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NOTES TO DESIGNER

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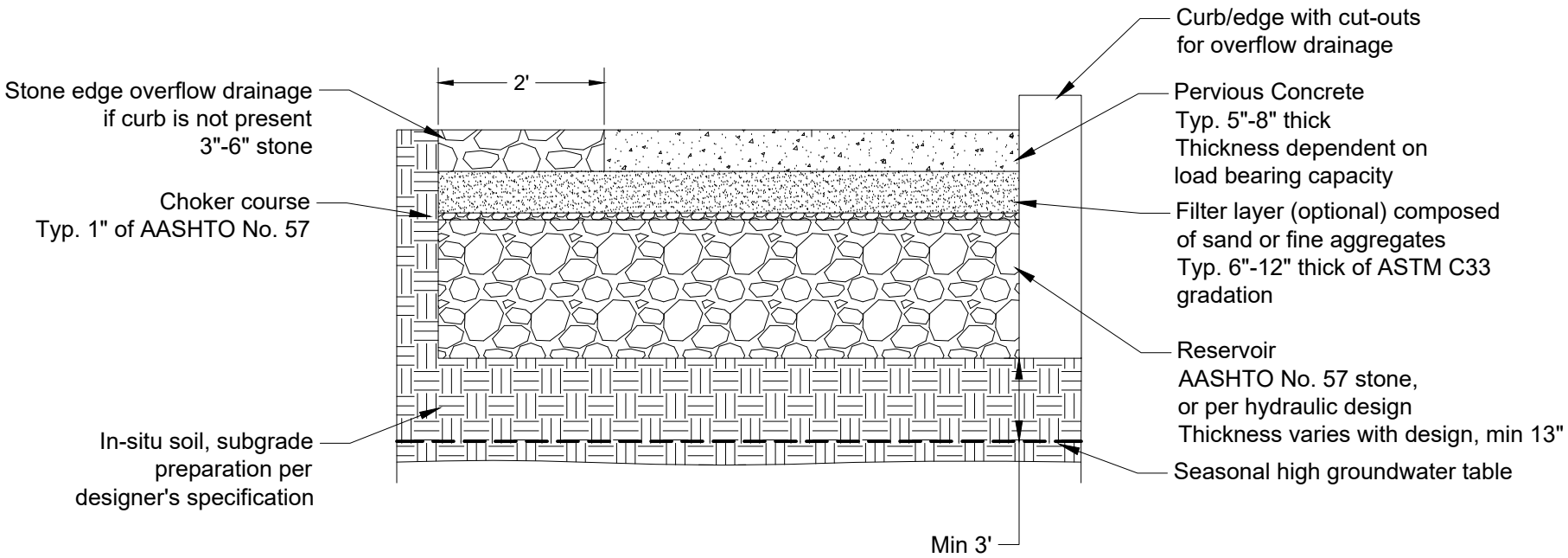
See Permeable Pavement Construction Notes for construction sequencing and maintenance recommendations.



Pervious Concrete (Infiltration)

Not To Scale

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PERVIOUS CONCRETE

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UNDERDRAIN

1. Use perforated pipes for the full length of the permeable pavement facility, and install non-perforated pipes as needed and when connecting to storm drainage systems.
2. Underdrain pipes should be installed with a minimum slope of 0.5%.

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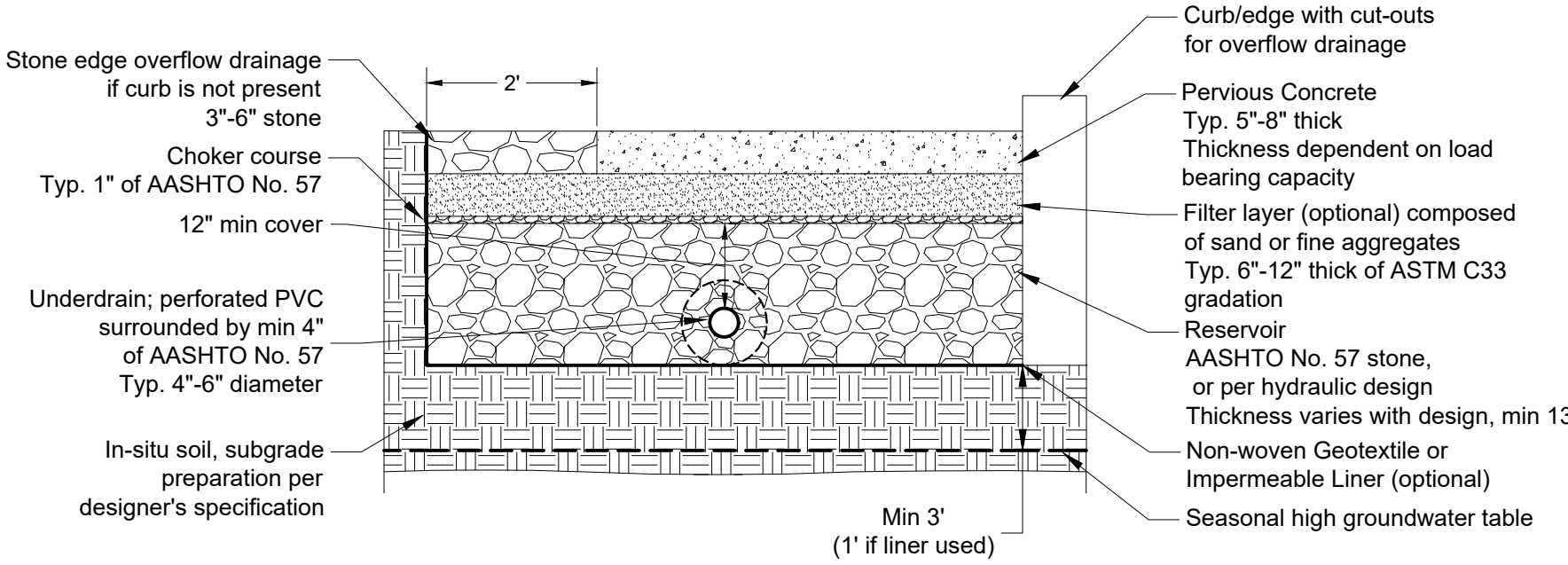

Pervious Concrete with Underdrain (Filtration)

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PERVIOUS CONCRETE W/ UNDERDRAIN

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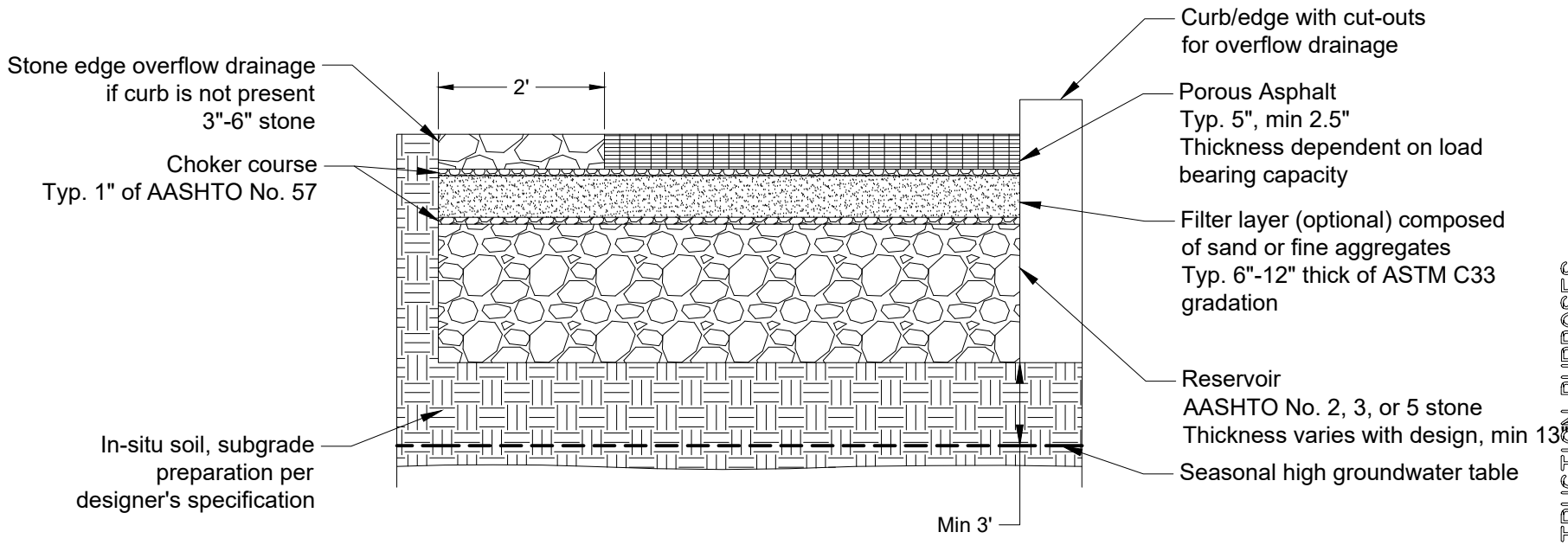

Porous Asphalt (Infiltration)

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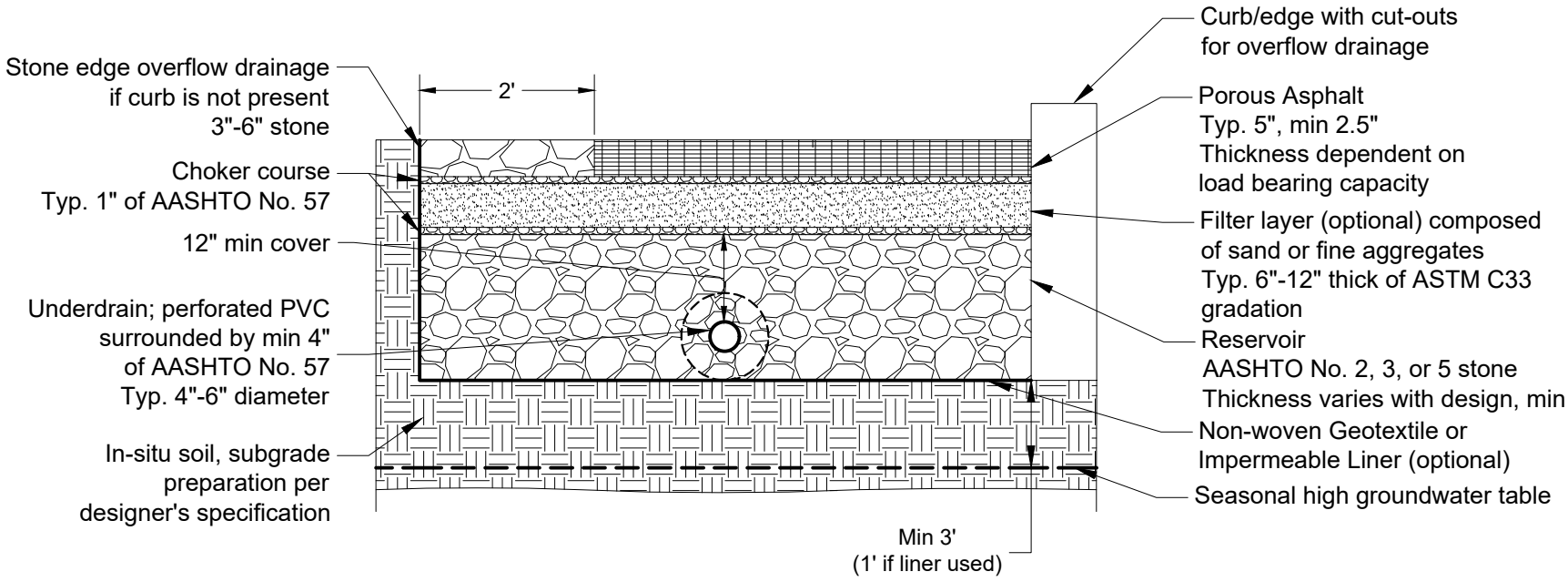

Porous Asphalt with Underdrain (Filtration)

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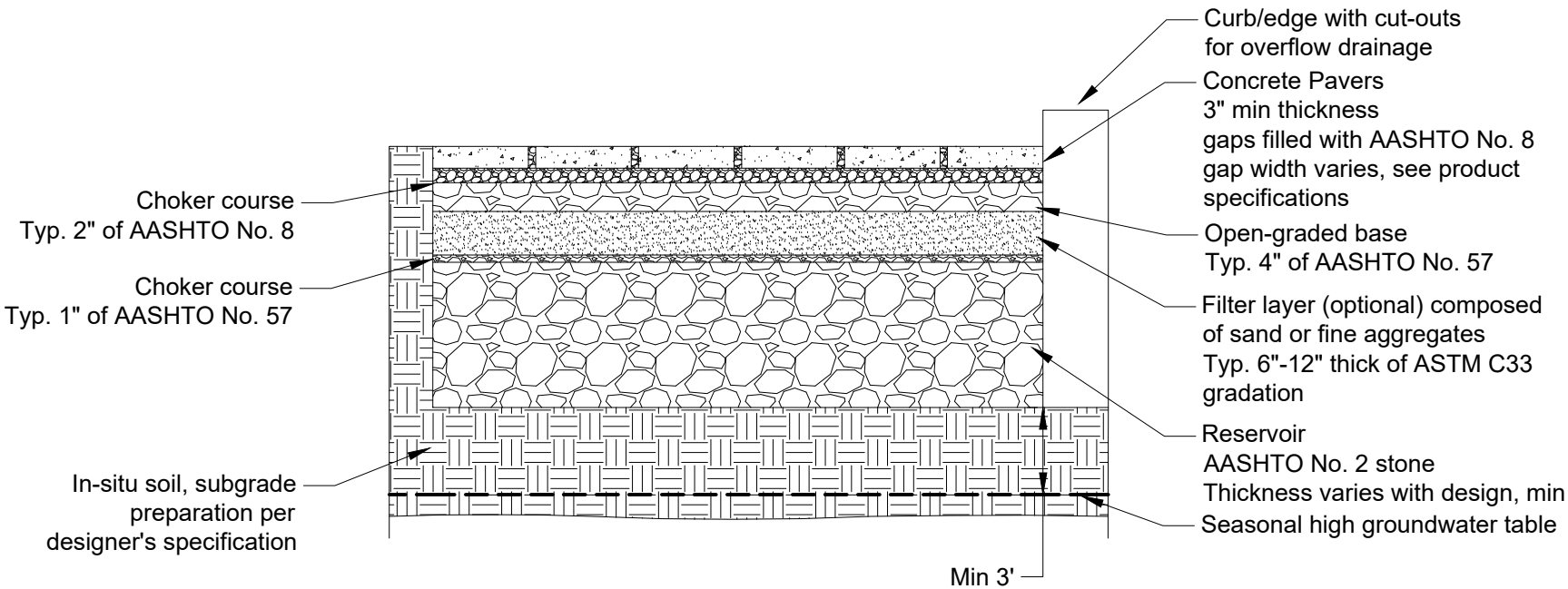

PICP (Infiltration)

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PICP

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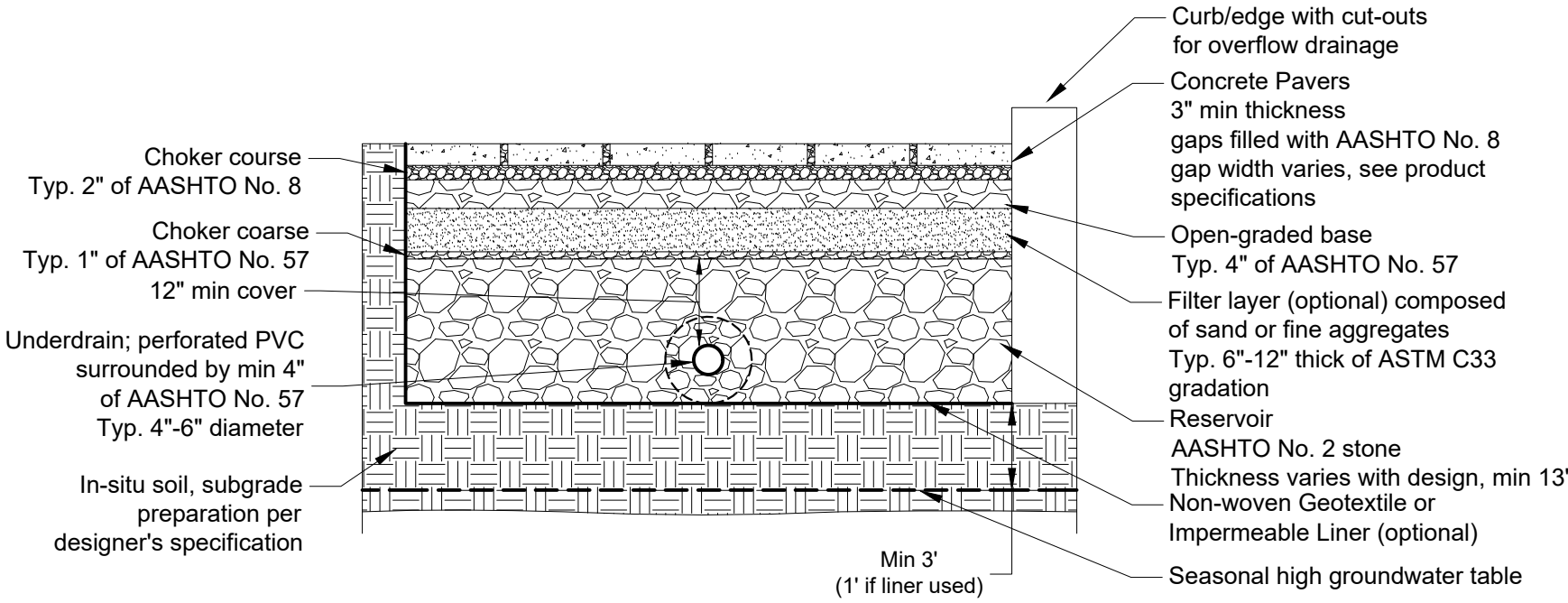

PICP with Underdrain (Filtration)

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PICP W/ UNDERDRAIN

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BMP CONSTRUCTION SEQUENCING

1. Construction of the BMP shall not begin until after all upstream drainage areas have been fully stabilized.
2. Review as-built elevations of installed utilities to confirm that required connections, clearances, and overflows for the biofiltration practices will be met. Adjust final grade of the practice as necessary.
3. Install appropriate temporary erosion control devices (MnDOT specifications 2573, 3885, or similar recommended) to prevent sediment from leaving or entering the practice during construction. All permeable pavement areas should be fully protected from sediment intrusion by silt fence or construction fencing.
4. Perform continuous inspections of erosion control practices, especially after each rainfall event.
5. Construct following stabilization of contributing drainage area. Ensure that critical elevations, such as underdrain invert (if present) and placement of aggregate are correct. See site grading below for more grading guidance.
6. For filtration practices, install a non-woven geotextile or impermeable layer on the sides of the reservoir layer if concrete curbs are not present or do not extend the full base depth.
7. Install the aggregate layers in maximum 8 inch lifts (6 inch preferred).
8. Install the permeable pavement:
   - 8.1. For pervious concrete, install after the underlying aggregate has been watered.
   - 8.2. For porous asphalt, install with a minimum air temperature of 50 degrees Fahrenheit to ensure the surface does not stiffen before compaction.
   - 8.3. For pavers, install either by hand or with installment equipment, cutting pavers no smaller than $\frac{1}{3}$ of the full unit size if necessary, or per manufacturer's specifications. Then fill the joints and openings with stone.
9. Remove temporary erosion control devices after site construction is complete.

SITE GRADING

1. Protect BMP areas during site grading activity.
   - 1.1. It is recommended that subgrade and decompaction measures be performed in accordance with MnDOT specification 2574 throughout the duration of construction.
   - 1.1. Do not excavate below the proposed media surface of permeable pavement facilities prior to starting BMP construction to prevent clogging of parent soils at the proposed subgrade.
   - 1.2. Maintain perimeter controls around BMP area following rough grading to keep heavy equipment out of BMP areas.
2. Avoid soil compaction by excavating only from the sides and outside the footprint of the permeable pavement facility.
3. To prevent soil compaction, heavy vehicular traffic should be kept out of permeable pavement areas during and immediately after construction.
4. See MN Stormwater Manual for additional subgrade preparation recommendations.

BMP CONSTRUCTION NOTES

1. A liner is required if there is less than 3 feet of separation between the subgrade elevation of the facility and bedrock or the seasonally high groundwater table elevation. A liner may also be required if the facility is constructed in an area of karst or if soil contamination is present.
2. Infiltration capacity of the BMP is determined by the type and condition of soils at and below the subgrade elevation. If these soils are poorly drained, an underdrain is recommended (HSG C) or required (HSG D).
3. The required drawdown time for infiltration practices is 48 hours or less, so the depth of the practice should be determined accordingly.
4. Do not install in rain or snow, and do not install frozen aggregate material under any of the surfaces.

MAINTENANCE

1. Following final inspection of the permeable pavement facility, the BMP owner shall be responsible for all maintenance.
2. Recommended post-construction maintenance for this practice includes:
   - 2.1. Vacuuming pavement to maintain hydrologic functions.
   - 2.2. Avoid winter sanding, seal coating, repaving, or any other practices that may clog or prevent the facility from functioning.
   - 2.3. Avoid use of deicing material.
3. See MN Stormwater Maintenance Plan for additional details.

MATERIAL SPECIFICATIONS

1. See Minnesota Stormwater Manual for material specifications recommendations and detailed construction instructions.

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PERMEABLE PAVEMENT CONSTRUCTION NOTES

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