

**MORRIS COUNTY SOIL CONSERVATION DISTRICT
SOIL EROSION AND SEDIMENT CONTROL NOTES**

1. ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE INSTALLED IN ACCORDANCE WITH THE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY, AND WILL BE IN PLACE PRIOR TO ANY MAJOR SOIL DISTURBANCE, OR IN THEIR PROPER SEQUENCE AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.
2. ANY DISTURBED AREA THAT WILL BE LEFT EXPOSED FOR MORE THAN THIRTY (30) DAYS AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, IMMEDIATELY RECEIVE A TEMPORARY SEEDING. IF THE SEASON PROHIBITS TEMPORARY SEEDING, THE DISTURBED AREAS WILL BE MULCHED WITH STRAW OR HAY AND TACKED IN ACCORDANCE WITH THE NEW JERSEY STANDARDS. SEE NOTE 21 BELOW.
3. PERMANENT VEGETATION IS TO BE ESTABLISHED ON EXPOSED AREAS WITHIN TEN (10) DAYS AFTER FINAL GRADING. MULCH IS TO BE USED FOR PROTECTION UNTIL VEGETATION IS ESTABLISHED. SEE NOTE 22 BELOW.
4. IMMEDIATELY FOLLOWING INITIAL DISTURBANCE OR ROUGH GRADING, ALL CRITICAL AREAS (STEEP SLOPES, SANDY SOILS, WET CONDITIONS) SUBJECT TO EROSION WILL RECEIVE A TEMPORARY SEEDING IN ACCORDANCE WITH NOTE 21 BELOW.
5. TEMPORARY OVERSEEDING BEAMS ARE TO BE INSTALLED ON ALL CLEARED ROADWAYS AND EASEMENT AREAS. SEE THE DIVISION DETAIL.
6. PERMANENT SEEDING AND STABILIZATION IS TO BE IN ACCORDANCE WITH THE STANDARDS FOR PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION COVER. SPECIFIED RATES AND LOCATIONS SHALL BE ON THE APPROVED SOIL EROSION AND SEDIMENT CONTROL PLAN.
7. THE SITE SHALL AT ALL TIMES BE GRADED AND MAINTAINED SO THAT ALL STORMWATER RUNOFF IS DIVERTED TO SOIL EROSION AND SEDIMENT CONTROL FACILITIES.
8. ALL SEDIMENTATION STRUCTURES (SILT FENCE, INLET FILTERS, AND SEDIMENT BASINS) WILL BE INSPECTED AND MAINTAINED DAILY.
9. STOCKPILES SHALL NOT BE LOCATED WITHIN 50' OF A FLOODPLAIN, SLOPE DRAINAGE FACILITY, OR ROADWAY. ALL STOCKPILE BASES SHALL HAVE A SILT FENCE PROPERLY ENTRENCHED AT THE TOE OF SLOPE.
10. A STABILIZED CONSTRUCTION ACCESS WILL BE INSTALLED, WHENEVER AN EARTHEN ROAD INTERSECTS WITH A PAVED ROAD. SEE THE STABILIZED CONSTRUCTION ACCESS DETAIL AND CHART FOR DIMENSIONS.
11. ALL NEW ROADWAYS WILL BE TREATED WITH SUITABLE SUBBASE UPON ESTABLISHMENT OF FINAL GRADE ELEVATIONS.
12. PAVED ROADWAYS MUST BE KEPT CLEAN AT ALL TIMES.
13. BEFORE DISCHARGE POINTS BECOME OPERATIONAL, ALL STORM DRAINAGE OUTLETS WILL BE STABILIZED AS REQUIRED.
14. ALL DEWATERING OPERATIONS MUST BE DISCHARGED DIRECTLY INTO A SEDIMENT FILTER AREA. THE FILTER SHOULD BE COMPOSED OF A FABRIC OR APPROVED MATERIAL. SEE THE DEWATERING DETAIL.
15. ALL SEDIMENT BASINS WILL BE CLEARED WHEN THE CAPACITY HAS BEEN REDUCED BY 50%. A CLEAN OUT ELEVATION WILL BE IDENTIFIED ON THE PLAN AND A MARKER INSTALLED ON THE SITE.
16. DURING AND AFTER CONSTRUCTION, THE APPLICANT WILL BE RESPONSIBLE FOR THE MAINTENANCE AND OPERATION OF THE DRAINAGE STRUCTURES, VEGETATION COVER, AND ANY OTHER MEASURES DEEMED APPROPRIATE BY THE DISTRICT. SAID RESPONSIBILITY WILL END WHEN COMPLETED WORK IS APPROVED BY THE MORRIS COUNTY SOIL CONSERVATION DISTRICT.
17. ALL TREES OUTSIDE THE DISTURBANCE LIMIT INDICATED ON THE SUBJECT PLAN OR THOSE TREES WITHIN THE DISTURBANCE AREA WHICH ARE DESIGNATED TO REMAIN AFTER CONSTRUCTION ARE TO BE PROTECTED WITH TREE PROTECTION DEVICES. SEE THE TREE PROTECTION DETAIL.
18. THE MORRIS COUNTY SOIL CONSERVATION DISTRICT MAY REQUEST ADDITIONAL MEASURES TO MINIMIZE ON SITE OR OFF SITE EROSION PROBLEMS DURING CONSTRUCTION.
19. THE MORRIS COUNTY SOIL CONSERVATION DISTRICT MUST BE NOTIFIED, IN WRITING, AT LEAST 72 HOURS PRIOR TO ANY LAND DISTURBANCE, AND A PRE-CONSTRUCTION MEETING HELD.
20. CONTRACTOR TO SET UP A MEETING WITH THE INSPECTOR FOR PERIODIC INSPECTIONS OF THE TEMPORARY SEDIMENT BASIN PRIOR TO AND DURING ITS CONSTRUCTION.

21. **TOPSOIL STOCKPILE PROTECTION**
 - a) APPLY GROUND LIMESTONE AT A RATE OF 90 LBS PER 1000 SQ. FT.
 - b) APPLY FERTILIZER (10-20-10) AT A RATE OF 11 LBS. PER 1000 SQ. FT. AND ANNUAL RYEGRASS SEED AT 1 LB. PER 1000 SQ. FT. AND ANNUAL RYEGRASS AT 1 LB. PER 1000 SQ. FT.
 - c) MULCH STOCKPILE WITH STRAW OR HAY AT A RATE OF 90 LBS. PER 1000 SQ. FT.
 - d) APPLY A LIQUID MULCH BINDER OR TACK TO STRAW OR HAY MULCH.
 - e) PROPERLY ENTRENCH A SILT FENCE AT THE BOTTOM OF THE STOCKPILE.
22. **TEMPORARY STABILIZATION SPECIFICATIONS**
 - a) APPLY GROUND LIMESTONE AT A RATE OF 90 LBS PER 1000 SQ. FT.
 - b) APPLY FERTILIZER (10-20-10) AT A RATE OF 11 LBS. PER 1000 SQ. FT. AND ANNUAL RYEGRASS SEED AT 1 LB. PER 1000 SQ. FT. AND ANNUAL RYEGRASS AT 1 LB. PER 1000 SQ. FT.
 - c) MULCH STOCKPILE WITH STRAW OR HAY AT A RATE OF 90 LBS. PER 1000 SQ. FT.
 - d) APPLY A LIQUID MULCH BINDER OR TACK TO STRAW OR HAY MULCH.
23. **PERMANENT STABILIZATION SPECIFICATIONS**
 - a) APPLY TOPSOIL TO A DEPTH OF 5 INCHES (UNSETTLED).
 - b) APPLY GROUND LIMESTONE AT A RATE OF 90 LBS PER 1000 SQ. FT. AND WORK FOUR INCHES INTO SOIL.
 - c) APPLY FERTILIZER (10-20-10) AT A RATE OF 11 LBS. PER 1000 SQ. FT. AND CREEPING RED FESCUE SEED AT 0.7 LBS. PER 1000 SQ. FT. AND PERENNIAL RYEGRASS SEED AT 0.25 LBS PER 1000 SQ. FT.
 - d) MULCH STOCKPILE WITH STRAW OR HAY AT A RATE OF 90 LBS. PER 1000 SQ. FT.
 - e) APPLY A LIQUID MULCH BINDER OR TACK TO STRAW OR HAY MULCH.

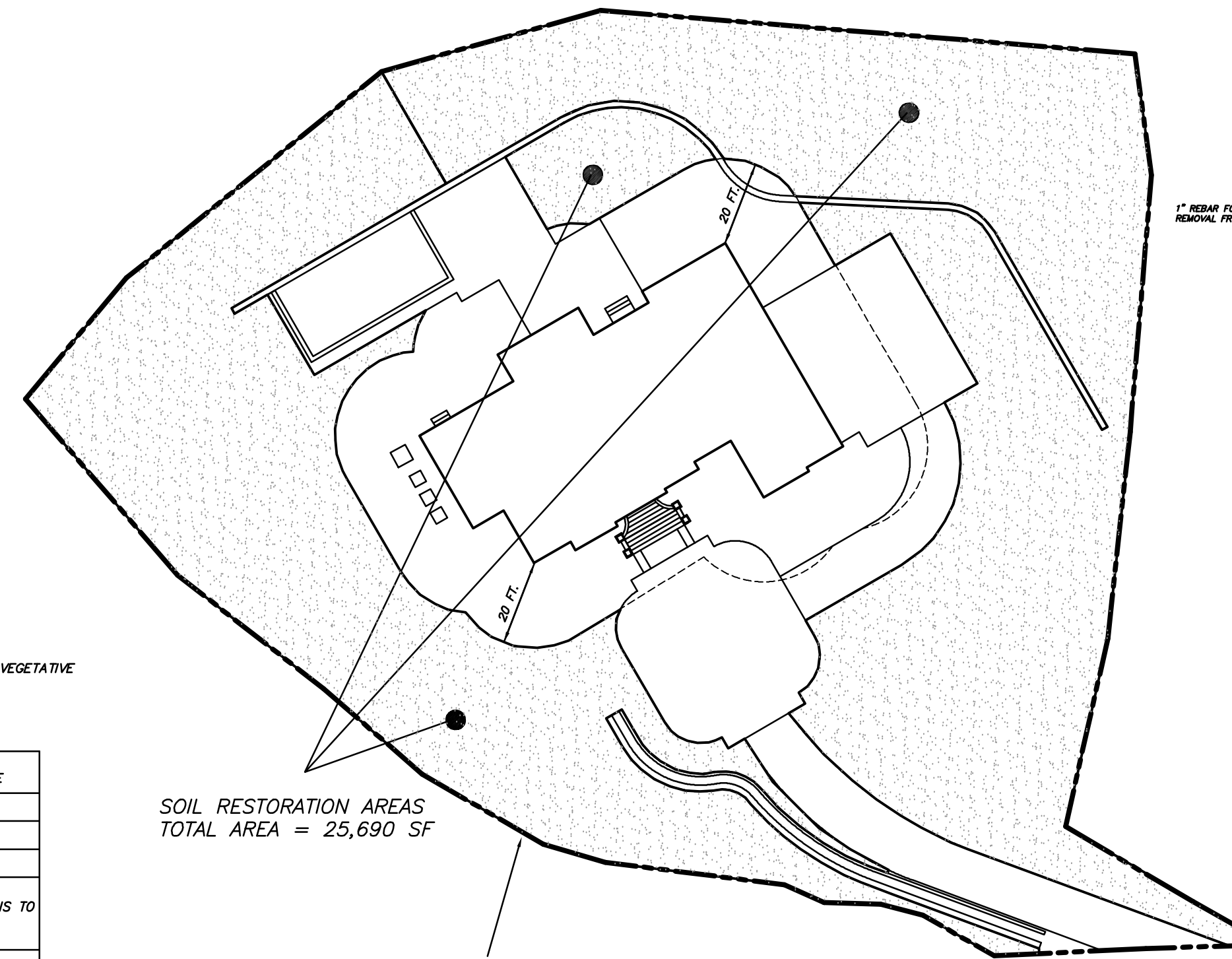
*NOTE: 72 HOURS PRIOR TO ANY SOIL DISTURBANCE, NOTICE IN WRITING, SHALL BE GIVEN TO THE MORRIS COUNTY SOIL CONSERVATION DISTRICT AND A PRE-CONSTRUCTION MEETING HELD.

DUST CONTROL NOTES

THE FOLLOWING METHODS SHOULD BE CONSIDERED FOR CONTROLLING DUST:
MULCHES - SEE STANDARDS FOR STABILIZATION WITH MULCHES ONLY (PG. 5-1).
VEGETATIVE COVER - SEE STANDARDS FOR TEMPORARY VEGETATIVE COVER (PG. 7-1), PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION (PG. 4-1), AND PERMANENT STABILIZATION WITH SOIL (PG. 6-1).
SPRAY ON ADHESIVES - ON MINERAL SOILS (NOT EFFECTIVE ON MUCK SOILS). KEEP TRAFFIC OFF THESE AREAS.

MATERIAL	WATER DILUTION	TYPE OF NOZZLE	APPLY GALLONS/ACRE
ANIONIC ASPHALT EMULSION	7:1	COARSE SPRAY	1,200
LATEX EMULSION	12.5:1	FINE SPRAY	235
RESIN IN WATER	4:1	FINE SPRAY	300
POLYACRYLAMIDE (PAM)		APPLY ACCORDING TO MANUFACTURER'S INSTRUCTIONS. MAY ALSO BE USED AS AN ADDITIVE TO SEDIMENT BASINS TO FLOCCULATE AND PRECIPITATE SUSPENDED COLLOIDS. SEE SEDIMENT BASIN STANDARD (PG. 26-1).	
POLYACRYLAMIDE (PAM) - DRY SPRAY			
ACIDULATION SOY BEAN SOAP STICK	NONE	COARSE SPRAY	1200

TILLAGE - TO ROUGHEN SURFACE AND BRING CLOUSE TO THE SURFACE. THIS IS A TEMPORARY EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE SOIL BLOWING STARTS. BEGIN PLOWING ON WINDWARD SIDE OF SITE. CHISEL-TYPE PLOWS SPACED ABOUT 12 INCHES APART, AND SPRING-TOOTHED HARROWS ARE EXAMPLES OF EQUIPMENT WHICH MAY PRODUCE THE DESIRED EFFECT.
SPRINKLING - SITE IS SPRINKLED UNTIL SURFACE IS WET.
BARRIERS - SOLID BOARD FENCES, SNOW FENCES, BURLAP FENCES, GRATE WALLS, BALES OF HAY, AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CURRENTS AND SOIL BLOWING.
CALCIUM CHLORIDE - SHALL BE IN THE FORM OF LOOSE, DRY GRANULES OF FLAKES FINE ENOUGH TO FEED THROUGH COMMONLY USED SPREADERS AT A RATE THAT WILL KEEP SURFACE MOIST BUT NOT CAUSE POLLUTION OR PLANT DAMAGE. IF USED ON STEEPER SLOPES, THEN USE OTHER PRACTICES TO PREVENT WASHING INTO STREAMS OR ACCUMULATION AROUND PLANTS. LOT 116
STONE - COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL.



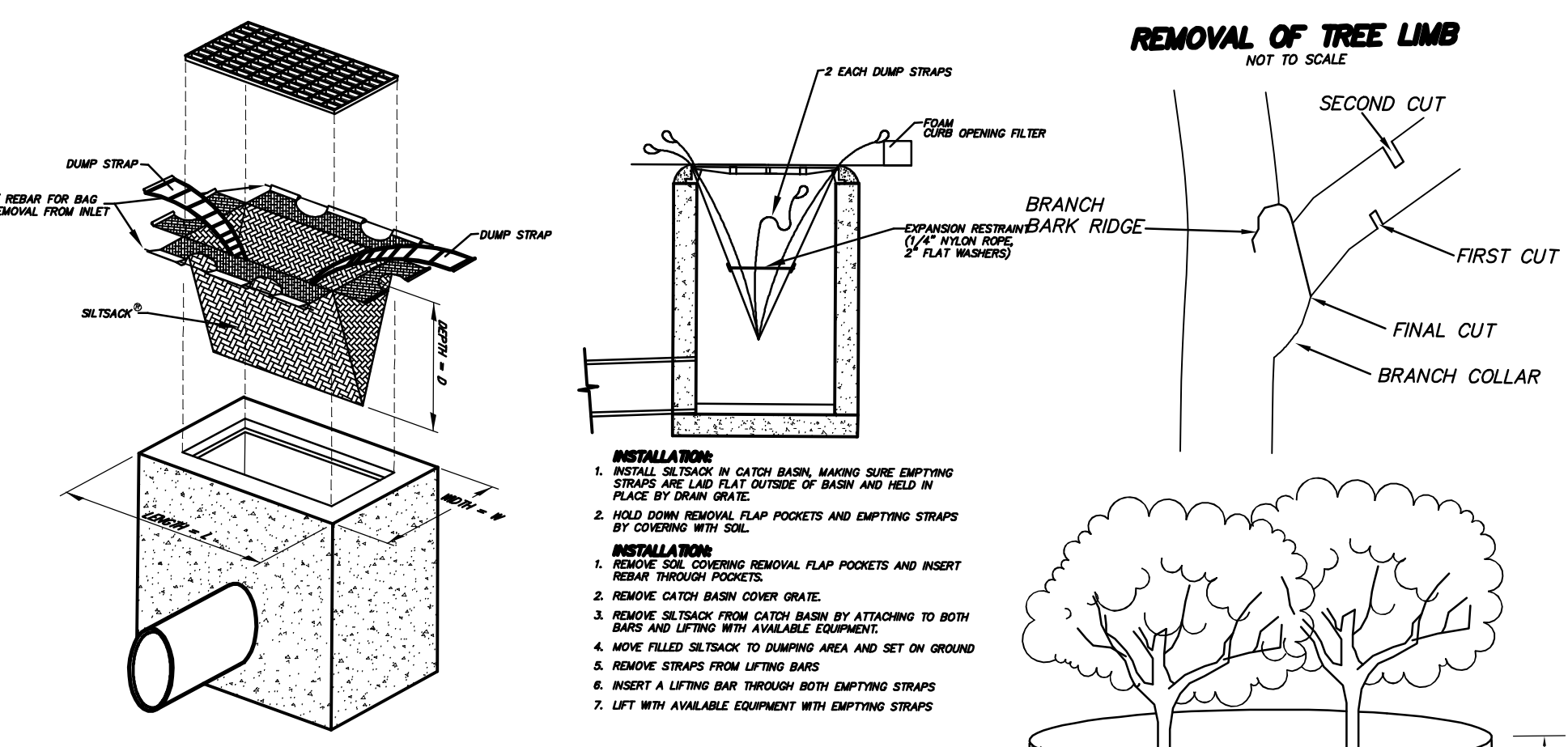
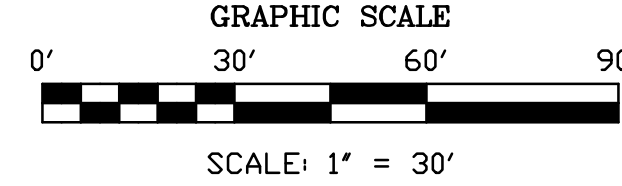
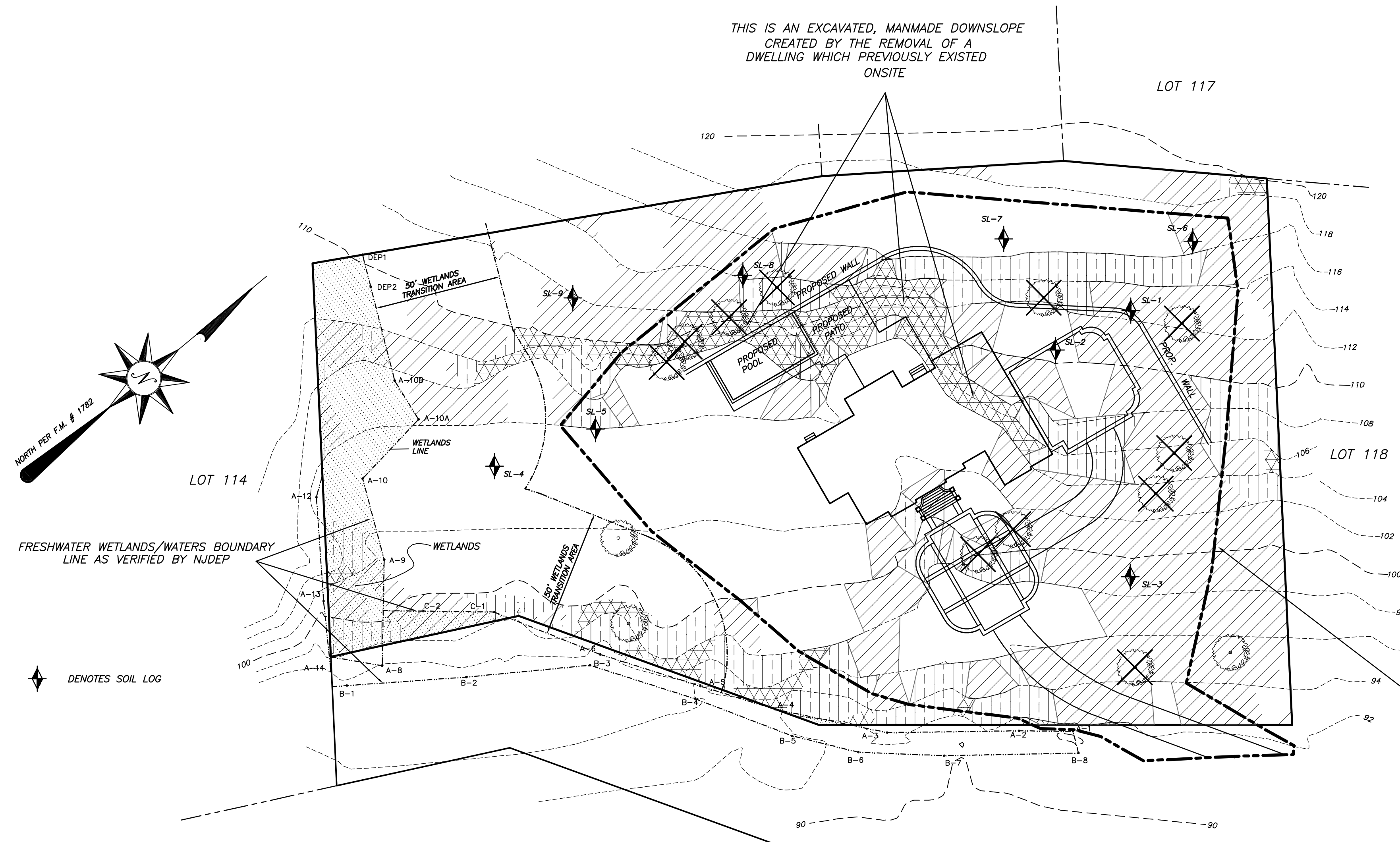
SOIL RESTORATION AREAS
TOTAL AREA = 25,690 SF

LIMIT-OF-DISTURBANCE
42,636 SQ. FT.

SOIL RESTORATION AREA DETAIL
SCALE 1" = 30'

THIS IS AN EXCAVATED, MANMADE DOWNSLOPE
CREATED BY THE REMOVAL OF A
DWELLING WHICH PREVIOUSLY EXISTED
ONSITE

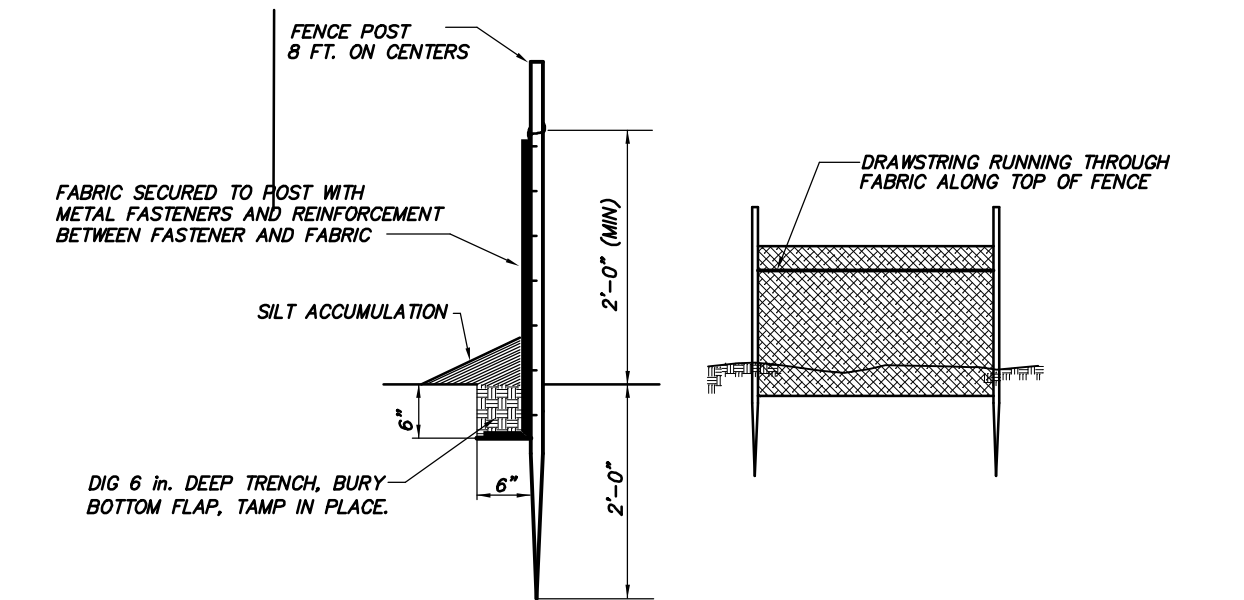
LOT 117



CATCH BASIN SILT FILTERING SYSTEM
SCALE 1" = 30'



TREE PROTECTION DETAIL
SCALE 1" = 30'



SILT FENCE DETAIL
SCALE 1" = 30'

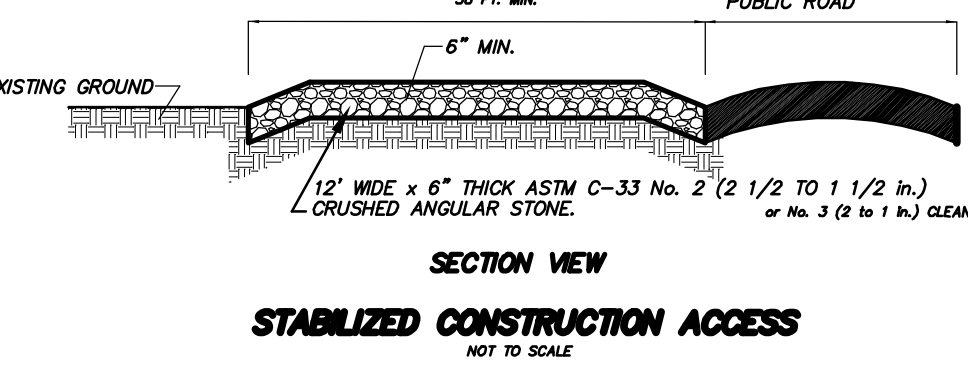
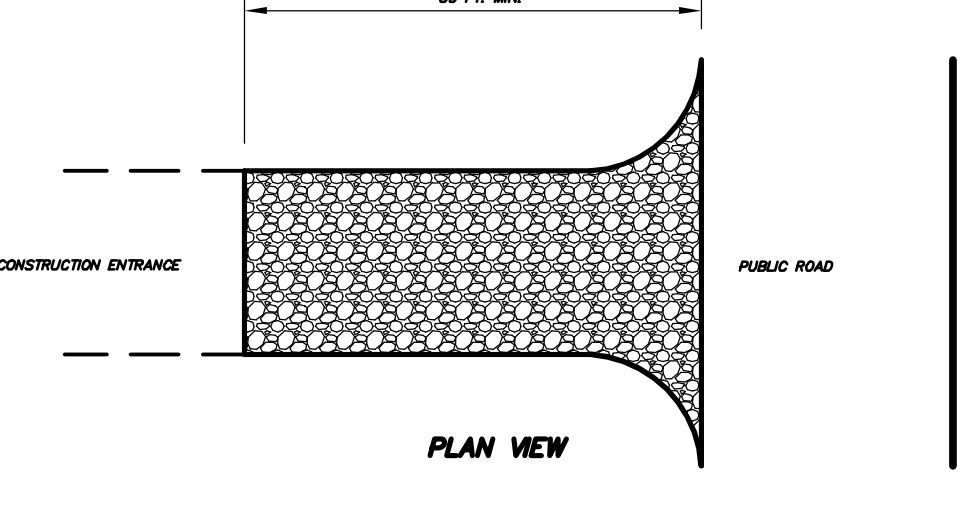
REF.: STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY, PAGE 25-4.

- REQUIREMENTS FOR SILT FENCE:**
- (1) FENCE POSTS SHALL BE SPACED 8 FEET CENTER-TO-CENTER OR CLOSER. THEY SHALL EXTEND AT LEAST 2 FEET INTO THE GROUND AND EXTEND AT LEAST 2 FEET ABOVE GROUND. POSTS SHALL BE CONSTRUCTED OF HARDWOOD WITH A MINIMUM DIAMETER THICKNESS OF 1 1/2 INCHES.
 - (2) A METAL FENCE WITH 6 INCH OR SMALLER OPENINGS AND AT LEAST 2 FEET HIGH MAY BE UTILIZED. IT MUST BE FASTENED TO THE FENCE POSTS TO PROVIDE REINFORCEMENT AND SUPPORT TO THE GEOTEXTILE FABRIC WHERE SPACE FOR OTHER PRACTICES IS LIMITED AND HEAVY SEDIMENT LOADING IS EXPECTED.
 - (3) A GEOTEXTILE FABRIC, RECOMMENDED FOR SUCH USE BY THE MANUFACTURER, SHALL BE BURIED AT LEAST 6 INCHES DEEP IN THE GROUND. THE FABRIC SHALL EXTEND AT LEAST 2 FEET ABOVE THE GROUND. THE FABRIC MUST BE SECURELY FASTENED TO THE POSTS USING A SYSTEM CONSISTING OF METAL FASTENERS (NAILS OR STAPLES) AND A HIGH STRENGTH REINFORCEMENT MATERIAL (NYLON WEBBING, CROMMETS, BARS, ETC.) PLACED BETWEEN THE FASTENERS AND THE GEOTEXTILE FABRIC. THE FASTENING SYSTEM SHALL RESIST TEARING AWAY FROM THE POST. THE FABRIC SHALL INCORPORATE A DRAWSTRING IN THE TOP PORTION OF THE FENCE.

- GENERAL NOTES:**
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO ROADWAYS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO ROADWAYS (PUBLIC OR PRIVATE) OR OTHER IMPERVIOUS SURFACES MUST BE REMOVED IMMEDIATELY.
 2. WHERE ACCUMULATION OF DUST/SEDIMENT IS INADEQUATELY CLEANED BY CONVENTIONAL METHODS, A POWER BROOM OR STREET SWEEPER WILL BE REQUIRED TO CLEAN PAVED OR IMPERVIOUS SURFACES. ALL OTHER ACCESS POINTS WHICH ARE NOT STABILIZED SHALL BE BLOCKED OFF.

TABLE 29-1: LENGTHS OF CONSTRUCTION EXITS ON SLOPING ROADWAYS

PERCENT SLOPE OF ROADWAY	LENGTH OF STONE REQUIRED	
	COARSE GRAINED SOILS	FINE GRAINED SOILS
0 TO 2%	50 FT	100 FT
2 TO 5%	100 FT	200 FT
>5%	ENTIRE SURFACE STABILIZED WITH FABR BASE COURSE	



LIMIT-OF-DISTURBANCE
42,636 SQ. FT.
MAX. = 43,559 SQ. FT.

- SEQUENCE OF CONSTRUCTION**
1. NOTIFY MENDHAM TOWNSHIP ENGINEER AND MORRIS COUNTY SOIL CONSERVATION DISTRICT PRIOR TO START OF CONSTRUCTION. 1 DAY
 2. INSTALL ANTI-TRACKING PAD/WHEEL CLEANING BLANKET 2 DAYS
 3. INSTALL SILT FENCE ALONG LINES AS INDICATED/UPDATE AS NECESSARY) 2 DAYS
 4. CLEARING AND STRIPPING OF AREA OF DISTURBANCE/UPDATE AS NECESSARY) 2 DAYS
 5. CONSTRUCTION OF DWELLING 6 MONTHS
 6. INSTALLATION OF SEPTIC SYSTEM 1 WEEK
 7. CONSTRUCT DRYWELLS FOR STORMWATER SYSTEM (EXCAVATION FOR DRIVELWELL SYSTEM SHALL BE INSPECTED BY TOWNSHIP ENGINEER PRIOR TO ANY BACKFILL) 3 DAYS
 8. SUBSOIL COMPACTION/REMEDIALATION, SCARIFICATION/TILLAGE TO A 6" MIN. DEPTH 2 DAYS
 9. FINE GRADING AND SEEDING OF LAWN AREAS, ETC. 2 DAYS
 10. INSTALL DRIVEWAY PAVEMENT COURSE. 1 DAY
 11. REMOVE SILT FENCE, WHEN PERMANENT VEGETATIVE COVER IS ESTABLISHED. 1 DAY

LAND DISTURBANCE CALCULATIONS ACCORDING TO 2 FOOT CONTOURS

LEGEND	SLOPE CATEGORY	LOT AREA	DISTURBED AREA	PERCENT DISTURBANCE	MAX. ALLOWABLE PERCENT DISTURBED	COMMENTS
	0%-10%	33,952.5 SQ.FT.	18,933 SQ.FT.	55.8%	NO LIMIT	O.K.
	10%-15%	24,820.9 SQ.FT.	14,500 SQ.FT.	58.4%	25%	VARIANCE
	15%-25%	10,260.2 SQ.FT.	6,194 SQ.FT.	60.4%	15%	VARIANCE
	25% +	4,321.4 SQ.FT.	3,009 SQ.FT.	69.6%	5%	VARIANCE
		73,355 SQ.FT.	42,636 SQ.FT.			

**YANNACCONE
VILLA
& ALDRICH, LLC**

460 MAIN STREET, P.O. BOX 459
CHESTER, NEW JERSEY 07930
PHONE: 908-879-6646
FAX: 908-879-8591
N.J. STATE BOARD FOR P.E. & P.L.S. CERTIFICATE
OF AUTHORIZATION No. 2462934500

Ryan L. Smith 9/19/23
RYAN L. SMITH DATE:
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
AND LAND SURVEYOR No. 0842575

NOT VALID WITHOUT SIGNATURE AND RAISED SEAL

**KENIGEL/ZAROU
PROPERTY**
3 OLD ORCHARD TERRACE
LOT 119 ~ BLOCK 127
TOWNSHIP OF MENDHAM
MORRIS COUNTY, NEW JERSEY

SHEET TITLE:
**STEEP SLOPE &
SOIL EROSION
DETAIL SHEET**

DRAWN BY: DATE:
R.L.S. 6/16/23

CHECKED BY: SCALE:
R.L.S. 1" = 30'

W.D. 222102.2
F.B. 636/82
FILE:
FILE PATH: M:\SEPTIC\DATA\222001\222102
FILE NAME: LOT-119-VAR-REV2.DWG
SHEET **3** OF **4**

Ryan L. Smith 9/19/23

RYAN L. SMITH DATE:
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
AND LAND SURVEYOR No. 0842575

NOT VALID WITHOUT SIGNATURE AND RAISED SEAL

2	9/19/23	REISSUE
1	7/26/23	REISSUE
NQ.	DATE	REVISION

PROJECT TITLE :

**KENIGEL/ZAROU
PROPERTY**
3 OLD ORCHARD TERRACE
LOT 119 ~ BLOCK 127
TOWNSHIP OF MENDHAM
MORRIS COUNTY, NEW JERSEY

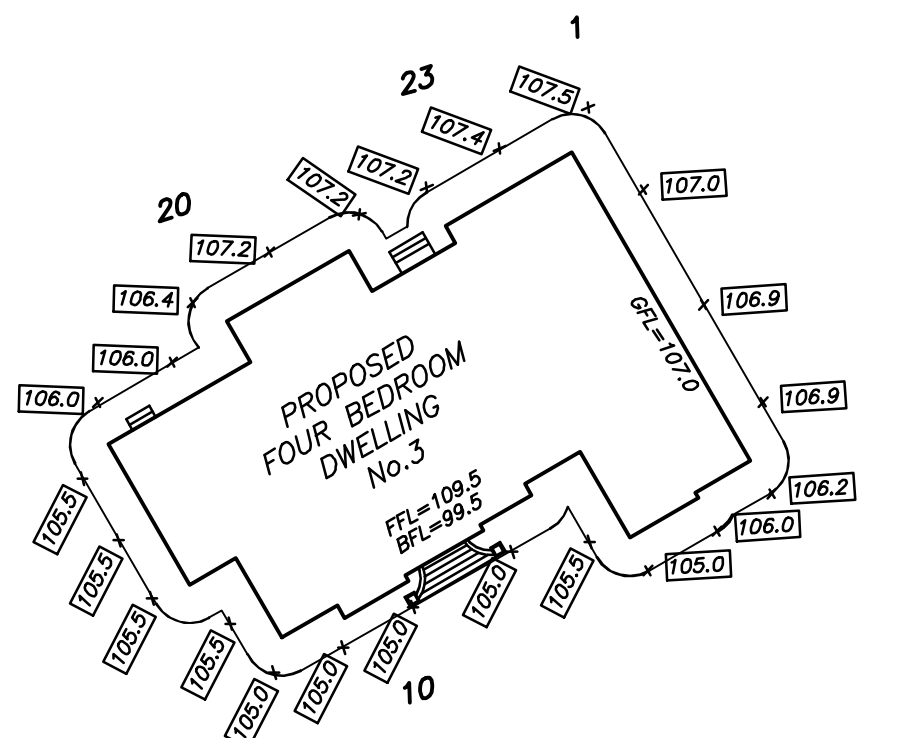
SHEET TITLE :
**CONSTRUCTION
DETAIL
SHEET**

DRAWN BY:	DATE:
RLS	6/16/23
CHECKED BY:	SCALE:
RLS	1" = 30'

W.D. 222102.2
F.B. 636/82

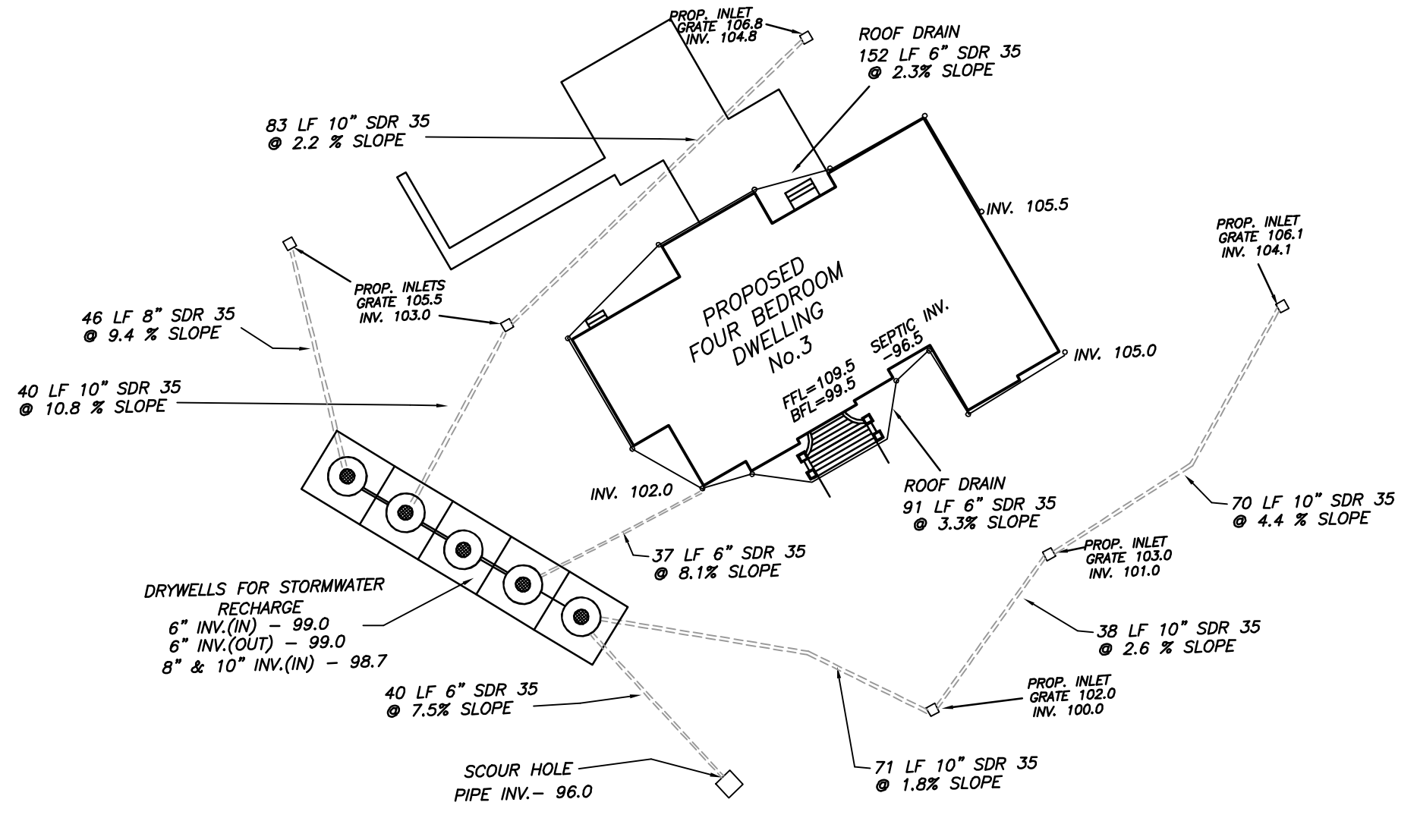
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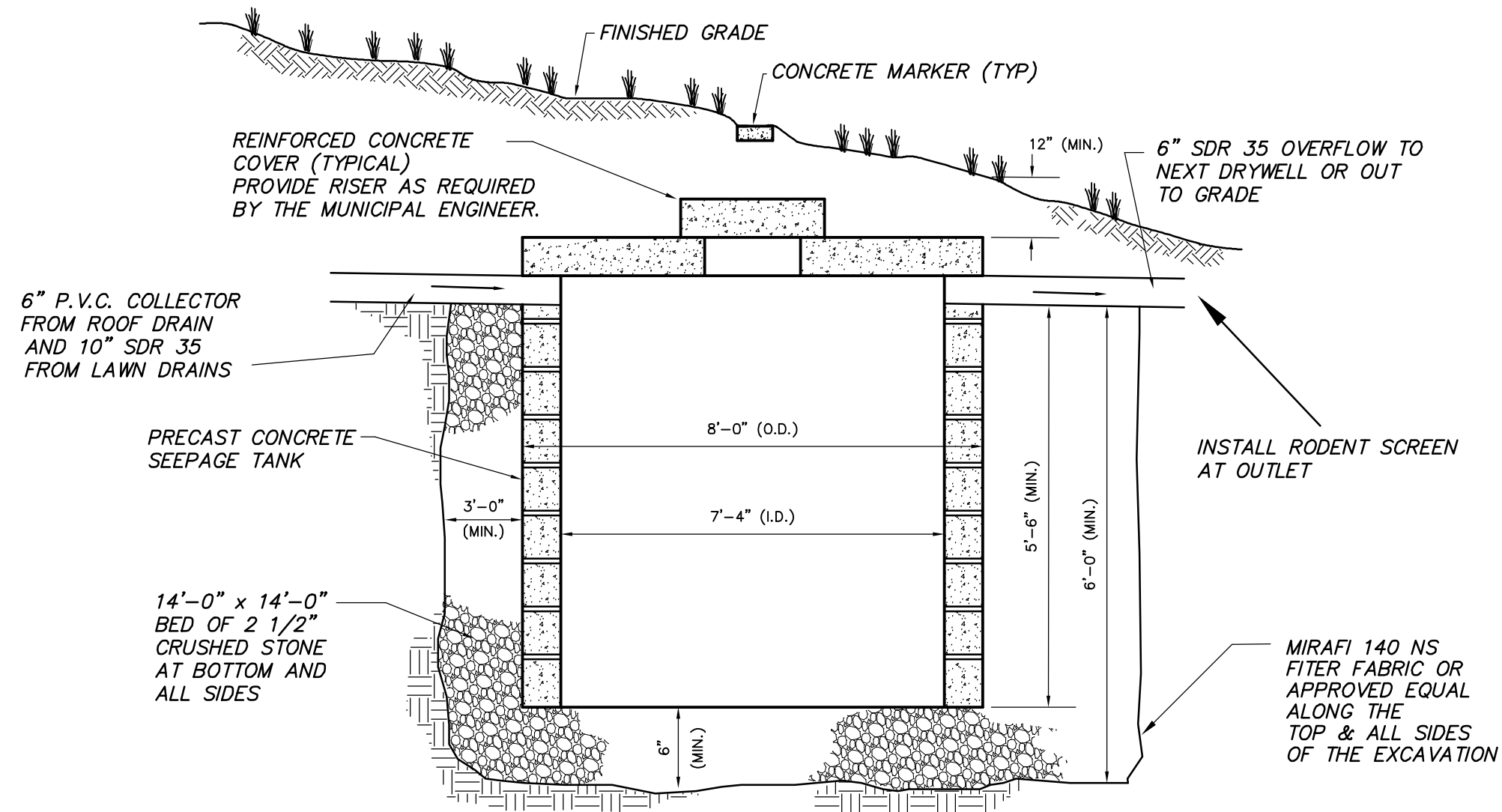


SPOT ELEVATION
NOT TO SCALE

NOTE: THE AVERAGE GRADE AS MEASURED AT TWENTY-THREE POINTS SURROUNDING THE HOUSE IS 106.1'. THE PROPOSED FIRST FLOOR ELEVATION (108.5') MINUS AVERAGE GRADE (106.1') + DIFFERENCE FROM FIRST FLOOR TO HIGHEST ROOF LINE (31.33', AS PER ARCHITECT'S PLANS) = 109.5' - 106.1' + 31.33' = 34.73' < MAX. ALLOWABLE BLDG. HEIGHT OF 35' so, O.K.



**ROOF DRAIN AND DRYWELL
DETAIL PLAN**
NOT TO SCALE

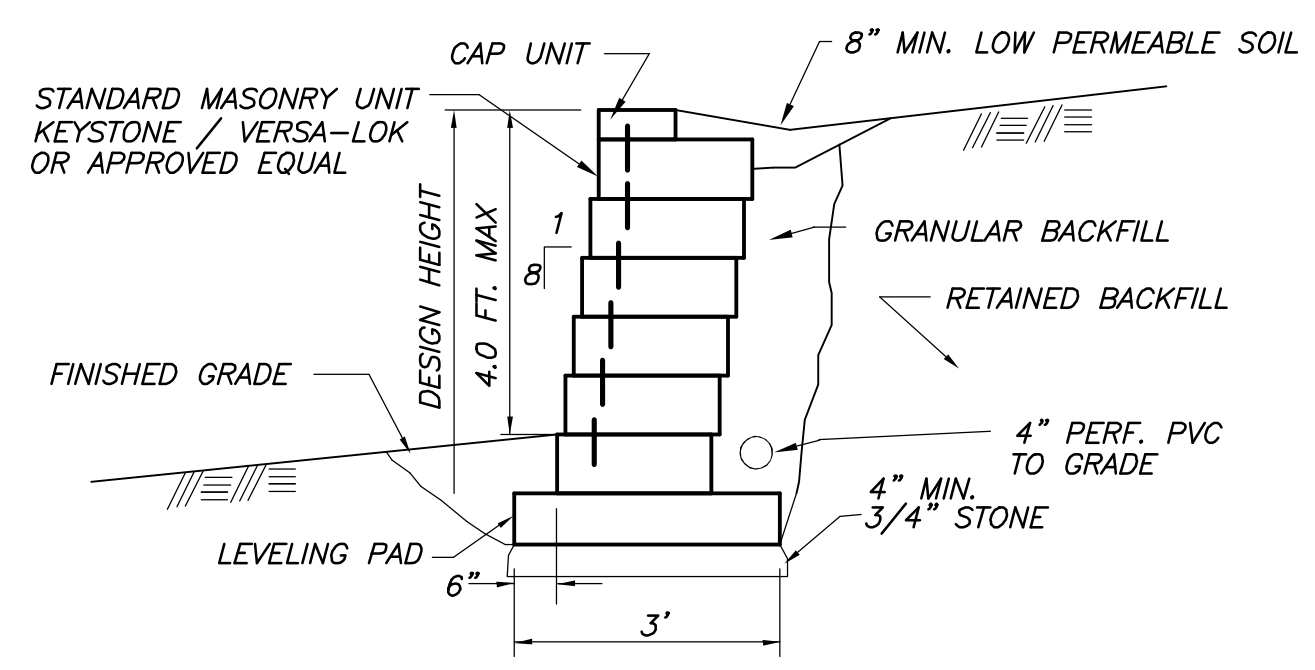


DRYWELL DETAIL
NOT TO SCALE

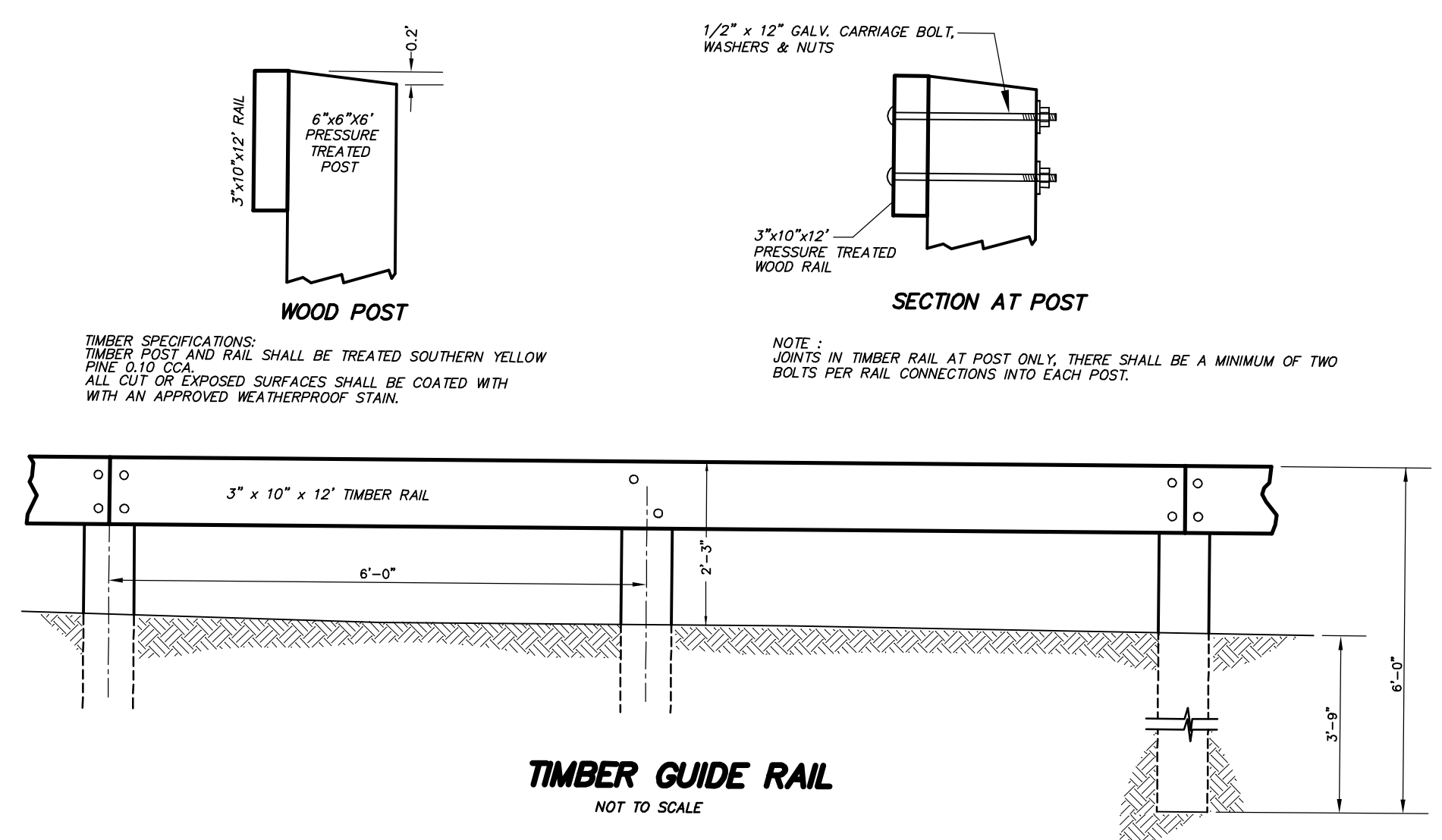
DRYWELL CALCULATIONS

STORE 3" OF RUNOFF FROM ROOF, PATIO, POOL AND DRIVEWAY AREAS
AREA = 10,869 SQ.FT.
STORAGE VOL. REQUIRED = 10,869 SQ.FT. x 3/12 = 2,717.3 CU.FT.
TYPICAL DRYWELL : 14'-0" x 14'-0" x 6'-0" DEEP (BELOW OVERFLOW) STONE BED WITH 8'-0" DIA. x 5'-6" DEEP (BELOW OVERFLOW) PRECAST CONC. SEEPAGE TANK
DISPLACEMENT VOL. OF SEEPAGE TANK:
 $\pi \times r^2 \times h = \pi \times (4')^2 \times 5.5 = 276.5 \text{ cu.ft.}$
STORAGE VOL. OF SEEPAGE TANK
 $\pi \times r^2 \times h = \pi \times (3.67')^2 \times 5.5 = 232.7 \text{ cu.ft.}$
VOL. OF STORAGE BED = $l \times w \times h = 14.0 \times 14.0 \times 6.0 = 1176 \text{ cu.ft.}$
STORAGE VOL. OF STONE BED:
(VOL. STONE - DISP. VOL. TANK) x 0.40 VOIDS = $(1176 - 276.5) \times 0.40 = 359.8 \text{ CU.FT.}$
STORAGE VOLUME OF DRYWELL :
BED VOL. + TANK VOL. = 359.8 + 232.7 = 592.5 CU.FT./DRYWELL

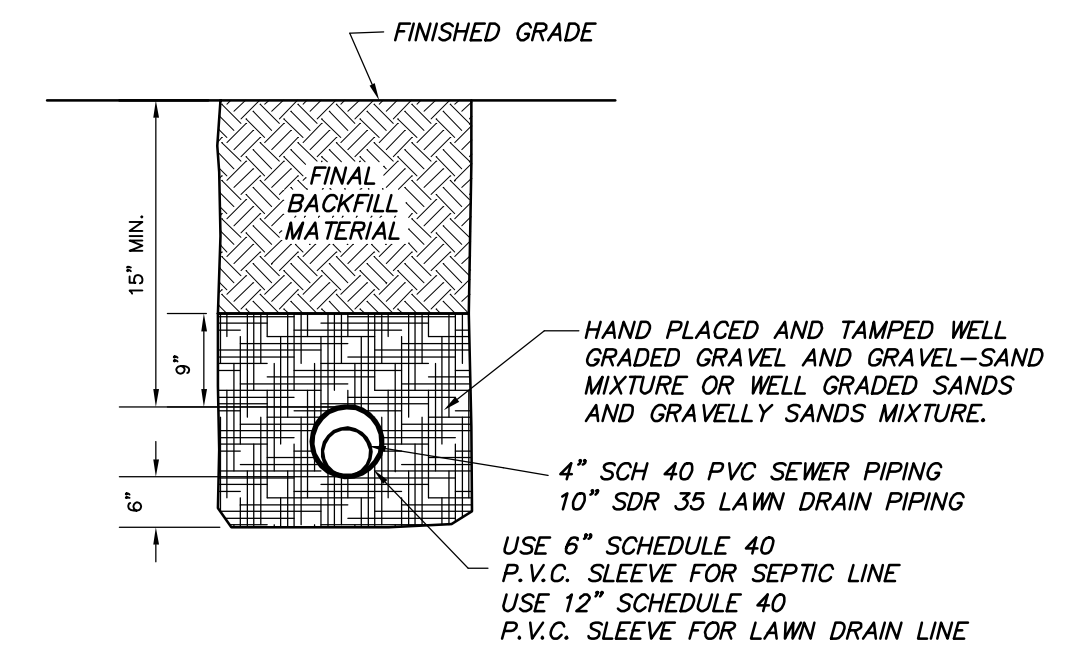
DRYWELLS REQUIRED : STORAGE VOL. REQUIRED / STORAGE VOL. DRYWELL
2,717.3 CU.FT. / 592.5 CU.FT. = 4.6 DRYWELLS
THEREFORE USE FIVE (5) DRYWELLS



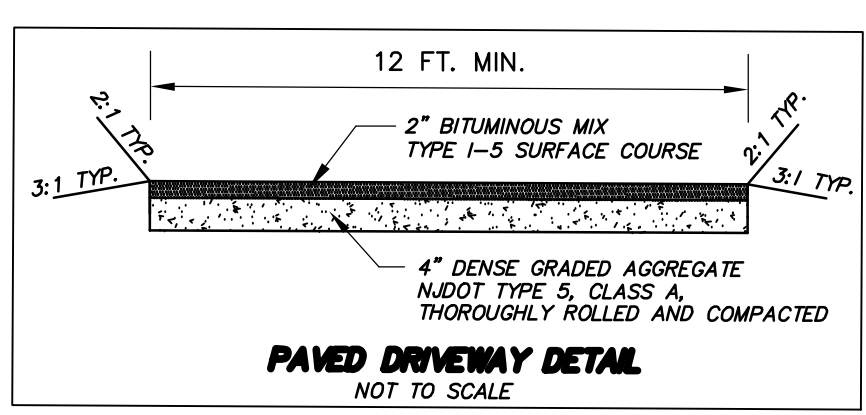
TYPICAL MASONRY RETAINING WALL OR APP. EQUAL
STANDARD MASONRY UNIT - 1" SETBACK
NOT TO SCALE



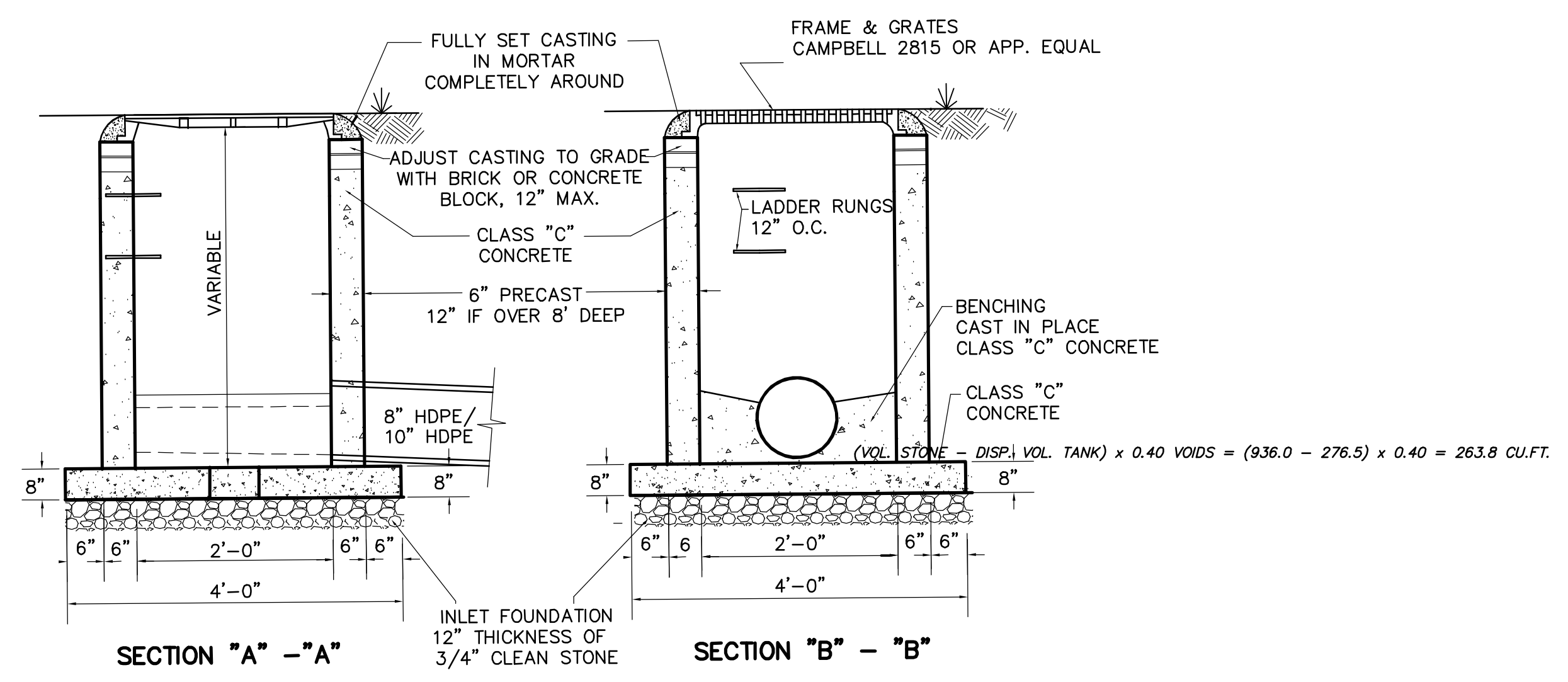
TIMBER GUIDE RAIL
NOT TO SCALE



DRIVE CROSSING FOR PVC PIPE
N.T.S.

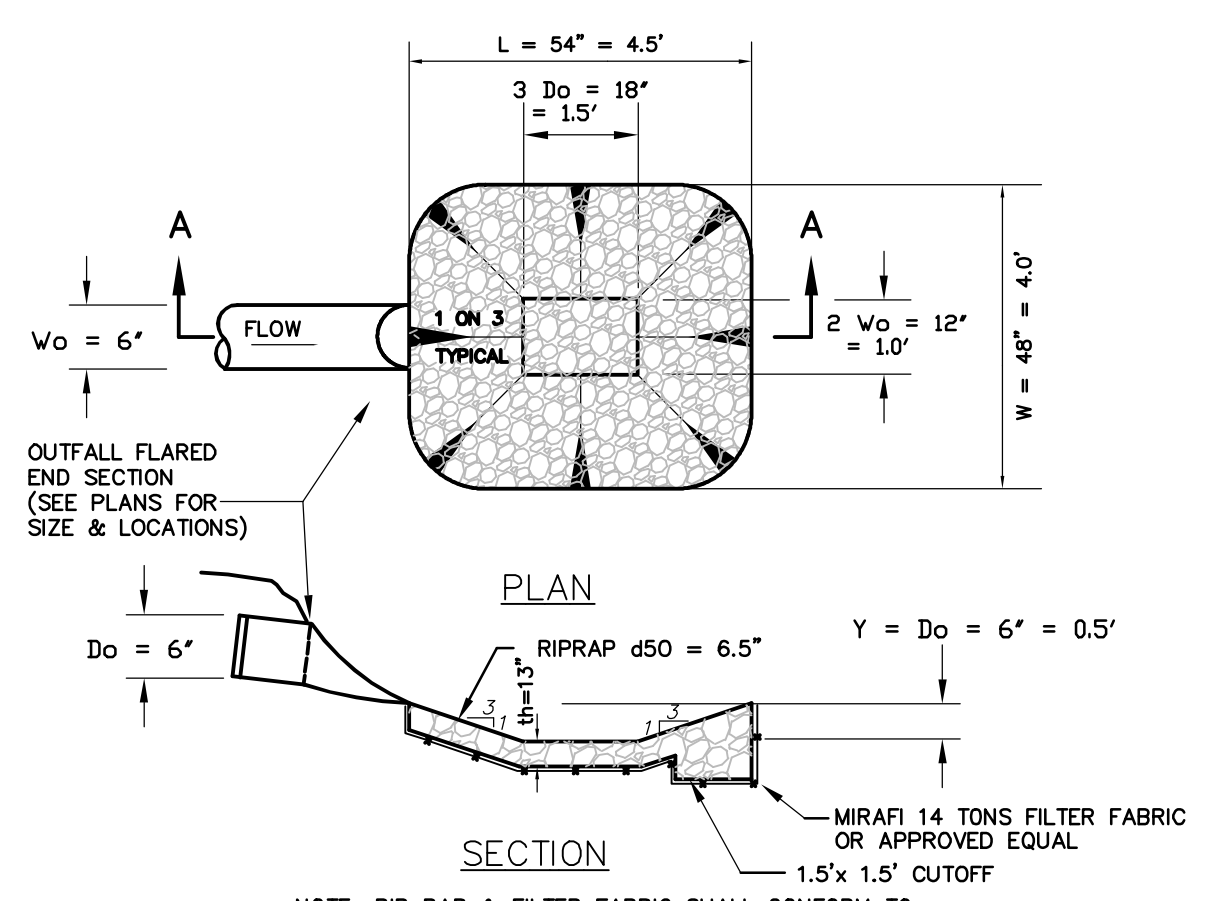


PAVED DRIVEWAY DETAIL
NOT TO SCALE



**2' X 2' LAWN INLET
WITH C.I. FRAME & GRATE**
NOT TO SCALE

DRYWELL SYSTEM SCOUR HOLE
NOT TO SCALE



DRAINAGE AREA TO DRYWELL SYSTEM = 10,869 SQ. FT.
Q10=CMA
C= 0.99, I=5.8, A=10,869 SF = 0.250 ACRES
Q10 = 0.99 * 5.8 * 0.250 = 1.44 CFS
Q100=CMA
C= 0.99, I=8.0, A=10,869 SF = 0.250 ACRES
Q100 = 0.99 * 8.0 * 0.250 = 1.98 CFS
QFULL (MANNING'S FORMULA) = $A * 1.486/n * R^{2/3} * S^{1/2}$
A=0.19635 SF, n=0.01 (PVC), P=1.571, R=A/P=0.125, S=0.075 FT/FT
QFULL = 0.19635 * 1.486/0.01 * (0.125)^{2/3} * (0.075)^{1/2} = 2.00 CFS

$d50 = (0.0082 / Tw) q^{1.33}$
where $Tw = 0.2 Do = 0.2(0.5) = 0.1 \text{ FT.}$
where $q = QFULL/Do = 2.00 \text{ cfs} / 0.5 \text{ ft.} = 4.00 \text{ cfs/ft}$
so, $d50 = (0.0082 / 0.1) 4.00^{1.33} = 0.518 \text{ FT.} \sim 6.5 \text{ INCHES.}$
th = 2(d50) with filter fabric
th = 13 INCHES w/ FILTER FABRIC