MAIN 3, COWSKIN INTERCEPTOR SEWER

to serve

SKYWAY INDUSTRIAL PARK,
MID-CONTINENT INDUSTRIAL PARKS I & II,
DUGAN INDUSTRIAL 2ND & 3RD ADDITIONS,
AND UNPLATTED TRACTS

CITY OF WICHITA, KANSAS

Michael E. Lindebak, P.E. City Engineer

Project Number

468-83149

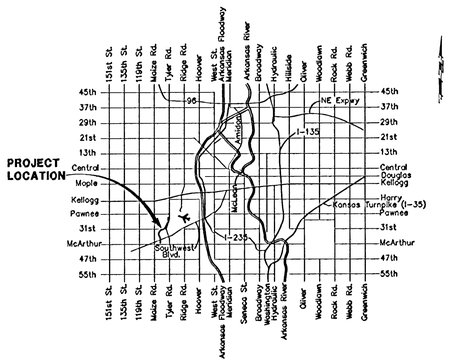
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743856

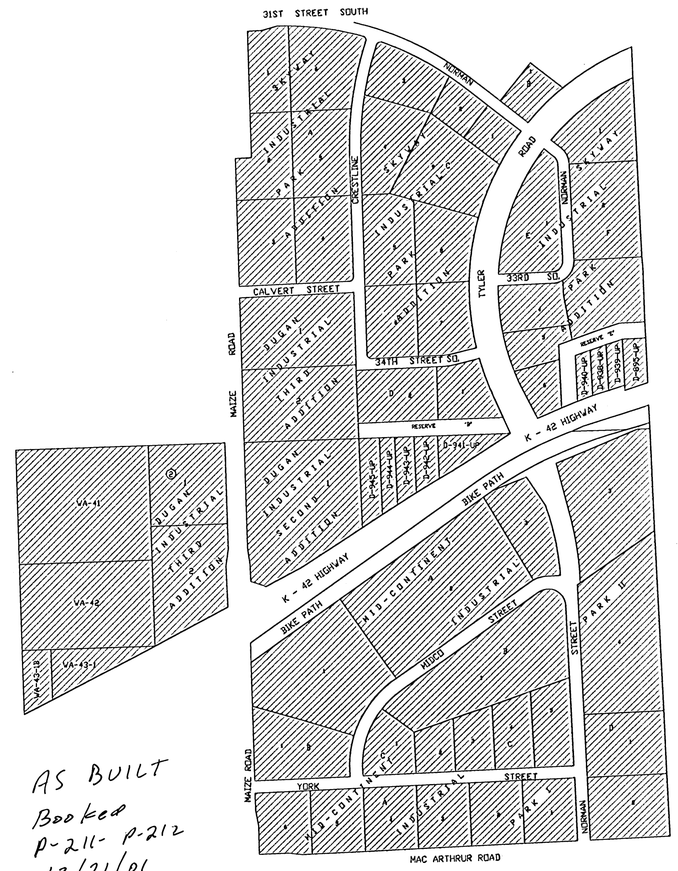
APRIL 2001

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Inverted Siphon Plan	15
Siphon Manhole Detail	16
Manhole Connection Detail	17
Standard Manhole Detail	18
Standard Shallow Manhole Detail	19
Ring & Cover Detail	20



Vicinity Map

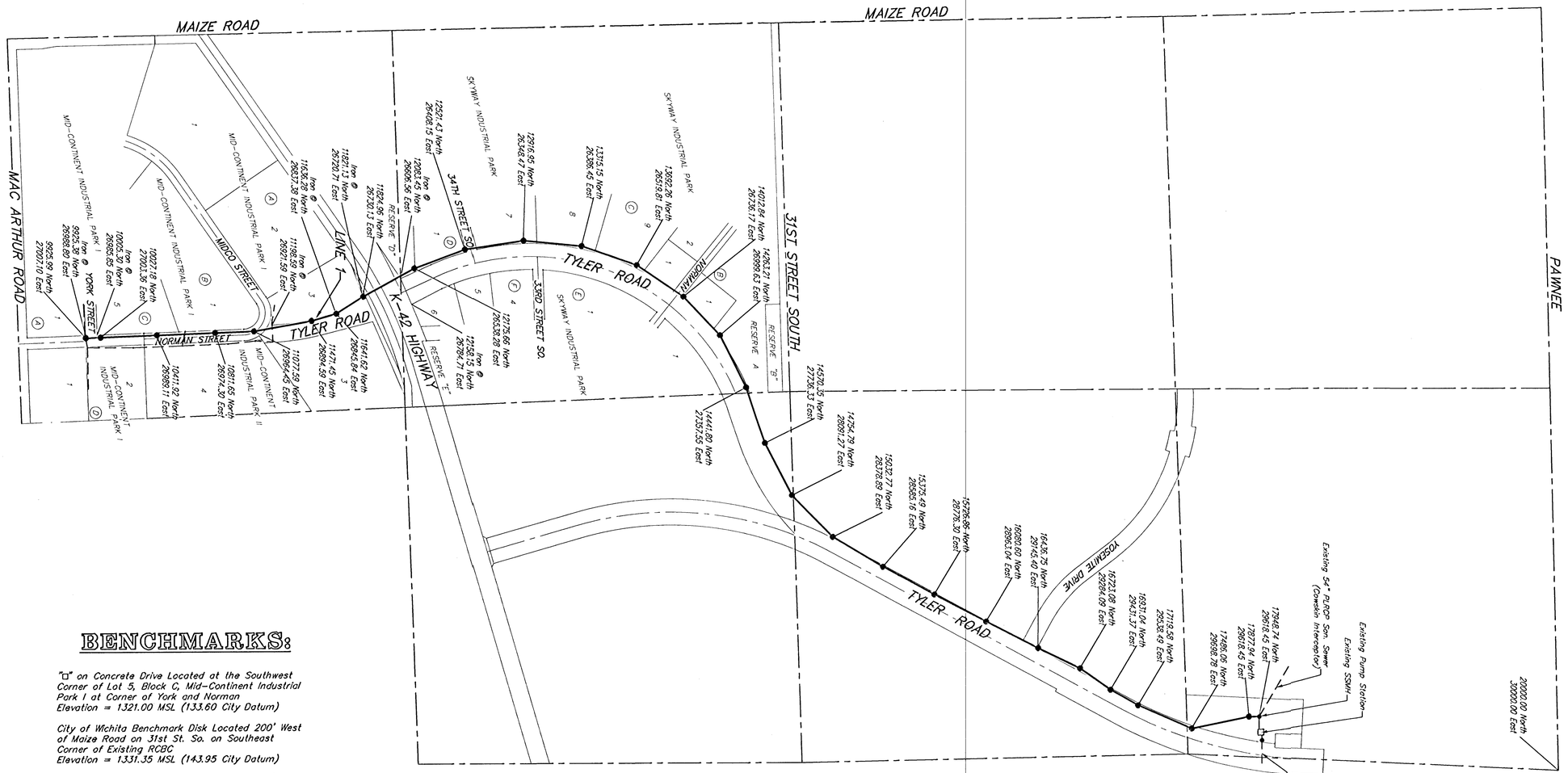


Improvement District

DENISE M. VANCIL
LICENSED
15178
4-11-01
KANSAS
PROFESSIONAL ENGINEER

AS BUILT
Booked
P-211- P-212
12/31/01
RDL

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



GENERAL NOTES:

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

   Kansas One-Call 687-2470

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

Cox Communications	*262-0661*
K.P.L. Gas Service Company	*383-8650*
Kansas Gas & Electric Company	*383-8600*
Peoples Gas Company	*942-8350*
Southwestern Bell Telephone Company	*1-800-344-7233*
City of Wichita Water Dept.	*268-4908*
City of Wichita Traffic Engineering	*269-4446*

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

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

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

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

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

7. *The Contractor shall restore all ditches, swales, road shoulders and embankments to their original slope and grade. Where existing entrance pipes, drainage pipes, signs, fences, etc. conflict with the proposed work, they shall be removed and replaced or reset. This replacement, including seeding, fertilizer and mulching shall be considered subsidiary to the lump sum bid item "Site Clearing and Restoration."*

8. *The Contractor shall submit an application to the Kansas Department of Transportation (KDOT) for a "Highway Permit Agreement" for "Use of Right-of-Way". Copies of the KDOT approved permit shall be delivered to the engineer prior to beginning any work in K-42 Highway. Highway permit fees, if any, shall be borne by the Contractor. Permit forms for this project are available from the KDOT office listed below:*

   Kansas Department of Transportation
   3200 E. 45th North
   Wichita, KS 67220
   (316) 744-1271
   Mr. Bob Raymond
   Utility Coordinator

9. *An application has been filed with DWR for the Cowskin Creek crossing. Construction in this area shall not begin until permit has been received. If Contractor opts to use directional drilling in lieu of open cutting, this permit will not be necessary.*

10. *Due to portion of project located on Wichita Airport Authority property, Contractor will need to provide certificate of insurance naming the Wichita Airport Authority as an additional insured.*

BENCHMARKS:

"□" on Concrete Drive Located at the Southwest Corner of Lot 5, Block C, Mid-Continent Industrial Park 1 at Corner of York and Norman
Elevation = 1321.00 MSL (133.60 City Datum)

City of Wichita Benchmark Disk Located 200' West of Maize Road on 31st St. So. on Southeast Corner of Existing RCBC
Elevation = 1331.35 MSL (143.95 City Datum)

City of Wichita Benchmark Disk Located 214' N. of MacArthur on Ridge Road on Southeast Corner of Bridge at Cowskin Creek Crossing
Elevation = 1299.21 MSL (111.81 City Datum)

City of Wichita Benchmark Disk at Ridge Road and K-42
Elevation = 1311.82 MSL (124.42 City Datum)

City of Wichita Benchmark Disk at Tyler Road and May
Elevation = 1330.57 MSL (143.17 City Datum)

MID-CONTINENT INDUSTRIAL PARK
KEY SHEET
SANITARY SEWER IMPROVEMENTS

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

PROJECT NUMBER				SHEET
488-83149				2 OF 20
DESIGN: DMV	DRAWN: JAK	APPROVED	DATE: 3/01	SCALE: 1" = 400'

MID-CONTINENT INDUSTRIAL PARK 488-83149-01 SSKS 00-00-E-714

TYLER ROAD

Ex. 4" Wtr Line

Ex. 24" SS Force Main

Edge Asphalt

Existing Asphalt Pavement

14" CMP

Wtr Vault

SSMH

Tree

UE Esmt.

Existing Block Wall

OWNER: WICHITA AIRPORT AUTHORITY

Existing Pump Station

Existing Asphalt

Ex. Vault

Monitoring Well

95.18'

Easement Line

90°00'00"

150°53'14"

150°30'54"

102°31'58"

Ex. 24" PLDIP

Cowskin Interceptor Sewer

SSMH

1+73.7
Sta. ~~2+33.4~~, Line 1
Construct Standard Manhole.
Top Elev. = 114.10

LINE 1

Remove Existing Trees Only as Necessary For Construction. Cost to be Included in Bid Item "Site Clearing & Restoration"

Sta. 1+62.6, Begin Line 1
Core Existing Manhole per Detail (Sheet 17) and Extend 18" Pipe South. Contractor to Verify Depth and Location of Existing Manhole Prior to Construction.

OWNER: WICHITA AIRPORT AUTHORITY

30.10'

20'

144°47'30"

Sta. 6+33.4, Line 1
Construct Standard Manhole.
Top Elev. = 114.90

Existing Tree Row

LINE 1

110' R/W

80' R/W

Edge Asphalt

Existing Gravel Rd

15'

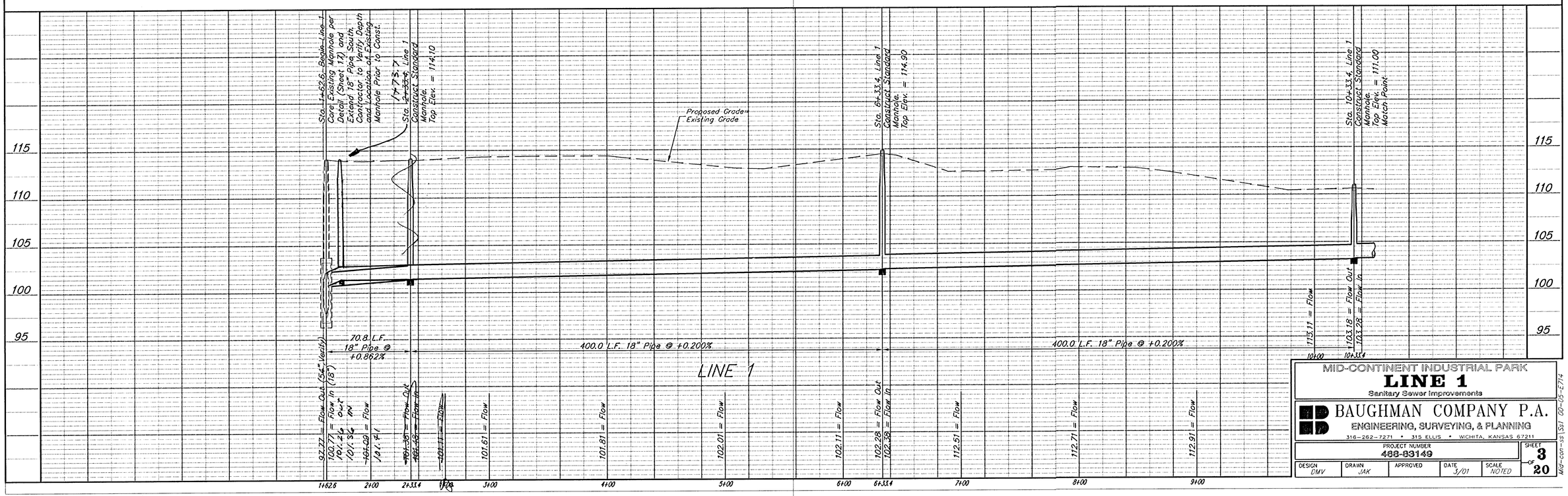
174°01'09"

Sta. 10+33.4, Line 1
Construct Standard Manhole.
Top Elev. = 111.00
Match Point

OWNER: WICHITA AIRPORT AUTHORITY

OWNER: WICHITA AIRPORT AUTHORITY

SCALE:
1" = 40' HORIZONTAL
1" = 5' VERTICAL
• = IRON



MID-CONTINENT INDUSTRIAL PARK

LINE 1

Sanitary Sewer Improvements

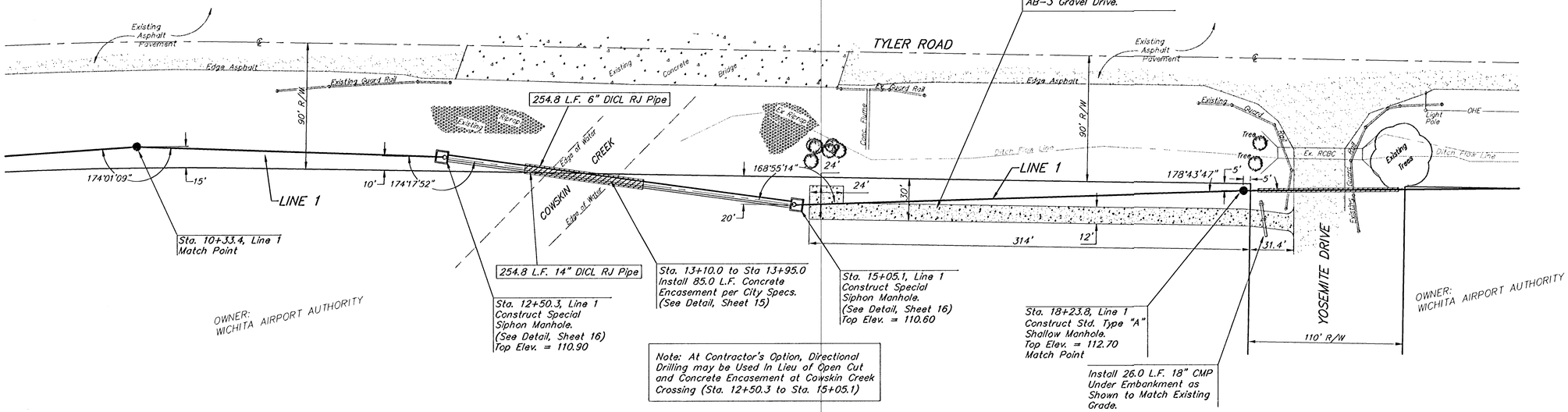
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PROJECT NUMBER 488-83149

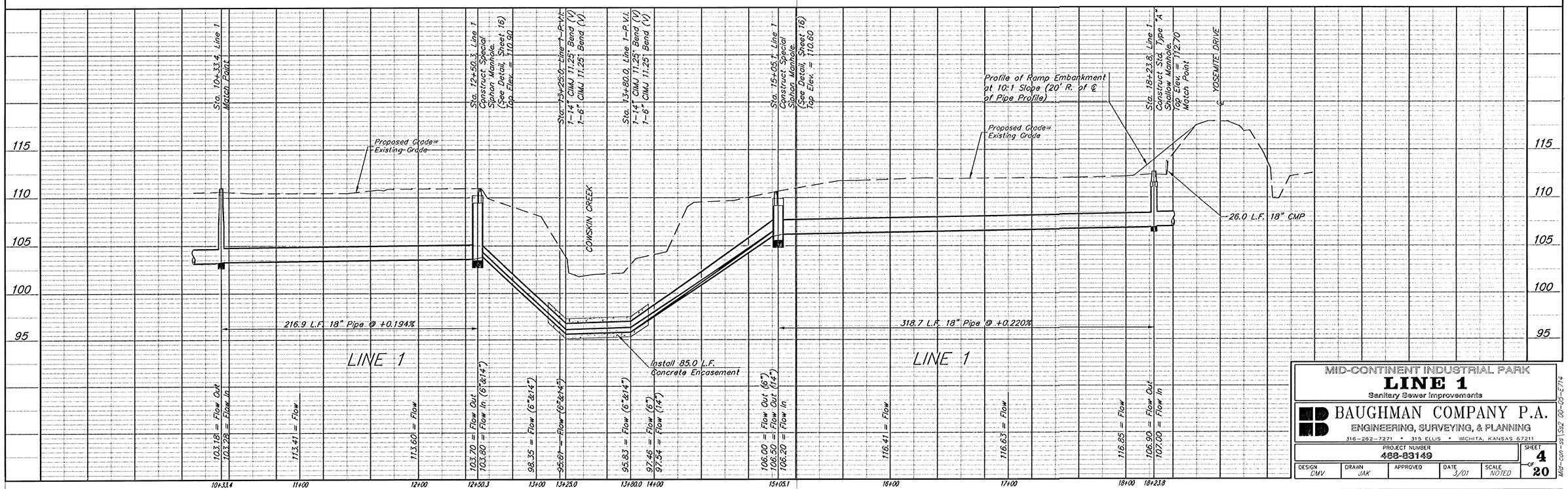
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DMV	JAK		3/01	NOTED	3 OF 20

MID-con-sis\Sst 00-05-E714

SCALE:
1" = 40' HORIZONTAL
1" = 5' VERTICAL
• = IRON



Note: At Contractor's Option, Directional Drilling may be Used In Lieu of Open Cut and Concrete Encasement at Cowskin Creek Crossing (Sta. 12+50.3 to Sta. 15+05.1)



MID-CONTINENT INDUSTRIAL PARK
LINE 1
Sanitary Sewer Improvements

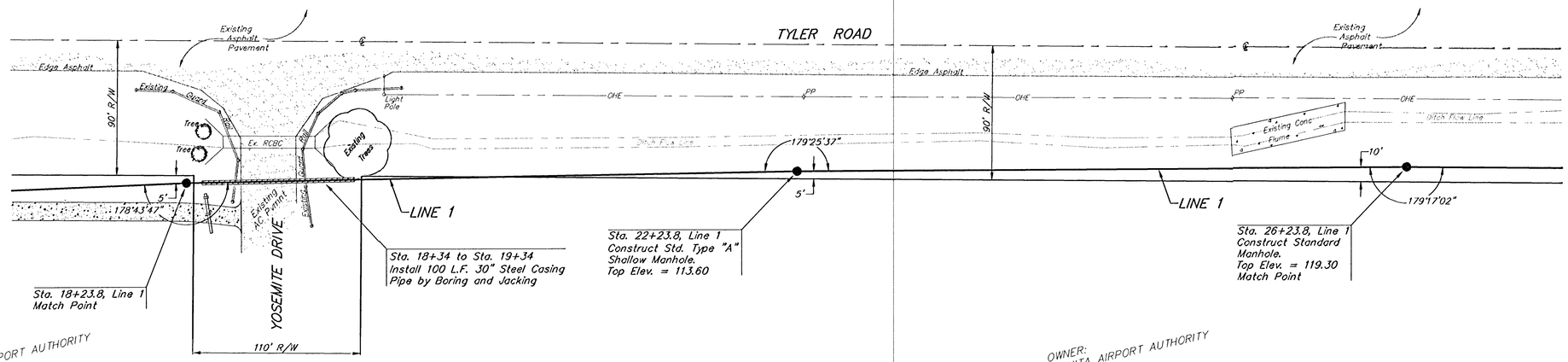
BAUGHMAN COMPANY P.A.
ENGINEERING, SURVEYING, & PLANNING
316-262-7221 • 315 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER	SHEET
488-83149	4 OF 20

DESIGN	DRAWN	APPROVED	DATE	SCALE
DMV	JAK		3/01	NOTED

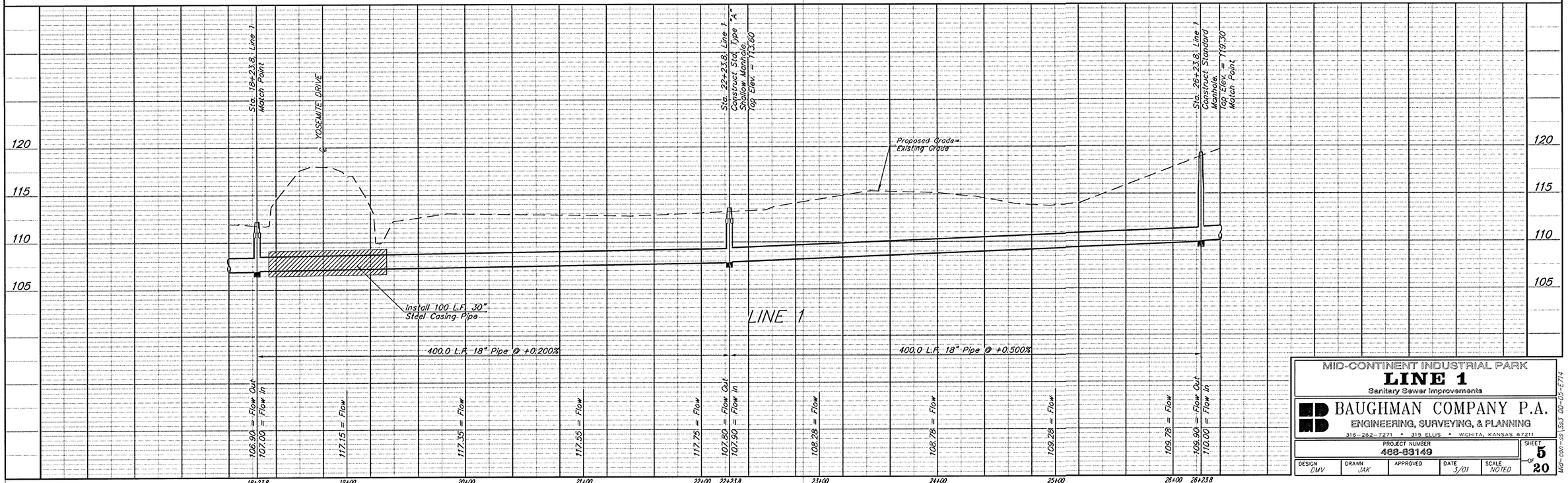
M:\d-con-ss\552 00-03-E.714

SCALE:
1" = 40' HORIZONTAL
1" = 5' VERTICAL
● = IRON



OWNER:
WICHITA AIRPORT AUTHORITY

OWNER:
WICHITA AIRPORT AUTHORITY



MID-CONTINENT INDUSTRIAL PARK
LINE 1
Sanitary Sewer Improvements

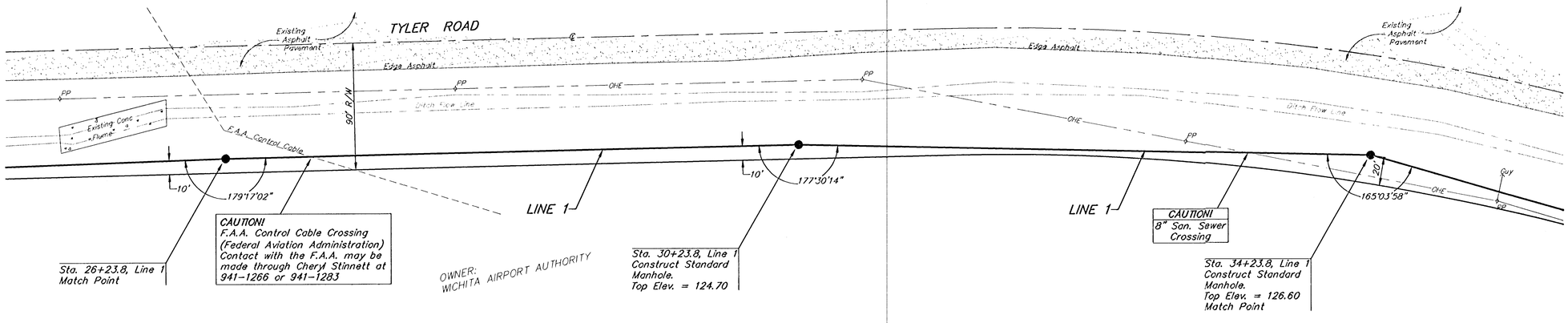
BAUGHMAN COMPANY P.A.
ENGINEERING, SURVEYING, & PLANNING
316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

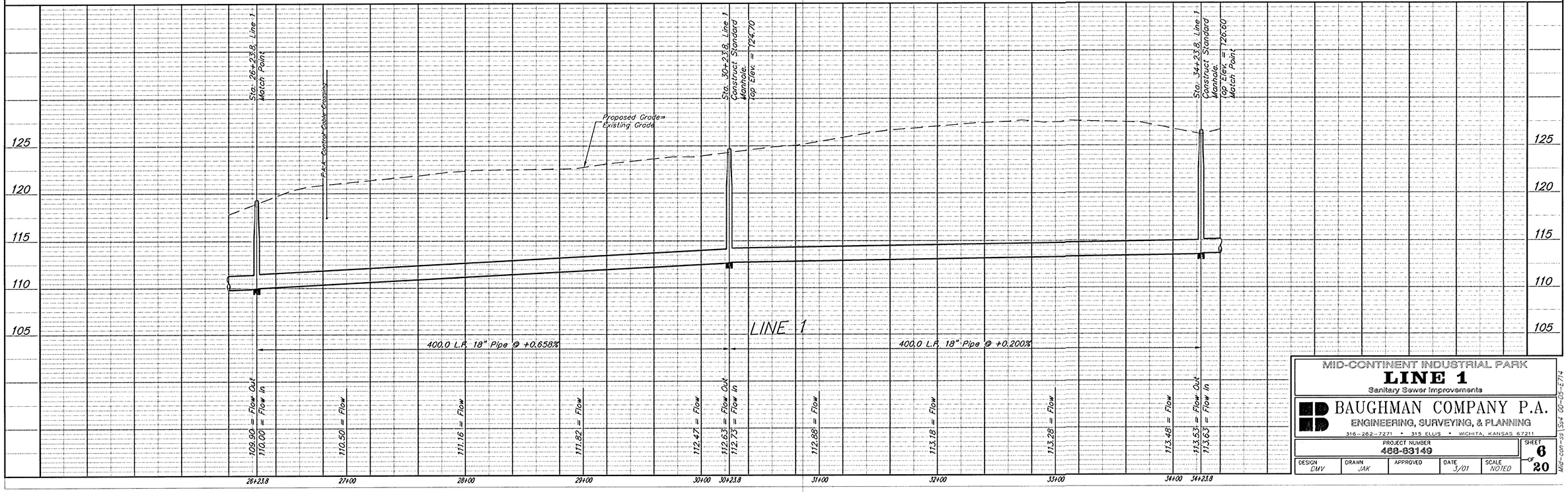
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488-83149	5 OF 20

DESIGN	DRAWN	APPROVED	DATE	SCALE
DMV	JAK		5/01	NOTED

MID-CON-98\SS\ 00-05-5714

SCALE:
1" = 40' HORIZONTAL
1" = 5' VERTICAL
• = IRON





MID-CONTINENT INDUSTRIAL PARK
LINE 1
Sanitary Sewer Improvements

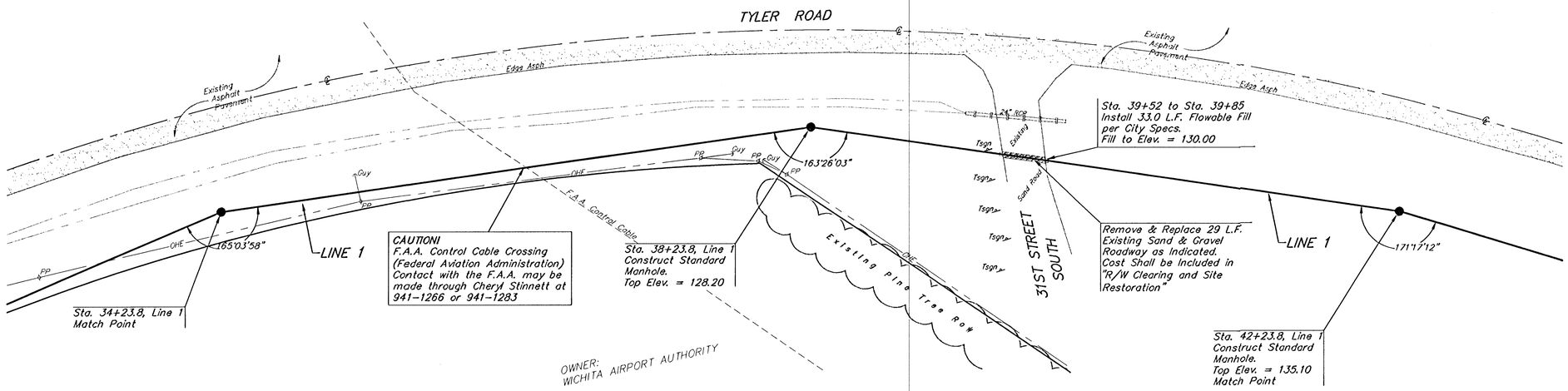
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316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER 488-83149

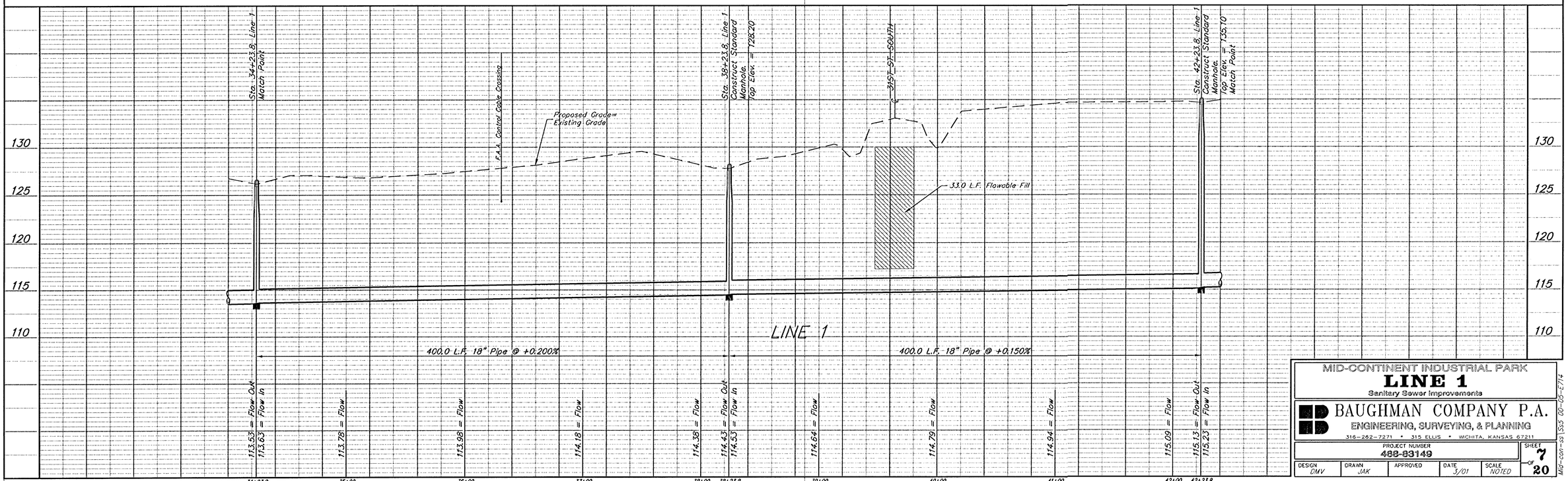
SHEET 6 OF 20

DESIGN	DRAWN	APPROVED	DATE	SCALE
DMV	JAK		3/01	NOTED

MID-con-s1 | Sht 00-05-E7T4



SCALE:
1" = 40' HORIZONTAL
1" = 5' VERTICAL
• = IRON



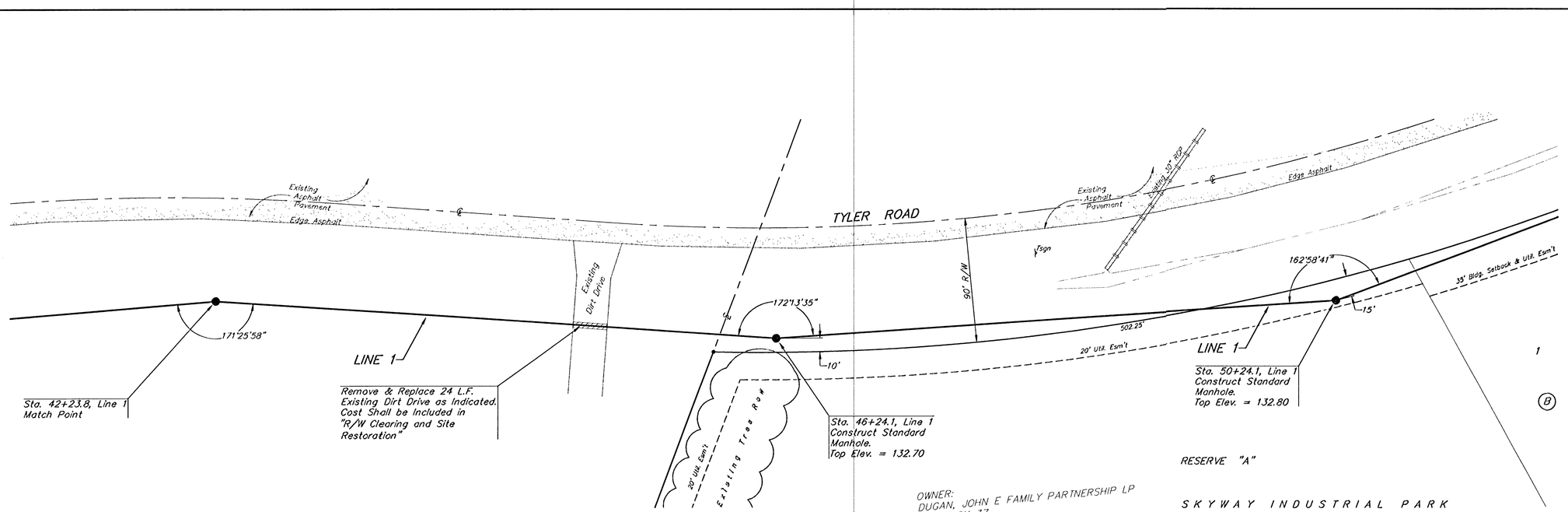
MID-CONTINENT INDUSTRIAL PARK
LINE 1
Sanitary Sewer Improvements

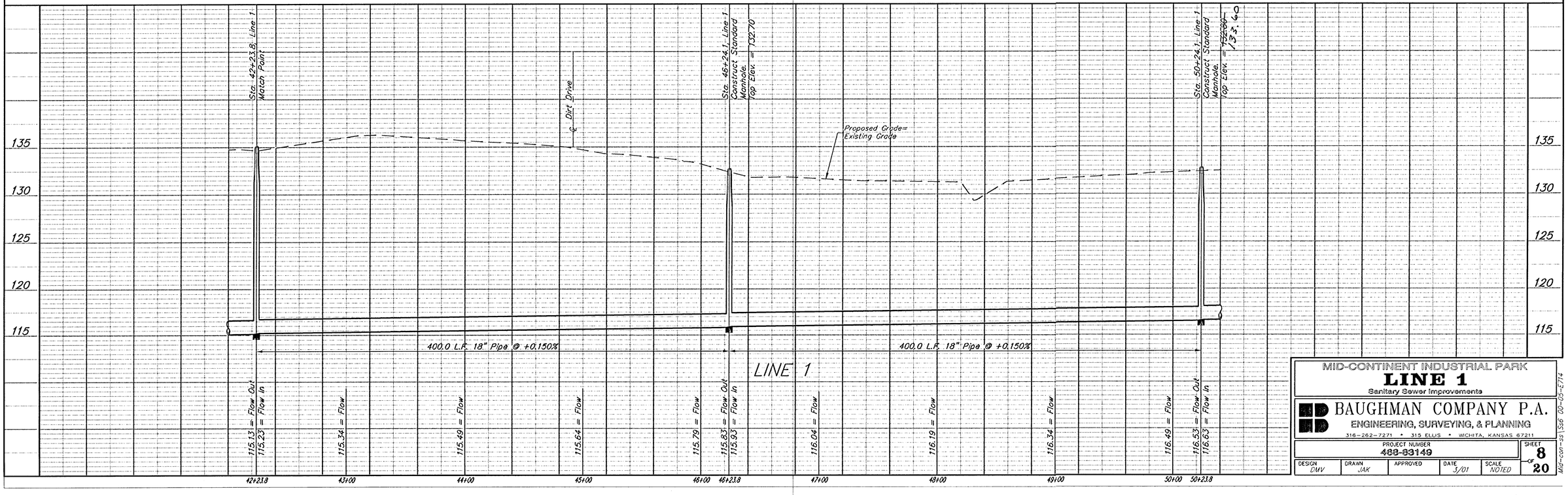
BAUGHMAN COMPANY P.A.
ENGINEERING, SURVEYING, & PLANNING
316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER	SHEET
488-83149	7 OF 20

DESIGN	DRAWN	APPROVED	DATE	SCALE
DMV	JAK		3/01	NOTED

MID-con-sl 552 00-05-E714





MID-CONTINENT INDUSTRIAL PARK

LINE 1

Sanitary Sewer Improvements

BAUGHMAN COMPANY P.A.

ENGINEERING, SURVEYING, & PLANNING

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

PROJECT NUMBER	SHEET
468-83149	8 OF 20

DESIGN	DRAWN	APPROVED	DATE	SCALE
DMV	JAK		3/01	NOTED

Mid-con-sl1.Sa6 00-05-E714

SKYWAY INDUSTRIAL PARK

1 (E)

4

35' Drng. & Util. Esm't

70' R/W

35' Drng. & Util. Esm't

90' R/W

90' R/W

℄

Existing 12" RCP

℄ Edge Asphalt

Existing Asphalt Pavement

Ditch Flow Line

℄ Edge Asphalt

Existing Asphalt Pavement

Ditch Flow Line

20' Util. Esm't

162°58'41"

15'

307.55

167°33'20"

Sta. 54+10 to Sta. 54+45
Install 35.0 L.F. Flowable Fill
per City Specs.
Fill to Elev. = 131.00

165°27'37"

20'

248.11

Sta. 50+23.8, Line 1
Construct Standard
Manhole.
Top Elev. = 133.60

LINE 1

35' Bldg. Setback & Util. Esm't

15'

5'

35' Bldg. Setback & Util. Esm't

LINE 1

RESERVE "A"

OWNER:
DUGAN, JOHN E FAMILY PARTNERSHIP LP
RT 1 BOX 37
CLEARWATER, KS 67026

Sta. 53+87.3, Line 1
Construct Standard
Manhole.
Top Elev. = 133.60

NORMAN

70' R/W

35' Bldg. Setback & Util. Esm't

20' Util. Esm't

9

Sta. 57+74.0, Line 1
Construct Standard
Manhole.
Top Elev. = 133.60
Match Point

1 (B)

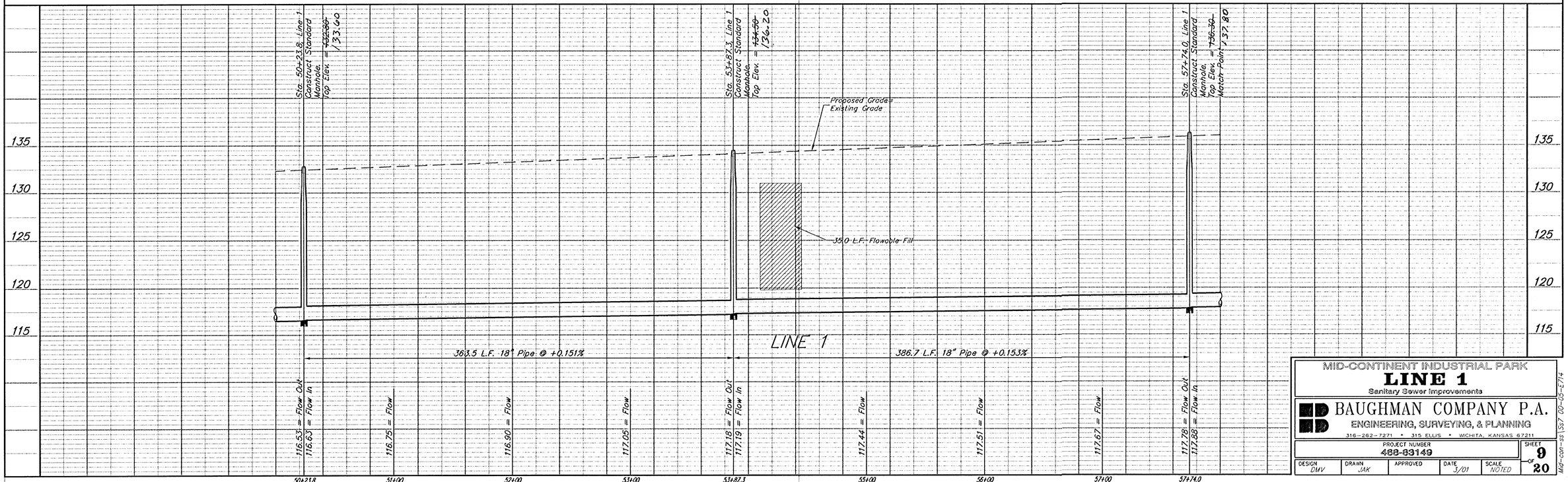
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(C)

OWNER:
DUGAN, JOHN E FAMILY PARTNERSHIP LP
RT 1 BOX 37
CLEARWATER, KS 67026

SKYWAY INDUSTRIAL PARK

SCALE:
1" = 40' HORIZONTAL
1" = 5' VERTICAL
• = IRON



MID-CONTINENT INDUSTRIAL PARK

LINE 1

Sanitary Sewer Improvements

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

PROJECT NUMBER	SHEET
488-83149	9 OF 20

DESIGN	DRAWN	APPROVED	DATE	SCALE
DMV	JAK		3/01	NOTED

MID-CON-3S\SS7 00-05-E714

OWNER:
CITY OF WICHITA
13TH FLOOR
455 N MAIN
WICHITA, KS 67202

SKYWAY INDUSTRIAL PARK

1

(E)

35' Bldg. Setback & Util. Esm't

33RD STREET SO.

OWNER:
CITY OF WICHITA
13TH FLOOR
455 N MAIN
WICHITA, KS 67202

4

SCALE:
1" = 40' HORIZONTAL
1" = 5' VERTICAL
• = IRON

Edge Asph

Existing Asphalt Pavement

Ditch Flow Line

TYLER ROAD

Edge Asph

Existing Asphalt Pavement

Edge Asph

Ditch Flow Line

Ditch Flow Line

165°27'37"

20'

358.13'

35' Bldg. Setback & Util. Esm't

165°58'21"

20'

402.08'

165°58'21"

20'

Sta. 57+74.0, Line 1
Match Point

Sta. 61+74.0, Line 1
Construct Standard
Manhole.
Top Elev. = 138.20

Sta. 65+74.0, Line 1
Construct Standard
Manhole.
Top Elev. = 140.10
Match Point

1

20' Util. Esm't

LINE 1

20' Util. Esm't

20' Util. Esm't

7

OWNER:
DUGAN, JOHN E FAMILY PARTNERSHIP LP
RT 1 BOX 37
CLEARWATER, KS 67026

9

(C)

8

OWNER:
DUGAN, JOHN E FAMILY PARTNERSHIP LP
RT 1 BOX 37
CLEARWATER, KS 67026

SKYWAY INDUSTRIAL PARK

Sta. 57+74.0, Line 1
Match Point

Sta. 61+74.0, Line 1
Construct Standard
Manhole.
Top Elev. = ~~138.20~~ 141.70

Sta. 65+74.0, Line 1
Construct Standard
Manhole.
Top Elev. = 140.10
Match Point ~~141.70~~

Proposed Grade=
Existing Grade

135
130
125
120
115

LINE 1

400.0 L.F. 18" Pipe @ +0.150%

400.0 L.F. 18" Pipe @ +0.150%

117.78 = Flow Out
117.88 = Flow In
117.92 = Flow
118.07 = Flow
118.22 = Flow
118.37 = Flow
118.48 = Flow Out
118.58 Flow In
118.62 = Flow
118.77 = Flow
118.92 = Flow
119.07 = Flow
119.18 = Flow Out
119.28 = Flow In

57+74.0 58+00 59+00 60+00 61+00 61+74.0 62+00 63+00 64+00 65+00 65+74.0

MID-CONTINENT INDUSTRIAL PARK
LINE 1
Sanitary Sewer Improvements

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

PROJECT NUMBER 480-83149

DESIGN	DRAWN	APPROVED	DATE	SCALE
DMV	JAK		3/01	NOTED

SHEET 10 OF 20

MID-cons\LSS8 00-05-E714

SKYWAY INDUSTRIAL PARK

OWNER:
CITY OF WICHITA
13TH FLOOR
455 N MAIN
WICHITA, KS 67202

4 | 5 | 6

249.94'

90.48'

90' R/W

90' R/W

Existing Asphalt Pavement

Edge Asph

Edge Asph

Edge Asph

Ditch Flow Line

Ditch Flow Line

165°58'21"

20'

35' Bldg. Setback & Util. Esm't.

Sta. 65+74.0, Line 1
Match Point

LINE 1

Sta. 69+16 to Sta. 69+51
Install 35.0 L.F. Flowable Fill
per City Specs.
Fill to Elev. = 136.00

167°57'21"

20'

5'

257.31'

118.67'

5'

25'

35' Bldg. Setback & Util. Esm't.

71°21'08"

116°36'42"

LINE 1

Sta. 73+43.5, Line 1
Construct Standard
Manhole, 1-12" Stub (W)
Top Elev. = 138.20
Match Point

Sta. 69+74.0, Line 1
Construct Standard
Manhole.
Top Elev. = 139.70

34TH STREET SO.

35' Bldg. Setback & Util. Esm't.

35' Bldg. Setback & Util. Esm't.

70' R/W

7' Public Ut. Esm't.

20' Util. Esm't.

RESERVE "D"

7

1

C

D

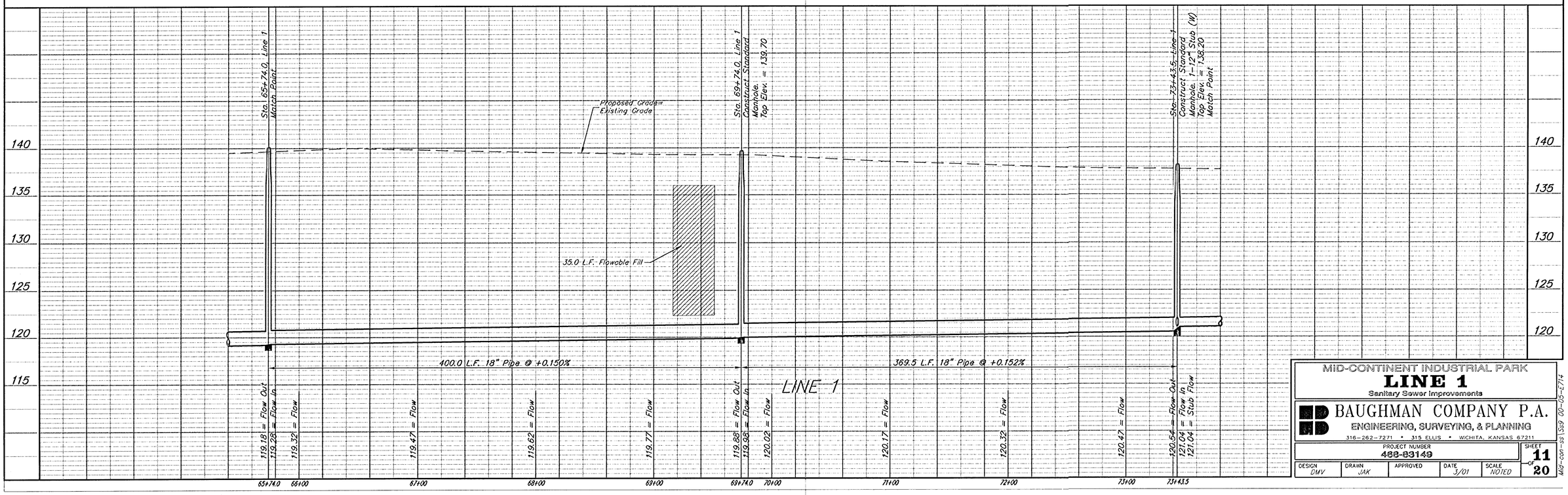
F

OWNER:
DUGAN, JOHN E FAMILY PARTNERSHIP LP
RT 1 BOX 37
CLEARWATER, KS 67026

OWNER:
DUGAN, JOHN E FAMILY PARTNERSHIP LP
RT 1 BOX 37
CLEARWATER, KS 67026

SKYWAY INDUSTRIAL PARK

SCALE:
1" = 40' HORIZONTAL
1" = 5' VERTICAL
• = IRON



MID-CONTINENT INDUSTRIAL PARK
LINE 1
Sanitary Sewer Improvements

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

PROJECT NUMBER 468-83149

SHEET 11 OF 20

DESIGN	DRAWN	APPROVED	DATE	SCALE
DMV	JAK		3/01	NOTED

Mid-con-ss\5519 00-05-2714

SCALE:
1" = 40' HORIZONTAL
1" = 5' VERTICAL
• = IRON

TYLER ROAD

Existing AC Pvmt

Edge Asph

90' R/W

Ditch Flow Line

118.87'

35' Bldg. Setback & Util. Esm't

5'

25'

108.16'

Guy

Sta. 73+43.5, Line 1
Match Point

71°21'08"

116°36'42"

LINE 1

1 (D)

SKYWAY INDUSTRIAL PARK

OWNER:
DUGAN, JOHN E FAMILY PARTNERSHIP LP
RT 1 BOX 37
CLEARWATER, KS 67026

20' Wide Private Use Esm't

RESERVE "D"

Edge Asphalt

Remove & Replace Existing Fence Only as Necessary for Construction. Cost to be Included in Bid Item "Site Clearing & Restoration"

Exist. 6" RWD #4 Water Line

CAUTION!
RWD #4 Water Line Crossing

K-42 HIGHWAY

Signal Pole
Traffic MH
OHE
Tsgn
Exist. 24" RCP
Existing Asphalt Pavement
Signal Light
Traffic Box
Pp
Exist. 24" RCP inlet

Sta. 74+60 to Sta. 77+39
Install 279 L.F. 24" Steel Casing Pipe by Boring and Jacking

50' Util. & Safety Esm't

C.L. Fence

Sta. 77+43.5, Line 1
Construct Standard Manhole.
Top Elev. = 137.50

MID-CONTINENT INDUSTRIAL PARK II

OWNER:
MID-CONTINENT INDUS DEV INC
9413 BENT TREE CR
WICHITA, KS 67226

3 (A)

Remove & Replace 24 L.F. Ex. Asph. Pvm't as Indicated. Cost Shall be Included in "R/W Clearing and Site Restoration.

Existing Dirt Drive

Light Pole

176°25'38"

218.59'

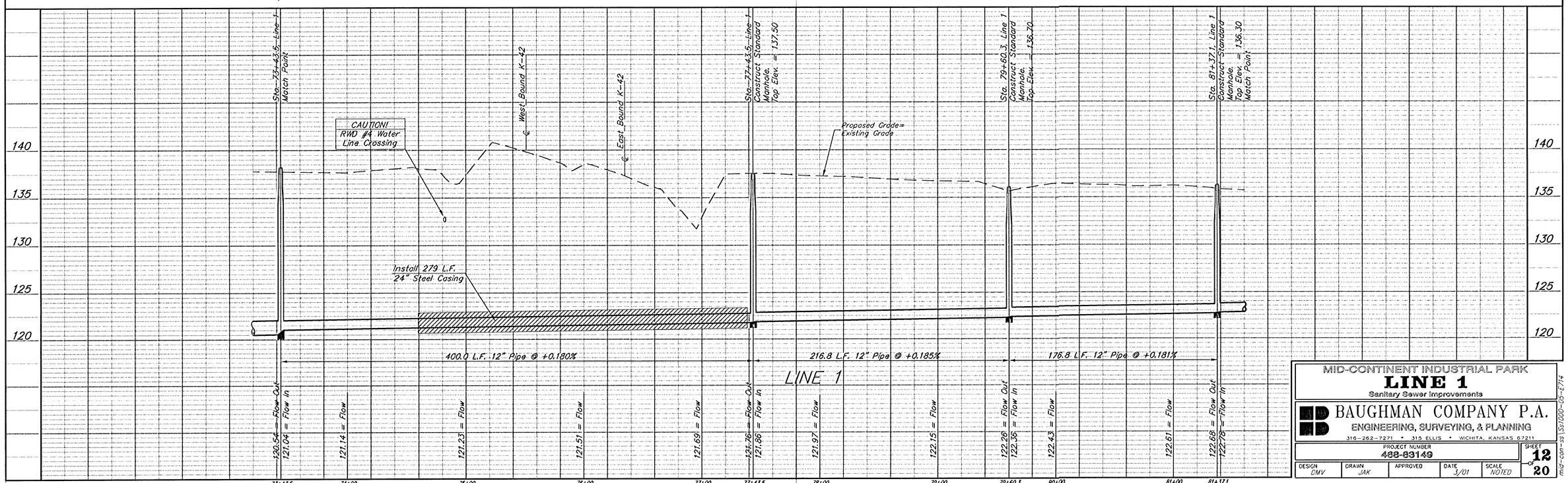
10'

163°43'45"

174°04'25"

Sta. 79+60.3, Line 1
Construct Standard Manhole.
Top Elev. = 136.70

Sta. 81+37.1, Line 1
Construct Standard Manhole.
Top Elev. = 136.30
Match Point



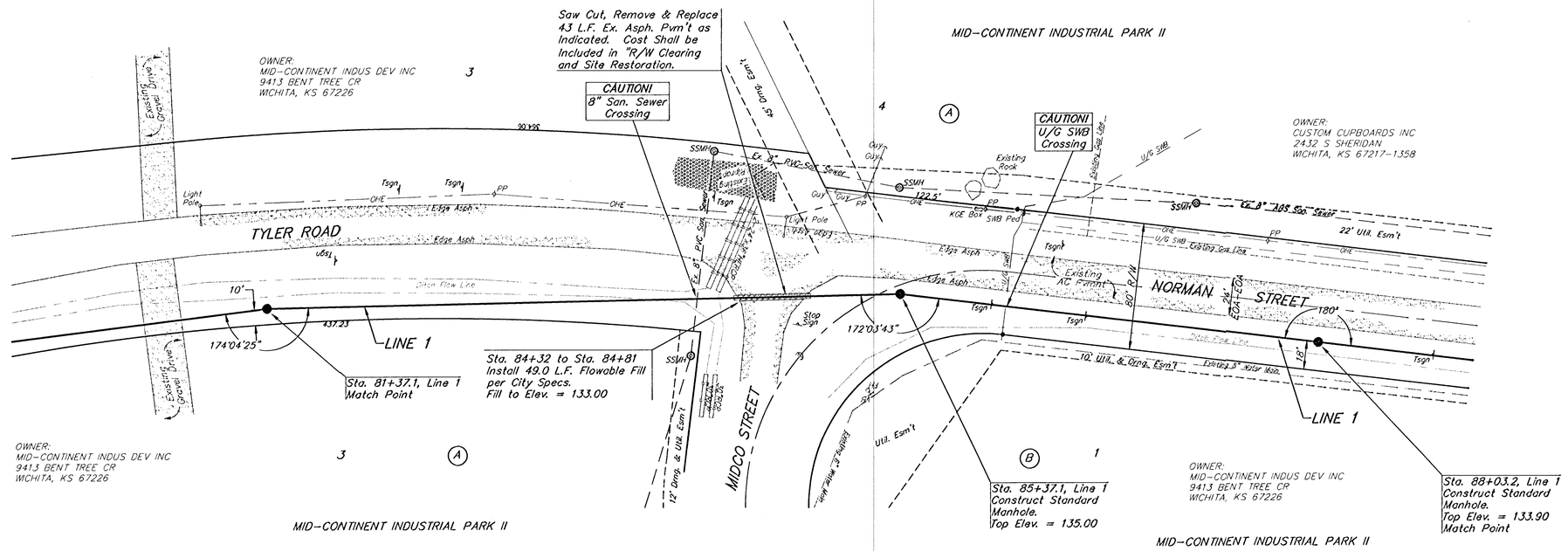
MID-CONTINENT INDUSTRIAL PARK
LINE 1
Sanitary Sewer Improvements

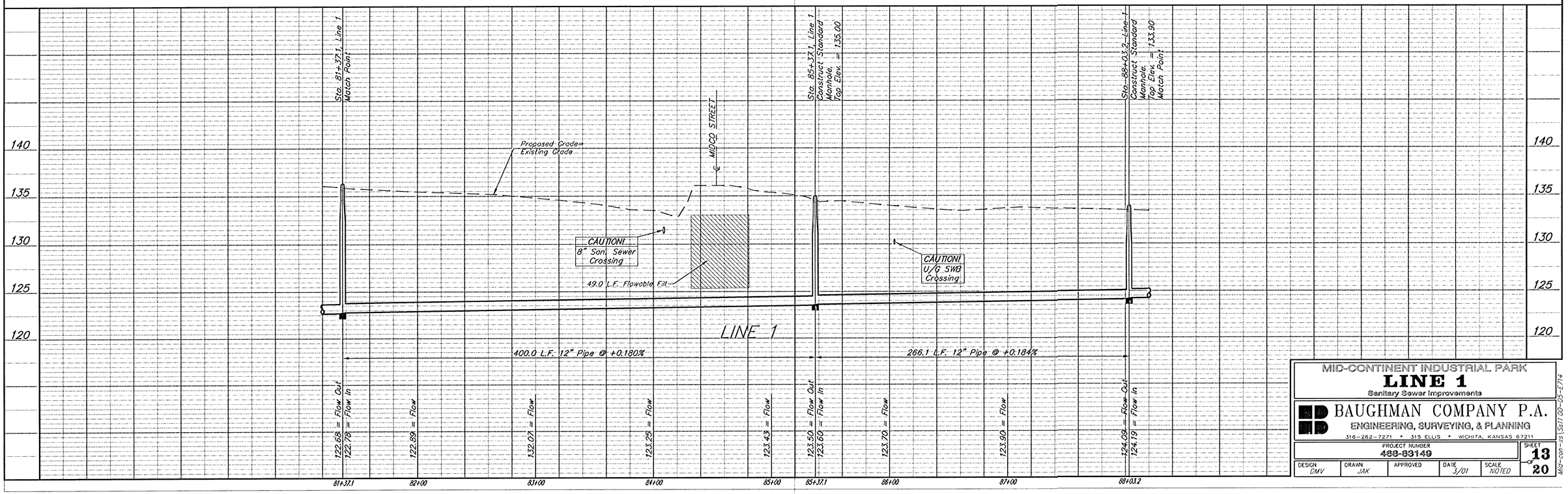
BAUGHMAN COMPANY P.A.
ENGINEERING, SURVEYING, & PLANNING
316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER	SHEET
488-83149	12 OF 20

DESIGN	DRAWN	APPROVED	DATE	SCALE
DMV	JAK		3/01	NOTED

mid-con-ss \ss1000-05-E714





MID-CONTINENT INDUSTRIAL PARK
LINE 1
Sanitary Sewer Improvements

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

PROJECT NUMBER	SHEET
488-83149	13 of 20

DESIGN	DRAWN	APPROVED	DATE	SCALE
DMV	JAK		5/01	NOTED

Mid-con-ss\Ss17\00-05-E714

97+59.6 MH Typ 'P'

Sta. ~~97+56.6~~ End Line 1
~~Verify Depth and Location of Existing Manhole Prior to Construction.~~

Contractor shall Cap Existing Lines East and South at the Manhole After New Lines Are Complete and In Use. Cost shall be Included in "R/W Clrg. and Site Restoration."

SCALE:
1" = 40' HORIZONTAL
1" = 5' VERTICAL
• = IRON

Saw Cut, Remove & Replace 59 L.F. Ex. Asph. Pvm't as Indicated. Cost Shall be Included in "R/W Clearing and Site Restoration.

Saw Cut, Remove & Replace 28 L.F. Ex. Asph. Pvm't as Indicated. Remove and Replace Existing Rock Drive and 24" CMP. Cost Shall be Included in "R/W Clrg. and Site Rest."

Remove 67.2 L.F. Existing 8" Pipe and Install 67.2 L.F. 12" Pipe per New Grades. Cost of Pipe Removal shall be Incidental to Cost of 12" Pipe.

OWNER:
CUSTOM CUPBOARDS INC
2432 S SHERIDAN
WICHITA, KS 67217-1358

MID-CONTINENT INDUSTRIAL PARK II

CAUTION! 8" San. Sewer Crossing

Saw Cut, Remove & Replace 28 L.F. Ex. Asph. Pvm't as Indicated. Cost Shall be Included in "R/W Clearing and Site Restoration.

MID-CONTINENT INDUSTRIAL PARK I

OWNER:
MID-CONTINENT INDUS DEV INC
9413 BENT TREE CR
WICHITA, KS 67226

CAUTION! U/G SWB Crossing

CAUTION! O/H Elec. Crossing

CAUTION! U/G Gas Crossing

NORMAN STREET

YORK STREET

LINE 1

CAUTION! 3-20" SWS Crossing

CAUTION! Water Cable Crossing

CAUTION! 8" Wtr Line Crossing

Sta. 88+03.2, Line 1
Match Point

Sta. 92+03.2, Line 1
Construct Standard Manhole.
Top Elev. = 133.00

Sta. 95+12.9 to Sta. 95+32.9
Install 20.0 L.F. Concrete Encasement per City Specs.

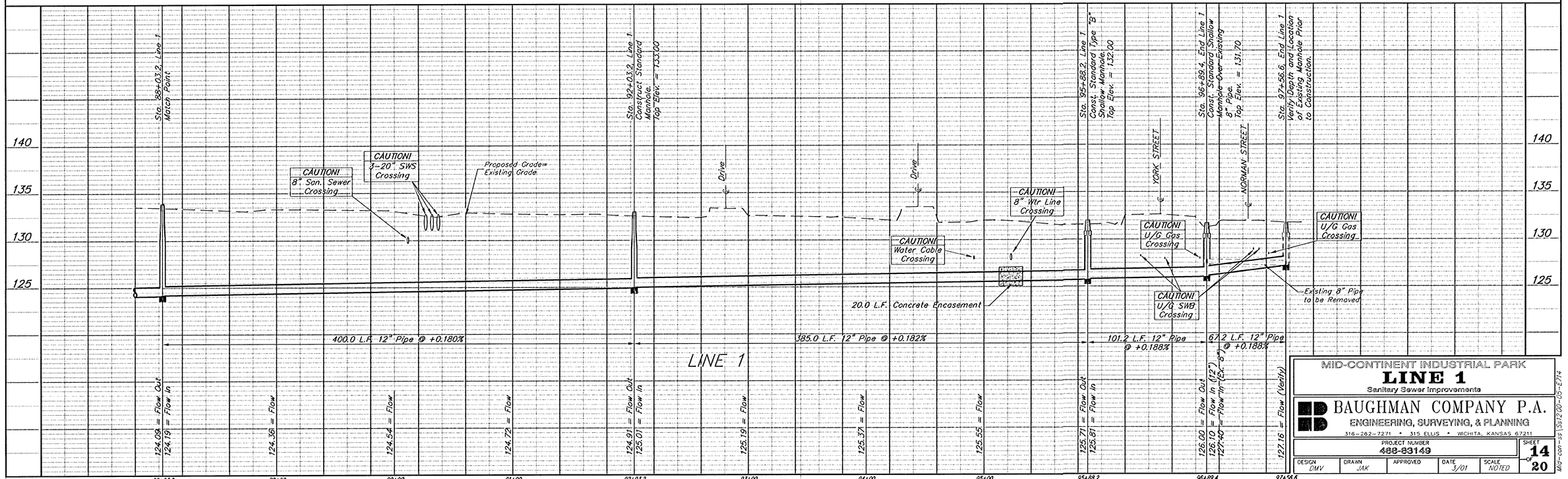
Saw Cut, Remove & Replace 25 L.F. Ex. Asph. Drive as Indicated. Cost Shall be Included in "R/W Clearing and Site Restoration.

Sta. 95+88.2, Line 1
Const. Standard Type "B" Shallow Manhole.
Top Elev. = 132.00

Sta. 96+89.4, Line 1
Verify Depth and Location of Existing 8" Pipe Prior to Construction.
Const. Standard Type "B" Shallow Manhole Over Existing 8" Pipe.
Top Elev. = 131.70

OWNER:
JOHNSON, WILLIAM M & ANDREW P SELENKE
PO BOX 12086
WICHITA, KS 67277-2086

OWNER:
EVANS BUILDING CO INC
PO BOX 12086
WICHITA, KS 67277-2086



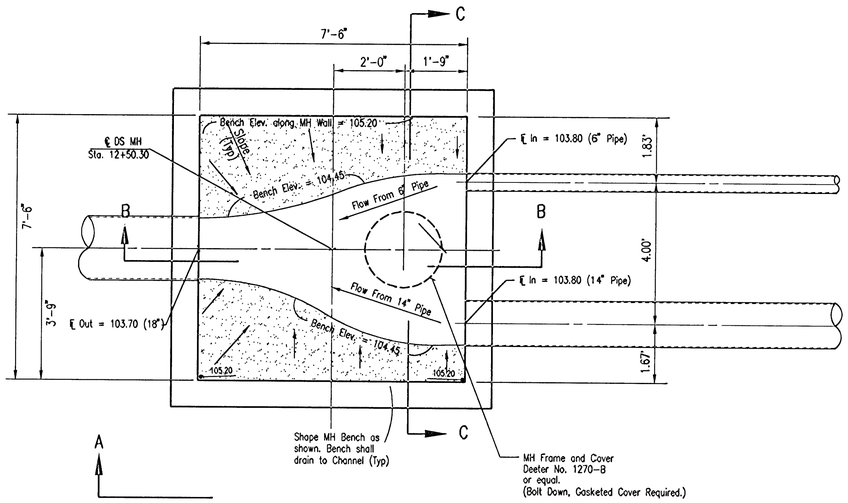
MID-CONTINENT INDUSTRIAL PARK
LINE 1
Sanitary Sewer Improvements

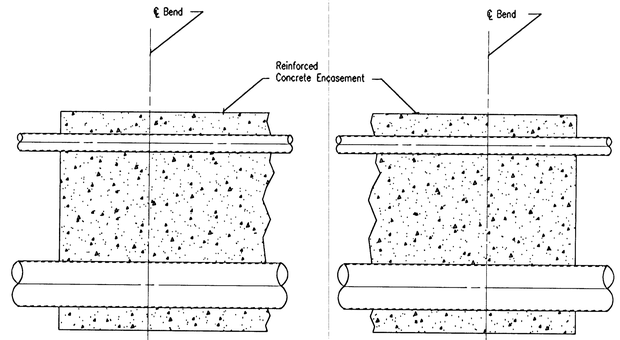
BAUGHMAN COMPANY P.A.
ENGINEERING, SURVEYING, & PLANNING
316-262-7271 • 315 ELLIS • WICHITA, KANSAS 67211

PROJECT NUMBER	SHEET
488-83149	14 of 20

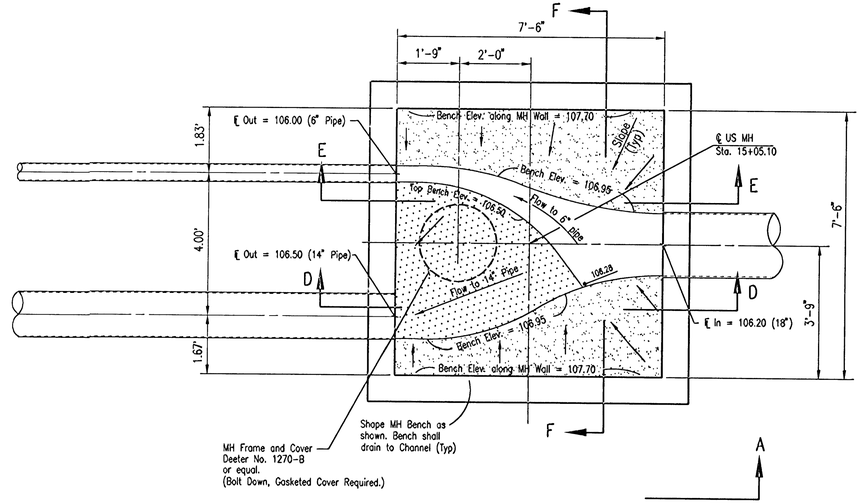
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CMV	JAK		3/01	NOTED

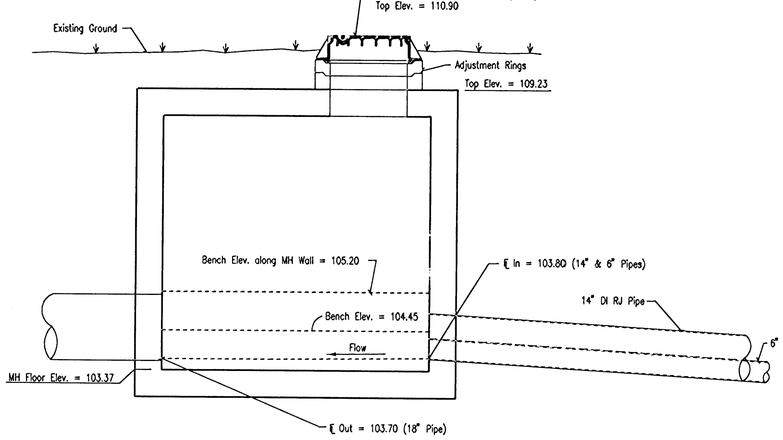
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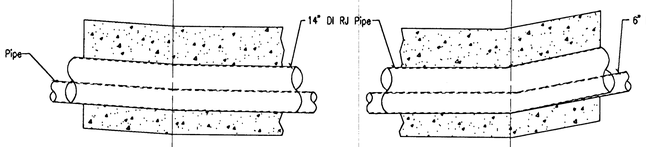


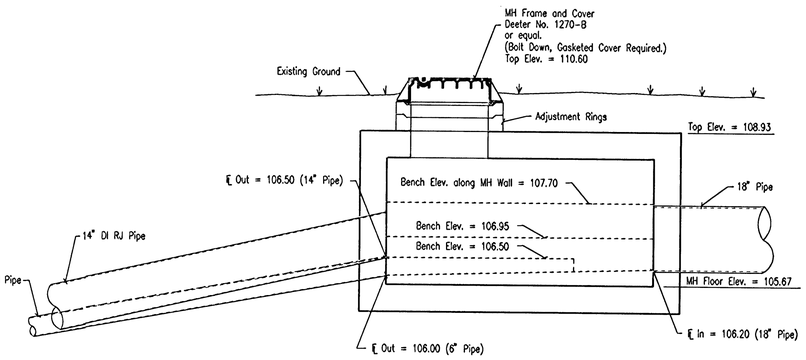


PLAN
No Scale









SECTION A – A

Inverted siphon vault construction shall adhere to requirements for pre cast manhole construction as indicated in plans and specifications. All pre cast manhole vault sections shall conform to the latest revisions of ASTM C-478 as modified by the specifications. Contractor shall submit proposed vault construction details and structural calculations to Engineer for review and approval prior to construction.

DSNR: MDK OPER: DAW SCALE: 1=2.00
Q:\2000\00598\invsiphon 04-16-2001 02:08:40 pm

MECHASLOVIC KEITH LOEWEN
13944
4/16/01
KANSAS
PROFESSIONAL ENGINEER

No.	Revision	By	Date

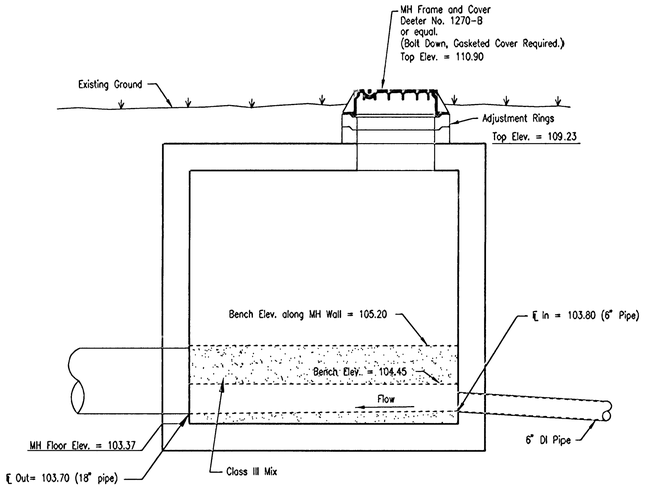
SANITARY SEWER IMPROVEMENTS

INVERTED SIPHON PLAN

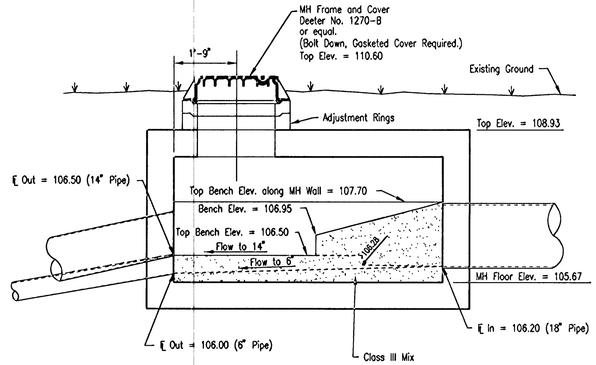
MID-CONTINENT IND. PARK
CITY OF WICHITA PROJECT NO. 468-83149

Professional Engineering Consultants, P.A.
303 S. TOPEKA • WICHITA, KANSAS 67202
316-262-2691 • FAX 316-262-3003

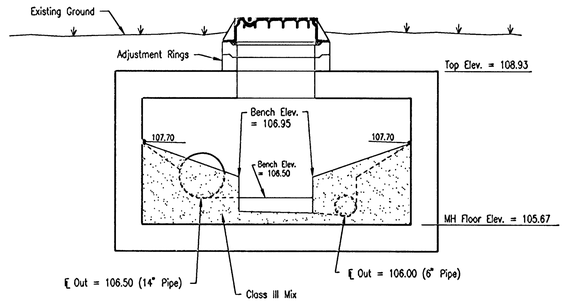
Designed by MDK	Job No. 34-00598-1028	Sht. 15 of 20
Drawn by JGA, CSL	Date March 2001	



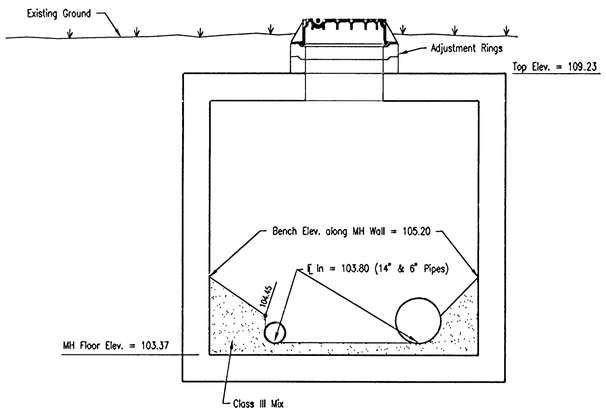
SECTION B – B



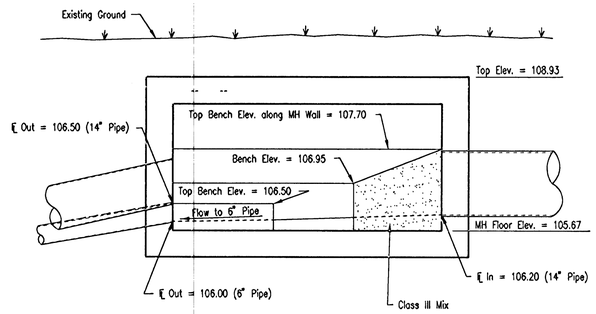
SECTION D – D



SECTION F – F



SECTION C – C



SECTION E – E

No Scale

No.	Revision	By	Date

MICHAEL DAKE ECKENBERG 13944 4/14/01 KANSAS PROFESSIONAL ENGINEER

SANITARY SEWER
IMPROVEMENTS

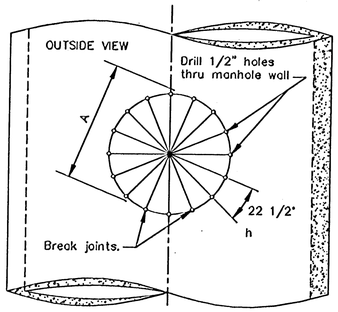
INVERTED SIPHON SECTIONS

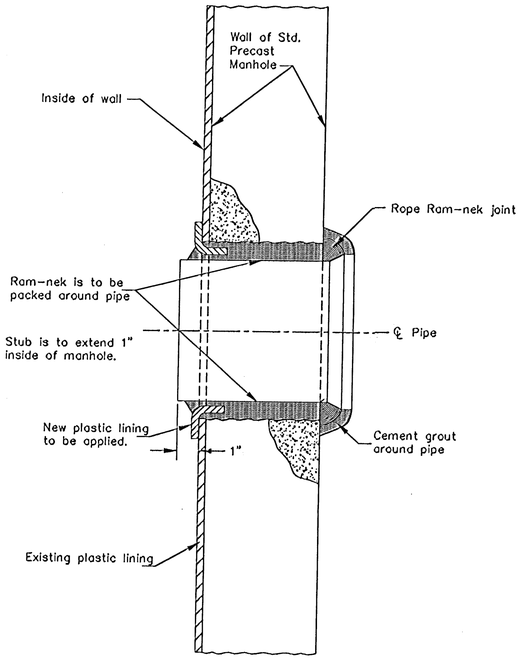
MID-CONTINENT IND. PARK
CITY OF WICHITA PROJECT NO. 468-83149

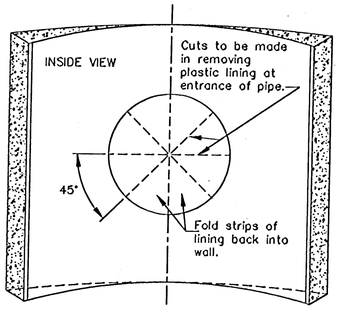
Professional Engineering Consultants, P.A.
303 S. TOPEKA • WICHITA, KANSAS 67202
316-262-2691 • FAX 316-262-3003

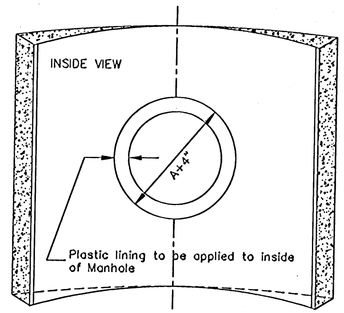
Designed by	MDK	Job No.	34-00598-1028	SN. 16 of 20
Drawn by	JGA, CSL	Date	March 2001	

DSNR: MDK OPER: DAW SCALE: 1=2.00
Q:\2000\00598\siphondtls2 04-16-2001 02:04:28 pm









A = OUTSIDE DIAMETER OF PIPE + 2"

THE CITY OF WICHITA

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

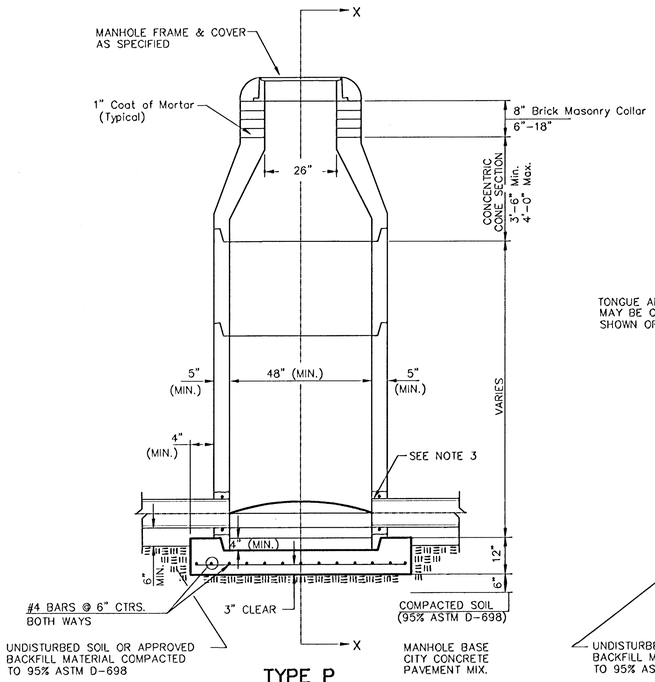
PIPE CONNECTION PLASTIC LINED CONCRETE MANHOLE

M. E. LINDEBAK P.E. – CITY ENGINEER

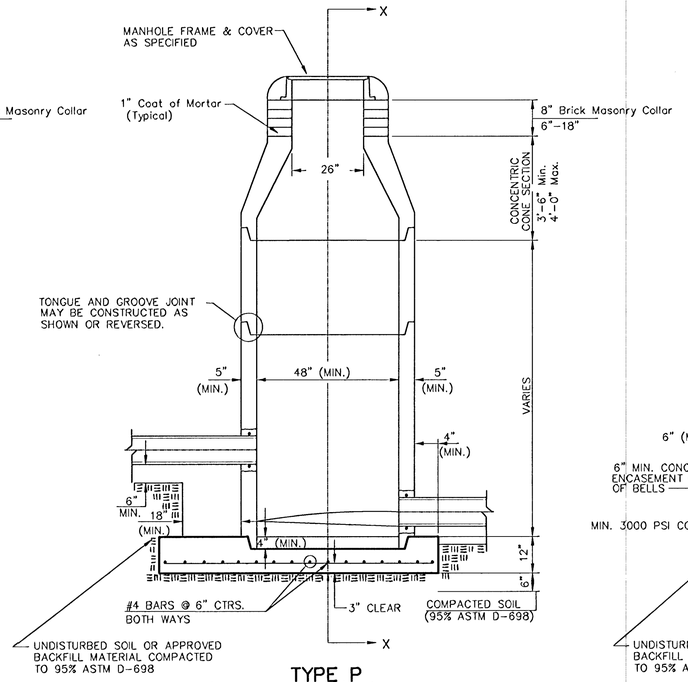
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DATE: MAR.01	SHEET 17 OF 20

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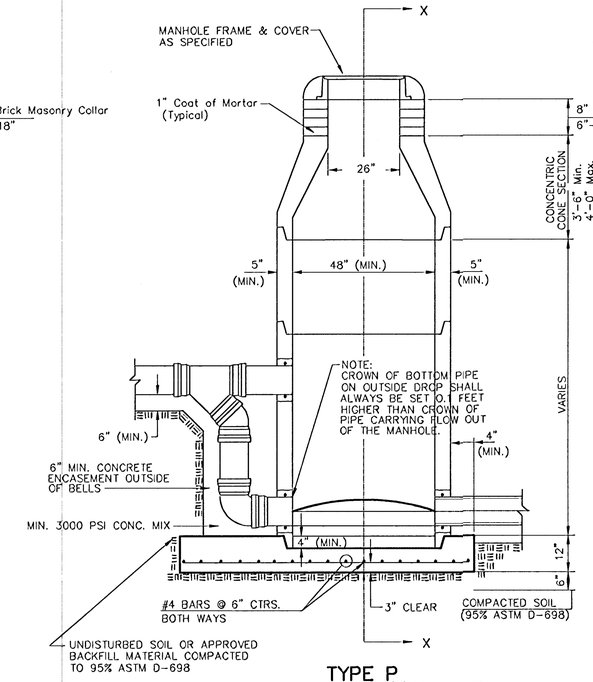
SEWER APPURTENANCES DETAILS



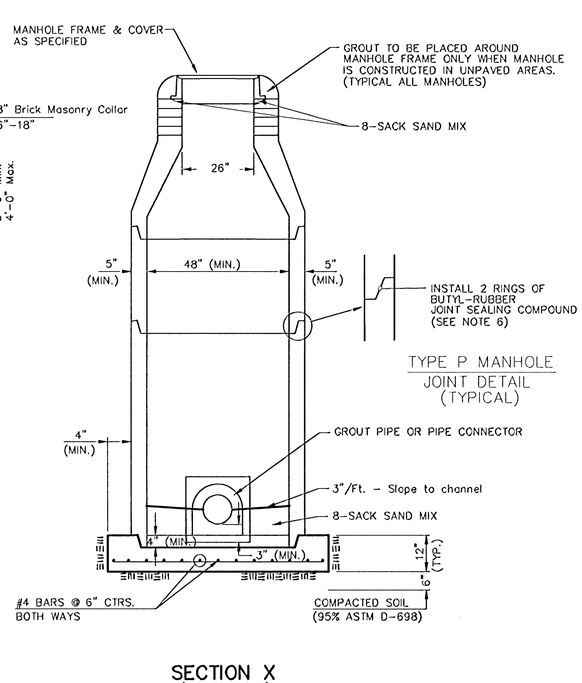
TYPE P
STANDARD MANHOLE



TYPE P
INSIDE DROP MANHOLE



TYPE P
OUTSIDE DROP MANHOLE



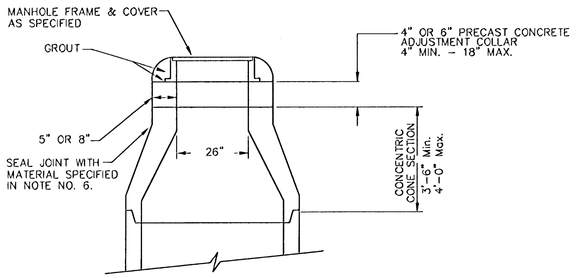
TYPE P MANHOLE
JOINT DETAIL
(TYPICAL)

SECTION X
(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 TNEMEC 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 NON-SHRINK 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 BOTTOM HALVES OF THE INFLOWING 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 MANHOLE. 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.



ALTERNATE CONSTRUCTION
IN UNPAVED AREAS

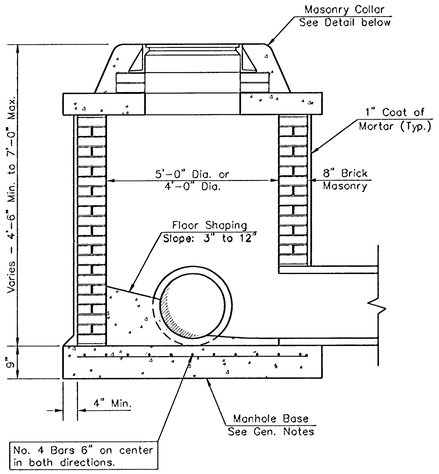
CITY OF WICHITA
STD. MANHOLE DETAILS
SEWER APPURTENANCES

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

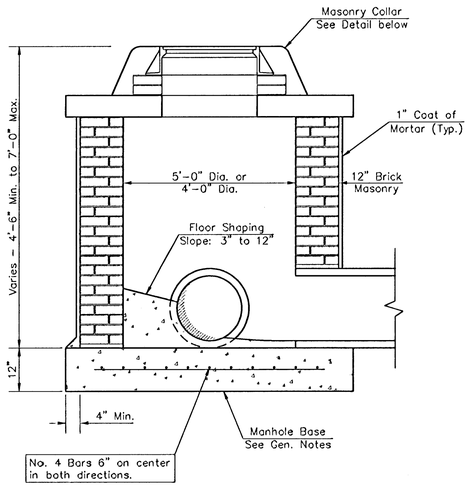
PROJECT NUMBER 488-83149

SHEET 18 OF 20

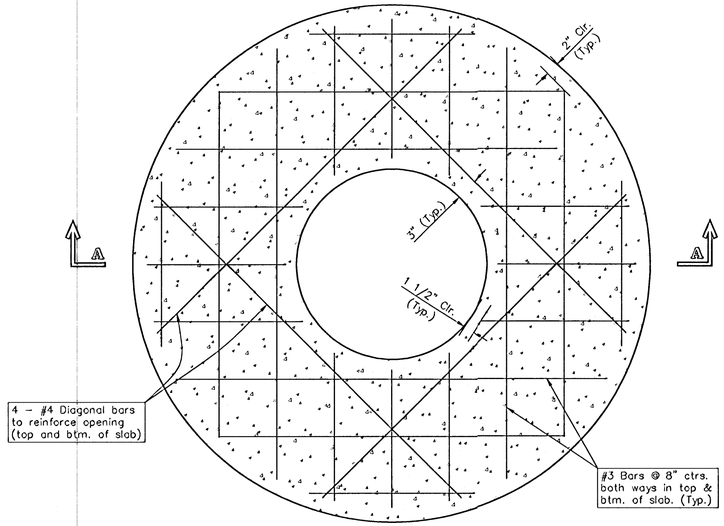
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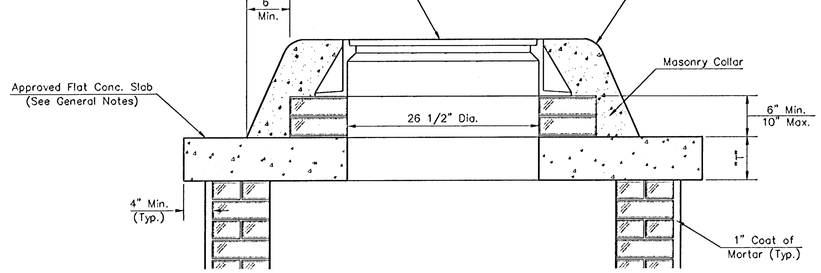
SHALLOW TYPE "A" MANHOLE



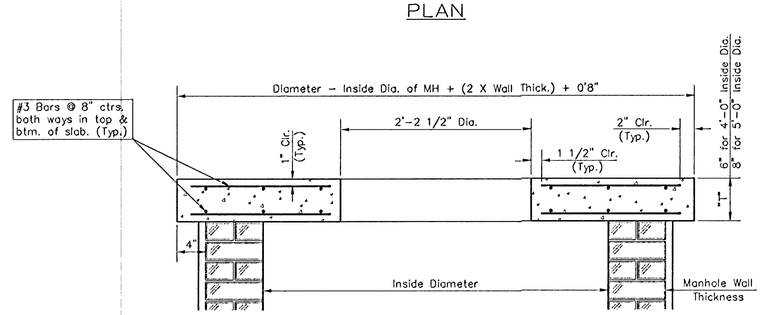
SHALLOW TYPE "B" MANHOLE



PLAN

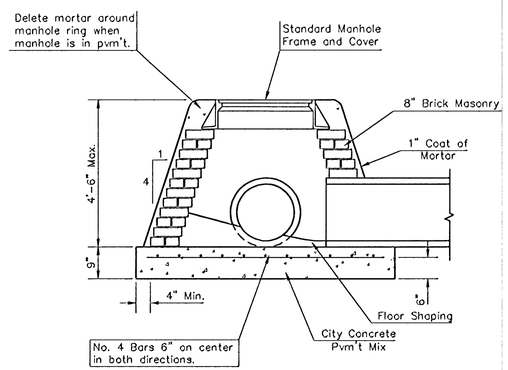


MASONRY COLLAR DETAIL

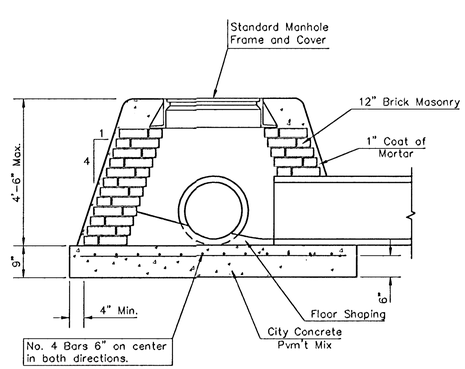


SECTION A-A

FLAT CONCRETE SLAB DETAILS



SPECIAL SHALLOW TYPE "A" MANHOLE



SPECIAL SHALLOW TYPE "B" MANHOLE

GENERAL NOTES

1. 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 cement 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. Type "A" shallow manholes can be used on sewers when the manhole is not located within public street pavement. 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.

2. 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 6" 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.

3. 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 bottom halves of the inflowing pipes and the outflowing pipe as shown by the drawings. 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.

4. 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 manhole. 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.

5. 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 drawings.

6. The crowns of inflowing pipes shall never be set lower than the crown of the outflowing pipe.

7. Standard shallow manholes type "A" and "B" shall be paid for at the unit price bid per each for the type and diameter indicated. Standard special shallow manholes type "A" and "B" shall be paid for at the unit price bid per each for the type indicated. All standard shallow manhole diameters will be 4' unless indicated otherwise.

8. All brick used in manhole construction shall meet Grade SW of ASTM C652 or C62-87.

CITY OF WICHITA, KANSAS

Std. Manhole Detail

TYPE "A" AND TYPE "B"

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

PROJECT NUMBER	SHEET
488-83149	19 of 20

DESIGN	DRAWN	APPROVED	DATE	SCALE
C.O.W.	Staff			NONE

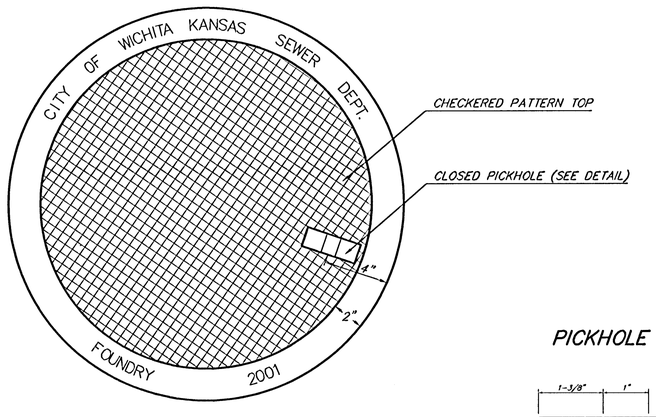
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Detail Sheet

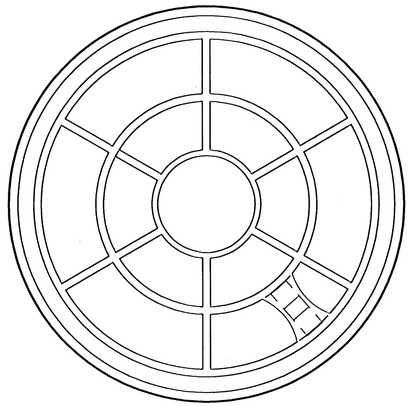
MANHOLE FRAME AND COVER DETAIL

ADOPTED AS STANDARD DESIGN BY
CITY OF WICHITA, KANSAS

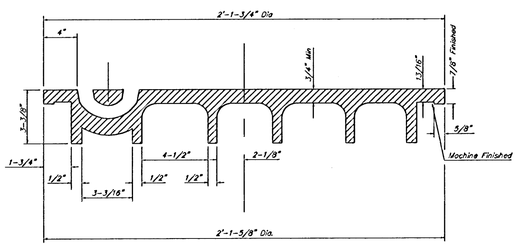
MANHOLE COVER
Weight = 180 Lbs.



TOP VIEW

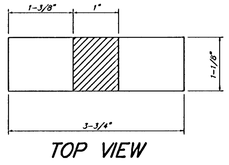


BOTTOM VIEW

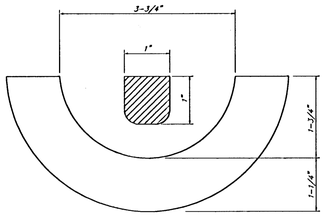


SECTION VIEW

PICKHOLE DETAIL

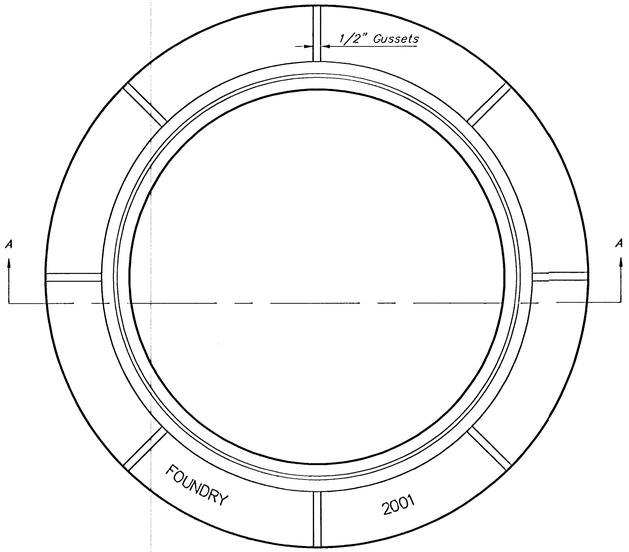


TOP VIEW

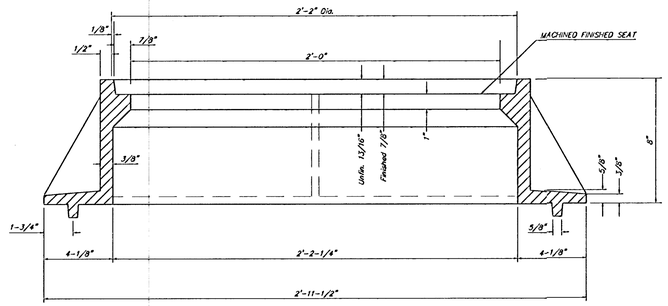


SECTION VIEW

MANHOLE FRAME
Weight = 145 Lbs.



TOP VIEW



SECTION A–A

GENERAL NOTES

MANHOLE CASTINGS SHALL BE MANUFACTURED USING GOOD QUALITY GRAY IRON CONFORMING TO CLASS 30 OF A.S.T.M. DESIGNATION A-48. DIMENSIONS AND WEIGHTS SHOWN ON THE DETAILED DRAWINGS SHALL BE CONSIDERED AS MINIMUM REQUIREMENTS AND ANY DEVIATIONS FROM THE DIMENSIONS SHOWN MUST BE SPECIFICALLY APPROVED. THE FINISHED CASTINGS SHALL BE OF UNIFORM QUALITY, FREE FROM BLOWHOLES, POROSITY, HARD SPOTS, SHRINKAGE DISTORTIONS OR OTHER DEFECTS.

MANHOLE CASTINGS SHALL BE COATED WITH AN ASPHALT PAINT RESULTING IN A SMOOTH, TOUGH AND TENACIOUS COATING WHICH IS NOT BRITTLE OR TACKY.

MANHOLE CASTINGS SHALL BE MANUFACTURED SUCH THAT A COVER MANUFACTURED BY ANY ONE FOUNDRY WILL FIT INTERCHANGEABLY INTO A FRAME MANUFACTURED BY ANOTHER FOUNDRY AND STILL MEET ALLOWABLE CLEARANCES AND NON-ROCKING REQUIREMENTS. THIS WILL REQUIRE MANUFACTURING OF THE MATCHING FACES ON THE COVER AND THE FRAME TO CLOSE TOLERANCES.

THE OUTSIDE CIRCUMFERENCE OF THE VERTICAL FACE OF THE COVER AND THE INSIDE CIRCUMFERENCE OF THE VERTICAL FACE IN THE FRAME RECESS SHALL BE MANUFACTURED TO TOLERANCES SUCH THAT THE CLEARANCE BETWEEN THE COVER AND FRAME WILL NOT EXCEED 1/8" AT ANY POINT AROUND THE CIRCUMFERENCE OF THE COVER. THE SEATING SURFACES BETWEEN THE COVER AND FRAME SHALL BE MACHINED SUCH AS THESE SURFACES SHALL MAKE FULL CONTACT FOR THEIR FULL CIRCUMFERENCE TO PRECLUDE THE COVER FROM ROCKING IN THE FRAME.

THE MANHOLE FRAME AND COVER SHALL BE MARKED WITH LETTERING INDICATING THE NAME OF THE MANUFACTURER AND THE YEAR WHEN THE COVER OR FRAME WAS CAST. THE COVER SHALL BE FURTHER IDENTIFIED WITH REGARDS TO OWNERSHIP USING LETTERS AT LEAST 1 INCH IN HEIGHT. THIS IDENTIFICATION SHALL BE "CITY OF WICHITA SEWER DEPARTMENT". THE WORD DEPARTMENT MAY BE ABBREVIATED. THE TEXTURE OF THE TOP SURFACE OF THE COVER SHALL BE MANUFACTURED IN A CHECKERED PATTERN DESIGN AS INDICATED ON THE DRAWINGS. SMOOTH BLOCKOUTS SHALL BE UTILIZED TO HIGHLIGHT THE LETTERING ON THE COVER SURFACE. THE TOTAL AREA OF SMOOTH SURFACE BLOCKOUT SHALL NOT EXCEED THE AREA AS INDICATED ON THE DRAWING. POSITIONING OF SMOOTH BLOCKOUTS AND LETTERING MAY VARY FROM THAT SHOWN ON THE DETAILED DRAWING.

MANHOLE FRAME AND COVER DETAIL
ADOPTED AS STANDARD DESIGN BY
CITY OF WICHITA, KANSAS

BAUGHMAN COMPANY P.A.
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PROJECT NUMBER 488-83149 | SHEET 20 OF

DESIGN	DRAWN	APPROVED	DATE	SCALE
STAFF	STAFF			NONE

13-30-04-18

Drawings\Details\Manhole