

SEDIMENTATION VOLUMES	SEDIMENT BASIN NO.		2-FT DEPTH AVAILABLE DISTURB. AREA		DISTURB. AREA
	BOTTOM ELEV.	TOP ELEV.	AC	CF	
1	1350	1355	8098	6733	
2	1345	1352	8516	4948	
3	1345	1352	9245	3264	
<b>TOTAL</b>					<b>21.3 76,680</b>

AVAIL. VOLUME IN 3 TEMPORARY SEDIMENT BASINS IS 14,345 C.F.  
 PROJECT DISTURBANCE IS 21.3 ACRES, AND 76,680 C.F. OF SEDIMENT.

- NOTE:
- ALL ELEVATIONS ARE ON NAD 1983 DATUM. ADD 1300 TO ALL ELEVATIONS SHOWN.
  - DRAINAGE INLET LOCATIONS ARE APPROXIMATE. FIELD LOCATIONS WILL HAVE AREA INLET PROTECTION INSTALLED.



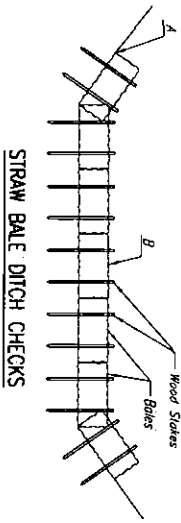
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OLIVER

CONTACT: NEW NORTH MANUFACTURING FACILITY BLDG. NO. 1-312G Facilities Engineering WICHITA Designed by: F. JEH Job Number: 939 901 Drawn by: JAN Date: 03/15/2013			ACCEPTABILITY THIS DESIGN AND/OR SPECIFICATION IS APPROVED NAME: _____ DEPT.: _____ DATE: _____	FIRE PROTECTION REVIEW <input type="checkbox"/> APPROVED <input type="checkbox"/> NOT REQUIRED DATE: _____	DATE: _____ DESCRIPTION: _____ BY: _____ APPROVED: _____
			PROJECT NO. _____ SHEET NO. C-2 OF 4 DRAWING NO. 1081-FIG.21-001		



NOTE: Point A must be higher than Point B so that water flows over the bales and not around them.



STRAW BALE DITCH CHECKS

**Material Specification:**

Bale ditch checks may be constructed of wheat straw, oat straw, prairie hay, or bromegrass hay that is free of weeds declared noxious by the Kansas State Board of Agriculture. The slates used to anchor the bales should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long.  
 Option: The downstream scour apron should be constructed of a double-matted straw erosion-control blanket at least 6' wide.  
 Option: The metal landscape staples used to anchor the erosion-control blanket should be at least 8" long.

**Placement:**

Bale ditch checks should be placed perpendicular to the flowline of the ditch. The ditch check should extend far enough so that the ground level of the ends of the check is higher than the top of the lowest center bale. This prevents water from flowing around the check.  
 Straw bale ditch checks should not be placed in ditches where high flows are expected. Bales should be placed in ditches with slopes of 5% or less. For slopes steeper than 5%, rock checks should be used.  
 The following table provides check spacing for a given ditch grade:

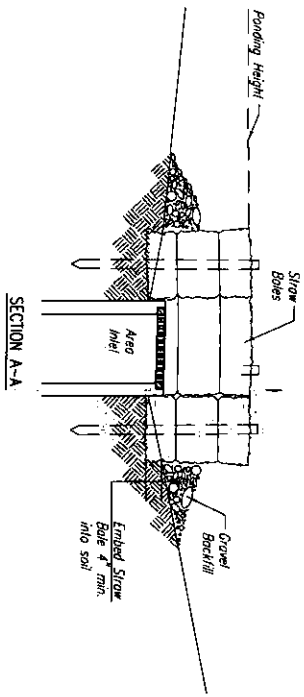
Ditch Check Spacing (feet)	Ditch grade (%)
0.5	200
1.0	200
2.0	100
3.0	63
4.0	50
5.0	40
6.0	30

**Proper installation method:**

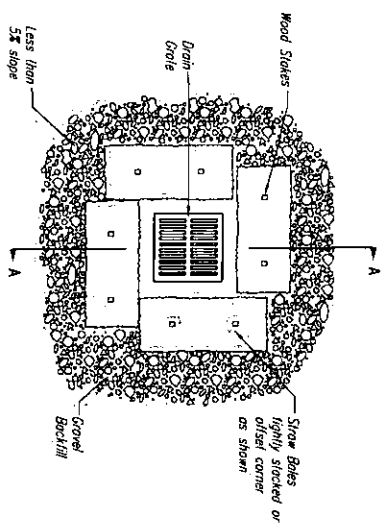
Excavate a trench perpendicular to the ditch flowline that is 4" deep and a bale's width wide. Extend the trench a straight line along the entire length of the proposed ditch check. Place the soil on the upstream side of the trench. The trench will be used later.  
 Option: On the upstream side of the trench, place a length of erosion-control blanket (scour apron) equal to the length of the trench. Place the upstream edge of the erosion-control blanket along the bottom upstream edge of the trench. The erosion-control blanket should be anchored in the trench with one edge of 6" landscape staples placed on 18" centers. The remainder of the erosion-control blanket (the portion of the blanket not in the trench) will serve as the downstream scour apron. The portion of the blanket that is not in the trench to the ground with 6" landscape staples placed around the perimeter of the blanket at 18" centers. The remainder of the blanket should be anchored using two weep spaced rows of 6" landscape staples on 18" centers placed perpendicular to the flowline of the ditch.  
 Place the bales in the trench, making sure that they are butted tightly. Two slates should be driven through each bale along the centerline of the ditch check, approximately 6" to 8" in from the bale ends. Slates should be driven at least 12" into the ground.  
 Once all the bales have been installed and anchored, place the excavated soil against the upstream side of the check and compact it. The compacted soil should be no more than 3" to 4" deep and extend upstream no more than 24".

**List of common placement/installation mistakes to avoid:**

- Do not place a bale ditch check directly in front of a culvert outlet. It will not stand up to the concentrated flow.
  - Do not place bale ditch checks in ditches that will likely experience high flows. They will not stand up to concentrated flow.
  - Follow prescribed ditch-check spacing guidelines. If spacing guidelines are exceeded, erosion will occur between the ditch checks.
  - Do not allow water to flow around the ditch check. Make sure that the ditch check is long enough so that the ground level of the ends of the check is higher than the top of the lowest center bale.
  - Do not place bale ditch checks in channels with shallow soils underlain by rock. If the check is not anchored sufficiently, it will wash out.
  - Bale ditch checks must be dug into the ground. Bales of ground level do not work because they allow water to flow under the check.
- Inspection and Maintenance:**
- Bale ditch checks should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:
- Does water flow around the ditch check?
  - Does water flow under the ditch check?
  - Does water flow through spaces between doubling bales?
  - Are any bales and/or scour aprons (optional) dislodged?
  - Are bales decomposing due to age and/or water damage?
  - Does sediment need to be removed from behind the ditch check?



SECTION A-A



STRAW BALE BARRIERS FOR AREA INLETS (INLET PROTECTION)

**Material Specification:**

Bale area inlet barriers should be constructed of wheat straw, oat straw, prairie hay, or bromegrass hay that is free of weeds declared noxious by the Kansas State Board of Agriculture.  
 The slates used to anchor the bales should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long.  
 Time should be used to bind bales. The use of wire binding is prohibited because it does not biodegrade readily.

**Placement:**

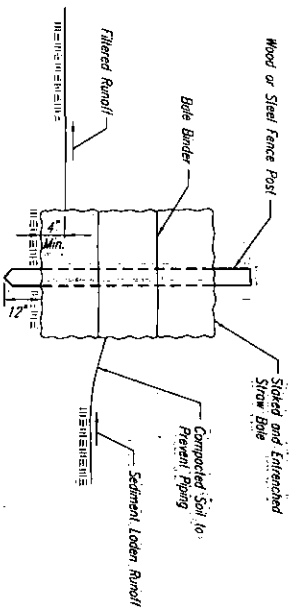
Bale area inlet barriers should be placed directly around the perimeter of a drop inlet. When a bale area inlet barrier is located near an inlet that has steep approach slopes, the storage capacity behind the barrier is drastically reduced. Timely removal of sediment must occur for a barrier to operate properly in this location.

**Proper installation method:**

Excavate a trench around the perimeter of the area inlet that is at least 4" deep by a bale's width wide.  
 Place the bales in the trench, making sure that they are butted tightly. Same bales may need to be shortened to fit into the trench around the area inlet. Two slates should be driven through each bale, approximately 6" to 8" in from the bale ends.  
 Once all the bales have been installed and anchored, place the excavated soil against the receiving side of the barrier and compact it. The compacted soil should be no more than 3" to 4" deep.  
 Note: When a bale area inlet barrier is placed in a shallow median ditch, make sure that the top of the barrier is not higher than the paved road. In this configuration, water may spread onto the roadway, causing a hazardous condition.

**List of common placement/installation mistakes to avoid:**

- Bales should be placed directly against the perimeter of the area inlet. This allows overtopping water to flow directly into the inlet and nearby soil causing scour.
  - Bale area inlet barriers must be dug into the ground. Bales of ground level do not work because they allow water to flow under the barrier.
- Inspection and Maintenance:**
- Bale area inlet barriers should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:
- Does water flow under the area inlet barrier?
  - Does water flow through spaces between doubling bales?
  - Are any bales dislodged due to age and/or water damage?
  - Are bales decomposing due to age and/or water damage?
  - Does sediment need to be removed from behind the area inlet barrier?



STRAW BALE BARRIERS

**Material Specification:**

Bale slope barriers may be constructed of wheat straw, oat straw, prairie hay, or bromegrass hay that is free of weeds declared noxious by the Kansas State Board of Agriculture. The slates used to anchor the bales should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long.  
 Time should be used to bind bales. The use of wire binding is prohibited because it does not biodegrade readily.

**Placement:**

A slope barrier should be used at the top of a slope when a ditch does not exist. The slope barrier is placed on nearly level ground 5' to 10' away from the toe of a slope. The barrier is placed away from the toe of the slope to provide adequate storage for settling out sediment.  
 When practicable, bale slope barriers should be placed along contours to avoid a concentration of flow.  
 Bale slope barriers can also be placed along right-of-way fence lines to keep sediment from crossing onto adjacent property. When placed in this manner, the slope barrier will not likely follow contours.

**Proper installation method:**

Excavate a trench the length of the planned slope barrier that is 4" deep and a bale's width wide. Make sure that the trench is excavated along a single contour. When practicable, slope barriers should be placed along contours to avoid a concentration of flow. Place the soil on the upslope side of the trench for later use.  
 Place the bales in the trench, making sure that they are butted tightly. Two slates should be driven through each bale along the centerline of the ditch check, approximately 6" to 8" in from the bale ends. Slates should be driven at least 12" into the ground.  
 Once all the bales have been installed and anchored, place the excavated soil against the upslope side of the check and compact it. The compacted soil should be no more than 3" to 4" deep.

**List of common placement/installation mistakes to avoid:**

- When practicable, do not place bale slope barriers across contours. Slope barriers should be placed along contours to avoid a concentration of flow. Concentrated flow over a slope barrier creates a scour hole on the downslope side of the barrier. The scour hole eventually undermines the bales and the barrier fails.
  - Do not place bale slope barriers in areas with shallow soils underlain by rock. If the barrier is not anchored sufficiently, it will wash out.
  - Bale slope barriers must be dug into the ground. Bales of ground level do not work because they allow water to flow under the barrier.
- Inspection and Maintenance:**
- Bale slope barriers should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:
- Are there any points along the slope barrier where water is concentrating?
  - Does water flow under the slope barrier?
  - Does water flow through spaces between doubling bales?
  - Are any bales dislodged?
  - Are bales decomposing due to age and/or water damage?
  - Does sediment need to be removed from behind the slope barrier?

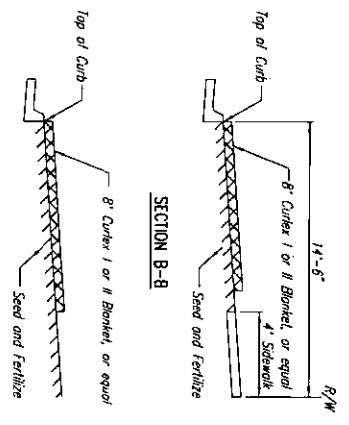
SOIL EROSION BMPs  
 STRAW BALE  
 DITCH CHECK  
 AND  
 BARRIER DETAILS

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<p>NEW NORTH                  MANUFACTURING FACILITY</p> <p>BLDG. NO. 1-312G      Facilities Engineering      WICHITA</p> <p>Designed by: JEH      Date: 03/15/2013</p> <p>Drawn by: JAN</p>		<p>ACCEPTABILITY                  IT IS DESIGN AND/OR                  SPECIFICATION IS APPROVED</p> <table border="1"> <tr> <th>NAME</th> <th>DEPT.</th> <th>DATE</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>	NAME	DEPT.	DATE				<p>FIRE PROTECTION                  REVIEW</p> <p><input type="checkbox"/> APPROVED  <input type="checkbox"/> NOT REVIEWED</p> <p>DATE:      BY:      APPROVED:</p>
NAME	DEPT.	DATE							

PROJECT NO.:  
 SHEET NO.: C-4  
 DATE: 03/15/2013  
 DRAWING: FIG. 2

**SPRIT**  
 AEROSYSTEMS

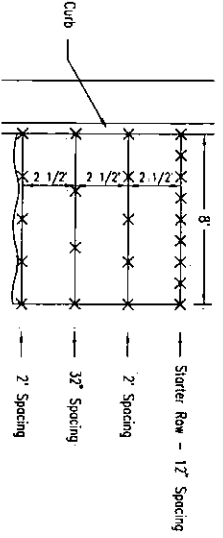


Install 8' wide Curlex I or II Excelsior Blanket, or equal, on prepared surface back of curb. Edge of blanket will be 1/2" from curb. Install per manufacturer's recommendation, including slopes. (See detail)

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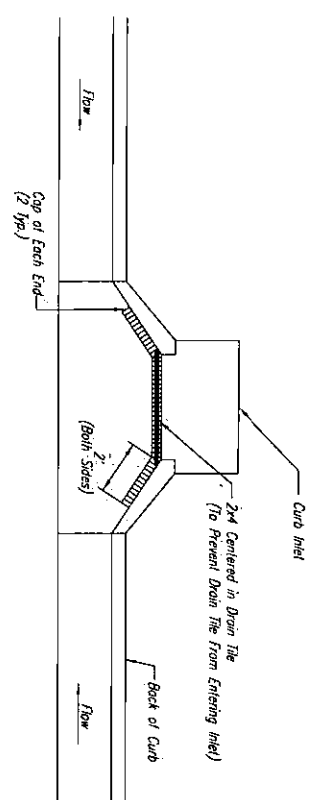
- NOTES:
- EXCELSIOR MAT TO BE INSTALLED WHEN SOD IS NOT SPECIFIED ON PROJECT.
  - EXCELSIOR BLANKET TO BE INSTALLED OVER SEED AND FERTILIZER, AS SPECIFIED IN THE PROJECT SPECIFICATIONS.
  - AFTER INSTALLATION OF EXCELSIOR BLANKET, AT LOCATIONS WHERE CONCENTRATED FLOW CARRIES SEDIMENT OVER THE CURB AND INTO THE CUTTER, SUPPLEMENTAL EROSION CONTROL DEVICES WILL BE INSTALLED BY THE CONTRACTOR AS NEEDED TO FIX THE PROBLEM.

**BACK OF CURB PROTECTION DETAIL**

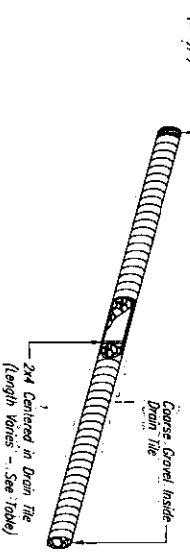


STAPLE PATTERN  
 NOTES: Use 6" staple overlap

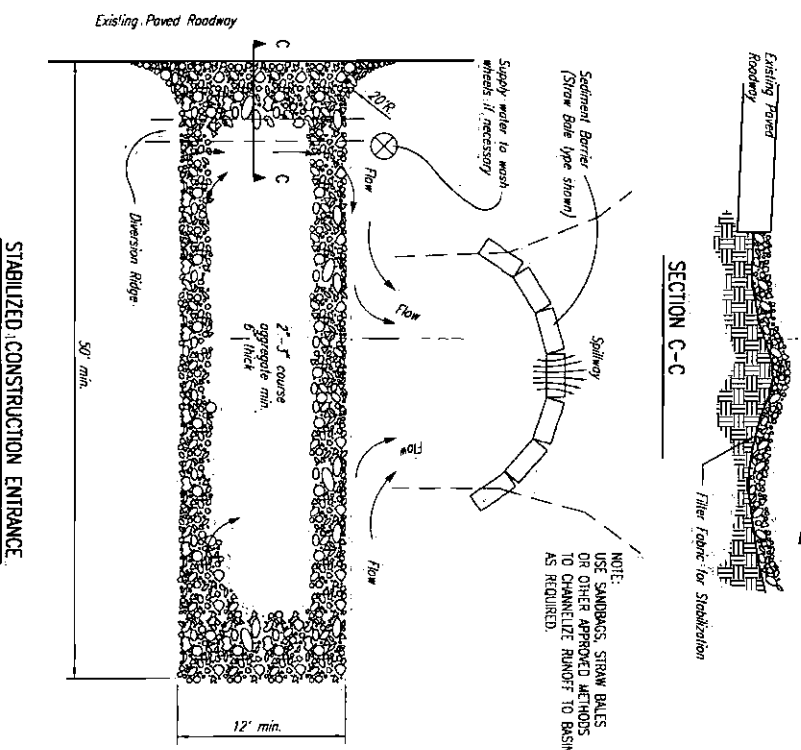
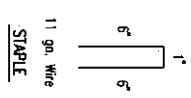
**DETAILS FOR CURLEX I OR II BLANKETS**



2x4 LENGTH	INLET TYPE	INLET OPENING
5'-6"	1-4	5'-0"
10'-6"	1-4	10'-0"
15'-6"	1-4	15'-0"



**CURB INLET PROTECTION**  
 4' PERFORATED PIPE W/ GRAVEL



- NOTES:
- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY WEARS USED TO PREPARE SEDIMENT.
  - WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY.
  - WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN, AS SHOWN ABOVE.
  - DRIVE ENTRANCES ONTO RESIDENTIAL LOTS WILL NOT BE REQUIRED TO HAVE THE SEDIMENT BARRIER SHOWN, BUT WHEEL WASHING MAY BE REQUIRED IF STABILIZED ENTRANCE IS NOT SUFFICIENT TO KEEP MUD FROM BEING TRACKED ONTO ADJACENT STREET. ENTRANCE SHALL EXTEND FROM BACK OF CURB TO DWELING.

**STABILIZED CONSTRUCTION ENTRANCE**

**SOIL EROSION BMPs**  
**BACK OF CURB PROTECTION,**  
**CURB INLET PROTECTION,**  
**AND**  
**CONSTRUCTION ENTRANCE**

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PROJECT NO: EROSION CONTROL BMPs Sheet: C-5 Revision: FIG. 2 1081-1-00	NEW NORTH MANUFACTURING FACILITY BLDG. NO. 1-312G Facilities Engineering WICHITA Designed by: JEH Drawn by: JAN Date: 03/15/2013		ACCEPTABILITY THIS DESIGN AND/OR SPECIFICATION IS APPROVED NAME: _____ DEPT: _____ DATE: _____	FIRE PROTECTION REVIEW <input type="checkbox"/> APPROVED <input type="checkbox"/> NOT REQUIRED DATE: _____	DATE: _____ DESCRIPTION: _____ BY: _____ APPROVED: _____
			CONTACT:		