

Alicia Legland, Esq.



July 1, 2026

VIA EMAIL & HAND DELIVERY

Town of New Lebanon Planning Board
14755 Route 22
New Lebanon, NY 12125

To: Members of the Planning Board

Re: Proposed Tilden Commons Project – July 2026 Submission

As you know, our firm represents Tilden Project LLC, and its partner Hudson River Housing, Inc. (Applicant), with its efforts to develop the Tilden Commons (Project) at 538 Route 20 New Lebanon, New York 12125 (Tax Map ID 19.2-1-69) in the Town of New Lebanon, New York.

Please see attached submission for the July 2026 Planning Board meeting, which includes the following documents:

- Exhibit A: Revised Legal Justification Letter, dated July 2, 2025, revised July 1, 2026.
- Exhibit B: Responses to Town Designated Engineer's Comments, dated July 1, 2026. The comments of the Town Designated Engineer from his letter dated May 20, 2026 are included and the Applicant's responses are in **BOLD** below each comment.
- Exhibit C: Updated Civil Site Plan Set, dated July 1, 2026.
- Exhibit D: Stormwater Pollution Prevention Plan (SWPPP), dated April 1, 2026, and the Post-Construction Stormwater Management Plan.

Please contact me with any questions or concerns. We look forward to seeing you at the July 2026 meeting.

Very truly yours,

A handwritten signature in blue ink, appearing to read "Alegland", written over a faint, larger version of the same signature.

Alicia R. Legland

ARL

Enclosures

cc: Courtney Potter, *Planning Board Clerk*, Town of New Lebanon (*via email*)
Andrew E. Clark, Esq., *Attorney*, Town of New Lebanon Planning Board (*via email*)
Tilden Project LLC (*via email*)

Exhibit A

Revised July 1, 2026

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July 2, 2025

VIA E-MAIL & HAND DELIVERY

Town of New Lebanon Planning Board
14755 Route 22
New Lebanon, NY 12125

Re: Tilden Commons Project – Special Use Permit and Site Plan Application

To: Members of the Planning Board

Our firm represents Tilden Project LLC and its partner Hudson River Housing, Inc. (Applicant) in connection with its efforts to develop the Tilden Commons (Project) at 538 Route 20 New Lebanon, New York 12125 (Tax Map ID 19.2-1-69) (Property) in the Town of New Lebanon, New York (Town). The Project will replace the vacant building currently on the Property with a new mixed-use building comprising a grocery store and 41 affordable housing apartment units. The Property is located in the Central Commercial (CC) District. This letter is in support of the Applicant's application for a special use permit and site plan application (together, Application).

The Applicant submitted the Application to the New Lebanon Planning Board (Planning Board) in June 2025. The Planning Board, as Lead Agency under the State Environmental Quality Review Act (SEQRA), conducted its environmental review of the Project and after many months of review, approved a Negative Declaration of Environmental Significance (Negative Declaration) at its meeting on June 17, 2026. Because that determination had to be made before the Planning Board could act on the Application, the Planning Board may now finalize its review of the Application and issue its determination.

I. SPECIAL USE PERMIT APPLICATION.

The Project is a specially permitted use in the CC District, as Mixed Uses and Multifamily Dwellings are specially permitted, and Retail Uses, including grocery stores, are permitted with site plan approval. *See* Zoning Law of the Town of New Lebanon, New York (Zoning Law), Use Table. The Town Board made a very specific legislative determination when it enacted the Zoning Law that these land uses are appropriate in this district and in harmony with the character of this area of the Town. *See North Shore Steak House, Inc. v. Bd. of Appeals of Incorporated Vill. of Thomaston*, 30 N.Y.2d 238, 243 (1972) (“[i]nclusion of the permitted use in the ordinance is tantamount to a legislative finding that the permitted use is in harmony with the general zoning plan and will not adversely affect the neighborhood.”).

Additionally, where a zoning law permits “a use permit subject to administrative approval, the applicant need only show that the use is contemplated by the ordinance and that it complies with the conditions imposed to minimize anticipated impact on the surrounding area[.]” and if it does so, the authority having jurisdiction “is required to grant a special use permit unless

it has reasonable grounds for denying the application.” *See Edwards v. Zoning Bd. of Appeals of Town of Amherst*, 163 A.D.3d 1511, 1512 (4th Dep’t 2018). As discussed thoroughly herein, the Project meets all applicable requirements in the Zoning Law for a special use permit for the proposed use, as provided in Zoning Law §§ 205-6, 205-8, and 205-13. And following an extensive, one-year-long environmental review pursuant to SEQRA, the Planning Board determined that the Project will not result in any significant adverse environmental impacts and approved a Negative Declaration. As such, the Applicant respectfully requests the Planning Board grant the requested special use permit.

a. The Project meets the requirements for commercial buildings provided in Section 205-8(E) of the Zoning Law.

1. The side of the building that provides frontage for the lot on which the building is located should be aesthetically compatible with, but not necessarily the same as, the surrounding area.

As discussed herein, the Project has been designed to match the overall rural character of the Town and includes Shaker elements consistent with the architectural history of the Town and area. *See* Planning Board Architecture Memo, July 2, 2025 (“The proposed building is a traditional New England-style barn with a [] [gable] roof and cupola. A secondary porch faces most of the south face of the building. The proposed building’s street-facing façade references the classic barn form with large openings and a full porch. The proposed building retains the cupola but reimagines it as a warm beacon on Main Street. The roof is set back to reduce the bulk at the edges ... The monochrome Evergreen wall color, stone base, and light [] [gable] roof come from the local classic vernacular agricultural architecture, whose buildings are often much larger than the proposed project.”). The building has also been designed to include architectural and design elements consistent with the area’s Shaker history. *See id.* (“The proposed design pays homage to the local Shaker Heritage in New Lebanon, NY, and other nearby Shaker communities. The yellow ochre as accent in the color palette comes from the 6 Shaker colors referenced in the Shaker Millennial Laws ... The design incorporates several architectural details that reflect the Shaker building tradition: 1. Pentice roofs over the entry doors[;] 2. Clapboard siding[;] 3. Single double hung windows with flat trim and trim extensions on top frame[;] 4. Water table at 18”[;] 5. Cove soffit at street facing façades of commercial building[;] 6. Sliding Barn doors at storefront openings”).

Further, because the Property is a corner lot, there is frontage on both Tilden Road and U.S. Route 20. The “primary” frontage of the building that faces U.S. Route 20 includes a classic New England-style barn design with large openings and a full porch, a setback upper floor and roof, and a cupola.

2. Parking areas should be located away from the road or behind structures.

The majority of the parking spaces will be located to the rear of the Property, opposite from U.S. Route 20. Because the Property is a corner lot, there will be some parking spaces to the second “rear” of the Property, opposite from Tilden Road. This is consistent with other commercial properties in this area of the Town.

3. Drive-up windows for any proposed or existing land use, where allowed by lot configuration, should be placed at the rear of the building. Adjacent properties shall be screened from any glare from vehicles or building lights resulting from use of a drive-up window.

There will not be any drive-up windows included in the Project.

4. In order to control traffic, the Planning Board may require, where appropriate, reductions in lane widths, use of shared access drives, shared parking lots, and rear service road connections.

As mentioned above, the Applicant has included adequate parking (116 parking spaces), vehicle entry/exit, and an internal loading dock in the Project design. The number of parking spaces was informed by the Zoning Law, residential development design guidelines, including those developed by New York State Homes and Community Renewal (HCR), and a review of comparable grocery stores in the area. There will not be any need for shared access drives or parking lots. Further, regarding the entry/exit on Route 20, the New York State Department of Transportation (NYSDOT) reviewed the Project plans and determined that “they are concurrent with NYSDOT regulations and requirements. At this point, the project has completed the technical review process and upon providing the contractor's insurance and bonding certificates, NYSDOT can issue a permit for the project.” Ltr. from NYSDOT to Lamont Engineers (Nov. 24, 2025). Regarding the entry/exit on Tilden Road, the Town Highway Superintendent also reviewed the Project plans and determined that a portion of Tilden Road would need to be widened to accommodate potential emergency vehicles or any other large vehicles traveling on Tilden Road. The Applicant agreed to such road widening, which it will pay for, and revised its Project plans accordingly. Following that revision, the Town Highway Superintendent approved the Project plans and issued the Applicant the necessary curb cut permits. *See* Zoning Permit, BP-2026-013 (issued March 30, 2026).

b. The Project meets the special use performance standards provided in Section 205-13(B) of the Zoning Law.

1. Fire and explosion hazards. All activities involving the storage of flammable and explosive materials shall be provided with adequate safety devices against the hazard of fire and explosion. Methods of prevention and suppression of these hazards shall be approved by the local officials responsible for fire prevention and public safety.

No fire or explosion hazards are included as part of the Project.

2. Radioactivity or electrical disturbance. No activities shall be permitted that emit radioactivity or electrical disturbance that will jeopardize the health of adjacent residents and properties or property or otherwise adversely affect the operation of any equipment other than that on the premises.

No activities that emit radioactivity or electrical disturbance will be included as part of the Project.

3. Noise. The maximum noise level at the property line applicable to the use involved shall not exceed 70 dB as measured in accord with the procedure specified by the American National Standards Institute.

As noted above, the Property is in the Town's Central Commercial (CC) District. A busy highway runs through the CC District, with thousands of cars and trucks, including semi-trucks, passing through daily. The CC District also contains similar commercial land uses that produce noise levels similar to those the Project will produce. Given the use of surrounding properties and location on the Town's main highway, the Project, once in operation, will not produce noise at the property line exceeding 70 dB. During construction, however, the Project *may* produce noise, intermittently, at the property line exceeding 70 dB. It should be noted, however, that bedrock is not present on the Property, so no blasting or hammering is anticipated to be needed during site work. Further, included in the Residential Policies for tenants will be quiet hours from 11 pm to 7 am, during which tenants shall not make noise disturbing other residents, whether inside apartment units or anywhere on the Property. *See Tilden Commons Residential Tenant Policies.* Further, the Applicant provided a Noise Study dated May 6, 2026, concluding that "sounds levels generated from equipment to serve the facility will not exceed 70 dB and will likely be under 60 dB at the property line which is equivalent to the sound of a running dishwasher, creating a minimal impact on neighboring properties." LAMONT ENGINEERS, *Tilden Development – 538 US Route 20, Town of New Lebanon Noise Study and Evaluation of Site*, May 6, 2026.

The Planning Board has also determined that there will be no significant adverse environmental impact from the Project related to noise when it approved the Negative Declaration at its meeting on June 17, 2026. The Planning Board is bound by that prior determination. *See Tall Trees Constr. Corp. v. Zoning Bd. of Appeals of Town of Huntington*, 97 N.Y.2d 23 86, 93 (2001) (A local board's decision "which neither adheres to its own prior precedent nor indicates its reason for reaching a different result on essentially the same facts is arbitrary and capricious."); *see also SCI Funeral Servs. of N.Y., Inc. v. Town of Babylon Planning Bd.*, 277 A.D.2d 319 (2d Dep't 2000) (a municipal board cannot make findings under SEQRA and then ignore those findings to deny the underlying application without a rational explanation).

4. Vibration. No vibration shall be permitted which is detectable, other than by instrument, at the property line.

Other than during construction, which *may* produce vibration intermittently during certain activities, such as minor excavation and foundation installation, operation of the Project will not produce any vibration.

5. Glare. No direct or reflective glare from any lighting or process shall be permitted where such will interfere with traffic safety or the useful enjoyment of adjoining properties.

No part of the Project has the ability to produce glare interfering with traffic safety or enjoyment of adjoining properties other than certain exterior lighting. However, this exterior lighting, which is included in the Project for safety of residents and grocery store patrons, will be downcast, shielded, and dark sky compliant. The exterior lighting has been specifically designed and will be

installed so as not to cause any glare or light pollution onto adjoining properties. The Planning Board has also determined that there will be no significant adverse environmental impact from the Project related to lighting when it approved the Negative Declaration at its meeting on June 17, 2026. The Planning Board is bound by that prior determination. *See Tall Trees Constr. Corp. v. Zoning Bd. of Appeals of Town of Huntington*, 97 N.Y.2d 23 86, 93 (2001) (A local board's decision "which neither adheres to its own prior precedent nor indicates its reason for reaching a different result on essentially the same facts is arbitrary and capricious."); *see also SCI Funeral Servs. of N.Y., Inc. v. Town of Babylon Planning Bd.*, 277 A.D.2d 319 (2d Dep't 2000) (a municipal board cannot make findings under SEQRA and then ignore those findings to deny the underlying application without a rational explanation).

6. Smoke. No emission shall be permitted of a shade equal to or darker than Ringelmann Smoke Chart No. 2.

No part of the Project will generate smoke.

7. Odors. No emission of noxious gases or other matter shall be permitted in a quantity or of a type that permits it to be detectable, other than by instrument, at the property line.

No part of the Project will generate odors or emission of noxious gases.

8. Other forms of air pollution. No emission of fly ash, dust, smoke, vapors, gases or other forms of air pollution, including construction-related dust and odors, shall be permitted which can jeopardize human health, animal or vegetable life or which otherwise contributes to the deterioration of or detracts from adjacent properties, provided that for specific air pollutants that are regulated under federal or state law, compliance with all such applicable laws, regulations and/or permits issued thereunder shall constitute compliance with this performance standard.

Ordinary carbon emissions that will result from construction vehicles and equipment during the temporary construction period are typical of any civil construction project that takes place in the Town and will not "jeopardize human health, animal or vegetable life or which otherwise contribute[] to the deterioration of or detract[] from adjacent properties." Zoning Law § 205-13(B)(8). These emissions, which will be temporary, are no different from the emissions from the vehicles driving by on the highway adjacent to the Property. Once the Project is in operation, there will be very little emissions released as the building will be all-electric, with the only potential for emissions coming from residents' and patrons' vehicles and delivery trucks.

Further, the Planning Board has also determined that there will be no significant adverse environmental impact from the Project related to air emissions or impacts to human health when it approved the Negative Declaration at its meeting on June 17, 2026. The Planning Board is bound by that prior determination. *See Tall Trees Constr. Corp. v. Zoning Bd. of Appeals of Town of Huntington*, 97 N.Y.2d 23 86, 93 (2001) (A local board's decision "which neither adheres to its own prior precedent nor indicates its reason for reaching a different result on essentially the same facts is arbitrary and capricious."); *see also SCI Funeral Servs. of N.Y., Inc. v. Town of Babylon Planning Bd.*, 277 A.D.2d 319 (2d Dep't 2000) (a municipal board cannot make findings under

SEQRA and then ignore those findings to deny the underlying application without a rational explanation).

9. Discharge of water. No polluting or objectionable waste shall be discharged into any stream or other natural drainage channel or upon the land that will in any way interfere with the quality, operation or continuation of these natural systems or contribute to their despoliation.

There will not be any discharge of waste into any stream, drainage channel, or land that will negatively impact these systems. During construction and operation of the Project, the Applicant will mitigate all potential erosion and stormwater impacts through stormwater control design and by following the measures in the New York State Department of Environmental Conservation (NYSDEC) Stormwater Design Manual and NYSDEC Standards and Specifications for Erosion and Sediment Control (*i.e.*, The Blue Book) and the Project's approved Stormwater Pollution Prevention Plan (SWPPP). The Project will also not release wastewater into the environment. All sanitary wastewater generated from the building will be treated via a treatment system with a conventional septic tank, an Orenco Advantex treatment system for secondary treatment, and UV disinfection before discharge. Lastly, during construction and operation, the Project will manage solid waste via onsite dumpsters that will be emptied regularly.

Further, the Planning Board has also determined that there will be no significant adverse environmental impact from the Project related to groundwater or surface water when it approved the Negative Declaration at its meeting on June 17, 2026. The Planning Board is bound by that prior determination. *See Tall Trees Constr. Corp. v. Zoning Bd. of Appeals of Town of Huntington*, 97 N.Y.2d 23 86, 93 (2001) (A local board's decision "which neither adheres to its own prior precedent nor indicates its reason for reaching a different result on essentially the same facts is arbitrary and capricious."); *see also SCI Funeral Servs. of N.Y., Inc. v. Town of Babylon Planning Bd.*, 277 A.D.2d 319 (2d Dep't 2000) (a municipal board cannot make findings under SEQRA and then ignore those findings to deny the underlying application without a rational explanation).

10. Traffic access. All proposed traffic accessways shall be adequate but not excessive in number, adequate in width, grade and alignment and visibility, and sufficiently separated from street intersections and places of public assembly and shall meet other similar safety considerations.

The Project will have three traffic accessways. There will be one point of ingress/egress, via an existing curb cut, from U.S. Route 20 for patrons, residents, and guests. There will be a point of ingress/egress along Tilden Road for patrons, residents, and guests. Together with the design of the parking lot, movement of such traffic will be efficient. In addition, there will be a second point of ingress/egress along Tilden Road exclusively for deliveries to the internal loading dock. All accessways will be sufficiently distanced from any places of public assembly and from the intersections with U.S. Route 20 of Shaker Road, West Street, and Tilden Road. Further, The Applicant's engineer, Lamont Engineers, conducted a Traffic Study and prepared a Traffic Study Report to review the potential impacts on traffic from the Project. As indicated in the Traffic Study Report, the "existing sight distance in both directions at the Tilden intersection are 500'+. The AAHTO Sight stopping distance minimum recommendations for a design speed of 45 MPH on a

level grade are 360' so this intersection more than meets those requirements.” LAMONT ENGINEERS, Traffic Study Report (July 1, 2025).

Further, the Applicant retained Creighton Manning Engineering & Surveying, PLLC (CM) to conduct a Traffic Assessment, dated November 25, 2025. After conducting a site survey, traffic data collection, and traffic modeling, CM concluded that the Project will generate

56 new vehicle trips during the AM peak hour, 133 new vehicle trips during the PM peak hour, and 160 new vehicle trips during the Saturday peak hour ... It is noted that the distribution of travel in and out of the site will result in a maximum increase of approximately 35 new trips on any one approach of the study area intersections. The level of service analysis indicates that the unsignalized study area intersections will operate at LOS C or better through Build conditions during the AM and PM peak hours with an increase in average vehicle delay less than two (2) seconds to any movement. No mitigation is recommended at these existing locations ...

A review of expected queuing at the study area intersections indicates that construction of the Tilden Mixed-Use Development will not significantly increase queuing during the peak hours when compared to No-Build conditions. The SimTraffic simulation indicates that adequate traffic operations will be provided at the Site Driveway intersections on US Route 20 and Tilden Road.

CREIGHTON MANNING ENGINEERING & SURVEYING, PLLC, *Traffic Assessment, Tilden Mixed-Use Development, 538 Route 20, Town of New Lebanon, Columbia County, New York; CM Project No. R251170.00* (Nov. 25, 2025) at 9 (emphasis added).

Moreover, this area of the Town is designed for higher levels of traffic. The Project will not be sited in an area that is difficult to access or accessible only via local, residential roads. Rather, the Project will be located in the center of Town, in a higher density commercial area, serviced by U.S. Route 20. Even though the Project will lead to increased vehicle trips to the Property as noted above, the surrounding roads are suitable for this type of commercial (and residential) traffic.

Lastly, as noted, the NYSDOT reviewed the Project plans and determined that “they are concurrent with NYSDOT regulations and requirements. At this point, the project has completed the technical review process and upon providing the contractor's insurance and bonding certificates, NYSDOT can issue a permit for the project.” Ltr. from NYSDOT to Lamont Engineers (Nov. 24, 2025). The Town Highway Superintendent also reviewed the Project plans and determined that a portion of Tilden Road, to the east side of the Project, would need to be widened to accommodate potential emergency vehicles or any other large vehicles traveling on Tilden Road. The Applicant agreed to such road widening and revised its Project plans accordingly. Following that revision, the Town Highway Superintendent approved the Project plans and issued the Applicant the necessary curb cut permits. *See Zoning Permit, BP-2026-013* (issued March 30, 2026).

11. Parking. Adequate off-street parking and loading spaces shall be provided in accordance with this chapter to prevent parking in public streets of the vehicles of any persons connected with or visiting the use. Shared parking is encouraged where the peak parking demands of different uses occur at various times of the day. Use of a widely accepted means of projecting demand for shared use, such as the Urban Land Institute's shared parking report, shall be employed to demonstrate shared parking effects.

As noted above, the Applicant has included adequate parking (116 spaces), vehicle ingress and egress, and an internal loading dock in the Project design. *See* LAMONT ENGINEERS, *Traffic Study Report* (July 1, 2025); *see also* CREIGHTON MANNING ENGINEERING & SURVEYING, PLLC, *Traffic Assessment, Tilden Mixed-Use Development, 538 Route 20, Town of New Lebanon, Columbia County, New York; CM Project No. R251170.00* (Nov. 25, 2025). The number of parking spaces was informed by the Zoning Law, residential development design guidelines, including those developed by HCR, and a review of comparable grocery stores in the area. The Zoning Law sets out guidelines for off-street parking, and rather than mandating a standardized number of parking spaces to be applied to all uses, the Zoning Law encourages applicants and the Planning Board to engage in an iterative process to determine the appropriate number of parking spaces required for a specific application. Here, based on the above data as well as a review of comparable retail stores in the area, the Applicant has designed the Project site with 116 parking spaces. Specifically, the Project is similar in square footage to the Dollar General in Town, and the parking for the Project has a similar ratio of parking spaces to relevant square footage. That project was approved in 2023, allowing for parking to the side and rear of the building.

Further, as noted in the Tilden Commons Residential Tenant Policies, there will be 61 spots reserved for permitted residential parking. Each one-bedroom apartment will be assigned a maximum of one parking spot, and each two-bedroom apartment will be assigned a maximum of two parking spots. *See* Tilden Commons Residential Tenant Policies. There will be 50 parking spots reserved for grocery parking. The remainder of the parking spaces will be for guest parking. Lastly, as noted, shared parking with other lots will not be needed.

12. Circulation. The interior circulation system shall be adequate to provide safe accessibility to all required off-street parking and to provide for the convenience and safety of vehicular, pedestrian, and bicycle movement within the site and in relation to adjacent areas or roads.

As noted above, the Project includes an ingress/egress from U.S. Route 20 as well as from Tilden Road to allow for circular movement of vehicles around the building. These access points are at a right angle to each other, allowing for traffic movements around the rear of the building, rather than across the front of the building. There is also an island included in the rear parking area to allow for circular movement within that specific area as well. *See* Traffic Study Report, July 1, 2025; *see also* Site Plans, C-110, May 6, 2026. The residential entry is at the rear of the building where the residential parking will be located, whereas the grocery store entry is toward the front of the building, near the entrance from U.S. Route 20 where grocery store customers will park. There are sidewalks and plenty of space around the building as well as a bicycle parking area. Additionally, there is a separate access point from Tilden Road solely for deliveries to the internal loading dock. *See* Site Plans.

13. Landscaping and screening. All parking and service areas shall be reasonably screened at all seasons of the year from the view of adjacent residential lots and streets, and the general landscaping of the site shall be in character with that generally prevailing in the neighborhood. Existing trees shall be preserved to the maximum extent practical.

The parking area, which will be located to the side and rear of the building, will be landscaped with shrubs and trees to screen the parking areas from adjacent residential properties to the greatest extent practicable. There is an existing vegetative buffer to the north and most of east of the Property that will remain. The loading dock that will be on the west side of the building will be internal and, in any case, will be reasonably screened with fencing and landscaping. The additional landscaping to be installed around the building and parking area will be consistent with the character of the natural vegetation and landscaping in the area, as various native species will be used, as well as a variety of species—flowering trees, evergreen trees, deciduous trees, ornamental grasses and perennials, etc. *See Site Plan L-100, L-400, and L-500.* There will not be extensive vegetation removal for construction of the Project.

14. Character. New Lebanon is a culturally, economically, socially, and architecturally diverse community. The Board shall consider this diversity in making conditions on special use permits. The character of the proposed use, buildings, structures, outdoor signs and lighting shall be in general harmony with the character of the surrounding neighborhood and of the Town of New Lebanon.

Noted. As discussed fully herein, the Project has been designed to blend into the rural character of the Town and includes various Shaker elements consistent with the architectural and historic style of the area. *See Planning Board Architecture Memo, July 2, 2025.* Further, the Planning Board has also determined that there will be no significant adverse environmental impact from the Project related to consistency with community character when it approved the Negative Declaration at its meeting on June 17, 2026. The Planning Board is bound by that prior determination. *See Tall Trees Constr. Corp. v. Zoning Bd. of Appeals of Town of Huntington*, 97 N.Y.2d 23 86, 93 (2001) (A local board’s decision “which neither adheres to its own prior precedent nor indicates its reason for reaching a different result on essentially the same facts is arbitrary and capricious.”); *see also SCI Funeral Servs. of N.Y., Inc. v. Town of Babylon Planning Bd.*, 277 A.D.2d 319 (2d Dep’t 2000) (a municipal board cannot make findings under SEQRA and then ignore those findings to deny the underlying application without a rational explanation).

15. Historic and natural resources. The proposed use shall be designed and shall be carried out in a manner that protects historic and natural environmental features on the site under review and in adjacent areas.

The Planning Board has determined that there will be no significant adverse environmental impact from the Project related to historic or natural resources, or any other environmental resource, when it approved the Negative Declaration at its meeting on June 17, 2026. The Planning Board is bound by that prior determination. *See Tall Trees Constr. Corp. v. Zoning Bd. of Appeals of Town of Huntington*, 97 N.Y.2d 23 86, 93 (2001) (A local board’s decision “which neither adheres to its own prior precedent nor indicates its reason for reaching a different result on essentially the same facts is arbitrary and capricious.”); *see also SCI Funeral Servs. of N.Y., Inc. v. Town of Babylon*

Planning Bd., 277 A.D.2d 319 (2d Dep’t 2000) (a municipal board cannot make findings under SEQRA and then ignore those findings to deny the underlying application without a rational explanation). More specifically, the Project will not impact any historic features on the Property (as there are none) or in the adjacent area. The Applicant submitted its proposed Project to the New York State Historic Preservation Office (SHPO), which conducted a review of same in accordance with Section 106 of the National Historic Preservation Act of 1966, and found that no historic properties, including archaeological and/or historic resources, will be affected by the Project. *See* “No Impact Letter” from SHPO (May 20, 2025).

Additionally, as determined by the Planning Board in its Negative Declaration, the Project will similarly not impact any wetlands or streams in the area, include any stationary source of air emissions once the building is constructed, produce odors, use or dispose of hazardous wastes, create flooding in the area, or impact any protected species or habitats. Further, during construction of the Project, any erosion or stormwater impacts will be fully mitigated through the Project’s stormwater control design as well as by following the measures in the NYSDEC Blue Book and the Project’s approved SWPPP. The new source of sanitary wastewater generated from the building will not present any adverse impacts on- or offsite, as the Project includes a treatment system with a conventional septic tank, an Orenco Advantex treatment system for secondary treatment, and UV disinfection before discharge. Lastly, the exterior lighting to be installed onsite for safety will be downcast, shielded, and dark sky compliant and will not produce any glare or light exposure onto adjacent properties.

16. Sewage treatment and water supply. The adequacy of available sewage disposal and water supply services supporting the proposed activity or use shall be sufficient to meet the needs of the proposed activity or use.

The new source of sanitary wastewater generated from the building will be adequately addressed via a new treatment system that will have a conventional septic tank for solids removal, an Orenco Advantex treatment system for secondary treatment, and will conduct UV disinfection before discharge. The site wastewater will be treated to surface water discharge quality standards but will be discharged onsite to the subsurface to avoid creation of additional surface water. Once the water is treated, it will be discharged to a subsurface stormwater dispersal structure to allow the wastewater to percolate into the existing site soils, similar to a leach field. *See* LAMONT ENGINEERS, *Water and Sanitary System Engineer’s Report – REVISED* (April 1, 202[6]).

The mixed-use building that will be constructed is expected to have an average daily demand of 8,710 gallons per day, and a maximum daily demand of 13,065 gallons per day. This equates to 6 gallons per minute and 9 gallons per minute, respectively. This is an increase compared to the current water demand, which is zero given that the existing commercial building on the Property is vacant. However, the Applicant’s engineers conducted a 72-hour pump test on the well that is already installed onsite and determined that the onsite well has a safe long-term draw down capacity of 13 gallons per minute. *See id.* As such, the increased demand for water will be fulfilled by the currently installed well and will not require a new water supply well. Moreover, based on the results of the 72-hour pump test, the Applicant’s engineers determined that the proposed building’s use of water will not negatively affect any neighboring properties’ wells or water supply. *See id.*, Att. F,

Hydrogeological Report (“Based on the data evaluated, the proposed use of PW-1 at 13 gpm will not adversely impact normal use of the surrounding private water wells.”).

The Planning Board necessarily found that there will be no significant adverse environmental impact from the Project related to adequacy of the water supply well or management of sanitary wastewater when it approved the Negative Declaration at its meeting on June 17, 2026. The Planning Board is bound by that prior determination. *See Tall Trees Constr. Corp. v. Zoning Bd. of Appeals of Town of Huntington*, 97 N.Y.2d 23 86, 93 (2001) (A local board’s decision “which neither adheres to its own prior precedent nor indicates its reason for reaching a different result on essentially the same facts is arbitrary and capricious.”); *see also SCI Funeral Servs. of N.Y., Inc. v. Town of Babylon Planning Bd.*, 277 A.D.2d 319 (2d Dep’t 2000) (a municipal board cannot make findings under SEQRA and then ignore those findings to deny the underlying application without a rational explanation).

17. Emergency services. All proposed buildings, structures, equipment and/or material shall be readily accessible for fire, police, and other emergency service protection.

The building is fully accessible to emergency services. The accessways and parking lot are wide enough for fire engines and ambulances to navigate around the building. The local Fire Chief reviewed the Project and issued an email response to the Applicant indicating that he has no concerns about the Lebanon Valley Protective Association’s ability to service the proposed building. *See* Email from Stephen Houghtling, LVPA Chief, to Joshua Young (May 6, 2026) (“I have seen the minor changes to your plan for the Tilden project, as I stated before as long as all the nys fire codes are being followed, we at the LVPA would have no problem providing fire coverage for this building.”). Further, the Town Highway Superintendent also reviewed the Project plans and determined that a portion of Tilden Road would need to be widened to accommodate potential emergency vehicles or any other large vehicles traveling on Tilden Road. The Applicant agreed to such road widening, which it will pay for, and revised its Project plans accordingly. Following that revision, the Town Highway Superintendent approved the Project plans and issued the Applicant the necessary curb cut permits. *See* Zoning Permit, BP-2026-013 (issued March 30, 2026). Lastly, the building design includes standpipes in the fire stairs, more egress doors than required by code, and all first-floor apartments have additional direct exterior access.

18. Size and scale. The location and size of such use, the nature and intensity of operations involved in or conducted in connection with the use, the size of the site in relation to the use, its site layout and its relation to existing and future access streets shall be such that both pedestrian and vehicular traffic will not be hazardous or inconvenient to or incongruous with said residence district or conflict with the normal traffic of the neighborhood.

The Project is proposed to be located in the CC District, specifically, the commercial center of Town, which has the densest concentration of commercial uses. *See* Zoning Law § 205-4(B)(3) (“Central Commercial (CC). This district represents the "Town center" of New Lebanon, having the most dense concentration of commercial properties. In furtherance of the Town's comprehensive plan, this district is intended to have vibrant, customer intensive commercial activity ... Residential and community-oriented uses are consistent with this downtown feel.”).

See also Town of New Lebanon Comprehensive Plan Update 2021 (Comp Plan) at 19 (“the Routes 20/22 corridor, which has been considered the “center of Town” for the last few decades.”). The building size is consistent with other commercial buildings in this area, such as the Midtown Mall, Valley Plaza, and Larabee Heating building (a former bowling alley) and will be fully supported by the size of the Property, which is approximately 3.2 acres. This is particularly true given that the proposed lot coverage of the building will be approximately 20 to 25 percent (the Zoning Law allows up to 75 percent). The intensity of the proposed land use is perfectly suited for this area of the Town. A grocery store is the exact type of business typically located in a “Town Center.” The addition of apartment units to a mixed-use building with a grocery store is similarly well-suited to a busier, higher density area, like this one, as the higher number of people coming and going from the apartments and the grocery store is what makes a bustling town center, which is not only suitable in this area, but desired by the Town as stated in the Comp Plan.

Further, the Planning Board found that there will be no significant adverse environmental impact from the Project related to consistency with community character and community plans when it approved the Negative Declaration at its meeting on June 17, 2026. The Planning Board is bound by that prior determination. *See Tall Trees Constr. Corp. v. Zoning Bd. of Appeals of Town of Huntington*, 97 N.Y.2d 23 86, 93 (2001) (A local board’s decision “which neither adheres to its own prior precedent nor indicates its reason for reaching a different result on essentially the same facts is arbitrary and capricious.”); *see also SCI Funeral Servs. of N.Y., Inc. v. Town of Babylon Planning Bd.*, 277 A.D.2d 319 (2d Dep’t 2000) (a municipal board cannot make findings under SEQRA and then ignore those findings to deny the underlying application without a rational explanation).

Lastly, as discussed thoroughly herein, the Project is designed to safely accommodate the expected number of vehicles and traffic, which in any case will be consistent with the CC District as well as U.S. Route 20, where the Project will be located. The Traffic Study Report indicates that existing Annual Average Daily Traffic (AADT) volume for this corridor of Route 20 is approximately 7,300 vehicles and that the existing peak hour traffic on Route 20 is 365 to 395 vehicles per hour. *See LAMONT ENGINEERS, Traffic Study Report* (July 1, 2025). Based on this analysis, the Project is expected to generate approximately 73 new vehicle trips during the AM peak hour and 128 new vehicle trips during the PM peak hour, which would result in a volume to capacity ratio of 0.62, which is under the capacity of the existing roads. Lamont Engineers concludes that “[e]xisting traffic conditions on US Route 20 can support the expected increase without significant degradation to traffic operations.” *Id.* The Applicant’s engineers also reviewed the sight distances to determine adequacy of the ingress and egress to the Property. As indicated in the Traffic Study Report, the “existing sight distance in both directions at the Tilden intersection are 500’+. The AAHTO Sight stopping distance minimum recommendations for a design speed of 45 MPH on a level grade are 360’ so this intersection more than meets those requirements.” *Id.*

Further, the Applicant retained Creighton Manning Engineering & Surveying, PLLC (CM) to conduct a Traffic Assessment, dated November 25, 2025. After conducting a site survey, traffic data collection, and traffic modeling, CM concluded that the Project will generate

56 new vehicle trips during the AM peak hour, 133 new vehicle trips during the PM peak hour, and 160 new vehicle trips during the Saturday peak hour ... It is noted that the distribution of travel in and out of the site will result in a maximum

increase of approximately 35 new trips on any one approach of the study area intersections. The level of service analysis indicates that the unsignalized study area intersections will operate at LOS C or better through Build conditions during the AM and PM peak hours with an increase in average vehicle delay less than two (2) seconds to any movement. No mitigation is recommended at these existing locations ...

A review of expected queuing at the study area intersections indicates that construction of the Tilden Mixed-Use Development will not significantly increase queuing during the peak hours when compared to No-Build conditions. The SimTraffic simulation indicates that adequate traffic operations will be provided at the Site Driveway intersections on US Route 20 and Tilden Road.

CREIGHTON MANNING ENGINEERING & SURVEYING, PLLC, *Traffic Assessment, Tilden Mixed-Use Development, 538 Route 20, Town of New Lebanon, Columbia County, New York; CM Project No. R251170.00* (Nov. 25, 2025) at 9 (emphasis added).

19. Additional safeguards and conditions. The Board shall impose additional conditions and safeguards upon the special use permit as may be reasonably necessary to assure continual conformance to all applicable standards and requirements, including reasonable assurance that these conditions and safeguards can be responsibly monitored and enforced.

Noted.

- c. **The Project meets the special use permit standards for multifamily dwellings provided in Section 205-13(E)(10) of the Zoning Law, except for minimum lot size requirement in Section 205-13(E)(10)(A) for which the Applicant is seeking an area variance.**

- (a) In addition to meeting the minimum lot size requirements for the establishing of the principal use, there shall be a minimum of 5,000 square feet on the lot per dwelling unit.

The Applicant has requested an area variance from the Town of New Lebanon Zoning Board of Appeals (ZBA) for relief from this requirement. See Application to the ZBA for an area variance, dated May 19, 2025. After due consideration of the proposed Project as well as a review of the five factors of the area variance test, the ZBA took a straw poll at its regular meeting in September 2025 indicating that it would grant the area variance. See ZBA Meeting Minutes (Sept. 2, 2025). No design changes have occurred that would require a change to the requested area variance since the August 2025 ZBA meeting, and as such, the ZBA will more than likely grant this area variance.

- (b) The Board, as part of the sketch phase of site plan review, shall evaluate the building design. Multifamily structures that have an appearance of a single-family dwelling are preferred. The Board shall ensure that the design is compatible with the existing character of neighborhood and Town.

Noted. Given the size of the building, it cannot be designed to have the appearance of a single-family dwelling. However, as discussed fully herein, the building has been designed to complement the Town's rural character and includes architectural and design elements consistent

with the area's Shaker history. *See* Planning Board Architecture Memo, July 2, 2025. And, as noted, the Planning Board found that there will be no significant adverse environmental impact from the Project related to consistency with community character when it approved the Negative Declaration at its meeting on June 17, 2026. The Planning Board is bound by that prior determination. *See Tall Trees Constr. Corp. v. Zoning Bd. of Appeals of Town of Huntington*, 97 N.Y.2d 23 86, 93 (2001) (A local board's decision "which neither adheres to its own prior precedent nor indicates its reason for reaching a different result on essentially the same facts is arbitrary and capricious."); *see also SCI Funeral Servs. of N.Y., Inc. v. Town of Babylon Planning Bd.*, 277 A.D.2d 319 (2d Dep't 2000) (a municipal board cannot make findings under SEQRA and then ignore those findings to deny the underlying application without a rational explanation).

d. The Project meets the special use permit standards for mixed uses provided in Section 205-13(E)(18) of the Zoning Law.

- (a) Each constituent use comprising a mixed use must meet all requirements applicable to such constituent use set forth in this chapter.

As discussed fully herein, the Project meets all the requirements for a Retail Use and Multifamily Dwelling. The only requirement that the Project does not meet is the requirement in Zoning Law § 205-13(E)(10)(A) that there be a minimum lot size of 5,000 square feet per dwelling unit, for which the Applicant is seeking an area variance from the ZBA.

- (b) In reviewing an application for special use permit for a mixed use, the Planning Board shall consider each constituent use comprising a proposed mixed use individually, as well as all such constituent uses comprising a proposed mixed use cumulatively.

Noted.

- (c) A special use permit for a mixed use shall only permit the constituent uses for which the special use permit was issued. Any additional or different constituent uses, whether considered principal uses or accessory uses under this chapter, shall not be permitted unless special use permit approval is granted therefor by the Planning Board.

Noted.

II. SITE PLAN APPLICATION

The Zoning Law requires site plan review and approval for "any new land use activity, engaging in any previous land use activity after having not engaged in such land use activity for a period of one year or more, changing any land use activity, or expanding the size or area of any land use activity." Zoning Law § 205-14(D). As stated, the Project is a specially permitted use in the CC District as Mixed Uses and Multifamily Dwellings are specially permitted, and Retail Uses, including grocery stores, are permitted with site plan approval. *See* Zoning Law, Use Table; *see also* Zoning Law § 205-14(D). As discussed thoroughly herein, the Project meets all applicable requirements in the Zoning Law for site plan approval for the Project as provided in Zoning Law

§§ 205-6(C) and 205-14. As such, the Applicant respectfully requests the Planning Board grant the requested site plan approval.

a. The Project meets the requirements for developments in the CC District provided in Section 205-6(C) of the Zoning Law.

The Applicant has provided all necessary, applicable information as required by Zoning Law § 205-14(E)(3).

b. The Project meets the requirements for developments in the CC District provided in Section 205-6(C) of the Zoning Law.

1. The development of public parks, commons, or pedestrian plazas with amenities such as benches and landscaping should be encouraged.

The Project intentionally includes an outdoor courtyard, grassy play area, and green spaces and the building also includes common space for residents consisting of a community room and reading area on the third floor as well as a sheltered bike parking area. There will be landscaping around the entirety of the Property, which will include native tree clusters, various evergreen and deciduous trees, flowering trees, ornamental grasses and perennials, etc. *See* Site Plan, L-100, L-400, and L-500.

2. Where practicable, existing tree rows and hedgerows, stonewalls, and similar features should be retained in the development of any new use or the expansion of any existing use.

There are no existing tree rows, hedgerows, stonewalls, or similar features currently on the Property. There is significant landscaping proposed to be included with the Project. *See* Site Plan, L-100, L-400, and L-500.

3. Where practicable, new buildings should be designed in a manner that harmonizes with the general architectural features of the traditional and rural nature of New Lebanon in terms of form, materials, and fenestration and roof shape.

The building has been designed to complement the Town's rural character. *See e.g.*, Planning Board Architecture Memo, July 2, 2025 ("The proposed building is a traditional New England-style barn with a [] [gable] roof and cupola. A secondary porch faces most of the south face of the building. The proposed building's street-facing façade references the classic barn form with large openings and a full porch. The proposed building retains the cupola but reimagines it as a warm beacon on Main Street. The roof is set back to reduce the bulk at the edges ... The monochrome Evergreen wall color, stone base, and light [] [gable] roof come from the local classic vernacular agricultural architecture, whose buildings are often much larger than the proposed project."). The building has also been designed to include architectural and design elements consistent with the area's Shaker history. *See id.* ("The proposed design pays homage to the local Shaker Heritage in New Lebanon, NY, and other nearby Shaker communities. The yellow ochre as accent in the color palette comes from the 6 Shaker colors referenced in the Shaker Millennial Laws ... The design incorporates several architectural details that reflect the Shaker building tradition: 1. Pentice roofs

over the entry doors[;] 2. Clapboard siding[;] 3. Single double hung windows with flat trim and trim extensions on top frame[;] 4. Water table at 18”[;] 5. Cove soffit at street facing façades of commercial building[;] 6. Sliding Barn doors at storefront openings”). As such, the proposed building harmonizes with the general architectural features of the traditional and rural nature of the Town.

4. All new streets shall be designed to permit the installation of electric, water, sewer, and gas utilities underground, either initially or at the time major improvements or upgrades are made to the street or the particular service.

The Project does not involve any subdivision or creation of new streets. Utility service to the Property already exists as it served the prior (now vacant) commercial building on the Property.

5. Cross-easements shall be used to provide shared access to parking whenever possible.

There is adequate parking on the Property for residents and guests as well as grocery store patrons (116 parking spaces). There will not be any need to utilize shared parking on other parcels.

c. The Project meets the general site plan review standards and considerations provided in Section 205-14(F) of the Zoning Law.

- (1) Location, arrangement, size, design and general site compatibility of buildings, lighting and signs. Structures that are visible from public roads shall be compatible with each other and with traditional structures in the surrounding area in architecture (including but not limited to roof style and facades), massing, and placement, shall harmonize with traditional elements of the area, and shall avoid features such as flat roofs, large expanses of undifferentiated facades and long, plain wall sections. Architectural design shall be in keeping with the small-town architectural character of the area. Exterior lighting fixtures shall minimize glare and use design features such as, but not limited to, fully shielded fixtures to prevent light from shining onto neighboring properties or public ways and unnecessarily illuminating the night sky. Structures should be optimally placed to protect important viewsheds. Structures and activities shall be placed or buffered in a manner that protects adjacent agricultural operations.

As discussed above, the building has been designed to complement the Town’s rural character and includes architectural and design elements consistent with the area’s Shaker history. The building has been designed to avoid flat roofs, large expanses of undifferentiated facades, and long, plain wall sections. Following feedback from the Planning Board, the Applicant modified the longer building facades to break up the expanses and add additional detailed elements. *See Planning Board Architecture Memo, July 2, 2025* (“The proposed building is a traditional New England–style barn with a [] [gable] roof and cupola. A secondary porch faces most of the south face of the building. The proposed building’s street-facing façade references the classic barn form with large openings and a full porch. The proposed building retains the cupola but reimagines it as a warm beacon on Main Street. The roof is set back to reduce the bulk at the edges ... The monochrome Evergreen wall color, stone base, and light [] [gable] roof come from the local classic vernacular agricultural architecture, whose buildings are often much larger than the proposed project.”). The

building has also been designed to and includes architectural and design elements consistent with the area's Shaker history. *See id.* ("The proposed design pays homage to the local Shaker Heritage in New Lebanon, NY, and other nearby Shaker communities. The yellow ochre as accent in the color palette comes from the 6 Shaker colors referenced in the Shaker Millennial Laws ... The design incorporates several architectural details that reflect the Shaker building tradition: 1. Pentice roofs over the entry doors[;] 2. Clapboard siding[;] 3. Single double hung windows with flat trim and trim extensions on top frame[;] 4. Water table at 18"[;] 5. Cove soffit at street facing façades of commercial building[;] 6. Sliding Barn doors at storefront openings").

The size of the building is also consistent with other commercial buildings in this area, such as the Midtown Mall, Valley Plaza, and Larabee Heating building (a former bowling alley). The exterior lighting and sign for the grocery store will be in a style that matches the rural character of the Town as well. And, as noted, the exterior lighting has been specifically designed and will be installed so as not to cause any glare or light pollution onto adjoining properties and will be dark sky compliant. There are no viewsheds that the Project will impede nor are there any adjacent agricultural operations that will be impacted by the Project.

- (2) Adequacy, arrangement, and compliance with the applicable municipal regulations regarding vehicular traffic access and circulation, including intersections, road widths, pavement surfaces, dividers and traffic controls, and adequacy of snow storage and ease of snow removal. The Town Planning Board shall forward the site plan to the Highway Department for review.

As discussed above, the Project has been designed with adequate ingress and egress for vehicles and pedestrians, as well as bicyclists. *See* LAMONT ENGINEERS, Traffic Study Report (July 1, 2025); *see also* CREIGHTON MANNING ENGINEERING & SURVEYING, PLLC, *Traffic Assessment, Tilden Mixed-Use Development, 538 Route 20, Town of New Lebanon, Columbia County, New York; CM Project No. R251170.00* (Nov. 25, 2025). The Project has three accessways, including an entrance/exit from U.S. Route 20 and as well as an entrance/exit from Tilden Road to allow for circular movement of vehicles around the building. These access points are at a right angle to each other, allowing for traffic movement around the rear of the building, rather than across the front of the building. There is also an island included in the rear parking area to allow for circular movement within that specific area as well. Together with the design of the parking lot, movement of such traffic will be efficient. In addition, there will be a second point of ingress and egress along Tilden Road exclusively for deliveries. The Applicant has also designated an area of the Property where snow will be piled in order to keep the parking lot clear during the winter months.

Further, as noted, the Town Highway Superintendent also reviewed the Project plans and determined that a portion of Tilden Road would need to be widened to accommodate potential emergency vehicles or any other large vehicles traveling on Tilden Road. The Applicant agreed to such road widening, which it will pay for, and revised its Project plans accordingly. Following that revision, the Town Highway Superintendent approved the Project plans and issued the Applicant the necessary curb cut permits. *See* Zoning Permit, BP-2026-013 (issued March 30, 2026).

- (3) Location, arrangement, appearance and sufficiency of off-street parking and loading. Use of pervious surfaces such as gravel or pavers are encouraged to reduce stormwater runoff.

As discussed herein, the Project design includes adequate parking with 116 spaces. The number of parking spaces was informed by review of the Zoning Law, residential development design guidelines, including those developed by HCR, and by a review of comparable grocery stores in the area. The parking lot will be constructed with asphalt; however, there will be gravel and pavers in certain areas of the Property (e.g., the plaza at the front of the grocery store, the courtyard, walkways, etc.). And in any case, any stormwater impacts from installation of the pervious surfaces will be fully mitigated through the Project's stormwater control design as well as by following the measures in the NYSDEC Blue Book and the Project's approved SWPPP. The Planning Board determined that there will be no significant adverse environmental impact from the Project related to erosion or stormwater runoff when it approved the Negative Declaration at its meeting on June 17, 2026. The Planning Board is bound by that prior determination. *See Tall Trees Constr. Corp. v. Zoning Bd. of Appeals of Town of Huntington*, 97 N.Y.2d 23 86, 93 (2001) (A local board's decision "which neither adheres to its own prior precedent nor indicates its reason for reaching a different result on essentially the same facts is arbitrary and capricious."); *see also SCI Funeral Servs. of N.Y., Inc. v. Town of Babylon Planning Bd.*, 277 A.D.2d 319 (2d Dep't 2000) (a municipal board cannot make findings under SEQRA and then ignore those findings to deny the underlying application without a rational explanation).

(4) Adequacy and arrangement of pedestrian traffic access and circulation, walkway structures, control of intersections with vehicular traffic and overall pedestrian convenience.

As discussed above, the Project has been designed for adequate pedestrian access, circulation, and convenience. There are sidewalks around the grocery store and there is a path from the rear parking area through to the residents' entrance. Further, as provided in the Traffic Study Report, the intersection of Tilden Road and U.S. Route 20 is a one-way stopped controlled (minor road stop). *See LAMONT ENGINEERS, Traffic Study Report* (July 1, 2025). The Planning Board also necessarily determined that there would be no significant adverse environmental impact from the Project related to the transportation aspects of the Project when it approved the Negative Declaration at its meeting on June 17, 2026. The Planning Board is bound by that prior determination. *See Tall Trees Constr. Corp. v. Zoning Bd. of Appeals of Town of Huntington*, 97 N.Y.2d 23 86, 93 (2001) (A local board's decision "which neither adheres to its own prior precedent nor indicates its reason for reaching a different result on essentially the same facts is arbitrary and capricious."); *see also SCI Funeral Servs. of N.Y., Inc. v. Town of Babylon Planning Bd.*, 277 A.D.2d 319 (2d Dep't 2000) (a municipal board cannot make findings under SEQRA and then ignore those findings to deny the underlying application without a rational explanation).

(5) Adequacy of stormwater and drainage facilities and compliance with all applicable New York State DEC stormwater regulations.

As noted, any stormwater impacts from installation of the building and other impervious surfaces will be fully mitigated through the Project's stormwater control design as well as by following the measures in the NYSDEC Blue Book and the Project's approved SWPPP. And, as stated, the Planning Board also necessarily determined that there would be no significant adverse environmental impact from the Project related to the stormwater when it approved the Negative

Declaration at its meeting on June 17, 2026. The Planning Board is bound by that prior determination. *See Tall Trees Constr. Corp. v. Zoning Bd. of Appeals of Town of Huntington*, 97 N.Y.2d 23 86, 93 (2001) (A local board's decision "which neither adheres to its own prior precedent nor indicates its reason for reaching a different result on essentially the same facts is arbitrary and capricious."); *see also SCI Funeral Servs. of N.Y., Inc. v. Town of Babylon Planning Bd.*, 277 A.D.2d 319 (2d Dep't 2000) (a municipal board cannot make findings under SEQRA and then ignore those findings to deny the underlying application without a rational explanation).

(6) Adequacy of water supply and sewage disposal facilities as per Columbia County Health Department.

As discussed above, the mixed-use building that will be constructed is expected to have an average daily demand of 8,710 gallons per day, and a maximum daily demand of 13,065 gallons per day. This equates to 6 gallons per minute and 9 gallons per minute, respectively. This is an increase compared to the current water demand, which is zero given that the existing commercial building on the Property is vacant. However, the Applicant's engineers conducted a 72-hour pump test on the well that is already installed onsite and determined that the onsite well has a safe long-term draw down capacity of 13 gallons per minute. *See LAMONT ENGINEERS, Water and Sanitary System Engineer's Report – REVISED* (April 1, 202[6]). As such, the increased demand for water will be fulfilled by the currently installed well and will not require a new water supply well. Moreover, based on the results of the 72-hour pump test, the Applicant's engineers determined that the proposed building's use of water will not negatively affect any neighboring properties' wells or water supply. *See id.*, Att. F, Hydrogeological Report ("Based on the data evaluated, the proposed use of PW-1 at 13 gpm will not adversely impact normal use of the surrounding private water wells.").

Further, the new source of sanitary wastewater generated from the building will be adequately addressed via a new treatment system that will have a conventional septic tank for solids removal, an Orenco Advantex treatment system for secondary treatment, and will conduct UV disinfection before discharge. The site wastewater will be treated to surface water discharge quality standards but will be discharged onsite to the subsurface to avoid creation of additional surface water. Once the water is treated, it will be discharged to a subsurface stormwater dispersal structure to allow the wastewater to percolate into the existing site soils, similar to a leach field. *See LAMONT ENGINEERS, Water and Sanitary System Engineer's Report – REVISED* (April 1, 202[6]). The Planning Board necessarily found that there will be no significant adverse environmental impact from the Project related to adequacy of the water supply well or management of sanitary wastewater when it approved the Negative Declaration at its meeting on June 17, 2026. The Planning Board is bound by that prior determination. *See Tall Trees Constr. Corp. v. Zoning Bd. of Appeals of Town of Huntington*, 97 N.Y.2d 23 86, 93 (2001) (A local board's decision "which neither adheres to its own prior precedent nor indicates its reason for reaching a different result on essentially the same facts is arbitrary and capricious."); *see also SCI Funeral Servs. of N.Y., Inc. v. Town of Babylon Planning Bd.*, 277 A.D.2d 319 (2d Dep't 2000) (a municipal board cannot make findings under SEQRA and then ignore those findings to deny the underlying application without a rational explanation).

- (7) Adequacy, type and arrangement of trees, shrubs and other landscaping constituting a visual and/or noise buffer between the applicant's and adjoining lands, including the maximum retention of existing vegetation. Landscaping shall be an integral part of the project area. To the extent practical, existing trees and other vegetation shall be conserved and integrated into the landscape design plan. Landscaping shall buffer incompatible uses such as large-scale commercial uses and residences.

There is an existing vegetative buffer to the north and most of east of the Property that will remain. The loading dock that will be on the west side of the building will be internal and, in any case, will be reasonably screened with fencing and landscaping. The additional landscaping to be installed around the building and parking area will be consistent with the character of the natural vegetation and landscaping in the area, as various native species will be used, as well as a variety of species—flowering trees, evergreen trees, deciduous trees, ornamental grasses and perennials, etc. *See* Site Plan L-100, L-400, and L-500. There will also be little, if any, vegetation removal for construction of the Project.

- (8) Adequacy of fire lanes and other emergency zones to provide emergency access to structure(s) and the provision of fire hydrants if necessary.

The building is fully accessible to emergency services. The accessways and parking lot are wide enough for fire engines and ambulances to navigate around the building. The local Fire Chief reviewed the Project and issued an email response to the Applicant indicating that he has no concerns about the Lebanon Valley Protective Association's ability to service the proposed building. *See* Email from Stephen Houghtling, LVPA Chief, to Joshua Young (May 6, 2026) ("I have seen the minor changes to your plan for the Tilden project, as I stated before as long as all the NYS fire codes are being followed, we at the LVPA would have no problem providing fire coverage for this building."). Further, the Town Highway Superintendent also reviewed the Project plans and determined that a portion of Tilden Road would need to be widened to accommodate potential emergency vehicles or any other large vehicles traveling on Tilden Road. The Applicant agreed to such road widening, which it will pay for, and revised its Project plans accordingly. Following that revision, the Town Highway Superintendent approved the Project plans and issued the Applicant the necessary curb cut permits. *See* Zoning Permit, BP-2026-013 (issued March 30, 2026).

- (9) Protection of adjacent or neighboring properties against noise, glare, unsightliness or nuisances.

The Project will not generate any unsightliness or nuisances. Quite the opposite, the Project is designed to redevelop the currently vacant property and building thereon by constructing a new grocery store—which is sorely needed in the Town—as well as affordable apartment units, which also meets a significant need in the community. Further, as noted, other than during construction, which will produce typical civil construction noise for a temporary period, the Project itself (*i.e.*, residents in apartments, patrons of the grocery, and operation of the grocery store) will not produce noise perceptible above ambient levels of this commercial center of the Town—which is already at a higher level than the surrounding residential and rural areas given U.S. Route 20 traffic noise and the noise from other commercial uses nearby. Further, included in the Residential Policies for tenants will be quiet hours from 11 pm to 7 am, during which tenants shall not make noise

disturbing other residents, whether inside apartment units or anywhere on the Property. *See* Tilden Commons Residential Tenant Policies. Further, the Applicant provided a Noise Study dated May 6, 2026, concluding that “sounds levels generated from equipment to serve the facility will not exceed 70 dB and will likely be under 60 dB at the property line which is equivalent to the sound of a running dishwasher, creating a minimal impact on neighboring properties.” LAMONT ENGINEERS, *Tilden Development – 538 US Route 20, Town of New Lebanon Noise Study and Evaluation of Site*, May 6, 2026. Finally, the proposed exterior lighting, which is included in the Project for safety of residents and grocery store patrons, will be downcast, shielded, and dark sky compliant and will not cause any glare onto adjoining properties.

(10) Adequacy and impact of structures, roadways, and landscaping in areas with susceptibility to ponding, flooding and/or erosion.

The Property is not located in a floodway or floodplain and will not present an impact related to flooding concerns. *See* FEAF Part I at § E.2.i. Additionally, as noted, impacts from installation of the building and other impervious surfaces will be fully mitigated through the Project’s stormwater control design as well as by following the measures in the NYSDEC Blue Book and the Project’s approved SWPPP, which the Planning Board necessarily determined when it approved the Negative Declaration at its meeting on June 17, 2026. The Planning Board is bound by that prior determination. *See Tall Trees Constr. Corp. v. Zoning Bd. of Appeals of Town of Huntington*, 97 N.Y.2d 23 86, 93 (2001) (A local board’s decision “which neither adheres to its own prior precedent nor indicates its reason for reaching a different result on essentially the same facts is arbitrary and capricious.”); *see also SCI Funeral Servs. of N.Y., Inc. v. Town of Babylon Planning Bd.*, 277 A.D.2d 319 (2d Dep’t 2000) (a municipal board cannot make findings under SEQRA and then ignore those findings to deny the underlying application without a rational explanation).

(11) Overall impact on the neighborhood, including compatibility of design consideration.

The overall impact of the Project on the neighborhood will be overwhelmingly positive. One of the Town’s weaknesses, as stated by the Town in the Town of New Lebanon Comprehensive Plan Update 2021 (Comp Plan), is the lack of a grocery store and limited affordable rental housing, and one of the stated opportunities is to repurpose vacant commercial spaces to meet residential needs. *See* Comp Plan at 13-14, 19. The Project consists of renovating a vacant property and building in the center of Town with a newly constructed mixed-use building with a new business—a highly desired grocery store—and much needed affordable housing. These are beneficial resources and opportunities that would be provided to the community because of the Project that otherwise do not exist. The Project will enhance the Town center, providing much needed resources to all residents. Further, as noted, the Project has been designed to complement the Town’s rural character and includes architectural and design elements consistent with the area’s Shaker history. *See* Planning Board Architecture Memo, July 2, 2025. Lastly, the Planning Board determined that there will be no significant adverse environmental impact from the Project related to consistency with community character when it approved the Negative Declaration at its meeting on June 17, 2026. The Planning Board is bound by that prior determination. *See Tall Trees Constr. Corp. v. Zoning Bd. of Appeals of Town of Huntington*, 97 N.Y.2d 23 86, 93 (2001) (A local board’s decision “which neither adheres to its own prior precedent nor indicates its reason for reaching a different result on essentially the same facts is arbitrary and capricious.”); *see also SCI Funeral*

Servs. of N.Y., Inc. v. Town of Babylon Planning Bd., 277 A.D.2d 319 (2d Dep’t 2000) (a municipal board cannot make findings under SEQRA and then ignore those findings to deny the underlying application without a rational explanation).

(12) Adequacy and impact of structures, roadways and landscaping in areas of steep slopes and along ridgelines.

No portion of the Property contains steep slopes or ridgelines. The entirety of the Property has slopes between zero and ten percent. *See* FEAF Part I at § E.2.f.

(13) Overall impact on wetlands and surface water resources, especially related to impacts of erosion and other forms of pollution.

There are no wetlands or surface water resources on the Property. *See* FEAF Part I at § E.2.h. And in any event, impacts from installation of the building and other impervious surfaces will be fully mitigated through the Project’s stormwater control design as well as by following the measures in the NYSDEC Blue Book and the Project’s approved SWPPP, which the Planning Board necessarily determined when it approved the Negative Declaration at its meeting on June 17, 2026. The Planning Board is bound by that prior determination. *See Tall Trees Constr. Corp. v. Zoning Bd. of Appeals of Town of Huntington*, 97 N.Y.2d 23 86, 93 (2001) (A local board’s decision “which neither adheres to its own prior precedent nor indicates its reason for reaching a different result on essentially the same facts is arbitrary and capricious.”); *see also SCI Funeral Servs. of N.Y., Inc. v. Town of Babylon Planning Bd.*, 277 A.D.2d 319 (2d Dep’t 2000) (a municipal board cannot make findings under SEQRA and then ignore those findings to deny the underlying application without a rational explanation).

d. The Project meets the specific site plan review standards provided in Section 205-14(G) of the Zoning Law.

(1) General lighting.

The Planning Board determined that there will be no significant adverse environmental impact from the Project related to lighting when it approved the Negative Declaration at its meeting on June 17, 2026. The Planning Board is bound by that prior determination. *See Tall Trees Constr. Corp. v. Zoning Bd. of Appeals of Town of Huntington*, 97 N.Y.2d 23 86, 93 (2001) (A local board’s decision “which neither adheres to its own prior precedent nor indicates its reason for reaching a different result on essentially the same facts is arbitrary and capricious.”); *see also SCI Funeral Servs. of N.Y., Inc. v. Town of Babylon Planning Bd.*, 277 A.D.2d 319 (2d Dep’t 2000) (a municipal board cannot make findings under SEQRA and then ignore those findings to deny the underlying application without a rational explanation).

(a) Where used for security purposes or to illuminate walkways, roadways, and parking lots, only shielded light fixtures shall be used. On-site lighting should be located to avoid harsh glares which distract the motorist's line of sight. The luminaire shall emit no direct light above a horizontal plane through the lowest direct light-emitting part of

the luminaire. Fully shielded fixtures are required. The maximum height of the luminaire may not exceed 18 feet.

The Project lighting will comply with this requirement. Shielded light fixtures will be used for all exterior lighting. This exterior lighting will be downcast and dark sky compliant and not cause any glare onto adjoining properties. *See Site Plan, Lighting Plan LT-100, LT-101, LT-200, and LT-101.*

- (b) Light fixtures used to illuminate flags, statues, or any other objects mounted on a pole, pedestal or platform shall use a narrow cone beam of light that will not extend beyond the illuminated object.

Any such lighting, if included in the Project, will comply with this requirement. *See Site Plan, Lighting Plan LT-100, LT-101, LT-200, and LT-101.*

- (c) Direct light emissions shall not be visible above the building roofline for other upward-directed architectural, landscape, and decorative lighting.

Any such lighting, if included in the Project, will comply with this requirement. *See Site Plan, Lighting Plan LT-100, LT-101, LT-200, and LT-101.*

- (d) Externally illuminated signs, including building identification signs, shall only use shielded light fixtures.

The only sign that will be included in the Project is the sign for the grocery store. Such sign, if illuminated, will only use shielded light fixtures.

- (2) Light trespass and glare. All light fixtures shall be designed, installed, and maintained to prevent light trespass, as specified below.
 - (a) Outdoor lighting shall be designed, installed, and maintained in a manner which does not present a disabling glare hazard to drivers or pedestrians. All reasonable measures, such as altering pole height, changing bulb type or using shielded fixtures, shall be taken to prevent the projection of a nuisance glare onto neighboring properties. Outdoor light fixtures properly installed and thereafter maintained shall be directed so that there will be no objectionable direct light emissions.

Exterior lighting at the building and in the parking lot, which is included in the Project for safety of residents and grocery store patrons, will be downcast, shielded, and dark sky compliant. The exterior lighting has been specifically designed and will be installed so as not to cause any glare or light pollution onto adjoining properties or roads. *See Site Plan, Lighting Plan LT-100, LT-101, LT-200, and LT-101.*

- (b) At the property line of the subject property, illumination from light fixtures shall not exceed 0.1 footcandle on adjacent residential property or 0.5 footcandle on adjacent business property, measured in a vertical plane.

The Project's exterior lighting will meet this requirement. *See Site Plan, Lighting Plan LT-100, LT-101, LT-200, and LT-101.*

- (c) The Planning Board may, as it deems appropriate, require that lighting be controlled by automatic timing devices to extinguish offending sources during specified periods to mitigate impacts. The Planning Board may also require that lighting, except for security lighting, be extinguished between the hours of 12:00 midnight and 6:00 a.m. for businesses that are not in operation during that time.

Noted.

- (d) Glare control shall be accomplished primarily through the proper selection and application of lighting equipment. Only after those means have been exhausted shall vegetation, fences, and similar screening methods be considered acceptable for reducing glare.

As noted above, exterior lighting at the building and in the parking lot, which is included in the Project for safety of residents and grocery store patrons, will be downcast, shielded, and dark sky compliant. The exterior lighting has been specifically designed and will be installed so as not to cause any glare or light pollution onto adjoining properties or roads. Further, there will be landscaping around the building and parking lot that will limit perception of light from the Property beyond property lines. *See Site Plan, Lighting Plan LT-100, LT-101, LT-200, and LT-101.*

- (3) Light fixture design. Fixtures must be properly designed for the intended purpose. Lamps shall not be directly seen from normal viewing angles. Lamps shall be directed so that light output is directed toward the surface to be lighted.

Noted. The Project's exterior lighting will meet this requirement. *See Site Plan, Lighting Plan LT-100, LT-101, LT-200, and LT-101.*

- (a) Mercury vapor greater than 40 watts and quartz halogen lamps are prohibited light sources.

Noted. The Project will not include such light sources. *See Site Plan, Lighting Plan LT-100, LT-101, LT-200, and LT-101.*

- (b) Poles and fixtures shall harmonize with the architectural character of the development and surrounding area.

Noted. The Project's exterior lighting will be consistent with the architectural character of the Project and Central Commercial District. *See Site Plan, Lighting Plan LT-100, LT-101, LT-200, and LT-101.*

- (4) Fixture installation.

- (a) Lighting fixtures shall not be mounted in excess of the maximum permitted building height or as permitted in § 205-14G(1) and (2).

Noted. The Project's exterior lighting will meet this requirement. *See* Site Plan, Lighting Plan LT-100, LT-101, LT-200, and LT-101.

- (b) Electrical feeds to lighting standards shall be run underground.

Noted. The electrical for the Project's exterior lighting will be run underground. *See* Site Plan, Lighting Plan LT-100, LT-101, LT-200, and LT-101.

- (5) Lighting plans shall be included in site plan review. Lighting plans submitted for review and approval for subdivision and land development and site plan review shall include a layout of proposed fixture locations, footcandle data that demonstrate conforming intensities and uniformities, and a description of the equipment, glare-control devices, lamps, mounting heights and means, hours of operations, and maintenance methods proposed.

Noted. *See* Site Plan, Lighting Plan LT-100, LT-101, LT-200, and LT-101.

- (6) Landscaping standards.

- (a) Buffers. Landscape buffers shall be provided between all residential and new commercial use. Buffers may include planted trees and shrubs, hedgerows, berms, or existing forestland. The width of such buffer areas will depend upon the topography, scale of the use and their location on the property but shall normally be between 50 feet and 200 feet. Landscaping shall be an integral part of the entire project area and shall either buffer the site from or integrate the site with the surrounding area or both.

Although the Project is a residential use as well, there is an existing wooded area providing a vegetative buffer between the Project and residential properties to the east/northeast. *See* Site Plan L-100, L-400, and L-500.

- (b) Existing vegetation. Building placement and lot layout shall be designed to relate to and incorporate existing vegetation. Insofar as practical, existing trees and other vegetation shall be conserved and integrated into the landscape design plan.

Very few trees will be removed during construction of the Project. The Property was previously cleared and developed with a (now vacant) commercial building. It is not a wooded parcel that requires any clearing.

- (c) Landscape components. Primary landscape treatment shall consist of shrubs, ground cover and shade trees and shall combine with appropriate walks and street surfaces to provide an attractive development pattern. Selected landscape plants should be native to the area to the extent practicable. The Planning Board may require that shade trees three inches in caliper or 12 feet in height be planted and maintained at twenty-foot to thirty-foot intervals along roads, preferably in the parkway between the road edge and sidewalk, if present, or within a ten-foot setback from the road edge.

Noted. The landscaping plan includes various species of mostly native shrubs and trees placed along the rear of the Property, surrounding the parking lot, and along certain portions of the walkways throughout the Property. *See* Site Plan L-100, L-400, and L-500.

- (d) Screening. Open storage areas, exposed machinery, and areas used for storing and collecting rubbish shall be screened from roads and surrounding land uses. Suitable types of screening include wood fences and dense evergreen hedges of five feet or more in height. Where evergreen hedges are proposed, a temporary fence shall be built to provide screening until the evergreens are of sufficient height.

Noted. The garbage receptacle area and generator will be screened with a wood fence and the entrance to the internal loading dock will be screened by this fence and additional vegetation. *See* Site Plan L-100, L-400, and L-500. Other than during construction, there will be no open storage areas or exposed machinery as part of the Project.

(7) Roads and road access standards.

- (a) Access from major streets. Lots in subdivisions should be arranged to minimize driveway access from major streets. Where driveway access from a major street may be necessary for several adjoining lots, the Planning Board may require that such lots be served by a combined access driveway in order to limit possible traffic hazard on such street. See also § 205-8D, Driveways, Subsection D(6), above, for standards related to shared driveways.

This requirement is not applicable to the Project.

- (b) Frontage required. No building permit or certificate of occupancy shall be issued for any structure or use unless the lot on which that structure is located has frontage of at least 60 feet on a street.

The Property is a corner lot and there is at least 60 feet of frontage on both U.S. Route 20 and Tilden Road.

- (c) Vehicle access and circulation. Multiple curb cuts shall be consolidated to the maximum extent practicable in order to provide clearly defined entrances and reduce conflicting vehicular movement.

As noted above, there will be three total entrances/exits to the Property—an entrance on U.S. Route 20 and an entrance and exit on Tilden Road, all of which will be clearly defined. Given that the Property is a corner lot, having this access on both sides of the corner, with the parking area at a right angle opposite the corner, will allow for circulation throughout the site and around the rear of the building. Additionally, there is a separate access point from Tilden Road solely for deliveries to the loading dock. *See* Site Plan.

- (d) Any new street shall be constructed in full compliance with the requirements of road specifications of the Town of New Lebanon (Chapter 179). New roads should be

interconnected except in areas where extreme topographic or wetland conditions preclude connections.

There will not be any new roads constructed as part of the Project.

(8) Specific standards and considerations for agricultural district. The following specific standards shall apply to site plans located within an agricultural district. The Planning Board's review of the site plan for these locations shall include, as appropriate, but not limited to, the following general considerations and shall ensure compatibility between the proposal and the Town of New Lebanon Comprehensive Plan:

(9) Overall impact on existing agricultural operations within the district.

(10) The landscape plan will show a landscaped buffer a minimum of 50 feet or more where practicable between the proposed residential use and an adjoining agricultural use.

The Project is not located in an agricultural district, and as such, these requirements are not applicable to the Project.

e. The Project meets the criteria provided in Section 205-14(H)(3)(a) of the Zoning Law.

Approval. The Town Planning Board will approve the site plan, provided that it finds the facts submitted with the site plan establish that:

(1) The location, nature and intensity of the use involved shall be such that it will be in harmony with the orderly development of the Town as proposed in the Comprehensive Plan and will not discourage the appropriate development and use of adjacent land and buildings.

As discussed fully herein, the Project—a mixed use residential and commercial building with 41 affordable apartment units and a grocery store—is in a location and is of a nature and intensity that is in harmony with the proposed development plan of the Town, as indicated in the Comp Plan. One of the Town’s weaknesses, as stated by the Town stated in the Comp Plan, is the lack of a grocery store and limited affordable rental housing and one of the stated opportunities is that “[v]acant commercial spaces can be repurposed to meet resident needs. *See* Comp Plan at 13-14; *see also* Comp Plan at 19 (“Survey respondents and focus group members identified a grocery store as the single most important need for the Town. Despite considerable efforts over several years, it has not been possible to attract a store ... Focus group members envisioned a smaller, independent grocery as a more likely possibility.”). Some of the housing concerns noted in the Comp Plan include a desire to attract younger residents as well as the need to support an aging population and low-income families. *See id.* at 16-17; *see also id.* at 55 (“Sub-goals ... Expand housing options for seniors ... Expand housing options in order to retain and attract younger and low income individuals and families”). Another major goal in the Comp Plan is to increase economic development “through constructive growth of existing businesses and attracting appropriate new businesses[.]” *Id.* at 52. This includes using “un- and under-utilized properties, in commercial zones[.]” *Id.* at 53. The Project consists of renovating a vacant property in the center

of Town with a newly constructed mixed-use building with a new business—a highly desired grocery store—and much needed affordable housing.

Moreover, the Project is a specially permitted use in the CC District as Mixed Uses and Multifamily Dwellings are specially permitted, and Retail Uses, including grocery stores, are permitted with site plan approval. *See* Zoning Law Use Table. The Town Board made a very specific legislative determination when it enacted the Zoning Law that these land uses are appropriate in this district and in harmony with the character of this area of the Town. *See North Shore Steak House, Inc.*, 30 N.Y.2d at 243 (“[i]nclusion of the permitted use in the ordinance is tantamount to a legislative finding that the permitted use is in harmony with the general zoning plan and will not adversely affect the neighborhood.”). The Project will blend seamlessly into this mixed-use neighborhood, consisting of strip malls, restaurants, stores, a barbershop, a brewery, a self-storage facility, an auto parts store, and other residences. The Project is also fully consistent with the stated goals for the CC District, *i.e.*, the “Town Center,” including creation of “vibrant, customer intensive commercial activity in order to attract residents and visitors” and “[r]esidential and community-oriented uses.” Zoning Law § 205-4(B)(3). The Project has also been specifically designed to complement the Town’s rural character and includes architectural and design elements consistent with the area’s Shaker history. *See* Planning Board Architecture Memo, July 2, 2025. Because of this, the Project will enhance the Town center, providing customers (*i.e.*, the residents) to the other local businesses, leading to continued growth in the Town’s center. This will only *encourage*, not discourage, appropriate development and use of adjacent land and buildings.

(1) Existing streets are suitable and adequate to carry anticipated traffic generated by the proposed use and in the vicinity of the proposed use;

The Property is located on U.S. Route 20, an existing highway and the main thoroughfare of the Town. This road is more than suitable to accommodate the anticipated traffic generated by the Project. The Applicant’s engineer, Lamont Engineers, conducted a Traffic Study and prepared a Traffic Study Report to review the potential impacts traffic from the Project. The Traffic Study Report indicates that existing Annual Average Daily Traffic (AADT) volume for this corridor of U.S. Route 20 is approximately 7,300 vehicles and the existing peak hour traffic on U.S. Route 20 is 365 to 395 vehicles per hour. *See* LAMONT ENGINEERS, Traffic Study Report (July 1, 2025).

Further, The Applicant’s engineer, Lamont Engineers, conducted a Traffic Study and prepared a Traffic Study Report to review the potential impacts on traffic from the Project. As indicated in the Traffic Study Report, the “existing sight distance in both directions at the Tilden intersection are 500’+. The AAHTO Sight stopping distance minimum recommendations for a design speed of 45 MPH on a level grade are 360’ so this intersection more than meets those requirements.” *Id.* Further, the Applicant retained Creighton Manning Engineering & Surveying, PLLC (CM) to conduct a Traffic Assessment, dated November 25, 2025. After conducting a site survey, traffic data collection, and traffic modeling, CM concluded that the Project will generate

56 new vehicle trips during the AM peak hour, 133 new vehicle trips during the PM peak hour, and 160 new vehicle trips during the Saturday peak hour ... It is noted that the distribution of travel in and out of the site will result in a maximum increase of

approximately 35 new trips on any one approach of the study area intersections. The level of service analysis indicates that the unsignalized study area intersections will operate at LOS C or better through Build conditions during the AM and PM peak hours with an increase in average vehicle delay less than two (2) seconds to any movement. No mitigation is recommended at these existing locations

...

A review of expected queuing at the study area intersections indicates that construction of the Tilden Mixed-Use Development will not significantly increase queuing during the peak hours when compared to No-Build conditions. The SimTraffic simulation indicates that adequate traffic operations will be provided at the Site Driveway intersections on US Route 20 and Tilden Road.

CREIGHTON MANNING ENGINEERING & SURVEYING, PLLC, *Traffic Assessment, Tilden Mixed-Use Development, 538 Route 20, Town of New Lebanon, Columbia County, New York; CM Project No. R251170.00* (Nov. 25, 2025) at 9 (emphasis added). Accordingly, although the Project will result in increased vehicle trips to and from the Property compared to current conditions, the Project will be sited in the Town's commercial center, on U.S. Route 20, which has sufficient capacity for this type of higher density traffic. The Project will not be sited in a rural, residential area that is difficult to access or accessible only via local, residential roads.

Lastly, the Planning Board determined that there will be no significant adverse environmental impact from the Project related to transportation when it approved the Negative Declaration at its meeting on June 17, 2026. The Planning Board is bound by that prior determination. *See Tall Trees Constr. Corp. v. Zoning Bd. of Appeals of Town of Huntington*, 97 N.Y.2d 23 86, 93 (2001) (A local board's decision "which neither adheres to its own prior precedent nor indicates its reason for reaching a different result on essentially the same facts is arbitrary and capricious."); *see also SCI Funeral Servs. of N.Y., Inc. v. Town of Babylon Planning Bd.*, 277 A.D.2d 319 (2d Dep't 2000) (a municipal board cannot make findings under SEQRA and then ignore those findings to deny the underlying application without a rational explanation). As such, the existing roads are suitable and adequate to carry anticipated traffic generated by the Project in this area.

- (2) The proposed use will not be detrimental to personal safety within the area, the natural characteristics of the site or area, and surrounding uses; and

The Project is a mixed-use residential and commercial building with 41 affordable apartment units and a grocery store. As determined by the Planning Board during its environmental review, the Project does not pose any personal safety concerns. Further, as determined by the Planning Board in its Negative Declaration, the Project will not impact any wetlands or streams in the area, include any stationary source of air emissions once the building is constructed, produce odors, use or dispose of hazardous wastes, create flooding in the area, impact any protected species or habitats, nor impact any archaeological or historic resource. *See* "No Impact Letter" from SHPO (May 20, 2025). The Planning Board also determined that any erosion or stormwater impacts will be fully mitigated through the Project's stormwater controls as well as by following the Blue Book and the

Project's approved SWPPP. Following construction, the increased traffic for residents and patrons of the grocery will be managed by having multiple entrances and exits as well as a parking lot design that allows for circulation of vehicles throughout the site, and U.S. Route 20 has the capacity to handle the anticipated increase in vehicle trips as a result of the Project. *See* LAMONT ENGINEERS, Traffic Study Report, dated July 1, 2025; *see also* CREIGHTON MANNING ENGINEERING & SURVEYING, PLLC, *Tilden Mixed-Use Development, 538 Route 20, Town of New Lebanon, Columbia County, New York; CM Project No. R251170.00* (Nov. 25, 2025). And the site has been designed thoughtfully to ensure there is adequate parking. *See id.*

Construction noise will be temporary and will not be different than any other type of construction noise generated by civil construction projects in the Town. Notably, construction will likely not include blasting or hammering as there is no bedrock on the Property. During operation, there will not be any noise generated beyond ambient levels, as the Property is located in a commercial district, on a highway. The noise of residents in apartments or customers shopping in the grocery store will largely blend into the current level of ambient noise in this area. Included in the Residential Policies for tenants will be quiet hours from 11 pm to 7 am, during which tenants shall not make noise disturbing other residents, whether inside apartment units or anywhere on the Property. *See* Tilden Commons Residential Tenant Policies. Further, the Applicant provided a Noise Study dated May 6, 2026, concluding that "sounds levels generated from equipment to serve the facility will not exceed 70 dB and will likely be under 60 dB at the property line which is equivalent to the sound of a running dishwasher, creating a minimal impact on neighboring properties." LAMONT ENGINEERS, *Tilden Development – 538 US Route 20, Town of New Lebanon Noise Study and Evaluation of Site*, May 6, 2026.

The new source of sanitary wastewater generated from the building will be adequately addressed via a new treatment system that will have a conventional septic tank for solids removal, an Orenco Advantex treatment system for secondary treatment, and will conduct UV disinfection before discharge. The site wastewater will be treated to surface water discharge quality standards but will be discharged onsite to the subsurface to avoid creation of additional surface water. Once the water is treated, it will be discharged to a subsurface stormwater dispersal structure to allow the wastewater to percolate into the existing site soils, similar to a leach field. *See* LAMONT ENGINEERS, *Water and Sanitary System Engineer's Report – REVISED* (April 1, 202[6]).

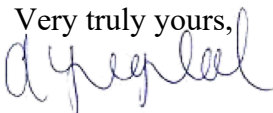
The mixed-use building that will be constructed is expected to have an average daily demand of 8,710 gallons per day, and a maximum daily demand of 13,065 gallons per day. This equates to 6 gallons per minute and 9 gallons per minute, respectively. This is an increase compared to the current water demand, which is zero given that the existing commercial building on the Property is vacant. However, the Applicant's engineers conducted a 72-hour pump test on the well that is already installed onsite and determined that the onsite well has a safe long-term draw down capacity of 13 gallons per minute. *See id.* As such, the increased demand for water will be fulfilled by the currently installed well and will not require a new water supply well. Moreover, based on the results of the 72-hour pump test, the Applicant's engineers determined that the proposed building's use of water will not negatively affect any neighboring properties' wells or water supply. *See id.*, Att. F, Hydrogeological Report ("Based on the data evaluated, the proposed use of PW-1 at 13 gpm will not adversely impact normal use of the surrounding private water wells.").

Lastly, the exterior lighting to be installed onsite will be downcast, shielded, and dark sky compliant and will not produce any glare or light exposure onto neighboring properties.

(3) The use meets the standards listed in Subsections F through H of this § 205-14.

See above.

Given the facts presented herein, the Applicant respectfully requests the Planning Board grant the requested special use permit and site plan approval as the Project meets all the applicable standards in the Zoning Law. We thank you for your consideration of this letter and request.

Very truly yours,

Alicia R. Legland

ARL

cc: Courtney Potter, *Planning Board Clerk*, Town of New Lebanon
Andrew Clark, Esq., *Attorney*, Town of New Lebanon Planning Board
Tilden Project LLC

Exhibit B



July 1, 2026

Elizabeth Brutsch
Planning Board Chairperson
Town of New Lebanon
PO Box 328
New Lebanon, NY 12125

Re: TDE Review Letter 5/20/2026
Comments from Review of Applicant Materials
Tilden Commons
538 US Route 20

Dear Chairperson Brutsch,

Please see the updated response to the May 20, 2026 TDE comment letter based on the current drawing submission and resubmission of the SWPPP document.

Sheet C35 – STORMWATER POLLUTION PREVENTION NOTES

1. *The SWPPP notes do not address the performance, limitations, or maintenance of stormwater management practices under winter conditions, including frozen ground, snow storage, snowmelt runoff, and the application of deicing materials. The Applicant shall revise the SWPPP notes to include winter operation and maintenance considerations for all proposed stormwater management practices, consistent with current NYSDEC guidance and the comments provided under Exhibit I.*
 - A SWPPP has not been resubmitted with this submission. Please include with the next submission and ensure comment is addressed.

The revised SWPPP was submitted with the May submission and has also been provided directly to B&L on June 16. We have also included electronically again with this submission.

Sheet C100 – EXISTING CONDITIONS AND DEMOLITION PLAN

1. The erosion and sediment control measures are shown on this plan. Please make a separate erosion and sediment control plan.
A separate E&SC Plan has been provided in the current set.
2. Call out the existing well to remain and be protected.
Note added on C100.
3. Show and call out the limit of disturbance on this plan and on the erosion and sediment control plan.
LOD line is shown on C105.
4. Please show the construction entrance as 50' length and 12' width as shown in the erosion and sediment control details and add length and width dimensions.
Revised on C105

5. Only show one construction entrance on the site off Tilden Road instead of U.S. Route 20.
Revised on C105
6. Add silt fence around the topsoil stockpile area.
Revised on C105
7. Silt fence shall be installed parallel to existing contours and should not be shown as being installed over the construction entrance. Also, ensure silt fence is within the limit of disturbance.
Revised on C105
8. The landscaping plan was revised to remove the two trees to remain. Revise on this plan.
 - It appears that the existing shrubs along the property line of Pierre & Patricia Joseph are to remain. They will likely be disturbed during construction and shall be replaced. **Note added.**

Sheet C110 – OVERALL SITE PLAN

1. Zoning and Setback Verification

The Site Plan references zoning compliance; however, setback distances from property lines, rights-of-way, and other regulated features are not consistently dimensioned. The Applicant shall dimension all required setbacks on the Site Plan to demonstrate compliance with Town zoning requirements.

- Per the Town of New Lebanon code 205-7B(9)(c)[2](b), no accessory building shall be set back less than 10' from any lot line. The dumpster/enclosure is within 5' of the property line.
The dumpster and fence are not an accessory building. This has been confirmed with B&L.
- Also, setbacks should be dimensioned perpendicular to the centerline of the road. It appears that some of the dimensions are not perpendicular, please revise.
We have revised the dimensioning of the setbacks as requested.

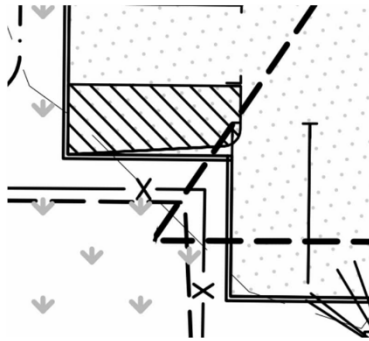
2. Show radii dimensions for all curves on the plan. **Additional dimensions have been added.**

3. The handicap parking spaces shall have ADA signage in front of the handicap spaces and no parking signage in front of the striped spaces. **Noted.**

4. Provide a buffer at the end of the parking lot so the cars in the end parking stalls have sufficient room to back out to leave. **We have modified the layout of the area in question, the one dead end parking portion to allow for a 7' turning area to address this concern.**

5. Beneath the title of the overall site plan it states 1"=30' and the graphic scale states 1" = 40'. Please ensure the scale is accurate and that they both match. It appears based on the length of the parking stalls that the graphic scale should show 1"=30'. **Revised.**

6. It appears that the two parking spaces shown in the image below are overlapping. Please revise. **Revised.**



7. It appears there may be landscape boulders along the side of the commercial building near US Route 20, please add a callout for these and include a detail. **Noted and revised.**

Sheet C111 – DETAILED PLAN VIEW

1. Dumpster Location and Screening
The site plan depicts a dumpster/refuse area; however, screening details are not clearly shown. In accordance with Town of New Lebanon Zoning Code requirements, all refuse and recycling collection areas shall be adequately screened from view. The Applicant shall revise the Site Plan to include fencing and/or vegetative screening for the dumpster area.
 - Provide a detail for the dumpster and the fence around the dumpster. **Screening fencing around dumpster was provided in Landscaping Plans. We have added a note on the C drawings to direct to the L drawings.**

Sheet C112 – DETAILED PLAN VIEW

1. Add more dimension labels for the sidewalk since the width changes throughout. Sufficient dimensions have been added for Planning Board Review level drawings.
2. Label the handicap parking spaces on the plan as 10' wide and the striped no parking spaces as 9' wide.
A noted has been added to reference the detail on C155.
3. Add dimensions on the plan for the length and width of the fire lane no parking area, all drive areas, all sidewalk areas, etc.
Dimensions have been added.
4. *The ramp on the northwest side of the building spans from elevation 704.8 to elevation 706.2, however no 705 or 706 contour are shown. Show proposed contours in this area that show how this ramp area ties back into grade or if any walls are proposed.*
 - Still not addressed. 705 and 706 contour lines have been added across the sidewalk but they need to be shown tying into other 705 and 706 contour lines and/or show the TC/BC spot grades for it to make sense. There is still a 704 spot grade east of Tilden road and a 706.2 contour south of it that don't have a 705 and 706 contour between the two.

Additional spot elevations and contours have been added.

Sheet C115 – GRADING & STORMWATER PLAN

1. *Side slopes of stormwater capture, conveyance, and treatment areas shown in 1:20 scale on this sheet appear to have side slopes of 2:1. Side slopes of stormwater capture, conveyance, and*

treatment practices located at grade should be reduced to no steeper than 3:1 in compliance with the NYSDEC Stormwater Design Manual.

- There are still several areas on the site that are graded at a 2:1 slope. Revise slopes to be no steeper than 3:1 as previously requested.

Confirmed with B&L that this should only apply to the infiltration basin, we have reviewed all grading to make sure this has been properly addressed.

2. Add top of curb and bottom of curb spot grades at all corners/ends of the curb.

We have added additional spot elevations to C115 and C111 and C112 for additional clarity.

3. Add spot grades at all pavement corners.

We have added additional spot elevations to C115 and C111 and C112 for additional clarity.

4. *A catch basin is placed in the middle of the drive aisle on the eastern side of this plan. Grading appears to pitch downward beyond this catch basin until the curbline to the west. We recommend locating this basin against the curb line at the apparent low point of the drive aisle.*

- The catch basin has moved, however, the spot grade of 706.7 from the catch basin location in the previous submission in the middle of the road is still there. Please revise. Elevation Revised.
- Provide an erosion control blanket detail and note on the plans that erosion control blanket shall be provided on all slopes 3:1 or steeper. **Note 7 added to plan.**

Sheets C120 – C120A – TURNING RADIUS PLANS

1. *The plans indicate that the Applicant is proposing to widen Tilden Road on both sides of the roadway for an approximate length of 40 feet in the vicinity of the intersection with U.S. Route 20; however, the proposed tie-in to U.S. Route 20 is not clearly depicted. The Applicant shall clearly show and label all proposed improvements, including the full limits of widening, and shall provide detailed curb radius and tie-in geometry demonstrating how the proposed widening transitions into the existing curb along U.S. Route 20.*

A. This comment has still not been addressed. Show the proposed pavement sawcut line in U.S. Route 20 for tying the proposed pavement into the existing pavement. Add a callout stating "Proposed pavement shall match existing pavement line and grade." **Note added.**

Sheet C130 – NYSDOT ENTRANCE & GENERAL PLAN

1. *Sheets C130–C131 depict the proposed site access connection to NYS Route 20. Review and approval of driveway location, geometry, grading, drainage, and construction within the State highway right-of-way are subject to final review and approval by the New York State Department of Transportation (NYSDOT) and issuance of a Highway Work Permit. No work within the NYS Route 20 right-of-way may occur without NYSDOT approval.*
 - Show the sawcut line on the plan, add a callout stating "proposed pavement shall meet existing line and grade", provide spot grades at the tie in corners, label the radii, show the demo of the existing curb, etc. **Notes have been added.**

2. *While the plans generally depict the proposed entrance configuration, final driveway geometry, curb radii, lane widths, and tie-ins to existing pavement are not fully detailed. The Applicant shall ensure that all entrance design elements are finalized in accordance with NYSDOT standards as part of the Highway Work Permit review process. **Noted***

Sheet C131 – NYSDOT SITE PLAN & DETAILS

1. *Sheets C130–C131 depict the proposed site access connection to NYS Route 20. Review and approval of driveway location, geometry, grading, drainage, and construction within the State highway right-of-way are subject to final review and approval by the New York State Department of Transportation (NYSDOT) and issuance of a Highway Work Permit. No work within the NYS Route 20 right-of-way may occur without NYSDOT approval.*
2. *The plans indicate available sight distance for the proposed entrance has been determined. The Applicant shall either graphically depict the required sight distance triangles on the plans or add a note stating that sight distance has been evaluated, verified to meet NYSDOT standards, and identifying who performed the analysis and when it was completed.'*
 - It is acknowledged that the site distances are stated on the plans, however, please show the site distance triangles on the plans. **Triangle has been added.**

Sheets C155–C156 – SITE DETAILS

1. *Details related to site furnishings, fencing, screening, or enclosures (including dumpster and transformer screening where applicable) are not clearly identified or coordinated with the Site Plan. The Applicant shall provide or reference appropriate details demonstrating how required screening and enclosures will be constructed.*

This is provided on the landscape plans. We have added a note to C110 and C115 to direct to L-500 for details.

2. Provide a bike rack, landscape boulder (if applicable), and lawn restoration detail.

Please provide regulation requiring this level of detail for a planning board review. As discussed with the Planning Board, we need to know what design requirements we are trying to address.

3. *Cast in Place Concrete Stair Detail should include concrete material specifications and reinforcement details. Per NYS Building Code, a flight of 4 or more risers in series also requires a handrail, a detail for which should be provided.*

- Please provide a constructible cast in place concrete stair detail.

We will provide this detail in a submission to the Codes Office for a building permit submission.

Sheets C160 – C164 – SEPTIC PLAN AND SANITARY DETAILS

1. *Sheets C160–C164 depict proposed septic and sanitary system details associated with an intermediate wastewater treatment system. Final design, construction, and operation of the proposed system are subject to review and approval by the New York State Department of Environmental Conservation (NYSDEC), including coverage under the State Pollutant Discharge Elimination System (SPDES) General Permit, as applicable.*

Now that the Town has completed SEQR, the SPDES permit application process has been started.

2. *The septic and sanitary details shown on these sheets shall be coordinated with NYSDEC requirements and any conditions associated with SPDES permit coverage. The Applicant shall obtain all required NYSDEC approvals and SPDES permit coverage prior to construction of the wastewater treatment system.*

Exhibit C (Sheet L-100 – LANDSCAPE PLAN)

1. *Existing tree to remain shown in parking island is in an area of proposed fill. Grading should be revised in this area to minimize fill over the existing root system as this would adversely affect the long-term health of this tree. If fill cannot be reduced to 3" max. This tree should be marked for removal.*
- Ensure these changes are also reflected on all of the site plans. There are proposed trees shown on the landscaping plan that are shown as existing on the site plan. There are two trees still called out on the existing conditions plan as existing tree to remain.

Noted.

2. Show all proposed utilities on the landscape plan to ensure no proposed trees are within 10' of any utilities. Noted, we have adjusted the forcemain location to address these concerns.

Water System Engineer's Report (from April 2026 submission – it was not included with this submission)
(Comments in Italics are Old & Not Addressed)

1. The Water System Engineer's Report has not been included with this submission. Please include in next submission. It was included with the April submission and has not changed. This has also been forwarded to the current acting sanitarian at Columbia County Department of Health.
2. *The report confirms that the proposed development constitutes a regulated community water system subject to New York State Department of Health (NYSDOH) Part 5 requirements and that final approval of the water system is contingent upon completion of outstanding water quality testing, treatment design (if required), and NYSDOH review and approval. The Applicant shall ensure that all plans and narratives accurately reflect the regulatory status of the proposed water system and clearly identify remaining approvals required prior to construction and operation.*
3. *The report describes the proposed wastewater treatment system as an intermediate system subject to NYSDEC review and SPDES permitting. The Applicant shall ensure consistency between the sanitary system description in this report, the SPDES correspondence included as Exhibit D (from the April Submission), and the Project Narrative, and shall avoid implying that regulatory approvals have been granted prior to permit issuance.*
4. Based on the Water System Engineer's Report submitted by the Applicant, unresolved compliance and operational concerns remain associated with the proposed community public water supply system, including source protection, separation distances, system capacity, and fire protection coordination. The report states that the proposed development will constitute a regulated community water system subject to NYSDOH Part 5 requirements and further states that "there would be no location on this property able to meet the 200' well control area as suggested by the DOH requirements." Based on the plans submitted, the proposed public water supply well appears to be located approximately 56 feet from the property line and approximately 156 feet from components of the proposed onsite wastewater treatment system.

The submitted report estimates an average daily water demand of approximately 8,710 gallons per day (gpd) and a maximum daily demand of approximately 13,065 gpd for the proposed 41-unit mixed-use development. The report further states that the existing well demonstrated a sustained yield of approximately 13 gallons per minute (gpm) during a 72-hour pump test and that the domestic water system is proposed to be designed for a peak fixture demand of approximately 101

gpm. In addition, the project proposes a separate 30,000-gallon underground fire protection storage tank intended to supply approximately 500 gpm for 60 minutes through a fire pump system.

While the submitted materials conclude that the proposed well yield is sufficient for the development, the submission does not include written confirmation from NYSDOH or Columbia County DOH indicating that the proposed well location, separation distances, source protection measures, water quality, long-term sustainable yield, and overall public water supply system configuration are acceptable for permitting purposes under NYSDOH Part 5 requirements. The Applicant's engineer references additional hydrogeologic evaluation and potential consideration of the well's cone of influence relative to setback limitations; however, no formal agency determination accepting this approach has been provided.

Additionally, based on the materials submitted, it is not fully clear how domestic demand, peak demand conditions, emergency conditions, and fire protection demands will be coordinated to ensure reliable long-term operation of the community water system without adverse impacts to water quality, pressure, neighboring wells, or overall system reliability. The Applicant should provide formal written documentation from NYSDOH and/or Columbia County DOH confirming that the proposed public water supply system is acceptable for permitting purposes, including compliance with applicable separation distance and source protection requirements, confirmation of sustainable long-term yield and water quality, and coordination of domestic and fire protection water supply requirements prior to final approval and construction.

The July submission included the current Water System Report and Hydrogeological Study. Together, they show that there's a restrictive 50ft layer of clay above the bedrock and aquifer that serve our well and surrounding wells, so securing a variance should be viable. We reached out to Columbia County Department of Health to start the review process of this project now that SEQR has been completed.

5. The submission does not clearly identify the long-term owner/operator responsible for operation, maintenance, monitoring, sampling, reporting, emergency response, and regulatory compliance associated with the proposed community water system and intermediate wastewater treatment system. The application materials do not clearly identify the entity responsible for ongoing operation of the proposed water treatment equipment, booster pumps, UV disinfection systems, wastewater treatment equipment, alarm systems, monitoring requirements, emergency response procedures, or long-term regulatory compliance obligations associated with the proposed utility systems. The Applicant shall provide additional information regarding long-term ownership, operational responsibility, maintenance obligations, and emergency response procedures for all proposed utility and treatment systems.

Please provide regulation requiring this level of detail for a planning board review.

6. The submission includes a proposed emergency generator; however, the submitted materials do not clearly identify emergency power provisions, redundancy measures, or demonstrate that the proposed generator has been properly sized to support all critical building, life safety, water supply, wastewater treatment, treatment system, alarm, and fire protection loads during emergency operating conditions. The submitted materials do not include generator sizing calculations, connected load analysis, transfer switch information, fuel storage duration, system redundancy details, or identification of which systems and equipment will remain operational during utility interruptions. Given that the proposed development relies on multiple utility-dependent systems, including booster pumps, UV disinfection equipment, wastewater treatment equipment, controls, alarms, and fire protection infrastructure, the Applicant shall provide additional information demonstrating that the proposed generator capacity and emergency power configuration are adequate to support all critical systems necessary for continued operation of the proposed

community water supply system, wastewater treatment system, fire protection system, emergency lighting, alarms, and other required life safety systems during power outage conditions.

Please provide regulation requiring this level of detail for a planning board review.

Stormwater Pollution Prevention Plan (SWPPP) (from April 2026 submission – it was not included with this submission) (Comments in Italics are Old & Not Addressed)

1. The SWPPP has not been included with this submission. Please include in next Submission.
2. *Exhibit G (from April submission) includes an Updated Stormwater Pollution Prevention Plan (SWPPP) prepared by Lamont Engineers for the proposed development. While the SWPPP has been revised since prior submissions, several technical deficiencies and inconsistencies identified in earlier reviews have not been fully resolved.*

The SWPPP has been sent to B&L for review, we need further clarifications on what items are still deficient, if any.

3. *The SWPPP does not clearly demonstrate that adequate pretreatment is provided for runoff entering the proposed infiltration and bioretention practices, particularly from paved and parking areas. The plans and calculations do not quantify pretreatment volumes, sediment capture capacity, or compliance with NYSDEC Stormwater Management Design Manual pretreatment requirements. The Applicant shall clearly identify all pretreatment measures serving each practice, demonstrate that pretreatment is appropriately sized for the contributing drainage areas, and revise the SWPPP and modeling as necessary to confirm compliance. We believe we have provided adequate pretreatment in current designs. Please elaborate on deficiencies.*

Traffic Assessment Report (from April 2026 submission – it was not included with this submission), prepared by Creighton Manning Engineering & Surveying, PLLC. (Comments in Italics are Old & Not Addressed)

1. The Traffic Assessment Report has not been included with this submission. Please include in next submission.
2. *Available storage length for the US Route 20/Tilden Road eastbound direction of 100 ft., as identified in Table 6 – 95th Percentile Queueing Summary, should be revised to account for the future mid-block crossing refuge island depicted in Aerial 1 of Section 2.0. The storage space appears like it could accommodate approximately 1 vehicle (25 ft.). Are there any concerns with left turning vehicles, from US Route 20 to Tilden Lane, departing the eastbound traffic stream with no space to decelerate in the two-way left turn lane? The proposed condition has the potential to contribute to rear-end type vehicle crashes. What is the status of the future mid-block crossing implementation (assumed by others), specifically, can its positioning be adjusted farther east or west on US Route 20?*

The future mid-block crossing has not yet been designed. We already submitted comment from Creighton Manning that the design of the crossing will be coordinated to ensure that it doesn't pose any safety issues.

3. *The plans do not adequately address how site access and turning movements interact with the proposed mid-block pedestrian crossing on US Route 20 located near the Tilden Road intersection. While the crossing does not appear to accommodate large right- turning vehicle movements from Tilden Road to US Route 20, its proximity may affect vehicle queueing and operational safety. The Applicant shall coordinate the site circulation design with planned pedestrian improvements and confirm that access, turning movements, and queueing conditions function safely and consistently with NYSDOT requirements.*

See above.

If you have any questions, please feel free to contact our office.

Sincerely,

Brendon Becker, P.E.
Principal Engineer

ALBANY BUSINESS REVIEW



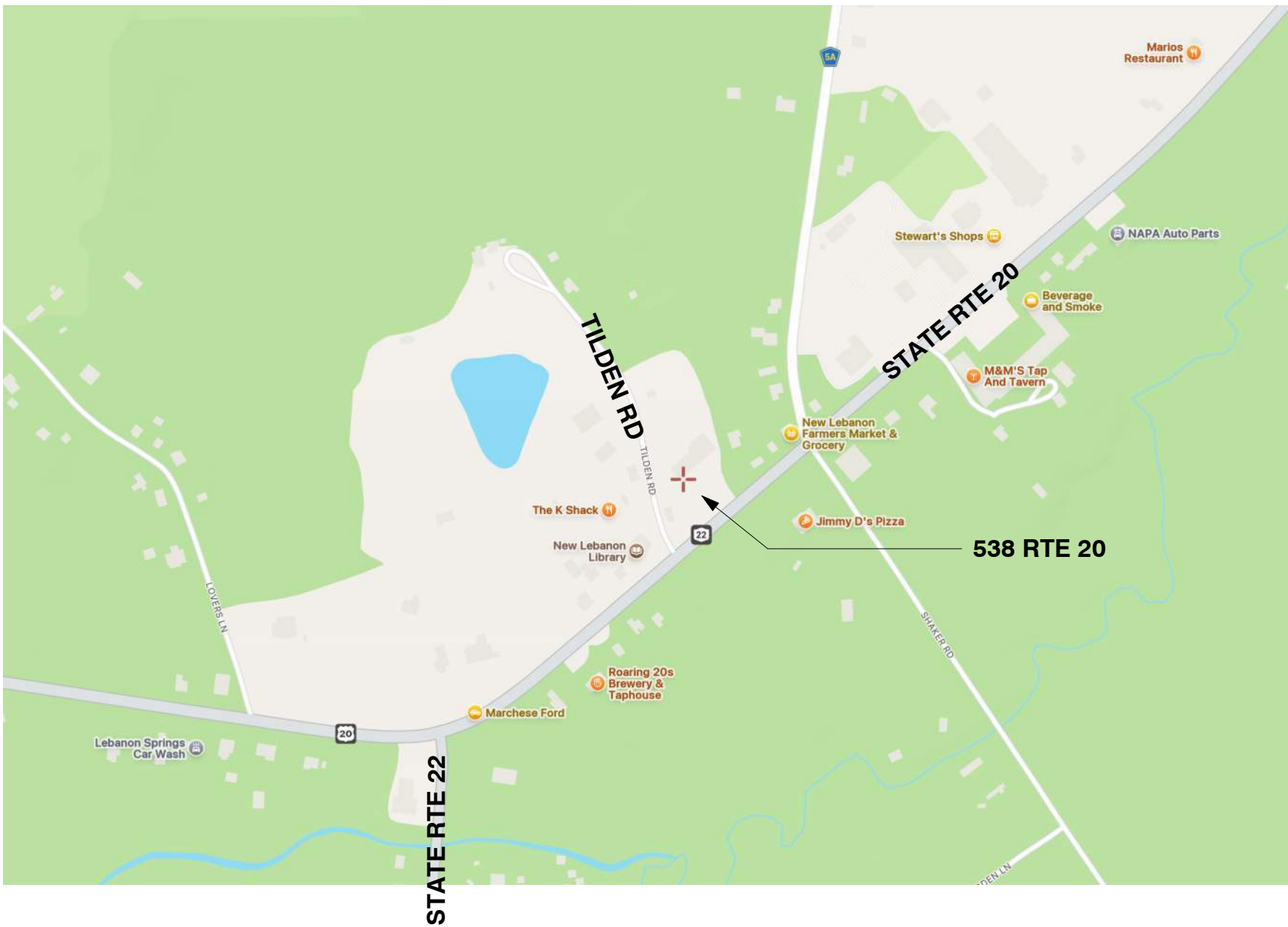
2024 BEST PLACES TO WORK

Exhibit C

TILDEN COMMONS

538 US ROUTE 20
NEW LEBANON, NY 12125

SCOPE OF WORK: NEW CONSTRUCTION OF A THREE-STORY MIXED-USE BUILDING INCLUDING RETAIL AND 41 RESIDENTIAL APARTMENTS.



DRAWING LIST		
SHEET #	SHEET NAME	SHEET DATE
L-100	LANDSCAPE PLAN	5/6/2026
L-400	PLANTING SCHEDULE	4/1/2026
L-500	LANDSCAPE DETAILS	4/1/2026
C35	STORMWATER POLLUTION PREVENTION NOTES	7/1/2026
C36	EROSION AND SEDIMENT CONTROL DETAILS	5/6/2026
C37	EROSION AND SEDIMENT CONTROL DETAILS	5/6/2026
C100	EXISTING CONDITIONS & DEMOLITION PLAN	5/6/2026
C105	EROSION AND SEDIMENT CONTROL PLAN	7/1/2026
C110	OVERALL SITE PLAN	7/1/2026
C111	DETAILED PLAN VIEW	7/1/2026
C112	DETAILED PLAN VIEW	7/1/2026
C115	GRADING & STORMWATER PLAN	7/1/2026
C120	TURNING RADIUS PLAN	7/1/2026
C120A	TURNING RADIUS PLAN	7/1/2026
C130	NYSDOT ENTRANCE GENERAL PLAN	7/1/2026
C131	NYSDOT SITE PLAN & DETAILS	7/1/2026
C132	NYSDOT ENTRANCE NOTES	5/6/2026
C150	STORMWATER DETAILS	5/6/2026
C151	STORMWATER DETAILS	5/6/2026
C155	SITE DETAILS	5/6/2026
C156	SITE DETAILS	5/6/2026
C160	SEPTIC PLAN	7/1/2026
C161	SANITARY DETAILS	4/1/2026
C162	SANITARY DETAILS	4/1/2026
C163	SANITARY DETAILS	4/1/2026
C164	SANITARY DETAILS	4/1/2026
C165	UV SYSTEM PLAN AND SECTION	4/1/2026

OWNER:
TILDEN PROJECT LLC`
MANAGING PARTNER: JOSH YOUNG
58 POOL HILL ROAD
NEW LEBANON, NY 12125

ARCHITECT:
ARIEL GOLDSTEIN, AIA
SUBSTRATE ARCHITECTURE LLC
33 UPPER HOLLOW ROAD
HILLSDALE, NY 12529

ENGINEER:
BRENDON BECKER, PE
LAMONT ENGINEERS
197 ELM STREET
COBLESKILL, NY 12043

LIGHTING DESIGNER:
SARA SCHONOUR
LUXSI
555 US ROUTE 20
NEW LEBANON, NY 12125

GENERAL CONTRACTOR:
PIKE CONSTRUCTION
ONE CIRCLE STREET
ROCHESTER, NY 14607



SUBSTRATE ARCHITECTURE LLC
33 UPPER HOLLOW ROAD
HILLSDALE, NY 12529

WWW.SUBSTRATEAC.COM
ARI@SUBSTRATEAC.COM
646-282-8253

OWNER:
NEW LEBANON DEVELOPMENT LLC
58 POOL HILL ROAD
NEW LEBANON, NY 12125

ENGINEER:
LAMONT ENGINEERS
197 ELM STREET
COBLESKILL NY 12043
518-234-4028

Issue Dates		
#	Description	Date

STAMPS:



NORTH:



PROJECT:

Tilden Commons

Drawing Title:

COVER SHEET

Date: 07/01/2026

Seal/Signature:



Drawing Number:

C-000

NOT FOR CONSTRUCTION

SUBSTRATE ARCHITECTURE LLC
33 UPPER HOLLOW ROAD
HILLSDALE, NY 12529

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518-234-4028

Issue Dates

#	Description	Date

STAMPS:

NORTH:



PROJECT:

Tilden Commons

Drawing Title:

LANDSCAPE PLAN

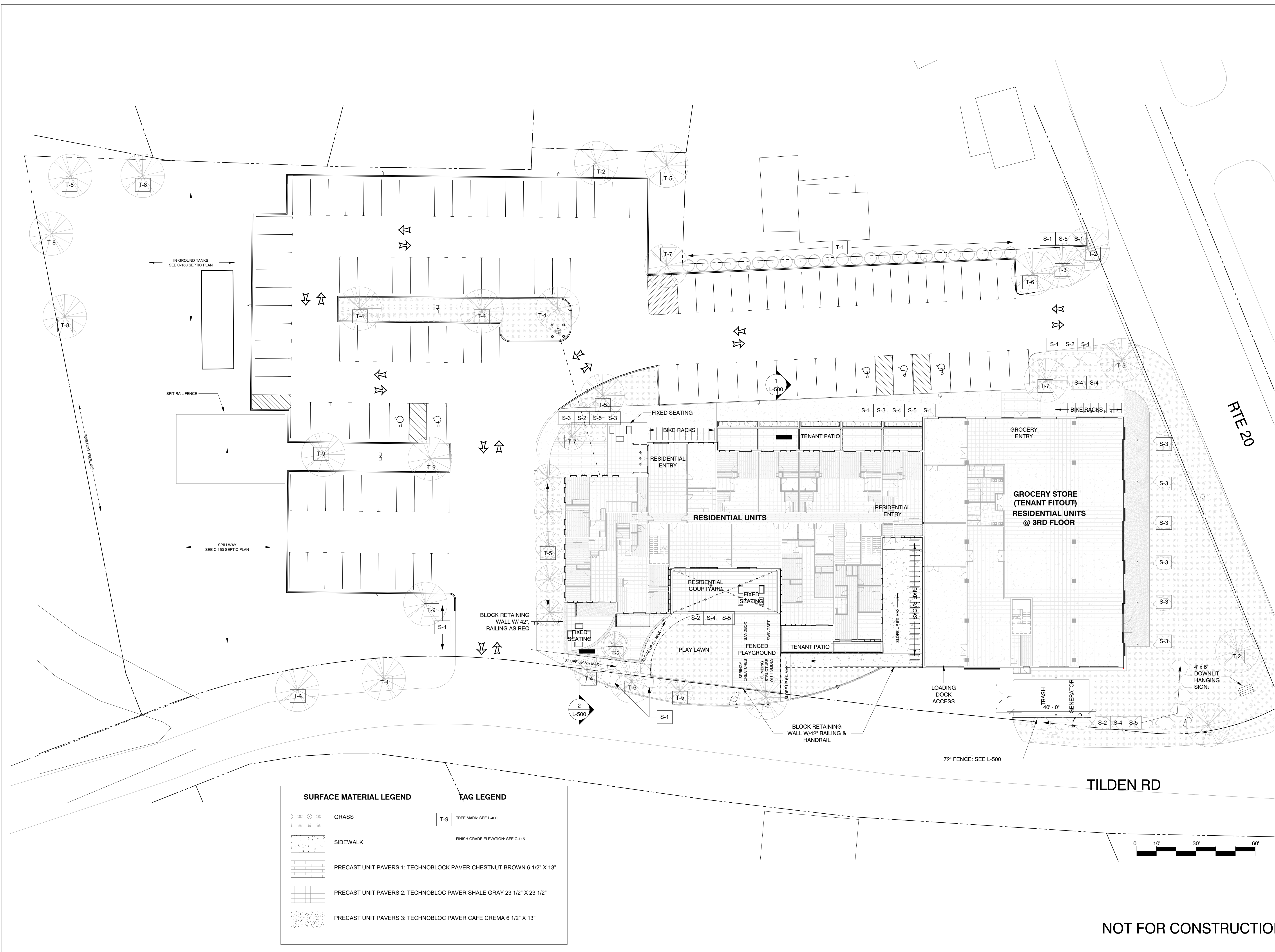
Date: 05/06/2026

Seal/Signature:



Drawing Number:

L-100



TREES



T-1 ARBOR VITAE



T-2 EASTERN REDBUD



T-3 BUTTERNUT



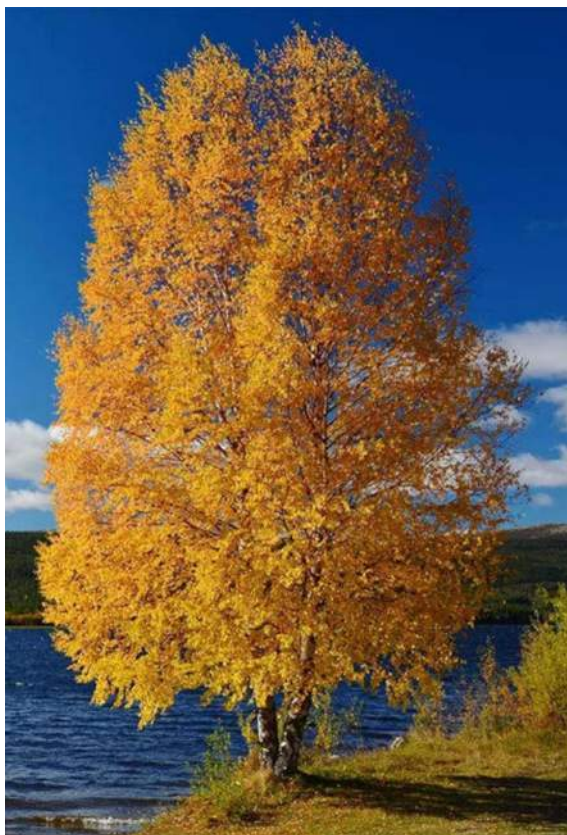
T-4 RIVER BIRCH



T-5 SUGAR MAPLE



T-6 WHITE OAK



T-7 YELLOW BIRCH



T-8 WHITE PINE



T-9 PUSSY WILLOW

SHRUBS



S-1 NINEBARK



S-2 WITCH HAZEL



S-3 INKBERRY



S-4 CHOKEBERRY



S-5 WINTERBERRY

PLANTING SCHEDULE						
TYPE	PLANT TAG	SPECIES	PLANTING CALIPER	PLANTING HEIGHT	SPACING	MATURE HEIGHT
TREE	T-1	ARBOR VITAE	3"	10-12'	5'	
TREE	T-2	EASTERN REDBUD	3"	10-12'	25'	25'-35'
TREE	T-3	BUTTERNUT	3"	10'-12'	25'	50'-60'
TREE	T-4	RIVER BIRCH	3"	10-12'	20'	40'-60'
TREE	T-5	SUGAR MAPLE	3"	10'-12'	30'	60'-80'
TREE	T-6	WHITE OAK	3"	10-12'	30'	60'-80'
TREE	T-7	YELLOW BIRCH	3"	10-12'	25'	50' - 75'
TREE	T-8	WHITE PINE	3"	10-12'	20'	50-80'
TREE	T-9	PUSSY WILLOW	2"	10-12'	15'	12'
SHRUB	S-1	NINEBARK		4'		
SHRUB	S-2	WITCH HAZEL		4'		
SHRUB	S-3	INKBERRY		4'		
SHRUB	S-4	CHOKEBERRY		4'		
SHRUB	S-5	WINTERBERRY		4'		

Issue Dates		
#	Description	Date

STAMPS:

NORTH:

PROJECT:
Tilden Commons

Drawing Title:
PLANTING SCHEDULE

OWNER:
NEW LEBANON DEVELOPMENT LLC
58 POOL HILL ROAD
NEW LEBANON, NY 12125

ENGINEER:
LAMONT ENGINEERS
197 ELM STREET
COBLESKILL NY 12043
518-234-4028

[illegible]

STAMPS:

NORTH:

PROJECT:

Tilden Commons

Drawing Tile:

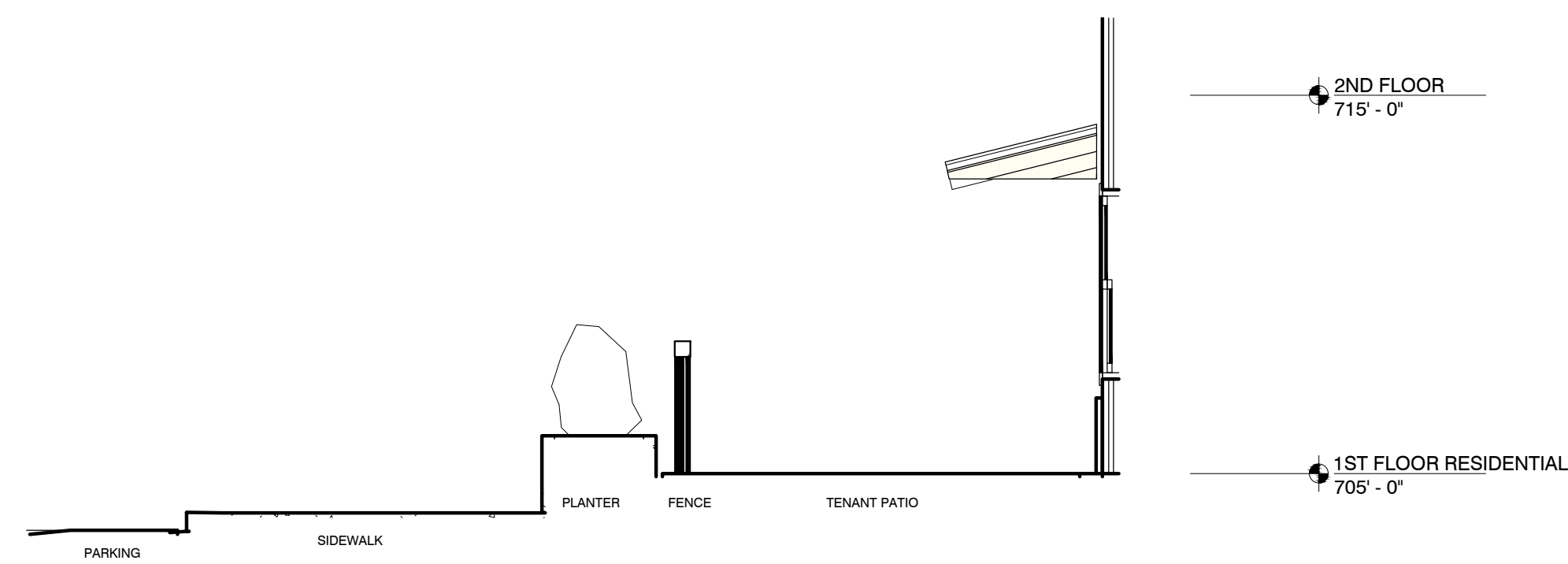
LANDSCAPE DETAILS

Date: 04/01/2026

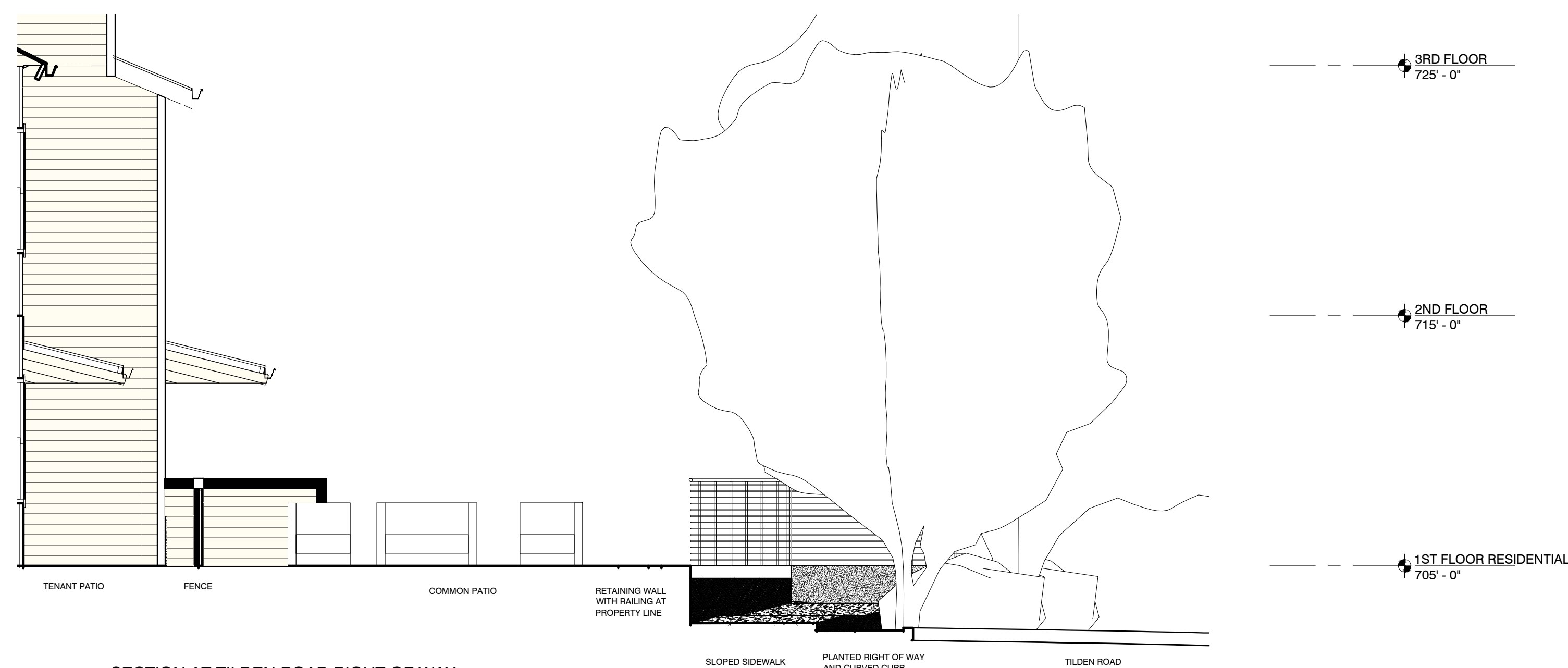
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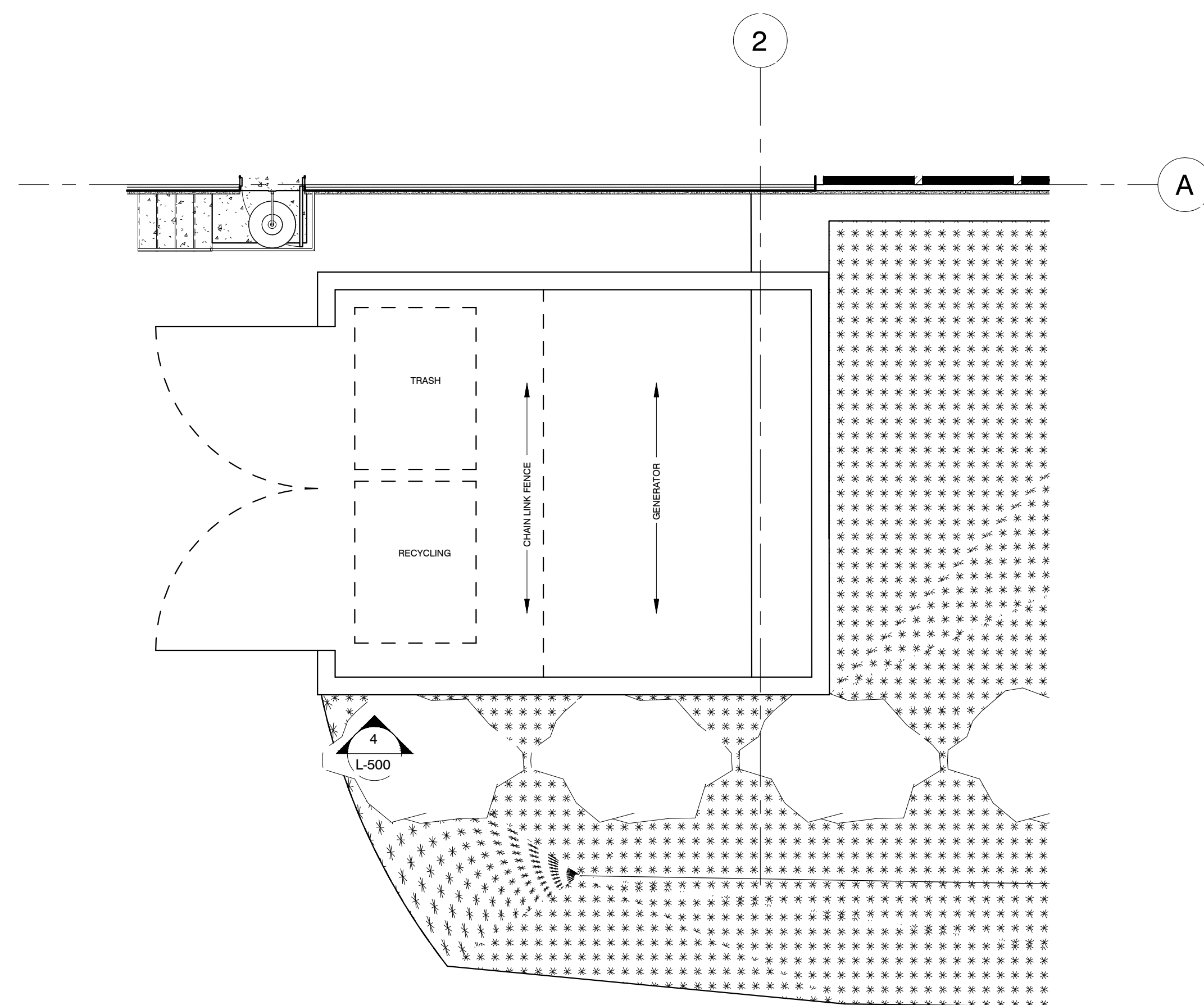
L-500



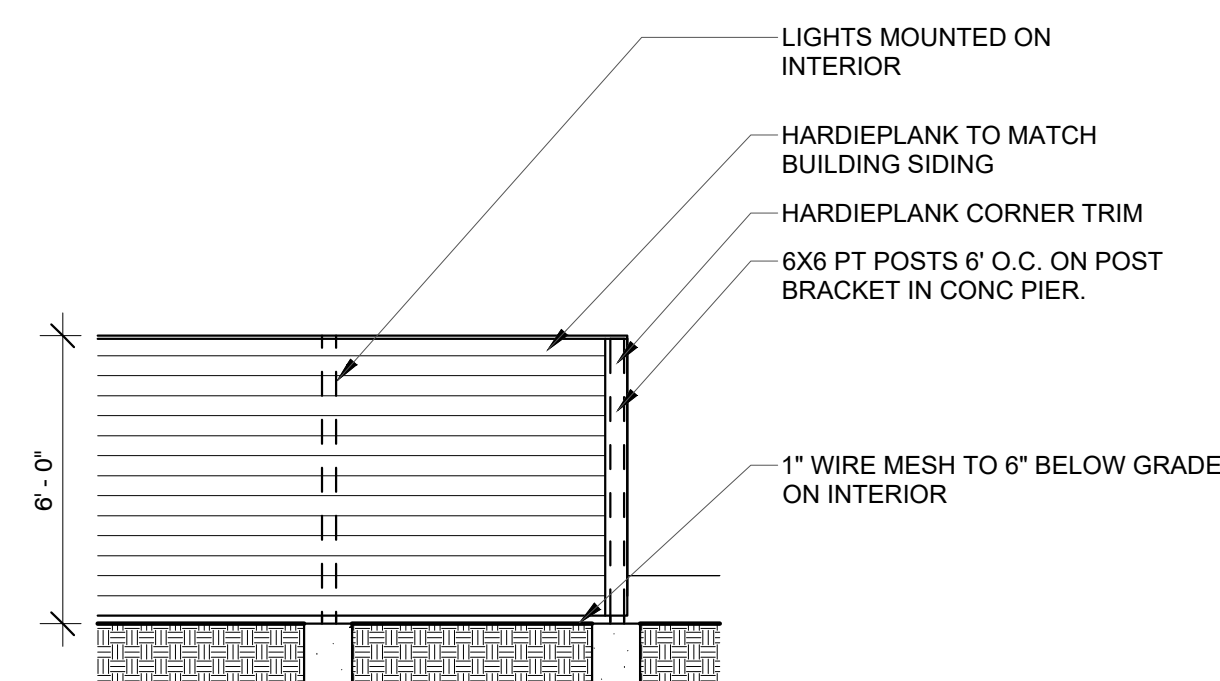
1 SECTION AT EAST SIDEWALK
SCALE: 1/4" = 1'-0"



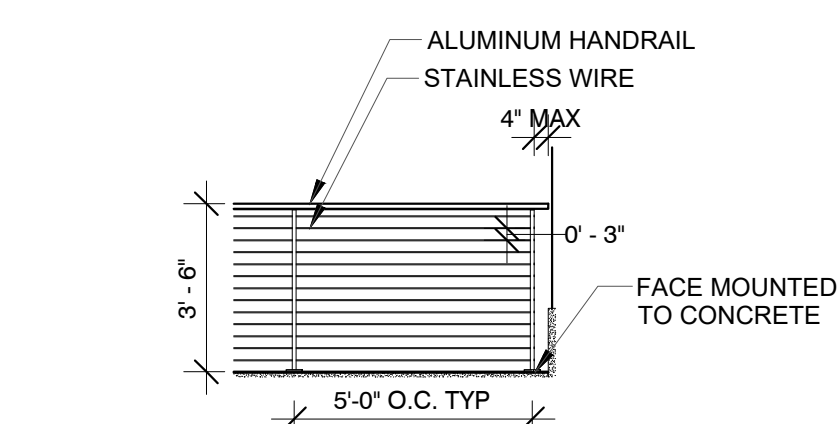
2 SECTION AT TILDEN ROAD RIGHT OF WAY
SCALE: 1/4" = 1'-0"



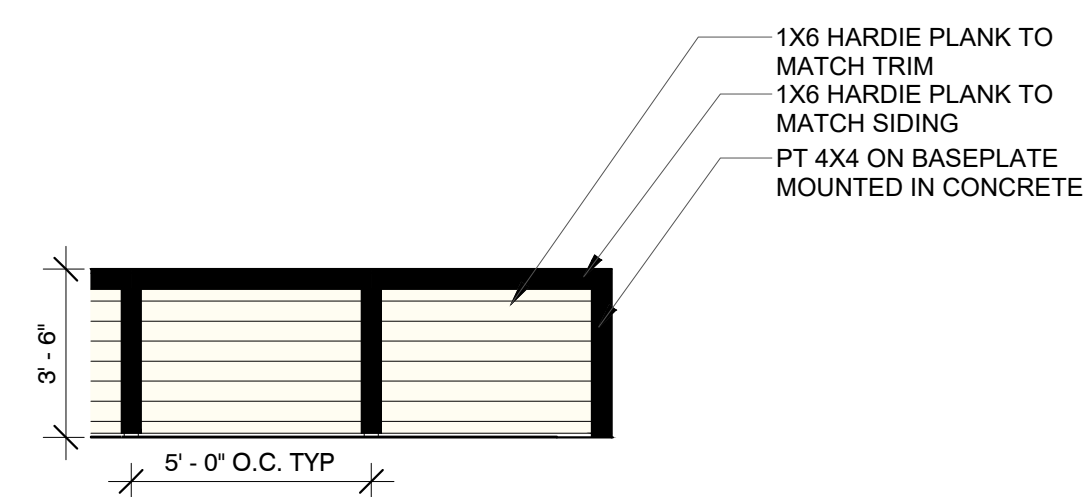
3 TRASH ENCLOSURE
SCALE: 3/16" = 1'-0"



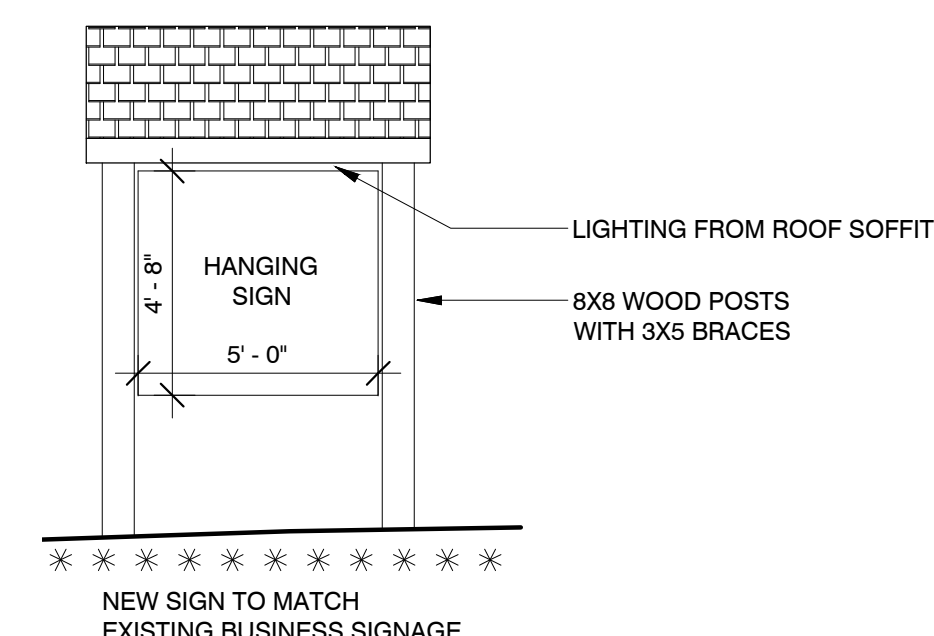
4 TRASH ENCLOSURE
SCALE: 1/4" = 1'-0"



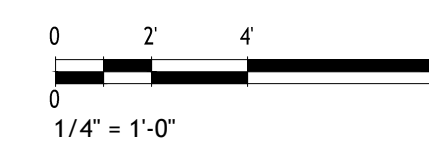
6 CABLE RAIL



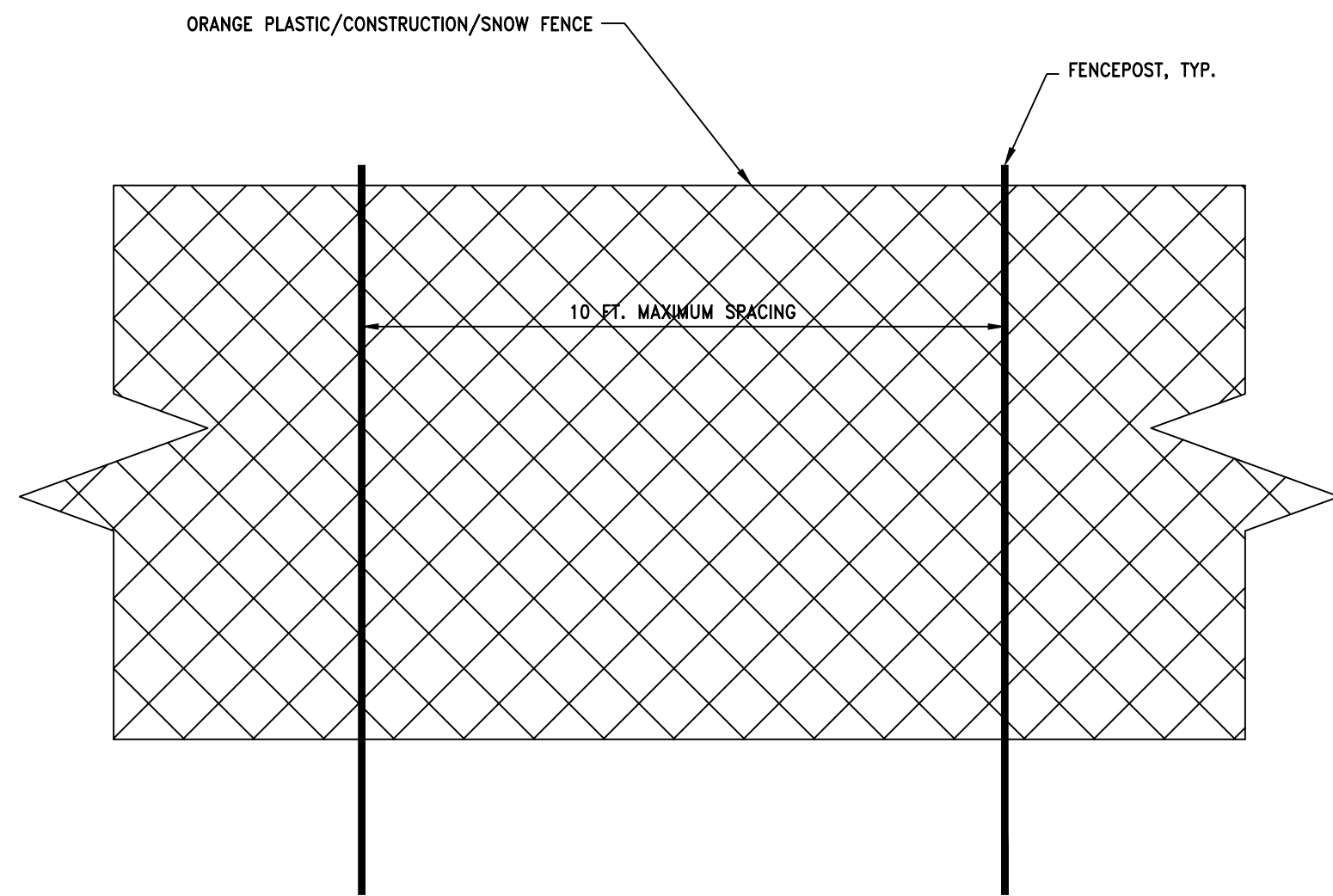
7 PANEL FENCE



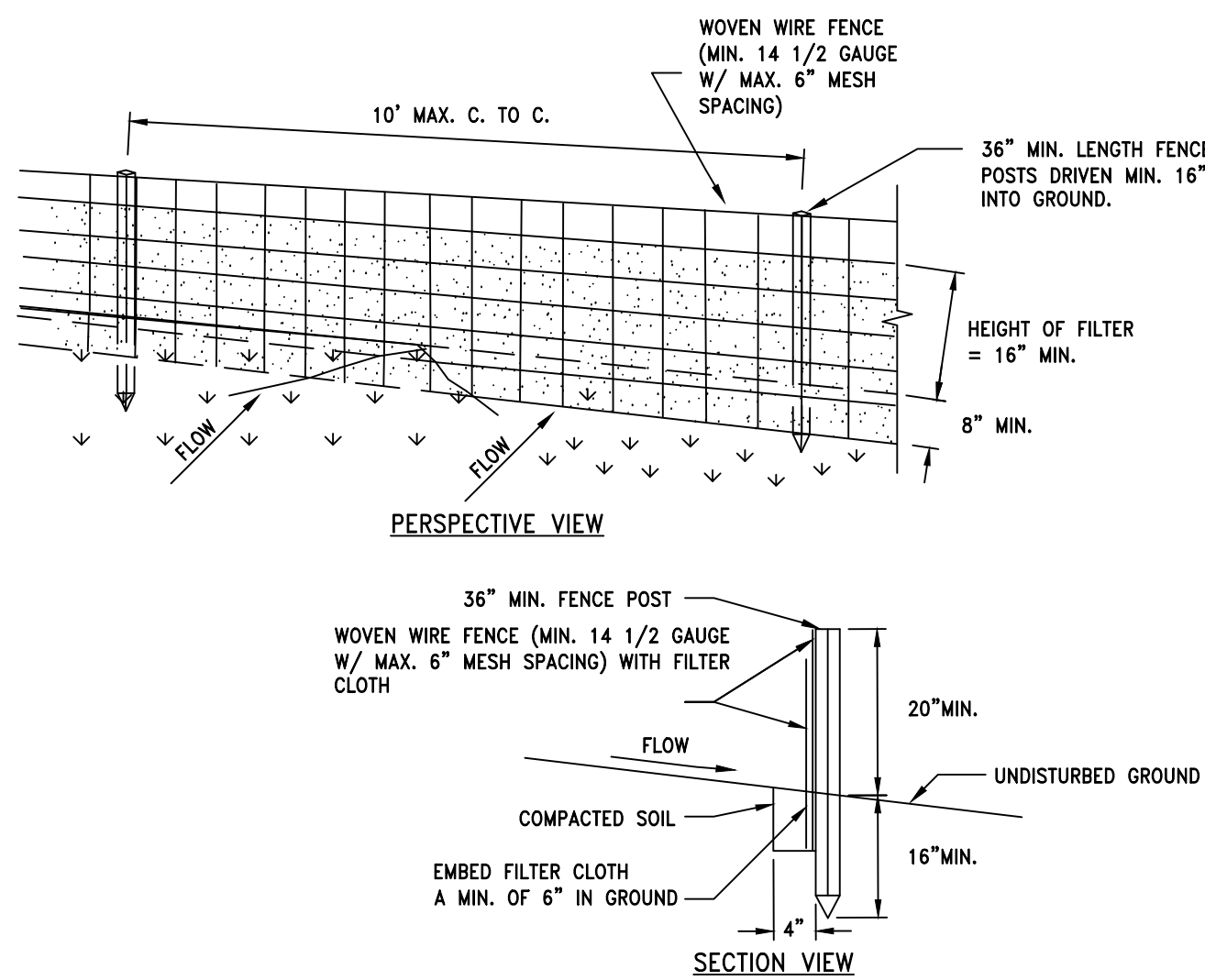
5 SIGN ELEVATION
SCALE: 1/4" = 1'-0"



NOT FOR CONSTRUCTION



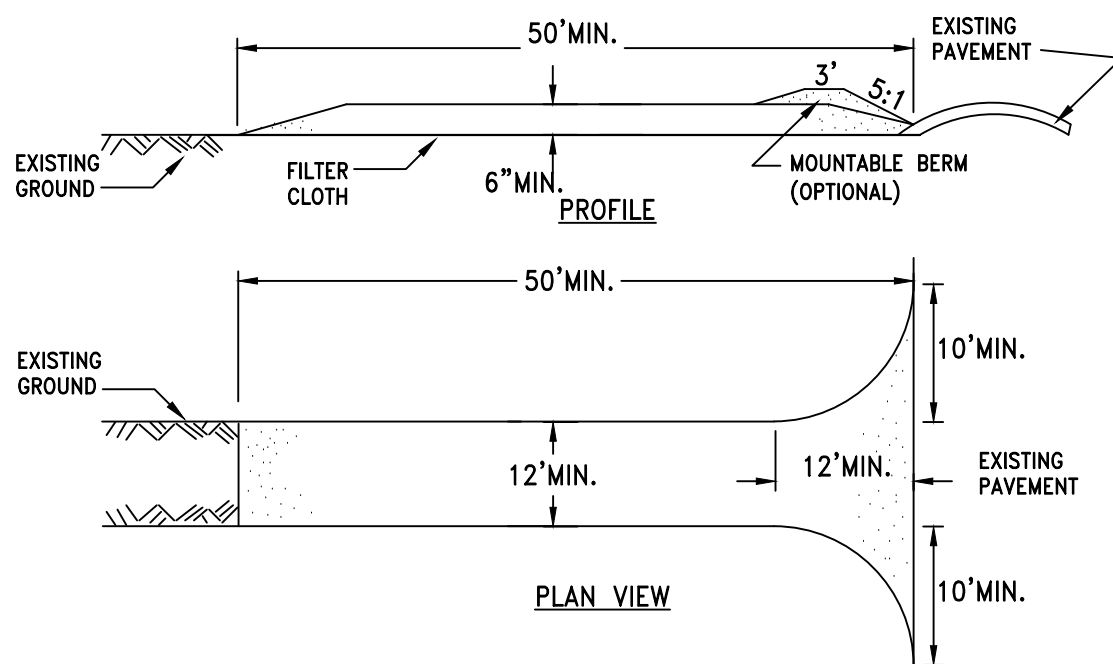
1 DETAIL - CONSTRUCTION FENCE
C36 SCALE: NTS



CONSTRUCTION SPECIFICATIONS

- WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "I" OR "U" TYPE OR HARDWOOD.
- FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 12 1/2 GAUGE, 6" MAXIMUM MESH OPENING.
- WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
- PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
- MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

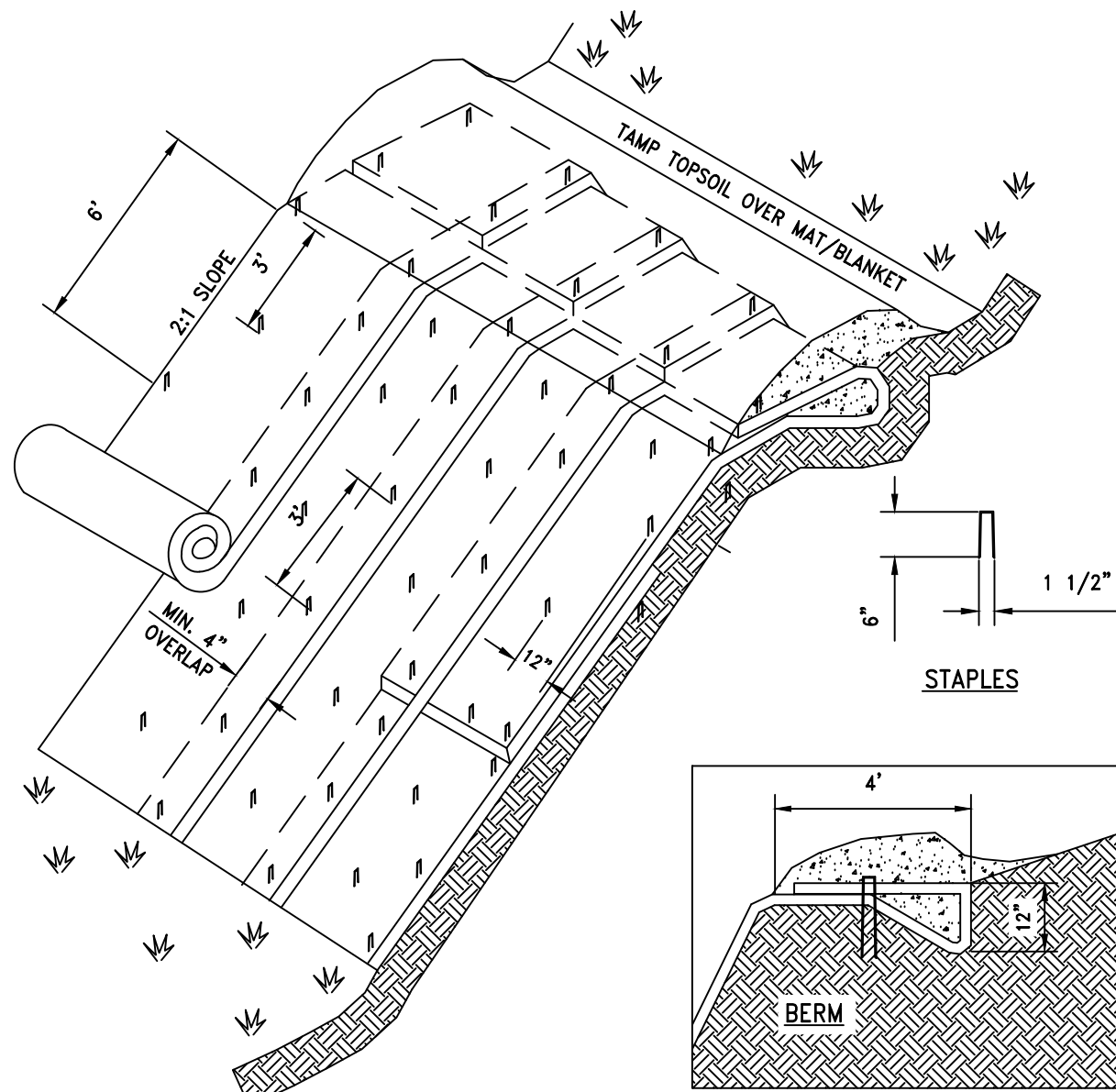
3 SILT FENCE
C36 SCALE: NTS



CONSTRUCTION SPECIFICATIONS

- STONE SIZE - USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
- LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
- THICKNESS - NOT LESS THAN SIX (6) INCHES.
- WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
- FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
- SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
- MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
- WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
- PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

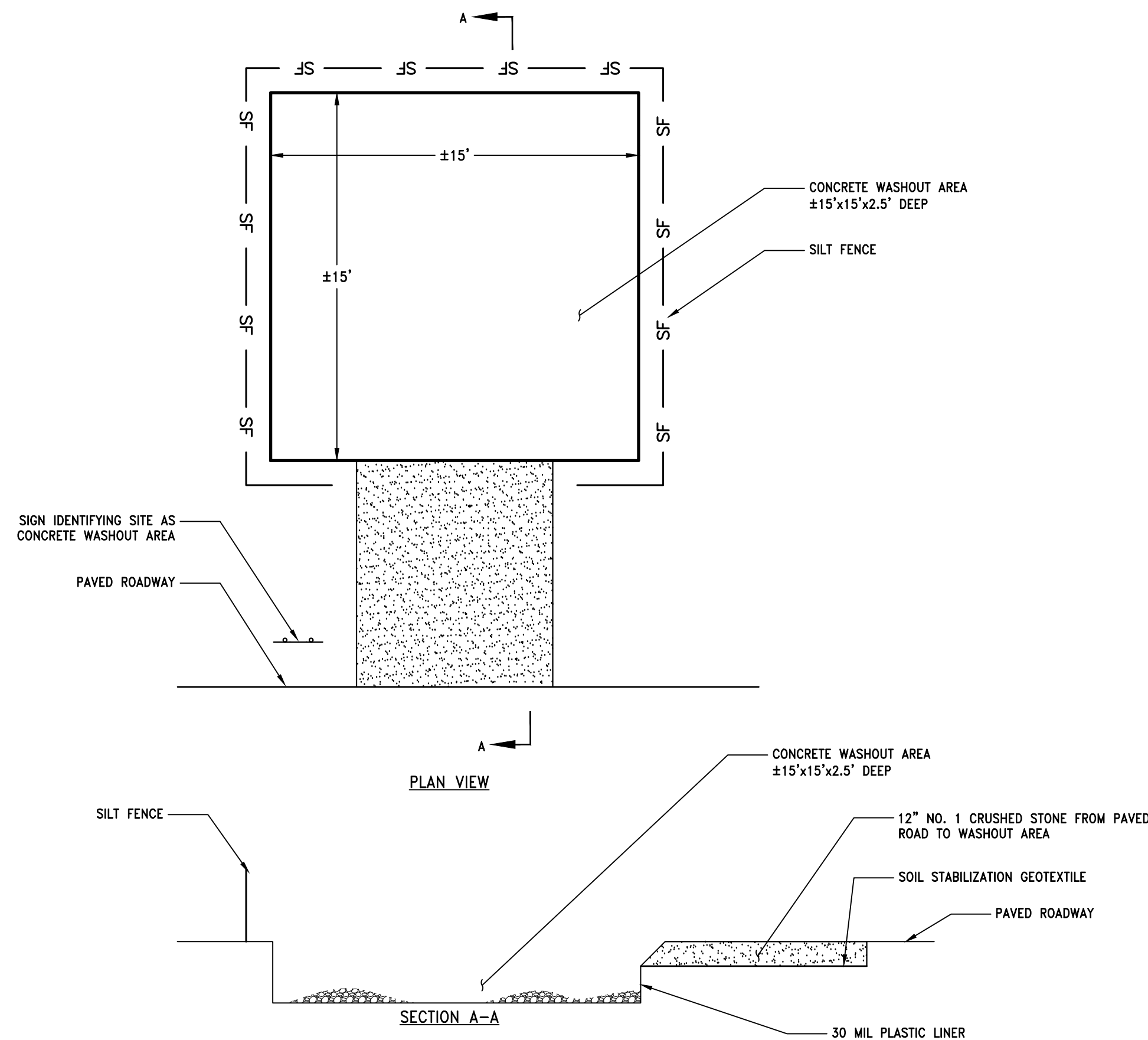
2 STABILIZED CONSTRUCTION ENTRANCE
C36 SCALE: NTS



NOTES

- SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. MATS/ BLANKETS SHALL HAVE GOOD SOIL CONTACT.
- APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.
- LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH
- MATS/BLANKETS SHOULD BE INSTALLED VERTICALLY DOWNSLOPE.

4 TYPICAL JUTE MESH SLOPE STABILIZATION
C36 SCALE: NTS



5 CONCRETE WASHOUT AREA
C36 SCALE: NTS



**Lamont
Engineers**
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FACILITY OPERATIONS
197 ELM ST., COBLESKILL, NY 12043
(518) 234-4028
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Consultant

TILDEN COMMONS
TILDEN PROJECT, LLC.
538 US RTE 20 NEW LEBANON NY 12125
COLUMBIA COUNTY NEW YORK STATE

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STATE EDUCATION LAW AND THE
CONTRACT FOR PROFESSIONAL
SERVICES AND IS THEREFORE
PROHIBITED.

Stamp



Issue Rev.	Date	Remarks
A	7/7/25	PLANNING BOARD COMMENTS
B	7/7/25	FOR PLANNING BOARD COMMENTS
C	5/7/25	FOR PLANNING BOARD COMMENTS
D	10/9/25	PLANNING BOARD
E	12/2/25	PLANNING BOARD
F	4/7/26	PLANNING BOARD
G	5/6/26	PLANNING BOARD

Project Number 2024125
Drawn By SK
Designed By BJB
Checked By BJB
Date 6/25/25
Scale AS SHOWN
File Name C30

Sheet Title
EROSION AND
SEDIMENT
CONTROL DETAILS

Sheet No.

C36

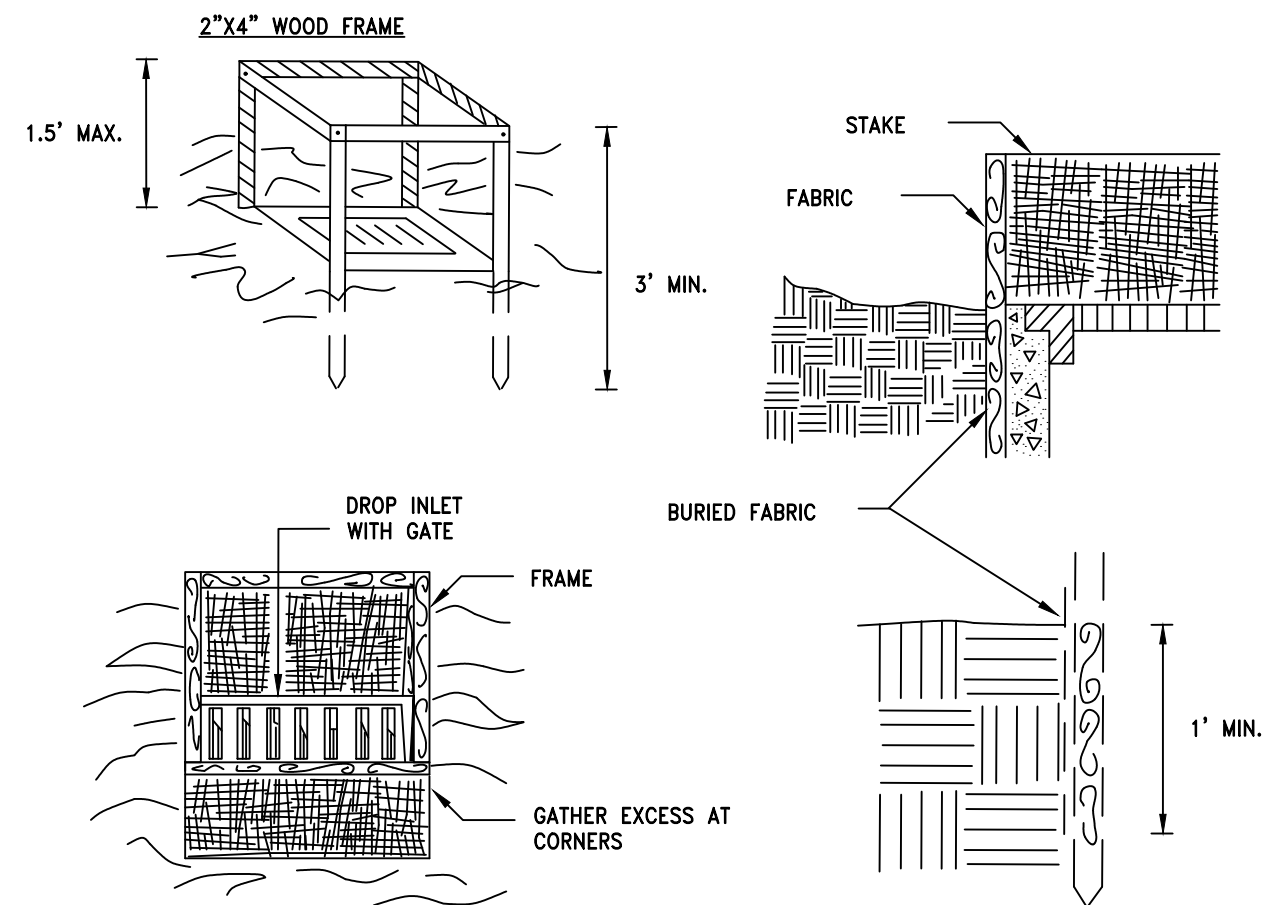


Issue	Rev.	Date	Remarks
			PLANNING BOARD COMMENTS
B	1	7/7/25	
C	1	8/7/25	
D	1	10/9/25	
E	1	12/2/25	
F	1	4/7/26	
G	1	5/9/26	

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Sheet Title
**EROSION AND
SEDIMENT
CONTROL DETAILS**

Sheet No.
C37

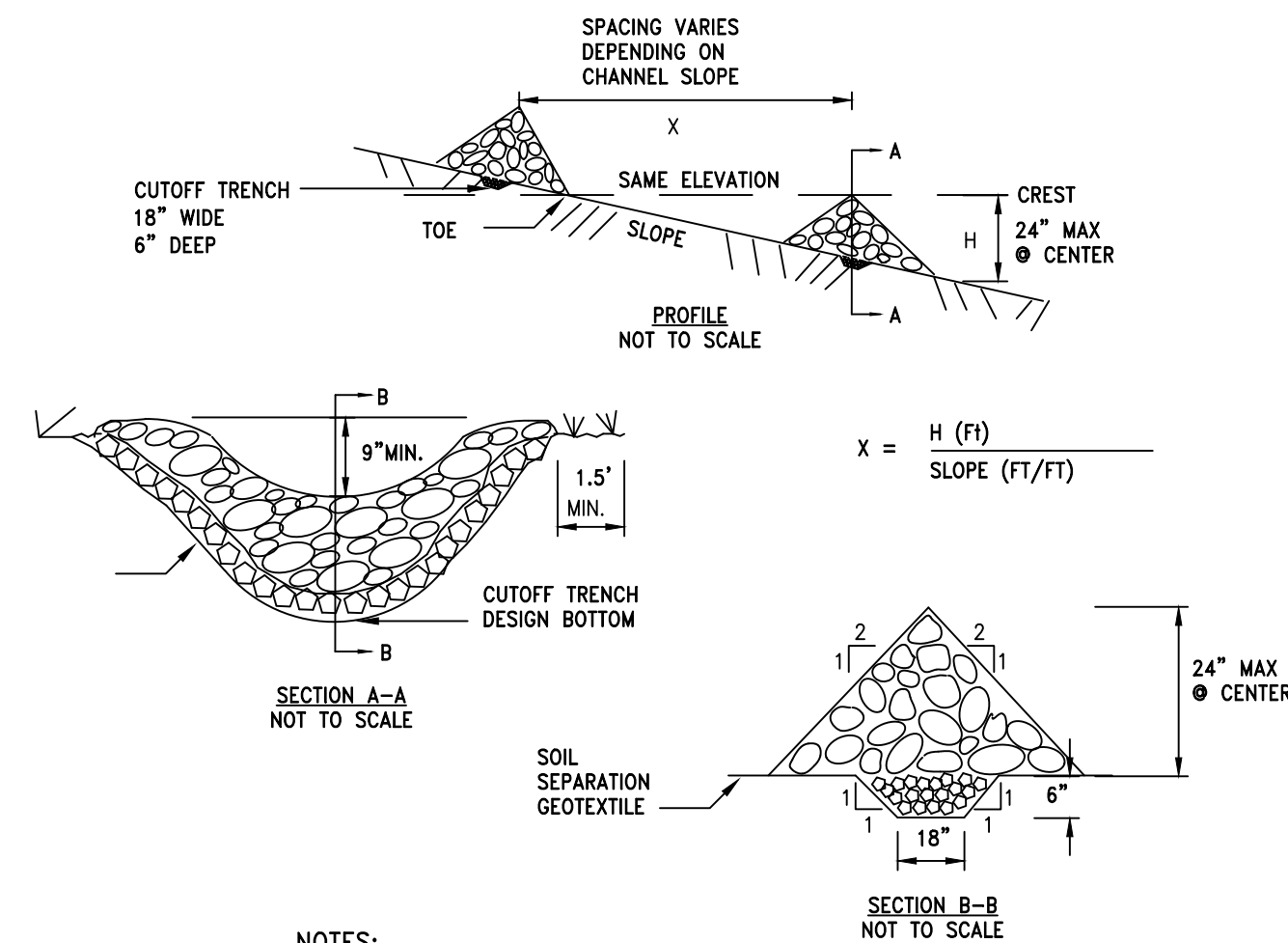


CONSTRUCTION SPECIFICATIONS

NOTES:

1. FILTER FABRIC SHALL HAVE AN EOS OF 40-85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT, METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.
7. MAXIMUM DRAINAGE AREA 1 ACRE

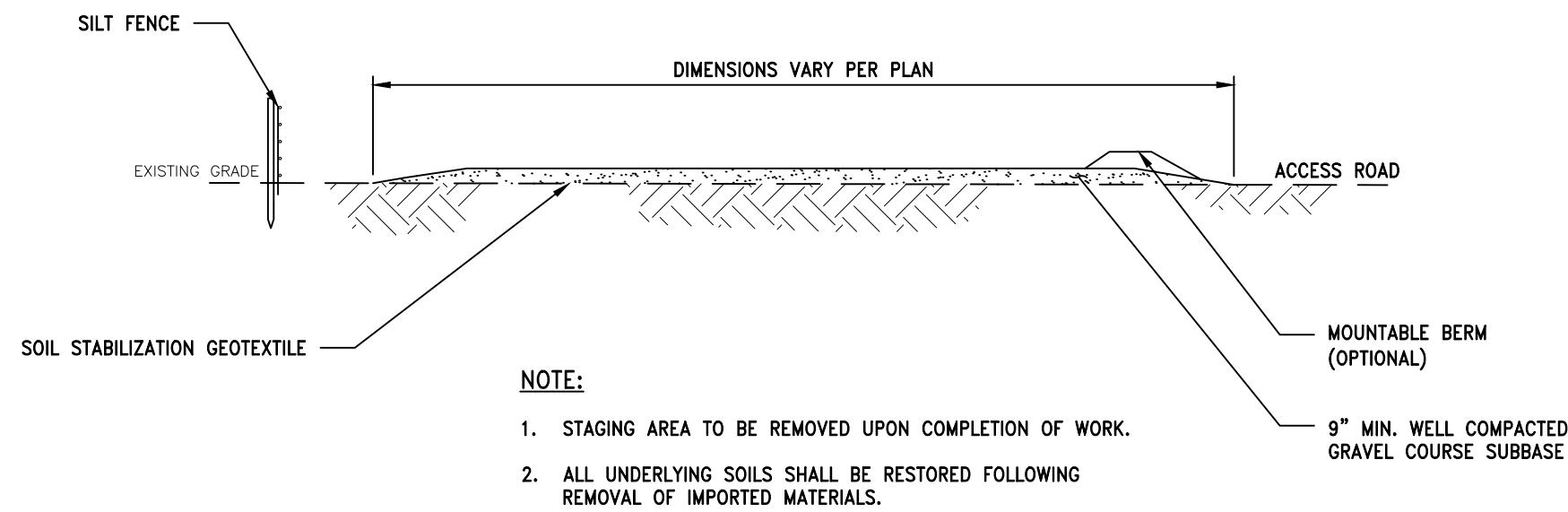
1 FILTER FABRIC DROP INLET PROTECTION
SCALE: NTS



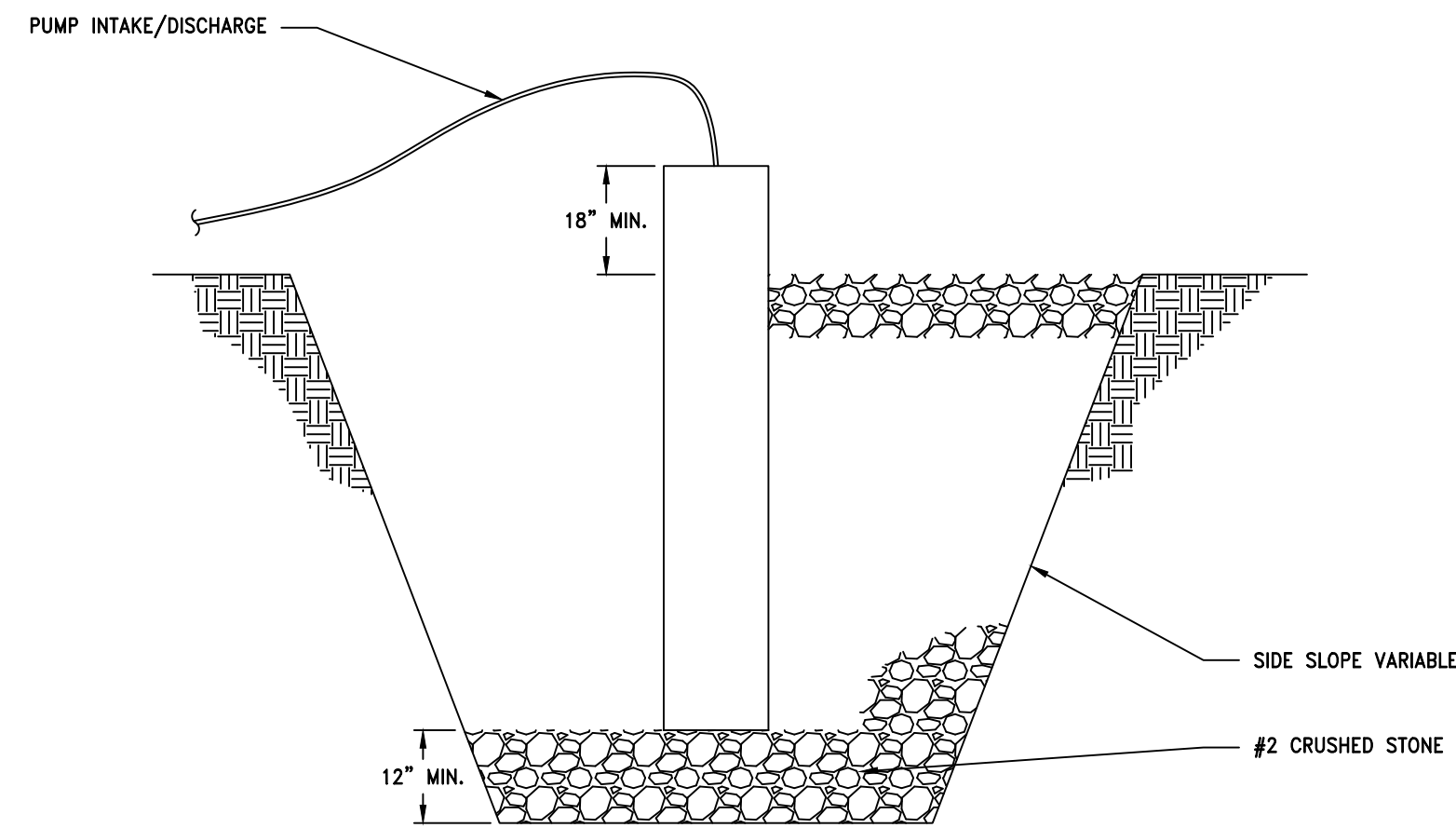
NOTES:

1. PLACE STONE ON A SOIL SEPARATION GEOTEXTILE FOUNDATION TO THE LINES, GRADES AND LOCATIONS SHOWN ON THE PLANS.
2. STONE CHECK DAM MATERIAL: NYSDOT LIGHT STONE FILL.
3. CUTOFF TRENCH MATERIAL: #2 STONE.
4. SET SPACING OF THE CHECK DAMS TO ASSUME THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.
5. EXTEND STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
6. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
7. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.

2 CHECK DAM DETAIL
SCALE: NTS



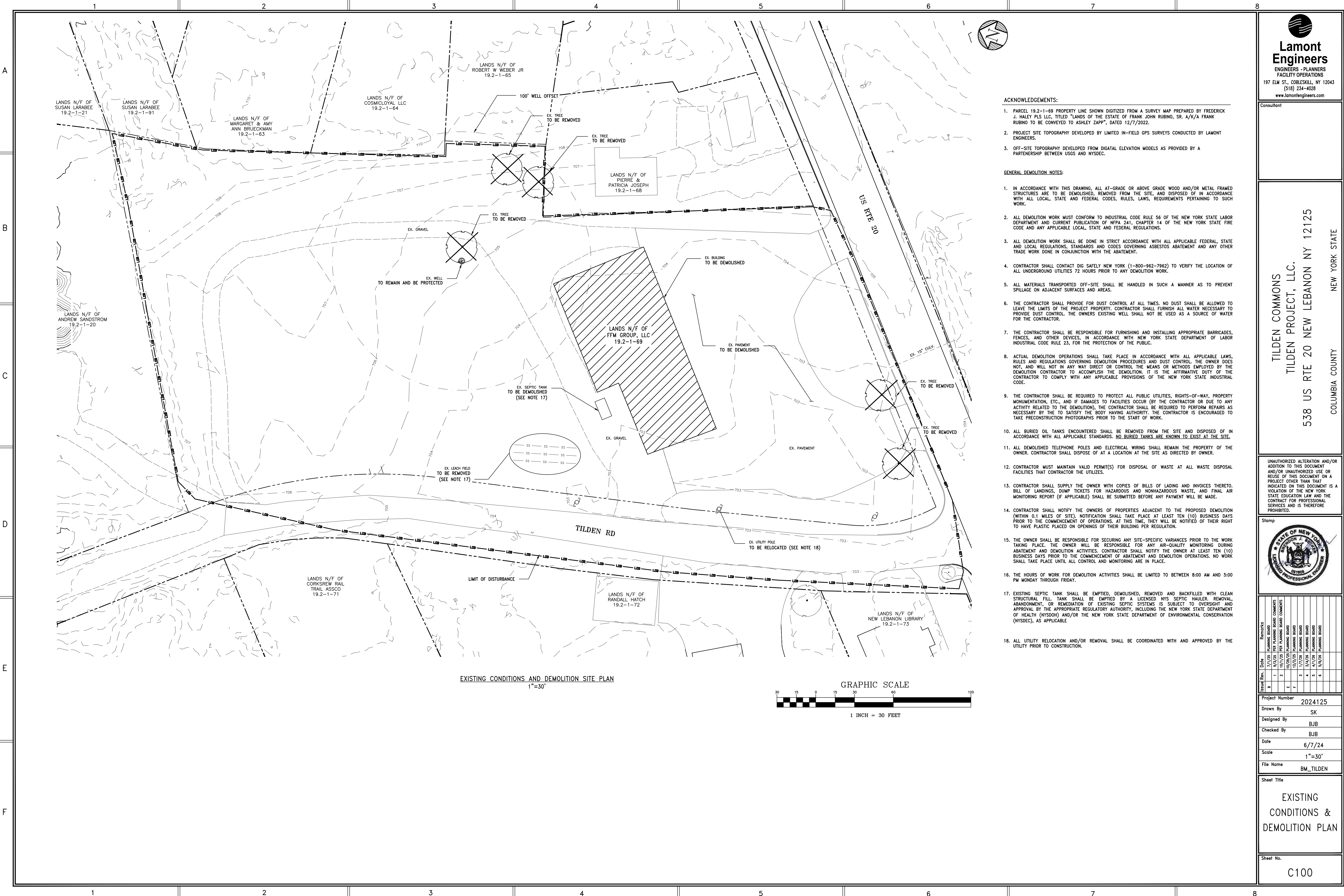
3 TEMPORARY STAGING/STOCKPILING AREA
SCALE: NTS



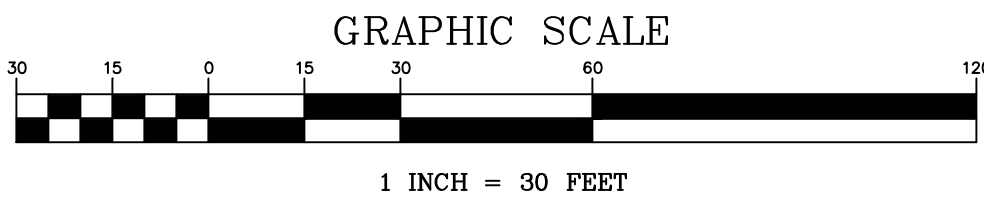
NOTES:

1. PIT DIMENSIONS ARE VARIABLE.
2. PIT SURROUNDING STANDPIPE SHALL BE BACKFILLED WITH #2 CRUSHED STONE.
3. IF DISCHARGE WILL BE PUMPED DIRECTLY TO A STORM DRAINAGE SYSTEM, THE STANDPIPE SHALL BE WRAPPED WITH FILTER CLOTH BEFORE INSTALLATION.

4 DEWATERING SUMP PIT DETAIL
SCALE: N.T.S.



EXISTING CONDITIONS AND DEMOLITION SITE PLAN
1"=30'



ACKNOWLEDGEMENTS:

1. PARCEL 19.2-1-69 PROPERTY LINE SHOWN DIGITIZED FROM A SURVEY MAP PREPARED BY FREDERICK J. HALEY PLS LLC, TITLED "LANDS OF THE ESTATE OF FRANK JOHN RUBINO, SR. A/K/A FRANK RUBINO TO BE CONVEYED TO ASHLEY ZAPP", DATED 12/7/2022.
2. PROJECT SITE TOPOGRAPHY DEVELOPED BY LIMITED IN-FIELD GPS SURVEYS CONDUCTED BY LAMONT ENGINEERS.
3. OFF-SITE TOPOGRAPHY DEVELOPED FROM DIGITAL ELEVATION MODELS AS PROVIDED BY A PARTNERSHIP BETWEEN USGS AND NYSDEC.

GENERAL DEMOLITION NOTES:

1. IN ACCORDANCE WITH THIS DRAWING, ALL AT-GRADE OR ABOVE GRADE WOOD AND/OR METAL FRAMED STRUCTURES ARE TO BE DEMOLISHED, REMOVED FROM THE SITE, AND DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL CODES, RULES, LAWS, REQUIREMENTS PERTAINING TO SUCH WORK.
2. ALL DEMOLITION WORK MUST CONFORM TO INDUSTRIAL CODE RULE 56 OF THE NEW YORK STATE LABOR DEPARTMENT AND CURRENT PUBLICATION OF NFPA 241, CHAPTER 14 OF THE NEW YORK STATE FIRE CODE AND ANY APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.
3. ALL DEMOLITION WORK SHALL BE DONE IN STRICT ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS, STANDARDS AND CODES GOVERNING ASBESTOS ABATEMENT AND ANY OTHER TRADE WORK DONE IN CONJUNCTION WITH THE ABATEMENT.
4. CONTRACTOR SHALL CONTACT DIG SAFELY NEW YORK (1-800-962-7962) TO VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES 72 HOURS PRIOR TO ANY DEMOLITION WORK.
5. ALL MATERIALS TRANSPORTED OFF-SITE SHALL BE HANDLED IN SUCH A MANNER AS TO PREVENT SPILLAGE ON ADJACENT SURFACES AND AREAS.
6. THE CONTRACTOR SHALL PROVIDE FOR DUST CONTROL AT ALL TIMES. NO DUST SHALL BE ALLOWED TO LEAVE THE LIMITS OF THE PROJECT PROPERTY. CONTRACTOR SHALL FURNISH ALL WATER NECESSARY TO PROVIDE DUST CONTROL. THE OWNERS EXISTING WELL SHALL NOT BE USED AS A SOURCE OF WATER FOR THE CONTRACTOR.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING AND INSTALLING APPROPRIATE BARRICADES, FENCES, AND OTHER DEVICES, IN ACCORDANCE WITH NEW YORK STATE DEPARTMENT OF LABOR INDUSTRIAL CODE RULE 23, FOR THE PROTECTION OF THE PUBLIC.
8. ACTUAL DEMOLITION OPERATIONS SHALL TAKE PLACE IN ACCORDANCE WITH ALL APPLICABLE LAWS, RULES AND REGULATIONS GOVERNING DEMOLITION PROCEDURES AND DUST CONTROL. THE OWNER DOES NOT, AND WILL NOT IN ANY WAY DIRECT OR CONTROL THE MEANS OR METHODS EMPLOYED BY THE DEMOLITION CONTRACTOR TO ACCOMPLISH THE DEMOLITION. IT IS THE AFFIRMATIVE DUTY OF THE CONTRACTOR TO COMPLY WITH ANY APPLICABLE PROVISIONS OF THE NEW YORK STATE INDUSTRIAL CODE.
9. THE CONTRACTOR SHALL BE REQUIRED TO PROTECT ALL PUBLIC UTILITIES, RIGHTS-OF-WAY, PROPERTY MONUMENTATION, ETC., AND IF DAMAGES TO FACILITIES OCCUR (BY THE CONTRACTOR OR DUE TO ANY ACTIVITY RELATED TO THE DEMOLITION), THE CONTRACTOR SHALL BE REQUIRED TO PERFORM REPAIRS AS NECESSARY BY THE TO SATISFY THE BODY HAVING AUTHORITY. THE CONTRACTOR IS ENCOURAGED TO TAKE PRECONSTRUCTION PHOTOGRAPHS PRIOR TO THE START OF WORK.
10. ALL BURIED OIL TANKS ENCOUNTERED SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE STANDARDS. **NO BURIED TANKS ARE KNOWN TO EXIST AT THE SITE.**
11. ALL DEMOLISHED TELEPHONE POLES AND ELECTRICAL WIRING SHALL REMAIN THE PROPERTY OF THE OWNER. CONTRACTOR SHALL DISPOSE OF AT A LOCATION AT THE SITE AS DIRECTED BY OWNER.
12. CONTRACTOR MUST MAINTAIN VALID PERMIT(S) FOR DISPOSAL OF WASTE AT ALL WASTE DISPOSAL FACILITIES THAT CONTRACTOR THE UTILIZES.
13. CONTRACTOR SHALL SUPPLY THE OWNER WITH COPIES OF BILLS OF LADING AND INVOICES THERETO, BILL OF LADING, DUMP TICKETS FOR HAZARDOUS AND NONHAZARDOUS WASTE, AND FINAL AIR MONITORING REPORT (IF APPLICABLE) SHALL BE SUBMITTED BEFORE ANY PAYMENT WILL BE MADE.
14. CONTRACTOR SHALL NOTIFY THE OWNERS OF PROPERTIES ADJACENT TO THE PROPOSED DEMOLITION (WITHIN 0.1 MILES OF SITE). NOTIFICATION SHALL TAKE PLACE AT LEAST TEN (10) BUSINESS DAYS PRIOR TO THE COMMENCEMENT OF OPERATIONS. AT THIS TIME, THEY WILL BE NOTIFIED OF THEIR RIGHT TO HAVE PLASTIC PLACED ON OPENINGS OF THEIR BUILDING PER REGULATION.
15. THE OWNER SHALL BE RESPONSIBLE FOR SECURING ANY SITE-SPECIFIC VARIANCES PRIOR TO THE WORK TAKING PLACE. THE OWNER WILL BE RESPONSIBLE FOR ANY AIR-QUALITY MONITORING DURING ABATEMENT AND DEMOLITION ACTIVITIES. CONTRACTOR SHALL NOTIFY THE OWNER AT LEAST TEN (10) BUSINESS DAYS PRIOR TO THE COMMENCEMENT OF ABATEMENT AND DEMOLITION OPERATIONS. NO WORK SHALL TAKE PLACE UNTIL ALL CONTROL AND MONITORING ARE IN PLACE.
16. THE HOURS OF WORK FOR DEMOLITION ACTIVITIES SHALL BE LIMITED TO BETWEEN 8:00 AM AND 5:00 PM MONDAY THROUGH FRIDAY.
17. EXISTING SEPTIC TANK SHALL BE EMPTIED, DEMOLISHED, REMOVED AND BACKFILLED WITH CLEAN STRUCTURAL FILL. TANK SHALL BE EMPTIED BY A LICENSED NYS SEPTIC HAULER. REMOVAL, ABANDONMENT, OR REMEDIATION OF EXISTING SEPTIC SYSTEMS IS SUBJECT TO OVERSIGHT AND APPROVAL BY THE APPROPRIATE REGULATORY AUTHORITY, INCLUDING THE NEW YORK STATE DEPARTMENT OF HEALTH (NYSDOH) AND/OR THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC), AS APPLICABLE.
18. ALL UTILITY RELOCATION AND/OR REMOVAL SHALL BE COORDINATED WITH AND APPROVED BY THE UTILITY PRIOR TO CONSTRUCTION.

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Stamp

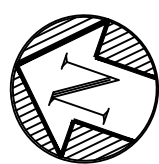


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B	1	7/7/25	PLANNING BOARD COMMENTS
B	2	10/7/25	PER PLANNING BOARD COMMENTS
C	1	10/9/25	PLANNING BOARD
C	2	12/2/25	PLANNING BOARD
D	1	12/2/25	PLANNING BOARD
D	2	12/2/25	PLANNING BOARD
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D	4	12/2/25	PLANNING BOARD
D	5	12/2/25	PLANNING BOARD
D	6	12/2/25	PLANNING BOARD

Project Number 2024125
Drawn By SK
Designed By BJB
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Date 6/7/24
Scale 1"=30'
File Name BM_TILDEN

Sheet Title
**EXISTING
CONDITIONS &
DEMOLITION PLAN**

Sheet No.
C100



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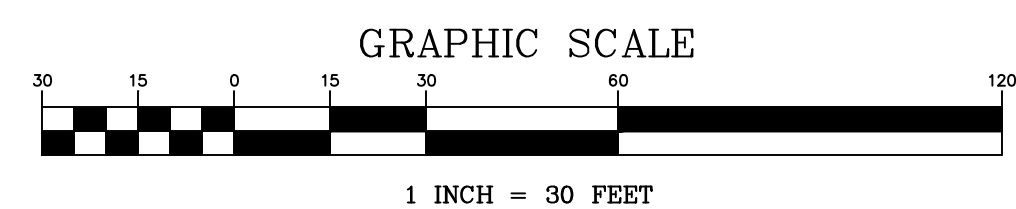
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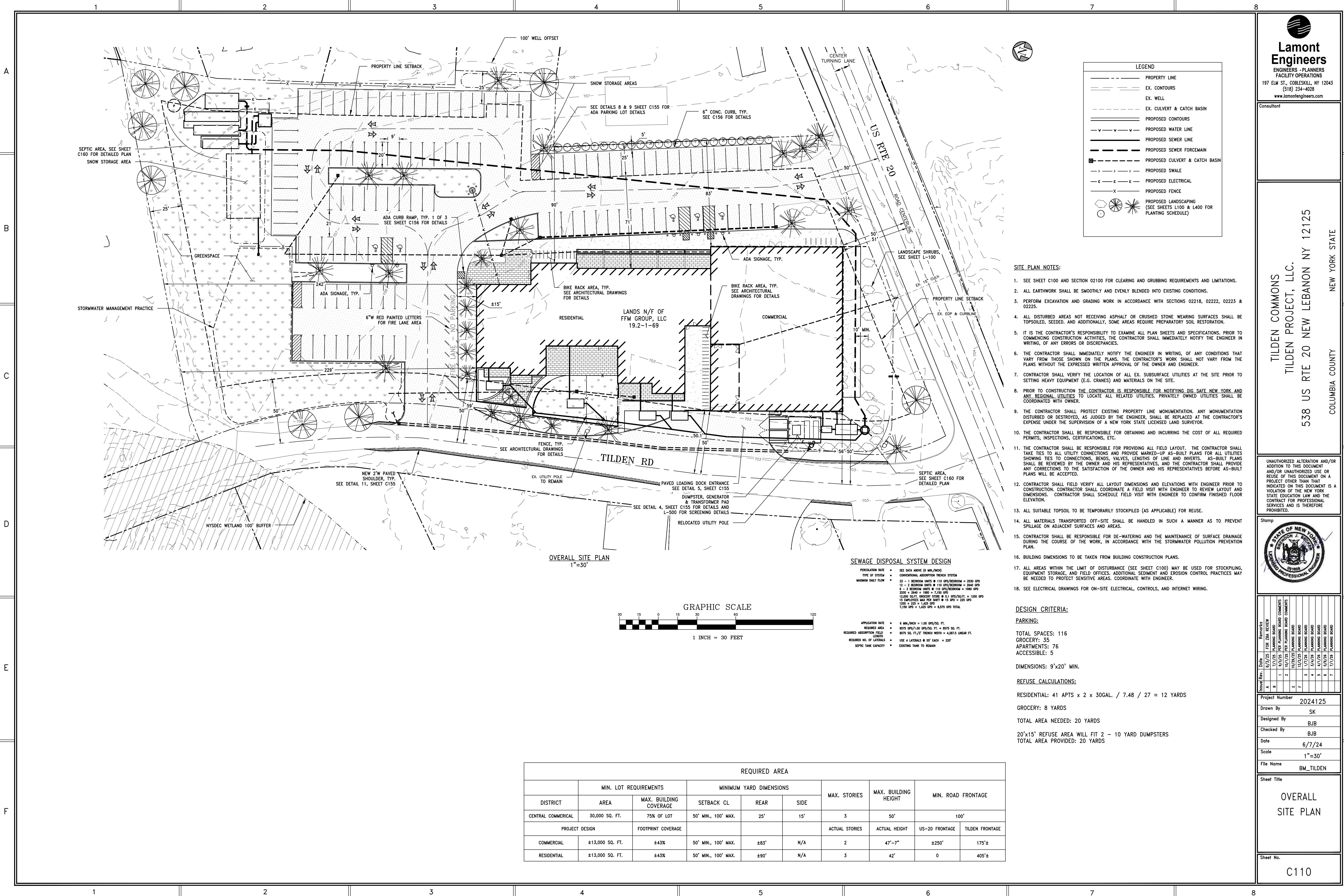
Sheet Title
EROSION & SEDIMENT CONTROL PLAN

Sheet No.

C105

EXISTING CONDITIONS AND DEMOLITION SITE PLAN
1"=30'





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Issue	Rev.	Date	Remarks
A	1	6/2/25	15% 20% REVIEW
B	1	6/2/25	FOR PLANNING BOARD COMMENTS
C	2	6/2/25	FOR PLANNING BOARD COMMENTS
D	1	6/2/25	FOR PLANNING BOARD
E	1	6/2/25	FOR PLANNING BOARD
F	1	6/2/25	FOR PLANNING BOARD
G	1	6/2/25	FOR PLANNING BOARD
H	1	6/2/25	FOR PLANNING BOARD
I	1	6/2/25	FOR PLANNING BOARD

Project Number 2024125

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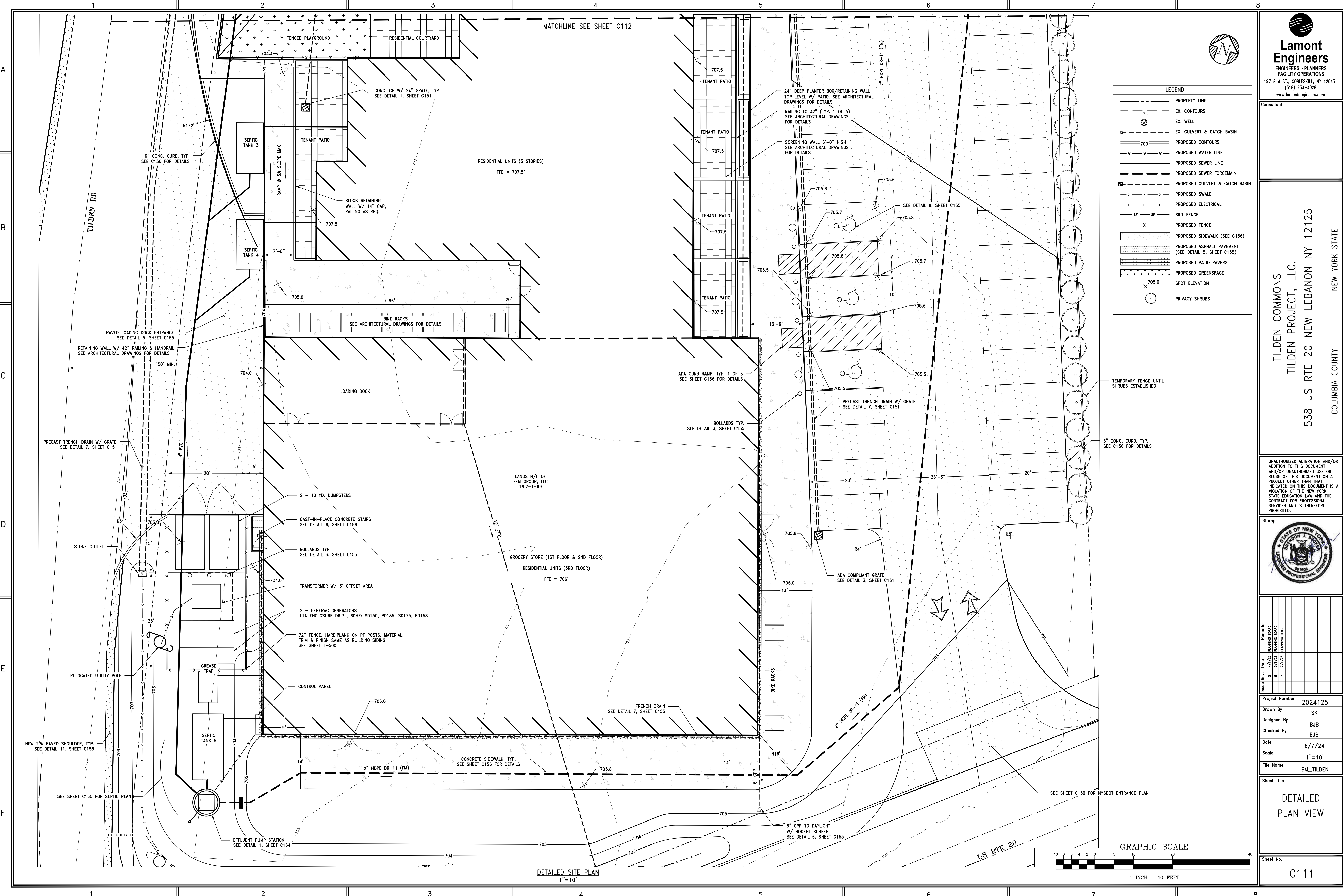
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File Name BM_TILDEN

Sheet Title

OVERALL SITE PLAN

Sheet No. C110



LEGEND

- PROPERTY LINE
- EX. CONTOURS
- EX. WELL
- EX. CULVERT & CATCH BASIN
- PROPOSED CONTOURS
- PROPOSED WATER LINE
- PROPOSED SEWER LINE
- PROPOSED SEWER FORCEMAIN
- PROPOSED CULVERT & CATCH BASIN
- PROPOSED SWALE
- PROPOSED ELECTRICAL
- SILT FENCE
- PROPOSED FENCE
- PROPOSED SIDEWALK (SEE C156)
- PROPOSED ASPHALT PAVEMENT (SEE DETAIL 5, SHEET C155)
- PROPOSED PATIO PAVERS
- PROPOSED GREENSPACE
- SPOT ELEVATION
- PRIVACY SHRUBS

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	1	4/7/24	PLANNING BOARD
	2	5/1/24	PLANNING BOARD
	3	6/7/24	PLANNING BOARD

Project Number 2024125
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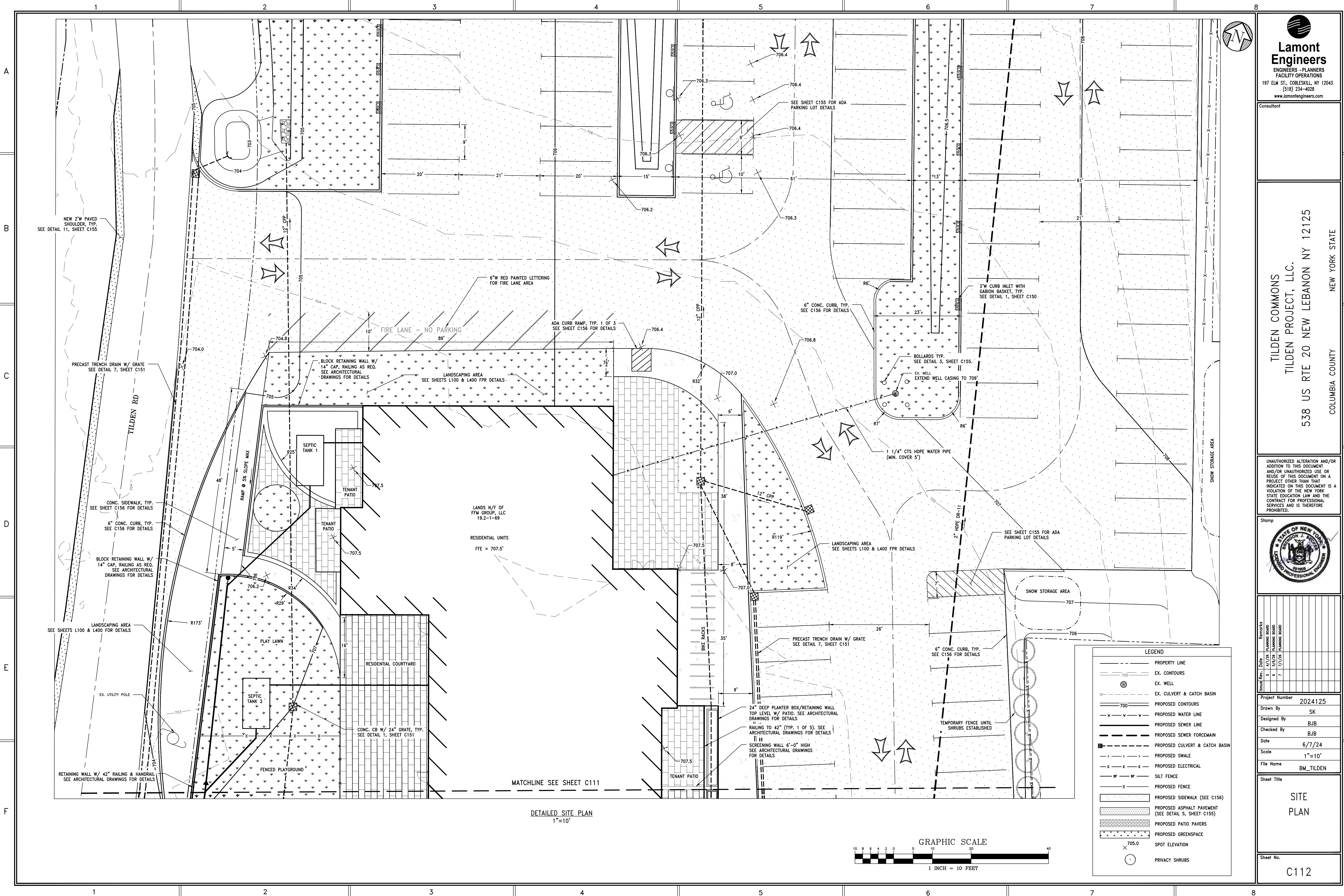
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**DETAILED
PLAN VIEW**

Sheet No.

C111

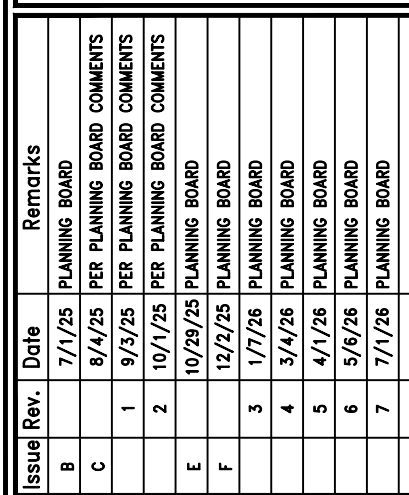
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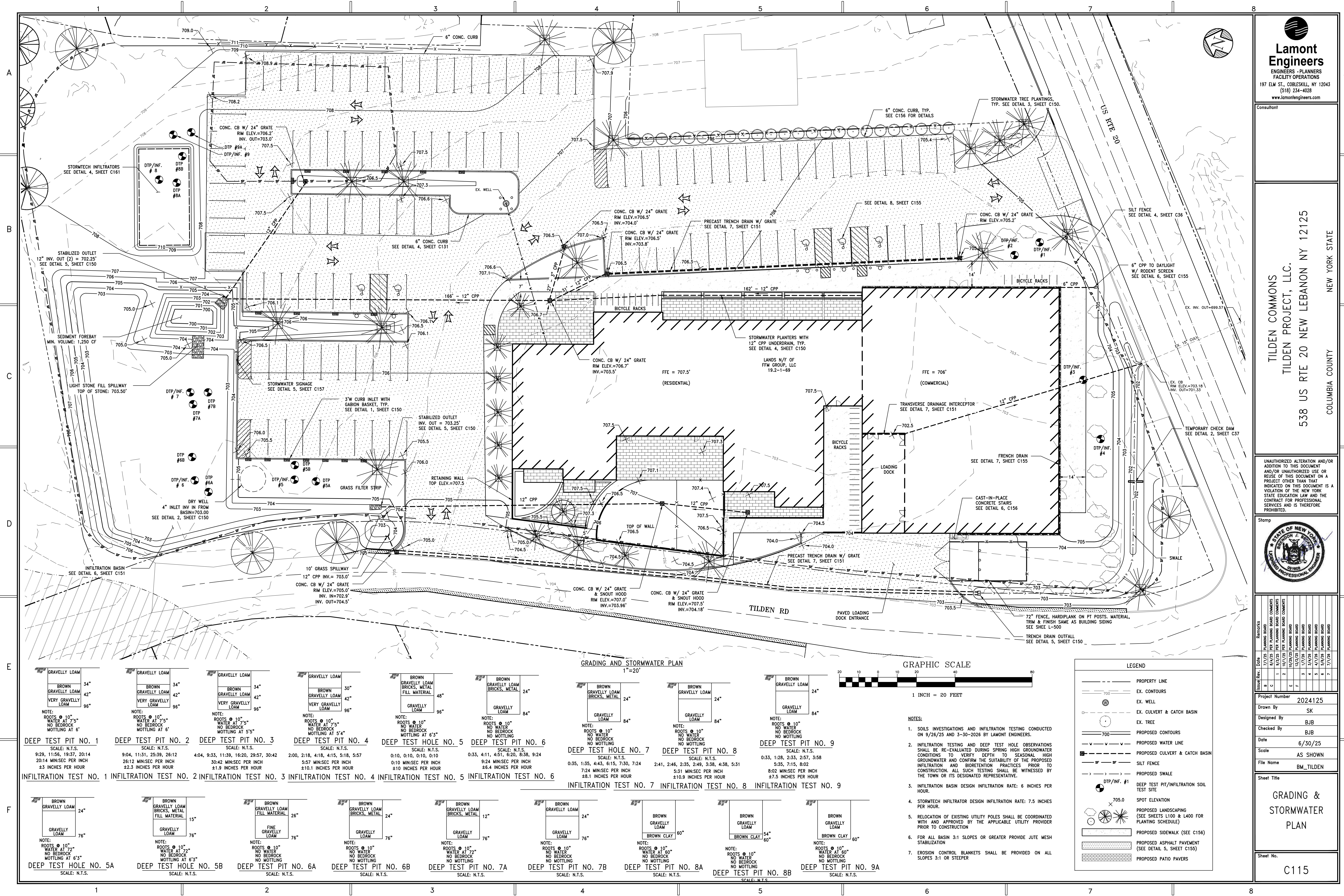
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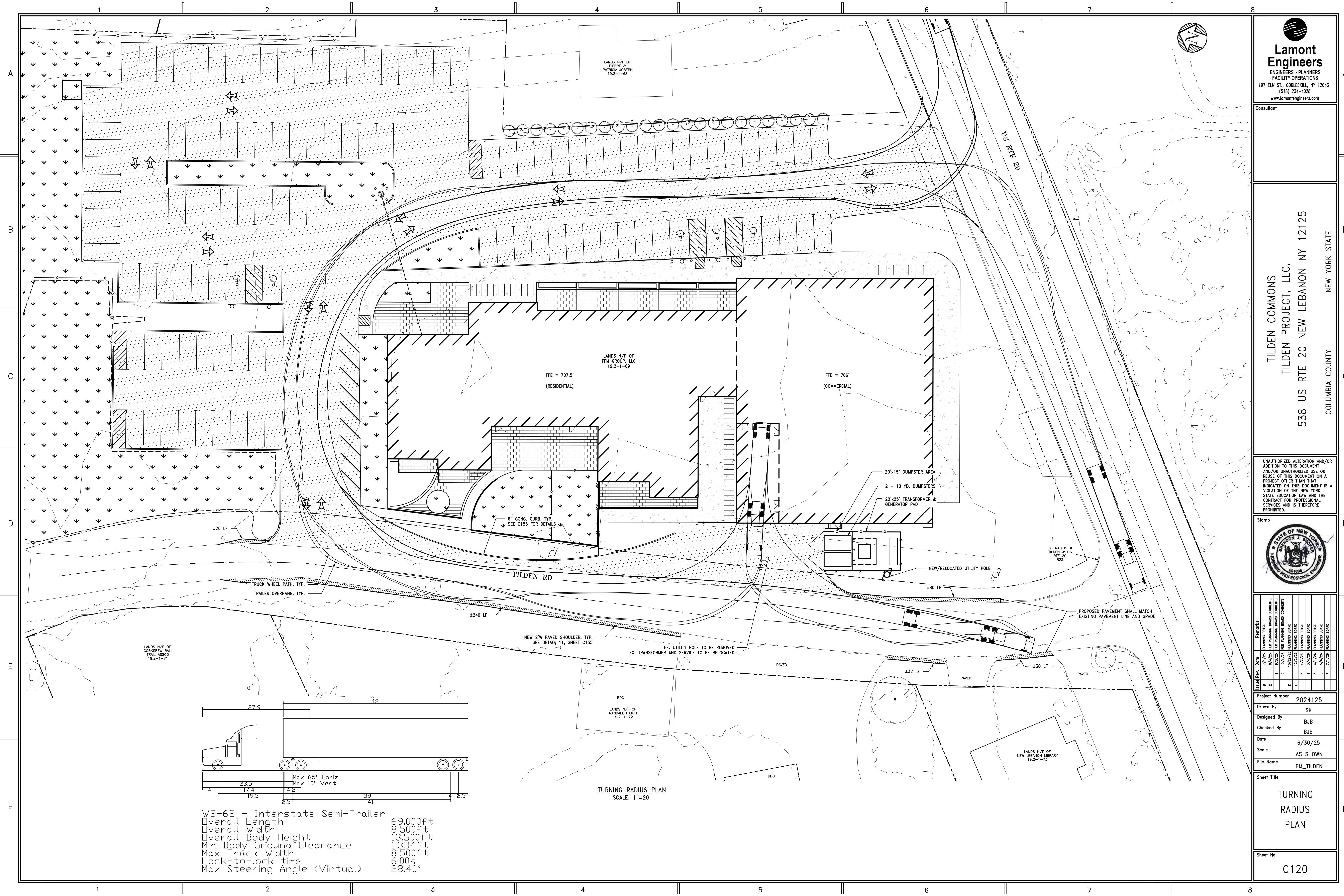


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GRADING & STORMWATER PLAN

C115







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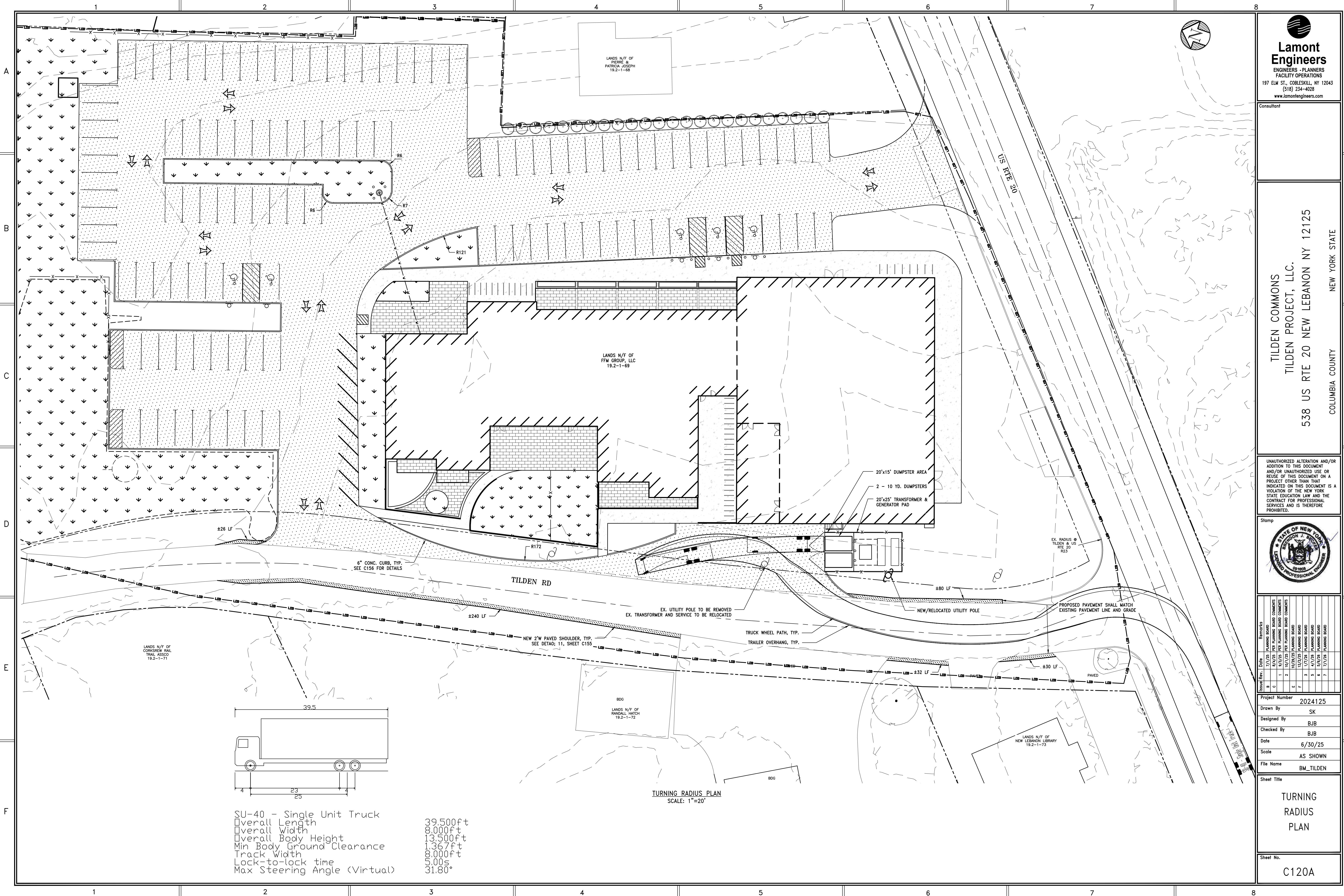
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6	3/4/26	PLANNING BOARD
7	4/7/26	PLANNING BOARD
8	7/7/26	PLANNING BOARD

Project Number 2024125
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Sheet Title
**TURNING
RADIUS
PLAN**
Sheet No.
C120





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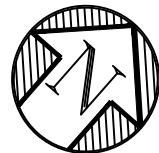
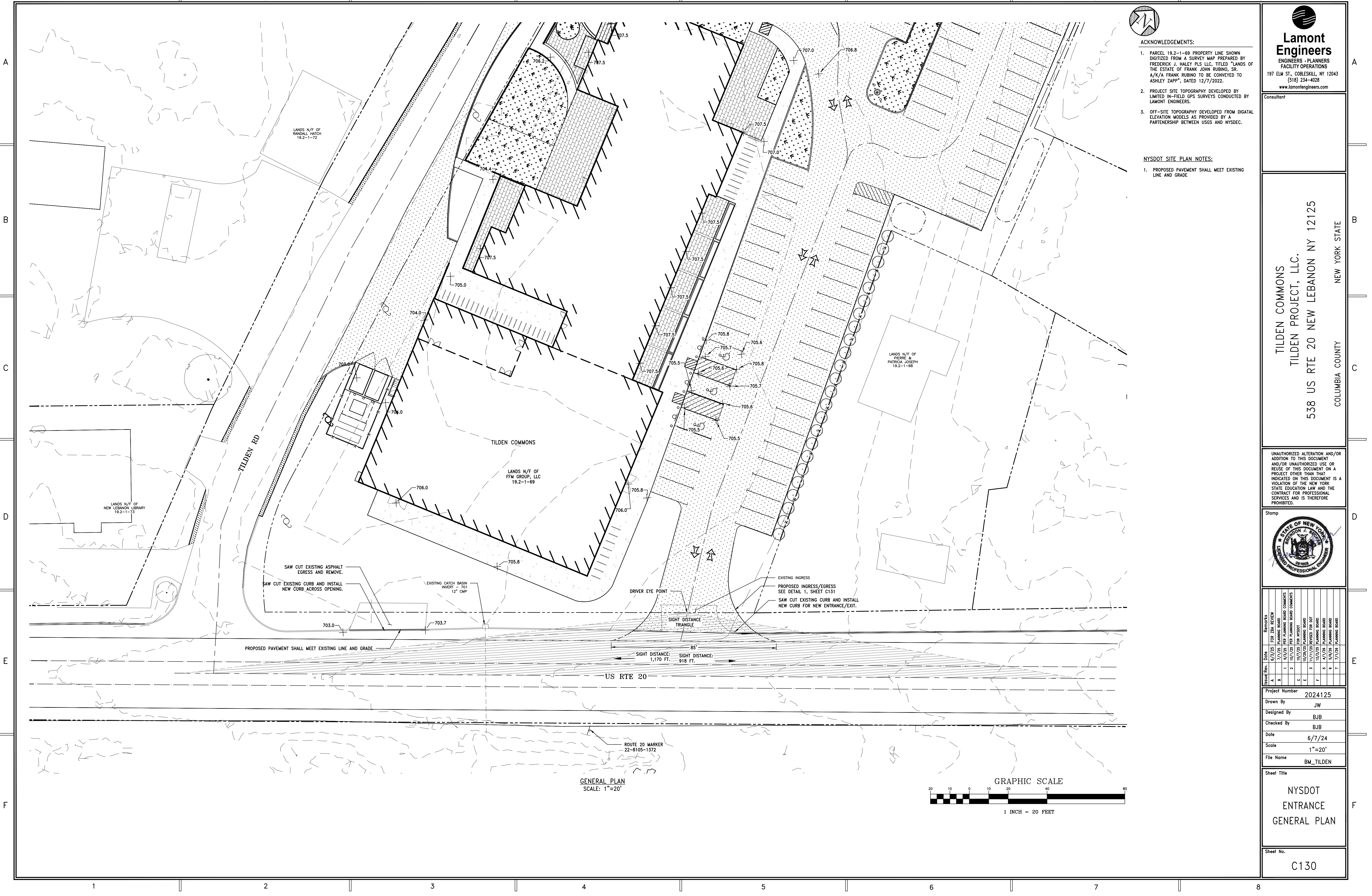
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7	2/7/26	PER PLANNING BOARD

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Sheet Title
**TURNING
RADIUS
PLAN**

Sheet No.
C120A

SU-40 - Single Unit Truck
Overall Length 39.500ft
Overall Width 8.000ft
Overall Body Height 13.500ft
Min Body Ground Clearance 1.367ft
Track Width 8.000ft
Lock-to-lock time 5.00s
Max Steering Angle (Virtual) 31.80°



ACKNOWLEDGEMENTS:

- 1. PARCEL 19.2-1-69 PROPERTY LINE SHOWN DIGITIZED FROM A SURVEY MAP PREPARED BY FREDERICK J. HALEY PLS LLC, TITLED "LANDS OF THE ESTATE OF FRANK JOHN RUBINO, SR. A/K/A FRANK RUBINO TO BE CONVEYED TO ASHLEY ZAPP", DATED 12/7/2022.
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- 3. OFF-SITE TOPOGRAPHY DEVELOPED FROM DIGITAL ELEVATION MODELS AS PROVIDED BY A PARTNERSHIP BETWEEN USGS AND NYSDEC.

NYSOT SITE PLAN NOTES:

- 1. PROPOSED PAVEMENT SHALL MEET EXISTING LINE AND GRADE



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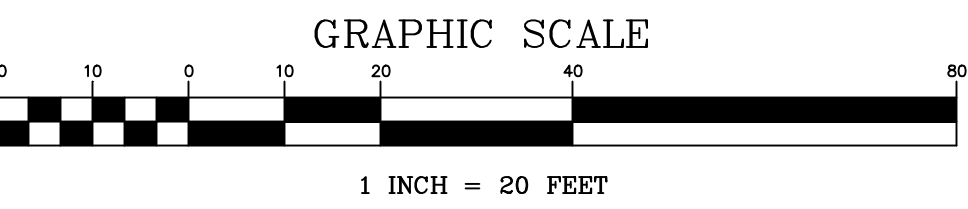
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X	1	7/1/25	FOR ZDA REVIEW
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Z	1	7/1/25	FOR ZDA REVIEW

Project Number 2024125
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Designed By BJB
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Sheet Title
NYSOT
ENTRANCE
GENERAL PLAN

Sheet No.
C130

GENERAL PLAN
SCALE: 1"=20'



A

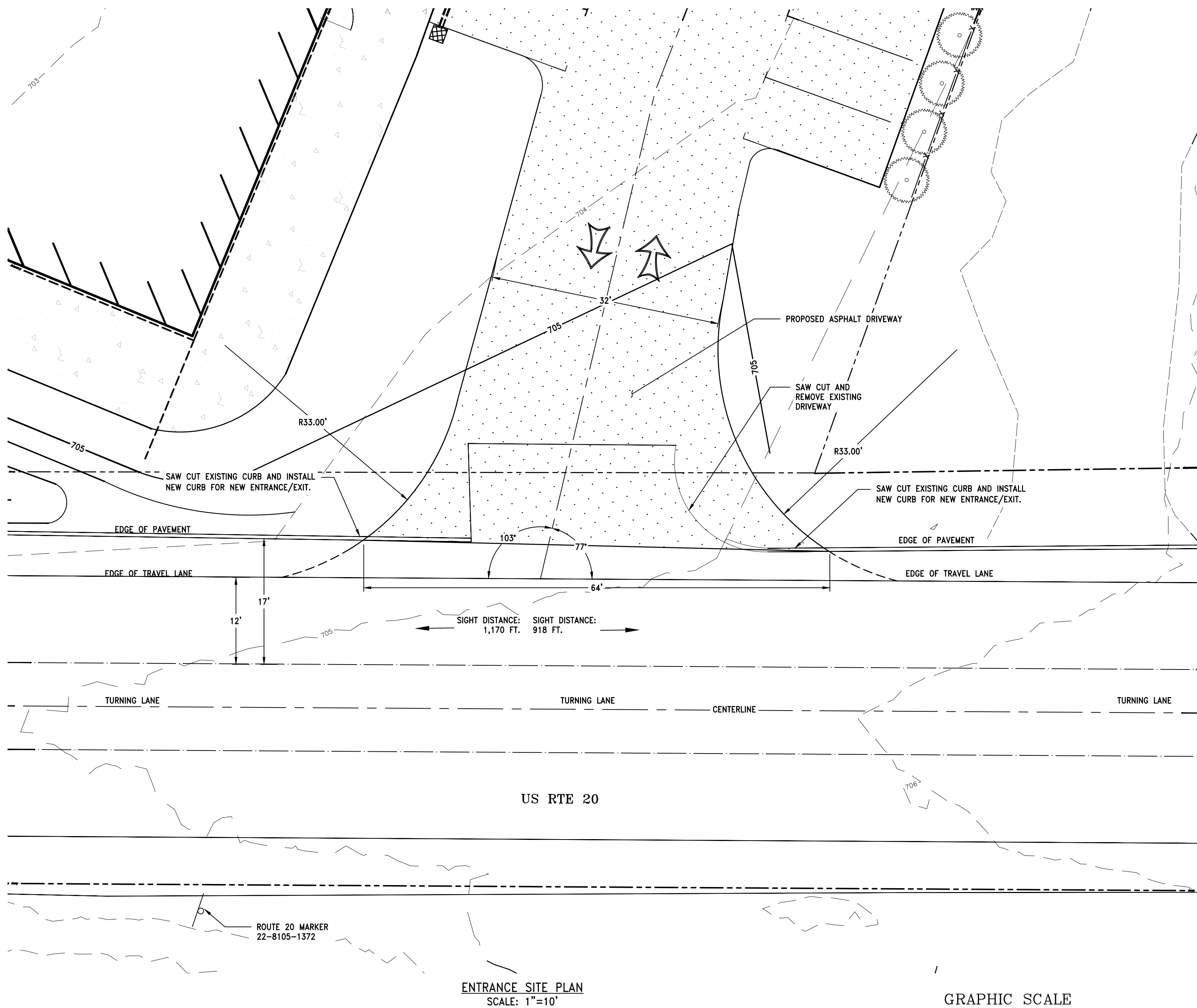
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C

D

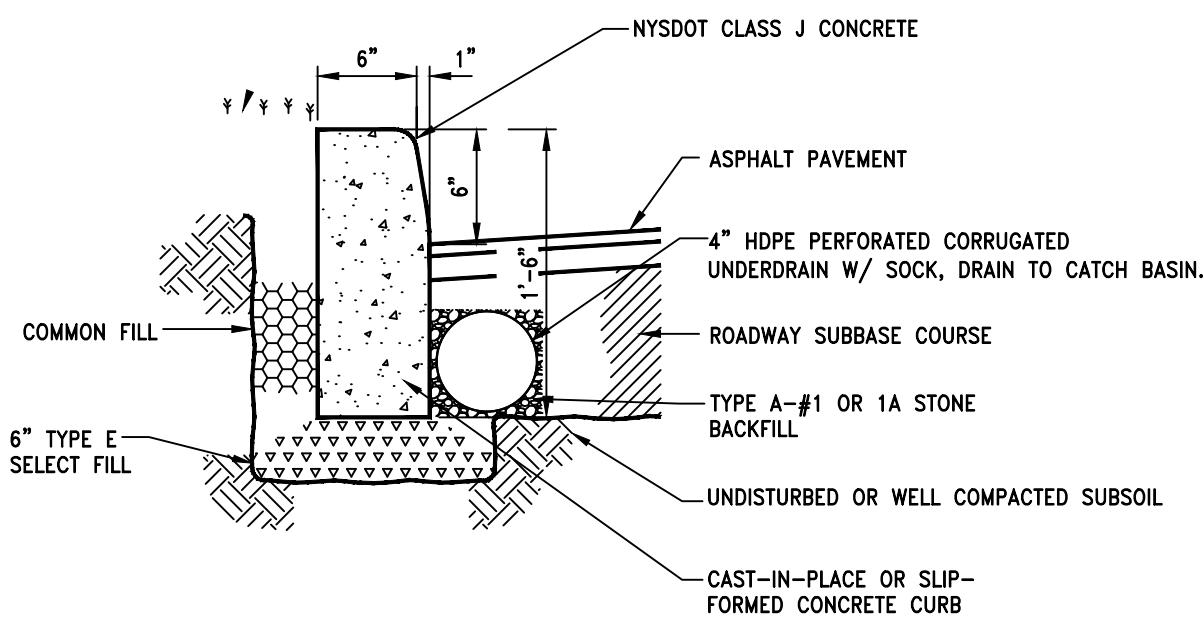
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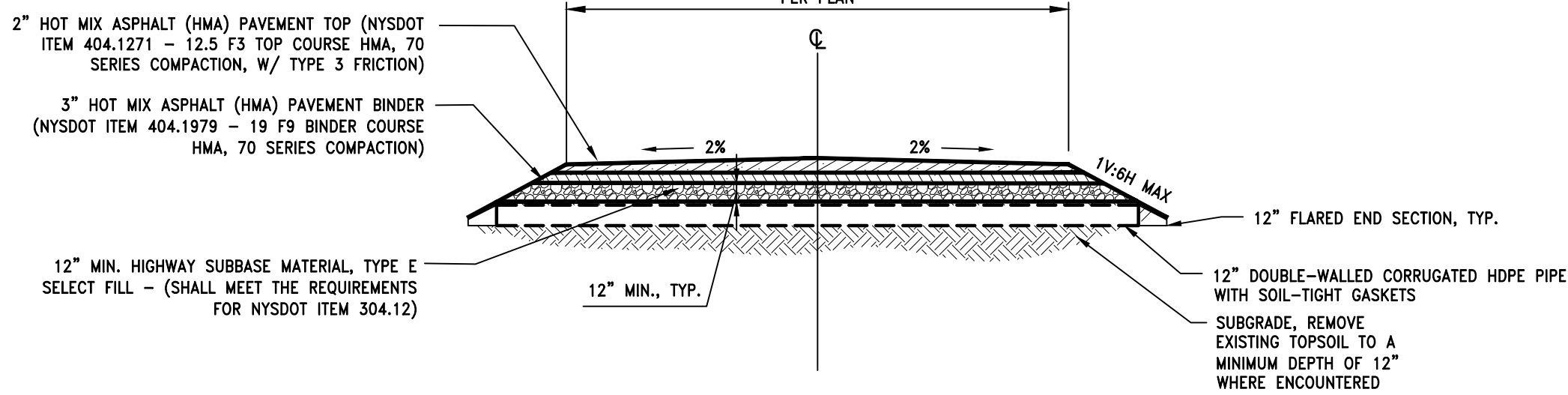


NYSOT NOTES:

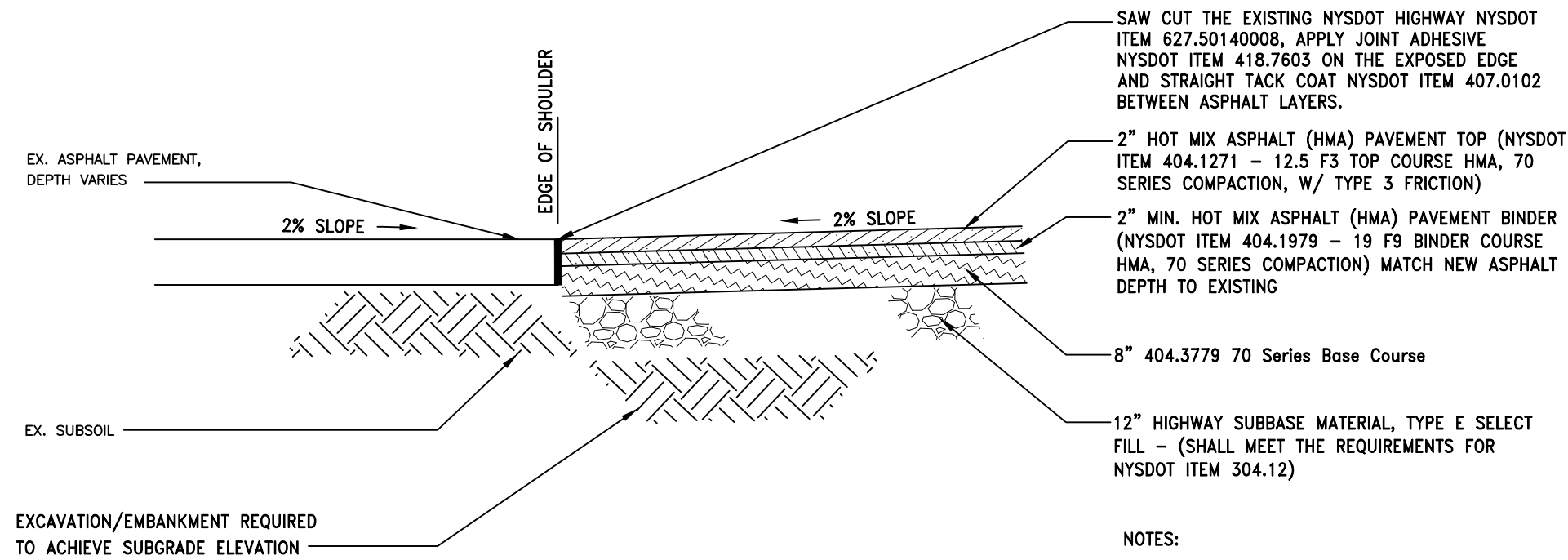
- NYSOT HIGHWAY WORK PERMIT SHALL BE ISSUED AND PRESENT AT THE JOB LOCATION AT ALL TIMES, WITH THE STAMPED NYSOT APPROVED PLANS. CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS AND CONDITIONS ATTACHED TO THE NYSOT WORK PERMIT.
- DETAILS ARE INTENDED TO SHOW FINAL DESIGN. MODIFICATIONS MAY BE REQUIRED TO SUIT EXISTING FIELD DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE REQUIRED WORK.
- DRIVEWAY ENTRANCE SHALL CONFORM TO NYSOT STANDARD SHEETS 608-03.
- THE MINIMUM PAVING LIMIT SHALL BE 30' FROM THE EDGE OF THE TRAVEL LANE OR TO THE R.O.W., WHICHEVER IS GREATER.
- ALL WORK WITHIN THE NYSOT RIGHT-OF-WAY OR WORK THAT MAY IMPACT IT SHALL BE CONSTRUCTED TO THE CURRENT NYSOT STANDARDS AND SPECIFICATIONS.
- THE WORK ZONE TRAFFIC CONTROL PLAN IS A VERY CRITICAL PART OF THE WORK PERMIT AND SHALL BE PROVIDED IN ACCORDANCE WITH THE CURRENT 619 NYSOT STANDARD SERIES SPECIFICATION, THE NATIONAL MANUAL OF TRAFFIC CONTROL DEVICES, AND THE NYS SUPPLEMENT.
- THE NYSOT RIGHT-OF-WAY IS NOT TO BE USED FOR MATERIAL AND/OR EQUIPMENT STAGING.
- A ROADWORK REPORTING FORM SHALL BE PROVIDED 7 DAYS PRIOR TO ANY WORK WITHIN THE NYSOT RIGHT-OF-WAY.
- NO WORK SHALL OCCUR WITHIN THE NYSOT RIGHT-OF-WAY DURING ACTIVE SNOW & ICE REMOVAL OPERATIONS.
- AS-BUILT PLANS SHALL BE SUPPLIED TO THE REGIONAL PERMITTING OFFICE.
- THE NYSOT RESERVES THE RIGHT TO CANCEL ANY WORK OPERATIONS AT ANY POINT DURING THE PROJECT.
- CONTRACTOR SHALL COORDINATE WITH THE RESIDENCY:
COLUMBIA RESIDENCY
RESIDENT ENGINEER - DARRIN MORET
EMAIL - DARRIN.MORET@DOT.NY.GOV
- SITE DISTANCES WERE VERIFIED IN THE FIELD WITH SITE MEASUREMENTS COMPLETED BY LAMONT ENGINEERS ON 9/15/25
- PROPOSED PAVEMENT SHALL MEET EXISTING LINE AND GRADE



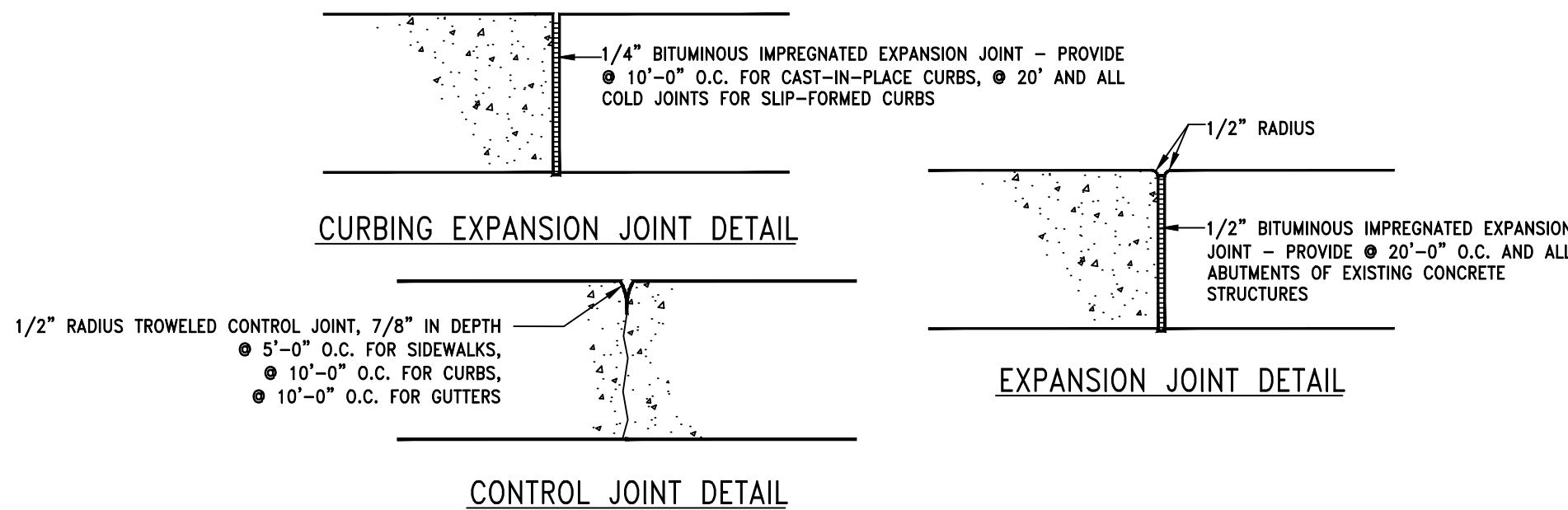
4 CAST IN PLACE CURB
SCALE: NTS



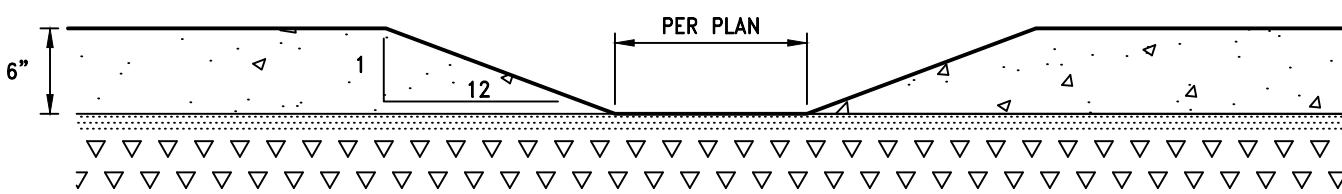
1 TYPICAL ASPHALT PAVEMENT CROSS SECTION
SCALE: NTS



2 PAVEMENT TRANSITION DETAIL
SCALE: NTS



3 TYPICAL CONSTRUCTION DETAILS FOR SIDEWALKS, CURBS AND GUTTERS
SCALE: NTS



5 CURB DROP DETAIL
SCALE: NTS

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Rev.	Date	Remarks
1	6/7/25	FOR ZDA REVIEW
2	7/1/25	PLANNING BOARD COMMENTS
3	8/7/25	PER PLANNING BOARD COMMENTS
4	10/7/25	PER PLANNING BOARD COMMENTS
5	11/11/25	REVISED FOR DOT
6	12/7/25	PLANNING BOARD
7	1/7/26	PLANNING BOARD
8	5/7/26	PLANNING BOARD
9	6/7/26	PLANNING BOARD

Project Number 2024125
Drawn By JW
Designed By BJB
Checked By BJB
Date 6/7/24
Scale AS NOTED
File Name BM_TILDEN

Sheet Title
NYSOT
SITE PLAN
& DETAILS

Sheet No.

C131

NOTES:

- INTERMEDIATE-TERM IS STATIONARY WORK THAT OCCUPIES A LOCATION MORE THAN ONE DAYLIGHT PERIOD UP TO 3 CONSECUTIVE DAYS, OR NIGHTTIME WORK LASTING MORE THAN 1 HOUR.
- WHEN A SIDE ROAD OR DRIVEWAY INTERSECTS THE ROADWAY WITHIN A WORK ZONE TRAFFIC CONTROL AREA, ADDITIONAL TEMPORARY TRAFFIC CONTROL DEVICES AND/OR FLAGGERS SHALL BE PLACED AS NEEDED. ADDITIONAL FLAGGERS SHALL BE LOCATED AT ALL INTERSECTIONS AND COMMERCIAL DRIVEWAYS LOCATED WITHIN OR NEAR THE ACTIVE WORK SPACE. NO WORK ACTIVITY, EQUIPMENT, OR STORAGE OF VEHICLES, OR MATERIAL SHALL OCCUR WITHIN THE BUFFER SPACE AT ANY TIME.
- CHANNELIZING DEVICE SPACING (CENTER TO CENTER) SHALL NOT EXCEED 20' IN THE ACTIVE WORK SPACE.
- CHANNELIZING DEVICES SHALL BE PLACED TRANSVERSELY A MINIMUM OF EVERY 800' AS SHOWN WHEN A PAVED SHOULDER HAVING A WIDTH OF 8' OR GREATER IS CLOSED FOR A DISTANCE GREATER THAN 800'.
- IF THE TRAFFIC IS EXPECTED TO QUEUE PAST THE W20-4 SIGN, A W3-4 SIGN SHOULD BE ADDED HALFWAY BETWEEN THE W20-4 AND W20-1 SIGNS.
- IF CONDITION WARRANTS, PROTECTIVE VEHICLE WITH APPROPRIATE ROLL AHEAD DISTANCE MAY BE USED IN ADVANCE OF THE WORK AREA. TO USE PROTECTIVE VEHICLE, BUFFER SPACE SHALL BE PROVIDED ACCORDINGLY, AND THE WHEELS SHALL BE ALIGNED WITH THE LANE STRIPING.
- FLAGGER SIGN (W20-7a) AND ONE LANE ROAD AHEAD SIGN W20-4i SHALL BE REMOVED, COVERED OR TURNED AWAY FROM ROAD USERS WHEN FLAGGING OPERATIONS ARE NOT OCCURRING.
- ALL FLAGGERS SHALL USE 24" (MIN.) OCTAGON SHAPED STOP/SLOW PADDLES HAVING 6" STAFF. THE PADDLE IS THE PREFERRED DEVICE, BUT THE FLAG MAY BE USED AT INTERSECTIONS WHERE THE STOP/SLOW PADDLE WOULD OFFER CONTRADICTING INFORMATION TO DRIVERS TRAVELING IN OPPOSITE DIRECTIONS/LEGS OF THE INTERSECTION OR DURING INCIDENT MANAGEMENT SITUATIONS.
- CENTERLINE CONES MAY BE ADDED TO ENHANCE THE VISIBILITY OF THE FLAGGER STATION. IF CONES ARE USED, PLACE THEM 100 FT. (MINIMUM) FROM FLAGGER.
- THE NYS-11 SIGN IS RECOMMENDED. WHEN USED, IT SHALL BE PLACED IN ADVANCE OF THE FIRST ADVANCE WARNING SIGN. THE PLACEMENT DISTANCE SHALL BE 1000' FOR POSTED SPEED LIMITS OF 45 MPH OR HIGHER, AND 300' - 500' FOR POSTED SPEED LIMITS OF LESS THAN 45 MPH.

TABLE 410-01: ADVANCE WARNING SIGN SPACING		
ROAD TYPE	DISTANCE BETWEEN SIGNS	
	A (FT.)	B (FT.)
URBAN (< 30 MPH)	100	100
URBAN (35-40 MPH)	200	200
URBAN (> 45 MPH)	350	350
RURAL	500	500
*PRECONSTRUCTION POSTED SPEED LIMIT		

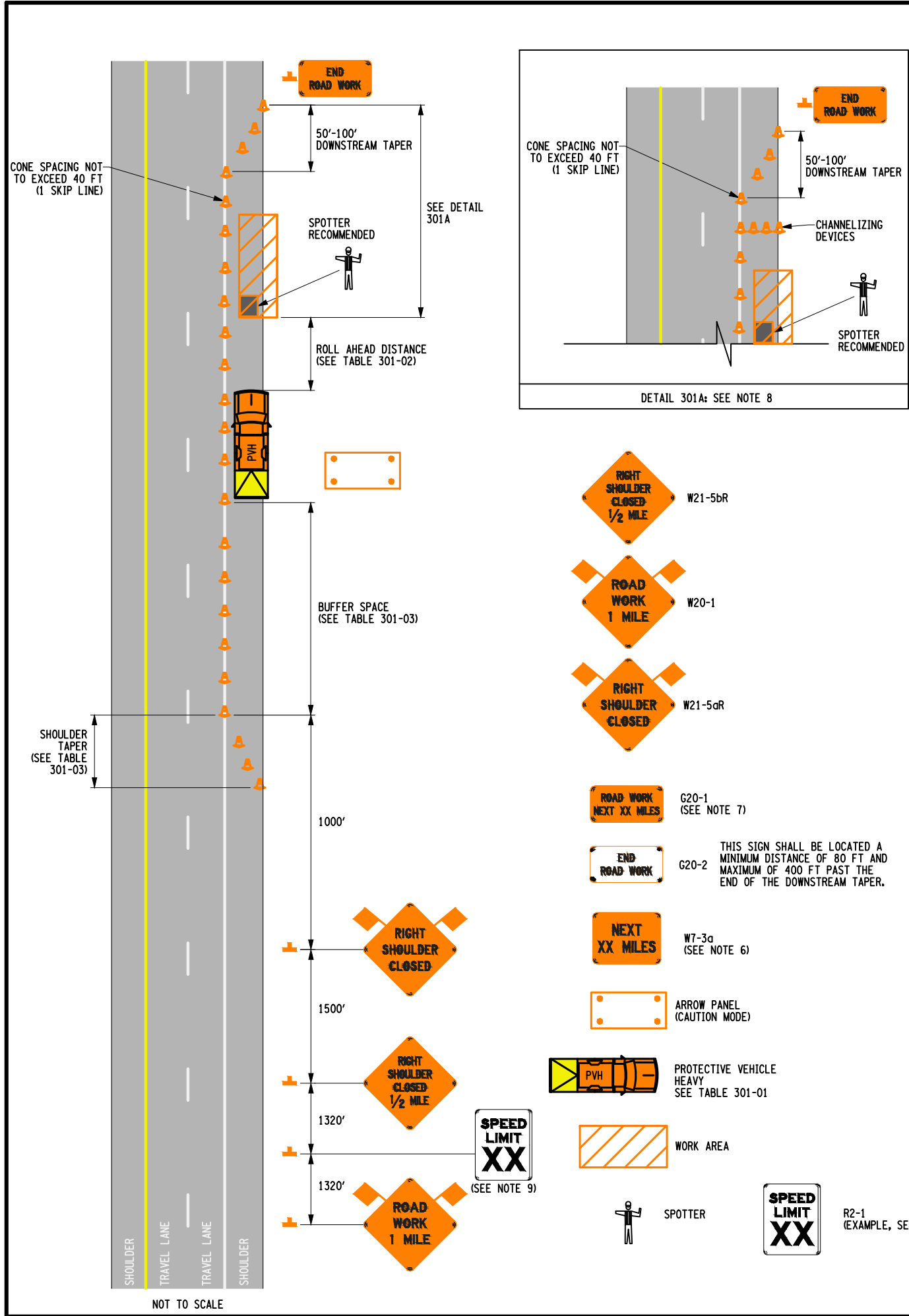
TABLE 410-02: LONGITUDINAL BUFFER SPACE AND TAPER LENGTHS						
PRECONSTRUCTION POSTED SPEED LIMIT (MPH)	LONGITUDINAL BUFFER SPACE (FT.) / # OF SKIP LINES	TAPER LENGTH: L (FT.) / # OF SKIP LINES / # OF CHANNELIZING DEVICES			SHOULDER TAPER LENGTH: L/3 (FT.) / # OF SKIP LINES / # OF CHANNELIZING DEVICES	
		FOR LANE WIDTH IN FT. (LATERAL SHIFT OF TRAFFIC FLOW PATH)			FOR SHOULDER WIDTH	
		10	11	12		
25	155/4	120/3/4	120/3/4	120/3/4	40/1/2	40/1/2
30	200/5	160/4/5	160/4/5	200/5/6	40/1/2	40/1/2
35	250/6	200/5/6	240/6/7	240/6/7	40/1/2	80/2/3
40	305/8	280/7/8	320/8/9	320/8/9	40/1/2	80/2/3
45	360/9	440/11/12	520/13/14	560/14/15	80/2/3	120/3/4
50	425/11	520/13/14	560/14/15	600/15/16	80/2/3	120/3/4
55	495/13	560/14/15	600/15/16	680/17/18	80/2/3	160/4/5

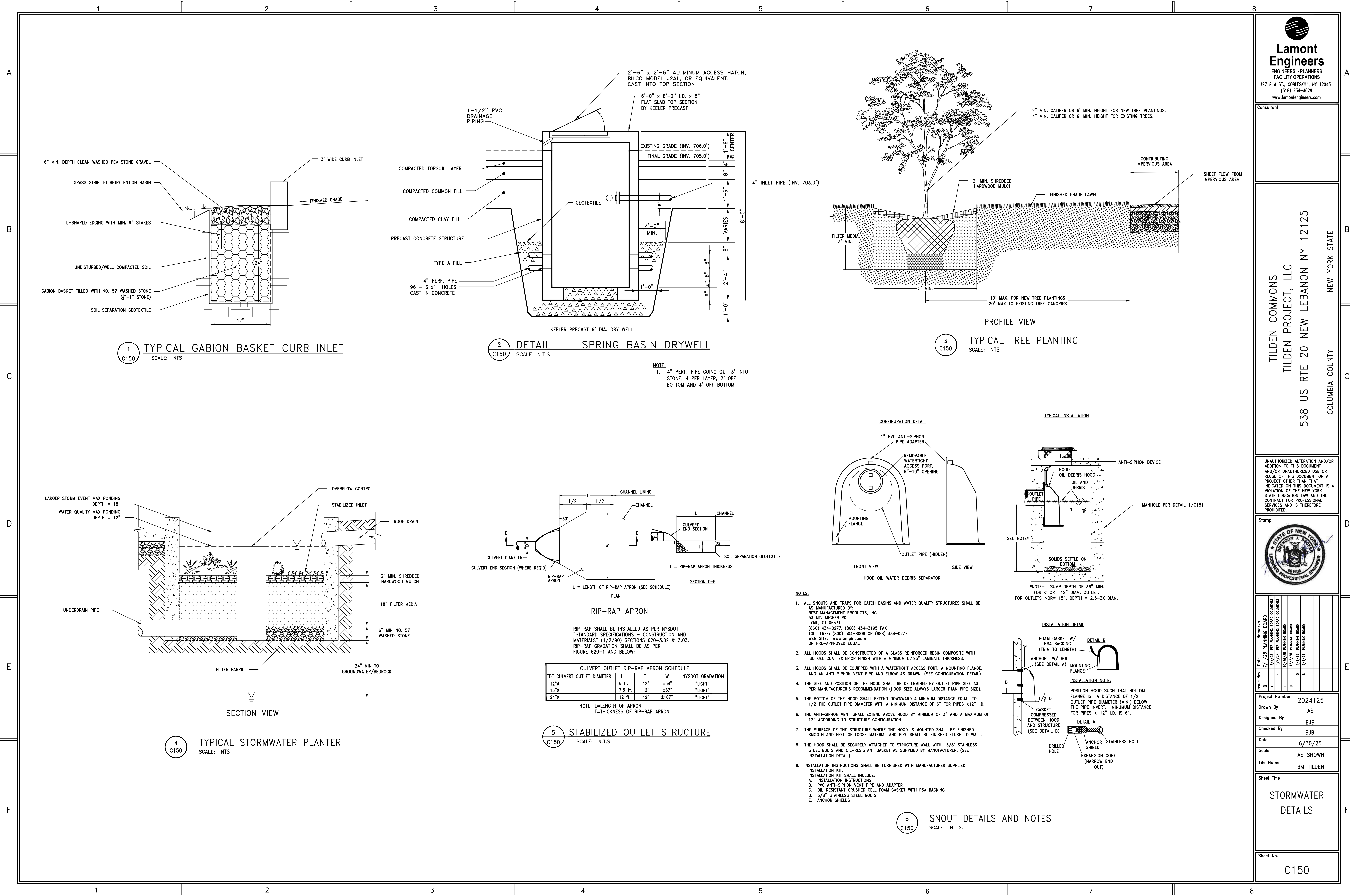
TABLE 410-03: PROTECTIVE VEHICLE REQUIREMENTS				
CLOSURE TYPE	ROAD TYPE & SPEED	NON-FREEWAY		
		> 45 MPH	35 - 40 MPH	≤ 30 MPH
LANE CLOSURE OR ENCROACHMENT	EXPOSURE CONDITIONS (1)			
	WORKERS ON FOOT OR VEHICLE EXPOSED TO TRAFFIC	P, TMIA	P, TMIA	SEE NOTE 2
SHOULDER CLOSURE OR ENCROACHMENT	OTHER HAZARDS NO WORKERS EXPOSED	P, TMIA	SEE NOTE 2	SEE NOTE 2
	WORKERS ON FOOT OR VEHICLE EXPOSED TO TRAFFIC	P, TMIA	SEE NOTE 2	SEE NOTE 2
SHOULDER CLOSURE OR ENCROACHMENT	OTHER HAZARDS NO WORKERS EXPOSED	SEE NOTE 2	SEE NOTE 2	SEE NOTE 2
	WORKERS ON FOOT OR VEHICLE EXPOSED TO TRAFFIC	P, TMIA	SEE NOTE 2	SEE NOTE 2
LEGEND				
P: PROTECTIVE VEHICLE REQUIRED FOR EACH CLOSED LANE & EACH CLOSED PAVED SHOULDER 8' OR WIDER. IF THE WORK SPACE MOVES WITHIN THE STATIONARY CLOSURE, THE PROTECTIVE VEHICLE SHALL BE REPOSITIONED ACCORDINGLY.				
TMIA: TMIA REQUIRED				
NOTES:				
1. THE EXPOSURE CONDITIONS ASSUME THERE IS NO POSITIVE PROTECTION PRESENT				
2. EITHER A PROTECTIVE VEHICLE OR THE STANDARD BUFFER SPACE SHALL BE PROVIDED				

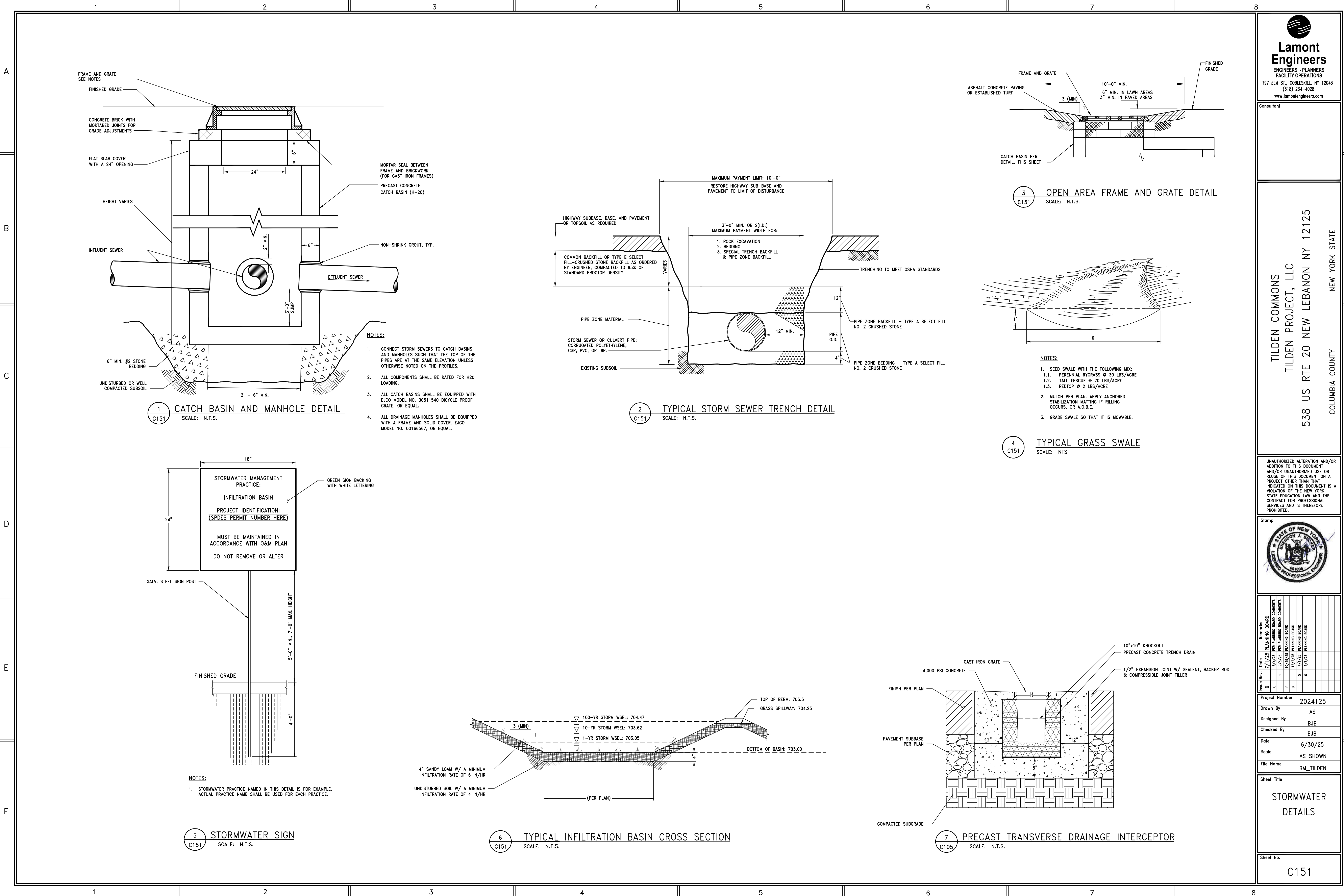
TABLE 410-04: ROLL AHEAD DISTANCE		
PRECONSTRUCTION POSTED SPEED LIMIT (MPH)	STATIONARY OPERATION	
	MIN	MAX
≥ 55	120/3	200/5
45-50	80/2	160/4
≤ 40	40/1	120/3

TABLE 410-05: CHANNELIZING DEVICE APPLICATION FOR INTERMEDIATE-TERM STATIONARY WORK ZONES									
WORK ZONE PROVISIONS	MAXIMUM DEVICE SPACING (CENTER TO CENTER)	MUTCD COMPLIANT CHANNELIZING DEVICE							
		DRUMS	STANDARD CONES	TALL CONES	EXTRA TALL CONES	TEMPORARY TUBULAR MARKERS	INTERIM TUBULAR MARKERS	VERTICAL PANELS	OVERSEEN VERTICAL PANELS
INTERMEDIATE-TERM STATIONARY WORK ZONES INVOLVE WORK THAT OCCUPIES A LOCATION FOR MORE THAN 1 DAYLIGHT PERIOD UP TO 3 CONSECUTIVE DAYS, OR NIGHTTIME WORK THAT OCCUPIES A LOCATION FOR MORE THAN 1 HOUR									
SHOULDER/MERGING/SHIFTING TAPERS	20 FT. * 40 FT.	X X							X
MARKING FOR TRANSVERSE BUMPS (1)	N/A	X (2)			X (2)			X (2)	
TRANSVERSE DEVICE WITHIN CLOSED TRAFFIC LANE AND/OR SHOULDER	800 FT.	X		X	X			X	X
REMOVAL OF EXISTING GUIDE RAIL	80 FT. 40 FT.	X X		X	X	X		X	X
NOTES: X= ALLOWED, BLANK= NOT ALLOWED									
1. - A TYPE 1 OBJECT MARKER MAY BE USED IN LIEU OF CHANNELIZING DEVICE									
2. - CHANNELIZING DEVICES SHALL BE EQUIPPED WITH A FLASHING WARNING LIGHT									
* SEE NOTE 3 ABOVE									

TABLE 410-06: REQUIRED SIGN SIZES*		
SIGN	NON-FREEWAY	FREEWAY
G20-2	36x18	48x24
W20-1	36x36	48x48
W21-5	36x36	48x48
W7-3a	24x18	36x30
G20-1	36x18	48x24
WARNING FLAG	18x18	18x18
*FREEWAY SIZES MAY BE USED ON NON-FREEWAY, IF SPACE CONSTRAINTS DO NOT EXIST.		







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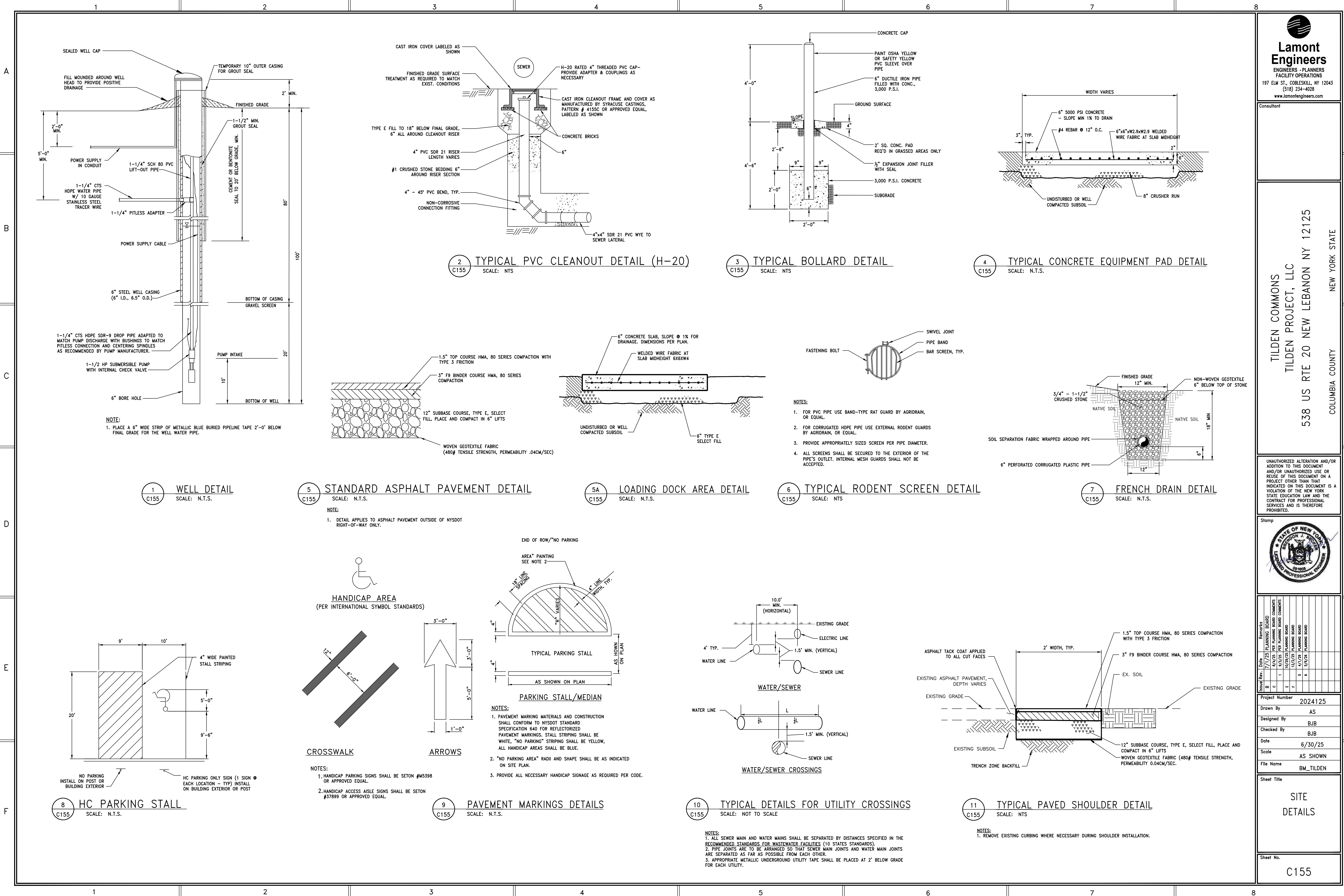
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Issue	Rev.	Date	Remarks
1	0	7/7/25	PLANNING BOARD COMMENTS
2	1	8/7/25	FOR PLANNING BOARD COMMENTS
3	1	10/9/25	PLANNING BOARD
4	1	12/2/25	PLANNING BOARD
5	1	4/7/26	PLANNING BOARD
6	1	5/6/26	PLANNING BOARD

Project Number: 2024125
Drawn By: AS
Designed By: BJB
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Date: 6/30/25
Scale: AS SHOWN
File Name: BM_TILDEN

Sheet Title
STORMWATER DETAILS

Sheet No.
C151



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3	10/9/25	PLANNING BOARD		PLANNING BOARD COMMENTS
4	12/2/25	PLANNING BOARD		PLANNING BOARD COMMENTS
5	4/7/26	PLANNING BOARD		PLANNING BOARD COMMENTS
6	5/9/26	PLANNING BOARD		PLANNING BOARD COMMENTS

Project Number: 2024125

Drawn By: AS

Designed By: BJB

Checked By: BJB

Date: 6/30/25

Scale: AS SHOWN

File Name: BM_TILDEN

Sheet Title: SITE DETAILS

Sheet No.: C155



-
- Diagram illustrating a curb ramp configuration. The ramp is labeled "CURB RAMP" and is shown with a cross-hatched pattern. The ramp is flanked by a sidewalk and a street. The width of the ramp area is indicated as "GREATER THAN 5'-0\"". The diagram also shows "GRADE BREAK" locations at the top of the ramp and at the street edge.

DETECTABLE WARNING PLACEMENT DETAIL 1

5'-0" OR LESS

CURB RAMP

GRADE BREAK

GRADE BREAK

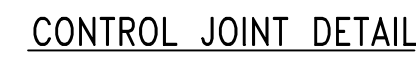
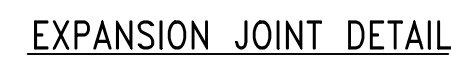
DETECTABLE WARNING PLACEMENT DETAIL 2

Diagram of a dome section showing dimensions: 0.9" - 1.4" for the base diameter, 0.2" for the height, and 50% - 60% of base diameter for the top width.

4 CONCRETE SIDEWALK DETECTABLE WARNING DETAILS
C156 SCALE: N.T.S.



1. THE DETAILS PROVIDED ARE NOT DRAWN TO SCALE. THE QUANTITY OF DOMES SPECIFIED ON THE DETECTABLE WARNING UNIT (THE DOME AND THE ENTIRE 24" LEVEL SURFACE) IS FOR ILLUSTRATION ONLY.
2. **DETECTABLE WARNING UNIT DIMENSIONS:**
THE SIZE OF THE DETECTABLE WARNING FIELD SHALL BE 24" IN THE DIRECTION OF TRAVEL AND SHALL EXTEND THE FULL WIDTH OF THE CURB RAMP OR FLUSH SURFACE, EXCLUSIVE OF SIDE FLARES.
3. **DOME ALIGNMENT:**
THE ROWS OF DOMES SHALL BE ALIGNED TO BE PERPENDICULAR OR RADIAL TO THE GRADE BREAK BETWEEN THE RAMP LANDING OR CURB RAMP AND THE STREET.
4. WHERE DOMES ARE ARRANGED RADially THEY MAY DIFFER IN DOME DIAMETER AND CENTER-TO-CENTER SPACING WITHIN THE RANGES SPECIFIED ON THIS SHEET.
5. **COLOR REQUIREMENTS:**
THE DETECTABLE WARNING FIELD SHALL BE THE COLOR SPECIFIED IN THE CONTRACT DOCUMENTS OR MEET THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS.
6. **DETECTABLE WARNINGS LOCATIONS:**
DETECTABLE WARNINGS SHALL BE LOCATED SO THAT THE EDGE OR CORNER OF THE WARNING FIELD NEAREST TO THE ROADWAY IS 5" TO 9" FROM THE FRONT OF THE CURB OR THE ROADWAY EDGE (12" WHERE TRAVELABLE CURB IS USED).



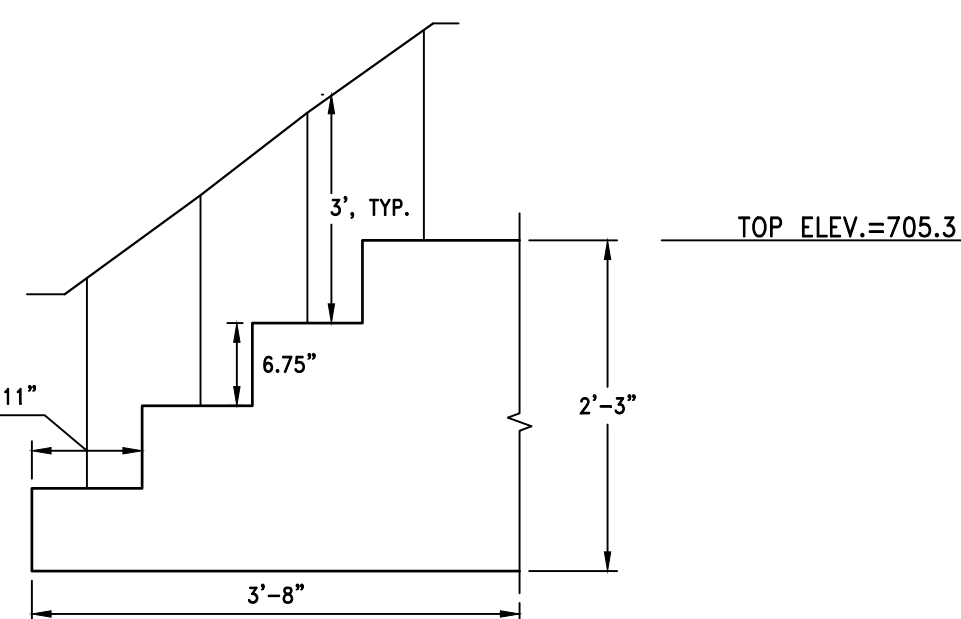
5 TYPICAL CONSTRUCTION DETAILS FOR SIDEWALKS AND CURBS
C156 SCALE: N.T.S.



-
- VARIES PER PLAN
- 1/2" BITUMINOUS IMPREGNATED EXPANSION JOINT MATERIAL
- 4" MIN. CONCRETE SIDEWALK (6" MIN. AT DRIVEWAY OPENINGS)
- 6 x 6 x W2.9 WELDED WIRE FABRIC AT SLAB MIDHEIGHT
- SLOPE 1.5%
- ESTABLISHED TURF WITH 4" MIN. TOPSOIL, WIDTH VARIES (SNOW STORAGE AREA)
- TOP, BINDER AND SUBBASE PER DETAIL THIS SHEET
- CONCRETE CURB
- 6" TYPE E FILL
- 1'-0"
- 6" TYPE E FILL (NYS DOT ITEM 203.07)
- UNDISTURBED OR WELL COMPACTED SUBSOIL
- #4 x 6" DOWELS @ 5'-0" O.C.
- NOTES:

3 C156 INTEGRAL SIDEWALK AND CURBING DETAILS SCALE: N.T.S.

- ### EXPANSION JOINT DETAIL



6 CAST IN PLACE CONCRETE STAIR DETAIL
C156 SCALE: N.T.S.

- 
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1	9/1/25	PER PLANNING BOARD COMMENTS
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F	12/2/25	PLANNING BOARD
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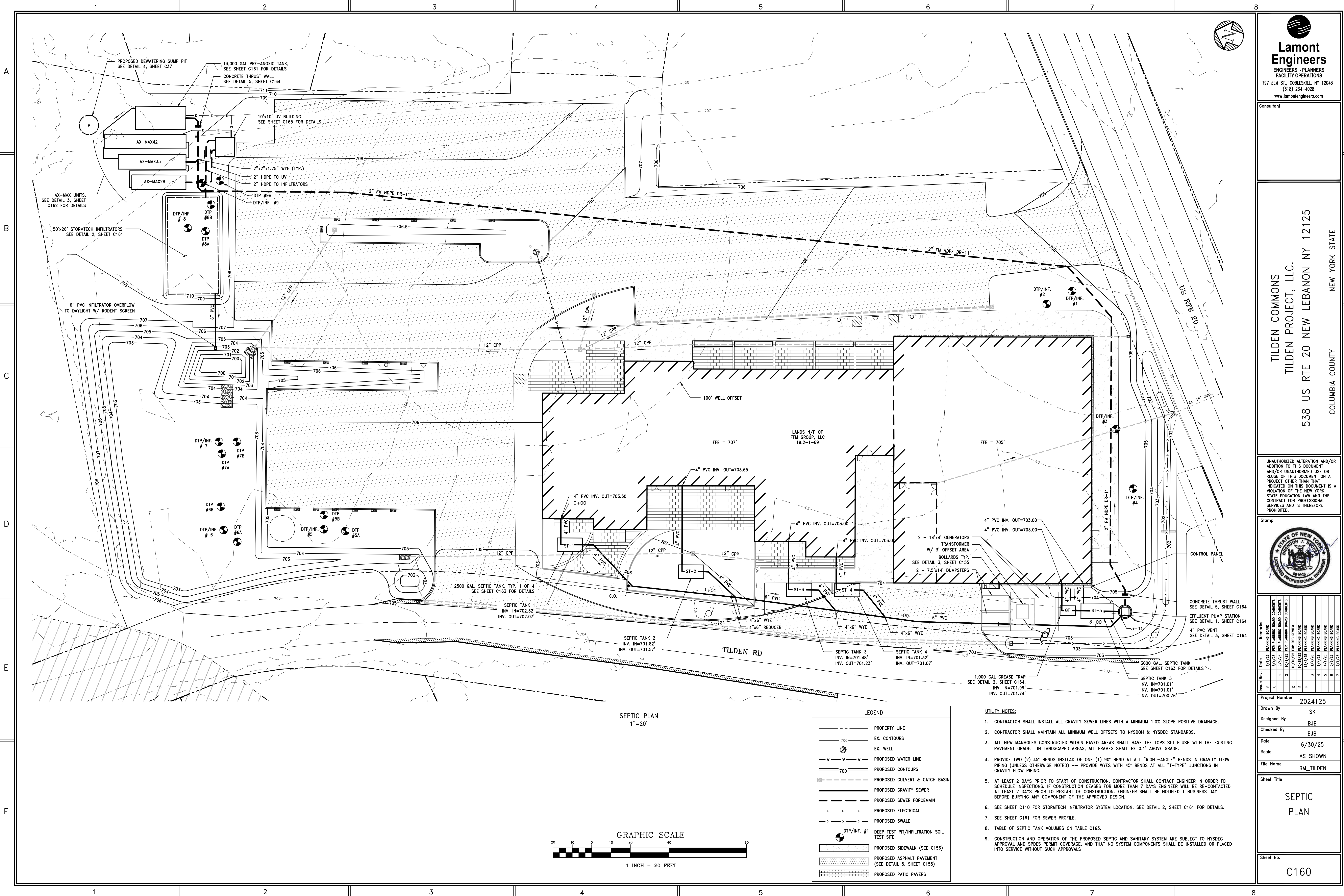
Project Number	2024125
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File Name	BM_TILDEN

Sheet Title

SITE
DETAILS

Sheet No.

C156



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5	5	1/7/26	PLANNING BOARD
6	6	5/6/26	PLANNING BOARD
7	7	7/1/26	PLANNING BOARD

Project Number 2024125
Drawn By SK
Designed By BJB
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Date 6/30/25
Scale AS SHOWN
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Sheet Title
SEPTIC PLAN
Sheet No.
C160



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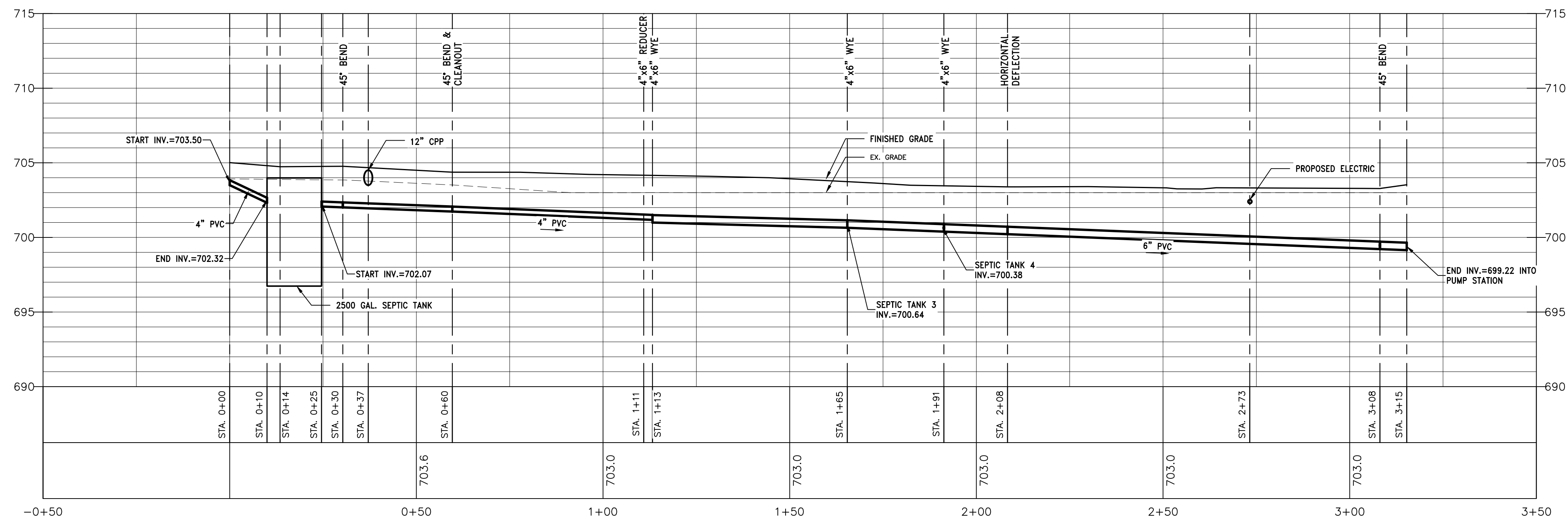
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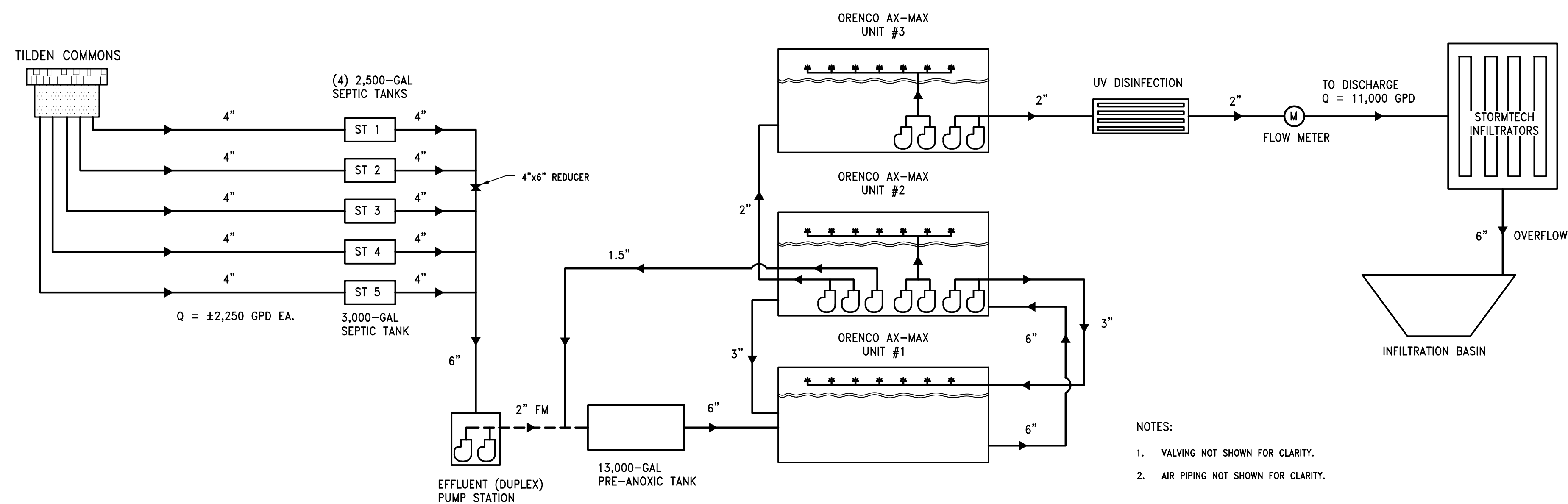
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5	0	4/1/26	PLANNING BOARD

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Scale NTS
File Name SEPTIC DETAILS

Sheet Title
**SANITARY
DETAILS**
Sheet No.
C161

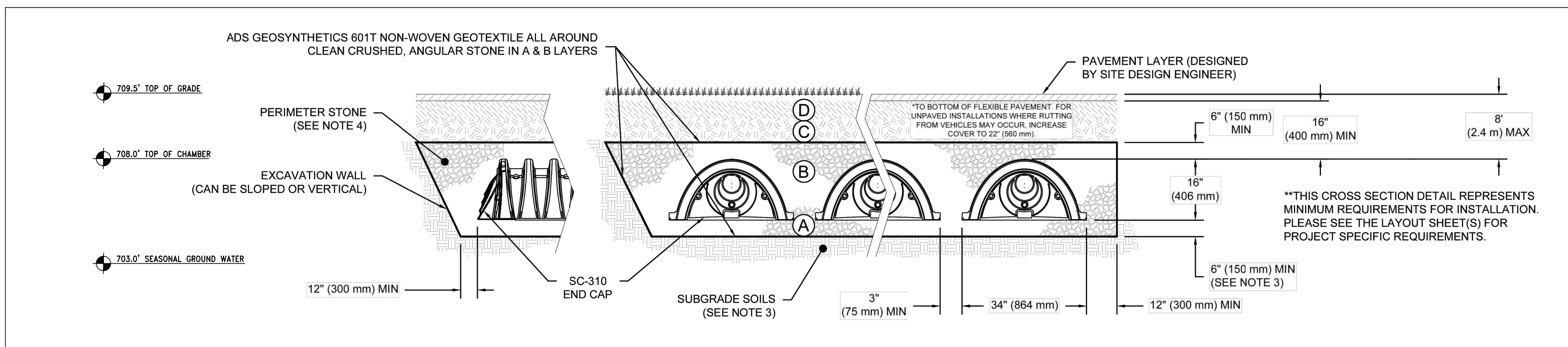


SEPTIC PROFILE
H: 1"=20' / V: 1"=5'

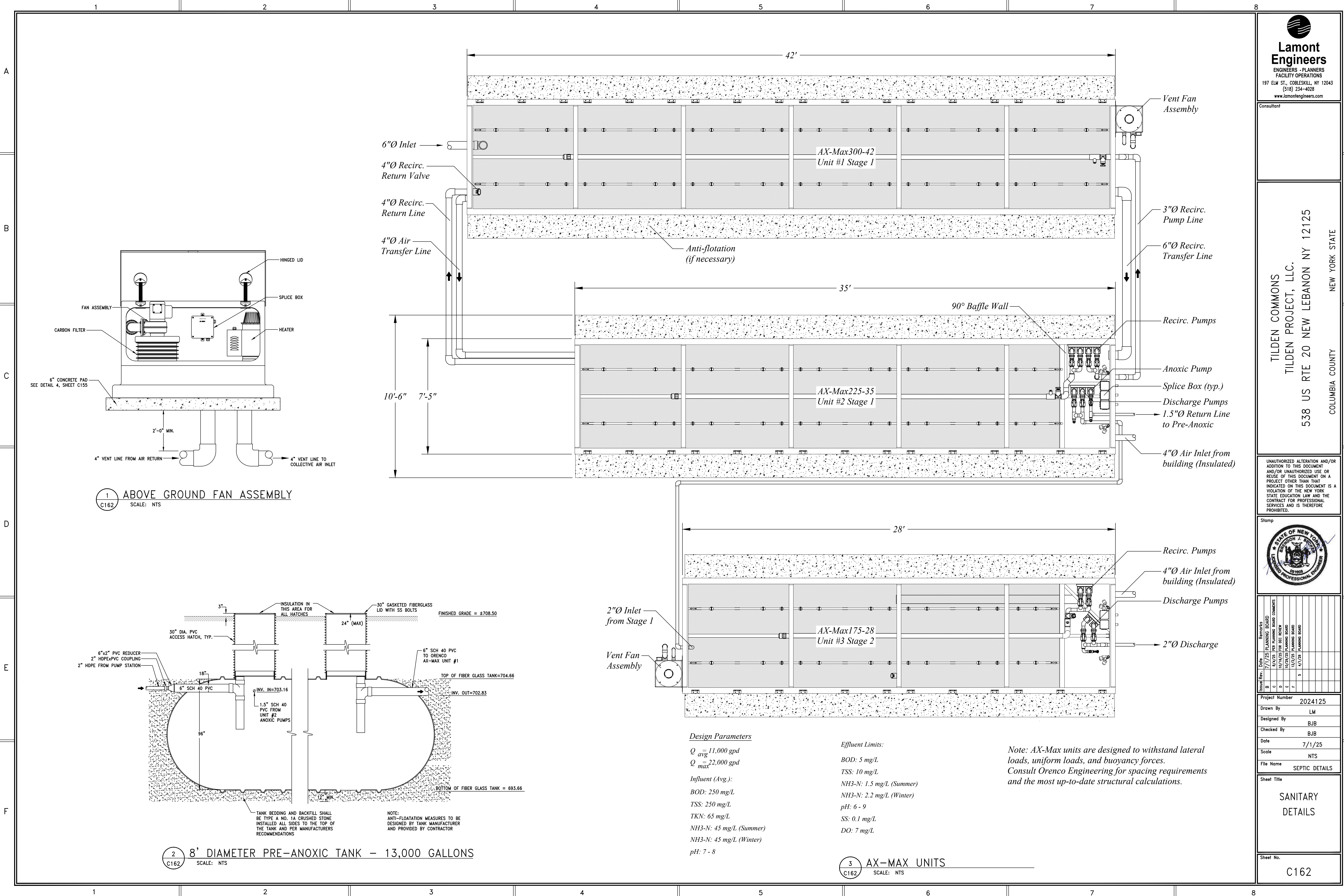


- NOTES:
- VALVING NOT SHOWN FOR CLARITY.
 - AIR PIPING NOT SHOWN FOR CLARITY.

1 PROCESS FLOW DIAGRAM
SCALE: NTS



2 TYPICAL STORMTECH DC-780 INFILTRATOR DETAIL
SCALE: NTS

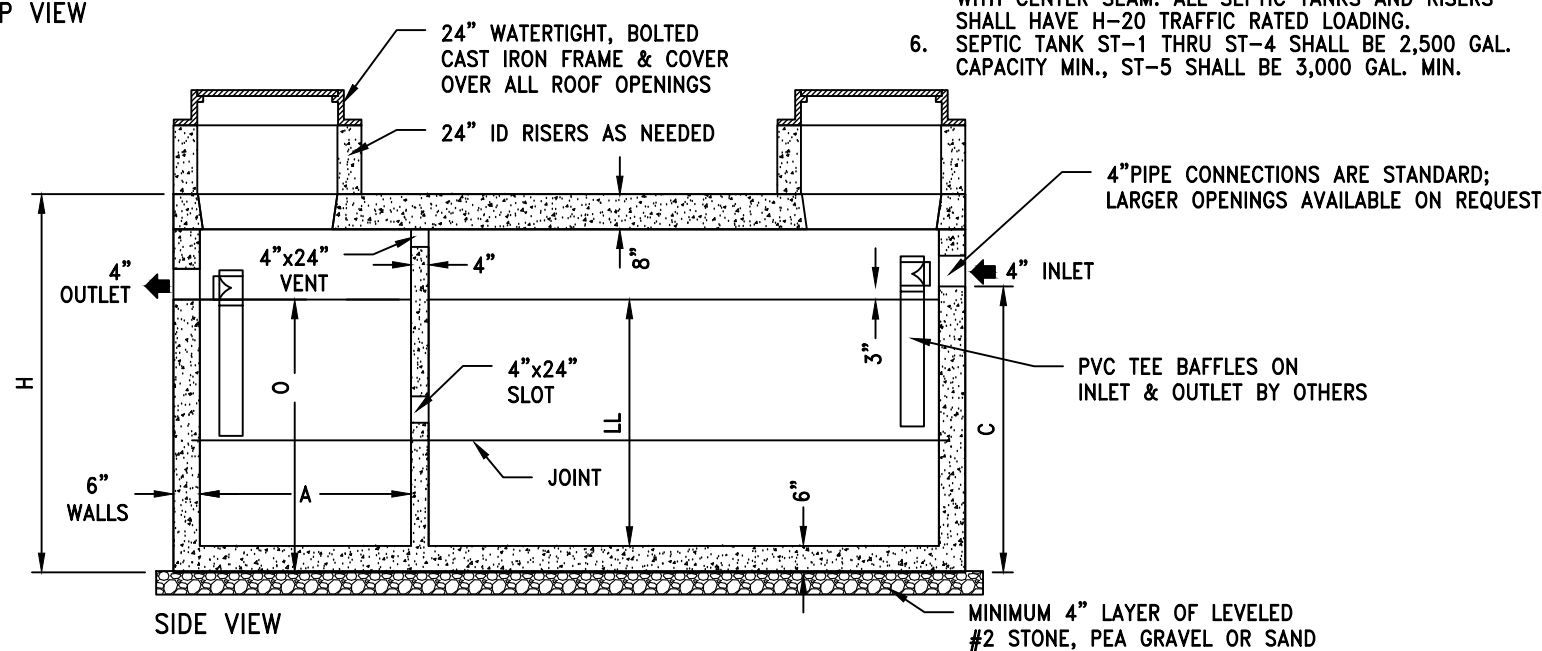
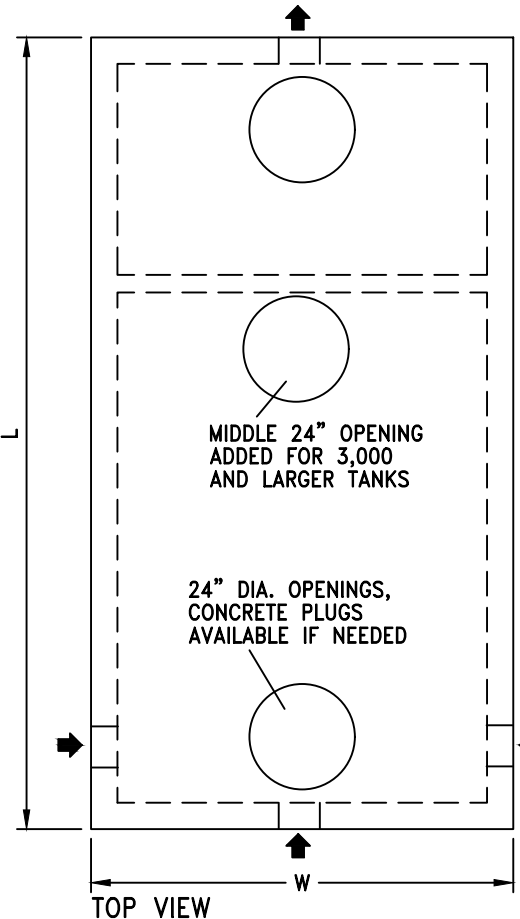


SEPTIC TANK SCHEDULE						
TANK NO.	1	2	3	4	5	
INVERT IN (FT)	703.44	703.10	702.68	702.50	701.68	
INVERT OUT (FT)	703.19	702.85	702.43	702.25	701.43	

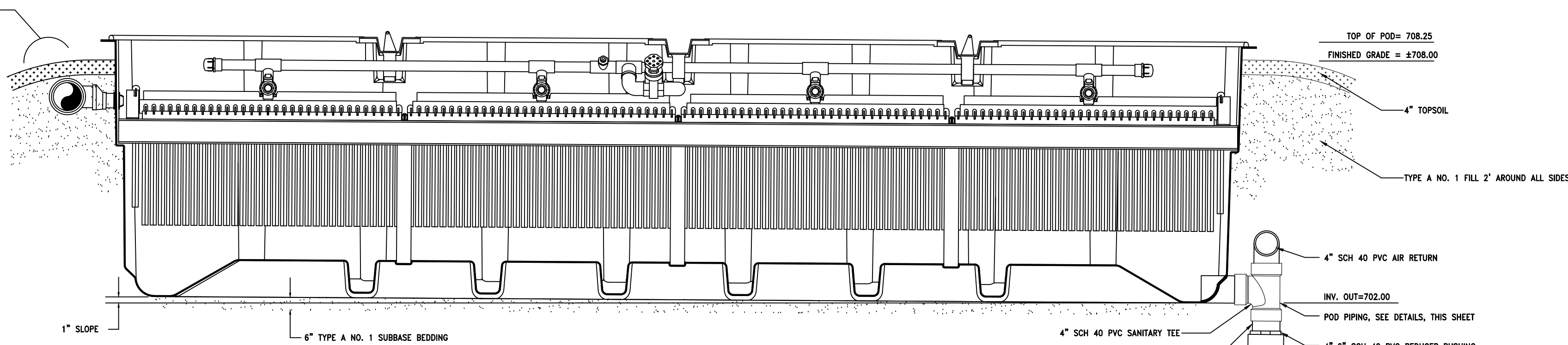
GALLONS	L	W	H	LL	A	C	O
2,500	13'	7"	6'-11"	57"	42"	69"	66"
3,000	17'	8"	6'-2"	48"	64"	61"	58"

NOTES:

- EFFLUENT OUTLET FILTERS ARE AVAILABLE AS WELL AS HIGH LEVEL ALARMS.
- GAS DEFLECTORS ARE AVAILABLE FOR 4" OUTLET PIPES.
- TANK DESIGNS BASED ON THE 2014 NYSDEC DESIGN STANDARDS.
- GREASE TRAPS ARE TYPE 2 WITH LONGER OUTLET BAFFLES THAN SEPTIC TANKS.
- 2,500 AND 3,000 GAL. TANKS ARE TWO-PIECE DESIGN WITH CENTER SEAM. ALL SEPTIC TANKS AND RISERS SHALL HAVE H=20 TRAFFIC RATED LOADING.
- SEPTIC TANK ST-1 THRU ST-4 SHALL BE 2,500 GAL. CAPACITY MIN., ST-5 SHALL BE 3,000 GAL. MIN.



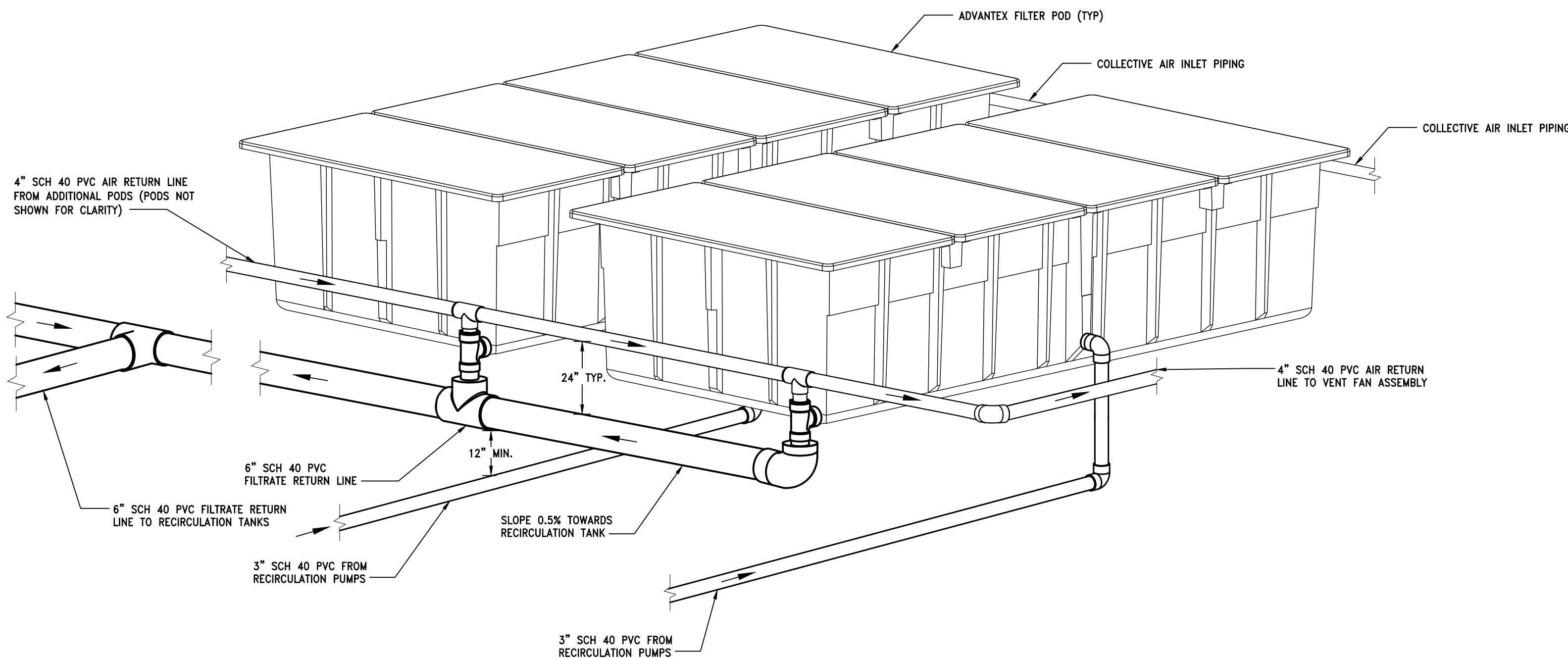
1 TYPICAL SEPTIC TANK DETAIL - 2,500 GAL TO 3,000 GAL
SCALE: NTS



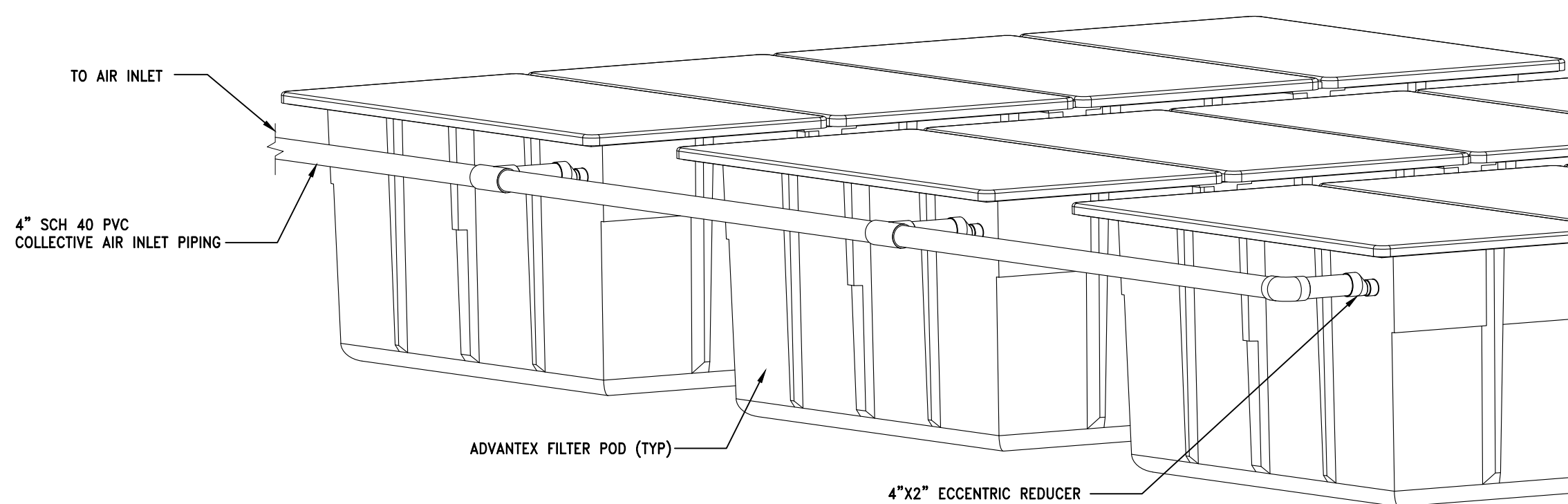
NOTE:

TANK MANUFACTURER SHALL DESIGN AND CONTRACTOR SHALL PROVIDE APPROPRIATE ANTI-FLOATATION MEASURE.

2 ADVANTEX FILTER DETAIL
SCALE: NTS



3 TYPICAL POD PIPING DETAIL
SCALE: NTS



4 COLLECTIVE AIR INLET PIPING
SCALE: NTS

Consultant

TILDEN COMMONS
TILDEN PROJECT, LLC.
538 US RTE 20 NEW LEBANON NY 12125
COLUMBIA COUNTY NEW YORK STATE

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Issue Rev.	Date	Remarks
1	7/1/25	PLANNING BOARD COMMENTS
2	10/1/25	FOR DEC REVIEW
3	10/29/25	PLANNING BOARD
4	12/2/25	PLANNING BOARD
5	3/4/26	PLANNING BOARD
6	4/1/26	PLANNING BOARD

Project Number	2024125
Drawn By	LM
Designed By	BJB
Checked By	BJB
Date	7/1/25
Scale	NTS
File Name	SEPTIC DETAILS

Sheet Title
SANITARY
DETAILS

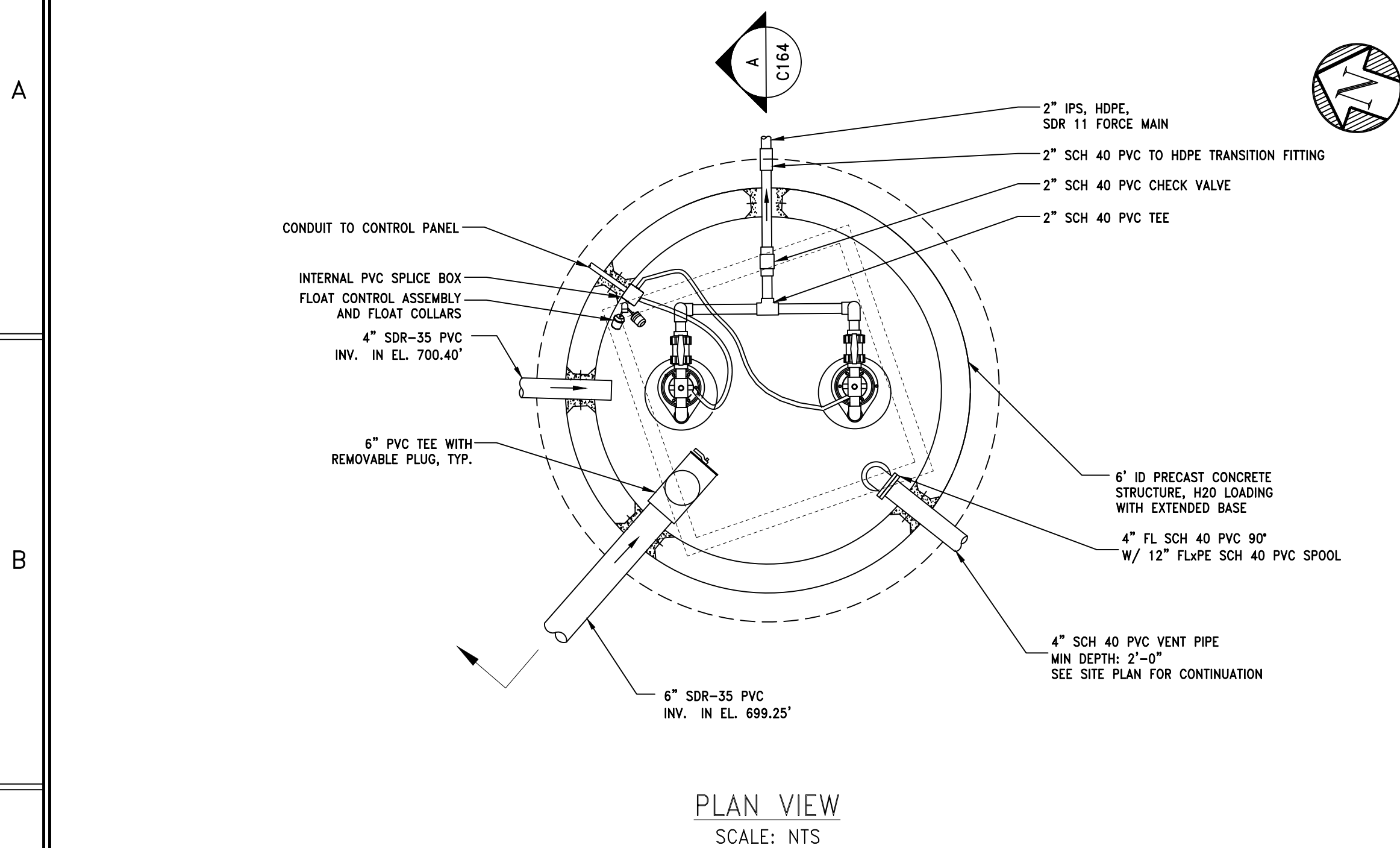
Sheet No.
C163



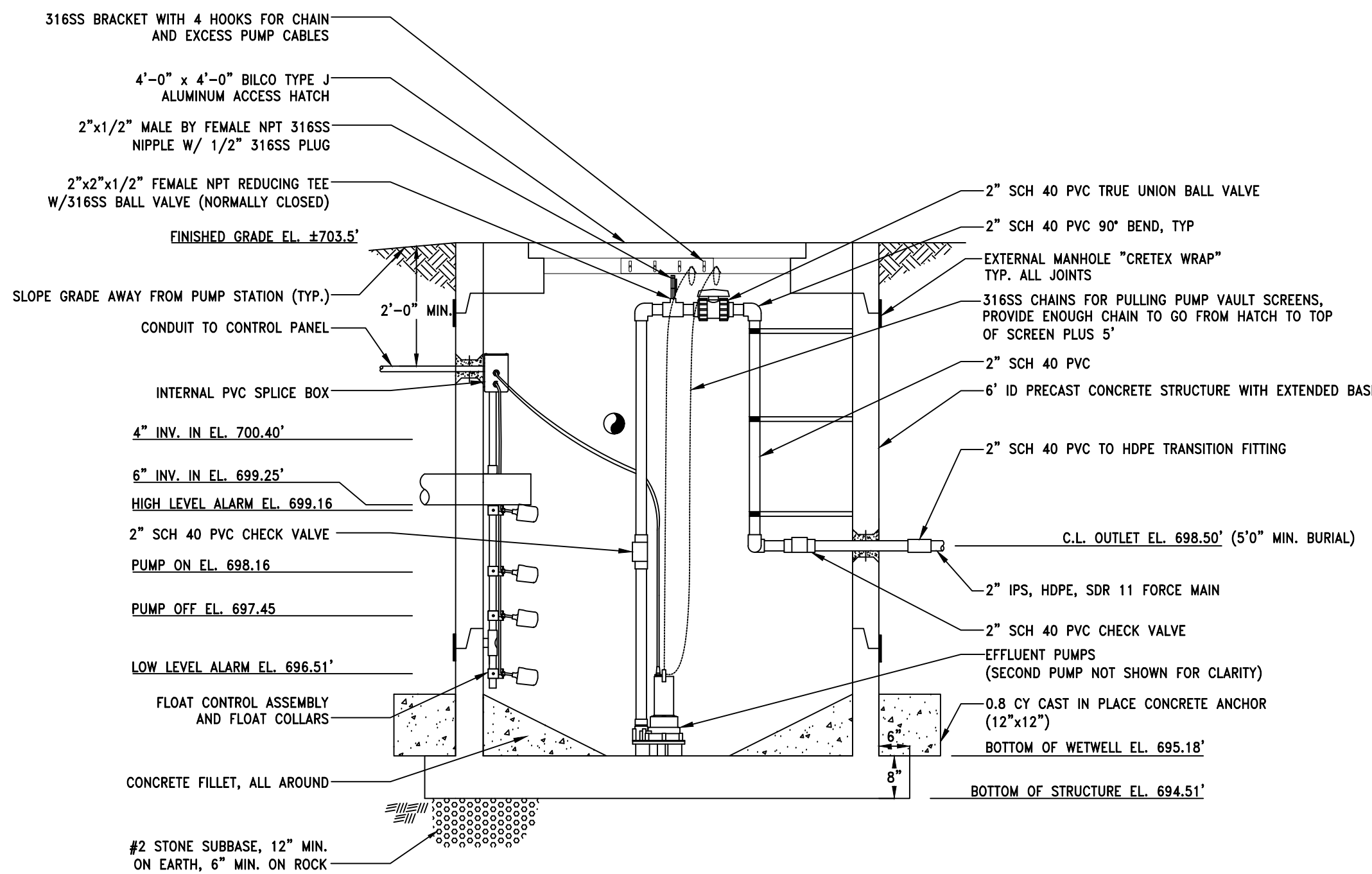
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4	12/2/25	PLANNING BOARD
5	4/1/26	PLANNING BOARD

Project Number 2024125
Drawn By LM
Designed By BJB
Checked By BJB
Date 7/1/25
Scale NTS
File Name SEPTIC DETAILS

Sheet Title
SANITARY
DETAILS



PLAN VIEW
SCALE: NTS



A-A SECTION VIEW

PUMP STATION NOTES:

- CONTRACTOR SHALL COORDINATE WITH OWNER REGARDING ON-SITE ELECTRICAL SERVICES PRIOR TO ORDERING EQUIPMENT.
- THE PUMPS AND PANEL LISTED BELOW WERE SELECTED WITH THE ASSUMPTION THAT THE ELECTRICAL SERVICE WILL BE 120V/1P.
- CONTRACTOR SHALL PROVIDE ALL FITTINGS REQUIRED FOR A COMPLETE INSTALLATION.
- PUMPS SHALL BE 1/2 HP FL51A SUBMERSIBLE EFFLUENT PUMPS BY LIBERTY PUMPS, OR APPROVED EQUAL.
- DESIGN PUMPING CAPABILITY: 30 GPM @ 24" TDH, TYP. EACH PUMP.
- PROVIDE LIBERTY DUPLEX CONTROL PANEL, MODEL AE24L=4, OR APPROVED EQUAL. COORDINATE PANEL LOCATION WITH OWNER.
- PROVIDE LIBERTY MODEL K001347 FLOAT SWITCHES, OR APPROVED EQUAL.
- FLOAT RACKS AND VALVES SHALL BE ACCESSIBLE FROM ACCESS HATCH WITHOUT ENTERING TANK.

PUMP STATION STARTUP NOTES:

- STARTUP: CONTRACTOR SHALL START PUMPS/MOTORS AND MAKE ADJUSTMENTS REQUIRED TO PLACE THE SYSTEM IN PROPER OPERATING CONDITION.
- CONTRACTOR SHALL CONDUCT A FLOW TEST FOR EACH PUMP TO DETERMINE THAT THE PUMPS ARE PERFORMING ACCORDING TO THEIR RESPECTIVE PUMP CURVE AND SYSTEM CURVE. CONTRACTOR SHALL PROVIDE ALL MATERIALS (INCLUDING WATER) AND LABOR NECESSARY TO PERFORM THE PUMP FLOW TESTING. CONTRACTOR SHALL PROVIDE THE MEANS AND METHODS FOR MEASURING THE AVERAGE DISCHARGE INTO THE FORCE MAIN FOR EACH PUMP UNDER NORMAL OPERATING CONDITIONS. ONE ACCEPTABLE METHOD WOULD BE TO MEASURE THE CHANGE IN THE WATER ELEVATION IN THE PUMP STATION WET WELL AT A SPECIFIC TIMING INTERVAL.

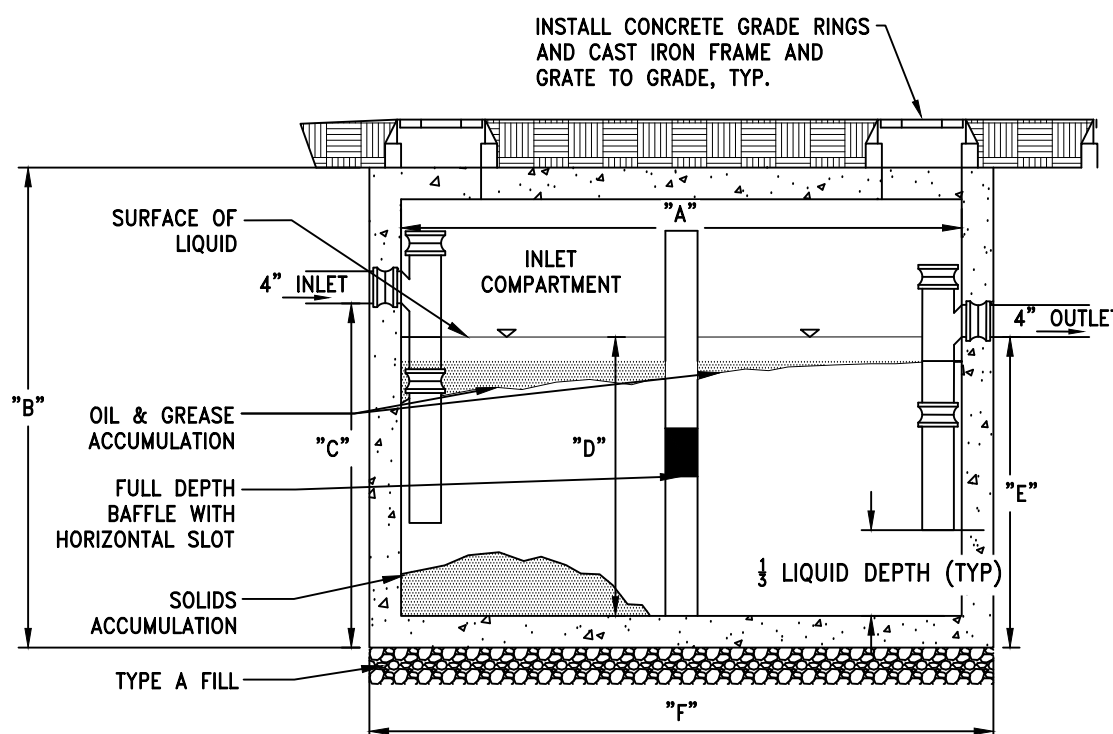
1
C164

EFFLUENT PUMP STATION DETAIL

SCALE: 3/8" = 1'-0"

TANK SIZE (GAL.)	DETAIL	A	B	C	D	E	F
500	1	6'-1 3/4"	4'-0"	4'-0"	3'-0"	3'-0"	0'-7"
1000	1	7'-6 3/4"	5'-0"	4'-4"	3'-10"	4'-1"	8'-0"

GREASE TRAP DIMENSION CHART



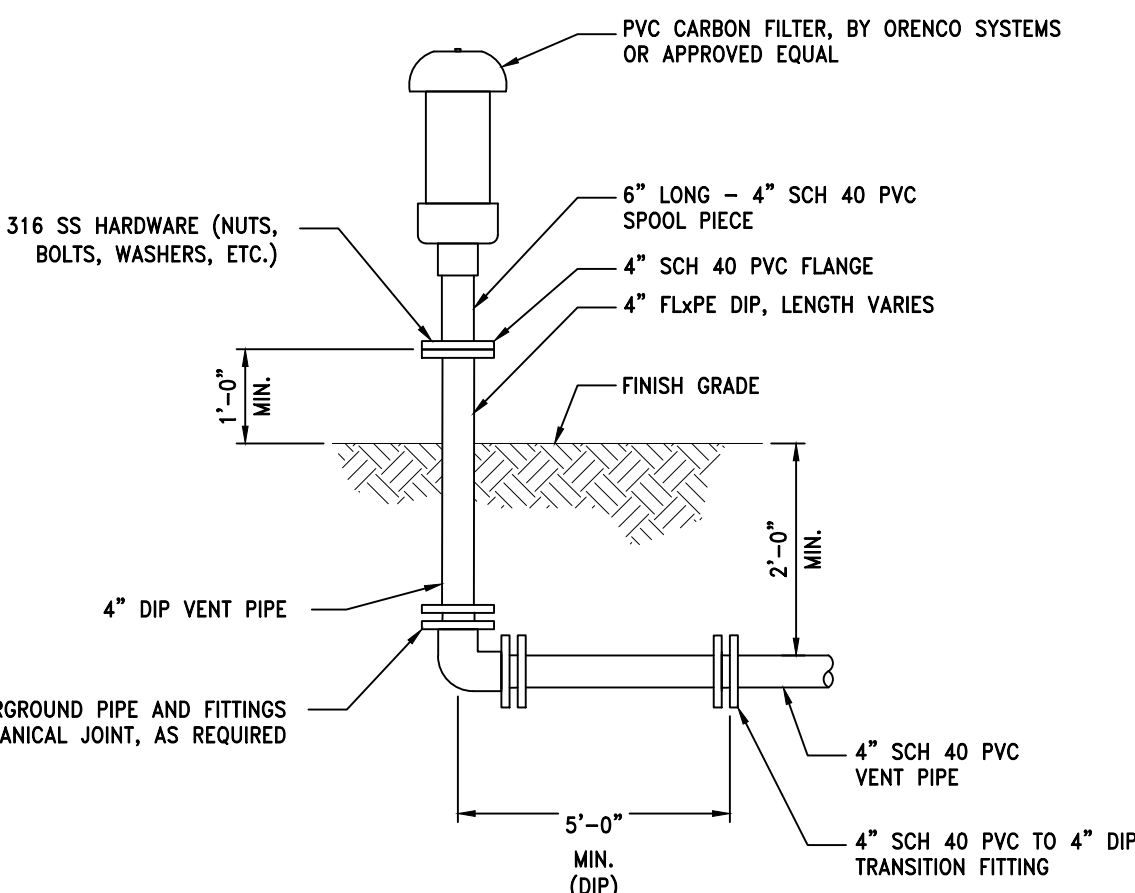
NOTES:

- GREASE TRAP SIZING: PER NEW YORK STATE DESIGN STANDARDS FOR INTERMEDIATE SIZED WASTEWATER TREATMENT SYSTEMS MARCH 2014, TABLE D-1.
- THE OUTLET TEE SHALL HAVE A VERTICAL PIPE RISE 6" ABOVE THE FLOW LINE AND PIPE DROP EXTENDING DOWN TO TYPICALLY THE BOTTOM THIRD OF THE TANK, BUT NO CLOSER THAN 12" FROM THE TANK FLOOR.
- THE OUTLET TEE SHALL BE LOCATED NO FARTHER THAN 6" FROM THE OUTLET END WALL.
- TEES SHALL BE LOCATED DIRECTLY UNDER ACCESS MANHOLES.
- GREASE TRAPS SHALL HAVE ACCESS OPENINGS WITH A 24-INCH MINIMUM DIMENSION OVER THE INFLUENT AND EFFLUENT TEE.
- THE HORIZONTAL SLOT BETWEEN COMPARTMENTS SHALL BE LOCATED IN THE MIDDLE 25 PERCENT OF THE DISTANCE BETWEEN THE TANK FLOOR AND THE WATERLINE, AND BE A MINIMUM AREA OF 50 SQUARE INCHES.
- THE INLET COMPARTMENT OF TANK SHALL HAVE A CAPACITY OF 65 TO 75 PERCENT OF THE TOTAL CAPACITY.
- THE FULL DEPTH BAFFLE SHALL EXTEND FROM THE TANK BOTTOM TO SIX INCHES ABOVE THE FLOW LINE AND SHOULD NOT EXTEND TO THE ROOF INTERIOR.
- BED GREASE TRAP ON 12" TYPE A FILL.
- GREASE TRAP INLET PIPE SHALL BE SET AT 3" FROM THE TANK INTERIOR.
- PROVIDE FLEXIBLE BOOT FOR ALL PIPE PENETRATIONS.

2
C164

GREASE TRAP DETAIL

SCALE: NTS



3
C164

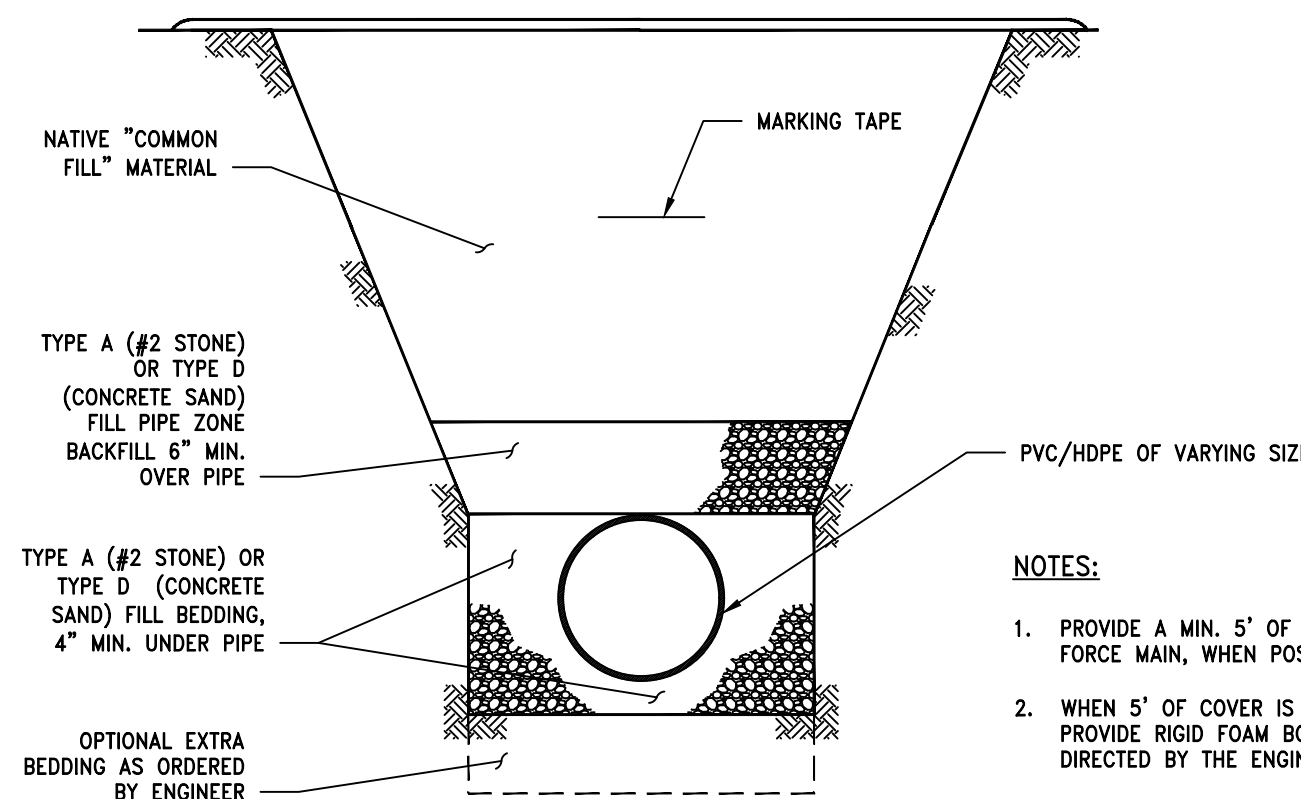
SEWER VENT DETAIL

SCALE: NTS

NOTE:

- WHERE CALLED OUT ON PLANS, PROVIDE BOLLARDS AROUND VENT FOR PROTECTION.
- COORDINATE VENT RISER LOCATION WITH OWNER AND ENGINEER.

POLY VINYL CHLORIDE PIPE (SDR-35)								
PIPE DIMENSIONS 1			TRENCH DIMENSIONS					
NOMINAL SIZE I.D.	MIN. WALL THICKNESS 1	BARREL O.D. (AVG.) Bc	I.D./4	Bc/8	Bc/6	Bc/4	Bc/2	Bd (FT.)
4"	0.120"	4.215"	1"	1"	1"	1"	2"	3.0'
6"	0.180"	6.275"	2"	1"	2"	2"	4"	3.0'
8"	0.240"	8.400"	2"	2"	2"	3"	5"	3.0'



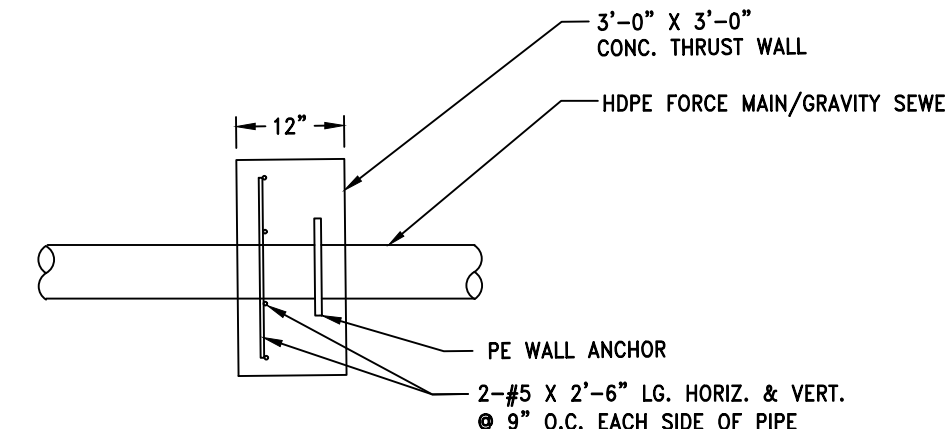
NOTES:

- PROVIDE A MIN. 5' OF COVER ABOVE HDPE FORCE MAIN, WHEN POSSIBLE.
- WHEN 5' OF COVER IS NOT POSSIBLE, PROVIDE RIGID FOAM BOARD INSULATION AS DIRECTED BY THE ENGINEER.

4
C164

TYPICAL BEDDING DETAILS FOR PVC/HDPE PIPE

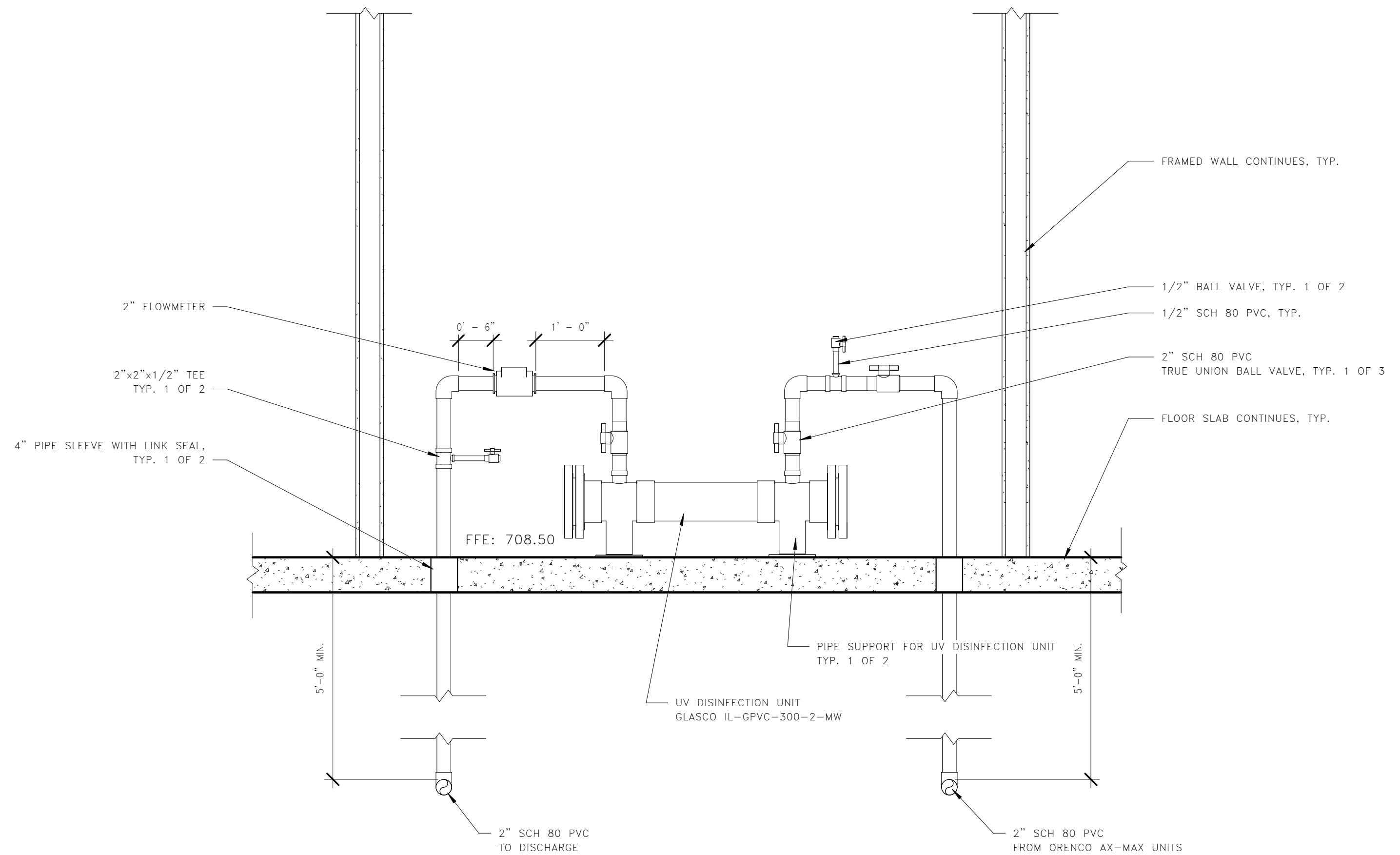
SCALE: NTS



5
C164

HDPE THRUST WALL DETAIL

SCALE: N.T.S.



UV SYSTEM SECTION
3/4" = 1'-0"

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

Sheet No.

C165

Exhibit D



Stormwater Pollution Prevention Plan

TILDEN PROJECT LLC TILDEN COMMONS 538 US ROUTE 20, NEW LEBANON

COLUMBIA COUNTY

NEW YORK STATE

Prepared: July 2025

Revision A: September 2025

Revision B: October 2025

Revision C: December 2025

Revision D: April 2026



Lamont Engineers

ENGINEERS • PLANNERS • FACILITY OPERATIONS

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Cobleskill, New York 12043
(518) 234-4028



Table of Contents

1.	PROJECT INFORMATION	1
1.1.	INTRODUCTION	1
1.2.	PROJECT LOCATION, DESCRIPTION AND SCOPE	1
1.3.	SWPPP CONTACTS	2
2.	EXISTING AND PROPOSED MAPPING AND PLANS	2
2.1.	VICINITY MAP AND PROJECT BOUNDARY	2
2.2.	EXISTING AND PROPOSED TOPOGRAPHY AND LAND USE.....	2
2.3.	MAP AND DESCRIPTION OF SOILS FROM USDA SOIL SURVEY AND ON-SITE SOIL TESTING	2
2.4.	BOUNDARIES OF EXISTING VEGETATION AND PROPOSED LIMITS OF CLEARING	3
2.5.	WETLANDS AND WATERCOURSES	3
2.6.	NAME AND LOCATIONS OF RECEIVING WATERS	3
2.7.	EXISTING AND PROPOSED UTILITIES (SEWER, WATER, GAS, ETC) AND EASEMENTS	3
2.8.	LOCATION OF FLOODPLAIN/FLOODWAY LIMITS	3
2.9.	OTHER ENVIRONMENTALLY SENSITIVE AREAS.....	3
2.10.	HISTORIC PRESERVATION	3
2.11.	CLIMATE CHANGE CONSIDERATIONS	4
2.12.	OTHER PERMITS AND APPROVALS.....	4
3.	CONSTRUCTION EROSION AND SEDIMENT CONTROL	4
3.1.	TEMPORARY AND PERMANENT STRUCTURAL AND VEGETATIVE MEASURES	4
3.2.	DIMENSIONS, INSTALLATION DETAILS, AND MATERIAL SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL PRACTICES	5
3.3.	DESIGN ELEMENTS NOT IN CONFORMANCE WITH THE NEW YORK STATE STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL	5
3.4.	INSPECTION SCHEDULE AND OPERATION AND MAINTENANCE SCHEDULE OF ALL EROSION AND SEDIMENT CONTROL PRACTICES.....	5
3.5.	STAGING AREAS, EQUIPMENT STORAGE AREAS, BORROW PITS, WASTE AREAS, AND CONCRETE WASHOUT AREAS.....	5
3.6.	CONSTRUCTION PHASING AND SEQUENCING PLANS	5
3.7.	POLLUTION PREVENTION MEASURES.....	6
4.	STORMWATER SITE PLANNING, PRACTICE SELECTION AND DETAILS	9
4.1.	SITE PLANNING	9
4.2.	DETERMINE WATER QUALITY TREATMENT VOLUME (WQv).....	9
4.3.	RUNOFF REDUCTION BY APPLYING GREEN INFRASTRUCTURE TECHNIQUES AND STANDARD STORMWATER MANAGEMENT PRACTICES WITH RRV CAPACITY	10
4.4.	APPLY STANDARD STORMWATER MANAGEMENT PRACTICES TO ADDRESS REMAINING WATER QUALITY VOLUME	10
4.5.	APPLY VOLUME PEAK RATE CONTROL PRACTICES IF NEEDED TO MEET REQUIREMENTS	10
4.6.	CONVEYANCE CRITERIA.....	11
4.7.	IDENTIFICATION OF DESIGN ELEMENTS NOT IN CONFORMANCE WITH THE NEW YORK STATE STORMWATER MANAGEMENT DESIGN MANUAL	11
4.8.	DESCRIPTIONS, DIMENSIONS, MATERIAL SPECIFICATIONS AND INSTALLATION DETAILS FOR POST-CONSTRUCTION STORMWATER CONTROL PRACTICES.....	12
4.9.	LONG TERM OPERATION AND MAINTENANCE OF POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES	12

APPENDICES

ENOI	1.1
LOCATION MAP	1.2
CONTRACTOR'S CERTIFICATION FORM	1.3
SOIL MAP & DESCRIPTIONS.....	2.3
DEC ENVIRONMENTAL RESOURCE MAPS	2.6
CONSTRUCTION INSPECTION LOG BOOK	3.9
RUNOFF REDUCTION WORKSHEETS AND WQV	4.3
WATERSHED SCHEMATICS AND HYDROLOGIC CALCULATIONS	4.5
OPERATION AND MAINTENANCE MANUAL	4.9

OTHER ITEMS MADE A PART OF THIS REPORT BY REFERENCE BUT PROVIDED UNDER SEPARATE COVER

CONTRACT DRAWINGS ENTITLED "TILDEN COMMONS", BY LAMONT ENGINEERS DATED JUNE 2025.

1. Project Information

1.1. Introduction

The Stormwater Pollution Prevention Plan (SWPPP) is prepared in accordance with the requirements of Article 17, Titles 7, 8 and Article 70 of the New York State Environmental Conservation Law to obtain coverage by the SPDES General Permit for Stormwater Discharge from Construction Activities (GP-0-25-001).

A copy of the electronic Notice of Intent (eNOI) is presented in Appendix 1.1.

The design standards and practices outlined herein are in accordance with the *New York State Standards and Specifications for Erosion and Sediment Control (Blue Book)*, dated November 2016 and the *New York State Stormwater Management Design Manual (Design Manual)*, dated July 31, 2024.

The report addresses both construction and post-construction measures to control and mitigate stormwater runoff for site preparation and infrastructure construction of the project.

1.2. Project Location, Description and Scope

The project, *Tilden Commons*, is located at 538 US-20 in the Town of New Lebanon in Columbia County. The site is approximately 3.2 acres and currently contains a commercial business.

The project consists of the construction of a single three-story building fronting US Route 20/22 on a 3 acre lot in downtown New Lebanon. The building will house a roughly 10,000 sf grocery store, a 2,000 sf community and space and 41 apartments. The project will also include site grading, the construction of a driveway and parking area, the installation of drainage and storm water practices, drilling a new well and the construction of an on-site wastewater treatment system.

The UTM 18T coordinates of the site are E: 632045, N: 4702801. The work occupies a parcel identified as tax parcel 19.2-1-69. A Location map is provided in Appendix 1.2.

Soil disturbing activities include:

- Building and parking lot demolition
- Clearing and grubbing of existing ground cover within the area to be disturbed for construction.
- Removal and stockpiling of topsoil.

- Excavations for the installation of underground utilities and foundations
- Well drilling
- Paving
- Alteration of drainage patterns and construction of stormwater management facilities.
- Landscaping, topsoiling and seeding of disturbed areas.

1.3. SWPPP Contacts

Owner/Operator

Tilden Project LLC
58 Pool Hill Road
New Lebanon, NY 12125
917-488-1061
joshuanyoung@gmail.com

Engineer

Lamont Engineers
PO Box 610
197 Elm Street
Cobleskill, NY 12043
Brendon Becker, P.E.
Principal Engineer
518-234-4028
bbecker@lamontengineers.com

A copy of the Contractor's Certification Form is provided in Appendix 1.3.

2. EXISTING AND PROPOSED MAPPING AND PLANS

2.1. Vicinity Map and Project Boundary

A general plan of the project is shown on the Contract Drawings, provided under separate cover, where the project boundary is shown in more detail.

2.2. Existing and Proposed Topography and Land Use

The project site consists of an existing commercial building with asphalt and gravel driveways and parking, as well as open lawn space.

The site topography generally slopes to the south at very shallow slopes.

2.3. Map and Description of Soils from USDA Soil Survey and On-site soil testing

Information made available through the US Department of Agriculture Soil and Water Conservation Service and the Columbia County Soil and Water

District identifies that the soils within the project area are Occum Loam (Om), hydrologic soil group B. Soils testing conducted on the site support this information, as the soils are generally well-drained and composed of sandy loam. For the purposes of this report, the entire site was designed as containing hydrologic soil group C soils.

Soil maps and descriptions can be found in Appendix 2.3.

2.4. *Boundaries of Existing Vegetation and Proposed Limits of Clearing*

A limit of disturbance as well as existing vegetation limits are shown on the Contract Drawings.

2.5. *Wetlands and Watercourses*

No wetlands or watercourses have been identified on the project site.

2.6. *Name and Locations of Receiving Waters*

All runoff from the project area leaves the site through an existing drainage conveyance system, which discharges on the south side of US-20. It is believed that all runoff is tributary to the Wyomanock Creek, which is about 1,100 feet south of the project site.

NYSDEC Environmental Resource Maps are included in Appendix 2.6

2.7. *Existing and Proposed Utilities (Sewer, Water, Gas, etc) and Easements*

There are minimal existing underground utilities at the project site. New utilities for the proposed project will be installed, including sewer, water, and electrical. There are no known existing utility easements; there are no proposed utility easements.

2.8. *Location of Floodplain/Floodway Limits*

There are no regulated floodplains or floodways within the project site.

2.9. *Other Environmentally Sensitive Areas*

None. There are no known threatened or endangered species within in the project vicinity, according to the available NYS online resource maps.

2.10. *Historic Preservation*

The project does not have the potential to affect a property that is listed or determined to be eligible for listing on the National or State Register of Historic Places, according to the available NYS online resource maps. Available online resource maps also indicate that the project site is not located in or adjacent to an area designated as sensitive for archeological

sites on the NY State Historic Preservation Office archaeological site inventory.

2.11. *Climate Change Considerations*

No areas within the project site are located in a regulated floodway/flood plain and therefore off site run on will not be of concern during flood events.

Consistent with observed increases in extreme rainfall intensity and uncertainty in future precipitation patterns, the stormwater system was designed with added resiliency beyond minimum compliance, with an emphasis on utilizing green infrastructure techniques to promote runoff reduction. The design emphasizes distributed source controls, and adequate storage and controlled release to ensure safe performance even under events exceeding the design basis.

2.12. *Other Permits and Approvals*

- Town of New Lebanon
 - Highway
 - Planning Board
 - Zoning Board
- Columbia County
 - Columbia County DOH
- New York State
 - NYSDEC
 - NYSHPO
 - Hudson River Housing

3. CONSTRUCTION EROSION AND SEDIMENT CONTROL

3.1. *Temporary and Permanent Structural and Vegetative Measures*

Immediate stabilization: for areas near wetlands or on steep (>10%) slopes, work area shall be mulched with wood chips hay or straw immediately after rough grading following each soil disturbing operation. Stabilization shall be completed no later than the end of each day.

Temporary stabilization: Topsoil stockpiles and disturbed portions of the site where construction activity temporarily ceases shall be stabilized with temporary seed and mulch immediately after the temporary cessation of construction activity in that area. All areas must be stabilized no later than 7 days after work has ceased. The temporary seed shall be applied at the rate of 30 pounds per acre. Mulch and water shall be applied per table 4.2 of the New York State Standards and Specifications for Erosion and Sediment Control Manual. Slopes over 3H:1V shall be stabilized with

anchored stabilization matting until such time as vegetation has been established. Areas to be paved shall be temporarily stabilized with geotextiles and stone subbase material, as shown on the Contract Drawings, provided under separate cover, until pavement is installed.

Permanent Stabilization: Disturbed portions of the site where construction activities have permanently ceased shall be stabilized with permanent seed no later than 14 days after the last construction activity. Prior to permanent seeding, fertilizer and lime shall be applied to the soil per vegetation specification. Permanent seed shall be installed, mulched, and maintained per the requirements detailed on the Contract Drawings.

3.2. *Dimensions, Installation Details, and Material Specifications for Erosion and Sediment Control Practices*

All dimensions, installation details and materials specifications are shown on the Contract Drawings, provided under separate cover.

3.3. *Design Elements not in Conformance with the New York State Standards and Specifications for Erosion and Sediment Control*

All erosion and sediment control practices have been designed in accordance with this reference.

3.4. *Inspection Schedule and Operation and Maintenance Schedule of all Erosion and Sediment Control Practices*

A schedule of inspection and maintenance of erosion and sediment control practices is shown on the Contract Drawings, provided under separate cover.

3.5. *Staging Areas, Equipment Storage Areas, Borrow Pits, Waste Areas, and Concrete Washout Areas*

Temporary staging, stockpile, and spoil areas have been located on the Contract Drawings, provided under a separate cover. The contractor will be required to locate any additional staging, stockpile, storage, borrow and waste areas. Staging, stockpile, and waste areas are to be approved by the Engineer and Regulatory Agencies.

3.6. *Construction Phasing and Sequencing Plans*

A sequence of major construction activities can be found on the Contract Drawings, provided under separate cover.

3.7. Pollution Prevention Measures

A. Spill Prevention Plan

All Contractors are responsible for implementing and enforcing the contents of a Spill Prevention Plan as outlined below:

1. Waste Disposal

All construction wastes, hazardous wastes, and sanitary wastes shall be disposed of according to New York State Department of Environmental Conservation standards and regulations. No burning, burying, or dumping of wastes will be permitted on-site. Transportation and ultimate disposal of wastes off-site shall be done according to all relevant State and local regulations.

2. Material Management Practices

The materials or substances listed below are expected to be present on-site during construction:

- | | |
|-----------------------|----------------------------|
| • Concrete Products | • Fertilizers |
| • Detergents | • Petroleum Based Products |
| • Paints | • Cleaning Solvents |
| • Structural Steel | • Wood |
| • PVC Piping | • Metal Building Materials |
| • Hydraulic Equipment | • HDPE Piping |

3. Housekeeping Procedures

- An effort will be made to store only enough products as required to complete the job.
- All materials stored on-site shall be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof or some other enclosure.
- Products will not be mixed with one another unless recommended by the manufacturer.
- Whenever possible, all of a product shall be used-up before disposing of the container.
- Manufacturers' recommendations for proper use, storage, cleaning, and disposal shall be followed if State or local regulations do not apply.
- There shall be daily inspections to ensure proper use, storage, and disposal of all materials on-site during construction.

4. Hazardous Materials

- Products shall be kept in original containers unless they are not re-sealable, in which case re-sealable containers shall be

provided and shall be clearly marked as to contents and potential hazards.

- Original labels and material safety data sheets shall be always retained on the site when such materials are present on the site.
- If surplus products must be disposed, manufacturers' and State and local recommended methods for proper disposal shall be followed.

5. Petroleum Products

- All on-site vehicles shall be monitored for leaks and shall receive regular preventative maintenance to minimize leakage.
- On site fuel storage shall have secondary containment provisions.
- All on site fueling of equipment shall be performed by personnel trained in spill prevention and spill response.
- During on site fueling operations personnel must stay at the pump control, operator shall not rely on automatic shut-offs on fuel pumps.
- Fueling of small equipment shall be performed on non-absorbent surfaces if at all possible.

6. Fertilizers

Fertilizers used shall be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer shall be worked into the soil to limit exposure to stormwater runoff. Fertilizers shall be stored in a covered area and the contents of any partially used bags shall be transferred to a sealable plastic container to avoid spills or leaks.

7. Paints

All containers shall be tightly sealed and stored in a protected "fire safe" area when not required for use. Containers shall be clearly marked as to their contents. Excess paint shall not be discharged into storm or sanitary sewer systems and shall be properly disposed of according to manufacturers' instructions or State and local regulation.

8. Spill Control Practices

- A Spill Prevention Plan (SPP) shall be prepared by the contractor and shall be based on manufacturers' recommended methods for spill cleanup. The SPP shall be clearly posted, and site personnel shall be made aware of the procedures and the locations of all information and cleanup supplies.
- Materials and equipment necessary for spill cleanup shall be kept in the material storage areas on-site. Equipment and

materials shall include, but not be limited to brooms, dust pans, mops, rags, shovels, gloves, goggles, kitty litter, sand, sawdust, and plastic & metal trash containers specifically for this purpose. Safety equipment such as fire extinguishers and first-aid kits shall be kept on site at all times in case of emergencies.

- All spills shall be cleaned-up immediately after discovery.
- The spill area shall be kept well ventilated and personnel shall wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- Spills of toxic or hazardous materials shall be reported to the appropriate State and local authorities, regardless of the size.
- The Spill Prevention Plan shall be modified and adjusted as necessary to prevent reoccurrence of spills after they have occurred, and shall include new clean-up procedures when necessary. A description of the spill, what caused it, and clean-up/prevention procedures to be followed in the future shall be included in the SPP and posted on-site after a spill.
- A spill prevention coordinator shall be designated for the Contract. The coordinator shall designate at least three other personnel who will receive spill prevention and clean-up training. These personnel shall become responsible for a particular phase of prevention and clean-up, and their names shall be posted along with the Spill Prevention Plan.

9. Dust Control

- All Contracts shall provide and apply water for the control of dust within the limits of their respective Work. Water application shall be the primary method of dust control.
- When used on roadways, the water shall be applied uniformly over a width of not less than eight (8) feet by means of an approved pressure distributor spray bar.
- When used on areas that will later be sodded or seeded, the water shall be free from oils, acids, alkalies, salts, or any other substances injurious to plant growth.
- Paved areas shall be kept clean by periodic sweeping with approved equipment.

B. Non-Stormwater Discharges

Concrete Trucks

- Concrete trucks shall be allowed to wash-out or discharge surplus concrete only at locations specifically approved by the Engineer.

Dewatering Effluent

- The Contractor shall pump dewatering effluent to geotextile sediment bags, a stable upland vegetated area, or temporary settling basin to remove suspended sediment prior to discharge to any watercourse.

Clearing and Grubbing Spoil

- No dumping shall be allowed in any stream, corridor, wetland, surface area, floodplain, or at unspecified locations or at locations not approved by the Engineer and regulatory agencies.

4. Stormwater Site Planning, Practice Selection and Details**4.1. Site Planning**

The first step in developing a comprehensive stormwater management plan using green infrastructure is to avoid or minimize land disturbance by preserving natural resources and utilizing the hydrology of the site.

Implementation of “green” infrastructure practices aid in the reduction of runoff by proactively reducing runoff volume, peak flow and flow duration. It also promotes infiltration and evapotranspiration to improve groundwater recharge and relieve pollutants for the “end of pipe” stormwater treatment practice. The green infrastructure techniques utilized in this SWPPP are detailed in Section 4.3.

4.2. Determine Water Quality Treatment Volume (WQv)

The analysis uses existing conditions = current conditions. Watershed schematics are presented in Appendix 4.5.

Water quality volumes were computed using the NYS Stormwater Design Manual equation of $WQv = [P \cdot R_v \cdot A] / 12$, where:

P= 90% rainfall = 1.1”

A= Site Area

I= % Impervious

$R_v = 0.05 + 0.009 \cdot I$

The project consists of redevelopment and new development activities. The project site is a 3.22 acre parcel which was previously developed with commercial shops, asphalt parking, and gravel driveways. For planning purposes, the previously developed southern portion of the project site (approximately 1.92 acres) is considered redevelopment, and the mostly undeveloped northern portion of the project site is considered new development.

The redevelopment portion of the project site has an existing impervious area of 1.08 acres.

The proposed project will be providing 100% treatment for more than half of the previously developed portion of the site, more than the required 25%.

The minimum calculated WQv is 5,458 cf (0.13 af).

A summary of the minimum required water quality volume is in Appendix 4.3.

4.3. Runoff Reduction by Applying Green Infrastructure Techniques and Standard Stormwater Management Practices with RRv Capacity

100% reduction of the WQv will be achieved by an infiltration basin, tree plantings and stormwater planters. Pre-treatment for runoff entering the infiltration basin is provided by a combination of grass filter strip, a sediment forebay and hoods on catch basin outlet pipes.

The provided RRv is 5,458 cf (0.13 af).

Green Infrastructure Worksheets are presented in Appendix 4.3

4.4. Apply Standard Stormwater Management Practices to Address Remaining Water Quality Volume

The full WQv is reduced via Green Infrastructure Techniques.

4.5. Apply Volume Peak Rate Control Practices if Needed to Meet Requirements

Channel Protection Volume (CPv) Requirements:

CPv requirements are designed to protect stream channels from erosion. This is typically accomplished by providing 24-hr extended detention of the 1-year, 24-hr design storm that remains after runoff reduction.

As a predominantly redevelopment project, the typical channel protection requirement is relaxed. The hydrologic analysis for the project site shows that the post-construction 1-year 24-hour peak discharge rate and volume is less than pre-construction amounts, therefore the CPv requirement has been satisfied.

CPv Provided: 0.274 acre-ft

Overbank Flood (Qp) & Extreme Storm (Qf) Requirements:

Overbank Flood: Control the peak discharge from the 10-yr storm to 10-yr predevelopment rates.

Extreme Storm: Control the peak discharge from the 100-yr storm to 100-yr predevelopment rates. Safely pass the 100-yr storm event.

Hydrologic DP: Runoff from Site to Existing Culvert			
	1-year (cfs)	10-year (cfs)	100-year (cfs)
Pre-Development	3.08	7.67	16.55
Post-Mitigation	2.29	5.22	10.53
Delta	-0.79	-2.45	-6.02

Watershed Schematics and Hydrologic Calculations are presented in Appendix 4.5.

4.6. Conveyance Criteria

Typically, the targeted storm frequencies for conveyance are the 2-yr and 10-yr storms. The 2-yr event is used to ensure non-erosive flows through roadside swales, overflow channels, pond pilot channels, and over berms within practices. The 10-year storm is typically used as a safe conveyance criterion for open channel practices and overflow channels

2-yr Storm

1. Roadside Swales
 - a. All swales are non-erosive during the 2-year storm.
2. Pilot Channels
 - a. No pilot channels proposed
3. In-Practice Berms
 - a. The sediment forebay berm is not overtopped during the 2-year storm.

10-yr Storm

1. Open Channel Practices
 - a. All swales safely convey the 10-yr storm.
2. Overflow Channels
 - a. All overflow channels safely convey the 10-yr storm.

4.7. Identification of Design Elements not in Conformance with the New York State Stormwater Management Design Manual

N/A

4.8. *Descriptions, Dimensions, Material Specifications and Installation Details for Post-Construction Stormwater Control Practices*

Refer to the Contract Drawings, provided under separate cover, for dimensions and installation details of the stormwater management practices.

4.9. *Long Term Operation and Maintenance of Post-Construction Stormwater Management Practices*

Tilden Project LLC is responsible for long-term operation and maintenance of all post-construction SMPs and their appurtenances. The owner shall prepare a deed covenant in the deed of record to ensure long term operation and maintenance continuation of the post-construction SMPs.

A long-term operation and maintenance manual is presented in Appendix 4.9.

Appendix 1.1

Electronic Notice of Intent (eNOI)

Construction General Permit (CGP) Electronic Notice of Intent (eNOI) GP-0-25-001

version 1.17

(Submission #: HQM-G5HE-RMDQD, version 1)

Details

Originally Started By Asa Snyder

Alternate Identifier Tilden Commons—Region 4

Submission ID HQM-G5HE-RMDQD

Status Draft

Form Input

Eligibility

Disturbance Threshold

1. Will the construction activity involve soil disturbances listed in Part I.A.1 of GP-0-25-001?

Yes

1.a. Will any runoff from the site enter a sewer system classified as a combined sewer?

No

1.b. Is this a remediation project being done under a Department approved work plan (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.) with a SWPPP which meets the substantive requirements of GP-0-25-001?

No

1.c. Is the construction activity related to a stormwater discharge that does not require a permit as described in 40 CFR 122.3(e), e.g. non-point source agriculture or silviculture activities?

No

Other SPDES Permits

2. Will the discharge from the construction activity meet all conditions listed in Part I.A.2 of GP-0-25-001?

Yes

Threatened and Endangered Species

3. Will the construction activity potentially adversely affect a species that is endangered or threatened per Part I.A.3.?

No

State Historic Preservation Act (SHPA)

4. Is the construction activity designated by the Commissioner of the Office of Parks, Recreation and Historic Preservation (OPRHP), pursuant to 9 NYCRR §§428.12 or 428.13 as exempt from the SHPA review (see Attachment 2 of the Letter of Resolution between NYSDEC and OPRHP, dated January 9, 2015)?

No

4.a. Will the construction activity:

- a) occur within an archeologically sensitive area indicated on the sensitivity map, or
- b) have the potential to affect a property that is listed or determined to be eligible for listing on the National or State Registers of Historic Places, or
- c) include a new permanent building on the construction site within the following distances from a building, structure, object that is more than 50 years old and OPRHP, a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined is a historically/archeologically significant building, structure, or object:
 - 1-5 acres of disturbance—20 feet
 - 5-20 acres of disturbance—50 feet
 - 20+ acres of disturbance—100 feet?

No

4.b. Is there documentation at the construction site demonstrating:

- a) that the construction activity is not within an archeologically sensitive area indicated on the sensitivity map, and the construction activity is not immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and
- b) that there is no new permanent building to be built on the construction site within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the construction site within those parameters that OPRHP, a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant:
 - 1-5 acres of disturbance – 20 feet
 - 5-20 acres of disturbance – 50 feet
 - 20+ acres of disturbance – 100 feet?

Yes

State Environmental Quality Review (SEQR)

5. Is the construction activity subject to SEQR (Part I.A.5.), or the equivalent environmental review from another NYS or federal agency (Part I.A.6.)?

Yes

5.a. Has the owner/operator obtained documentation that the project review pursuant to SEQR, or the equivalent, has been satisfied per Part I.A.5. or I.A.6. of GP-0-25-001?

NONE PROVIDED

Uniform Procedures Act (UPA) Permits

6. Has the owner/operator obtained all necessary UPA permits from NYSDEC, or the equivalent from another NYS or federal agency per Part I.A.7.a. of GP-0-25-001? Select "Yes" if no UPA permits, or the equivalent, are required for this construction activity.

NONE PROVIDED

Steep Slope

7. Is the construction activity within the watershed of surface waters of the State classified as AA or AA-S identified utilizing the Stormwater Interactive Map on NYSDEC's website?

No

Owner/Operator Information

8. Owner/Operator Name

Tilden Project LLC

9. Owner/Operator Contact Person Information

First and Last Name	Phone	E-mail
Joshua Young	9174881061	jsohuayoung@gmail.com

10. Owner/Operator Mailing Address

58 Pool Hill Road
New Lebanon, NY 12125
USA

11. Is the billing contact different from the Owner/Operator Contact?

No

12. What type of organization is the owner/operator?

Corporation

12.b. Is the owner/operator registered with the Department of State to do business in New York State?

NONE PROVIDED

Site Information**13. Project/Site Name**

Tilden Commons

14. Site Address

538 US 20
New Lebanon, NY 12125
Columbia

DEC Region

4

15. Site Latitude & Longitude

42.46651700657871,-73.39369960394826

Project Details**16. This eNOI submission is for:**

A construction activity not part of a common plan of development or sale in accordance with Part I.D.1.a.

17. Does the project type fall under Table 1 or Table 2 of Appendix B of GP-0-25-001? If any portion of the construction activity falls under Table 2, regardless of the size of the disturbance, select "Table 2".

Table 2

18. Consistent with Part III.B.1.c.i. of GP-0-25-001, provide a concise overview of the project. Describe existing and proposed conditions, and include any other relevant information.

The site topography generally slopes to the south at very shallow slopes.

The project consists of the construction of a single three-story building fronting US Route 20/22 on a 3acre lot in downtown New Lebanon. The existing building and parking areas will be demolished.

The new building will house a roughly 10,000 sf grocery store, a 2,000 sf community and space and 41apartments. The project will also include site grading, the construction of a driveway and parking area, the installation of drainage and storm water practices, drilling a new well and the construction of an on-site wastewater treatment system.

Enter the total project site acreage, the acreage to be disturbed, and the future impervious area (acreage) within the disturbed area, rounded to the nearest tenth of an acre.

19. Total Site Area (acres)

3.2

20. Total Area to be Disturbed (acres)

3.2

21. Existing Impervious Area to be Disturbed (acres)

1.1

22. Future Impervious Area Within Disturbed Area (acres)

2.3

Nature of the project:

Redevelopment with increase in impervious area

23. Do you plan to disturb more than 5 acres of soil at any one time?

No

24. Indicate the percentage (%) of each Hydrologic Soil Group(HSG) at the site.

A (%)

NONE PROVIDED

B (%)

100

C (%)

NONE PROVIDED

D (%)

NONE PROVIDED

25. Enter the planned start and end dates of the disturbance activities.**Start Date**

06/01/2026

End Date

09/30/2027

26. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.

Wyomanock Creek and tribs - 1310-0039

27. Type of waterbody identified in question 26?

Stream/Creek Off Site

28. Has the surface waterbody in question 26 been identified as a 303(d) segment in Appendix D of GP-0-25-001?

No

29. Is this project located in one of the Watersheds identified in Appendix C of GP-0-25-001?

No

30. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area?

No

31. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)?

Yes

31.a. What is the name of the municipality/entity that owns the separate storm sewer system? If the separate sewer system is owned by an MS4 Operator, enter the MS4 Operator name.

NYSDOT

32. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law?

No

33. Is this property owned by a state authority, state agency, federal government or local government?

No

Required SWPPP Components

General SWPPP Requirements

34. Has a SWPPP been developed in conformance with the requirements in Part III. of GP-0-25-001?

Yes

35. Does the SWPPP demonstrate consideration of the future physical risks due to climate change pursuant to the CRRA, 6 NYCRR Part 490, and associated guidance per Part III.A.2. of GP-0-25-001?

Yes

36. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)?

Yes

37. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the NYS Stormwater Management Design Manual?

Yes

37.a. Which version of the NYS Stormwater Management Design Manual was used to develop the SWPPP?

2024

SWPPP Preparer

39. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

Professional Engineer (P.E.)

40. Name of the person who prepared the SWPPP

Brendon Becker

41. SWPPP Preparer Organization Name

Lamont Engineers

42. SWPPP Preparer Contact Information

First and Last Name	Phone	E-mail
Brendon Becker	518-234-4028	bbecker@lamontengineers.com

43. SWPPP Preparer Address

PO Box 610

Cobleskill, NY 12043

Download SWPPP Preparer Certification Form

Please take the following steps to prepare and upload your preparer certification form:

- 1) Click on the link below to download a blank certification form
- 2) The certified SWPPP preparer should sign this form
- 3) Upload the completed form

[Download SWPPP Preparer Certification Form](#)

44. Please upload the SWPPP Preparer Certification

NONE PROVIDED

Comment

NONE PROVIDED

44.a. Has the SWPPP Preparer Certification Form been signed by the SWPPP preparer in accordance with Part VII.J of GP-0-25-001?

NONE PROVIDED

Erosion & Sediment Control Criteria**45. Has a construction sequence schedule for the planned management practices been prepared?**

Yes

Post-Construction Criteria**Site Planning and Soil Restoration****46. Identify all site planning practices that were used to prepare the final site plan/layout for the project.**

Sidewalk Reduction

Reduction of Clearing and Grading

47. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6 ("Soil Restoration") of the Design Manual.

All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).

Water Quality Criteria**49. Water Quality Sizing Criteria**

Total WQv required (acre-feet)	Total RRV provided (acre-feet)	Minimum RRV (acre-feet)	Total WQv provided (acre-feet)	Sum of RRV and WQv provided
0.13	0.13			0.13

Water Quantity Criteria**50. Per Section 9.2.1.C.VI and VII of the 2024 Design Manual, is there 0% change to hydrology that increases the discharge rate and volume from the project site?**

No

51. Does one of the waiver conditions apply to the channel protection for this construction activity?

No

51.b.i. CPv Required (acre-feet)

0.274

51.b.ii. CPv Provided (acre-feet)

0.274

52. Does one of the waiver conditions apply to the Qp and Qf for this construction activity?

No

Overbank Flood Control Criteria (Qp)**52.b.i. Pre-Development (CFS)**

7.67

52.b.ii. Post-Development (CFS)

5.22

Total Extreme Flood Control Criteria (Qf)**52.b.iii. Pre-Development (CFS)**

16.55

52.b.iv. Post-Development (CFS)

10.53

Operation and Maintenance

53. Has a long-term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed?

Yes

53.a. Identify the entity responsible for the long-term Operation and Maintenance.

Tilden Project LLC

Post-Construction SMP Identification**54. Post-Construction RR Techniques and Standard SMPs**

RR Techniques and SMPs	Contributing Impervious Area (acres)	Total Contributing Area (acres)
Tree Planting/Tree Pit/Tree Trench (RR-3)	0.04	0.04
Infiltration Basin (I-2)	1.27	
Stormwater Planter (RR-7)	0.06	

55. Alternative SMPs

Type of Alternative SMP	Manufacturer of the Alternative SMP	Name of the Alternative SMP	Contributing Impervious Area (acres)
NONE PROVIDED	NONE PROVIDED	NONE PROVIDED	NONE PROVIDED

Other Permits**56. Identify other permits, existing and new, that are required for this project/facility.**

Individual SPDES

57. Is this NOI for a change in owner/operator per Part I.G.?

No

58. Is this eNOI for informational purposes only? An eNOI is submitted for "informational purposes only," when a facility has an Individual SPDES permit that includes discharges from all future construction activities in the special conditions of the Individual SPDES permit.

No

MS4 SWPPP Acceptance**59. Will the construction activities be within the municipal boundary(ies) of Traditional Land Use Control MS4 Operator(s) and discharge to the MS4(s)?**

No

Owner/Operator Certification**Owner/Operator Certification Form Download**

Download the Owner/Operator Certification Form by clicking the link below.

[Owner/Operator Certification Form](#)**61. Upload Owner/Operator Certification Form**

NONE PROVIDED

Comment

NONE PROVIDED

61.a. Has the Owner/Operator Certification Form from Appendix J been signed by the owner/operator, or a representative of the owner/operator in accordance with Part VII.J of GP-0-25-001 and uploaded to the eNOI?

NONE PROVIDED

Additional Project Information

62. Enter any additional pertinent project information in the text box below.

NONE PROVIDED

Appendix 1.2

Location Map



Appendix 1.3

Contractor Certification Form

CONTRACTOR and SUBCONTRACTOR CERTIFICATION STATEMENT

for the New York State Department of Environmental Conservation (DEC) State Pollutant Discharge Elimination System Permit for Stormwater Discharges from Construction Activity (GP-0-25-001)

As per Part III.A.6 on page 31 of GP-0-25-001, effective 1/29/2025

‘Prior to the commencement of construction activity, the owner or operator must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The owner or operator shall have each of the contractors and sub-contractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor*. The owner or operator shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.’

The owner or operator shall have each contractor and subcontractor involved in soil disturbance sign a copy of the following certification statement before they commence any construction activity:

Name of Construction Site	NYR _____ DEC Permit ID	Municipality (MS4)
I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the <i>qualified inspector</i> during a site inspection. I also understand that the <i>owner or operator</i> must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System (“SPDES”) general permit for stormwater <i>discharges from construction activities</i> and that it is unlawful for any person to cause or contribute to a violation of <i>water quality standards</i>. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations.		
Responsible Corporate Officer/Partner Signature		Date
Name of above Signatory		Name of Company
Title of above Signatory		Mailing Address
Telephone of Company		City, State and Zip

Identify the specific elements of the SWPPP the contractor or subcontractor is responsible for:

‘TRAINED CONTRACTOR’ FOR THE CERTIFIED CONTRACTOR OR SUBCONTRACTOR

Name of Trained Employee	Title of Trained Employee	NYSDEC SWT #
--------------------------	---------------------------	--------------

A copy of this signed contractor certification statement must be maintained at the SWPPP on site

Appendix 2.3

Soil Map and Descriptions



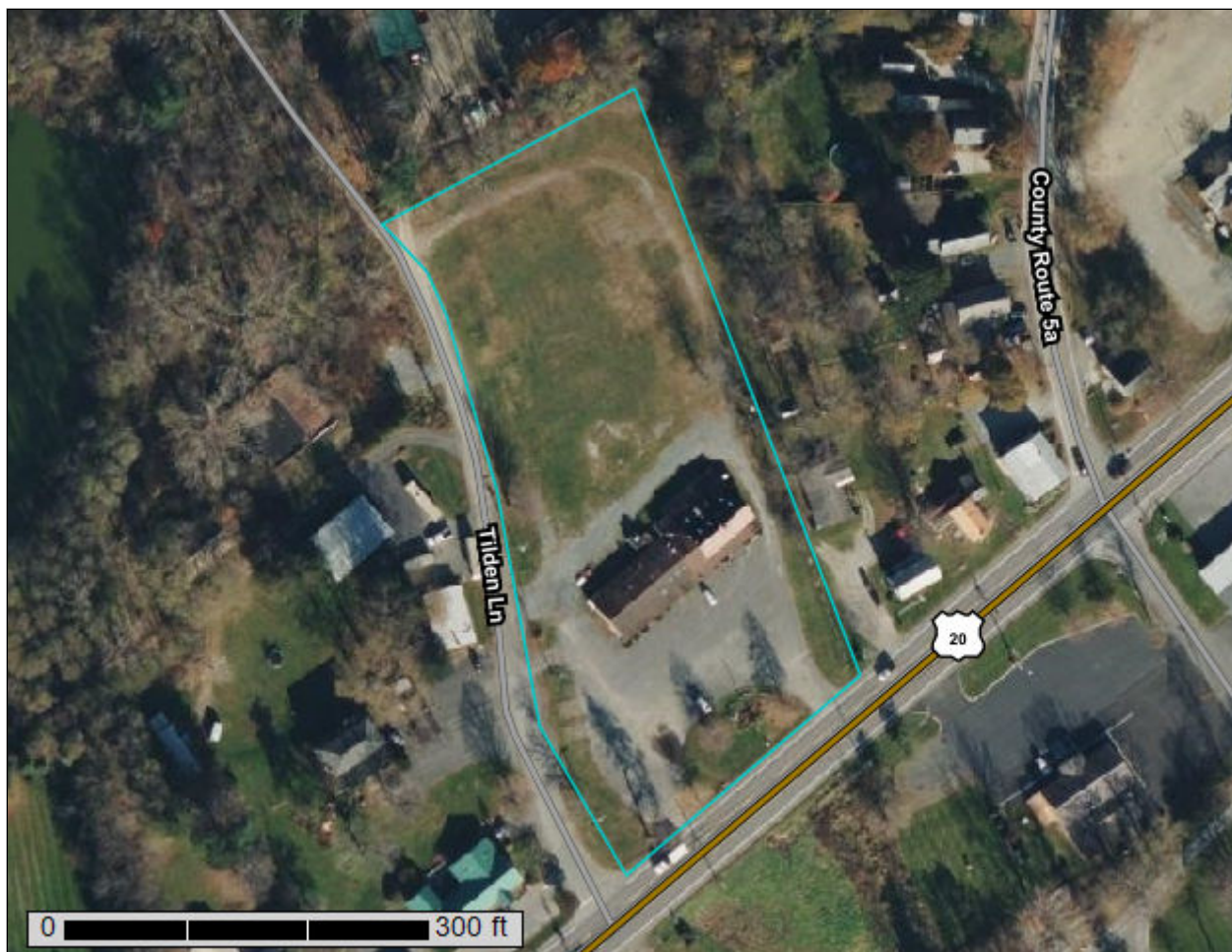
United States
Department of
Agriculture

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 **Columbia County, New York**



May 27, 2025

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.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Preface	2
How Soil Surveys Are Made	5
Soil Map	8
Soil Map.....	9
Legend.....	10
Map Unit Legend.....	11
Map Unit Descriptions.....	11
Columbia County, New York.....	13
Om—Occum loam.....	13
References	15

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

Custom Soil Resource Report

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



Custom Soil Resource Report

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 1:15,800.

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: Columbia County, New York
Survey Area Data: Version 20, Aug 29, 2024

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

Date(s) aerial images were photographed: Aug 15, 2021—Nov 8, 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
Om	Occum loam	2.9	100.0%
Totals for Area of Interest		2.9	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.

Columbia County, New York

Om—Occum loam

Map Unit Setting

National map unit symbol: 9r1h
Elevation: 0 to 1,030 feet
Mean annual precipitation: 38 to 46 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Occum and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Occum

Setting

Landform: Flood plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy over sandy alluvium

Typical profile

H1 - 0 to 10 inches: loam
H2 - 10 to 25 inches: fine sandy loam
H3 - 25 to 33 inches: coarse sandy loam
H4 - 33 to 60 inches: stratified very gravelly sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 1.98 in/hr)
Depth to water table: About 48 to 72 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B
Ecological site: F144AY010NH - Sandy High Floodplain
Hydric soil rating: No

Minor Components

Linlithgo

Percent of map unit: 8 percent
Hydric soil rating: No

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Limerick

Percent of map unit: 2 percent

Landform: Flood plains

Hydric soil rating: Yes

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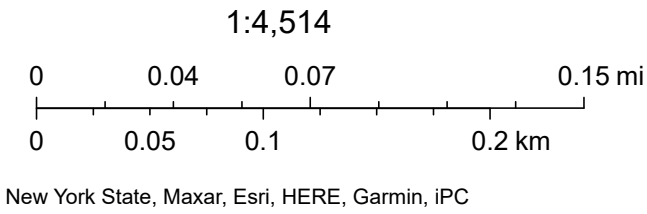
Appendix 2.6

NYSDEC Environmental Resource Maps

Tilden Project



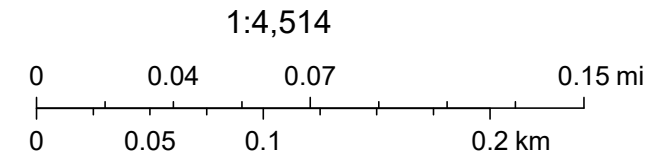
July 1, 2025



Tilden Project



July 1, 2025



New York State, Maxar, Esri, HERE, Garmin, iPC

Appendix 3.9

Construction Inspection Log Book

STORMWATER INSPECTION REPORT

Permit No.: GP-0-25-001 PROJECT NAME: Tilden Commons CONTRACT NO.: 1 ENGINEER: Lamont Engineers CONTRACTOR: PROJECT NO.: 2024125 Date/Time: Inspector: Title:	INSTRUCTIONS: 1. Describe all construction not in conformance with SWPPP. 2. Identify all corrective measures to be taken. 3. Identify all corrective measures taken since last inspection. 4. Attach map/sketch of disturbed area. 5. Insert photos. INSPECTION SCHEDULE: Inspections to be performed at least once every 7 days. If >5 acres are disturbed, perform inspection twice every 7 days. Perform inspections every 30 days during shutdowns.				
	<table border="1"> <tr> <td>WEATHER</td> <td></td> </tr> <tr> <td>TEMPERATURE</td> <td>°F</td> </tr> </table>	WEATHER		TEMPERATURE	°F
WEATHER					
TEMPERATURE	°F				

SITE CONDITIONS:			
Soil Conditions: ☐ Dry ☐ Wet ☐ Saturated ☐ Frozen ☐ Snow Covered	Discharge: ☐ None ☐ Light ☐ Moderate ☐ Heavy	Offsite Sediment Tracking: ☐ None ☐ Light ☐ Moderate ☐ Heavy	Condition of Discharge: ☐ N/A ☐ Clean ☐ Evidence of Turbidity Contrast to Receiving Water: ☐ Yes ☐ No ☐ N/A
Disturbance: Y N ☐ ☐ Within Limits of the approved plans ☐ ☐ Impacting adjacent property			
Stockpiles and Waste Areas: Y N ☐ ☐ Areas Approved ☐ ☐ Perimeter Controls in Place ☐ ☐ Stabilized within 7 days of last use			

COMMENTS:

Describe or show on map: Total area of active disturbance, total area inactive disturbance, total area with temporary stabilization and total area with final stabilization.

SITE MANAGEMENT PRACTICES:

- | | |
|---|--------------------------------|
| ☐ Stabilized Construction Entrance | ☐ Other |
| ☐ Construction Road Stabilization | ☐ Other |
| ☐ Dust Control | ☐ Other |
| ☐ Concrete Truck Washout | ☐ Other |
| ☐ Protected Areas | ☐ Other |
| ☐ Temporary Culverts | ☐ Other |
| ☐ Winter Stabilization | ☐ Other |

EROSION CONTROL PRACTICES:

- | | |
|--|--------------------------------|
| ☐ Check Dams | ☐ Other |
| ☐ Dewatering Sump Pit | ☐ Other |
| ☐ Diversions | ☐ Other |
| ☐ Jute Mesh/RECP | ☐ Other |
| ☐ Mulch | ☐ Other |
| ☐ Seeding | |

SEDIMENT CONTROL PRACTICES:

- | | |
|---|--------------------------------|
| ☐ Filter Strip | ☐ Other |
| ☐ Dirt Bag | ☐ Other |
| ☐ Sediment Basin/Trap | ☐ Other |
| ☐ Silt Fence | ☐ Other |
| ☐ Storm Drain Inlet Protection | ☐ Other |
| ☐ Turbidity Curtain | ☐ Other |

Describe current stage of all SMP's and identify all construction activity not in conformance with SWPPP and technical standards:

Describe corrective action that must be taken to install, repair, replace or maintain E&SC practices and to correct deficiencies with construction of SMP's:

Describe status of all corrective actions that were required by previous inspection:



Photos:

Comments:

Photos:

Comments:



Photos:

Comments:

Photos:

Comments:



Photos:

Comments:

Photos:

Comments:

Signature of
Qualified Inspector:

Appendix 4.3

Runoff Reduction Worksheets

Step 2 - Calculate Water Quality Volume

Is this project subject to Section 4.3 of the NYS Design Manual for Enhanced Phosphorus Removal?						No
What is the nature of this construction project?						Redevelopment with increase in impervious area
Design Point:	1					
P=	1.10	inches	Enter 90% Rainfall Event as P			
Calculate Required WQv						
Drainage Area Number	Contributing Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Rv	WQv (cf)	SMP Description
1	2.51	1.27	51	0.51	5,065	Infiltration Basin
2						
3	0.04	0.04	100	0.95	165	Tree Planting
4	0.06	0.06	100	0.95	228	Stormwater Planter
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
Total	2.61	1.37	53	0.52	5458	Required WQv

Step 4 - Calculate Minimum RRv Required

Enter the Soils Data for the site

Hydrologic Soil Group	Acres	S
A	0.00	55%
B	0.00	40%
C	0.00	30%
D	1.37	20%
Total Area	1.37	

Calculate the Minimum RRv

S =	0.20	
Impervious =	1.37	<i>acres</i>
Precipitation	1.10	<i>inches</i>
Rv	0.95	
Minimum RRv	0.024	<i>af</i>
	1045	<i>cf</i>

Tree Planting (RR-3)

Design Point:	1						
Enter Site Data For Drainage Area to be Reduced							
Drainage Area Number	Contributing Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Rv	WQv (cf)	Precipitation (in)	Description
3	0.04	0.04	100	0.95	165	1.10	Tree Planting
Design Criteria							
Does contributing impervious area exceed practice RRv capacity?			No				
Is the contributing area a designated hotspot?			No				
Is another area reduction practice proposed for the same contributing area?			No				
Enter the slope of the contributing area (%)			1				
Are new trees proposed for area reduction?			Yes				
For new tree plantings, enter horizontal separation from contributing impervious area (ft)			10				
Are existing trees proposed for area reduction?			Yes				
For existing trees, enter horizontal separation from contributing impervious area to canopy (ft)			20				
Enter ponding depth (inches)			6				
Enter surface layer depth (inches)			3				
Enter filter media depth (inches)			36				
Enter filter media width (ft)			5				
Enter filter media length (ft)			5				
Enter mature tree canopy (ft)			16				
Area reduction per tree (sf)			100				
Enter number of trees for area reduction			22				
Total area reduction proposed (sf)			2200				
Calculate Runoff Reduction							
RRv Provided		165	cf				

Stormwater Planter (RR-7)

Design Point:	1						
Enter Site Data For Drainage Area to be Treated by Practice							
Drainage Area Number	Contributing Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Rv	WQv (cf)	Precipitation (in)	Description
4	0.06	0.06	100	0.95	228	1.10	Stormwater Planter
Select stormwater planter type			Infiltration Stormwater Planter				
Design Criteria							
Enter underlying soil infiltration rate (based on geotechnical testing, refer to Appendix D)			5.45				
Is the contributing area a designated hotspot?			No				
Does the contributing area exceed 15,000 sf?			No				
Does contributing area contain parking lot or roadway runoff?			No				
Enter depth to seasonal high water table (ft)			2				
Enter depth to bedrock (ft)			2				
Enter depth of surface layer (inches)			3				
Enter drainage layer depth (inches)			6				
Sizing Criteria							
				Value	Units	Notes	
Water Quality Volume			WQv	228	cf		
Enter Depth of Soil Media			df	1.5	ft		
Permeability Flow Rate			k	1	ft/day		
Enter Average Height of Ponding			hf	0.5	ft		
Filter Time			tf	2	days		
Required Filter Area			Af	86	sf		
Enter Provided Filter Area			Af	182	sf		
Recalculated Water Quality Volume (based on provided filter area)			WQv calc	485.3333333	cf		
Calculate Runoff Reduction							
RRv Provided		228	cf				

Infiltration Basin (I-2)

Design Point:	1						
Enter Site Data For Drainage Area to be Treated by Practice							
Drainage Area Number	Contributing Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Rv	WQv (cf)	Precipitation (in)	Description
1	2.51	1.27	51	0.51	5,065	1.10	Infiltration Basin
Design Criteria							
Enter underlying soil infiltration rate (based on geotechnical testing, refer to Appendix D)			6				
Is the contributing area to the practice an "Infiltration Restricted" stormwater hotspot?			No				
Is the contributing area to the practice an "Infiltration Prohibited" stormwater hotspot?			No				
Maximum contributing area (acres)			25				
Is the contributing area greater than the maximum allowed contributing area?			No				
Enter depth to seasonal high water table (ft)			6				
Enter depth to bedrock (ft)			8				
Enter pretreatment volume provided (cf)			2050				
Enter depth of freeboard (ft)			1				
Enter depth of basin (ft)			1				
Enter slope of maintenance access (%)			1				
Enter width of maintenance access (ft)			12				
Sizing Criteria							
		Value	Units	Notes			
Water Quality Volume		WQv	5065	cf			
Basin depth		db	1.0	ft			
Required Surface Area		Ab	5,065	sf			
Enter Surface Area Provided		Ab	7632	sf			
Determine Runoff Reduction							
RRv Provided		5,065	cf				

Appendix 4.5

Watershed Schematics and Hydrologic Calculations



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Project Number 2024125

Drawn By AS

Designed By AHJ/AS

Checked By BJB

Date 6/20/25

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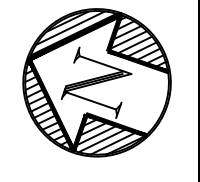
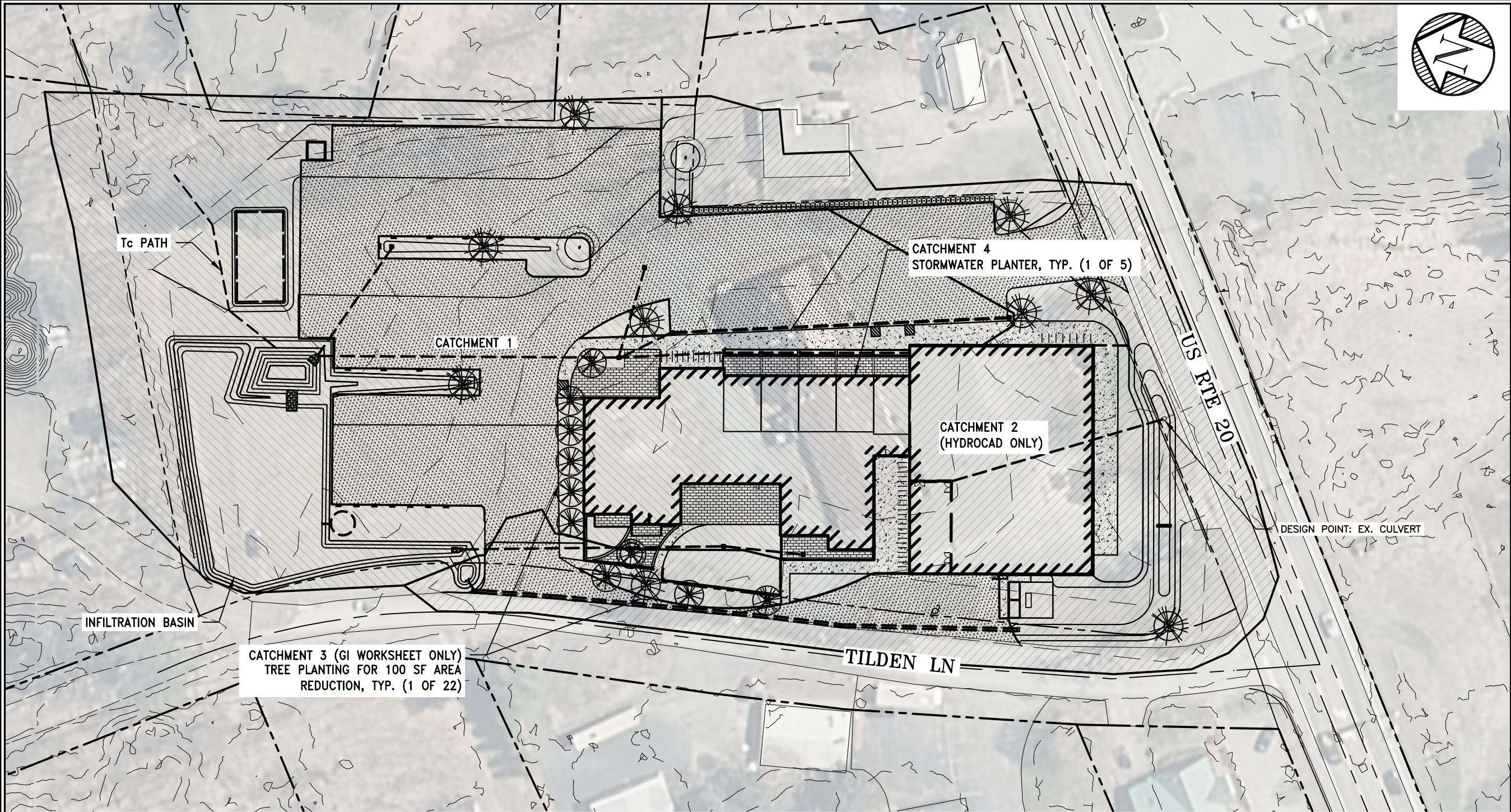
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EXISTING

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4.5



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Designed By AHJ/AS

Checked By BJB

Date 6/20/25

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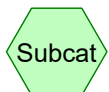
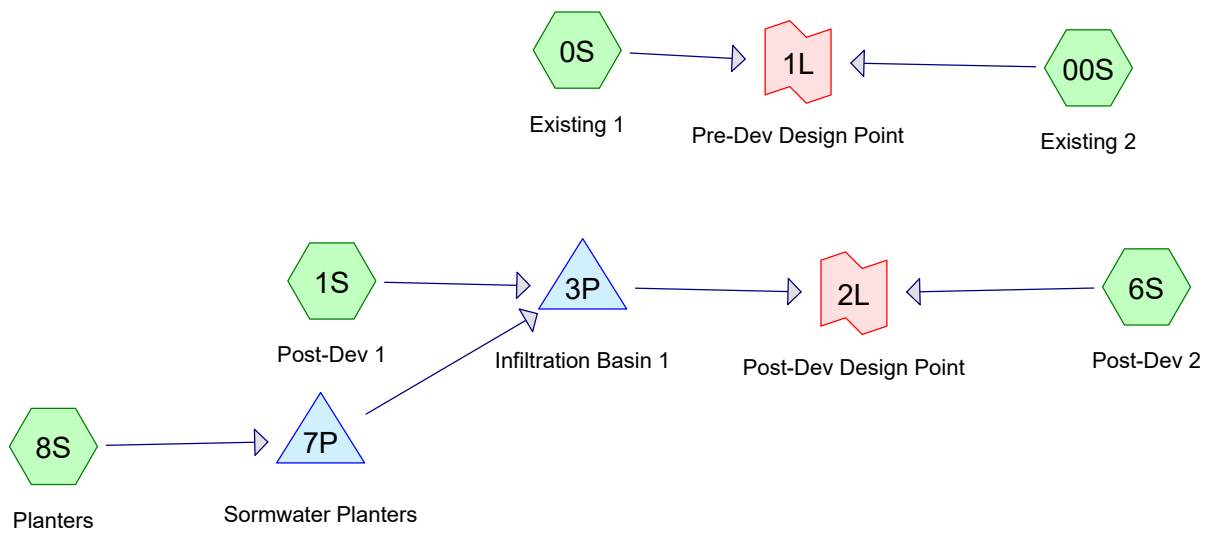
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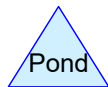
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Subcat



Reach



Pond



Link

Routing Diagram for Tilden Hydrology
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Tilden Hydrology

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Page 2

Project Notes

Defined 9 rainfall events from NY-Tilden IDF

Copied 9 events from NY-Tilden 24-hr S1 storm

Tilden Hydrology

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Page 3

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-yr	NY-Tilden 24-hr S1	1-yr	Default	24.00	1	2.37	2
2	10-yr	NY-Tilden 24-hr S1	10-yr	Default	24.00	1	4.09	2
3	100-yr	NY-Tilden 24-hr S1	100-yr	Default	24.00	1	7.14	2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.199	79	<50% Grass cover, Poor, HSG B (00S)
2.473	61	>75% Grass cover, Good, HSG B (0S, 1S, 6S)
0.049	98	Ex. Impervious (Off-Site) (00S)
0.105	98	Ex. Impervious (On-Site) (00S)
0.250	98	Existing Impervious (Off-Site) (0S)
1.077	98	Existing Impervious (On-Site) (0S)
1.195	98	Impervious (1S)
1.000	98	Paved parking, HSG A (6S)
0.075	98	Roofs, HSG A (8S)
0.563	58	Woods/grass comb., Good, HSG B (00S)
7.986	81	TOTAL AREA

Tilden Hydrology

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Page 5

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
1.075	HSG A	6S, 8S
4.235	HSG B	0S, 00S, 1S, 6S
0.000	HSG C	
0.000	HSG D	
2.676	Other	0S, 00S, 1S
7.986		TOTAL AREA

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	1.199	0.000	0.000	0.000	1.199	<50% Grass cover, Poor	00S
0.000	2.473	0.000	0.000	0.000	2.473	>75% Grass cover, Good	0S, 1S, 6S
0.000	0.000	0.000	0.000	0.049	0.049	Ex. Impervious (Off-Site)	00S
0.000	0.000	0.000	0.000	0.105	0.105	Ex. Impervious (On-Site)	00S
0.000	0.000	0.000	0.000	0.250	0.250	Existing Impervious (Off-Site)	0S
0.000	0.000	0.000	0.000	1.077	1.077	Existing Impervious (On-Site)	0S
0.000	0.000	0.000	0.000	1.195	1.195	Impervious	1S
1.000	0.000	0.000	0.000	0.000	1.000	Paved parking	6S
0.075	0.000	0.000	0.000	0.000	0.075	Roofs	8S
0.000	0.563	0.000	0.000	0.000	0.563	Woods/grass comb., Good	00S
1.075	4.235	0.000	0.000	2.676	7.986	TOTAL AREA	

Tilden Hydrology

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Page 7

Pipe Listing (selected nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	7P	703.50	702.25	328.0	0.0038	0.012	0.0	12.0	0.0	

Tilden Hydrology

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NY-Tilden 24-hr S1 1-yr Rainfall=2.37"

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Page 8

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

Subcatchment0S: Existing 1	Runoff Area=2.070 ac 64.11% Impervious Runoff Depth>0.97" Tc=6.0 min CN=85 Runoff=2.99 cfs 0.167 af
Subcatchment00S: Existing 2	Runoff Area=1.916 ac 8.04% Impervious Runoff Depth>0.46" Flow Length=675' Tc=29.7 min CN=74 Runoff=0.57 cfs 0.073 af
Subcatchment1S: Post-Dev 1	Runoff Area=106,073 sf 49.08% Impervious Runoff Depth>0.66" Flow Length=116' Tc=20.1 min CN=79 Runoff=1.38 cfs 0.134 af
Subcatchment6S: Post-Dev 2	Runoff Area=1.490 ac 67.11% Impervious Runoff Depth>1.03" Tc=6.0 min CN=86 Runoff=2.29 cfs 0.128 af
Subcatchment8S: Planters	Runoff Area=3,262 sf 100.00% Impervious Runoff Depth>1.96" Tc=6.0 min CN=98 Runoff=0.20 cfs 0.012 af
Pond 3P: Infiltration Basin 1	Peak Elev=703.05' Storage=389 cf Inflow=1.46 cfs 0.141 af Discarded=1.08 cfs 0.140 af Primary=0.00 cfs 0.000 af Outflow=1.08 cfs 0.140 af
Pond 7P: Stormwater Planters	Peak Elev=707.71' Storage=276 cf Inflow=0.20 cfs 0.012 af Discarded=0.00 cfs 0.000 af Primary=0.09 cfs 0.007 af Outflow=0.09 cfs 0.007 af
Link 1L: Pre-Dev Design Point	Inflow=3.08 cfs 0.241 af Primary=3.08 cfs 0.241 af
Link 2L: Post-Dev Design Point	Inflow=2.29 cfs 0.128 af Primary=2.29 cfs 0.128 af

Total Runoff Area = 7.986 ac Runoff Volume = 0.514 af Average Runoff Depth = 0.77"
53.03% Pervious = 4.235 ac 46.97% Impervious = 3.751 ac

Summary for Subcatchment 0S: Existing 1

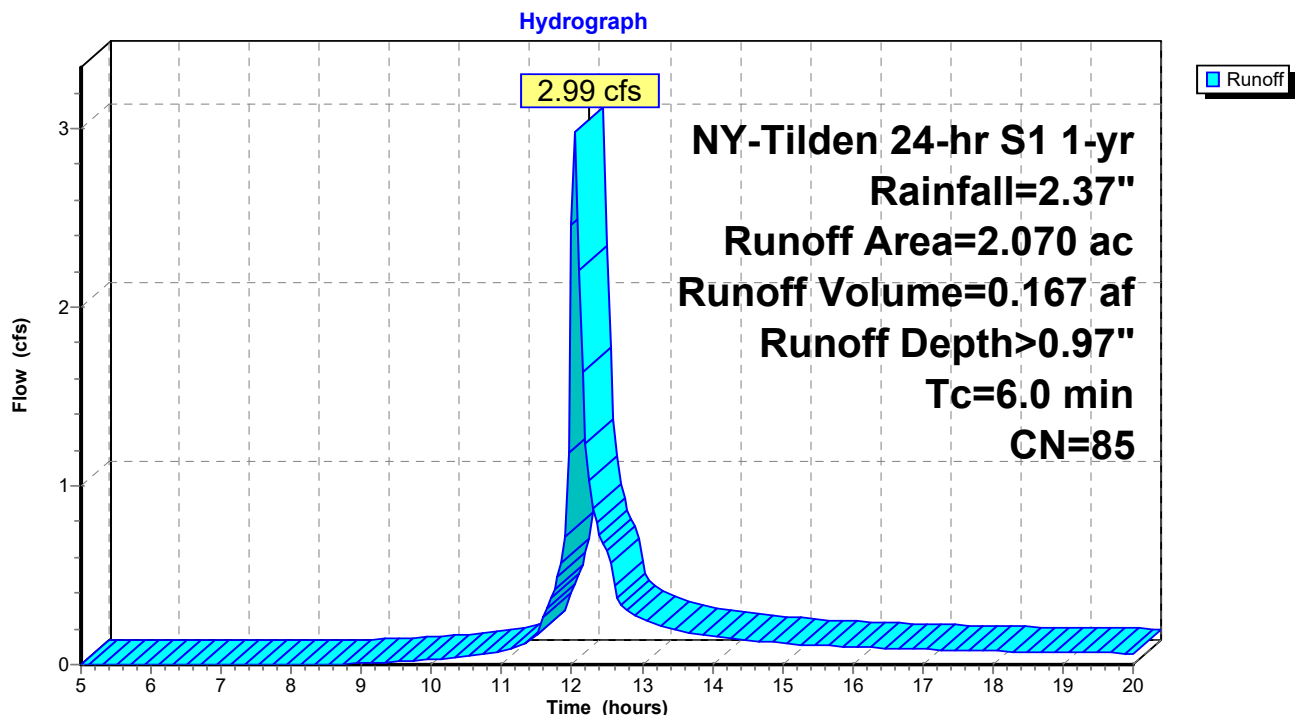
Runoff = 2.99 cfs @ 12.05 hrs, Volume= 0.167 af, Depth> 0.97"
Routed to Link 1L : Pre-Dev Design Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 1-yr Rainfall=2.37"

Area (ac)	CN	Description
* 1.077	98	Existing Impervious (On-Site)
* 0.250	98	Existing Impervious (Off-Site)
0.743	61	>75% Grass cover, Good, HSG B
2.070	85	Weighted Average
0.743		35.89% Pervious Area
1.327		64.11% Impervious Area

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

Subcatchment 0S: Existing 1



Tilden Hydrology

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NY-Tilden 24-hr S1 1-yr Rainfall=2.37"

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Page 10

Summary for Subcatchment 00S: Existing 2

Runoff = 0.57 cfs @ 12.42 hrs, Volume= 0.073 af, Depth> 0.46"
Routed to Link 1L : Pre-Dev Design Point

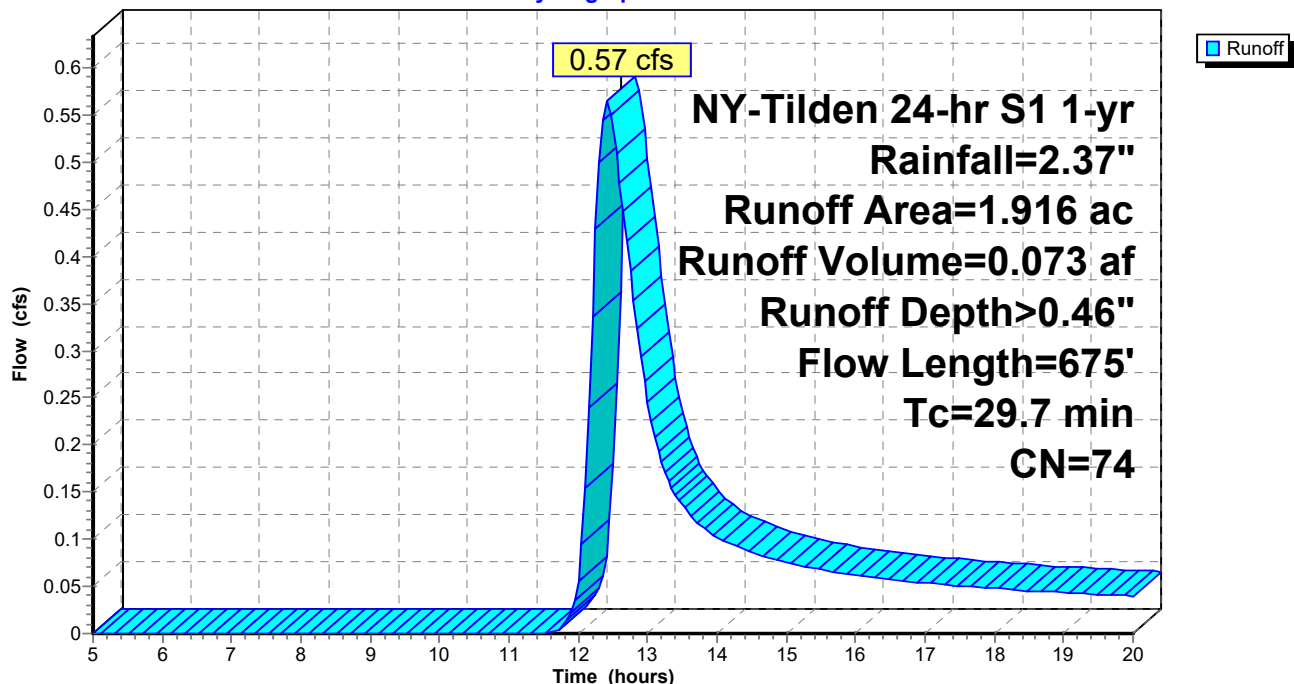
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 1-yr Rainfall=2.37"

Area (ac)	CN	Description
* 0.049	98	Ex. Impervious (Off-Site)
* 0.105	98	Ex. Impervious (On-Site)
1.199	79	<50% Grass cover, Poor, HSG B
0.563	58	Woods/grass comb., Good, HSG B
1.916	74	Weighted Average
1.762		91.96% Pervious Area
0.154		8.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.2	150	0.0100	0.13		Sheet Flow, Grass: Short n= 0.150 P2= 2.78"
9.0	380	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.5	145	0.0060	1.57		Shallow Concentrated Flow, Paved Kv= 20.3 fps
29.7	675	Total			

Subcatchment 00S: Existing 2

Hydrograph



Summary for Subcatchment 1S: Post-Dev 1

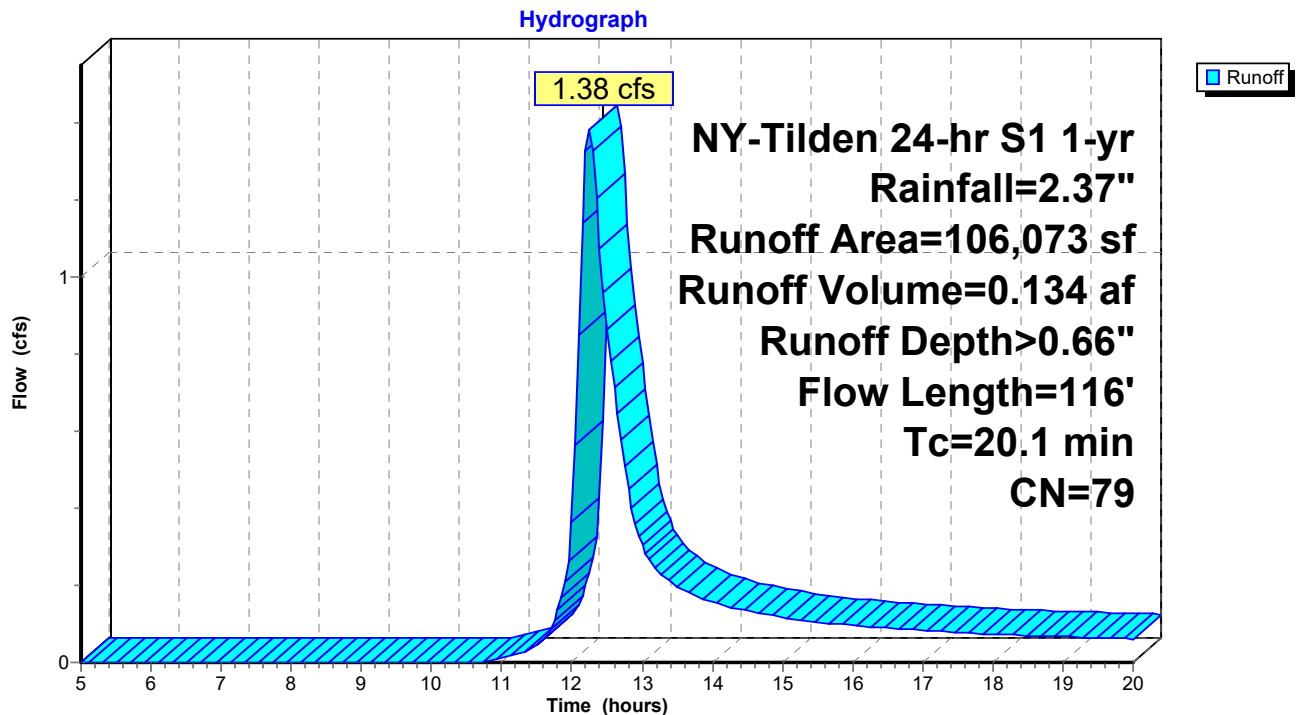
Runoff = 1.38 cfs @ 12.25 hrs, Volume= 0.134 af, Depth> 0.66"
Routed to Pond 3P : Infiltration Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 1-yr Rainfall=2.37"

	Area (sf)	CN	Description
*	52,059	98	Impervious
	54,014	61	>75% Grass cover, Good, HSG B
	106,073	79	Weighted Average
	54,014		50.92% Pervious Area
	52,059		49.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0300	0.08		Sheet Flow, Grass: Bermuda n= 0.410 P2= 2.78"
0.1	16	0.1500	2.71		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
20.1	116	Total			

Subcatchment 1S: Post-Dev 1



Summary for Subcatchment 6S: Post-Dev 2

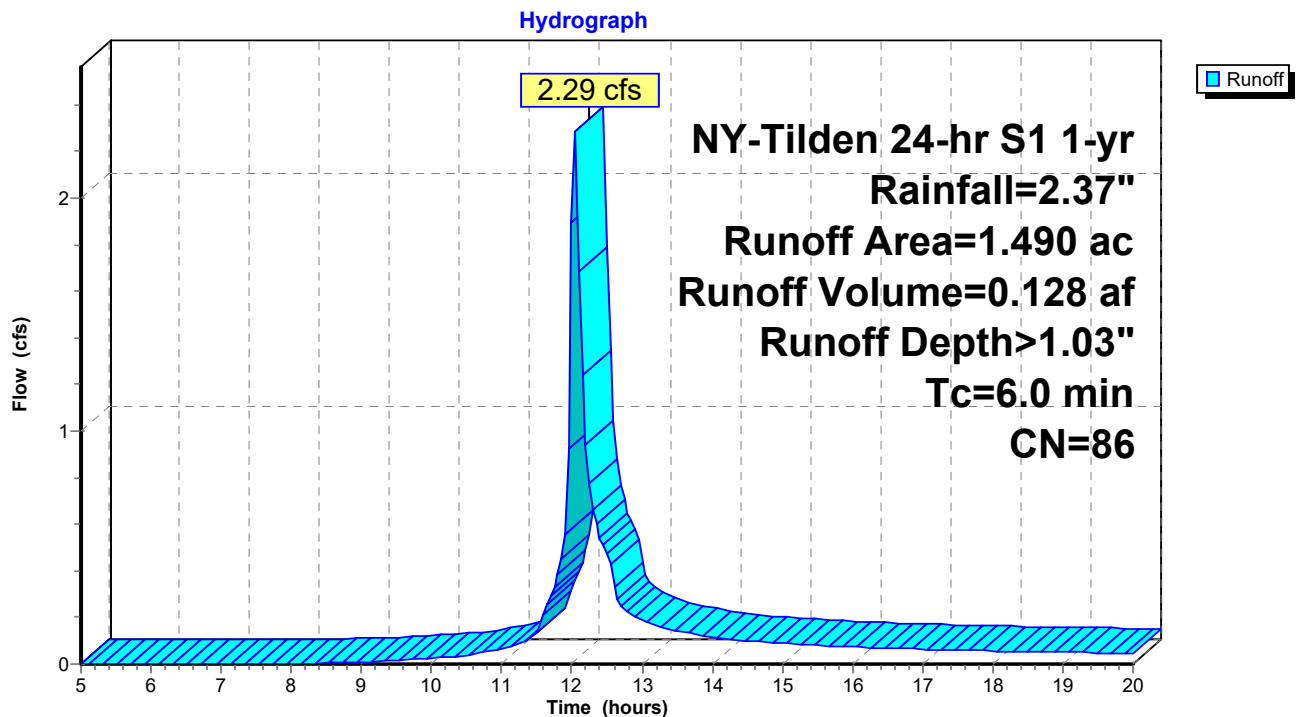
Runoff = 2.29 cfs @ 12.04 hrs, Volume= 0.128 af, Depth> 1.03"
Routed to Link 2L : Post-Dev Design Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 1-yr Rainfall=2.37"

Area (ac)	CN	Description
1.000	98	Paved parking, HSG A
0.490	61	>75% Grass cover, Good, HSG B
1.490	86	Weighted Average
0.490		32.89% Pervious Area
1.000		67.11% Impervious Area

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

Subcatchment 6S: Post-Dev 2



Summary for Subcatchment 8S: Planters

Runoff = 0.20 cfs @ 12.04 hrs, Volume= 0.012 af, Depth> 1.96"
Routed to Pond 7P : Sormwater Planters

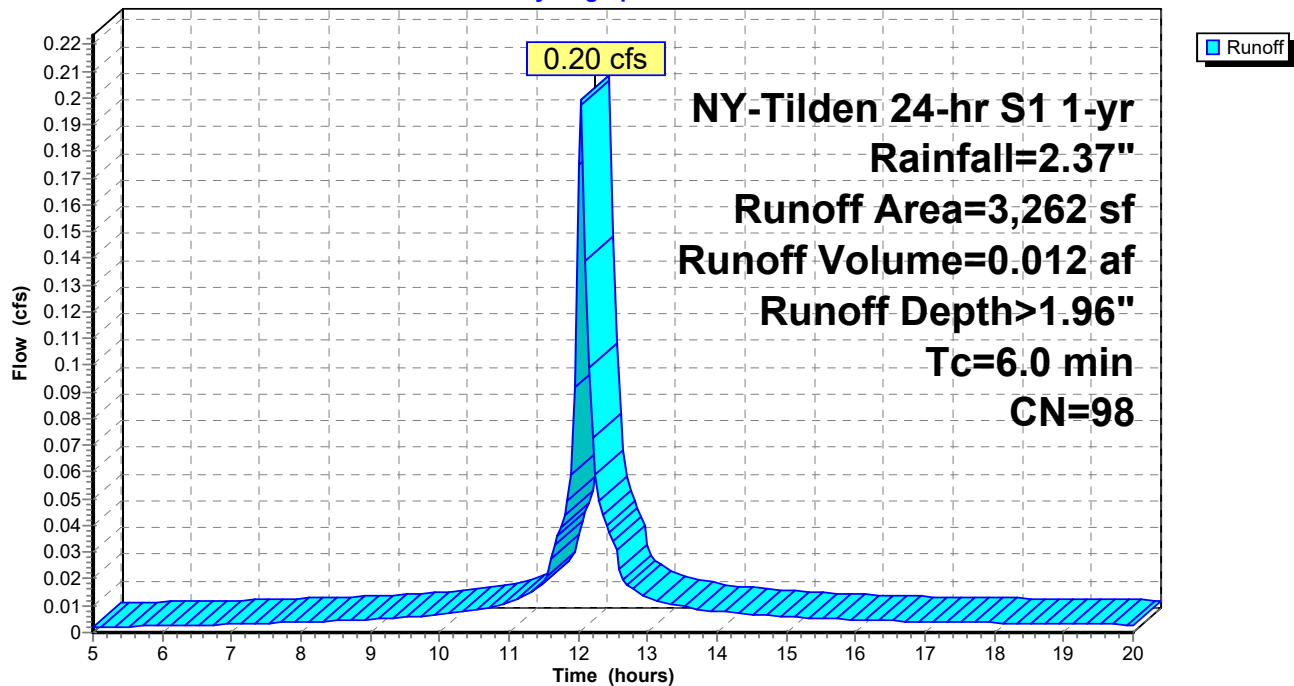
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 1-yr Rainfall=2.37"

Area (sf)	CN	Description
3,262	98	Roofs, HSG A
3,262		100.00% Impervious Area

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

Subcatchment 8S: Planters

Hydrograph



Summary for Pond 3P: Infiltration Basin 1

[79] Warning: Submerged Pond 7P Primary device # 2 OUTLET by 0.80'

Inflow Area = 2.510 ac, 50.60% Impervious, Inflow Depth > 0.67" for 1-yr event
 Inflow = 1.46 cfs @ 12.25 hrs, Volume= 0.141 af
 Outflow = 1.08 cfs @ 12.42 hrs, Volume= 0.140 af, Atten= 26%, Lag= 10.4 min
 Discarded = 1.08 cfs @ 12.42 hrs, Volume= 0.140 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Routed to Link 2L : Post-Dev Design Point

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 703.05' @ 12.42 hrs Surf.Area= 7,687 sf Storage= 389 cf

Plug-Flow detention time= 3.1 min calculated for 0.140 af (100% of inflow)
 Center-of-Mass det. time= 2.6 min (836.9 - 834.3)

Volume	Invert	Avail.Storage	Storage Description
#1	703.00'	17,432 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
703.00	7,632	0	0
704.00	8,708	8,170	8,170
705.00	9,815	9,262	17,432

Device	Routing	Invert	Outlet Devices
#1	Discarded	703.00'	6.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 699.00'
#2	Primary	704.25'	10.0' long + 3.0 ' SideZ x 4.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 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

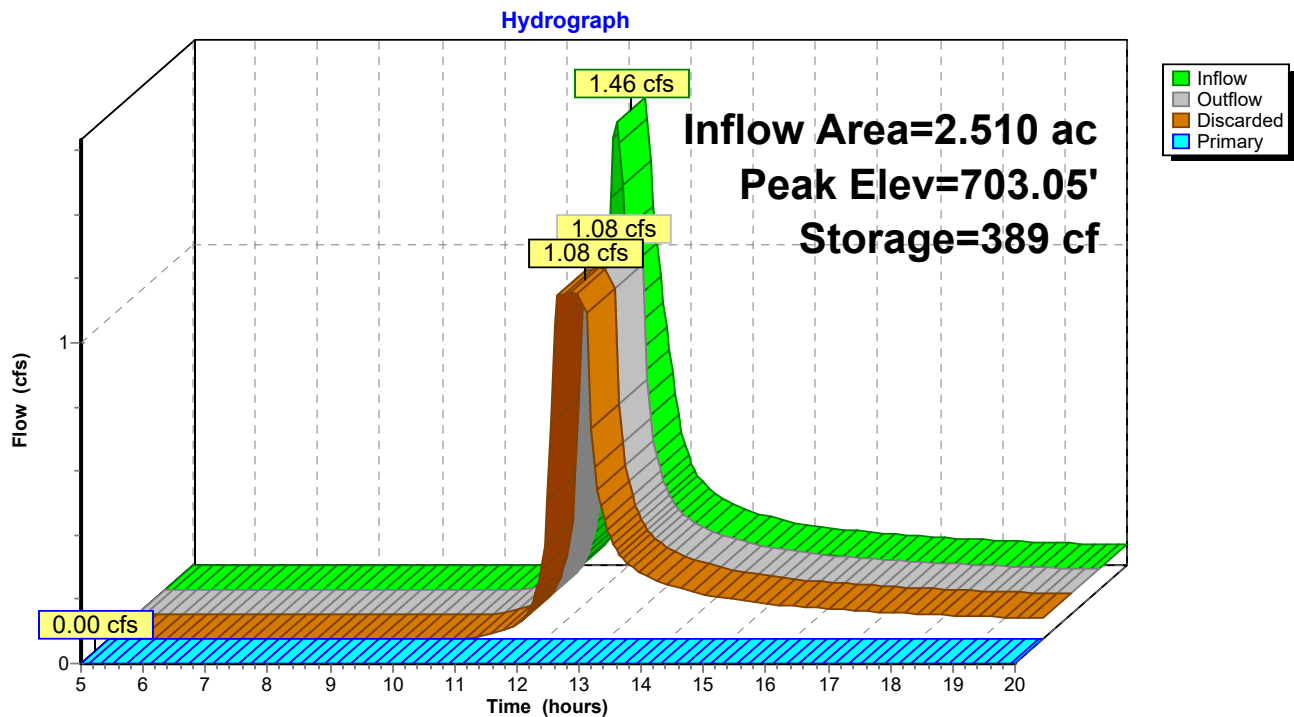
Discarded OutFlow Max=1.08 cfs @ 12.42 hrs HW=703.05' (Free Discharge)

↑**1=Exfiltration** (Controls 1.08 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=703.00' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: Infiltration Basin 1



Summary for Pond 7P: Sormwater Planters

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.075 ac, 100.00% Impervious, Inflow Depth > 1.96" for 1-yr event
 Inflow = 0.20 cfs @ 12.04 hrs, Volume= 0.012 af
 Outflow = 0.09 cfs @ 12.17 hrs, Volume= 0.007 af, Atten= 54%, Lag= 7.9 min
 Discarded = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Primary = 0.09 cfs @ 12.17 hrs, Volume= 0.007 af
 Routed to Pond 3P : Infiltration Basin 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 707.71' @ 12.17 hrs Surf.Area= 228 sf Storage= 276 cf

Plug-Flow detention time= 186.6 min calculated for 0.007 af (55% of inflow)
 Center-of-Mass det. time= 96.2 min (837.4 - 741.2)

Volume	Invert	Avail.Storage	Storage Description
#1	706.50'	342 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
706.50	228	0	0
707.50	228	228	228
708.00	228	114	342

Device	Routing	Invert	Outlet Devices
#1	Discarded	706.50'	6.000 in/hr Exfiltration over Surface area above 706.50' Conductivity to Groundwater Elevation = 699.00' Excluded Surface area = 228 sf
#2	Primary	703.50'	12.0" Round Culvert L= 328.0' Ke= 0.500 Inlet / Outlet Invert= 703.50' / 702.25' S= 0.0038 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#3	Device 2	707.50'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 5.00 hrs HW=706.50' (Free Discharge)

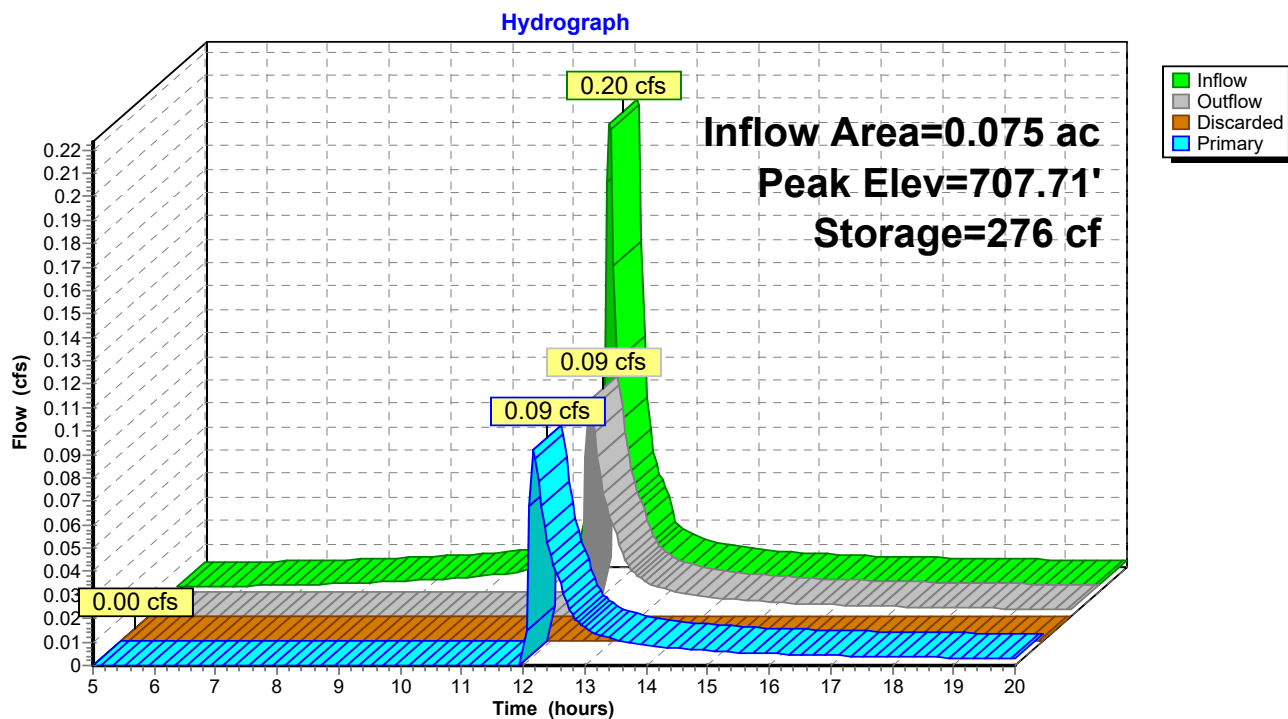
↑ **1=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.09 cfs @ 12.17 hrs HW=707.71' (Free Discharge)

↑ **2=Culvert** (Passes 0.09 cfs of 4.15 cfs potential flow)

↑ **3=Orifice/Grate** (Orifice Controls 0.09 cfs @ 1.55 fps)

Pond 7P: Sormwater Planters

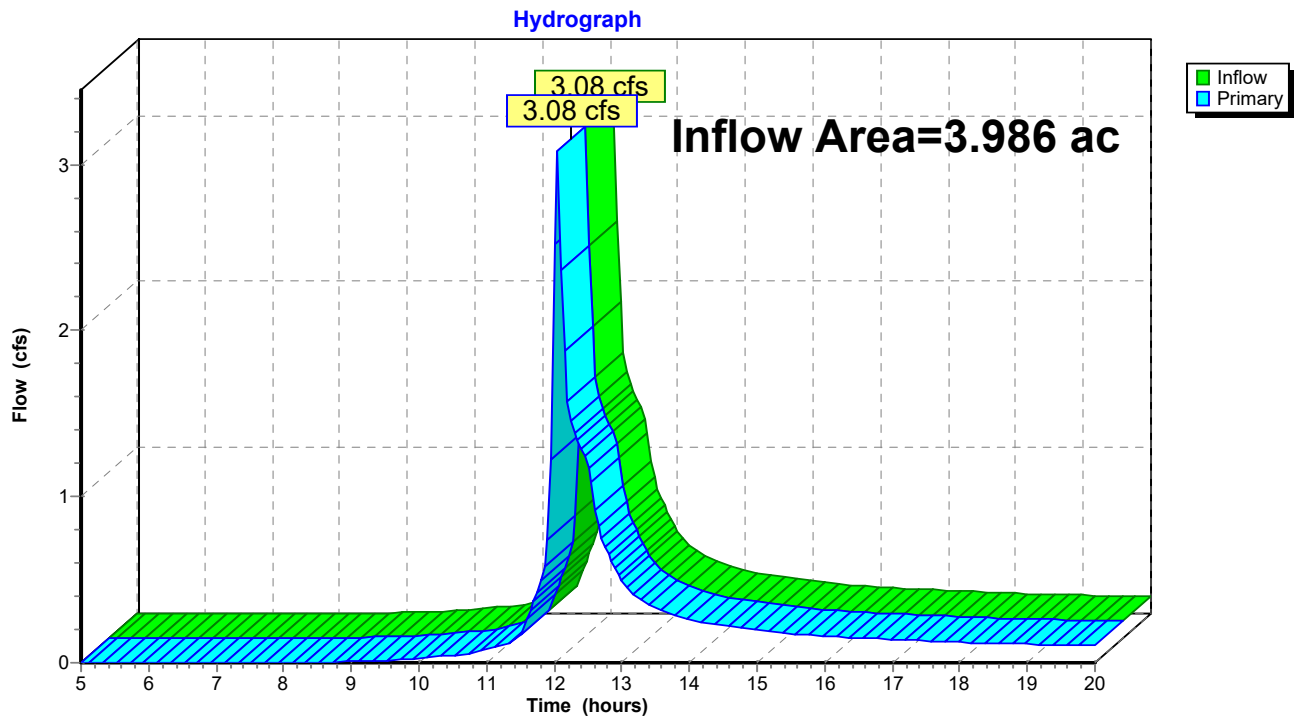


Summary for Link 1L: Pre-Dev Design Point

Inflow Area = 3.986 ac, 37.16% Impervious, Inflow Depth > 0.72" for 1-yr event
 Inflow = 3.08 cfs @ 12.05 hrs, Volume= 0.241 af
 Primary = 3.08 cfs @ 12.05 hrs, Volume= 0.241 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

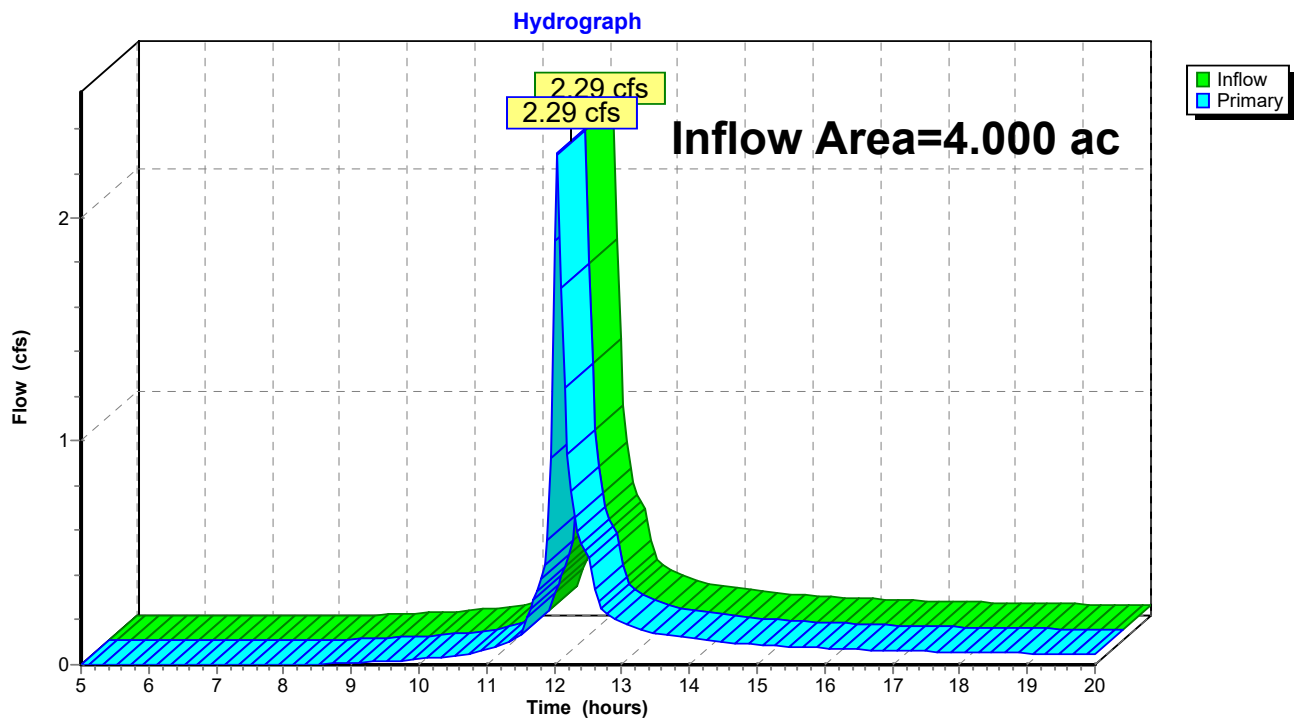
Link 1L: Pre-Dev Design Point



Summary for Link 2L: Post-Dev Design Point

Inflow Area = 4.000 ac, 56.75% Impervious, Inflow Depth > 0.38" for 1-yr event
Inflow = 2.29 cfs @ 12.04 hrs, Volume= 0.128 af
Primary = 2.29 cfs @ 12.04 hrs, Volume= 0.128 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 2L: Post-Dev Design Point

Tilden Hydrology

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NY-Tilden 24-hr S1 10-yr Rainfall=4.09"

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Page 20

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

Subcatchment0S: Existing 1	Runoff Area=2.070 ac 64.11% Impervious Runoff Depth>2.35" Tc=6.0 min CN=85 Runoff=7.02 cfs 0.405 af
Subcatchment00S: Existing 2	Runoff Area=1.916 ac 8.04% Impervious Runoff Depth>1.49" Flow Length=675' Tc=29.7 min CN=74 Runoff=2.13 cfs 0.237 af
Subcatchment1S: Post-Dev 1	Runoff Area=106,073 sf 49.08% Impervious Runoff Depth>1.85" Flow Length=116' Tc=20.1 min CN=79 Runoff=4.11 cfs 0.375 af
Subcatchment6S: Post-Dev 2	Runoff Area=1.490 ac 67.11% Impervious Runoff Depth>2.43" Tc=6.0 min CN=86 Runoff=5.22 cfs 0.302 af
Subcatchment8S: Planters	Runoff Area=3,262 sf 100.00% Impervious Runoff Depth>3.52" Tc=6.0 min CN=98 Runoff=0.34 cfs 0.022 af
Pond 3P: Infiltration Basin 1	Peak Elev=703.61' Storage=4,825 cf Inflow=4.31 cfs 0.392 af Discarded=1.32 cfs 0.392 af Primary=0.00 cfs 0.000 af Outflow=1.32 cfs 0.392 af
Pond 7P: Stormwater Planters	Peak Elev=707.98' Storage=338 cf Inflow=0.34 cfs 0.022 af Discarded=0.00 cfs 0.000 af Primary=0.24 cfs 0.016 af Outflow=0.24 cfs 0.016 af
Link 1L: Pre-Dev Design Point	Inflow=7.67 cfs 0.642 af Primary=7.67 cfs 0.642 af
Link 2L: Post-Dev Design Point	Inflow=5.22 cfs 0.302 af Primary=5.22 cfs 0.302 af

Total Runoff Area = 7.986 ac Runoff Volume = 1.341 af Average Runoff Depth = 2.02"
53.03% Pervious = 4.235 ac 46.97% Impervious = 3.751 ac

Summary for Subcatchment 0S: Existing 1

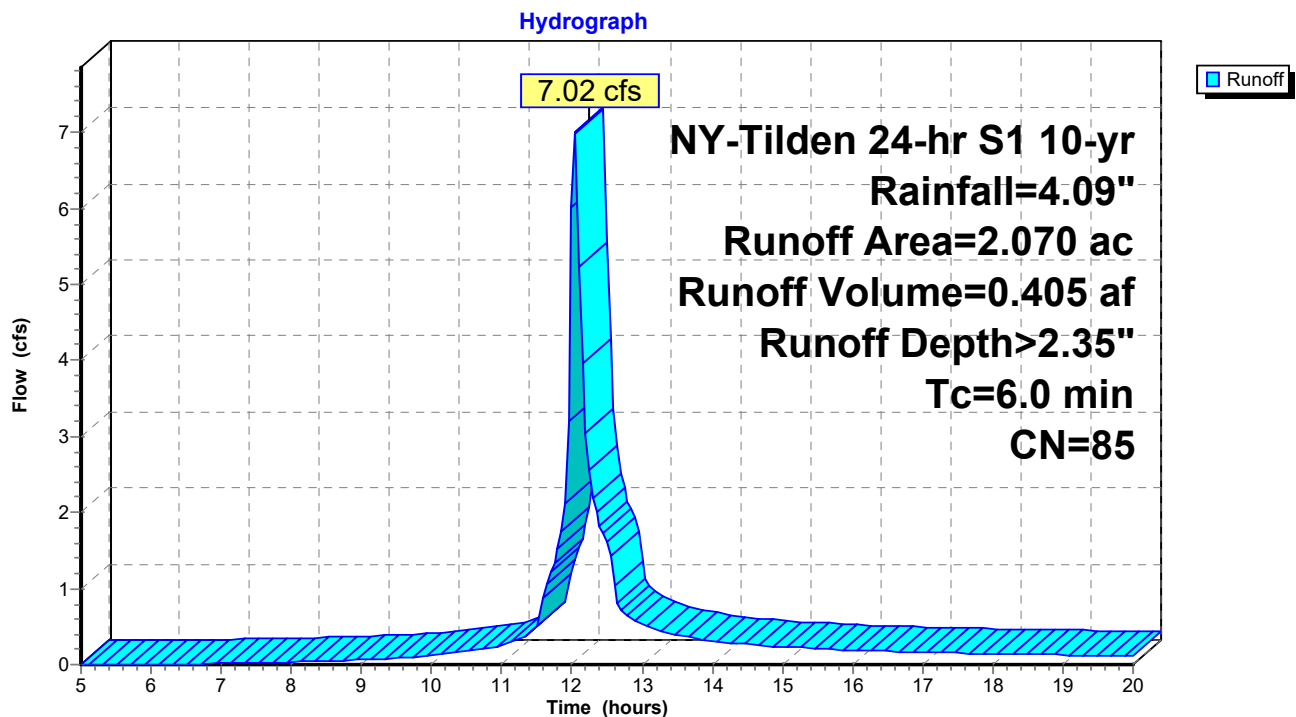
Runoff = 7.02 cfs @ 12.04 hrs, Volume= 0.405 af, Depth> 2.35"
Routed to Link 1L : Pre-Dev Design Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 10-yr Rainfall=4.09"

Area (ac)	CN	Description
* 1.077	98	Existing Impervious (On-Site)
* 0.250	98	Existing Impervious (Off-Site)
0.743	61	>75% Grass cover, Good, HSG B
2.070	85	Weighted Average
0.743		35.89% Pervious Area
1.327		64.11% Impervious Area

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

Subcatchment 0S: Existing 1



Summary for Subcatchment 00S: Existing 2

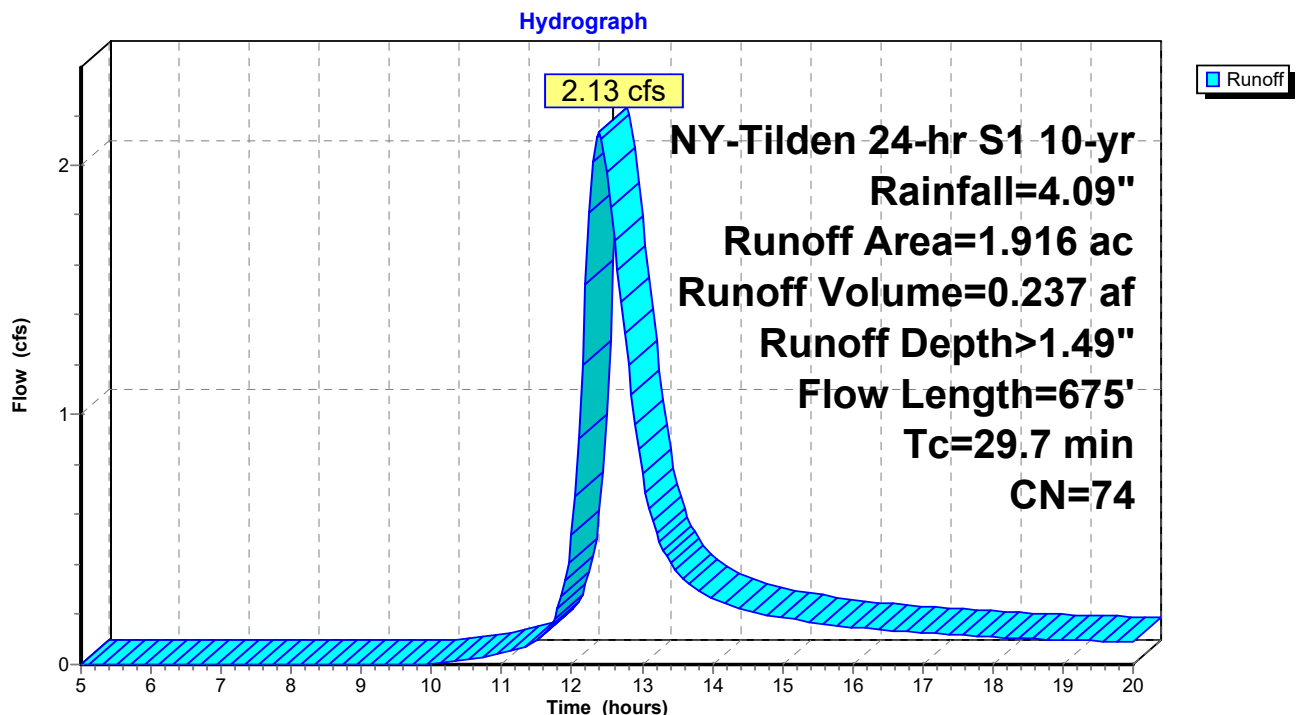
Runoff = 2.13 cfs @ 12.39 hrs, Volume= 0.237 af, Depth> 1.49"
Routed to Link 1L : Pre-Dev Design Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 10-yr Rainfall=4.09"

Area (ac)	CN	Description
* 0.049	98	Ex. Impervious (Off-Site)
* 0.105	98	Ex. Impervious (On-Site)
1.199	79	<50% Grass cover, Poor, HSG B
0.563	58	Woods/grass comb., Good, HSG B
1.916	74	Weighted Average
1.762		91.96% Pervious Area
0.154		8.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.2	150	0.0100	0.13		Sheet Flow, Grass: Short n= 0.150 P2= 2.78"
9.0	380	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.5	145	0.0060	1.57		Shallow Concentrated Flow, Paved Kv= 20.3 fps
29.7	675	Total			

Subcatchment 00S: Existing 2



Summary for Subcatchment 1S: Post-Dev 1

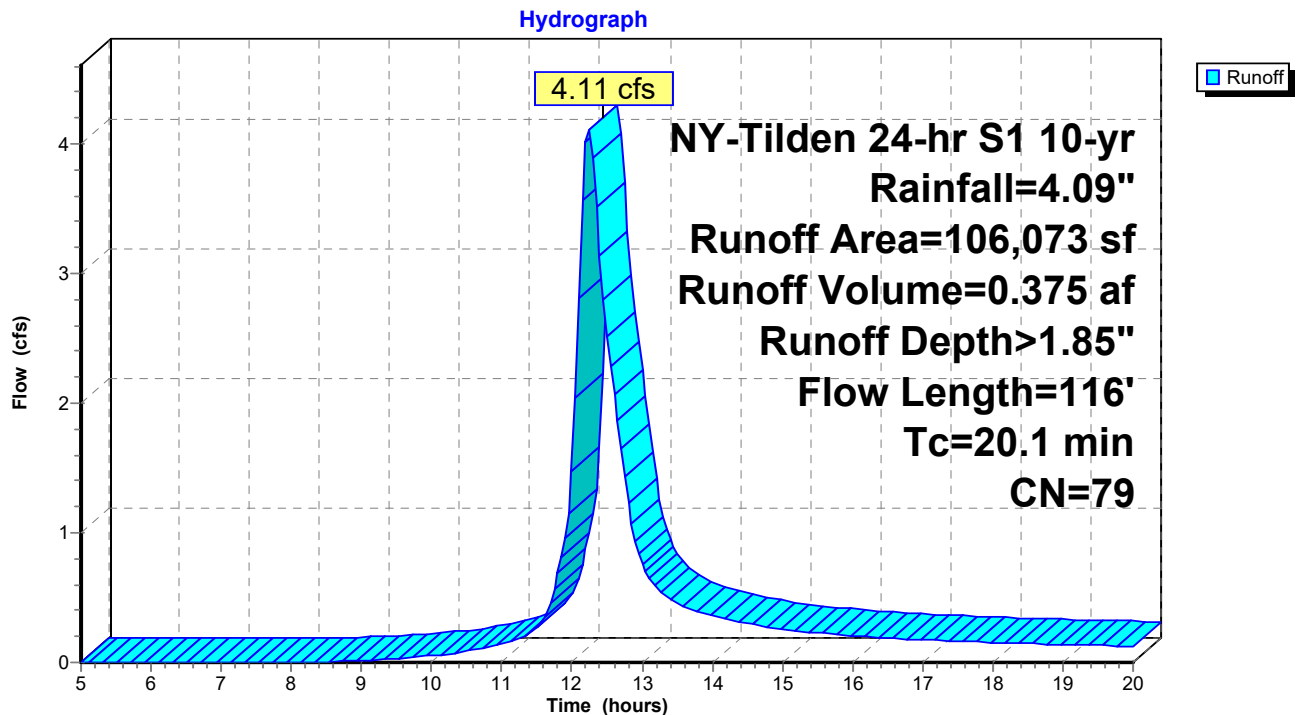
Runoff = 4.11 cfs @ 12.24 hrs, Volume= 0.375 af, Depth> 1.85"
Routed to Pond 3P : Infiltration Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 10-yr Rainfall=4.09"

	Area (sf)	CN	Description
*	52,059	98	Impervious
	54,014	61	>75% Grass cover, Good, HSG B
	106,073	79	Weighted Average
	54,014		50.92% Pervious Area
	52,059		49.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0300	0.08		Sheet Flow, Grass: Bermuda n= 0.410 P2= 2.78"
0.1	16	0.1500	2.71		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
20.1	116	Total			

Subcatchment 1S: Post-Dev 1



Summary for Subcatchment 6S: Post-Dev 2

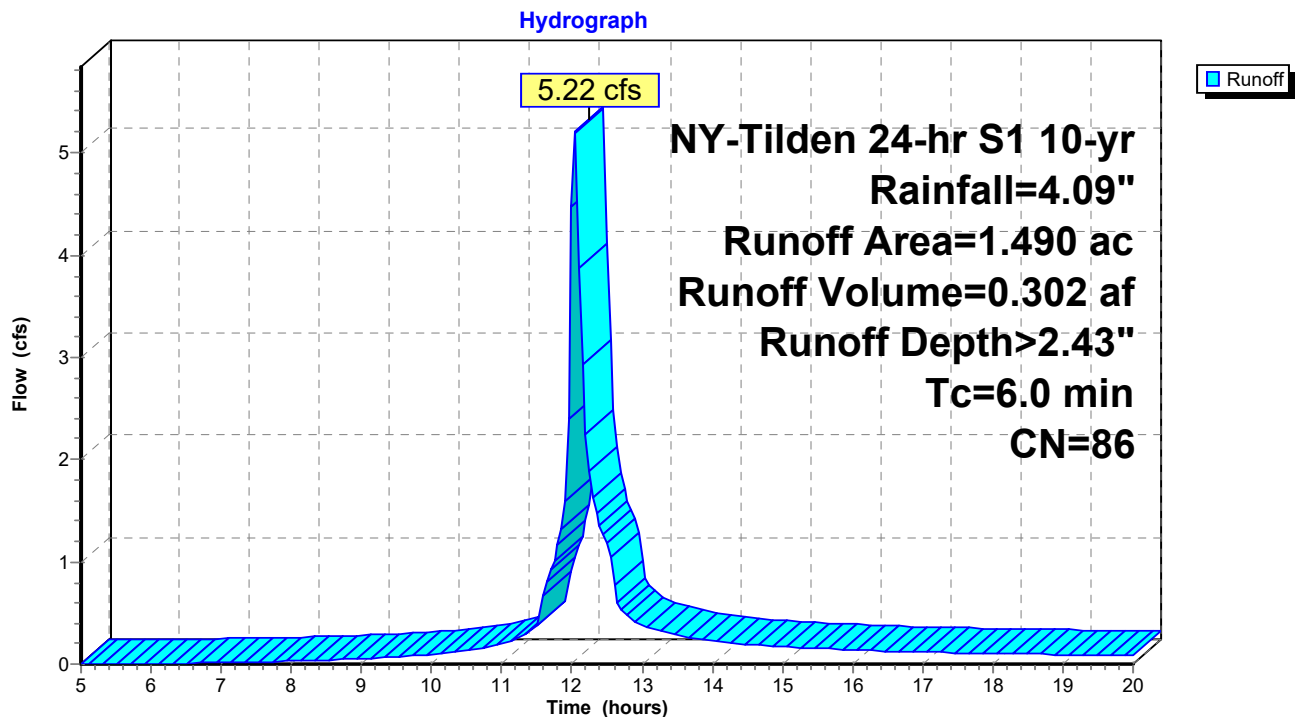
Runoff = 5.22 cfs @ 12.04 hrs, Volume= 0.302 af, Depth> 2.43"
Routed to Link 2L : Post-Dev Design Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 10-yr Rainfall=4.09"

Area (ac)	CN	Description
1.000	98	Paved parking, HSG A
0.490	61	>75% Grass cover, Good, HSG B
1.490	86	Weighted Average
0.490		32.89% Pervious Area
1.000		67.11% Impervious Area

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

Subcatchment 6S: Post-Dev 2



Summary for Subcatchment 8S: Planters

Runoff = 0.34 cfs @ 12.04 hrs, Volume= 0.022 af, Depth> 3.52"
Routed to Pond 7P : Sormwater Planters

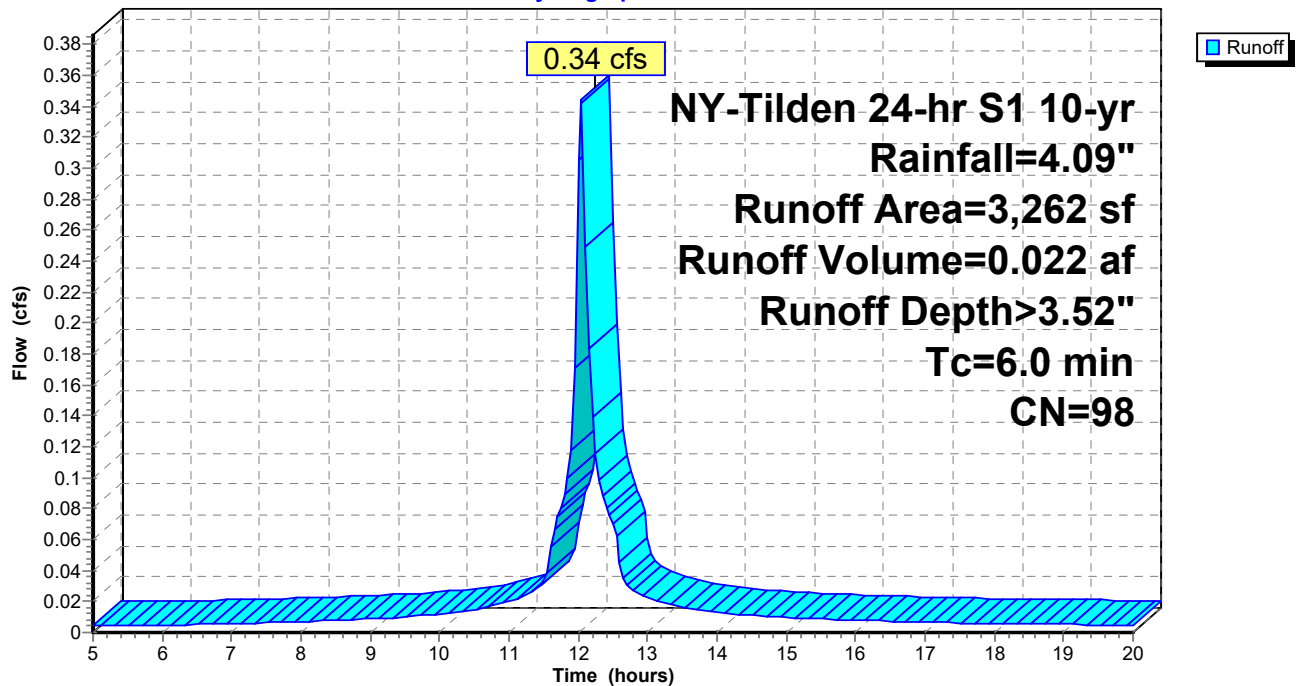
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 10-yr Rainfall=4.09"

Area (sf)	CN	Description
3,262	98	Roofs, HSG A
3,262		100.00% Impervious Area

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

Subcatchment 8S: Planters

Hydrograph



Summary for Pond 3P: Infiltration Basin 1

[79] Warning: Submerged Pond 7P Primary device # 2 INLET by 0.11'

Inflow Area = 2.510 ac, 50.60% Impervious, Inflow Depth > 1.87" for 10-yr event
 Inflow = 4.31 cfs @ 12.24 hrs, Volume= 0.392 af
 Outflow = 1.32 cfs @ 12.79 hrs, Volume= 0.392 af, Atten= 69%, Lag= 33.2 min
 Discarded = 1.32 cfs @ 12.79 hrs, Volume= 0.392 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Routed to Link 2L : Post-Dev Design Point

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 703.61' @ 12.79 hrs Surf.Area= 8,284 sf Storage= 4,825 cf

Plug-Flow detention time= 26.8 min calculated for 0.392 af (100% of inflow)
 Center-of-Mass det. time= 26.4 min (832.6 - 806.2)

Volume	Invert	Avail.Storage	Storage Description
#1	703.00'	17,432 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
703.00	7,632	0	0
704.00	8,708	8,170	8,170
705.00	9,815	9,262	17,432

Device	Routing	Invert	Outlet Devices
#1	Discarded	703.00'	6.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 699.00'
#2	Primary	704.25'	10.0' long + 3.0 ' SideZ x 4.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 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

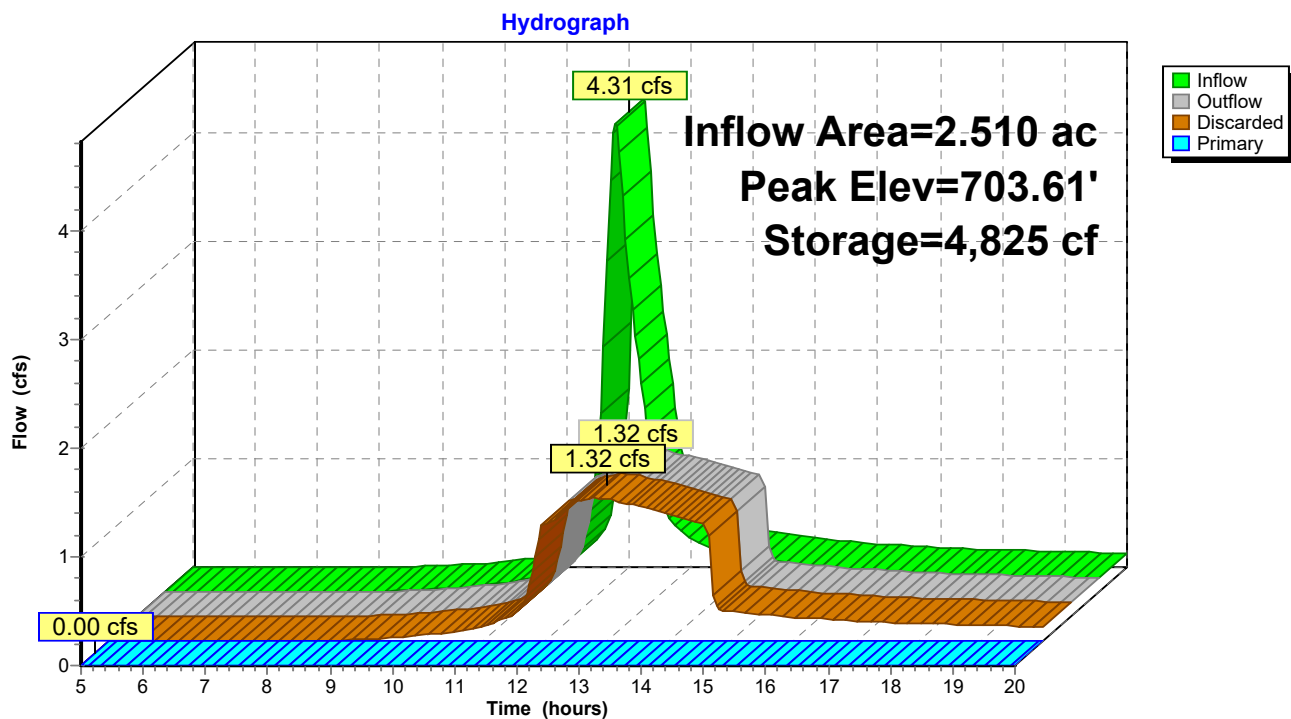
Discarded OutFlow Max=1.32 cfs @ 12.79 hrs HW=703.61' (Free Discharge)

↑**1=Exfiltration** (Controls 1.32 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=703.00' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: Infiltration Basin 1



Summary for Pond 7P: Sormwater Planters

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.075 ac, 100.00% Impervious, Inflow Depth > 3.52" for 10-yr event
 Inflow = 0.34 cfs @ 12.04 hrs, Volume= 0.022 af
 Outflow = 0.24 cfs @ 12.12 hrs, Volume= 0.016 af, Atten= 31%, Lag= 4.6 min
 Discarded = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Primary = 0.24 cfs @ 12.12 hrs, Volume= 0.016 af
 Routed to Pond 3P : Infiltration Basin 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 707.98' @ 12.12 hrs Surf.Area= 228 sf Storage= 338 cf

Plug-Flow detention time= 127.0 min calculated for 0.016 af (75% of inflow)
 Center-of-Mass det. time= 63.8 min (799.6 - 735.8)

Volume	Invert	Avail.Storage	Storage Description
#1	706.50'	342 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
706.50	228	0	0
707.50	228	228	228
708.00	228	114	342

Device	Routing	Invert	Outlet Devices
#1	Discarded	706.50'	6.000 in/hr Exfiltration over Surface area above 706.50' Conductivity to Groundwater Elevation = 699.00' Excluded Surface area = 228 sf
#2	Primary	703.50'	12.0" Round Culvert L= 328.0' Ke= 0.500 Inlet / Outlet Invert= 703.50' / 702.25' S= 0.0038 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#3	Device 2	707.50'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 5.00 hrs HW=706.50' (Free Discharge)

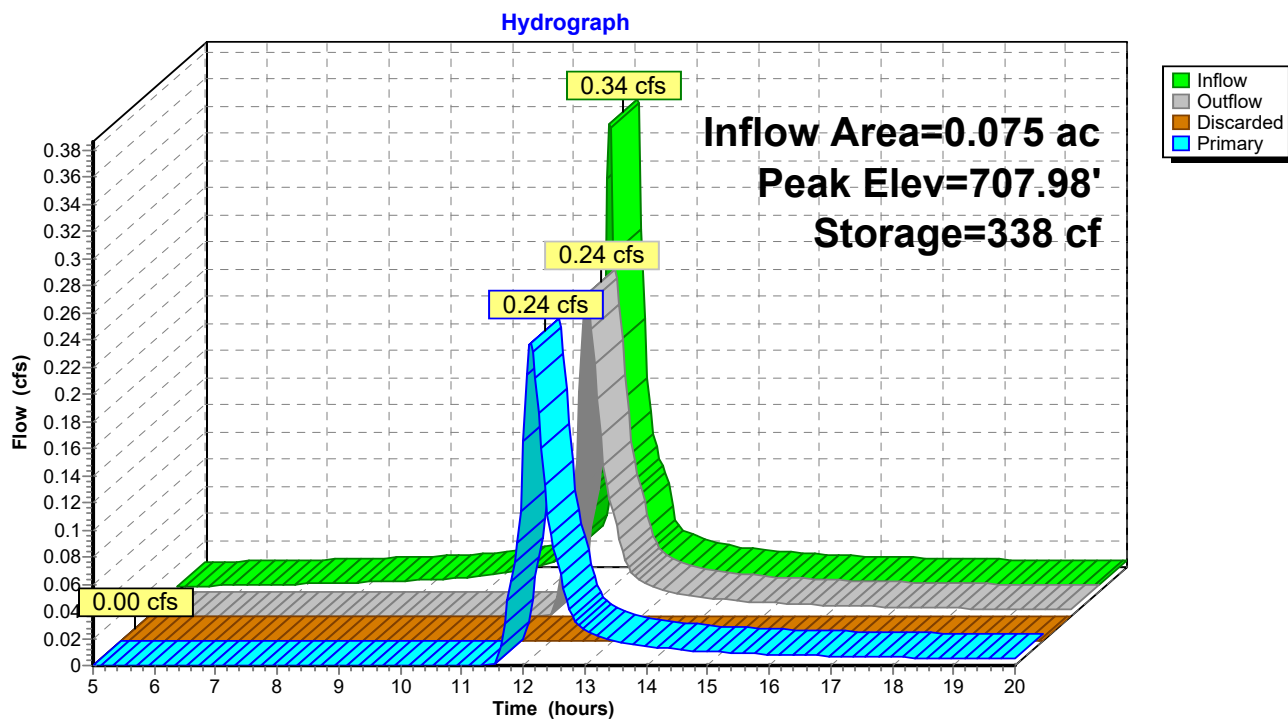
↑ **1=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.23 cfs @ 12.12 hrs HW=707.98' (Free Discharge)

↑ **2=Culvert** (Passes 0.23 cfs of 4.27 cfs potential flow)

↑ **3=Orifice/Grate** (Orifice Controls 0.23 cfs @ 2.68 fps)

Pond 7P: Sormwater Planters

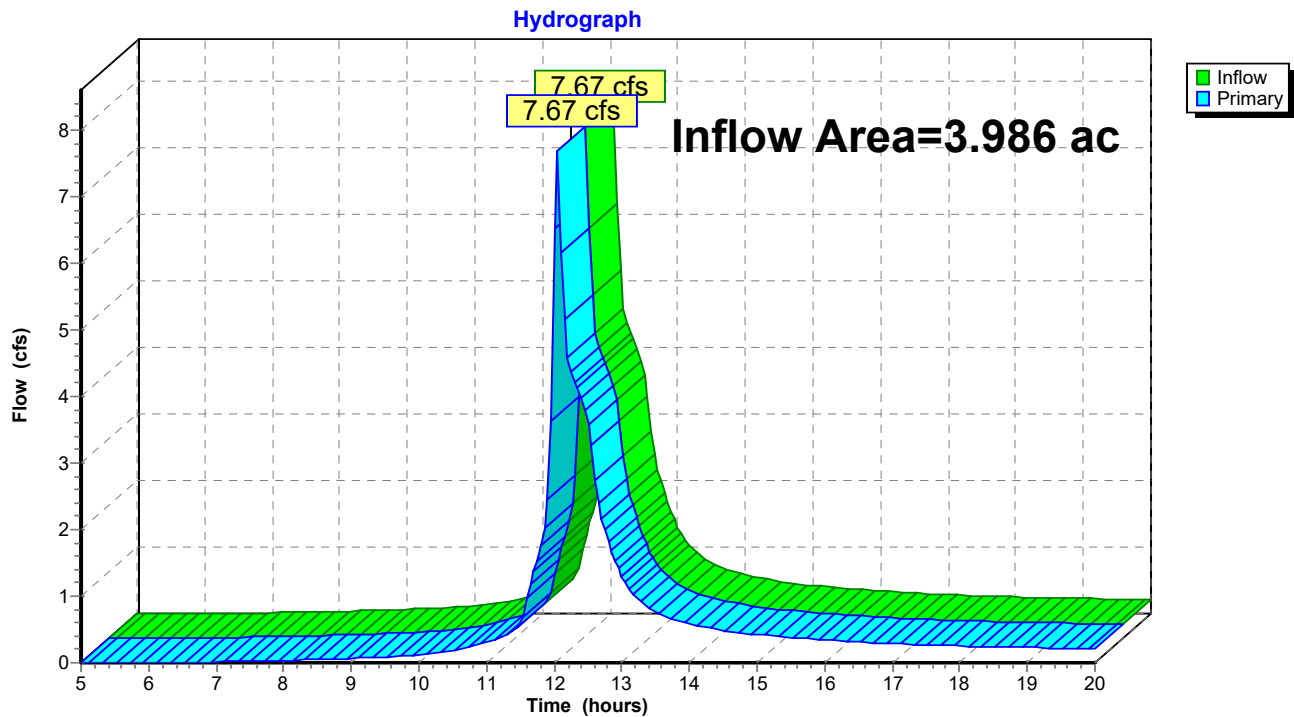


Summary for Link 1L: Pre-Dev Design Point

Inflow Area = 3.986 ac, 37.16% Impervious, Inflow Depth > 1.93" for 10-yr event
 Inflow = 7.67 cfs @ 12.05 hrs, Volume= 0.642 af
 Primary = 7.67 cfs @ 12.05 hrs, Volume= 0.642 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 1L: Pre-Dev Design Point

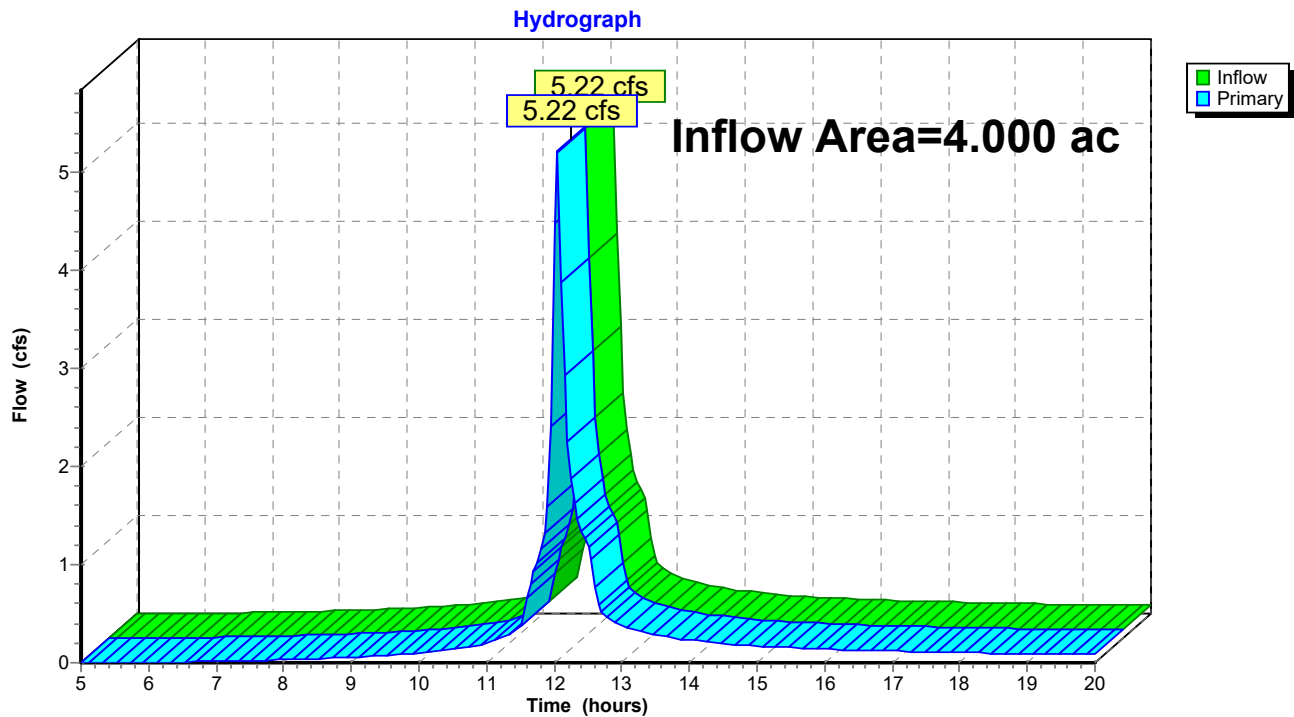


Summary for Link 2L: Post-Dev Design Point

Inflow Area = 4.000 ac, 56.75% Impervious, Inflow Depth > 0.91" for 10-yr event
 Inflow = 5.22 cfs @ 12.04 hrs, Volume= 0.302 af
 Primary = 5.22 cfs @ 12.04 hrs, Volume= 0.302 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 2L: Post-Dev Design Point



Tilden Hydrology

Prepared by Lamont Engineers

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NY-Tilden 24-hr S1 100-yr Rainfall=7.14"

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Page 32

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

Subcatchment0S: Existing 1	Runoff Area=2.070 ac 64.11% Impervious Runoff Depth>5.04" Tc=6.0 min CN=85 Runoff=14.40 cfs 0.870 af
Subcatchment00S: Existing 2	Runoff Area=1.916 ac 8.04% Impervious Runoff Depth>3.82" Flow Length=675' Tc=29.7 min CN=74 Runoff=5.65 cfs 0.610 af
Subcatchment1S: Post-Dev 1	Runoff Area=106,073 sf 49.08% Impervious Runoff Depth>4.37" Flow Length=116' Tc=20.1 min CN=79 Runoff=9.71 cfs 0.886 af
Subcatchment6S: Post-Dev 2	Runoff Area=1.490 ac 67.11% Impervious Runoff Depth>5.15" Tc=6.0 min CN=86 Runoff=10.53 cfs 0.640 af
Subcatchment8S: Planters	Runoff Area=3,262 sf 100.00% Impervious Runoff Depth>6.28" Tc=6.0 min CN=98 Runoff=0.60 cfs 0.039 af
Pond 3P: Infiltration Basin 1	Peak Elev=704.51' Storage=12,796 cf Inflow=9.94 cfs 0.920 af Discarded=1.73 cfs 0.781 af Primary=3.52 cfs 0.138 af Outflow=5.25 cfs 0.919 af
Pond 7P: Stormwater Planters	Peak Elev=710.69' Storage=342 cf Inflow=0.60 cfs 0.039 af Discarded=0.00 cfs 0.000 af Primary=0.73 cfs 0.034 af Outflow=0.73 cfs 0.034 af
Link 1L: Pre-Dev Design Point	Inflow=16.55 cfs 1.480 af Primary=16.55 cfs 1.480 af
Link 2L: Post-Dev Design Point	Inflow=10.53 cfs 0.777 af Primary=10.53 cfs 0.777 af

Total Runoff Area = 7.986 ac Runoff Volume = 3.045 af Average Runoff Depth = 4.58"
53.03% Pervious = 4.235 ac 46.97% Impervious = 3.751 ac

Summary for Subcatchment 0S: Existing 1

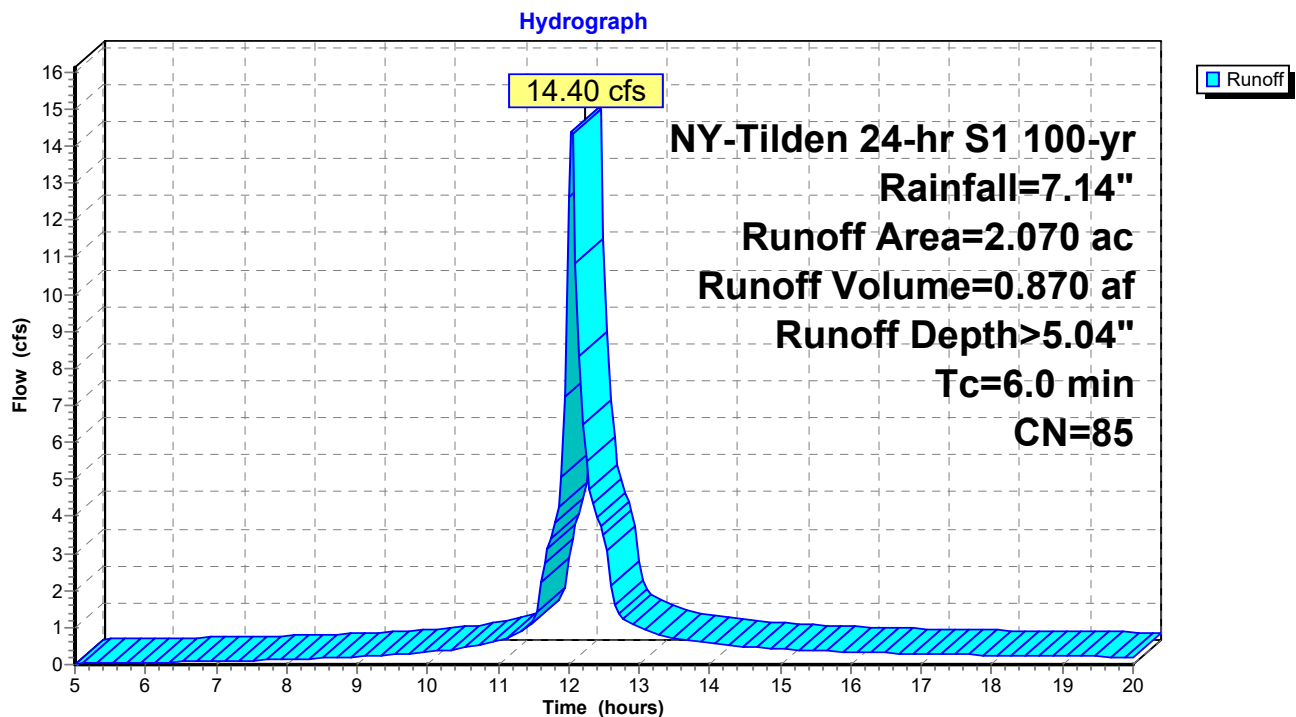
Runoff = 14.40 cfs @ 12.04 hrs, Volume= 0.870 af, Depth> 5.04"
Routed to Link 1L : Pre-Dev Design Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 100-yr Rainfall=7.14"

Area (ac)	CN	Description
* 1.077	98	Existing Impervious (On-Site)
* 0.250	98	Existing Impervious (Off-Site)
0.743	61	>75% Grass cover, Good, HSG B
2.070	85	Weighted Average
0.743		35.89% Pervious Area
1.327		64.11% Impervious Area

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

Subcatchment 0S: Existing 1



Tilden Hydrology

Prepared by Lamont Engineers

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NY-Tilden 24-hr S1 100-yr Rainfall=7.14"

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Page 34

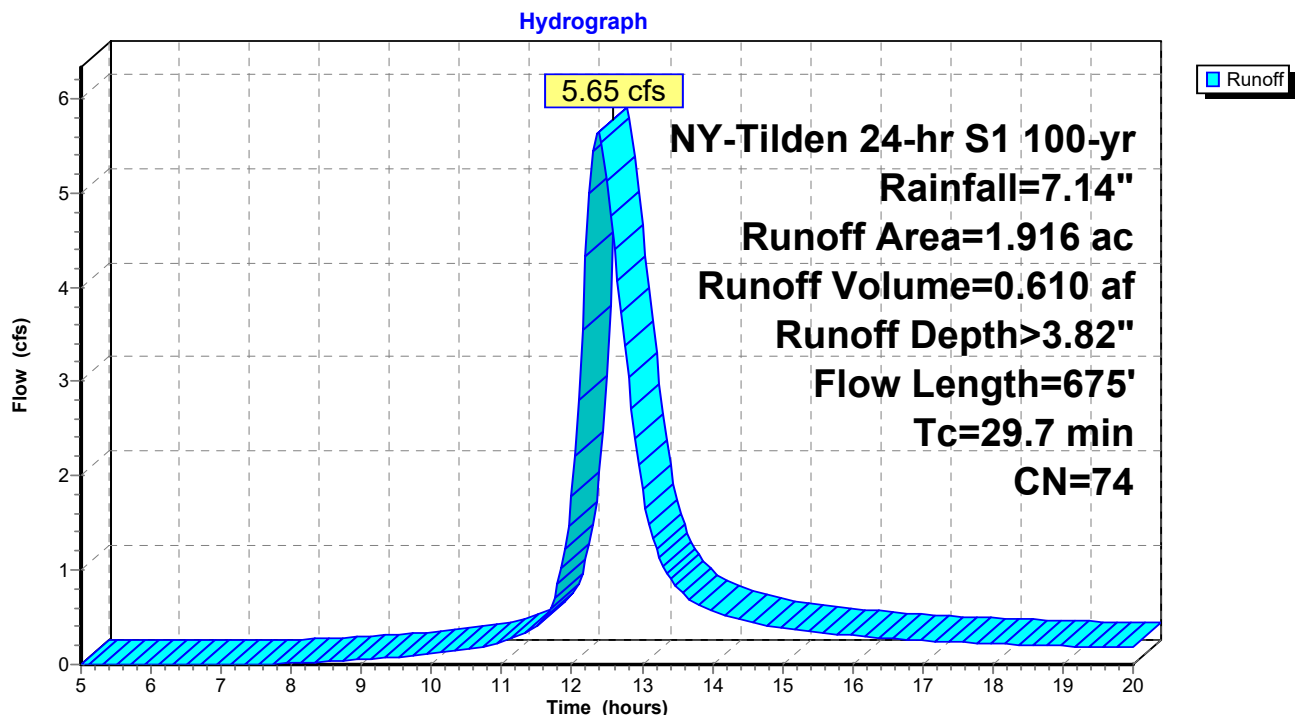
Summary for Subcatchment 00S: Existing 2

Runoff = 5.65 cfs @ 12.37 hrs, Volume= 0.610 af, Depth> 3.82"
Routed to Link 1L : Pre-Dev Design Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 100-yr Rainfall=7.14"

Area (ac)	CN	Description
* 0.049	98	Ex. Impervious (Off-Site)
* 0.105	98	Ex. Impervious (On-Site)
1.199	79	<50% Grass cover, Poor, HSG B
0.563	58	Woods/grass comb., Good, HSG B
1.916	74	Weighted Average
1.762		91.96% Pervious Area
0.154		8.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.2	150	0.0100	0.13		Sheet Flow, Grass: Short n= 0.150 P2= 2.78"
9.0	380	0.0100	0.70		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.5	145	0.0060	1.57		Shallow Concentrated Flow, Paved Kv= 20.3 fps
29.7	675	Total			

Subcatchment 00S: Existing 2

Summary for Subcatchment 1S: Post-Dev 1

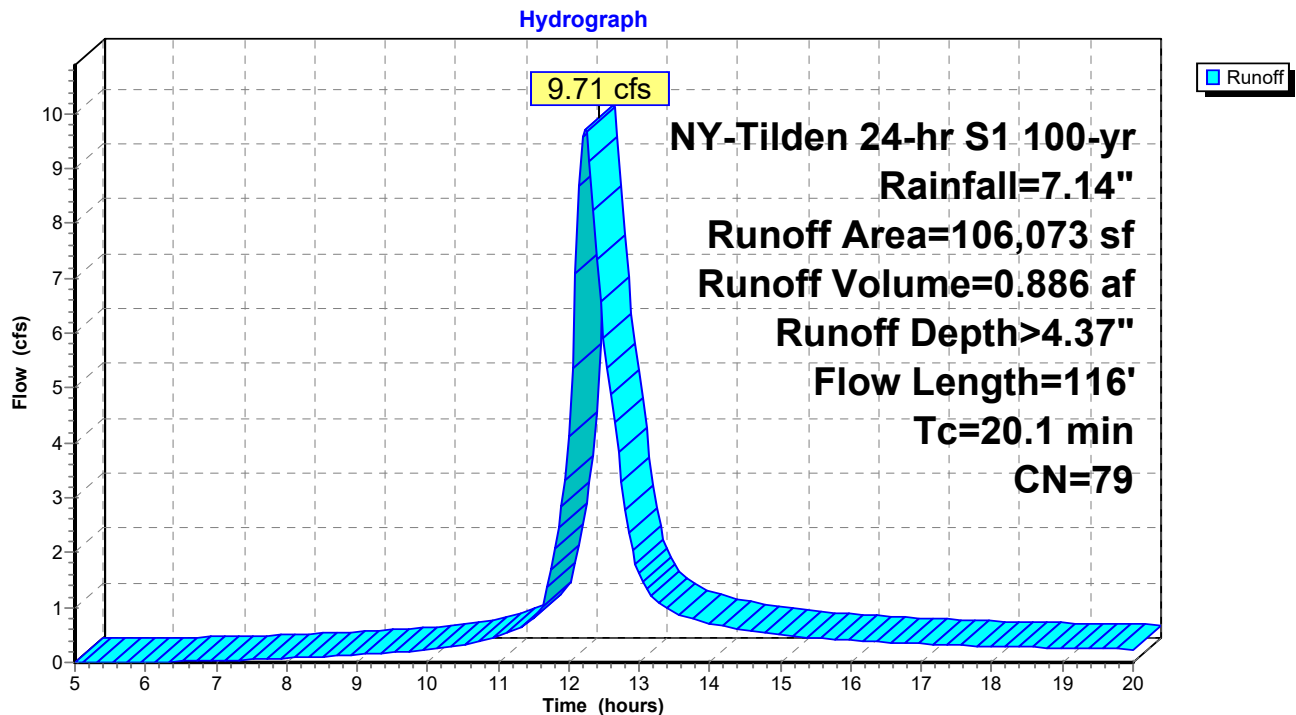
Runoff = 9.71 cfs @ 12.23 hrs, Volume= 0.886 af, Depth> 4.37"
Routed to Pond 3P : Infiltration Basin 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 100-yr Rainfall=7.14"

	Area (sf)	CN	Description
*	52,059	98	Impervious
	54,014	61	>75% Grass cover, Good, HSG B
	106,073	79	Weighted Average
	54,014		50.92% Pervious Area
	52,059		49.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0	100	0.0300	0.08		Sheet Flow, Grass: Bermuda n= 0.410 P2= 2.78"
0.1	16	0.1500	2.71		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
20.1	116	Total			

Subcatchment 1S: Post-Dev 1



Summary for Subcatchment 6S: Post-Dev 2

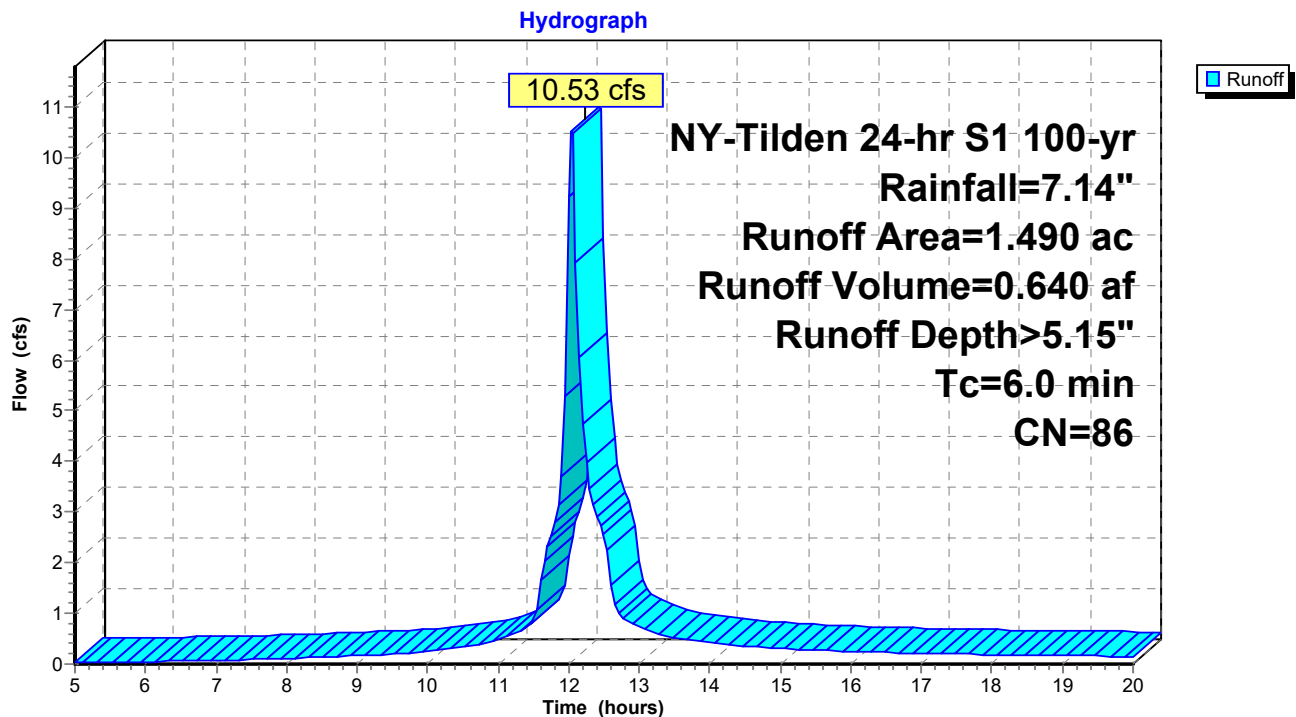
Runoff = 10.53 cfs @ 12.04 hrs, Volume= 0.640 af, Depth> 5.15"
Routed to Link 2L : Post-Dev Design Point

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 100-yr Rainfall=7.14"

Area (ac)	CN	Description
1.000	98	Paved parking, HSG A
0.490	61	>75% Grass cover, Good, HSG B
1.490	86	Weighted Average
0.490		32.89% Pervious Area
1.000		67.11% Impervious Area

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

Subcatchment 6S: Post-Dev 2



Summary for Subcatchment 8S: Planters

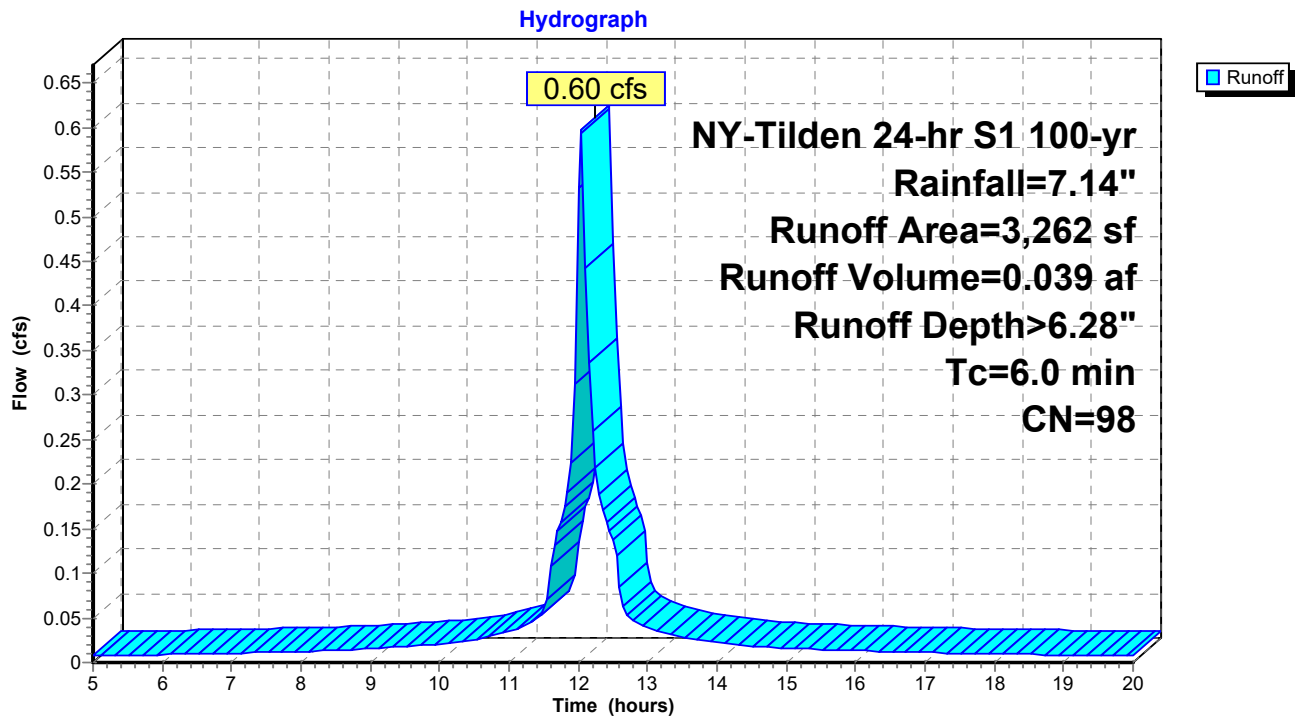
Runoff = 0.60 cfs @ 12.04 hrs, Volume= 0.039 af, Depth> 6.28"
Routed to Pond 7P : Sormwater Planters

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Tilden 24-hr S1 100-yr Rainfall=7.14"

Area (sf)	CN	Description
3,262	98	Roofs, HSG A
3,262		100.00% Impervious Area

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

Subcatchment 8S: Planters



Summary for Pond 3P: Infiltration Basin 1

[79] Warning: Submerged Pond 7P Primary device # 2 INLET by 1.01'

Inflow Area = 2.510 ac, 50.60% Impervious, Inflow Depth > 4.40" for 100-yr event
 Inflow = 9.94 cfs @ 12.23 hrs, Volume= 0.920 af
 Outflow = 5.25 cfs @ 12.58 hrs, Volume= 0.919 af, Atten= 47%, Lag= 20.8 min
 Discarded = 1.73 cfs @ 12.58 hrs, Volume= 0.781 af
 Primary = 3.52 cfs @ 12.58 hrs, Volume= 0.138 af
 Routed to Link 2L : Post-Dev Design Point

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 704.51' @ 12.58 hrs Surf.Area= 9,277 sf Storage= 12,796 cf

Plug-Flow detention time= 50.6 min calculated for 0.919 af (100% of inflow)
 Center-of-Mass det. time= 50.3 min (835.2 - 784.9)

Volume	Invert	Avail.Storage	Storage Description
#1	703.00'	17,432 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
703.00	7,632	0	0
704.00	8,708	8,170	8,170
705.00	9,815	9,262	17,432

Device	Routing	Invert	Outlet Devices
#1	Discarded	703.00'	6.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 699.00'
#2	Primary	704.25'	10.0' long + 3.0 ' SideZ x 4.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 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

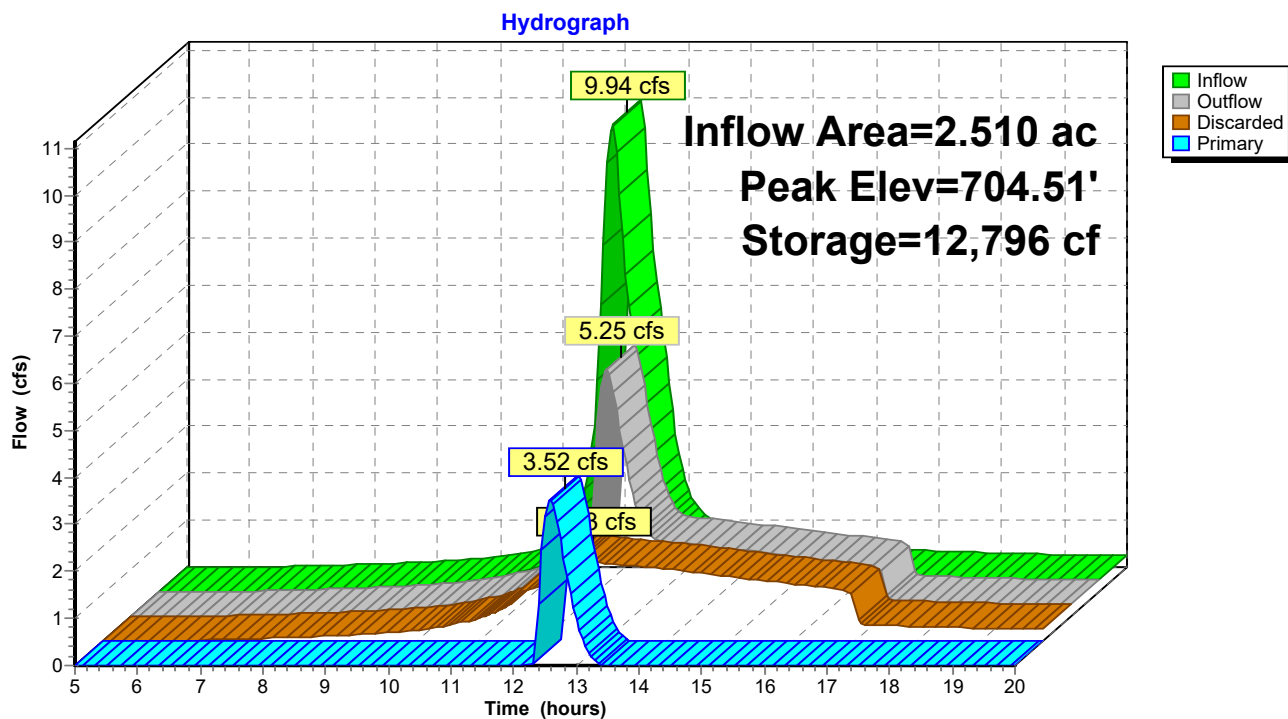
Discarded OutFlow Max=1.73 cfs @ 12.58 hrs HW=704.51' (Free Discharge)

↑**1=Exfiltration** (Controls 1.73 cfs)

Primary OutFlow Max=3.49 cfs @ 12.58 hrs HW=704.51' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Weir Controls 3.49 cfs @ 1.23 fps)

Pond 3P: Infiltration Basin 1



Summary for Pond 7P: Sormwater Planters

[82] Warning: Early inflow requires earlier time span

[93] Warning: Storage range exceeded by 2.69'

[88] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 0.075 ac, 100.00% Impervious, Inflow Depth > 6.28" for 100-yr event
 Inflow = 0.60 cfs @ 12.04 hrs, Volume= 0.039 af
 Outflow = 0.73 cfs @ 12.05 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.5 min
 Discarded = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Primary = 0.73 cfs @ 12.05 hrs, Volume= 0.034 af
 Routed to Pond 3P : Infiltration Basin 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 710.69' @ 12.05 hrs Surf.Area= 228 sf Storage= 342 cf

Plug-Flow detention time= 90.4 min calculated for 0.034 af (86% of inflow)
 Center-of-Mass det. time= 45.8 min (778.6 - 732.8)

Volume	Invert	Avail.Storage	Storage Description
#1	706.50'	342 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
706.50	228	0	0
707.50	228	228	228
708.00	228	114	342

Device	Routing	Invert	Outlet Devices
#1	Discarded	706.50'	6.000 in/hr Exfiltration over Surface area above 706.50' Conductivity to Groundwater Elevation = 699.00' Excluded Surface area = 228 sf
#2	Primary	703.50'	12.0" Round Culvert L= 328.0' Ke= 0.500 Inlet / Outlet Invert= 703.50' / 702.25' S= 0.0038 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#3	Device 2	707.50'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 5.00 hrs HW=706.50' (Free Discharge)

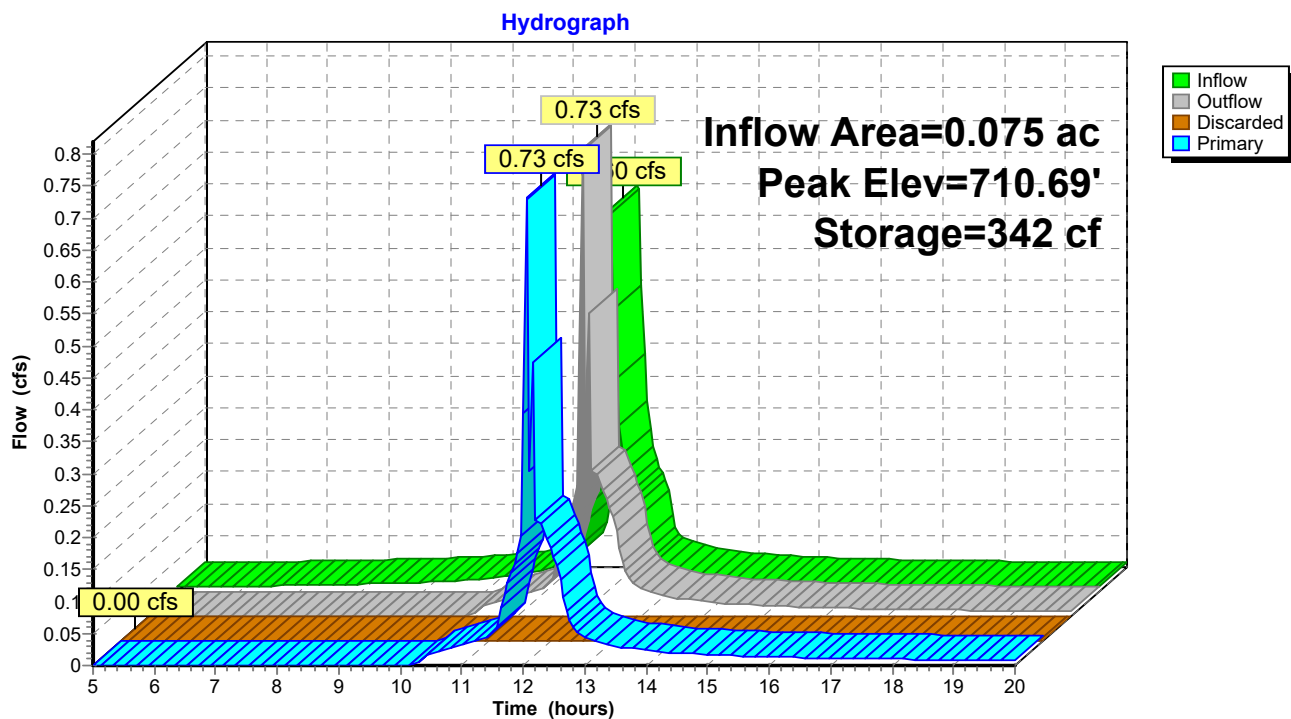
↑ **1=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.72 cfs @ 12.05 hrs HW=710.56' (Free Discharge)

↑ **2=Culvert** (Passes 0.72 cfs of 5.32 cfs potential flow)

↑ **3=Orifice/Grate** (Orifice Controls 0.72 cfs @ 8.20 fps)

Pond 7P: Sormwater Planters

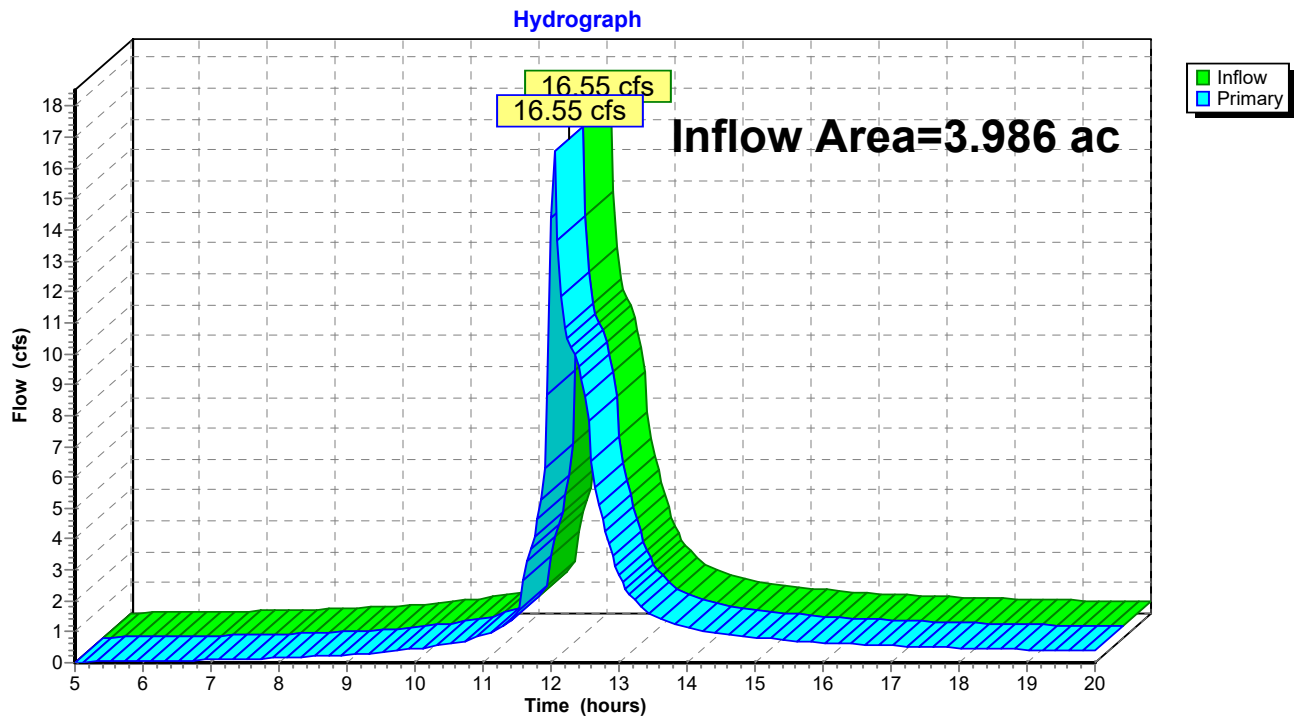


Summary for Link 1L: Pre-Dev Design Point

Inflow Area = 3.986 ac, 37.16% Impervious, Inflow Depth > 4.46" for 100-yr event
 Inflow = 16.55 cfs @ 12.05 hrs, Volume= 1.480 af
 Primary = 16.55 cfs @ 12.05 hrs, Volume= 1.480 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 1L: Pre-Dev Design Point

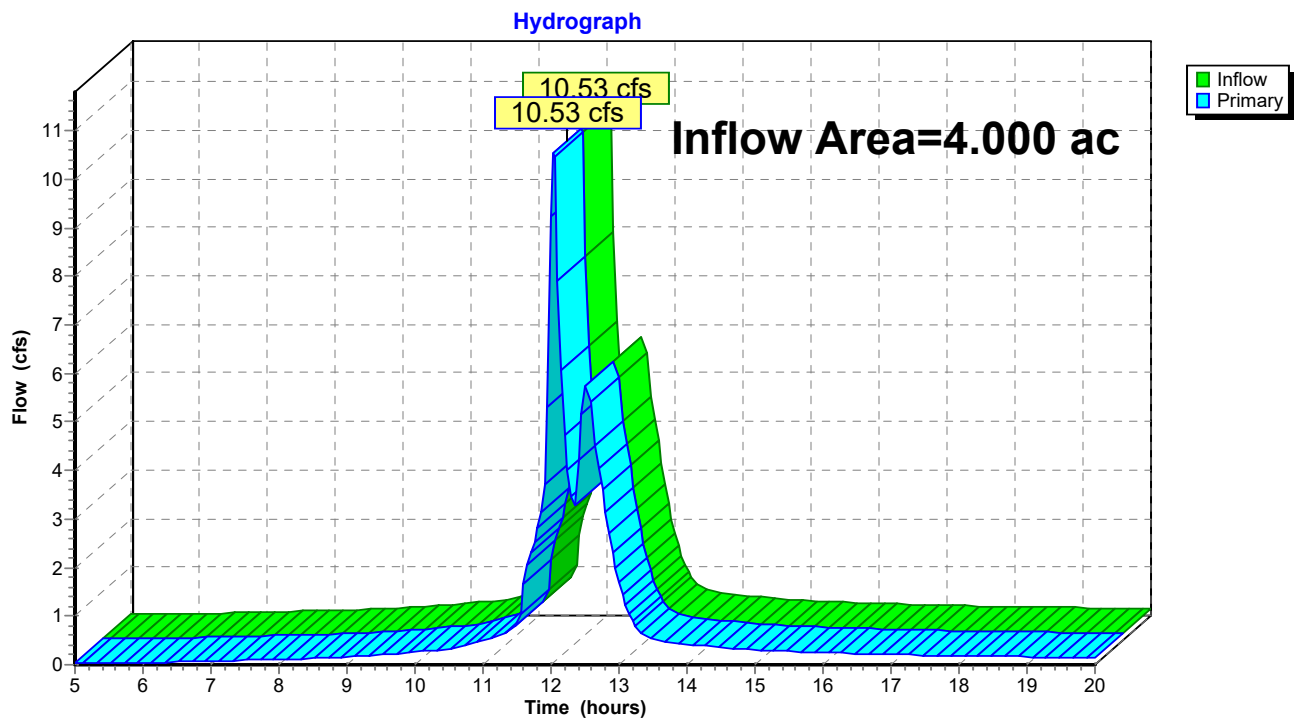


Summary for Link 2L: Post-Dev Design Point

Inflow Area = 4.000 ac, 56.75% Impervious, Inflow Depth > 2.33" for 100-yr event
 Inflow = 10.53 cfs @ 12.04 hrs, Volume= 0.777 af
 Primary = 10.53 cfs @ 12.04 hrs, Volume= 0.777 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 2L: Post-Dev Design Point



Appendix 4.9

Operation and Maintenance Manual

Swales:

- Clean debris from channel and contributing area monthly and after major storm events
- Mow as needed – monthly or less often
- Remove sediment annually

Sediment basins and Infiltration Basins:

- Clean debris from basin and contributing area monthly and after major storm events
- Mow as needed – monthly or less often
- Remove sediment annually or as sediment markers indicate

Stormwater Planters:

- Clean debris from basin and contributing area monthly and after major storm events
- Replace plants and stone as needed – yearly or less often
- Remove sediment annually or as sediment builds

Outfalls:

- Inspect yearly and after major storm events
- Repair erosion as needed
- Replace stone outfall material as needed

Structures and Piping:

- Monthly and after major storm events, inspect catch basins, inlet pipes, and outlet pipes for sediment and debris.
- Clean all debris and remove sediment when it accumulates to 6" of depth.
- Remove sediment manually or with a vacuum truck.

Disposal:

- Disposal of all material removed from all practices shall be done in accordance with local regulations.

Soil Restoration Maintenance:

- first year maintenance operations includes:
 1. initial inspections for the first six months (once after each storm greater than half- inch)
 2. reseeding to repair bare or eroding areas to assure grass stabilization
 3. water once every three days for first month, and then provide a half inch of water per week during first year. irrigation plan may be adjusted according to the rain event.
 4. fertilization may be needed in the fall after the first growing season to increase plant vigor
 5. keep site free of vehicular and foot traffic or other weight loads.

Supplemental references for stormwater management practice maintenance guidance are attached to this document.

Chapter 12: Maintenance Guidance

SMPs will not function to protect water resources without proper attention to operation and maintenance (O&M). In order to ensure long-term performance, it's critical that O&M tasks and responsibilities are identified, clearly outlined in an inspection and maintenance plan, and assigned to various stakeholders. This Chapter was developed to address the need for maintenance guidance, and is structured in the following sections:

- **Section 12.1** introduces the 10 SMP groups used in this Chapter, establishes the 3 level hierarchy for inspection and maintenance responsibilities and procedures, and provides an overview of planning and budgeting for maintenance.
- **Section 12.2** outlines the key components to be inspected, the Level 1 inspection and maintenance procedures, and common triggers for Level 2 and Level 3 inspections, for each of the 10 SMP groups.
- **Section 12.3** includes diagnostic measures for specific problems, as well as guidance for performing repair activities.

Section 12.1 Introduction

12.1.1 Stormwater Management Practice (SMP) Groups

For the purpose of this Chapter, the standard SMPs and Runoff Reduction Techniques have been clustered into ten SMP groups (**Table 12.1**), containing practices that share common inspection components and maintenance concerns. This grouping has been applied to the detailed inspection guidance provided in **Section 12.2**, as well as the fillable **Level 1 and Level 2 Inspection Checklists** that are available for download on the NYSDEC Construction Stormwater Toolbox website (www.dec.ny.gov). The checklists identify common problems with key components of the SMPs, recommend follow-up actions to correct them, and outline triggers for Level 2 and Level 3 inspections. These checklists have been developed as a guideline to assist responsible parties with efficient and thorough O&M.

Table 12.1 Practices Discussed in this Chapter, by Group

SMP Group	Practices Included	
1. Sheet Flow and Disconnection	- Sheet Flow to Filter Strip - Rooftop Disconnection	Sheet Flow to Riparian Buffers
2. Tree Planting	Tree Planting	
3. Swales	Vegetated Swale	Wet Swale
4. Bioretention	- Tree Pit - Tree Trench - Rain Garden - Stormwater Planter	- Infiltration Bioretention - Filtration Bioretention - Bioslope - Dry Swale
5. Rainwater Harvesting	Rain Barrel	Cistern
6. Porous Pavements	- Porous Asphalt - Porous Paver	- Porous Concrete - Stabilized Grid/Cell
7. Green Roofs	Extensive Green Roof	Intensive Green Roof
8. Ponds and Wetlands	Stormwater Ponds	Stormwater Wetlands
9. Infiltration	- Infiltration Trench - Infiltration Basin	- Dry Well - Underground Infiltration
10. Sand Filters	- Surface Sand Filters - Perimeter Sand Filters	Underground Sand Filters

12.1.2 Maintenance Hierarchy

This Chapter is structured around a hierarchy concept, where the severity of the problem directly correlates to the level of experience needed to perform the inspection and identify corrective maintenance measures.

Many SMP maintenance problems start out as minor and can be easily identified by individuals with limited experience (**Level 1**). As long as these issues are detected early, through regular inspections, they can typically be addressed in an expedient and cost-effective manner.

However, in some cases, issues may arise that require additional technical knowledge or capabilities to diagnose the problem and identify the appropriate remedy (**Level 2**). At this point, assistance from an individual with training in SMP inspection, operation and maintenance, may be necessary.

Similarly, some problems escalate to the point where a Qualified Professional or specialized expert is needed to return the SMP to proper functioning condition (**Level 3**).

The step-wise approach of the Maintenance Hierarchy (**Figure 12.1**) was developed to ensure long-term performance of SMPs, through cost-effective implementation of inspection and maintenance.



Figure 12.1 The SMP Maintenance Hierarchy

Level 1: Individuals with Limited or No Training

Level 1 includes routine inspection and maintenance activities conducted by:

- Property owners, property managers, or HOA representatives, for privately owned SMPs.
- Municipal maintenance staff/interns or volunteers, for municipally owned SMPs.

These individuals typically have very limited training in stormwater operation, inspection, and maintenance, but can use available guidance to quickly identify and rectify common or minor issues with SMP performance. For most SMPs, the majority of inspection and maintenance activities can be conducted at this skill level, thus Level 1 forms the base of the Maintenance Hierarchy pyramid. Many well-functioning SMPs can be adequately maintained for long periods of time using Level 1 capabilities.

Some issues may arise that require a higher level of resources and expertise. Such issues are referred to in this Chapter and the Inspection Checklists as “kick-outs to Level 2.”

Level 2: Trained Individuals

Level 2 includes inspection and maintenance activities conducted by municipal employees or landscape contractors who have completed training on SMP operation, inspection, and maintenance. Level 2 inspections can occur in response to two circumstances:

1. As part of an ongoing, municipal inspection program whereby SMPs are visited on a rotating basis at a frequency of once every five years, or a frequency established by the local program; or
2. In response to a “kick-out” from a Level 1 Inspector.

Circumstance #2 requires coordination and communication between the Level 1 and Level 2 Inspectors, with documentation and background provided by the Level 1 Inspector. This is essential to make the hierarchy approach successful.

As with kick-outs from Level 1 to Level 2, the same can exist from Level 2 to Level 3. If the Level 2 Inspector encounters a problem where a Qualified Professional is needed to re-design certain components of the SMP, and/or a Qualified Contractor is needed to undertake a more serious repair, then Level 3 is activated.

Level 3: Qualified Professionals

Level 3 includes inspection and maintenance conducted by Qualified professionals, including professional engineers and landscape architects, that can revisit design issues associated with chronic or serious problems. For repair and maintenance of the SMPs at this level, individuals with specific skills and certifications, such as a certified plumber with experience working with rainwater harvesting systems or a horticulturalist with knowledge on proper plantings, may need to be called in by the Qualified Professional.

Table 12.2 describes how SMP inspection and maintenance activities differ at each level of the Maintenance Hierarchy.

Table 12.2 SMP Inspection and Maintenance Hierarchy Levels

	Level 1: Individuals with Limited or No Training	Level 2: Trained Individuals	Level 3: Qualified Professionals
Qualifications/ Training of Inspectors	No special training, but person is provided educational materials	On-the-job training and/or workshops	Professional License, such as a PE or RLA
Frequency of Inspection	At least annually	Routine as determined by the local program OR as kick-out from Level 1 inspection	Only as needed from Level 2 inspection
Inspection Guidance	Inspection guidance is included in Section 12.2 . Refer to the NYSDEC Construction Stormwater Toolbox website (www.dec.ny.gov) for Level 1 Inspection Checklists .	Refer to the NYSDEC Construction Stormwater Toolbox website (www.dec.ny.gov) for Level 2 Inspection Checklists .	Guidance on diagnosing common problems is included in Section 12.3 . Refer to the NYSDEC Construction Stormwater Toolbox website (www.dec.ny.gov) for a Level 3 Inspection Form .
Typical Maintenance Activities	Routine mowing. Trash removal. Plant care and upkeep. Mulching as needed. Removal of small amounts of sediment from pretreatment areas of the practice.	Removal of larger amounts of sediment. Structural damage repair. Minor regrading and scarification of soil surface to restore permeability.	Redesign an improperly functioning practice, to include: regrading the contributing drainage area, replacing filter media or plantings, modifying conveyance structures, etc.
Triggers for Inspection or Maintenance by this Level	Regular inspection (no trigger)	Common triggers for Level 2 inspection are included in Section 12.2 .	Common triggers for Level 3 inspection are included in Section 12.2 .

12.1.3 Level 1, 2 and 3 Inspections

12.1.3.1 General Guidance for Level 1 Inspections

Read through this guidance before performing an inspection and use the specific guidance in **Section 12.2** for the SMP Group that includes the practice being inspected. Refer to **Chapter 11** for guidance on plant maintenance, as well as control of invasive species.

When to Conduct a Level 1 Inspection

Level 1 Inspections are the most common and are intended to identify minor maintenance issues early and keep up with routine maintenance tasks. They should be conducted *at least annually* for all practices and supplemented with additional visits after large storms, winter salting and sanding, or other seasonal changes. In addition, it is recommended that inspections take place more frequently during the first few years after installation of an SMP. Many issues can be identified and corrected during this early period, so that they do not lead to larger problems in subsequent years. Once the SMP is stable and seems to be functioning properly, the inspections can become less frequent.

12.2.2 Tree Plantings

Includes: Tree Plantings (RR-3)

Components

Key components to inspect for tree planting include the following:

- **TP-1 Surface Area:** The tree planting surface area is the mulched area where water accumulates and is absorbed during a storm.
- **TP-2 Vegetation:** The vegetation of a tree planting is comprised of the tree itself. The health of the tree is one of the most critical maintenance items for tree plantings.

Note: This is a simple, “non-structural” practice and, as such, maintenance tasks are similar to any landscape maintenance. Tree planting can involve individual trees or multiple trees, such as reforesting a riparian buffer.

Level 1 Inspections

Frequency: *Annually in early spring. Recommend every 3 months, within 1 week of ice storms and within 1 week of high wind events (>20 mph) until the trees reach maturity.*

The Level 1 inspection goes hand in hand with active maintenance and includes inspection of the surface area (TP-1) and Vegetation (TP-2) of the tree planting. Watering, mulching, and pruning are common maintenance activities. During the first three years, mulching, watering, and protection of young trees may be necessary, see **Chapter 11** for additional maintenance guidance. Watering should occur during the growing season. Mulching and pruning occurs once a year in the spring and early spring, respectively.

At a minimum, inspections shall include an assessment of tree health and determination of survival rates. Any dead trees shall be replaced, and remaining trees shall be inspected for evidence of insect, disease, or other physical damage.

Triggers for Level 2 Inspection

The most likely triggers for Level 2 Inspection of TP practices are:

- Appearance of fungus or pest damage to vegetation

Triggers for Level 3 Inspection

The most likely triggers for Level 3 Inspection of TP practices are:

- Uncertainty about how to address the infestation or disease



Figure 12.5 Key Areas for Level 1 Inspection of Tree Plantings

12.2.3 Swales

Includes: Vegetated Swales (RR-5) and Wet Swales (O-2)

Components

Key components to inspect for swales include the following:

- **SW-1 Drainage Area:** The drainage area sends runoff to and is uphill from the swale. When it rains, water runs off and flows to and along the swale.
- **SW-2 Inlets:** The inlets to a swale are where water flows in. Depending on the design, water can flow in through: a ditch, pipe, or curb opening at top of swale or as sheet flow along the entire length of swale.
- **SW-3 Surface Area:** The swale surface area is the vegetated bottom area and side slopes where water flows during a storm. Depending on the design, the swale may also contain check dams, which are small dams of earth, stone, wood, or other materials that slow down and temporarily pond water as it flows down the swale.
- **SW-4 Vegetation:** The health of vegetation within the swale is perhaps the most critical maintenance item for the property owner or responsible party.
- **SW-5 Outlets:** These are where water leaves the swale when it fills up or where water reaches the downstream end of the swale. There may be a small stone apron or rock dam here or even an outlet grate.

Level 1 Inspections

Frequency: *Annually in early Spring. Recommend an additional inspection during the growing season or in the early fall to assess the health of vegetation.*

Triggers for Level 2 Inspection

The most likely triggers for Level 2 Inspection of SW practices are:

- Water ponding on the surface for more than 72 hours following a storm event
- Vegetation being replaced by weeds and invasive species
- Erosion of check dams, inlets, swale surface area or side slopes
- Significant sediment accumulation

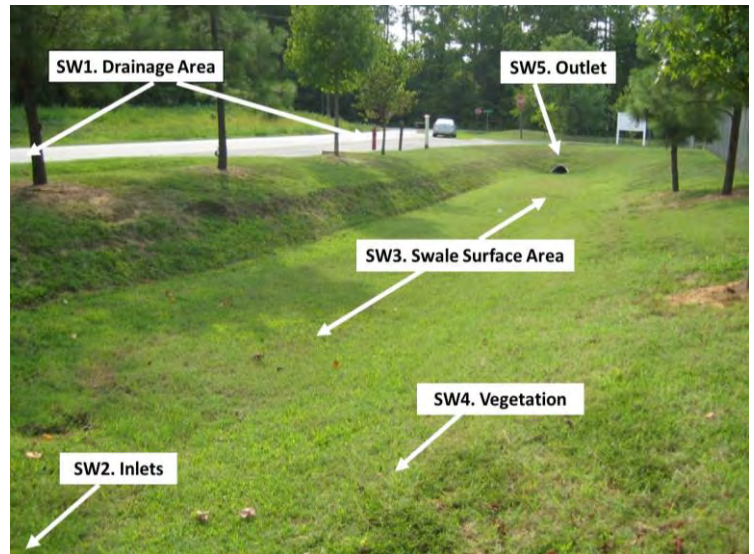


Figure 12.6 Key Areas for Level 1 Inspection of Swales

Triggers for Level 3 Inspection

The most likely triggers for Level 3 Inspection of SW practices are:

- Standing water caused by over compacted or clogged soil media
- Severe erosion around or under check dams
- Large area of vegetation overrun with weeds and/or invasive species
- Problem requires practice redesign or modification to solve
- Severe sediment accumulation that appears to be getting worse over time

12.2.4 Bioretention

Includes: Tree Pits (RR-3), Tree Trench (RR-3), Rain Gardens (RR-6), Stormwater Planters (RR-7), Infiltration Bioretention (F-4), Filtration Bioretention (F-5), Bioslope (F-6), Dry Swales (O-1)

Note: For the purposes of this Chapter, the term “Bioretention” will be used to generally describe all of these practices.

Components

Key components to inspect for Bioretention include the following:

- **BR-1 Drainage Area:** The drainage area sends runoff to and is uphill from the Bioretention. When it rains, water runs off and flows to the Bioretention and ponds within the filter temporarily (usually for no more than 48 hours). Sometimes, the runoff will contain dirt, grit, grass clippings, oil, or other substances that **SHOULD NOT** be directed to the practice.
- **BR-2 Inlets:** The inlets to a Bioretention are where water flows into the filter. Depending on the design, water can flow in through: curb cuts, pipes, ditches, or sheet flow.
- **BR-3 Ponding Area:** The ponding area fills up with water during a rainstorm. If you picture the Bioretention as a bathtub, there is the *bottom* (usually flat surface), *side slopes* (areas that slope down to the bottom from the surrounding ground), and *berms or structures that control the depth to which water ponds*.
- **BR-4 Vegetation:** The health of vegetation within the Bioretention is perhaps the most critical maintenance item for the Owner/Operator. Many Bioretention become overgrown, and “desirable” vegetation becomes choked out by weeds and invasive plants. Weeding and watering are essential the first year and can be minimized with the use of a weed-free mulch layer. It is important to know what the practice is supposed to look like, and what plants seem to be thriving or doing poorly.
- **BR-5 Outlets:** Outlets are where water leaves the Bioretention when stormwater exceeds the storage capacity.

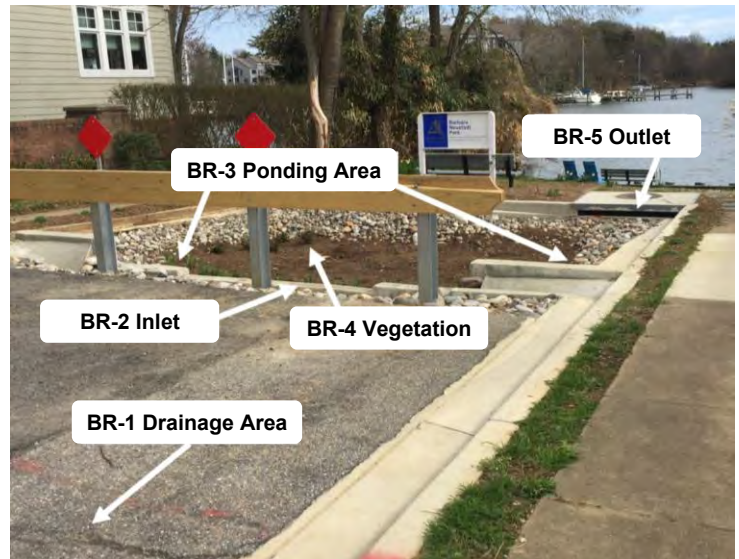


Figure 12.7 Key Areas for Level 1 Inspection of Bioretention

Level 1 Inspections

Inspection Frequency: 4 times per year during the growing season. During the first 6 months of operation, it is recommended that bioretention practices be inspected at least twice, and after each storm event greater than 0.5”.

Maintenance Frequency: At least 4 times during the growing season, bioretention should be pruned, weeded, and mowed around; have sediment, trash, and debris removed; and have dead and damaged plants replaced, as needed. In the spring and fall, the practices should have rills, gullies, dead or diseased trees and shrubs repaired or replaced; have bare areas reseeded if applicable; and have mulch replenished to required depth. In the winter months, planting material should be trimmed, and the practice should be inspected for snow accumulation. Once per year, soils should be tested for appropriate pH levels. Finally, every 2 to 3 years, damaged or compromised structures within the practice should be replaced, perennials should be trimmed and divided, and infiltration rates should be checked to ensure proper drainage.

Maintenance Frequency (Design F-6): In addition to the above, Bioslopes should be inspected after snow events to ensure that the added weight from accumulated snow did not compact the filter media. On a monthly basis, stabilize eroded areas, ensure that flow is not bypassing the facility, and mow the slope using a retractable arm mower to a height of 6 to 15 inches. Recommend performing a flow test on the cleanouts annually to check for clogging, and to remove accumulated sediment that exceeds three inches in depth.



Curb Inlet #1: flow enters through curb channel.



Curb Inlet #2: flow enters through drop curb.



Pea Gravel Diaphragm: sheet flow enters and is evenly distributed along the practice length.



Grass filter strip: sheet flow enters and is evenly distributed along the practice length.

Figure 12.8 Bioretention Filter Inlets

Triggers for Level 2 Inspection

The most likely triggers for Level 2 Inspection of BR practices are:

- Water ponding on surface of practice for more than 72 hours after a storm event
- Bioslope does not drain properly
- Sparse or out of control vegetation
- Practice deviates from original design
- Erosion of inlets, filter bed or outlets
- Significant sediment accumulation

Triggers for Level 3 Inspection

The most likely triggers for Level 3 Inspection of BR practices are:

- Standing water caused by clogged or over compacted media
- Vegetation management needed
- Bioretention does not conform to original design plan in surface area or storage.
- Severe erosion especially when caused by subsurface defect
- Widespread significant and persistent sediment accumulation

12.2.9 Infiltration

Includes: Infiltration Trench (I-1), Infiltration Basin (I-2), Dry Well (I-3), Underground Infiltration System (I-4)

Components

Key components to inspect for Infiltration include the following:

- **IN-1 Drainage Area:** The drainage area conveys runoff to and is uphill from the infiltration cell. When it rains, water runs off and flows to the infiltration cell and soaks into its underlying layers.
- **IN-2 Inlets:** The inlets are where water flows into the practice. Depending on the design, inlets can include curb cuts, openings in a parking lot or roadway, downspouts, pipes, or ditches. Water can also enter the practice directly as sheet flow.

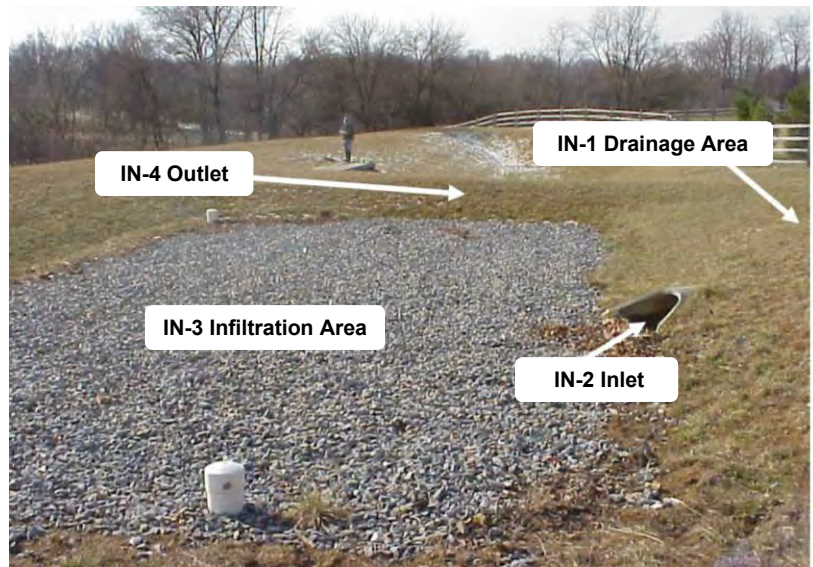


Figure 12.17 Key Areas for Level 1 Inspection of Infiltration Practices

- **IN-3 Infiltration Area:** The area that collects water and allows it to seep into the underlying soil.
- **IN-4 Outlets:** Outlets are where water exits the surface of the infiltration area during larger storms when the underground infiltration reservoir fills up and the excess water needs somewhere to go. Note that not all infiltration practices will have an identifiable outlet if the design is for all the water to infiltrate into the ground. Outlets may be a berm, stone weir, or pipe.

Level 1 Inspections

Frequency: *At least 2 times a year, especially in early spring, to ensure that the practice has survived the winter. Debris cleanout and dewatering inspection should occur monthly. Inspection of sediment traps, forebays, inlets and outlets should occur at least 1 time per year along with sediment cleanout and aggregate repairs.*

Triggers for Level 2 Inspection

The most likely triggers for Level 2 Inspection of IN practices are:

- Water stands on the surface for more than 72 hours after a storm event
- Erosion of inlets, infiltration area or outlets
- Excessive sediment buildup

Triggers for Level 3 Inspection

The most likely triggers for Level 3 Inspection of IN practices are:

- Standing water caused by clogged media
- Severe erosion of infiltration area, inlets, or around outlets
- Reoccurring significant sediment accumulation that is getting worse with time
- Solving the problem would require practice redesign or modification

Section 12.3 Diagnostics and Maintenance Measures

This Section summarizes the most common problems found in SMPs, as well as typical maintenance or repair solutions. The guidance provided in this section has some similarities to **Section 12.2**, but differs in the following ways:

1. The primary audience of this Section is the Level 3 Inspector, who is tasked with diagnosing and repairing SMPs that are not working properly. However, this information may also be useful for a Level 2 Inspector seeking to diagnose a particular problem.
2. The maintenance measures described in this Section are more detailed and focus on repairs to specific problems rather than on routine maintenance, such as weeding or minor sediment removal.
3. Because the problems described in this section can be applied to several different practices, this section is organized by the problem type rather than the practice type.

Common problems addressed during Level 3 inspection/maintenance are summarized in **Table 12.9**. This list is not exhaustive but does address SMP issues that require some advanced knowledge and skill to inspect and diagnose solutions. Each problem category is discussed in a separate subsection.

Table 12.9 Common Level 3 Inspection/Maintenance Issues

Subsection/Category	Description
12.3.1 Contributing Drainage Area – Pollutant Sources	Sediment or pollution sources in the Drainage Area
12.3.2 Physical Obstructions	Physical obstructions to maintenance access, overflow, or emergency spillway
12.3.3 Erosion	Erosion on side slopes, practice bottom, at inlet or outlets. Rills and gullies forming where there should be sheet flow
12.3.4 Departure from Design Dimensions	Practice dimensions have been altered, either due to filling with sediment, redesign or filling in, or improper implementation.
12.3.5 Improper Flow Paths	Flow is short-circuiting the practice, or drainage flow paths have been otherwise modified.
12.3.6 Sediment Buildup	Sediment has accumulated in a pool, practice bottom, pretreatment area, or vault.
12.3.7 Clogging	The filter media or other components are clogged, and there may be standing water for longer than intended.
12.3.8 Vegetation	Excessive, inadequate, and/or unhealthy vegetation to support a practice
12.3.9 Embankment and Overflow Condition	Issues with an embankment or overflow weir or channel
12.3.10 Structural Damage	SMP infrastructure, such as concrete or metal elements, have been damaged.
12.3.11 Pool Stability	Permanent pool of water is at the improper elevation.
12.3.12 Pool Quality	Permanent pool of water suffers from poor quality due to algal growth or other issues.

12.3.1 Contributing Drainage Area – Pollutant Sources

Applies Most Commonly To: Sheet Flow/Disconnection, Swales, Bioretention, Porous Pavement, Ponds/Wetlands, Infiltration, and Sand Filters.

Problem #1: Bare soil washing into SMP from drainage area

General Approach for All Practices:

- Identify the specific source(s) of sediment in the drainage area by tracking sediment flow during a rainfall or looking for a track of sediment staining during dry weather.
- For an active sedimentation event, attempt to filter incoming runoff if conditions allow (e.g., enough space upstream of the practice for temporary ponding). Consider installing a silt fence, silt socks (at curb inlets), staked straw bales, or other filtering material at the inlets of the SMP. This will keep at least some of the sediment from getting into the practice.
- Runoff from active construction should not enter the SMP; divert to a temporary and approved sediment control practice.
- For areas of bare soil *not* due to active construction (**bottom photo**), prep the soil and re-seed/plant with grass species or other thick ground cover appropriate for the region. May also need starter fertilizer, topsoil, and/or compost.
- For steep slopes with bare soil, consider also installing erosion-control matting to hold soil, seed, and straw in place until the vegetation becomes well established.
- For fill and topsoil stockpiles in the drainage area, provide temporary or permanent cover as soon as possible. Alternatively, surround the base of the stockpile with silt fence, or equivalent, to prevent the transport of sediment-laden runoff.



Helpful Skills:

- Erosion and sediment control knowledge and skills
- Landscaping knowledge to understand appropriate ground cover species for re-vegetating bare areas

Equipment Typically Used for Fixing Sediment Sources:

- Silt fencing and other sediment barriers
- Erosion-control matting and/or straw
- Rakes and shovels
- Light excavation or grading equipment for larger jobs
- Equipment to deliver topsoil or compost as needed
- Plants and/or seed mix, plus a way to move and store plant stock without damaging it or drying it out
- Starter fertilizer, topsoil, and/or compost

Problem #2: Other pollution sources in the drainage area

General Approach for All Practices:

- Pollutants may include: road salt, oils, fuels, food grease, wash water, paints and solvents, trash, and many others.
- Identify the source(s) of pollution.
- For pollutants spilled on the ground, remove by hand or use absorbents to soak up wet material. Absorbents and other waste materials shall be disposed of properly.
- For materials stored outside, move them to a covered area or build/add cover over the materials. Provide secondary containment, if possible.
- Make sure all waste containers have lids and fix any leaks (**see improper practice in photo at right**).
- For sites prone to frequent oil leaks and staining (e.g., vehicle maintenance yards), consider installing an oil/water separator to pre-treat runoff that enters the SMP.
- For routine dumping of wash water, grease, paints, or other pollutants, enforce behavior change and explain good housekeeping practices.
- Develop a pollution prevention plan for the site to ensure that hazardous materials and other potential pollutants are not stored where they are exposed to rainfall.
- For areas that receive a heavy salt and/or sand load during the winter, consider diverting upslope runoff, especially for practices such as porous pavement. Some monitoring of winter road or parking lot clearing activities may also be warranted.



Helpful Skills:

- Knowledge of good housekeeping and pollution prevention practices
- Good communication with employees and managers at site (e.g., for correcting bad site operations)

Equipment Typically Used for Correcting Other Pollutant Sources:

- Tarps to cover stockpiles
- Absorbents to soak up spills
- Secondary containment barriers that will hold back any liquids or solids that may leak out of their primary container
- Storage barns, sheds, pole barns and other permanent cover for potential pollutants

12.3.2 Physical Obstructions

Applies Most Commonly To: Sheet Flow/Disconnection, Swales, Bioretention, Rainwater Harvesting, Green Roofs, Ponds/Wetlands, Infiltration, and Sand Filters

Problem #1: Maintenance access is obstructed

Ground-Level SMPs:

- Where a path for vehicles and construction equipment to access the practice was established during construction but is now overgrown, remove woody vegetation and any other tall vegetation. This path should be bush hogged once or twice a year.
- If the SMP needs a large quantity of trash and/or sediment removed in areas where access is limited due to steep grades, overgrown vegetation, etc., it will be necessary to establish safe vehicular access by clearing and possibly re-grading the area. It is advisable to have a maintained, all-weather surface to critical parts of the SMP.
- It is most important to provide access nearest to parts of the practice where sediment and trash tend to accumulate the most: forebay and outlet control structure.
- For an SMP blocked by fences (**photo at right**), install a gate that is wide enough for vehicles to enter for any current or future maintenance.
- Sometimes access is blocked by unauthorized structures, such as sheds, property fences, retaining walls, etc. Confer with the local stormwater authority on the presence of any maintenance easements and means to gain access to the practice.
- The solutions above should also provide for safe foot access for routine inspection and maintenance.



Rainwater Harvesting:

- Ensure that no structures are covering the filter or the tank's access/inspection port.

Green Roofs

- Ensure that individuals can safely reach the roof with tools in hand (e.g., buckets, pruners, hoses). If the roof cannot be accessed via a walk-through door, this may require installing a wide ladder or fire escape-style stairs on the inside or outside of the building.
- If there is a concern of getting too close to the roof's edge while doing maintenance, install a railing around the edge for safety. Alternatively, for sloped roofs, workers may need to use harnesses during maintenance activities.

Helpful Skills:

- Use of motorized landscaping equipment
- Chainsaw skills
- Use of grading equipment for larger jobs
- *Note:* OSHA safety requirements and certifications may apply to green roof maintenance.

Equipment Typically Used to Regain Proper Access:

- Mower, trimmer
- For very overgrown areas, chainsaw and/or bush hog
- For areas that need to be regraded, excavator, skid steer, or other grading equipment

Problem #2: Flow is obstructed in or out of the practice

General Approach for All Practices:

- Flow can bypass an SMP when there is too much sediment/debris buildup near the inlets or due to grading changes in the drainage area (e.g., repaving of parking lot). If the cause of blockage or bypass is not obvious, inspect the practice during rainfall to watch the flow paths. (See **Section 12.3.5** for additional guidance.)
- Obstruction of overflow or emergency spillway structures is most often due to buildup of debris, such as trees, sticks, trash. It is *very* important to keep these structures clear of such blockages in order to avoid flooding or a dam breach (**avoid conditions caused by beaver activity - top photo**).
- Where debris cannot easily be cleared by hand, special equipment and skills may be needed. An obstructed outlet control structure in a wet pond may need to be accessed by boat (**bottom photo**). In cases where large sticks, tree branches, trash, or other debris obstruct the overflow or spillway, they may need to be cut up by chainsaw. Large debris will usually need to be hauled away with a truck.



Helpful Skills:

- Chainsaw skills
- Muscle strength to haul large debris
- Boating capabilities

Equipment Typically Used to Clear Obstructions:

- Gloves, shovels, pruners, rakes, and other hand tools
- Waders for wetlands
- Chainsaw for large sticks and branches
- Cable puller (come-along) to remove large branches that cannot be pulled out by hand
- Boat and personal flotation device for outlet control structures in wet ponds
- Truck to haul away debris

12.3.3 Erosion

Applies Most Commonly To: Sheet Flow/Disconnection, Swales, Bioretention, and Ponds/Wetlands

Problem: Erosion on practice surface, inlets, and/or outlets

General Approach for All Practices:

- See **Section 12.3.9** for how to repair erosion on side-slope embankments.
- Rill and gully erosion occur when runoff flow is concentrated. Deep rills and gully erosion on the practice surface (**top photo**) will require the surface to be regraded to make uniform again. Use the lightest equipment possible in order to minimize soil compaction during excavation.
- After excavation, reseed/plant the area with ground cover that is appropriate for the moisture conditions of the practice. Amend or enhance soil as needed according to a soil test; soil may need more organic material to support plants.
- To prevent further erosion on the surface of the practice, ensure that flow from the inlets can spread out adequately and has enhanced energy dissipation features. This may require installing or enhancing a stone apron outlet protection that flares out and down to the level of the practice to slow and spread out the flow. Other options include check dams, energy dissipation devices, or an armored low-flow channel. A stilling basin (**bottom photo**) can also dissipate flow as it comes out of an inlet or outlet pipe. Apply similar treatments to any outlets that are experiencing erosion.
- Any sloped soils that are disturbed during excavation will likely need erosion-control matting to hold it in place while vegetation becomes established.



Helpful Skills:

- Landscaping/Gardening
- Consult with Cooperative Extension Office or independent laboratory for soil testing
- Skills with excavation equipment
- Knowledge of sediment and erosion control practices and resources appropriate for the area

Equipment Typically Used for Fixing Erosion:

- Rakes, shovels, wheelbarrows, and other “landscaping” equipment
- Light excavation or grading equipment for larger jobs
- Equipment to deliver, unload, and move stone and other materials around
- Plants and/or seed mix, plus a way to move and store plant stock without damaging it or drying it out

12.3.4 Departure from Design Dimensions

Applies Most Commonly To: Swales, Bioretention, Ponds/Wetlands, Infiltration, and Sand Filters

Problem: Practice dimensions have been altered

General Approach for All Practices:

- Once constructed, the dimensions of an SMP may become altered from the original design for a variety of reasons. These reasons can include:
- The SMP was not constructed to the proper dimensions at initial installation.
- Sediment accumulation in the SMP reduces the intended storage volume of the practice (**top photo**).
- Redevelopment or regrading of the site encroaches into the footprint of the SMP.
- Dumping of leaves, trash, or other debris into the SMP reduces the intended storage volume of the practice.
- If it appears that the dimensions of an SMP have been altered, proceed as follows:
- Consult the original design or as-built plans and sizing computations for the SMP to identify the intended dimensions and storage volume of the practice. Measure the length, width, and depth of the practice to estimate the current storage volume. Calculate the difference in volume to determine whether it is significant enough to warrant restoring the practice to its original dimensions. If the loss in volume is greater than about 10%, this likely warrants action.
- If the SMP's original storage volume cannot practically be restored because of current site conditions, an additional SMP may need to be built elsewhere on the site in order to regain adequate storage and treatment volume for the site.
- For problems of dumping by individuals on or near the site, install "No Dumping" or similar signage to inform people that this is not an appropriate place to dispose of debris. Any debris that has already been dumped should be removed from the practice either by hand or with equipment.



Helpful Skills:

- Basic surveying
- Understanding stormwater design plans and sizing computations
- Stormwater management design
- Skills with excavation equipment and erosion and sediment control

Equipment Typically Used to Investigate and Fix Dimensions:

- Simple level or survey equipment, tape measure, and other tools to measure SMP dimensions
- Light excavation or grading equipment for larger jobs
- Rakes, shovels, wheelbarrows, and other "landscaping" equipment for small jobs
- Soil stabilization materials

12.3.5 Improper Flow Paths

Applies Most Commonly To: Sheet Flow/Disconnection, Swales, Bioretention, Rainwater Harvesting, Infiltration, and Sand Filters

Problem #1: Flow intended to go into a practice is diverted by debris or grit buildup or capacity issues at inlets

Bioretention, Swales, Infiltration, Sand Filters:



- Grit, sediment, leaves, and other debris builds up at curb inlets or other inlets, sometimes to the point where flow is diverted completely around the practice (photos above). This is a common issue for practices that rely on curb cuts or other small inlet structures to get water into the practice for treatment. A minor amount of debris may be OK and not affect the ability of water to enter the practice. However, be aware of conditions where flow *that is supposed to be treated* is diverted to a downgradient storm drain or other structures in such a way that the stormwater treatment is entirely or partially bypassed.

- In many cases, correcting the problem may simply involve removing debris or unclogging the inlet.
- However, this problem can be chronic if the inlet design is susceptible to clogging. This can occur if the slope from the inlet into the practice is flat and/or there are controllable sources of sediment and debris in the drainage area.
- For chronic problems, consider redesigning inlets to be more clog proof. One solution is to build in a 2 to 3" drop from the curb inlet onto a gravel or stone diaphragm along the edge of the practice (see example in **photo at right**).
- Inlets that are undersized for the flow coming to them should be enlarged and armored with an appropriate erosion-resistant lining.



Rainwater Harvesting:

- Water intended to be collected in rainwater harvesting systems is sometimes not delivered to the tank or cistern if the system of gutters, downspouts, pipes, etc. is not sized properly or if the first-flush diverter or vortex filter is not functioning correctly and diverting too much water away from the tank.
- As with inlets, this may simply be a matter of routine cleaning of gutters, downspouts, vortex filters, etc.
- It may also be a design or capacity issue, in which case, installing larger gutters or a more robust piping system may be in order.



Source: Rainwater Management Solutions 1
Example of enhancing the gutter and piping system leading to a rainwater harvesting system

Helpful Skills:

- Basic surveying
- Typical landscaping skills using materials such as soil, rock/stone, edging material, mulch, etc.
- Light construction of gutters, downspouts, piping
- Some knowledge of first-flush diverter and vortex filter products

Problem #2: Flow is not uniformly accessing the entire treatment area

Bioretention, Swales, Infiltration, Sheet Flow and Disconnection, Sand Filters:

Improper flow path issues in this category include:

- Water forming channels or rills through the treatment bed of bioretention, swales, infiltration, or surface sand filters, and thus not spreading out across the treatment area surface
- Water ponding only at one end of the treatment area because the surface is not level
- Water piping through weak spots to an outlet or underdrain, such as where filter media meets a concrete structure
- See **Section 12.3.3** for issues of channeling or erosion on the treatment surface.
- For uneven treatment area and preferential ponding, assess the severity of the problem. Compare the relative elevations of the “high” part of the treatment area (the area where water does not seem to pond) and any overflow structure or weir where high water flows will leave the practice. If there is still some freeboard (such that the overflow structure is higher than all of the treatment bed surface), then there will still be some ponding for larger rainfall events. Try some minor raking or moving filter media and mulch around to even out the filter bed.
- However, the problem is more serious if parts of the treatment area are higher than the overflow structure. These areas will never be valuable for treatment purposes. The treatment area is supposed to fill up like a bathtub, so some regrading is needed to level out the treatment area.
- If water is piping or short-circuiting through the soil or filter media, forming sinkholes, or otherwise bypassing the intended treatment mechanism, it will be necessary to repair these spots. Around concrete or metal overflow structures, use soil material right around the structure that can be compacted (bioretention filter media tends to be light, sandy, and fluffy and won’t compact very well). Another option is to “ramp up” the soil layer to the lip of the structure so that there won’t be a hydraulic jump at this potentially weak point. See the figure below.

These three issues are illustrated below:



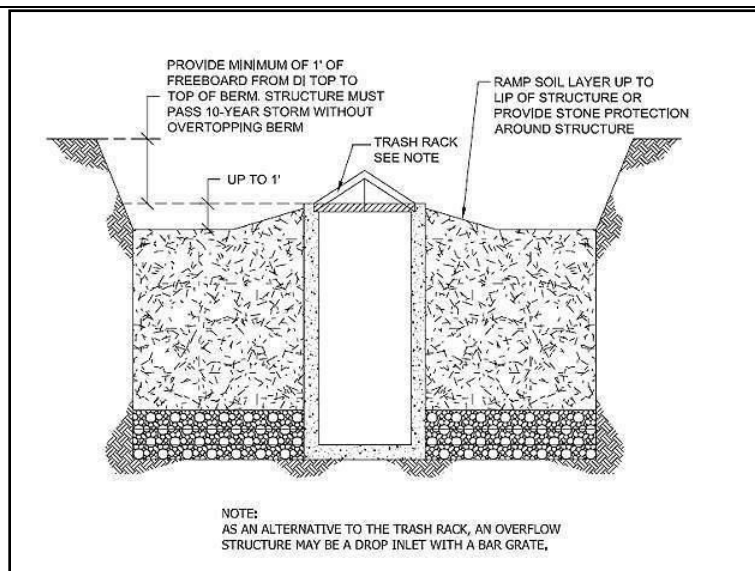
Water from the inlet at top of photo is channeling through the bioretention area.



Water is preferentially ponding only at one end of the bioretention because the surface is not flat.



Water is “piping” down to the underdrain at the weak spot where the filter media meets the concrete overflow structure.



Ramp up soil layer to the lip of the structure to address this being a weak interface where water can work down and create bypassing. (Source: Virginia 2013 Stormwater BMP Specifications, Specification #9, Bioretention, Figure 9.13.)

Impervious Disconnection:

The most likely flow path issues with Impervious Disconnection are: (1) owners intentionally diverting downspouts away from pervious area and onto impervious area (**left photo below**), and (2) slight grading issues diverting the water away from the intended pervious receiving area (**right photo below**).



Both issues are fairly straightforward to address but involve communicating and working with property owners to explain the purpose of disconnection and how to properly maintain it. The second issue may involve some minor regrading or building low-profile berms to get water to flow to the intended disconnection area.

Helpful Skills:

- Rudimentary surveying
- Typical landscaping skills—using materials such as soil, rock/stone, edging material, mulch, etc.

Equipment Typically Used for Inspecting and Fixing Flow Paths

- Surveying equipment (i.e. Site level or total station) to get relative elevations among different parts of treatment area, inlets, overflow structures, etc.
- Small, simple tools—flat shovels, wheelbarrows, rakes, other common landscape/gardening tools
- Large, more complicated equipment—small excavators to move material around or do regrading. Always work from the side of the practice and NOT within the practice itself.

12.3.6 Sediment Buildup

Applies Most Commonly To: Swales, Bioretention, Porous Pavement, Ponds/Wetlands, Infiltration, and Sand Filters

Problem: Sediment accumulation more than 2" thick covering 25% or more of the practice surface area

Bioretention, Swales:

- Determine the source(s) of sediment. The most likely sources are: (1) premature installation of the practice during the construction process and discharge of construction site sediment loads; (2) erosion in the contributing drainage area *after* construction is complete; and (3) erosion along the practice side slope or within the practice itself. If it is an ongoing source, it must be abated (see **Section 12.3.1**, and **Section 12.3.3**).
- Use a soil auger to auger holes in various places across the Bioretention or Swale surface area, especially in areas where sediment is accumulating. Determine how deep the sediment is penetrating into the filter media layer. Usually, it will be the top 2 to 3" that are most affected. Note that for swales *without* an engineered filter media, the sediment layer will likely be confined to the surface.
- Remove the "fouled" filter media to the affected depth (using flat shovels or small excavators and working from the side) and replace with clean material from an approved vendor (bioretention filter media or equivalent). If no vendors are available in your area, use the filter media specifications from the Design Manual to replicate the right mix of sand, topsoil, and composted organic material.
- Check to ensure that the practice is filtering at the proper rate after the next several storm events.

Infiltration:

- For infiltration practices excavated to a suitable infiltrating soil layer (e.g., not stone reservoir layer), use the same procedures as for Bioretention/Swales above.
- For infiltration trenches and basins that have a stone reservoir layer, use similar procedures, but use a shovel to dig into the stone layer to ascertain how deep the sediment incursion is into the stone. Remove down to this layer and replace with clean material.
- If the infiltration practice is clogged, see **Section 12.3.7**.
- As with Bioretention, check for controllable sources of sediment in the Drainage Area (**Section 12.3.1**).

Porous Pavement:

- NOTE: Routine sweeping with a regenerative air vacuum (max. power 2,500 rpm) is important to avoid more costly repairs that result from deferred maintenance. It is best to sweep the pavement surface in early spring after winter sanding/salting materials or snow piles have led to sediment or winter slag accumulation. If the area is surrounded by tree canopy, fall cleanup is essential, as vegetative debris is broken up by vehicle traffic and ground into the pavement surface.
- Observe the pavement surface during a storm event to see whether the sediment is clogging the pavement (i.e., standing water on the surface after the storm stops). If so, see **Section 12.3.7**.
- Remove several of the paver blocks in different parts of the structure to ascertain how deep the sediment is penetrating into the bedding and reservoir layers. Most of the time, sediment incursion will be limited to the top 1 or 2" of the pavement bedding layer (for porous interlocking concrete pavers and concrete grid pavers).
- Based on the above observations, it may be worthwhile to quantify the infiltration rate using ASTM C-1701 and ASTM C1781. This is most useful in conducting the test in the *same place within the pavement surface through the course of several years* to document reduction in infiltration rates. Repair or restorative sweeping is warranted when infiltration rates drop below around 10" per hour. NOTE: As stated above, this can likely be avoided if routine annual sweeping is conducted.
- If sediment covers more than 25% of the surface, is deeper than 2", or vegetation is starting to grow where sediment has accumulated, consult a street-sweeping vendor about *restorative* sweeping. In this case, it will be necessary to use a higher RPM sweeper or vacuum sweeper to suck out more of the bedding pea gravel that has been fouled, then replace with clean material.
- Vegetation growing in pavement joints should be removed either manually or with a water-safe herbicide (e.g., glyphosate without surfactants). It is important to not let weeds proliferate in the pavement surface because pulling them out by the roots may damage the pavement structure. (Note: The application of herbicides within wetlands or other waters of the U.S. may require an Aquatic Pesticide Permit from the NYSDEC)



Infiltration test using ASTM C-1781



Pulling grass and weeds from the joints can damage parking surface if roots are firmly established in the bedding layer.

- Check the pavement surface after a storm event to ensure that it is draining properly.

The North Carolina State University (NCSU) Stormwater Engineering Group has an informative Urban Waterways publication, *Maintaining Permeable Pavements* (2011).



Routine, air-vacuum sweeping in the early spring and fall is the best approach for porous pavement maintenance (Photo source: Toronto and Region Conservation)

Ponds and Wetlands:

- Sedimentation is an inevitable process in ponds and wetlands. NOTE that upstream erosion, especially along stream channels or ditches leading to the practice will accelerate the sedimentation process and lead to more frequent and costly sediment removal operations. Whenever possible, it is important to mitigate any upstream erosion issues.
- Forebays and/or pre-treatment areas should be cleaned out when they reach 50% of their design capacity. Once cleanout is complete, it will be worthwhile to install a graduated rod into the forebay with a clear marking of future sediment clean-out levels.
- The main body of a pond or wetland may need to be dredged on an infrequent basis or when sediment has replaced 50% of the design capacity. There are many dredging methods available. Excavators with long arms can handle most small or moderate-sized ponds. Other methods may be necessary for larger facilities. Dredging can be a complicated operation involving dewatering, storage of wet sediment, and possibly hauling to on-site or off-site disposal or refuse areas. Consult a qualified contractor to explore available methods and costs for the particular application. Once again, installation of a graduated rod can help mark future clean-out levels. Note: The dredging of accumulated sediment within regulated wetlands, ponds or at outlet structure may require permits from NYS DEC and/or USACE. In addition, removed sediment should be properly disposed of in a regulated solid waste management facility or in an upland area that is at least 100 ft from regulated wetlands or streams. Sediment managed in upland disposal areas shall be graded, seeded, and mulched.

Sand Filters:

- See the section above on Bioretention/Swales as some of the procedures will be similar, especially for above-ground filters. It is important to determine whether the drainage area is generating a controllable source of sediment that can be abated.
- Underground trench or vault filters will require routine maintenance to: (1) remove accumulated sediment, trash, and floatables from the sedimentation chamber, usually with a vac truck; and (2) remove sediment, grit, and sludge from the top layer of the filter media and replace with clean material. NOTE: Depending on the configuration of the underground filter, confined-space procedures may apply. For a normally operating practice, these maintenance tasks should be conducted every two to three years. If the filter is treating a stormwater hotspot or a particularly dirty drainage area (e.g., vehicle maintenance, washing, repair), the frequency may increase to annually or more often, as dictated by Level 2 inspections. Also, in these cases, it may be warranted to test the material to ensure proper disposal.
- Some proprietary filters require replacement of special cartridges or filter material. Consult the vendor or manufacturer for special maintenance procedures.



Routine cleaning of a perimeter or "Delaware" sand filter. This can be done from the surface, but deeper, vault-type filters will require confined-space entry procedures.

Helpful Skills:

- Most common contracting skills
- Excavation, dewatering, and sediment disposal in some cases
- Knowledge of maintenance equipment, such as vac trucks, street sweepers, etc.
- Knowledge of preferred conditions for bioretention filter media
- Soil testing in some cases where sediment is being removed from stormwater hotspots

Equipment Typically Used for Sediment Removal Activities:

- Small, simple tools—flat shovels, wheelbarrows, rakes, other common tools
 - Larger jobs—small or large excavators, loaders, dewatering equipment (pumps, dirt bags, etc.), trucks to haul material to on-site or off-site disposal or reuse areas, erosion and sediment-control supplies.
-

12.3.7 Clogging

Applies Most Commonly To: Bioretention, Porous Pavement, Infiltration, and Sand Filters

Problem: Filter media clogged; water standing on practice surface for 48 to 72 hours or longer after a storm

Bioretention:

Standing water on the bioretention surface 48 to 72 hours after a storm event is a sure indication of clogging (top photo). Clogging of bioretention practices can be tricky to diagnose as there are several probable causes:

- a. Clogged underdrain
- b. Filter fabric between filter media and underdrain stone
- c. Sediment/grit buildup at surface
- d. Erosion of contributing drainage area
- e. Improper filter media

The following procedure can be used to work through diagnosing the most common causes, beginning with the simplest and easiest to fix and progressing through more complex remedies:

1. Look for a thin, crusty layer of sediment that covers some or all of the filter media. It is often grayish in color. This thin layer can sometimes be enough to cause slow drainage. Scrape this crust off and ascertain sources of sediment in the drainage area (see **Section 12.3.1**). Often, this problem can be caused by the bioretention filter media being installed too early in the construction process, but other chronic sediment sources should also be checked.
2. Open the underdrain cleanout and pour water in to verify that the underdrains are functioning and not clogged or otherwise in need of repair. The purpose of this check is to see whether there is standing water all the way down through the soil. If there is standing water on the surface, *but not in the underdrain*, then there is clogging somewhere in the soil layer. If the underdrain and cleanout have standing water and there is not water coming out the other end (outlet) of the underdrain pipe, then the underdrain is clogged and will need to be rooted out.
3. Use a soil auger to auger several holes down through the filter media to the underdrain layer (if present) or underlying soil. Check to see whether there is a layer of filter fabric at the bottom of the soil layer. The auger will pierce through any filter fabric that is present, and pieces of fabric in the auger bucket should be removed. Notice if the fabric is “blinded” or clogged with sediment. This is a common issue with older bioretention practices. If the practice has a clogged the filter fabric layer, go to step #6, install wick drain.
4. While checking for filter fabric in auger holes, also note whether there is a layer of saturated filter media or bad filter media (e.g., too much clay content) that may be on top of a good media layer. This will be fairly obvious as the top 3 or 4” will be mucky and saturated, with dry and sandy media below. If this is the case, it will be necessary to remove the bad material and replace with good, clean bioretention filter media in accordance with the design specifications. Till or incorporate the good material into the underlying existing filter media to establish a good contact.
5. If the entire profile of filter media is bad, has too much clay content, or does not appear to meet the specifications for filter media, it will be worthwhile to test the soil and compare against the recommended specifications (e.g., clay content, particle sizes, etc.). If the soil does not meet specifications, see steps #6 and #9 below.



6. If the problem appears to be filter fabric or bad filter media (steps #3 or #5 above), there is a critical decision to be made. It is an expensive proposition to dig up the entire facility to either remove the filter fabric or replace the entire soil layer. If the clogging problem is not severe in nature, an intermediate (and much cheaper) option may be to install wick drains. Using a 6" auger bucket, auger numerous vertical holes around the practice surface area, making sure to auger all the way down to the underdrain stone or underlying soil (if there is no underdrain). Hammer 6" perforated PVC or other type of pipe into these holes. Perforations should be about 3/8" diameter. Fill the pipes with clean underdrain gravel (#57 stone) mixed in with coarse construction sand. These drains will serve to wick fines from the surrounding filter media and will provide alternative drainage. Check after the next several storm events to see whether the wick drains improve drainage.
7. Sometimes the cause of saturated filter media is springs or some type of baseflow coming into the practice. This is a more difficult problem as bioretention is not supposed to receive this type of constant flow. It will be necessary to identify and reroute springs or baseflow or perhaps replace the bioretention practice with a different type of practice.
8. Another possible source of poor drainage or clogging is that there can be too much water on top of the filter media when the bioretention practice fills up. Most specifications call for a maximum ponding depth of 12", but sometimes the ponding depth can be 18 or even 24". While this increases the amount of head pushing water down through the filter media, it can also lead to compaction or too much sediment building up. If the bioretention practice has a ponding depth greater than 12", consider configuring the outlet or large storm overflow to reduce the ponding depth to 12" or less. Check with the local stormwater authority to ensure that doing this will not compromise the required treatment volume of the practice.



Adding sand to a wick drain. The vertical perforated PVC pipe has already been placed in the auger hole.

9. If clogging is too severe to be fixed with wick drains or other remedies listed above, it may be necessary to rebuild the bioretention practice by digging up the existing soil, taking out any filter fabric that is between the filter media and underdrain stone, and rebuilding and replanting according to the design specifications.
10. Whatever the chosen remedy, check to ensure that the practice is filtering at the proper rate after the next several storm events.

The Chesapeake Stormwater Network (CSN) has produced an excellent reference guide for inspecting and diagnosing Bioretention issues, *Technical Bulletin #10, Bioretention Illustrated*. This tool can be used as an additional reference and can be downloaded using this link: <http://chesapeakestormwater.net/category/publications/>

Infiltration:

- Clogging of infiltration practices can be simple to resolve or fatal:
- On the *simple* side, clogging (or poor drainage) may arise from sediment, vegetative debris, parking lot grit, or other debris clogging the top few inches of soil or stone.
- With luck, the practice will have an observation well (vertical perforated PVC pipe with cap that extends through the stone reservoir in an infiltration trench or basin). Check the observation well three days after a storm event of ½" or more. If water is standing in the observation well to the surface, then the whole profile may be clogged (see below under *fatal*). If the observation well has only a few inches or no water and there is still water standing on the surface, then surface clogging is a likely culprit.
- For infiltration practices in soil (no stone reservoir), auger several holes around the infiltration surface area. If saturated soil seems to be on top of good, clean, dry soil, then surface clogging seems likely.
- For infiltration trenches and basins with a gravel reservoir, dig several holes around the surface to determine, again, whether there seems to be a layer of gravel clogged with sediment, leaves, vegetative debris, parking lot grit, etc. If possible, dig down to where the gravel meets the underlying soil to see whether a layer of filter fabric is present (which may be common with older practices). If this is the case, blinding of the filter fabric may be a cause of the clogging.
- For surface clogging, remove the affected material down to the level where the soil or gravel seems clean, and replace with clean material. If filter fabric seems to be a problem, it will be necessary to dig up the gravel, remove the filter fabric, and rebuild the reservoir layer in accordance with the current design specifications. In either case, check after a storm event to ensure that this has resolved the issue.
- On the *fatal* side, the underlying soil may not be suitable for infiltration, either due to soil characteristics, compaction during construction, or other causes. Check the original design package to see whether any soil testing was done at the time. It may be worthwhile to auger down to the infiltration interface layer (e.g., where stone reservoir meets the underlying soil and then another several inches below this interface), and take several soil samples for lab analysis to compare to current soil specifications (see information below about infiltration soil analysis).
- It may be that a geotechnical analysis would reveal that there is a good infiltration soil layer, but it is lower than the existing

interface. This would still require a complete rebuild and excavation down to the suitable soil layer. Restoring porosity at the designed elevation would require replacing soil above this suitable layer and avoiding compaction.

- Another option would be to convert the practice to a bioretention practice with an underdrain. Check with the local stormwater authority to see whether this would require any site plan or stormwater plan amendments or other permits.
- Many updated state stormwater manuals and specifications include protocols for infiltration soil testing and analysis that reference various ASTM standards. For example, see: *Virginia 2013 BMP Standards & Specifications, Specification #8: Infiltration, Appendix 8-A, Infiltration and Soil Testing*.

Porous Pavement:

- As noted in **Section 12.3.6**, routine sweeping with a regenerative air vacuum (maximum power 2,500 rpm) is important to avoid more costly repairs that result from deferred maintenance. Preventative maintenance is the best and most cost-effective way to prevent clogging in the first place.
- If there is standing water on the pavement surface 48 to 72 hours after a storm event of ½" or more, then the pavement surface is clogged.
- Check the design plan or as-built plan to see whether the porous pavement design includes an underdrain. There may also be underdrain cleanouts at the edge of the porous pavement.
- If there is an underdrain, the first thing to check is whether the underdrain is clogged, crushed, or broken. Check to see whether there is standing water in the underdrain cleanout 48 to 72 hours after a storm event. If the underdrain is dry, pour water into the underdrain with a hose and see whether it comes out the other end. If the underdrain is clogged, snake it out, as this is the first and easiest thing to try.
- If the underdrain is working, then clogging may be due to: (1) clogged surface or bedding layer; or (2) underlying soil is not suitable for infiltration for designs with no underdrain. First, refer to the guidance in **Section 12.3.6**, and then proceed as follows:
- If there is no underdrain and the design is based on soil infiltration under the pavement, it will be worthwhile to check the soil because unclogging the surface layer will likely not fix the problem. Check the original design package for any soil infiltration testing. It is likely worthwhile to remove the entire pavement section in several places down to the soil layer and to do a geotechnical investigation of the soil profile. See: ASTM C-1701/1701M and/or *Virginia 2013 BMP Standards & Specifications, Specification #8: Infiltration, Appendix 8-A, Infiltration and Soil Testing* for examples of soil infiltration protocols (URL above).
- If the soil is not suitable for an infiltration design, it will probably be necessary to rebuild the pavement using an underdrain design or possibly adding subsurface drainage along the perimeter of the parking area.
- If there is an underdrain or the soil is suitable for infiltration, the best approach to try to unclog the pavement is restorative sweeping with a vacuum sweeper. Regenerative air sweepers may not have enough suction to relieve the clogging.
- If vacuum sweeping is not successful, it may be necessary to rebuild any layers fouled with sediment and fines. It is likely that this will be confined to the bedding layer and gravel used in the paver stone joints, but some clogging can possibly move down into the underlying stone reservoir layer.
- The North Carolina State University (NCSU) Stormwater Engineering Group has an informative Urban Waterways publication, *Maintaining Permeable Pavements* (2011).



Water standing on the parking surface 48 to 72 hours after a storm is an indication of clogging. Snow piles at the edge of the photo point to possible clogging from winter sanding or plowing.

Sand Filters:

- See the section above on Bioretention/Swales as some of the procedures will be similar, especially for above-ground filters.
- Also see **Section 12.3.6** for guidance on routine maintenance of the sedimentation and filter chambers.
- As with Bioretention, there can be various causes for clogged filters:
- Filter fabric layer under the filter media that has blinded or clogged
- Clogging of the surface of the filter layer or filter cartridges
- Bad filter media (e.g., sand media)
- “Plumbing” issues with configuration of overflow and underdrain pipes
- Fortunately, filters are usually confined within concrete vaults or manholes, so diagnosing and rectifying clogging problems should be more straightforward. Check the original design or as-built plans. Some of the following guidance may also be helpful:
- For proprietary cartridge or special filter media structures, consult the vendor or manufacturer for recommended solutions.
- See **Section 12.3.6** for guidance on removing the top layer of filter media and replacing with clean material, as well as vacuuming out any sedimentation chambers.
- If it is suspected that overflow or outlet pipes are not configured correctly, check against the design plans and also standard drawings from the manufacturer.
- Chronic clogging problems are likely due to excessively dirty drainage areas, including uncontrolled sources of sediment, oil and grease wash off, vegetative debris from surrounding trees or shrubs, or other sources. It will be important to check and resolve any controllable sources of clogging in the drainage area (see **Section 12.3.1**).



Standing water on the parking lot is evidence that this perimeter sand filter (under the sidewalk) is clogged.

Helpful Skills:

- Soil infiltration analysis techniques as per ASTM and/or current BMP design specifications
- Excavation, dewatering, and sediment disposal in some cases
- Knowledge of maintenance equipment, such as vac trucks, street sweepers, etc.
- Knowledge of preferred conditions for bioretention, sand filter media, or standard porous pavement types and bedding layers
- General practice of trying easier or less expensive strategies before jumping right to wholesale reconstruction of a practice

Equipment Typically Used for Unclogging Activities:

- Soil infiltration testing or geotechnical equipment
 - Small or large excavators, loaders, dewatering equipment (pumps, dirt bags, etc.), trucks to haul material to on-site or off-site disposal or reuse areas, erosion and sediment control supplies
 - Pavement demolition and repair equipment
 - Mulch, plants, filter media, and other materials needed to rebuild practices
-

12.3.8 Vegetation

Applies Most Commonly To: Tree Planting, Swales, Bioretention, Green Roofs, and Ponds/Wetlands

Problem #1: Not enough vegetation; vegetation is unhealthy

Tree Planting, Swales, Bioretention:

- Test soil/media to ensure proper conditions exist for plant survival.
- Check water drawdown after a storm to make sure that wet/saturated conditions are not the cause of plant failure. If this IS an issue, see **Section 12.3.7**.
- Amend or enhance soil as needed; soil may need more organic material to support plants, but do not use uncomposted organic material or animal waste, as it will likely export undesirable nutrients to the stormwater system.
- If plants have continued to die, consider a different species or entire planting palette or revised planting plan (**photo to right shows the need for a whole new planting plan**). Also consider using an appropriate bioretention or swale native seed mix to supplement use of plugs or other nursery stock.
- Consult a horticulturalist or plant nursery if there is evidence of disease or pests.
- Replant and add mulch or ground cover as needed.



Ponds and Wetlands:

- See **Section 12.3.12** for general guidance on pond and wetland vegetation maintenance, as well as the following.
- For emergent vegetation, determine whether water depths are too deep or shallow for survival (i.e., depths are different from design depths, or original design included improper vegetation).
- If a small amount of supplemental vegetation is needed, plant wetland plugs per nursery guidance.
- For large-scale plantings, drain the permanent pool and plant during the early spring.

Green Roof:

- Consult with a green roof plant vendor about possible causes of plant failure. Lack of watering during initial establishment could be the main culprit.
- Work with a qualified vendor to develop and install a new planting plan.
- Speak with building facilities maintenance personnel to ensure they understand need for watering and caring for new plants after they are installed.

Helpful Skills:

- Landscaping/gardening
- Consult with Cooperative Extension Office or independent laboratory for soil testing
- If original planting plan is deemed inadequate, consult a landscape architect or horticulturalist to determine whether a revised planting plan is needed.
- Knowledge of native plant and/or wetland plant nurseries in general region

Problem #2: Too much vegetation, overgrown (with invasive species), not maintained

General Approach for All Practices:

- Determine which invasive plants are present. For a list of regulated and prohibited invasive plants in New York State, see *New York State Prohibited and Regulated Plants* (NYS DEC, NYS Agriculture and Markets, 2014) at: http://www.dec.ny.gov/docs/lands_forests_pdf/isprohibitedplants2.pdf. Invasive plants shall be properly disposed of in a manner that renders them non-living and non-viable to prevent the establishment, introduction or spread of disposed species.
- Review whether the original planting plan relied on these plants; for example, some wetland plans may rely on “aggressive colonizers” such as cat tails.
- For more detailed information regarding appropriate control measures for each species, consult the Cornell Cooperative Extension Invasive Species Program at the following link: <http://ccetompkins.org/environment/invasive-nuisance-species/invasive-plants>. If invasive species have taken over the facility, wholesale removal and replanting with desirable species may be necessary.
- If (non-invasive) plants are overgrown, (**example in photo to right**), remove, thin, or trim back excessive vegetation.
- If an entire new planting plan is deemed necessary, use SMP-Specific Guidance in the remainder of this manual, along with landscaping goals for the site location, to devise a plan that allows for adequate growth over a long period of time. A simple, clear planting design (**example in photo below**) with a long-term plan has the best chance of being maintained through time. Maintenance crews need to know which plants are part of the design versus weeds and how the practice should look from year to year.
- Develop a plan to ensure proper weeding, pruning, trimming, and replanting to maintain the plan over time.
- See **Section 12.3.12** for general guidance on pond and wetland vegetation maintenance, as well as the following.



Helpful Skills:

- Knowledge of exotic and invasive species is needed. Consult a local Cooperative Extension Office.
- Specific measures may include mechanical hand pulling, regrading (requires construction equipment), or herbicide/pesticide application by a certified pesticide applicator. See DEC webpage for “Pesticide Applicator/Technician Guidance”.
- Landscape architect
- Knowledge of wetland plants (for ponds/wetlands)
- Knowledge of SMP design (to understand hydrologic regime for plant selection)

Equipment Typically Used for Vegetation Maintenance Activities

- Soil auger to diagnose issues of soil drainage that may affect vegetation health
- Rakes, shovels, wheelbarrows, and other “landscaping” equipment
- Light excavation or grading equipment for larger jobs
- Equipment to deliver, unload, and move filter media, mulch, and other materials
- Plants and/or seed mix, plus a way to move and store plant stock without damaging it or drying it out
- Planting bars, soil drills, etc.
- For planting in standing water (e.g., ponds, wetlands), pumps or pump-around systems and dirt bags or other ways to temporarily dewater planting area

12.3.9 Embankment and Overflow Condition

Applies Most Commonly To: Swales, Bioretention, and especially Ponds/Wetlands

Problem #1: Rill and channel erosion and bare dirt areas of embankments

Swales, Bioretention:

- Erosion and areas of bare dirt indicate two basic issues: 1) soils and moisture levels are not suitable for the plants or turf used; and 2) vegetation cannot take hold because of concentrated flow, physical wear, or poor soil conditions. Address these issues first with a soil/media test to ensure proper conditions exist for plant survival.
- High salt content from winter deicing of pavement is a common culprit of poor soil conditions for roadside plants. If this is the case, restore area with plant species that can tolerate salt levels, or replace edge plants with a stone diaphragm to intercept runoff from road.
- Amend or enhance soil as needed; soil may need more organic material to support dense ground cover.
- For concentrated flow and physical wear, redirect concentrated flow so that it disperses in mulched and vegetated areas. Anchor mulch and replant with vigorous plants recommended through the soils test.
- If plants have continued to die, consider a different species or entire planting palette or a revised planting plan (see **Section 12.3.8** and **photo to right**). Also consider using an appropriate bioretention or swale native seed mix to supplement use of plugs or other nursery stock.
- Consult a horticulturalist or plant nursery if there is evidence of disease or pests.
- Replant and add mulch or ground cover as needed.



Ponds and Wetlands:

- Where erosion has deposited soil within the pond or wetland water line, remove this material and reshape the slope.
- If a small amount of supplemental vegetation is needed, plant wetland plugs per nursery guidance.
- To address rill and channel erosion, first obtain a soil sample test to get soil amendment recommendations. Undercut the eroded sections and replace with clean amended soil, based on the soil test, and reseed as appropriate for the season.
- It may be necessary to stake in seed blankets or erosion-resistant lining (e.g., erosion-control matting or even rock in extreme situations) to stabilize eroded areas. Again, choose seed types appropriate for the season.
- Based on soil test guidance, reseed bare areas to prevent further erosion.
- For persistent problems, reroute the flow to more stable receiving areas using berms, diversions, etc.



Helpful Skills:

- Landscaping/gardening
- Consult with Cooperative Extension Office or independent laboratory for soil testing.
- If original planting plan is deemed inadequate, consult a landscape architect or horticulturalist to determine whether a revised planting plan is needed.
- Knowledge of sediment and erosion control practices and resources appropriate for the area

Problem #2: Settlement, loss of armoring material, erosion of emergency overflow

General Approach for All Practices:

- Settlement, loss of armoring material, erosion and accumulated debris can affect the dimension, water velocity or capacity of the emergency overflow such that embankment failure could occur in flood events (**photos below**).
- Inspect for exposure of soil or geotextile base material in the overflow and re-armor areas of exposure.
- In cases of settlement, a qualified engineer should be sought to assess its capacity and impact on pond capacity.
- Erosion of spillways should be repaired and revegetated as described for embankments.



Helpful Skills:

- Knowledge of sediment and erosion control practices for the area
- Completion of self-guided training on dam safety through Association of State Dam Safety Officials: <http://www.damsafety.org>

Problem #3: Impounding structure (embankment or dam) integrity issues due to tunneling or digging animals, woody vegetation, or seepage

Ponds/Wetlands:

- Impounding structure stability is a serious concern, especially where trees have become established on the slopes, or there's evidence of animal burrows or seepage.
- The best approach for trees on the crest, slopes, and adjacent to an impounding structure or embankment is to cut them down before they reach significant size. If large trees have been cut down but their root systems not removed, carefully monitor the area around the remaining stumps for signs of seepage.
- Exercise judgement for trees on the surrounding side slopes that are NOT impounding structures (not designed to hold back water in the pool). Sometimes a forested edge can enhance the appeal of a pond, but access for maintenance must also be available, and some trees can drop debris into ponds, leading to quality issues.
- Animal burrows can be dangerous to the structural integrity of the embankment because they weaken it and can create pathways for seepage. Professional exterminators may be needed to trap and remove animal pests.
- Seepage as water flow or boiling sand on the lower portion of the exterior slope or toe area of an impounding structure should be brought to the attention of a qualified engineer.
- Leakage around conveyance structures such as barrel pipes or spillways should be monitored for increase since the last inspection. A qualified engineer is needed to resolve issues of piping or seepage along the barrel pipe through a dam.
- Turbidity or cloudiness in seepage should also be brought to the attention of a qualified engineer.

Helpful Skills:

- Completion of self-guided training on dam safety through the Association of State Dam Safety Officials: <http://www.damsafety.org>

Equipment Typically Used for Embankment and Overflow Maintenance Activities

- Excavation or grading equipment for larger jobs
- Equipment to deliver, unload, and move filter media, mulch, and other materials
- Plants and/or seed mix, seed blanket and erosion control materials
- Rod and level for settlement measurements
- Clear glass bottle for seepage visual test

12.3.10 Structural Damage

Applies Most Commonly To: Any Practice

Problem: Structural damage to pipes, headwalls, standpipes, inlet/outlet structures, grates, curbs, and other structural components

- Structural components are necessary for water to flow into and out of stormwater practices as intended. This is a broad category that involves components composed of concrete, metal, plastic, and other materials. Some common examples include:
- Deteriorated or broken curbs that allow water to bypass a practice
- Slumping or sinkholes where soil meets a concrete drop inlet or outlet structure
- Broken or collapsed inlets
- Connections in an inlet or manhole structure that are not parged and are leaky
- Collapsed or crushed pipes (especially corrugated metal)
- Missing or broken steps or other safety features in a manhole or outlet control structure
- Root penetration and clogging of underdrain or other pipes
- Broken check dams
- There are too many particular instances to mention here, but the general idea is to inspect and repair any structural components that are affecting the performance of a practice or leading to a potential health or safety issue.

Helpful Skills:

- General contracting skills—concrete work, metal, proper joint sealing
- Routing out clogged pipes
- Perhaps CCTV experience to look for broken or clogged pipes

Equipment Typically Used for Fixing Erosion:

- General contracting
 - CCTV
-



Maintenance Considerations for SNOOT® Stormwater Quality Systems

Background:

The SNOOT system from Best Management Products, Inc. (BMP, Inc.) is based on a vented hood that can reduce floatable trash and debris, free oils, and other solids from stormwater discharges. In its most basic application, a SNOOT hood is installed over the outlet pipe of a catch basin or other stormwater quality structure with a deep sump (see Installation Drawing). The SNOOT forms a baffle that traps floatable debris and free oils on the surface, while permitting heavier solids and sediment to sink to the bottom of the sump. The clarified intermediate layer is forced out of the structure through the open bottom of the SNOOT by displacement from incoming flow. The resultant discharge contains considerably less unsightly trash and other gross pollutants, and can also offer reductions of free-oils and finer solids. To increase pollutant removal capabilities of the SNOOT system, various accessories are available. The most popular options include: the Bio-Skirt® for higher hydrocarbon capture and retention, the Stainless TrashScreen™ for Full Trash Capture and the Turbo Plate® for turbulence reduction and higher sediment capture.

Maintenance Recommendations:

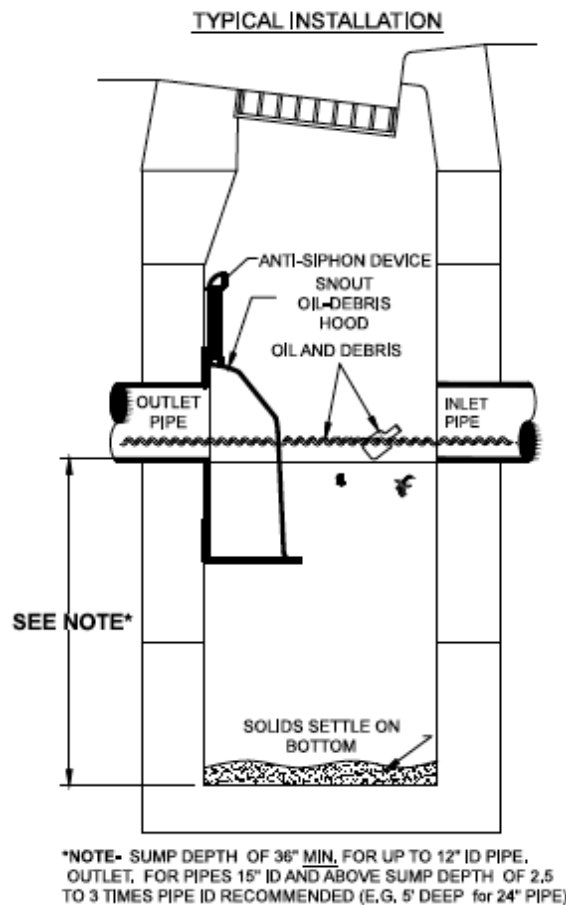
- Monthly monitoring for the first year of a new installation after the site has been stabilized is a recommended practice.
- Measurements should be taken after each rain event of .5 inches or more, or monthly, as determined by local weather conditions.
- Checking sediment depth and noting the surface pollutants in the structure will be helpful in planning maintenance.
- The pollutants collected in SNOOT equipped structures will consist of floatable debris and oils on the surface of the captured water, and grit and sediment on the bottom of the structure.
- It is best to schedule maintenance based on the solids collected in the sump.
- Optimally, the structure should be cleaned when the sump is half full (e.g. when 2 feet of material collects in a 4 foot sump, clean it out).
- Structures should also be cleaned if a spill or other incident causes a larger than normal accumulation of pollutants in a structure.
- Maintenance is best done with a vacuum truck.
- If Bio-Skirts are being used in the structure to enhance hydrocarbon capture, they should be checked on a monthly basis for the first year, and serviced or replaced when more than 2/3 of the boom is submerged, indicating a nearly saturated state. Assuming a typical pollutant-loading environment exists, Bio-Skirts should be serviced* annually or replaced as necessary.
- In the case of an oil spill, the structure should be checked and serviced and

Bio-Skirts (if present) replaced or serviced immediately.

- All collected wastes must be handled and disposed of according to local environmental requirements.
- To maintain the SNOUT hoods, an annual inspection of the anti-siphon vent and access hatch are recommended. A simple flushing of the vent, or a gentle rodding with a flexible wire are all that's typically needed to maintain the anti-siphon properties. Opening and closing the access hatch once a year ensures a lifetime of trouble-free service.

*To extend the service life of a Bio-Skirt, the unit may be "wrung out" to remove oils and washed in an industrial washing machine with warm water. The Bio-Skirt may then be re-deployed if the material maintains it's structural integrity. A maintained Bio-Skirt can last for several years. Each Bio-Skirt can hold about on gallon of oils.

SNOUT INSTALLATION:



BIO-SKIRT INSTALLATION:

POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICE OPERATION AND MAINTENANCE PLAN

TILDEN COMMONS

Town of New Lebanon, Columbia County, New York

Owner/Operator: Tilden Project, LLC

Prepared For: Stormwater Pollution Prevention Plan (SWPPP)

Prepared Pursuant To: NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity and the New York State Stormwater Management Design Manual

1. PURPOSE

This Operation and Maintenance (O&M) Plan has been prepared to satisfy the requirements of the New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity. The purpose of this plan is to ensure that the permanent stormwater management practices (SMPs) installed as part of the Tilden Project continue to operate as designed and provide long-term stormwater quality and quantity control.

The owner, Tilden Project, LLC, shall be responsible for the operation, inspection, maintenance, repair, and replacement of all permanent stormwater management practices associated with this project.

2. PROJECT DESCRIPTION

The Tilden Project consists of commercial and residential development located in the Town of New Lebanon, Columbia County, New York. Permanent stormwater management practices have been incorporated into the site design in accordance with the NYS Stormwater Management Design Manual to provide runoff reduction, water quality treatment, and peak flow management.

The stormwater management practices utilized for this project include:

- Tree Plantings
- Infiltration Basins

- Stormwater Planters
- Associated storm drainage infrastructure, including catch basins, pipes, and outlet structures

These stormwater management practices shall be maintained for the life of the project.

3. RESPONSIBLE PARTY

The owner shall be responsible for implementing this Operation and Maintenance Plan.

Responsible Entity:

Tilden Project, LLC

The owner shall:

- Conduct required inspections;
- Perform necessary maintenance and repairs;
- Maintain records of all inspections and maintenance activities;
- Ensure continued access to all stormwater management facilities;
- Transfer maintenance responsibilities to any subsequent property owner or association, as applicable.

Inspection and maintenance records shall be retained for a minimum of five (5) years and made available to regulatory agencies upon request.

4. GENERAL MAINTENANCE REQUIREMENTS

The following requirements shall apply to all stormwater management practices:

- Stormwater facilities shall be inspected at least annually and following significant storm events.
 - Sediment, debris, litter, and accumulated organic matter shall be removed as necessary.
 - Eroded areas shall be repaired and stabilized immediately.
 - Dead or diseased vegetation shall be replaced.
 - Structural components shall be repaired or replaced as necessary.
 - Maintenance activities shall preserve the original design intent and treatment performance of the practices.
-

5. TREE PLANTINGS

Inspection Frequency

- Twice annually during the first two years following installation;
- Annually thereafter.

Inspection Items

- Tree survival and health;
- Signs of disease, stress, or insect infestation;
- Mulch condition;
- Soil erosion or compaction;
- Damage from vehicles, equipment, or wildlife.

Maintenance Activities

- Replace dead, diseased, or severely damaged trees.
- Maintain mulch depth between 2 and 4 inches.
- Remove invasive vegetation.
- Water trees during establishment periods and drought conditions.
- Prune damaged or dead branches.
- Repair disturbed soils and stabilize erosion.

Maintenance Triggers

Maintenance shall occur when:

- Mortality exceeds 10 percent of planted trees;
 - Mulch depth falls below 2 inches;
 - Significant erosion or soil compaction is observed.
-

6. INFILTRATION BASINS

Inspection Frequency

- Quarterly during the first year;
- Semi-annually thereafter;
- Following major storm events.

Inspection Items

- Sediment accumulation;

- Ponding duration;
- Inlet and outlet conditions;
- Vegetative cover;
- Erosion or scour;
- Structural integrity of embankments and outlet structures.

Maintenance Activities

- Remove accumulated sediment, debris, and litter.
- Mow and maintain vegetation.
- Repair erosion and reseed disturbed areas.
- Restore infiltration surfaces as necessary.
- Repair damaged inlet or outlet structures.
- Remove invasive vegetation.

Maintenance Triggers

Maintenance shall occur when:

- Sediment accumulation exceeds 3 inches;
 - Standing water remains more than 72 hours after a rainfall event;
 - Erosion or structural deterioration is observed;
 - Vegetative cover falls below 90 percent.
-

7. STORMWATER PLANTERS

Inspection Frequency

- Quarterly during the first year;
- Semi-annually thereafter;
- Following major storm events.

Inspection Items

- Plant health and survival;
- Sediment accumulation;
- Standing water;
- Mulch condition;
- Inlet and outlet function;
- Evidence of erosion or scour.

Maintenance Activities

- Remove sediment, debris, and litter.
- Replace dead vegetation.
- Maintain mulch depth between 2 and 3 inches.
- Remove invasive species.
- Restore planting soil media as necessary.
- Repair damaged structures and stabilize eroded areas.

Maintenance Triggers

Maintenance shall occur when:

- Sediment accumulation exceeds 3 inches;
 - Standing water remains for more than 72 hours after a rainfall event;
 - Vegetation mortality exceeds 10 percent;
 - Inlet or outlet structures become obstructed.
-

8. STORM DRAINAGE INFRASTRUCTURE

Inspection Frequency

- Annually;
- Following major storm events.

Inspection Items

- Catch basins;
- Pipes and culverts;
- Manholes;
- Headwalls and outlet structures.

Maintenance Activities

- Remove sediment and debris.
- Clean pipes and structures.
- Repair damaged structures.
- Replace deteriorated components as necessary.

Maintenance Triggers

Maintenance shall occur when:

- Sediment accumulation exceeds 50 percent of sump depth;
 - Obstructions reduce hydraulic capacity;
 - Structural damage is identified.
-

9. RECORDKEEPING

The owner shall maintain records of all inspections and maintenance activities. Records shall include:

- Date of inspection;
 - Name of inspector;
 - Weather conditions;
 - Condition of each stormwater management practice;
 - Maintenance performed;
 - Recommended corrective actions;
 - Date corrective actions were completed.
-

10. ACCESS

Permanent access to all stormwater management facilities shall be maintained for inspection, maintenance, repair, and replacement activities. Access easements, if required, shall remain unobstructed.

11. TRANSFER OF RESPONSIBILITY

In the event ownership of the property changes, responsibility for the operation and maintenance of the stormwater management facilities shall transfer to the subsequent owner. The requirements of this Operation and Maintenance Plan shall remain in effect for the life of the project.

12. CERTIFICATION

I certify that Tilden Project, LLC shall be responsible for the operation and maintenance of the stormwater management practices described herein and agrees to maintain such

facilities in accordance with this Operation and Maintenance Plan and all applicable NYSDEC requirements.

Authorized Representative, Tilden Project, LLC

Printed Name and Title

Date

Swales:

- Clean debris from channel and contributing area monthly and after major storm events
- Mow as needed – monthly or less often
- Remove sediment annually

Sediment basins and Infiltration Basins:

- Clean debris from basin and contributing area monthly and after major storm events
- Mow as needed – monthly or less often
- Remove sediment annually or as sediment markers indicate

Stormwater Planters:

- Clean debris from basin and contributing area monthly and after major storm events
- Replace plants and stone as needed – yearly or less often
- Remove sediment annually or as sediment builds

Outfalls:

- Inspect yearly and after major storm events
- Repair erosion as needed
- Replace stone outfall material as needed

Structures and Piping:

- Monthly and after major storm events, inspect catch basins, inlet pipes, and outlet pipes for sediment and debris.
- Clean all debris and remove sediment when it accumulates to 6" of depth.
- Remove sediment manually or with a vacuum truck.

Disposal:

- Disposal of all material removed from all practices shall be done in accordance with local regulations.

Soil Restoration Maintenance:

- first year maintenance operations includes:
 1. initial inspections for the first six months (once after each storm greater than half- inch)
 2. reseeding to repair bare or eroding areas to assure grass stabilization
 3. water once every three days for first month, and then provide a half inch of water per week during first year. irrigation plan may be adjusted according to the rain event.
 4. fertilization may be needed in the fall after the first growing season to increase plant vigor
 5. keep site free of vehicular and foot traffic or other weight loads.

Supplemental references for stormwater management practice maintenance guidance are attached to this document.