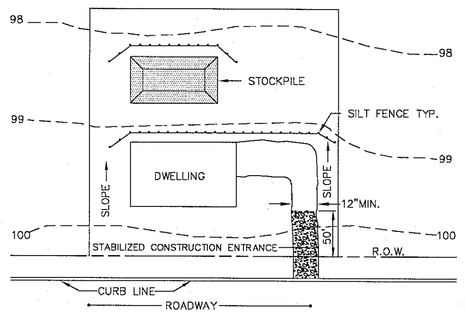
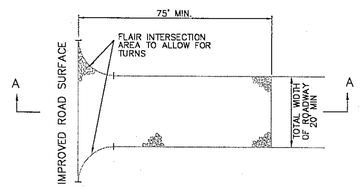


NOTES:

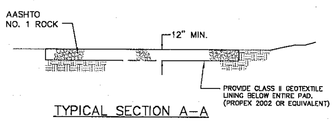
1. STABILIZED CONSTRUCTION ENTRANCE SHALL BE PROVIDED IN ACCORDANCE WITH THE STABILIZED CONSTRUCTION ENTRANCE DETAIL EXCEPT FOR DIMENSIONS SHOWN ABOVE.
2. THE STOCKPILE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE TOPSOIL STOCKPILE DETAIL.
3. ALL SILT FENCE SHALL BE PROVIDED IN ACCORDANCE WITH THE SILT FENCE DETAIL. SILT FENCE SHALL BE PROVIDED ON THE DOWNHILL SIDE OF ANY AND ALL DISTURBANCE.
4. ANY DISTURBED AREA REMAINING DISTURBED FOR MORE THAN 30 DAYS SHALL STABILIZED.

TYPICAL LOT UNDER CONSTRUCTION

N.T.S.



PLAN



TYPICAL SECTION A–A

NOTES:

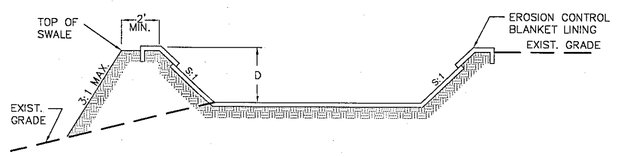
1. USE AASHTO # 1 STONE.
2. STONE CLEANER TO BE FULL WIDTH OF THE DRIVE AS SHOWN ON PLAN.
3. STONE TO BE REPLACED WHEN CONTAMINATED AND NO LONGER EFFECTIVE. THE STRUCTURE'S THICKNESS WILL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE OF ROCK MATERIAL MUST BE MAINTAINED ON THE SITE FOR THIS PURPOSE.
4. STONE AND GEOTEXTILE SHALL BE EXCAVATED INTO EXISTING GROUND.
5. PROVIDE STONE FILTER BERM FOR ENTRANCES SLOPING TOWARD ROAD.

STABILIZED CONSTRUCTION ENTRANCE

(NOT TO SCALE)

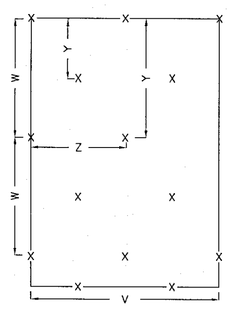
TRAPEZOIDAL SWALES

SWALE	#	MIN BOTTOM WIDTH "B" (ft)	MAX SIDE SLOPE S:1	MIN DEPTH D (ft)	LONGTUDINAL SLOPE MIN (ft/ft)	LONGTUDINAL SLOPE MAX (ft/ft)	LINING	NAG STAKING PATTERN
TS–	1	4	3.0	1.3	0.022	0.040	S75	D
PS–	2	4	3.0	1.1	0.050	0.091	S75	D
PS–	3	4	3.0	1.3	0.033	0.050	S75	D
PS–	4	3	3.0	1.1	0.050	0.080	S75	D
PS–	5	3	3.0	1.2	0.025	0.033	S75	D
PS–	6	3	3.0	1.0	0.040	0.080	S75	D
PS–	7	3	3.0	1.3	0.020	0.025	S75	D
PS–	8	3	3.0	1.2	0.029	0.050	S75	D
PS–	9	4	3.0	1.5	0.029	0.033	S150	D
TS–	10	4	3.0	1.3	0.029	0.044	SC150	D
PS–	10	4	3.0	1.1	0.029	0.044	SC150	D
TS–	11	3	3.0	1.4	0.025	0.044	SC150	D
PS–	11	3	3.0	1.0	0.025	0.044	SC150	D
TS–	12	3	3.0	1.1	0.050	0.057	S150	D
PS–	12	3	3.0	1.0	0.050	0.067	S150	D
TS–	13	3	3.0	1.2	0.025	0.067	S75	D
TS–	14	7	3.0	1.6	0.015	0.025	S150	D
PS–	15	3	3.0	1.0	0.050	0.067	S75	D
PS–	16	3	3.0	1.2	0.025	0.033	S75	D
TS–	16A	3	3.0	1.0	0.025	0.033	S75	D
TS–	17	3	3.0	1.5	0.015	0.025	S75	D
TS–	18	3	3.0	1.2	0.020	0.022	S75	D
TS–	19	4	3.0	1.5	0.013	0.022	S75	D
TS–	20	5	3.0	1.5	0.014	0.022	S75	D
PS–	21	3	3.0	1.1	0.025	0.033	S75	D
TS–	22	3	3.0	1.1	0.022	0.025	S75	D
PS–	23	3	3.0	1.1	0.029	0.036	S75	D
PS–	24	4	3.0	1.2	0.025	0.057	S75	D
PS–	25	3	3.0	1.1	0.022	0.027	S75	D
ES–	2	85	4.0	0.8	0.200	0.250	C125	D
ES–	3	20	4.0	0.7	0.200	0.250	S75	D
ES–	1	140	4.0	0.8	0.200	0.250	C125	D
TS–	26A	5	3.0	1.2	0.013	0.020	S75	D
TS–	26B	5	3.0	1.5	0.013	0.020	S75	D
TS–	1A	4	3.0	0.9	0.143	0.167	C125	D
TS–	27	5	3.0	1.1	0.050	0.100	C125	D
TS–	28	3	3.0	1.2	0.017	0.025	S75	D



GRASS SWALE IN FILL CONDITION

(NOT TO SCALE)



EROSION CONTROL BLANKET TYPICAL STAPLE PATTERN

(NOT TO SCALE)

NORTH AMERICAN GREEN STAPLE PATTERN SCHEDULE

STAPLE PATTERN	EDGE STAPLES PER SQ/YD " V "	EDGE STAPLE SPACING " W "	INTERIOR STAPLE SPACING ALONG ROLL " Y "	INTERIOR STAPLE SPACING ACROSS ROLL " Z "
A	1	6 ft	3 ft	3 ft
B	1.5	6 ft	6 ft staggered	6 ft staggered
C	2	4 ft	4 ft staggered	3 ft staggered
D	3.5	4 ft	2 ft	20 in.
E	3.8	10 in.	40 in. staggered	20 in. staggered

NOTE: Use 6 inch, 11 gauge " U " staples. Staples 8 inch and may be used for loose soils, Staples 9 guage or heavier may be neccessary in hard or rocky soils

LINING	MATERIAL COMPOSITION	
S–75	STRAW NET	0.5 LBS/SQ YD LIGHTWEIGHT DEGRADABLE TOP SIDE ONLY
	THREAD	COTTON, BIO–DEGRADABLE
S–150	STRAW NET	0.5 LBS/SQ YD LIGHTWEIGHT DEGRADABLE BOTH SIDES
	THREAD	COTTON, BIO–DEGRADABLE
SC–150	STRAW COCONUT NET	0.35 LBS/SQ YD 0.15 LBS/SQ YD HEAVYWEIGHT UV STABILIZED TOP LIGHTWEIGHT BOTTOM
	THREAD	COTTON, BIO–DEGRADABLE
C–125	COCONUT NET	0.50 LBS/SQ YD HEAVYWEIGHT UV STABILIZED BOTH SIDES
	THREAD	BLACK POLYESTER
P–300	FIBERS NET	0.80 LBS/SQ YD EXTRA HEAVYWEIGHT UV STABILIZED BOTH SIDES
	THREAD	BLACK POLYESTER

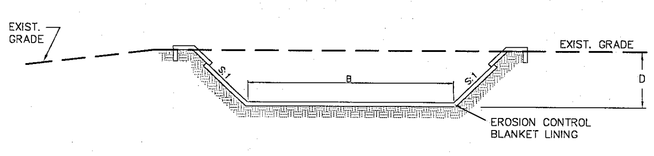
NOTES: 1. All linings manufactured by North American Green, or approved equal.
2. Roll Specifications: (All linings) Width = 6.5 FT, Length = 83.5 FT, Weight = 30 LBS, Area = 60 SQ YDS

NORTH AMERICAN GREEN BLANKET SPECIFICATIONS

SWALE CONSTRUCTION NOTES:

1. EXCAVATION SHALL BEGIN AT DOWNSTREAM END OF THE SWALE.
2. ALL TREES, ROOTS AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED SO AS NOT TO INTERFERE WITH FLOW.
3. FILLS SHALL BE COMPACTED BY EARTHMOVING EQUIPMENT TO PREVENT EROSION.
4. INTERSECTION OF SIDES AND BOTTOM SHALL BE ROUNDED.
5. CHANGES IN HORIZONTAL AND VERTICAL ALIGNMENT SHALL BE GRADUAL, UNINTERRUPTED POSITIVE GRADE MUST BE MAINTAINED TO THE OUTLET.
6. STABILIZE SWALES IMMEDIATELY AFTER GRADING IS COMPLETE.
7. FOR ROCK LINED SWALES INSTALL CLASS 2 TYPE B GEOTEXTILE UNDER ROCK LINING.
8. SC75 OR SC150 ETC REFERS TO "NORTH AMERICAN GREENS EROSION CONTROL BLANKET" OR EQUAL IF APPROVED BY THE OWNER.
9. ROCK LINED SWALES ON STEEP SLOPES SHALL EXTEND 10 FEET ABOVE THE GRADE BREAK INTO THE MILD SLOPE.
10. ALL SWALE AND EMBANKMENT PROTECTION SPECIFIES NORTH AMERICAN GREEN PRODUCTS. OTHER LININGS AND STAKING PATTERNS SHOWN TO BE EQUIVALENT TO PROTECTION SPECIFIED ON PLANS MAY BE USED WITH APPROVAL OF M.C.C.D.

SWALES

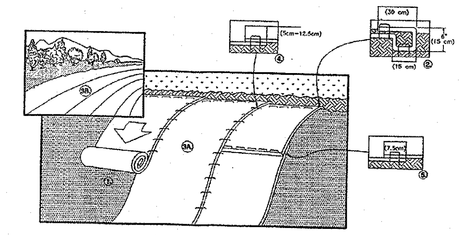


TYPICAL SECTION – SWALE – BLANKET LINED

(NOT TO SCALE)

SLOPE INSTALLATION

NORTH AMERICAN GREEN



1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. ROLL THE BLANKETS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL AND FOLD REMAINING 12" (30cm) OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKETS.
3. ROLL THE BLANKETS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURED, AND SOIL CONTACT MAINTAINED, BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-3" (5cm-12.5cm) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STRIP ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (STAGGER STYLE) WITH AN APPROXIMATE (6inch) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30cm) APART ACROSS ENTIRE BLANKET WIDTH.

CRITICAL POINTS
A. OVERLAPS AND SEAMS
B. PROJECTED WATER LINE
C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

NOTE
* HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.
** IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS IN EXCESS OF 6" (15 CM) MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.

NOTE:
*IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 9" (15cm) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

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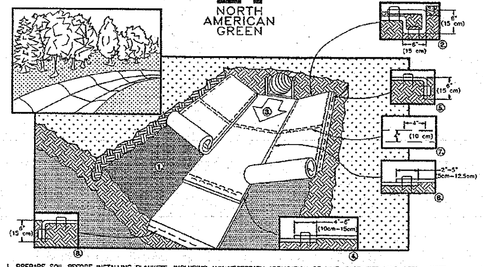
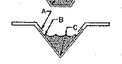
CHANNEL INSTALLATION

NORTH AMERICAN GREEN



1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM™, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. PLACE CONSECUTIVE BLANKETS END OVER END (SHINGLE STYLE) WITH A 4"-6" (10cm-15cm) OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10cm) APART AND 4" (10cm) ON CENTER TO SECURE BLANKETS.
5. FULL LENGTH EDGE OF BLANKETS AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
6. ADJACENT BLANKETS MUST BE OVERLAPPED APPROXIMATELY 3"-5" (5cm-12.5cm) DEPENDING ON BLANKET TYPE) AND STAPLED. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STRIP ON THE BLANKET BEING OVERLAPPED.
7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT (9m–12m) INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10cm) APART AND 4" (10cm) ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
8. THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.



CRITICAL POINTS
A. OVERLAPS AND SEAMS
B. PROJECTED WATER LINE
C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

NOTE:
* HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.
** IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 cm) MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.

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PADOT No.	Size Inches (sq. openings) Max.	Avg. (1)	Min. (2)	Filter Stone NCSA Size No.
R–3	6	3	2	FS–2
R–4	12	6	3	FS–2
R–5	18	9	5	FS–2
R–6	24	12	7	FS–3
R–7	30	15	12	FS–3
R–8	48	24	15	FS–3

FILTER STONE

Size Inches (sq. openings)

NCSA No.	Max	Avg.	Min	Thickness
FS–2	2	No. 4	No. 100	4 in (minimum)
FS–3	6–1/2	2.5	No. 16	8 in (minimum)

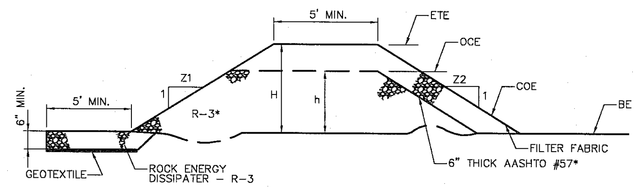
NOTES:

1. "AVERAGE SIZE" IS THAT SIZE EXCEEDED BY AT LEAST 50% OF THE TOTAL WEIGHT OF THE TONNAGE SHIPPED; 50% OF THE TONNAGE SHALL CONSIST OF PIECES LARGER THAN THE "AVERAGE" SIZE.
2. PIECES SMALLER THAN THE MINIMUM SIZE SHOWN SHALL NOT EXCEED 15% OF THE TONNAGE SHIPPED.
3. THE TABLE ASSUMES A STONE DRY DENSITY OF 165 POUNDS PER CUBIC FOOT.
4. PLACE FILTER STONE TO SPECIFIED THICKNESS UNDER RIP RAP.
5. FILTER STONE ALTERNATIVE: PADOT CLASS 2 GEOTEXTILE MAY BE SUBSTITUTED FOR FILTER STONE AS FOLLOWS:

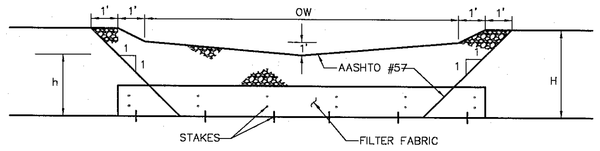
   TYPE A – UNDER R–3, R–4, R–5, AND R–6 RIP RAP.
   TYPE B – UNDER R–7 AND R–8 RIP RAP.
6. ALL APRONS ARE TO BE LEVEL AT ELEVATIONS MATCHING THE PIPE OUTLET INVERT.

STORM SEWER ROCK APRONS

(NOT TO SCALE)



SECTION THROUGH SPILLWAY*



INSIDE FACE

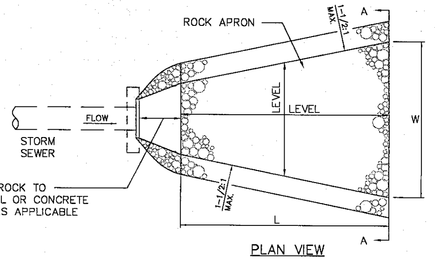
TRAP NO.	Z1 (FT)	H (FT)	h (FT)	Z2 (FT)	EMBANK. TOP ELEV. ETE (FT)	OUTLET CREST ELEV. OCE (FT)	CLEAN OUT ELEV. COE (FT)	BOTTOM ELEV. BE (FT)	OUTLET WIDTH OW (FT)
1	3	4	3	3	194.00	193.00	190.82	190.00	8

* Embankment outlet composed entirely of rock; main body R–3 or larger, inside face ASSHTO #57 stone or smaller.

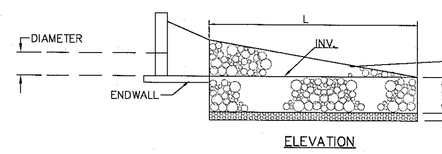
Clean out stake shall be placed near center of each trap. Accumulated sediment shall be removed when it reaches the clean out elevation marked on the stake.

EMBANKMENT SEDIMENTATION TRAP

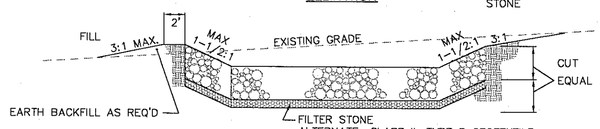
N.T.S.



PLAN VIEW



ELEVATION



SECTION A–A

STORM SEWER OUTLET ROCK APRON SCHEDULE

OUTLET #	PIPE DIA (in)	MIN. APRON DIM. L (ft)	MIN. APRON DIM. W (ft)	RIP–RAP THICK (in)	RIP–RAP SIZE	FILTER THICK (in)	FILTER SIZE
1	18	15	20	36	R–6	8	FS–3
11	30	29	37	45	R–7	10	FS–3
20	24	21	27	27	R–5	6	FS–2
31	18	14	19	18	R–4	4	FS–2
103	42	20	31	27	R–5	6	FS–2
200	21	11	16	18	R–4	4	FS–2
209	54	29	43	27	R–5	6	FS–2
400	24	13	20	27	R–5	6	FS–2
Bas. 1 temp	54	29	43	27	R–5	6	FS–2
CULVERT	48	31	44	27	R–5	6	FS–2

RIPRAP

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FAX: (215) 293-5488

REGISTERED PROFESSIONAL ENGINEER — JAMES D. TAKACS — PENNSYLVANIA

REV.	DATE	DRAWN
5	1/31/05	MDD
4	9/15/04	JMM
3	9/04/04	MDD
2	8/30/2004	PAB
1	6/07/04	PAB

FINAL CONSTRUCTION DRAWINGS
MCCD MEETING ON 7/30/04
AGENCY REVIEW LETTER DATED 7/29/04
AGENCY REVIEW LETTERS, TOWNSHIP COMMENTS
DESCRIPTION

SOIL EROSION & SEDIMENT CONTROL DETAILS

REGENCY AT PROVIDENCE (a.k.a. FOGEL TRACT)

UPPER PROVIDENCE TWP., MONTGOMERY CO., PENNSYLVANIA

DATE: 12/8/03	SCALE: AS NOTED
DESIGN: JT	DRAWN: PAB
JOB NO.: 1114	FILE NAME: S–DET–ENS
REF. NO.:	ES21.01
SHEET NO.:	67 OF 78