W I C H I T A - S E D G W I C K C O U N T Y

METROPOLITAN AREA PLANNING DEPARTMENT

Date: September 10, 1984

To: Mike Lindebak, City Engineer

From: Forrest L. Nagley, Senior Planner

Subject: Instruments required by the vacation of drainage right-of-way adjacent to Lot 1, Block A, Rockborough Addition (V-1265).

Attached for your review and approval are the following: P/se Lindebak /DY

1. Covenant Governing Construction of Retaining Wall;
2. Temporary Drainage Dedication;
3. Agreement to Maintain a Portion of a Drainage Dedication.

Please have these instruments reviewed relative to Engineering's concerns and let me know of required changes so I may forward them to Jack Turner's office.

I have reviewed the documents and offer the following comments:

1. Although the covenant governing the wall construction does not specifically state what adjacent improvements must be "substantially commenced and completed", it does reference the letter of credit submitted as guarantee for those adjacent improvements. I would prefer the document be revised to reference specifically the required box culverts and related drainage work on Venture Park Addition, but will not make this an issue unless you concur.

   Is the rest of the wording of the covenant acceptable to you?

2. I believe the temporary drainage easement must clearly state that if the wall is not constructed, or under construction within two years' time, the vacated drainage right-of-way automatically becomes an outright drainage dedication again. That is, it nullifies the right-of-way vacation. I don't believe the present document accomplishes this. I'd like your comments on this aspect of the easement agreement before I contact the attorney and request the additional language.

   What other comments do you have regarding the wording and intent of the temporary drainage dedication?

3. I find the agreement to maintain a portion of the drainage dedication acceptable. I have been successful in getting fairly typical language included about the City's right to maintain the right-of-way if the owner fails to do so. The costs of such maintenance may be charged to the adjacent lot owner.

   I would like your comments on the acceptability of the proposed agreement.

Agreement has been reached with Carney to send this vacation case to the Board of City Commissioners on October 9, 1984. The Manager must have the required instruments by October 1, 1984. Before the instruments can

be forwarded to the Manager, they must be approved as to form by the Law Department. I will forward the instruments to Law after Engineering and Planning are satisfied with the drafts.

With the above rough time table in mind, it is very important that I get back with Turner's office by the 17th of September about the changes we want on the drafts to be submitted to the Law Department. Should you have any questions or cannot get your comments to me by September 17th, please call.

Forrest L. Nagley
Senior Planner

FLN:bh
cc: Tom Powell, Law Department
Chris Breitenstein, City Engineer's office (w/attachments)
Jack Galbraith, Chief Planner

(1)

COVENANT GOVERNING CONSTRUCTION
OF RETAINING WALL

This covenant for the construction of a retaining wall is entered into this _____ day of _____, 1984, by and between the CITY OF WICHITA, KANSAS, hereinafter referred to as "City," and FRANK L. CARNEY and ZENDA CARNEY, hereinafter referred to as "Carney."

WITNESSETH:

WHEREAS, Carney has filed a vacation petition with the Board of City Commissioners of the City of Wichita, Sedgwick County, Kansas praying for the vacation of the drainage dedication located on the following described real property, to-wit:

> A 62 foot wide strip of the Drainage Dedication platted in Brookhollow Addition, more particularly described as follows: Beginning at the Southeast corner of Venture Park Addition; thence North along the East line of said Venture Park Addition a distance of 63.55 feet to a point on a curve whose radius is 707 feet; thence Southeasterly along said 707 foot radius curve to the right a distance of 591.11 feet to its point of intersection with the Southeast line of Lot 1 of Block A of Rockborough Addition extended; thence South 60° West a distance of 62 feet to the Southeast corner of said Lot 1; thence Northwesterly along the East line of said Lot 1, said line being a curve whose radius is 645 feet, for a distance of 525.95 feet to the point of beginning, containing 0.794 acres, more or less, Wichita, Sedgwick County, Kansas; and

WHEREAS, as a condition of the vacation of said drainage dedication across said real property, the City desires that Carney agree not to commence construction of the retaining wall to be placed thereon until such time as the construction of the improvements on, over, and across the public easement as described in a certain Irrevocable Letter of Credit issued by the First National Bank in Wichita to the City of Wichita, dated December 23, 1983 and designated as Letter of Credit C-1733, in the amount of $603,000, is substantially commenced and completion is determined to be imminent; and

WHEREAS, prudent and generally accepted construction and engineering practices would require the commencement of the construction of the retaining wall on the real property described above and formerly burdened with the dedication of a drainage easement at such time as the construction referred to in said letter of credit is substantially commenced and completion is determined to be imminent,

NOW, THEREFORE, in consideration of the premises and One No/100 Dollar ($1) and other good and valuable consideration, receipt of which is hereby acknowledged, it is agreed by the parties as follows:

1. Carney agrees to not commence construction on said retaining wall until such time as the City Engineer issues a letter to Carney (which letter must be requested by Carney within 2 years from the date hereof) stating that the construction as

guaranteed by the letter of credit referred to above has been substantially commenced and completion is imminent. For all purposes, construction will be deemed to have been substantially commenced and completion imminent at the time the City Engineer ~~shall duly~~ issues a letter to Carney stating that the construction across the City easement has been substantially commenced and that the completion of the project seems imminent and construction of the retaining wall may commence.

2. Upon receipt of such letter from the City Engineer, Carney may commence the construction of the retaining wall contemplated by the parties hereto.

IN WITNESS WHEREOF, the parties hereto have caused these presence to be executed in their names the day and year first above written.

"CITY"

CITY OF WICHITA, KANSAS

By: _____, Mayor

ATTEST:

_____
CITY CLERK

APPROVED AS TO FORM:

_____
JOHN DEKKER, Director of Law

"CARNEY"

_____
FRANK L. CARNEY

_____
ZENDA CARNEY

(2)

TEMPORARY DRAINAGE DEDICATION

KNOW ALL MEN BY THESE PRESENTS:

That for and in consideration of One No/100 Dollar ($1) and other good and valuable consideration, receipt of which is hereby acknowledged, the undersigned, Frank L. Carney and Zenda Carney, being the owners of the following described real estate in the City of Wichita, Sedgwick County, Kansas, to-wit:

> A 62 foot wide strip of the Drainage Dedication platted in Brookhollow Addition, more particularly described as follows: Beginning at the Southeast corner of Venture Park Addition; thence North along the East line of said Venture Park Addition a distance of 63.55 feet to a point on a curve whose radius is 707 feet; thence Southeasterly along said 707 foot radius curve to the right a distance of 591.11 feet to its point of intersection with the Southeast line of Lot 1 of Block A of Rockborough Addition extended; thence South 60° West a distance of 62 feet to the Southeast corner of said Lot 1; thence Northwesterly along the East line of said Lot 1, said line being a curve whose radius is 645 feet, for a distance of 525.95 feet to the point of beginning, containing 0.794 acres, more or less,

do hereby dedicate the above described real estate to the public temporarily for drainage purposes on the following terms and conditions:

A. That this dedication of a drainage easement across the above described real property is temporary only and shall be for a term of two (2) years from the effective date of the City's approval of a Vacation Petition filed by Carney covering the above-described property. However, the term of

this dedication may be perpetuated beyond the initial two year period by the commencement of construction, during such two year period, of the retaining wall contemplated by the City of Wichita and the undersigned and described in a separate instrument executed by Carney guaranteeing the construction of said retaining wall, and shall continue so long thereafter as it may take to construct said retaining wall.

B. In the event the term of this temporary drainage dedication is perpetuated by construction beyond the initial two year period, this temporary drainage dedication shall cease upon the completion of said retaining wall and said retaining wall will be considered, for all purposes, completed upon an affidavit of completion being duly filed with the Register of Deeds of Sedgwick County, Kansas by the Project Engineer, retained by Carney for the purposes of designing and supervising construction of said retaining wall. Said Project Engineer to be an engineer duly licensed by the State of Kansas to design and oversee the construction of said project.

This Temporary Drainage Dedication is executed this _____ day of _____, 1984.

Frank L. Carney

FRANK L. CARNEY

Zenda Carney

ZENDA CARNEY

STATE OF KANSAS)
) SS:
COUNTY OF SEDGWICK)

BE IT REMEMBERED, that before me, the undersigned, a Notary Public, within and for said County and State, on this 4th day of September, 1984, personally appeared FRANK L. CARNEY and ZENDA CARNEY, to me personally known to be the identical persons who executed the within and foregoing Temporary Drainage Dedication and acknowledged to me that they executed the same as their free and voluntary act and deed for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal the date and year last above written.

Alice Mostrom
NOTARY PUBLIC

My Commission Expires:
2-22-88

ALICE MOSTROM
Sedgwick County, Ks.
My Appt. Exp. Feb. 22, 1988

(3)

AGREEMENT TO MAINTAIN A PORTION
OF A DRAINAGE DEDICATION

This agreement for the maintenance of a portion of a drainage dedication is entered into this _____ day of _____, 1984, by and between the CITY OF WICHITA, KANSAS, hereinafter referred to as "City," and FRANK L. CARNEY and ZENDA CARNEY, hereinafter referred to as "Carney."

WITNESSETH:

1. That for and in consideration of One No/100 Dollar ($1) and other good and valuable consideration, the receipt of which is hereby acknowledged, Carney hereby agrees to maintain that portion only of the right bank of the channel slope of a certain drainage dedication located directly adjacent to the following described real property, to-wit:

> 62 foot wide strip of the Drainage Dedication platted in Brookhollow Addition, more particularly described as follows: Beginning at the Southeast corner of Venture Park Addition; thence North along the East line of said Venture Park Addition a distance of 63.55 feet to a point on a curve whose radius is 707 feet; thence Southeasterly along said 707 foot radius curve to the right a distance of 591.11 feet to its point of intersection with the Southeast line of Lot 1 of Block A of Rockborough Addition extended; thence South 60° West a distance of 62 feet to the Southeast corner of said Lot 1; thence Northwesterly along the East line of said Lot 1, said line being a curve whose radius is 645 feet, for a distance of 525.95 feet to the point of beginning, containing 0.794 acres, more or less, Wichita, Sedgwick County, Kansas.

2. Carney shall have no responsibility for the maintenance of the drainage dedication beyond that part of the

right bank of the channel slope, lying directly adjacent to the above described real property, but shall maintain at his own expense and at no expense to the City that portion of the above described right bank of the channel slope directly adjacent to said real property, in conformity with the degree of maintenance performed by the City on parts of the drainage dedication not covered hereby.

3. In the event Carney shall fail at any time to maintain the above described portion of the drainage dedication, the City of Wichita may serve a written Notice of Delinquency upon Carney setting forth the manner in which Carney has failed to fulfill Carney's obligation. Such Notice shall include a statement describing the obligation that has not been fulfilled and shall grant twenty (20) days within which Carney may fulfill the obligation. If said obligation is not fulfilled within the time specified, the City of Wichita may enter upon said portion of the drainage dedication and perform the obligation listed in the Notice of Delinquency. All costs incurred by the City of Wichita in carrying out the obligation of Carney may be assessed against Carney in the same manner as provided by law for special assessments, and said assessments may be established as liens upon said Lot 1, Block A, Rockborough Addition to the City of Wichita. Should Carney, upon receipt of said Notice of Deliquency, believe that the obligation described in said Notice is not proper for any reason, Carney may, within the twenty (20) day

period to be provided in said Notice, apply for a hearing before the Board of City Commissioners to appeal said obligations, and any further proceedings under said Notice shall be suspended pending the outcome of any proceedings with respect to such appeal.

4. This obligation to maintain the above described portion of the drainage dedication shall be construed as a covenant running with the land described above and may be enforced against any title holder of the said real estate, so long as the retaining wall contemplated by this agreement is in existence. The liability of Carney hereunder is not contemplated or intended to be jointly with all future title holders succeeding to the interest of Carney, but shall be limited only to the time during which Carney is the title holder.

5. This maintenance agreement may be terminated by mutual agreement of the parties at any time.

IN WITNESS WHEREOF, the parties hereto have caused these presence to be executed in their names the day and year first above written.

"CITY"
CITY OF WICHITA, KANSAS

By: _____
, Mayor

ATTEST:

_____
CITY CLERK

APPROVED AS TO FORM:

JOHN DEKKER, Director of Law

"CARNEY"

FRANK L. CARNEY

ZENDA CARNEY

December 4, 1985

Office of the City Engineer
Seventh Floor - City Hall
455 North Main St.
Wichita, Ks. 67202

Attention: Mr. Mike Lindebak, City Engineer

Dear Mike:

Reference is made to our meeting on October 30 at which I requested an extension of the time period to begin construction of the retaining wall at the Rockborough Office Park. At that time I offered a first draft of a revised Temporary Drainage Dedication which would extend its term into 1986. Following my conference with you, I met with Jack Galbraith and Tom Powell and was given further instruction on how the Temporary Drainage Dedication should be revised.

Subsequent to that meeting, Vicki Huang called to relay your desire that the new easement have a two year time limit and to advise that the original Letter of Credit amount of $220,000. was still valid.

Transmitted with this letter is my second draft of the Revised Temporary Drainage Dedication which is also being submitted to Galbraith and Powell for review and comment. If you have questions, or wish to discuss the easement, please advise.

Yours truly,

enc.
MSM/e

RECEIVED
DEC 4 1985
DESIGN DIVISION

M. S. Mitchell

M. S. Mitchell
Flood Plain Management & Land Development Specialist
1215 Forest • Wichita, KS. 67203
(316) 265-9812

TEMPORARY DRAINAGE DEDICATION

KNOW ALL MEN BY THESE PRESENTS:

That, pursuant to the City Commission action of October 9, 1985 in approving Vacation Case V-1265, for and in consideration of One No/100 Dollar ($1) and other good and valuable consideration, receipt of which is hereby acknowledged, the undersigned , Frank L. Carney and Zenda Carney, being owners of the following described real estate in the City of Wichita, Sedgwick County, Kansas, to-wit:

> A 62 foot wide strip of the Drainage Dedication platted in Brookhollow Addition, more particularly described as follows: Beginning at the Southeast corner of Venture Park Addition; thence North along the East line of said Venture Park Addition a distance of 63.55 feet to a point on a curve whose radius is 707 feet; thence Southeasterly along said 707 foot radius curve to the right a distance of 591.11 feet to its point of intersection with the Southeast line of Lot 1 of Block A of Rockborough Addition extended; thence South 60° West a distance of 62 feet to the Southeast corner of said Lot 1; thence Northwesterly along the East line of said Lot 1, said line being a curve whose radius is 645 feet, for a distance of 525.95 feet to the point of beginning, containing 0.794 acres, more or less,

did dedicate the above described real estate to the public as a temporary drainage easement subject to several terms and conditions, among which was the condition that dedication of the above described drainage easement was temporary only and for a term of two (2) years from October 9, 1984. Because of unforseen delays in the preparation of drainage plans for the project which the retaining wall was intended to serve, the undersigned wish to extend the term of that temporary easement from its present termination date of October 9, 1986 for a period of one (1)

additional year so that its new termination date would become October 9, 1987 and do hereby dedicate the above described real estate to the public temporarily for drainage purposes on the following terms and conditions:

A. That this dedication of a drainage easement across the above described real property is temporary only and shall be for a term of two(2) three ? years from October 9, 1984 5. However, the term of this dedication may be perpetuated beyond the initial two three year period by the commencement of construction, during such two three year period, of the retaining wall contemplated by the City of Wichita and the undersigned and described in a separate instrument executed by Carney guaranteeing the construction of said retaining wall, and shall continue so long thereafter as it may take to construct said wall.

B. In the event the term of this temporary drainage dedication is perpetuated by construction beyond the initial two three year period, this temporary drainage dedication shall cease upon the completion of said retaining wall and said retaining wall will be considered, for all purposes, completed upon an affidavit of completion being duly filed with the Register of Deeds of Sedgwick County, Kansas by the Project Engineer, retained by Carney for the purposes of designing and supervising construction of said retaining wall. Said Project Engineer to be an engineer duly licensed by the State of Kansas to design and oversee the construction of said project.

C. In the event the construction of the retaining wall has not been commenced by October 9, 1987 1986, this temporary drainage dedication shall expire and the vacated drainage right-of-way shall automatically revert back to an outright drainage dedication.

This Temporary Drainage Dedication is executed this _____ day of _____, 1985.

_____
Frank L. Carney

_____
Zenda Carney

Approved by Board of Commissioners
this OCT 0 5 1984

TEMPORARY DRAINAGE DEDICATION

KNOW ALL MEN BY THESE PRESENTS:

That for and in consideration of One No/100 Dollar ($1) and other good and valuable consideration, receipt of which is hereby acknowledged, the undersigned, Frank L. Carney and Zenda Carney, being the owners of the following described real estate in the City of Wichita, Sedgwick County, Kansas, to-wit:

MICROFILMED
OF RECORD

STATE OF KANSAS
SEDGWICK COUNTY } ss
FILED FOR RECORD AT
8:00 O'CLOCK A.M
OCT 24 1984
NO. 7 16877
BETTE F. McCART
REGISTER OF DEEDS
Pat Kettler
Deputy

A 62 foot wide strip of the Drainage Dedication platted in Brookhollow Addition, more particularly described as follows: Beginning at the Southeast corner of Venture Park Addition; thence North along the East line of said Venture Park Addition a distance of 63.55 feet to a point on a curve whose radius is 707 feet; thence Southeasterly along said 707 foot radius curve to the right a distance of 591.11 feet to its point of intersection with the Southeast line of Lot 1 of Block A of Rockborough Addition extended; thence South 60° West a distance of 62 feet to the Southeast corner of said Lot 1; thence Northwesterly along the East line of said Lot 1, said line being a curve whose radius is 645 feet, for a distance of 525.95 feet to the point of beginning, containing 0.794 acres, more or less,

do hereby dedicate the above described real estate to the public temporarily for drainage purposes on the following terms and conditions:

A. That this dedication of a drainage easement across the above described real property is temporary only and shall be for a term of two (2) years from the effective date of the City's approval of a Vacation Petition filed by Carney covering the above-described property. However, the term of this dedication may be perpetuated beyond the initial two year period by the commencement of construction, during such two year period, of the retaining wall contemplated by the City of

Wichita and the undersigned and described in a separate instrument executed by Carney guaranteeing the construction of said retaining wall, and shall continue so long thereafter as it may take to construct said retaining wall.

B. In the event the term of this temporary drainage dedication is perpetuated by construction beyond the initial two year period, this temporary drainage dedication shall cease upon the completion of said retaining wall and said retaining wall will be considered, for all purposes, completed upon an affidavit of completion being duly filed with the Register of Deeds of Sedgwick County, Kansas by the Project Engineer, retained by Carney for the purposes of designing and supervising construction of said retaining wall. Said Project Engineer to be an engineer duly licensed by the State of Kansas to design and oversee the construction of said project.

C. In the event the construction of the retaining wall has not been commenced within two years from the effective date of the City of Wichita's approval of Carney's vacation petition, referenced above, this temporary drainage dedication shall expire and the vacated drainage right-of-way shall automatically revert back to an outright drainage dedication.

This Temporary Drainage Dedication is executed this 25th day of September, 1984.

FRANK L. CARNEY

ZENDA CARNEY

RECEIVED APR 1 0 1985

STATE OF KANSAS)
) SS:
COUNTY OF SEDGWICK)

BE IT REMEMBERED, that before me, the undersigned, a Notary Public, within and for said County and State, on this 25th day of September, 1984, personally appeared FRANK L. CARNEY and ZENDA CARNEY, to me personally known to be the identical persons who executed the within and foregoing Temporary Drainage Dedication and acknowledged to me that they executed the same as their free and voluntary act and deed for the uses and purposes therein set forth.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal the date and year last above written.

Alice Mostrom
NOTARY PUBLIC

My Commission Expires:
2-22-88

ALICE MOSTROM
Sedgwick County, Ks.
My Appt. Exp Feb. 22, 1988

RECEIVED APR 1 9 1985

TEMPORARY DRAINAGE DEDICATION

KNOW ALL MEN BY THESE PRESENTS:

That for and in consideration of One No/100 Dollar ($1) and other good and valuable consideration, receipt of which is hereby acknowledged, the undersigned, Frank L. Carney and Zenda Carney, being the owners of the following described real estate in the City of Wichita, Sedgwick County, Kansas, to-wit:

> A 62 foot wide strip of the Drainage Dedication platted in Brookhollow Addition, more particularly described as follows: Beginning at the Southeast corner of Venture Park Addition; thence North along the East line of said Venture Park Addition a distance of 63.55 feet to a point on a curve whose radius is 707 feet; thence Southeasterly along said 707 foot radius curve to the right a distance of 591.11 feet to its point of intersection with the Southeast line of Lot 1 of Block A of Rockborough Addition extended; thence South 60° West a distance of 62 feet to the Southeast corner of said Lot 1; thence Northwesterly along the East line of said Lot 1, said line being a curve whose radius is 645 feet, for a distance of 525.95 feet to the point of beginning, containing 0.794 acres, more or less,

do hereby dedicate the above described real estate to the public temporarily for drainage purposes on the following terms and conditions:

A. That this dedication of a drainage easement across the above described real property is temporary only and shall be for a term of two (2) years, commencing on the ____ day of _____, 1985. However, the term of

this dedication may be perpetuated beyond the initial two year period by the commencement of construction, during such two year period, of the retaining wall contemplated by the City of Wichita and the undersigned and described in a separate instrument executed by Carney guaranteeing the construction of said retaining wall, and shall continue so long thereafter as it may take to construct said retaining wall.

B. In the event the term of this temporary drainage dedication is perpetuated by construction beyond the initial two year period, this temporary drainage dedication shall cease upon the completion of said retaining wall and said retaining wall will be considered, for all purposes, completed upon an affidavit of completion being duly filed with the Register of Deeds of Sedgwick County, Kansas by the Project Engineer, retained by Carney for the purposes of designing and supervising construction of said retaining wall. Said Project Engineer to be an engineer duly licensed by the State of Kansas to design and oversee the construction of said project.

This Temporary Drainage Dedication is executed this _____ day of _____, 1985.

_____
FRANK L. CARNEY

_____
ZENDA CARNEY

Section Properties Run 3

Main Branch Gypsum Creek Design Channel

Sta 193+56

TWS = 1339.3

FL = 1327.35 | $d = 11.95$ | $A = [40 + (11.95 \times 4)]\,11.95 = 1049$

$WP = 40 + 11.95(8.25) = 138$

$w = 40$ | $R = 7.57$ | $R^{2/3} = 3.88$

Encroachment Sta 194+73

TWS 1339.3

FL = 1327.65 | $d_1 = 11.65$ | $A = [40 + (11.65 \times 4)]\,11.65 - (6.3)^2 \times 2 = 930$ (1009 − 156)

Wall @ 1333.0 | $d_2 = 6.3$ | $WP = 40 + 11.65(8.25) - 6.3(3.12) = 116$

$w = 40$ | $R = 7.98$ | $R^{2/3} = 4.02$

Encroachment Sta 196+17

TWS 1339.3

FL = 1328.0 | $d_1 = 11.3$ | $A = [40 + (11.3 \times 4)]\,11.3 - [(6.8)^2 \times 2] = 870$ (962 − 92)

Wall @ 1332.5 | $d_2 = 6.8$ | $WP = 40 + 11.3(8.25) - 6.8(3.12) = 112$

$w = 40$ | $R = 7.70$ | $R^{2/3} = 3.95$

G&O AM Encroachment Sta 196+70

TWS 1339.4

FL = 1328.13 | $d_1 = 11.27$ | $A = [40 + (11.27 \times 4)]\,11.57 - (6.9)^2 \times 2) = 864$ (959 − 95)

Wall @ 1332.5 | $d_2 = 6.9$ | $WP = 40 + 11.27(8.25) - 6.9(3.12) = 111$ (132 − 21)

$w = 40$ | $R = 7.75$ | $R^{2/3} = 3.94$

Encroachment Sta 197+23

TWS 1339.4

FL = 1328.25 | $d_1 = 11.15$ | $A = [39.8 + (11.15 \times 4)]\,11.15 - (6.6)^2 \times 2) = 854$ (941 − 87)

Wall @ 1332.8 | $d_2 = 6.6$ | $WP = 39.8 + 11.15(8.25) - 6.6(3.12) = 111$

$w = 39.8$ | $R = 7.68$ | $R^{2/3} = 3.92$

Section Properties Run 3
Main Branch Gypsum Creek Design Channel

G&O AK — @ Sta 182+70 (50' u.s. Douglas Ave) — FIS WS 1338.8

FL = 1324.63 — $d = 14.17$ — $A = [40 + (14.17 \times 4)]\,14.17 = 1370$

$WP = 40 + 14.17(8.25) = 157$

$w = 40$ — $R = 8.73$ — $R^{2/3} = 4.27$

Sta 183+00 — TWS 1338.8

FL = 1324.7 — $d = 14.1$ — $A = [40 + (14.1 \times 4)]\,14.1 = 1359$

$WP = 40 + 14.1(8.25) = 156$

$w = 40$ — $R = 8.69$ — $R^{2/3} = 4.26$

FL = 1325.2 — Sta 185+00 — TWS 1338.9

$d = 13.7$ — $A = [40 + (13.7 \times 4)]\,13.7 = 1299$

$WP = 40 + 13.7(8.25) = 153$

$w = 40$ — $R = 8.49$ — $R^{2/3} = 4.19$

G&O AL — Sta 188+70 — FIS WS 1339.2

FL = 1326.12 — $d = 13.08$ — $A = [40 + (13.08 \times 4)]\,13.08 = 1208$

$WP = 40 + 13.08(8.25) = 148$

$w = 40$ — $R = 8.16$ — $R^{2/3} = 4.08$

Sta 190+00 — TWS 1339.2

FL = 1326.45 — $d = 12.75$ — $A = [40 + (12.75 \times 4)]\,12.75 = 1160$

$WP = 40 + 12.75(8.25) = 145$

$w = 40$ — $R = 7.99$ — $R^{2/3} = 4.02$

This profile begins W/G&O FIS BFE @ X-Section 50' U.S. Douglas Ave

HEC-2 WATER SURFACE PROFILE CALCULATIONS

PROJECT - Main & Middle Branch of Gypsum Creek
DISCHARGE 4367cfs Below West Branch
1882cfs Above West Branch

Run 3
Rockborough office Park & Cobblestone Alley Encroachment Plan 2.

River Mile / X-Section	1 Reach Length	2 Flowline Elev	3 Trial WS Elev	4 Area A	5 $R^{2/3}$	6 n	7 K	8 $\overline{K_T}$	9 $\overline{S_f}$	10 h_f	11 ~~K^3/A^2~~	12 ~~X~~	13 V	14 $V^2/2g$	15 $\alpha(V^2/2g)$	16 Δh_v	17 h_o	18 H	19 Final WS Elev	20 Remarks
1 G&O AK(182+70)		1324.63	1338.8	1370	4.27	.035	248,429						3.14	.15	.15				1338.8	From FIS Table 3-16
2 183+00	30	1324.70	1338.8	1359	4.26	.035	245,786	247,107	.00031	.01			3.21	.16	.16	-.01	0	0	1338.80	OK
3 185+00	200	1325.20	1338.9	1299	4.19	.035	231,075	238,430	.00034	.07			3.36	.18	.18	-.02	.01	.06	1338.86	ΔH=+.04 OK
4 G&O AL(188+70)	370	1326.12	1339.2	1208	4.08	.035	209,329	220,202	.00039	.15			3.62	.20	.20	-.02	.01	.14	1339.00	ΔH=+.20 OK
5 190+00	130	1326.45	1339.2	1160	4.02	.035	198,271	203,800	.00046	.06			3.76	.22	.22	-.02	.01	.06	1339.06	ΔH=+.14 OK
6 193+56	356	1327.35	1339.3	1049	3.88	.035	172,916	185,594	.00055	.20			4.16	.27	.27	-.05	.02	.17	1339.23	ΔH=+.07 OK
7 194+73	117	1327.65	1339.3	930	4.02	.036	154,321	163,619	.00071	.08			4.70	.34	.34	-.07	.02	.03	1339.26	ΔH=+.04 OK
8 196+17	144	1328.0	1339.3	870	3.95	.035	141,896	148,109	.00087	.13			5.02	.39	.39	-.05	.02	.10	1339.36	ΔH=-.06 OK
9 G&O AM(196+70)	53	1328.13	1339.4	864	3.94	.035	144,469	143,183	.00093	.05			5.06	.40	.40	-.01	0	.04	1339.40	OK
10 197+23	53	1328.25	1339.4	854	3.92	.035	142,088	143,278	.00093	.05			5.11	.41	.41	-.01	0	.04	1339.44	ΔH=-.04 OK
11 Confluence with West Branch																				
12 199+43	220	1328.8	1339.8	869	3.65	.035	134,724	138,406	.00018	.04			2.17	.07	.07	.34	.10	.48	1339.92	ΔH=-.12 OK
13 200+77	134	1329.2	1340.0	759	3.14	.036	98,485	116,604	.00026	.03			2.48	.10	.10	-.03	.01	.01	1339.93	ΔH=+.07 OK
14 201+71	94	1329.4	1340.0	767	3.52	.035	114,597	106,541	.00031	.03			2.45	.10	.10	0	0	.03	1339.96	ΔH=+.04 OK
15 203+00	129	1329.7	1340.0	733	3.46	.035	107,752	111,175	.00029	.04			2.57	.10	.10	0	0	.04	1340.00	OK
16 G&O A (206+70)	370	1330.6	1340.2	657	3.33	.035	92,742	100,247	.00035	.13			2.87	.13	.13	-.03	.01	.11	1340.11	ΔH=+.09 OK
17																			G&O BFE	1339.7
18 West Branch Gypsum Creek From Confluence with Middle Branch to Rock Road Q_{100}=2560cfs																			FLOW =	1340.3
19 197+23 M.Br			1339.4	854	3.92	.035	142,088		.00093	.05			5.11	.41	.41	-.01	0	.04	1339.44	
20 199+45 SW.Br	222	1328.6	1339.8	841	3.86	.036	133,992	138,040	.00034	.08			3.04	.14	.14	.27	.03	.38	1339.82	ΔH=+.03 OK
21																				
22																				
23																			G&O FIS BFE & Floodway	1340.6
24																				
25																				
26																				
27																				
28																				
29																				
30																				
31																				

H = Col 10 ± Col 16 + Col 17

$K = \frac{C_m}{n} A R^{2/3}$ $C_m = 1.486$ $\overline{K_T} = \frac{1}{2}(K_{us}+K_{ds})$ $S_f = (Q/\overline{K_T})^2$ $h_f = L\,S_f$ $\alpha = \frac{(A_t)^2 \sum (K_i^3/A_i^2)}{(K_T)^3}$ $V = Q/A_T$ $\Delta h_v = \alpha(\frac{V_{ds}^2}{2g}) - \alpha(\frac{V_{us}^2}{2g})$ $h_o = C_e(-\Delta h_v)$ or $C_c(+\Delta h_v)$

Exhibit 13

COPY A

Section Properties Run 3

Main Branch Gypsum Creek Design Channel

No Encroachment Sta 199+43 TWS 1339.8

FL = 1328.8 | $d_1 = 11.0$ | $A = [35 + (11. \times 4)]11. = 869$

$WP = 35 + 11.(8.25) = 126$

$w = 35$ | $R = 6.91$ | $R^{2/3} = 3.65$

Encroachment Sta 200+77 TWS 1340.0

FL = 1329.2 | $d_1 = 10.8$ | $A = [32.1 + (10.8 \times 4)]10.8 - (5.2)^2(2) = 759$

Wall @ 1334.8 | $d_2 = 5.2$ | $WP = 32.1 + (10.8)(8.25) - 5.2(3.12) = 137$

$w = 32.1$ | $R = 5.52$ | $R^{2/3} = 3.14$

Encroachment Sta 201+71 TWS 1340.0

(Wall intercept above TWS) | $d_1 = 10.6$ | $A = [30 + (10. \times 4)]10.3 = 767$

$d_2 = 0$ | $WP = 30 + (10.)(8.25) = 117$

FL = 1329.4 | $w = 30$ | $R = 6.53$ | $R^{2/3} = 3.52$

Sta 203+00 TWS 1340.0

FL = 1329.7 | $d = 10.3$ | $A = [30 + (10.3 \times 4)]10.3 = 733$

$WP = 30 + 10.3(8.25) = 115$

$w = 30$ | $R = 6.37$ | $R^{2/3} = 3.46$

Sta 206+70 TWS 1340.2

FL = 1330.6 | $d = 9.6$ | $A = 30 + (9.6 \times 4)9. = 657$

$WP = 30 + 9.6(8.25) = 109$

$R = 6.01$ | $R^{2/3} = 3.33$

Section Properties Run 3

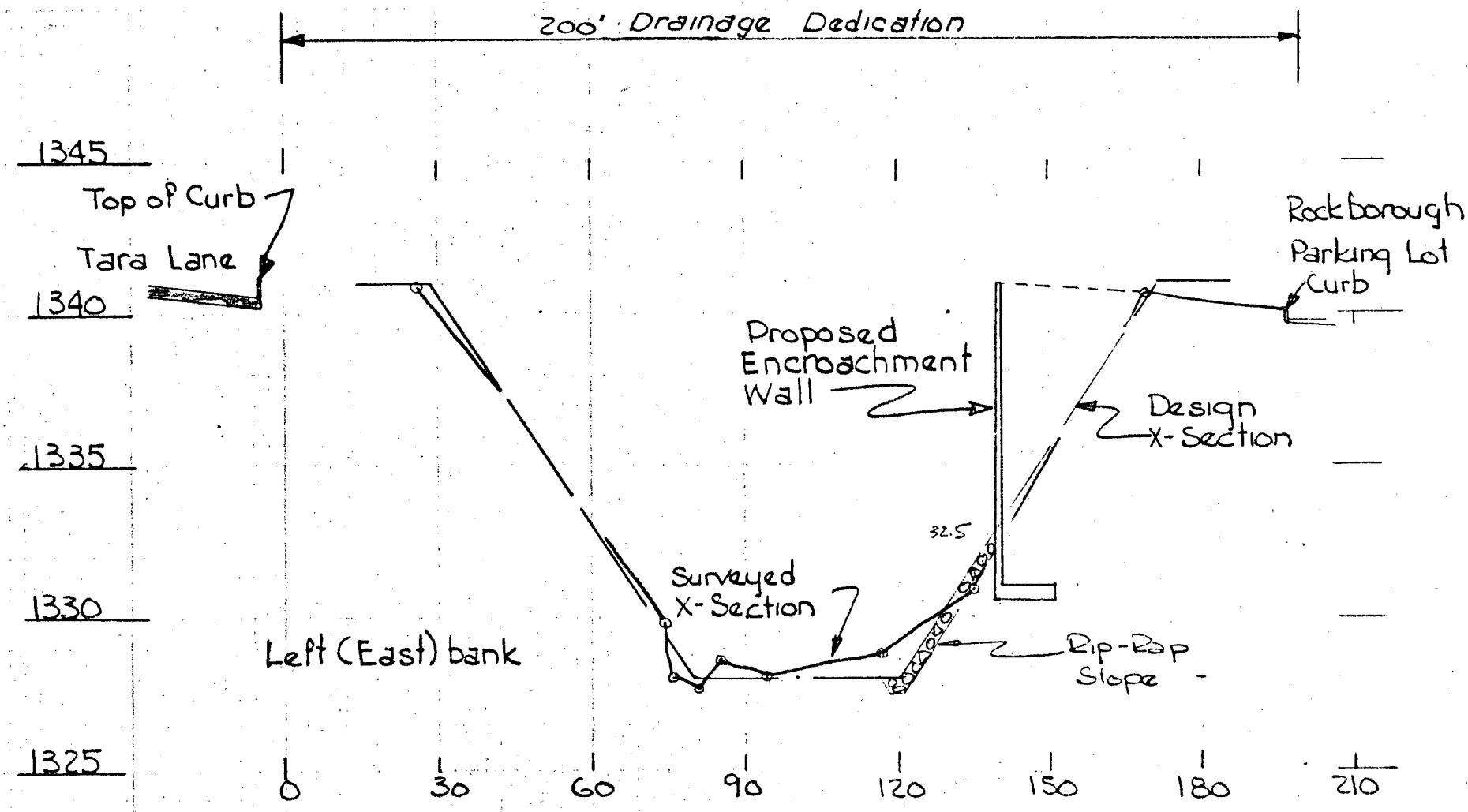
West Branch Gypsum Creek

Encroachment X-Section 199+45 TWS 1339.8

FL=1328.6 $d_1 = 11.2$ $A = \left[34.4 + \overset{887}{(11.2 \times 4)}\right]11.2 - (4.8)^2 \times 2 = 841$

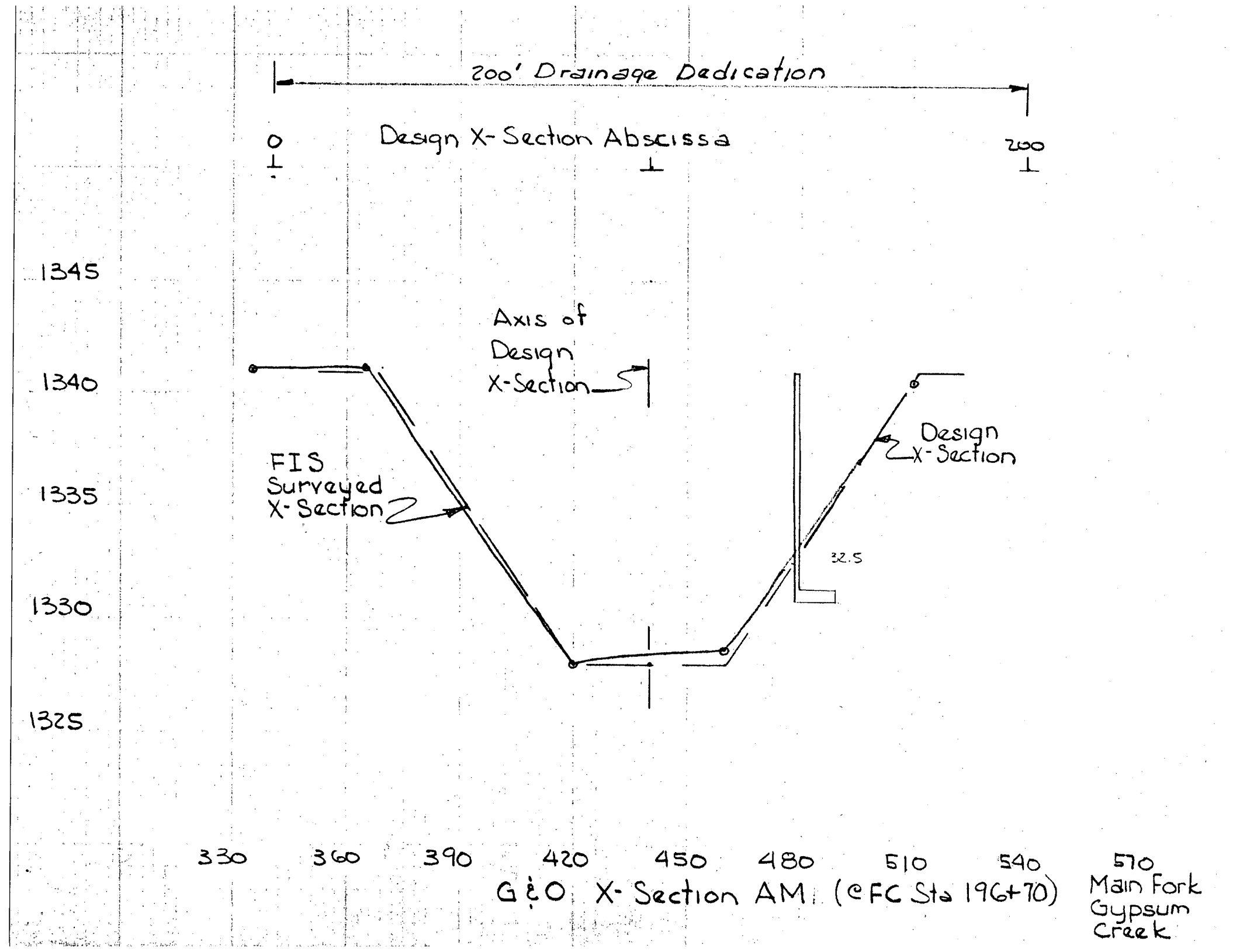
Wall=1335 $d_2 = 4.8$ $WP = 34.4 + 11.2(8.25) - 4.8(3.12) = 112$

$w = 34.4$ $R = 7.52$ $R^{2/3} = 3.86$



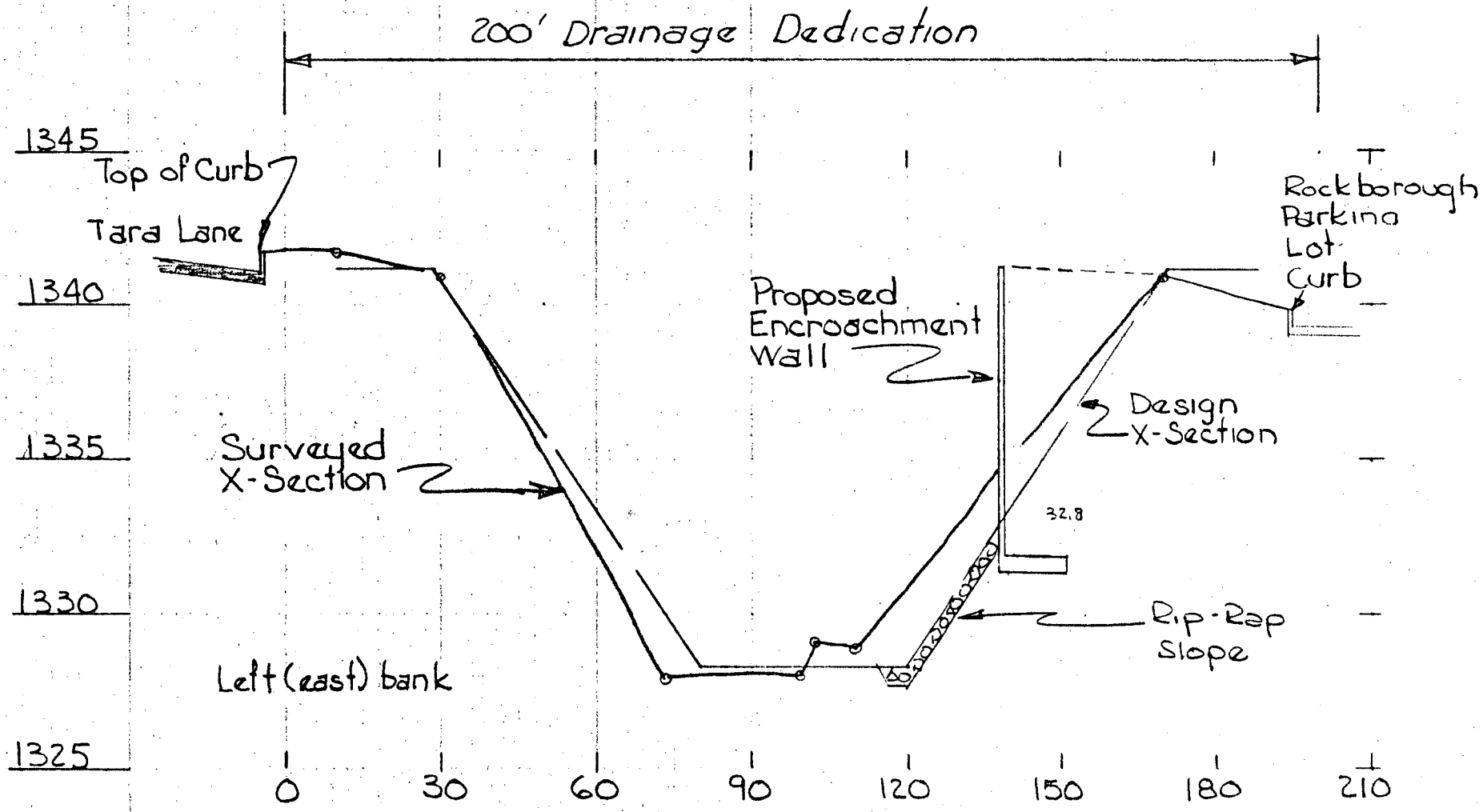
X-Section @ ℄ Station 196+17
Encroachment Plan 2

Main Fork
Gypsum Creek



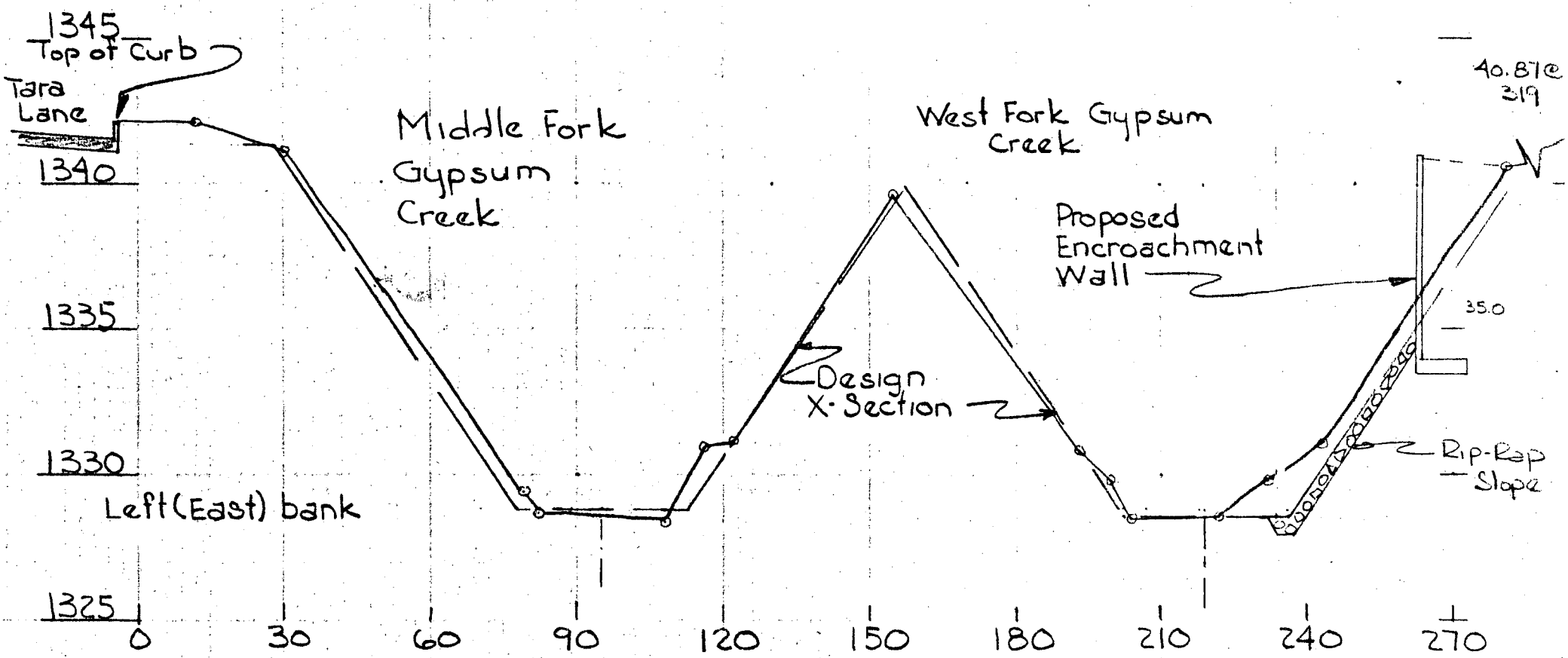
G&O X-Section AM. (@FC Sta 196+70)

Main Fork
Gypsum
Creek

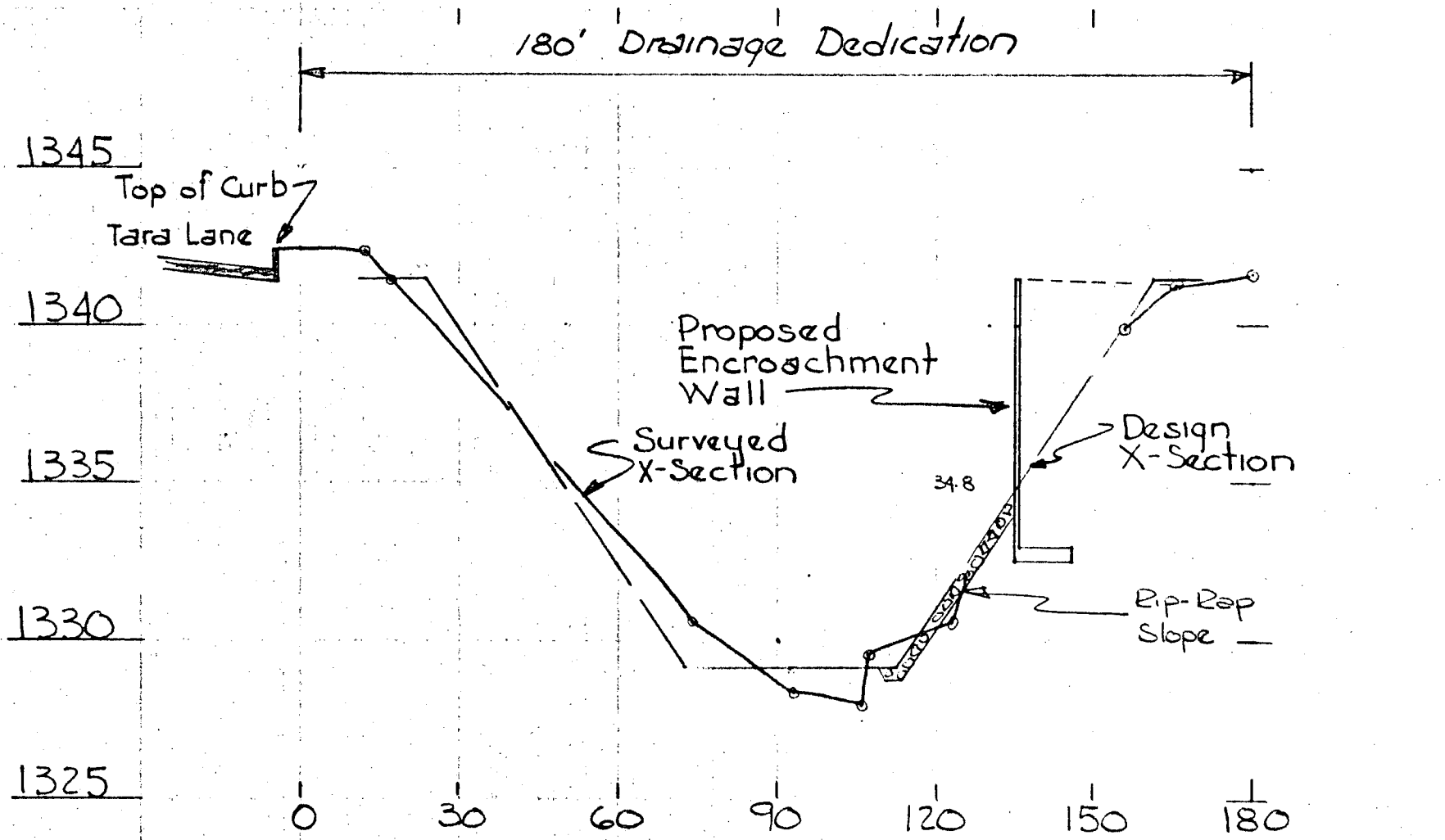


X-Section @ ℄ Station 197+23
Encroachment Plan 2

Main Fork Gypsum Creek



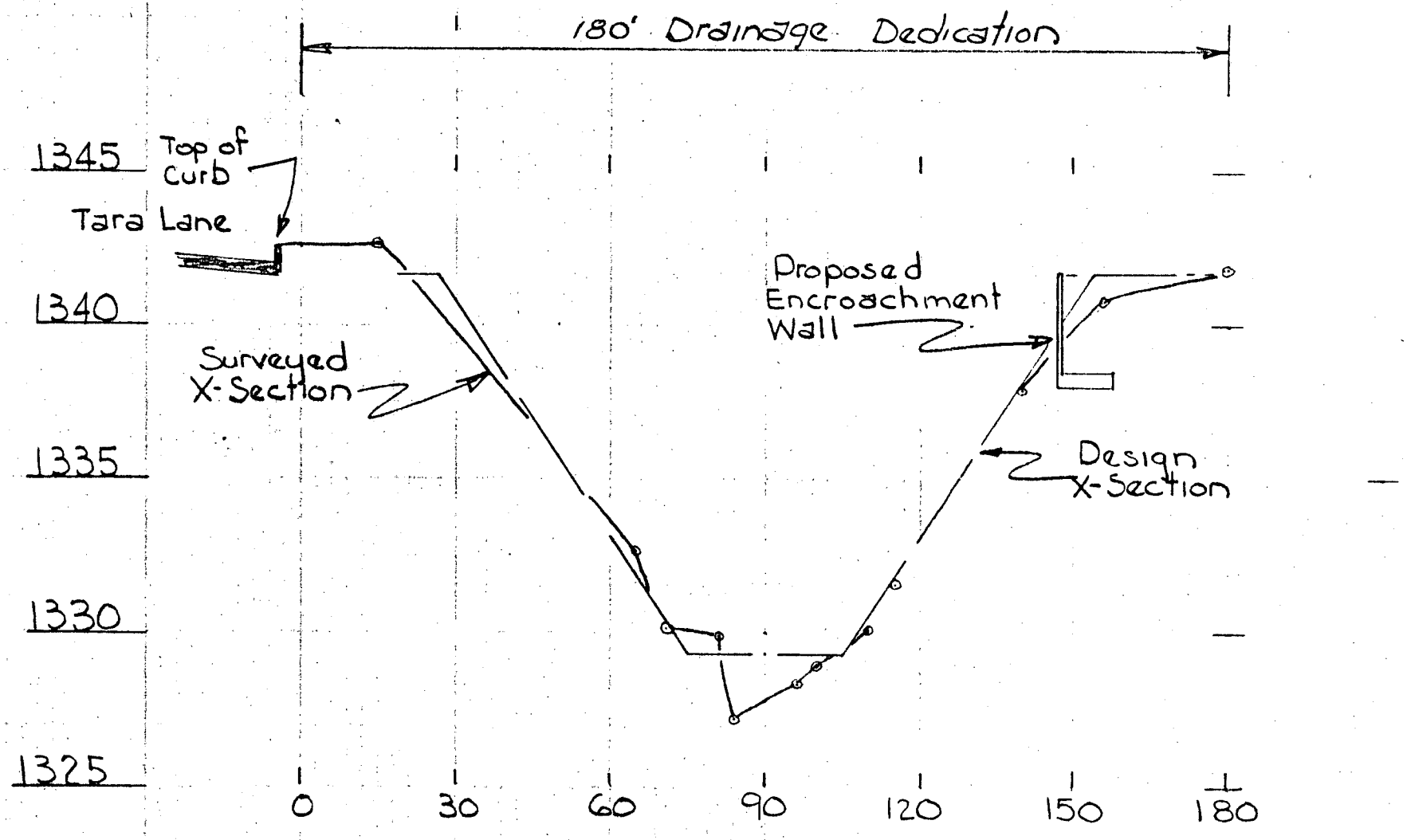
X-Section ℄ & Station 199+43 on Main Branch
℄ & Station 199+45 on West Branch
Encroachment Plan 2



X-Section @ ℄ Station 200+77

Encroachment Plan 2

Middle Fork
Gypsum
Creek



X-Section @ ℄ Station 201+71
Encroachment Plan 2

Middle Fork Gypsum Creek

Main Branch Gypsum Creek

Culvert @ Douglas w/ Inlet Control

4-12x12 RCBC $Q_{100} = 4367$ cfs

$\frac{4367}{4} = 1092$ cfs/cell $\div 12 = 91$ cfs/ft of width

From Chart 1058 $HW/D = .81$; $D = 12 \times .81 = 9.7$ feet

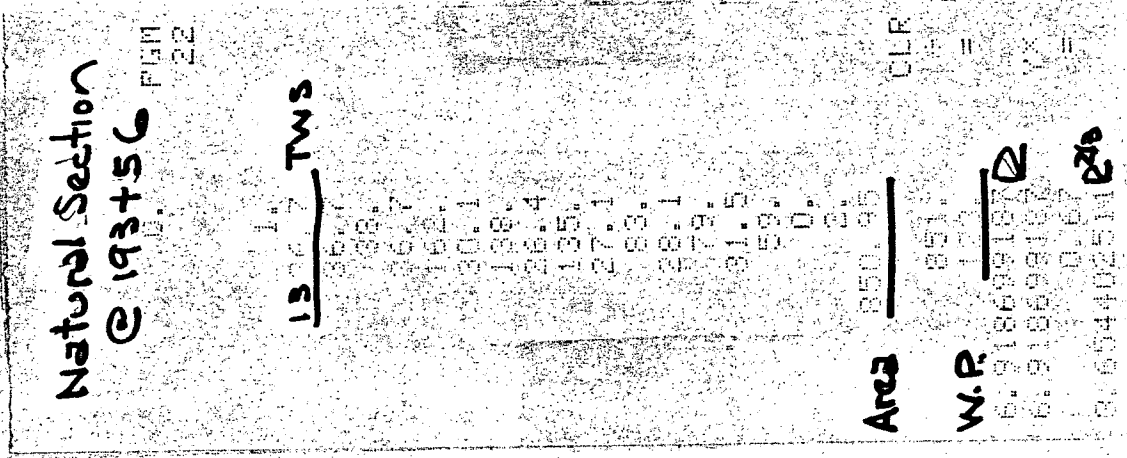
FL 1137.1 + 1187.4 = 1324.5 + 9.7 = 1334.2

Starting water surface elevation @ Sta 182+20 (Douglas Ave)

Section Properties Run 2

Main Branch of Gypsum Creek - Encroachment Plan 2

Natural Sec @ Sta 193+56 TWS 1336.7



Encroachment @ Sta 194+73 TWS 1336.8

FL = 1327.65 | $d_1 = 9.15$ | $A = [40 + (9.15 \times 4)]9.15 - (3.8)^2 \times 2 = 672$ (701)

Wall @ 1333.0 | $d_2 = 3.8$ | $WP = 40 + 9.15(8.25) - 3.8(3.12) = 104$ (113)

$W = 40$ | $R = 6.48$ | $R^{2/3} = 3.50$

Encroachment @ Sta 196+17 TWS 1337

FL = 1328.0 | $d_1 = 9.0$ | $A = [40 + (9.0 \times 4)]9 - (4.5)^2 \times 2 = 644$ (684)

Wall @ 1332.5 | $d_2 = 4.5$ | $WP = 40 + 9.0(8.25) - 4.5(3.12) = 100$ (112)

$W = 40$ | $R = 6.42$ | $R^{2/3} = 3.48$

Encroachment @ Sta 197+23 TWS 1337.3

FL 1328.25 | $d_1 = 9.05$ | $A = [39.8 + (9.05 \times 4)]9.05 - (4.5)^2 \times 2 = 647$ (688)

Wall @ 1332.8 | $d_2 = 4.5$ | $WP = 39.8 + 9(8.25) - 4.5(3.12) = 100$ (112)

$W = 39.8$ | $R = 6.41$ | $R^{2/3} = 3.47$

Section Properties Run 2

Main Branch Gypsum Creek - Encroachment Plan 2

No Encroachment @ Sta 199+43

TWS 1338.1

FL 1328.8
No Wall

$d_1 = 9.3$

$w = 35'$

$A = [35 + (9.3 \times 4)]9.3 = 671$

$WP = 35 + 9.3(8.25) = 112$

$R = 6.01$ $\quad R^{2/3} = 3.32$

Encroachment @ Sta 200+77

TWS 1338.1

FL 1329.2
Wall @ 1334.8

$d_1 = 8.9$

$d_2 = 3.3$

$w = 32.1$

$A = [32.1 + (8.9 \times 4)]8.9 - (3.3)^2 \times 2 = 581$ (602 − 105)

$WP = 32.1 + 8.9(8.25) - 3.3(3.12) = 95$

$R = 6.10$ $\quad R^{2/3} = 3.36$

No Encroachment @ Sta 201+71

TWS 1338.1

FL 1329.4
Wall @ 1339.8

$d_1 = 8.7$

$d_2 = 0$

$w = 30$

$A = [30 + (8.7 \times 4)]8.7 = 564$

$WP = 30 + 8.7(8.25) = 102$

$R = 5.53$ $\quad R^{2/3} = 3.15$

No Encroachment @ Sta 203+00

TWS 1338.2 ✓

FL 1329.7

$d_1 = 8.5$

$w = 30$

$A = [30 + (8.5 \times 4)]8.5 = 544$ ✓

$WP = 30 + 8.5(8.25) = 100$ ✓

$R = 5.44$ $\quad R^{2/3} = 3.11$

West Branch Gypsum Creek - Encroachment Plan 2

Encroachment @ Sta 199+45

TWS 1338.0

FL = 1328.6
Wall @ 1335.0

$d_1 = 9.4$

$d_2 = 3.0$

$w = 34.4$

$A = [34.4 + (9.4 \times 4)]9.4 - (3.0)^2 \times 2 = 659$ (676 − 103)

$WP = 34.4 + 9.4(8.25) - 3.0(3.12) = 103$

$R = 6.40$ $\quad R^{2/3} = 3.46$

West Branch Gypsum Creek Design Channel
Transition from 40' bottom @ Main Branch
PRC Station 197+15 to 30' bottom @
West Branch PT Station 201+27

Length of Transition = 201+27 − 197+15 = 412'
Rate of Transition = $\frac{10}{412}$ = .02427 ft./ft.

Distance, ΔD, from PT Station 201+27 to Surveyed
X-Section 199+45 = 182'
Incremental width, Δw = ΔD x rate = 182 x .02427 = 4.42'
Width, w, @ X-Section 199+45 = 34.4

Flowline elevation for West Branch

FL Elevation @ PRC Station 197+15 = 140.85 (City Datum) = 1328.25
FL Elevation @ D.S. end 3-10x10 RCBC @ Rock Rd (Sta 203+37) = 141.90 = 1329.3
Fall, h, between Sta 203+37 and Sta 197+15 = 1.05
Distance, D, = 203+37 − 197+15 = 622
Gradient = $\frac{1.05}{622}$ = .001688

Incremental distance, ΔD, from End of RCBC @ Sta 203+37
and Surveyed X-Section 199+45 = 392'
Incremental fall, Δh, from 203+37 to 199+45 =
.001688 x 392 = 0.66'
FL @ X-Sec 199+45 = 1329.3 − 0.66 = 1328.64

Section Properties Run 1
Main Branch of Gypsum Creek - Design Channel

Sta 183+00 TWS 1335.2

FL 1324.7 $d_1 = 10.5$ $A = [40 + (10.5 \times 4)] 10.5 = 861$

$WP = 40 + 10.5(8.25) = 127$

$w = 40$ $R = 6.79$ $R^{2/3} = 3.61$

Sta 185+00 TWS 1335.7

FL 1325.2 $d_1 = 10.5$ $A = 861$

$WP = 127$

$w = 40$ $R = 6.79$ $R^{2/3} = 3.61$

Sta 190+00 TWS 1336.0

FL 1326.45 $d_1 = 9.55$ $A = [40 + (9.55 \times 4)] 9.55 = 747$

$WP = 40 + 9.55(8.25) = 119$

$w = 40$ $R = 6.29$ $R^{2/3} = 3.43$

Sta 193+56 TWS 1336.7

FL = 1327.35 $d_1 = 9.35$ $A = [40 + (9.35 \times 4)] 9.35 = 723$

$WP = 40 + 9.35(8.25) = 117$

$w = 40$ $R = 6.18$ $R^{2/3} = 3.39$

Sta 194+73 TWS 1336.9

FL = 1327.65 $d_1 = 9.25$ $A = [40 + (9.25 \times 4)] 9.25 = 712$

$WP = 40 + 9.25(8.25) = 116$

$w = 40$ $R = 6.12$ $R^{2/3} = 3.37$

Section Properties Run 1

Main Branch of Gypsum Creek Design Channel

Sta 196+17 TWS 1337.1

FL=1328.0

$d_1 = 9.1$ $A = [40 + (9.1 \times 4)]9.1 = 695$

$WP = 40 + 9.1(8.25) = 115$

$w = 40$ $R = 6.04$ $R^{2/3} = 3.34$

Sta 197+23 TWS 1337.4

FL=1328.25

$d_1 = 9.15$ $A = [39.8 + (9.15 \times 4)]9.15 = 699$

$WP = 39.8 + 9.15(8.25) = 115$

$w = 39.8$ $R = 6.06$ $R^{2/3} = 3.35$

Sta 199+43 TWS 1338.1

FL 1328.8

$d_1 = 9.3$ $A = [35 + (9.3) \times 4]9.3 = 671$

$WP = 35 + 9.3(8.25) = 112$

$w = 35$ $R = 6.01$ $R^{2/3} = 3.32$

Sta 200+77 TWS 1338.1

FL 1329.2

$d_1 = 8.9$ $A = [32.1 + (8.9 \times 4)]8.9 = 602$

$WP = 32.1 + 8.9(8.25) = 106$

$w = 32.1$ $R = 5.70$ $R^{2/3} = 3.21$

Sta 201+71 TWS 1338.1

FL 1329.4

$d_1 = 8.7$ $A = [30 + (8.7 \times 4)]8.7 = 564$

$WP = 30 + 8.7(8.25) = 102$

$w = 30$ $R = 5.53$ $R^{2/3} = 3.15$

Sta 203+00 TWS 1338.1

FL= 1329.7

$d_1 = 8.4$ $A = [30 + (8.4 \times 4)]8.4 = 534$

$WP = 30 + 8.4(8.25) = 99$

Section Properties - Run 1 Pg 3

West Branch of Gypsum Creek - Design Channel

Sta 199+45 TWS 1338.0

FL = 1328.6

$d_1 = 9.4$ $A = [34.4 + (9.4 \times 4)]9.4 = 677$

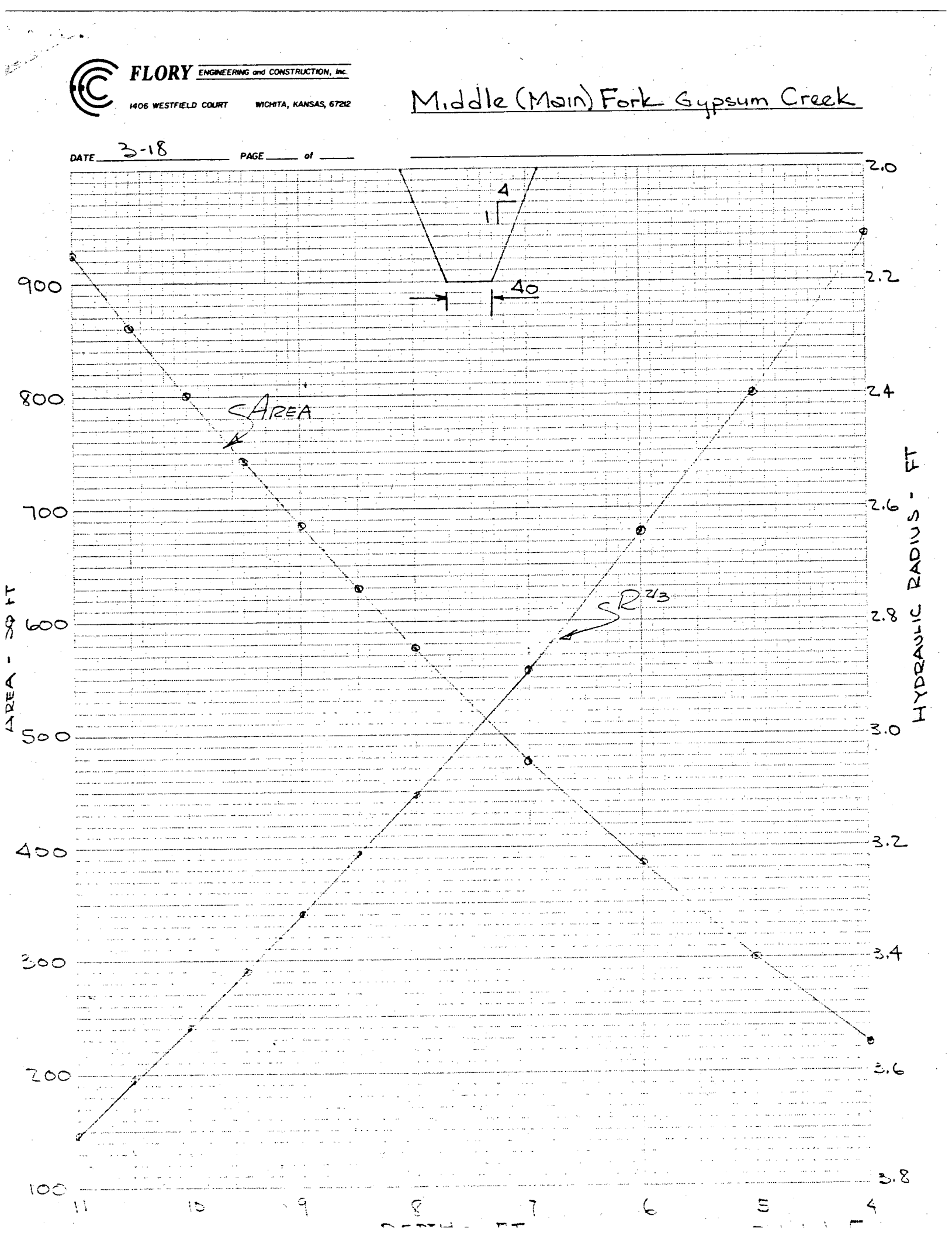
$WP = 34.4 + 9.4(8.25) = 112$

$w = 34.4$ $R = 6.04$ $R^{2/3} = 3.34$

FLORY ENGINEERING and CONSTRUCTION, Inc.
1406 WESTFIELD COURT WICHITA, KANSAS, 67212

Middle (Main) Fork Gypsum Creek

DATE 3-18 PAGE ____ of ____



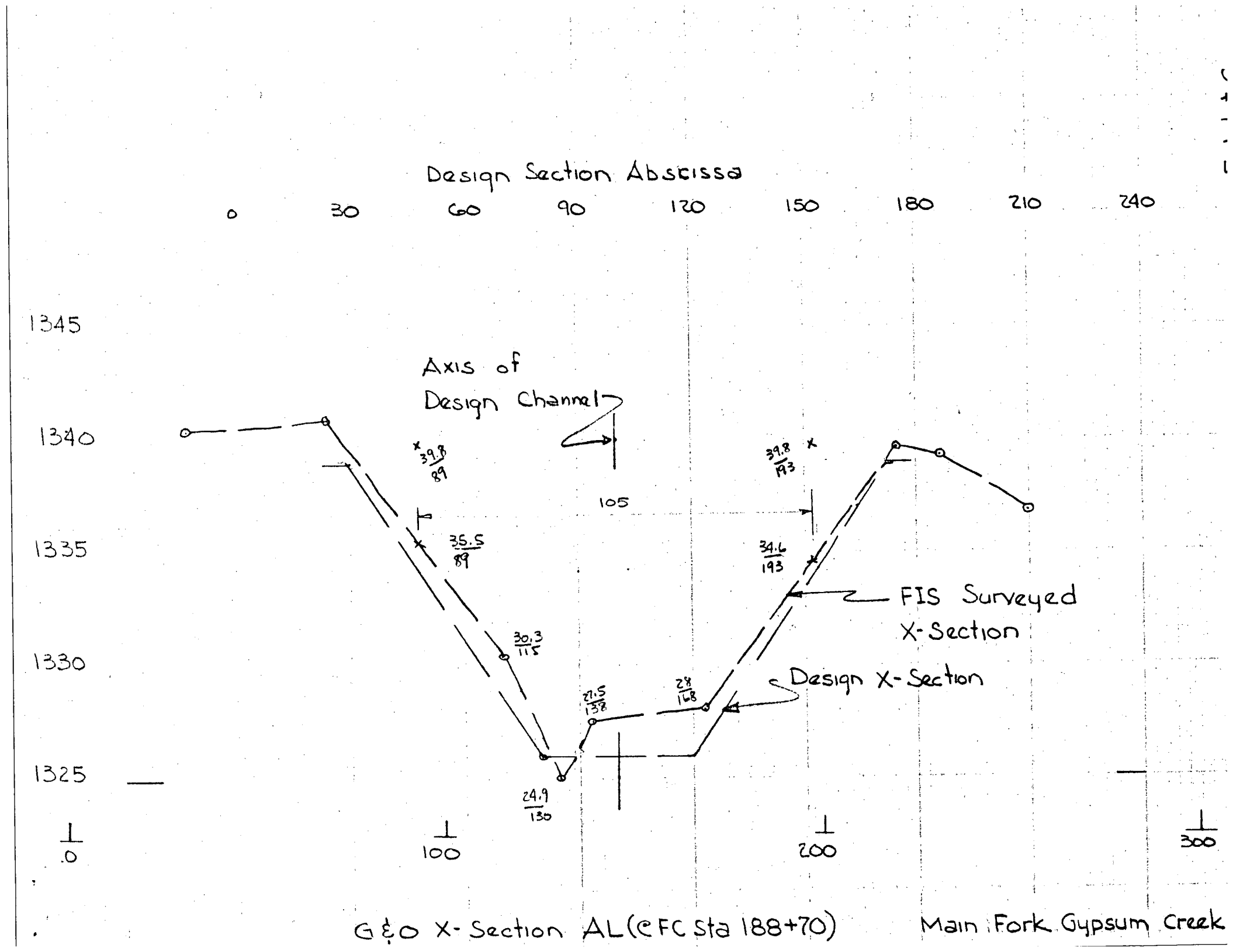
MIDDLE (MAIN) BRANCH GYPSUM CREEK

Design Channel from Sta 182 to 197+15

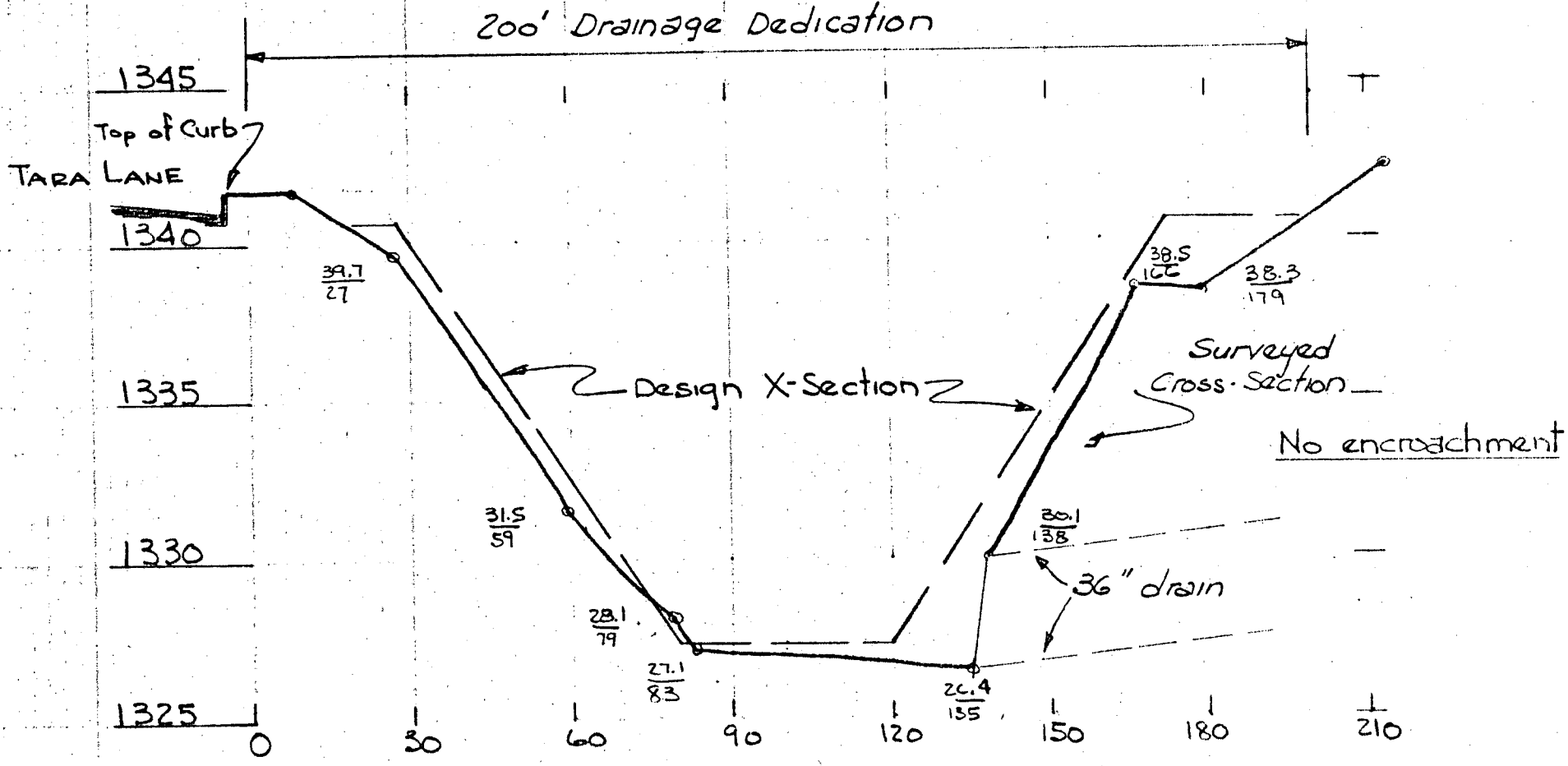
b = 40' bottom ; z = 4:1 Side Slopes n = .035

Area = $bd + zd^2$ Wetted Perimeter = $b + d(2\sqrt{z^2+1})$

Depth	Area	WP	R	$R^{2/3}$
1	44	48.3	.92	.94
2	96	56.5	1.70	1.43
3	156	64.8	2.41	1.80
4	224	73	3.07	2.12
5	300	81.3	3.69	2.40
6	384	90	4.27	2.64
7	476	97.8	4.87	2.89
8	576	106	5.43	3.11
8.5	629	110.1	5.71	3.21
9	684	114.2	5.99	3.32
9.5	741	118.3	6.26	3.42
10	800	122.5	6.53	3.52
10.5	861	126.6	6.80	3.61
11	924	130.7	7.07	3.71



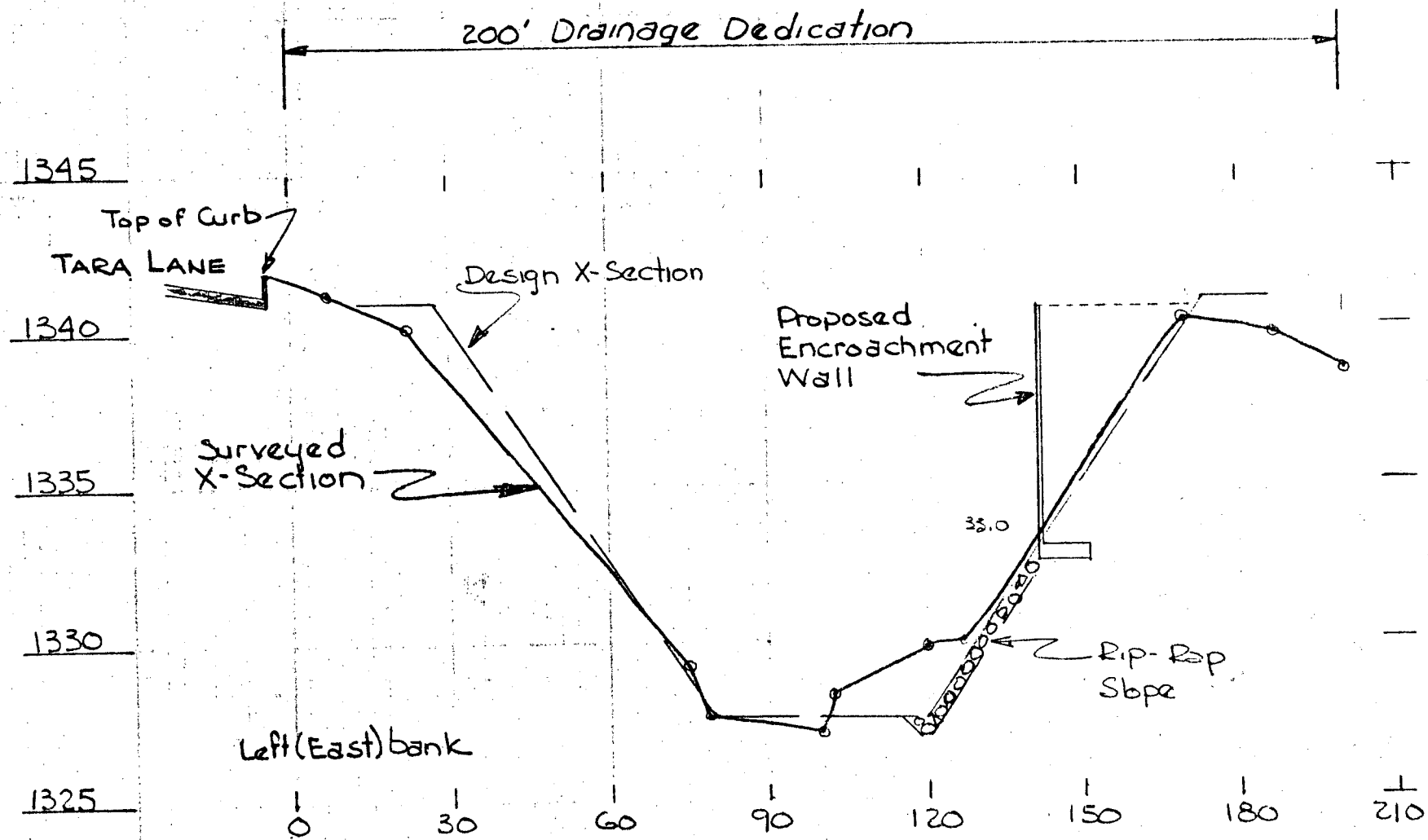
G&O X-Section AL (@ FC Sta 188+70) Main Fork Gypsum Creek



X-Section @ ℄ Station 193+56

Encroachment Plan 2

Main Fork
Gypsum Creek



X-Section @ ℄ Station 194+73

Encroachment Plan 2

Main Fork
Gypsum Creek

List of Exhibits For Gypsum Creek Encroachment Plan @ Rockborough Office Park

Exhibit 1 — Plan & Profile titled "Gypsum Creek Improvement — NW 1/4, Sec 20, T-27-S, R-2-E" by Flood Control office revised Feb 1969. This plan used for stationing, design section, bottom profile. G&O FIS X-Sections locations are shown in red.

Exhibit 2 — Plan titled "Site Plan" by Haines and others on which the location of seven surveyed cross-sections are shown by Flood Control plan stationing. This plan is the Geometric Model for the Encroachment proposal.

Exhibit 3 — Coordinates for surveyed cross-sections (2)

Exhibit 4 & 4A — Dimension and grade properties of Design Channel

Exhibit 5 — Section property calculations and curves for Design Channel (5)

Exhibit 6 — Plots of surveyed cross-sections superimposed on Design Channel sections. (9)

Exhibit 7 — Calculation of starting water surface elevation @ Douglas Ave for Q100 w/ inlet control

Exhibit 8 — HEC-2 Water Surface Profile Calculations for Design Channel for surveyed cross-section locations w/o encroachment (Run 1)

Exhibit 9	Calculation of section properties for design channel modified by encroachment for Run 2. (3)
Exhibit 10	HEC-2 Water Surface Profile Calculations for Design Channel for surveyed cross-section locations with encroachment beginning w/inlet control @ Douglas Ave. (Run 2)
Exhibit 11	Profiles of Gypsum Creek between Douglas and Central showing relationship of water surface profiles for Q100 with and without encroachment and Design Discharge.
Exhibit 12	Calculation of section properties for design channel modified by encroachment for Run 3. (4)
Exhibit 13	HEC-2 Water Surface Profile Calculations for Design Channel for surveyed and FIS cross-section locations with encroachment beginning @ BFE @ Douglas Ave. (Run 3)

MAIN BRANCH - GYPSUM CREEK
SURVEYED X-SECTIONS

STA 193+56

1341.7 @ -5 (Curb)	1341.7 @ 8	1339.7 @ 27	1331.5 @ 59
1328.1 @ 79	1327.1 @ 83	1326.4 @ 135	1330.1 @ 138
1338.5 @ 166	1338.3 @ 179	1342.3 @ 214	1328.5 @ 218

STA 194+73

1341.3 @ -5 (Curb)	1341.1 @ 7	1340.0 @ 22	1329.3 @ 75
1327.7 @ 79	1327.2 @ 110	1328.3 @ 112	1329.8 @ 120
1330.0 @ 127	1340.2 @ 170	1339.7 @ 187	1332.2 @ 200 PC

STA 196+17

1341.2 @ -5 (Curb)	1340.8 @ 26	1329.8 @ 74	1329.0 @ 76
1327.7 @ 81	1328.6 @ 85	1328.1 @ 94	1328.7 @ 117
1330.9 @ 135	1340.6 @ 169	1340.06 @ 197 (CURB)	

STA 197+22

1341.7 @ -5 (Curb)	1341.7 @ 10	1340.9 @ 30	1327.9 @ 73
1328.0 @ 99	1329.1 @ 102	1328.2 @ 110	1340.89 @ 170
1329.82 @ 195 (CURB)			

STA 198+55

1341.8 @ -5 (Curb)	1341.7 @ 10	1341.4 @ 22	1334.9 @ 50
1330.0 @ 78	1328.0 @ 83	1327.8 @ 92	1328.5 @ 105 (PI)
1327.6 @ 117	1328.6 @ 141	1329.6 @ 144	1332.2 @ 171
1340.8 @ 209	1329.93 @ 241 (CURB)		

Main (Middle) Branch of Gypsum Creek
Surveyed X-Sections

Sta 199+43

1342.1 @ -5 (Lt)	1342.1 @ 12	1341.1 @ 30	1329.4 @ 79
1328.7 @ 82	1328.4 @ 108	1330.9 @ 116	1331.2 @ 122
1339.4 @ 155 (PI)	1330.8 @ 193	1329.8 @ 200	1328.5 @ 204
1328.4 @ 222	1329.8 @ 232	1331.1 @ 243	1340.6 @ 281
1341.5 @ 295	1340.87 @ 319 (Cur)		

Sta 200+77

1345.4 @ -5 (Lt)	1342.3 @ 12	1341.4 @ 17	1330.7 @ 74
1328.4 @ 93	1328.0 @ 106	1329.6 @ 107	1330.6 @ 123
1332.1 @ 126	1339.9 @ 156	1341.3 @ 164	1341.6 @ 180

Sta 201+71

1342.5 @ -5 (Lt)	1342.7 @ 15	1332.1 @ 65	1330.1 @ 71
1329.9 @ 51	1327.2 @ 84	1328.4 @ 96	1329.0 @ 100
1330.1 @ 110	1331.6 @ 115	1327.9 @ 140	1340.8 @ 156
1341.8 @ 180			

3-1584

Design channel - MAIN BRANCH GYPSUM CREEK, Properties

Sta 182+19.3 FL = 137.10 = 1324.5

+.00247% 3.75 ÷ 1495.63 = +.002507%

PRC Sta 197+14.93 FL = 140.85 = 1328.25

X-Sec Sta 193+56 ΔD = -359 x .0025 = .90 FL = 29.25 - .90 = 1327.35

TOP 1340.71

X-Sec Sta 194+73 ΔD = -242 x .0025 = .60 FL = 1327.65

TOP 1340.83

X-Sec Sta 196+17 ΔD = -98 x .0025 = .24 FL = 1328.01

TOP 1340.99

X-Sec Sta 197+23 ΔD = +8 x .0025 = .02 FL = 1328.27

Main channel bottom width = 39.8

TOP 1341.11

X-Sec Sta 198+55 ΔD = +140 x .0025 = .35 FL = 1328.60

Main channel bottom width = 36.93

TOP 1341.25

X-Sec Sta 199+43 ΔD = +228 x .0025 = .57 FL = 1328.82

Main channel bottom width = 35 Rlw to ℄ = 95

TOP = 1341.35

X-Sec Sta 200+77 ΔD = +362 x .0025 = .91 FL = 1329.16

Main chan bottom width = 32.1 Rlw to ℄ = 92

TOP 1341.50

X-Sec Sta PT 201+71 ΔD = +456 x .0025 = 1.14 FL = 1329.39

Main chan bottom width = 30'

TOP 1341.60

PP Central Plotter ΔD = +455 x .0025 = 2.14 = FL = 1331.53

DWS @ 181+69.3 = 149.0 $\Delta L_1 = 1.7$ = 1.001 %

DWS @ 197+14.93 = 150.7 $\Delta d = 1545.63$

Main chan Δ bottom width = 10' from Sta 197+15 to 201+71 $\frac{10}{455.72} = .02194'/ft$

X-Section @ Sta 206+70 ΔD = +953 x .0025 = 2.39 ΔL

FL = 1328.25 + ΔL (2.39) = 1330.64

= 1 L J 4

V-1265

Approved by Board of Commissioners this OCT 5 1984

Letter of Credit No. C-1873
Dated September 5, 1984
Matures May 31, 1986

IRREVOCABLE LETTER OF CREDIT

First National Bank In Wichita
P.O. Box One
Wichita, Kansas 67201
(Name and address of bank)

DATE: September 5, 1984

THE CITY OF WICHITA
WICHITA, KANSAS

Dear Sirs:

We hereby open our irrevocable credit in your favor available by your drafts at sight on us for a sum not exceeding $ 220,000.00 for the account of Frank L. Carney and Zenda Carney (PURCHASER), to be accepted by your signed statement that drawing is due to default or failure to perform by PURCHASER, the following improvements on or before May 31, 1986 (6)

1. Construction of retaining wall required by Vacation Case No. V-1265.
2. N/A
3. N/A

in Brookhollow Addition, a subdivision of the City of Wichita, Kansas.

Acting through the City Engineer, you will notify us when either:

1. The improvements have been timely completed and the credit may be released, or
2. The purchaser has failed to perform or is in default hereunder.

All drafts drawn hereunder must be marked: "Drawn under First National Bank in Wichita (Name of bank), Credit No. C-1873, dated 09-05-84."

The amount of any draft drawn under this credit must, concurrently with negotiation, be endorsed on the reverse side hereof and the presentment of any such draft shall be a warranty by the negotiating bank that such endorsement has been made and that documents have been forwarded as herein required.

Except so far as otherwise expressly stated herein, this credit is subject to the uniform customs and practices for commercial documentary credits fixed by the 13th Congress of the International Chamber of Commerce.

We hereby agree with the drawers, endorsers and bona fide holders of drafts under and in compliance with the terms of this credit that the same shall be duly honored on due presentation and delivery of documents as specified if negotiated on or before July 31, 1986 12-1-87.
(insert a date at least 60 days from the date on line 6)

Very truly yours,

FIRST NATIONAL BANK IN WICHITA
(Name of bank)

By _____
(Authorized signature)
(Also type or print name below)
C. A. Whitney, Jr., Vice President

FIRST NATIONAL BANK IN WICHITA
CORPORATE SEAL
No 2782
WICHITA, KANS.

RECEIVED APR 18 1985

FOLD HERE

MIDDLE BRANCH GYPSUM CREEK

Douglas to Central - Rockborough Office Park Encroachment Plan 2

4-14-84

STATION	1 Streamline Elevation	2 Trial WS Elevation	3 Depth (Feet)	4 Lt. Bank Slope Length (ft)	5 Lt. Bank Slope 'm'	6 Slope Length 'n' x	7 Bottom Width (ft)	8 Bottom 'n'	9 Width 'm' x	10 Wall Height (ft)	11 Wall 'n'	12 Wall Height x 'n'	13 Depth - Wall ht (ft)	14 Rt. Bank Slope Length (ft)	15 Rt. Bank Slope 'm'	16 Slope x 'm'	17 Σ Lengths WP	18 Σ of L x 'n'	19 Composite 'n'	20
NATURAL 193+56 1	1327.10	1336.7	9.6	46.04	.035	1.61	40 12	.035 .045	1.4 0.59	3.7	.015	.06	6.6	24.89	.035	0.87	122.93	4.42	.036	
194+73 2	1327.65	1337.0	9.35	38.55	.035	1.35	40	.035	1.40	4.0	.015	.06	5.35	22.06	.045	0.99	104.61	3.80	.036	
3		1336.8	9.15	37.72	.035	1.32	40	.035	1.40	3.8	.015	.06	5.35	22.06	.045	0.99	103.59	3.77	.036	
196+17 4	1328.0	1337.0	9.0	37.11	.035	1.30	40	.035	1.40	4.5	.015	.07	4.5	18.55	.045	0.83	100.16	3.60	.036	
197+23 5	1328.75	1337.3	9.05	37.31	.035	1.31	40	.035	1.40	4.5	.015	.07	4.5	18.55	.045	0.83	100.36	3.60	.036	
201+91 6	1329.2	1338.0	8.8	36.28	.035	1.27	32	.035	1.12	3.2	.015	.05	5.6	23.09	.045	1.03	94.57	3.48	.037	
7																				
8																				
9																				
10				West Branch Gypsum Creek - Confluence w/Middle Branch to Rock Road																
11																				
199+45WB 12	1322.6	1338.0	9.4	38.76	.035	1.36	34	.035	1.19	3.0	.015	.05	6.4	26.39	.035	.92	102.15	3.51	.034	
13																				
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Exhibit 9

HEC-2 WATER SURFACE PROFILE CALCULATIONS

FOLD TO FIT

PROJECT: Middle (Main) Branch Gypsum Creek - Douglas to Central — Run 2

DISCHARGE STA 182+00 TO STA 198+00 = 4367 cfs; STA 198+00 TO STA 210+00 = 1882 cfs — Backbarough Encroachment Plan 2 — 4-14-84

RIVER MILE / X-SECTION		1 Reach Length	2 Flowline Elev	3 Trial WS Elev	4 Area A	5 $R^{2/3}$	6 n	7 $K \times 10^{-3}$	8 $K_T \times 10^{-3}$	9 $\bar{S}_f$	10 h_f	11 $K_1^2 \times 10^{-8} / 2g$	12 α	13 V	14 $V^2/2g$	15 $\alpha(V^2/2g)_1$	16 Δh_v	17 h_o	18 H	19 Final WS Elev	20 Remarks
																				1334.2	Douglas Acad.
182+20	1		1324.5	1334.2	466	2.41	.015	111.3	Inlet elevation		@ 4-12	x12 RCBC	1	9.37	1.36	1.36					$\Delta H = +.16$ OK
Design Section @ 183+00	2	80	1324.7	1335.2	861	3.61	.035	132.0	121.6	.0013	.10	NA	1	5.07	0.40	.40	.96	.10	1.16	1335.36	$\Delta H = -.12$ OK
Design Section @ 185+00	3	200	1325.2	1335.7	861	3.61	.035	132.0	132.0	.0011	.22	"	1	5.07	0.40	.40	0	0	.22	1335.58	$\Delta H = -.14$ OK
Design Section @ 190+00	4	500	1326.45	1336.0	747	3.43	.035	108.8	120.3	.0013	.65	"	1	5.85	0.53	.53	-.13	.04	.56	1336.14	$\Delta H = -.05$ OK
NATURAL SEC @ 193+50	5	356	1327.35	1336.7	851	3.65	.036	128.2	118.5	.0014	.48	"	1	5.13	0.41	.41	.12	.01	.61	1336.75	$\Delta H = +.22$ OK
194+73	6	117	1327.65	~~1337.0~~	~~694~~	~~3.54~~	~~.036~~	101.4	114.8	.0014	.17	"	1	6.29	0.61	.61	-.20	.06	.03	1336.72	$\Delta H = +.05$ OK
EFFICIENCY LINE	7			1336.8	672	3.50	.036	97.0	112.6	.0015	.18	"	1	6.50	.66	.66	-.25	.07	0	1336.75	$\Delta H = -.03$ OK
196+17	8	144	1328.0	1337.0	644	3.48	.036	92.3	94.7	.0021	.31	"	1	6.79	.72	.72	-.06	.02	.27	1337.03	$\Delta H = +.22$ OK
197+23	9	106	1328.25	1337.3	647	3.47	.036	93.0	92.6	.002	.24	"	1	6.75	.71	.71	.01	0	.25	1337.28	$\Delta H = +.08$ OK
	10	Confluence with West Branch				Q =	1882 cfs													1337.28	
199+43	11	220	1328.8	1338.1	671	3.32	.035	94.6	93.8	.0004	.09	"	1	2.80	.12	.12	.59	.06	.74	1338.02	$\Delta H = -.05$ OK
200+77	12	134	1329.2	1338.1	581	3.36	.037	78.4	86.5	.0005	.06	"	"	3.24	.16	.16	-.04	.01	.03	1338.05	$\Delta H = -.05$ OK
201+71	13	94	1329.4	1338.1	564	3.15	.035	75.4	76.9	.0006	.06	"	"	3.34	.17	.17	-.01	0	.05	1338.10	$\Delta H = +.04$ OK
203+00	14	129	1329.7	1338.2	544	3.11	.035	71.8	73.6	.0006 5	.08	"	"	3.46	.19	.19	-.02	—	.06	1338.16	
	15																				
	16																				
	17					West Branch Gypsum Creek - From confluence w/Middle Branch to Rock Road													Q = 2560 cfs		
197+23 MB	18			1337.3	647	3.47	.036	93.0					1	6.75	.71	.71				1337.28	
199+45 WB	19	222	1329.6	1339.0	659	3.46	.036	94.1	93.6	.00075	.17	NA	1	3.88	.23	.23	.48	.05	.70	1337.98	$\Delta H = +.02$ OK
	20																				
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H = col 10 ± col 6 + col 17 — Exhibit 10

$K = \frac{Cm}{n} AR^{2/3}$ $Cm = 1.486$ $\bar{K}_T = \frac{1}{2}(K_{US} + K_{DS})$ $S_f = (Q/\bar{K}_T)^2$ $h_f = L S_f$ $\alpha = \frac{(A_1)^2 \Sigma (K^3/A^2)}{(K_T)^3}$ $V = Q/A_T$ $\Delta h_v = \alpha\left(\frac{V_2^2}{2g}\right) - \alpha\left(\frac{V_1^2}{2g}\right)$ $h_o = C_e(\pm \Delta h_v)$ or $C_c(+\Delta h_v)$

COPY A

HEC-2 WATER SURFACE PROFILE CALCULATIONS

PROJECT - Middle (Main) Branch Gypsum Creek - Douglas to Central — Run 1

DISCHARGE Sta 182+00 TO Sta 198+00 = 4367 cfs — 4-14-84

Sta 198+00 TO Sta 210+00 = 1882 cfs — Design X-Sections

RIVER MILE, X-SECTION	1 Reach Length	2 Flowline Elev	3 Trial WS Elev	4 Area A	5 $R^{2/3}$	6 n	7 $K \times 10^{-3}$	8 $\bar{K}_T \times 10^{3}$	9 $\bar{S}_f$	10 h_f	11 $K_1^2 K_2^2 \times 10^{-8}$	12 α	13 V	14 $V^2/2g$	15 $\alpha(V^2/2g)$	16 Δh_v	17 h_o	18 H	19 Final WS Elev	20 Remarks
182+20 1		1324.5	1334.2	466	2.41	.015	111.3	Inlet	elevations 4-12 X12 2C&C			1	9.37	1.36	1.36				1334.2	Douglas Ave.
183+00 2	80	1324.7	1335.2	861	3.61	.035	132.0	121.6	.0013	.10	NA	1	5.07	.40	.40	.96	.10	1.16	1335.36	ΔH=-.16 OK
185+00 3	200	1325.2	1335.7	861	3.61	.035	132.0	132.0	.0011	.22	"	1	5.07	.40	.40	0	0	.22	1335.58	ΔH=+.12 OK
190+00 4	500	1326.45	1336.0	747	3.43	.035	108.8	120.3	.0013	.65	"	1	5.85	.53	.53	-.13	.04	.56	1336.14	ΔH=-.14 OK
193+50 5	356	1327.35	1336.7	723	3.39	.035	104.1	106.4	.0017	.60	"	1	6.04	.57	.57	-.04	.01	.57	1336.71	ΔH=-.01 OK
194+73 6	117	1327.65	1336.9	712	3.37	.035	101.8	103.0	.0018	.21	"	1	6.13	.58	.58	-.01	0	.20	1336.91	ΔH=-.05 OK
196+17 7	144	1328.0	1337.1	695	3.34	.035	98.5	100.2	.0019	.27	"	1	6.18	.61	.61	-.04	.01	.24	1337.15	ΔH=+.04 OK
197+23 8	106	1328.25	1337.4	699	3.35	.035	99.3	98.9	.0019	.21	"	1	6.25	.61	.61	0	0	.21	1337.36	ΔH=+.06 OK
9	Confluence	with	West	Branch			Q=1882 cfs													
199+45 10	220	1328.8	1338.1	671	3.32	.035	94.8	97.1	.00038	.08	"	1	2.80	.12	.12	.49	.05	.62	1337.98	ΔH=+.12 OK
200+77 11	134	1329.2	1338.1	602	3.21	.035	82.2	88.5	.00045	.06	"	1	3.12	.15	.15	-.03	.01	.04	1338.02	ΔH=+.08 OK
201+71 12	94	1329.4	1338.1	564	3.15	.035	75.4	78.8	.00057	.05	"	1	3.34	.17	.17	-.02	.01	.04	1338.06	ΔH=+.04 OK
202+00 13	129	1329.7	1338.1	534	3.09	.035	70.0	72.7	.00067	.09	"	1	3.52	.19	.19	-.02	.01	.08	1338.14	ΔH=-.04 OK
14																				
15																				
16																				
17				West	Branch	Gypsum	Creek	From	Confluence	with	Middle	Branch	to	Rock	Road	Q=2500 cfs				
197+23 MB 18			1337.4	699	3.35	.035	99.3	98.9	.0019	.21	"	1	6.17	.59	.59	.02	0	.21	1337.36	ΔH=+.06 OK
199+45 WB 19	222	1328.6	1328.0	677	3.34	.035	96.0	97.6	.0007	.15	"	1	3.78	.22	.22	.37	.04	.56	1337.92	
20																				
21																				
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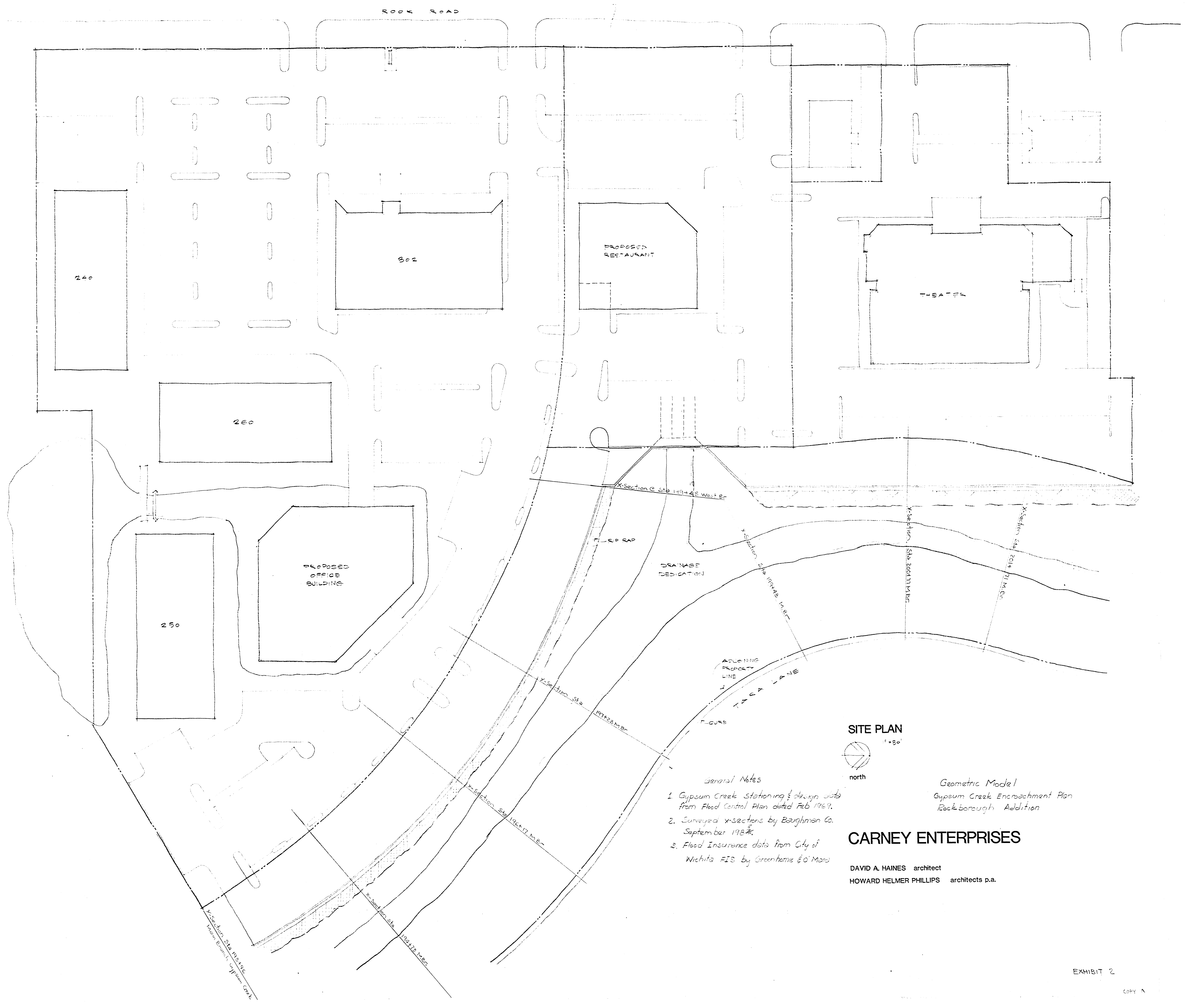
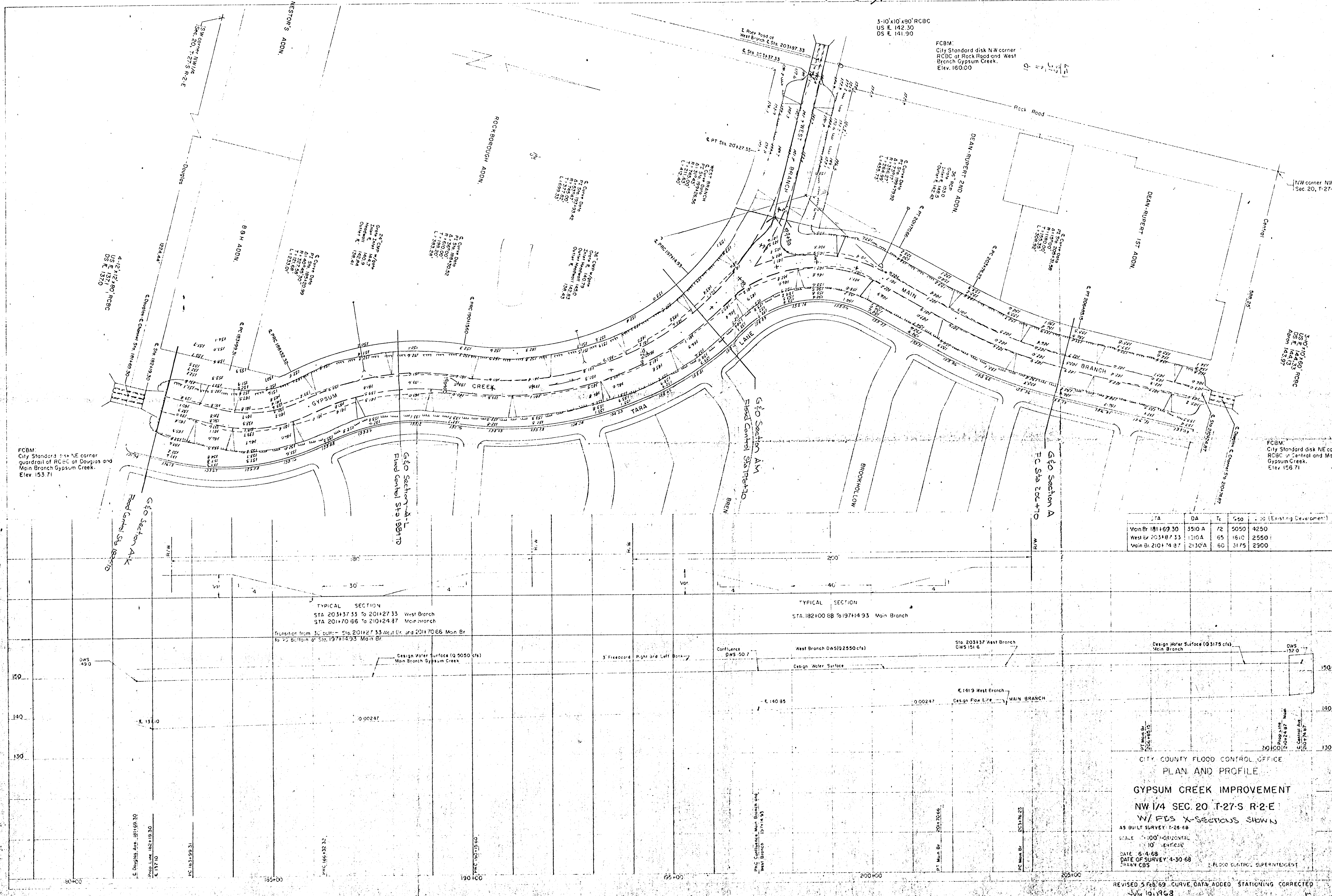
25																				
26																				
27																				
28																				
29																H = Col 10 ± Col 16 + Col 17				
30																				Exhibit B
31																				

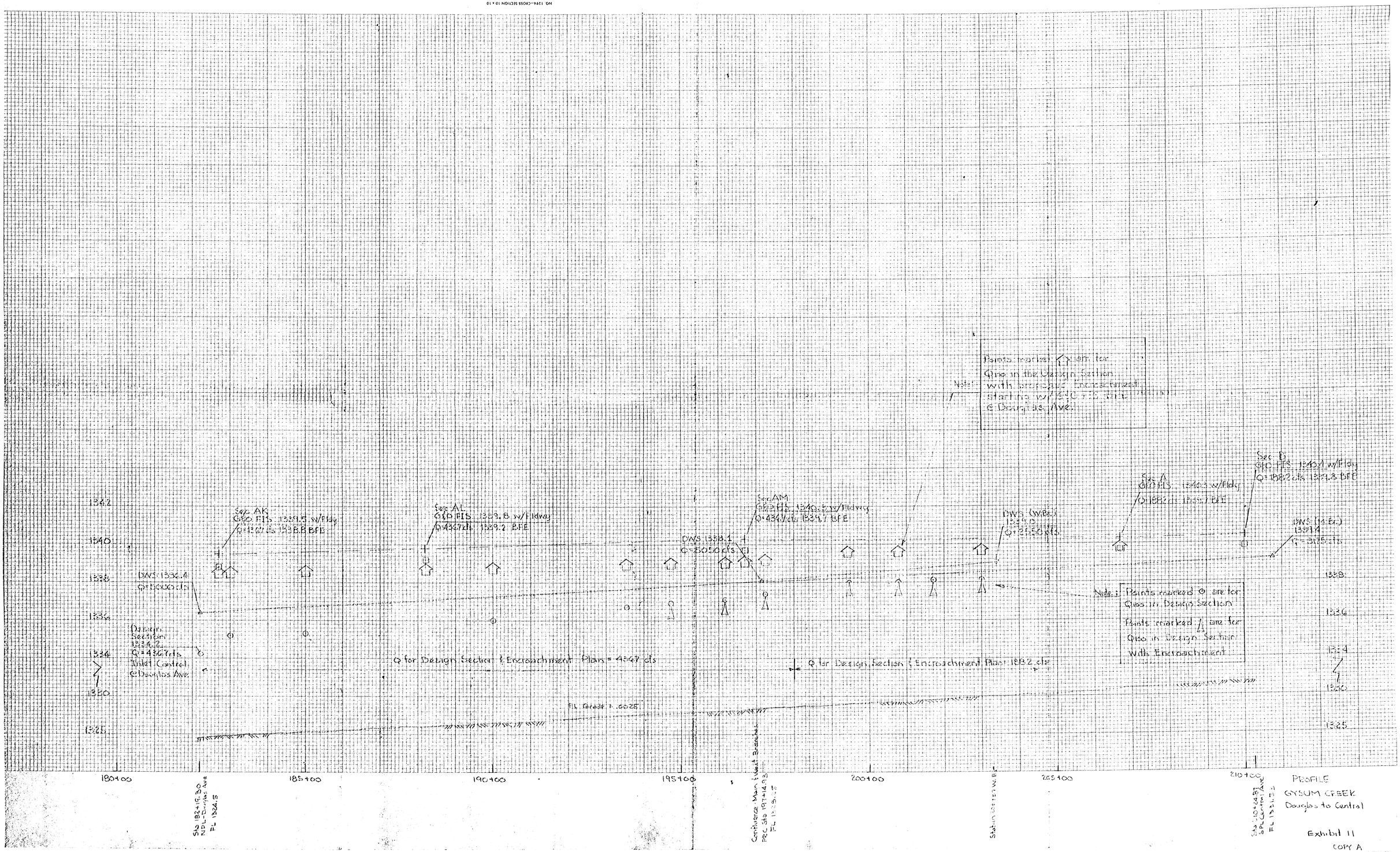
$K = \frac{1.486}{n} AR^{2/3}$ $\quad Cm = 1.486$ $\quad \bar{K}_T = \frac{1}{2}(K_{US} + K_{DS})$ $\quad S_f = (Q/\bar{K}_T)^2$ $\quad h_f = L S_f$ $\quad \alpha = \frac{(A_1)^2 \delta (K_T^3/A_T^2)}{(K_T)^3}$ $\quad V = Q/A_T$ $\quad \Delta h_v = \alpha\left(\frac{V_1^2}{2g}\right) - \alpha\left(\frac{V_2^2}{2g}\right)$ $\quad h_o = C_e(\alpha h_v)$ or $C_c(\alpha h_v)$

COPY A


ROCK ROAD
240
302
260
250
PROPOSED RESTAURANT
THEATER
PROPOSED OFFICE BUILDING
DRAINAGE DEDICATION
ADJOINING PROPERTY LINE
CURB
SITE PLAN
1"=50'
north
General Notes
1. Gypsum Creek stationing & design data from Flood Control Plan dated Feb 1969.
2. Surveyed x-sections by Baughman Co. September 1984.
3. Flood Insurance data from City of Wichita FIS by Greenhorne & O'Mara
Geometric Model
Gypsum Creek Encroachment Plan
Rockborough Addition
CARNEY ENTERPRISES
DAVID A. HAINES architect
HOWARD HELMER PHILLIPS architects p.a.
EXHIBIT 2



STA	DA	Tc	Q50	[illegible] (Existing Development)
Main Br. 181+69.30	3510 A	72	5050	4250
West Br. 203+87.33	1310 A	65	1610	2550
Main Br. 210+74.87	2130 A	60	3175	2900



PROFILE
GYSUM CREEK
Douglas to Central

Exhibit 11
COPY A