SWPPP GENERAL NOTES

THE CONTRACTOR SHALL BE DESIGNATED A CO-PERMITTEE TO THE GENERAL CONSTRUCTION STORM WATER NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) REQUIREMENTS UNDER THE OHIO ENVIRONMENTAL PROTECTION AGENCY (OHIO EPA) GENERAL PERMIT.

THE CONTRACTOR SHALL FILE A CO-PERMITTEE FORM. INFORMATION ABOUT THE CO-PERMITTEE FORM CAN BE FOUND AT www.epa.state.oh.us/dsw/storm/stormform.html. THE CONTRACTOR SHALL FURNISH A COPY OF THE FORM SUBMITTED TO THE OHIO EPA TO THE PROJECT OWNER, OR OWNER'S REPRESENTATIVE, AT OR BEFORE THE PRE-CONSTRUCTION MEETING.

ALL CONTRACTOR'S AND SUB-CONTRACTORS SHALL PROVIDE SIGNATURES TO THE OWNER ACKNOWLEDGING THAT THEY REVIEWED AND UNDERSTAND THE CONDITIONS AND RESPONSIBILITIES OF THE GENERAL PERMIT AND THE SWP3. THESE SIGNATURES SHALL BE PROVIDED PRIOR TO COMMENCEMENT OF WORK ON THE CONSTRUCTION SITE.

EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO INITIAL DISTURBANCE ACTIVITIES OR AS SOON AS PRACTICAL. THE CONTRACTOR SHALL COMPLY WITH THE TERMS AND CONDITIONS OF THE OHIO EPA GENERAL PERMIT AND THE STORM WATER POLLUTION PREVENTION PLAN (SWP3) DEVELOPED FOR THE PROJECT.

DURING CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE PROPER SOIL EROSION MEASURES FOR PROTECTION OF ALL ADJOINING ROADS, LANDS, AND STREAMS. REFER TO S.C.S. MANUAL "RAINWATER AND LAND DEVELOPMENT" AND ODOT "HANDBOOK FOR SEDIMENT AND EROSION CONTROL" FOR REQUIREMENTS.

ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE PLACED PRIOR TO OR AS THE FIRST STEP IN GRADING. THE CONTRACTOR SHALL PROVIDE SEDIMENT CONTROL AT ALL POINTS WHERE STORM WATER LEAVES THE LIMITS OF THE PROJECT, ALL POINTS WHERE STORM WATER ENTERS A STREAM THAT TRAVERSES THE PROJECT, AND ALL POINTS WHERE STORM WATER ENTERS PORTIONS OF COMPLETED UNDERGROUND PIPING.

SWPPP UPDATES

THE SWP3 PLAN IS A DYNAMIC PLAN BASED UPON SITE CONDITIONS AND THE CONSTRUCTION SCHEDULE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING AND UPDATING THE SWP3 PLAN AS THE PROJECT PROCEEDS.

THE CONSTRUCTION BMP'S WITHIN THESE PLANS REPRESENT THE MINIMUM REQUIRED ONSITE. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ONSITE BMP'S AS THE PROJECT PROGRESSES AT NO ADDITIONAL COST OVER THE ITEMS BID.

INSPECTION

THE CONTRACTOR SHALL PROVIDE A QUALIFIED INSPECTION PERSONNEL TO CONDUCT INSPECTIONS PER PART III.G.2 OF THE GENERAL PERMIT. RECORDS OF THESE INSPECTIONS SHALL BE KEPT AND MADE AVAILABLE TO THE OWNER, THE OWNER'S REPRESENTATIVE, OR THE JURISDICTIONAL AGENCIES IF REQUESTED.

AT A MINIMUM, ALL CONTROLS ON THE SITE SHALL BE INSPECTED AT LEAST ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN ONE-HALF INCH OF RAIN PER 24 HOUR PERIOD. INSPECTION PERIODS MAY BE REDUCED PER PART III.G.2 OF THE GENERAL PERMIT.

MAINTENANCE

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE AND REPAIR OF ALL TEMPORARY AND PERMANENT CONTROL PRACTICES TO ENSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. SHOULD A STRUCTURE OR FEATURE BECOME DAMAGED, THE CONTRACTOR SHALL REPAIR OR REPLACE AT NO ADDITIONAL COST TO THE OWNER.

TREE PRESERVATION

ANY AREA SHOWN IN THE CONSTRUCTION DRAWINGS OR ON THE STORM WATER POLLUTION PREVENTION PLAN AS A "TREE PRESERVATION" OR "TREE PROTECTION" AREA, THE CONTRACTOR SHALL ENCLOSE THE AREA WITH T-POSTS AND CONSTRUCTION FENCING.

(TS) TEMPORARY SEEDING

(Rainwater and Land Development rev.6-24-09)

March 1 to August 15	Oats	3	128 (4 bushel)
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Perennial Ryegrass	1	40
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Annual Ryegrass	1.25	55
	Perennial Ryegrass	3.25	142
	Creeping Red Fescue	0.4	17
	Kentucky Bluegrass	0.4	17
	Oats	3	128 (3 bushel)
	Tall Fescue	1	40
	annual ryegrass	1	40
August 16 to November	Rye	3	112 (2 bushel)
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Wheat	3	120 (2 bushel)
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Perennial Rye	1	40
	Tall Fescue	1	40
	Annual Ryegrass	1	40
	Annual Ryegrass	1.25	40
	Perennial Ryegrass	3.25	40
	Creeping Red Fescue	0.4	40
	Kentucky Bluegrass	0.4	40
November 1 to Feb. 29	Use mulch only or dormant seeding.		

Note: Other approved seed species may be substituted.

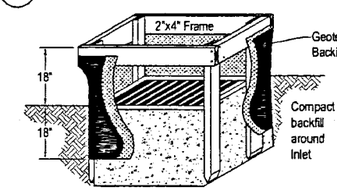
1. Structural erosion and sediment control practices such as diversions and sediment traps shall be installed and stabilized with temporary seeding prior to grading the rest of the construction site.
2. Temporary seed shall be applied between construction operations on soil that will not be graded or reworked for 21 days or greater. These idle areas shall be seeded within 7 days after grading.
3. The seedbed should be pulverized and loose to ensure the success of establishing vegetation. Temporary seeding should not be postponed if ideal seedbed preparation is not possible.
4. Soil Amendments—Temporary vegetation seeding rates shall establish adequate stands of vegetation, which may require the use of soil amendments. Base rates for lime and fertilizer shall be used.
5. Seeding Method—Seed shall be applied uniformly with a cyclone spreader, drill, cultipacker seeder, or hydroseeder. When feasible, seed that has been broadcast shall be covered by raking or dragging and then lightly tamped into place using a roller or cultipacker. If hydroseeding is used, the seed and fertilizer will be mixed on-site and the seeding shall be done immediately and without interruption.

Mulching Temporary Seeding

1. Applications of temporary seeding shall include mulch, which shall be applied during or immediately after seeding. Seedings made during optimum seeding dates on favorable, very flat soil conditions may not need mulch to achieve adequate stabilization.
2. Materials:
   - Straw—If straw is used, it shall be unrotted small-grain straw applied at a rate of 2 tons per acre or 90 lbs./ 1,000 sq. ft. (2-3 bales)
   - Hydroseeders—If wood cellulose fiber is used, it shall be used at 2000 lbs./ ac. or 46 lb./ 1,000-sq.-ft.
   - Other—Other acceptable mulches include mulch mattings applied according to manufacturer's recommendations or wood chips applied at 6 ton/ ac.
3. Straw Mulch shall be anchored immediately to minimize loss by wind or water. Anchoring methods:
   - Mechanical—A disk, crimper, or similar type tool shall be set straight to punch or anchor the mulch material into the soil. Straw mechanically anchored shall not be finely chopped but left to a length of approximately 6 inches.
   - Mulch Netting—Netting shall be used according to the manufacturers recommendations. Netting may be necessary to hold mulch in place in areas of concentrated runoff and on critical slopes.
   - Synthetic Binders—Synthetic binders such as Acrylic DLR (Agri-Tac), DCA-70, Petroset, Terra Track or equivalent may be used at rates recommended by the manufacturer.
   - Wood-Cellulose Fiber—Wood-cellulose fiber binder shall be applied at a net dry wt. of 750 lb./ac. The wood-cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 lb. / 100 gal.

(IP) GEOTEXTILE INLET PROTECTION

(Rainwater and Land Development rev.6-24-09)



1. Inlet protection shall be constructed either before upslope land disturbance begins or before the inlet becomes functional.
2. The earth around the inlet shall be excavated completely to a depth at least 18 inches.
3. The wooden frame shall be constructed of 2-inch by 4-inch construction grade lumber. The 2-inch by 4-inch posts shall be driven one (1) ft. into the ground at four corners of the inlet and the top portion of 2-inch by 4-inch frame assembled using the overlap joint shown. The top of the frame shall be at least 6 inches below adjacent roads if ponded water will pose a safety hazard to traffic.
4. Wire mesh shall be of sufficient strength to support fabric with water fully impounded against it. It shall be stretched tightly around the frame and fastened securely to the frame.
5. Geotextile material shall have an equivalent opening size of 20-40 sieve and be resistant to sunlight. It shall be stretched tightly around the frame and fastened securely. It shall extend from the top of the frame to 18 inches below the inlet notch elevation. The geotextile shall overlap across one side of the inlet so the ends of the cloth are not fastened to the same post.
6. Backfill shall be placed around the inlet in compacted 6-inch layers until the earth is even with notch elevation on ends and top elevation on sides.
7. A compacted earth dike or check dam shall be constructed in the ditch line below the inlet if the inlet is not in a depression. The top of the dike shall be at least 6 inches higher than the top of the frame.

(PS) PERMANENT SEEDING

(Rainwater and Land Development rev.5-24-09)

Seed Mix	Seeding Rate Lbs Ac	Seeding Rate Lbs 1,000 Sq Ft	Notes:
Creeping Red Fescue	20-40	½-1	For close mowing & waterways w/ <2 ft/sec
Domestic Ryegrass	10-20	¼-½	
Kentucky Bluegrass	20-40	½-1	
Tall Fescue	40-50	1-1½	
Turf-type (dwarf) Fescue	90	2¼	
Tall Fescue	40-50	1-1½	
Crown Vetch	10-20	¼-½	Do not seed later than August
Tall Fescue	20-30	½-¾	
Flat Pea	20-25	½-¾	Do not seed later than August
Tall Fescue	20-30	½-¾	
Tall Fescue	40-50	1-1½	
Turf-type (dwarf) Fescue	90	2¼	
Kentucky Bluegrass	5	0.1	
Kentucky Bluegrass	100-120	2	
Perennial Ryegrass		2	
Kentucky Bluegrass	100-120	2	For shaded areas.
Creeping Red Fescue		1½	

Note: Other approved seed species may be substituted.

Site Preparation

1. Subsoiler, plow, or other implement shall be used to reduce soil compaction and allow maximum infiltration. (Maximizing infiltration will help control both runoff rate and water quality.) Subsoiling should be done when the soil moisture is low enough to allow the soil to crack or fracture. Subsoiling shall not be done on slip-prone areas where soil preparation should be limited to what is necessary for establishing vegetation.
2. The site shall be graded as needed to permit the use of conventional Equipment for seedbed preparation and seeding.
3. Topsoil shall be applied where needed to establish vegetation.

Seedbed Preparation

1. Lime---Agricultural ground limestone shall be applied to acid soil as recommended by a soil test. In lieu of a soil test, lime shall be applied at the rate of 100 pounds per 1,000-sq. ft. or 2 tons per acre.
2. Fertilizer—Fertilizer shall be applied as recommended by a soil test. In place of a soil test, fertilizer shall be applied at a rate of 25 pounds per 1,000-sq. ft. or 1000 pounds per acre of a 10-10-10 or 12-12-12 analyses.
3. The lime and fertilizer shall be worked into the soil with a disk harrow, spring-tooth harrow, or other suitable field implement to a depth of 3 inches. On sloping land, the soil shall be worked on the contour.

Seeding Dates and Soil Conditions

1. Seeding should be done March 1 to May 31 or August 1 to September 30. If seeding occurs outside of the above specified dates, additional mulch and irrigation may be required to ensure a minimum of 80% germination. Tillage for seedbed preparation should be done when the soil is dry enough to crumble and not form ribbons when compressed by hand. For winter seeding, see the following section on dormant seeding.

Dormant Seedings

1. Seedings should not be made from October 1 through November 20. During this period, the seeds are likely to germinate but probably will not be able to survive the winter.
2. The following methods may be used for "Dormant Seeding":
   - From October 1 through November 20, prepare the seedbed, add the required amounts of lime and fertilizer, then mulch and anchor. After November 20, and before March 15, broadcast the selected seed mixture. Increase the seeding rates by 50% for this type of seeding.
   - From November 20 through March 15, when soil conditions permit, prepare the seedbed, lime and fertilize, apply the selected seed mixture, mulch and anchor. Increase the seeding rates by 50% for this type of seeding.
   - Apply seed uniformly with a cyclone seeder, drill, cultipacker seeder, or hydro-seeder (slurry may include seed and fertilizer) on a firm, moist seedbed.
   - Where feasible, except when a cultipacker type seeder is used, the seedbed should be firmed following seeding operations with a cultipacker, roller, or light drag. On sloping land, seeding operations should be on the contour where feasible.

Mulching

1. Mulch material shall be applied immediately after seeding. Dormant seeding shall be mulched. 100% of the ground surface shall be covered with an approved material.
2. Materials
   - Straw—If straw is used it shall be unrotted small-grain straw applied at the rate of 2 tons per acre or 90 pounds (two to three bales) per 1,000-sq. ft. The mulch shall be spread uniformly by hand or mechanically applied so the soil surface is covered. For uniform distribution of hand-spread mulch, divide area into approximately 1,000-sq.-ft. sections and spread two 45-lb. bales of straw in each section.
   - Hydroseeders—If wood cellulose fiber is used, it shall be applied at 2,000 lb./ac. or 46 lb./1,000 sq. ft.
   - Other—Other acceptable mulches include rolled erosion control mattings or blankets applied according to manufacturer's recommendations or wood chips applied at 6 tons per acre.
3. Straw and Mulch Anchoring Methods
   Straw mulch shall be anchored immediately to minimize loss by wind or water.
   - Mechanical—A disk, crimper, or similar type tool shall be set straight to punch or anchor the mulch material into the soil. Straw mechanically anchored shall not be finely chopped but, generally, be left longer than 6 inches.
   - Mulch Netting—Netting shall be used according to the manufacturer's recommendations. Netting may be necessary to hold mulch in place in areas of concentrated runoff and on critical slopes.
   - Asphalt Emulsion—Asphalt shall be applied as recommended by the manufacture or at the rate of 160 gallons per acre.
   - Synthetic Binders—Synthetic binders such as Acrylic DLR (Agri-Tac), DCA-70, Petroset, Terra Tack or equivalent may be used at rates specified by the manufacturer.
   - Wood Cellulose Fiber—Wood cellulose fiber shall be applied at a net dry weight of 750 pounds per acre. The wood cellulose fiber shall be mixed with water with the mixture containing a maximum of 50 pounds cellulose per 100 gallons of water.

Irrigation

Permanent seeding shall include irrigation to establish vegetation during dry weather or on adverse site conditions, which require adequate moisture for seed germination and plant growth.

Irrigation rates shall be monitored to prevent erosion and damage to seeded areas from excessive runoff.

(DB) DANDY BAG

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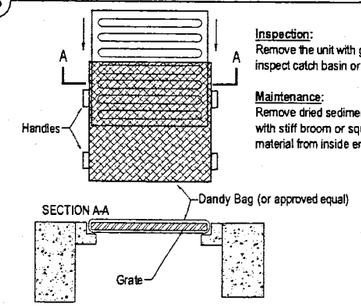
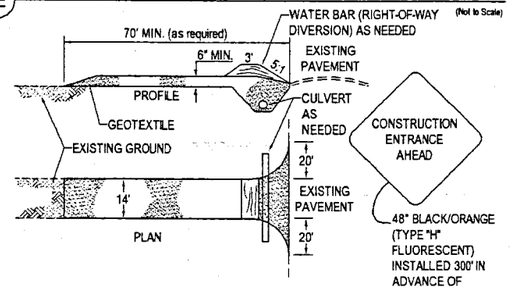


Inspection:
Remove the unit with grate inside bag using handles, inspect catch basin or manhole and replace.

Maintenance:
Remove dried sediment from surface of unit as needed with stiff broom or square point shovel. Remove fine material from inside envelop as needed.

(CE) STABILIZED CONSTRUCTION ENTRANCE

(Not to Scale)



1. Stone Size - odot #2 (1.5-2.5 inch) stone shall be used, or reclaimed or recycled concrete equivalent.
2. Length - as long as required to stabilize high traffic areas but not less than 70 ft.
3. Thickness - not less than six (6) inches for light duty or at least ten (10) inches for heavy duty.
4. Width - fourteen (14) feet minimum, but not less than the full width at points where ingress or egress occurs.
5. Geotextile - laid over the entire area prior to placing stone. it shall be composed of strong rot-proof polymetric fibers and meet the following specifications:
   min. tensile strength = 200 lbs. — min. puncture strength = 80 psi
   min. tear strength = 50 lbs. — min. burst strength = 320 psi
   min. elongation = 20% — equivalent opening size = eos < 0.6mm
   permittivity = 1x10-3 cm/sec.
6. Timing - the construction entrance shall be installed as soon as is practicable before major grading activities.
7. Culvert - a pipe or culvert shall be constructed under the entrance if needed to prevent surface water from flowing across the entrance or to prevent runoff from being directed out onto paved surfaces.
8. Water bar - a water bar shall be constructed as part of the contruction entrance if needed to prevent surface runoff from flowing the length of the construction entrance and out onto paved surfaces.
9. Maintenance - top dressing of additional stone shall be applied as conditions demand. mud spilled, dropped, washed or tracked onto public roads, or any surface where runoff is not checked by sediment controls, shall be removed immediately. removal shall be accomplished by scraping or sweeping.
10. Construction entrances shall not be relied upon to remove mud from vehicles and prevent off-site tracking. vehicles that enter and leave the construction-site shall be restricted from muddy areas.
11. Removal - the entrance shall remain in place until the disturbed area is stabilized or replaced with a permanent roadway or entrance.

(CWA) CONCRETE WASHOUT AREA

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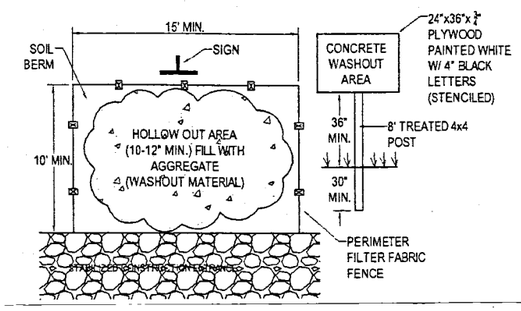

DRAWN	---	DATE	10-12-12
CHECKED	---		

NO.	DATE	PLAN ISSUE/REVISION

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ZMCPA EASTPOINTE RR EXTENSION

SWPPP NOTES & DETAILS

JOB NUMBER: Z10-07

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