) | | | 200,000 | Y | 200,000 | | | | |
| | VPI Lower State to Cedar | | | 550,000 | Y | | | 550,000 | SRF | |
| | Nelson/Autumn/Smith | | | 400,000 | Y | | | 400,000 | GOB | |
| | Perry Rd. Storm Separation (Design) | | | 200,000 | Y | | | 200,000 | SRF | |
| | Small Projects/Repair | | | 925,000 | Y | 925,000 | | | | |
| | | - | - | 4,495,000 | | 2,305,000 | - | 2,190,000 | - | |
| Stormwater | | | | | | | | | | |
| | Capehart Brook - Structural BMP MS4 Compliance | | | 75,000 | Y | 75,000 | | | | |
| | Penjajawoc - Essex St Culvert at Fox Hollow | | | 200,000 | Y | 200,000 | | | | |
| | Fruit Street at Mt Hope Separation | | | 60,000 | Y | 60,000 | | | | |
| | MS4 - Meadowbrook Separation -8172 addl funds | | | 100,000 | Y | 100,000 | | | | |
| | MS4 - Smith St & Smith St Ave Upgrades and Separation | | | 200,000 | Y | 200,000 | | | | |
| | MS4 - Ohio St Separation project | | | 150,000 | Y | 150,000 | | | | |
| | MS4 - Drainage improvements as needed | | | 150,000 | Y | 150,000 | | | | |
| | | - | - | 935,000 | | 935,000 | - | - | - | |
| Bass Park | | | | | | | | | | |
| | Convention Center Carpet Replacement | | | 200,000 | N | | | | - | Funded by Oakview |
| | Security Improvements | | | 40,000 | Y | | | | 40,000 | Downtown TIF |
| | IT Improvements | | | 30,000 | Y | | | | 30,000 | Downtown TIF |

**FY27 NEW PROGRAM AND CAPITAL REQUESTS**

| Department | Request | New Program | Other | Capital | Funded | Operating Budget | Improvement Reserve | Bond Issue | Other | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| Bass Park (cont'd) | | | | | | | | | | |
| | Building Equipment | | | 20,000 | Y | | | | 20,000 | Downtown TIF |
| | LED Lighting Upgrades | | | 10,000 | Y | | | | 10,000 | Downtown TIF |
| | Building Repairs (Door, Roof, Airwall) | | | 30,000 | Y | | | | 30,000 | Downtown TIF |
| | 110 Bunker Suite Remodel | | | 10,000 | Y | | | | 10,000 | Downtown TIF |
| | Airwall Recovering | | | 15,000 | Y | | | | 15,000 | Downtown TIF |
| | Audio Visual Equipment | | | 10,000 | Y | | | | 10,000 | Downtown TIF |
| | Hussey Seat Replacement | | | 15,000 | Y | | | | 15,000 | Downtown TIF |
| | Kitchen Equipment | | | 20,000 | Y | | | | 20,000 | Downtown TIF |
| | Domestic Water Boiler Replacement | | | 150,000 | Y | | | | 150,000 | Downtown TIF |
| | Upgrade Fire Alarm System | | | 175,000 | N | | | | - | |
| | | - | - | 725,000 | | - | - | - | 350,000 | |
| Parking | | | | | | | | | | |
| | Pickering Square Garage Repairs | | | 300,000 | P | 68,753 | | | 231,247 | Remainder in downtown TIF |
| | Maintenance Reserve | | | 80,000 | Y | 80,000 | | | | |
| | Technology Upgrades | | | 50,000 | Y | 50,000 | | | | |
| | Vehicle Upgrade | | | 60,000 | Y | 60,000 | | | | |
| | | - | - | 490,000 | | 258,753 | - | - | 231,247 | |
| Golf Course | | | | | | | | | | |
| | Golf Car Lease | | | 62,000 | Y | 62,000 | | | | |
| | Clubhouse Renovation | | | 60,000 | Y | 60,000 | | | | |
| | Ice Machine | | | 7,500 | Y | 7,500 | | | | |
| | Course Renovation | | | 90,000 | Y | 90,000 | | | | |
| | | - | - | 219,500 | | 219,500 | - | - | - | |
| Econ Develop | | | | | | | | | | |
| | MBEP: Traffic & Electrical Improvements | | | 106,250 | Y | | | | 106,250 | Existing Funds |
| | 39 Florida Ave. - Hannaford Bros. | | | 142,150 | Y | | | | 142,150 | Existing Funds |
| | 49 Florida Ave. - KidsPeace | | | 47,150 | Y | | | | 47,150 | Existing Funds |
| | 50 Cleveland St. - Central Kitchen | | | 250,000 | Y | 250,000 | | | | |
| | 40 Johnson St. - Bangor Innovation Center | | | 500,000 | Y | 150,000 | | | 350,000 | Existing Funds |
| | | - | - | 1,045,550 | | 400,000 | - | - | 645,550 | |
| | | 5,884,155 | 2,589,192 | 73,408,495 | | 10,848,762 | - | 2,190,000 | 65,134,070 | |