

Origination Form
Proposed Revisions to a Standard Plans Index

Originator:	Exposito-Ferree, Amanda	Index Number:	440-001
Date:	6/3/2025	Sheet Number(s):	All
E-mail:	Amanda.Exposito-Ferree@dot.state.fl.us	Index Title:	Underdrain

Summary of the changes:

Sheet 1: Added General Note 10 "Pin the geotextile with soil or coarse aggregate at a minimum of 6"; Added TYPE Va (WET) ASSEMBLY; Added New Sheet to the Table of Contents.

Sheet 2: Renumbered

Sheet 3: Added Alt. Anchor Locations and Added Geotextile Extensions to the details; Renamed UPPER LIMITS details to "UPPER LIMISTS - DRY"; Added new detail for the UPPER LIMITS - WET; Moved TYPE Vb AND TYPE V CLEANOUT details to new Sheet 4; Changed "Ditch or Basin Bottom" to "Swale or Pond Bottom"

Sheet 4: Added Alt. Anchor Locations and Added Geotextile Extensions to the TYPE Vb details; Changed "Ditch or Basin Bottom" to "Swale or Pond Bottom"

Commentary/Background:

Add an underdrain detail for wet detention side bank filters. Similar to current Underdrain Va but along a wet pond. To give designers another tool to meet the new ERP stormwater quality standards.

Other Affected Documents/Offices	Person Contacted	Affected (Yes/No)
Other Standard Plans		No
FDOT Design Manual		No
Standard Specifications		No
Basis of Estimates Manual		No
Approved Product List		No
Construction Office	Jason Russell	No
Maintenance Office	Scott Arnold, Kristin Tadlock, and Fred Noble	No

Implementation

["FY-Standard Plans (Next Release)"]

GENERAL NOTES:

1. Install underdrain pipe that is either 4" smooth or 5" corrugated tubing unless otherwise shown in the Plans. The size to be furnished will be based on the nominal internal diameter of a pipe with a smooth interior wall. Except when prohibited by the Plans, the special provisions or this standard, pipe with a corrugated interior wall may be provided based on the following size equivalency.

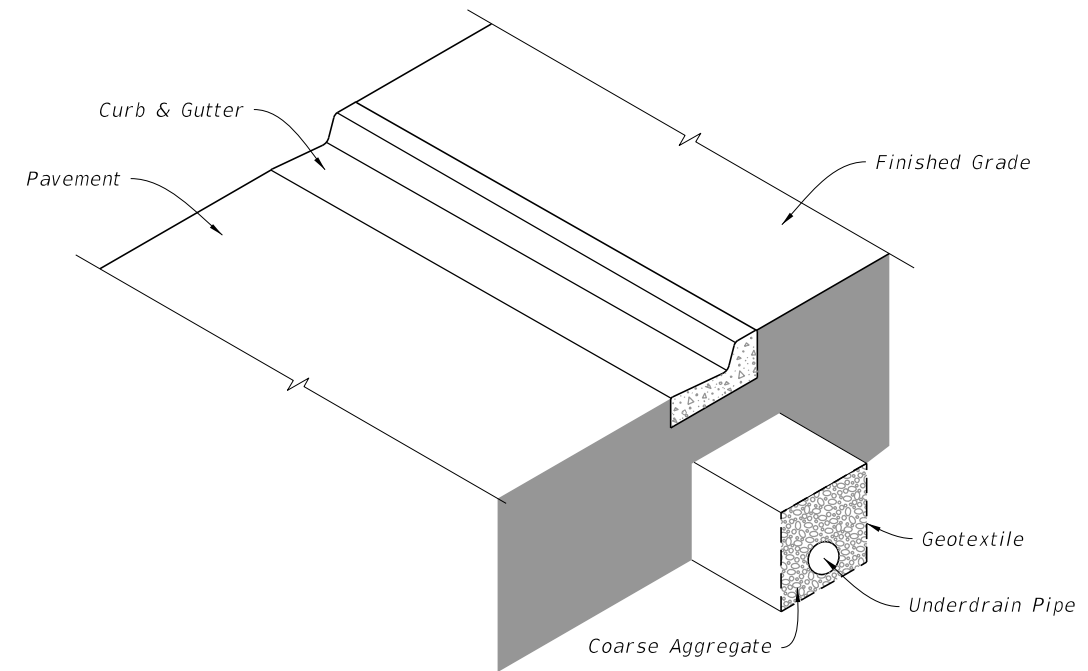
 4" smooth interior equivalent to 5" corrugated interior
 5" smooth interior equivalent to 6" corrugated interior
 6" smooth interior equivalent to 8" corrugated interior
 8" smooth interior equivalent to 10" corrugated interior
2. Fine aggregate is quartz sand meeting the requirements of Specifications 902-4.
3. Coarse aggregate is gravel or stone meeting the requirements of Specification 901-2 or 901-3. The gradation is in accordance with Specifications 901, Grades 4, 467, 5, 56 or 57 stone unless otherwise shown restricted in the Plans.
4. Install Underdrain Type I, II, III and V in accordance with Specification 440.
5. Install Type D-3 geotextile in accordance with Specifications 514. The internal geotextile of Type V underdrain has a permittivity of 0.7 /sec. and an AOS of #40 sieve.
6. When Type I is used, use a geotextile sock in accordance with Specification 948.
7. See Index 120-002 for the standard location of Type I, II, and III underdrain. The location of Type V underdrain and nonstandard locations of Type I, II, and III underdrain will be as detailed in the plans.
8. Install geotextile joints with a overlap a minimum of 1'. Install the internal geotextile of Type V underdrain with an overlap into the coarse aggregate or the fine aggregate a minimum of 1'.
9. Use nonperforated pipes for underdrain outlet and make all bends using 1/8 (45 deg.) elbows. Construct 90 deg. bends with two 1/8 elbows separated by at least 1' of straight pipe. Outlet pipes stubbed into inlets or other drainage structures must be a minimum 6" above the structure flow line. Install concrete aprons, hardware cloth, and sod for outlet pipes discharging to grassed areas as shown in Index 446-001 for Edgedrain Outlets.

ADDED NOTE 10:
 Anchor an additional 6" length of geotextile under soil or coarse aggregate as shown.

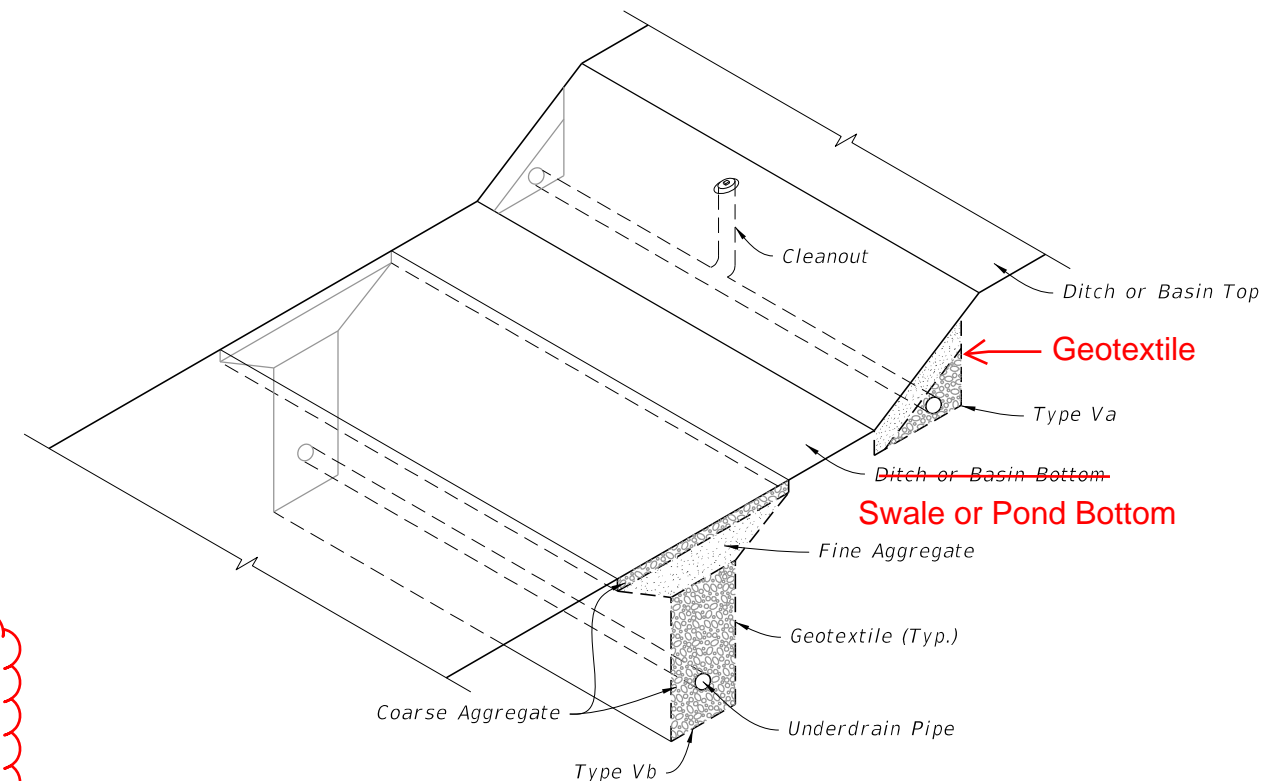
TABLE OF CONTENTS:	
Sheet	Description
1	General Notes and Contents
2	Type I, II, and III Underdrains
3	Type Va, Vb, and Cleanout

ADDED NEW SHEET - UPDATED TOC

ADDED:
 Type Va (WET) Assembly



UNDERDRAIN TYPE I, II, AND III ASSEMBLY
 (Type II Shown, Others Similar)



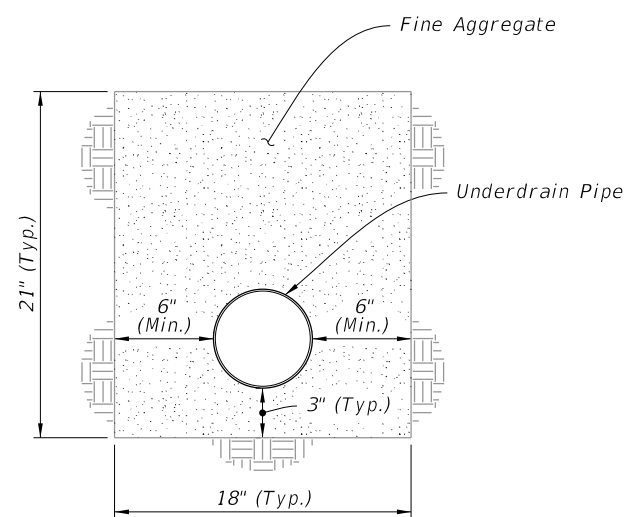
(DRY)

UNDERDRAIN TYPE Va AND Vb ASSEMBLY

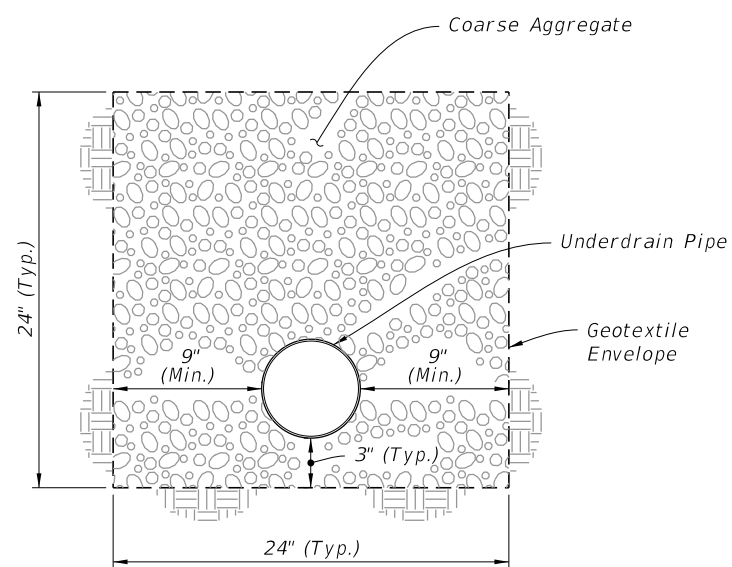
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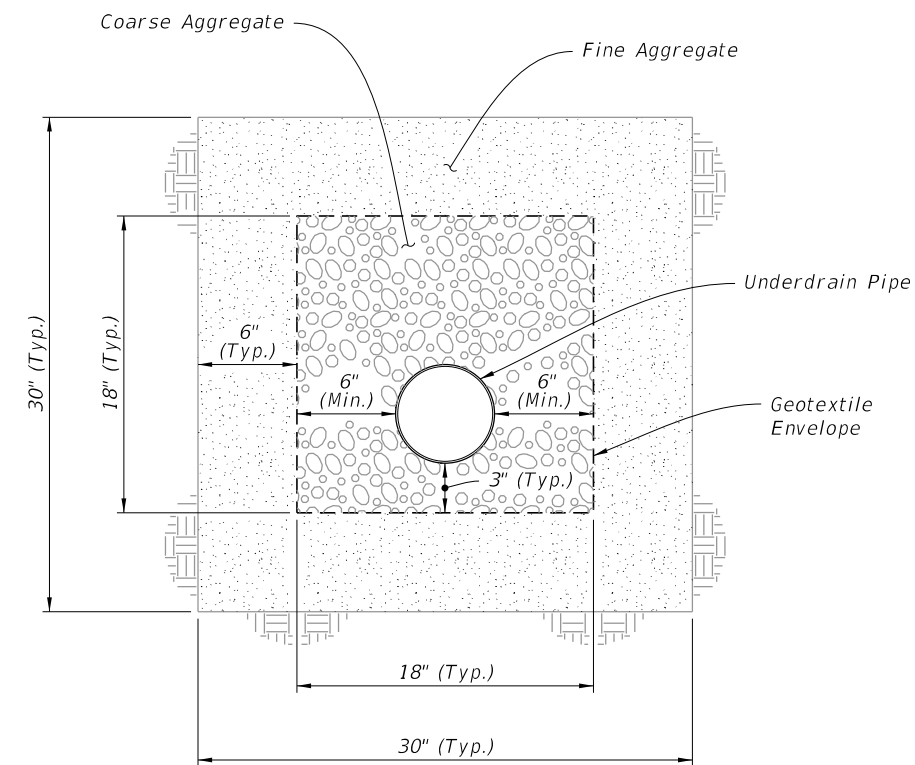
LAST REVISION 11/01/23	DESCRIPTION: 11/01/25		FY 2025-26 STANDARD PLANS	UNDERDRAIN	INDEX 440-001	SHEET 1 of 3
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TYPE I



TYPE II



TYPE III

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CHANGED: 4
TYPE I, II, AND III

LAST REVISION	DESCRIPTION:
11/01/23	11/01/25

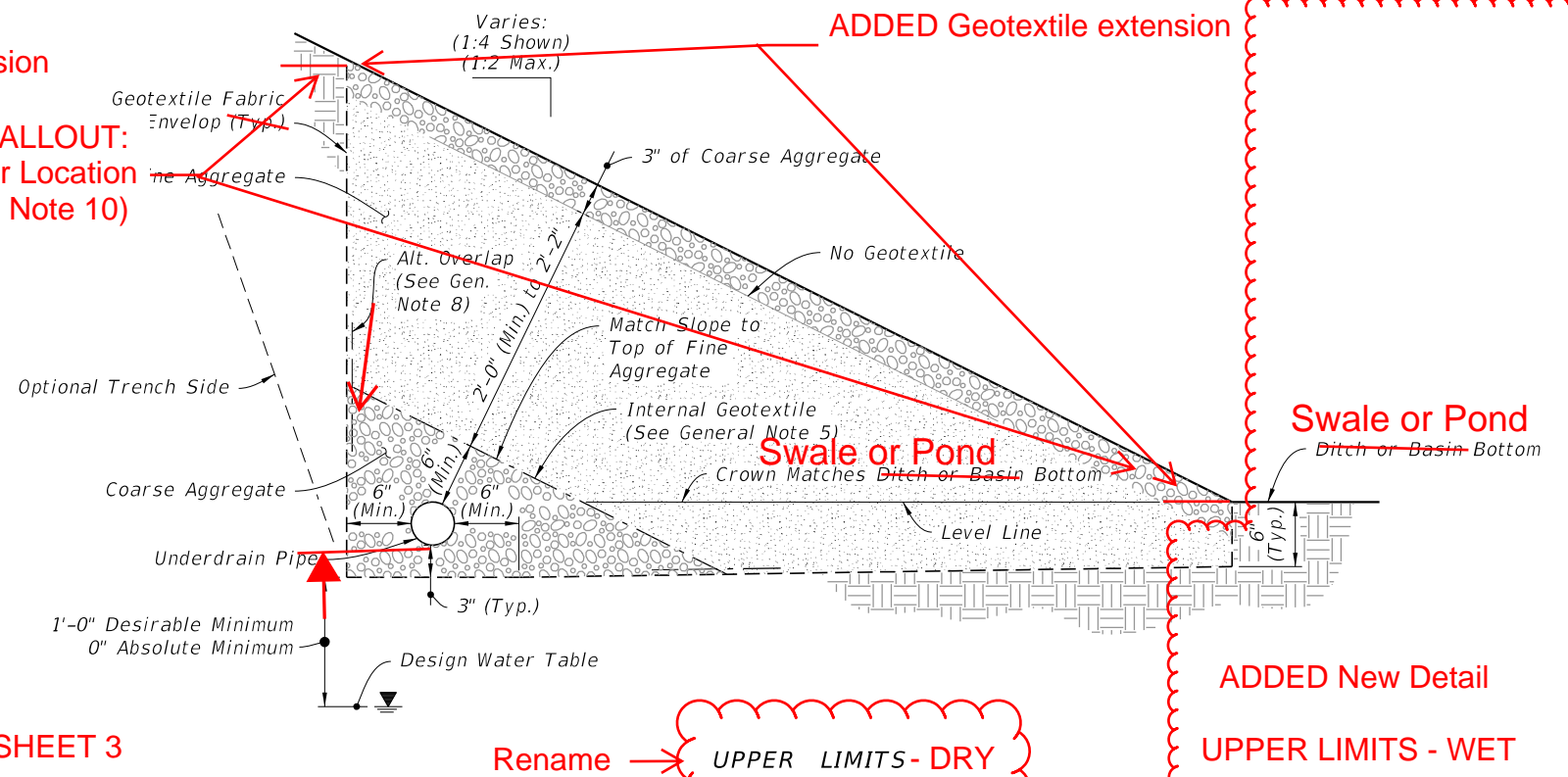
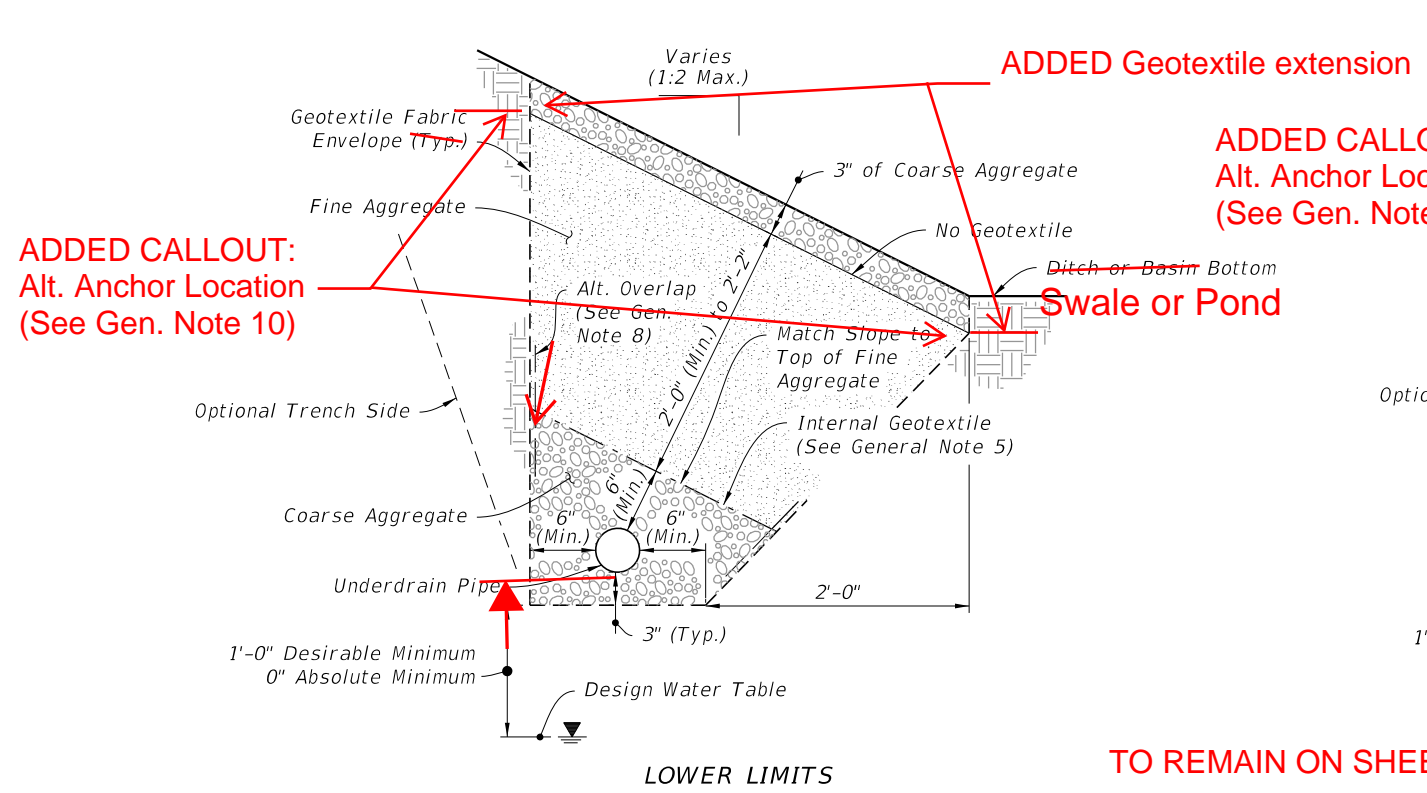


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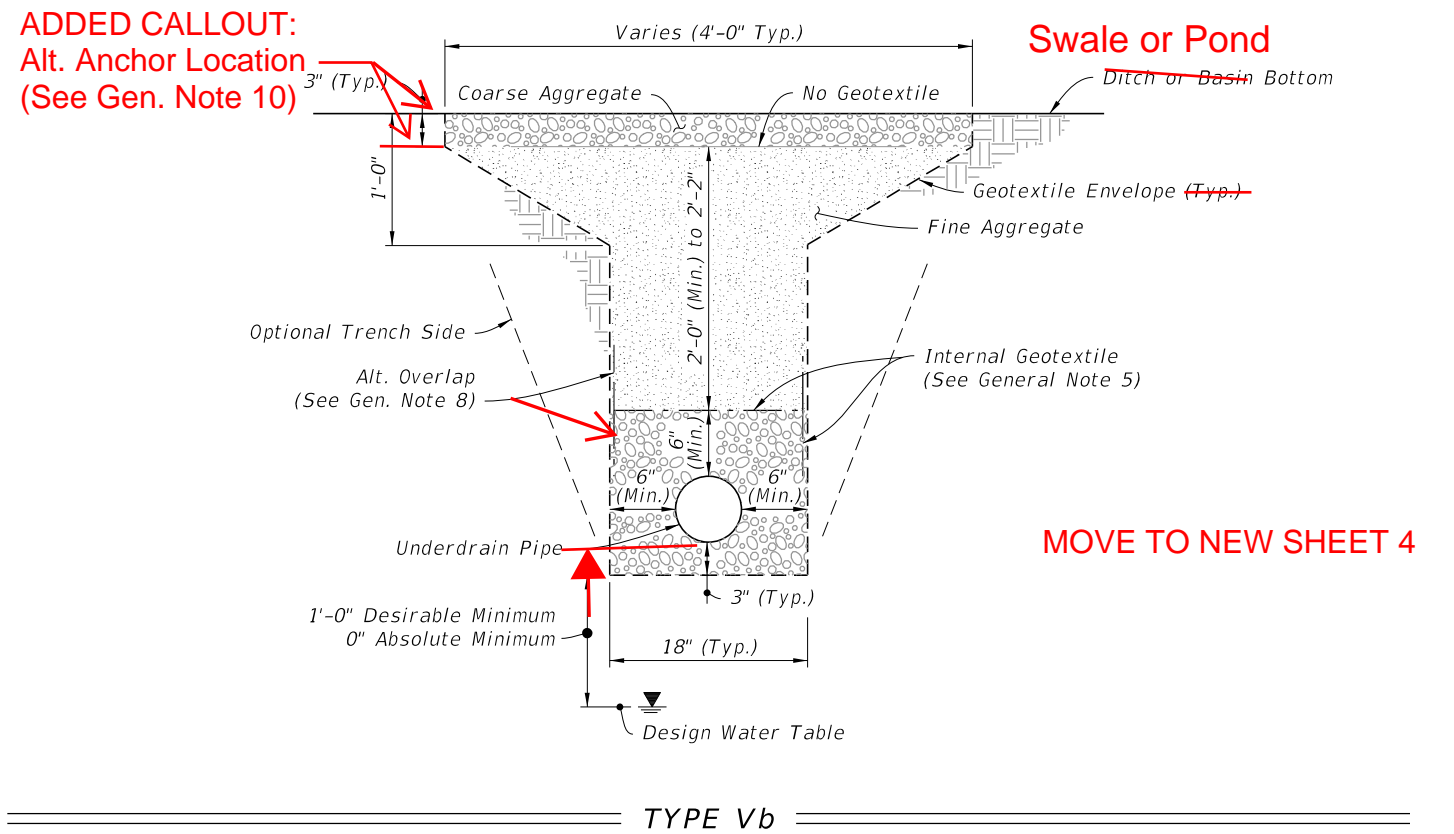
LOWER LIMITS

TO REMAIN ON SHEET 3

Rename → UPPER LIMITS - DRY

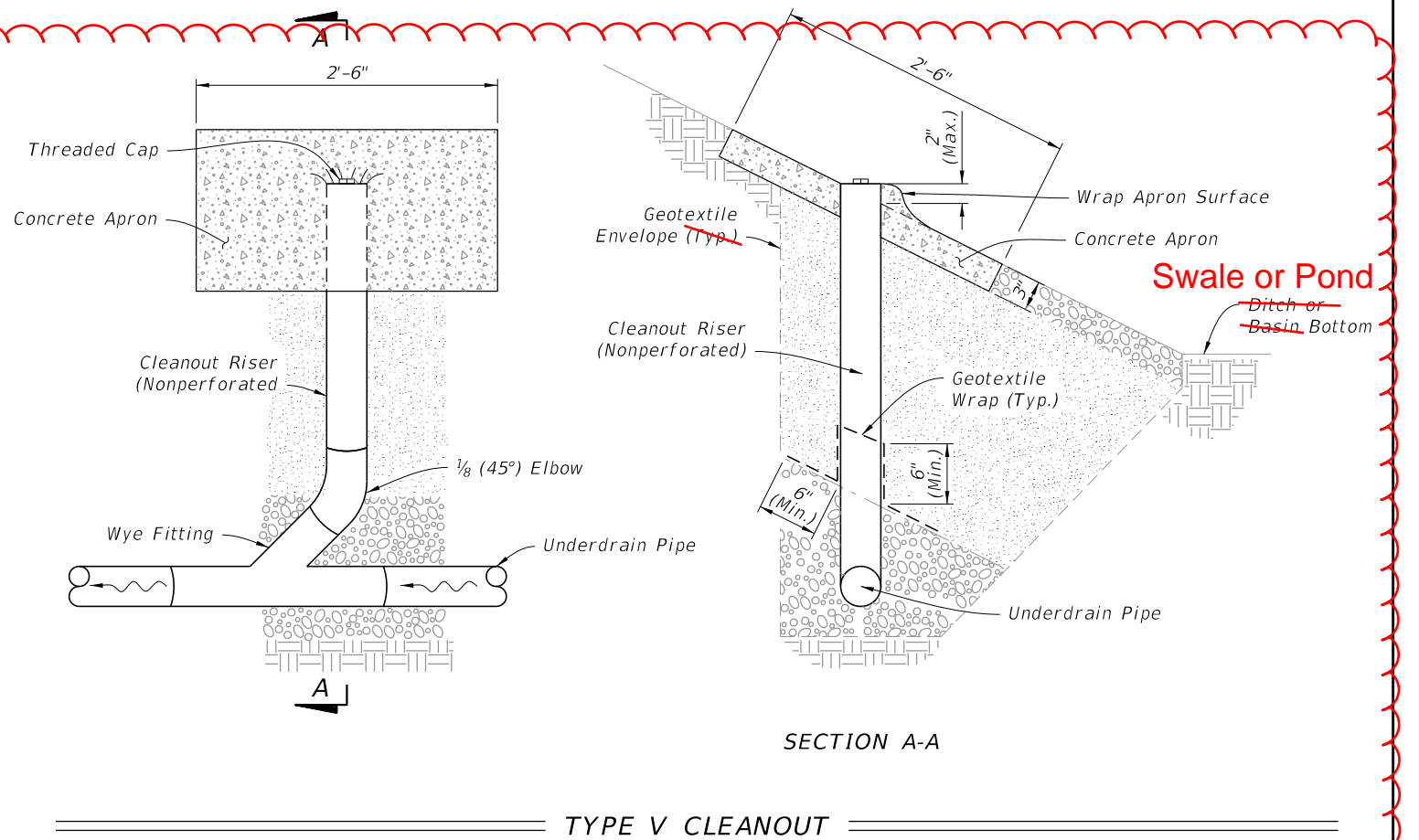
ADDED New Detail
UPPER LIMITS - WET

TYPE Va



TYPE Vb

MOVE TO NEW SHEET 4



SECTION A-A

TYPE V CLEANOUT

TYPE Va, Vb, AND CLEANOUT

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LAST REVISION	DESCRIPTION:
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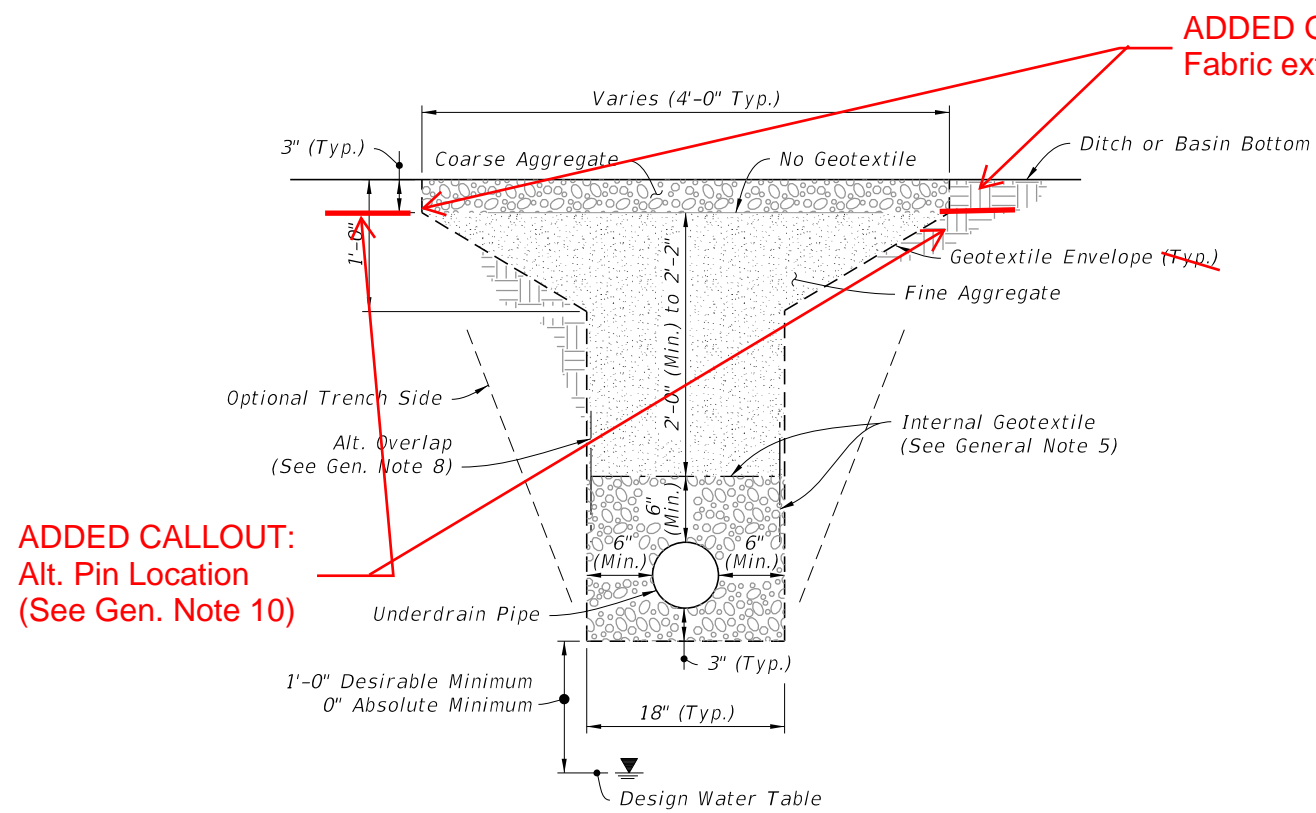
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UNDERDRAIN

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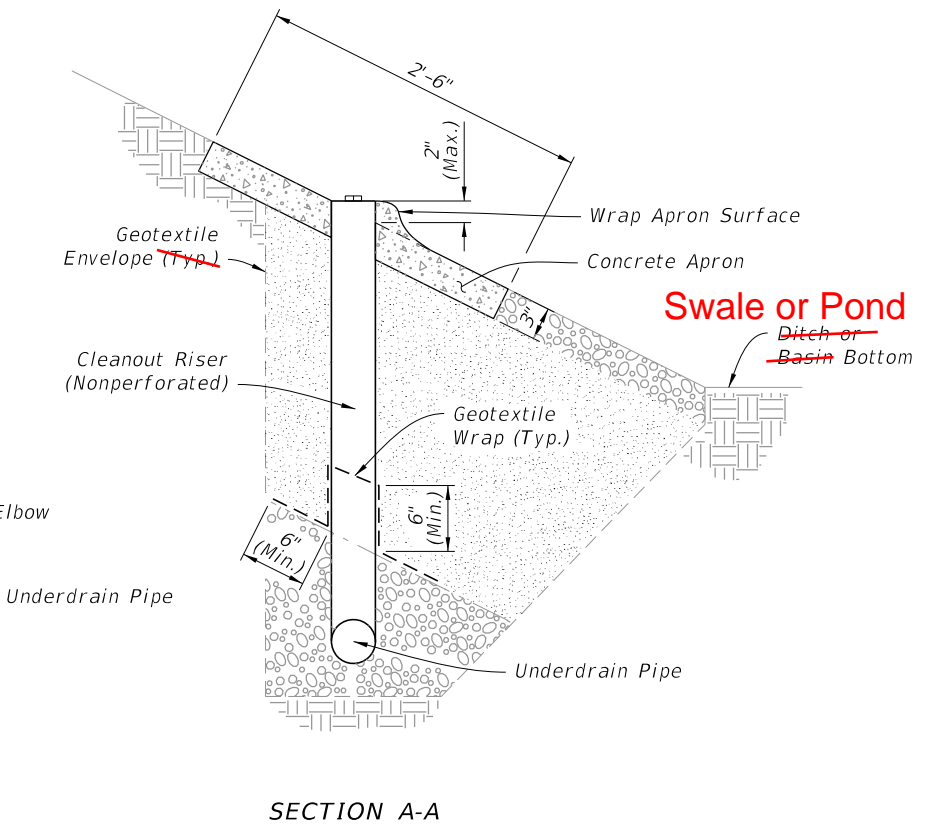
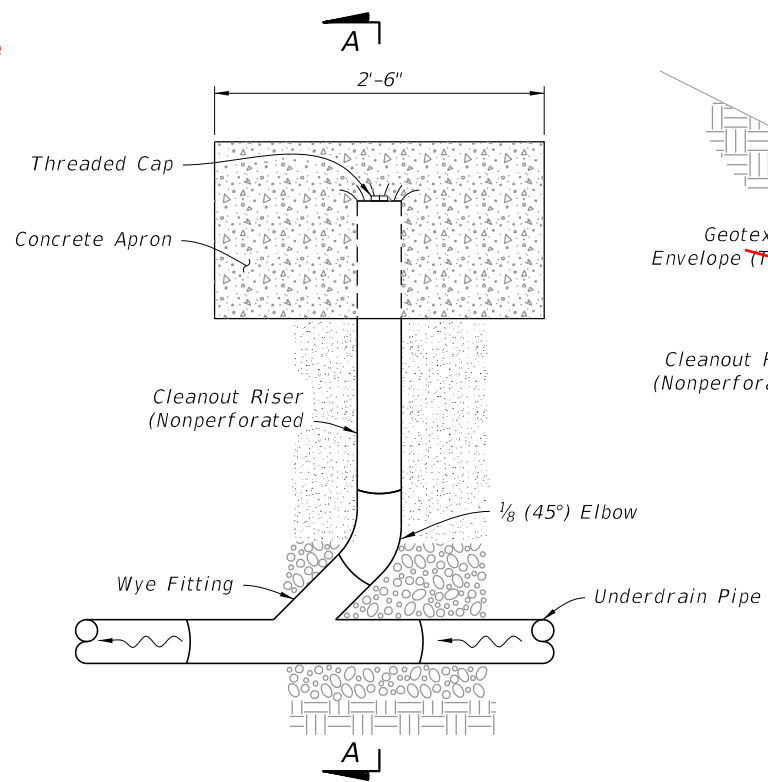
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NEW SHEET 4



ADDED CALLOUT:
Alt. Pin Location
(See Gen. Note 10)

ADDED Geotextile
Fabric extension



TYPE Vb

TYPE V CLEANOUT

TYPE ~~Va, Vb~~, AND CLEANOUT

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UNDERDRAIN

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GENERAL NOTES:

1. Install underdrain pipe that is either 4" smooth or 5" corrugated tubing unless otherwise shown in the Plans. The size to be furnished will be based on the nominal internal diameter of a pipe with a smooth interior wall. Except when prohibited by the Plans, the special provisions or this standard, pipe with a corrugated interior wall may be provided based on the following size equivalency.

- 4" smooth interior equivalent to 5" corrugated interior
- 5" smooth interior equivalent to 6" corrugated interior
- 6" smooth interior equivalent to 8" corrugated interior
- 8" smooth interior equivalent to 10" corrugated interior

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3. Coarse aggregate is gravel or stone meeting the requirements of Specification 901-2 or 901-3. The gradation is in accordance with Specifications 901, Grades 4, 467, 5, 56 or 57 stone unless otherwise shown restricted in the Plans.

4. Install Underdrain Type I, II, III and V in accordance with Specification 440.

5. Install Type D-3 geotextile in accordance with Specifications 514. The internal geotextile of Type V underdrain has a permittivity of 0.7 /sec. and an AOS of #40 sieve.

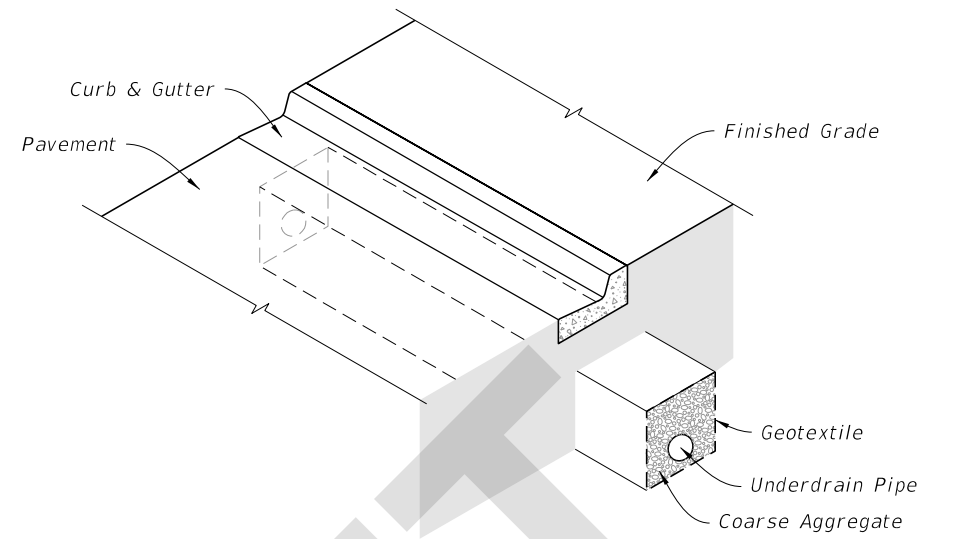
6. When Type I is used, use a geotextile sock in accordance with Specification 948.

7. See Index 120-002 for the standard location of Type I, II, and III underdrain. The location of Type V underdrain and nonstandard locations of Type I, II, and III underdrain will be as detailed in the plans.

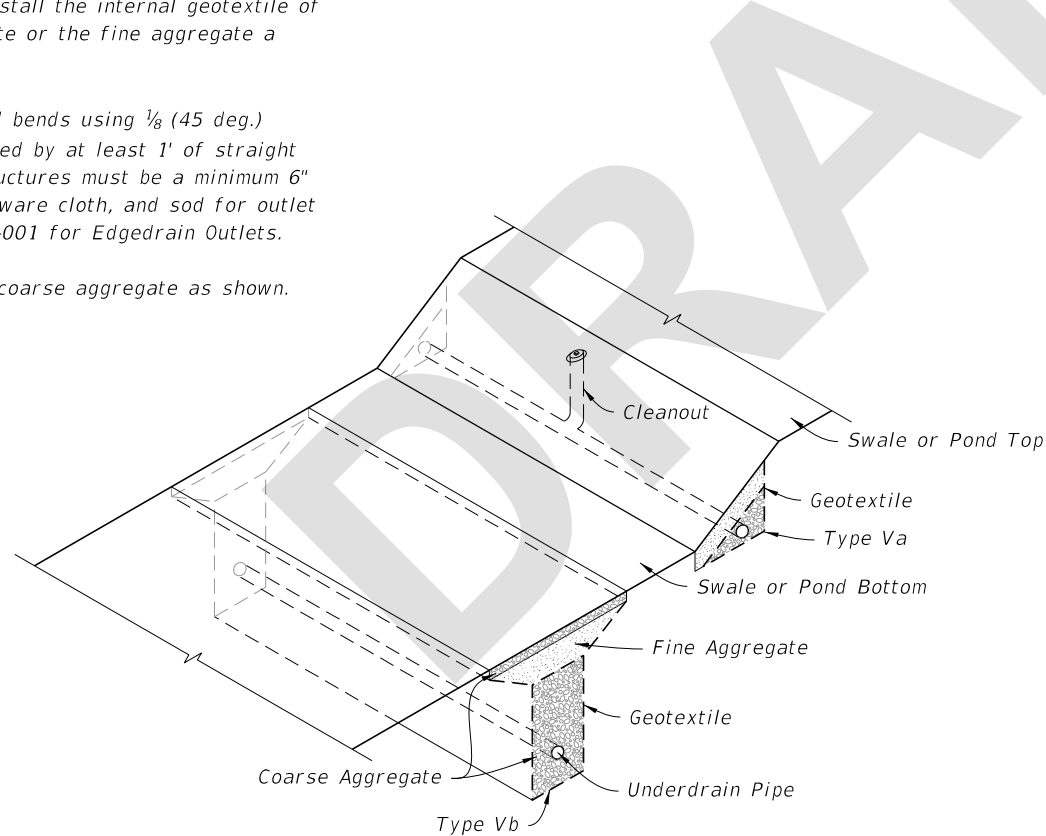
8. Install geotextile joints with a overlap a minimum of 1'. Install the internal geotextile of Type V underdrain with an overlap into the coarse aggregate or the fine aggregate a minimum of 1'.

9. Use nonperforated pipes for underdrain outlet and make all bends using 1/8 (45 deg.) elbows. Construct 90 deg. bends with two 1/8 elbows separated by at least 1' of straight pipe. Outlet pipes stubbed into inlets or other drainage structures must be a minimum 6" above the structure flow line. Install concrete aprons, hardware cloth, and sod for outlet pipes discharging to grassed areas as shown in Index 446-001 for Edgedrain Outlets.

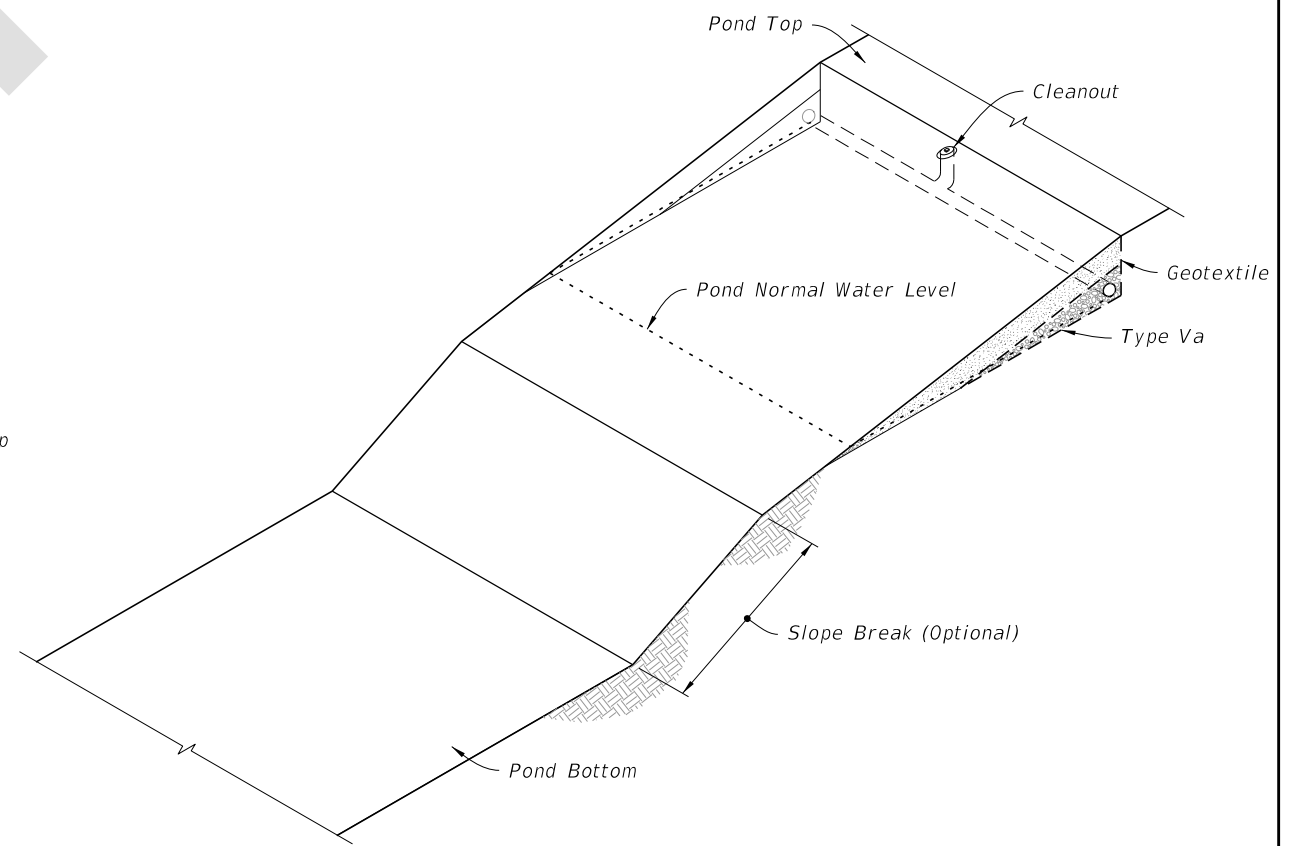
10. Anchor an additional 6" length of geotextile under soil or coarse aggregate as shown.



===== UNDERDRAIN TYPE I, II, AND III ASSEMBLY =====
(Type II Shown, Others Similar)



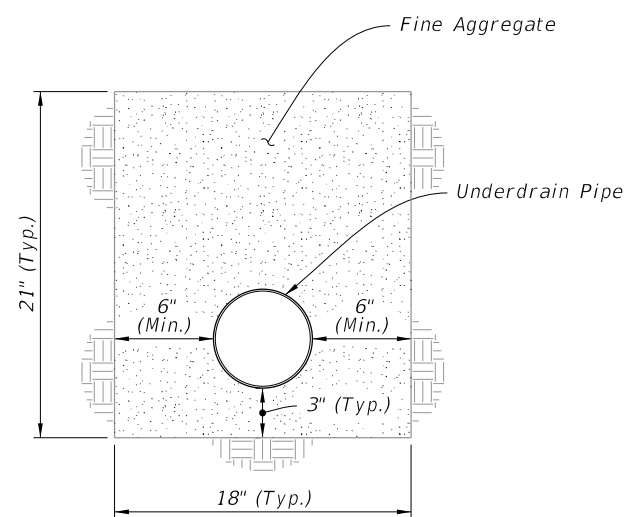
===== UNDERDRAIN TYPE Va AND Vb (DRY) ASSEMBLY =====



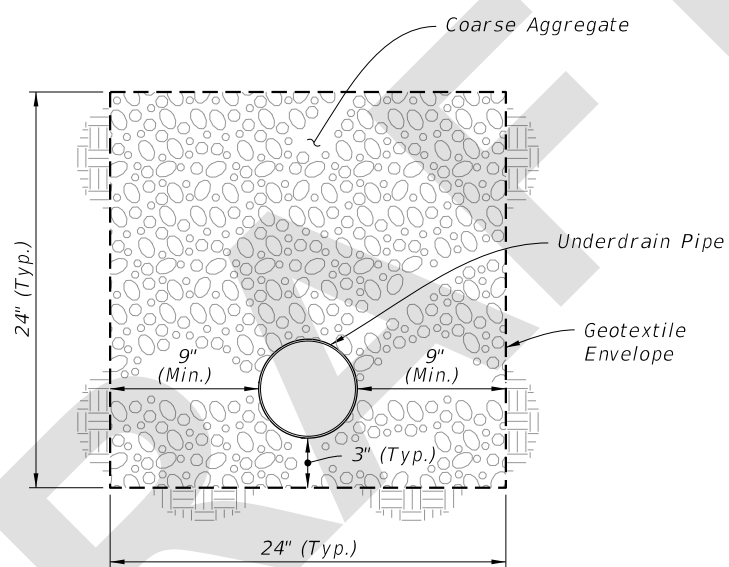
===== UNDERDRAIN TYPE Va (WET) ASSEMBLY =====

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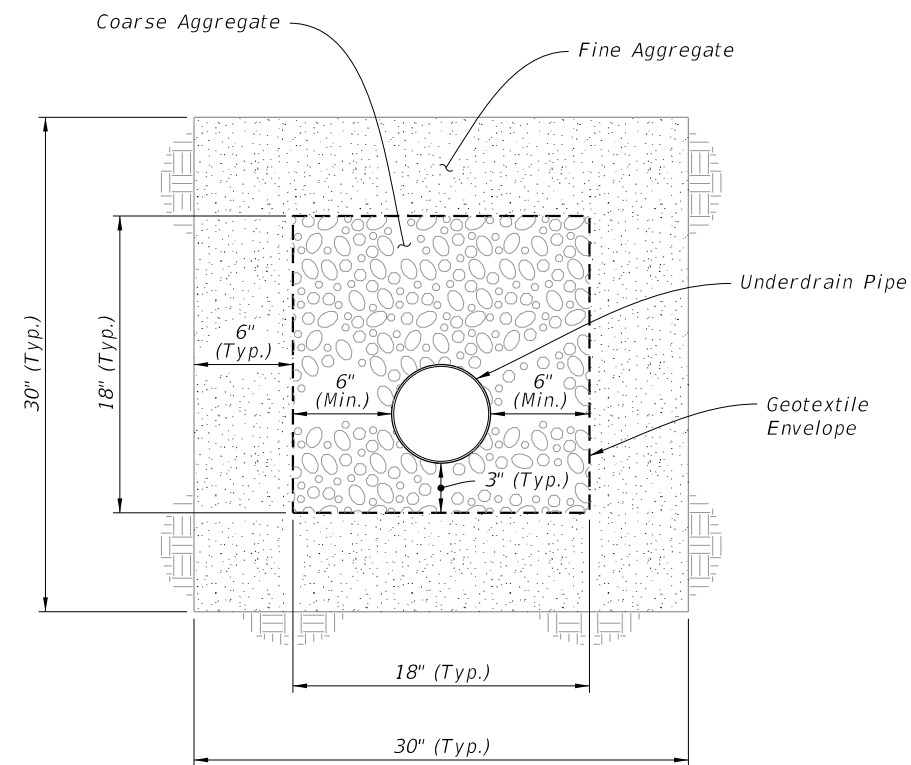
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TYPE I



TYPE II



TYPE III

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LAST REVISION 11/01/25	REVISION	DESCRIPTION:
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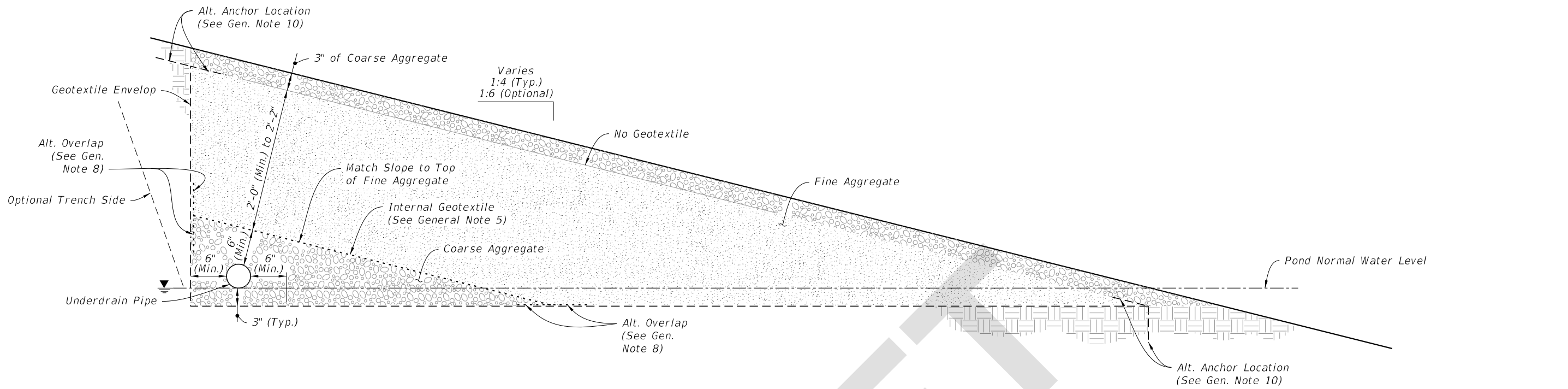


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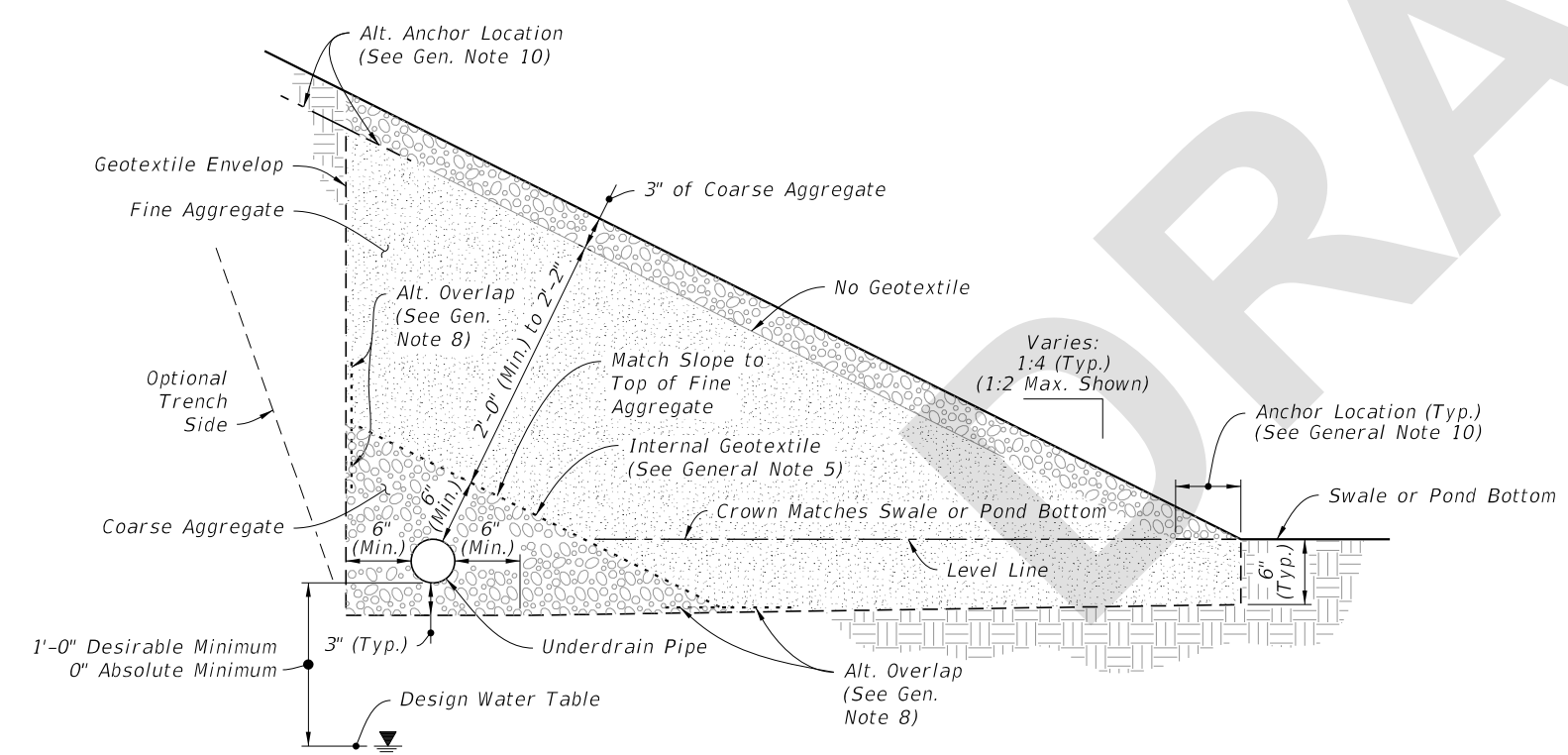
UNDERDRAIN

TYPE I, II, AND III

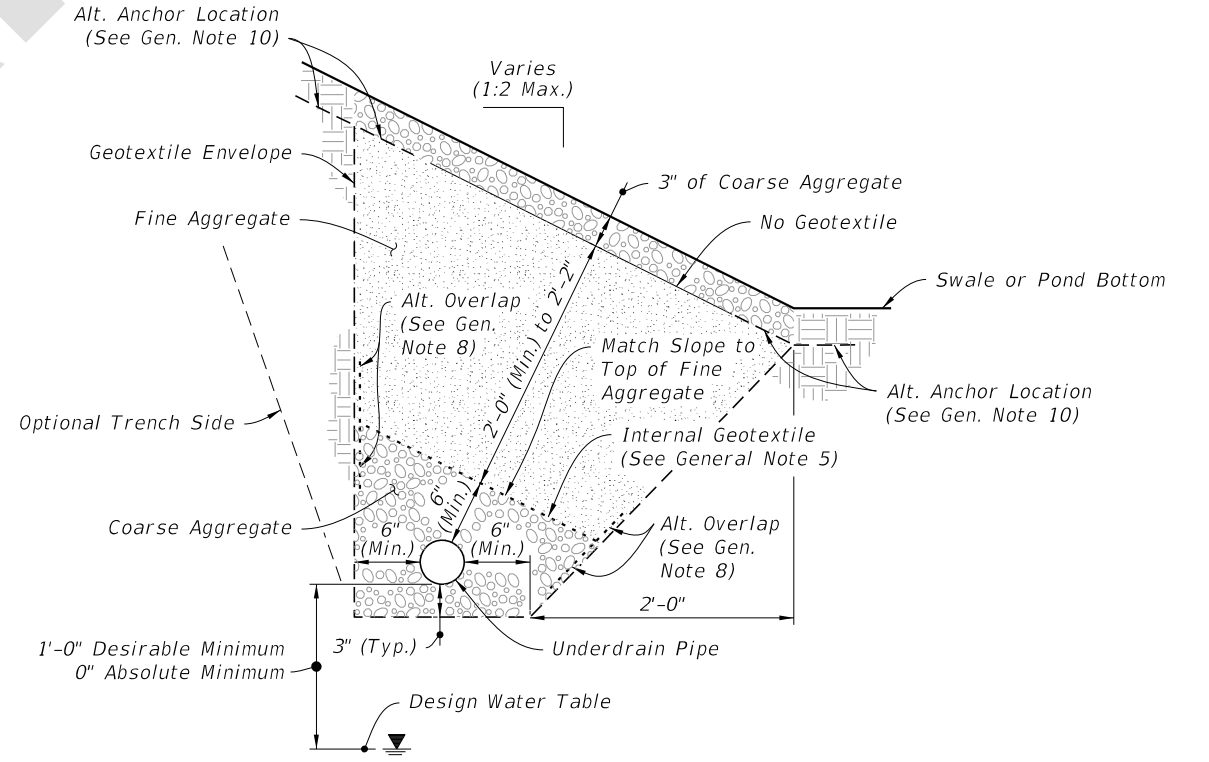
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UPPER LIMITS - WET




UPPER LIMITS - DRY

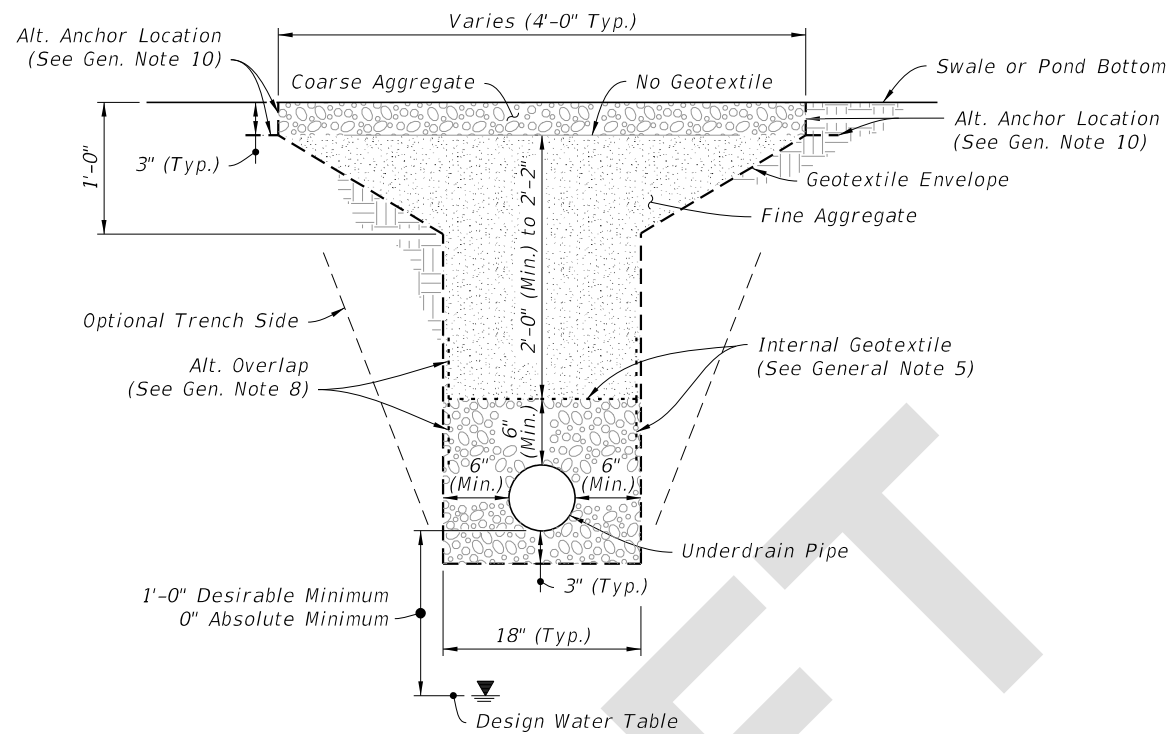


LOWER LIMITS - DRY

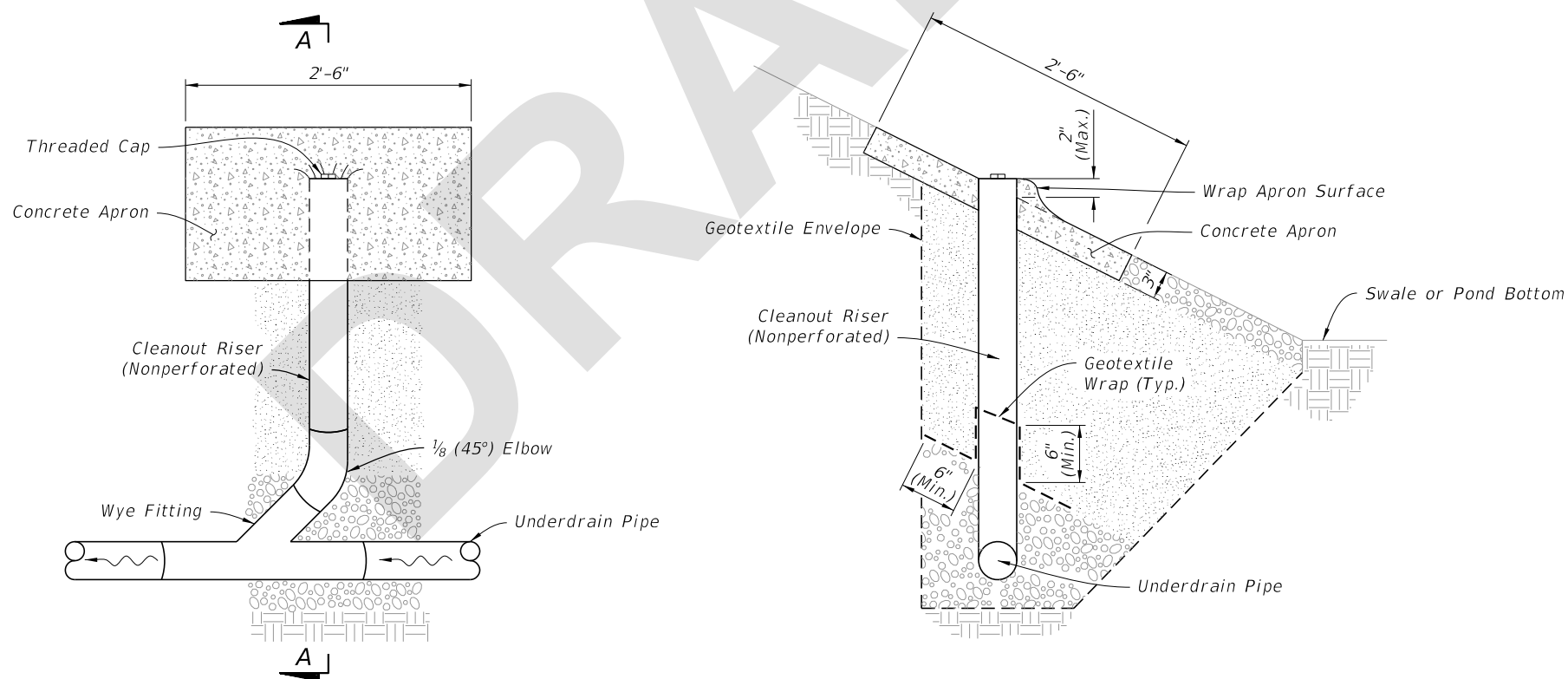
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TYPE Va



TYPE Vb - DRY




SECTION A-A

TYPE V CLEANOUT

TYPE Vb AND CLEANOUT

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