PROJ. NO.468-83318 O.C.A. NO. 744155

CONSTRUCTION PLANS

SANITARY SEWER EXTENSIONS

EQUESTRIAN ESTATES ADDITION - PHASE 2

TO

THE CITY OF WICHITA, KANSAS

LATERAL 314, FOUR MILE CREEK SEWER

JAMES L. ARMOUR, P.E. - CITY ENGINEER

PROJECT NO. 468-83318

OCA NO. 744155

GENERAL NOTES:

1. USGS Datum.

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

   Kansas One-Call 1-800-344-7233

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

Cox Communications	262-4270 or 263-2061
Westar Energy	261-6824
Aquila Networks	941-1608
Arkla Gas Company	942-8350 or 263-8161
Southwestern Bell Tel. Co.	268-2759
City of Wichita Water Department	268-4908
City of Wichita Sewer Maintenance	268-4071

3. Existing utility lines 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.

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

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

5. The Contractor shall be responsible for maintaining continuous flow of sewage through construction. Contractor's proposed method for maintaining sewage flow shall be approved by the Engineer. Cost of maintaining flow of sewage through construction will not be paid for directly and this cost shall be considered as subsidiary to the other pay items of the work.

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.

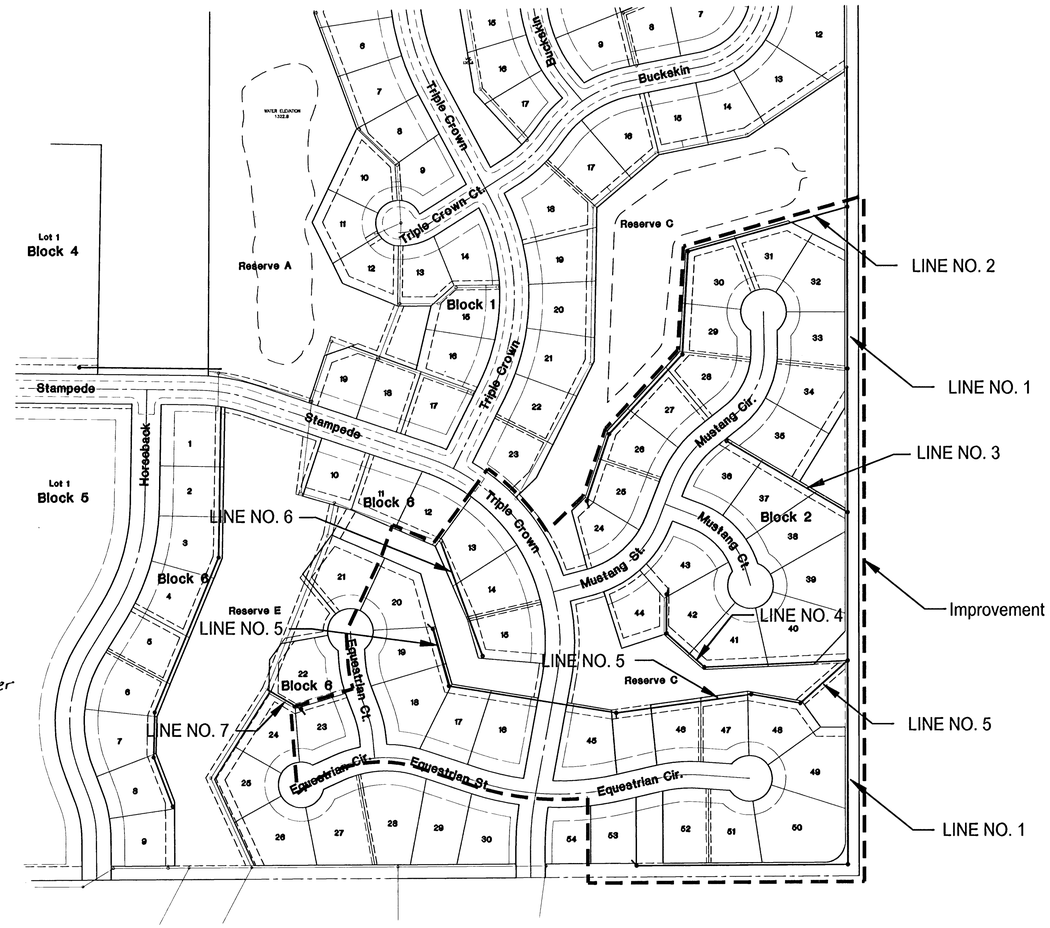
7. Trees and shrubs in public right-of-way which are in direct conflict with proposed new construction shall be removed by the Contractor with the Engineer's approval. Trees and shrubs which are not in direct conflict with the proposed new construction shall be saved and protected from damage.

8. Contractor shall vacuum test all manholes according to the City of Wichita standard specifications.

9. The tops of all Manholes to be set 0.4 feet above existing ground unless otherwise noted.

10. All areas disturbed by sewer construction, i.e. R/W, easements, and adjacent properties shall be restored with the same grass/ sod as per AR 78.

11. Contractor shall maintain all existing BMP(s) on project site during construction. Contractor shall repair or replace any existing BMP(s) that are damaged (Cost subsidiary to site restoration). If BMP(s) were damaged prior to contractor beginning work on project, notify construction inspector or engineer.



Poe & Assoc. - Robert Koerner
"City of Wichita"

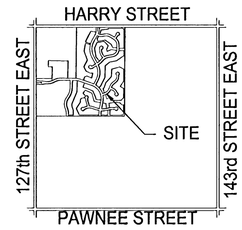
"Record Drawings"
Date: 07-21-06
Initials: JU/RK

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Scale 1" = 150'



LOCATION MAP
No Scale

Wilks Underground - Contractor
Poe + Assoc. - Inspector
Released 6/19/06
Per Plan
.pdf by JDL 10/13/06

BENCH MARKS

1. Railroad spike in power pole, approximately 25' south and 30' east of W 1/4 Corner, Section 35-27-2E. Elevation 1349.65
2. Square on south hub guard of RCBC just west of NW Corner of Section 35-27-2E. Elevation 1311.90

NOVEMBER 2005

PLANS PREPARED BY

POE & ASSOCIATES, INC.
CONSULTING ENGINEERS
5940 E. Central, Suite 200 ■ Wichita, KS 67208-4242
Phone 316/685-4114 ■ FAX 316/685-4444

JAMES M. UBERT LICENSED 14698 KANSAS PROFESSIONAL ENGINEER
11-22-05

DION P. DICKMAN LICENSED 18137 KANSAS PROFESSIONAL ENGINEER
11-22-05

GRAPHIC SCALE
5 0 40 0 20 40 80
(IN FEET)
1 INCH = 40 FT.
0
1 INCH = 5 FT.
(Vert.)

Sta. 1+45.69 to Sta. 2+05.69 Install
60 LF Reinf. Conc. Encasement
(See Detail This Sheet)

REMOVE ONLY THOSE TREES IN DIRECT CONFLICT WITH SEWER CONSTRUCTION

NOTE: Wood-Rail Fence to be Removed & Replaced to 10' Outside of the Property Line (Cost Subsidiary to Site Clearing)

Sta. 6+59.79 Line No. 1
Constr. Std. MH Type "P"
N 8789.2420, E 18235.9048

Sta. 3+05.27 Line No. 1
Sta. 0+00.00 Line No. 2
Constr. Std. MH Type "P"
N 9143.7634, E 18235.6699

CAUTION!!!
Underground Power
and Telephone

East Property Line

21.75

25.03

LINE 1

5'

56°9'7"

105°38'34"

74°21'26"

Sta. 0+00.00 Line No. 1
Connect to Existing 8" Stub
Field Verify FL & Location
N 9449.0349, E 18235.4675

LINE 2

30' Utility Easement

34

33

32

Reserve C

Mustang Cir.

NOTE: Wood-Rail Fence to be Removed & Store on-site prior to construction (Cost Subsidiary to Site Clearing)

12

BLOCK 2

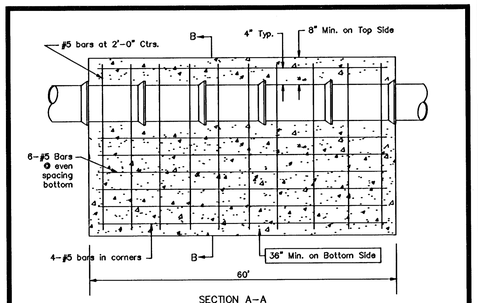
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POND
NWS=1319.50
DWS=1323.50

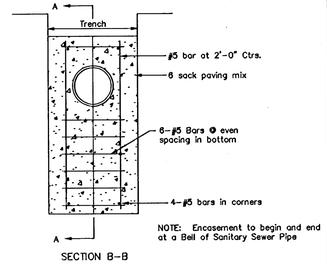
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Prop. 6" WL

Proposed
Pavement



SECTION A-A



NOTE: Encasement to begin and end at a Bell of Sanitary Sewer Pipe

SECTION B-B

REINFORCED CONCRETE ENCASEMENT OF SANITARY SEWER

LINE NO. 1

Sta. 0+00.00 Line No. 1
Connect to East MH
Field Verify FL, Location

Sta. 1+45.69 Line No. 1
Reinf. Conc. Encsmnt.

Sta. 1+75.69 Line No. 1
"L" Drainage Ditch

Sta. 2+05.69 Line No. 1
Reinf. Conc. Encsmnt.

Sta. 3+05.27 Line No. 1
Sta. 0+00.00 Line No. 2
Constr. Std. MH Type "P"

Sta. 6+59.79 Line No. 1
Constr. Std. MH Type "P"

Existing Ground

Proposed Finish Grade
21.75

Top MH 1321.7

25.03
Top MH 1325.0

Line No. 2
FL=1315.60

354.52 LF 8" Pipe @ 0.40% Grade

Bottom of Encasement
Elevation=1311.50

305.27 LF 8" Pipe @ 0.40% Grade

FL Out 1314.18
FL In 1314.28
1314.68
FL 1314.86
1314.98
FL 1315.10
FL 1315.50
1315.88
1316.28
1316.68
FL 1316.92
1317.08
1317.48
1317.88
FL 1318.18
1318.28

1345 1340 1335 1330 1325 1320 1315 1310 1305 1300

0+00 1+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00 9+00 10+00

No.	Date	By	Approved	Revision

EQUESTRIAN ESTATES - PHASE 2
SANITARY SEWER EXTENSIONS
LINE NO. 1
CITY OF WICHITA, KANSAS
JAMES L. ARMOUR, P.E. - CITY ENGINEER
Proj# 468-83318 O.C.A.# 744155

POE & ASSOCIATES, INC.
CONSULTING ENGINEERS
5940 E. Central, Suite 200 ■ Wichita, KS 67208-4242
Phone 316/685-4114 ■ FAX 316/685-4444

FINAL

Designed By: JMU/JPD
Drawn By: JPD/JMU
Poe Job No.: 1694J
Date: November 2005
C.O.W. #468-83318

Sheet
2 of 15

GRAPHIC SCALE
5
0
1 INCH = 5 FT.
(Vert.)
40 0 20 40 80
(IN FEET)
1 INCH = 40 FT.

NOTE: Wood-Rail Fence to be Removed & Replaced to 10' Outside of the Property Line (Cost Subsidiary to Site Clearing)

REMOVE ONLY THOSE TREES IN DIRECT CONFLICT WITH SEWER CONSTRUCTION

Sta. 6+59.79 Line No. 1
Proposed Std. MH Type "P"
N 8789.2420, E 18235.9048

Sta. 9+74.64 Line No. 1
Sta. 0+00.00 Line No. 3
Constr. Std. MH Type "P"
N 8474.3983, E 18236.1135

Sta. 12+99.37 Line No. 1
Sta. 0+00.00 Line No. 4, 5
Constr. Std. MH Type "P"
N 8149.6668, E 18236.3287

Sta. 17+45.94 Line No. 1
Constr. Std. MH Type "P"
N 7703.0963, E 18236.6247

East Property Line
South Property Line
5'
5'
LINE 1
26.82
29.56
34.04
59°25'41"
120°34'19"
92°35'34"
47°52'32"
39°31'54"
90°2'17"
30' Utility Easement
LINE 3
LINE 4
LINE 5
LINE 1
Reserve C
Reserve C
33
34
35
37
38
39
40
48
49
50
BLOCK 2
BLOCK 2
Mustang Cir.
Mustang Court
Equestrian Circle
30' Utility Easement
NOTE: Wood-Rail Fence to be Removed & Stored on-site prior to construction (Cost Subsidiary to Site Clearing)
Prop. 6" WL
Prop. 6" WL
Prop. 6" WL
Proposed Pavement

LINE NO. 1

Sta. 6+59.79 Line No. 1
Prop. Std. MH Type "P"
Sta. 9+74.64 Line No. 1
Sta. 0+00.00 Line No. 3
Constr. Std. MH Type "P"
Sta. 12+99.37 Line No. 1
Sta. 0+00.00 Line No. 4, 5
Constr. Std. MH Type "P"
Sta. 17+45.94 Line No. 1
Constr. Std. MH Type "P"

25.03
Top MH 1325.0
26.82
Top MH 1326.8
29.56
Top MH 1329.5
34.04
Top MH ~~1329.9~~ 1334.0
Existing Ground
Proposed Finish Grade
Line No. 3
FL=1318.28
Line No. 4, 4A
FL=1319.58
314.84 LF 8" Pipe @ 0.40% Grade
324.73 LF 8" Pipe @ 0.40% Grade
446.57 LF 8" Pipe @ 0.40% Grade

1345 1340 1335 1330 1325 1320 1315 1310 1305 1300

1316.68 FL 1316.92 1317.08 1317.48 1317.88 FL 1318.18 1318.28 1318.68 1319.08 FL 1319.48 1319.88 1320.28 1320.68 1321.08 FL Out 1321.27 FL In 1321.37

6+00 7+00 8+00 9+00 10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00

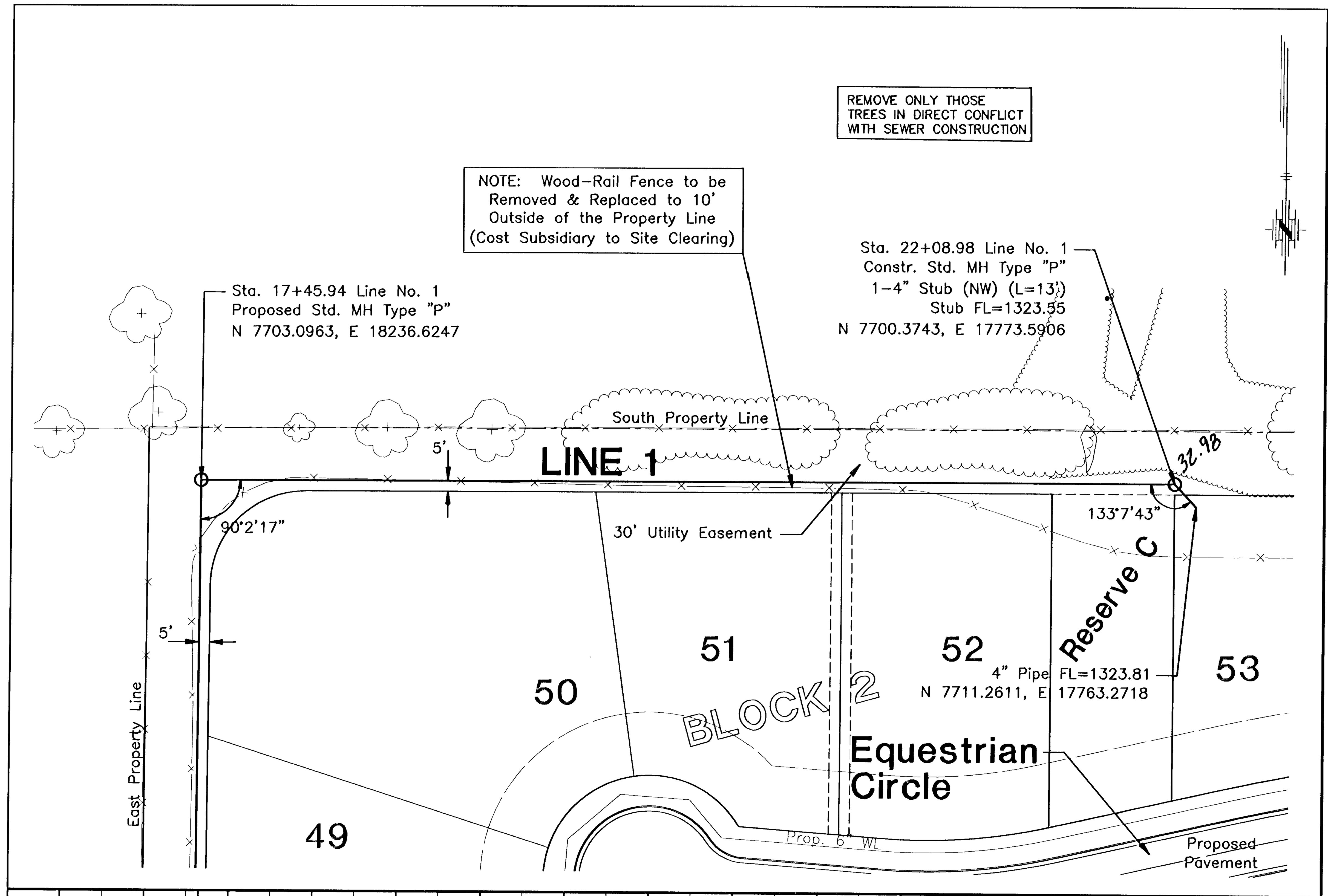
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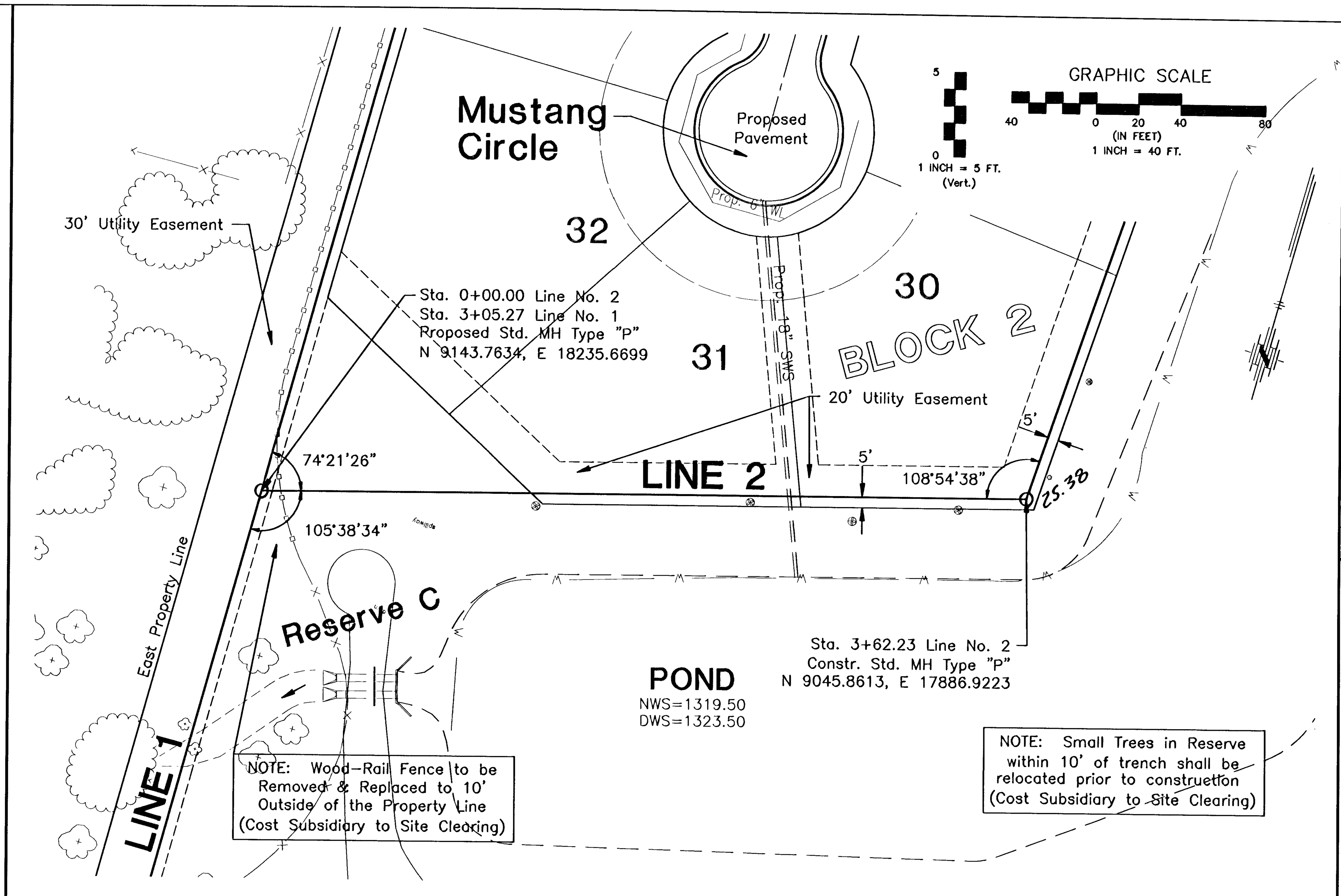
EQUESTRIAN ESTATES - PHASE 2
SANITARY SEWER EXTENSIONS
LINE NO. 1
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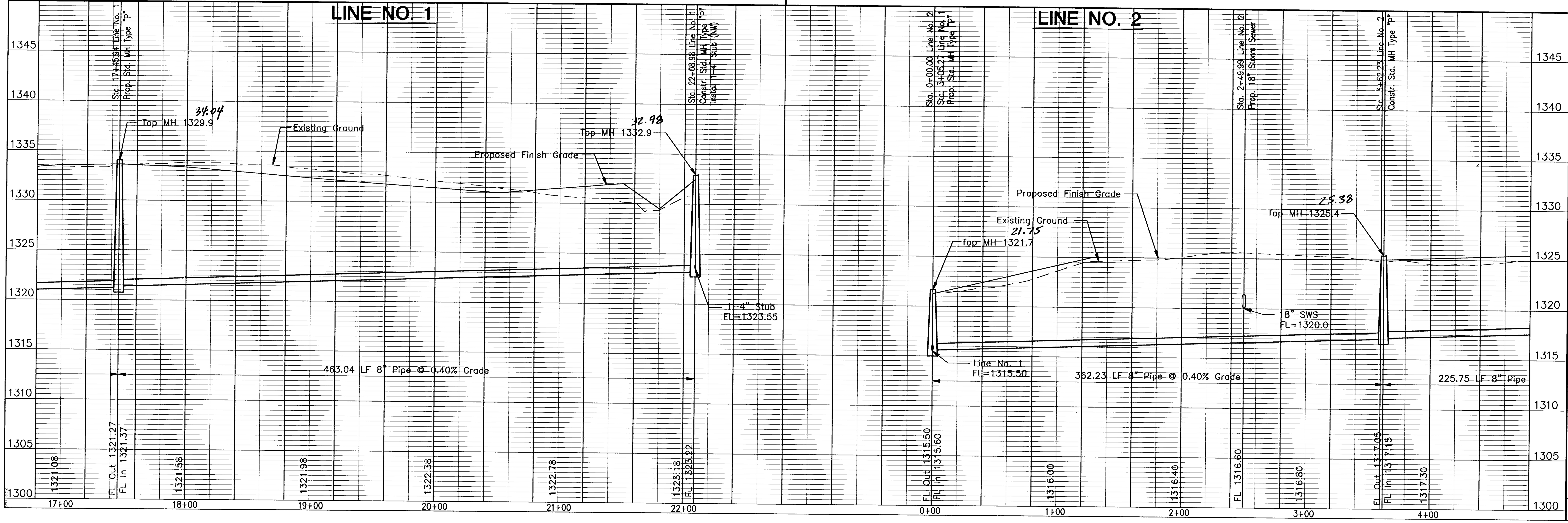
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SANITARY SEWER EXTENSIONS
LINE NO. 1 & 2

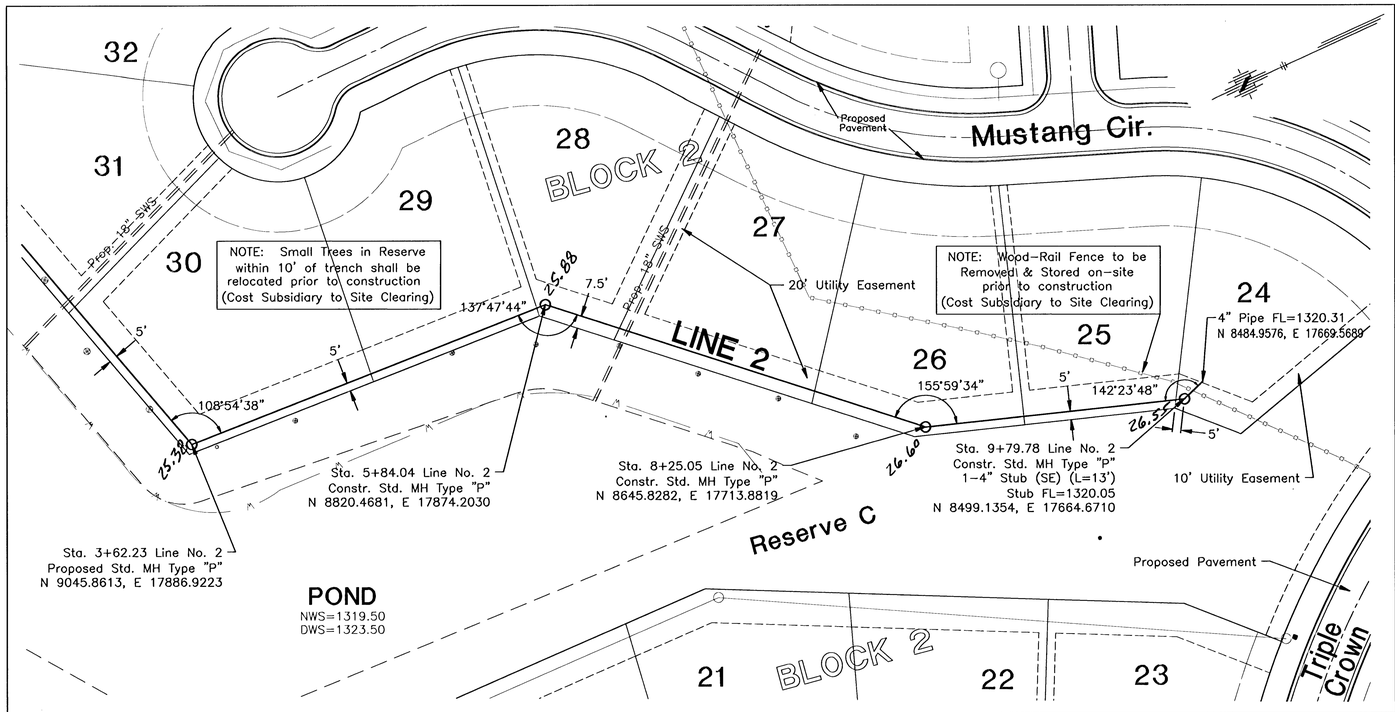
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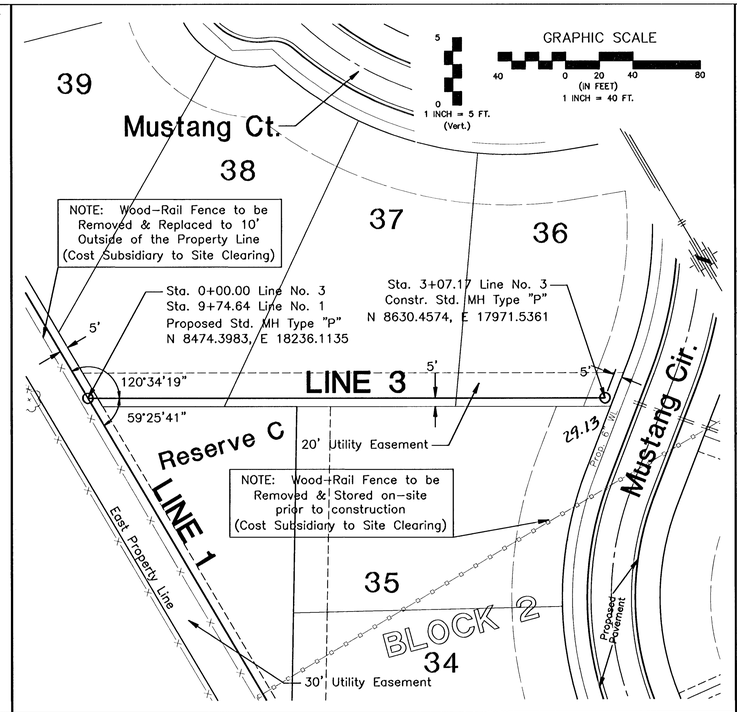
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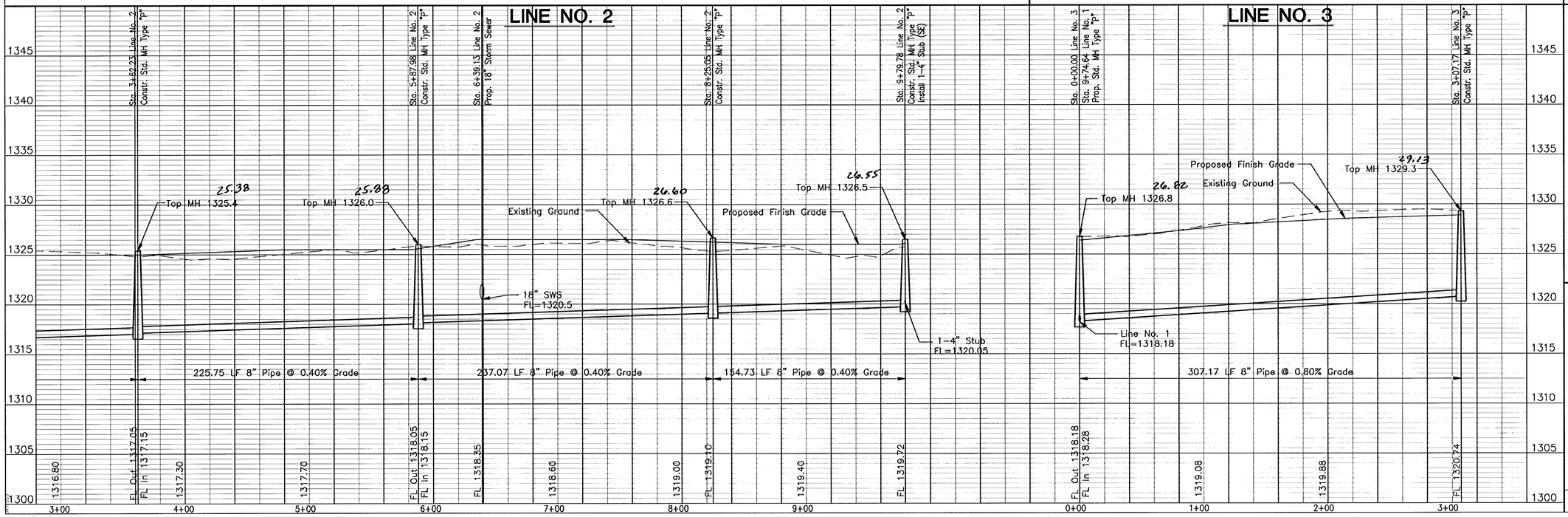
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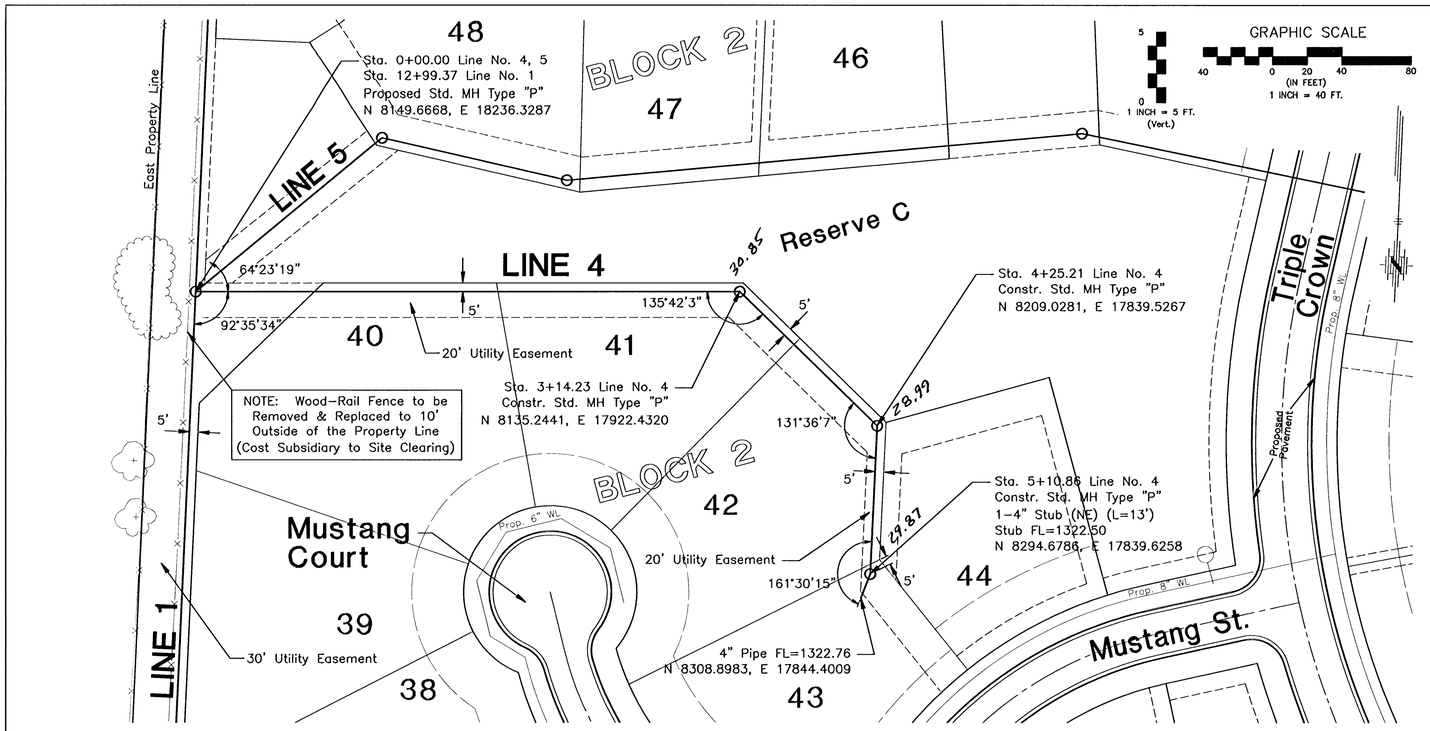
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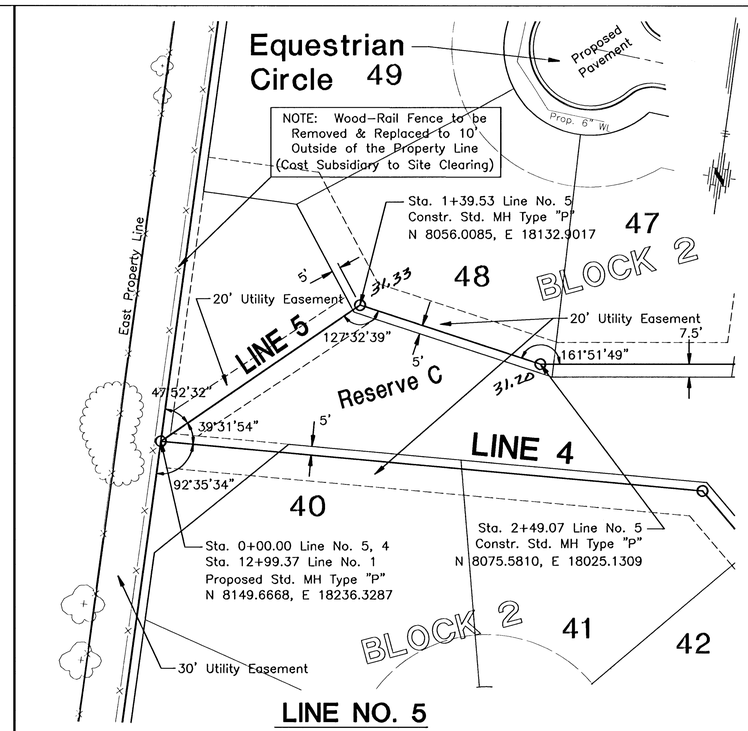
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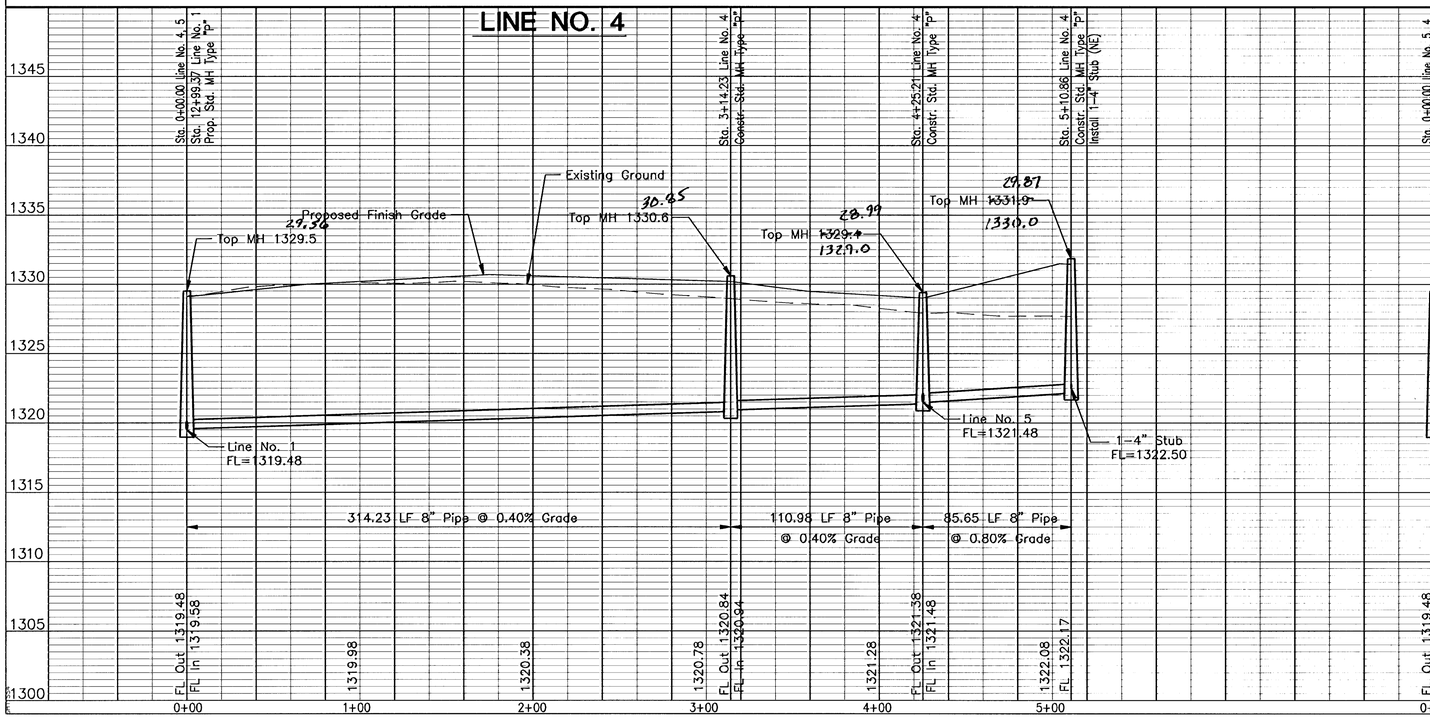
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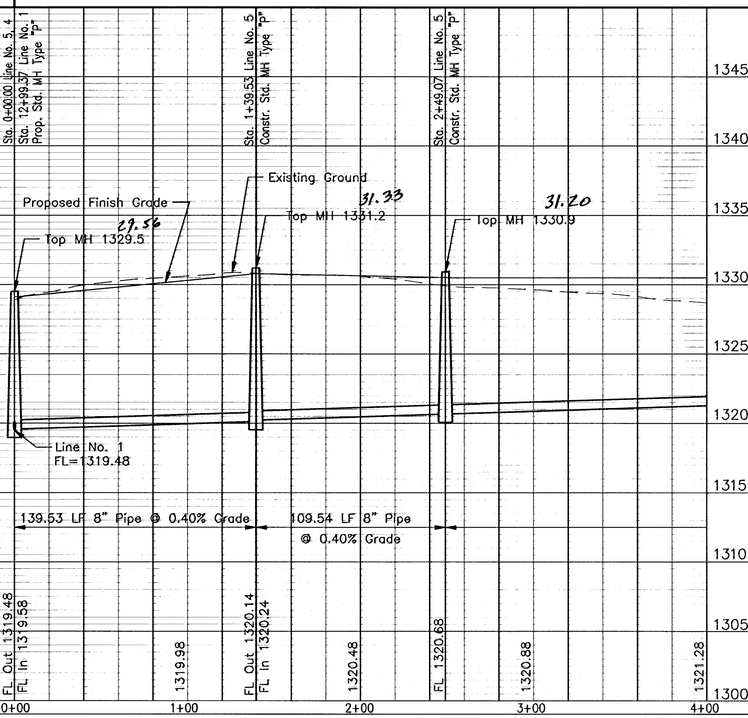




LINE NO. 5

LINE NO. 4





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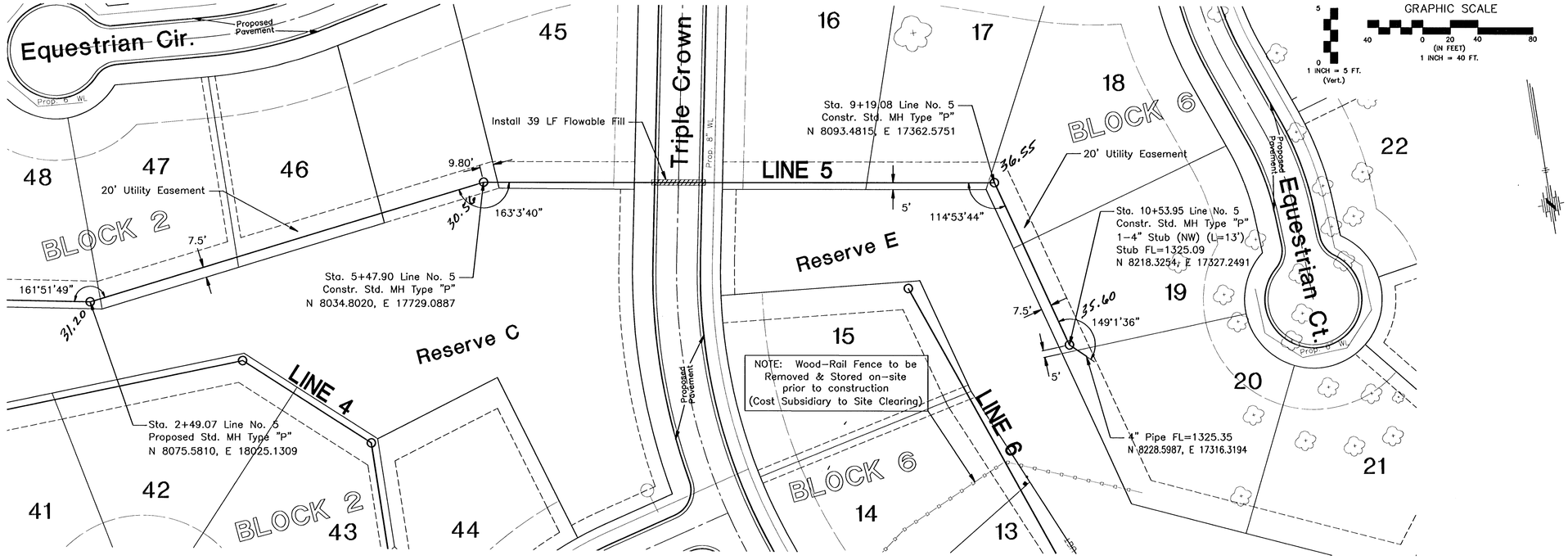
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LINE NO. 4 & 5
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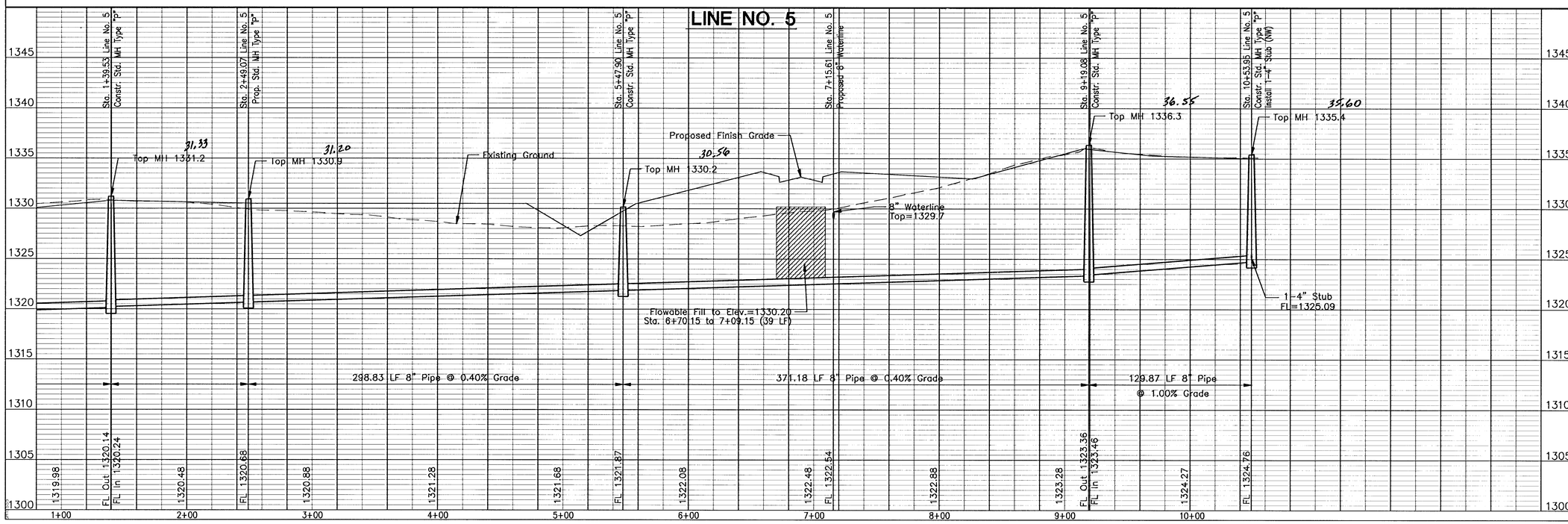
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SANITARY SEWER EXTENSIONS
LINE NO. 5

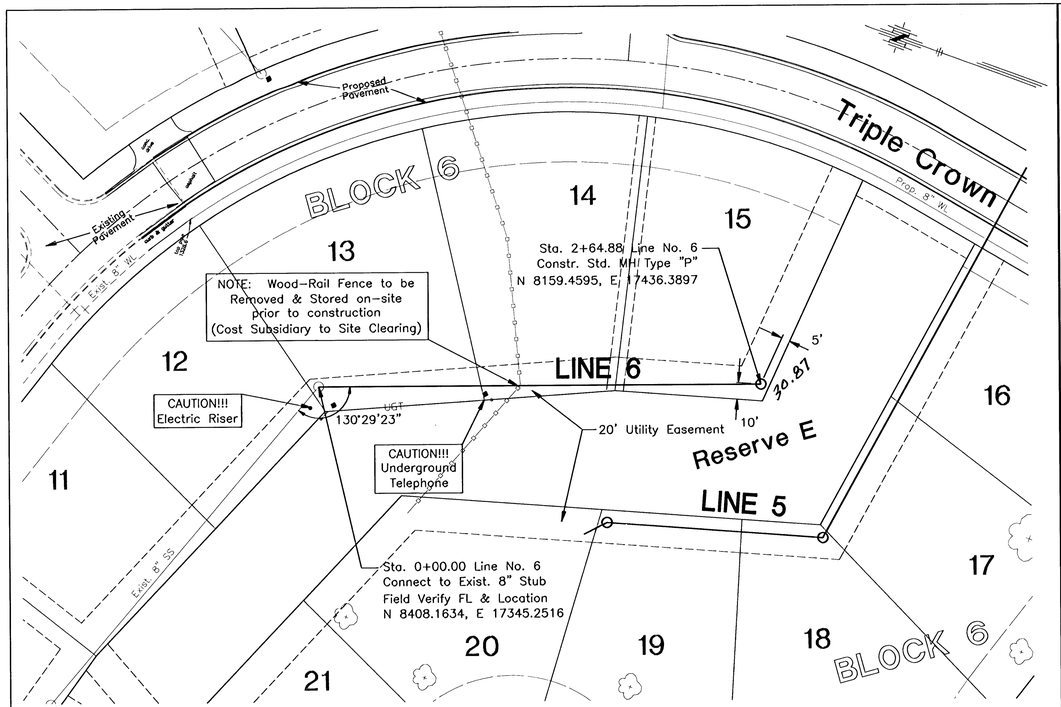
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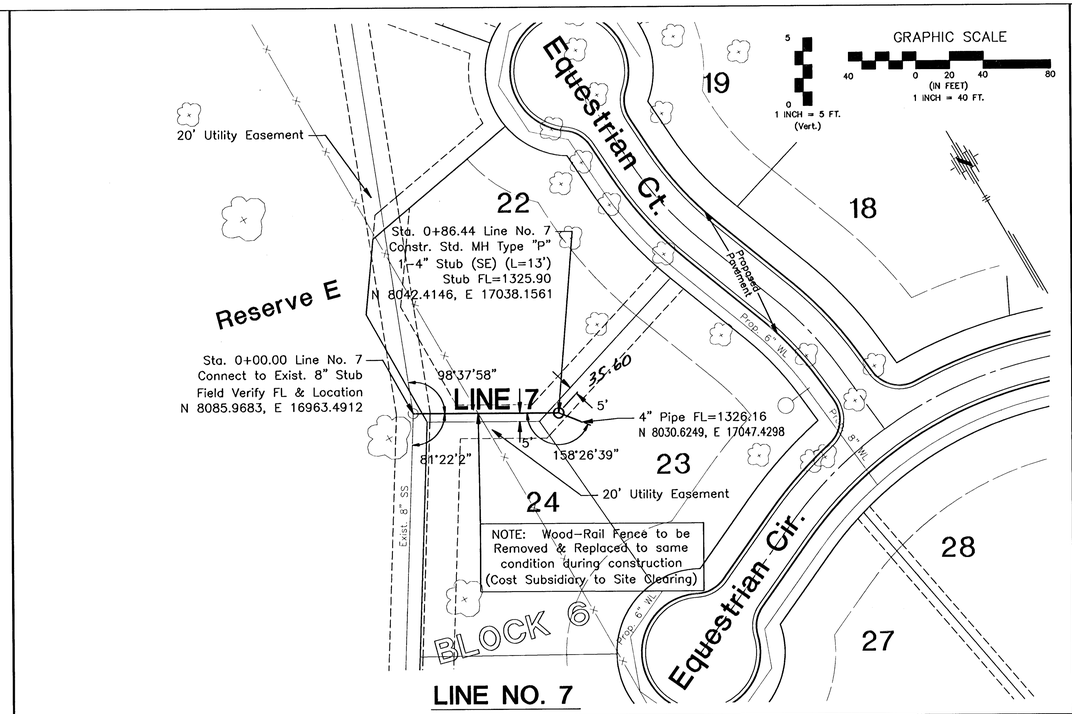
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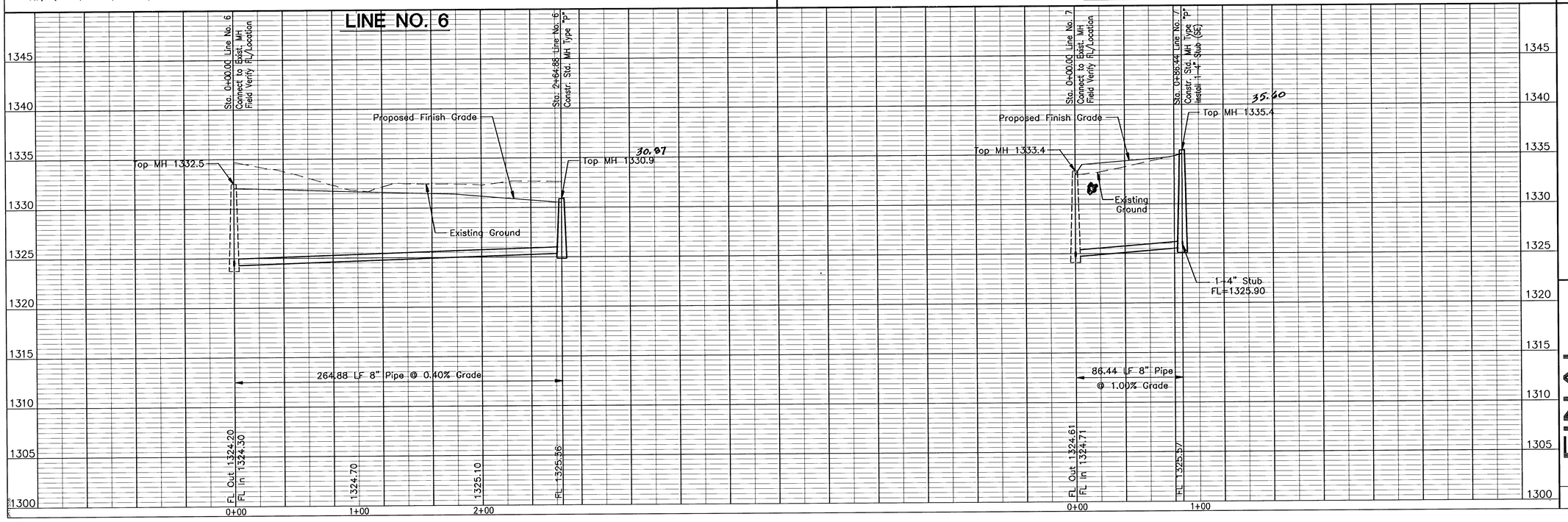
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Sheet 7 of 15





LINE NO. 6



LINE NO. 7

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EQUESTRIAN ESTATES - PHASE 2
SANITARY SEWER EXTENSIONS
LINE NO. 6 & 7
CITY OF WICHITA, KANSAS
JAMES L. ARMOUR, P.E. - CITY ENGINEER
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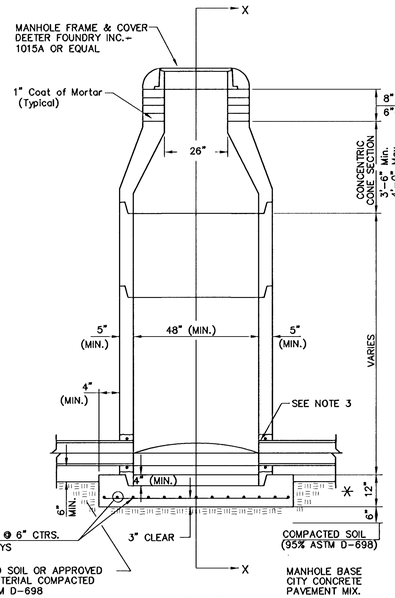
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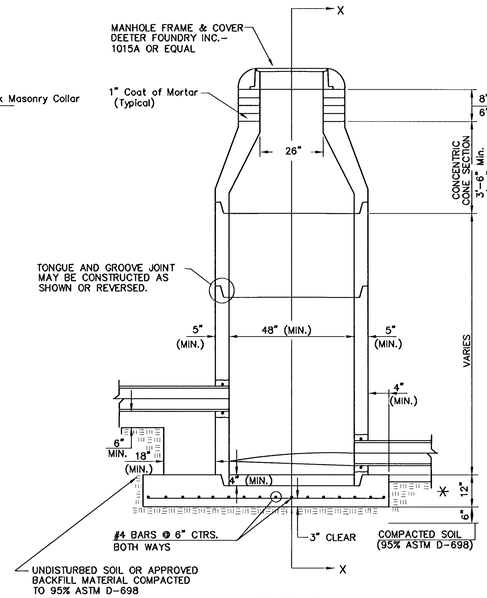
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C.O.W. #468-83318
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Sheet 8 of 15

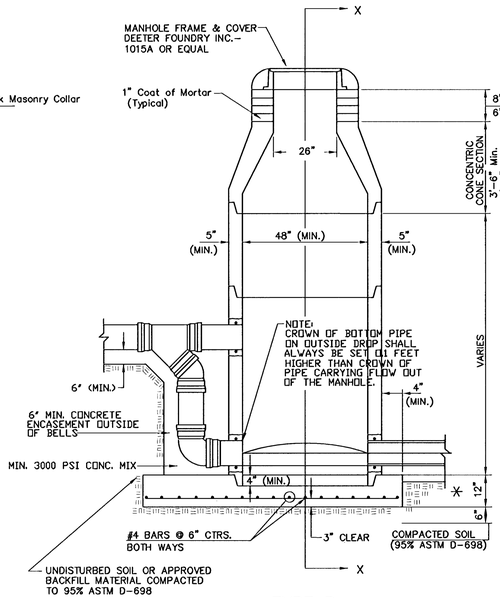
SEWER APPURTENANCES DETAILS



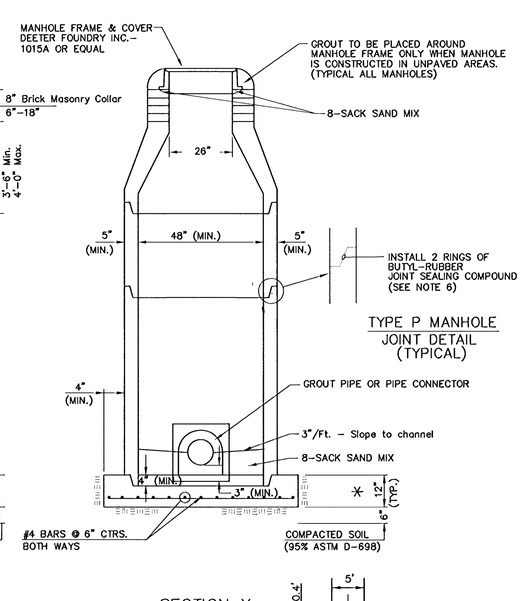
TYPE P
STANDARD MANHOLE



TYPE P
INSIDE DROP MANHOLE



TYPE P
OUTSIDE DROP MANHOLE



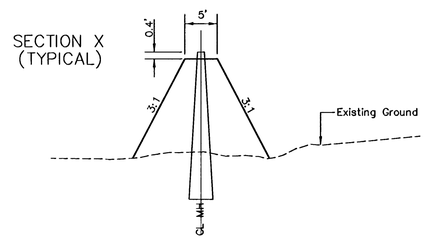
TYPE P MANHOLE
JOINT DETAIL
(TYPICAL)

GENERAL NOTES

PRECAST MANHOLE NOTES

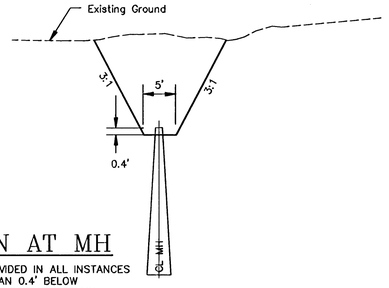
1. ALL PRECAST CONCRETE MANHOLE SECTIONS SHALL CONFORM TO THE LATEST REVISIONS OF A.S.T.M. C478 AS MODIFIED BY THE SPECIFICATIONS.
2. NON-SHRINK GROUT SHALL BE NON-METALLIC TYPE.
3. APPROVED FLEXIBLE WATERSTOP GASKETS SHALL BE INSTALLED TO JOIN THE SEWER TO THE MANHOLE WALL WHEN A.B.S. COMPOSITE PIPE OR P.V.C. PIPE IS USED. FOR OTHER TYPES OF PIPE THE SEWER SHALL BE GROUTED IN PLACE WITH NON-SHRINK GROUT. THE SEWER PIPE SHALL BE SUPPORTED WITH CONCRETE ENCASEMENT A MINIMUM OF 3 FEET FROM THE MANHOLE WALL AND TO THE FIRST JOINT FOR V.C.P. SUCH THAT THE JOINT REMAINS FLEXIBLE.
4. ALL INSIDE SURFACES OF THE CONCRETE MANHOLE WHICH WOULD BE EXPOSED TO SEWER GAS SHALL BE COATED WITH 2 COATS INEMEC SERIES 66 HI-BUILD EPOXOLINE, DRY THICKNESS OF 8 MILS (MIN.)
5. EXTERIOR MANHOLE WALLS SHALL BE COATED WITH 1 COAT MOBILARMA 633 BITUMINOUS COATING.
6. JOINT SEALING COMPOUND SHALL BE KENT SEAL NO. 2 OR APPROVED EQUAL.
7. PRECAST MANHOLES SHALL BE SET AT LEAST 4 INCHES INTO THE MANHOLE BASE.
8. TOP OF MANHOLE FLOOR SLAB SHALL BE AT LEAST 3 INCHES BELOW THE FLOW LINE OF THE OUTLET PIPE TO INSURE SUFFICIENT MINIMUM THICKNESS OF SHAPED INVERT.
9. LIFTING HOLES SHALL BE FILLED WITH NON-SHRINK GROUT AND THE INTERIOR SURFACE COATED AS SPECIFIED.
10. MORTAR USED IN MASONRY CONSTRUCTION SHALL CONTAIN 8 SACKS OF CEMENT PER CUBIC YARD. CONCRETE USED IN MANHOLE BASES SHALL CONFORM TO THE REQUIREMENTS OF CONCRETE FOR CONCRETE PAVEMENT CONSTRUCTION AS SPECIFIED IN THE CITY STANDARD PAVING SPECIFICATIONS USING CITY CONCRETE PAVEMENT MIX WITHOUT AIR ENTRAINING ADMIXTURE. MORTAR SHALL BE PLACED AROUND THE MANHOLE RING AS SHOWN ON THE DRAWINGS WHEN MANHOLES ARE CONSTRUCTED IN UNPAVED AREAS. MANHOLES CONSTRUCTED WHERE PIPE SIZES ARE SMALLER THAN 24" SHALL HAVE AN INSIDE DIAMETER OF 4'. MANHOLES CONSTRUCTED WHERE PIPE SIZES ARE 24" OR LARGER SHALL HAVE AN INSIDE DIAMETER OF 5'. COMPLETED MANHOLE SHALL BE WITHOUT LEAKS AND WATER TIGHT.
11. REINFORCING STEEL SHALL BE INSTALLED IN THE MANHOLE BASES AND SHALL CONSIST OF NO. 4 BARS PLACED ON 6" CENTERS IN BOTH DIRECTIONS. THE MANHOLE BASE REINFORCEMENT SHALL BE PLACED AT LEAST 3" ABOVE THE BOTTOM OF THE MANHOLE BASE. ALL COSTS FOR FURNISHING AND INSTALLING REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
12. OPENINGS SHALL BE CUT INTO THE MANHOLE WALL WHEN OUTSIDE DROPS ARE CONSTRUCTED ON EXISTING MANHOLES. SUCH OPENINGS CUT INTO EXISTING MANHOLES SHALL BE AS SMALL AS PRACTICAL TO FACILITATE INSTALLING AND GROUTING THE NEW PIPE IN PLACE. WATERSTOP GASKETS SHALL BE USED WITH P.V.C. AND A.B.S. COMPOSITE PIPE. THE NEW PIPE SHALL BE GROUTED INTO THE OPENING USING AN APPROVED NONSHRINK GROUT FOR THE FULL MANHOLE WALL THICKNESS. THE EXTERIOR OF THE COMPLETED CONNECTION SHALL BE SEALED WITH AN APPROVED BITUMINOUS COATING SUCH THAT THE CONNECTION WILL BE WATER TIGHT. FLOOR OF MANHOLE SHALL BE MODIFIED TO FORM NEW FLOW CHANNEL FOR THE NEW CONNECTION AS INDICATED BY THE DRAWING. THIS WORK, INCLUDING MODIFICATION OF MANHOLE FLOOR, SHALL BE PAID FOR AT THE UNIT PRICE BID FOR OUTSIDE DROP STACK CONSTRUCTED ON EXISTING MANHOLE.
13. THE FLOORS OF ALL MANHOLES SHALL BE SHAPED WITH FLOW CHANNELS SUCH THAT THE MANHOLES WILL BE SELF CLEANING AND FREE OF AREAS WHERE SOLIDS COULD BE DEPOSITED AS SEWAGE FLOWS THROUGH THE MANHOLE FROM ALL INLET PIPES TO THE OUTLET PIPE. FLOW CHANNELS SHALL BE FORMED TO MATCH THE SIZE OF THE INLET AND THE OUTFLOWING PIPES AND THE OUTFLOWING PIPE AS SHOWN BY THE DRAWINGS EXCEPT FOR INSIDE DROP MANHOLES. FLOW CHANNELS FOR INSIDE DROP MANHOLES SHALL BE CONSTRUCTED AS INDICATED BY THE DRAWING. MANHOLE FLOORS SHALL HAVE SLOPES OF 3 INCHES PER FOOT IN THE AREAS OUTSIDE OF THE FLOW CHANNELS SLOPED TOWARD THE FLOW CHANNELS. PIPES LAID THROUGH MANHOLES SHALL HAVE THE TOP HALF REMOVED TO NEAT LINES FOR THE FULL INSIDE DIAMETER OF THE MANHOLE. MANHOLE FLOORS SHALL THEN BE SHAPED AROUND THE BOTTOM HALF OF THE PIPE WHICH FORMS THE FLOW CHANNEL.
14. PIPES INSTALLED WITHIN THE EXCAVATION MADE FOR THE MANHOLE SHALL BE CRADLED WITH CONCRETE TO THE LIMITS OF THE MANHOLE EXCAVATION. WHEN CLAY PIPE IS USED, THE CRADLE SHALL EXTEND TO THE FIRST JOINT OUTSIDE THE MAHOLE. THE CRADLE SHALL BE TERMINATED AT THE CLAY PIPE JOINT IN A MANNER WHICH WILL MAINTAIN THE FLEXIBILITY OF THE JOINT. COST OF CRADLE WITHIN MANHOLE EXCAVATION OR TO CLAY PIPE JOINTS ADJACENT TO MANHOLE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE MANHOLE.
15. MANHOLE COVER CASTINGS AND MANHOLE FRAME CASTINGS SHALL CONFORM TO THE REQUIREMENTS AS INDICATED IN THE STANDARD SPECIFICATIONS AND AS SHOWN IN THE STANDARD DETAIL DRAWING.
16. THE VERTICAL DROP IN INSIDE DROP MANHOLES SHALL NOT EXCEED 2' FOR INFLOWING PIPES SIZED 12" OR SMALLER AND 2' FOR INFLOWING PIPES LARGER THAN 12". THE CROWNS OF INFLOWING PIPES SHALL NEVER BE SET LOWER THAN THE CROWN OF THE OUTFLOWING PIPE.
17. STANDARD MANHOLES AND STANDARD INSIDE DROP MANHOLES SHALL BE BID AS STANDARD MANHOLES FOR THE TYPE AND DIAMETER INDICATED. OUTSIDE DROP MANHOLES SHALL BE BID AS STANDARD OUTSIDE DROP MANHOLES FOR THE TYPE AND DIAMETER INDICATED. ALL MANHOLE DIAMETERS WILL BE 4' UNLESS INDICATED OTHERWISE.
18. A BRICK MASONRY COLLAR SHALL BE INSTALLED BETWEEN THE CAST IRON FRAME AND THE CONCENTRIC CONE. THE COLLAR WILL HAVE 8" WALLS AND A VERTICAL HEIGHT OF 6" MINIMUM AND 18" MAXIMUM. A 1" COAT OF MORTAR WILL BE PLASTERED ON THE OUTSIDE OF THE COLLAR. THE USE OF PRE-CAST CONCRETE SPACERS FOR MANHOLE TOP ADJUSTMENT IS ALSO ALLOWED.

* 19. ALL MANHOLE BASE CONSTRUCTION THAT OCCURS IN THE FIELD MUST HAVE A MINIMUM OF EIGHT INCHES OF CONCRETE BELOW THE MANHOLE WALL AND THE WALL SECTION SHOULD EXTEND FOUR INCHES INTO THE BASE RESULTING IN A MINIMUM TOTAL BASE THICKNESS OF 12 INCHES. MONOLITHIC BASE SECTIONS CONSTRUCTED IN THE FACTORY AND CURED AS PER ASTM C478 MUST HAVE A MINIMUM EIGHT INCH THICK CONCRETE BASE. BASE SECTIONS CONSTRUCTED IN THE FACTORY UTILIZING A PREVIOUSLY MANUFACTURED MANHOLE WALL SECTION, AS OUTLINED IN THE ABOVE PARAGRAPH, MUST HAVE A MINIMUM BASE THICKNESS OF EIGHT INCHES WITH THE WALL SECTION EXTENDING FOUR INCHES INTO THE BASE AND BE MANUFACTURED IN COMPLIANCE WITH ASTM C478.



PROTECTIVE FILL AT MH

MINIMUM PROTECTIVE FILL SHALL BE PROVIDED IN ALL INSTANCES WHERE MH TOP IS GREATER THAN 0.4' ABOVE EXISTING GROUND. (COST SUBSIDIARY TO MH INSTALLATION)
(TYPICAL ALL SHEETS)



EXCAVATION AT MH

EXCAVATION SHALL BE PROVIDED IN ALL INSTANCES WHERE MH TOP IS LESS THAN 0.4' BELOW EXISTING GROUND. (COST SUBSIDIARY TO MH INSTALLATION). (TYPICAL ALL SHEETS)

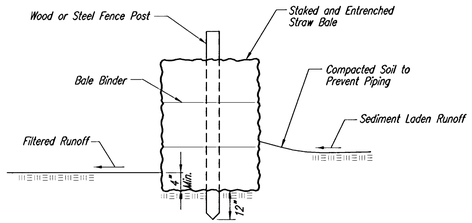
No.	Date	By	Approved	Revision

EQUESTRIAN ESTATES - PHASE 2
SANITARY SEWER EXTENSIONS
TYPE "P" MANHOLE DETAILS
CITY OF WICHITA, KANSAS
JAMES L. ARMOUR, P.E. - CITY ENGINEER
Proj.# 468-83318 O.C.#'s 744155

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FINAL

Designed By: JMU/JPD
Drawn By: JPD/JMU
Poe Job No.: 1694J
C.O.W. #468-83318
Date: November 2005



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:

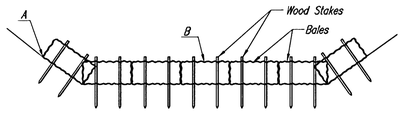
When practicable, do not place bale slope barriers across contours. Slope barriers should be placed along contours to avoid a concentration of flow. Concentrated flow over a slope barrier creates a scour hole on the downslope side of the barrier. The scour hole eventually undermines the bales and the 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: On the downstream scour apron should be constructed of a double-netted straw erosion-control blanket at least 6' wide.
Optional: The metal landscape staples used to anchor the erosion-control blanket should be at least 8" long.

Placement:

Bale ditch checks should be placed perpendicular to the flowline of the ditch.
The ditch check should extend far enough so that the ground level at the ends of the check is higher than the top of the lowest center bale. This prevents water from flowing around the check.
Checks should not be placed in ditches where high flows are expected. Rock checks should be used instead.
Bales should be placed in ditches with slopes of 6% or less. For slopes steeper than 6%, rock checks should be used.
The following table provides check spacing for a given ditch grade:

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

Proper installation method:

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

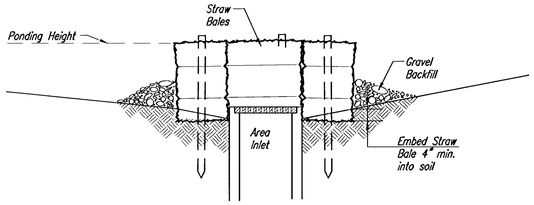
List of common placement/installation mistakes to avoid:

Do not place a bale ditch check directly in front of a culvert outlet. It will not stand up to the concentrated flow.
Do not place bale ditch checks in ditches that will likely experience high flows. They will not stand up to concentrated flow.
Follow prescribed ditch-check spacing guidelines. If spacing guidelines are exceeded, erosion will occur between the ditch checks.
Do not allow water to flow around the ditch check. Make sure that the ditch check is long enough so that the ground level at the ends of the check is higher than the top of the lowest center bale.
Do not place bale ditch checks in channels with shallow soils underlain by rock. If the check is not anchored sufficiently, it will wash out.
Bale ditch checks must be dug into the ground. Bales at ground level do not work because they allow water to flow under the check.

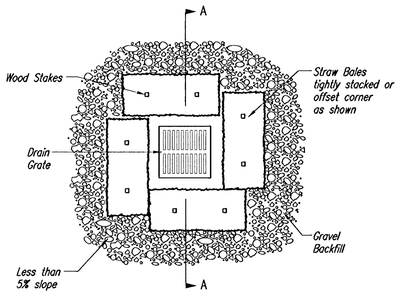
Inspection and Maintenance:

Bale ditch checks should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:

Does water flow around the ditch check?
Does water flow under the ditch check?
Does water flow through spaces between abutting bales?
Are any bales and/or scour aprons (optional) dislodged?
Are bales decomposing due to age and/or water damage?
Does sediment need to be removed from behind the ditch check?



SECTION A-A



STRAW BALE BARRIERS FOR AREA INLETS
(INLET PROTECTION)

Material Specification:

Bale area inlet barriers should be constructed of wheat straw, oat straw, prairie hay, or bromegrass hay that is free of weeds declared noxious by the Kansas State Board of Agriculture.
The stakes used to anchor the bales should be a hardwood material with the following minimum dimensions: 2" square (nominal) by 4' long.

Placement:

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

Proper Installation Method:

Excavate a trench around the perimeter of the area inlet that is at least 4" deep by a bale's width wide.
Place the bales in the trench, making sure that they are butted tightly. Some bales may need to be shortened to fit into the trench around the area inlet. Two stakes should be driven through each bale, approximately 6" to 8" in from the bale ends.
Stakes should be driven at least 12" into the ground.
Once all the bales have been installed and anchored, place the excavated soil against the receiving side of the barrier and compact it. The compacted soil should be no more than 3" to 4" deep.
Note: When a bale area inlet barrier is placed in a shallow median ditch, make sure that the top of the barrier is not higher than the paved road. In this configuration, water may spread onto the roadway causing a hazardous condition.

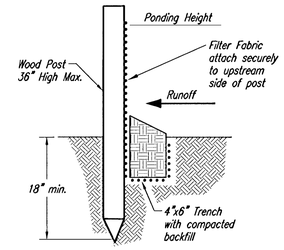
List of common placement installation mistakes to avoid:

Bales should be placed directly against the perimeter of the area inlet. This allows overtopping water to flow directly into the inlet instead of onto nearby soil causing scour.
Bale area inlet barriers must be dug into the ground. Bales at ground level do not work because they allow water to flow under the barrier.

Inspection and Maintenance:

Bale area inlet barriers should be inspected every 7 days and within 24 hours of a rainfall 1/2" or more. The following is a list of questions that should be addressed during each inspection:

Does water flow under the area inlet barrier?
Does water flow through spaces between abutting bales?
Are any bales dislodged?
Are bales decomposing due to age 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 fitting the trench, approximately 24" to 36" of silt-fence fabric should remain exposed.
Lay the exposed silt fence upslope of the trench to clear an area for driving in the posts.
Just downslope of the trench, drive posts into the ground to a depth of at least 18".
Place posts no more than 4' apart.
Attach the silt fence to the anchored post with staples, wire, zip ties, or nails.

List of common placement/installation mistakes to avoid:

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

Inspection and Maintenance:

Silt fence slope barriers should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:

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

CITY OF WICHITA

SOIL EROSION BMP DETAILS

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

PROJECT NUMBER	OCA NO.
468-83318	744155

DATE: MAY 2001

SHEET 10 OF 15

No.	Date	By	Approved	Revision
1				
2				
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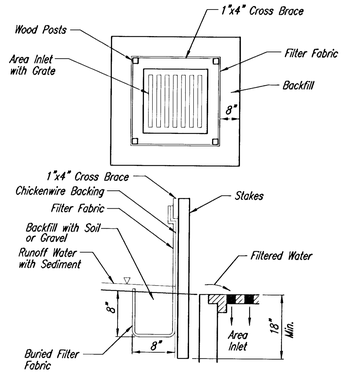
EQUESTRIAN ESTATES - PHASE 2
SANITARY SEWER EXTENSIONS
EROSION CONTROL BMP'S
CITY OF WICHITA, KANSAS
JAMES L. ARMOUR, P.E. - CITY ENGINEER
Proj# 468-83318 O.C.A.# 744155

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FINAL

Designed By: JMU/JPD
Drawn By: JPD/JMU
Poe Job No.: 1694J
Date: November 2005
C.O.W. #468-83318

Sheet 10 of 15



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.

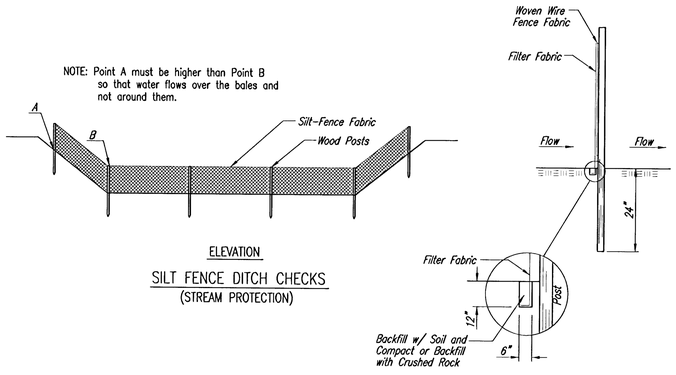
List of common placement/installation mistakes to avoid:

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?



ELEVATION

SILT FENCE DITCH CHECKS
(STREAM PROTECTION)

ANCHOR TRENCH DETAIL

Material Specification:

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

Placement:

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

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

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

Proper installation method:

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

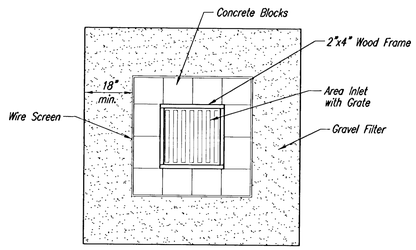
List of common placement/installation mistakes to avoid:

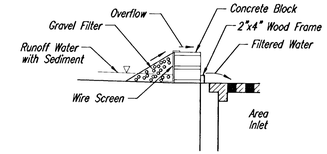
Water should flow through a silt fence ditch check-not over it. Place silt fence in ditches where it is unlikely that it will be overtopped. Silt fence installations quickly deteriorate when water overtops them.
Do not place silt fence posts on the upstream side of the silt fence fabric. In this configuration, the force of the water is not restricted by the posts, but only by the staples (wire, zip ties, nails, etc.). The silt fence will rip and fail.
Do not place a silt fence ditch check directly in front of a culvert outlet. It will not stand up to the concentrated flow.
Do not place silt fence ditch checks in ditches that will likely experience high flows. They will not stand up to concentrated flow.
Follow prescribed ditch check spacing guidelines. If spacing guidelines are exceeded, erosion will occur between the ditch checks.
Do not allow water to flow around the ditch check. Make sure that the ditch check is long enough so that the ground level at the ends of the fence is higher than the low point on the top of the fence.
Do not place silt fence ditch checks in channels with shallow soils underlain by rock. If the check is not anchored sufficiently, it will wash out.

Inspection and Maintenance:

Silt fence ditch checks should be inspected every 7 days and within 24 hours of a rainfall of 1/2" or more. The following is a list of questions that should be addressed during each inspection:

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





CONCRETE BLOCK FILTER FOR AREA DRAIN
(INLET PROTECTION)

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

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

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

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

Instructions for Installing:

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

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

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

Maintenance:

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

CITY OF WICHITA

SOIL EROSION BMP DETAILS

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

PROJECT NUMBER	OCA NO.
468-83318	744155
DATE: MAY 2001	SHEET 11 OF 15

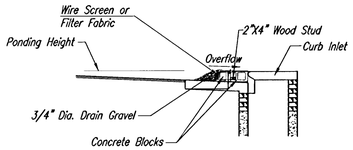
FINAL

Designed By:	JMU/JPD
Drawn By:	JPD/JMU
Poe Job No.:	1694J
Date:	November 2005
C.O.W. #468-83318	
Sheet	11 of 15

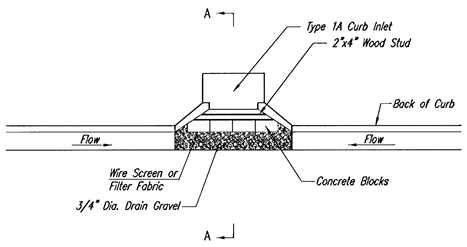
No.	Date	By	Approved	Revision

EQUESTRIAN ESTATES - PHASE 2
SANITARY SEWER EXTENSIONS
EROSION CONTROL BMP'S
CITY OF WICHITA, KANSAS
JAMES L. ARMOUR, P.E. - CITY ENGINEER
Proj.# 468-83318 O.C.A.# 744155

POE & ASSOCIATES, INC.
CONSULTING ENGINEERS
5940 E Central, Suite 200 ■ Wichita, KS 67208-4242
Phone 316/685-4174 ■ FAX 316/685-4444



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.

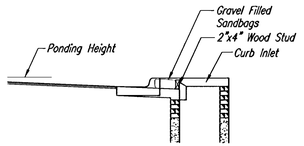
Instructions for Installing:

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.

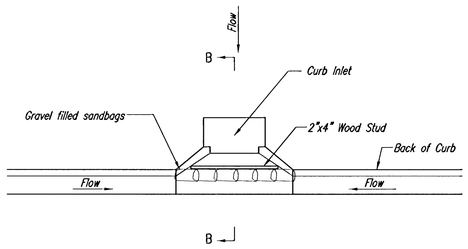
Use of rock with diameters smaller than 1" in the bag may result in clogging of pores and reduce the amount of water flowing into an inlet.

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 roods and streets.

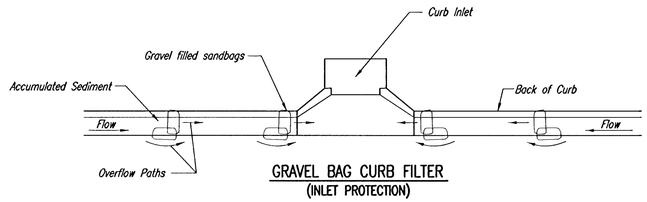


SECTION B-B



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.

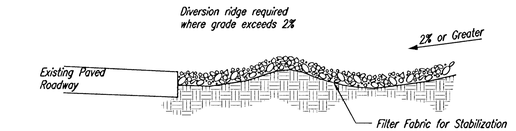
Spacing:

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

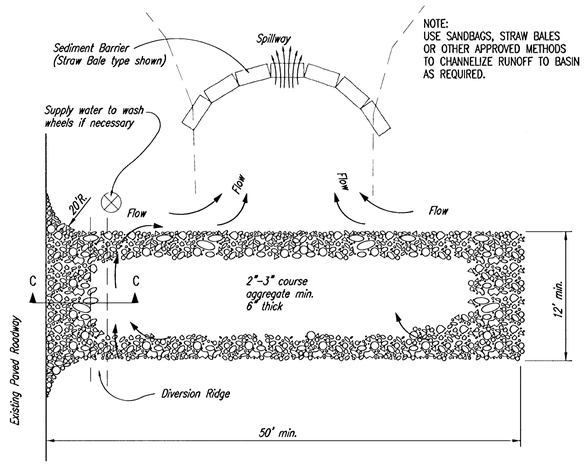
GRADE (%)	SPACING (FEET)
0.5	75
1.0	45
2.0	18
3.0	12
4.0	9
5.0	6

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.

No.	Date	By	Approved	Revision

EQUESTRIAN ESTATES - PHASE 2
SANITARY SEWER EXTENSIONS
EROSION CONTROL BMP'S
CITY OF WICHITA, KANSAS
JAMES L. ARMOUR, P.E. - CITY ENGINEER
Proj.# 468-83318 O.C.A.# 744155

POE & ASSOCIATES, INC.
CONSULTING ENGINEERS
5940 E. Central, Suite 200 ■ Wichita, KS 67208-4242
Phone 316/685-4114 ■ FAX 316/685-4444

FINAL

Designed By: JMU/JPD
Drawn By: JPD/JMU
Poe Job No.: 1694J
C.O.W. #468-83318
Date: November 2005

CITY OF WICHITA

SOIL EROSION BMP DETAILS

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

PROJECT NUMBER	OCA NO.
468-83318	744155
DATE: MAY 2001	SHEET 12 OF 15

Sheet 12 of 15

SEWER COORDINATE POINTS LIST			
POINT #	NORTHING	EASTING	DESCRIPTION
9000	9449.0349	19235.4875	Line 1 0+00.00
9001	9143.7634	19235.6699	Line 1 3+05.27
9002	8769.2420	19235.9048	Line 1 6+59.79
9003	8474.3983	19236.1135	Line 1 9+74.64
9004	8149.6668	19236.3287	Line 1 12+99.37
9005	7703.0983	19236.6247	Line 1 17+45.94
9006	7700.3743	17773.5906	Line 1 22+09.98
9007	7711.2811	17763.2718	Line 1 4" Stub
9008	9045.8613	17866.9223	Line 2 3+62.23
9009	8820.4681	17874.2030	Line 2 5+84.04
9010	8645.8282	17713.8819	Line 2 8+25.05
9011	8499.1354	17664.6710	Line 2 9+79.78
9012	8484.9576	17669.5689	Line 2 4" Stub
9013	8630.4574	17971.5381	Line 3 3+07.17
9014	8135.2441	17922.4320	Line 4 3+14.23
9015	8209.0281	17839.5287	Line 4 4+25.21
9016	8294.6786	17839.6258	Line 4 5+10.86
9017	8308.8983	17844.4009	Line 4 4" Stub
9018	8056.0085	18132.5017	Line 5 1+39.53
9019	8075.5810	18025.1309	Line 5 2+49.07
9020	8034.8020	17729.0887	Line 5 5+47.90
9021	8093.4815	17362.5751	Line 5 9+19.08
9022	8218.3254	17327.2491	Line 5 10+53.95
9023	8228.5987	17316.3194	Line 5 4" Stub
9024	8408.1834	17345.2518	Line 6 0+00.00
9025	8159.4595	17436.3897	Line 6 2+64.88
9026	8065.9883	16983.4912	Line 7 0+00.00
9027	8042.4146	17038.1561	Line 7 0+86.44
9028	8030.8249	17047.4298	Line 7 4" Stub

Scale 1" = 150'

COORDINATE POINTS LIST		
POINT #	NORTHING	EASTING
2,538	7,662.418	15,615.996
2,539	7,670.464	16,938.392
1,007	7,878.243	18,261.644
1,001	10,338.235	18,259.974
2,546	10,317.973	15,628.839
300	10,276.022	18,259.919
301	10,266.300	16,842.555
302	10,270.226	17,414.926
303	10,270.912	17,514.923
304	10,242.402	17,515.119
305	10,168.996	17,415.620
306	10,078.463	17,475.619
307	10,022.056	17,444.188
308	10,045.015	17,383.688
309	9,897.509	17,300.981
310	9,866.208	17,356.805
311	9,418.822	17,352.720
312	9,388.546	17,296.334
313	9,192.842	17,401.415
314	9,229.957	17,454.128
315	9,173.358	17,484.398
316	9,141.511	17,428.787
317	9,081.445	17,334.436
318	9,127.508	17,298.790
319	9,057.989	17,252.197
320	8,727.559	17,486.613
321	8,756.094	17,429.326
322	8,611.826	17,357.463
323	8,582.915	17,414.563
324	9,195.879	17,519.774
325	9,249.867	17,485.404
326	9,309.385	17,549.226
327	9,330.263	17,564.663
328	9,271.335	17,600.686
329	9,292.212	17,616.123
330	9,381.346	17,612.163
331	9,396.735	17,599.272
332	9,414.952	17,659.672
333	9,433.979	17,643.733
334	9,621.827	17,575.575
335	9,680.051	17,522.509
336	9,450.242	17,753.331
337	9,387.502	17,765.966
338	9,419.916	17,926.925
339	9,482.656	17,914.290
340	9,617.696	18,025.046
341	9,617.583	18,089.046
342	9,757.042	18,089.292
343	9,757.155	18,025.293
344	9,919.848	17,932.072
345	9,951.713	17,997.855
346	9,983.778	17,949.505
347	10,062.544	18,004.420
348	10,029.372	18,051.998
349	10,045.740	17,843.361
350	9,990.468	17,811.096
351	10,016.382	17,674.381
352	10,079.627	17,664.579
353	10,067.313	17,585.122
354	10,004.068	17,594.923
355	7,662.783	15,675.998
356	8,591.642	15,680.488
357	8,691.642	15,680.971
358	8,783.622	15,681.319
359	8,690.428	15,821.275
360	8,684.759	15,878.060
361	8,676.254	15,922.197
362	8,671.108	15,973.745
363	8,670.900	15,997.851
364	8,606.902	15,997.298
365	8,607.111	15,973.191
366	8,602.857	15,921.562
367	8,595.117	15,877.284
368	8,590.432	15,820.410
369	8,661.955	16,207.328
370	8,676.117	16,231.984
371	8,731.614	16,200.108
372	8,717.453	16,175.452
373	8,761.363	16,135.329
374	9,103.987	16,141.175
375	9,106.008	16,022.723
376	9,288.897	16,025.844
377	9,279.083	16,601.068
378	8,778.032	16,377.513
379	8,714.034	16,376.903

COORDINATE POINTS LIST		
POINT #	NORTHING	EASTING
380	8,775.981	16,592.484
381	8,711.261	16,667.715
382	8,710.650	16,731.714
383	8,709.934	16,808.764
384	8,773.931	16,807.374
385	8,772.794	16,835.333
386	8,750.814	16,945.443
387	8,690.109	16,925.174
388	8,624.239	17,324.542
389	8,563.533	17,304.273
390	8,106.172	17,630.667
391	8,117.702	17,567.714
392	7,885.954	17,590.333
393	7,891.010	17,528.194
394	7,833.848	17,516.131
395	7,828.235	17,580.005
396	7,739.088	17,573.413
397	7,738.797	17,509.413
398	7,673.823	17,509.708
399	7,674.199	17,573.707
400	8,487.174	16,727.823
401	8,488.288	16,663.833
402	8,274.489	16,601.148
403	8,240.874	16,655.609
404	8,155.174	16,602.712
405	8,188.790	16,548.251
406	7,894.483	16,521.185
407	7,917.601	16,580.863
408	7,862.880	16,602.062
409	7,839.762	16,542.383
410	7,760.935	16,557.303
411	7,761.226	16,621.302
412	7,668.148	16,557.724
413	7,668.537	16,621.723
414	8,335.820	17,614.017
415	8,279.810	17,629.078
416	8,293.821	17,681.185
417	8,349.832	17,666.124
418	8,465.466	17,734.701
419	8,444.570	17,848.806
420	8,454.474	17,852.631
421	8,437.966	17,895.373
422	8,344.419	17,984.367
423	8,360.964	18,039.976
424	8,492.071	17,916.269
425	8,508.579	17,873.527
426	8,525.363	17,880.009
427	8,546.259	17,825.904
428	8,619.137	17,949.146
429	8,664.643	17,913.186
430	8,707.503	17,967.423
431	8,651.997	18,003.383
432	8,828.981	18,082.780
433	8,828.147	18,024.786
434	8,873.093	18,082.146
435	8,872.260	18,024.152
436	7,914.650	17,423.896
437	7,859.579	17,405.696
438	7,896.552	17,293.818
439	7,951.622	17,312.017
440	7,965.708	17,226.234
441	7,960.043	17,168.511
442	7,940.810	17,109.251
443	7,920.171	17,083.736
444	7,867.348	17,087.689
445	7,887.987	17,133.204
446	7,984.347	17,224.405
447	7,978.683	17,166.682
448	8,023.332	17,156.302
449	8,043.711	17,210.605
450	8,097.761	17,190.321
451	8,077.383	17,136.019
452	8,146.481	17,121.468
453	8,149.732	17,179.377
454	8,174.412	17,177.991
455	8,171.161	17,120.082
456	7,900.236	17,730.595
457	7,843.701	17,743.549
458	7,863.772	17,831.145
459	7,920.307	17,818.191
460	7,927.807	17,914.748
461	7,869.950	17,910.680
462	7,865.180	17,978.529
463	7,923.037	17,982.597

Lot 314 FTHC

No.	Date	By	Approved	Revision
1	12/17/2005	JPD	JMU	Added sewer coordinates points/list

EQUESTRIAN ESTATES ADDITION – PHASE 2
SANITARY SEWER IMPROVEMENTS
COORDINATE POINTS LIST
CITY OF WICHITA, KANSAS
JAMES L. ARMOUR, P.E. – CITY ENGINEER
C.O.W. Project # 468-83318 O.C.A. # 744155

POE & ASSOCIATES, INC.
CONSULTING ENGINEERS
5940 E. Central, Suite 200 ■ Wichita, KS 67208-4242
Phone 316/685-4114 ■ FAX 316/685-4444

FINAL

Designed By:	JPD
Drawn By:	JPD
Poe Job No.:	16994
Date:	November 2005
C.O.W. #468-83318	

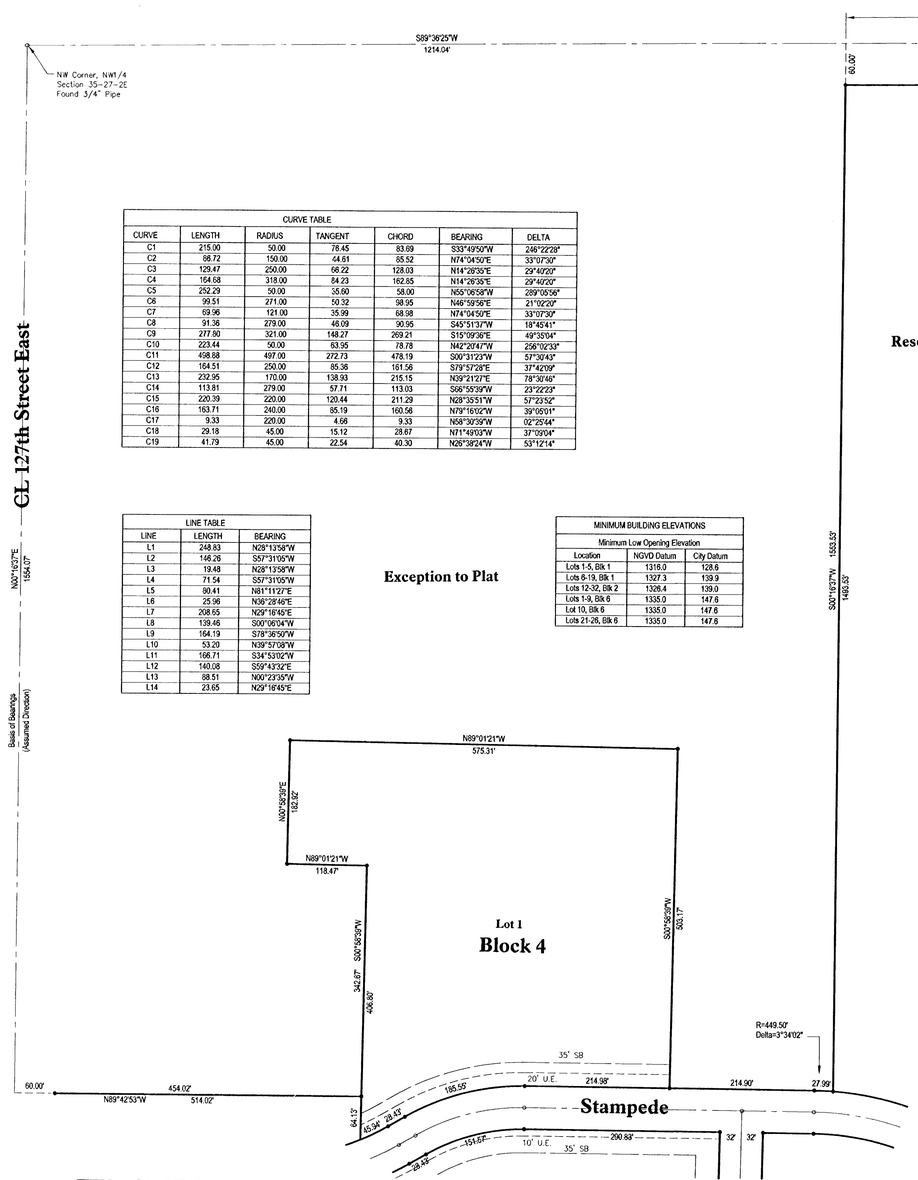
Sheet 13 of 15

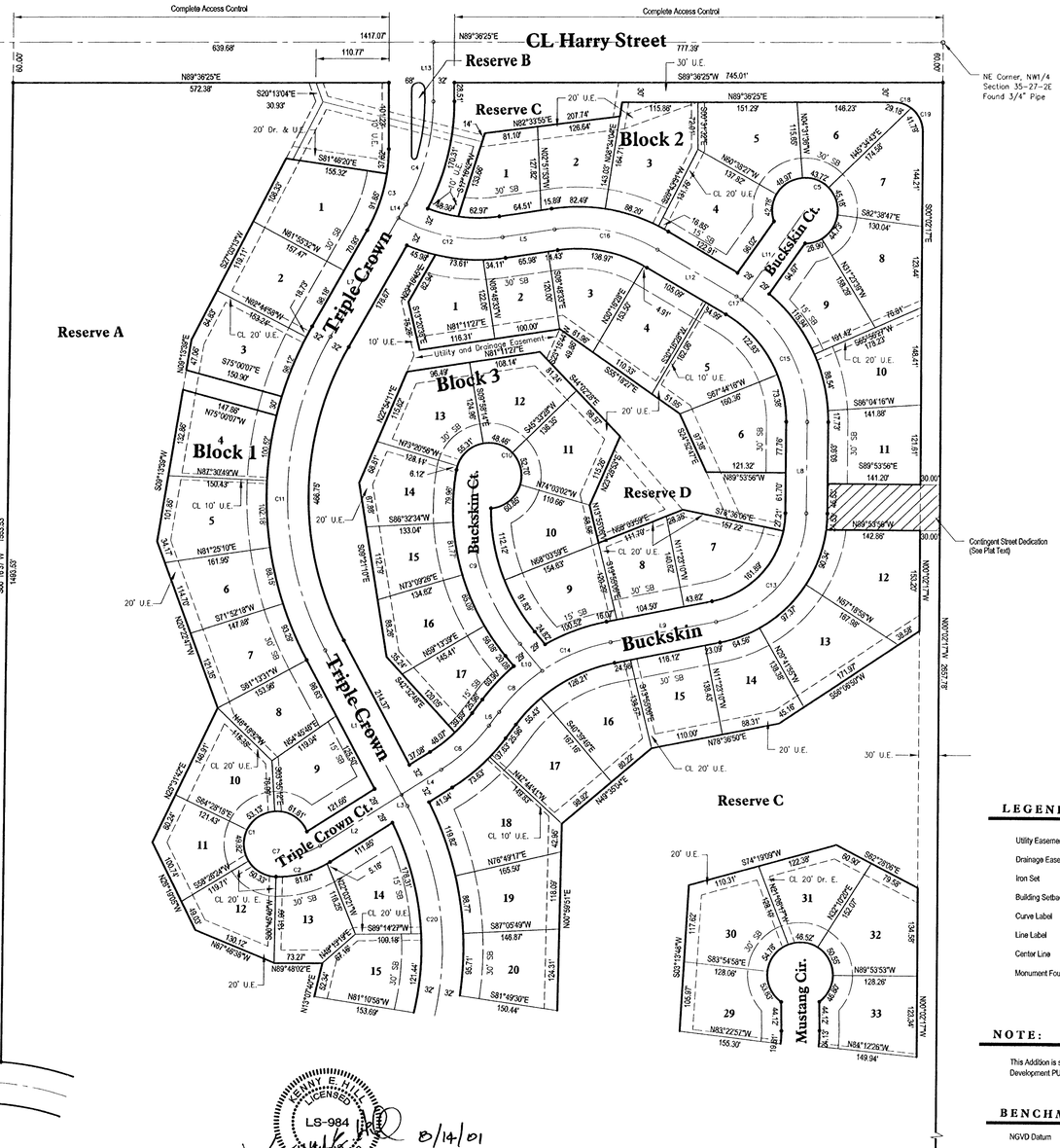
CURVE TABLE						
CURVE	LENGTH	RADIUS	TANGENT	CHORD	BEARING	DELTA
C1	215.00	50.00	78.45	83.69	S33°49'50"W	246°22'28"
C2	86.72	150.00	44.61	85.52	N74°04'50"E	33°07'30"
C3	129.47	250.00	66.22	128.03	N14°26'35"E	29°40'20"
C4	164.68	318.00	84.23	162.85	N14°26'35"E	29°40'20"
C5	252.29	50.00	55.60	58.00	N55°06'58"W	289°05'56"
C6	99.51	271.00	50.32	98.95	N46°59'56"E	21°02'20"
C7	69.96	121.00	35.99	68.98	N74°04'50"E	33°07'30"
C8	91.36	279.00	46.09	90.95	S45°51'37"W	18°45'41"
C9	277.80	321.00	148.27	269.21	S15°09'36"E	49°35'04"
C10	223.44	50.00	63.95	78.78	N42°20'47"W	256°02'33"
C11	498.88	497.00	272.73	478.19	S00°31'23"W	57°30'43"
C12	164.51	250.00	85.36	161.56	S79°57'28"E	37°41'09"
C13	232.95	170.00	138.93	215.15	N39°21'27"E	78°30'46"
C14	113.81	279.00	57.71	113.03	S66°55'39"W	23°22'23"
C15	220.39	220.00	120.44	211.29	N28°33'51"W	57°23'52"
C16	163.71	240.00	85.19	160.56	N79°16'02"W	39°05'01"
C17	9.33	220.00	4.66	9.33	N58°30'39"W	02°25'44"
C18	29.18	45.00	15.12	28.67	N71°49'03"W	37°09'04"
C19	41.79	45.00	22.54	40.30	N25°38'24"W	53°12'14"

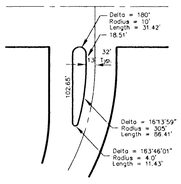
LINE TABLE		
LINE	LENGTH	BEARING
L1	248.83	N28°13'58"W
L2	146.26	S57°31'05"W
L3	19.48	N28°13'58"W
L4	71.54	S57°31'05"W
L5	80.41	N81°11'27"E
L6	25.96	N36°28'46"E
L7	208.65	N29°16'45"E
L8	139.46	S00°06'04"W
L9	164.19	S78°36'50"W
L10	53.20	N39°57'08"W
L11	166.71	S34°53'02"W
L12	140.08	S59°49'32"E
L13	88.51	N00°29'35"W
L14	23.65	N29°16'45"E

Exception to Plat

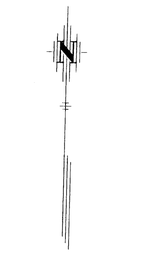
MINIMUM BUILDING ELEVATIONS		
Minimum Low Opening Elevation		
Location	NGVD Datum	City Datum
Lots 1-5, Blk 1	1316.0	128.6
Lots 6-19, Blk 1	1327.3	139.9
Lots 12-32, Blk 2	1326.4	139.0
Lots 1-9, Blk 6	1335.0	147.6
Lot 10, Blk 6	1335.0	147.6
Lots 21-26, Blk 6	1335.0	147.6

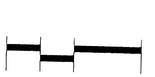






Reserve B Details





LEGEND

Utility Easement	20' U.E.
Drainage Easement	20' Dr. E.
Iron Set	
Building Setback	30' SB
Curve Label	c2
Line Label	L2
Center Line	CL
Monument Found	

NOTE:

This Addition is subject to the conditions of the Planned Unit Development PUD 2000-00001.

BENCHMARKS:

NGVD Datum

1. Railroad spike in power pole, approximately 25' south and 30' east of W 1/4 Corner, Section 35-27-2E. Elevation 1349.65
2. Square on south hub guard of RCBC just west of NW Corner of Section 35-27-2E. Elevation 1311.90

KENNY E. HILL LICENSED LS-984 PROFESSIONAL SURVEYOR

8/14/01

EQUESTRIAN ESTATES

An Addition to Wichita - Sedgwick County, Kansas

(Associated Zone Case PUD 2000-0001)

CURVE TABLE						
CURVE	LENGTH	RADIUS	TANGENT	CHORD	BEARING	DELTA
C20	442.12	483.00	239.54	425.51	S00°52'37"E	54°42'42"
C21	130.56	417.50	65.81	130.02	N80°29'42"W	17°55'01"
C22	242.62	453.00	124.30	239.73	N16°20'27"E	30°41'14"
C23	92.35	253.00	46.70	91.84	N10°43'04"W	20°54'55"
C24	278.77	300.00	149.12	267.06	S05°15'16"W	52°51'36"
C25	252.26	50.00	35.62	58.02	N73°25'49"E	289°04'24"
C26	358.23	427.00	190.42	347.82	N39°05'04"W	48°04'06"
C27	206.70	220.00	111.69	199.18	N48°02'01"E	53°49'56"
C28	199.51	427.00	96.34	197.96	N02°20'08"W	25°25'46"
C29	185.42	600.00	93.46	184.69	N85°56'51"E	17°42'24"
C30	104.25	250.00	52.89	103.49	N83°39'31"W	23°53'30"
C31	252.29	50.00	35.60	58.00	S24°23'32"E	289°05'56"
C32	81.98	259.00	41.36	81.61	S75°06'06"W	18°08'18"
C33	111.97	603.00	56.15	111.81	S05°03'34"W	10°38'22"
C34	141.23	600.00	70.94	140.90	S78°27'21"E	13°29'11"
C35	82.10	205.00	31.29	61.86	S11°53'30"E	17°21'22"
C36	53.55	205.00	26.93	53.39	N13°05'14"W	14°57'55"
C37	252.29	50.00	35.60	58.00	S86°47'11"W	289°05'56"
C38	88.63	300.00	44.64	88.31	S85°33'29"W	16°55'40"
C39	70.45	45.00	44.77	63.47	N44°48'45"E	89°42'04"
C40	252.29	50.00	35.60	58.00	N04°01'19"E	289°05'56"
C41	62.74	427.00	31.42	62.68	N87°19'40"W	08°25'05"
C42	164.63	180.00	88.58	158.95	N42°40'53"W	52°24'09"
C43	133.37	250.00	68.31	131.79	S36°24'01"W	30°33'57"
C44	164.95	180.00	88.78	159.24	N25°25'48"E	52°30'24"
C45	252.29	50.00	35.60	58.00	S89°10'36"W	289°05'56"
C46	158.56	317.50	86.32	156.59	N75°20'15"E	30°25'05"
C47	202.73	382.50	103.81	200.36	N75°18'43"E	30°22'02"



0 50 100 200
SCALE IN FEET 1" = 100'

LEGEND

Utility Easement	20' U.E.
Drainage Easement	20' Dr. E.
Iron Set	
Building Setback	30' SB
Curve Label	C2
Line Label	L2
Center Line	CL
Monument Found	

NOTE:

This Addition is subject to the conditions of the Planned Unit Development PUD 2000-00001.

BENCHMARKS:

NGVD Datum

1. Railroad spike in power pole, approximately 25' south and 30' east of W 1/4 Corner, Section 35-27-2E. Elevation 1349.65
2. Square on south hub guard of RCBC just west of NW Corner of Section 35-27-2E. Elevation 1311.30

LINE TABLE		
LINE	LENGTH	BEARING
L14	58.68	S21°10'32"E
L15	92.74	S00°15'37"E
L16	100.71	S31°41'04"W
L17	255.28	N00°59'51"E
L18	106.80	N89°22'13"W
L19	85.04	S74°56'59"W
L20	46.22	N05°36'16"W
L21	257.23	S10°22'45"W
L22	90.71	N65°36'28"E
L23	64.93	N00°15'37"W
L24	117.83	S71°42'46"E
L25	57.73	N20°34'12"W
L26	65.45	N03°12'49"W
L27	108.75	S85°58'41"E
L28	89.87	N77°05'40"E
L29	192.27	N26°28'44"E
L30	399.67	S71°32'12"E
L31	69.13	N51°41'00"E
L32	39.62	S21°07'03"W
L33	74.82	N68°52'57"W
L34	46.99	S21°07'03"W
L35	35.99	N16°28'46"W
L36	84.85	S00°49'24"E
L37	8.74	S10°22'45"W
L38	323.08	N89°27'13"W
L39	28.43	S60°07'42"W
L40	376.86	N89°30'16"W

MINIMUM BUILDING ELEVATIONS		
Minimum Low Opening Elevation		
Location	NGVD Datum	City Datum
Lots 1-5, Blk 1	1316.0	128.6
Lots 6-19, Blk 1	1327.3	139.9
Lots 12-32, Blk 2	1326.4	139.0
Lots 1-3, Blk 6	1335.0	147.6
Lot 10, Blk 6	1335.0	147.6
Lots 21-26, Blk 6	1335.0	147.6

KENNY E. HILL LICENSED LS-984 KANSAS LAND SURVEYOR 8/23/01

EQUESTRIAN ESTATES

An Addition to Wichita - Sedgwick County, Kansas

(Associated Zone Case PUD 2000-0001)

18-03-01-03