STORM WATER DRAIN IMPROVEMENTS

to serve

LIBERTY PARK 2ND ADDITION & LIBERTY PARK 3RD ADDITION

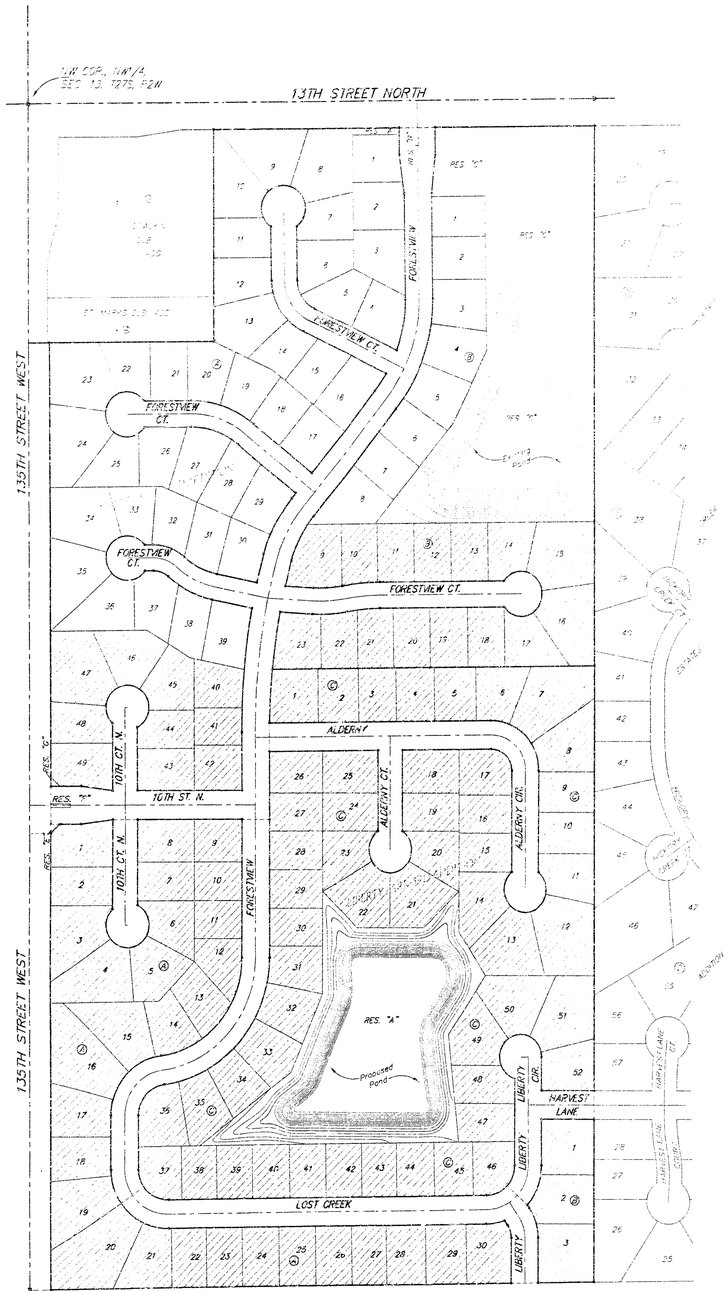
PHASE I & PHASE II

CITY OF WICHITA, KANSAS

James L. Armour, P.E. City Engineer

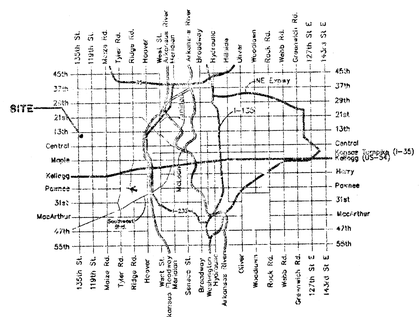
Private Project Number

1608 PPS (607861)



Area to be graded

Scale: 1" = 150'



Vicinity Map

Sheet Index

Title Sheet	1
Mass Grading Plan/Erosion Control Plan	2–3
Pond Plan	4
Pond Cross Sections	5–6
Erosion Control Details	7–10
Copy of Plat	11

Benchmarks

BM #1: C.O.W. benchmark disk. 56' E and 55' N of CL 135th St. W. & 13th St. N. Elev. = 167.83 (City Datum)

BM #2: C.O.W. benchmark disk. 1/2 mile south of 13th St. 39' east of CL 135TH St. 18' south of hedge post. Elev. = 159.71 (City Datum)

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 811 or 1-800-344-7233

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

Cox Communications	262-4270
Kansas Gas Service	1-888-482-1950
Westar Energy	383-6600
Aquila Energy	1-800-343-7357
Southwestern Bell	268-2245
City of Wichita Water Dept.	268-4563
City of Wichita Sewer Maint.	268-4624
City of Wichita Storm Sewer Maint.	268-4620
City of Wichita Traffic Maint.	268-4634
Conoco Pipeline Co.	1-800-231-2551
Williams Pipeline Co.	529-5100
Phillips Pipeline Co.	1-800-765-8250

2. Utility service lines, poles, valve boxes, meters, and etcetera 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. 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 an site location. Locations 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 of Engineers permitting regulations. Any material buried or stockpiled beyond approved construction limits would require additional archeological investigations unless buried in a previously approved borrow location.

4. 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.

5. 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.

6. 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

7. All areas disturbed by construction shall be seeded as indicated on Pond Plan.

8. This project is subject to a current SWPP Plan. Contractor shall comply with any unusual requirements as necessary for site to be in compliance during construction.

9. All existing and proposed erosion control measures including silt fencing, erosion control mat, straw bales, inlet barriers, and const. entrance shall be maintained throughout construction by the contractor and until project is accepted by the City of Wichita. The on-site engineer shall complete weekly reports on the status of erosion control measures. The contractor shall be required to comply with maintenance and/or replacement of erosion control measures as determined by the on-site engineer until project is accepted by City of Wichita. Maintenance and/or replacement of erosion control measures to be paid by L.S. bid item "Site Clearing & Restoration"

10. All excess excavation shall remain on-site and shall be stockpiled or spread at a location determined by the engineer.

11. At conclusion of construction, an as-built survey will be completed by the engineer. The contractor will be required to finish and smooth grade all locations as necessary that are not within ±0.2' of plan grade. The contractor shall include all costs associated with the regrading and/or remobilization in the bid item "Mass Grading."

As Built 5/14/08 KK

APPROVED AS NOTED
BY CITY ENGINEER OF WICHITA
Storm Water Drain 12/2/05

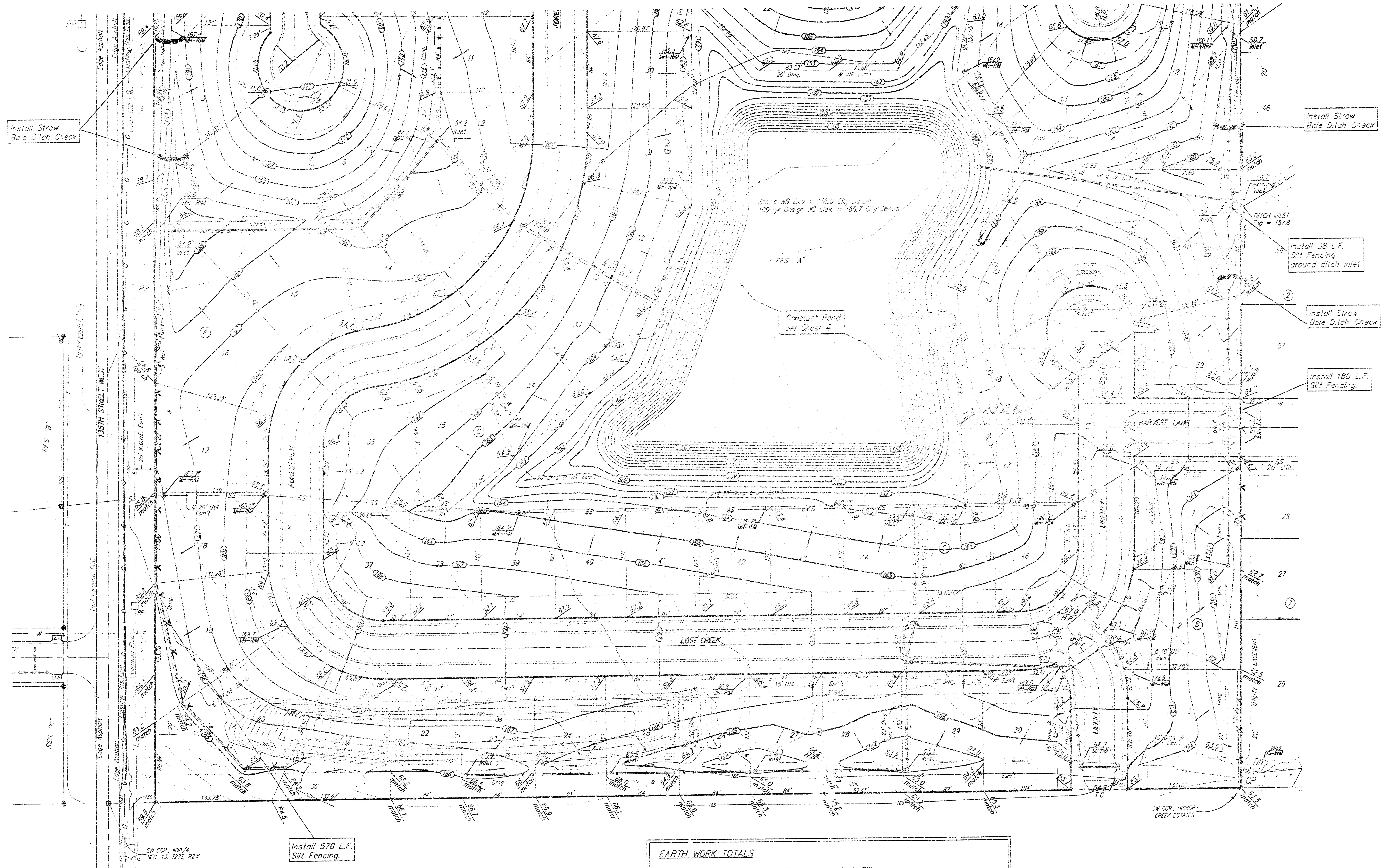
NOTE TO CONTRACTORS

Installation, inspection and testing for this project is to be provided by a Licensed Consulting Engineering Firm under contract with the Owner/Developer. Said inspection to be in accordance with the City of Wichita standard construction engineering practices and certified by a Licensed Professional Engineer. No work shall be performed in dedicated easements or public right-of-way by the Contractor without such inspection nor shall any work be commenced without written authorization by the City Engineer. All Construction and Materials shall comply with the City of Wichita Specifications and Standards (on file and available in the City Engineer's Office).

12/2/05

Baughman

Baughman Company, P.A. 315 Ellis St. Wichita, KS 67211 T 316-262-7271 F 316-262-0214
ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE



Benchmarks

BM #1: C.O.W. benchmark disk
55' E and 55' N of CL 135th
St. W. & 13th St. N
Elev. = 167.83 (City Datum)

BM #2: C.O.W. benchmark disk
1/2 mile south of 13th St.
39' east of CL 135TH St. 13'
south of hedge east.
Elev. = 153.71 (City Datum)

Area to be graded

Existing Grade

(169) Proposed Grade

—X—X— Silt Fence

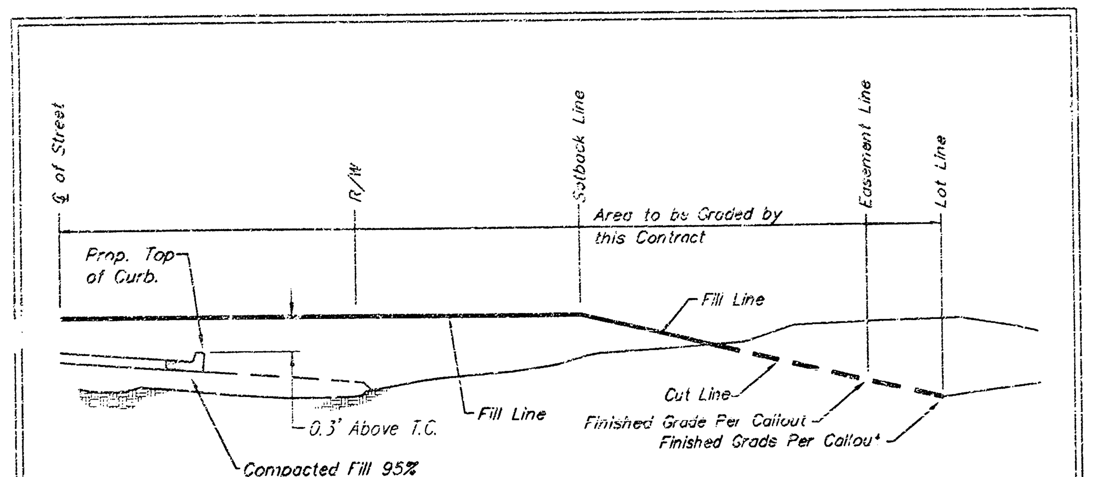
156.3* / MH-RIM Existing Manhole Rim to be adjusted by "Others"

EARTH WORK TOTALS

	C.Y. Excavation	C.Y. Fill
Mass Grading	33,177	86,832
Pond Construction	66,795	–
Total	99,972	86,832

Excess material shall remain on-site and be spread evenly on lots out of easements and right-of-way. Earthwork quantities are for reference only. All cost associated with mass grading shall be incidental to lump sum bid item "Mass Grading".

1. Contractor to strip top 3" of soil within Res. "A" and street R/W before mass grading and stockpile. Top soil stockpile to be redistributed over Reserve "A" above water surface.
2. Compaction of 95% shall be obtained in all street R/W's, 90% in all other areas.
3. It shall be the Contractor's responsibility to protect the existing sanitary sewer during mass grading. Any damage done to these systems by Contractor or subcontractor shall be repaired at no additional cost to the project.
4. Only trees within the street R/W's may be removed if necessary for grading. All other trees shall be protected from damage.
5. All areas disturbed by construction (except within street R/W) shall be seeded as indicated on the Pond Plan.



Typical Lot Section
No Scale

Baughman

Liberty Park 3rd Addition

Mass Grading

Baughman Company, P.A. 315 Ellis St. Wichita, KS 67211 P 316-262-7271 F 316-262-0149
ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE

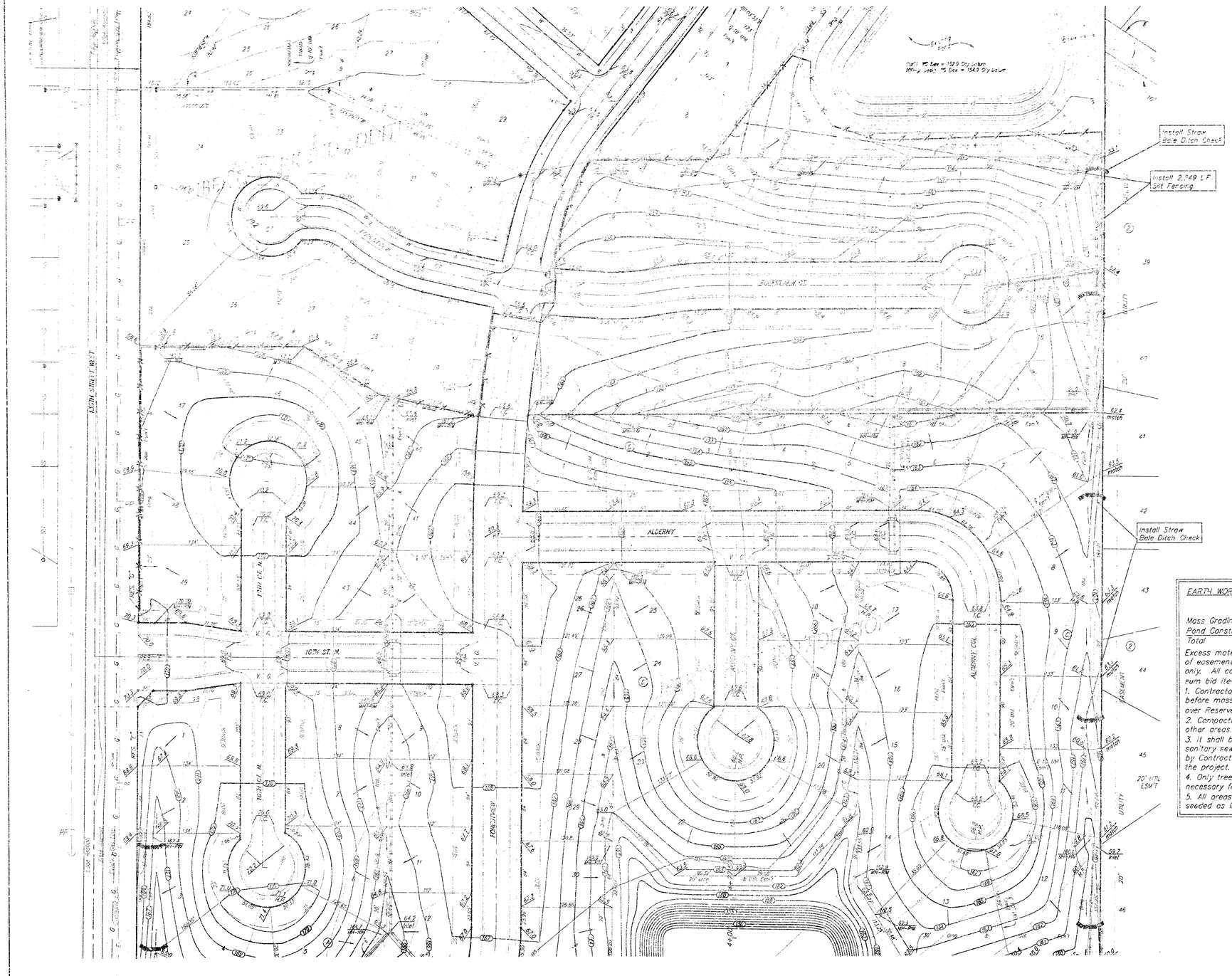
PROJECT NUMBER 1608 PPS (607861)

REVISIONS:

DESIGN	DRAWN
JAK	JAK
APPROVED	DATE
NBW	12/02/05

SCALE 1" = 60'

SHEET **2** OF **11**



Scale: 1" = 50'

Benchmarks

BM #1: C.O.W. benchmark disk 56' E. and 55' N. of CL 13TH St. W. & 13th St. N. Elev. = 157.83 (City Datum)

BM #2: C.O.W. benchmark disk 1/2 mile south of 13th St. 39' east of CL 13STH St. 18' south of hedge east. Elev. = 159.71 (City Datum)

EARTH WORK TOTALS

	C.Y. Excavation	C.Y. Fill
Mass Grading	33,177	86,832
Pond Construction	66,795	–
Total	99,972	86,832

Excess material shall remain on-site and be spread evenly on lots out of easements and right-of-way. Earthwork quantities are for reference only. All cost associated with mass grading shall be incidental to lump sum bid item "Mass Grading".

1. Contractor to strip top 3" of soil within Res. "A" and street R/W before mass grading and stockpile. Top soil stockpile to be redistributed over Reserve "A" above water surface.
2. Compaction of 95% shall be obtained in all street R/W's, 90% in all other areas.
3. It shall be the Contractor's responsibility to protect the existing sanitary sewer during mass grading. Any damage done to these systems by Contractor or subcontractor shall be repaired at no additional cost to the project.
4. Only trees within the street R/W or Res. "A" may be removed if necessary for grading. All other trees shall be protected from damage.
5. All areas disturbed by construction (except within street R/W) shall be seeded as indicated on the Pond Plan.

Baughman

Liberty Park 3rd Addition

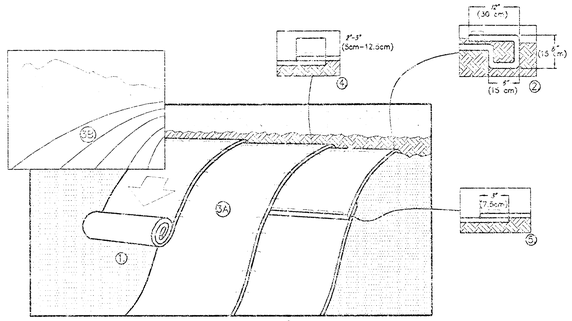
Mass Grading

Baughman Company, P.A. 1919 N. Waterfront Parkway, Suite 100, Wichita, KS 67206-6603
ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE

PROJECT NUMBER	DESIGN	DRAWN
1608 PPE (607861)	JAK	JAK
REVISIONS	APPROVED NRW	DATE 12-05
	SCALE 1" = 60'	
	SHEET 3 OF 11	

SLOPE INSTALLATION

NORTH AMERICAN GREEN



1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM", STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" (5cm-12.5cm) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5cm) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30cm) APART ACROSS ENTIRE BLANKET WIDTH.

NOTE:
*IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15cm) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS

14649 HIGHWAY 41 NORTH, EVANSVILLE, INDIANA 47725
USA 1-800-772-2040 CANADA 1-800-4*8-2040
www.nagreen.com

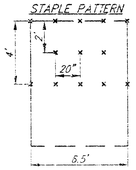
STAPLE PATTERN "D"

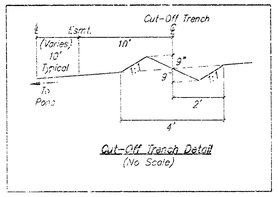
3-1/2 staples per sq. yd using 5-inch, 11 ga. wire "U" staples. 8 inch staples and longer may be used for loose soils. 9 ga. staples or heavier may be necessary in hard or rocky soils.

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

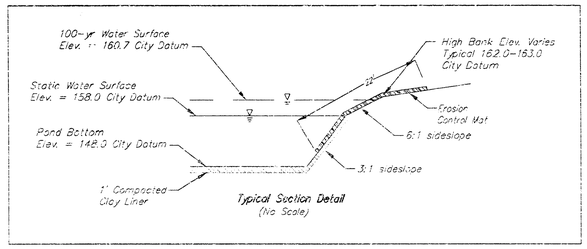
Erosion control mat.

STAPLE PATTERN



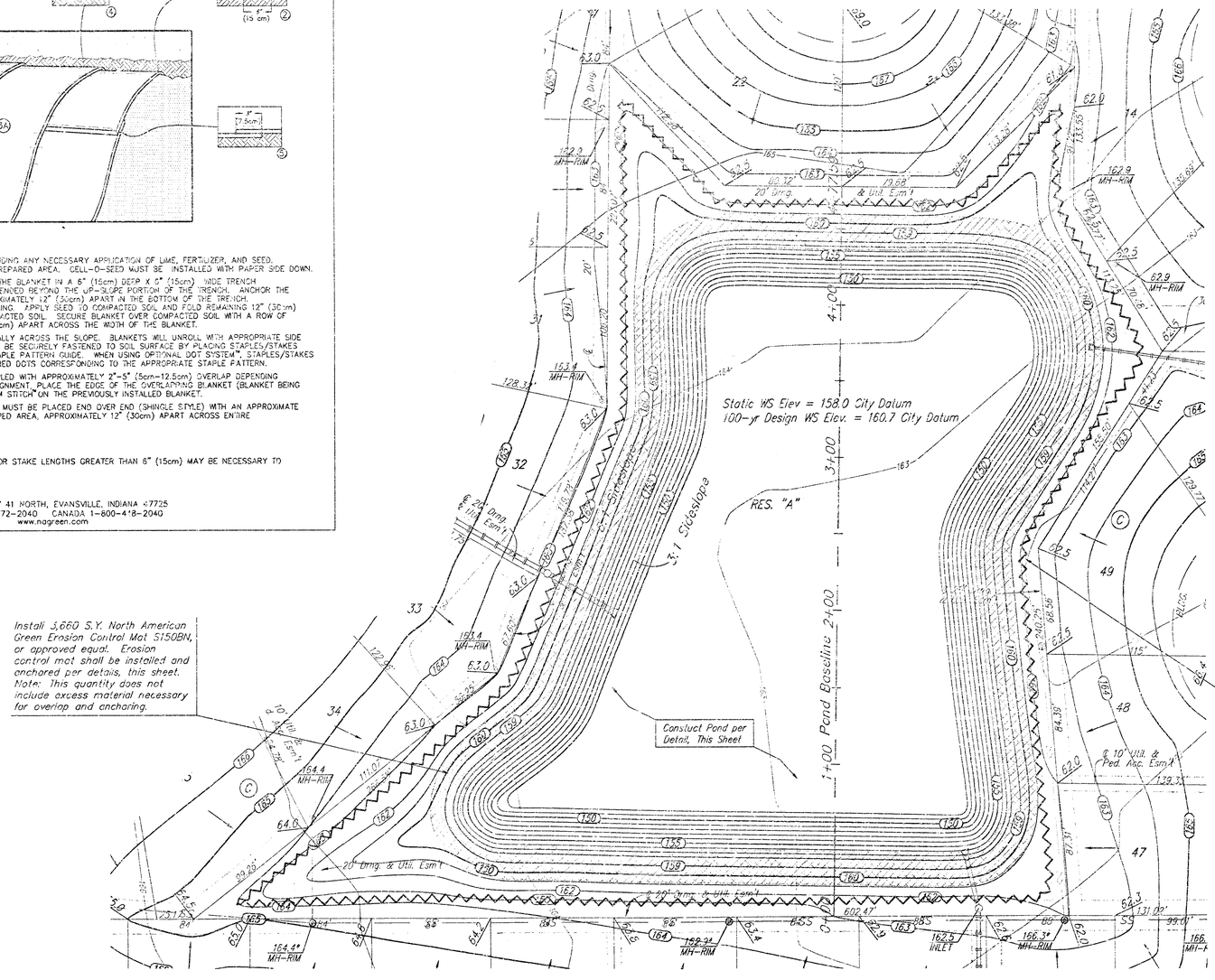


Cut-Off Trench Detail
(No Scale)



Typical Section Detail
(No Scale)

Scale: 1" = 40'



Benchmarks

BM #1: C.O.W. benchmark disk. 55' E and 5.5' N of CL 135th St. W. & 13th St. N. Elev. = 167.83 (City Datum)

BM #2: C.O.W. benchmark disk. 1/2 mile south of 13th St. 39' east of CL 135TH St. 18' south of hedge east. Elev. = 159.71 (City Datum)

NOTES:

1. Pond bottom and sideslopes below static pool elevation shall be over-excavated 1' and a 1' clay liner shall be compacted to 95% std. density. The plasticity index (P.I.) shall be at least 10. 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". Cost of over-excavation to install Clay Liner shall be incidental to bid item, "Excavation."
2. Any excess excavation shall be stockpiled on-site at an area designated by the Engineer out of easements and R/W. Area will be staked by Engineer. Additional area will be staked out if needed.
3. All of Reserve "A" above the static water surface shall be seeded and mulched as follows: (Permanent Seeding)
   SEED -- Kansas Premium Fescue Blend; 6#/1000 Sq. Ft.
   FERTILIZER -- 12-24-12 Ratio at 350 Lbs./Ac.
   MULCH -- 2 Tons Prairie Hay / Acre

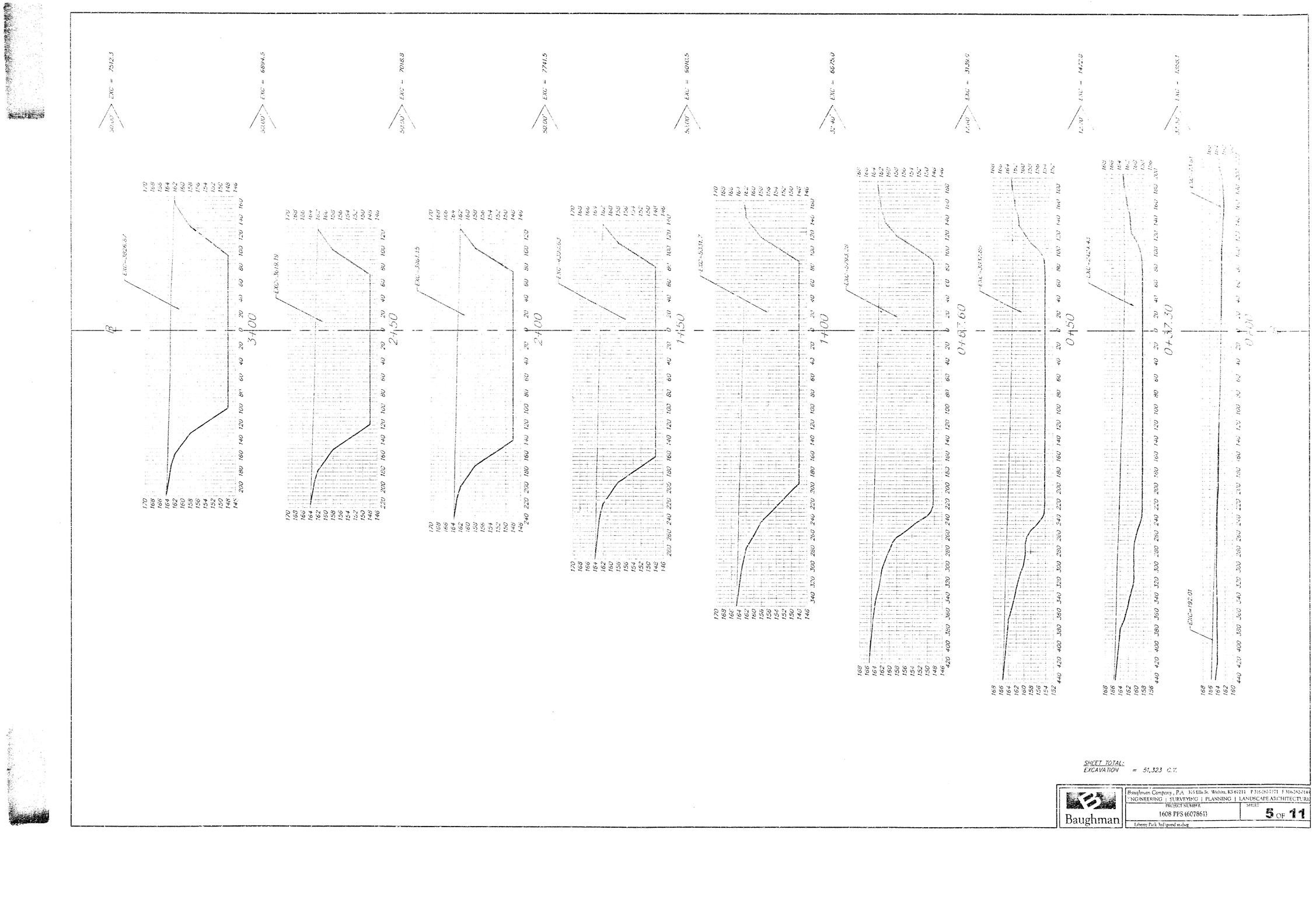
   All other disturbed areas not in street R/W are to be seeded as follows: (Temporary seeding)
   SEED -- Rye grass (P.I.S)--3#/1000 Sq. Ft. and Kansas Premium Fescue Blend; 3#/1000 Sq. Ft.
4. Install Erosion Control Mat from 4' below the water surface to 22' up the bank.
5. Baughman Company will provide staking at the time of construction.
6. Contractor to strip top 3" of soil within Res. "A" and street R/W before mass grading and stockpile. Top soil stockpile to be redistributed over Reserve "A" above water elevation prior to seeding.
7. Compaction of 95% shall be obtained in all street R/W's, 90% in all other areas.

Baughman

Liberty Park 3rd Addition
Pond Plan

Baughman Company, P.A. 135 Bill Street, Wichita, Kansas 67211 316-267-0331 fax 316-267-0344
ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE

PROJECT NUMBER: 1608 PVS (607861)	DESIGN: JAK; DRAWN: JAK
REVISIONS:	APPROVED: NBW; DATE: 11/03
	SCALE: 1" = 40'
	SHEET: 4 OF 11



SHEET TOTAL:
EXCAVATION = 51,323 C.Y.

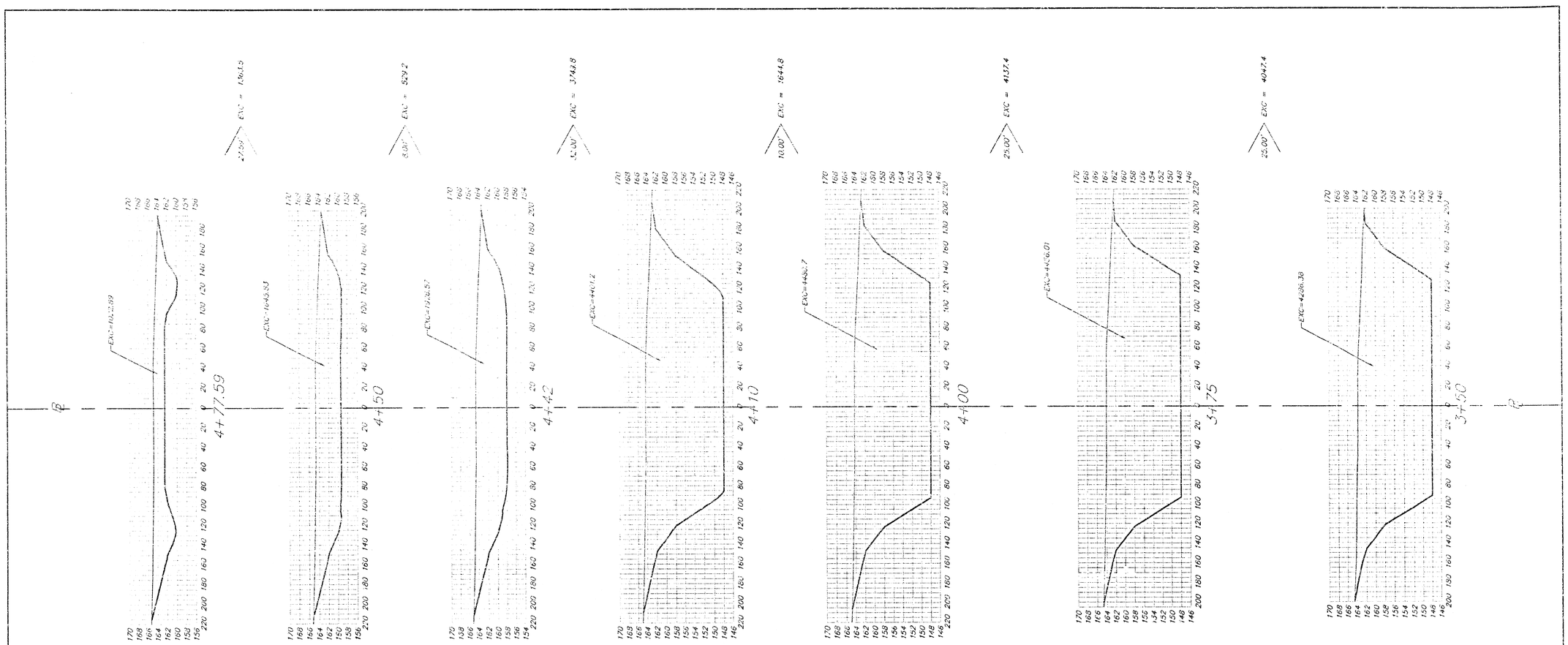
Baughman

Baughman Company, P.A. 315 Ellis St. Wichita, KS 67211 P 316-262-7771 F 316-262-0148
ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE

PROJECT NUMBER: 1608 PFS (607861)

SHEET: 5 OF 11

Liberty Park Bellspond subdvg



SHEET TOTAL:
EXCAVATION = 15,472 C.Y.

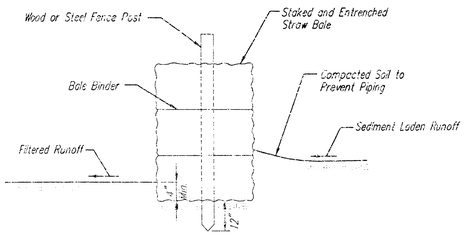
Baughman Company, P.A. 315 Ellis St. Wichita, KS 67211 P 316-262-7271 F 316-262-0149
ENGINEERING | SURVEYING | PLANNING | LANDSCAPE ARCHITECTURE

Baughman

PROJECT NUMBER: 1608 PPS (607861)

SHEET: 6 OF 11

Liberty Park 3rd Pond xs.dwg



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:

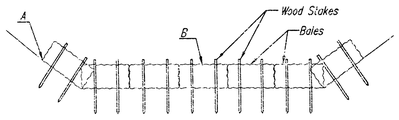
When practicable, do not place bale slope barriers across contours. Slope barriers should be placed along contours to avoid a concentration of flow. Concentrated flow over a slope barrier creates a scour hole on the downslope side of the barrier. The scour hole eventually undermines the bales and the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

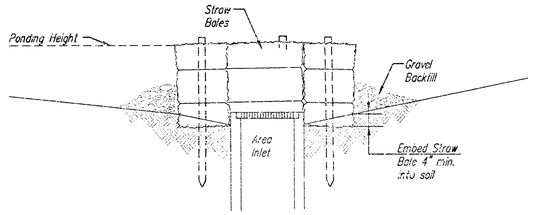
List of common placement/installation mistakes to avoid:

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.

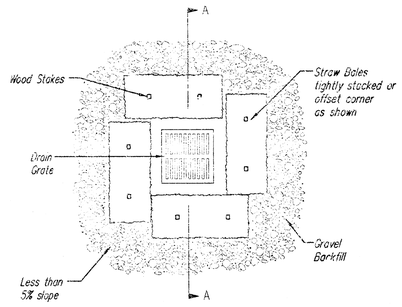
Inspection and Maintenance:

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.

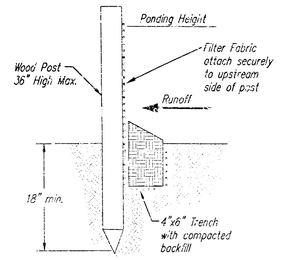
List of common placement installation mistakes to avoid:

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, nails, 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?

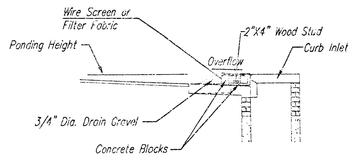
CITY OF WICHITA

SOIL EROSION BMP DETAILS

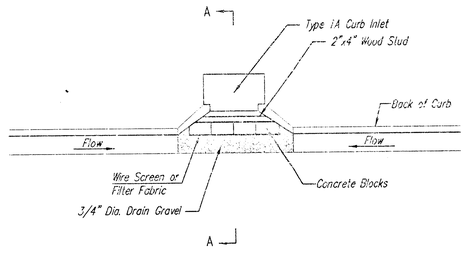
CHRISTOPHER M. CARRIER, P.E.
STORM WATER ENGINEER

PROJECT NUMBER
1608 PPS (607851)

DATE
12/02/05



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.

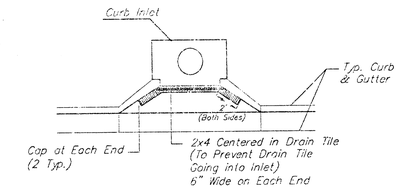
Instructions for Installing:

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.

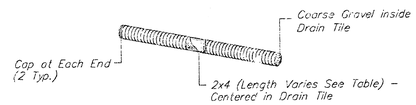
Maintenance:

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.

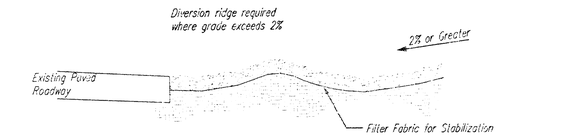


Note:
Place 4" perforated PVC pipe filled w/ 1/2"–1" Dia. gravel. Place pipe in front of Curb Inlet as Shown.

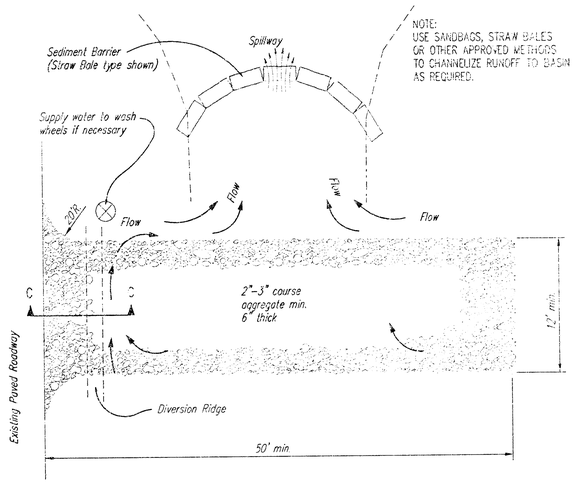
2x4 LENGTH	INLET TYPE	INLET OPENING
5'–8"	1–A	5'–0"
10'–6"	1–A	10'–0"
15'–6"	1–A	15'–0"



CURB INLET PROTECTION
4" Perforated Pipe w/ Gravel



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 STABILIZED 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.

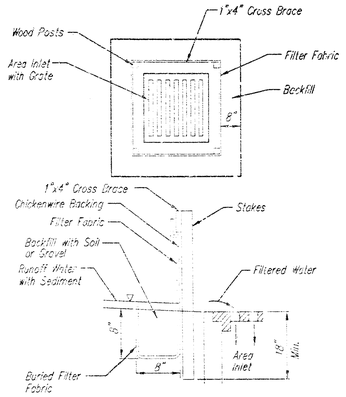
CITY OF WICHITA

SOIL EROSION BMP DETAILS

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

PROJECT NUMBER
1608 PPS (607861)

DATE
12/02/05



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.

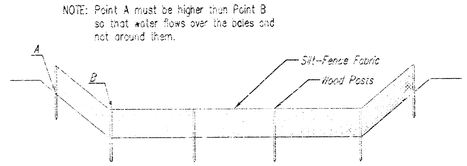
List of common placement/installation mistakes to avoid:

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.

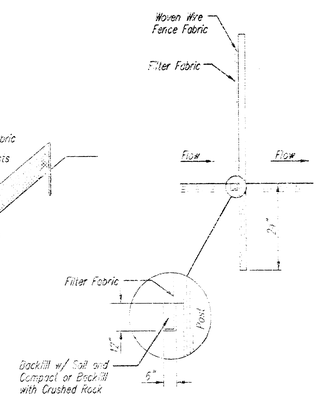
Inspection and Maintenance:

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?



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 for 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 checks.
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 5% or less. For slopes steeper than 5%, rock checks should be used.

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

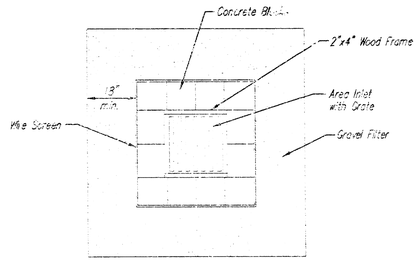
Ditch Check Ditch grade (%)	Spacing Check Spacing (feet)
0.5	200
1.0	200
2.0	100
3.0	65
4.0	50
5.0	40
6.0	30

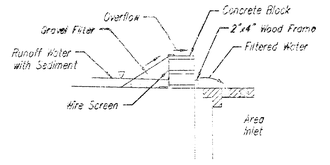
Proper installation method:

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.





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.

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?

CITY OF WICHITA

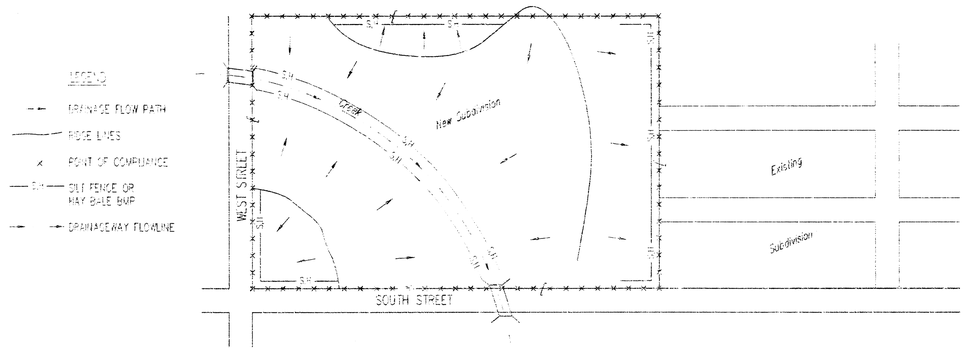
SOIL EROSION BMP DETAILS

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

PROJECT NUMBER
168 PPS (607861)

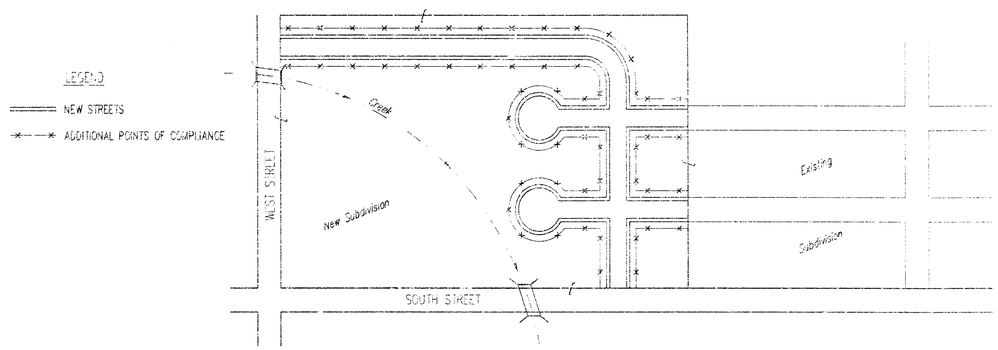
DATE 12/02/05

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



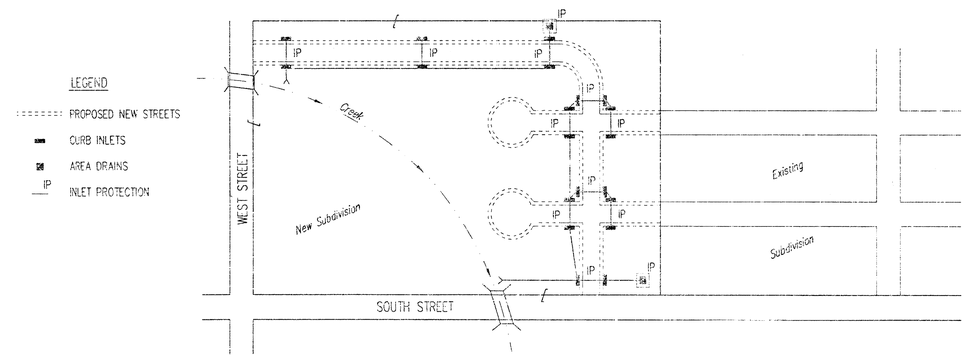
1. DURING THIS PHASE OF SUBDIVISION CONSTRUCTION, THE POINTS OF COMPLIANCE ARE THE PERIMETER BOUNDARIES AND ANY DRAINAGE WAYS OR STORM SEWERS DRAINING THROUGH OR FROM THE SITE. SHOULD LAKES BE CONSTRUCTED WITHIN THE SUBDIVISION THAT WILL DISCHARGE DURING STORMS, THEY ARE ALSO A POINT OF COMPLIANCE.
2. 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 3 – STREET CONSTRUCTION



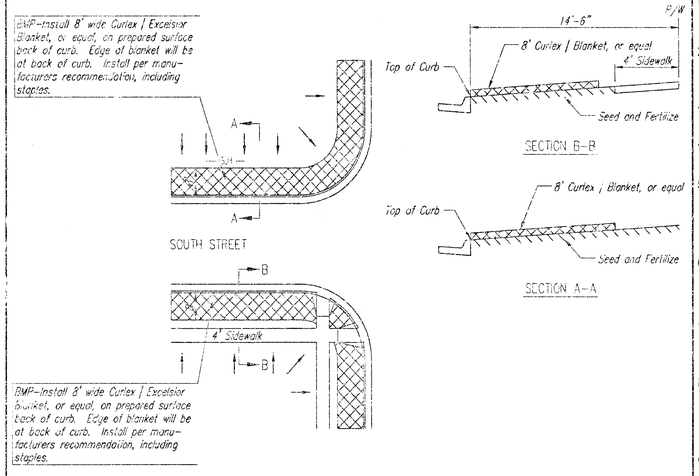
1. DURING THIS PHASE OF SUBDIVISION CONSTRUCTION, NEW STREETS ARE INSTALLED. ALL BMP'S INSTALLED DURING PHASE 1 AND 2 MUST STILL BE MAINTAINED. THE POINT OF COMPLIANCE NOW SHIFTS TO THE BACK OF CURB ALONG EACH STREET.
2. CURB OPENING INLET PROTECTION:
   A. SUMP AREAS – INLET PROTECTION SHALL BE PROVIDED 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.

PHASE 2 – INSTALLATION OF STORM SEWER

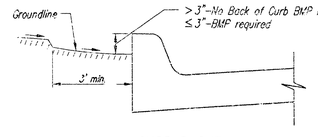


1. DURING THIS PHASE OF SUBDIVISION DEVELOPMENT, ALL BMP'S REQUIRED IN PHASE 1 SHALL REMAIN IN PLACE AND BE MAINTAINED.
2. AS NEW STORM SEWERS, WITH INLETS, ARE INSTALLED, THE STORM SEWERS MUST NOW BE PROTECTED SO ALL NEW INLETS BECOME POINTS OF COMPLIANCE.
3. AREA DRAINS – AS SOON AS WATER CAN FLOW INTO THESE DRAINS, HAYDALE 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.

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

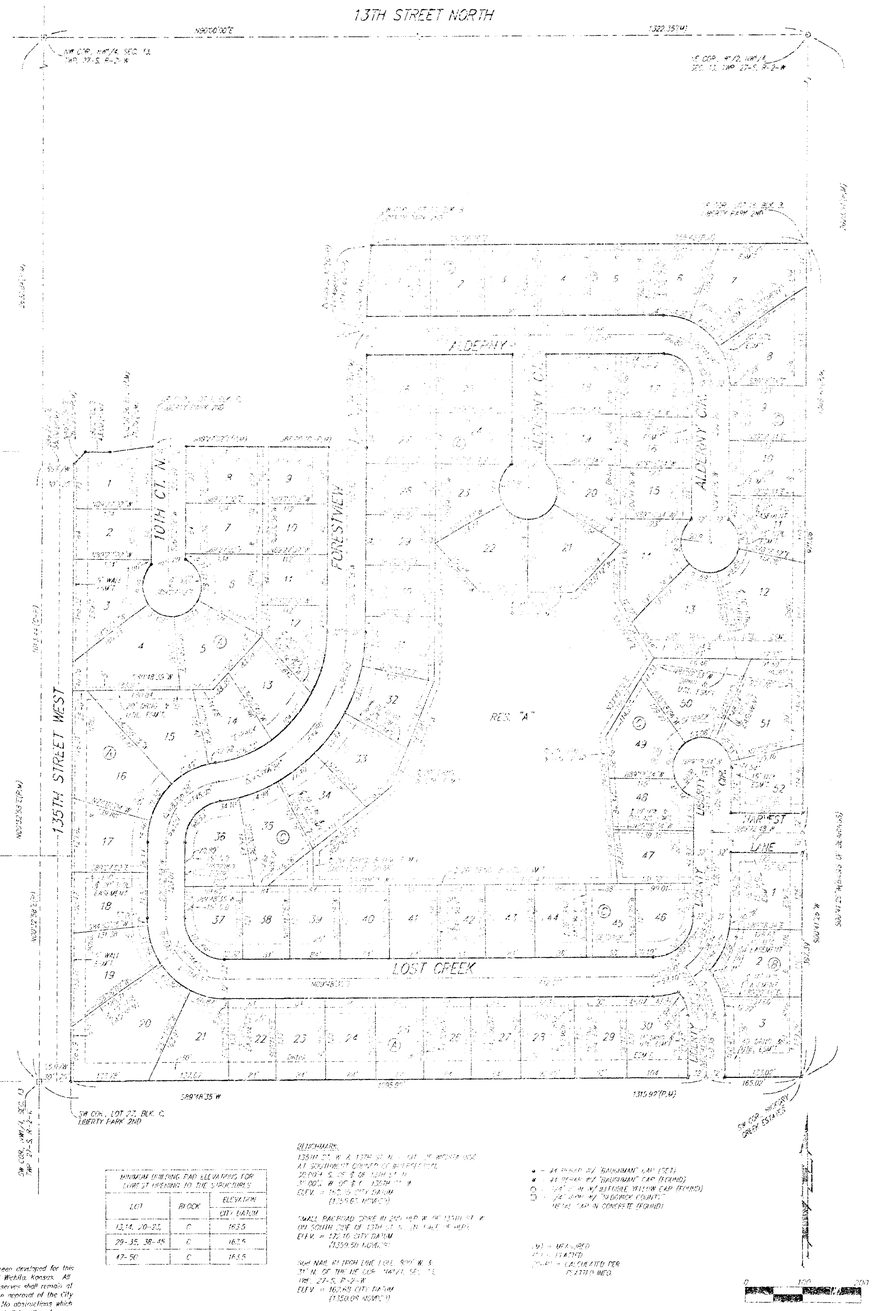
SOIL EROSION BMPS SUBDIVISION DEVELOPMENT PROCESS

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

PROJECT NUMBER
1608 PPS (607861)

DATE 12/02/05

LIBERTY PARK 3RD
AN ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS



MINIMUM BUILDING PAD ELEVATIONS FOR LOWEST OPENING TO THE STRUCTURES		
LOT	BLOCK	ELEVATION CITY DATUM
12-14, 20-22,	C	1635
29-35, 38-45,	C	1637
47-50	C	1635

NOTE:
A master grading plan for drainage has been developed for this subdivision and is on file with the City of Wichita, Kansas. All proposed improvements, right-of-way, or reserves shall remain at established grades or as modified with the approval of the City Engineer or the City of Wichita, Kansas. No obstructions which impede the flow of the drainage system shall be allowed.

BENCHMARK:
135TH ST. W. & 13TH ST. N., SOUTH OF INTERSECTION AT SOUTHEAST CORNER OF INTERSECTION
ELEV. = 1632.98' (CITY DATUM)
(1633.61' NGVD29)

SMALL RAILROAD SPIKE IN 20" HACKBERRY TREE
ON SOUTH SIDE OF 13TH ST. N., 15' EAST OF MEDIAN
ELEV. = 1632.96' (CITY DATUM)
(1633.59' NGVD29)

NAIL AND WASHER FOUND IN POWER POLE
75' N. OF THE NE COR. "NATAL SUB."
SEC. 23-T27S-R2E
ELEV. = 1634.83' (CITY DATUM)
(1635.08' NGVD29)

● = 1/2" DIA. BY 24" REINFORCEMENT ROD (SET)
■ = 1/2" DIA. BY 24" REINFORCEMENT ROD (FOUND)
○ = 1/2" DIA. IRON PIPE (FOUND)
⊗ = 1/2" DIA. BY 24" REINFORCEMENT ROD WITH "BAUGHMAN COMPANY" CAP (FOUND)
(M) = MEASURED
(P) = PLATTED
(NGVD29) = ELEVATIONS PER NGVD29 DATUM

State of Kansas)
Sedgwick County) SS

We, Baughman Company, P.A., Surveyors in aforesaid county and state do hereby certify that we have surveyed and platted "LIBERTY PARK 3RD", an Addition to Wichita, Sedgwick County, Kansas and that the accompanying plat is a true and correct exhibit of the property surveyed, described as and being a replat of all of Lots 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, and 39, Block B, Liberty Park 2nd, an Addition to Wichita, Sedgwick County, Kansas, together with all of Lots 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, and 37, Block C, in said Liberty Park 2nd, together with all of Lots 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, and 36, Block D, in said Liberty Park 2nd, together with all of Lots 1, 2, and 3, Block E, in said Liberty Park 2nd, together with all of Reserve "D", as platted in said Liberty Park 2nd, together with that part of Forestview lying south of the north line of Lot 2 in said Block D, as extended east to the west line of Lot 2 in said Block D, the most southern Forestview Ct., 10th St. N. lying south of 10th St. N., Alderney, Alderney Cir., Liberty, Harriest Lane, Lost Creek, and Lost Creek Cir., all as dedicated in said Liberty Park 2nd.

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

All being situated in the NW1/4 of Sec. 13, Twp. 27-S, R-2-W of the 6th P.M., Sedgwick County, Kansas.

Baughman Company, P.A.

Michael S. Currey, Surveyor

Know all men by these presents that we, the undersigned, have caused the land in the surveyors certificate to be platted into Lots, Blocks, Streets, and a Reserve, to be known as "LIBERTY PARK 3RD", an Addition to Wichita, Sedgwick County, Kansas. The utility easements are hereby granted as indicated for the construction and maintenance of all public utilities. The drainage and utility easements are hereby granted as indicated for drainage purposes and for the construction and maintenance of all public utilities. The drainage easements are hereby granted as indicated for drainage purposes. The wall easement is hereby granted as indicated for the construction and maintenance of a private screening wall and utility main lines and service lines shall be allowed to cross these easements. The utility and pedestrian access easements are hereby granted as indicated for the construction and maintenance of all public utilities and for pedestrian access to or from Reserve "A" and no fences or other obstructions shall be constructed or placed on or within these easements. The streets are hereby dedicated to and for the use of the public. Reserve "A" is hereby reserved for landscaping, lakes, open space, berms, drainage purposes, and utilities as confined to easements. Reserve "A" shall be owned and maintained by the homeowners association for the addition. Access controls shall be as restricted on the face of the plat and are hereby granted to the City of Wichita, Kansas. The Minimum Building Pad Elevations for the lowest opening to the structures shall be as indicated on the face of the plat.

Kelsey Investments, Inc.

Paul E. Kelsey, President

State of Kansas)
Sedgwick County) SS

The foregoing instrument acknowledged before me, this 7TH day of JULY, 2004, by Paul E. Kelsey, President of Kelsey Investments, Inc., on behalf of the corporation.

Judith M. Terhune, Notary Public

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

We, the undersigned holders of mortgages on the above described property, do hereby consent to the plat of "LIBERTY PARK 3RD", an Addition to Wichita, Sedgwick County, Kansas.

Legacy Bank

Brad E. Yaeger, S.V.P.

State of Kansas)
Sedgwick County) SS

The foregoing instrument was acknowledged before me this 4 day of AUG, 2004, by Brad E. Yaeger, S.V.P. of Legacy Bank, on behalf of the bank.

Notary Public

My Appt. Exp. 2-14-05

This plat of "LIBERTY PARK 3RD", an Addition to Wichita, Sedgwick County, Kansas, has been approved by the Wichita Design Review Board, this 7 day of JULY, 2004.

Signed this 22nd day of April, 2004, Wichita-Sedgwick County Metropolitan Area Planning Commission.

Robert L. Layton, Chairman

John L. Schlegel, Secretary

This plat approved for all dedications shown hereon accepted by the Governing Body of the City of Wichita, Kansas, this 3rd day of August, 2004.

Carlos Mayans, Mayor

Karen Sublett, City Clerk

Reviewed in accordance with K.S.A. 58-2005 on this 5th day of August, 2004.

Trina L. Roberts, L.S. #1240
Deputy County Surveyor
Sedgwick County, Kansas

Entered on transfer record this 25th day of August, 2004.

Don Brace, County Clerk

State of Kansas)
Sedgwick County) SS

This is to certify that this plat has been filed for record in the office of the Register of Deeds, this 25 day of August, 2004 at 3:20 o'clock P.M. and is duly recorded.

Bill Musil, Register of Deeds

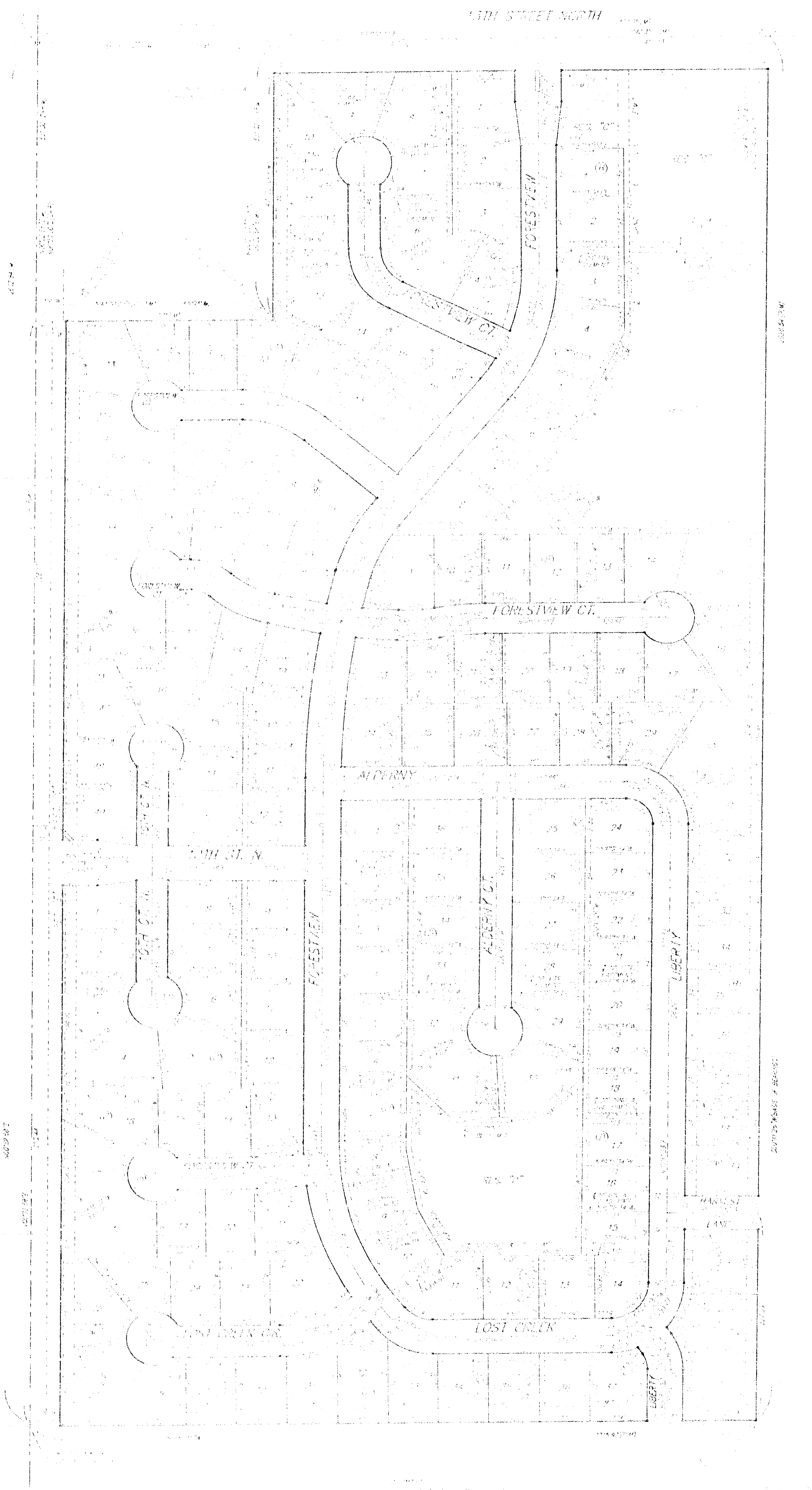
Lindy Kizzire, Deputy

SHEET 11A OF 11

BAUGHMAN COMPANY, P.A.
ENGINEERING, SURVEYING & PLANNING

UCC FILING: FILE NO. 2005011750
Date Recorded: 8/26/2004 3:20:51 PM

LIBERTY PARK 2ND
AN ADDITION TO WICHITA, SEDGWICK COUNTY, KANSAS



Baughman Company, P.A.

Michael D. Carey 5-2-2003

Paul E. Kelsey, President

State of Kansas } SS
Sedgwick County }
The foregoing instrument acknowledged before me, this 22nd day of October, 2003, by Paul E. Kelsey, President

SUSAN K. MONETTE
Susan K. Monette, Notary Public
My Appt. Exp. 11-7-03

Brad E. Yaeger, S.V.P.

State of Kansas } SS
Sedgwick County }
This 24 day of Oct, 2003, by Brad E. Yaeger, SVP

Danielle K. N., Notary Public
My Appt. Exp. 6/11/05

Bernard R. Hentzen, Chair
Dale Miller, Secretary

Carlos Mayans, Mayor
Karen Schofield
Karen Schofield

BAUGHMAN COMPANY P.A.

16 14 02 20