STORM WATER DRAIN #202

to serve

THUNDERBIRD OFFICE PARK

CITY OF WICHITA, KANSAS

Neil Cable, P.E. City Engineer

Project Number

468-83607

O.C.A. Number

751335

GENERAL NOTES:

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

Kansas One-Call	687-2470

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

Cox Communications	262-4270
Kansas Gas Service	1-888-482-4950
Westar Energy	383-8650
Aquila Energy	1-888-482-4950
Southwestern Bell	268-2245
City of Wichita Water Dept.	268-4563
City of Wichita Sewer Maint.	268-4024
City of Wichita Storm Sewer Maint.	268-4090
City of Wichita Traffic Maint.	268-4034
Conoco Pipeline Co.	1-800-231-2551
Williams Pipeline Co.	529-6600
Phillips Pipeline Co.	1-800-766-8230

2. Underground utility service lines and overhead utility pole lines 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.

3. 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.

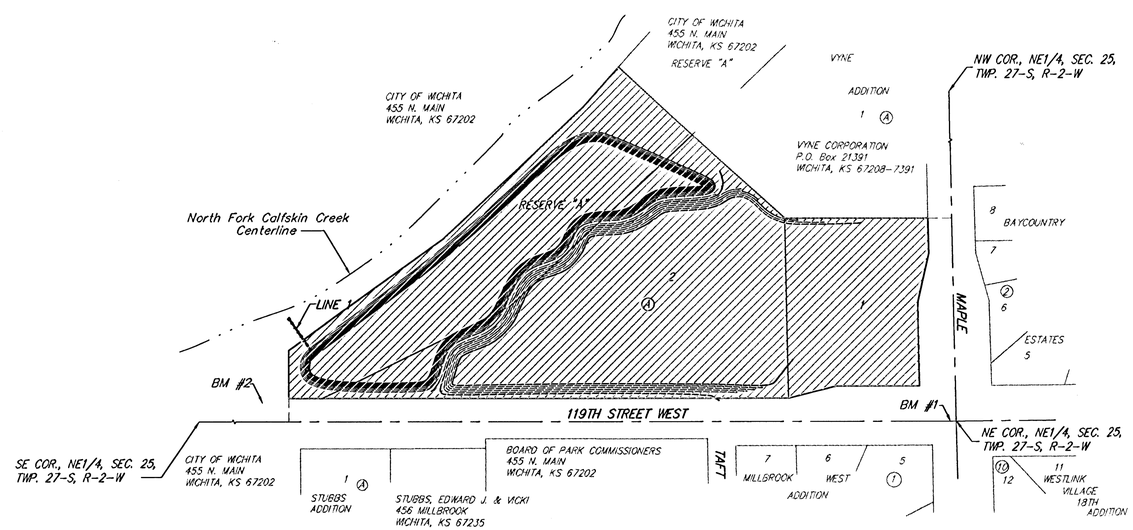
4. The Contractor shall give all property owners and/or tenants of developed property abutting the construction of this project a minimum of ten (10) days advance notice prior to start of construction.

5. 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 reestablished by a licensed land surveyor in accordance with state laws.

6. All areas disturbed by construction shall be seeded, fertilized, and mulched as indicated on the pond plan sheet. All costs shall be paid by bid item "Site Clearing & Restoration".

7. The Contractor shall take all necessary precautions to prevent soil sediment from leaving the site.

8. The Contractor shall install all perimeter silt fencing, straw bale ditch checks, and const. entrance drive prior to construction The Contractor is responsible to maintain all erosion control measures until the project is completed.



Scale: 1" = 150'

Booked
C-167
6-13-04

Benefit District

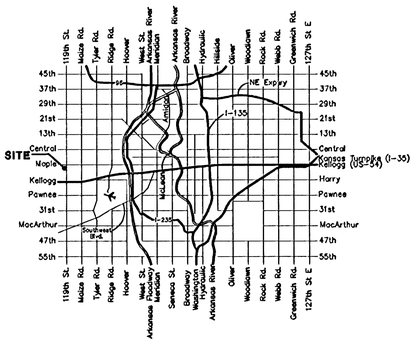
Benchmarks

#1 Top of 1/2" Iron in 6"x6" Box Located At the NE Cor., NE 1/4 Sec. 25, Twp. 27-S, R-2-W
ELEV. = 1411.03 CITY DATUM

#2 RR Spike in Guypole Located 9.28' E & 52.92' S of the SE Cor. of Reserve "A"
ELEV. = 1128.92 CITY DATUM

Sheet Index

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Vicinity Map



As Built 7/03 KK Per Plan Except as Noted
APRIL 2003

BAUGHMAN COMPANY P.A.
ENGINEERING, SURVEYING, & PLANNING
316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

POND NOTES:

1. Pond bottom and sideslopes below static pool elevation shall be over-excavated 18" and a 18"' clay liner shall be compacted to 95% std. density. The plasticity index (P.I.) shall be at least 30. The compaction and P.I. shall be verified during construction. P.I. determination and compaction testing shall be arranged by the contractor at the request of the inspector. Cost shall be incidental to "Site Clearing & Restoration".

2. Any excess excavation shall be stored on-site out of easements and R/W, contact Engineer for location. Additional area will be staked out if needed.

3. All of Reserve "A" & on the north bank of the pond above the static water surface shall be seeded and mulched as follows: (Permanent Seeding)
   SEED -- Kansas Premium Fescue Blend; 8#/1000 Sq. Ft.
   FERTILIZER -- 10-20-10 Ratio or 12-24-12 Ratio at 350 Lbs./Ac.
   MULCH -- 2 Tons Prairie Hay / Acre

   All other disturbed areas not in street R/W are to be seeded and mulched as follows: (Temporary seeding)
   SEED -- Rye grass (PLS)--3#/1000 Sq. Ft. and Kansas Premium Fescue Blend; 3#/1000 Sq. Ft.
   FERTILIZER -- 10-20-10 Ratio or 12-24-12 Ratio at 350 Lbs./Ac.
   MULCH -- 2 Tons Prairie Hay / Acre

4. Install Erosion Control Mat from above the rip rap pond border to the top of bank as shown.

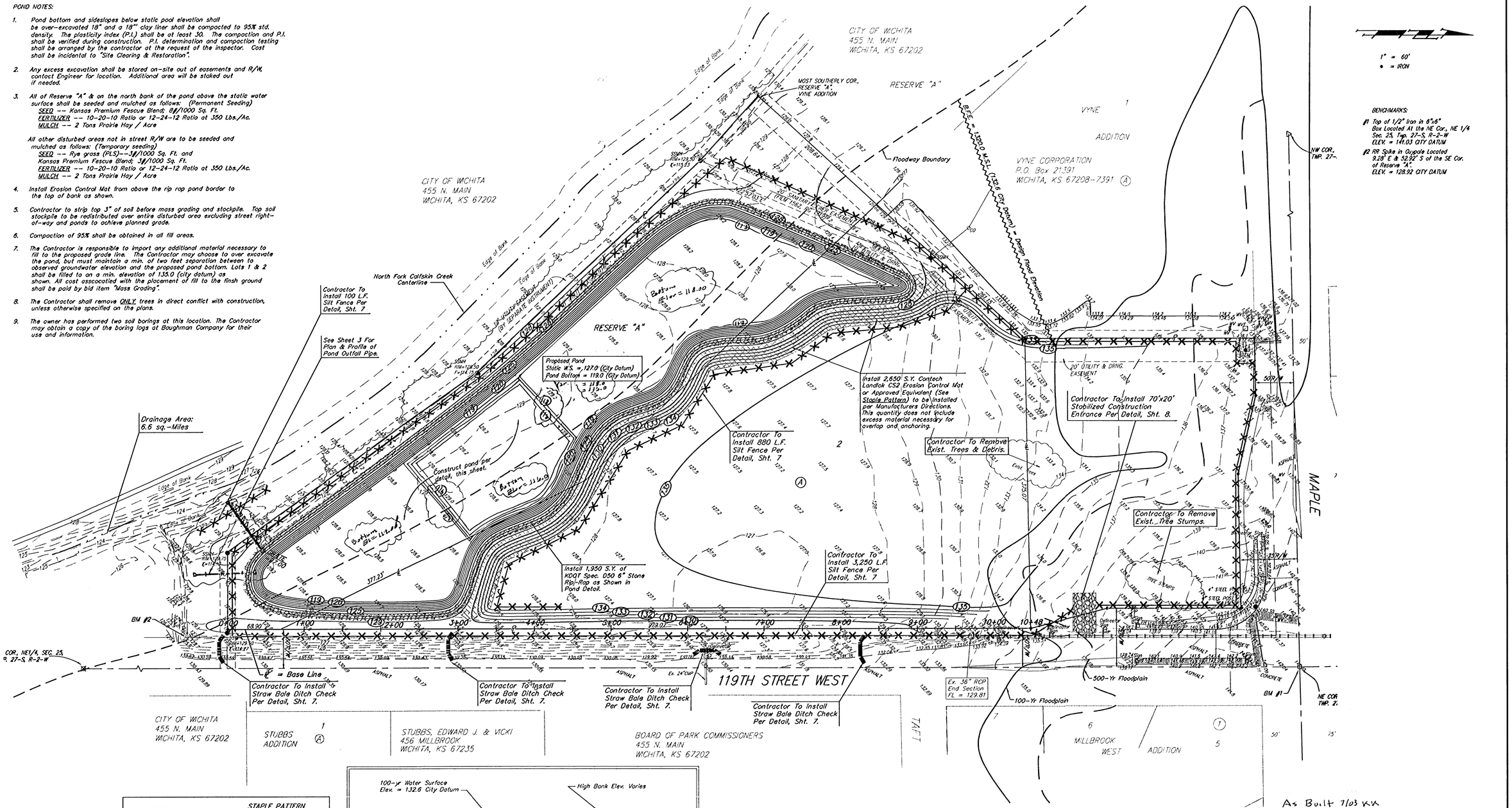
5. Contractor to strip top 3" of soil before mass grading and stockpile. Top soil stockpile to be redistributed over entire disturbed area excluding street right-of-way and ponds to achieve planned grade.

6. Compaction of 95% shall be obtained in all fill areas.

7. The Contractor is responsible to import any additional material necessary to fill to the proposed grade line. The Contractor may choose to over excavate the pond, but must maintain a min. of two feet separation between to observed groundwater elevation and the proposed pond bottom. Lots 1 & 2 shall be filled to an a min. elevation of 1335.0 (city datum) as shown. All cost asscocatied with the placement of fill to the finsh ground shall be paid by bid item "Mass Grading".

8. The Contractor shall remove ONLY trees in direct conflict with construction, unless otherwise specified on the plans.

9. The owner has performed two soil borings at this location. The Contractor may obtain a copy of the boring logs at Baughman Company for their use and information.



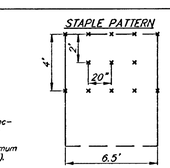
STAPLE PATTERN "D"

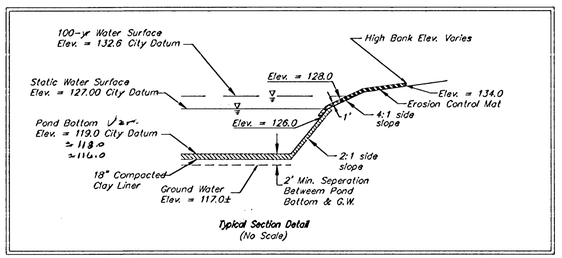
3-1/2 staples per sq. yd. using 6-inch, 11 ga. wire "U" staples. 8-inch staples and longer may be used for loose soils. 3 ga. staples or heavier may be necessary in hard or rocky soils.

Contractor shall follow manufacturers installation instructions regarding overlap dimensions. The overlap shall have a minimum dimension of three inches (3").

Erosion control mat.

STAPLE PATTERN





Typical Section Detail (No Scale)

EARTH WORK TOTALS

	C.Y. Cut	C.Y. Fill
Mass Grading	0	49,500
Pond Construction	45,300	0
Total Earthwork	45,300	49,500

Earthwork quantities do not include correction factors and are for reference only. All cost associated with mass grading shall be included in the bid item "Mass Grading".

(119) Proposed Grade
119 Existing Grade
Silt Fence

As Built 7/03 KK
Per Plan Except as Noted

THUNDERBIRD OFFICE PARK
POND PLAN
CITY OF WICHITA, KANSAS

BAUGHMAN COMPANY P.A.
ENGINEERING, SURVEYING, & PLANNING
316-262-7271 • 313 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER	SHEET
488-83607	2 OF 10

DESIGN	DRAWN	APPROVED	DATE	SCALE
SCL	SCL	NBW	04/23/03	1"=60'

03-03-E541
BASE.DWG

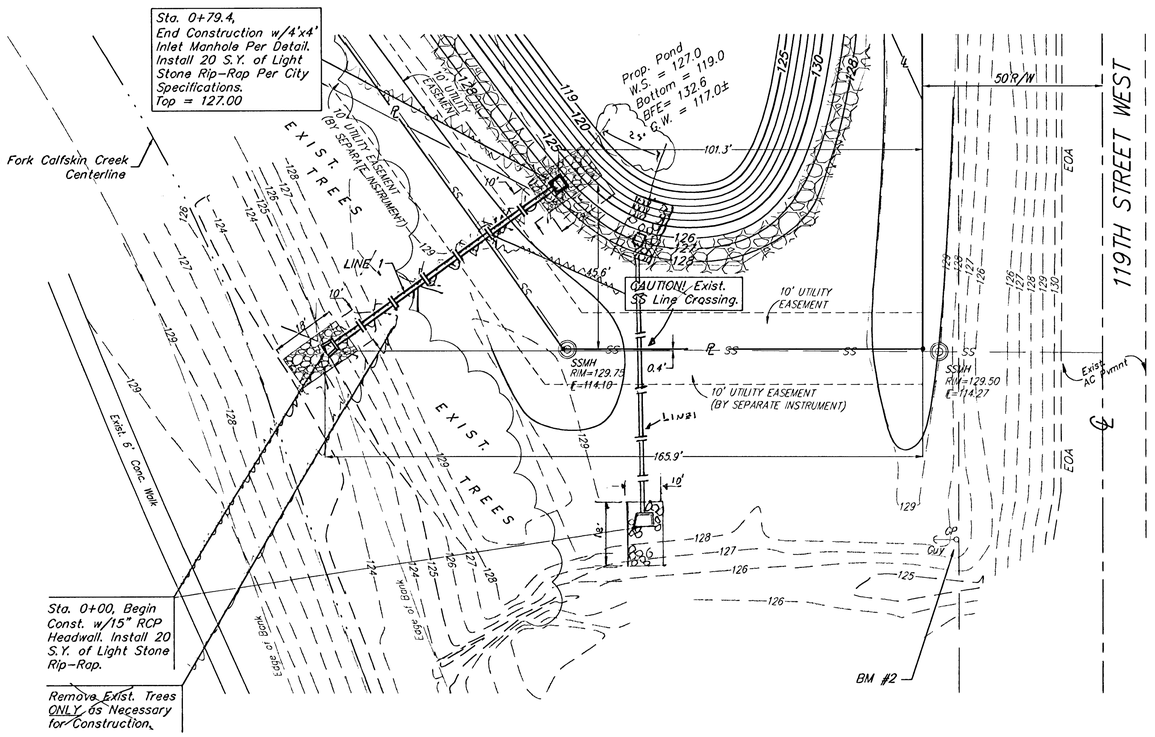
BENCHMARKS:

#1 Top of 1/2" Iron in 6"x6" Box Located At the NE Cor., NE 1/4 Sec. 25, Twp. 27-S, R-2-W
ELEV. = 1411.03 CITY DATUM

#2 RR Spike in Guypole Located 9.28' E & 52.92' S of the SE Cor. of Reserve "A".
ELEV. = 1128.92 CITY DATUM

SWS NOTE:

The SWS Contractor shall replace the compacted 18" thick clay liner With a P.I. of 30 prior to the completion of the storm sewer.



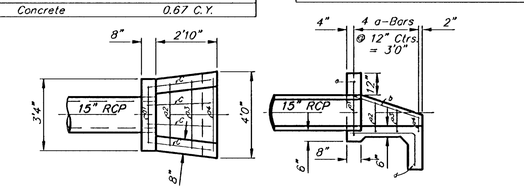
STUBBS ADDITION

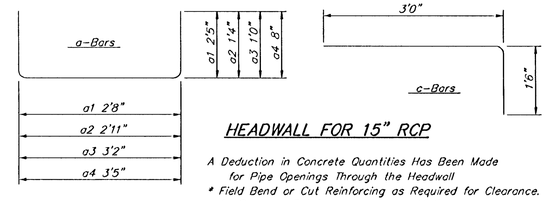
CITY OF WICHITA
455 N. MAIN
WICHITA, KS 67202

SCALE:
1" = 20' HORIZONTAL
1" = 5' VERTICAL
• = IRON

REBAR SCHEDULE

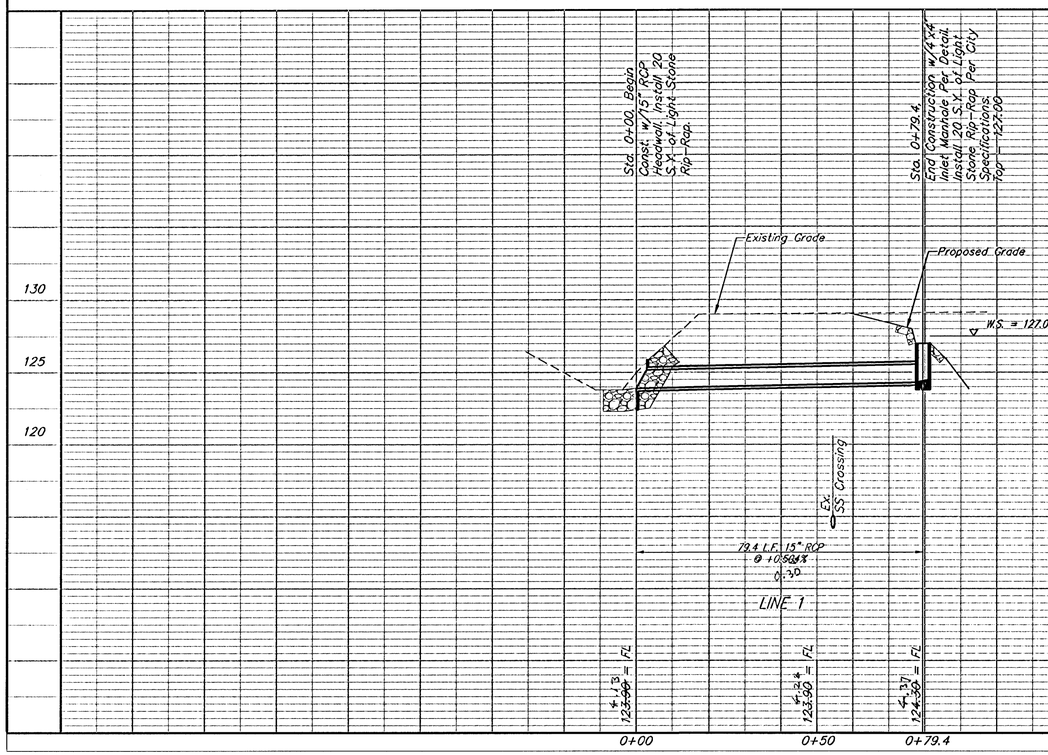
Bar	Shape	No.	Length	Weight
a1		1	7'6"	5.01
a2		1	5'7"	3.73
a3		1	5'2"	3.45
a4		1	4'9"	3.17
b		2	4'0"	5.34
c		4	5'6"	14.70
d		1	3'5"	2.28
e		1	2'8"	1.78
Total Rebar			39.46 Lbs.	
Concrete			0.67 C.Y.	





HEADWALL FOR 15" RCP

A Deduction in Concrete Quantities Has Been Made for Pipe Openings Through the Headwall
* Field Bend or Cut Reinforcing as Required for Clearance.
All Concrete Reinforcement to be #4 Rebar
All Rebar to Have Min. of 1 1/2" Conc. Cover



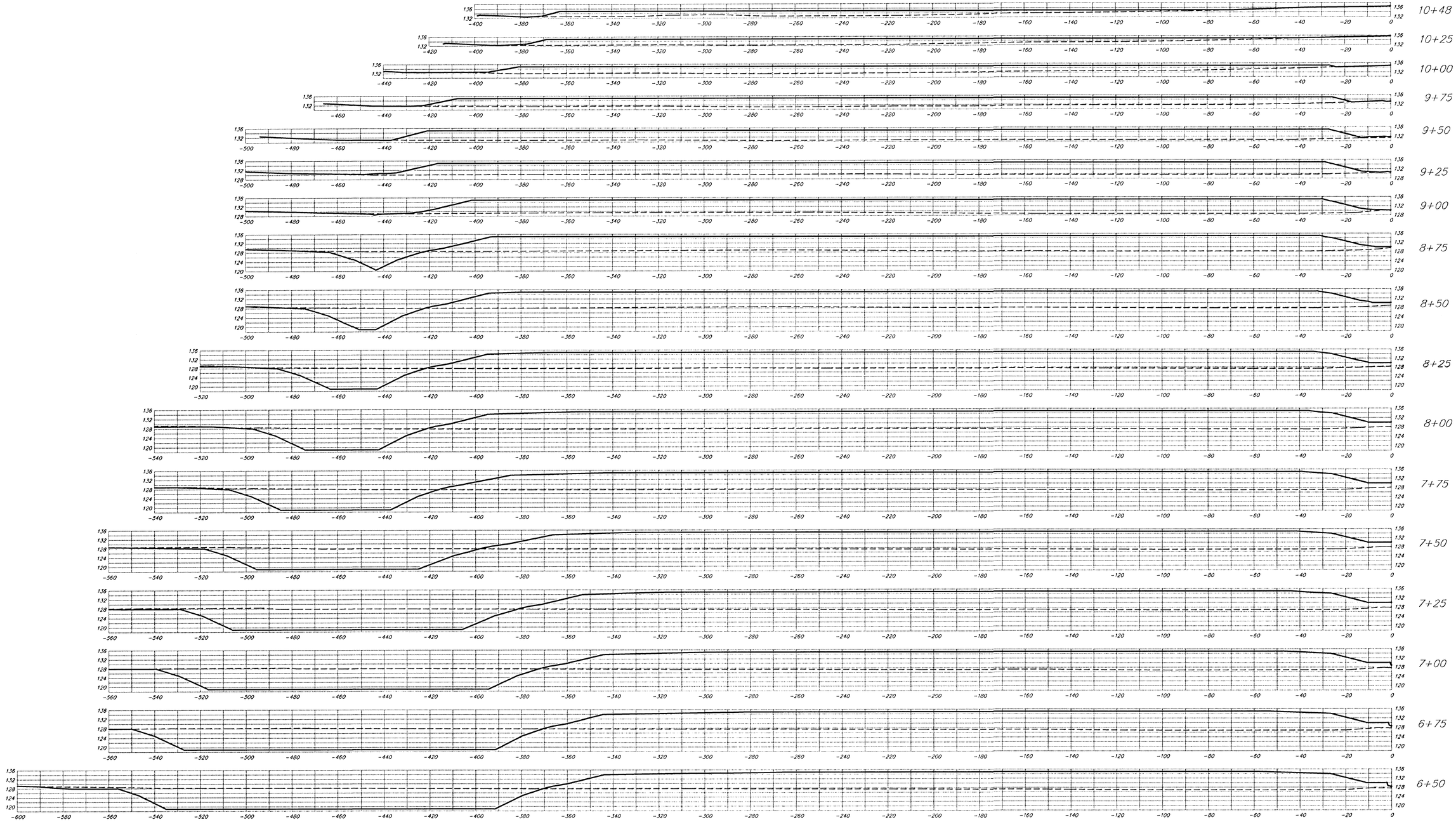
As Built - 7/03 KK
Per Plan Except As Noted

THUNDERBIRD OFFICE PARK
LINE 1
CITY OF WICHITA, KANSAS

BAUGHMAN COMPANY P.A.
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316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER					SHEET
468-83607					3 OF 10
DESIGN	DRAWN SCL	APPROVED NBW	DATE 03/17/03	SCALE 1"=20'	

03-03-E547
SWS1.DWG

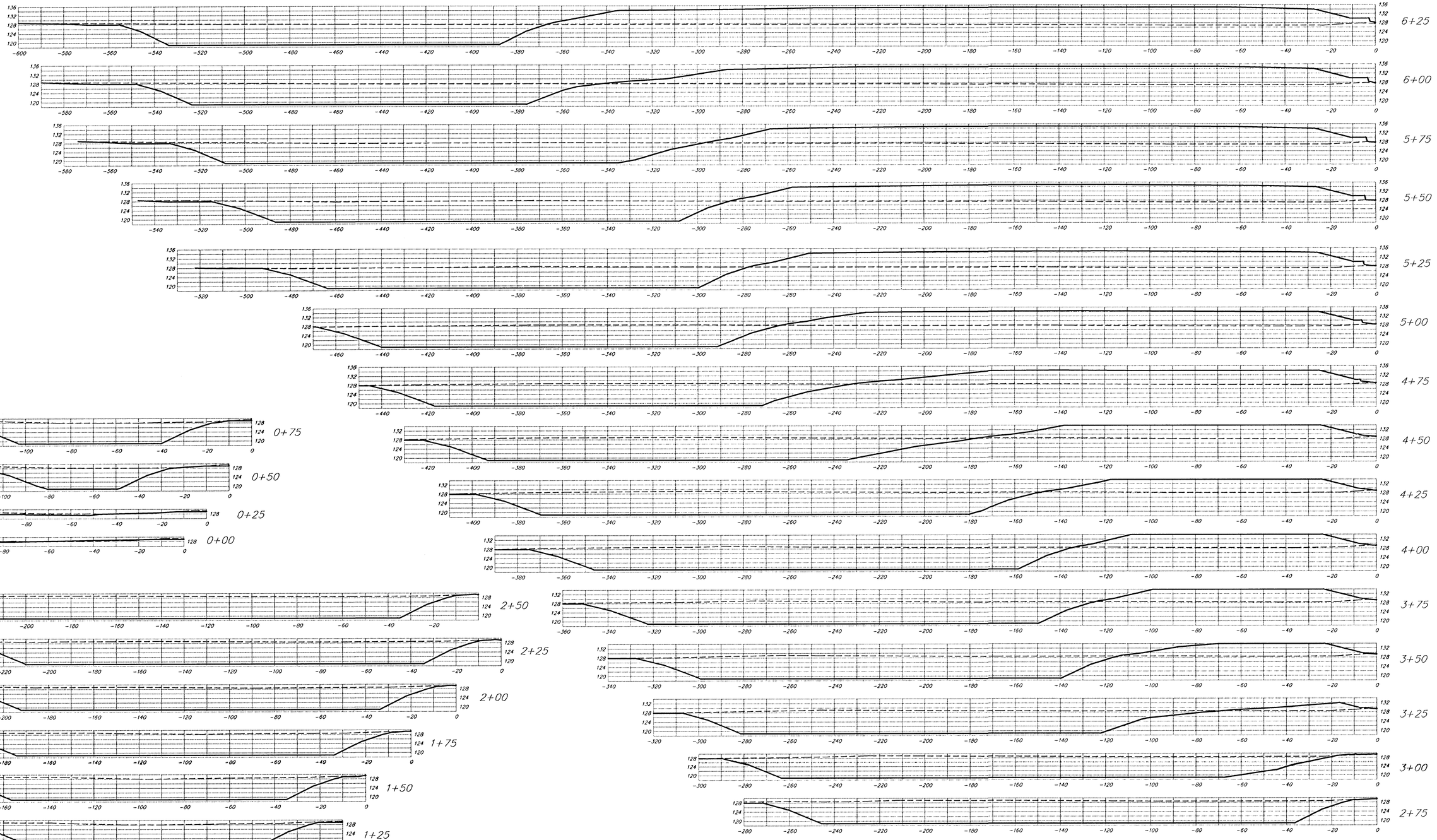


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REV.

PROJECT NUMBER
468-83607

SHEET
4/10

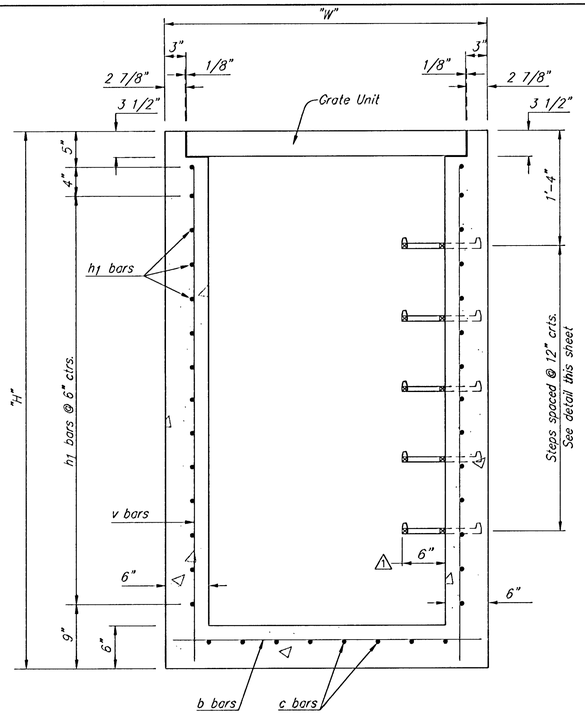


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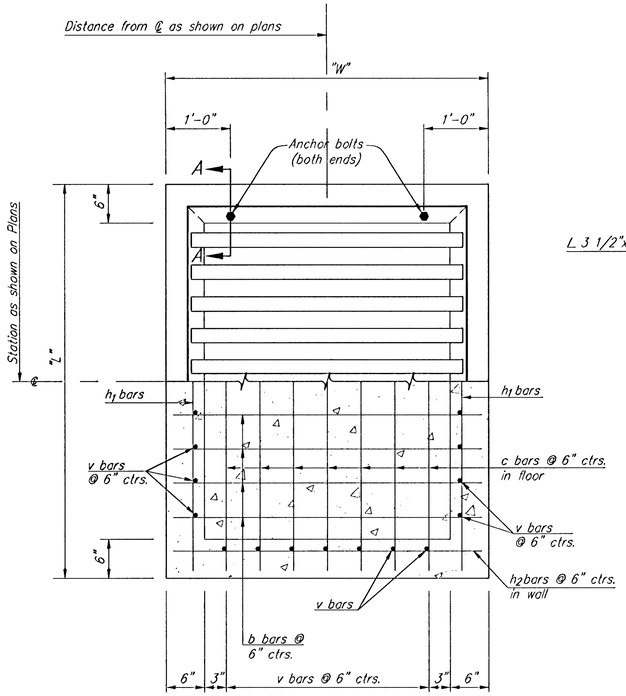
REV.

PROJECT NUMBER
468-83607

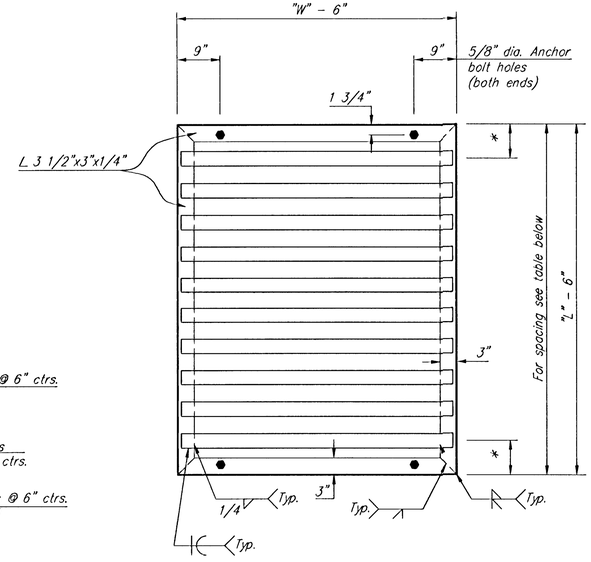
SHEET
5/10



SECTION



PLAN AND SECTION



GRATE UNIT DETAILS

GENERAL NOTE

Use Class A Concrete throughout. All exposed edges shall be finished with an edging tool.

At the Contractors option, Class A Concrete (AE) or mix used in concrete pavement may be used throughout.

In general, pipes will enter and leave the manhole at various positions. Where possible bend bars around pipes.

Floor of inlet shall be shaped as shown in various "Examples" on Reinforced Concrete Manhole Standard No. 633. Concrete used for shaping shall be unreinforced Class "A" Concrete or concrete pavement mix. No addition in concrete quantities shall be made for shaping floor of inlets.

Manhole steps, where used, shall be placed to afford easy access to top of shaped invert.

No deductions in concrete quantities shall be made for pipe openings.

All bars are #4 @ 6" spacing and shall have a minimum clearance of 1 1/2" unless otherwise noted on the plans.

The top of the manhole shall be sloped slightly to approximately fit the ground line or other conditions as directed by the Engineer.

Steps shall be installed on all storm sewer inlets when specified in the plans or when "H" is equal or greater than six feet. Steps shall comply with KDOT Standard Specification.

The grate shall be fabricated from standard or commercial grade structural steel and black steel pipe. The unit shall be hot dipped, galvanized after fabrication, in accordance with ASTM A123 except the weight of coating shall average not less than 2.0 ounces per square foot of actual surface and no individual test shall show less than 1.8 ounces of coating per square foot of actual surface area.

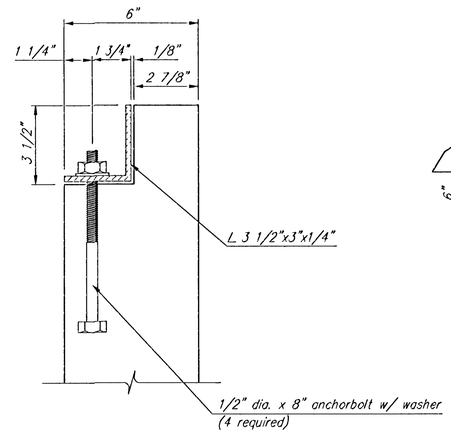
** Unless otherwise provided for, quantities shown are for information only.

BILL OF MATERIALS FOR INLET-MANHOLE (SPECIAL)

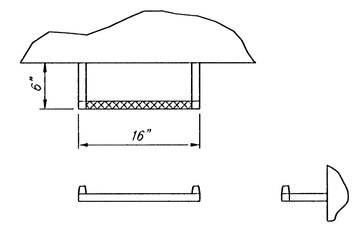
"L" "W" "H"				"L" "W" "H"				"L" "W" "H"															
Bar	No.	Size	Length	Bar	No.	Size	Length	Bar	No.	Size	Length	Bar	No.	Size	Length	Bar	No.	Size	Length	Bar	No.	Size	Length
v		#4	X	v		#4		v		#4		v		#4		v		#4		v		#4	
c		#4	X	c		#4		c		#4		c		#4		c		#4		c		#4	
b		#4	X	b		#4		b		#4		b		#4		b		#4		b		#4	
h_1		#4	X	h_1		#4		h_1		#4		h_1		#4		h_1		#4		h_1		#4	
h_2		#4	X	h_2		#4		h_2		#4		h_2		#4		h_2		#4		h_2		#4	
Class "A" Conc.			Cu. Yd.	Class "A" Conc.			Cu. Yd.	Class "A" Conc.			Cu. Yd.	Class "A" Conc.			Cu. Yd.	Class "A" Conc.			Cu. Yd.	Class "A" Conc.			Cu. Yd.
Reinf. Steel			Lbs.	Reinf. Steel			Lbs.	Reinf. Steel			Lbs.	Reinf. Steel			Lbs.	Reinf. Steel			Lbs.	Reinf. Steel			Lbs.
Struct. Steel			Lbs.	Struct. Steel			Lbs.	Struct. Steel			Lbs.	Struct. Steel			Lbs.	Struct. Steel			Lbs.	Struct. Steel			Lbs.
Class III Excav.			Cu. Yd.	Class III Excav.			Cu. Yd.	Class III Excav.			Cu. Yd.	Class III Excav.			Cu. Yd.	Class III Excav.			Cu. Yd.	Class III Excav.			Cu. Yd.

BILL OF MATERIALS FOR INLET-MANHOLE (SPECIAL)

"L" "W" "H"				"L" "W" "H"				"L" "W" "H"				"L" "W" "H"				"L" "W" "H" 4'-6" x 4'-6" x 4'-6"				"L" "W" "H" 5'-6" x 4'-6" x 5'-0"			
Bar	No.	Size	Length	Bar	No.	Size	Length	Bar	No.	Size	Length	Bar	No.	Size	Length	Bar	No.	Size	Length	Bar	No.	Size	Length
v		#4		v		#4		v		#4		v		#4		v		#4		v		#4	
c		#4		c		#4		c		#4		c		#4		c		#4		c		#4	
b		#4		b		#4		b		#4		b		#4		b		#4		b		#4	
h_1		#4		h_1		#4		h_1		#4		h_1		#4		h_1		#4		h_1		#4	
h_2		#4		h_2		#4		h_2		#4		h_2		#4		h_2		#4		h_2		#4	
Class "A" Conc.			Cu. Yd.	Class "A" Conc.			Cu. Yd.	Class "A" Conc.			Cu. Yd.	Class "A" Conc.			Cu. Yd.	Class "A" Conc.			Cu. Yd.	Class "A" Conc.			Cu. Yd.
Reinf. Steel			Lbs.	Reinf. Steel			Lbs.	Reinf. Steel			Lbs.	Reinf. Steel			Lbs.	Reinf. Steel			Lbs.	Reinf. Steel			Lbs.
Struct. Steel			Lbs.	Struct. Steel			Lbs.	Struct. Steel			Lbs.	Struct. Steel			Lbs.	Struct. Steel			Lbs.	Struct. Steel			Lbs.
Class III Excav.			Cu. Yd.	Class III Excav.			Cu. Yd.	Class III Excav.			Cu. Yd.	Class III Excav.			Cu. Yd.	Class III Excav.			Cu. Yd.	Class III Excav.			Cu. Yd.



SECTION A-A



STEP DETAILS

PIPE DIMENSIONS AND SPACING

L x W	No. of Bars	Dia. x Length x Spacing	*
4'-0"x4'-0"	7	2 1/2"ø x 3'-4 1/4" pipes @ 6" ctrs.	6"

⚠ - Baughman Company Revision 3/1/95

THUDERBIRD OFFICE PARK
INLET MANHOLE
STORM WATER SEWER IMPROVEMENTS

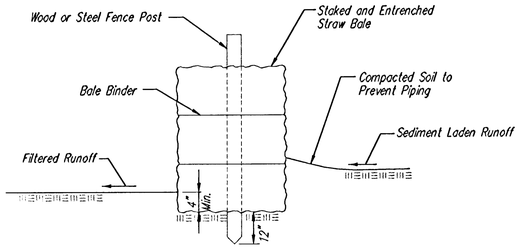
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316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER 468-83607

SHEET 6 OF 10

DESIGN	DRAWN	APPROVED	DATE	SCALE
	DMV			NONE

03-03-2541



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:

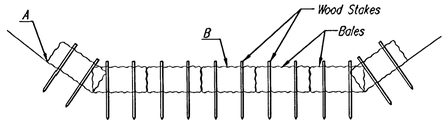
When practicable, do not place bale slope barriers across contours. Slope barriers should be placed along contours to avoid a concentration of flow. Concentrated flow over a slope barrier creates a scour hole on the downslope side of the barrier. The scour hole eventually undermines the bales and the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

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".

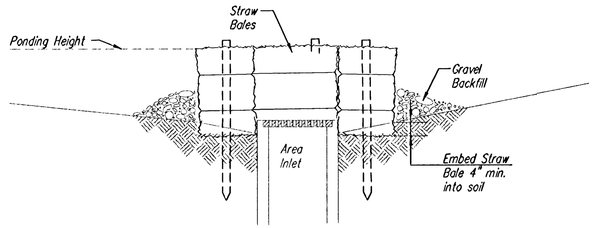
List of common placement/installation mistakes to avoid:

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.

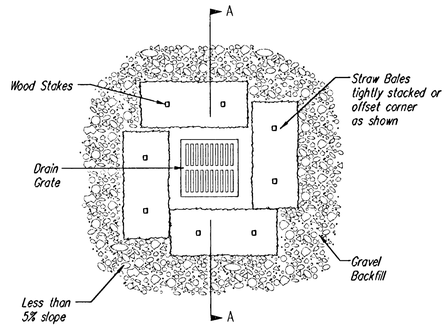
Inspection and Maintenance:

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.

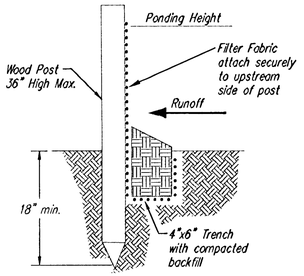
List of common placement installation mistakes to avoid:

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 andlor 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, ilails, 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:

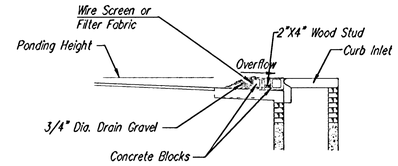
Are there any points along the slope barrier where water is concentrating?
Does water flow under the slope barrier?
Do the silt fences sag excessively?
Has the silt fence torn or become detached from the posts?
Does sediment need to be removed from behind the slope barrier?

CITY OF WICHITA

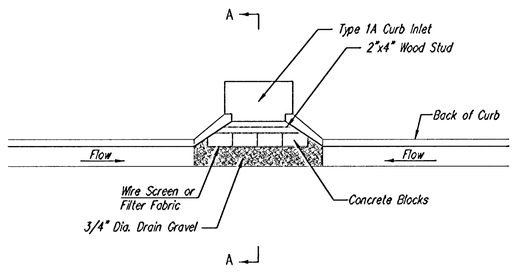
SOIL EROSION BMP DETAILS

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

PROJECT NUMBER	OCA NO.
468-83607	751335
DATE: MAY 2001	SHEET 7 OF 10



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.

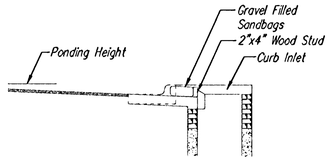
Instructions for Installing:

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.

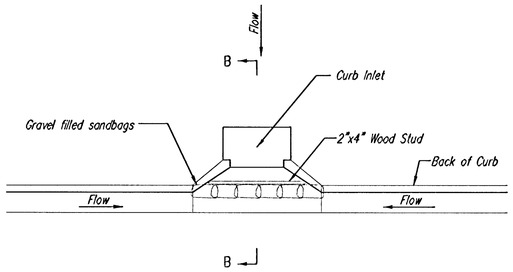
Use of rock with diameters smaller than 1" in the bag may result in clogging of pores and reduce the amount of water flowing into an inlet.

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.

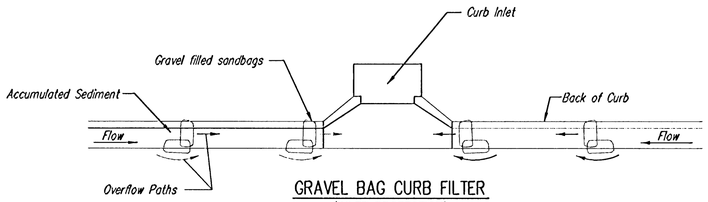


SECTION B-B



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.

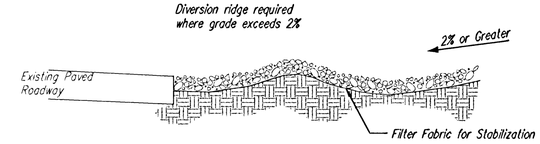
Spacing:

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

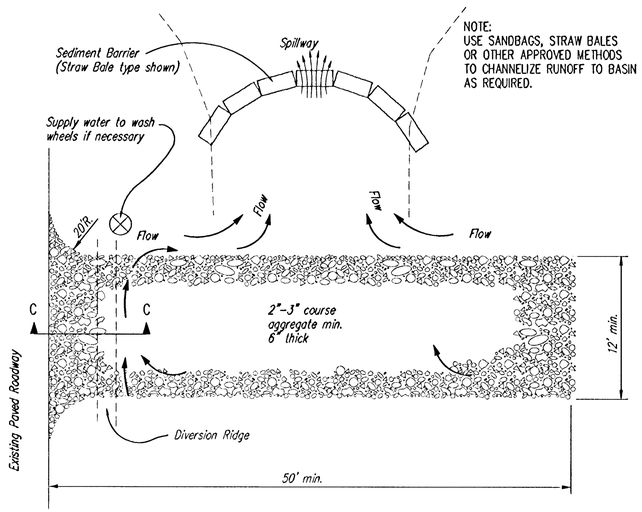
GRADE (%)	SPACING (FEET)
0.5	75
1.0	45
2.0	18
3.0	12
4.0	9
5.0	6

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



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.

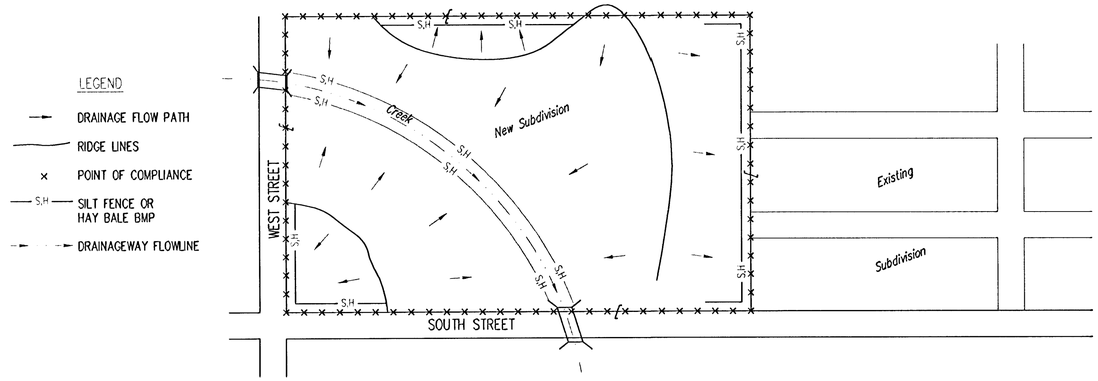
CITY OF WICHITA

SOIL EROSION BMP DETAILS

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

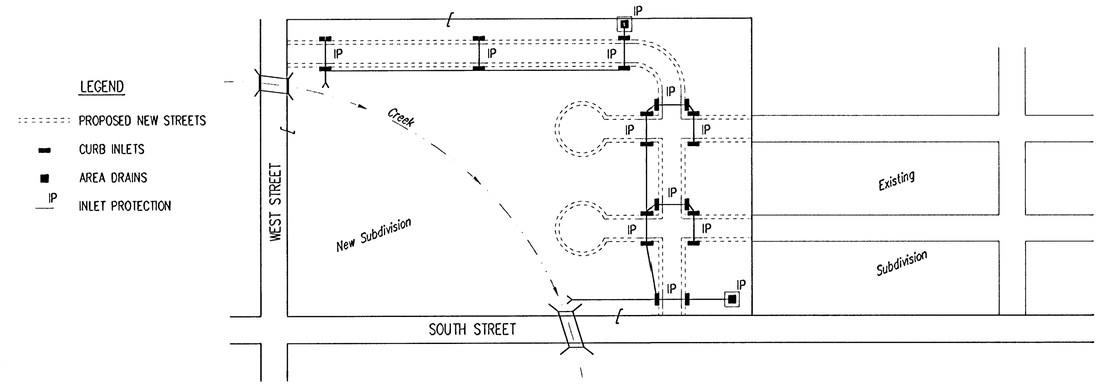
PROJECT NUMBER 468-83607
OCA NO. 751335
DATE MAY 2001

PHASE 1 – INITIAL EARTHWORK AND UTILITIES (EXCEPT STORM SEWER)



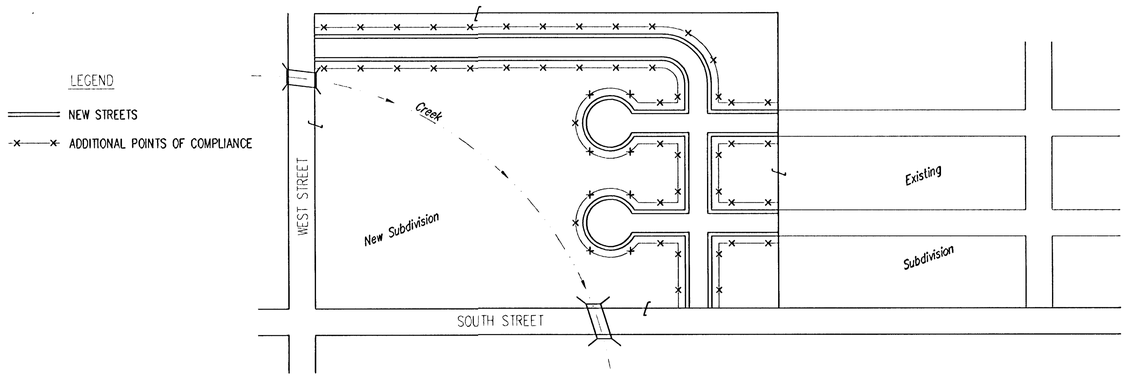
1. DURING THIS PHASE OF SUBDIVISION CONSTRUCTION, THE POINTS OF COMPLIANCE ARE THE PERIMETER BOUNDARIES AND ANY DRAINAGE WAYS OR STORM SEWERS DRAINING THROUGH OR FROM THE SITE. SHOULD LAKES BE CONSTRUCTED WITHIN THE SUBDIVISION THAT WILL DISCHARGE DURING STORMS, THEY ARE ALSO A POINT OF COMPLIANCE.
2. HAYBALES OR SILT FENCE MUST BE CONSTRUCTED ALONG THE PROPERTY LINE WHERE ON SITE WATER CAN DRAIN OFF THE PROPERTY. THESE BMP'S WILL ALSO BE INSTALLED ALONG ANY DRAINAGE DITCH OR LAKE THAT CAN DISCHARGE.
3. SHOULD SILT OR SEDIMENT ENTER THE DITCHES OR GUTTERLINES ON THE ADJACENT BOUNDRY STREETS, APPROPRIATE BMP'S WILL BE PLACED WITHIN THE SUBDIVISION TO PREVENT THIS.
4. ANY MUD TRACKED ONTO ADJACENT STREETS WILL BE REMOVED AT THE END OF EACH WORK DAY.
5. CONTRACTORS WORKING WITHIN THE SITE WILL NOT BE REQUIRED TO USE INDIVIDUAL BMP'S AS LONG AS THOSE SPECIFIED ABOVE ARE IN PLACE AND EFFECTIVE. CONTRACTORS WORKING ON THE BOUNDRY LINE STREETS OR ON ADJACENT PROPERTIES TO EXTEND UTILITIES ARE EXPECTED TO USE BMP'S AT THEIR WORK LOCATIONS, AS NEEDED.
6. UTILIZE STABILIZED CONSTRUCTION ENTRANCE AT ENTRANCE AND EXIT ONTO ANY EXISTING PUBLIC STREETS.
7. THE SUBDIVISION DEVELOPER (OWNER) SHALL INSTALL AND MAINTAIN THE ON–SITE BMP'S.

PHASE 2 – INSTALLATION OF STORM SEWER

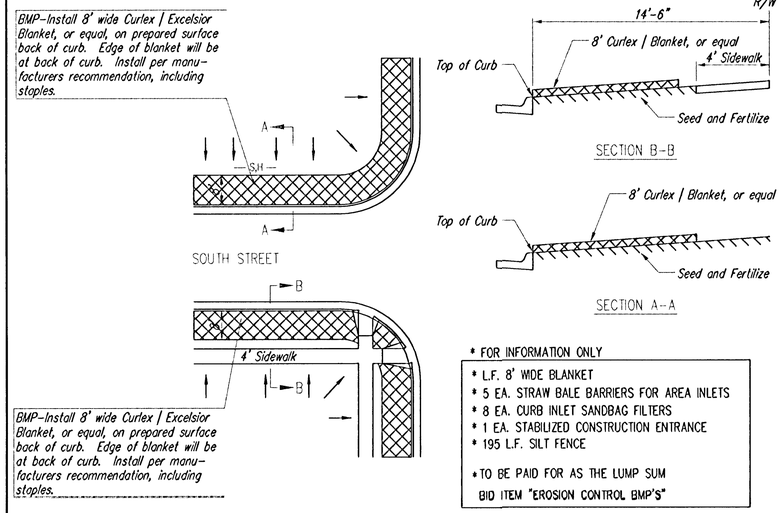


1. DURING THIS PHASE OF SUBDIVISION DEVELOPMENT, ALL BMP'S REQUIRED IN PHASE 1 SHALL REMAIN IN PLACE AND BE MAINTAINED.
2. AS NEW STORM SEWERS, WITH INLETS, ARE INSTALLED, THE STORM SEWERS MUST NOW BE PROTECTED SO ALL NEW INLETS BECOME POINTS OF COMPLIANCE.
3. AREA DRAINS – AS SOON AS WATER CAN FLOW INTO THESE DRAINS, HAYBALE OR SILT FENCE PROTECTION WILL BE INSTALLED AROUND THEM.
4. CURB OPENING INLETS – AS SOON AS WATER CAN FLOW INTO THESE DRAINS, INLET PROTECTION BMP'S MUST BE INSTALLED. SEE PHASE 3 – STREET CONSTRUCTION.
5. THE STORM SEWER CONTRACTOR WILL BE RESPONSIBLE FOR INSTALLING THESE BMP'S. IF WATER CANNOT FLOW INTO CURB INLETS UNTIL STREET CONSTRUCTION IS COMPLETE, THEN STREET CONTRACTOR WILL INSTALL INLET PROTECTION.
6. THE SUBDIVISION DEVELOPER WILL MAINTAIN THESE BMP'S ONCE INSTALLED.
7. ONCE ALL DISTURBED GROUND DRAINING TO AN INLET HAS BEEN RESTABILIZED WITH GRASS OR SOD, THE SUBDIVISION DEVELOPER WILL BE RESPONSIBLE FOR PERMANENTLY REMOVING THE INLET PROTECTION.

PHASE 3 – STREET CONSTRUCTION



1. DURING THIS PHASE OF SUBDIVISION CONSTRUCTION, NEW STREETS ARE INSTALLED. ALL BMP'S INSTALLED DURING PHASE 1 AND 2 MUST STILL BE MAINTAINED. THE POINT OF COMPLIANCE NOW SHIFTS TO THE BACK OF CURB ALONG EACH STREET.
2. CURB OPENING INLET PROTECTION:
   A. SUMP AREAS – INLET PROTECTION SHALL BE PROVIDED WHEN STREET SUBGRADE WORK IS COMPLETED.
   B. NON–SUMP LOCATIONS – PROVIDE INLET PROTECTION AS SOON AS BASE COURSE ASPHALT IS INSTALLED, BEFORE THE SURFACE COURSE LIFT.
3. BMP'S WILL BE REQUIRED BACK OF CURB WHEREVER WATER CAN FLOW OVER THE CURB AND THE CURB HAS BEEN BACKFILLED TO WITHIN 3" OR LESS OF THE TOP OF CURB (SEE CURB BACKFILL DETAIL). FOR CURBS NOT YET ENTIRELY BACKFILLED (3" OR MORE BELOW TOP OF CURB), BMP'S WILL BE REQUIRED AT POINTS WHERE WATER BREAKS OVER CURB WHICH COULD RESULT IN THE PLACEMENT OF SEDIMENT IN THE GUTTER.
4. SEE DETAIL THIS SHEET ON BACK OF CURB PROTECTION.
5. THE BACK OF CURB PROTECTION SPECIFIED ON THIS PLAN MAY HAVE TO BE SUPPLIMENTED WITH HAYBALE OR SILT FENCE BMP'S AT LOCATIONS WHERE CONCENTRATED FLOW RESULTS IN SEDIMENT BEING CARRIED OVER THE EXCELSIOR MATS.
6. THE STREET CONTRACTOR WILL BE RESPONSIBLE FOR INSTALLING BACK OF CURB BMP'S.
7. THE INDIVIDUAL LOT OWNERS WILL BE RESPONSIBLE FOR MAINTAINING THE BACK OF CURB BMP'S IN FRONT OF THEIR LOTS UNTIL SUCH TIME AS ADJACENT DISTURBED EARTH IS STABILIZED WITH GRASS OR SOD.

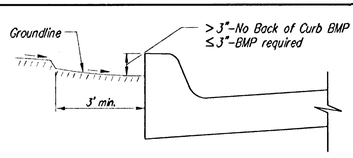


* FOR INFORMATION ONLY

- * L.F. 8' WIDE BLANKET
- * 5 EA. STRAW BALE BARRIERS FOR AREA INLETS
- * 8 EA. CURB INLET SANDBAG FILTERS
- * 1 EA. STABILIZED CONSTRUCTION ENTRANCE
- * 195 L.F. SILT FENCE

*TO BE PAID FOR AS THE LUMP SUM BID ITEM "EROSION CONTROL BMP'S"

BACK OF CURB PROTECTION DETAIL



CURB BACKFILL DETAIL

GENERAL NOTES:

1. THE INTENT OF ALL BEST MANAGEMENT PRACTICES (B.M.P.'S) IS TO PREVENT ERODED SOIL FROM ENTERING DITCHES, STORM SEWERS, OR ANY OTHER DRAINAGE FEATURE.
2. THIS SHEET IS INTENDED TO PROVIDE GUIDELINES AS TO WHAT TYPE OF BMP'S WILL BE INSTALLED DURING THE CONSTRUCTION PROCESS. CONTRACTORS ARE EXPECTED TO BID PROJECTS ACCORDINGLY.
3. BMP'S SHALL BE MAINTAINED DURING THE CONSTRUCTION PROCESS TO REMAIN EFFECTIVE. MAINTENANCE SHALL BE AS INDICATED ON THE BMP DETAIL SHEETS.
4. PERSONS DESTROYING BMP'S SHALL BE RESPONSIBLE FOR IMMEDIATELY REPAIRING THEM OR INSTALLING SUITABLE REPLACEMENT BMP'S.
5. THE DEVELOPMENT OF ANY SUBDIVISION THAT DISTURBS 5 ACRES OR MORE WILL REQUIRE A FEDERAL/STATE NPDES STORMWATER PERMIT. THE PREPARATION OF A STORMWATER POLLUTION PREVENTION PLAN IS REQUIRED. EROSION CONTROL BMP'S ARE REQUIRED. THE DETAILS SHOWN ON THIS SHEET ARE THE MINIMUM STANDARDS TO BE SHOWN ON POLLUTION PREVENTION PLAN.
6. FOR SUBDIVISIONS SMALLER THAN 5 ACRES, SOIL EROSION BMP'S ARE REQUIRED. ALSO, DEVELOPERS AND CONTRACTORS ARE ENCOURAGED TO DEVELOP POLLUTION PREVENTION PLANS FOR EACH PROJECT PRIOR TO CONSTRUCTION.
7. FAILURE TO USE AND MAINTAIN BMP'S IS A VIOLATION OF SECTION 16.32 OF THE CITY CODE AND WILL SUBJECT THE SUBDIVISION DEVELOPER AND CONTRACTORS TO THE PENALTIES PROVIDED THEREIN.
8. THE APPLICATION OF BMP'S SHOWN ON THIS SHEET IS FOR SITUATIONS NORMALLY ENCOUNTERED. FROM TIME TO TIME, SITUATIONS WILL ARISE THAT MAY REQUIRE A DIFFERENT BMP OTHER THAN THAT SHOWN. BMP'S, OTHER THAN THOSE SHOWN, MAY BE UTILIZED SO LONG AS THEY ARE EFFECTIVE AND MAINTAINED.
9. A STABILIZED EARTH SURFACE IS DEFINED AS ONE THAT IS HARD SURFACED WITH CONCRETE, ASPHALT, OR THE LIKE, OR ONE ON WHICH 70% OF THE GRASS HAS GERMINATED ON THE ENTIRE SURFACE.

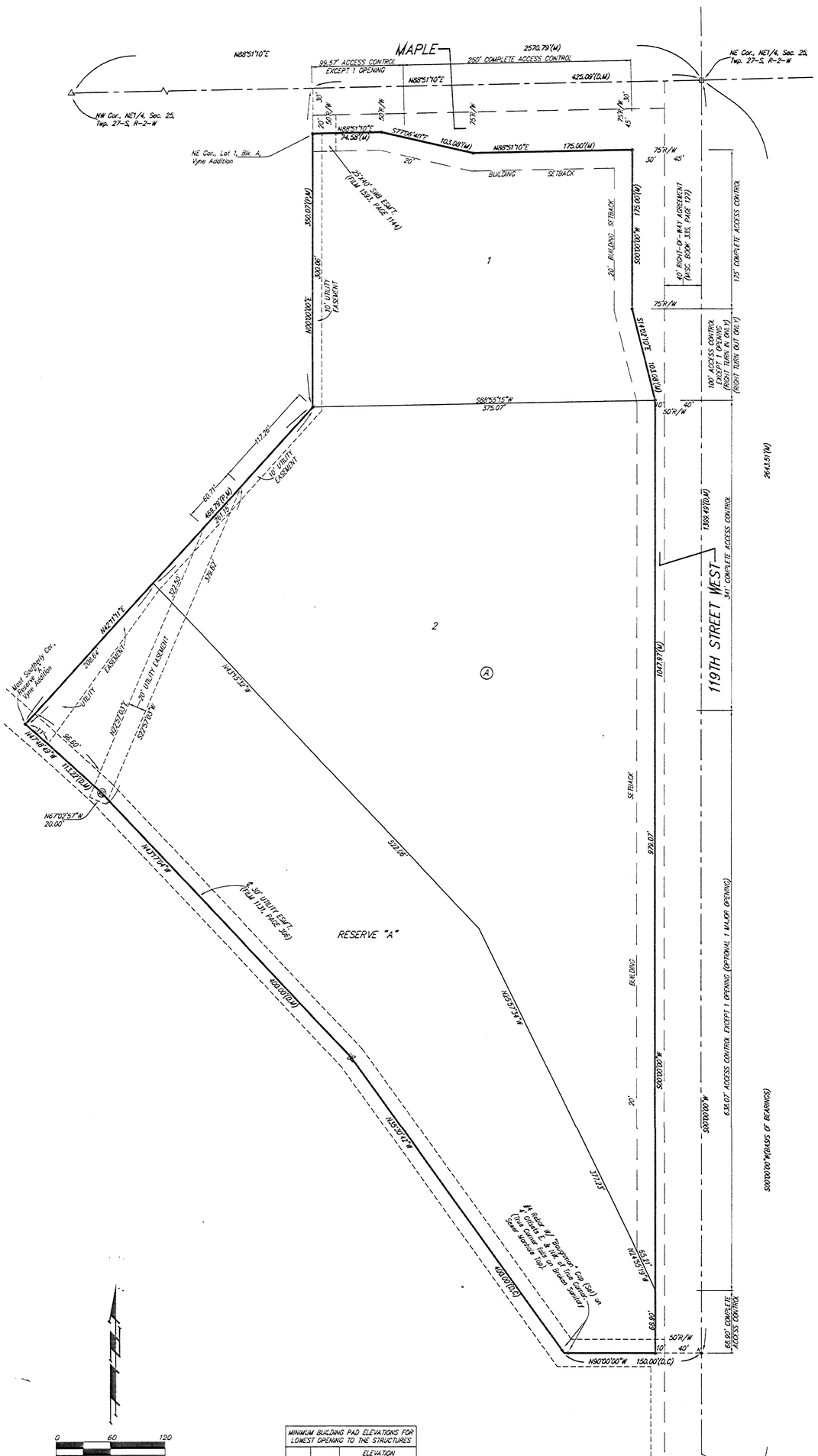
CITY OF WICHITA

SOIL EROSION BMPS SUBDIVISION DEVELOPMENT PROCESS

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

PROJECT NUMBER	OCA NO.
468–83607	751335
DATE: JUNE 2002	SHEET 9 OF 10

THUNDERBIRD OFFICE PARK
AN ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS



MINIMUM BUILDING PAD ELEVATIONS FOR LOWEST OPENING TO THE STRUCTURES			
LOT	BLOCK	ELEVATION	
		CITY DATUM	NGVD
1-2	A	134.6	1322.0

Benchmark:
City of Wichita Benchmark Disc – 1/2 Mi. South of Maple & .35' E. of S. 119th St. West
Elev. = 130.36 City Datum

NOTE:
A drainage plan has been developed for this subdivision and is on file with the City of Wichita, Kansas. Drainage intent shall remain as depicted or as modified with the approval of the City Engineer of the City of Wichita, Kansas. No obstructions which impede the flow of this drainage plan shall be allowed.

⊗ = #4 Rebar W/ "Baughman" Cap (Found)
⊙ = #4 Rebar W/ "Baughman" Cap (Set)
□ = #4 Rebar (Found)
□ = 1/2" Iron in Conc. in 6X6 Steel Box (Found)
△ = 1/2" Iron (Found)
Ⓢ = "X" on Sanitary Sewer Manhole Lid (Set) (Alignment Notches on Manhole Rim (N,S,E,W))
⊕ = "+" cut on Concrete Sanitary Sewer Manhole Field Cap (Set)
⚑ = "P-K" Nail (Set)

(M) = Measured
(D) = Described
(P) = Platted
(C) = Calculated

16-14-01-03

State of Kansas) SS
Sedgwick County)

We, Baughman Company, P.A., Surve
aforesaid county and state do hereby certify that we have surveye
platted "THUNDERBIRD OFFICE PARK", an Addition to Wichita, Sedg
County, Kansas and that the accompanying plat is a true and cor
exhibit of the property surveyed, described as beginning at the NE
of the NE1/4 of Sec. 25, Twp. 27-S, R-2-W of the 6th P.M., Sed
County, Kansas; thence S00°00'00"W along the east line of said NE
1399.49 feet; thence N90°00'00"W, 150.00 feet; thence N35°30'42"
400.00 feet; thence N43°17'04"W, 400.00 feet; thence N47°48'49"W,
113.22 feet to the most southerly corner of Reserve "A" in Vyne A
Wichita, Sedgwick County, Kansas; thence N42°11'11"E along the sou
line of said Reserve "A" and along the southeast line of Lot 1, Blo
said Vyne Addition, 469.79 feet to the most easterly SE corner of
Lot 1; thence N00°00'00"E along the east line of said Lot 1, and
extended north, 350.07 feet to a point on the north line of said
thence N88°51'10"E along the north line of said NE1/4, 425.09 fee
point of beginning, all being subject to road rights-of-way of rec

Existing public easements and dedications being vacated by virtue of K.S.A. 12-512(b).

Baughman Company

LONNIE G. CONREY — REGISTERED — LS 1322 — KANSAS — LAND SURVEYOR

Michael G. Conrey, S

Know all men by these presents tho
the undersigned, have caused the land in the surveyors certificate
platted into Lots, a Block, Streets, and a Reserve to be known as
"THUNDERBIRD OFFICE PARK", an Addition to Wichita, Sedgwick Cou
Kansas. The utility easements are hereby granted as indicated for
construction and maintenance of all public utilities. The streets a
hereby dedicated to and for the use of the public. Reserve "A" is
hereby reserved for floodway, drainage purposes, and open space.
No buildings or other obstructions shall be constructed or placed
or within said Reserve "A", nor shall any fill, change of grade, cre
of channel, or any other work be carried on without the permissio
the City Engineer of the City of Wichita, Kansas. Reserve "A" sha
owned and maintained by the owner of Lot 2, Block A. All abutte
rights of access shall be as depicted on the face of the plat and
hereby granted to the City of Wichita, Kansas. The permitted ope
locations shall be as determined by the City Engineer of the City
Wichita, Kansas. The Minimum Building Pad Elevations for the lowe
opening to the structures shall be as indicated on the face of the

Spring Creek Resources, LLC

Charles W. Aikins III, Me

J. William Owen — Brenda Owen

State of Kansas) SS
Sedgwick County)

The foregoing instrument acknowledged
me, this 20TH day of FEBRUARY, 2002, by Charles W. Aikins III,
of Spring Creek Resources, LLC, on behalf of the limited liability co

JUDITH M. TERHUNE — Notary Public - State of Kansas — My Appt. Expires 11-7-2005

Judith M. Terhune, Notary P
JUDITH M. TERHUNE

My App't. Exp. 11-7-2005

State of Kansas) SS
Sedgwick County)

The foregoing instrument acknowledged
me, this 11TH day of MARCH, 2002, by J. William Owen and B
Owen, husband and wife.

JUDITH M. TERHUNE — Notary Public - State of Kansas — My Appt. Expires 11-7-2005

Judith M. Terhune, Notary P
JUDITH M. TERHUNE

My App't. Exp. 11-7-2005

This plat of "THUNDERBIRD OFFICE PARK
Addition to Wichita, Sedgwick County, Kansas has been submitted
approved by the Wichita-Sedgwick County Metropolitan Area Planni
Commission, Wichita, Kansas.

Dated this 20th day of December, 2001.
Wichita-Sedgwick County Metropolitan Area Planning Commission

L.D. Michaelis, C

Marvin S. Krout, Secre

This plat approved and all dedications shown hereon accepted by the City Council of the City of Wichita, Kansas, this 2nd day of April, 2002.

At the Direction of the City Council

Chris Cisneros, City Man

Pat Burnett, City C

Reviewed in accordance with K.S.A. 58-200
on this 13th day of March, 2002.

Tricia L. Robello, L.S. #1246
Deputy County Surveyor
Sedgwick County, Kansas

Entered on transfer record this 10th o
of April, 2002.

Dan Brace, County
Dan Brace

State of Kansas) SS
Sedgwick County)

This is to certify that this plat has been
filed for record in the office of the Register of Deeds, this 10th
of April, 2002 at 1:00 o'clock P.M. and is duly recorded

Bill Meek, Register of D

Linda Kizzire, Dep

BAUGHMAN COMPA
ENGINEERING, SURVEYING, &
316-262-7271 • 316 ELLIS • WICHI

Plat Engineering

AS Built - SWD # 2075195 to serve Thunderbird Office Park
Lot 1 Block A