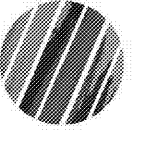


Cedar Ridge High School
 Classroom Addition
 Orange County Schools
 1125 New Grady Brown School Road
 Hillsborough, North Carolina



no. revisions

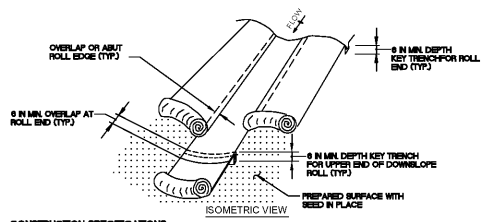
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C5.2
 SHEET
 SEDIMENT AND
 EROSION CONTROL
 DETAILS

project no. 1716

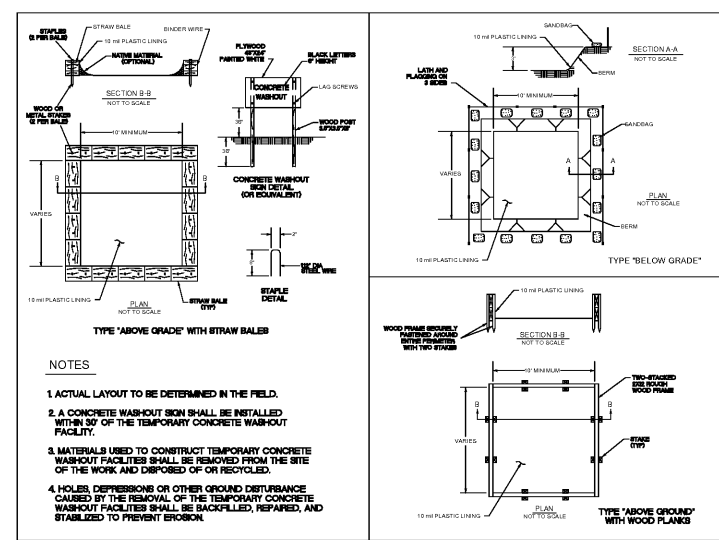
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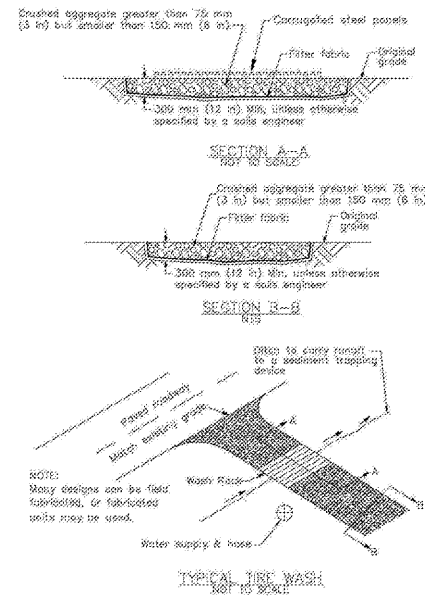
- CONSTRUCTION SPECIFICATIONS**
- USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
 - USE TEMPORARY SOIL STABILIZATION MATTING MADE OF BIODEGRADABLE LAMINATED MATS WITH A MINIMUM NATURAL FIBER MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SMOOTHER RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND BEED RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND BEED RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND BEED RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND BEED RESISTANT.
 - SECURE MATTING USING STEEL STAPLES, WOOD STAPLES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "V" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "V" SHAPED STAPLES MUST AVERAGE 1 TO 1 1/2 INCHES WISE AND BE A MINIMUM OF 8 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAPLES MUST BE BUSH-BARN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1/2 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
 - PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDING PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
 - UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTERLINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN FLANGING ROLLS. LAY MAT SMOOTHLY AND FIRMLY ON THE REEDED SURFACE, AND STRETCHING THE MATTING.
 - KEY-IN UPSTREAM END OF EACH MAT ROLL BY DIGGING A 6 INCH (MINIMUM) TRENCH AT THE UPSTREAM END OF THE MATTING FLANGING THE ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO RECONSTRUCT THE MATTING.
 - OVERLAP OR ABUT THE ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
 - STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG BEAMS, JOINTS, AND ROLL ENDS.
 - ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE STABILIZATION ARE CONTINUOUSLY MET IN ACCORDANCE WITH VEGETATIVE STABILIZATION SPECIFICATION.

ROLLED EROSION CONTROL PRODUCTS ARE NOT TO CONTAIN ANY TYPE OF PLASTIC COMPONENTS, INCLUDING BIODEGRADABLE AND PHOTO-DEGRADABLE PLASTICS.

1 ROLLED EROSION CONTROL PRODUCTS
 C5.2 SCALE N.T.S.



2 CONCRETE WASHDOWN
 C5.2 SCALE N.T.S.



3 TIRE/VEHICLE WASH
 C5.2 SCALE N.T.S.

- MAINTENANCE**
- REMOVE ACCUMULATED SEDIMENT IN WASH RAY AND/OR SEDIMENT TRAP TO MAINTAIN PERFORMANCE.
 - INSPECT REGULARLY FOR DAMAGE AND REPAIR AS NEEDED.

DITCH 1

Sheet Flow		Intensity Iterations			
C	0.5 Bare Soil	Trial time	Intensity	T _r	T _j
length of flow	100 ft	T _r (min)	i (in/hr)	T _r (min)	T _j (min)
Manning's n	0.02 bare earth	5	7.94	17.2	12.6
average slope	4.9% ft/ft	10	6.32	15.0	10.2
		15	5.66	13.5	9.0
		30	3.96	19.3	13.3
Intensity	5.66 in/hr	60	2.64	25.3	17.3
T _j	16.0 min				

Shallow Concentrated Flow		Open Channel Flow	
C	0.5 Bare Soil	C	0.5
length of flow	0 ft	length of flow	258 ft
Manning's n	0.02 bare earth	Manning's n	0.02 bare earth
average slope	4.9% ft/ft	average slope	1.0% ft/ft
Velocity	3.57 ft/s	Velocity	8.20 ft/s
T _j	0.00 min	T _j	0.52 min

V Channel Geometry		Peak Discharge	
Depth	1.75 ft	T _c	16.6 min
Side Slope	3:1 ft/ft	C	0.5
Freeboard	0.5 ft	t	5.66
P _{sw}	6.32 ft	A	0.89
A	5.25 ft ²	Q=CIA	2.4 cfs
R _h	0.83 ft	Q=CIA	1.5 cfs

BED SHEAR	
t	0.97 lb/ft ²
y	64.2 lb/ft ²
D	1 ft
Sw	1.6% ft/ft

Slope Drain Sizing	
Corrugated	HOPE n value
	0.025
Slope	0.33 ft/ft
Required	
Slope Drain	
Size	6.87 in
Nominal	
Pipe Size	8 in

DITCH 2

Sheet Flow		Intensity Iterations			
C	0.5 Bare Soil	Trial time	Intensity	T _r	T _j
length of flow	100 ft	T _r (min)	i (in/hr)	T _r (min)	T _j (min)
Manning's n	0.02 bare earth	5	7.94	17.2	12.6
average slope	5.9% ft/ft	10	6.32	15.0	10.2
		15	5.66	13.5	9.0
		30	3.96	19.3	13.3
Intensity	6.32 in/hr	60	2.64	24.4	17.3
T _j	14.5 min				

Shallow Concentrated Flow		Open Channel Flow	
C	0.5 Bare Soil	C	0.5
length of flow	0 ft	length of flow	218 ft
Manning's n	0.02 bare earth	Manning's n	0.02 bare earth
average slope	4.0% ft/ft	average slope	2.75% ft/ft
Velocity	3.23 ft/s	Velocity	10.92 ft/s
T _j	0.00 min	T _j	0.33 min

V Channel Geometry		Peak Discharge	
Depth	1.75 ft	T _c	14.8 min
Side Slope	3:1 ft/ft	C	0.5
Freeboard	0.5 ft	t	5.66
P _{sw}	6.32 ft	A	0.89
A	5.25 ft ²	Q=CIA	1.2 cfs
R _h	0.83 ft	Q=CIA	1.5 cfs

BED SHEAR	
t	0.88 lb/ft ²
y	64.2 lb/ft ²
D	1 ft
Sw	2.8% ft/ft

Slope Drain Sizing	
Corrugated	HOPE n value
	0.025
Slope	0.33 ft/ft
Required	
Slope Drain	
Size	5.27 in
Nominal	
Pipe Size	8 in

DITCH 3

Sheet Flow		Intensity Iterations			
C	0.5 Bare Soil	Trial time	Intensity	T _r	T _j
length of flow	180 ft	T _r (min)	i (in/hr)	T _r (min)	T _j (min)
Manning's n	0.02 bare earth	5	7.94	17.2	12.6
average slope	6.3% ft/ft	10	6.32	15.0	10.2
		15	5.66	13.5	9.0
		30	3.96	26.2	13.3
Intensity	5.66 in/hr	60	2.64	33.3	17.3
T _j	21.1 min				

Shallow Concentrated Flow		Open Channel Flow	
C	0.5 Bare Soil	C	0.5
length of flow	0 ft	length of flow	228 ft
Manning's n	0.02 bare earth	Manning's n	0.02 bare earth
average slope	6.3% ft/ft	average slope	1.36% ft/ft
Velocity	4.05 ft/s	Velocity	7.69 ft/s
T _j	0.00 min	T _j	0.48 min

V Channel Geometry		Peak Discharge	
Depth	1.75 ft	T _c	21.6 min
Side Slope	3:1 ft/ft	C	0.5
Freeboard	0.5 ft	t	5.66
P _{sw}	6.32 ft	A	0.49
A	5.25 ft ²	Q=CIA	1.2 cfs
R _h	0.83 ft	Q=CIA	1.5 cfs

BED SHEAR	
t	0.88 lb/ft ²
y	64.2 lb/ft ²
D	1 ft
Sw	1.4% ft/ft

Slope Drain Sizing	
Corrugated	HOPE n value
	0.025
Slope	0.33 ft/ft
Required	
Slope Drain	
Size	5.33 in
Nominal	
Pipe Size	8 in

DITCH 4

Sheet Flow		Intensity Iterations			
C	0.5 Bare Soil	Trial time	Intensity	T _r	T _j
length of flow	180 ft	T _r (min)	i (in/hr)	T _r (min)	T _j (min)
Manning's n	0.02 bare earth	5	7.94	17.2	12.6
average slope	6.3% ft/ft	10	6.32	15.0	10.2
		15	5.66	13.5	9.0
		30	3.96	26.2	13.3
Intensity	5.66 in/hr	60	2.64	33.3	17.3
T _j	20.4 min				

Shallow Concentrated Flow		Open Channel Flow	
C	0.5 Bare Soil	C	0.5
length of flow	0 ft	length of flow	290 ft
Manning's n	0.02 bare earth	Manning's n	0.02 bare earth
average slope	6.3% ft/ft	average slope	1.72% ft/ft
Velocity	4.05 ft/s	Velocity	8.65 ft/s
T _j	0.00 min	T _j	0.56 min

V Channel Geometry		Peak Discharge	
Depth	1.75 ft	T _c	21.0 min
Side Slope	3:1 ft/ft	C	0.5
Freeboard	0.5 ft	t	5.66
P _{sw}	6.32 ft	A	0.65
A	5.25 ft ²	Q=CIA	1.8 cfs
R _h	0.83 ft	Q=CIA	1.5 cfs

BED SHEAR	
t	1.11 lb/ft ²
y	64.2 lb/ft ²
D	1 ft
Sw	1.7% ft/ft

Slope Drain Sizing	
Corrugated	HOPE n value
	0.025
Slope	0.33 ft/ft
Required	
Slope Drain	
Size	6.19 in
Nominal	
Pipe Size	8 in

DITCH 5

Sheet Flow		Intensity Iterations			
C	0.5 Bare Soil	Trial time	Intensity	T _r	T _j
length of flow	60 ft	T _r (min)	i (in/hr)	T _r (min)	T _j (min)
Manning's n	0.02 bare earth	5	7.94	16.7	8.9
average slope	6.3% ft/ft	10	6.32	15.3	10.2
		15	5.66	20.4	10.8
		30	3.96	25.3	11.3
Intensity	7.94 in/hr	60	2.64	32.2	17.3
T _j	8.9 min				

Shallow Concentrated Flow		Open Channel Flow	
C	0.5 Bare Soil	C	0.5
length of flow	0 ft	length of flow	240 ft
Manning's n	0.02 bare earth	Manning's n	0.02 bare earth
average slope	1.25% ft/ft	average slope	1.25% ft/ft
Velocity	4.05 ft/s	Velocity	7.36 ft/s
T _j	0.00 min	T _j	0.54 min

V Channel Geometry		Peak Discharge	
Depth	1.75 ft	T _c	9.5 min
Side Slope	3:1 ft/ft	C	0.5
Freeboard	0.5 ft	t	7.94
P _{sw}	6.32 ft	A	0.38
A	5.25 ft ²	Q=CIA	1.5 cfs
R _h	0.83 ft	Q=CIA	1.5 cfs

BED SHEAR	
t	0.80 lb/ft ²
y	64.2 lb/ft ²
D	1 ft
Sw	1.3% ft/ft

Slope Drain Sizing	
Corrugated	HOPE n value
	0.025
Slope	0.33 ft/ft
Required	
Slope Drain	
Size	5.78 in
Nominal	
Pipe Size	8 in

Temporary 15" RCP (TP1)

Corrugated	RCP n value
	0.013
Slope	0.01 ft/ft
Required	
Slope Drain	
Size	9.33 in
Nominal	
Pipe Size	15 in