HARRISON PARK 2ND ADDITION
PHASE 4 STREET IMPROVMENTS
SERVING LOTS 2 - 29, BLOCK 1
PROJECT NO. 472-83612
O.C.A. NO. 765747

GENERAL NOTES

Contractor will be required to provide a minimum advance notice of twenty-four (24) hours to utility companies prior to starting any excavation as follows:

Kansas One-Call	687-2470

The Contractor must notify the following in case of an emergency:

Cox Communications	262-0661
Kansas Gas Service	383-8600
Westar Energy	383-8600
Aquila	1-800-303-0357
Southwestern Bell Telephone Company	1-800-286-8313
City of Wichita Water Department	262-6000
City of Wichita Sewer Maintenance	262-6000

Utility service lines, poles, valve boxes, meters, and et cetera are to be adjusted as necessary by others prior to construction unless the plans specifically call for their adjustment by the Contractor or unless the plans specifically identify a utility to be adjusted by its owner during construction. Existing utilities and their location, as shown on the plans, represent the best information obtainable for design. The Contractor will be required to work around existing utilities within the right-of-way which do not conflict with proposed construction.

A saw cut of at least one-half the depth of existing surface courses or one-fourth the depth of existing total pavement thickness shall be provided at locations where proposed construction abuts an existing surface course or pavement for which partial removal of that surface or pavement is required, except when such saw cuts are within three (3) feet of an existing joint the limits of removal shall be extended to the existing joint. Such saw cuts will not be paid for directly and this cost shall be considered as subsidiary to the removal of the surface or pavement.

Rubble from the removal of miscellaneous structures and excess excavation which is to be wasted shall be disposed of on sites to be provided by the Contractor. These sites shall be approved by the Engineer as to suitability, appearance and site location. Locations that, in the opinion of the Engineer, will leave an unsightly appearance will not be approved.

All disposal sites must be approved by the Kansas Department of Health and Environment. Material either stockpiled or disposed of in a flood plain would require a Kansas State Board of Agriculture permit. Any material dumped in waters of the United States or wetlands is subject to U.S. Corps permitting regulations. Any material buried or stockpiled beyond approved of Engineers construction limits would require additional archeological investigations unless buried in a previously approved borrow location.

The Engineer shall take field ties to all quarter section corners. The Contractor shall set a City survey monument in the required location where such quarter section corners fall within the limits of pavement construction. Survey monuments will be furnished by the City. The Engineer will accurately located and install the iron at the quarter section corner. This work will not be paid for directly but shall be considered subsidiary to the other pay items of work in the contract.

Trees and shrubs in public right-of-way which are in direct conflict with proposed new construction shall be removed by the Contractor with the Engineer's approval. Trees and shrubs which are not in direct conflict with proposed new construction shall be saved and protected from damage.

The Contractor shall be responsible for preserving property irons. The Contractor will be required to re-establish any property irons which are damaged or destroyed by his construction operations. Such irons shall be re-established by a licensed land surveyor in accordance with state laws.

Contractor will be required to provide a minimum advance notice of twenty-four (24) hours to utility companies prior to starting any excavation as follows:

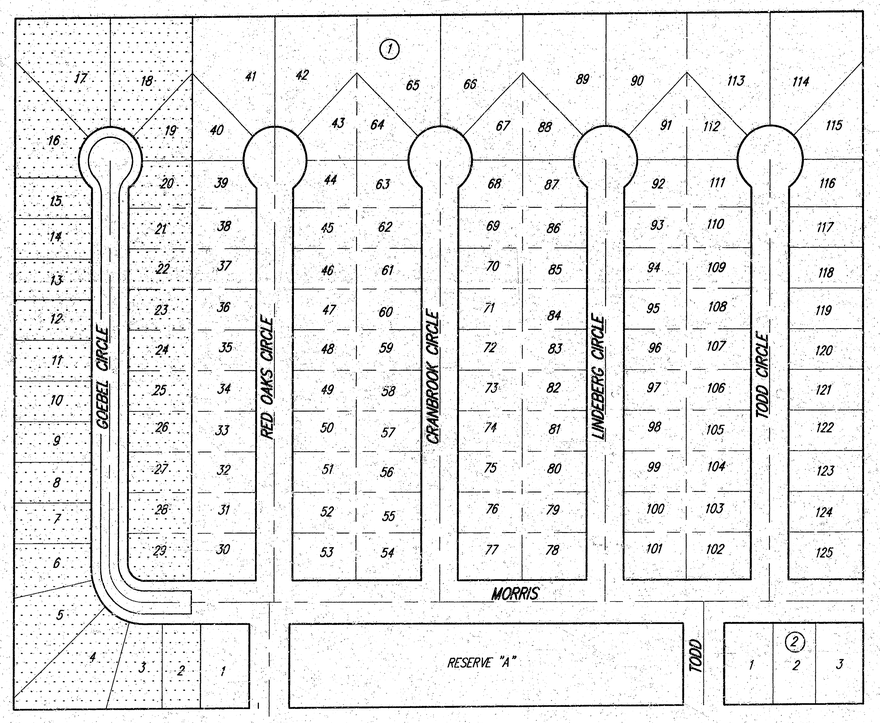
The Contractor shall seed, fertilize and mulch all disturbed areas per City specifications upon completion of construction.

Subdivision Bench Marks shall be "Flat Survey Markers No. 8134-08 3" top diameter" provided by Kansas Blue Print Co., Inc. Bench mark installation cost to be subsidiary to curb & gutter.

TOTAL PROJECT LENGTH = 758 feet

SUMMARY OF EARTHWORK

EXCAVATION = 1500 C.Y.
LOOSE FILL = 775 C.Y.



PROJECT BENCHMARKS

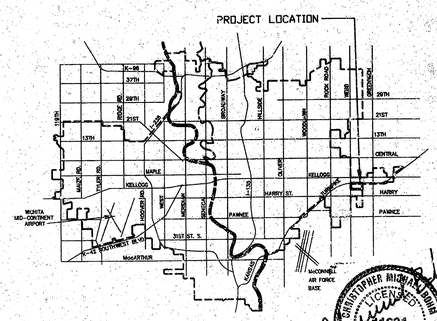
BM #1 – CHISELED "□" AT WEST CURB TODD ST. AT CENTERLINE TODD CT. EXTENDED APP. 220' SOUTH OF SOUTH LINE HARRISON PARK ADDITION.
ELEV. = 1345.80

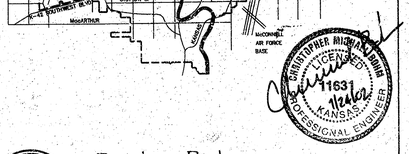
BM #2 – CHISELED "□" AT WEST SIDE OF NORTH RETURN AT NORTHWEST CORNER OF LINCOLN AND TODD
ELEV. = 1348.30

INDEX OF SHEETS

1. TITLE SHEET
2. TYPICAL 35' PVMT. SECTION
3. TYPICAL 29' PVMT. SECTION
4-5. GOEBEL CIRCLE
6. DETENTION POND MODIFICATION PLAN
7-9. EROSION CONTROL BMPS
10-11. EARTHWORK CROSS SECTIONS
12. PLAT COPY

Scale: 1" = 100'



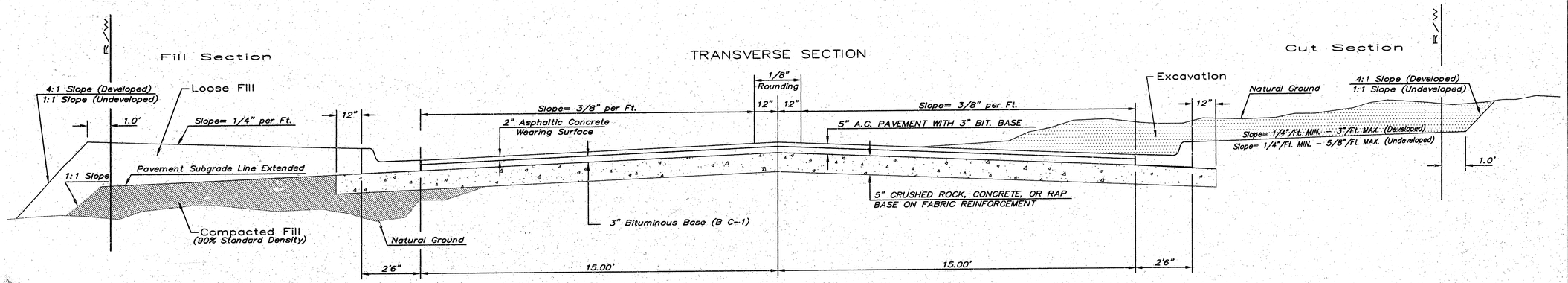


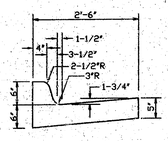
IMPROVEMENT DISTRICT

CITY OF WICHITA, KANSAS
MICHAEL E. LINDEBAK, P.E. - CITY ENGINEER

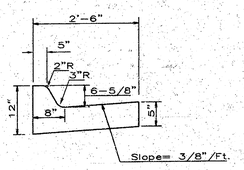
Ruggles & Bohm, P.A.
Engineering, Surveying, Land Planning
924 North Main
Wichita, Kansas 67203
www.rbkansas.com
(316) 264-8008
(316) 264-4621 fax
E-mail: info@rbkansas.com

TYPICAL 35' B–B PAVEMENT DETAILS

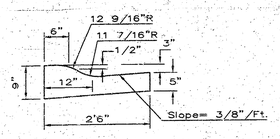




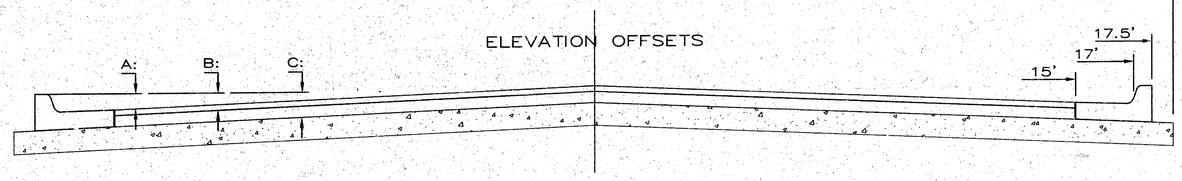
STATE CURB
MODIFIED TYPE I
COMBINED CURB & GUTTER



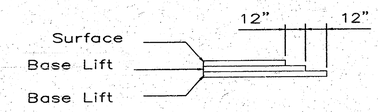
COMBINED CURB & GUTTER



COMBINED ROLL TYPE CURB & GUTTER



	DISTANCE FROM CENTERLINE (LT. & RT.)											
	0'	2'	4'	6'	8.5'	10'	12'	14'	15'	17'	17.5'	18.5'
A: Top of Curbs to Top of Surface Lift	0.04	0.08	0.14	0.21	0.29	0.33	0.39	0.46	0.49	–	–	–
B: Top of Curbs to Top of Upper Base Lift	0.21	0.25	0.31	0.37	0.45	0.50	0.56	0.62	0.65	–	–	–
C: Top of Curbs to Top of C. R. Subgrade	0.46	0.50	0.56	0.63	0.71	0.75	0.81	0.88	0.91	0.97	0.98	1.01



TRANSVERSE CONSTRUCTION JOINTS

Transverse construction joints shall be constructed in flexible base pavements at locations where pavement joins existing flexible base pavement as shown by the detail. All costs associated with the construction of the transverse joint shall be included in the bid price for Square Yards 5" ASPHALTIC CONCRETE (3" BITUMINOUS BASE).

General Notes

FABRIC BASE REINFORCEMENT SHALL BE B X 1100 GEOGRID AS MANUFACTURED BY TENSAR CORPORATION OR APPROVED EQUAL. FABRIC BASE REINFORCEMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. CRUSHED ROCK SHALL BE UNIFORMLY GRADED FROM 1–1/2" MAXIMUM SIZE TO NOT MORE THAN 10% PASSING A NO. 200 SIEVE. ROCK QUALITY SHALL BE THE SAME AS SPECIFIED FOR COARSE AGGREGATE FOR CONCRETE MIXES.

ROCK BASE IS TO BE COMPACTED AND SMOOTHED WITH A STEEL FACED ROLLER PROIR TO PLACEMENT OF ASPHALT. TACK COAT WILL NOT BE APPLIED TO ROCK BASE.

A TACK COAT OF EMULSIFIED ASPHALT (SC–1H OR CSS–1H) SHALL BE APPLIED AT AN APPROXIMATE RATE OF 0.05 GALLONS PER SQUARE YARD BETWEEN EACH LIFT OF ASPHALTIC MATERIAL.

BITUMINOUS BASE AND ASPHALTIC CONCRETE WEARING SURFACE SHALL BE PLACED WITH A LAYDOWN MACHINE HAVING AUTOMATIC CONTROLS FOR LINE AND GRADE.

CONSTRUCTION JOINTS IN EACH LIFT SHALL BE STAGGERED A MINIMUM DISTANCE OF ONE (1) FOOT FROM JOINTS IN PRECEDING LIFTS AND PLACED SO THAT A JOINT WILL BE CONSTRUCTED ON THE CENTERLINE OF THE TOP LIFT.

THE ASPHALTIC CONCRETE PAVEMENT BETWEEN THE COMBINED CURB AND GUTTER SHALL BE PAID AS SQUARE YARDS OF 5" ASPHALTIC CONCRETE (3" BITUMINOUS BASE.)

THE CITY OF WICHITA

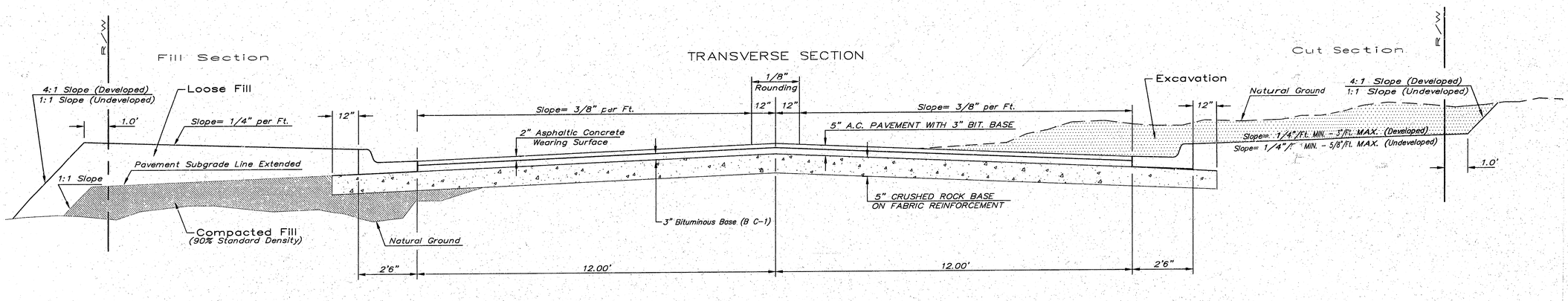
CITY ENGINEER'S OFFICE
CITY HALL – SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202
(316) 265-4501
(316) 268-4114 FAX

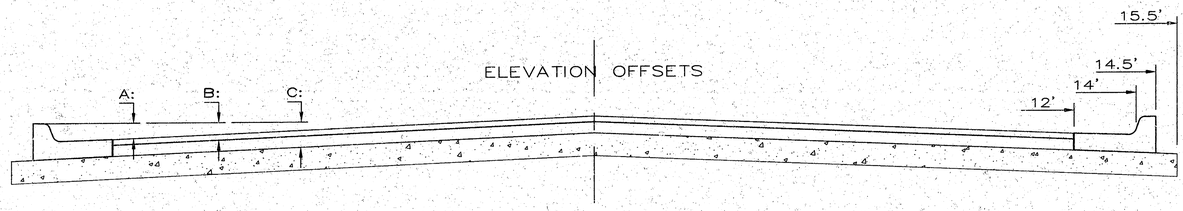
35' PAVEMENT
5" ASPHALTIC CONCRETE
W/ CRUSHED ROCK BASE

M. E. LINDEBAK P.E. – CITY ENGINEER

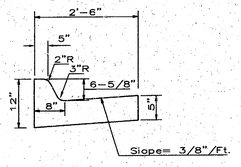
PROJECT NUMBER 472-83612
OCA # 765747
DATE MAR 96
SHEET 2 OF 12

TYPICAL 29' B–B PAVEMENT DETAILS

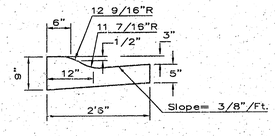




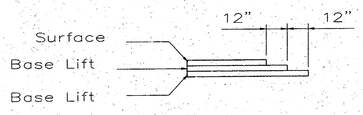
	DISTANCE FROM CENTERLINE (LT. & RT.)										
	0'	2'	4'	6'	7'	8'	10'	12'	14'	14.5'	15.5'
A: Top of Curbs to Top of Surface Lift	0.13	0.18	0.24	0.30	0.33	0.36	0.43	0.49	–	–	–
B: Top of Curbs to Top of Upper Base Lift	0.30	0.35	0.41	0.47	0.50	0.53	0.60	0.66	–	–	–
C: Top of Curbs to Top of C.R. Subgrade	0.55	0.60	0.66	0.72	0.75	0.78	0.85	0.91	0.97	0.98	1.01



COMBINED CURB & GUTTER



COMBINED ROLL TYPE CURB & GUTTER



TRANSVERSE CONSTRUCTION JOINTS

Transverse construction joints shall be constructed in flexible base pavements at locations where pavement joins existing flexible base pavement as shown by the detail. All costs associated with the construction of the transverse joint shall be included in the bid price for Square Yards 5" ASPHALTIC CONCRETE (3" BITUMINOUS BASE).

General Notes

FABRIC BASE REINFORCEMENT SHALL BE B X 1100 GEOGRID AS MANUFACTURED BY TENSAR CORPORATION OR APPROVED EQUAL. FABRIC BASE REINFORCEMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. CRUSHED ROCK SHALL BE UNIFORMLY GRADED FROM 1-1/2" MAXIMUM SIZE TO NOT MORE THAN 10% PASSING A NO. 200 SIEVE. ROCK QUALITY SHALL BE THE SAME AS SPECIFIED FOR COARSE AGGREGATE FOR CONCRETE MIXES.

ROCK BASE IS TO BE COMPACTED AND SMOOTHED WITH A STEEL FACED ROLLER PROIR TO PLACEMENT OF ASPHALT. TACK COAT WILL NOT BE APPLIED TO ROCK BASE.

A TACK COAT OF EMULSIFIED ASPHALT (SC-1H OR CSS-1H) SHALL BE APPLIED AT AN APPROXIMATE RATE OF 0.05 GALLONS PER SQUARE YARD BETWEEN EACH LIFT OF ASPHALTIC MATERIAL.

BITUMINOUS BASE AND ASPHALTIC CONCRETE WEARING SURFACE SHALL BE PLACED WITH A LAYDOWN MACHINE HAVING AUTOMATIC CONTROLS FOR LINE AND GRADE.

CONSTRUCTION JOINTS IN EACH LIFT SHALL BE STAGGERED A MINIMUM DISTANCE OF ONE (1) FOOT FROM JOINTS IN PRECEDING LIFTS AND PLACED SO THAT A JOINT WILL BE CONSTRUCTED ON THE CENTERLINE OF THE TOP LIFT.

THE ASPHALTIC CONCRETE PAVEMENT BETWEEN THE COMBINED CURB AND GUTTER SHALL BE PAID AS SQUARE YARDS OF 5" ASPHALTIC CONCRETE (3" BITUMINOUS BASE.)

THE CITY OF WICHITA

CITY ENGINEER'S OFFICE
CITY HALL - SEVENTH FLOOR
455 NORTH MAIN STREET
WICHITA, KANSAS 67202
(316) 268-4351
(316) 268-4114 FAX

29' PAVEMENT
5" ASPHALTIC CONCRETE
W/ CRUSHED ROCK BASE

M. E. LINDEBAK P.E. - CITY ENGINEER

PROJECT NUMBER 472-83612 | OCA # 705747

DATE MAR 96 | SHEET 3 OF 12

Subdivision Bench Marks

No.	Street and Station	From CL	Description	Elevation
1	Goebel Circle, Sta. 3+29.4	14.50' Rt.	East Side of Goebel Cir. directly in front of first Fire Hydrant North of Morris.	

Left Face

Curve Data Based on Curb Face
Rad. = 68' Delta = 90°00'00" Tangent = 68.00'
Arc = 106.81' L.C. = 96.17' Def/Ft. =25.27853 Min.

Station	Arc	FACE CHORD LENGTHS: B Lt.	B Rt.	Defl.	T. Defl.
A – P.C.	–	–	–	0°00'00"	0°00'00"
B	26.70'	29.85'	–	11°14'56"	11°14'56"
C	26.70'	29.65'	–	11°14'56"	22°29'53"
D	26.70'	29.65'	–	11°14'56"	33°44'48"
E – P.T.	28.71'	29.65'	–	11°15'00"	44°00'00"

Right Face

Curve Data Based on Curb Face
Rad. = 40' Delta = 90°00'00" Tangent = 40.00'
Arc = 62.83' L.C. = 56.57' Def/Ft. =42.97311 Min.

Station	Arc	FACE CHORD LENGTHS: B Lt.	B Rt.	Defl.	T. Defl.
A – P.C.	–	–	–	0°00'00"	0°00'00"
B	15.71'	–	12.49'	11°15'06"	11°15'06"
C	15.71'	–	12.49'	11°15'06"	22°30'13"
D	15.71'	–	12.49'	11°15'06"	33°45'19"
E – P.T.	15.70'	–	12.48'	11°14'40"	45°00'00"

2+81.39 PT – ℄ P.V.I. ELEV. 1361.20 NO V.C.

RUBBLE PILE TO BE REMOVED FROM THE SITE. COST INCIDENTAL TO SITE CLEARING AND RESTORATION

CONSTRUCT STANDARD ROLL TYPE COMBINED CURB AND GUTTER (3 5/8") and (1 1/2")

CONSTRUCT 5" A.C. PAVEMENT W/ 5" CRUSHED ROCK BASE

6+00 – Match Line

REMOVE EXISTING TREES. INCIDENTAL TO BID ITEM FOR SITE CLEARING AND RESTORATION

EXISTING DIRT PILES TO BE BLADED SMOOTH ON PROJECT SITE. COST INCIDENTAL TO PROJECT.

+0.584%

+1.439%

HARRISON PARK 2ND ADDITION

GOEBEL CIRCLE

MORRIS

RED OAKS

1+96.57 P.C.

1+21.54

2+84.39 P.T. (Ahead)

+1.373%

+2.546%

P.V.I. ELEV. = 1361.22 94.26' V.C.

+31.52 P.V.I.

15' SANITARY SEWER EASEMENT

8" Sanitary Sewer

8" Water

15' UTILITY EASEMENT

2" Gas Line

Existing A.C. Pavement

EXISTING DIRT PILE

RUBBLE

15" Tree Clump

REMOVE END OF ROAD MARKERS

STA. 1+21.54 SAWCUT EXIST PAVEMENT TO NEAT LINE. BEGIN A.C. PAVEMENT

NOTE: PROJECT EXISTING STORM WATER INLETS WITH EROSION CONTROL BMP'S. SEE DETAILS ON PAGES 7 -9.

NOTE: ROLL-TYPE CURB TO BE CONSTRUCTED ON PAVEMENT DEPICTED ON THIS SHEET

1" = 20'

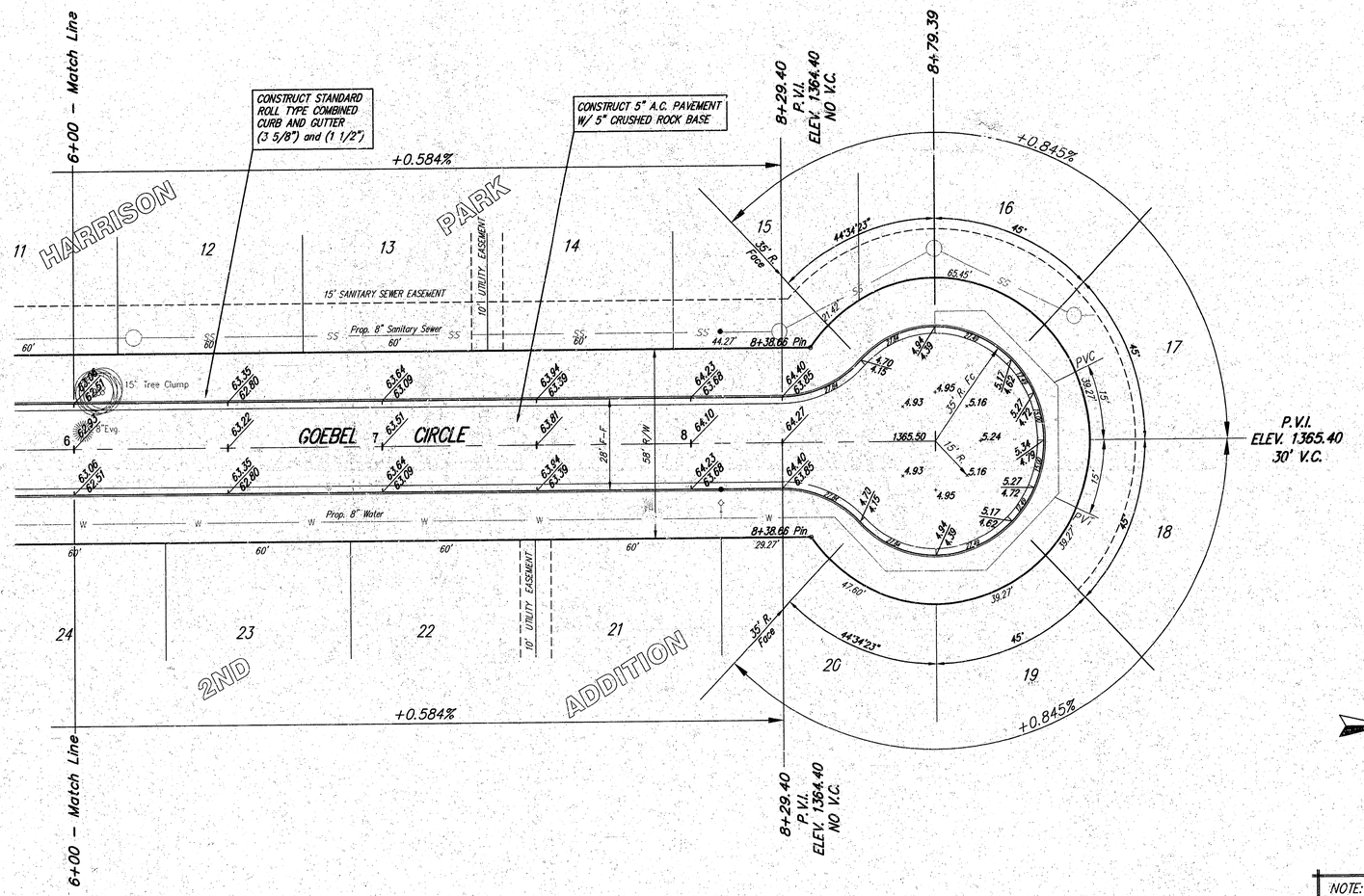
Harrison Park 2nd Addition, Phase 4 Street Improvements
GOEBEL CIRCLE
WICHITA, KANSAS

Ruggles & Bohm, P.A.
Engineering, Surveying, Land Planning
924 North Main
Wichita, Kansas 67203
www.rbkansas.com
(316) 264-8008
(316) 264-4621 fax
E-mail: info@rbkansas.com

DESIGN CMB
DRAWN CMB
REVIEW
UTILITY
DATE 7-23-02
RB JOB
SHEET 4 OF 12
DRAWING FILE goebel paving plan.dwg
PROJECT NUMBER 2226E

Subdivision Bench Marks

No.	Street and Station	From CL	Description	Elevation
2	Goebel Circle, Sta. 8+09.4	14.50' Rt.	East Side of Goebel Cir. directly in front of Fire Hydrant, just south of Cul-De-Sac.	



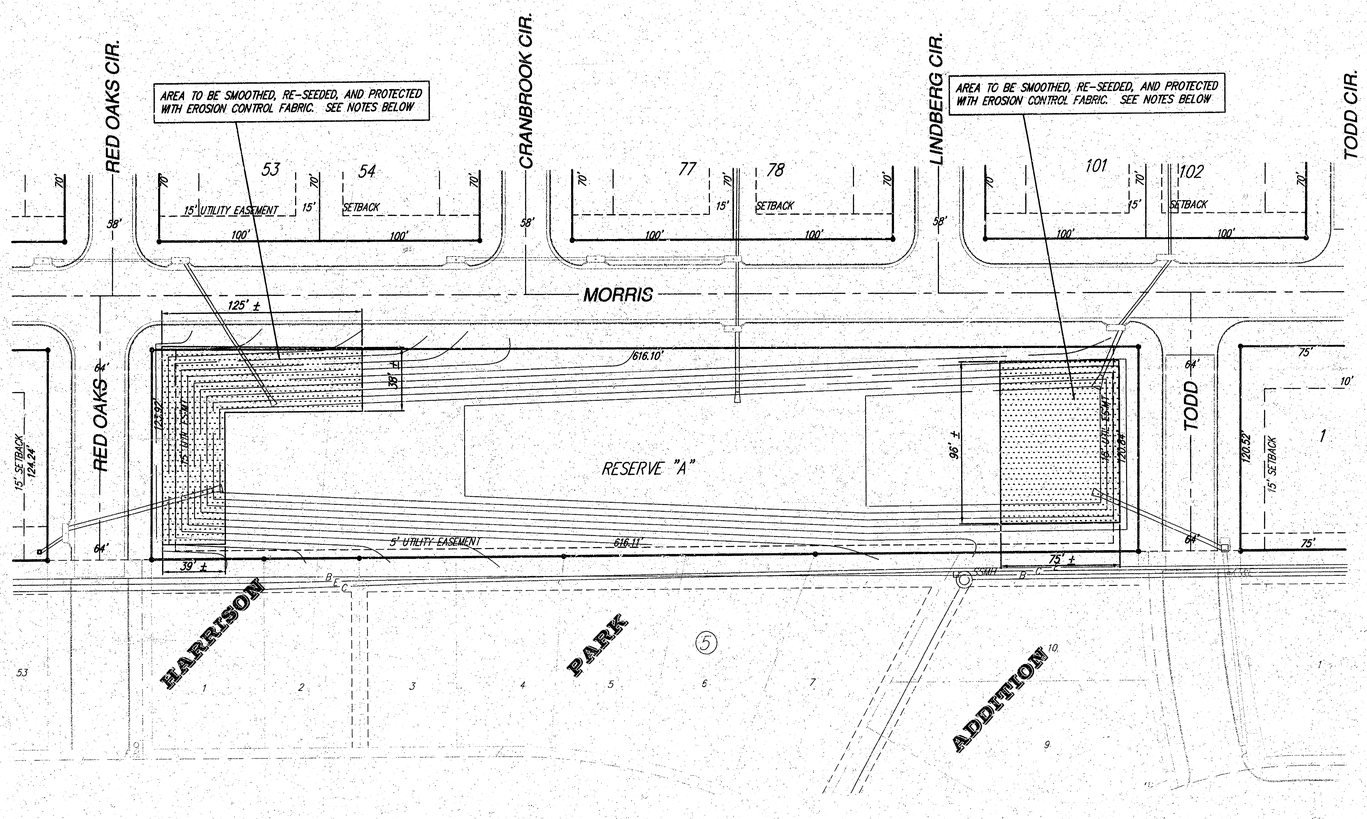
1" = 20'

NOTE: ROLL-TYPE CURB TO BE CONSTRUCTED ON PAVEMENT DEPICTED ON THIS SHEET

Harrison Park 2nd Addition, Phase 4 Street Improvements
GOEBEL CIRCLE
WICHITA, KANSAS

Ruggles & Bohm, P.A.
Engineering, Surveying, Land Planning
924 North Main
Wichita, Kansas 67203
www.rbkansas.com
(316) 264-8008
(316) 264-4621 fax
E-mail: info@rbkansas.com

DESIGN	CMB
DRAWN	CMB
REVIEW	--
UTILITY	--
DATE	7-23-02
DRAWING FILE	goebel paving plan.dwg
PROJECT NUMBER	2226E
PSB JOB	
SHEET	5 OF 12



NOTES FOR RE-WORKING AND RE-SEEDING DETENTION POND AREAS

1) PREPARE SURFACE FOR SEEDING BY TILLING OR DISCING
2) SMOOTH DISTURBED AREA BY RAKING
3) SEED, FERTILIZE, AND MULCH PER CITY OF WICHITA SPECIFICATIONS
4) PROTECT WORKED AREA WITH CONTECT "LANDLOK TRM 450" EROSION CONTROL MAT (OR APPROVED EQUAL) PER MFG. INSTALLATION INSTRUCTIONS

CONTRACTOR SHALL CONTACT STEVE MILLER AT 259-2377 PRIOR TO BID-LETTING TO DETERMINE THE EXACT LIMITS OF RE-WORKING AND RE-SEEDING THE DETENTION POND.

ALL WORK WITHIN THE CONFINES OF THE DETENTION POND AREA SHALL BE COMPLETED PRIOR TO THE END OF THE 2002 SEEDING SEASON (OCTOBER 15, 2002)

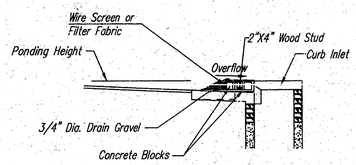
Harrison Park 2nd Addition, Phase 4 Street Improvements

DETENTION POND REHABILITATION

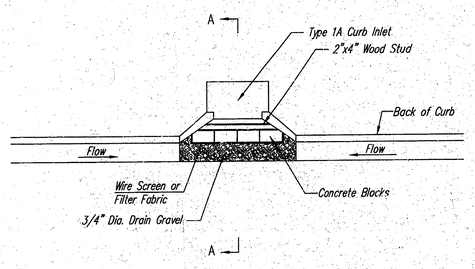
WICHITA, KANSAS

Ruggles & Bohm, P.A.
Engineering, Surveying, Land Planning
924 North Main
Wichita, Kansas 67203
www.rbkansas.com
(316) 264-8008
(316) 264-4621 fax
E-mail: info@rbkansas.com

DESIGN	CMB
DRAWN	CMB
REVIEW	
UTILITY	
DATE	7-24-02
DRAWING FILE	pondplan.dwg
PROJECT NUMBER	2226E
RB JOB	
SHEET	6 OF 12



SECTION A-A



CURB INLET GRAVEL FILTERS
(INLET PROTECTION-RESIDENTIAL STREETS ONLY)

NOTE: Other types of curb inlet protection may be approved by the city so long as equal protection is provided.

A gravel inlet filter shall be installed at sump locations on residential streets. This type of protection is not to be used on arterial or collector streets at any time that it would pose an undue traffic hazard.

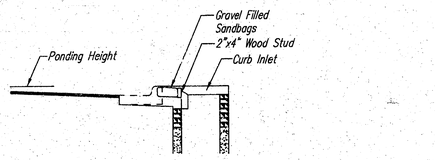
Instructions for Installing:

STEP 1: Place concrete blocks around the inlet as shown on drawing. Insert 2x4 board as shown.
STEP 2: Wrap 1/2" mesh wire screen around the concrete blocks.
STEP 3: Place 1" to 1-1/2" diameter rock around the blocks and wire screen. Be sure the rock extends down from the top of the concrete block.
STEP 4: To prevent damage to vehicles, signs warning drivers about the structures may be necessary. An alternative installation is the use of gravel bags supported by a 2"x4" board to prevent collapsing.

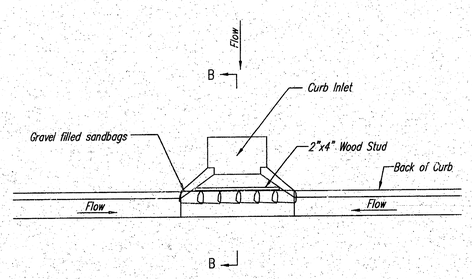
Use of rock with diameters smaller than 1" in the bag may result in clogging of pores and reduce the amount of water flowing into an inlet.

Maintenance:

All curb inlet gravel filters shall be inspected and repaired after each runoff event. Sediment deposits are to be removed once material is within 8 cm (3 inches) of the top of any block. Periodically, the gravel shall be raked to increase infiltration and filtering of runoff waters. Accumulated sediment is to be removed immediately from roads and streets.

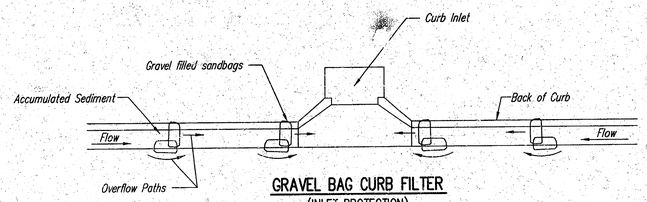


SECTION B-B



CURB INLET SANDBAG FILTERS
(INLET PROTECTION)

NOTE: Other types of curb inlet protection may be approved by the City so long as equal protection is provided.



GRAVEL BAG CURB FILTER
(INLET PROTECTION)

NOTE: Place two or more sets of bags in a manner that results in maximum support. The flow line bag must be lower than top of curb.

CURB SEDIMENT TRAPS

When inlets are located on streets having a grade (i.e., sump conditions do not exist), installing gravel (or sand) bags in the gutter flow line to create small sediment traps can be considered. Gravel bags are recommended over sand bags to allow for drainage.

If the spacing between bags becomes too large, little sediment may be trapped. Spacing of bags should be completed using the table or graph that illustrates placement distances based upon street slope. When installed in the gutter, bag tops must be lower than the sidewalk.

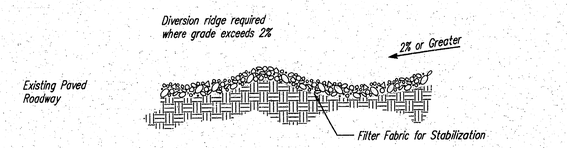
Spacing:

Gravel bags are to be placed according to street grades using the following table or graph that appears below.

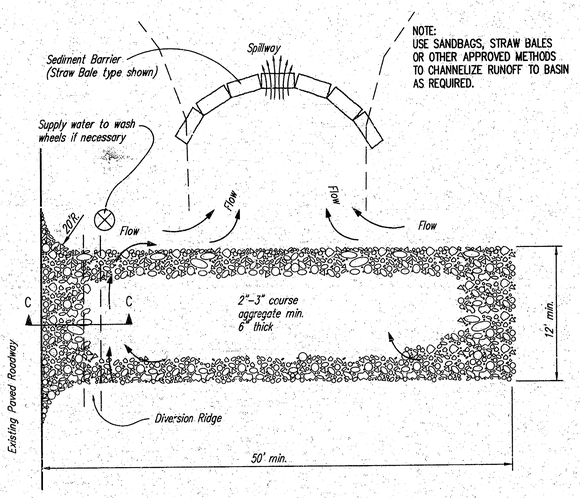
GRADE (%)	SPACING (FEET)
0.5	75
1.0	45
2.0	18
3.0	12
4.0	9
5.0	6

Maintenance:

Collected sediment shall be removed after every runoff event. Bags that are destroyed by vehicular traffic or through natural deterioration are to be immediately replaced.



SECTION C-C



NOTE:
USE SANDBAGS, STRAW BALES OR OTHER APPROVED METHODS TO CHANNELIZE RUNOFF TO BASIN AS REQUIRED.

STABILIZED CONSTRUCTION ENTRANCE

NOTES:

1. 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 MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABLIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN, AS SHOWN ABOVE.
4. 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 DWELLING.

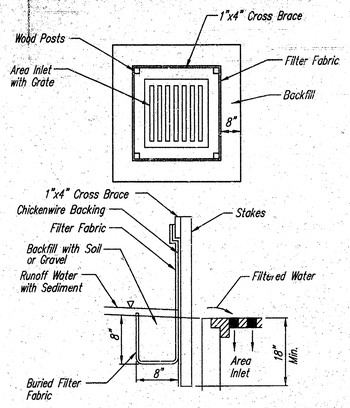
CITY OF WICHITA

SOIL EROSION BMP DETAILS

CHRISTOPHER M. CARRIER, P.E.
STORM WATER ENGINEER

PROJECT NUMBER | OCA NO.

DATE MAY 2001



SILT FENCE BARRIERS FOR AREA INLETS
(INLET PROTECTION)

Material Specification:

Silt fence fabric should conform to the AASHTO M288 96 silt fence specification.
The wire or polymeric mesh backing used to help support the silt fence fabric should conform to the AASHTO M288 96 silt fence specification.
The posts used to support the silt fence fabric should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long.
The material used to frame the tops of the posts should be 1" by 4" boards.
Silt fence fabric and support backing should be attached to the wooden posts and frame with staples, wire, zip ties, or nails.

Placement:

Place a silt fence drop inlet barrier in a location where it is unlikely to be overtopped.
Water should flow through silt fence, not over it. Silt fence barriers for area inlets often fail when repeatedly overtopped.
When used as a barrierfor area inlets, silt fence fabric and posts must be supported at the top by a wooden frame.
When a silt fence barrier for area inlets 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 8" deep by 8" wide.
Drive posts to a depth of at least 18" around the perimeter of the area inlet.
The distance between posts should be 4' or less. If the distance between two adjacent corner posts is more than 4', add another post(s) between them.
Connect the tops of all the posts with a wooden frame made of 1" by 4" boards. Use nails or screws for fastening.
Attach the wire or polymeric-mesh backing to the outside of the post/frame structure with staples, wire, zip ties, or nails.
Roll out a continuous length of silt fence fabric long enough to wrap around the perimeter of the area inlet. Add more length for overlapping the fabric joint. Place the edge of the fabric in the trench, starting at the outside edge of the trench. Line all three sides of the trench with the fabric. Backfill over the fabric in the trench with the excavated soil and compact. After filling the trench, approximately 24" to 36" of silt fence fabric should remain exposed.
Attach the silt fence to the outside of the post/frame structure with staples, wire, zip ties, or nails. The joint should be overlapped to the next post.

Note: When a silt fence barrier for area inlet 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:

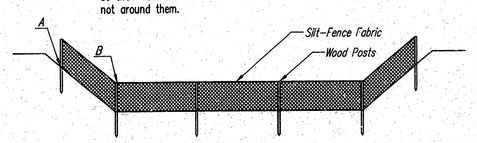
Water should flow through a silt fence barrier for area inlet-not over it. Place a silt fence barrier for area inlet in a location where it is unlikely to be overtopped. Silt fence barrier for area inlets often fail when repeatedly overtopped.
Do not place posts on the outside of the silt fence barrier for area inlet. In this configuration, the force of the water is not resisted by the posts, but only by the staples (wire, zip-ties, nails, etc.). The silt fence will rip and fail.
Do not install silt fence barrier for area inlets without framing the top of the posts. The corner posts around area inlets are stressed in two directions whereas a normal silt fence is only stressed in one direction. This added stress requires more support.

Inspection and Maintenance:

Silt fence barrier for area inlets 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:

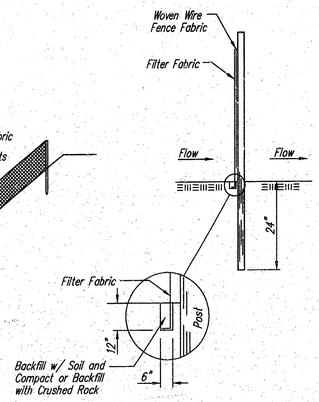
Does water flow under the silt fence?
Does the silt fence sag excessively?
Has the silt fence torn or become detached from the posts?
Does sediment need to be removed from behind the area inlet barrier?

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



ELEVATION

SILT FENCE DITCH CHECKS
(STREAM PROTECTION)



ANCHOR TRENCH DETAIL

Material Specification:

Silt fence fabric should conform to the AASHTO M288 96 silt fence specification.
The posts used to support the silt fence fabric should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long.
Silt fence fabric should be attached to the wooden posts with staples, wire, zip ties, or nails.

Placement:

Place silt fence in ditches where it is unlikely that it will be overtopped.
Water should flow through a silt fence ditch check, not over it. Silt fence ditch checks often fail when overtopped.
Silt fence ditch checks should be placed perpendicular to the flowline of the ditch.
The silt fence should extend far enough so that the ground level at the ends of the fence is higher than the top of the low point of the fence. This prevents water from flowing around the check.
Checks should not be placed in ditches where high flows are expected. Rock checks should be used instead.
Silt fence should be placed in ditches with slopes of 6% or less. For slopes steeper than 6%, rock checks should be used.

The following table provides check spacing for a given ditch grade:

Ditch Check Ditch grade (%)	Spacing Check Spacing (feet)
0.5	200
1.0	200
2.0	100
3.0	65
4.0	50
5.0	40
6.0	30

Proper installation method:

Excavate a trench perpendicular to the ditch flowline that is at least 12" deep by 6" wide.
Extend the trench in a straight line along the entire length of the proposed ditch check.
Place the soil on the upstream side of the trench for later use.
Roll out a continuous length of silt fence fabric on the downstream side of the trench.
Place the edge of the fabric in the trench starting at the top upstream edge of the trench.
Line two sides of the trench with the fabric as shown on detail. Backfill over the fabric in the trench with the excavated soil and compact. After filling the trench, approximately 24" to 36" of silt fence fabric should remain exposed.
Lay the exposed silt fence on the upstream side of the trench to clear an area for driving in the posts. Just downstream of the trench, drive posts into the ground to a depth of at least 24". Place posts no more than 4' apart.
Attach the silt fence to the anchored post with staples, wire, zip ties, or nails.

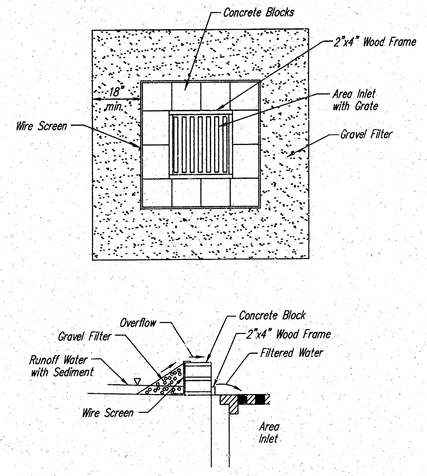
List of common placement/installation mistakes to avoid:

Water should flow through a silt fence ditch check-not over it. Place silt fence in ditches where it is unlikely that it will be overtopped. Silt fence installations quickly deteriorate when water overtops them.
Do not place silt fence posts on the upstream side of the silt fence fabric. In this configuration, the force of the water is not restricted by the posts, but only by the staples (wire, zip ties, nails, etc.). The silt fence will rip and fail.
Do not place a silt fence ditch check directly in front of a culvert outlet. It will not stand up to the concentrated flow.
Do not place silt fence 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 at the ends of the fence is higher than the low point on the top of the fence.
Do not place silt fence ditch checks in channels with shallow soils underlain by rock. If the check is not anchored sufficiently, it will wash out.

Inspection and Maintenance:

Silt fence 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 the silt fence sag excessively?
Has the silt fence torn or become detached from the posts?
Does sediment need to be removed from behind the ditch check?



CONCRETE BLOCK FILTER FOR AREA DRAIN
(INLET PROTECTION)

Gravel barriers provide little filtering of large inflow waters. However, when installed correctly and maintained, they can effectively treat low runoff flows.

Placement of gravel filters around area drains must be completed in a manner that will not cause local flooding.

Gravel filters can be used if the immediate and adjacent area to the area drain consists of soil or pavement.

Only gravel filters are to be installed on top of the pavement.

Instructions for Installing:

STEP 1: Place concrete blocks around the grate. The blocks can be stacked one or two high and should be supported by a 2"x4" board.
STEP 2: Wrap 1/2" mesh wire screen around the concrete blocks.
STEP 3: Place 1" to 1-1/2" diameter rock around the blocks and wire screen. Be sure the rock extends down from the top of the concrete block.
STEP 4: To prevent damage to vehicles, signs warning drivers about the structures may be necessary.

An alternative method is use of gravel bags that are supported to prevent collapsing.

Use of rock having diameters smaller than 1" may result in clogging of pores and reduce the amount of water flowing into an inlet.

Maintenance:

All gravel filters installed around area drains should be inspected and repaired after each runoff event. Sediment should be removed when material is within 3" of the top of any block. Periodically, the gravel should be raked to increase infiltration and filtering of runoff waters. Accumulated sediment is to be removed immediately from roads and streets after every runoff event.

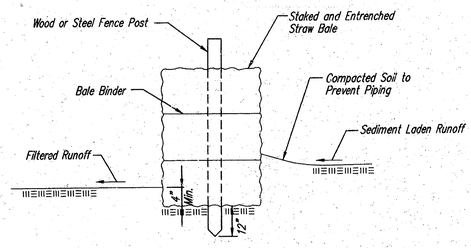
CITY OF WICHITA

SOIL EROSION BMP DETAILS

CHRISTOPHER M. CARRIER, P.E.
STORM WATER ENGINEER

PROJECT NUMBER | OCA NO.

DATE MAY 2001



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 stakes used to anchor the bales should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long.

Placement:

A slope barrier should be used at the toe of a slope when a ditch does not exist. The slope barrier should be 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 stakes should be driven through each bale along the centerline of the ditch check, approximately 6" to 8" in from the bale ends. Stakes 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:

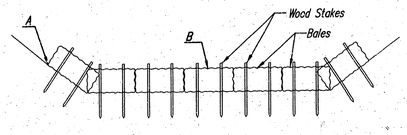
When practicable, do not place bale slope barriers across contours. Slope barriers should be placed along contours to avoid a concentration of flow. Concentrated flow over a slope barrier creates a scour hole on the downslope side of the barrier. The scour hole eventually undermines the bales and the 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 at 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 abutting 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?

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 stakes used to anchor the bales should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long.
Optional: The downstream scour apron should be constructed of a double-netted straw erosion-control blanket at least 6' wide.
Optional: 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 at the ends of the check is higher than the top of the lowest center bale. This prevents water from flowing around the check.
Checks should not be placed in ditches where high flows are expected. Rock checks should be used instead.
Bales should be placed in ditches with slopes of 6% or less. For slopes steeper than 6%, rock checks should be used.
The following table provides check spacing for a given ditch grade:

Ditch grade (%)	Check Spacing (feet)
0.5	200
1.0	200
2.0	100
3.0	65
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 in a straight line along the entire length of the proposed ditch check. Place the soil on the upstream side of the trench-it will be used later.
Optional: On the downstream side of the trench, roll out 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 row of 8" landscape staples placed on 18" centers. The remainder of the erosion-control blanket (the portion that is not lying in the trench) will serve as the downstream scour apron. This section of the blanket should be anchored to the ground with 8" landscape staples placed around the perimeter of the blanket on 18" centers. The remainder of the blanket should be anchored using two evenly spaced rows of 8" 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 stakes should be driven through each bale along the centerline of the ditch check, approximately 6" to 8" in from the bale ends. Stakes 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".

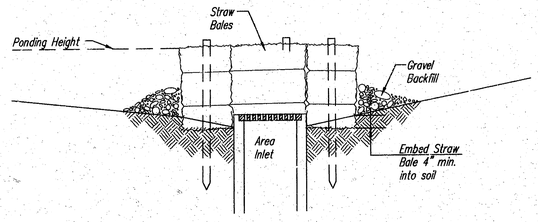
List of common placement/installation mistakes to avoid:

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 at 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 at ground level do not work because they allow water to flow under the check.

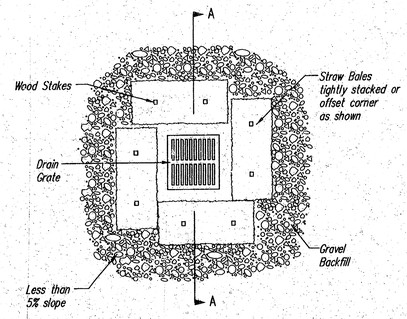
Inspection and Maintenance:

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 abutting 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 stakes used to anchor the bales should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long.

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. Some bales may need to be shortened to fit into the trench around the area inlet. Two stakes should be driven through each bale, approximately 6" to 8" in from the bale ends.
Stakes should be driven at least 12" into the ground.
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.

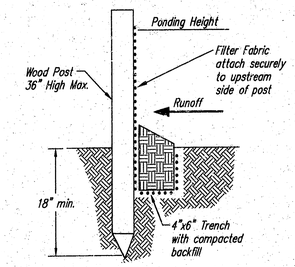
List of common placement installation mistakes to avoid:

Bales should be placed directly against the perimeter of the area inlet. This allows overtopping water to flow directly into the inlet instead of onto nearby soil causing scour.
Bale area inlet barriers must be dug into the ground. Bales at 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 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 abutting bales?
Are any bales dislodged?
Are bales decomposing due to age and/or water damage?
Does sediment need to be removed from behind the area inlet barrier?



SILT FENCE BARRIERS

SILT FENCE BARRIERS

Material Specification:

Silt fence fabric should conform to the AASHTO M288 96 silt fence specification.
The posts used to support the silt fence fabric should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long.
Silt fence fabric should be attached to the wooden posts with staples, wire, zip ties, or nails.

Placement:

A slope barrier should be used at the toe of a slope when a ditch does not exist. The slope barrier should be 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, silt fence slope barriers should be placed along contours to avoid a concentration of flow.
Silt fence 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 6" deep by 4" 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.
Roll out a continuous length of silt fence fabric on the downslope side of the trench.
Place the edge of the fabric in the trench starting at the top upslope edge. Line all three sides of the trench with the fabric. Backfill over the fabric in the trench with the excavated soil and compact. After filling the trench, approximately 24" to 36" of silt-fence fabric should remain exposed.
Lay the exposed silt fence upslope of the trench to clear an area for driving in the posts.
Just downslope of the trench, drive posts into the ground to a depth of at least 18".
Place posts no more than 4' apart.
Attach the silt fence to the anchored post with staples, wire, zip ties, or nails.

List of common placement/installation mistakes to avoid:

When practicable, do not place silt fence slope barriers across contours. Slope barriers should be placed along contours to avoid a concentration of flow. When the flow concentrates, it overtops the barrier and the silt fence slope barrier quickly deteriorates.
Do not place silt-fence posts on the upslope side of the silt fence fabric. In this configuration, the force of the water is not restricted by the posts, but only by the staples (wire, zip ties, iiails, etc.). The silt fence will rip and fail.
Do not place silt fence slope barriers in areas with shallow soils underlain by rock. If the barrier is not sufficiently anchored, it will wash out.
Silt fence slope barriers must be dug into the ground-silt fence at ground level does not work because water will flow underneath.

Inspection and Maintenance:

Silt fence 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?
Do the silt fences sag excessively?
Has the silt fence torn or become detached from the posts?
Does sediment need to be removed from behind the slope barrier?

CITY OF WICHITA

SOIL EROSION BMP DETAILS

CHRISTOPHER M. CARRIER, P.E.
STORM WATER ENGINEER

PROJECT NUMBER	OCA NO.

DATE: MAY 2001

1365
1360

CUT = 5.9
LF = 39.6

6+00
50'

EXC = 15.3 CY
FILL = 66.9 CY

1365
1360

CUT = 10.6
LF = 32.7

5+50
50'

EXC = 24.7 CY
FILL = 54.1 CY

1365
1360

CUT = 16.1
LF = 25.7

5+00
50'

EXC = 33.9 CY
FILL = 42.9 CY

1365
1360

CUT = 20.5
LF = 20.6

4+50
50'

EXC = 45.7 CY
FILL = 33.6 CY

1365
1360

CUT = 28.9
LF = 15.7

4+00
50'

EXC = 72.7 CY
FILL = 21.3 CY

1365
1360

CUT = 49.6
LF = 7.5

3+50
50'

EXC = 117.6 CY
FILL = 7.1 CY

1365
1360

CUT = 77.4
LF = 0.4

3+00
50'

EXC = 223.2 CY

1365
1360

CUT = 163.7

2+50
50'

EXC = 353.6 CY

1365
1360

CUT = 218.2

2+00
50'

EXC = 382.1 CY

1365
1360

CUT = 194.5

1+50
50'

EXC = 120.4 CY

1365
1360

CUT = 33.9

1+21.54
28.46'

PROJECT TOTALS:
EXC = 1500.4 CY
FILL = 774.1 CY

PAGE TOTALS:
EXC = 1389.2 CY
FILL = 226.3 CY

GOEBEL CIRCLE
472-836/2
10/12

1365
1360

1365
1360

1365
1360

9+29.39

EXC = 8.8 CY
FILL = 12.7 CY

15'

LF = 45.6

1365

CUT = 30.8

1360

9+14.39

EXC = 33.8 CY
FILL = 49.5 CY

35'

LF = 30.8

1365

CUT = 21.4

1360

8+79.39

EXC = 28.2 CY
FILL = 60.1 CY

49.99'

1365

CUT = 9.1

LF = 34.1

1360

8+29.40

EXC = 9.3 CY
FILL = 37.4 CY

29.40'

1365

CUT = 7.9

LF = 34.6

1360

8+00

EXC = 12.9 CY
FILL = 66.5 CY

50'

1365

CUT = 6.0

LF = 39.4

1360

7+50

EXC = 9.4 CY
FILL = 81.0 CY

50'

1365

CUT = 4.1

LF = 48.1

1360

7+00

EXC = 3.9 CY
FILL = 123.2 CY

50'

1365

CUT = 0.1

LF = 85.0

1360

6+50

EXC = 5.1 CY
FILL = 115.4 CY

50'

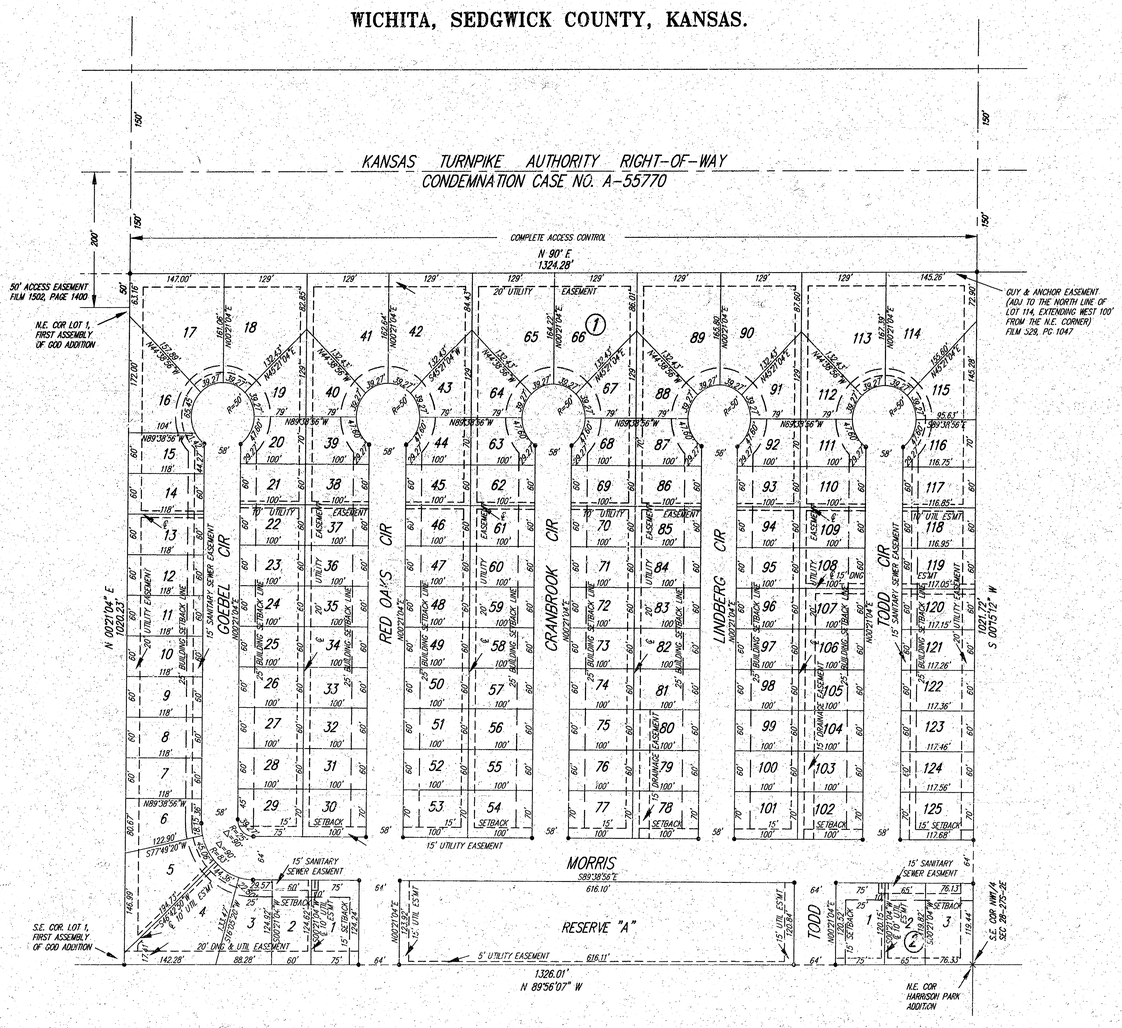
PAGE TOTALS:
EXC = 111.2 CY
FILL = 547.8 CY

GOEBEL CIRCLE
472-8336.12

11/12

HARRISON PARK 2ND ADDITION

WICHITA, SEDGWICK COUNTY, KANSAS.



1" = 100'

× = CROSS CUT ON CONC

• = 1/2" REBAR W/SRB CAP

FINAL PLAT

HARRISON PARK 2ND ADDITION

WICHITA, KANSAS

Ruggles & Bohm, P.A.
Engineering, Surveying, Land Planning
924 North Main
Wichita, Kansas 67203
www.rbkansas.com
(316) 264-8008
(316) 264-4621 fax
E-mail: info@rbkansas.com

DESIGN	RB JOB
DRAWN	
REVIEW	SHEET
UTILITY	12 of 12
DRAWING FILE	
PROJECT NUMBER 2226E	
DATE 7/24/02	

ET-10-01-AT