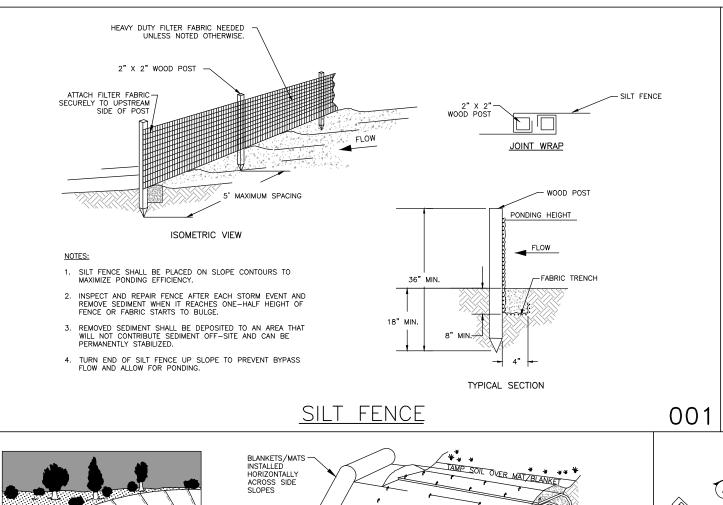
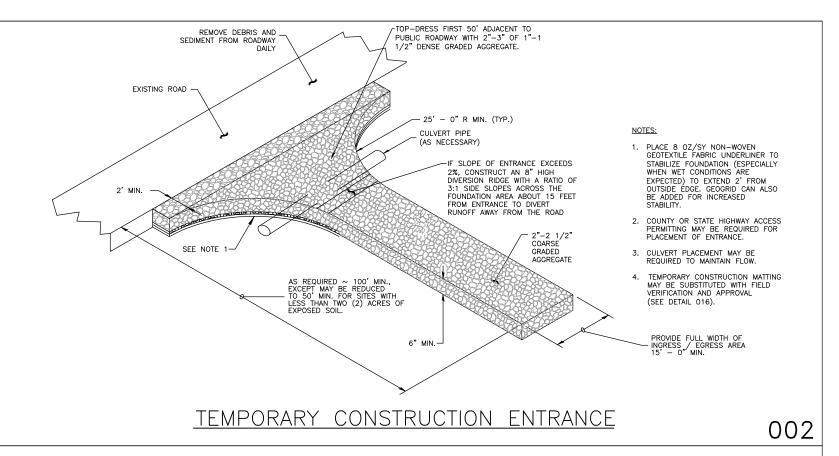
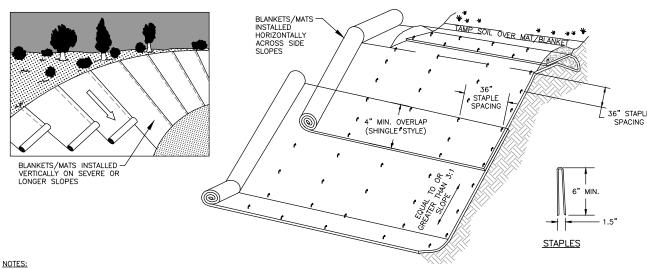
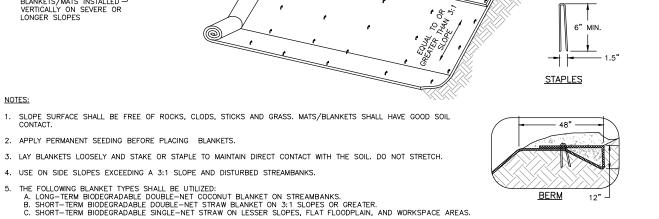
Appendix B

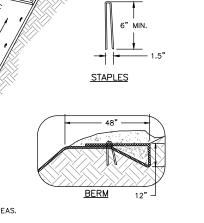
Storm Water Pollution Prevention Plan Typical Details











EROSION CONTROL BLANKET

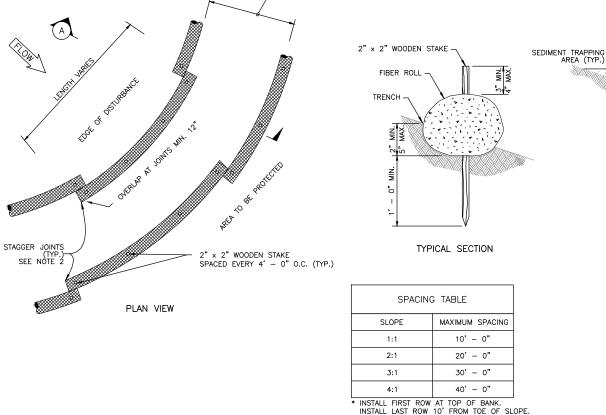
A. TUCK/UNDERLAP BASE OF BLANKET TO PREVENT HIGH WATER FROM REMOVING BLANKET AND SEED.
B. STAPLE SPACING MAY NEED TO BE DECREASED.
C. PREPARE SUBGRADE PRIOR TO INSTALLING BLANKET BY REMOVING DISPLACED ROCKS AND WOODY DEBRIS.

2. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.

6. FOR STREAMBANK STABILIZATION:

4. USE ON SIDE SLOPES EXCEEDING A 3:1 SLOPE AND DISTURBED STREAMBANKS

INTENTIONALLY LEFT BLANK



SPACING VARIES (TYP.)
SEE FIBER ROLL SPACING TABLE

NOTES:

- 1. INSTALL FIBER ROLLS ALONG CONTOURS DURING FINAL RESTORATION TO CHECK FLOW TO ALLOW ADEQUATE REVEGETATION
- 2. ABUT ADJACENT FIBER ROLLS TIGHTLY WHILE OVERLAPPING THE ENDS. STAGGER JOINTS WITH THE NEXT PARALLEL ROW.

SPACING VARIES (TYP.)
SEE SPACING TABLE

FIBER ROLL SEE DETAIL

SECTION (A)

- 3. PILOT HOLES MAY BE DRIVEN THROUGH THE FIBER ROLLS AND INTO THE SOIL WHEN SOIL CONDITIONS REQUIRE.
- 4. FIBER ROLLS SHALL BE INSPECTED REGULARLY, AND IMMEDIATELY AFTER A RAINFALL PRODUCES RUNOFF, TO ENSURE THEY REMAIN THOROUGHLY ENTRENCHED AND IN CONTACT WITH THE SOIL.
- 5. A SINGLE ROW MAY BE INSTALLED ON FLAT SLOPES.

FIBER ROLI

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DUKE ENERGY

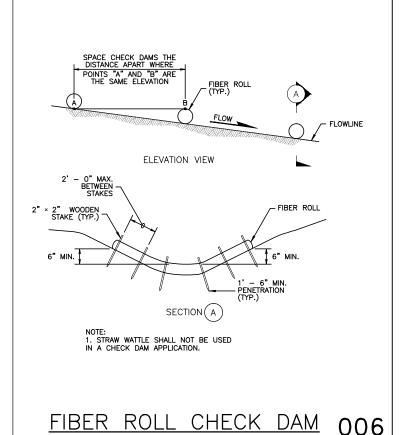
STORM WATER POLLUTION PREVENTION PLAN TYPICAL DETAILS

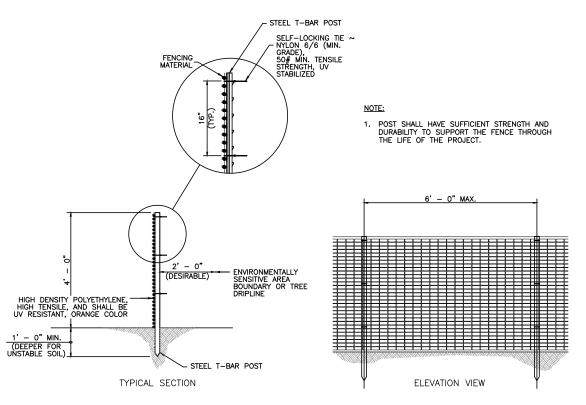
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003





CONSTRUCTION BARRIER FENCING

AND AND HELEVATION VIEW

SPILLWAY

SPILLWAY

SPACE CHECK DAMS THE DISTANCE APART WHERE

POINTS "A" AND "B" ARE THE SAME ELEVATION

SPILLWAY

SPILLWAY

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SPILLWAY

SECTION

A

ROCK CHECK DAM

008

HIGH STRENGTH DOUBLED
STITCHED "J" TYPE SEAMS

SEWN IN SPOUT
HIGH STRENGTH
STRAPS (2) FOR
HOLDING HOSE
IN PLACE
WATER
FROM
PUMP
UP TO 6" PUMP
DISCHARGE HOSE
(DO NOT EXCEED
MANUFACTURERS
RECOMMENDATIONS)

TYPICAL SECTION

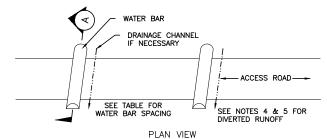
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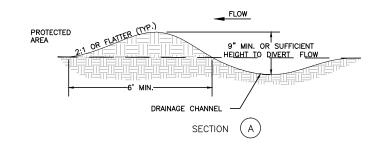
- THE NECK OF THE FILTER BAG SHALL BE TIGHTLY STRAPPED (MINIMUM TWO STRAPS) TO THE DISCHARGE HOSE.
- 2. THE FILTER BAG IS FULL WHEN IT NO LONGER CAN EFFICIENTLY FILTER SEDIMENT OR PASS WATER AT A REASONABLE RATE.
- 3. FLOW RATES VARY DEPENDING ON THE SIZE OF THE DEWATERING DEVICE, AMOUNT OF SEDIMENT DISCHARGED INTO THE DEWATERING DEVICE, THE TYPE OF GROUND, ROCK, OR OTHER SUBSTANCE UNDER THE BAG AND THE DEGREE OF THE SLOPE ON WHICH THE BAG LIES. THE FILTER BAG SHOULD BE SIZED TO ACCOMMODATE THE ANTICIPATED FLOW RATES FROM THE TYPE OF PUMP USED. TYPICALLY FILTER BAGS CAN HANDLE FLOW RATES OF UP TO 1000 GALLONS PER MINUTE, BUT IN ALL CASES FOLLOW THE MANUFACTURERS RECOMMENDATIONS FOR FLOW RATES.
- USE OF EXCESSIVE FLOW RATES OR OVERFILLING THE DEWATERING DEVICE WITH SEDIMENT WILL CAUSE RUPTURES OF THE BAG OR FAILURE OF THE HOSE ATTACHMENT STRAPS.
- 5. THE FILTER BAG SHALL BE REMOVED AND DISPOSED OF OFFSITE..
- 6. EACH STANDARD DEWATERING DEVICE SHALL HAVE A FILL SPOUT LARGE ENOUGH TO ACCOMMODATE THE DISCHARGE HOSE. USE TWO STAINLESS STEEL STRAPS TO SECURE THE HOSE AND PREVENT PUMPED WATER FROM ESCAPING WITHOUT BEING FILTERED.
- 7. THE DEWATERING DEVICE SHALL BE A NONWOVEN BAG, WHICH IS SEWN WITH A DOUBLE NEEDLE STITCHING USING A HIGH STRENGTH THREAD.
- 8. THE DEWATERING DEVICE SEAMS SHALL HAVE AN AVERAGE WIDE WITH STRENGTH PER ASTM D 4884 OF 100 LB/IN.
- 9. THE GEOTEXTILE FABRIC SHALL BE A NONWOVEN FABRIC WITH THE FOLLOWING PROPERTIES:

	PROPERTIES	TEST METHOD	ENGLISH	METRIC
Ī	GRAB TENSILE	ASTM D - 4632	250 LBS.	113 KG
	PUNCTURE	ASTM D - 4833	165 LBS.	75 KG
	FLOW RATE	ASTM D - 4491	70 GAL/MIN/SQ FT	25 LITERS/MIN/SQ METER
	PERMITIVITY	ASTM D - 4491	1.3 SEC 1	1.3 SEC 1
	MULLEN BURST	ASTM D - 3786	550 LBS./SQ INCH	3.79 Mpa
	UV RESISTANT	ASTM D - 4355	70%	70%
	AOS % RETAINED	ASTM D - 4751	100%	100%

*ALL PROPERTIES ARE MINIMUM AVERAGE ROLL VALUE

DEWATERING BAG





NOTES:

- SIDE SLOPES OF WATER BAR SHALL BE CONSTRUCTED SUFFICIENTLY FLAT TO ACCOMMODATE THE EXPECTED TRAFFIC.
- THE SPACING BETWEEN WATER BARS SHALL BE AS NOTED (SEE SPACING TABLE):

WATER BAR SPACING TABLE

DISTANCE (FT.)
400
250
135
80
60
45

- 3. THE FIELD LOCATION SHALL BE ADJUSTED AS NEEDED TO PROVIDE A STABILIZED SAFE OUTLET.
- 4. DRAINAGE CHANNELS SHALL BE DIRECTED ONTO STABLE VEGETATIVE AREA OR A SEDIMENT TRAP OR A BASIN IF CONTRIBUTING AREA IS NOT STABLE.
- 5. DRAINAGE CHANNELS SHALL BE CONSTRUCTED WITH ≤ 2% WITH POSITIVE OUTLET TO STABLE AREA.
- DIVERSIONS/WATER BARS SHALL BE COMPACTED BY TRAVERSING WITH EQUIPMENT DURING CONSTRUCTION.
- THE WATER BARS SHALL BE ANGLED SLIGHTLY DOWNSLOPE ACROSS THE CENTERLINE OF THE TRAVEL LANE.

WATER BAR

010

SCALE

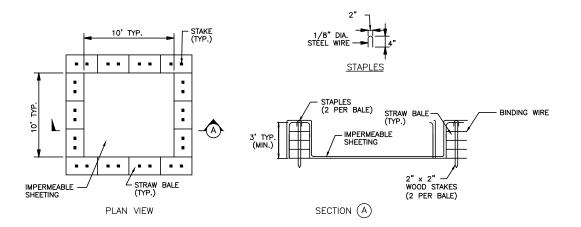
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DUKE ENERGY.

STORM WATER POLLUTION PREVENTION PLAN TYPICAL DETAILS N.T.S.

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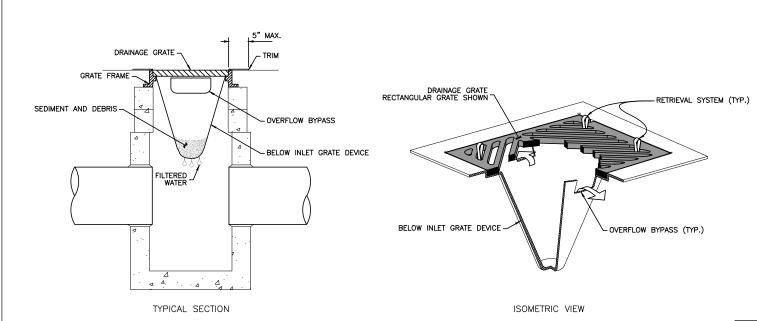


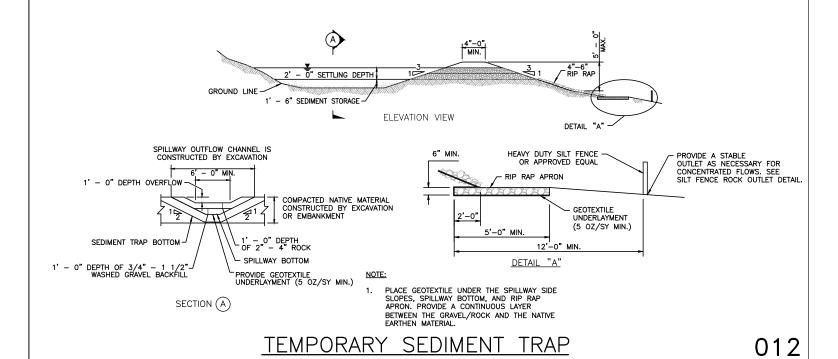
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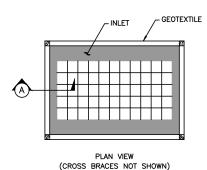
- LOCATE WASHOUT STRUCTURE A MINIMUM OF 50 FEET AWAY FROM OPEN CHANNELS, STORM DRAIN INLETS, SENSITIVE AREAS, WETLANDS, BUFFERS AND WATER COURSES AND AWAY FROM CONSTRUCTION TRAFFIC.
- SIZE WASHOUT STRUCTURE FOR VOLUME NECESSARY TO CONTAIN WASH WATER AND SOLIDS AND MAINTAIN AT LEAST 4 INCHES OF FREEBOARD. TYPICAL DIMENSIONS ARE 10 FEET X 10 FEET X 3 FEET DEEP.
- PREPARE SOIL BASE FREE OF ROCKS OR OTHER DEBRIS THAT MAY CAUSE TEARS OR HOLES IN THE LINER. FOR LINER, USE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING, FREE OF HOLES AND TEARS OR OTHER DEFECTS THAT COMPROMISE IMPERMEABILITY OF THE MATERIAL.
- 4. PROVIDE A SIGN FOR THE WASHOUT IN CLOSE PROXIMITY TO THE FACILITY.
- 5. KEEP CONCRETE WASHOUT STRUCTURE WATER TIGHT. REPLACE IMPERMEABLE LINER IF DAMAGED (E.G., RIPPED OR PUNCTURED). EMPTY OR REPLACE WASHOUT STRUCTURE THAT IS 75 PERCENT FULL, AND DISPOSE OF ACCUMULATED MATERIAL PROPERLY. DO NOT REUSE PLASTIC LINER. WET-VACUUM STORED LIQUIDS THAT HAVE NOT EVAPORATED AND DISPOSE OF IN AN APPROVED MANNER. PRIOR TO FORECASTED RAINSTORMS, REMOVE LIQUIDS OR COVER STRUCTURE TO PREVENT OVERFLOWS. REMOVE HARDENED SOLIDS, WHOLE OR BROKEN UP, FOR DISPOSAL OR RECYCLING. MAINTAIN RUNOFF DIVERSION AROUND EXCAVATED WASHOUT STRUCTURE UNTIL STRUCTURE IS REMOVED.
- 6. BALES CAN BE TWO STACKED OR PARTIALLY EXCAVATED TO REACH 3FT DEPTH (MIN.).
- 7. PREFABRICATED UNITS MAY BE USED WITH APPROVAL.

CONCRETE WASHOUT

011

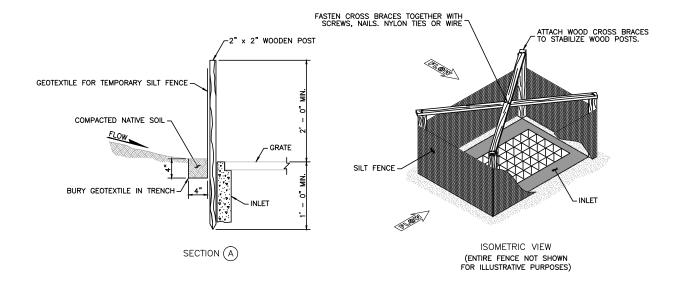






NOTES

- PREFABRICATED UNITS MAY BE USED WITH APPROVAL.
- STRUCTURE SHALL BE CONSTRUCTED SUCH THAT GEOTEXTILE MATERIAL SHALL BE FASTENED TO POSTS CREATING A SEAM—LESS JOINT.
- 3. ENSURE THAT PONDING HEIGHT OF WATER DOES NOT CAUSE FLOODING ON ADJACENT ROADWAYS OR PRIVATE PROPERTY.



NON-PAVED AREA INLET PROTECTION

014

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STORM WATER POLLUTION PREVENTION PLAN
TYPICAL DETAILS

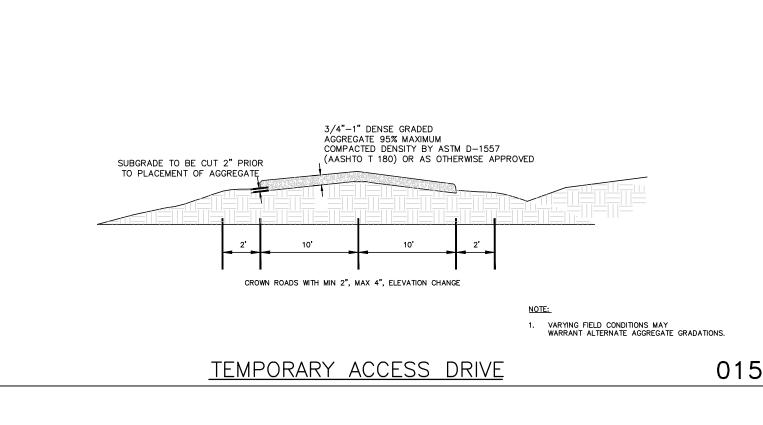
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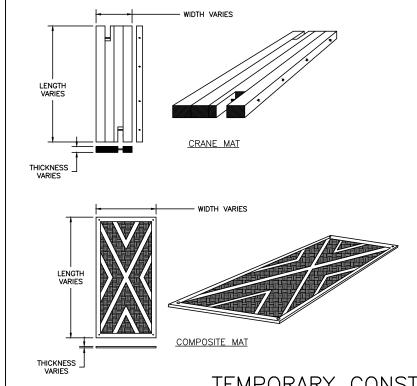
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PAVED AREA INLET PROTECTION

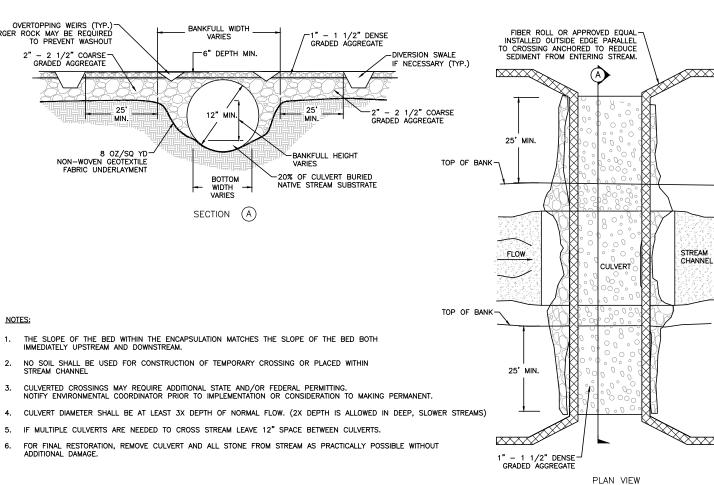


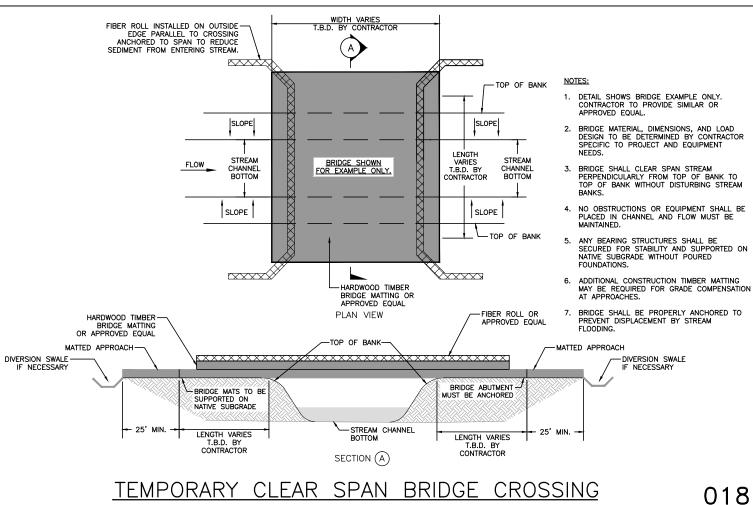


- WIDTH VARIES -LENGTH VARIES TIMBER MAT THICKNESS 🕇 VARIES

- TEMPORARY CONSTRUCTION MATTING SHALL BE USED IN ALL SATURATED OR UNSTABLE WETLAND AREAS IF CROSSING IS NECESSARY.
- 2. FILL SHALL NOT BE PLACED OFF OF MATTING WHEN WORKING IN WETLAND AND STREAM AREAS.
- SECTIONS TO BE ASSEMBLED TO REQUIRED SIZE SPECIFIC TO EQUIPMENT NEEDS.
- NO GAPS SHALL BE PRESENT IN THE MATTING TO REDUCE "PUMPING" AND SEDIMENT FROM ENTERING STREAMS AND WETLANDS.
- MATTING SHALL BE ANCHORED IN ALL NOTED FLOODWAYS AND ADJACENT TO OTHER STREAMS DETERMINED TO BE PRONE TO FLOODING.
- MAINTAIN STREAM FLOWS AND UTILIZE EROSION CONTROLS IF MATTING IS TO BE USED FOR A STREAM CROSSING APPLICATION.
- PLACE NON-WOVEN GEOTEXTILE UNDERLAYMENT (7 OZ/SY) BENEATH MATTING IN SATURATED OR DELINEATED WETLAND AREAS TO PREVENT PUMPING OF SATURATED
- 8. INSTALL FIBER ROLL ALONG ENTIRE PERIMETER OF MATTING WITHIN DELINEATED WETLAND AREAS EXCEPT FOR THE INGRESS AND EGRESS LOCATIONS.

TEMPORARY CONSTRUCTION MATTING





TEMPORARY CULVERT STREAM CROSSING

NO. DATE

DUKE ENERGY

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APPROVED BY CAM/MRW 12/18/2015 DRAWN BY

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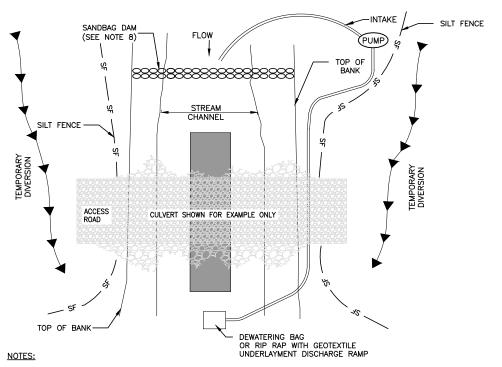
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STORM WATER POLLUTION PREVENTION PLAN TYPICAL DETAILS

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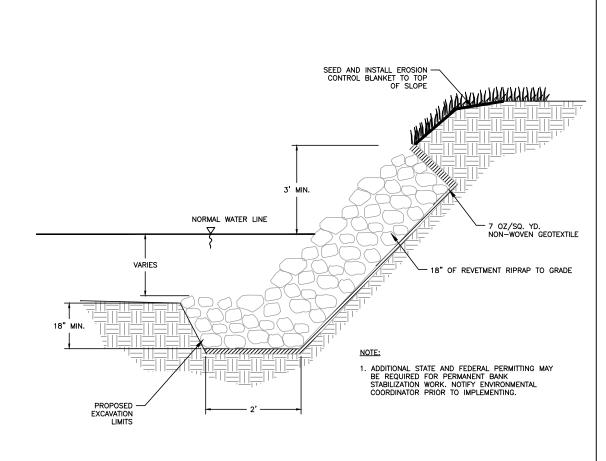
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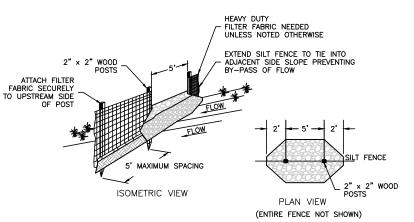
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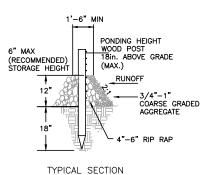
- 1. INSTALL SILT FENCE, PUMP, DEWATERING BAG, AND SANDBAG DAM BEFORE TRENCHING STREAM.
- PUMP MUST BE OF SUFFICIENT CAPACITY TO CONVEY NORMAL AND/OR EXISTING STREAM FLOW OVER SANDBAG DAM. A BACK-UP PUMP OF EQUAL CAPACITY MUST BE AVAILABLE ON-SITE DURING CONSTRUCTION OF
- 3. ANY SOIL PILES TO BE PLACED A MINIMUM OF 10 FEET FROM TOP OF BANK.
- 4. INSTALL DIVERSIONS AT APPROACHES TO STREAM CROSSING AND SILT FENCE (AS INDICATED ON PLAN SHEETS).
- 5. MAINTAIN SURFACE OF TEMPORARY EQUIPMENT CROSSING TO PREVENT SOIL DISCHARGES TO STREAM.
- 6. APPROACHES TO CROSSINGS ARE NOT TO EXCEED A DEPTH OF 6 INCHES ABOVE ORIGINAL GRADE.
- 7. RESTORE AREA TO APPROXIMATE ORIGINAL CONTOURS.
- 8. ADJUST HEIGHT AS NEEDED BASED ON FLOW CONDITIONS AND PUMP INTAKE.

TEMPORARY STREAM CROSSING PUMP DIVERSION





- SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
- EVENT AND REMOVE SEDIMENT WHEN IT REACHES ONE-HALF HEIGHT OF FENCE OR
- 3. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
- 4. TURN END OF SILT FENCE UP SLOPE TO PREVENT BYPASS FLOW AND ALLOW FOR
- 5. SEE TYPICAL SILT FENCE DETAIL FOR ADDITIONAL INFORMATION.



SILT FENCE ROCK OUTLET

021

019

HARD ARMAMENT BANK STABILIZATION

020

- EARTHEN ISLAND OVER INLET SECTION OF DRAIN DIVERSION RIDGE SLOPED @ APPROXIMATELY 1% 4" DIA. MIN. CORRUGATED, NON-PERFORATED PLASTIC DRAIN PIPE SPACING DIVERSION SWALE MAX. ANCHOR STAKES COMPACTED FILL EXTEND PIPE ALONG EARTHEN SLOPE LENGTH ISI AND DIVERSION RIDGE MIN. - FLARED END SECTION FLOW INSTALL SEDIMENT TRAP WITH STABILIZED OUTLET

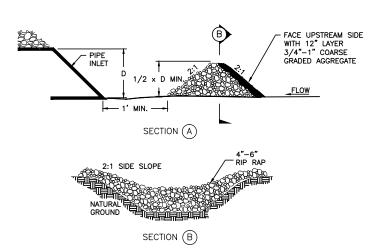
- 2. INSPECT SLOPE DRAIN AND SUPPORTING DIVERSIONS AFTER EVERY RAINFALL EVENT AND MAKE NECESSARY REPAIRS FOR PROPER OPERATION OF THE SYSTEM.
- 3. UPON PROJECT COMPLETION, REMOVE THE SLOPE DRAIN AND PROPERLY STABILIZE ALL DISTURBED AREAS.

TEMPORARY SLOPE DRAIN

- DIVERSION RIDGE 1 2' H AREA TO BE PROTECTED EARTHEN. COMPACTED SOIL -2:1 OR FLATTER (TYP.) SWALE SHALL BE CONSTRUCTED WITH POSITIVE SLOPE ≤ 1% AND OUTLET TO A STABLE VEGETATED AREA OR

> 023 DIVERSION SWALE

TIE STONE INTO EXISTING ROCK EMBANKMENT WATER FLOW FACE UPSTREAM SIDE WITH 3/4"-1"
COARSE GRADED AGGREGATE PLAN VIEW



ROCK PIPE INLET PROTECTION

024

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DUKE ENERGY

STORM WATER POLLUTION PREVENTION PLAN TYPICAL DETAILS

SCALE N.T.S. DRAWING NO. SHEET 5

SECTION (A) ELEVATION VIEW NOTES: THE SLOPE DRAIN SHALL BE CONSTRUCTED/LENGTHENED WITH THE CONSTRUCTION OF THE FILL SLOPE. AS A RESULT, INLET ELEVATIONS WILL YARY ACCORDING TO GRADE ELEVATIONS AT THE TIME OF CONSTRUCTION.

022

Appendix C

Storm Water Evaluation Form for Construction

Storm Water Evaluation Form for Construction

(Complete at least once per week and after each storm event of 0.5 inches or more.)



Project Name:F7581/F7582/F5689-138k	ı TLoo _l	Evaluation	on Date:		
Construction Supervisor:			Evaluate	ed By:	
Reason for Evaluation:	Routine	Pos	t Rain Ever	t Non-Routine	
Location and Phase of Construction:			Co	nditions at time of evaluation?	
				Dry ☐ Wet ☐ Frozen	
OBSERVATIONS	INSTA	LLED		CORRECTIVE ACTION NEEDED	
Silt Fence	☐ Yes ☐ □	No 🗌	N/A	☐ Yes ☐ No	
Comment/Action:					
Fiber Rolls/Filter Socks	☐ Yes ☐ ☐	No 🗌	N/A	☐ Yes ☐ No	
Comment/Action:		1 0 Ц	11//1		
Comments today.					
Check Dams	☐ Yes ☐	No 🗌	N/A	☐ Yes ☐ No	
Comment/Action:	-				
Seeding/Mulching	☐ Yes ☐	No 🗌	N/A	☐ Yes ☐ No	
Comment/Action:	-				
Erosion Control Blanket	☐ Yes ☐	No 🗌	N/A	☐ Yes ☐ No	
Comment/Action:					
Construction Entrances	☐ Yes ☐	No 🗌	N/A	☐ Yes ☐ No	
Comment/Action:					
Stream Crossings	☐ Yes ☐	No 🗌	N/A	☐ Yes ☐ No	
Comment/Action:					
Motland Crassings		us \Box	NI/A	□ Vos □ No	
Wetland Crossings Comment/Action:	☐ Yes ☐	No 🗌	N/A	Yes No	
Comment/Action.					
Concrete Washout Areas	☐ Yes ☐	No 🗌	N/A	☐ Yes ☐ No	
Comment/Action:		<u> </u>	14/7 (100 100	
Is sediment or other pollutants leaving	g the site?	☐ Y	es 🗌 No	If yes, corrective action is needed.	
Is sediment being tracked onto public	roadways?	ΠY	es 🗌 No	If yes, corrective action is needed.	
Have any areas been left disturbed for	☐ Y	es 🗌 No	If yes, corrective action is needed.		

See Reverse Side for More Information and Additional Space for Comments

Storm Water Evaluation Form for Construction (Complete at least once per week and

(Complete at least once per week and after each storm event of 0.5 inches or more.)



General Information:

- This storm water evaluation program is intended to comply with self-monitoring requirements and the project specific Storm Water Pollution Prevention Plan (SWPPP).
- A Storm Water Evaluation is required by a trained individual at a minimum of one (1) time per week and by the
 end of the next business day following each measurable storm event (total rainfall accumulation equal to one-half
 (0.5) inches or greater.
- Observed erosion and sediment control deficiencies shall be corrected within 7 days. Modifications to erosion
 and sediment control structures and/or locations shall be recorded in the SWPPP Amendment Log within 10
 days.
- Areas that are scheduled to be inactive for 21 days or more must be temporarily or permanently stabilized with appropriate measures within 7 days of last disturbance.
- Erosion and sediment control structures shall be maintained until a vegetative cover of 70% or greater density in all disturbed, non-agricultural areas is achieved. At which time, all temporary erosion and sediment control structures shall be removed and Notice of Termination (NOT) will be filed with Ohio Environmental Protection Agency (OEPA).
- Completed Evaluation Forms to be submitted to Dustin Giesler at 1000 East Main Street, Plainfield, IN 46168, (859) 380-1468, Dustin.Giesler@Duke-Energy.com
- Upon request, Evaluation Forms must be provided to inspecting authorities within 48 hours and must be retained for 3 years after project completion.

Additional Comments/Actions (attach photographs and additional pages as necessary):

Appendix D

SWPPP Amendment Log

SWPPP Amendment Log

Project: F7581/F7582/F5689-138kV Garver Substation TLoop

Date	Description/Location	Initials