Upper East Fork Cave Creek Drainage Channel
Union Hills Drive to Beardsley Road
90% Design Submittal

NBS/LOWRY
ENGINEERS & PLANNERS

Upper East Fork Cave Creek Drainage Channel
Union Hills Drive to Beardsley Road
90% Design Submittal

Prepared For:

Flood Control District of Maricopa County

Prepared By:

NBS/Lowry, Engineers & Planners
2600 North 44th Street
Phoenix, Arizona 85008

December 3, 1990

Upper East Fork Cave Creek Drainage Channel
Project Description

The Upper East Fork Cave Creek Drainage Channel is being designed as part of the implementation of the Drainage Master Plan for the Upper East Fork Cave Creek watershed adopted by the Flood Control District and presented in the Upper East Fork Cave Creek Area Drainage Master Study, October 1987.

The purpose of the channel is to remove a substantial number of existing dwellings from the FEMA designated floodplain by providing a link from Detention Basin #1 located north of Beardsley Road, to Detention Basin #3 located west of Cave Creek Road. The channel design concept is to provide a multi-use earth lined channel with equestrian and pedestrian access.

The project consists of providing all professional engineering services necessary for the design and preparation of plans, construction special provisions and construction cost estimates for the construction of open channel from the outlet of Detention Basin #1 to the south side of Union Hills Drive including crossings at Beardsley Road, Utopia Road, "B" Street, Siesta Lane, and Union Hills Drive, together with any and all required utility relocations, street relocations, security fencing, demolition of existing structures, provisions for temporary detours, temporary residential access, and such other incidental work as may be required to complete the construction.

Design calculations and descriptions of the major project elements follow:

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

30% REVIEW COMMENTS

Subject: Upper East Fork Cave Creek Flood Control Channel
To: Brian Fry (NBS/Lowry & Associates)
CC: John Rodriquez

Date: September 4, 1990
From: John V. Berghian
Reviewer: John V. Berghian

Plan Sheet Review

C-1

1.) Call out for wall and bank protection during construction at the rear of the cul-de-sac lot.

A/E RESPONSE A note has been added advising the contractor to protect the wall and bank that is outside the TCE.

C-2

2.) A TCE is now provided for the parcel adjacent to the church (see attached 8-1/2" x 11" plan). Please show on drawing, and provide grading within the TCE to fill in low areas.

A/E RESPONSE Shown on plans

3.) Correct K Street curb return and show new 6" water line.

A/E RESPONSE Curb return corrected. A note was added referencing Sht W-3 for new water line.

C-3

4.) Show K Street.

A/E RESPONSE Not enough room.

C-4

5.) Correct direction of north arrow.

A/E RESPONSE Corrected.

C-5

6.) Correct direction of north arrow.

A/E RESPONSE Corrected.

W-2

7.) New water line shown connected to existing gas line in plan view. Please correct.

A/E RESPONSE sht W-2 is now sht W6; Corrected.

W-5

8.) Area of new water line connection may need to be detailed at a larger scale because of the existing utility congestion in the area.

A/E RESPONSE We feel plan is adequate as shown on 90% plans.

W-7

9.) Existing water line location in plan view is in conflict with Sheet C1. It appears that the relocation is killing an active line. Please study this area closer.

A/E RESPONSE Sht W-7 is now sht W1; Sht C-1 was plotted incorrectly; Sht W1 has been modified.

SS Sheets

10.) Please standardize "S" and "SS" utility line callouts. Show abandonments and/or removals of existing SS lines.

A/E RESPONSE Callouts standardized as "SS"

SS-3

11.) What is 8"SS line connecting to at south end?

A/E RESPONSE ~~[illegible]~~ Sht SS3 is now Sht SS2; See Sht SS1 for connection.

SS-7

12.) Revise direction of north arrow.

A/E RESPONSE sht SS7 is now sht SS6; north arrow Corrected.

P-*

13.) (Station 27+50) Please study this area west of church for regrading within the new TCE.

A/E RESPONSE See sht C2

P-*

14.) Callout "Detour Plan" in title blocks where applies.
A/E RESPONSE Called out.

15.) Coordinate plans with James Abell & Associates.
A/E RESPONSE James Abell will be provided with a set of plans for review + comment.

General Comments

16.) Do not include X-Section sheets with construction documents. Take out of plan set, and submit separately as work sheets.
A/E RESPONSE Removed.

17.) The plans will read a lot easier if all disciplines (ie: drainage, water, sewer) progressed upstream. Please arrange in this order.
A/E RESPONSE Plans rearranged.

18.) It is difficult to determine existing street centerlines and edge of pavement. Please delineate as required.
A/E RESPONSE centerline and edge of Pvmt have been called out.

19.) Incorporate City of Phoenix review comments.
A/E RESPONSE Incorporated.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

30% REVIEW COMMENTS

Subject: Upper East Fork Cave Creek Flood Control Channel

Date: September 4, 1990

To: Brian Fry (NBS/Lowry & Associates)

From: John V. Berghian

CC: Nick Karan
John Rodriguez
David Phillips

Reviewer: David Phillips

HEC-2

1.) The channel narrows sharply upstream of each drop structure and the HEC-2 runs do not account for losses due to the contractions. FCD/MC recommends that a contraction coefficient of 0.1 times the velocity head be inserted into the HEC-2 input.

A/E RESPONSE A coefficient of 0.1 has been used.

BENDS

2.) The maximum allowable tractive shear was set by the consultant at 0.20 lb./ft^2, which is exceeded at two curves: PRC Sta. 118+59.45 and PC Sta. 127+09.53. Although the curve at PRC Sta. 118+59.45 begins with a box culvert followed by a drop, the cited literature indicates that the calculated length of protection (Lp) is measured downstream of the curve, in this case from the PRC, thus the armouring should continue to Sta. 117+18 (Lp=142 ft.). The presence of the immediate downstream reversed curve may cause changes in the location of the maximum potential scour. The other curve (PC Sta. 127+09.53) occurs at the confleuence of two flows, one entering at as much as a 90° angle. FCD/MC feels that this flow arrangement is not desirable and at this point, is impossible to review until the design of this junction is finalized.

A/E RESPONSE Bend RipRap protection provided at both bends.

3.) The tractive shear on the channel bends was calculated by the GYS Method (gamma*maximum depth*energy slope) and the HEC-15 "Kb" correction factor. The depths and the energy slopes were read directly from the n=0.017, HEC-2 output for each curve. This method is preferred over the use of a Mannings "rating curve", which is confined to standard channel geometry and more importantly substitution of the bed slope (0.0005 ft/ft) for the energy slope (as high as three times the bed slope).

A/E RESPONSE Preferred method used.

4.) The consultant states that the minimum radius for a curve should be greater than or equal to three times the top width of the water surface. The curve at PC Sta. 125+78.15 indicates a ratio of 2 (top width = 124.34 ft., radius = 250 ft.). FCD/MC prefers a three ratio.
A/E RESPONSE The curve is sharp because the ℄'s north + South of Utopia are offset so much. It is very tight. It is felt that adequate rip rap protection is provided.

5.) The use of the rating curve also resulted in lower lengths of protection (Lp), an average of 73 ft less than calculated using n=0.017, HEC-2 output and channel geometry.
A/E RESPONSE Lp from HEC-2 runs.

6.) The calculations for bend shear for three curves were omitted: Sta. 118+59.45, 125+78.15, and 127+09.03. FCD/MC requests these calcs.
A/E RESPONSE Provided.

DROP STRUCTURES

7.) The upstream end of the channel begins with a 2.30 ft. drop from the four RCP's. It is not clear what type of channel protection will be provided here.
A/E RESPONSE Detailed on plans.

8.) The methods used to determine creep ratios indicate a planned use of concrete for drop structures and aprons. Will the structures and protection consist of concrete?
A/E RESPONSE Yes

9.) The cited literature indicates that the designed length of the stilling basins, from the vertical drops to the end sills, correspond to the combined lengths of "La" and "Lb" in the design submittal. FCD/MC requests that the stilling basins at the following drop structure locations be lengthened from 45 ft. to 50 ft.: Sta. 133+40, 137+40, 143+40, and 148+60.
A/E RESPONSE The design has been modified. Baffle blocks are provided and the lengths are 35'.

10.) FCD/MC requests that the net drop of the drop structures located at Sta. 133+40, 137+40, 143+40, and 148+60 be increased from 3.14 ft. to 3.30 ft. (Increase the stilling basin depth to 0.95 ft.).
A/E RESPONSE Due to addition of baffle blocks stilling basins are at channel grade (depth=0)

11.) FCD/MC prefers that the length of the approach protection "Lu" be calculated by the use of Lu = 5 * Yc, where Yc equals the n=0.025, HEC-2 critical depth. This increases the required approach lengths.
A/E RESPONSE Approach lengths adjusted.

12.) It could be noted that the above changes generally occur in the upper reach (Q=629 cfs) and is a result of the higher q (cfs/ft) calculated by the use of the minimum energy equation, q = ((g)^0.5) * ((Yc)^1.5), where Yc = n=0.025, HEC-2 critical depth. $q = Y_c^{1.5}\sqrt{g}$
A/E RESPONSE q recalculated

WATER and SEWER

13.) FCD/MC has established that all utilities passing under FCD/MC unlined channels conform to the attached guideline. For passing under lined channels or concrete structures 1.5 to 2.0 ft. clear distance is the only requirement.
A/E RESPONSE The proposed design has been agreed upon with the District.

Plan Sheet Comments

C-1

14.) A 2-ft vertical increment was skipped (between 1464' and 1468').
A/E RESPONSE Corrected.

C-4

15.) The labels "finished" and "existing" are reversed.
A/E RESPONSE Corrected

C-6

16.) The profile Sta. 158 is labeled 156.

A/E RESPONSE Corrected.

W-2

17.) The pictoral symbol for the new 8" water line is on the existing gas line alignment.

A/E RESPONSE Corrected.

General Comments

18.) I am unable to follow the channel centerline using the printed alignment bearings and deflection angles. Should these be rechecked? Also, the north arrows seem to be out of place (see sheet C-4).

A/E RESPONSE Checked and corrected.

19.) Is there any problem with a 6°30'19" abrupt horizontal alignment change with no curve at station 155+44.86?

A/E RESPONSE No

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

30% REVIEW COMMENTS

Subject: Upper East Fork Cave Creek Flood Control Channel
Date: September 4, 1990

To: Brian Fry (NBS/Lowry & Associates)
From: John V. Berghian

CC: John Rodriguez
Joe Tram
Reviewer: Joe Tram

HEC-2

1.) The intent of the proposed channel is to contain the floodplain in the upper reach of the East Fork Upper east fork creek floodplain.

In order to comply with FEMA criteria for earth channels, the channel must be designed based upon sub-critical flow and substantiated by HEC-2 computation.

HEC-2 assumed critical depth at several cross-sections in response to the presence of boxes and drop structures. A review of these locations indicate that downstream of these locations the flow returned to subcritical. Show calculations that support drop structure design.

A/E RESPONSE Provided.

2.) BT cards are required so that GR data may reflect ground surface at the bridges. Please modify HEC-2 runs as required.

A/E RESPONSE not necessary Normal Bridge method was used, BT cards not necessary.

Plan Sheet Comments

C-1

3.) Start HEC-2 downstream below section 98+00.

A/E RESPONSE Started at Sta. 81+50 based on field surveyed cross-sections

4.) Need bridge routine at RCBC at Union Hills.

A/E RESPONSE Normal Bridge used

5.) Show channel invert and finished grade downstream.

A/E RESPONSE Shown

6.) Show side drains at Union Hills.

A/E RESPONSE shown

C-1 (Cont)

7.) Invert at Sta. 98+00 = invert at Box. Is this correct?
A/E RESPONSE No, see plans

C-2

8.) Need side drains along Siesta Lane.
A/E RESPONSE Provided.

9.) Siesta Lane needs bridge routine.
A/E RESPONSE Normal Bridge used

10.) Are wing walls long enough?
A/E RESPONSE Yes.

C-3

11.) Needs side inflow on B and Utopia Streets.
A/E RESPONSE Provided.

12.) Side channel needs to have stabilized weir, erosion protection, and modified confluence alignment at Utopia drop structure.
A/E RESPONSE Provided.

C-6

13.) Finished grade plotted at wrong elevation.
A/E RESPONSE Corrected

14.) Coordinate design and phasing of work at Beardsley with Woods & Assoc. Will interim water collection be required, and if so, HEC-2 will need to be taken 300+ feet upstream of Beardsley.
A/E RESPONSE Coordinating w/ Wood + Assoc.
Beardsley Rd Crossing not sized for exist. Cond. 100 yr flow.
grading + protection provided for interim period, no HEC-2 run generated.

General Comments

15.) Side inflows need to be addressed along with appropriate freeboard.
A/E RESPONSE Addressed.

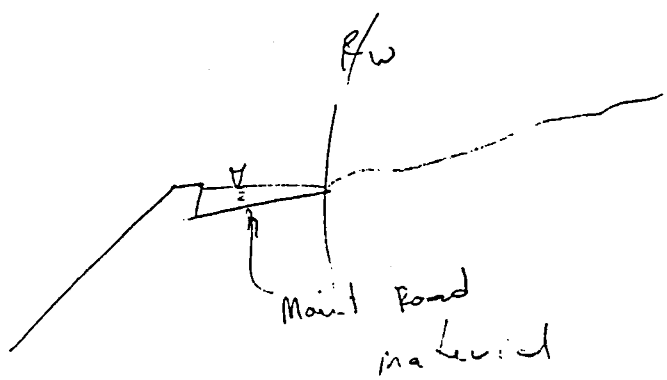
16.) Finished Grade at channel banks, side ditch and drainage inlets must be addressed. Need typicals.
A/E RESPONSE Typicals provided, Cross sections at 100 ft stationing will be submitted separately.

17.) Show location and provide detail of proposed maintenance road.
A/E RESPONSE Provided.

18.) Show cross section locations, CWSEL's, and left and right bank on profiles.
A/E RESPONSE ~~Separate set~~ Will submit a marked up set of bluelines.

19.) Drop Structures (Typical) - Why pinch channel down increasing velocity only to try to reduce velocity by drop structure?
A/E RESPONSE To reduce upstream velocity by causing backwater.

20.) Cross Section Work Sheets (Typical) - Account for fill areas.
A/E RESPONSE O.K.



- Pepperidge not included

submit channel + Basin 1 to FEMA from C.C. Rd sep. subm.

Pepperidge Incamat - contractor must cut it for work

Bill Boring

NBS/Lowry Engineers & Planners

FCDMC - EAST FORK CAVE CREEK
CHANNEL DESIGN CALC'S

Date 11/15/90
Job No. P81-194-016
By FRY
RCE 21684
Chk'd
Filepath:C:\WORKSHT\CHANNDES

CHANNEL DESIGN REFERENCES:

1. FHWA H.E.C. No. 15 "Design of Roadside Channels with Flexible Linings," April 1988.

2. ASCE-Manuals and Reports on Engineering Practice-No. 54 "Sedimentation Engineering," Reprinted 1977.

3. U.S.Army Corps of Engineers "Hydraulic Design of Flood Control Channels," July 1970.

4. Morris and Wiggert, "Applied Hydraulics in Engineering," Second Edition, 1972.

5. U.S. FHWA "Highways in The River Environment," January 1987.

6. Pima County Department of Transportation and Flood Control District, "Drainage and Channel Design Standards For Local Drainage," June 1984.

7. Brater and King, "Handbook of Hydraulics," Sixth Ed. 1976.

8. Chow, Ven Te, "Open-Channel Hydraulics," 1959.

9. Simons, Li & Assoc. "Engineering Analysis of Fluvial Systems," 1982.

10. ADWR,"Design Manual For Engineering Analysis of Fluvial Systems," 1985.

11. FHWA H.E.C. No. 14 "Hydraulic Design of Energy Dissipators for Culverts and Channels," September 1983

12. USBR "Design of Small Dams," 1973.

13. MWE "Evaluation of and Design Recommendations for Drop Structures in the Denver Metropolitan Area," December 1986.

14. USBR "Design of Small Canal Structures," 1974.

15. Simons, Li & Assoc. "Criteria for Channels and Hydraulic Structures on Sandy Soils," April 1981.

16. Henderson, F.M. "Open Channel Flow," 1966.

17. FHWA H.E.C. No. 11 "Design of Riprap Revetment," March 1989

NBS/Lowry Engineers & Planners

FCDMC - EAST FORK CAVE CREEK
CHANNEL DESIGN CALC'S

Date 12/01/90
Job No. P81-194-016
By FRY
RCE 21684
Chk'd ________
Filepath:C:\WORKSHT\CHANNDES

CHANNEL DESIGN CRITERIA:

Lining Mat'l =Earth
Manning's n:
Design = 0.017

Mat'l Properties:
Classif. = Clayey Sand (CL)
Design PI = 20
Std Penet Resis.= 35 blows/ft.

Allow. Tract. Force:
Max. Allow.= 0.25 lb/in^2 (Chart 2, Ref. 1)
Safety Fact= 1.2
Design T.F.= 0.21 lb/in^2

Max. Sideslope= 3 H:1V
Min. Freeboard =.25(Y + V^2/2g)
Min Curve Radius = 3 x Topwidth

REACH 1: Union Hills Drive to Utopia Road

Long. Slope = 0.0005 ft/ft
Sideslope = 6 H:1V
Bottom Slope = 2 %

Right of Way Wid = 210 ft.
Channel Top Wid. = 186 ft.
Ch. Bottom Width = varies ft.

Design Freq. = 100 years
Design Disch. = 1375 cfs

Flow Classif.= Tranquil

REACH 2: Utopia Road to Beardsley Road

Long. Slope = 0.0005 ft/ft
Sideslope = 5 H:1V
Bottom Slope = 2 %

Right of Way Wid = 115 ft.
Channel Top Wid. = 91 ft.
Ch. Bottom Width = varies ft.

Design Freq. = 100 years
Design Disch. = 629 cfs

Flow Classif.= Tranquil

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NBS/Lowry Engineers & Planners

Date 12/01/90
Job No. P81-194-016
By BJF
RCE 21684
Chk'd ________
Filepath:C:\WORKSHT\BENDS

FCDMC - EAST FORK CAVE CREEK
CHANNEL DESIGN CALC'S

BENDS: ** Tranquil Flow Only **
Super. Coeff. = 1 (ref. 3, pg. 28)
Allow. Shear = 0.20 lb/ft^2

Station From - To	Disch. (cfs)	Rc (ft)	*1 Top Wid (ft)	Bott Wid. (ft)	*1 Velocity (fps)	*1 Depth (ft)	*1 Sf (ft/ft)	Mann. n	(Super) Delta y (ft)	*2 Rmin (ft)	Rc/B	*3 Kb	Max. Shear Stress Straight (lb/ft^2)	Max. Shear Stress Bend (lb/ft^2)	Lp (ft)
98+97 - 99+81	1375	200	104.8	63	3.55	4.62	0.00162	0.037	0.21	314	3.2	1.85	0.466	0.862	64.8
101+40 - 102+48	1375	525	126.1	80	3.22	4.65	0.00027	0.017	0.08	378	6.6	1.37	0.078	0.106	0.0
104+09 - 105+74	1375	600	125.4	80	3.28	4.58	0.00028	0.017	0.07	376	7.5	1.25	0.081	0.101	0.0
111+90 - 113+62	1375	525	112.3	85	4.08	3.95	0.00051	0.017	0.11	337	6.2	1.43	0.125	0.179	0.0
115+52 - 118+59	1375	525	135.2	100	3.49	3.93	0.00038	0.017	0.10	406	5.3	1.56	0.094	0.147	0.0
118+59 - 121+20	1375	525	113	76	4.6	3.8	0.00062	0.017	0.14	339	6.9	1.37	0.147	0.202	131.4
125+78 - 127+09	1375	255	120	85	4.1	3.79	0.00056	0.017	0.25	360	3.0	1.85	0.133	0.245	117.5
127+09 - 128+39	1375	250	70.4	57	7.03	3.54	0.00168	0.012	0.43	211	4.4	1.71	0.372	0.636	88.9
143+80 - 144+84	629	250	69	32	3.25	4.01	0.00036	0.017	0.09	207	7.8	1.25	0.089	0.111	0.0
153+09 - 153+88	629	250	52.5	14	4.88	3.93	0.00096	0.017	0.16	158	17.9	1.05	0.235	0.247	99.6

NOTES:
*1. Taken from HEC-2 run
*2. Rmin is the min. allow. radius (= 3*Topwidth) (ref. 3)
*3. Ref. 1

NBS/Lowry Engineers & Planners   Date 12/01/90
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By FRY
FCDMC - EAST FORK CAVE CREEK   RCE 21684
CHANNEL DESIGN CALC'S   Chk'd ________
Filepath:C:\WORKSHT\RIPRAP

Riprap Sizing, D50: (from HEC 11, March 1989)
Stone Shape = Very Rounded

*	Station From - To	Vavg (fps)	Davg (ft)	SS :1 (H/V)	Angle/Rep (deg)	Stabil. Factor	Csf	K1	D50 (ft)	Min Thk. (ft)
T	98+00 - 98+97	4.14	4.81	3	33	1.7	1.69	0.814	0.07	1.00
B	98+97 - 99+81	3.55	4.62	3	33	1.7	1.69	0.814	0.05	1.00
T	101+02 - 102+00	6.14	3.42	3	38	1.7	1.69	0.858	0.27	1.00
B	101+40 - 102+48	4.51	3.83	3	33	1.7	1.69	0.814	0.11	1.00
B	104+09 - 105+74	3.8	4.1	6	33	1.7	1.69	0.953	0.05	1.00
T	106+00 - 107+00	5.64	4.08	3	37	1.7	1.69	0.851	0.19	1.00
T	107+50 - 107+75	8.98	2.86	3	40	1.7	1.69	0.871	0.89	1.51
B	111+90 - 113+62	4.16	3.95	6	33	1.7	1.69	0.953	0.07	1.00
T	113+00 - 113+75	4.58	3.92	3	33	1.7	1.69	0.814	0.11	1.00
T	115+05 - 115+40	4.47	3.79	3	33	1.7	1.69	0.814	0.11	1.00
B	115+52 - 118+59	3.86	3.86	6	33	1.7	1.69	0.953	0.05	1.00
B	118+59 - 120+20	4.27	3.82	6	33	1.7	1.69	0.953	0.07	1.00
T	120+20 - 121+57	4.57	3.87	3	33	1.7	1.69	0.814	0.11	1.00
T	152+37 - 152+64	3.93	4.42	3	33	1.7	1.69	0.814	0.07	1.00
B	125+78 - 127+09	3.42	4.43	3	33	1.7	1.69	0.814	0.04	1.00
T	129+10 - 129+25	6.86	4.22	3	38	1.7	1.69	0.858	0.33	1.00
T	132+55 - 133+00	6.3	4.67	3	38	1.7	1.69	0.858	0.25	1.00
T	133+40 - 133+58	8.79	3.73	3	40	1.7	1.69	0.871	0.73	1.24
T	136+50 - 137+00	7.09	4.4	3	38	1.7	1.69	0.858	0.36	1.00
T	137+40 - 137+58	8.79	3.73	3	40	1.7	1.69	0.871	0.73	1.24
T	142+57 - 143+00	7.34	4.38	3	39	1.7	1.69	0.865	0.40	1.00
T	143+40 - 143+58	8.79	3.73	3	40	1.7	1.69	0.871	0.73	1.24
B	143+80 - 144+84	2.57	4.92	5	33	1.7	1.69	0.933	0.01	1.00
T	147+80 - 148+20	7.39	4.36	3	39	1.7	1.69	0.865	0.41	1.00
T	148+60 - 148+78	8.79	3.73	3	40	1.7	1.69	0.871	0.73	1.24
B	153+09 - 153+88	3.68	4.75	5	33	1.7	1.69	0.933	0.04	1.00
T	154+82 - 155+14	4.13	4.69	3	33	1.7	1.69	0.814	0.07	1.00

* - T = Transition
- B = Bend

NBS/Lowry Engineers & Planners	Date 12/01/90
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	By FRY
FCDMC - EAST FORK CAVE CREEK	RCE 21684
CHANNEL DESIGN CALC'S	Chk'd
	Filepath:C:\WORKSHT\CHANNDES

DROP STRUCTURES:

Vertical Drop: (ref. 8,15,16)		Net Drop=	3.05 ft.	4.39
Drop Station =107+50		Upstream Channel:		D/S Channel:
Drop bot.wid. =	45 ft.	depth =	4.07 ft.	5.17
Drop height,h =	3.83 ft.	velocity=	3.09 ft./sec.	5.15
Design Disch. =	1375 cfs			
Side Slope, z =	3 H: 1V			

Drop No. Dn =	0.416	Crit. Depth, Yc =	2.86 ft.
Drop Len. La =	16.04 ft.	Unit Disch., q =	27.45 cfs/ft
Pool Dep. dp =	3.16 ft.	Inlet Length Lu =	14.30 ft.
Nappe dep. dl =	1.43 ft.	Froude No. =	2.843 (@ dl)
TW seq dep d2 =	5.02 ft.	Jump Type =	Oscillating
		Jump Length =	26.60 ft.
D/S cutoff dep=	2.5 ft.		
U/S cutoff Dep=	ft.	(per Weighted Creep analysis)	
Still Bas. dep=	0.00 ft.	(ref. 16,pg.116)	d2/6 = 0.84

Lane's Weighted Creep Ratio:

		Still Bas. Depth =	0.78 ft.
Inlet Len Lu =	15 ft.	Upst. cutoff Lc =	2.5 ft.
Drop Len. La =	16 ft.	Downst.cutoff Ld =	2.5 ft.
Basin Len Lb =	29 ft.	Head on Struc. H =	2.47 ft.

Creep Ratio, Cw = 13.7

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	By FRY
FCDMC - EAST FORK CAVE CREEK	RCE 21684
CHANNEL DESIGN CALC'S	Chk'd
	Filepath:C:\WORKSHT\CHANNDES

DROP STRUCTURES:

Vertical Drop:	(ref. 8,15,16)	Net Drop=	3.05 ft.	3.93
Drop Station	=114+45	Upstream Channel:		D/S Channel:
Drop bot.wid. =	65 ft.	depth =	4.07 ft.	4.65
Drop height,h =	3.77 ft.	velocity=	3.09 ft./sec.	4.58
Design Disch. =	1375 cfs			
Side Slope, z =	0 H: 1V			

Drop No. Dn =	0.302	Crit. Depth, Yc =	2.53 ft.
Drop Len. La =	15.64 ft.	Unit Disch., q =	22.84 cfs/ft
Pool Dep. dp =	2.90 ft.	Inlet Length Lu =	12.65 ft.
Nappe dep. d1 =	1.22 ft.	Froude No. =	2.971 (@ d1)
TW seq dep d2 =	4.53 ft.	Jump Type =	Oscillating
		Jump Length =	24.01 ft.
D/S cutoff dep=	2.3 ft.		
U/S cutoff Dep=	ft. (per Weighted Creep analysis)		
Still Bas. dep=	0.00 ft. (ref. 16,pg.116)	d2/6 =	0.76

Lane's Weighted Creep Ratio:

		Still Bas. Depth =	0.72 ft.
Inlet Len Lu =	60 ft.	Upst. cutoff Lc =	0 ft.
Drop Len. La =	16 ft.	Downst.cutoff Ld =	2.5 ft.
Basin Len Lb =	29 ft.	Head on Struc. H =	3.01 ft.

Creep Ratio, Cw = 14.5

===

```
NBS/Lowry Engineers & Planners    Date      12/01/90
                                  Job No.   P81-194-016
                                  By        FRY
FCDMC - EAST FORK CAVE CREEK      RCE       21684
CHANNEL DESIGN CALC'S             Chk'd
                                  Filepath:C:\WORKSHT\CHANNDES
-----------------------------------------------------------------
Sloping Drop:  (ref. 8,15,16)
Drop Station  =122+37             Net Drop=    3.64 ft.        3.97
Drop bot.wid. =      54 ft.       Upstream Channel:      D/S Channel:
  Drop height =    5.27 ft.         depth =    3.87 ft.         5.6
Design Disch. =    1375 cfs       velocity=    3.46 ft./sec.   5.93
Face slope, Z =       6 H: 1V
Side Slope, z =       3 H: 1V
-----------------------------------------------------------------
 Drop Len. La =   31.62 ft.        Crit. Depth, Yc =    2.58 ft.
Avail. Head Ht=    9.14 ft.         Unit Disch., q =   23.52 cfs/ft
                                   Inlet Length Lu =   12.90 ft.
Face depth d1 =    0.99 ft.             Froude No. =    4.21 (@ d1)
TW seq dep d2 =    5.42 ft.              Jump Type = Oscillating
                                       Jump Length =   32.07 ft.
D/S cutoff dep=     2.7 ft.
U/S cutoff Dep=         ft. (per Weighted Creep analysis)
Still Bas. dep=    0.00 ft. (ref. 16,pg.116)        d2/6 =    0.90
-----------------------------------------------------------------

Lane's Weighted Creep Ratio:

 Inlet Len Lu =      15 ft.       Upst. cutoff Lc =        3 ft.
 Basin Len Lb =      60 ft.      Downst.cutoff Ld =        3 ft.
Still Bas. dep=    1.63 ft.      Head on Struc. H =     3.18 ft.
-----------------------------------------------------------------
                                 Creep Ratio, Cw =   14.95
=================================================================
```

NBS/Lowry Engineers & Planners	Date	12/01/90	
	Job No.	P81-194-016	
	By	FRY	
FCDMC - EAST FORK CAVE CREEK	RCE	21684	
CHANNEL DESIGN CALC'S	Chk'd		
	Filepath:	C:\WORKSHT\CHANNDES	

Vertical Drop: (ref. 8,15,16)		Net Drop=	3.82 ft.	3.83
Drop Station	=128+45	Upstream Channel:		D/S Channel:
Drop bot.wid. =	21 ft.	depth =	5.01 ft.	4.77
Drop height,h =	4.76 ft.	velocity=	2.43 ft./sec.	6.35
Design Disch. =	629 cfs			
Side Slope, z =	0 H: 1V			

Drop No. Dn =	0.282	Crit. Depth, Yc =	3.12 ft.
Drop Len. La =	19.70 ft.	Unit Disch., q =	31.27 cfs/ft
Pool Dep. dp =	3.60 ft.	Inlet Length Lu =	15.60 ft.
Nappe dep. d1 =	1.50 ft.	Froude No. =	3.000 (@ d1)
TW seq dep d2 =	5.61 ft.	Jump Type =	Oscillating
		Jump Length =	29.74 ft.
D/S cutoff dep=	2.8 ft.		
U/S cutoff Dep=	ft.	(per Weighted Creep analysis)	
Still Bas. dep=	0.84 ft.	(ref. 16,pg.116)	d2/6 = 0.94

Lane's Weighted Creep Ratio:

		Still Bas. Depth =	0.94 ft.
Inlet Len Lu =	65 ft.	Upst. cutoff Lc =	0 ft.
Drop Len. La =	20 ft.	Downst.cutoff Ld =	3 ft.
Basin Len Lb =	35 ft.	Head on Struc. H =	4.47 ft.

Creep Ratio, Cw = 11.4

```
NBS/Lowry Engineers & Planners    Date      12/01/90
                                  Job No.   P81-194-016
                                  By        FRY
FCDMC - EAST FORK CAVE CREEK      RCE       21684
CHANNEL DESIGN CALC'S             Chk'd     
                                  Filepath:C:\WORKSHT\CHANNDES
-------------------------------------------------------------------
Vertical Drop:  (ref. 8,15,16)    Net Drop=    4.29 ft.          3.83
Drop Station   =Utopia Channel    Upstream Channel:        D/S Channel:
Drop bot.wid. =       12 ft.        depth =     4.4 ft.           4.77
Drop height,h =     5.23 ft.      velocity=    4.62 ft./sec.      6.35
Design Disch. =      532 cfs
Side Slope, z =        3 H: 1V
-------------------------------------------------------------------
  Drop No. Dn =    0.153           Crit. Depth, Yc =    2.80 ft.
 Drop Len. La =    21.26 ft.        Unit Disch., q =   26.59 cfs/ft
 Pool Dep. dp =     3.46 ft.       Inlet Length Lu =   14.00 ft.
Nappe dep. dl =     1.27 ft.            Froude No. =   3.261 (@ dl)
TW seq dep d2 =     5.23 ft.             Jump Type = Oscillating
                                       Jump Length =   29.20 ft.
D/S cutoff dep=      2.6 ft.
U/S cutoff Dep=          ft. (per Weighted Creep analysis)
Still Bas. dep=     0.46 ft. (ref. 16,pg.116)          d2/6 =     0.87
-------------------------------------------------------------------

Lane's Weighted Creep Ratio:
                                  Still Bas. Depth =      0.94 ft.
 Inlet Len Lu =       14 ft.       Upst. cutoff Lc =         3 ft.
 Drop Len. La =       22 ft.      Downst.cutoff Ld =         3 ft.
 Basin Len Lb =       33 ft.      Head on Struc. H =      4.57 ft.
-------------------------------------------------------------------
                                   Creep Ratio, Cw =       8.8
===================================================================
```

```
NBS/Lowry Engineers & Planners     Date      12/01/90
                                   Job No.   P81-194-016
                                   By        FRY
FCDMC - EAST FORK CAVE CREEK       RCE       21684
CHANNEL DESIGN CALC'S              Chk'd     ________
                                   Filepath:C:\WORKSHT\CHANNDES
----------------------------------------------------------------
Vertical Drop:  (ref. 8,15,16)     Net Drop=    2.33 ft.        4.83
Drop Station  =133+40              Upstream Channel:     D/S Channel:
Drop bot.wid. =       16 ft.         depth =       4 ft.        4.83
Drop height,h =     2.33 ft.       velocity=    3.42 ft./sec.   4.44
Design Disch. =      629 cfs
Side Slope, z =        3 H: 1V
----------------------------------------------------------------
  Drop No. Dn =    2.092             Crit. Depth, Yc =    2.98 ft.
 Drop Len. La =    10.24 ft.         Unit Disch., q =    29.19 cfs/ft
  Pool Dep. dp =    2.74 ft.        Inlet Length Lu =    14.90 ft.
 Nappe dep. d1 =    1.72 ft.             Froude No. =    2.277 (@ d1)
 TW seq dep d2 =    4.72 ft.              Jump Type = Weak
                                        Jump Length =    22.94 ft.
D/S cutoff dep=      2.4 ft.
U/S cutoff Dep=          ft. (per Weighted Creep analysis)
Still Bas. dep=     0.00 ft. (ref. 16,pg.116)      d2/6 =    0.79
----------------------------------------------------------------

Lane's Weighted Creep Ratio:
                                    Still Bas. Depth =       0 ft.
  Inlet Len Lu =      15 ft.        Upst. cutoff Lc =      2.5 ft.
  Drop Len. La =      11 ft.        Downst.cutoff Ld =     2.5 ft.
  Basin Len Lb =      24 ft.        Head on Struc. H =    1.38 ft.
----------------------------------------------------------------
                                    Creep Ratio, Cw =    21.1
================================================================
```

```
NBS/Lowry Engineers & Planners   Date     12/01/90
                                 Job No.  P81-194-016
                                 By       FRY
FCDMC - EAST FORK CAVE CREEK     RCE      21684
CHANNEL DESIGN CALC'S            Chk'd    ________
                                 Filepath:C:\WORKSHT\CHANNDES
-----------------------------------------------------------------
Vertical Drop:  (ref. 8,15,16)   Net Drop=    2.33 ft.        3.87
Drop Station  =137+40            Upstream Channel:     D/S Channel:
Drop bot.wid. =       16 ft.       depth =    4.03 ft.        3.87
Drop height,h =     2.33 ft.     velocity=    3.27 ft./sec.   6.18
Design Disch. =      629 cfs
Side Slope, z =        3 H: 1V
-----------------------------------------------------------------
  Drop No. Dn =    2.092          Crit. Depth, Yc =    2.98 ft.
 Drop Len. La =    10.24 ft.       Unit Disch., q =   29.19 cfs/ft
 Pool Dep. dp =     2.74 ft.      Inlet Length Lu =   14.90 ft.
Nappe dep. d1 =     1.72 ft.           Froude No. =   2.277 (@ d1)
TW seq dep d2 =     4.72 ft.            Jump Type = Weak
                                      Jump Length =   22.94 ft.
D/S cutoff dep=      2.4 ft.
U/S cutoff Dep=          ft. (per Weighted Creep analysis)
Still Bas. dep=     0.85 ft. (ref. 16,pg.116)        d2/6 =    0.79
-----------------------------------------------------------------

Lane's Weighted Creep Ratio:
                                 Still Bas. Depth =       0 ft.
 Inlet Len Lu =      15 ft.      Upst. cutoff Lc =      2.5 ft.
 Drop Len. La =      11 ft.      Downst.cutoff Ld =     2.5 ft.
 Basin Len Lb =      24 ft.      Head on Struc. H =    2.06 ft.
-----------------------------------------------------------------
                                 Creep Ratio, Cw =    14.1
=================================================================
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NBS/Lowry Engineers & Planners

Date 12/01/90
Job No. P81-194-016
By FRY
RCE 21684
Chk'd
Filepath:C:\WORKSHT\CHANNDES

FCDMC - EAST FORK CAVE CREEK
CHANNEL DESIGN CALC'S

Vertical Drop:	(ref. 8,15,16)	Net Drop=	2.33 ft.	3.98
Drop Station	=143+40	Upstream Channel:		D/S Channel:
Drop bot.wid. =	16 ft.	depth =	4.06 ft.	3.98
Drop height,h =	2.33 ft.	velocity=	2.98 ft./sec.	5.89
Design Disch. =	629 cfs			
Side Slope, z =	3 H: 1V			

Drop No. Dn =	2.092	Crit. Depth, Yc =	2.98 ft.
Drop Len. La =	10.24 ft.	Unit Disch., q =	29.19 cfs/ft
Pool Dep. dp =	2.74 ft.	Inlet Length Lu =	14.90 ft.
Nappe dep. d1 =	1.72 ft.	Froude No. =	2.277 (@ d1)
TW seq dep d2 =	4.72 ft.	Jump Type =	Weak
		Jump Length =	22.94 ft.

D/S cutoff dep= 2.4 ft.
U/S cutoff Dep= ft. (per Weighted Creep analysis)
Still Bas. dep= 0.74 ft. (ref. 16,pg.116) d2/6 = 0.79

Lane's Weighted Creep Ratio:

		Still Bas. Depth =	0 ft.
Inlet Len Lu =	15 ft.	Upst. cutoff Lc =	2.5 ft.
Drop Len. La =	11 ft.	Downst.cutoff Ld =	2.5 ft.
Basin Len Lb =	24 ft.	Head on Struc. H =	2.01 ft.

Creep Ratio, Cw = 14.4

===

NBS/Lowry Engineers & Planners	Date 12/01/90
	Job No. P81-194-016
	By FRY
FCDMC - EAST FORK CAVE CREEK	RCE 21684
CHANNEL DESIGN CALC'S	Chk'd
	Filepath:C:\WORKSHT\CHANNDES

Vertical Drop:	(ref. 8,15,16)	Net Drop=	2.33 ft.	3.91
Drop Station	=148+60	Upstream Channel:		D/S Channel:
Drop bot.wid. =	16 ft.	depth =	4.01 ft.	3.91
Drop height,h =	2.33 ft.	velocity=	3.48 ft./sec.	6.08
Design Disch. =	629 cfs			
Side Slope, z =	3 H: 1V			

Drop No. Dn =	2.092	Crit. Depth, Yc =	2.98 ft.
Drop Len. La =	10.24 ft.	Unit Disch., q =	29.19 cfs/ft
Pool Dep. dp =	2.74 ft.	Inlet Length Lu =	14.90 ft.
Nappe dep. d1 =	1.72 ft.	Froude No. =	2.277 (@ d1)
TW seq dep d2 =	4.72 ft.	Jump Type =	Weak
		Jump Length =	22.94 ft.
D/S cutoff dep=	2.4 ft.		
U/S cutoff Dep=	ft. (per Weighted Creep analysis)		
Still Bas. dep=	0.81 ft. (ref. 16,pg.116)	d2/6 =	0.79

Lane's Weighted Creep Ratio:

		Still Bas. Depth =	0 ft.
Inlet Len Lu =	15 ft.	Upst. cutoff Lc =	2.5 ft.
Drop Len. La =	11 ft.	Downst.cutoff Ld =	2.5 ft.
Basin Len Lb =	24 ft.	Head on Struc. H =	2.04 ft.

Creep Ratio, Cw = 14.2

===

NBS/Lowry Engineers & Planners

FCDMC - EAST FORK CAVE CREEK
CHANNEL DESIGN CALC'S

Date 12/01/90
Job No. P81-194-016
By FRY
RCE 21684
Chk'd
Filepath:C:\WORKSHT\CHANNDES

Vertical Drop:	(ref. 8,15,16)	Net Drop=	2.33 ft.	4.14
Drop Station	=155+39.5	Upstream Channel:		D/S Channel:
Drop bot.wid. =	24 ft.	depth =	4 ft.	5.04
Drop height,h =	3.23 ft.	velocity=	9.6 ft./sec.	4.42
Design Disch. =	485 cfs			
Side Slope, z =	0 H: 1V			

Drop No. Dn =	0.380	Crit. Depth, Yc =	2.34 ft.
Drop Len. La =	13.49 ft.	Unit Disch., q =	20.31 cfs/ft
Pool Dep. dp =	2.61 ft.	Inlet Length Lu =	11.70 ft.
Nappe dep. d1 =	1.16 ft.	Froude No. =	2.878 (@ d1)
TW seq dep d2 =	4.13 ft.	Jump Type =	Oscillating
		Jump Length =	21.89 ft.

D/S cutoff dep= 2.1 ft.
U/S cutoff Dep= ft. (per Weighted Creep analysis)
Still Bas. dep= 0.00 ft. (ref. 16,pg.116) d2/6 = 0.69

Lane's Weighted Creep Ratio:

		Still Bas. Depth =	0.9 ft.
Inlet Len Lu =	135 ft.	Upst. cutoff Lc =	2.5 ft.
Drop Len. La =	14 ft.	Downst.cutoff Ld =	2.5 ft.
Basin Len Lb =	21 ft.	Head on Struc. H =	3.32 ft.

Creep Ratio, Cw = 21.1

```
*******************************************************          **************************************
* WATER SURFACE PROFILES                              *          * U.S. ARMY CORPS OF ENGINEERS
* VERSION OF SEPTEMBER 1988                           *          * THE HYDROLOGIC ENGINEERING CENTER
* ERROR: 01                                           *          * 609 SECOND STREET, SUITE D
* UPDATED: 16 FEBRUARY 1989                           *          * DAVIS, CALIFORNIA 95616
* RUN DATE    12/ 1/90    TIME     7:25:24            *          * (916) 756-1104
*******************************************************          **************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
```

END OF BANNER

THIS RUN EXECUTED 12/ 1/90 7:25:25

****

HEC2 RELEASE DATED SEPT 88

****

T1 FCDMC - East Fork Cave Creek Channel Design
T2 JOB NO: P81-194-016 FILENAME: EFCHANN.DAT
T3 EAST FORK CHANNEL 100 Year Peak Discharge

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		7			.005				1461.0	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	-1		-1							

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

38	14	1	8	26	68	67	5	42	3

NC	.04	.037	.037	.1	.3					
QT	6	50	100	200	400	800	1375			

Stations 8150 to 9850 from field surveyed cross-sections(Ambit Surveys)

X1	8150	8	970.1	1007.12						
GR	1456.0	950.44	1446.7	970.1	1447.5	976.6	1447.1	1000	1449.13	1007.12
GR	1449.5	1023.9	1450.77	1030.7	1451.2	1038.1				
X1	8250	8	971.9	1006.1	100	100	100			
GR	1457.2	948.8	1447.3	971.9	1447.9	977.9	1447.7	997.3	1449.6	1006.1
GR	1450.1	1025.0	1451.3	1031.3	1451.8	1038.1				
X1	8350	8	969.4	1007.4	100	100	100			
GR	1457.6	949.2	1448.7	969.4	1448.9	975.5	1448.3	1000	1450.4	1007.4
GR	1450.6	1023.4	1452.1	1032.9	1452.6	1038.3				
X1	8450	8	966.9	1004.9	100	100	100			
GR	1457.9	949.1	1449.1	966.9	1449.0	974.5	1449.36	1000	1451.2	1004.9
GR	1451.3	1025.9	1452.8	1030.7	1453.2	1038.5				
X1	8550	8	972.3	1005.7	100	100	100			
GR	1458.5	949.4	1449.6	972.3	1450.1	977.2	1450.0	999.6	1451.9	1005.7
GR	1452.1	1024.8	1453.6	1030.5	1453.9	1038.6				
X1	8650	8	968.6	1005.6	100	100	100			
GR	1458.0	950.5	1450.3	968.6	1450.6	977.3	1450.4	977.6	1452.4	1005.6
GR	1452.6	1024.4	1454.3	1030.7	1454.1	1037.1				

X1	8750	7	967.8	1005.8	100	100	100			
GR	1459.1	950.9	1450.8	967.8	1451.3	976.1	1451.2	1000	1453.1	1005.8
GR	1453.6	1024.9	1454.9	1030.3						
X1	8850	7	969.0	1005.7	100	100	100			
GR	1461.0	949.7	1451.0	969.0	1451.8	974.1	1452.6	1000	1453.7	1005.7
GR	1454.2	1023.9	1455.9	1033.9						
X1	8950	8	971.6	1005.5	100	100	100			
GR	1461.3	949.7	1451.9	971.6	1452.7	975.6	1452.6	1000	1454.5	1005.5
GR	1454.9	1022.0	1456.1	1030.7	1456.7	1038.8				
X1	9044.1	9	975.3	1008.7	94	94	94			
GR	1461.2	953.8	1452.5	975.3	1453.4	978.2	1453.3	1000	1453.4	1003.1
GR	1455.3	1008.7	1455.5	1028.3	1456.8	1033.2	1457.5	1042.7		
X1	9100	9	978.9	1012.9	56	56	56			
GR	1461.8	959.6	1453.1	978.9	1453.7	984.6	1453.7	1000	1453.8	1007.2
GR	1455.6	1012.9	1455.8	1031.6	1457.4	1039.0	1457.8	1047.6		
X1	9200	9	984.7	1021.5	100	100	100			
GR	1461.7	967.9	1453.9	984.7	1454.5	990.6	1454.2	1000	1454.5	1014.7
GR	1456.5	1021.5	1456.7	1040.7	1458.1	1047.2	1458.6	1054.5		
X1	9300	9	989.3	1025.6	100	100	100			
GR	1463.8	971.8	1454.8	989.3	1455.1	996.5	1454.9	1000	1455.2	1019.8
GR	1457.2	1025.6	1457.4	1045.2	1458.9	1051.8	1459.2	1059.2		
X1	9400	9	990.1	1027.7	100	100	100			
GR	1463.6	973.7	1456.1	990.1	1455.3	996.0	1456.0	1000	1456.2	1022.8
GR	1457.7	1027.7	1457.9	1048.2	1459.4	1054.2	1460.0	1061.4		
X1	9500	8	992.1	1026.7	100	100	100			
GR	1464.4	972.9	1456.6	992.1	1456.9	1000	1456.6	1020.8	1458.6	1026.7
GR	1458.6	1047.1	1460.3	1054.1	1460.6	1061.6				
X1	9603	8	992.0	1023.4	103	103	103			
GR	1465.4	970.7	1456.7	992.0	1457.9	1000	1457.3	1017.5	1459.3	1023.4
GR	1459.4	1044.0	1461.0	1050.7	1461.4	1061.3				
X1	9700	10	985.7	1023.4	97	97	97			
GR	1465.7	968.9	1457.7	985.7	1457.5	988.3	1458.0	992.5	1458.0	1000
GR	1458.2	1009.4	1457.5	1015.8	1459.6	1023.4	1459.7	1043.9	1461.2	1049.5
X1	9750	10	983.3	1021.3	50	50	50			
GR	1466.1	968.4	1458.1	983.3	1457.7	990.2	1458.4	994.7	1458.3	1000
GR	1458.0	1008.8	1457.5	1013.2	1459.9	1021.3	1460.0	1042.6	1461.8	1050.6

```
X1     9800          7      985.2     1032.7         50         50         50
GR   1466.0      968.5     1458.6      985.2     1458.0      990.1     1458.0     1023.7     1459.9     1032.7
GR   1460.0     1040.9     1462.0     1048.9

X1     9850          5      981.8     1065.3         50         50         50
GR   1466.2      967.5     1458.9      981.8     1458.2        983     1458.2       1035     1463.4     1065.3
    End  Ambit  Survey cross-sections

X1     9900          6        966       1064         50         50         50
GR     1464        966       1462      970.5       1460        976    1458.42     977.16    1458.42       1034
GR   1463.4       1064

NC      .04        .04        .04
X1     9950          4        956       1064         50         50         50
GR   1463.6        956    1458.63        971    1458.63       1034     1463.6       1064
    UNION HILLS ROAD     6 10'x4' RCBC's

X1   9991.3          4    966.791    1033.20       41.3       41.3       41.3
X3       10                                                                    1464.48    1464.48
GR   1462.8    966.791     1458.8    967.708     1458.8    1032.29     1462.8    1033.20

NC    0.012      0.012      0.012        0.3        0.5
X1   9992.3         26    966.791    1033.20          1          1          1
X2                                    1462.8    1464.48
GR   1462.8    966.791     1462.8    967.708     1458.8    967.708     1458.8    977.708     1462.8    977.708
GR   1462.8    978.625     1458.8    978.625     1458.8    988.625     1462.8    988.625     1462.8    989.541
GR   1458.8    989.541     1458.8    999.541     1462.8    999.541     1462.8    1000.45     1458.8    1000.45
GR   1458.8    1010.45     1462.8    1010.45     1462.8    1011.37     1458.8    1011.37     1458.8    1021.37
GR   1462.8    1021.37     1462.8    1022.29     1458.8    1022.29     1458.8    1032.29     1462.8    1032.29
GR   1462.8    1033.20

X1   10102.         26    966.791    1033.20        110        110        110
X2                                   1463.13    1464.48
GR   1463.1    966.791    1463.13    967.708    1459.13    967.708    1459.13    977.708    1463.13    977.708
GR   1463.1    978.625    1459.13    978.625    1459.13    988.625    1463.13    988.625    1463.13    989.541
GR   1459.1    989.541    1459.13    999.541    1463.13    999.541    1463.13    1000.45    1459.13    1000.45
GR   1459.1    1010.45    1463.13    1010.45    1463.13    1011.37    1459.13    1011.37    1459.13    1021.37
GR   1463.1    1021.37    1463.13    1022.29    1459.13    1022.29    1459.13    1032.29    1463.13    1032.29
GR   1463.1    1033.20

NC     0.04       0.04       0.04
X1   10103.          4    966.791    1033.20          1          1          1
X3       10                                                                    1464.48    1464.48
GR   1463.1    966.791    1459.13    967.708    1459.13    1032.29    1463.13    1033.20

X1    10125          5        950       1050         22         22         22
GR   1465.5     950.00    1459.94     960.00    1459.14    1000.00    1459.94    1040.00    1465.50    1050.00
```

NC	.017	.017	.017							
X1	10150	5	940.67	1059.33	25	25	25			
GR	1465.8	940.67	1459.95	960.00	1459.15	1000.00	1459.95	1040.00	1465.80	1059.33
X1	10175	5	931.33	1068.67	25	25	25			
GR	1466.0	931.33	1459.97	960.00	1459.17	1000.00	1459.97	1040.00	1466.10	1068.67
NC				.1	.3					
X1	10200	5	922	1078	25	25	25			
GR	1466.3	922.00	1459.98	960.00	1459.18	1000.00	1459.98	1040.00	1466.30	1078.00
X1	10225	5	921	1079	25	25	25			
GR	1466.5	921.00	1459.99	960.00	1459.19	1000.00	1459.99	1040.00	1466.50	1079.00
X1	10250	5	920	1080	25	25	25			
GR	1466.6	920.00	1460.00	960.00	1459.20	1000.00	1460.00	1040.00	1466.70	1080.00
X1	10275	5	919	1081	25	25	25			
GR	1466.8	919.00	1460.01	960.00	1459.22	1000.00	1460.01	1040.00	1466.90	1081.00
X1	10300	5	918	1082	25	25	25			
GR	1467.0	918.00	1460.03	960.00	1459.23	1000.00	1460.03	1040.00	1467.00	1082.00
X1	10325	5	917	1083	25	25	25			
GR	1467.2	917.00	1460.04	960.00	1459.24	1000.00	1460.04	1040.00	1467.20	1083.00
X1	10350	5	916	1084	25	25	25			
GR	1467.4	916.00	1460.05	960.00	1459.25	1000.00	1460.05	1040.00	1467.40	1084.00
X1	10375	5	915	1085	25	25	25			
GR	1467.5	915.00	1460.06	960.00	1459.26	1000.00	1460.06	1040.00	1467.60	1085.00
X1	10400	5	914	1086	25	25	25			
GR	1467.7	914.00	1460.08	960.00	1459.28	1000.00	1460.08	1040.00	1467.80	1086.00
X1	10425	5	913	1087	25	25	25			
GR	1467.9	913.00	1460.09	960.00	1459.29	1000.00	1460.09	1040.00	1467.90	1087.00
X1	10450	5	912	1088	25	25	25			
GR	1468.1	912.00	1460.10	960.00	1459.30	1000.00	1460.10	1040.00	1468.10	1088.00
X1	10475	5	911	1089	25	25	25			
GR	1468.3	911.00	1460.11	960.00	1459.31	1000.00	1460.11	1040.00	1468.30	1089.00
X1	10500	5	910	1090	25	25	25			
GR	1468.4	910.00	1460.13	960.00	1459.33	1000.00	1460.13	1040.00	1468.50	1090.00
X1	10525	5	909.25	1090.75	25	25	25			
GR	1468.8	909.25	1460.11	961.50	1459.34	1000.00	1460.11	1038.50	1468.80	1090.75

X1	10550	5	908.5	1091.5	25	25	25			
GR	1469.1	908.50	1460.09	963.00	1459.35	1000.00	1460.09	1037.00	1469.20	1091.50
X1	10575	5	907.75	1092.25	25	25	25			
GR	1469.5	907.75	1460.07	964.50	1459.36	1000.00	1460.07	1035.50	1469.60	1092.25
X1	10600	5	903	1093	25	25	25			
GR	1469.9	903.00	1460.14	962.00	1459.38	1000.00	1460.06	1034.00	1469.90	1093.00
X1	10625	5	913.51	1083.63	25	25	25			
GR	1470.2	913.51	1460.09	965.13	1459.39	1000.00	1460.03	1032.01	1470.20	1083.63
X1	10650	5	924.02	1074.25	25	25	25			
GR	1470.4	924.02	1460.04	968.25	1459.40	1000.00	1460.00	1030.02	1470.40	1074.25
X1	10675	5	934.53	1064.88	25	25	25			
GR	1470.7	934.53	1459.99	971.38	1459.41	1000.00	1459.97	1028.03	1470.70	1064.88
X1	10700	5	940.	1060.	25	25	25			
GR	1470.8	940.00	1459.97	973.00	1459.43	1000.00	1459.97	1027.00	1470.90	1060.00
X1	10725	5	940.	1060.	25	25	25			
GR	1470.8	940.00	1459.98	973.00	1459.44	1000.00	1459.98	1027.00	1470.90	1060.00
	DROP NO 1									
X1	10750	5	940.	1060	25	25	25			
GR	1470.5	940.00	1459.45	973.00	1459.45	1000.00	1459.45	1027.00	1470.50	1060.00
X1	10751	5	953.65	1046.35	.1	.1	.1			
GR	1470.5	953.65	1462.5	977.50	1462.5	1000.00	1462.5	1022.50	1470.50	1046.35
X1	10775	5	907	1093	25	25	25			
GR	1469.8	907.00	1463.64	944.00	1462.52	1000.00	1463.64	1056.00	1469.80	1093.00
X1	10800	5	907	1093	25	25	25			
GR	1469.9	907.00	1463.64	944.82	1462.53	1000.00	1463.64	1055.18	1470.00	1093.00
X1	10825	5	907	1093	25	25	25			
GR	1470.0	907.00	1463.63	945.65	1462.55	1000.00	1463.63	1054.35	1470.10	1093.00
X1	10850	5	907	1093	25	25	25			
GR	1470.2	907.00	1463.63	946.47	1462.56	1000.00	1463.63	1053.53	1470.20	1093.00
X1	10875	5	907	1093	25	25	25			
GR	1470.3	907.00	1463.62	947.29	1462.57	1000.00	1463.62	1052.71	1470.40	1093.00
X1	10900	5	907	1093	25	25	25			
GR	1470.4	907.00	1463.62	948.12	1462.58	1000.00	1463.62	1051.88	1470.50	1093.00

X1	10925	5	907	1093	25	25	25			
GR	1470.6	907.00	1463.61	948.94	1462.59	1000.00	1463.61	1051.06	1470.60	1093.00
X1	10950	5	907	1093	25	25	25			
GR	1470.7	907.00	1463.61	949.77	1462.60	1000.00	1463.61	1050.24	1470.80	1093.00
X1	10975	5	907	1093	25	25	25			
GR	1470.8	907.00	1463.60	950.59	1462.62	1000.00	1463.60	1049.41	1470.90	1093.00
X1	11000	5	907	1093	25	25	25			
GR	1471.0	907.00	1463.60	951.41	1462.63	1000.00	1463.60	1048.59	1471.00	1093.00
X1	11025	5	907	1093	25	25	25			
GR	1471.1	907.00	1463.60	952.23	1462.64	1000.00	1463.60	1047.76	1471.20	1093.00
X1	11050	5	907	1093	25	25	25			
GR	1471.2	907.00	1463.59	953.06	1462.65	1000.00	1463.59	1046.94	1471.30	1093.00
X1	11075	5	907	1093	25	25	25			
GR	1471.4	907.00	1463.59	953.88	1462.66	1000.00	1463.59	1046.12	1471.40	1093.00
X1	11100	5	907	1093	25	25	25			
GR	1471.5	907.00	1463.58	954.71	1462.68	1000.00	1463.58	1045.29	1471.50	1093.00
X1	11125	5	907	1093	25	25	25			
GR	1471.6	907.00	1463.58	955.53	1462.69	1000.00	1463.58	1044.47	1471.70	1093.00
X1	11150	5	907	1093	25	25	25			
GR	1471.8	907.00	1463.57	956.35	1462.70	1000.00	1463.57	1043.65	1471.80	1093.00
X1	11175	5	907	1093	25	25	25			
GR	1471.9	907.00	1463.57	957.18	1462.71	1000.00	1463.57	1042.82	1471.90	1093.00
NC				.3	.5					
X1	11200	5	907	1093	25	25	25			
GR	1472.0	907.00	1463.56	958.00	1462.72	1000.00	1463.56	1042.00	1472.10	1093.00
X1	11225	5	912.47	1092.19	25	25	25			
GR	1472.1	912.47	1463.56	958.57	1462.74	1000.00	1463.56	1041.43	1472.10	1092.19
X1	11250	5	916.48	1090.40	25	25	25			
GR	1472.2	916.48	1463.56	959.14	1462.75	1000.00	1463.56	1040.86	1472.20	1090.40
X1	11275	5	919.08	1087.59	25	25	25			
GR	1472.3	919.08	1463.56	959.71	1462.76	1000.00	1463.56	1040.29	1472.30	1087.59
X1	11300	5	920.29	1083.74	25	25	25			
GR	1472.4	920.29	1463.56	960.29	1462.77	1000.00	1463.56	1039.71	1472.30	1083.74

X1	11325	5	926.62	1078.8	25	25	25			
GR	1472.4	926.62	1463.57	960.86	1462.78	1000.00	1463.57	1039.14	1472.40	1078.80
X1	11350	5	931.53	1072.72	25	25	25			
GR	1472.5	931.53	1463.57	961.43	1462.79	1000.00	1463.57	1038.57	1472.50	1072.72
X1	11375	5	935	1065	25	25	25			
GR	1472.5	935.00	1463.57	962.00	1462.81	1000.00	1463.57	1038.00	1472.60	1065.00
X1	11400	5	935	1065	25	25	25			
GR	1472.5	935.00	1463.58	962.00	1462.82	1000.00	1463.58	1038.00	1472.60	1065.00
X1	11425	5	935	1065	25	25	25			
GR	1472.	935.00	1463.59	962.00	1462.83	1000.00	1463.59	1038.00	1472.60	1065.00
	SIESTA LANE		6 10'x4' RCBC's							
X1	11444.	5	935	1065	20.31	20.31	20.31			
X3	10							1472.6	1472.6	
GR	1471.9	935.00	1462.85	962.00	1462.85	1000.00	1462.85	1038.00	1471.85	1065.00
NC	0.012	0.012	0.012	0.3	0.5					
X1	11445.	26	966.791	1033.20	1	1	1			
X2				1469.9	1472.6					
GR	1469.9	966.791	1469.9	967.708	1465.9	967.708	1465.9	977.708	1469.9	977.708
GR	1469.9	978.625	1465.9	978.625	1465.9	988.625	1469.9	988.625	1469.9	989.541
GR	1465.9	989.541	1465.9	999.541	1469.9	999.541	1469.9	1000.45	1465.9	1000.45
GR	1465.9	1010.45	1469.9	1010.45	1469.9	1011.37	1465.9	1011.37	1465.9	1021.37
GR	1469.9	1021.37	1469.9	1022.29	1465.9	1022.29	1465.9	1032.29	1469.9	1032.29
GR	1469.9	1033.20								
X1	11505.	26	966.791	1033.20	60	60	60			
X2				1470.2	1472.6					
GR	1470.2	966.791	1470.2	967.708	1466.2	967.708	1466.2	977.708	1470.2	977.708
GR	1470.2	978.625	1466.2	978.625	1466.2	988.625	1470.2	988.625	1470.2	989.541
GR	1466.2	989.541	1466.2	999.541	1470.2	999.541	1470.2	1000.45	1466.2	1000.45
GR	1466.2	1010.45	1470.2	1010.45	1470.2	1011.37	1466.2	1011.37	1466.2	1021.37
GR	1470.2	1021.37	1470.2	1022.29	1466.2	1022.29	1466.2	1032.29	1470.2	1032.29
GR	1470.2	1033.20								
NC	0.017	0.017	0.017							
X1	11506	5	941	1059	1	1	1			
X3	10							1472.6	1472.6	
GR	1474.2	941.0	1466.2	965.0	1466.2	1000.0	1466.2	1035.0	1474.2	1059.0
X1	11525	5	931.7	1068.3	19.69	19.69	19.69			
GR	1475.1	931.7	1467.1	955.7	1466.2	1000.0	1467.1	1044.3	1475.1	1068.3
X1	11550	5	920	1080	25	25	25			
GR	1475.3	920.0	1467.3	944.0	1466.2	1000.0	1467.3	1056.0	1475.3	1080.0

X1	11575	5	913.5	1084.2	25	25	25			
GR	1475.0	913.5	1467.3	945.1	1466.2	1000.0	1467.3	1054.9	1475.0	1084.2
X1	11600	5	908.1	1089.9	25	25	25			
GR	1474.6	908.1	1467.3	946.2	1466.2	1000.0	1467.3	1053.8	1474.6	1089.9
NC				.1	.3					
X1	11625	5	905	1095	25	25	25			
GR	1474.4	905.0	1467.3	947.3	1466.3	1000.0	1467.3	1052.7	1474.4	1095.0
X1	11650	5	905	1095	25	25	25			
GR	1474.5	905.0	1467.3	948.2	1466.3	1000.0	1467.3	1051.8	1474.5	1095.0
X1	11675	5	905	1095	25	25	25			
GR	1474.7	905.0	1467.3	949.1	1466.3	1000.0	1467.3	1050.9	1474.7	1095.0
X1	11700	5	905	1095	25	25	25			
GR	1474.8	905.0	1467.3	950.0	1466.3	1000.0	1467.3	1050.0	1474.8	1095.0
X1	11725	5	905.3	1094.7	25	25	25			
GR	1474.9	905.3	1467.3	950.9	1466.3	1000.0	1467.3	1049.1	1474.9	1094.7
X1	11750	5	905.6	1094.4	25	25	25			
GR	1475.0	905.6	1467.3	951.9	1466.3	1000.0	1467.3	1048.1	1475.0	1094.4
X1	11775	5	905.9	1094.1	25	25	25			
GR	1475.1	905.9	1467.3	952.8	1466.3	1000.0	1467.3	1047.2	1475.1	1094.1
X1	11800	5	906.2	1093.8	25	25	25			
GR	1475.2	906.2	1467.3	953.7	1466.3	1000.0	1467.3	1046.3	1475.2	1093.8
X1	11825	5	906.5	1093.5	25	25	25			
GR	1475.3	906.5	1467.3	954.7	1466.4	1000.0	1467.3	1045.3	1475.3	1093.5
NC	.04									
X1	11850	5	955.6	1093.3	25	25	25			
GR	1475.4	906.7	1467.3	955.6	1466.4	1000.0	1467.3	1044.4	1475.4	1093.3
X1	11875	5	956.5	1093	25	25	25			
GR	1475.5	907.0	1467.3	956.5	1466.4	1000.0	1467.3	1043.5	1475.5	1093.0
X1	11900	5	957.4	1092.7	25	25	25			
GR	1475.6	907.3	1467.3	957.4	1466.4	1000.0	1467.3	1042.6	1475.6	1092.7
X1	11925	5	958.4	1092.4	25	25	25			
GR	1475.7	907.6	1467.2	958.4	1466.4	1000.0	1467.2	1041.6	1475.7	1092.4
X1	11950	5	959.3	1092.1	25	25	25			
GR	1475.8	907.9	1467.2	959.3	1466.4	1000.0	1467.2	1040.7	1475.8	1092.1

X1	11975	5	960.2	1091.8	25	25	25			
GR	1475.9	908.2	1467.2	960.2	1466.4	1000.0	1467.2	1039.8	1475.9	1091.8
NC				.3	.5					
X1	12000	5	961.2	1091.5	25	25	25			
GR	1476.0	908.5	1467.2	961.2	1466.4	1000.0	1467.2	1038.8	1476.0	1091.5
X1	12025	5	962.1	1091.2	25	25	25			
GR	1476.1	908.8	1467.2	962.1	1466.5	1000.0	1467.2	1037.9	1476.1	1091.2
X1	12050	5	963.0	1090.9	25	25	25			
GR	1476.2	909.1	1467.2	963.0	1466.5	1000.0	1467.2	1037.0	1476.2	1090.9
X1	12075	5	964.0	1090.6	25	25	25			
GR	1476.3	909.4	1467.2	964.0	1466.5	1000.0	1467.2	1036.0	1476.3	1090.6
X1	12100	5	964.9	1090.3	25	25	25			
GR	1476.4	909.7	1467.2	964.9	1466.5	1000.0	1467.2	1035.1	1476.4	1090.3
NC	.04	.04	.04							
X1	12125	5	909.9	1090.1	25	25	25			
GR	1476.5	909.9	1467.2	965.8	1466.5	1000.0	1467.2	1034.2	1476.5	1090.1
X1	12150	5	936	1064	25	25	25			
GR	1477.2	936.0	1467.2	966.0	1466.5	1000.0	1467.2	1034.0	1477.2	1064.0
X1	12164	5	943.5	1056.5	14	14	14			
GR	1476.9	943.5	1467.1	973.0	1466.5	1000.0	1467.1	1027	1476.9	1056.5
	"B" Street		5 10'x10' RCBC's							
NC				0.3	0.5					
X1	12176	4	972.25	1027.75	12	12	12			
X3	10							1476.07	1476.07	
GR	1474.9	972.25	1464.9	973.166	1464.9	1026.83	1474.9	1027.75		
NC	0.012	0.012	0.012	0.3	0.5					
X1	12177	22	972.25	1027.75	1	1	1			
X2				1474.9	1476.07					
GR	1474.9	972.25	1474.9	973.166	1464.9	973.166	1464.9	983.166	1474.9	983.166
GR	1474.9	984.083	1464.9	984.083	1464.9	994.083	1474.9	994.083	1474.9	995
GR	1464.9	995	1464.9	1005	1474.9	1005	1474.9	1005.91	1464.9	1005.91
GR	1464.9	1015.91	1474.9	1015.91	1474.9	1016.83	1464.9	1016.83	1464.9	1026.83
GR	1474.9	1026.83	1474.9	1027.75						
X1	12237	22	972.25	1027.75	60	60	60			
X2				1475.2	1476.07					
GR	1475.2	972.25	1475.2	973.166	1465.2	973.166	1465.2	983.166	1475.2	983.166
GR	1475.2	984.083	1465.2	984.083	1465.2	994.083	1475.2	994.083	1475.2	995
GR	1465.2	995	1465.2	1005	1475.2	1005	1475.2	1005.91	1465.2	1005.91
GR	1465.2	1015.91	1475.2	1015.91	1475.2	1016.83	1465.2	1016.83	1465.2	1026.83
GR	1475.2	1026.83	1475.2	1027.75						

NC	0.017	0.017	0.017							
X1	12238	4	972.25	1027.75	.1	.1	.1			
X3	10							1476.07	1476.07	
GR	1475.2	972.25	1465.2	973.166	1465.2	1026.83	1475.2	1027.75		
X1	12267	4	951.2	1048.8	30	30	30			
GR	1477.5	951.2	1470.2	973	1470.2	1027	1477.5	1048.8		
X1	12295	5	909.2	0 1090.8	28	28	28			
GR	1477.6	909.2	1471.3	947	1470.2	1000.0	1471.3	1053.0	1477.6	1090.8
X1	12325	5	905	1095	30	30	30			
GR	1478.4	905.0	1471.3	947.6	1470.2	1000.0	1471.3	1052.4	1478.4	1095.0
X1	12350	5	905	1095	25	25	25			
GR	1478.5	905.0	1471.3	948.3	1470.3	1000.0	1471.3	1051.7	1478.5	1095.0
X1	12375	5	905	1095	25	25	25			
GR	1478.6	905.0	1471.3	949.0	1470.3	1000.0	1471.3	1051.0	1478.6	1095.0
X1	12400	5	905	1095	25	25	25			
GR	1478.7	905.0	1471.3	949.6	1470.3	1000.0	1471.3	1050.4	1478.7	1095.0
X1	12425	5	905	1095	25	25	25			
GR	1478.9	905.0	1471.3	950.3	1470.3	1000.0	1471.3	1049.7	1478.9	1095.0
X1	12450	5	905	1095	25	25	25			
GR	1479.0	905.0	1471.3	951.0	1470.3	1000.0	1471.3	1049.0	1479.0	1095.0
X1	12475	5	905	1095	25	25	25			
GR	1479.1	905.0	1471.3	951.6	1470.3	1000.0	1471.3	1048.4	1479.1	1095.0
X1	12500	5	905	1095	25	25	25			
GR	1479.2	905.0	1471.3	952.3	1470.3	1000.0	1471.3	1047.7	1479.2	1095.0
X1	12525	5	905	1095	25	25	25			
GR	1479.3	905.0	1471.3	953.0	1470.3	1000.0	1471.3	1047.0	1479.3	1095.0
X1	12550	5	905	1095	25	25	25			
GR	1479.4	905.0	1471.3	953.7	1470.4	1000.0	1471.3	1046.3	1479.4	1095.0
X1	12575	5	905	1095	25	25	25			
GR	1479.5	905.0	1471.3	954.3	1470.4	1000.0	1471.3	1045.7	1479.5	1095.0
X1	12600	5	905	1095	25	25	25			
GR	1479.6	905.0	1471.3	955.0	1470.4	1000.0	1471.3	1045.0	1479.6	1095.0
X1	12625	5	905	1095	25	25	25			
GR	1479.8	905.0	1471.3	956.3	1470.4	1000.0	1471.3	1043.8	1479.8	1095.0

X1	12650	5	905	1095	25	25	25			
GR	1480.0	905.0	1471.3	957.5	1470.4	1000.0	1471.3	1042.5	1480.0	1095.0
X1	12675	5	905	1095	25	25	25			
GR	1480.2	905.0	1471.2	958.8	1470.4	1000.0	1471.2	1041.3	1480.2	1095.0
X1	12700	5	905	1095	25	25	25			
GR	1480.4	905.0	1471.2	960.0	1470.4	1000.0	1471.2	1040.0	1480.4	1095.0
NC				.3	.5					
X1	12725	5	924	1076.3	25	25	25			
GR	1478.7	924.0	1471.1	965.0	1470.4	1000.0	1471.1	1035.0	1478.9	1076.3
X1	12750	5	942	1058	25	25	25			
GR	1477.3	942.0	1471.1	970.0	1470.5	1000.0	1471.1	1030.0	1477.3	1058.0
X1	12775	5	943.9	1052.5	25	25	25			
GR	1479.7	943.9	1471.0	975.0	1470.5	1000.0	1471.0	1025.0	1479.8	1052.5
X1	12800	5	947.8	1050.1	25	25	25			
GR	1482.3	947.8	1470.9	980.0	1470.5	1000.0	1470.9	1020.0	1482.4	1050.1
X1	12825	5	950	1050	25	25	25			
GR	1483.4	950.0	1470.7	988.0	1470.5	1000.0	1470.7	1012.0	1483.4	1050.0
	UTOPIA ROAD		2 10'x5' RCBC's							
X1	12845	5	950	1050	21.42	21.42	21.42			
X3	10							1482.27	1482.27	
GR	1483.2	950.0	1470.5	988.0	1470.5	1000.0	1470.5	1012.0	1483.2	1050.0
QT	6	25	50	100	200	400	629			
NC	0.012	0.012	0.012	0.3	0.5					
X1	12846.	10	988.625	1011.37	1	1	1			
X2				1479.33	1482.27					
GR	1479.3	988.625	1479.33	989.541	1474.33	989.541	1474.33	999.541	1479.33	999.541
GR	1479.3	1000.45	1474.33	1000.45	1474.33	1010.45	1479.33	1010.45	1479.33	1011.37
X1	12911.	10	988.625	1011.37	65	65	65			
X2				1479.65	1482.27					
GR	1479.6	988.625	1479.65	989.541	1474.65	989.541	1474.65	999.541	1479.65	999.541
GR	1479.6	1000.45	1474.65	1000.45	1474.65	1010.45	1479.65	1010.45	1479.65	1011.37
NC	0.017	0.017	0.017							
X1	12912.	4	988.625	1011.37	1	1	1			
X3	10							1482.27	1482.27	
GR	1479.6	988.625	1474.65	989.541	1474.65	1010.45	1479.65	1011.37		
X1	12925	5	954.5	1045.5	13.48	13.48	13.48			
GR	1481.1	954.5	1474.9	985.4	1474.7	1000.0	1474.9	1014.6	1481.1	1045.5

NC				.1	.3					
X1	12950	5	954.5	1045.5	25	25	25			
GR	1481.3	954.5	1474.9	986.1	1474.7	1000.0	1474.9	1013.9	1481.3	1045.5
X1	12975	5	954.5	1045.5	25	25	25			
GR	1481.4	954.5	1474.9	986.8	1474.7	1000.0	1474.9	1013.2	1481.4	1045.5
X1	13000	5	954.5	1045.5	25	25	25			
GR	1481.5	954.5	1474.9	987.5	1474.7	1000.0	1474.9	1012.5	1481.5	1045.5
X1	13025	5	954.5	1045.5	25	25	25			
GR	1481.7	954.5	1474.9	988.2	1474.7	1000.0	1474.9	1011.8	1481.7	1045.5
X1	13050	5	954.5	1045.5	25	25	25			
GR	1481.8	954.5	1474.9	988.9	1474.7	1000.0	1474.9	1011.1	1481.8	1045.5
X1	13075	5	954.5	1045.5	25	25	25			
GR	1482.0	954.5	1474.9	989.6	1474.7	1000.0	1474.9	1010.4	1482.0	1045.5
X1	13100	5	954.5	1045.5	25	25	25			
GR	1482.1	954.5	1474.9	990.3	1474.7	1000.0	1474.9	1009.7	1482.1	1045.5
X1	13125	5	954.5	1045.5	25	25	25			
GR	1482.2	954.5	1474.9	991.0	1474.8	1000.0	1474.9	1009.0	1482.2	1045.5
X1	13150	5	954.5	1045.5	25	25	25			
GR	1482.4	954.5	1474.9	991.8	1474.8	1000.0	1474.9	1008.3	1482.4	1045.5
X1	13175	5	954.5	1045.5	25	25	25			
GR	1482.5	954.5	1474.9	992.5	1474.8	1000.0	1474.9	1007.5	1482.5	1045.5
X1	13200	5	954.5	1045.5	25	25	25			
GR	1482.7	954.5	1474.9	993.2	1474.8	1000.0	1474.9	1006.8	1482.7	1045.5
X1	13225	5	954.5	1045.5	25	25	25			
GR	1482.8	954.5	1474.9	993.9	1474.8	1000.0	1474.9	1006.1	1482.8	1045.5
X1	13250	5	954.5	1045.5	25	25	25			
GR	1482.9	954.5	1474.9	994.6	1474.8	1000.0	1474.9	1005.4	1482.9	1045.5

DROP STRUCTURE STA: 133+40

X1	13268	5	954.5	1045.5	18	18	18			
GR	1483.0	954.5	1474.93	995	1474.83	1000	1474.93	1005	1483.03	1045.5
X1	13305	5	966.8	1033.2	37.5	37.5	37.5			
GR	1483.4	966.8	1475.00	992	1474.84	1000	1475.00	1008	1483.40	1033.2
X1	13340	4	966.8	1033.2	35	35	35			
GR	1483.4	966.8	1474.86	992	1474.86	1008	1483.40	1033.2		

X1	13341	4	973.8	1026.2	0.1	0.1	0.1			
GR	1483.2	973.8	1477.19	992	1477.19	1008	1483.26	1026.2		
X1	13355	5	954.5	1045.5	15	15	15			
GR	1483.6	954.5	1477.50	985	1477.20	1000	1477.50	1015	1483.6	1045.5
X1	13375	5	954.5	1045.5	20	20	20			
GR	1483.9	954.5	1477.5	986.8	1477.2	1000.0	1477.5	1013.2	1483.9	1045.5
X1	13400	5	954.6	1045.4	25	25	25			
GR	1484.1	954.6	1477.5	987.6	1477.2	1000.0	1477.5	1012.4	1484.1	1045.4
X1	13425	5	954.6	1045.4	25	25	25			
GR	1484.2	954.6	1477.5	988.3	1477.2	1000.0	1477.5	1011.7	1484.2	1045.4
X1	13450	5	954.6	1045.4	25	25	25			
GR	1484.3	954.6	1477.5	989.1	1477.2	1000.0	1477.5	1010.9	1484.3	1045.4
X1	13475	5	954.7	1045.3	25	25	25			
GR	1484.5	954.7	1477.5	989.8	1477.3	1000.0	1477.5	1010.2	1484.5	1045.3
X1	13500	5	954.7	1045.3	25	25	25			
GR	1484.6	954.7	1477.5	990.5	1477.3	1000.0	1477.5	1009.5	1484.6	1045.3
X1	13525	5	954.8	1045.2	25	25	25			
GR	1484.8	954.8	1477.5	991.3	1477.3	1000.0	1477.5	1008.7	1484.8	1045.2
X1	13550	5	954.8	1045.2	25	25	25			
GR	1484.9	954.8	1477.5	992.0	1477.3	1000.0	1477.5	1008.0	1484.9	1045.2
X1	13575	5	954.8	1045.2	25	25	25			
GR	1485.0	954.8	1477.5	992.8	1477.3	1000.0	1477.5	1007.2	1485.0	1045.2
X1	13600	5	954.9	1045.1	25	25	25			
GR	1485.2	954.9	1477.4	993.5	1477.3	1000.0	1477.4	1006.5	1485.2	1045.1
X1	13625	5	954.9	1045.1	25	25	25			
GR	1485.3	954.9	1477.4	994.3	1477.3	1000.0	1477.4	1005.7	1485.3	1045.1
X1	13650	5	954.9	1045.1	25	25	25			
GR	1485.5	954.9	1477.4	995.0	1477.3	1000.0	1477.4	1005.0	1485.5	1045.1
DROP STRUCTURE	STA: 137+40									
X1	13668	5	954.5	1045.5	18	18	18			
GR	1485.5	954.5	1477.45	995	1477.35	1000	1477.45	1005	1485.55	1045.5
X1	13705	5	966.8	1033.2	37.5	37.5	37.5			
GR	1485.9	966.8	1477.53	992	1477.37	1000	1477.53	1008	1485.93	1033.2

X1	13740	4	966.8	1033.2	35	35	35				
GR	1485.9	966.8	1477.39	992	1477.39	1008	1485.93	1033.2			
X1	13741	4	973.8	1026.2	0.1	0.1	0.1				
GR	1485.7	973.8	1479.72	992	1479.72	1008	1485.78	1026.2			
X1	13755	5	954.5	1045.5	15	15	15				
GR	1485.9	954.5	1480.04	984	1479.72	1000	1480.04	1016	1485.94	1045.5	
X1	13775	5	954.5	1045.5	20	20	20				
GR	1486.5	954.5	1480.0	986.8	1479.7	1000.0	1480.0	1013.2	1486.5	1045.5	
X1	13800	5	954.5	1045.5	25	25	25				
GR	1486.6	954.5	1480.0	987.3	1479.8	1000.0	1480.0	1012.7	1486.6	1045.5	
X1	13825	5	954.5	1045.5	25	25	25				
GR	1486.6	954.5	1480.0	987.7	1479.8	1000.0	1480.0	1012.3	1486.6	1045.5	
X1	13850	5	954.5	1045.5	25	25	25				
GR	1486.7	954.5	1480.0	988.2	1479.8	1000.0	1480.0	1011.8	1486.7	1045.5	
X1	13875	5	954.6	1045.4	25	25	25				
GR	1486.8	954.6	1480.0	988.7	1479.8	1000.0	1480.0	1011.3	1486.8	1045.4	
X1	13900	5	954.6	1045.4	25	25	25				
GR	1486.9	954.6	1480.0	989.1	1479.8	1000.0	1480.0	1010.9	1486.9	1045.4	
X1	13925	5	954.6	1045.4	25	25	25				
GR	1487.0	954.6	1480.0	989.6	1479.8	1000.0	1480.0	1010.4	1487.0	1045.4	
X1	13950	5	954.6	1045.4	25	25	25				
GR	1487.1	954.6	1480.0	990.0	1479.8	1000.0	1480.0	1010.0	1487.1	1045.4	
X1	13975	5	954.6	1045.4	25	25	25				
GR	1487.2	954.6	1480.0	990.5	1479.8	1000.0	1480.0	1009.5	1487.2	1045.4	
X1	14000	5	954.6	1045.4	25	25	25				
GR	1487.3	954.6	1480.0	991.0	1479.8	1000.0	1480.0	1009.0	1487.3	1045.4	
X1	14025	5	954.6	1045.4	25	25	25				
GR	1487.4	954.6	1480.0	991.4	1479.9	1000.0	1480.0	1008.6	1487.4	1045.4	
X1	14050	5	954.6	1045.4	25	25	25				
GR	1487.5	954.6	1480.0	991.9	1479.9	1000.0	1480.0	1008.1	1487.5	1045.4	
X1	14075	5	954.6	1045.4	25	25	25				
GR	1487.6	954.6	1480.0	992.3	1479.9	1000.0	1480.0	1007.7	1487.6	1045.4	

X1	14100	5	954.7	1045.3	25	25	25			
GR	1487.7	954.7	1480.0	992.8	1479.9	1000.0	1480.0	1007.2	1487.7	1045.3
X1	14125	5	954.7	1045.3	25	25	25			
GR	1487.8	954.7	1480.0	993.3	1479.9	1000.0	1480.0	1006.7	1487.8	1045.3
X1	14150	5	954.7	1045.3	25	25	25			
GR	1487.9	954.7	1480.1	993.7	1479.9	1000.0	1480.1	1006.3	1487.9	1045.3
X1	14175	5	954.7	1045.3	25	25	25			
GR	1488.0	954.7	1480.1	994.2	1479.9	1000.0	1480.1	1005.8	1488.0	1045.3
X1	14200	5	954.7	1045.3	25	25	25			
GR	1488.0	954.7	1480.1	994.7	1479.9	1000.0	1480.1	1005.3	1488.0	1045.3
X1	14225	5	954.7	1045.3	25	25	25			
GR	1488.1	954.7	1480.1	995.1	1480.0	1000.0	1480.1	1004.9	1488.1	1045.3
X1	14250	5	954.7	1045.3	25	25	25			
GR	1488.2	954.7	1480.1	995.6	1480.0	1000.0	1480.1	1004.4	1488.2	1045.3
DROP STRUCTURE	STA: 143+40									
X1	14268	5	954.5	1045.5	18	18	18			
GR	1488.3	954.5	1480.06	995.75	1479.98	1000	1480.06	1004.25	1488.31	1045.5
X1	14305	5	966.8	1033.2	37.5	37.5	37.5			
GR	1488.5	966.8	1480.16	992	1480.00	1000	1480.16	1008	1488.56	1033.2
X1	14340	4	966.8	1033.2	35	35	35			
GR	1488.5	966.8	1480.02	992	1480.02	1008	1488.56	1033.2		
X1	14341	4	973.8	1026.2	0.1	0.1	0.1			
GR	1488.4	973.8	1482.35	992	1482.35	1008	1488.41	1026.2		
X1	14355	5	954.5	1045.5	15	15	15			
GR	1488.1	954.5	1482.72	981.5	1482.35	1000	1482.72	1018.5	1488.12	1045.5
X1	14375	5	954.5	1045.5	20	20	20			
GR	1488.3	954.5	1482.7	982.2	1482.4	1000.0	1482.7	1017.8	1488.3	1045.5
X1	14400	5	954.5	1045.5	25	25	25			
GR	1488.4	954.5	1482.7	983.1	1482.4	1000.0	1482.7	1016.9	1488.4	1045.5
X1	14425	5	954.5	1045.5	25	25	25			
GR	1488.6	954.5	1482.7	983.9	1482.4	1000.0	1482.7	1016.1	1488.6	1045.5
X1	14450	5	954.5	1045.5	25	25	25			
GR	1488.8	954.5	1482.7	984.7	1482.4	1000.0	1482.7	1015.3	1488.8	1045.5

X1	14475	5	954.5	1045.5	25	25	25			
GR	1488.9	954.5	1482.7	985.6	1482.4	1000.0	1482.7	1014.4	1488.9	1045.5
X1	14500	5	954.5	1045.5	25	25	25			
GR	1489.1	954.5	1482.7	986.4	1482.4	1000.0	1482.7	1013.6	1489.1	1045.5
X1	14525	5	954.5	1045.5	25	25	25			
GR	1489.3	954.5	1482.7	987.3	1482.4	1000.0	1482.7	1012.7	1489.3	1045.5
X1	14550	5	954.5	1045.5	25	25	25			
GR	1489.4	954.5	1482.7	988.1	1482.5	1000.0	1482.7	1011.9	1489.4	1045.5
X1	14575	5	954.5	1045.5	25	25	25			
GR	1489.6	954.5	1482.7	988.9	1482.5	1000.0	1482.7	1011.1	1489.6	1045.5
X1	14600	5	954.5	1045.5	25	25	25			
GR	1489.7	954.5	1482.7	989.8	1482.5	1000.0	1482.7	1010.2	1489.7	1045.5
X1	14625	5	954.5	1045.5	25	25	25			
GR	1489.9	954.5	1482.7	990.6	1482.5	1000.0	1482.7	1009.4	1489.9	1045.5
X1	14650	5	954.5	1045.5	25	25	25			
GR	1490.1	954.5	1482.7	991.5	1482.5	1000.0	1482.7	1008.5	1490.1	1045.5
X1	14675	5	954.5	1045.5	25	25	25			
GR	1490.2	954.5	1482.7	992.3	1482.5	1000.0	1482.7	1007.7	1490.2	1045.5
X1	14700	5	954.5	1045.5	25	25	25			
GR	1490.4	954.5	1482.7	993.1	1482.5	1000.0	1482.7	1006.9	1490.4	1045.5
X1	14725	5	954.5	1045.5	25	25	25			
GR	1490.6	954.5	1482.7	994.0	1482.5	1000.0	1482.7	1006.0	1490.6	1045.5
X1	14750	5	954.5	1045.5	25	25	25			
GR	1490.7	954.5	1482.7	994.8	1482.6	1000.0	1482.7	1005.2	1490.7	1045.5
X1	14775	5	954.5	1045.5	25	25	25			
GR	1490.9	954.5	1482.7	995.7	1482.6	1000.0	1482.7	1004.3	1490.9	1045.5
DROP STRUCTURE STA: 148+60										
X1	14788	5	954.5	1045.5	13	13	13			
GR	1490.9	954.5	1482.65	996	1482.57	1000	1482.65	1004	1490.95	1045.5
X1	14825	5	966.8	1033.2	37.5	37.5	37.5			
GR	1491.1	966.8	1482.75	992	1482.59	1000	1482.75	1008	1491.15	1033.2
X1	14860	4	966.8	1033.2	35	35	35			
GR	1491.1	966.8	1482.61	992	1482.61	1008	1491.15	1033.2		

X1	14861	4	973.8	1026.2	0.1	0.1	0.1			
GR	1491.0	973.8	1484.94	992	1484.94	1008	1491.00	1026.2		
X1	14875	5	954.5	1045.5	15	15	15			
GR	1491.4	954.5	1485.23	985.5	1484.94	1000	1485.23	1014.5	1491.43	1045.5
X1	14900	5	954.5	1045.5	25	25	25			
GR	1491.5	954.5	1485.2	986.0	1485.0	1000.0	1485.2	1014.0	1491.5	1045.5
X1	14925	5	954.5	1045.5	25	25	25			
GR	1491.6	954.5	1485.2	986.4	1485.0	1000.0	1485.2	1013.6	1491.6	1045.5
X1	14950	5	954.5	1045.5	25	25	25			
GR	1491.7	954.5	1485.2	986.8	1485.0	1000.0	1485.2	1013.2	1491.7	1045.5
X1	14975	5	954.5	1045.5	25	25	25			
GR	1491.8	954.5	1485.3	987.2	1485.0	1000.0	1485.3	1012.8	1491.8	1045.5
X1	15000	5	954.5	1045.5	25	25	25			
GR	1491.9	954.5	1485.3	987.6	1485.0	1000.0	1485.3	1012.4	1491.9	1045.5
X1	15025	5	954.5	1045.5	25	25	25			
GR	1492.0	954.5	1485.3	987.9	1485.0	1000.0	1485.3	1012.1	1492.0	1045.5
X1	15050	5	954.5	1045.5	25	25	25			
GR	1492.0	954.5	1485.3	988.3	1485.0	1000.0	1485.3	1011.7	1492.0	1045.5
X1	15075	5	954.5	1045.5	25	25	25			
GR	1492.1	954.5	1485.3	988.7	1485.0	1000.0	1485.3	1011.3	1492.1	1045.5
X1	15100	5	954.5	1045.5	25	25	25			
GR	1492.2	954.5	1485.3	989.1	1485.1	1000.0	1485.3	1010.9	1492.2	1045.5
X1	15125	5	954.5	1045.5	25	25	25			
GR	1492.3	954.5	1485.3	989.5	1485.1	1000.0	1485.3	1010.5	1492.3	1045.5
X1	15150	5	954.5	1045.5	25	25	25			
GR	1492.4	954.5	1485.3	989.8	1485.1	1000.0	1485.3	1010.2	1492.4	1045.5
X1	15175	5	954.5	1045.5	25	25	25			
GR	1492.4	954.5	1485.3	990.2	1485.1	1000.0	1485.3	1009.8	1492.4	1045.5
X1	15200	5	954.5	1045.5	25	25	25			
GR	1492.5	954.5	1485.3	990.6	1485.1	1000.0	1485.3	1009.4	1492.5	1045.5
X1	15225	5	954.5	1045.5	25	25	25			
GR	1492.6	954.5	1485.3	991.0	1485.1	1000.0	1485.3	1009.0	1492.6	1045.5

X1	15250	5	954.5	1045.5	25	25	25			
GR	1492.7	954.5	1485.3	991.4	1485.1	1000.0	1485.3	1008.6	1492.7	1045.5
X1	15275	5	954.5	1045.5	25	25	25			
GR	1492.8	954.5	1485.3	991.7	1485.2	1000.0	1485.3	1008.3	1492.8	1045.5
X1	15300	5	954.5	1045.5	25	25	25			
GR	1492.8	954.5	1485.3	992.1	1485.2	1000.0	1485.3	1007.9	1492.8	1045.5
X1	15325	5	954.5	1045.5	25	25	25			
GR	1492.9	954.5	1485.3	992.5	1485.2	1000.0	1485.3	1007.5	1492.9	1045.5
X1	15350	5	954.5	1045.5	25	25	25			
GR	1493.0	954.5	1485.3	992.9	1485.2	1000.0	1485.3	1007.1	1493.0	1045.5
X1	15375	5	954.5	1045.5	25	25	25			
GR	1493.1	954.5	1485.3	993.3	1485.2	1000.0	1485.3	1006.7	1493.1	1045.5
X1	15400	5	954.5	1045.5	25	25	25			
GR	1493.2	954.5	1485.3	993.6	1485.2	1000.0	1485.3	1006.4	1493.2	1045.5
X1	15425	5	954.5	1045.5	25	25	25			
GR	1493.2	954.5	1485.3	994.0	1485.2	1000.0	1485.3	1006.0	1493.2	1045.5
X1	15450	5	954.5	1045.5	25	25	25			
GR	1493.3	954.5	1485.3	994.4	1485.2	1000.0	1485.3	1005.6	1493.3	1045.5
X1	15468	5	954.5	1045.5	18	18	18			
GR	1493.4	954.5	1485.3	995	1485.24	1000	1485.3	1005	1493.4	1045.5
X1	15505	5	964	1036	37.5	37.5	37.5			
GR	1493.5	964	1485.5	988	1485.26	1000	1485.5	1012	1493.5	1036
X1	15540	4	964	1036	35	35	35			
GR	1493.3	964	1485.28	988	1485.28	1012	1493.3	1036		

BEARDSLEY ROAD CULVERTS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 1

CCHV= .100 CEHV= .300

*SECNO 8150.000

3280 CROSS SECTION 8150.00 EXTENDED .27 FEET

8150.00	4.77	1451.47	.00	1461.00	1452.14	.67	.00	.00	1446.70
1375.	104.	1065.	206.	24.	150.	49.	0.	0.	1449.13
.00	4.35	7.11	4.23	.040	.037	.037	.000	1446.70	960.02
.004919	0.	0.	0.	0	0	6	.00	78.08	1038.10

*SECNO 8250.000

3280 CROSS SECTION 8250.00 EXTENDED .15 FEET

8250.00	4.64	1451.94	.00	.00	1452.69	.75	.53	.02	1447.30
1375.	118.	1028.	230.	25.	136.	50.	0.	0.	1449.60
.00	4.66	7.57	4.56	.040	.037	.037	.000	1447.30	961.05
.005715	100.	100.	100.	1	0	0	.00	77.05	1038.10

*SECNO 8350.000

8350.00	4.21	1452.51	.00	.00	1453.32	.81	.61	.02	1448.70
1375.	71.	1098.	206.	16.	142.	44.	1.	0.	1450.40
.01	4.34	7.75	4.67	.040	.037	.037	.000	1448.30	960.76
.006499	100.	100.	100.	2	0	0	.00	76.55	1037.31

*SECNO 8450.000

8450.00	4.19	1453.19	.00	.00	1453.93	.73	.60	.01	1449.10
1375.	71.	1095.	210.	17.	148.	48.	1.	1.	1451.20
.01	4.16	7.39	4.39	.040	.037	.037	.000	1449.00	958.62
.005586	100.	100.	100.	2	0	0	.00	79.75	1038.37

*SECNO 8550.000

8550.00	4.06	1453.66	.00	.00	1454.77	1.10	.73	.11	1449.60
1375.	120.	1060.	195.	21.	116.	37.	2.	1.	1451.90
.02	5.66	9.11	5.32	.040	.037	.037	.000	1449.60	961.84
.009880	100.	100.	100.	2	0	0	.00	70.48	1032.31

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 8650.000
3280 CROSS SECTION 8650.00 EXTENDED .76 FEET

8650.00	4.56	1454.86	.00	.00	1455.54	.68	.73	.04	1450.30
1375.	112.	983.	280.	24.	137.	58.	2.	1.	1452.40
.02	4.58	7.19	4.86	.040	.037	.037	.000	1450.30	957.87
.005646	100.	100.	100.	3	0	0	.00	79.23	1037.10

*SECNO 8750.000
3280 CROSS SECTION 8750.00 EXTENDED .49 FEET

8750.00	4.59	1455.39	.00	.00	1456.07	.68	.52	.00	1450.80
1375.	90.	1091.	194.	21.	154.	45.	3.	1.	1453.10
.02	4.21	7.09	4.29	.040	.037	.037	.000	1450.80	958.45
.004890	100.	100.	100.	2	0	0	.00	71.85	1030.30

*SECNO 8850.000

8850.00	4.86	1455.86	.00	.00	1456.69	.83	.58	.05	1451.00
1375.	118.	1053.	204.	23.	133.	43.	3.	1.	1453.70
.03	5.20	7.91	4.76	.040	.037	.037	.000	1451.00	959.62
.007019	100.	100.	100.	2	0	0	.00	74.05	1033.67

*SECNO 8950.000

8950.00	4.63	1456.53	.00	.00	1457.43	.90	.72	.02	1451.90
1375.	131.	1056.	188.	25.	128.	40.	4.	1.	1454.50
.03	5.25	8.25	4.64	.040	.037	.037	.000	1451.90	960.81
.007296	100.	100.	100.	2	0	0	.00	75.69	1036.51

*SECNO 9044.100

9044.10	4.75	1457.25	.00	.00	1458.11	.86	.68	.00	1452.50
1375.	148.	1022.	205.	28.	126.	43.	4.	2.	1455.30
.04	5.30	8.13	4.78	.040	.037	.037	.000	1452.50	963.57
.007118	94.	94.	94.	2	0	0	.00	75.71	1039.27

*SECNO 9100.000

9100.00	4.55	1457.65	.00	.00	1458.50	.85	.39	.00	1453.10
1375.	114.	1045.	215.	23.	130.	45.	4.	2.	1455.60
.04	4.98	8.04	4.79	.040	.037	.037	.000	1453.10	968.80
.006791	56.	56.	56.	0	0	0	.00	75.58	1044.39

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 9200.000

9200.00	4.44	1458.34	.00	.00	1459.17	.83	.66	.00	1453.90
1375.	102.	1097.	176.	21.	140.	40.	5.	2.	1456.50
.04	4.77	7.84	4.40	.040	.037	.037	.000	1453.90	975.13
.006486	100.	100.	100.	0	0	0	.00	75.63	1050.76

*SECNO 9300.000

9300.00	4.16	1458.96	.00	.00	1459.88	.92	.69	.03	1454.80
1375.	81.	1122.	173.	17.	136.	38.	5.	2.	1457.20
.04	4.79	8.24	4.54	.040	.037	.037	.000	1454.80	981.21
.007303	100.	100.	100.	2	0	0	.00	72.11	1053.32

*SECNO 9400.000

9400.00	4.48	1459.78	.00	.00	1460.59	.81	.70	.01	1456.10
1375.	63.	1077.	235.	15.	138.	48.	6.	2.	1457.70
.05	4.28	7.78	4.87	.040	.037	.037	.000	1455.30	982.05
.006670	100.	100.	100.	2	0	0	.00	76.74	1058.79

*SECNO 9500.000

9500.00	3.82	1460.42	.00	.00	1461.40	.98	.76	.05	1456.60
1375.	91.	1052.	232.	18.	122.	44.	6.	2.	1458.60
.05	5.08	8.63	5.26	.040	.037	.037	.000	1456.60	982.70
.008726	100.	100.	100.	2	0	0	.00	74.35	1057.05

*SECNO 9603.000

9603.00	4.67	1461.37	.00	.00	1462.25	.88	.84	.01	1456.70
1375.	144.	968.	263.	27.	116.	51.	7.	3.	1459.30
.06	5.41	8.32	5.16	.040	.037	.037	.000	1456.70	980.59
.007617	103.	103.	103.	2	0	0	.00	79.68	1060.27

*SECNO 9700.000

3280 CROSS SECTION 9700.00 EXTENDED 1.05 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

9700.00	4.75	1462.25	.00	.00	1462.79	.55	.51	.03	1457.70
1375.	80.	1013.	282.	22.	158.	63.	7.	3.	1459.60
.06	3.71	6.41	4.45	.040	.037	.037	.000	1457.50	976.15
.003814	97.	97.	97.	2	0	0	.00	73.35	1049.50

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 9750.000
3280 CROSS SECTION 9750.00 EXTENDED .63 FEET

9750.00	4.93	1462.43	.00	.00	1462.98	.55	.19	.00	1458.10
1375.	62.	1036.	278.	17.	161.	65.	7.	3.	1459.90
.06	3.52	6.42	4.26	.040	.037	.037	.000	1457.50	975.23
.003784	50.	50.	50.	2	0	0	.00	75.37	1050.60

*SECNO 9800.000
3280 CROSS SECTION 9800.00 EXTENDED .71 FEET

9800.00	4.71	1462.71	.00	.00	1463.15	.44	.16	.01	1458.60
1375.	55.	1191.	129.	19.	214.	36.	8.	3.	1459.90
.07	2.89	5.58	3.54	.040	.037	.037	.000	1458.00	975.93
.002615	50.	50.	50.	2	0	0	.00	72.97	1048.90

*SECNO 9850.000

9850.00	4.81	1463.01	.00	.00	1463.27	.26	.10	.02	1458.90
1375.	38.	1337.	0.	17.	323.	0.	8.	3.	1463.40
.07	2.29	4.14	.00	.040	.037	.000	.000	1458.20	973.75
.001703	50.	50.	50.	2	0	0	.00	89.29	1063.04

*SECNO 9900.000

9900.00	4.70	1463.12	.00	.00	1463.36	.24	.08	.00	1464.00
1375.	0.	1375.	0.	0.	351.	0.	9.	3.	1463.40
.07	.00	3.92	.00	.000	.037	.000	.000	1458.42	967.98
.001688	50.	50.	50.	0	0	0	.00	94.32	1062.31

*SECNO 9950.000

9950.00	4.62	1463.25	.00	.00	1463.45	.20	.08	.00	1463.60
1375.	0.	1375.	0.	0.	388.	0.	9.	3.	1463.60
.08	.00	3.55	.00	.000	.040	.000	.000	1458.63	957.05
.001616	50.	50.	50.	2	0	0	.00	104.84	1061.89

*SECNO 9991.300
3280 CROSS SECTION 9991.30 EXTENDED .43 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1464.48 ELREA= 1464.48

9991.30	4.43	1463.23	.00	.00	1463.57	.35	.08	.05	1462.80
1375.	0.	1375.	0.	0.	290.	0.	9.	3.	1462.80
.08	.00	4.74	.00	.000	.040	.000	.000	1458.80	966.79
.002570	41.	41.	41.	2	0	0	.00	66.41	1033.20

CCHV= .300 CEHV= .500
*SECNO 9992.300
3280 CROSS SECTION 9992.30 EXTENDED .35 FEET

3370 NORMAL BRIDGE, NRD= 0 MIN ELTRD= 1464.48 MAX ELLC= 1462.80

9992.30	4.35	1463.15	.00	.00	1463.66	.51	.00	.08	1462.80
1375.	0.	1375.	0.	0.	240.	0.	9.	3.	1462.80
.08	.00	5.73	.00	.000	.012	.000	.000	1458.80	966.79
.001330	1.	1.	1.	2	0	0	-23.07	66.41	1033.20

*SECNO 10102.000
3280 CROSS SECTION 10102.00 EXTENDED .20 FEET

3370 NORMAL BRIDGE, NRD= 0 MIN ELTRD= 1464.48 MAX ELLC= 1463.13

10102.00	4.20	1463.30	.00	.00	1463.81	.51	.15	.00	1463.10
1375.	0.	1375.	0.	0.	240.	0.	10.	3.	1463.10
.08	.00	5.72	.00	.000	.012	.000	.000	1459.10	966.79
.001402	110.	110.	110.	2	0	0	-11.26	66.41	1033.20

*SECNO 10103.000
3280 CROSS SECTION 10103.00 EXTENDED .40 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1464.48 ELREA= 1464.48

10103.00	4.37	1463.50	.00	.00	1463.85	.36	.00	.05	1463.10
1375.	0.	1375.	0.	0.	287.	0.	10.	3.	1463.13
.08	.00	4.80	.00	.000	.040	.000	.000	1459.13	966.79
.002683	1.	1.	1.	2	0	0	.00	66.41	1033.20

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 10125.000

10125.00	4.58	1463.72	.00	.00	1463.94	.23	.05	.04	1465.50
1375.	0.	1375.	0.	0.	360.	0.	10.	3.	1465.50
.09	.00	3.82	.00	.000	.040	.000	.000	1459.14	953.21
.001807	22.	22.	22.	2	0	0	.00	93.58	1046.79

*SECNO 10150.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

10150.00	4.62	1463.77	.00	.00	1463.97	.20	.02	.01	1465.80
1375.	0.	1375.	0.	0.	386.	0.	10.	4.	1465.80
.09	.00	3.56	.00	.000	.017	.000	.000	1459.15	947.37
.000298	25.	25.	25.	0	0	0	.00	105.25	1052.63

*SECNO 10175.000

10175.00	4.63	1463.80	.00	.00	1463.98	.18	.01	.01	1466.00
1375.	0.	1375.	0.	0.	407.	0.	10.	4.	1466.10
.09	.00	3.38	.00	.000	.017	.000	.000	1459.17	941.81
.000283	25.	25.	25.	0	0	0	.00	116.08	1057.89

CCHV= .100 CEHV= .300

*SECNO 10200.000

10200.00	4.65	1463.83	.00	.00	1463.99	.16	.01	.00	1466.30
1375.	0.	1375.	0.	0.	428.	0.	11.	4.	1466.30
.09	.00	3.22	.00	.000	.017	.000	.000	1459.18	936.93
.000268	25.	25.	25.	1	0	0	.00	126.15	1063.07

*SECNO 10225.000

10225.00	4.64	1463.83	.00	.00	1463.99	.16	.01	.00	1466.50
1375.	0.	1375.	0.	0.	428.	0.	11.	4.	1466.50
.09	.00	3.21	.00	.000	.017	.000	.000	1459.19	936.97
.000266	25.	25.	25.	0	0	0	.00	126.06	1063.03

*SECNO 10250.000

10250.00	4.64	1463.84	.00	.00	1464.00	.16	.01	.00	1466.60
1375.	0.	1375.	0.	0.	428.	0.	11.	4.	1466.70
.10	.00	3.21	.00	.000	.017	.000	.000	1459.20	936.72
.000267	25.	25.	25.	0	0	0	.00	126.21	1062.93

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
*SECNO 10275.000									
10275.00	4.63	1463.85	.00	.00	1464.01	.16	.01	.00	1466.80
1375.	0.	1375.	0.	0.	427.	0.	11.	4.	1466.90
.10	.00	3.22	.00	.000	.017	.000	.000	1459.22	936.83
.000269	25.	25.	25.	0	0	0	.00	126.01	1062.84
*SECNO 10300.000									
10300.00	4.62	1463.85	.00	.00	1464.02	.16	.01	.00	1467.00
1375.	0.	1375.	0.	0.	426.	0.	12.	4.	1467.00
.10	.00	3.23	.00	.000	.017	.000	.000	1459.23	936.96
.000271	25.	25.	25.	0	0	0	.00	126.08	1063.04
*SECNO 10325.000									
10325.00	4.62	1463.86	.00	.00	1464.02	.16	.01	.00	1467.20
1375.	0.	1375.	0.	0.	425.	0.	12.	4.	1467.20
.10	.00	3.23	.00	.000	.017	.000	.000	1459.24	937.06
.000272	25.	25.	25.	0	0	0	.00	125.88	1062.94
*SECNO 10350.000									
10350.00	4.62	1463.87	.00	.00	1464.03	.16	.01	.00	1467.40
1375.	0.	1375.	0.	0.	425.	0.	12.	4.	1467.40
.11	.00	3.24	.00	.000	.017	.000	.000	1459.25	937.15
.000273	25.	25.	25.	0	0	0	.00	125.69	1062.85
*SECNO 10375.000									
10375.00	4.61	1463.87	.00	.00	1464.04	.16	.01	.00	1467.50
1375.	0.	1375.	0.	0.	424.	0.	12.	4.	1467.60
.11	.00	3.24	.00	.000	.017	.000	.000	1459.26	936.94
.000273	25.	25.	25.	0	0	0	.00	125.82	1062.76
*SECNO 10400.000									
10400.00	4.60	1463.88	.00	.00	1464.04	.16	.01	.00	1467.70
1375.	0.	1375.	0.	0.	423.	0.	13.	4.	1467.80
.11	.00	3.25	.00	.000	.017	.000	.000	1459.28	937.06
.000277	25.	25.	25.	0	0	0	.00	125.58	1062.64

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
*SECNO 10425.000									
10425.00	4.60	1463.89	.00	.00	1464.05	.16	.01	.00	1467.90
1375.	0.	1375.	0.	0.	422.	0.	13.	4.	1467.90
.11	.00	3.26	.00	.000	.017	.000	.000	1459.29	937.16
.000277	25.	25.	25.	0	0	0	.00	125.68	1062.84
*SECNO 10450.000									
10450.00	4.59	1463.89	.00	.00	1464.06	.17	.01	.00	1468.10
1375.	0.	1375.	0.	0.	422.	0.	13.	4.	1468.10
.11	.00	3.26	.00	.000	.017	.000	.000	1459.30	937.24
.000278	25.	25.	25.	0	0	0	.00	125.51	1062.76
*SECNO 10475.000									
10475.00	4.59	1463.90	.00	.00	1464.06	.17	.01	.00	1468.30
1375.	0.	1375.	0.	0.	421.	0.	13.	4.	1468.30
.12	.00	3.27	.00	.000	.017	.000	.000	1459.31	937.33
.000279	25.	25.	25.	0	0	0	.00	125.34	1062.67
*SECNO 10500.000									
10500.00	4.58	1463.91	.00	.00	1464.07	.17	.01	.00	1468.40
1375.	0.	1375.	0.	0.	420.	0.	14.	5.	1468.50
.12	.00	3.28	.00	.000	.017	.000	.000	1459.33	937.17
.000282	25.	25.	25.	0	0	0	.00	125.38	1062.55
*SECNO 10525.000									
10525.00	4.57	1463.91	.00	.00	1464.08	.18	.01	.00	1468.80
1375.	0.	1375.	0.	0.	409.	0.	14.	5.	1468.80
.12	.00	3.36	.00	.000	.017	.000	.000	1459.34	938.64
.000298	25.	25.	25.	0	0	0	.00	122.72	1061.36
*SECNO 10550.000									
10550.00	4.56	1463.91	.00	.00	1464.09	.19	.01	.00	1469.10
1375.	0.	1375.	0.	0.	398.	0.	14.	5.	1469.20
.12	.00	3.45	.00	.000	.017	.000	.000	1459.35	939.87
.000317	25.	25.	25.	0	0	0	.00	120.00	1059.87

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 10575.000

10575.00	4.55	1463.91	.00	.00	1464.10	.20	.01	.00	1469.50
1375.	0.	1375.	0.	0.	387.	0.	14.	5.	1469.60
.12	.00	3.56	.00	.000	.017	.000	.000	1459.36	941.36
.000339	25.	25.	25.	0	0	0	.00	117.03	1058.40

*SECNO 10600.000

10600.00	4.54	1463.92	.00	.00	1464.11	.19	.01	.00	1469.90
1375.	0.	1375.	0.	0.	388.	0.	15.	5.	1469.90
.13	.00	3.54	.00	.000	.017	.000	.000	1459.38	939.18
.000338	25.	25.	25.	0	0	0	.00	117.94	1057.12

*SECNO 10625.000

10625.00	4.51	1463.90	.00	.00	1464.13	.23	.01	.01	1470.20
1375.	0.	1375.	0.	0.	354.	0.	15.	5.	1470.20
.13	.00	3.88	.00	.000	.017	.000	.000	1459.39	945.68
.000399	25.	25.	25.	2	0	0	.00	105.97	1051.65

*SECNO 10650.000

10650.00	4.47	1463.87	.00	.00	1464.16	.29	.01	.02	1470.40
1375.	0.	1375.	0.	0.	320.	0.	15.	5.	1470.40
.13	.00	4.29	.00	.000	.017	.000	.000	1459.40	951.88
.000480	25.	25.	25.	2	0	0	.00	94.61	1046.50

*SECNO 10675.000

10675.00	4.43	1463.84	.00	.00	1464.20	.36	.01	.02	1470.70
1375.	0.	1375.	0.	0.	286.	0.	15.	5.	1470.70
.13	.00	4.81	.00	.000	.017	.000	.000	1459.41	958.15
.000595	25.	25.	25.	2	0	0	.00	83.16	1041.31

*SECNO 10700.000

10700.00	4.39	1463.82	.00	.00	1464.23	.41	.02	.02	1470.80
1375.	0.	1375.	0.	0.	267.	0.	15.	5.	1470.90
.13	.00	5.15	.00	.000	.017	.000	.000	1459.43	961.28
.000679	25.	25.	25.	2	0	0	.00	77.33	1038.61

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 10725.000

10725.00	4.39	1463.83	.00	.00	1464.24	.41	.02	.00	1470.80
1375.	0.	1375.	0.	0.	268.	0.	15.	5.	1470.90
.13	.00	5.14	.00	.000	.017	.000	.000	1459.44	961.25
.000675	25.	25.	25.	0	0	0	.00	77.38	1038.64

*SECNO 10750.000

10750.00	4.50	1463.95	.00	.00	1464.27	.32	.01	.01	1470.50
1375.	0.	1375.	0.	0.	303.	0.	16.	5.	1470.50
.13	.00	4.53	.00	.000	.017	.000	.000	1459.45	959.57
.000472	25.	25.	25.	2	0	0	.00	80.87	1040.43

*SECNO 10751.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

10751.00	2.86	1465.36	1465.36	.00	1466.61	1.25	.00	.28	1470.50
1375.	0.	1375.	0.	0.	153.	0.	16.	5.	1470.50
.13	.00	8.97	.00	.000	.017	.000	.000	1462.50	968.96
.003213	0.	0.	0.	20	14	0	.00	62.08	1031.04

*SECNO 10775.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

10775.00	4.07	1466.59	.00	.00	1466.74	.15	.02	.11	1469.80
1375.	0.	1375.	0.	0.	445.	0.	16.	5.	1469.80
.14	.00	3.09	.00	.000	.017	.000	.000	1462.52	926.30
.000288	25.	25.	25.	3	0	0	.00	147.41	1073.70

*SECNO 10800.000

10800.00	4.07	1466.60	.00	.00	1466.75	.15	.01	.00	1469.90
1375.	0.	1375.	0.	0.	440.	0.	16.	5.	1470.00
.14	.00	3.13	.00	.000	.017	.000	.000	1462.53	926.96
.000295	25.	25.	25.	2	0	0	.00	145.80	1072.76

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 10825.000

10825.00	4.05	1466.60	.00	.00	1466.76	.16	.01	.00	1470.00
1375.	0.	1375.	0.	0.	435.	0.	16.	5.	1470.10
.14	.00	3.16	.00	.000	.017	.000	.000	1462.55	927.61
.000302	25.	25.	25.	0	0	0	.00	144.51	1072.11

*SECNO 10850.000

10850.00	4.05	1466.61	.00	.00	1466.77	.16	.01	.00	1470.20
1375.	0.	1375.	0.	0.	430.	0.	17.	5.	1470.20
.14	.00	3.20	.00	.000	.017	.000	.000	1462.56	928.57
.000311	25.	25.	25.	0	0	0	.00	142.85	1071.43

*SECNO 10875.000

10875.00	4.04	1466.61	.00	.00	1466.77	.16	.01	.00	1470.30
1375.	0.	1375.	0.	0.	425.	0.	17.	6.	1470.40
.15	.00	3.24	.00	.000	.017	.000	.000	1462.57	929.23
.000318	25.	25.	25.	0	0	0	.00	141.27	1070.50

*SECNO 10900.000

10900.00	4.04	1466.62	.00	.00	1466.78	.17	.01	.00	1470.40
1375.	0.	1375.	0.	0.	419.	0.	17.	6.	1470.50
.15	.00	3.28	.00	.000	.017	.000	.000	1462.58	929.93
.000327	25.	25.	25.	0	0	0	.00	139.88	1069.81

*SECNO 10925.000

10925.00	4.03	1466.62	.00	.00	1466.79	.17	.01	.00	1470.60
1375.	0.	1375.	0.	0.	414.	0.	17.	6.	1470.60
.15	.00	3.32	.00	.000	.017	.000	.000	1462.59	930.85
.000335	25.	25.	25.	0	0	0	.00	138.30	1069.15

*SECNO 10950.000

10950.00	4.03	1466.63	.00	.00	1466.80	.18	.01	.00	1470.70
1375.	0.	1375.	0.	0.	409.	0.	18.	6.	1470.80
.15	.00	3.36	.00	.000	.017	.000	.000	1462.60	931.55
.000345	25.	25.	25.	0	0	0	.00	136.65	1068.20

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 10975.000

10975.00	4.01	1466.63	.00	.00	1466.81	.18	.01	.00	1470.80
1375.	0.	1375.	0.	0.	404.	0.	18.	6.	1470.90
.15	.00	3.40	.00	.000	.017	.000	.000	1462.62	932.21
.000355	25.	25.	25.	0	0	0	.00	135.33	1067.54

*SECNO 11000.000

11000.00	4.01	1466.64	.00	.00	1466.82	.19	.01	.00	1471.00
1375.	0.	1375.	0.	0.	398.	0.	18.	6.	1471.00
.16	.00	3.45	.00	.000	.017	.000	.000	1462.63	933.16
.000366	25.	25.	25.	0	0	0	.00	133.69	1066.84

*SECNO 11025.000

11025.00	4.00	1466.64	.00	.00	1466.83	.19	.01	.00	1471.10
1375.	0.	1375.	0.	0.	393.	0.	18.	6.	1471.20
.16	.00	3.50	.00	.000	.017	.000	.000	1462.64	933.85
.000377	25.	25.	25.	0	0	0	.00	132.05	1065.90

*SECNO 11050.000

11050.00	4.00	1466.65	.00	.00	1466.85	.19	.01	.00	1471.20
1375.	0.	1375.	0.	0.	388.	0.	18.	6.	1471.30
.16	.00	3.54	.00	.000	.017	.000	.000	1462.65	934.52
.000387	25.	25.	25.	0	0	0	.00	130.72	1065.24

*SECNO 11075.000

11075.00	4.00	1466.66	.00	.00	1466.86	.20	.01	.00	1471.40
1375.	0.	1375.	0.	0.	383.	0.	19.	6.	1471.40
.16	.00	3.59	.00	.000	.017	.000	.000	1462.66	935.45
.000399	25.	25.	25.	0	0	0	.00	129.09	1064.55

*SECNO 11100.000

11100.00	3.98	1466.66	.00	.00	1466.87	.21	.01	.00	1471.50
1375.	0.	1375.	0.	0.	378.	0.	19.	6.	1471.50
.16	.00	3.64	.00	.000	.017	.000	.000	1462.68	936.12
.000411	25.	25.	25.	0	0	0	.00	127.76	1063.88

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 11125.000

11125.00	3.98	1466.67	.00	.00	1466.88	.21	.01	.00	1471.60
1375.	0.	1375.	0.	0.	372.	0.	19.	6.	1471.70
.17	.00	3.69	.00	.000	.017	.000	.000	1462.69	936.82
.000425	25.	25.	25.	0	0	0	.00	126.14	1062.95

*SECNO 11150.000

11150.00	3.98	1466.68	.00	.00	1466.89	.22	.01	.00	1471.80
1375.	0.	1375.	0.	0.	367.	0.	19.	6.	1471.80
.17	.00	3.74	.00	.000	.017	.000	.000	1462.70	937.71
.000436	25.	25.	25.	0	0	0	.00	124.59	1062.29

*SECNO 11175.000

11175.00	3.97	1466.68	.00	.00	1466.91	.22	.01	.00	1471.90
1375.	0.	1375.	0.	0.	362.	0.	19.	6.	1471.90
.17	.00	3.80	.00	.000	.017	.000	.000	1462.71	938.41
.000450	25.	25.	25.	0	0	0	.00	123.19	1061.59

CCHV= .300 CEHV= .500

*SECNO 11200.000

11200.00	3.97	1466.69	.00	.00	1466.92	.23	.01	.00	1472.00
1375.	0.	1375.	0.	0.	357.	0.	20.	6.	1472.10
.17	.00	3.85	.00	.000	.017	.000	.000	1462.72	939.07
.000463	25.	25.	25.	0	0	0	.00	121.65	1060.71

*SECNO 11225.000

11225.00	3.96	1466.70	.00	.00	1466.94	.24	.01	.00	1472.10
1375.	0.	1375.	0.	0.	350.	0.	20.	7.	1472.10
.17	.00	3.93	.00	.000	.017	.000	.000	1462.74	941.61
.000478	25.	25.	25.	0	0	0	.00	118.50	1060.11

*SECNO 11250.000

11250.00	3.95	1466.70	.00	.00	1466.95	.25	.01	.00	1472.20
1375.	0.	1375.	0.	0.	343.	0.	20.	7.	1472.20
.17	.00	4.00	.00	.000	.017	.000	.000	1462.75	943.59
.000493	25.	25.	25.	0	0	0	.00	115.33	1058.92

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 11275.000

11275.00	3.95	1466.71	.00	.00	1466.97	.26	.01	.00	1472.30
1375.	0.	1375.	0.	0.	337.	0.	20.	7.	1472.30
.18	.00	4.08	.00	.000	.017	.000	.000	1462.76	945.03
.000509	25.	25.	25.	0	0	0	.00	112.34	1057.37

*SECNO 11300.000

11300.00	3.95	1466.72	.00	.00	1466.99	.27	.01	.00	1472.40
1375.	0.	1375.	0.	0.	331.	0.	20.	7.	1472.30
.18	.00	4.16	.00	.000	.017	.000	.000	1462.77	945.97
.000524	25.	25.	25.	0	0	0	.00	109.68	1055.65

*SECNO 11325.000

11325.00	3.95	1466.73	.00	.00	1467.01	.29	.01	.01	1472.40
1375.	0.	1375.	0.	0.	320.	0.	21.	7.	1472.40
.18	.00	4.29	.00	.000	.017	.000	.000	1462.78	948.59
.000548	25.	25.	25.	0	0	0	.00	104.76	1053.35

*SECNO 11350.000

11350.00	3.94	1466.73	.00	.00	1467.03	.30	.01	.01	1472.50
1375.	0.	1375.	0.	0.	311.	0.	21.	7.	1472.50
.18	.00	4.43	.00	.000	.017	.000	.000	1462.79	950.82
.000572	25.	25.	25.	0	0	0	.00	99.87	1050.69

*SECNO 11375.000

11375.00	3.92	1466.73	.00	.00	1467.06	.33	.01	.01	1472.50
1375.	0.	1375.	0.	0.	300.	0.	21.	7.	1472.60
.18	.00	4.58	.00	.000	.017	.000	.000	1462.81	952.40
.000600	25.	25.	25.	0	0	0	.00	95.09	1047.49

*SECNO 11400.000

11400.00	3.93	1466.75	.00	.00	1467.07	.33	.02	.00	1472.50
1375.	0.	1375.	0.	0.	300.	0.	21.	7.	1472.60
.18	.00	4.58	.00	.000	.017	.000	.000	1462.82	952.41
.000603	25.	25.	25.	0	0	0	.00	95.08	1047.49

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 11425.000

11425.00	3.94	1466.77	.00	.00	1467.09	.32	.02	.00	1472.00
1375.	0.	1375.	0.	0.	301.	0.	21.	7.	1472.60
.19	.00	4.56	.00	.000	.017	.000	.000	1462.83	951.81
.000599	25.	25.	25.	0	0	0	.00	95.70	1047.51

*SECNO 11444.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1472.60 ELREA= 1472.60

11444.00	4.05	1466.90	.00	.00	1467.13	.23	.01	.03	1471.90
1375.	0.	1375.	0.	0.	357.	0.	22.	7.	1471.85
.19	.00	3.86	.00	.000	.017	.000	.000	1462.85	949.92
.000364	20.	20.	20.	2	0	0	.00	100.22	1050.14

CCHV= .300 CEHV= .500
*SECNO 11445.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE, NRD= 0 MIN ELTRD= 1472.60 MAX ELLC= 1469.90

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

11445.00	2.53	1468.43	1468.43	.00	1469.70	1.28	.00	.52	1469.90
1375.	0.	1375.	0.	0.	152.	0.	22.	7.	1469.90
.19	.00	9.07	.00	.000	.012	.000	.000	1465.90	967.71
.002694	1.	1.	1.	20	20	0	.00	60.00	1032.29

*SECNO 11505.000

3265 DIVIDED FLOW

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SECNO     DEPTH    CWSEL    CRIWS    WSELK    EG       HV      HL      OLOSS   BANK ELEV
Q         QLOB     QCH      QROB     ALOB     ACH      AROB    VOL     TWA    LEFT/RIGHT
TIME      VLOB     VCH      VROB     XNL      XNCH     XNR     WTN     ELMIN      SSTA
SLOPE     XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT   CORAR   TOPWID     ENDST


3370 NORMAL BRIDGE, NRD=   0 MIN ELTRD=  1472.60 MAX ELLC=  1470.20

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
 11505.00     2.53  1468.73  1468.73      .00  1470.00     1.28      .16      .00  1470.20
    1375.       0.    1375.       0.       0.     152.       0.      22.       7.  1470.20
      .19      .00     9.07      .00     .000     .012     .000     .000  1466.20   967.71
  .002694      60.      60.      60.        2       20        0      .00    60.00  1032.29


*SECNO  11506.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1472.60 ELREA=      1472.60

 11506.00     3.79  1469.99      .00      .00  1470.30      .31      .00      .29  1474.20
    1375.       0.    1375.       0.       0.     308.       0.      22.       7.  1474.20
      .19      .00     4.47      .00     .000     .017     .000     .000  1466.20   953.66
  .000538       1.       1.       1.        4        0        0      .00    92.69  1046.34


*SECNO  11525.000
 11525.00     3.84  1470.04      .00      .00  1470.32      .28      .01      .01  1475.10
    1375.       0.    1375.       0.       0.     326.       0.      22.       7.  1475.10
      .19      .00     4.21      .00     .000     .017     .000     .000  1466.20   946.88
  .000526      20.      20.      20.        2        0        0      .00   106.25  1053.12


*SECNO  11550.000
 11550.00     3.98  1470.18      .00      .00  1470.36      .18      .01      .03  1475.30
    1375.       0.    1375.       0.       0.     409.       0.      22.       7.  1475.30
      .19      .00     3.36      .00     .000     .017     .000     .000  1466.20   935.35
  .000321      25.      25.      25.        2        0        0      .00   129.29  1064.65


*SECNO  11575.000
 11575.00     3.99  1470.19      .00      .00  1470.37      .17      .01      .00  1475.00
    1375.       0.    1375.       0.       0.     411.       0.      22.       7.  1475.00
      .19      .00     3.35      .00     .000     .017     .000     .000  1466.20   933.23
  .000327      25.      25.      25.        0        0        0      .00   132.67  1065.91
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 11600.000

11600.00	4.00	1470.20	.00	.00	1470.37	.17	.01	.00	1474.60
1375.	0.	1375.	0.	0.	414.	0.	23.	7.	1474.60
.20	.00	3.32	.00	.000	.017	.000	.000	1466.20	931.07
.000333	25.	25.	25.	0	0	0	.00	137.07	1068.14

CCHV= .100 CEHV= .300
*SECNO 11625.000

11625.00	3.91	1470.21	.00	.00	1470.38	.17	.01	.00	1474.40
1375.	0.	1375.	0.	0.	410.	0.	23.	8.	1474.40
.20	.00	3.35	.00	.000	.017	.000	.000	1466.30	929.96
.000353	25.	25.	25.	0	0	0	.00	140.09	1070.04

*SECNO 11650.000

11650.00	3.92	1470.22	.00	.00	1470.39	.18	.01	.00	1474.50
1375.	0.	1375.	0.	0.	405.	0.	23.	8.	1474.50
.20	.00	3.39	.00	.000	.017	.000	.000	1466.30	930.70
.000362	25.	25.	25.	0	0	0	.00	138.61	1069.31

*SECNO 11675.000

11675.00	3.92	1470.22	.00	.00	1470.40	.18	.01	.00	1474.70
1375.	0.	1375.	0.	0.	400.	0.	23.	8.	1474.70
.20	.00	3.44	.00	.000	.017	.000	.000	1466.30	931.67
.000373	25.	25.	25.	0	0	0	.00	136.65	1068.33

*SECNO 11700.000

11700.00	3.93	1470.23	.00	.00	1470.42	.19	.01	.00	1474.80
1375.	0.	1375.	0.	0.	394.	0.	24.	8.	1474.80
.21	.00	3.49	.00	.000	.017	.000	.000	1466.30	932.42
.000383	25.	25.	25.	0	0	0	.00	135.16	1067.58

*SECNO 11725.000

11725.00	3.93	1470.23	.00	.00	1470.43	.19	.01	.00	1474.90
1375.	0.	1375.	0.	0.	389.	0.	24.	8.	1474.90
.21	.00	3.53	.00	.000	.017	.000	.000	1466.30	933.28
.000394	25.	25.	25.	0	0	0	.00	133.44	1066.72

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
*SECNO 11750.000									
11750.00	3.94	1470.24	.00	.00	1470.44	.20	.01	.00	1475.00
1375.	0.	1375.	0.	0.	383.	0.	24.	8.	1475.00
.21	.00	3.59	.00	.000	.017	.000	.000	1466.30	934.21
.000407	25.	25.	25.	0	0	0	.00	131.59	1065.79
*SECNO 11775.000									
11775.00	3.94	1470.24	.00	.00	1470.45	.21	.01	.00	1475.10
1375.	0.	1375.	0.	0.	378.	0.	24.	8.	1475.10
.21	.00	3.64	.00	.000	.017	.000	.000	1466.30	935.07
.000419	25.	25.	25.	0	0	0	.00	129.86	1064.93
*SECNO 11800.000									
11800.00	3.95	1470.25	.00	.00	1470.46	.21	.01	.00	1475.20
1375.	0.	1375.	0.	0.	372.	0.	24.	8.	1475.20
.21	.00	3.69	.00	.000	.017	.000	.000	1466.30	935.93
.000432	25.	25.	25.	0	0	0	.00	128.14	1064.07
*SECNO 11825.000									
11825.00	3.85	1470.25	.00	.00	1470.48	.22	.01	.00	1475.30
1375.	0.	1375.	0.	0.	362.	0.	25.	8.	1475.30
.21	.00	3.80	.00	.000	.017	.000	.000	1466.40	936.85
.000466	25.	25.	25.	0	0	0	.00	126.29	1063.15
*SECNO 11850.000									
11850.00	3.84	1470.24	.00	.00	1470.50	.26	.01	.01	1467.30
1375.	28.	1347.	0.	26.	327.	0.	25.	8.	1475.40
.22	1.06	4.12	.00	.040	.017	.000	.000	1466.40	937.84
.000498	25.	25.	25.	2	0	0	.00	124.32	1062.16
*SECNO 11875.000									
11875.00	3.85	1470.25	.00	.00	1470.52	.27	.01	.00	1467.30
1375.	28.	1347.	0.	26.	323.	0.	25.	8.	1475.50
.22	1.08	4.18	.00	.040	.017	.000	.000	1466.40	938.67
.000512	25.	25.	25.	0	0	0	.00	122.67	1061.33

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
*SECNO 11900.000									
11900.00	3.86	1470.26	.00	.00	1470.53	.27	.01	.00	1467.30
1375.	29.	1346.	0.	26.	317.	0.	25.	8.	1475.60
.22	1.10	4.24	.00	.040	.017	.000	.000	1466.40	939.52
.000528	25.	25.	25.	0	0	0	.00	120.96	1060.48
*SECNO 11925.000									
11925.00	3.87	1470.27	.00	.00	1470.54	.27	.01	.00	1467.20
1375.	31.	1344.	0.	28.	317.	0.	25.	8.	1475.70
.22	1.11	4.24	.00	.040	.017	.000	.000	1466.40	940.05
.000518	25.	25.	25.	0	0	0	.00	119.89	1059.95
*SECNO 11950.000									
11950.00	3.88	1470.28	.00	.00	1470.56	.28	.01	.00	1467.20
1375.	32.	1343.	0.	28.	312.	0.	26.	8.	1475.80
.22	1.13	4.30	.00	.040	.017	.000	.000	1466.40	940.87
.000532	25.	25.	25.	0	0	0	.00	118.26	1059.13
*SECNO 11975.000									
11975.00	3.88	1470.28	.00	.00	1470.58	.29	.01	.00	1467.20
1375.	33.	1342.	0.	29.	306.	0.	26.	9.	1475.90
.22	1.16	4.38	.00	.040	.017	.000	.000	1466.40	941.72
.000551	25.	25.	25.	0	0	0	.00	116.55	1058.28
CCHV= .300 CEHV= .500									
*SECNO 12000.000									
12000.00	3.89	1470.29	.00	.00	1470.60	.30	.01	.01	1467.20
1375.	34.	1341.	0.	29.	300.	0.	26.	9.	1476.00
.23	1.18	4.47	.00	.040	.017	.000	.000	1466.40	942.64
.000574	25.	25.	25.	0	0	0	.00	114.71	1057.36
*SECNO 12025.000									
12025.00	3.80	1470.30	.00	.00	1470.62	.32	.01	.01	1467.20
1375.	36.	1339.	0.	29.	291.	0.	26.	9.	1476.10
.23	1.23	4.60	.00	.040	.017	.000	.000	1466.50	943.49
.000621	25.	25.	25.	0	0	0	.00	113.02	1056.51

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 12050.000

12050.00	3.81	1470.31	.00	.00	1470.64	.33	.02	.01	1467.20
1375.	36.	1339.	0.	29.	285.	0.	26.	9.	1476.20
.23	1.26	4.69	.00	.040	.017	.000	.000	1466.50	944.35
.000645	25.	25.	25.	0	0	0	.00	111.30	1055.65

*SECNO 12075.000

12075.00	3.82	1470.32	.00	.00	1470.66	.35	.02	.01	1467.20
1375.	38.	1337.	0.	29.	279.	0.	27.	9.	1476.30
.23	1.28	4.79	.00	.040	.017	.000	.000	1466.50	945.25
.000672	25.	25.	25.	0	0	0	.00	109.49	1054.75

*SECNO 12100.000

12100.00	3.83	1470.33	.00	.00	1470.69	.36	.02	.01	1467.20
1375.	39.	1336.	0.	29.	274.	0.	27.	9.	1476.40
.23	1.31	4.88	.00	.040	.017	.000	.000	1466.50	946.09
.000697	25.	25.	25.	0	0	0	.00	107.82	1053.91

*SECNO 12125.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

12125.00	3.93	1470.43	.00	.00	1470.74	.31	.03	.01	1476.50
1375.	0.	1375.	0.	0.	307.	0.	27.	9.	1476.50
.23	.00	4.48	.00	.000	.040	.000	.000	1466.50	946.41
.003591	25.	25.	25.	2	0	0	.00	107.18	1053.59

*SECNO 12150.000

12150.00	3.98	1470.48	.00	.00	1470.86	.38	.09	.03	1477.20
1375.	0.	1375.	0.	0.	279.	0.	27.	9.	1477.20
.24	.00	4.93	.00	.000	.040	.000	.000	1466.50	956.16
.003820	25.	25.	25.	0	0	0	.00	87.67	1043.84

*SECNO 12164.000

12164.00	3.97	1470.47	.00	.00	1471.01	.55	.06	.08	1476.90
1375.	0.	1375.	0.	0.	232.	0.	27.	9.	1476.90
.24	.00	5.93	.00	.000	.040	.000	.000	1466.50	962.87
.005679	14.	14.	14.	2	0	0	.00	74.26	1037.13

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

CCHV= .300 CEHV= .500
*SECNO 12176.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1476.07 ELREA= 1476.07

12176.00	5.94	1470.84	.00	.00	1471.12	.28	.03	.08	1474.90
1375.	0.	1375.	0.	0.	322.	0.	27.	9.	1474.90
.24	.00	4.27	.00	.000	.040	.000	.000	1464.90	972.62
.001583	12.	12.	12.	2	0	0	.00	54.75	1027.38

CCHV= .300 CEHV= .500
*SECNO 12177.000

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

3370 NORMAL BRIDGE, NRD= 0 MIN ELTRD= 1476.07 MAX ELLC= 1474.90

12177.00	5.91	1470.81	.00	.00	1471.15	.34	.00	.03	1474.90
1375.	0.	1375.	0.	0.	296.	0.	27.	9.	1474.90
.24	.00	4.65	.00	.000	.012	.000	.000	1464.90	973.17
.000373	1.	1.	1.	2	0	0	.00	50.00	1026.83

*SECNO 12237.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE, NRD= 0 MIN ELTRD= 1476.07 MAX ELLC= 1475.20

12237.00	5.62	1470.82	.00	.00	1471.19	.37	.02	.02	1475.20
1375.	0.	1375.	0.	0.	281.	0.	28.	9.	1475.20
.24	.00	4.89	.00	.000	.012	.000	.000	1465.20	973.17
.000427	60.	60.	60.	2	0	0	.00	50.00	1026.83

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SECNO     DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
Q         QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA     LEFT/RIGHT
TIME      VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
SLOPE     XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID      ENDST


*SECNO 12238.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      1476.07 ELREA=      1476.07

 12238.00    5.70  1470.90      .00      .00  1471.21      .31      .00      .02  1475.20
   1375.       0.    1375.       0.       0.     309.       0.      28.       9.  1475.20
     .24      .00     4.45      .00     .000     .017     .000     .000  1465.20   972.64
 .000325       0.       0.       0.        2        0        0      .00    54.71  1027.35


*SECNO 12267.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
 12267.00    2.58  1472.78  1472.78      .00  1473.94     1.16      .02      .43  1477.50
   1375.       0.    1375.       0.       0.     159.       0.      28.       9.  1477.50
     .24      .00     8.64      .00     .000     .017     .000     .000  1470.20   965.30
 .003287      30.      30.      30.       20       14        0      .00    69.40  1034.70


*SECNO 12295.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

 12295.00    3.87  1474.07      .00      .00  1474.25      .19      .02      .29  1477.60
   1375.       0.    1375.       0.       0.     398.       0.      28.       9.  1477.60
     .24      .00     3.46      .00     .000     .017     .000     .000  1470.20   930.39
 .000388      28.      28.      28.        4        0        0      .00   139.22  1069.61


*SECNO 12325.000
 12325.00    3.88  1474.08      .00      .00  1474.27      .19      .01      .00  1478.40
   1375.       0.    1375.       0.       0.     395.       0.      28.       9.  1478.40
     .25      .00     3.48      .00     .000     .017     .000     .000  1470.20   930.93
 .000392      30.      30.      30.        2        0        0      .00   138.13  1069.07
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 12350.000

12350.00	3.79	1474.09	.00	.00	1474.28	.20	.01	.00	1478.50
1375.	0.	1375.	0.	0.	387.	0.	28.	9.	1478.50
.25	.00	3.55	.00	.000	.017	.000	.000	1470.30	931.53
.000416	25.	25.	25.	0	0	0	.00	136.95	1068.47

*SECNO 12375.000

12375.00	3.79	1474.09	.00	.00	1474.29	.20	.01	.00	1478.60
1375.	0.	1375.	0.	0.	383.	0.	29.	9.	1478.60
.25	.00	3.59	.00	.000	.017	.000	.000	1470.30	932.15
.000424	25.	25.	25.	0	0	0	.00	135.70	1067.85

*SECNO 12400.000

12400.00	3.80	1474.10	.00	.00	1474.31	.20	.01	.00	1478.70
1375.	0.	1375.	0.	0.	381.	0.	29.	10.	1478.70
.25	.00	3.61	.00	.000	.017	.000	.000	1470.30	932.70
.000429	25.	25.	25.	0	0	0	.00	134.61	1067.30

*SECNO 12425.000

12425.00	3.81	1474.11	.00	.00	1474.32	.21	.01	.00	1478.90
1375.	0.	1375.	0.	0.	377.	0.	29.	10.	1478.90
.25	.00	3.65	.00	.000	.017	.000	.000	1470.30	933.53
.000437	25.	25.	25.	0	0	0	.00	132.95	1066.47

*SECNO 12450.000

12450.00	3.82	1474.12	.00	.00	1474.33	.21	.01	.00	1479.00
1375.	0.	1375.	0.	0.	373.	0.	29.	10.	1479.00
.26	.00	3.68	.00	.000	.017	.000	.000	1470.30	934.13
.000445	25.	25.	25.	0	0	0	.00	131.73	1065.87

*SECNO 12475.000

12475.00	3.83	1474.13	.00	.00	1474.34	.21	.01	.00	1479.10
1375.	0.	1375.	0.	0.	371.	0.	30.	10.	1479.10
.26	.00	3.71	.00	.000	.017	.000	.000	1470.30	934.68
.000451	25.	25.	25.	0	0	0	.00	130.64	1065.32

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 12500.000

12500.00	3.84	1474.14	.00	.00	1474.36	.22	.01	.00	1479.20
1375.	0.	1375.	0.	0.	367.	0.	30.	10.	1479.20
.26	.00	3.74	.00	.000	.017	.000	.000	1470.30	935.28
.000459	25.	25.	25.	0	0	0	.00	129.44	1064.72

*SECNO 12525.000

12525.00	3.85	1474.15	.00	.00	1474.37	.22	.01	.00	1479.30
1375.	0.	1375.	0.	0.	364.	0.	30.	10.	1479.30
.26	.00	3.78	.00	.000	.017	.000	.000	1470.30	935.89
.000467	25.	25.	25.	0	0	0	.00	128.22	1064.11

*SECNO 12550.000

12550.00	3.76	1474.16	.00	.00	1474.39	.23	.01	.01	1479.40
1375.	0.	1375.	0.	0.	356.	0.	30.	10.	1479.40
.26	.00	3.86	.00	.000	.017	.000	.000	1470.40	936.49
.000497	25.	25.	25.	0	0	0	.00	127.01	1063.51

*SECNO 12575.000

12575.00	3.77	1474.17	.00	.00	1474.40	.24	.01	.00	1479.50
1375.	0.	1375.	0.	0.	353.	0.	30.	10.	1479.50
.26	.00	3.90	.00	.000	.017	.000	.000	1470.40	937.05
.000505	25.	25.	25.	0	0	0	.00	125.90	1062.95

*SECNO 12600.000

12600.00	3.78	1474.18	.00	.00	1474.42	.24	.01	.00	1479.60
1375.	0.	1375.	0.	0.	350.	0.	31.	10.	1479.60
.27	.00	3.93	.00	.000	.017	.000	.000	1470.40	937.65
.000514	25.	25.	25.	0	0	0	.00	124.70	1062.35

*SECNO 12625.000

12625.00	3.79	1474.19	.00	.00	1474.44	.25	.01	.00	1479.80
1375.	0.	1375.	0.	0.	343.	0.	31.	10.	1479.80
.27	.00	4.01	.00	.000	.017	.000	.000	1470.40	938.85
.000536	25.	25.	25.	0	0	0	.00	122.36	1061.21

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 12650.000

12650.00	3.79	1474.19	.00	.00	1474.46	.26	.01	.01	1480.00
1375.	0.	1375.	0.	0.	335.	0.	31.	10.	1480.00
.27	.00	4.10	.00	.000	.017	.000	.000	1470.40	940.00
.000561	25.	25.	25.	0	0	0	.00	119.99	1060.00

*SECNO 12675.000

12675.00	3.81	1474.21	.00	.00	1474.47	.26	.01	.00	1480.20
1375.	0.	1375.	0.	0.	335.	0.	31.	10.	1480.20
.27	.00	4.10	.00	.000	.017	.000	.000	1470.40	940.82
.000553	25.	25.	25.	0	0	0	.00	118.43	1059.25

*SECNO 12700.000

12700.00	3.82	1474.22	.00	.00	1474.49	.27	.01	.01	1480.40
1375.	0.	1375.	0.	0.	328.	0.	31.	10.	1480.40
.27	.00	4.19	.00	.000	.017	.000	.000	1470.40	941.93
.000577	25.	25.	25.	0	0	0	.00	116.14	1058.07

CCHV= .300 CEHV= .500

*SECNO 12725.000

12725.00	3.80	1474.20	.00	.00	1474.54	.34	.02	.04	1478.70
1375.	0.	1375.	0.	0.	293.	0.	32.	10.	1478.90
.27	.00	4.70	.00	.000	.017	.000	.000	1470.40	948.29
.000724	25.	25.	25.	2	0	0	.00	103.12	1051.40

*SECNO 12750.000

12750.00	3.64	1474.14	.00	.00	1474.64	.50	.02	.08	1477.30
1375.	0.	1375.	0.	0.	242.	0.	32.	11.	1477.30
.28	.00	5.67	.00	.000	.017	.000	.000	1470.50	956.26
.001095	25.	25.	25.	2	0	0	.00	87.47	1043.74

*SECNO 12775.000

12775.00	3.54	1474.04	.00	.00	1474.81	.77	.03	.13	1479.70
1375.	0.	1375.	0.	0.	196.	0.	32.	11.	1479.80
.28	.00	7.03	.00	.000	.017	.000	.000	1470.50	964.12
.001683	25.	25.	25.	2	0	0	.00	70.38	1034.51

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 12800.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

12800.00	3.32	1473.82	1473.82	.00	1475.16	1.34	.06	.29	1482.30
1375.	0.	1375.	0.	0.	148.	0.	32.	11.	1482.40
.28	.00	9.29	.00	.000	.017	.000	.000	1470.50	971.75
.003163	25.	25.	25.	2	11	0	.00	55.89	1027.64

*SECNO 12825.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

12825.00	4.06	1474.56	1474.56	.00	1476.07	1.51	.08	.08	1483.40
1375.	0.	1375.	0.	0.	140.	0.	32.	11.	1483.40
.28	.00	9.85	.00	.000	.017	.000	.000	1470.50	976.45
.003085	25.	25.	25.	20	11	0	.00	47.10	1023.55

*SECNO 12845.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1482.27 ELREA= 1482.27

12845.00	5.12	1475.62	1474.43	.00	1476.34	.72	.04	.23	1483.20
1375.	0.	1375.	0.	0.	202.	0.	32.	11.	1483.20
.28	.00	6.82	.00	.000	.017	.000	.000	1470.50	972.66
.001112	21.	21.	21.	23	8	0	.00	54.67	1027.34

CCHV= .300 CEHV= .500
*SECNO 12846.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE, NRD= 0 MIN ELTRD= 1482.27 MAX ELLC= 1479.33

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

12846.00	3.12	1477.45	1477.45	.00	1479.03	1.58	.00	.43	1479.30
629.	0.	629.	0.	0.	62.	0.	32.	11.	1479.33
.28	.00	10.08	.00	.000	.012	.000	.000	1474.33	989.54
.002775	1.	1.	1.	20	20	0	.00	20.00	1010.45

*SECNO 12911.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE, NRD= 0 MIN ELTRD= 1482.27 MAX ELLC= 1479.65

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

12911.00	3.12	1477.77	1477.77	.00	1479.35	1.58	.18	.00	1479.60
629.	0.	629.	0.	0.	62.	0.	32.	11.	1479.65
.28	.00	10.08	.00	.000	.012	.000	.000	1474.65	989.54
.002775	65.	65.	65.	2	20	0	.00	20.00	1010.45

*SECNO 12912.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1482.27 ELREA= 1482.27

12912.00	4.22	1478.87	1477.66	.00	1479.60	.73	.00	.25	1479.60
629.	0.	629.	0.	0.	92.	0.	32.	11.	1479.65
.28	.00	6.86	.00	.000	.017	.000	.000	1474.65	988.76
.001360	1.	1.	1.	24	8	0	.00	22.47	1011.23

*SECNO 12925.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

12925.00	5.01	1479.71	.00	.00	1479.80	.09	.00	.19	1481.10
629.	0.	629.	0.	0.	259.	0.	32.	11.	1481.10
.28	.00	2.43	.00	.000	.017	.000	.000	1474.70	961.44
.000157	13.	13.	13.	3	0	0	.00	77.13	1038.56

CCHV= .100 CEHV= .300

*SECNO 12950.000

12950.00	5.01	1479.71	.00	.00	1479.81	.10	.00	.00	1481.30
629.	0.	629.	0.	0.	251.	0.	32.	11.	1481.30
.29	.00	2.50	.00	.000	.017	.000	.000	1474.70	962.31
.000167	25.	25.	25.	1	0	0	.00	75.38	1037.69

*SECNO 12975.000

12975.00	5.01	1479.71	.00	.00	1479.81	.10	.00	.00	1481.40
629.	0.	629.	0.	0.	245.	0.	33.	11.	1481.40
.29	.00	2.57	.00	.000	.017	.000	.000	1474.70	962.88
.000179	25.	25.	25.	0	0	0	.00	74.23	1037.11

*SECNO 13000.000

13000.00	5.01	1479.71	.00	.00	1479.82	.11	.00	.00	1481.50
629.	0.	629.	0.	0.	239.	0.	33.	11.	1481.50
.29	.00	2.64	.00	.000	.017	.000	.000	1474.70	963.43
.000191	25.	25.	25.	0	0	0	.00	73.13	1036.57

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 13025.000

13025.00	5.01	1479.71	.00	.00	1479.83	.12	.00	.00	1481.70
629.	0.	629.	0.	0.	231.	0.	33.	11.	1481.70
.29	.00	2.72	.00	.000	.017	.000	.000	1474.70	964.34
.000207	25.	25.	25.	0	0	0	.00	71.32	1035.66

*SECNO 13050.000

13050.00	5.01	1479.71	.00	.00	1479.83	.12	.01	.00	1481.80
629.	0.	629.	0.	0.	225.	0.	33.	11.	1481.80
.30	.00	2.80	.00	.000	.017	.000	.000	1474.70	964.90
.000221	25.	25.	25.	0	0	0	.00	70.21	1035.10

*SECNO 13075.000

13075.00	5.01	1479.71	.00	.00	1479.84	.13	.01	.00	1482.00
629.	0.	629.	0.	0.	217.	0.	33.	11.	1482.00
.30	.00	2.90	.00	.000	.017	.000	.000	1474.70	965.79
.000241	25.	25.	25.	0	0	0	.00	68.42	1034.21

*SECNO 13100.000

13100.00	5.01	1479.71	.00	.00	1479.85	.14	.01	.00	1482.10
629.	0.	629.	0.	0.	211.	0.	33.	11.	1482.10
.30	.00	2.99	.00	.000	.017	.000	.000	1474.70	966.35
.000259	25.	25.	25.	0	0	0	.00	67.29	1033.65

*SECNO 13125.000

13125.00	4.91	1479.71	.00	.00	1479.86	.15	.01	.00	1482.20
629.	0.	629.	0.	0.	204.	0.	33.	11.	1482.20
.30	.00	3.09	.00	.000	.017	.000	.000	1474.80	966.91
.000284	25.	25.	25.	0	0	0	.00	66.17	1033.09

*SECNO 13150.000

13150.00	4.91	1479.71	.00	.00	1479.87	.16	.01	.00	1482.40
629.	0.	629.	0.	0.	196.	0.	33.	11.	1482.40
.30	.00	3.22	.00	.000	.017	.000	.000	1474.80	967.84
.000314	25.	25.	25.	0	0	0	.00	64.36	1032.20

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
*SECNO 13175.000									
13175.00	4.91	1479.71	.00	.00	1479.88	.17	.01	.00	1482.50
629.	0.	629.	0.	0.	189.	0.	34.	11.	1482.50
.31	.00	3.33	.00	.000	.017	.000	.000	1474.80	968.41
.000343	25.	25.	25.	0	0	0	.00	63.17	1031.59
*SECNO 13200.000									
13200.00	4.91	1479.71	.00	.00	1479.90	.19	.01	.00	1482.70
629.	0.	629.	0.	0.	181.	0.	34.	11.	1482.70
.31	.00	3.47	.00	.000	.017	.000	.000	1474.80	969.29
.000379	25.	25.	25.	0	0	0	.00	61.41	1030.71
*SECNO 13225.000									
13225.00	4.91	1479.71	.00	.00	1479.91	.20	.01	.00	1482.80
629.	0.	629.	0.	0.	175.	0.	34.	11.	1482.80
.31	.00	3.59	.00	.000	.017	.000	.000	1474.80	969.87
.000415	25.	25.	25.	0	0	0	.00	60.26	1030.13
*SECNO 13250.000									
13250.00	4.91	1479.71	.00	.00	1479.92	.22	.01	.00	1482.90
629.	0.	629.	0.	0.	169.	0.	34.	11.	1482.90
.31	.00	3.72	.00	.000	.017	.000	.000	1474.80	970.44
.000456	25.	25.	25.	0	0	0	.00	59.11	1029.56
*SECNO 13268.000									
13268.00	4.88	1479.71	.00	.00	1479.94	.23	.01	.00	1483.00
629.	0.	629.	0.	0.	163.	0.	34.	11.	1483.03
.31	.00	3.86	.00	.000	.017	.000	.000	1474.83	971.00
.000502	18.	18.	18.	1	0	0	.00	57.92	1028.91
*SECNO 13305.000									
13305.00	4.83	1479.67	.00	.00	1479.98	.31	.02	.02	1483.40
629.	0.	629.	0.	0.	142.	0.	34.	11.	1483.40
.32	.00	4.44	.00	.000	.017	.000	.000	1474.84	977.98
.000569	38.	38.	38.	2	0	0	.00	44.05	1022.02

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SECNO     DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
Q         QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
TIME      VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN       SSTA
SLOPE     XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO  13340.000
 13340.00     4.86  1479.72      .00      .00  1480.00      .28      .02      .00  1483.40
     629.       0.     629.       0.       0.     147.       0.      34.      11.   1483.40
      .32      .00     4.27      .00     .000     .017     .000     .000  1474.86   977.66
  .000508      35.      35.      35.        2        0        0      .00    44.68  1022.34


*SECNO  13341.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
 13341.00     2.98  1480.17  1480.17      .00  1481.28     1.11      .00      .25  1483.20
     629.       0.     629.       0.       0.      74.       0.      34.      11.   1483.26
      .32      .00     8.46      .00     .000     .017     .000     .000  1477.19   982.99
  .003420       0.       0.       0.       20       14        0      .00    33.94  1016.93


*SECNO  13355.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

 13355.00     4.00  1481.20      .00      .00  1481.39      .18      .01      .09  1483.60
     629.       0.     629.       0.       0.     184.       0.      34.      11.   1483.60
      .32      .00     3.42      .00     .000     .017     .000     .000  1477.20   966.51
  .000405      15.      15.      15.        3        0        0      .00    66.97  1033.49


*SECNO  13375.000
 13375.00     3.99  1481.19      .00      .00  1481.40      .21      .01      .01  1483.90
     629.       0.     629.       0.       0.     170.       0.      34.      11.   1483.90
      .32      .00     3.70      .00     .000     .017     .000     .000  1477.20   968.17
  .000489      20.      20.      20.        2        0        0      .00    63.66  1031.83


*SECNO  13400.000
 13400.00     3.99  1481.19      .00      .00  1481.42      .23      .01      .00  1484.10
     629.       0.     629.       0.       0.     164.       0.      34.      11.   1484.10
      .32      .00     3.83      .00     .000     .017     .000     .000  1477.20   969.09
  .000532      25.      25.      25.        0        0        0      .00    61.82  1030.91
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 13425.000

13425.00	4.00	1481.20	.00	.00	1481.44	.24	.01	.00	1484.20
629.	0.	629.	0.	0.	159.	0.	34.	11.	1484.20
.32	.00	3.95	.00	.000	.017	.000	.000	1477.20	969.66
.000573	25.	25.	25.	0	0	0	.00	60.67	1030.34

*SECNO 13450.000

13450.00	4.00	1481.20	.00	.00	1481.46	.26	.01	.01	1484.30
629.	0.	629.	0.	0.	154.	0.	35.	11.	1484.30
.33	.00	4.09	.00	.000	.017	.000	.000	1477.20	970.30
.000627	25.	25.	25.	1	0	0	.00	59.39	1029.70

*SECNO 13475.000

13475.00	3.90	1481.20	.00	.00	1481.48	.29	.02	.01	1484.50
629.	0.	629.	0.	0.	147.	0.	35.	11.	1484.50
.33	.00	4.29	.00	.000	.017	.000	.000	1477.30	971.22
.000706	25.	25.	25.	1	0	0	.00	57.57	1028.78

*SECNO 13500.000

13500.00	3.90	1481.20	.00	.00	1481.51	.31	.02	.01	1484.60
629.	0.	629.	0.	0.	142.	0.	35.	12.	1484.60
.33	.00	4.44	.00	.000	.017	.000	.000	1477.30	971.80
.000768	25.	25.	25.	1	0	0	.00	56.40	1028.20

*SECNO 13525.000

13525.00	3.90	1481.20	.00	.00	1481.54	.34	.02	.01	1484.80
629.	0.	629.	0.	0.	134.	0.	35.	12.	1484.80
.33	.00	4.68	.00	.000	.017	.000	.000	1477.30	972.81
.000872	25.	25.	25.	2	0	0	.00	54.38	1027.19

*SECNO 13550.000

13550.00	3.91	1481.21	.00	.00	1481.57	.36	.02	.01	1484.90
629.	0.	629.	0.	0.	130.	0.	35.	12.	1484.90
.33	.00	4.83	.00	.000	.017	.000	.000	1477.30	973.34
.000944	25.	25.	25.	1	0	0	.00	53.33	1026.66

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
*SECNO 13575.000									
13575.00	3.91	1481.21	.00	.00	1481.60	.40	.03	.01	1485.00
629.	0.	629.	0.	0.	124.	0.	35.	12.	1485.00
.33	.00	5.06	.00	.000	.017	.000	.000	1477.30	974.02
.001064	25.	25.	25.	2	0	0	.00	51.96	1025.98
*SECNO 13600.000									
13600.00	3.93	1481.23	.00	.00	1481.63	.41	.03	.00	1485.20
629.	0.	629.	0.	0.	123.	0.	35.	12.	1485.20
.34	.00	5.11	.00	.000	.017	.000	.000	1477.30	974.54
.001074	25.	25.	25.	0	0	0	.00	50.92	1025.46
*SECNO 13625.000									
13625.00	3.93	1481.23	.00	.00	1481.67	.45	.03	.01	1485.30
629.	0.	629.	0.	0.	117.	0.	35.	12.	1485.30
.34	.00	5.37	.00	.000	.017	.000	.000	1477.30	975.22
.001221	25.	25.	25.	2	0	0	.00	49.56	1024.78
*SECNO 13650.000									
13650.00	3.92	1481.22	.00	.00	1481.72	.50	.03	.02	1485.50
629.	0.	629.	0.	0.	111.	0.	35.	12.	1485.50
.34	.00	5.66	.00	.000	.017	.000	.000	1477.30	976.07
.001394	25.	25.	25.	2	0	0	.00	47.86	1023.93
*SECNO 13668.000									
13668.00	3.90	1481.25	.00	.00	1481.75	.50	.03	.00	1485.50
629.	0.	629.	0.	0.	111.	0.	35.	12.	1485.55
.34	.00	5.68	.00	.000	.017	.000	.000	1477.35	975.90
.001415	18.	18.	18.	0	0	0	.00	48.09	1023.99
*SECNO 13705.000									
13705.00	3.87	1481.24	.00	.00	1481.83	.59	.05	.03	1485.90
629.	0.	629.	0.	0.	102.	0.	35.	12.	1485.93
.34	.00	6.18	.00	.000	.017	.000	.000	1477.37	980.84
.001411	38.	38.	38.	2	0	0	.00	38.27	1019.12

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SECNO     DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
Q         QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
TIME      VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
SLOPE     XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO  13740.000
 13740.00     3.99  1481.38      .00      .00  1481.88      .50      .04      .01  1485.90
     629.       0.     629.       0.       0.     111.       0.      35.      12.  1485.93
      .34      .00     5.66      .00     .000     .017     .000     .000  1477.39   980.17
  .001109      35.      35.      35.        2        0        0      .00    39.62  1019.79


*SECNO  13741.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
 13741.00     2.98  1482.70  1482.70      .00  1483.81     1.11      .00      .18  1485.70
     629.       0.     629.       0.       0.      75.       0.      35.      12.  1485.78
      .34      .00     8.44      .00     .000     .017     .000     .000  1479.72   982.93
  .003400       0.       0.       0.       20       15        0      .00    34.02  1016.95


*SECNO  13755.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

 13755.00     4.03  1483.75      .00      .00  1483.91      .17      .01      .09  1485.90
     629.       0.     629.       0.       0.     192.       0.      35.      12.  1485.94
      .34      .00     3.27      .00     .000     .017     .000     .000  1479.72   965.36
  .000363      15.      15.      15.        3        0        0      .00    69.15  1034.51


*SECNO  13775.000
 13775.00     4.02  1483.72      .00      .00  1483.93      .21      .01      .01  1486.50
     629.       0.     629.       0.       0.     171.       0.      35.      12.  1486.50
      .34      .00     3.67      .00     .000     .017     .000     .000  1479.70   968.29
  .000477      20.      20.      20.        2        0        0      .00    63.41  1031.71


*SECNO  13800.000
 13800.00     3.93  1483.73      .00      .00  1483.95      .22      .01      .00  1486.60
     629.       0.     629.       0.       0.     167.       0.      36.      12.  1486.60
      .35      .00     3.77      .00     .000     .017     .000     .000  1479.80   968.74
  .000512      25.      25.      25.        0        0        0      .00    62.52  1031.26
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 13825.000

13825.00	3.94	1483.74	.00	.00	1483.96	.23	.01	.00	1486.60
629.	0.	629.	0.	0.	165.	0.	36.	12.	1486.60
.35	.00	3.82	.00	.000	.017	.000	.000	1479.80	968.88
.000528	25.	25.	25.	0	0	0	.00	62.23	1031.12

*SECNO 13850.000

13850.00	3.95	1483.75	.00	.00	1483.98	.24	.01	.00	1486.70
629.	0.	629.	0.	0.	162.	0.	36.	12.	1486.70
.35	.00	3.89	.00	.000	.017	.000	.000	1479.80	969.33
.000553	25.	25.	25.	0	0	0	.00	61.33	1030.67

*SECNO 13875.000

13875.00	3.95	1483.75	.00	.00	1484.00	.25	.01	.00	1486.80
629.	0.	629.	0.	0.	158.	0.	36.	12.	1486.80
.35	.00	3.98	.00	.000	.017	.000	.000	1479.80	969.85
.000583	25.	25.	25.	0	0	0	.00	60.30	1030.15

*SECNO 13900.000

13900.00	3.96	1483.76	.00	.00	1484.02	.26	.01	.00	1486.90
629.	0.	629.	0.	0.	155.	0.	36.	12.	1486.90
.35	.00	4.05	.00	.000	.017	.000	.000	1479.80	970.27
.000608	25.	25.	25.	0	0	0	.00	59.46	1029.73

*SECNO 13925.000

13925.00	3.97	1483.77	.00	.00	1484.03	.27	.02	.00	1487.00
629.	0.	629.	0.	0.	152.	0.	36.	12.	1487.00
.36	.00	4.14	.00	.000	.017	.000	.000	1479.80	970.72
.000641	25.	25.	25.	0	0	0	.00	58.55	1029.28

*SECNO 13950.000

13950.00	3.98	1483.78	.00	.00	1484.05	.28	.02	.00	1487.10
629.	0.	629.	0.	0.	149.	0.	36.	12.	1487.10
.36	.00	4.22	.00	.000	.017	.000	.000	1479.80	971.14
.000670	25.	25.	25.	0	0	0	.00	57.73	1028.86

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 13975.000

13975.00	3.99	1483.79	.00	.00	1484.07	.29	.02	.00	1487.20
629.	0.	629.	0.	0.	146.	0.	36.	12.	1487.20
.36	.00	4.32	.00	.000	.017	.000	.000	1479.80	971.58
.000707	25.	25.	25.	0	0	0	.00	56.83	1028.42

*SECNO 14000.000

14000.00	3.99	1483.79	.00	.00	1484.10	.30	.02	.00	1487.30
629.	0.	629.	0.	0.	142.	0.	36.	12.	1487.30
.36	.00	4.42	.00	.000	.017	.000	.000	1479.80	972.04
.000749	25.	25.	25.	0	0	0	.00	55.92	1027.96

*SECNO 14025.000

14025.00	3.90	1483.80	.00	.00	1484.12	.32	.02	.01	1487.40
629.	0.	629.	0.	0.	138.	0.	36.	12.	1487.40
.36	.00	4.54	.00	.000	.017	.000	.000	1479.90	972.47
.000805	25.	25.	25.	1	0	0	.00	55.06	1027.53

*SECNO 14050.000

14050.00	3.91	1483.81	.00	.00	1484.15	.34	.02	.00	1487.50
629.	0.	629.	0.	0.	135.	0.	36.	12.	1487.50
.36	.00	4.65	.00	.000	.017	.000	.000	1479.90	972.90
.000851	25.	25.	25.	0	0	0	.00	54.20	1027.10

*SECNO 14075.000

14075.00	3.92	1483.82	.00	.00	1484.17	.35	.02	.00	1487.60
629.	0.	629.	0.	0.	133.	0.	37.	12.	1487.60
.36	.00	4.74	.00	.000	.017	.000	.000	1479.90	973.29
.000892	25.	25.	25.	0	0	0	.00	53.42	1026.71

*SECNO 14100.000

14100.00	3.93	1483.83	.00	.00	1484.20	.37	.02	.01	1487.70
629.	0.	629.	0.	0.	129.	0.	37.	12.	1487.70
.37	.00	4.88	.00	.000	.017	.000	.000	1479.90	973.80
.000955	25.	25.	25.	1	0	0	.00	52.40	1026.20

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 14125.000

14125.00	3.94	1483.84	.00	.00	1484.23	.39	.02	.01	1487.80
629.	0.	629.	0.	0.	126.	0.	37.	12.	1487.80
.37	.00	5.01	.00	.000	.017	.000	.000	1479.90	974.25
.001020	25.	25.	25.	1	0	0	.00	51.50	1025.75

*SECNO 14150.000

14150.00	3.93	1483.83	.00	.00	1484.28	.44	.03	.02	1487.90
629.	0.	629.	0.	0.	118.	0.	37.	12.	1487.90
.37	.00	5.33	.00	.000	.017	.000	.000	1479.90	975.02
.001203	25.	25.	25.	2	0	0	.00	49.95	1024.98

*SECNO 14175.000

14175.00	3.95	1483.85	.00	.00	1484.31	.46	.03	.01	1488.00
629.	0.	629.	0.	0.	115.	0.	37.	12.	1488.00
.37	.00	5.45	.00	.000	.017	.000	.000	1479.90	975.41
.001274	25.	25.	25.	1	0	0	.00	49.18	1024.59

*SECNO 14200.000

14200.00	3.97	1483.87	.00	.00	1484.35	.48	.03	.00	1488.00
629.	0.	629.	0.	0.	114.	0.	37.	12.	1488.00
.37	.00	5.54	.00	.000	.017	.000	.000	1479.90	975.55
.001332	25.	25.	25.	0	0	0	.00	48.90	1024.45

*SECNO 14225.000

14225.00	3.89	1483.89	.00	.00	1484.39	.50	.03	.01	1488.10
629.	0.	629.	0.	0.	111.	0.	37.	12.	1488.10
.37	.00	5.69	.00	.000	.017	.000	.000	1480.00	975.92
.001426	25.	25.	25.	1	0	0	.00	48.17	1024.08

*SECNO 14250.000

14250.00	3.91	1483.91	.00	.00	1484.44	.53	.04	.01	1488.20
629.	0.	629.	0.	0.	108.	0.	37.	12.	1488.20
.37	.00	5.85	.00	.000	.017	.000	.000	1480.00	976.33
.001530	25.	25.	25.	1	0	0	.00	47.34	1023.67

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 14268.000

14268.00	3.96	1483.94	.00	.00	1484.47	.52	.03	.00	1488.30
629.	0.	629.	0.	0.	108.	0.	37.	12.	1488.31
.37	.00	5.81	.00	.000	.017	.000	.000	1479.98	976.36
.001492	18.	18.	18.	0	0	0	.00	47.25	1023.61

*SECNO 14305.000

14305.00	3.98	1483.98	.00	.00	1484.52	.54	.05	.00	1488.50
629.	0.	629.	0.	0.	107.	0.	37.	13.	1488.56
.38	.00	5.89	.00	.000	.017	.000	.000	1480.00	980.42
.001240	38.	38.	38.	1	0	0	.00	39.07	1019.49

*SECNO 14340.000

14340.00	4.08	1484.10	.00	.00	1484.57	.47	.04	.01	1488.50
629.	0.	629.	0.	0.	115.	0.	37.	13.	1488.56
.38	.00	5.49	.00	.000	.017	.000	.000	1480.02	979.88
.001020	35.	35.	35.	2	0	0	.00	40.16	1020.04

*SECNO 14341.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

14341.00	2.99	1485.34	1485.34	.00	1486.44	1.10	.00	.19	1488.40
629.	0.	629.	0.	0.	75.	0.	37.	13.	1488.41
.38	.00	8.43	.00	.000	.017	.000	.000	1482.35	983.02
.003384	0.	0.	0.	20	15	0	.00	33.95	1016.97

*SECNO 14355.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

14355.00	4.06	1486.41	.00	.00	1486.55	.14	.01	.10	1488.10
629.	0.	629.	0.	0.	211.	0.	37.	13.	1488.12
.38	.00	2.98	.00	.000	.017	.000	.000	1482.35	962.99
.000289	15.	15.	15.	3	0	0	.00	73.94	1036.94

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
*SECNO 14375.000									
14375.00	4.01	1486.41	.00	.00	1486.56	.15	.01	.00	1488.30
629.	0.	629.	0.	0.	206.	0.	37.	13.	1488.30
.38	.00	3.06	.00	.000	.017	.000	.000	1482.40	963.85
.000309	20.	20.	20.	2	0	0	.00	72.31	1036.15
*SECNO 14400.000									
14400.00	4.01	1486.41	.00	.00	1486.57	.15	.01	.00	1488.40
629.	0.	629.	0.	0.	200.	0.	37.	13.	1488.40
.38	.00	3.14	.00	.000	.017	.000	.000	1482.40	964.44
.000330	25.	25.	25.	0	0	0	.00	71.11	1035.56
*SECNO 14425.000									
14425.00	4.01	1486.41	.00	.00	1486.58	.16	.01	.00	1488.60
629.	0.	629.	0.	0.	194.	0.	38.	13.	1488.60
.39	.00	3.25	.00	.000	.017	.000	.000	1482.40	965.36
.000356	25.	25.	25.	0	0	0	.00	69.28	1034.64
*SECNO 14450.000									
14450.00	4.02	1486.42	.00	.00	1486.59	.18	.01	.00	1488.80
629.	0.	629.	0.	0.	187.	0.	38.	13.	1488.80
.39	.00	3.36	.00	.000	.017	.000	.000	1482.40	966.27
.000385	25.	25.	25.	0	0	0	.00	67.46	1033.73
*SECNO 14475.000									
14475.00	4.02	1486.42	.00	.00	1486.60	.19	.01	.00	1488.90
629.	0.	629.	0.	0.	181.	0.	38.	13.	1488.90
.39	.00	3.47	.00	.000	.017	.000	.000	1482.40	966.92
.000418	25.	25.	25.	0	0	0	.00	66.17	1033.08
*SECNO 14500.000									
14500.00	4.02	1486.42	.00	.00	1486.62	.20	.01	.00	1489.10
629.	0.	629.	0.	0.	175.	0.	38.	13.	1489.10
.39	.00	3.60	.00	.000	.017	.000	.000	1482.40	967.82
.000455	25.	25.	25.	0	0	0	.00	64.36	1032.18

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
*SECNO 14525.000									
14525.00	4.02	1486.42	.00	.00	1486.64	.22	.01	.01	1489.30
629.	0.	629.	0.	0.	167.	0.	38.	13.	1489.30
.39	.00	3.76	.00	.000	.017	.000	.000	1482.40	968.79
.000505	25.	25.	25.	1	0	0	.00	62.41	1031.21
*SECNO 14550.000									
14550.00	3.92	1486.42	.00	.00	1486.66	.24	.01	.01	1489.40
629.	0.	629.	0.	0.	161.	0.	38.	13.	1489.40
.40	.00	3.92	.00	.000	.017	.000	.000	1482.50	969.43
.000564	25.	25.	25.	1	0	0	.00	61.15	1030.57
*SECNO 14575.000									
14575.00	3.92	1486.42	.00	.00	1486.68	.26	.01	.01	1489.60
629.	0.	629.	0.	0.	154.	0.	38.	13.	1489.60
.40	.00	4.08	.00	.000	.017	.000	.000	1482.50	970.33
.000621	25.	25.	25.	1	0	0	.00	59.34	1029.67
*SECNO 14600.000									
14600.00	3.92	1486.42	.00	.00	1486.70	.28	.02	.01	1489.70
629.	0.	629.	0.	0.	148.	0.	38.	13.	1489.70
.40	.00	4.25	.00	.000	.017	.000	.000	1482.50	971.01
.000688	25.	25.	25.	1	0	0	.00	57.99	1028.99
*SECNO 14625.000									
14625.00	3.92	1486.42	.00	.00	1486.73	.31	.02	.01	1489.90
629.	0.	629.	0.	0.	142.	0.	38.	13.	1489.90
.40	.00	4.44	.00	.000	.017	.000	.000	1482.50	971.91
.000765	25.	25.	25.	1	0	0	.00	56.18	1028.09
*SECNO 14650.000									
14650.00	3.91	1486.41	.00	.00	1486.76	.34	.02	.01	1490.10
629.	0.	629.	0.	0.	134.	0.	38.	13.	1490.10
.40	.00	4.70	.00	.000	.017	.000	.000	1482.50	972.93
.000881	25.	25.	25.	2	0	0	.00	54.14	1027.07

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
*SECNO 14675.000									
14675.00	3.92	1486.42	.00	.00	1486.79	.37	.02	.01	1490.20
629.	0.	629.	0.	0.	129.	0.	39.	13.	1490.20
.40	.00	4.88	.00	.000	.017	.000	.000	1482.50	973.51
.000968	25.	25.	25.	1	0	0	.00	52.97	1026.49
*SECNO 14700.000									
14700.00	3.91	1486.41	.00	.00	1486.83	.41	.03	.01	1490.40
629.	0.	629.	0.	0.	122.	0.	39.	13.	1490.40
.40	.00	5.17	.00	.000	.017	.000	.000	1482.50	974.48
.001117	25.	25.	25.	2	0	0	.00	51.03	1025.52
*SECNO 14725.000									
14725.00	3.90	1486.40	.00	.00	1486.87	.47	.03	.02	1490.60
629.	0.	629.	0.	0.	114.	0.	39.	13.	1490.60
.41	.00	5.51	.00	.000	.017	.000	.000	1482.50	975.48
.001310	25.	25.	25.	2	0	0	.00	49.04	1024.52
*SECNO 14750.000									
14750.00	3.80	1486.40	.00	.00	1486.93	.53	.04	.02	1490.70
629.	0.	629.	0.	0.	108.	0.	39.	13.	1490.70
.41	.00	5.83	.00	.000	.017	.000	.000	1482.60	976.16
.001524	25.	25.	25.	2	0	0	.00	47.68	1023.84
*SECNO 14775.000									
14775.00	3.78	1486.38	.00	.00	1486.99	.61	.04	.03	1490.90
629.	0.	629.	0.	0.	100.	0.	39.	13.	1490.90
.41	.00	6.28	.00	.000	.017	.000	.000	1482.60	977.20
.001842	25.	25.	25.	2	0	0	.00	45.61	1022.80
*SECNO 14788.000									
14788.00	3.85	1486.42	.00	.00	1487.02	.60	.02	.00	1490.90
629.	0.	629.	0.	0.	101.	0.	39.	13.	1490.95
.41	.00	6.21	.00	.000	.017	.000	.000	1482.57	977.08
.001783	13.	13.	13.	1	0	0	.00	45.72	1022.80

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 14825.000

14825.00	3.91	1486.50	.00	.00	1487.08	.57	.06	.00	1491.10
629.	0.	629.	0.	0.	103.	0.	39.	13.	1491.15
.41	.00	6.08	.00	.000	.017	.000	.000	1482.59	980.70
.001354	38.	38.	38.	1	0	0	.00	38.54	1019.24

*SECNO 14860.000

14860.00	4.04	1486.65	.00	.00	1487.13	.48	.04	.01	1491.10
629.	0.	629.	0.	0.	113.	0.	39.	13.	1491.15
.41	.00	5.57	.00	.000	.017	.000	.000	1482.61	980.01
.001060	35.	35.	35.	2	0	0	.00	39.91	1019.92

*SECNO 14861.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

14861.00	2.98	1487.92	1487.92	.00	1489.03	1.11	.00	.19	1491.00
629.	0.	629.	0.	0.	74.	0.	39.	13.	1491.00
.41	.00	8.45	.00	.000	.017	.000	.000	1484.94	983.04
.003398	0.	0.	0.	20	15	0	.00	33.92	1016.96

*SECNO 14875.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

14875.00	4.01	1488.95	.00	.00	1489.14	.19	.01	.09	1491.40
629.	0.	629.	0.	0.	181.	0.	39.	13.	1491.43
.41	.00	3.48	.00	.000	.017	.000	.000	1484.94	966.84
.000420	15.	15.	15.	3	0	0	.00	66.22	1033.07

*SECNO 14900.000

14900.00	3.96	1488.96	.00	.00	1489.15	.19	.01	.00	1491.50
629.	0.	629.	0.	0.	179.	0.	39.	13.	1491.50
.42	.00	3.52	.00	.000	.017	.000	.000	1485.00	967.22
.000434	25.	25.	25.	2	0	0	.00	65.56	1032.78

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 14925.000

14925.00	3.96	1488.96	.00	.00	1489.16	.20	.01	.00	1491.60
629.	0.	629.	0.	0.	176.	0.	39.	13.	1491.60
.42	.00	3.58	.00	.000	.017	.000	.000	1485.00	967.62
.000448	25.	25.	25.	0	0	0	.00	64.75	1032.38

*SECNO 14950.000

14950.00	3.97	1488.97	.00	.00	1489.18	.21	.01	.00	1491.70
629.	0.	629.	0.	0.	173.	0.	39.	13.	1491.70
.42	.00	3.63	.00	.000	.017	.000	.000	1485.00	968.04
.000465	25.	25.	25.	0	0	0	.00	63.91	1031.96

*SECNO 14975.000

14975.00	3.97	1488.97	.00	.00	1489.19	.22	.01	.01	1491.80
629.	0.	629.	0.	0.	166.	0.	39.	13.	1491.80
.42	.00	3.79	.00	.000	.017	.000	.000	1485.00	968.71
.000520	25.	25.	25.	1	0	0	.00	62.59	1031.29

*SECNO 15000.000

15000.00	3.98	1488.98	.00	.00	1489.21	.23	.01	.00	1491.90
629.	0.	629.	0.	0.	163.	0.	40.	13.	1491.90
.42	.00	3.86	.00	.000	.017	.000	.000	1485.00	969.13
.000542	25.	25.	25.	0	0	0	.00	61.73	1030.87

*SECNO 15025.000

15025.00	3.99	1488.99	.00	.00	1489.22	.24	.01	.00	1492.00
629.	0.	629.	0.	0.	161.	0.	40.	13.	1492.00
.42	.00	3.91	.00	.000	.017	.000	.000	1485.00	969.50
.000558	25.	25.	25.	0	0	0	.00	61.00	1030.50

*SECNO 15050.000

15050.00	4.00	1489.00	.00	.00	1489.24	.24	.01	.00	1492.00
629.	0.	629.	0.	0.	159.	0.	40.	13.	1492.00
.43	.00	3.95	.00	.000	.017	.000	.000	1485.00	969.63
.000574	25.	25.	25.	0	0	0	.00	60.74	1030.37

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 15075.000

15075.00	4.01	1489.01	.00	.00	1489.26	.25	.01	.00	1492.10
629.	0.	629.	0.	0.	157.	0.	40.	14.	1492.10
.43	.00	4.02	.00	.000	.017	.000	.000	1485.00	970.03
.000597	25.	25.	25.	0	0	0	.00	59.94	1029.97

*SECNO 15100.000

15100.00	3.91	1489.01	.00	.00	1489.28	.26	.02	.00	1492.20
629.	0.	629.	0.	0.	153.	0.	40.	14.	1492.20
.43	.00	4.12	.00	.000	.017	.000	.000	1485.10	970.44
.000637	25.	25.	25.	0	0	0	.00	59.12	1029.56

*SECNO 15125.000

15125.00	3.92	1489.02	.00	.00	1489.30	.27	.02	.00	1492.30
629.	0.	629.	0.	0.	150.	0.	40.	14.	1492.30
.43	.00	4.20	.00	.000	.017	.000	.000	1485.10	970.86
.000665	25.	25.	25.	0	0	0	.00	58.28	1029.14

*SECNO 15150.000

15150.00	3.93	1489.03	.00	.00	1489.31	.28	.02	.00	1492.40
629.	0.	629.	0.	0.	148.	0.	40.	14.	1492.40
.43	.00	4.26	.00	.000	.017	.000	.000	1485.10	971.21
.000686	25.	25.	25.	0	0	0	.00	57.57	1028.79

*SECNO 15175.000

15175.00	3.95	1489.05	.00	.00	1489.33	.29	.02	.00	1492.40
629.	0.	629.	0.	0.	146.	0.	40.	14.	1492.40
.43	.00	4.30	.00	.000	.017	.000	.000	1485.10	971.34
.000707	25.	25.	25.	0	0	0	.00	57.32	1028.66

*SECNO 15200.000

15200.00	3.96	1489.06	.00	.00	1489.36	.30	.02	.00	1492.50
629.	0.	629.	0.	0.	144.	0.	40.	14.	1492.50
.44	.00	4.38	.00	.000	.017	.000	.000	1485.10	971.73
.000736	25.	25.	25.	0	0	0	.00	56.55	1028.27

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 15225.000

15225.00	3.97	1489.07	.00	.00	1489.38	.31	.02	.00	1492.60
629.	0.	629.	0.	0.	141.	0.	40.	14.	1492.60
.44	.00	4.46	.00	.000	.017	.000	.000	1485.10	972.12
.000769	25.	25.	25.	0	0	0	.00	55.76	1027.88

*SECNO 15250.000

15250.00	3.98	1489.08	.00	.00	1489.40	.32	.02	.00	1492.70
629.	0.	629.	0.	0.	138.	0.	40.	14.	1492.70
.44	.00	4.55	.00	.000	.017	.000	.000	1485.10	972.51
.000804	25.	25.	25.	0	0	0	.00	54.97	1027.49

*SECNO 15275.000

15275.00	3.89	1489.09	.00	.00	1489.43	.33	.02	.00	1492.80
629.	0.	629.	0.	0.	136.	0.	40.	14.	1492.80
.44	.00	4.64	.00	.000	.017	.000	.000	1485.20	972.85
.000848	25.	25.	25.	0	0	0	.00	54.29	1027.15

*SECNO 15300.000

15300.00	3.91	1489.11	.00	.00	1489.45	.34	.02	.00	1492.80
629.	0.	629.	0.	0.	134.	0.	41.	14.	1492.80
.44	.00	4.70	.00	.000	.017	.000	.000	1485.20	972.99
.000878	25.	25.	25.	0	0	0	.00	54.02	1027.01

*SECNO 15325.000

15325.00	3.92	1489.12	.00	.00	1489.48	.36	.02	.00	1492.90
629.	0.	629.	0.	0.	131.	0.	41.	14.	1492.90
.44	.00	4.79	.00	.000	.017	.000	.000	1485.20	973.36
.000916	25.	25.	25.	0	0	0	.00	53.28	1026.64

*SECNO 15350.000

15350.00	3.93	1489.13	.00	.00	1489.50	.37	.02	.00	1493.00
629.	0.	629.	0.	0.	129.	0.	41.	14.	1493.00
.45	.00	4.88	.00	.000	.017	.000	.000	1485.20	973.74
.000960	25.	25.	25.	0	0	0	.00	52.53	1026.26

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 15375.000

15375.00	3.95	1489.15	.00	.00	1489.53	.38	.02	.00	1493.10
629.	0.	629.	0.	0.	126.	0.	41.	14.	1493.10
.45	.00	4.98	.00	.000	.017	.000	.000	1485.20	974.11
.001006	25.	25.	25.	0	0	0	.00	51.77	1025.89

*SECNO 15400.000

15400.00	3.96	1489.16	.00	.00	1489.56	.40	.03	.00	1493.20
629.	0.	629.	0.	0.	124.	0.	41.	14.	1493.20
.45	.00	5.06	.00	.000	.017	.000	.000	1485.20	974.43
.001043	25.	25.	25.	0	0	0	.00	51.13	1025.57

*SECNO 15425.000

15425.00	3.98	1489.18	.00	.00	1489.59	.41	.03	.00	1493.20
629.	0.	629.	0.	0.	123.	0.	41.	14.	1493.20
.45	.00	5.12	.00	.000	.017	.000	.000	1485.20	974.55
.001078	25.	25.	25.	0	0	0	.00	50.91	1025.45

*SECNO 15450.000

15450.00	4.00	1489.20	.00	.00	1489.62	.42	.03	.01	1493.30
629.	0.	629.	0.	0.	120.	0.	41.	14.	1493.30
.45	.00	5.22	.00	.000	.017	.000	.000	1485.20	974.92
.001134	25.	25.	25.	1	0	0	.00	50.16	1025.08

*SECNO 15468.000

15468.00	3.95	1489.19	.00	.00	1489.66	.46	.02	.01	1493.40
629.	0.	629.	0.	0.	115.	0.	41.	14.	1493.40
.45	.00	5.47	.00	.000	.017	.000	.000	1485.24	975.53
.001279	18.	18.	18.	2	0	0	.00	48.93	1024.47

*SECNO 15505.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

15505.00	4.14	1489.40	.00	.00	1489.71	.30	.03	.02	1493.50
629.	0.	629.	0.	0.	142.	0.	41.	14.	1493.50
.45	.00	4.42	.00	.000	.017	.000	.000	1485.26	976.29
.000612	38.	38.	38.	2	0	0	.00	47.42	1023.71

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 15540.000

15540.00	4.19	1489.47	.00	.00	1489.73	.26	.02	.00	1493.30
629.	0.	629.	0.	0.	153.	0.	41.	14.	1493.30
.46	.00	4.11	.00	.000	.017	.000	.000	1485.28	975.47
.000504	35.	35.	35.	2	0	0	.00	49.06	1024.53

THIS RUN EXECUTED 12/ 1/90 7:26:42

****
HEC2 RELEASE DATED SEPT 88

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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

EAST FORK CHANNEL

SUMMARY PRINTOUT

	SECNO	QCH	CWSEL	DEPTH	VCH	FRCH	SHEAR	10*KS	ELMIN	EG
	8150.000	1064.54	1451.47	4.77	7.11	.62	1.24	49.19	1446.70	1452.14
	8250.000	1027.79	1451.94	4.64	7.57	.67	1.41	57.15	1447.30	1452.69
	8350.000	1098.03	1452.51	4.21	7.75	.71	1.51	64.99	1448.30	1453.32
	8450.000	1094.68	1453.19	4.19	7.39	.66	1.36	55.86	1449.00	1453.93
	8550.000	1060.03	1453.66	4.06	9.11	.86	2.15	98.80	1449.60	1454.77
	8650.000	983.10	1454.86	4.56	7.19	.66	1.30	56.46	1450.30	1455.54
	8750.000	1091.03	1455.39	4.59	7.09	.62	1.24	48.90	1450.80	1456.07
	8850.000	1052.53	1455.86	4.86	7.91	.73	1.59	70.19	1451.00	1456.69
	8950.000	1056.29	1456.53	4.63	8.25	.75	1.72	72.96	1451.90	1457.43
	9044.100	1021.92	1457.25	4.75	8.13	.74	1.67	71.18	1452.50	1458.11
	9100.000	1045.40	1457.65	4.55	8.04	.72	1.62	67.91	1453.10	1458.50
	9200.000	1097.49	1458.34	4.44	7.84	.71	1.54	64.86	1453.90	1459.17
	9300.000	1121.87	1458.96	4.16	8.24	.75	1.71	73.03	1454.80	1459.88
	9400.000	1076.52	1459.78	4.48	7.78	.71	1.53	66.70	1455.30	1460.59
	9500.000	1052.13	1460.42	3.82	8.63	.81	1.92	87.26	1456.60	1461.40
	9603.000	968.11	1461.37	4.67	8.32	.76	1.76	76.17	1456.70	1462.25
*	9700.000	1012.75	1462.25	4.75	6.41	.55	1.00	38.14	1457.50	1462.79

SECNO	QCH	CWSEL	DEPTH	VCH	FRCH	SHEAR	10*KS	ELMIN	EG
9750.000	1035.87	1462.43	4.93	6.42	.55	1.00	37.84	1457.50	1462.98
9800.000	1191.39	1462.71	4.71	5.58	.46	.73	26.15	1458.00	1463.15
9850.000	1337.01	1463.01	4.81	4.14	.37	.42	17.03	1458.20	1463.27
9900.000	1375.00	1463.12	4.70	3.92	.36	.39	16.88	1458.42	1463.36
9950.000	1375.00	1463.25	4.62	3.55	.32	.37	16.16	1458.63	1463.45
9991.300	1375.00	1463.23	4.43	4.74	.40	.70	25.70	1458.80	1463.57
9992.300	1375.00	1463.15	4.35	5.73	.53	.30	13.30	1458.80	1463.66
10102.000	1375.00	1463.30	4.20	5.72	.53	.32	14.02	1459.10	1463.81
10103.000	1375.00	1463.50	4.37	4.80	.41	.72	26.83	1459.13	1463.85
10125.000	1375.00	1463.72	4.58	3.82	.34	.43	18.07	1459.14	1463.94
* 10150.000	1375.00	1463.77	4.62	3.56	.33	.07	2.98	1459.15	1463.97
10175.000	1375.00	1463.80	4.63	3.38	.32	.06	2.83	1459.17	1463.98
10200.000	1375.00	1463.83	4.65	3.22	.31	.06	2.68	1459.18	1463.99
10225.000	1375.00	1463.83	4.64	3.21	.31	.06	2.66	1459.19	1463.99
10250.000	1375.00	1463.84	4.64	3.21	.31	.06	2.67	1459.20	1464.00
10275.000	1375.00	1463.85	4.63	3.22	.31	.06	2.69	1459.22	1464.01
10300.000	1375.00	1463.85	4.62	3.23	.31	.06	2.71	1459.23	1464.02
10325.000	1375.00	1463.86	4.62	3.23	.31	.06	2.72	1459.24	1464.02
10350.000	1375.00	1463.87	4.62	3.24	.31	.06	2.73	1459.25	1464.03
10375.000	1375.00	1463.87	4.61	3.24	.31	.06	2.73	1459.26	1464.04
10400.000	1375.00	1463.88	4.60	3.25	.31	.06	2.77	1459.28	1464.04
10425.000	1375.00	1463.89	4.60	3.26	.31	.06	2.77	1459.29	1464.05
10450.000	1375.00	1463.89	4.59	3.26	.31	.06	2.78	1459.30	1464.06
10475.000	1375.00	1463.90	4.59	3.27	.31	.06	2.79	1459.31	1464.06
10500.000	1375.00	1463.91	4.58	3.28	.32	.06	2.82	1459.33	1464.07
10525.000	1375.00	1463.91	4.57	3.36	.32	.06	2.98	1459.34	1464.08

	SECNO	QCH	CWSEL	DEPTH	VCH	FRCH	SHEAR	10*KS	ELMIN	EG
	10550.000	1375.00	1463.91	4.56	3.45	.33	.07	3.17	1459.35	1464.09
	10575.000	1375.00	1463.91	4.55	3.56	.34	.07	3.39	1459.36	1464.10
	10600.000	1375.00	1463.92	4.54	3.54	.34	.07	3.38	1459.38	1464.11
	10625.000	1375.00	1463.90	4.51	3.88	.37	.08	3.99	1459.39	1464.13
	10650.000	1375.00	1463.87	4.47	4.29	.41	.10	4.80	1459.40	1464.16
	10675.000	1375.00	1463.84	4.43	4.81	.46	.13	5.95	1459.41	1464.20
	10700.000	1375.00	1463.82	4.39	5.15	.49	.15	6.79	1459.43	1464.23
	10725.000	1375.00	1463.83	4.39	5.14	.49	.15	6.75	1459.44	1464.24
	10750.000	1375.00	1463.95	4.50	4.53	.41	.11	4.72	1459.45	1464.27
*	10751.000	1375.00	1465.36	2.86	8.97	1.01	.50	32.13	1462.50	1466.61
*	10775.000	1375.00	1466.59	4.07	3.09	.31	.05	2.88	1462.52	1466.74
	10800.000	1375.00	1466.60	4.07	3.13	.32	.06	2.95	1462.53	1466.75
	10825.000	1375.00	1466.60	4.05	3.16	.32	.06	3.02	1462.55	1466.76
	10850.000	1375.00	1466.61	4.05	3.20	.33	.06	3.11	1462.56	1466.77
	10875.000	1375.00	1466.61	4.04	3.24	.33	.06	3.18	1462.57	1466.77
	10900.000	1375.00	1466.62	4.04	3.28	.33	.06	3.27	1462.58	1466.78
	10925.000	1375.00	1466.62	4.03	3.32	.34	.06	3.35	1462.59	1466.79
	10950.000	1375.00	1466.63	4.03	3.36	.34	.06	3.45	1462.60	1466.80
	10975.000	1375.00	1466.63	4.01	3.40	.35	.07	3.55	1462.62	1466.81
	11000.000	1375.00	1466.64	4.01	3.45	.35	.07	3.66	1462.63	1466.82
	11025.000	1375.00	1466.64	4.00	3.50	.36	.07	3.77	1462.64	1466.83
	11050.000	1375.00	1466.65	4.00	3.54	.36	.07	3.87	1462.65	1466.85
	11075.000	1375.00	1466.66	4.00	3.59	.37	.07	3.99	1462.66	1466.86
	11100.000	1375.00	1466.66	3.98	3.64	.37	.08	4.11	1462.68	1466.87
	11125.000	1375.00	1466.67	3.98	3.69	.38	.08	4.25	1462.69	1466.88
	11150.000	1375.00	1466.68	3.98	3.74	.38	.08	4.36	1462.70	1466.89

	SECNO	QCH	CWSEL	DEPTH	VCH	FRCH	SHEAR	10*KS	ELMIN	EG
	11175.000	1375.00	1466.68	3.97	3.80	.39	.08	4.50	1462.71	1466.91
	11200.000	1375.00	1466.69	3.97	3.85	.40	.08	4.63	1462.72	1466.92
	11225.000	1375.00	1466.70	3.96	3.93	.40	.09	4.78	1462.74	1466.94
	11250.000	1375.00	1466.70	3.95	4.00	.41	.09	4.93	1462.75	1466.95
	11275.000	1375.00	1466.71	3.95	4.08	.42	.10	5.09	1462.76	1466.97
	11300.000	1375.00	1466.72	3.95	4.16	.42	.10	5.24	1462.77	1466.99
	11325.000	1375.00	1466.73	3.95	4.29	.43	.10	5.48	1462.78	1467.01
	11350.000	1375.00	1466.73	3.94	4.43	.44	.11	5.72	1462.79	1467.03
	11375.000	1375.00	1466.73	3.92	4.58	.45	.12	6.00	1462.81	1467.06
	11400.000	1375.00	1466.75	3.93	4.58	.45	.12	6.03	1462.82	1467.07
	11425.000	1375.00	1466.77	3.94	4.56	.45	.12	5.99	1462.83	1467.09
	11444.000	1375.00	1466.90	4.05	3.86	.36	.08	3.64	1462.85	1467.13
*	11445.000	1375.00	1468.43	2.53	9.07	1.04	.39	26.94	1465.90	1469.70
*	11505.000	1375.00	1468.73	2.53	9.07	1.04	.39	26.94	1466.20	1470.00
*	11506.000	1375.00	1469.99	3.79	4.47	.43	.11	5.38	1466.20	1470.30
	11525.000	1375.00	1470.04	3.84	4.21	.42	.10	5.26	1466.20	1470.32
	11550.000	1375.00	1470.18	3.98	3.36	.33	.06	3.21	1466.20	1470.36
	11575.000	1375.00	1470.19	3.99	3.35	.33	.06	3.27	1466.20	1470.37
	11600.000	1375.00	1470.20	4.00	3.32	.34	.06	3.33	1466.20	1470.37
	11625.000	1375.00	1470.21	3.91	3.35	.35	.06	3.53	1466.30	1470.38
	11650.000	1375.00	1470.22	3.92	3.39	.35	.07	3.62	1466.30	1470.39
	11675.000	1375.00	1470.22	3.92	3.44	.35	.07	3.73	1466.30	1470.40
	11700.000	1375.00	1470.23	3.93	3.49	.36	.07	3.83	1466.30	1470.42
	11725.000	1375.00	1470.23	3.93	3.53	.36	.07	3.94	1466.30	1470.43
	11750.000	1375.00	1470.24	3.94	3.59	.37	.07	4.07	1466.30	1470.44
	11775.000	1375.00	1470.24	3.94	3.64	.38	.08	4.19	1466.30	1470.45

	SECNO	QCH	CWSEL	DEPTH	VCH	FRCH	SHEAR	10*KS	ELMIN	EG
	11800.000	1375.00	1470.25	3.95	3.69	.38	.08	4.32	1466.30	1470.46
	11825.000	1375.00	1470.25	3.85	3.80	.40	.08	4.66	1466.40	1470.48
	11850.000	1347.23	1470.24	3.84	4.12	.41	.10	4.98	1466.40	1470.50
	11875.000	1346.55	1470.25	3.85	4.18	.42	.10	5.12	1466.40	1470.52
	11900.000	1345.89	1470.26	3.86	4.24	.43	.10	5.28	1466.40	1470.53
	11925.000	1343.61	1470.27	3.87	4.24	.42	.10	5.18	1466.40	1470.54
	11950.000	1342.78	1470.28	3.88	4.30	.43	.10	5.32	1466.40	1470.56
	11975.000	1342.00	1470.28	3.88	4.38	.44	.11	5.51	1466.40	1470.58
	12000.000	1341.05	1470.29	3.89	4.47	.45	.11	5.74	1466.40	1470.60
	12025.000	1339.43	1470.30	3.80	4.60	.46	.12	6.21	1466.50	1470.62
	12050.000	1338.54	1470.31	3.81	4.69	.47	.12	6.45	1466.50	1470.64
	12075.000	1337.38	1470.32	3.82	4.79	.48	.13	6.72	1466.50	1470.66
	12100.000	1336.34	1470.33	3.83	4.88	.49	.13	6.97	1466.50	1470.69
*	12125.000	1375.00	1470.43	3.93	4.48	.47	.64	35.91	1466.50	1470.74
	12150.000	1375.00	1470.48	3.98	4.93	.49	.76	38.20	1466.50	1470.86
	12164.000	1375.00	1470.47	3.97	5.93	.59	1.11	56.79	1466.50	1471.01
*	12176.000	1375.00	1470.84	5.94	4.27	.31	.58	15.83	1464.90	1471.12
*	12177.000	1375.00	1470.81	5.91	4.65	.35	.13	3.73	1464.90	1471.15
	12237.000	1375.00	1470.82	5.62	4.89	.38	.14	4.27	1465.20	1471.19
	12238.000	1375.00	1470.90	5.70	4.45	.33	.11	3.25	1465.20	1471.21
*	12267.000	1375.00	1472.78	2.58	8.64	1.01	.47	32.87	1470.20	1473.94
*	12295.000	1375.00	1474.07	3.87	3.46	.36	.07	3.88	1470.20	1474.25
	12325.000	1375.00	1474.08	3.88	3.48	.36	.07	3.92	1470.20	1474.27
	12350.000	1375.00	1474.09	3.79	3.55	.37	.07	4.16	1470.30	1474.28
	12375.000	1375.00	1474.09	3.79	3.59	.38	.07	4.24	1470.30	1474.29
	12400.000	1375.00	1474.10	3.80	3.61	.38	.08	4.29	1470.30	1474.31

	SECNO	QCH	CWSEL	DEPTH	VCH	FRCH	SHEAR	10*KS	ELMIN	EG
	12425.000	1375.00	1474.11	3.81	3.65	.38	.08	4.37	1470.30	1474.32
	12450.000	1375.00	1474.12	3.82	3.68	.39	.08	4.45	1470.30	1474.33
	12475.000	1375.00	1474.13	3.83	3.71	.39	.08	4.51	1470.30	1474.34
	12500.000	1375.00	1474.14	3.84	3.74	.39	.08	4.59	1470.30	1474.36
	12525.000	1375.00	1474.15	3.85	3.78	.40	.08	4.67	1470.30	1474.37
	12550.000	1375.00	1474.16	3.76	3.86	.41	.09	4.97	1470.40	1474.39
	12575.000	1375.00	1474.17	3.77	3.90	.41	.09	5.05	1470.40	1474.40
	12600.000	1375.00	1474.18	3.78	3.93	.41	.09	5.14	1470.40	1474.42
	12625.000	1375.00	1474.19	3.79	4.01	.42	.09	5.36	1470.40	1474.44
	12650.000	1375.00	1474.19	3.79	4.10	.43	.10	5.61	1470.40	1474.46
	12675.000	1375.00	1474.21	3.81	4.10	.43	.10	5.53	1470.40	1474.47
	12700.000	1375.00	1474.22	3.82	4.19	.44	.10	5.77	1470.40	1474.49
	12725.000	1375.00	1474.20	3.80	4.70	.49	.13	7.24	1470.40	1474.54
	12750.000	1375.00	1474.14	3.64	5.67	.60	.19	10.95	1470.50	1474.64
	12775.000	1375.00	1474.04	3.54	7.03	.74	.29	16.83	1470.50	1474.81
*	12800.000	1375.00	1473.82	3.32	9.29	1.01	.52	31.63	1470.50	1475.16
*	12825.000	1375.00	1474.56	4.06	9.85	1.01	.57	30.85	1470.50	1476.07
*	12845.000	1375.00	1475.62	5.12	6.82	.63	.26	11.12	1470.50	1476.34
*	12846.000	629.00	1477.45	3.12	10.08	1.03	.52	27.75	1474.33	1479.03
*	12911.000	629.00	1477.77	3.12	10.08	1.03	.52	27.75	1474.65	1479.35
*	12912.000	629.00	1478.87	4.22	6.86	.60	.35	13.60	1474.65	1479.60
*	12925.000	629.00	1479.71	5.01	2.43	.23	.03	1.57	1474.70	1479.80
	12950.000	629.00	1479.71	5.01	2.50	.24	.03	1.67	1474.70	1479.81
	12975.000	629.00	1479.71	5.01	2.57	.25	.04	1.79	1474.70	1479.81
	13000.000	629.00	1479.71	5.01	2.64	.26	.04	1.91	1474.70	1479.82
	13025.000	629.00	1479.71	5.01	2.72	.27	.04	2.07	1474.70	1479.83

	SECNO	QCH	CWSEL	DEPTH	VCH	FRCH	SHEAR	10*KS	ELMIN	EG
	13050.000	629.00	1479.71	5.01	2.80	.28	.04	2.21	1474.70	1479.83
	13075.000	629.00	1479.71	5.01	2.90	.29	.05	2.41	1474.70	1479.84
	13100.000	629.00	1479.71	5.01	2.99	.30	.05	2.59	1474.70	1479.85
	13125.000	629.00	1479.71	4.91	3.09	.31	.05	2.84	1474.80	1479.86
	13150.000	629.00	1479.71	4.91	3.22	.33	.06	3.14	1474.80	1479.87
	13175.000	629.00	1479.71	4.91	3.33	.34	.06	3.43	1474.80	1479.88
	13200.000	629.00	1479.71	4.91	3.47	.36	.07	3.79	1474.80	1479.90
	13225.000	629.00	1479.71	4.91	3.59	.37	.08	4.15	1474.80	1479.91
	13250.000	629.00	1479.71	4.91	3.72	.39	.08	4.56	1474.80	1479.92
	13268.000	629.00	1479.71	4.88	3.86	.41	.09	5.02	1474.83	1479.94
	13305.000	629.00	1479.67	4.83	4.44	.44	.11	5.69	1474.84	1479.98
	13340.000	629.00	1479.72	4.86	4.27	.41	.10	5.08	1474.86	1480.00
*	13341.000	629.00	1480.17	2.98	8.46	1.01	.47	34.20	1477.19	1481.28
*	13355.000	629.00	1481.20	4.00	3.42	.36	.07	4.05	1477.20	1481.39
	13375.000	629.00	1481.19	3.99	3.70	.40	.08	4.89	1477.20	1481.40
	13400.000	629.00	1481.19	3.99	3.83	.41	.09	5.32	1477.20	1481.42
	13425.000	629.00	1481.20	4.00	3.95	.43	.09	5.73	1477.20	1481.44
	13450.000	629.00	1481.20	4.00	4.09	.45	.10	6.27	1477.20	1481.46
	13475.000	629.00	1481.20	3.90	4.29	.47	.11	7.06	1477.30	1481.48
	13500.000	629.00	1481.20	3.90	4.44	.49	.12	7.68	1477.30	1481.51
	13525.000	629.00	1481.20	3.90	4.68	.52	.13	8.72	1477.30	1481.54
	13550.000	629.00	1481.21	3.91	4.83	.54	.14	9.44	1477.30	1481.57
	13575.000	629.00	1481.21	3.91	5.06	.58	.16	10.64	1477.30	1481.60
	13600.000	629.00	1481.23	3.93	5.11	.58	.16	10.74	1477.30	1481.63
	13625.000	629.00	1481.23	3.93	5.37	.62	.18	12.21	1477.30	1481.67
	13650.000	629.00	1481.22	3.92	5.66	.65	.20	13.94	1477.30	1481.72

	SECNO	QCH	CWSEL	DEPTH	VCH	FRCH	SHEAR	10*KS	ELMIN	EG
	13668.000	629.00	1481.25	3.90	5.68	.66	.20	14.15	1477.35	1481.75
	13705.000	629.00	1481.24	3.87	6.18	.67	.23	14.11	1477.37	1481.83
	13740.000	629.00	1481.38	3.99	5.66	.60	.19	11.09	1477.39	1481.88
*	13741.000	629.00	1482.70	2.98	8.44	1.00	.46	34.00	1479.72	1483.81
*	13755.000	629.00	1483.75	4.03	3.27	.35	.06	3.63	1479.72	1483.91
	13775.000	629.00	1483.72	4.02	3.67	.39	.08	4.77	1479.70	1483.93
	13800.000	629.00	1483.73	3.93	3.77	.41	.09	5.12	1479.80	1483.95
	13825.000	629.00	1483.74	3.94	3.82	.41	.09	5.28	1479.80	1483.96
	13850.000	629.00	1483.75	3.95	3.89	.42	.09	5.53	1479.80	1483.98
	13875.000	629.00	1483.75	3.95	3.98	.43	.10	5.83	1479.80	1484.00
	13900.000	629.00	1483.76	3.96	4.05	.44	.10	6.08	1479.80	1484.02
	13925.000	629.00	1483.77	3.97	4.14	.45	.10	6.41	1479.80	1484.03
	13950.000	629.00	1483.78	3.98	4.22	.46	.11	6.70	1479.80	1484.05
	13975.000	629.00	1483.79	3.99	4.32	.47	.11	7.07	1479.80	1484.07
	14000.000	629.00	1483.79	3.99	4.42	.49	.12	7.49	1479.80	1484.10
	14025.000	629.00	1483.80	3.90	4.54	.51	.13	8.05	1479.90	1484.12
	14050.000	629.00	1483.81	3.91	4.65	.52	.13	8.51	1479.90	1484.15
	14075.000	629.00	1483.82	3.92	4.74	.53	.14	8.92	1479.90	1484.17
	14100.000	629.00	1483.83	3.93	4.88	.55	.15	9.55	1479.90	1484.20
	14125.000	629.00	1483.84	3.94	5.01	.57	.16	10.20	1479.90	1484.23
	14150.000	629.00	1483.83	3.93	5.33	.61	.18	12.03	1479.90	1484.28
	14175.000	629.00	1483.85	3.95	5.45	.63	.19	12.74	1479.90	1484.31
	14200.000	629.00	1483.87	3.97	5.54	.64	.19	13.32	1479.90	1484.35
	14225.000	629.00	1483.89	3.89	5.69	.66	.20	14.26	1480.00	1484.39
	14250.000	629.00	1483.91	3.91	5.85	.68	.22	15.30	1480.00	1484.44
	14268.000	629.00	1483.94	3.96	5.81	.68	.21	14.92	1479.98	1484.47

SECNO	QCH	CWSEL	DEPTH	VCH	FRCH	SHEAR	10*KS	ELMIN	EG
14305.000	629.00	1483.98	3.98	5.89	.63	.21	12.40	1480.00	1484.52
14340.000	629.00	1484.10	4.08	5.49	.57	.18	10.20	1480.02	1484.57
* 14341.000	629.00	1485.34	2.99	8.43	1.00	.46	33.84	1482.35	1486.44
* 14355.000	629.00	1486.41	4.06	2.98	.31	.05	2.89	1482.35	1486.55
14375.000	629.00	1486.41	4.01	3.06	.32	.05	3.09	1482.40	1486.56
14400.000	629.00	1486.41	4.01	3.14	.33	.06	3.30	1482.40	1486.57
14425.000	629.00	1486.41	4.01	3.25	.34	.06	3.56	1482.40	1486.58
14450.000	629.00	1486.42	4.02	3.36	.36	.07	3.85	1482.40	1486.59
14475.000	629.00	1486.42	4.02	3.47	.37	.07	4.18	1482.40	1486.60
14500.000	629.00	1486.42	4.02	3.60	.39	.08	4.55	1482.40	1486.62
14525.000	629.00	1486.42	4.02	3.76	.40	.08	5.05	1482.40	1486.64
14550.000	629.00	1486.42	3.92	3.92	.43	.09	5.64	1482.50	1486.66
14575.000	629.00	1486.42	3.92	4.08	.45	.10	6.21	1482.50	1486.68
14600.000	629.00	1486.42	3.92	4.25	.47	.11	6.88	1482.50	1486.70
14625.000	629.00	1486.42	3.92	4.44	.49	.12	7.65	1482.50	1486.73
14650.000	629.00	1486.41	3.91	4.70	.53	.14	8.81	1482.50	1486.76
14675.000	629.00	1486.42	3.92	4.88	.55	.15	9.68	1482.50	1486.79
14700.000	629.00	1486.41	3.91	5.17	.59	.17	11.17	1482.50	1486.83
14725.000	629.00	1486.40	3.90	5.51	.64	.19	13.10	1482.50	1486.87
14750.000	629.00	1486.40	3.80	5.83	.68	.22	15.24	1482.60	1486.93
14775.000	629.00	1486.38	3.78	6.28	.75	.25	18.42	1482.60	1486.99
14788.000	629.00	1486.42	3.85	6.21	.73	.25	17.83	1482.57	1487.02
14825.000	629.00	1486.50	3.91	6.08	.65	.23	13.54	1482.59	1487.08
14860.000	629.00	1486.65	4.04	5.57	.58	.19	10.60	1482.61	1487.13
* 14861.000	629.00	1487.92	2.98	8.45	1.00	.47	33.98	1484.94	1489.03
* 14875.000	629.00	1488.95	4.01	3.48	.37	.07	4.20	1484.94	1489.14

	SECNO	QCH	CWSEL	DEPTH	VCH	FRCH	SHEAR	10*KS	ELMIN	EG
	14900.000	629.00	1488.96	3.96	3.52	.38	.07	4.34	1485.00	1489.15
	14925.000	629.00	1488.96	3.96	3.58	.38	.08	4.48	1485.00	1489.16
	14950.000	629.00	1488.97	3.97	3.63	.39	.08	4.65	1485.00	1489.18
	14975.000	629.00	1488.97	3.97	3.79	.41	.09	5.20	1485.00	1489.19
	15000.000	629.00	1488.98	3.98	3.86	.42	.09	5.42	1485.00	1489.21
	15025.000	629.00	1488.99	3.99	3.91	.42	.09	5.58	1485.00	1489.22
	15050.000	629.00	1489.00	4.00	3.95	.43	.09	5.74	1485.00	1489.24
	15075.000	629.00	1489.01	4.01	4.02	.44	.10	5.97	1485.00	1489.26
	15100.000	629.00	1489.01	3.91	4.12	.45	.10	6.37	1485.10	1489.28
	15125.000	629.00	1489.02	3.92	4.20	.46	.11	6.65	1485.10	1489.30
	15150.000	629.00	1489.03	3.93	4.26	.47	.11	6.86	1485.10	1489.31
	15175.000	629.00	1489.05	3.95	4.30	.47	.11	7.07	1485.10	1489.33
	15200.000	629.00	1489.06	3.96	4.38	.48	.12	7.36	1485.10	1489.36
	15225.000	629.00	1489.07	3.97	4.46	.49	.12	7.69	1485.10	1489.38
	15250.000	629.00	1489.08	3.98	4.55	.50	.13	8.04	1485.10	1489.40
	15275.000	629.00	1489.09	3.89	4.64	.52	.13	8.48	1485.20	1489.43
	15300.000	629.00	1489.11	3.91	4.70	.53	.14	8.78	1485.20	1489.45
	15325.000	629.00	1489.12	3.92	4.79	.54	.14	9.16	1485.20	1489.48
	15350.000	629.00	1489.13	3.93	4.88	.55	.15	9.60	1485.20	1489.50
	15375.000	629.00	1489.15	3.95	4.98	.56	.15	10.06	1485.20	1489.53
	15400.000	629.00	1489.16	3.96	5.06	.57	.16	10.43	1485.20	1489.56
	15425.000	629.00	1489.18	3.98	5.12	.58	.16	10.78	1485.20	1489.59
	15450.000	629.00	1489.20	4.00	5.22	.59	.17	11.34	1485.20	1489.62
	15468.000	629.00	1489.19	3.95	5.47	.63	.19	12.79	1485.24	1489.66
*	15505.000	629.00	1489.40	4.14	4.42	.45	.11	6.12	1485.26	1489.71
	15540.000	629.00	1489.47	4.19	4.11	.41	.10	5.04	1485.28	1489.73

SUMMARY OF ERRORS AND SPECIAL NOTES

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WARNING SECNO=   9700.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  10150.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=  10751.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  10751.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  10751.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=  10775.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=  11445.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  11445.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  11445.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=  11505.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  11505.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=  11506.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  12125.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  12176.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  12177.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=  12267.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  12267.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  12267.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=  12295.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=  12800.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  12800.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=  12825.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  12825.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  12825.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=  12845.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
WARNING SECNO=  12845.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=  12846.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  12846.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  12846.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=  12911.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  12911.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=  12912.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
WARNING SECNO=  12912.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=  12925.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=  13341.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  13341.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  13341.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=  13355.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=  13741.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  13741.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  13741.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=  13755.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=  14341.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  14341.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  14341.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=  14355.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=  14861.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  14861.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  14861.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=  14875.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  15505.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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BID SCHDULE

PROJECT -
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
UPPER EAST FORK CAVE CREEK CHANNEL
UNION HILLS DRIVE TO BEARDSLEY ROAD

ITEM	DESCRIPTION	UNIT COST	QUANTITY	AMOUNT
100	MOBILIZATION/DEMOBILIZATION	$300,000	1 LS	$300,000
105a	SURVEYING AND STAKING	$95,000	1 LS	$95,000
105b	VERIFY FIELD DIMENSIONS & UTILITY	$15,000	1 LS	$15,000
107a	SHORING AND BRACING	$30,000	1 LS	$30,000
201	25 AC CLEARING AND GRUBBING	$25,000	1 LS	$25,000
211	FILL CONSTRUCTION	$1.70	12200 CY	$20,740
215	EARTHWORK OPENING CHANNELS	$5.00	126700 CY	$633,500
220	RIPRAP CONSTRUCTION	$25	794 CY	$19,850
225	WATERING	$100,000	1 LS	$100,000
301	SUBGRADE PREPARATION	$3.00	14888 SY	$44,664
310	UNTREATED BASE	$5.00	4170 TON	$20,850
312a	CEMENT TREATED BASE-PORTLAND CEME	$400.00	3.7 TON	$1,480
312b	CEMENT TREATED BASE-AGGREGATE	$200	107 TON	$21,400
321	ASPHALT CONCRETE (C 3/4" MIX)	$25	2148 TON	$53,700
329	TACK COAT,SS-IH	$360	4.28 TON	$1,541
336	PAVT MATCHING & REPLACMT	$40	53 TON	$2,120
340a	CONCRETE CURB AND GUTTER	$10.00	1190 LF	$11,900
340b	CONCRETE RIBBON CURB	$10.00	3000 LF	$30,000
340d	DRAINAGE SCUPPER	$1,000.00	1 EA	$1,000
345a	ADJUST MH COVER & FRAME	$300	14 EA	$4,200
345a	ADJUST VALVE BOXES	$100	14 EA	$1,400
350a	REMOVE EXISTING IMPROVEMENTS	$170,200	1 LS	$170,200
350b	REMOVE CONCRETE CURB AND GUTTER	$1	2582 LF	$2,582
401	DETOURS AND TRAFFIC CONTROL	$15,000	1 LS	$15,000
405	MONUMENTS TYPE "B" MAG 120-1	$250	1 EA	$250
415	FLEXIBLE METAL GUARDRAIL	$12	610 LF	$7,320
420b	6 FT CHAIN LINK FENCE	$13.00	8562 LF	$111,306
420a	6 FT CHAIN LINK FENCE GATE	$400.00	20 EA	$8,000
505a	CEMENT SLURRY BACKFILL	$70.00	1000 CY	$70,000
505b	CATCH BASIN TYPE "G" MAG 537	$2,500	1 EA	$2,500
505c	REINFORCING CONCRETE DROP STRUCTURE STA. 107+40	$62,179.00	1 LS	$62,179
505d	REINFORCED CONCRETE DROP STRUCTURE STA. 133+40	$44,600.00	1 LS	$44,600
505e	REINFORCED CONCRETE DROP STRUCTURE STA. 137+40	$44,600.00	1 LS	$44,600
505f	REINFORCED CONCRETE DROP STRUCTURE STA. 143+40	$44,600.00	1 LS	$44,600
505g	REINFORCED CONCRETE DROP	$44,600.00	1 LS	$44,600

BID SCHDULE

PROJECT -
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
UPPER EAST FORK CAVE CREEK CHANNEL
UNION HILLS DRIVE TO BEARDSLEY ROAD

ITEM	DESCRIPTION	UNIT COST	QUANTITY	AMOUNT
	STRUCTURE STA. 148+60			
505h	REINFORCED CONCRETE BOX CULVERT UNION HILLS DRIVE	$244,970.00	1 LS	$244,970
505i	REINFORCED CONCRETE BOX CULVERT SIESTA LANE	$198,922.00	1 LS	$198,922
505j	REINFORCED CONCRETE BOX CULVERT AND DROP STRUCTURE-B STREET	$213,033.00	1 LS	$213,033
505k	REINFORCED CONCRETE BOX CULVERT AND DROP STRUCTURE-UTOPIA ROAD	$134,512.00	1 LS	$134,512
505l	REINFORCED CONCRETE HEADWALL AND DROP STRUCTURE-BEARDSLEY ROAD	$41,481.00	1 LS	$41,481
505m	REINFORCED CONCRETE	$200.00	48 CY	$9,600
505n	REINFORCED CONCRETE ENCASEMENT AND PIPE SUPPORTS	$3,000.00	1 LS	$3,000
510	6-FT MASONRY BLOCK WALL	$15.00	130 LF	$1,950
610a	CUT AND PLUG EXIST WATERLINE	$65	3 EA	$195
610b	6-inch BURIED WATER LINE	$16	1144 LF	$18,304
610c	6-inch BURIED DUCTILE IRON WATER PIPE	$22	368 LF	$8,096
610d	12-inch BURIED DUCTILE IRON WATER WATER PIPE	$50.00	220 LF	$11,000
610e	CAST IRON FITTINGS	$3.00	500 LB	$1,500
612a	CUT AND PLUG EXIST SEWER OR MANHOLE OUTLET	$150.00	4 EA	$600
612b	8-inch SEWER PIPE AND FITTINGS	$32.00	1119 LF	$35,808
612c	8-inch DUCTILE RION SEWER PIPE AND FITTINGS	$44.00	219 LF	$9,636
612d	10-inch DUCTILE IRON SEWER PIPE AND FITTINGS	$50.00	349 LF	$17,450
612e	SANITARY SEWER SERVICE TAPS	$150.00	7 EA	$1,050
612f	SANITARY SEWER CLEANOUTS	$700.00	2 EA	$1,400
618	48-inch REINFORCED CONCRETE PIPE	$130.00	432 LF	$56,160
621	36-inch CORRUGATED METAL PIPE	$65.00	60 LF	$3,900
625a	48-inch MANHOLE	$2,400.00	16 EA	$38,400
625b	10-inch TIE-IN TO EXISTING MH	$1,000.00	1 EA	$1,000
625c	DROP SEWER CONNECTION	$1,000.00	11 EA	$11,000
630a	6-inch BURIED LINE VALVE	$1,200.00	11 EA	$13,200
630b	6-inch TAPPING SLEEVE AND VALVE	$1,800.00	1 EA	$1,800
630c	12-inch BURIED LINE VALVE	$2,200.00	2 EA	$4,400

BID SCHDULE

PROJECT -
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
UPPER EAST FORK CAVE CREEK CHANNEL
UNION HILLS DRIVE TO BEARDSLEY ROAD

ITEM	DESCRIPTION	UNIT COST	QUANTITY	AMOUNT
630d	12-inch TAPPING SLEEVE AND VALVE	$3,500.00	2 EA	$7,000
745	12-inch P.V.C.	$38.00	732 LF	$27,816
800	TEMPORARY CONCRETE BARRIER	$15.00	880 LF	$13,200
	TRASH RACK	$1,000.00	3 EA	$3,000
	CMP SLOTTED DRAIN ADOT C-13.60	$80.00	44 LF	$3,520
CONSTRUCTION SUBTOTAL				$3,197,985

OTHER PROJECT COSTS	PCT OF CONST COST	
DESIGN AND PROJECT ADMINISTRATION	15%	$479,698
FIELD ENGINEERING	10%	$319,798
ENGINEER'S OPINION OF TOTAL COST		$3,997,481

BID SCHEDULE

PROJECT -
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
UPPER EAST FORK CAVE CREEK CHANNEL
UNION HILLS DRIVE TO BEARDSLEY ROAD

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
100	Mobilization/Demobilization	1	LS		
105a	Surveying and Staking	1	LS		
105b	Verification of Field Dimensions and Utility Locations	1	LS		
107	Shoring and Bracing	1	LS		
201	Clearing and Grubbing	1	LS		
205	Roadway Excavation		CY		
211	Fill Construction		CY		
215	Earthwork for Open Channels		CY		
220	Riprap Construction		ton		
225	Watering		LS		
301	Subgrade Preparation		SY		
310	Untreated Base		ton		
312a	Cement Treated Base - Portland Cement		ton		
312b	Cement Treated Base - Aggregate		ton		
321	Asphalt Concrete Pavement		SY		
329	Tack Coat		ton		
340a	Concrete Curb and Gutter		LF		
340b	Concrete Ribbon Curb		LF		
340c	Concrete Sidewalk, Driveway, Valley Gutters & Aprons		SF		
340d	Drainage Scupper		ea		
345a	Adjust Frames		ea		

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
345b	Adjust Valve Boxes		ea		
350a	Remove Existing Improvements	1	LS		
350b	Remove Concrete Curb and Gutter		LF		
401a	Detours and Traffic Control	1	LS		
401b	Traffic Control - Uniformed Officer		hr		
405	Monuments		ea		
415	Flexible Metal Guardrail		LF		
420a	Chain Link Fence		LF		
420b	Chain Link Fence Gates		ea		
505a	Cement Slurry Backfill		CY		
505b	Reinforced Concrete Drop Structure Sta. 107+50	1	LS		
505c	Reinforced Concrete Drop Structure Sta. 133+40	1	LS		
505d	Reinforced Concrete Drop Structure Sta. 143+40	1	LS		
505e	Reinforced Concrete Drop Structure Sta. 148+60	1	LS		
505f	Reinforced Concrete Box Culvert - Union Hills Drive	1	LS		
505g	Reinforced Concrete Box Culvert - Siesta Lane	1	LS		
505h	Reinforced Concrete Box Culvert and Drop Sturcture - B Street	1	LS		
505i	Reinforced Concrete Box Culvert - Utopia Road	1	LS		
505j	Reinforced Concrete Headwall and Drop Structure - Beardsley Road	1	LS		
505k	Reinforced Concrete		CY		
505l	Reinforced Concrete Encasement and Pipe Supports	1	LS		

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
510	6-ft Masonry Block Wall		LF	______	______
610a	Cut and Plug Existing Waterline		ea	______	______
610b	6-inch Buried Water Pipe		LF	______	______
610c	6-inch Buried Ductile Iron Water Pipe		LF	______	______
610d	8-inch Buried Ductile Iron Water Pipe		LF	______	______
610e	12-inch Buried Ductile Iron Water Pipe		LF	______	______
610f	Cast Iron Fittings		lb	______	______
612a	Cut and Plug Existing Sewer or Manhole Outlet		ea	______	______
612b	8-inch Sewer Pipe and Fittings		LF	______	______
612c	8-inch Ductile Iron Sewer Pipe and Fittings		LF	______	______
612d	10-inch Ductile Iron Sewer Pipe and Fittings		LF	______	______
612e	Sanitary Sewer Service Taps		ea	______	______
612f	Sanitary Sewer Cleanouts		ea	______	______
618	48-inch Concrete Storm Drain Pipe		LF	______	______
625a	48-inch Manhole		ea	______	______
625b	8-inch Tie-in to Existing Manhole		ea	______	______
625c	Drop Sewer Connection		ea	______	______
630a	6-inch Buried Line Valve		ea	______	______
630b	8-inch Buried Line Valve		ea	______	______
630c	12-inch Buried Line Valve		ea	______	______
800	Temporary Concrete Construction Barrier		LF	______	______

TOTAL ESTIMATED CONSTRUCTION COST $______________________

____
WRITTEN WORDS

SECTION 100

GENERAL CONDITIONS

PART 1 GENERAL

1.01 WORK INCLUDED

A. This section adopts and adds to the requirements of the MAG Standard Specifications.

1.02 QUALITY ASSURANCE

A. All finished work shall be arranged so as to be readily accessible and easy to operate and maintain using tools and equipment normally available to the Owner's maintenance crews.

B. Combinations of manufactured equipment shall be fully compatible and work safely and successfully as a unit. Necessary mountings, couplings and appurtenances shall be included with each unit.

C. All tests of materials shall be made in accordance with commonly recognized standards of national technical organizations, and such special methods and tests as are described herein.

D. The Owner may test representative samples of each type and size of equipment or materials furnished. Failure of any materials or equipment to pass any tests shall be deemed sufficient cause to reject the entire lot delivered.

E. If equipment or materials are furnished which differ from that shown, and which require changes to enclosures, mounting and support structures, power and control circuitry or any other work to accommodate the furnished product, provide the changes required at no additional cost to the Owner and of the same quality as shown.

F. If relocation or adjustment of existing facilities is noted in the contract documents, items appurtenant to the noted piece of work shall also be relocated or adjusted as needed. If appurtenant items are lost or damaged during construction, they shall be replaced by the Contractor with items of equal or better quality.

1.03 REFERENCE STANDARDS

A. The "Uniform Standard Specifications for Public Works Construction" and the "Uniform Standard Details for Public Works Construction" which are sponsored and distributed by the Maricopa Association of Governments (MAG), and which are hereinafter referred to as the "MAG Standard Specifications," are hereby adopted as part of these contract documents. Copies of these documents, with revisions, may be obtained at the MAG office at 1820 West Washington Avenue, Phoenix, Arizona.

B. The City of Phoenix supplements to the MAG Standard Specifications are hereby adopted as part of these Contract Documents.

C. Standards listed as "Reference Standards" in the various sections of these contract documents are hereby incorporated into this specification by reference.

D. Referenced documents shall include all revisions, amendments, supplements or addenda issued on or before the date of advertising for bids.

E. In the event of any conflict between contract documents and adopted Standard Specifications and Reference Standards, the contract documents shall prevail.

F. Work shall conform to all federal state and local building codes, electrical codes, fire codes, mechanical codes and plumbing codes, and to the Occupational Safety and Health Act (OSHA) Regulations. Nothing in these contract documents shall be interpreted as permission or direction to violate any governing code or ordinance.

G. All construction practices and procedures shall conform to Section 107 of the Contract Work Hours and Safety Standards Act (U.S. Stat. 96, 40 U.S.C. 327).

1.04 DELIVERY, STORAGE AND HANDLING

A. Delivery, storage and handling are the Contractor's responsibility.

B. Deliver products to the jobsite in manufacturer's original, unopened, labeled packaging and adequately protect product against moisture, dust, debris, tampering, ultraviolet radiation, or damage from improper shipping, handling, storage or exposure.

C. Maintain records for Owner's review of deliveries to show Contractor's order number, purchase order number and equipment number. Labeling or shipping tag shall be included in records.

D. Handle materials with care and using proper equipment. No material or equipment shall be dropped, dragged, bumped, or handled in a manner that causes bruises, cracks or other damage. Improper handling shall be cause for rejection of materials or equipment mishandled.

1.05 PROJECT CONDITIONS

A. The Contractor, by signing his bid, warrants that he has familiarized himself with the nature and extent of the contract documents, work to be performed, all local conditions, and federal, state and local laws, rules and regulations that in any manner affect cost, progress or performance of the work.

B. Suitability of native soil for backfill shall be ascertained by Contractor before submitting bid. If native soil is found to be unsuitable, provide suitable material at no additional cost to Owner.

C. Drawings do not show every offset or structural difficulty that may be encountered. Unless dimensions are given, locations are approximate. Do not scale drawings.

D. Manhole rim elevations, valve box cover elevations and vault cover elevations are not shown on the drawings. Determine and set rim or cover elevations in the field so that finished rim or cover elevations are flush with finished pavement.

E. If directed by Owner's Representative, make reasonable modifications in layout as needed to prevent conflict with work by others or by other trades and to avoid structural difficulties or obstructions encountered in field.

F. Protect existing active services and utilities against damage from construction work. Do not shut down any active services or utilities except where previous written authorization has been obtained from the Owner's Representative, and authorities having ownership or jurisdiction. Unauthorized shutdowns shall only be made where necessary, as an emergency measure, to protect property or human life until proper authorization can be obtained.

G. If any utility is relocated or rebuilt for the convenience of the Contractor, the expense shall be borne by the Contractor. Any repair, replacement or relocation of buried utilities shall be completed at the Contractor's expense by either the utility's forces, or by a Contractor approved by the utility in writing and properly licensed to perform the work. Said work shall conform to all applicable MAG Standard Details and Specifications.

H. The Design Engineer has attempted to show the approximate location of buried utilities on the drawings. These approximate locations are based on:

1. Record maps requested from and furnished by the various utilities known to have facilities in the project vicinity.

2. Any comments received from utility companies after their review of preliminary plans showing record drawing information.

3. Field reconnaissance and plotting of locations of readily visible surface features including manhole covers, valve covers, marking posts, pavement repair strips, and culvert end sections which might indicate the presence of buried utilities.

I. Utility information is plotted on drawings for the sole purpose of assisting the Contractor in locating buried utilities. Plotted utility locations are based solely on record drawings and surface features. These plotted locations may not accurately reflect subsurface conditions.

J. Any damage to underground utilities, pipelines or other facilities whose existence is shown on the plans or identified by "Blue Staking" shall be repaired by the Contractor at no expense to the Owner. Exact determination of the location of these utilities, pipelines other facilities shall be the responsibility of the Contractor.

K. The potential for hazardous conditions exists in and around sewers. Take proper care to ensure worker safety. Maintain adequate ventilation at all times. When working inside sewer pipes and manholes, place hazardous gas detectors in sewers to warn workers of the presence of methane, hydrogen sulfide and other sewer gases.

L. All items furnished shall be capable of fulfilling their intended purpose in the environment in which they are installed. Allowances shall be made for local temperature extremes and climactic conditions where necessary to ensure proper functioning of any furnished item.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Lists of acceptable manufacturers for contract items are not intended to be exclusive unless so stated.

B. Products accepted as "equals" shall, in the Owner's opinion, meet the following requirements:

1. Products shall be standard products of a reputable manufacturer regularly engaged in the manufacture of items furnished.

2. Products shall have a reputation for assuring long-lasting trouble-free service.

3. Authorized, factory trained and competent service personnel, and stocked service parts shall be available within a 150-mile radius of the installation.

4. The manufacturer shall be capable of furnishing certification of compliance with all listed reference standards.

C. Similar items on the project shall be products of the same manufacturer.

2.02 MATERIALS AND EQUIPMENT

A. Materials and equipment shall be new and of current manufacture, free from all defects and imperfection that might affect the serviceability of the product for its intended purpose.

B. Corresponding parts of identical materials or equipment shall be interchangeable.

C. Design and fabricate materials and equipment to withstand all stresses and loads which may occur during testing, installation, start-up and normal operation.

D. Furnish guides, bearing plates, flanges,anchor and attachment bolts, saddles, supports, pads and skids necessary to securely mount mechanical and electrical products and equipment.

E. Sources of backfill or fill materials and locations of hauloff disposal shall be reviewed and approved in writing by the appropriate agency having floodplain management jurisdiction.

PART 3 EXECUTION

3.01 INSPECTION

A. Maintain a complete set of contract documents on the jobsite at all times.

B. The Owner reserves the right to inspect any manufacturing operation to ensure compliance with these contract documents. Waiver by the Owner of this right to inspect shall in no way relieve the Contractor of his duties of compliance.

C. Notify Owner's Representative of time and place of shop tests 5 working days before they begin.

D. Request inspection by the Owner's Representative as needed to verify proper installation of buried work before backfilling.

E. Request inspection by the Owner's Representative as needed to verify that no surfaces to receive a material or product have defects or errors which could result in poor or potentially defective application or cause latent defects in workmanship.

F. When in the Owner's opinion, it becomes necessary to more fully describe the work to be done, or to show any required changes, "supplementary drawings" with specifications pertaining thereto will be prepared by the Owner and delivered to the Contractor. Supplementary drawings shall be added to the contract documents. Where such supplementary drawings require either less or more work than was bid, credit to the Owner or compensation to the Contractor shall be subject to the terms of the Contract.

G. If the Contractor fails to comply with a request of the Owner's Representative, or is unable to comply with said request, and it is necessary for the Owner's forces to do work that is normally the Contractor's responsibility, the Owner shall be justified in billing the Contractor. Each incident requiring work by the Owner's forces shall be covered by a separate billing.

H. The Contractor agrees to make no claim for damages for delay in the performance of this contract occasioned by any act or omission of the Owner or any representative of the Owner, and agrees that any subject claim shall be fully compensated for by only an extension of time to complete the performance of the work in accordance with the contract documents.

3.02 PREPARATION

A. No work shall be started until after all required permits, licenses, and easements have been obtained.

B. The Contractor shall, at his own expense, obtain any necessary temporary easements which he may require for construction activities outside of existing easements and/or rights of way secured by the Owner.

C. Remove all obstruction in right-of-way before starting construction. Where private property, such as parked cars, must be removed prior to construction, notify the respective property owners 72 hours in advance of right of way clearing to allow them to remove their property.

D. Preserve all benchmarks, monuments and property corners. Replace benchmarks, monuments or corners moved or destroyed during construction. Contractor and his sureties shall be liable for correct replacement of disturbed survey benchmarks except where the Owner elects to replace monuments using his own forces.

E. Construct and maintain all access or haul roads required for equipment, material, and personnel movement into and within construction and excavation areas, subject to prior approval by the Owner. Access facilities shall provide for surface drainage. Areas used for temporary access, haul roads and access from public roads shall be graded and restored to original site grade conditions to the Owner's satisfaction.

F. Provide scaffolding, rigging, hoisting and services needed to safely deliver and install equipment and materials. Remove same from premises when installation is complete.

G. Pothole sufficiently far enough ahead of pipe and conduit laying operations to allow for adjustment in alignment or grade line, to verify pipe types and sizes for ordering proper transition and/or tie-in fittings, and so that the Owner's Representative may verify that no buried utilities interfere with the proposed construction. If potholing is not done, repair or replacement of damaged utilities and all necessary horizontal and vertical realignments shall be paid for entirely by the Contractor.

3.03 INSTALLATION/APPLICATION/ERECTION

A. All work shall be done by qualified personnel who are technically skilled in their trades, thoroughly instructed, and under continuous competent supervision.

B. Where not more specifically described, workmanship shall conform to the best standards and accepted practices of the trade or trades involved and shall include all items of fabrication, construction or installation regularly furnished or required for completion.

C. Install products according to manufacturer's installation and warranty requirements. Install products to tolerances recommended by manufacturer.

D. Refer variances between manufacturer's installation instructions and contract documents to Owner's Representative.

E. Install equipment true and level using precision gauges and levels.

F. When completed, all work shall have been durably and substantially built and shall present a neat workmanlike appearance.

G. Welds shall be continuous, watertight, and shall conform to the Structural Welding Code of the American Welding Society. Welds shall be free of sharp points or edges.

H. Pipework, valves, fittings, tanks and appurtenances shall have no noticeable leaks at design pressures.

I. Exposed surfaces shall be finished in appearance. Grind smooth all exposed welds. Round or chamfer corners of exposed structural shapes for personal protection.

J. Prime and paint exposed surfaces of all ferrous equipment, piping, conduit, and materials except for stainless steel or galvanized or sherardized surfaces. After installation, clean painted surfaces and touch up bare or marred spots with finish to match factory finish.

K. Painted or coated surfaces shall be free from blisters, holidays and holes. Painting or coating shall adhere to surface at all temperatures encountered in field, shall be smooth, not brittle when cold, and shall not become sticky when exposed to the sun.

L. Clean and protect machined surfaces and shafting from corrosion using proper type and amount of coating to assure protection to 1 year after final acceptance.

M. The Owner reserves the right to require minor changes in location of utilities, outlets or equipment prior to roughing in, without incurring any additional costs or charges.

3.04 FIELD QUALITY CONTROL

A. Compaction tests will be paid for by the Owner for the first test at any location. Retests at failing locations shall be at the Contractor's expense. Costs of retests will be debited from Contractor's final payment.

B. All other testing required under these Contract Documents shall, at the Contractor's expense, be performed and results certified by an independent laboratory approved by the Owner. Provide all labor, materials, tools, instruments, water, and power needed for tests required herein.

C. Notify Owner's Representative and regulating authorities 3 days before all tests.

D. Field tests shall be made in the presence of the Owner's Representative and the results recorded by him.

E. Repair, correct or replace all work failing tests or inspection. Repeat tests until results satisfy these specifications. Repair any damages resulting from tests.

3.05 ADJUSTING AND CLEANING

A. After all work under the contract is completed, remove from the site of the work all loose concrete, lumber, wire, reinforcing, rubbish, debris and other materials not incorporated in the work.

3.06 CONTRACT CLOSEOUT

A. Upon completion of this contract, all work shall be finished, tested and ready for operation. All work shall fulfill its intended purpose as described in these contract documents, in submittals, and in manufacturer's literature.

B. Where connections or disruptions have been made to existing work, repair, reactivate, refill and recharge all components, restoring them to preconstruction conditions. Follow procedures of authorities having ownership or jurisdiction for all work involving existing utilities and services.

END OF SECTION

01000/OCT90/DJP

SECTION 101

ABBREVIATIONS AND DEFINITIONS

PART 1 GENERAL

1.01 This section replaces the list of abbreviations in the MAG Standard Specifications.

1.02 ABBREVIATIONS

A. Wherever the following abbreviations are used in these contract documents, they are to be considered the same as the respective expressions represented.

AASHTO	American Association of State Highway and Transportation Officials
AAN	American Association of Nurserymen
AB	Aggregate base or Anchor bolt
Aban	Abandon
ABC	Aggregate base course
AC	Asphalt cement or concrete
ACB	Asphalt concrete base
ACI	American Concrete Institute
ACP	Asbestos cement pipe
ACPA	American Concrete Pipe Association
ACWS	Asphalt concrete wearing surface
AFRB	Arizona Fire Rating Bureau
AGC	Associated General Contractors of America,Inc.
Agg	Aggregate
ADOT	Arizona Department of Transportation
Ahd	Ahead
AIA	American Institute of Architects
AIEE	American Institute of Electrical Engineers
AISC	American Institute of Steel Construction
Alum	Aluminum
ANSI	American National Standards Institute
APA	American Plywood Association
Approx	Approximate
APS	Arizona Public Service
APWA	American Public Works Association
AR	Aged residue
ARS	Arizona Revised Statutes
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
Asph	Asphalt
ASTM	American Society for Testing Materials
Ave	Avenue
AWPA	American Wood Preservers Association
AWSC	American Welding Society Code
AWWA	American Water Works Association

Bbl	Barrel
BC	Beginning of curve
BCR	Beginning of curb return
Beg	Beginning
Bk	Book or Back
Blvd	Boulevard
BM	Bench mark or Broad measure
Brg	Bearing
BST	Bituminous surface treatment
BTB	Bituminous treated base
BTU	British thermal units
BVC	Beginning of vertical curve
C	Centigrade or Curb
CB	Catch basin
CBF&C	Catch basin frame & cover
CC or C/C	Center to Center
CE	City or County Engineer
Cem	Cement
CF	Curb face
cfs	Cubic feet per second
CIP	Cast iron pipe
CIPP	Cast-in-place concrete pipe
CL or C	Centerline
Cm	Centimeter
CMP	Corrugated metal pipe
CMU	Concrete masonry unit
CO	Clean out
Col	Column
Conc	Concrete
Const	Construct
Cont	Continuous
CP	Concrete pipe (non-reinforced)
CTB	Cement treated base
Cu	Cubic
Deg	Degree
DF	Douglas fir
DG	Decomposed granite
Dia	Diameter
Dim	Dimension
DIP	Ductile iron pipe
DIPRA	Ductile Iron Pipe Research Association
Div	Diversion
Dr	Drive
Drwg	Drawing
Dwy	Driveway
Ea	Each
Ease	Easement
E	East

EC	End of curve
ECR	End of curb return
El	Elevation
Eq	Equation
EVC	End of vertical curve
Exist	Existing
F	Fahrenheit
FB	Field book
F&C	Frame & cover
FH	Fire hydrant
FL or F	Floor line or flow line
Fl El	Floor elevation
Fnd	Found
fps	Feet per second
FS	Finished surface
FSS	Federal Specifications and Standards
Ft	Foot or feet
G	Gutter
Ga	Gage
Galv	Galvanized
GL	Ground line
gpm	Gallons per minute
Gr	Grade
H	High or height
HC	House connection
Hdwl	Headwall
Horiz	Horizontal
Hwy	Highway
ICA	Industrial Commission of Arizona
ID	Improvement District or Inside diameter
IE	Invert elevation
IEEE	Institute of Electrical and Electronic Engineers
In	Inch
Inv	Invert
IP	Iron pipe
IPS	Iron pipe size
Irrig	Irrigation
Jt	Joint
JC	Junction chamber
Jct	Junction
JS	Junction structure
L	Length
Lb	Pound
L&T	Lead and tack
LD	Local depression

LF	Linear feet
LH	Lamp hole
Lin	Linear
Long	Longitudinal
Lt	Left
M	Map or maps
MAG	Maricopa Association of Governments
Max	Maximum
MCR	Maricopa County Records
Meas	Measured
MH	Manhole
MHF&C	Manhole frame and cover
Min	Minutes or minimum
Misc	Miscellaneous
ML or M	Monument line
Mm	Millimeter
Mon	Monolithic or monument
MTD	Multiple tile duct
N	North
NBS	National Bureau of Standards
NCPI	National Clay Pipe Institute
NE	Northeast
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NP	Non-plastic
NPI	Non pay item
NSC	National Safety Council
NSF	National Sanitation Foundation
NW	Northwest
No	Number
OC	On center
OD	Outside diameter
Oz	Ounces
PC	Point of curvature
PCC	Point of compound curve or Portland cement concrete
PE	Professional Engineer or Polyethylene
PI	Point of intersection or plastic index
PL	Property line
POC	Point of curve
POS	Point of spiral
PP	Power pole
ppm	Parts per million
PRC	Point of reverse curve
Prod	Produced
Prop	Proposed or property

psi	Pounds per square inch
psf	Pounds per square foot
PT	Point of tangent
P&TP	Power and telephone pole
PVC	Polyvinyl chloride
Pvmt	Pavement
Q	Rate of flow
R	Radius
RC	Reinforced concrete
RCP	Reinforced concrete pipe
Rd	Road
Rdwy	Roadway
Reinf	Reinforced, Reinforcing
Reqd	Required
Ret Wall	Retaining wall
RGRCP	Rubber gasket reinforced concrete pipe
rpm	Revolutions per minute
Rt	Right
R/W	Right-of-way
S	South or slope
SAE	Society of Automotive Engineers
San	Sanitary
SC	Spiral to curve
SCCP	Steel cylinder concrete pipe
Sch	Schedule
SD	Storm drain or Sewer District
Sdl	Saddle
Sec	Seconds
Sect	Section
SE	Southeast
Sht	Sheet
Spec	Specifications
SPR	Simplified Practice Recommendation
SpMH	Special manhole
SqFtYd	Square foot, Yard
SRP	Salt River Project
SS	Sanitary sewer or Stainless steel
St	Street
Sta	Station
Std	Standard
Stl	Steel
Str gr	Structural grade
Struct	Structure or structural
SW	Southwest
T	Tangent distance
Tel	Telephone
Temp	Temporary
TH	Test hole

TP	Telephone pole
Tr	Tract
Trans	Transition
TS	Traffic signal or Tangent to spiral
TSC	Traffic signal conduit
TS&V	Tapping sleeve and valve
Typ	Typical
UL	Underwriters Laboratories Inc.
USC&GS	United States Coast and Geodetic Survey
USGS	United States Geological Survey
V	Velocity of Flow
VB&C	Valve Box and Cover
VC	Vertical Curve
VCP	Vitrified Clay Pipe
Vert	Vertical
W	West or Width
WI	Wrought Iron
WS	Wearing Surface
Wt	Weight
W/	With
Yd	Yard
'	feet or minutes
"	inches or seconds
%	percent
#	number or pound
@	at
/	per
=	equals

PART 2 PRODUCTS
not used

PART 3 EXECUTION
not used

END OF SECTION

01070/DEC89/DJP

SECTION 104

SCOPE OF WORK

PART 1 GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

A. This section adds to Section 104 of the MAG Standard Specification and outlines the scope of work of the project.

B. The work includes the furnishing of all materials, labor, equipment, tools, transportation, and services to construct the following:

- Permanent fencing of the Flood Control District channel right-of-way.
- Demolition and clearing and grubbing within the project right-of-way.
- Relocation of water and sewer utilities within the project right-of-way.
- Construction of a Sanitary Sewer Trunk described in a separate set of contract documents prepared by Project Engineering Consultants.
- Detour roadways for use during construction.
- Permanent roadway relocations.
- Flood control open channel with earth lining, riprap and concrete drop structures.
- Pipe culverts and box culverts for roadway crossings.

C. The purpose of this project is to provide 100-year flood control for the Upper East Fork of Cave Creek.

D. Work shall be completed within 335 calendar days of Contractor's receipt of notice to proceed.

1.02 DEFINITIONS

A. The following additions are made to the definitions stated in Section 101.2 of the MAG Standard Specifications.

1.	City:	City of Phoenix, Arizona
2.	Design Engineer:	NBS/Lowry
3.	Owner:	Flood Control District of Maricopa County
4.	Owner's Representative:	An individual to be designated by the Flood Control District of Maricopa County in writing.

1.03 WORK UNDER OTHER CONTRACTS

A. The following work will be done by others in the project vicinity concurrent with this contract:

- Stockpiling of landscaping salvaged by others will occur on the east side of the channel adjacent to and north of Union Hills Drive.

1.04 FUTURE WORK

A. The following work will be done by others under a future contract:

- Landscaping and irrigation.

PART 2 PRODUCTS

2.01 OWNER-FURNISHED AND NON-FURNISHED ITEMS

A. **Soil borings and analysis** have been performed by the Owner for design purposes only and are available for examination at the offices of the Owner. Bidders shall make borings, test pits or such other investigations as they deem necessary to determine the character, location and amounts of subsurface materials to be encountered. Before submitting his bid, the Contractor shall make his own determination as to the soil and subsurface conditions and shall complete his work in whatever material and under whatever condition he may encounter without extra cost to the Owner.

B. **Construction water** shall be obtained through a fire hydrant meter and purchased from the City.

C. **Staking** required shall be provided by the Contractor.

D. **Excavation disposal** shall be at a suitable site for disposal to be obtained by the Contractor.

PART 3 EXECUTION

3.01 WORK SEQUENCE

A. The general sequence of work shall be as follows:

- Before beginning work, coordinate with servicing electrical utility regarding electric service to the site. Obtain required permits, licenses and easements. Call Blue Stake. Pothole as needed to supplement Blue-Staking. Submit proposed schedule of work.
- Relocate K Street and utilities in K Street.
- Complete demolition clearing and grubbing. Begin rough excavation.
- Construct new trunk sewer in advance of utiility relocations.
- Construct utility relocations and roadways according to approved schedule of work moving upstream along the channel right-of-way from Union Hills to Beardsley.
- Complete channel construction and culverts.
- Demonstrate satisfactory operation of all installed work.
- Clean up and restore construction areas.

B. All work within Paradise Shadows Mobile Home park shall be completed within a 90 day window.

C. Construction in Union Hills Drive and Beardsley Road shall not be done simultaneously, to ensure that one east-west arterial remains open throughout the project duration.

END OF SECTION

01010/FEB90/DJP

SECTION 105

CONTROL OF WORK

PART 1 GENERAL

1.01 WORK INCLUDED

A. This section adds to the requirements of the MAG Standard Specifications governing submittals.

1.02 SUBMITTALS

A. Submittals shall clearly note any exception to or departure from the contract documents along with justification for each exception or departure. Otherwise, review or approval of submittals shall not constitute approval of exceptions or departures.

B. Each submittal shall include the following, or it will be returned without review and stamped "REJECTED":

- Project name, Owner's project number, and description
- Submittal number and revision number
- Submittal date and revision dates
- Reference to the applicable section of the specifications or MAG Uniform Standard Specifications and page number
- Name of Contractor or Subcontractor
- Contractor's stamp, initialed or signed, dated, and certifying to review of submittal, certification of field measurements and compliance with Contract
- Space for the Owner's Representative's stamp
- Identification of exceptions or departures from the contract documents

C. In addition, shop drawings, catalog data, installation or application instructions and operation and maintenance instructions shall include the following or they will be returned without review and stamped "REJECTED":

- Identification of equipment, product or material
- Name of supplier and manufacturer

D. Stock or standard drawings will not be accepted for review unless full identification and supplementary information is shown thereon in ink or typewritten form.

E. Check and approve all submittals to determine that they comply with the requirements of the Contract Documents before transmitting them to the Owner's Representative for review. Do not submit submittals which are incomplete or are not in compliance with the Contract Documents. Contractor shall place his signature or initials on his stamp of approval on all submittals to indicate compliance with this requirement. This approval shall constitute a representation that all quantities, dimensions, field construction criteria and similar data have been verified and that the Contractor is of the opinion that the submittal fully meets the requirements of the Contract Documents. Review of submittals shall constitute review of the specific subject matter for which the drawings were submitted and not of any other structure, material, equipment or apparatus shown on the submittal.

F. The review of submittals shall be general and shall not relieve the Contractor of responsibility for the accuracy of such submittals, nor for the proper fitting and construction of the work, nor for the furnishing of work or materials or work required by the Contract and not indicated on the submittal, nor for the coordination of work between trades. Approval of submittals shall not relieve Contractor of responsibility to meet design requirements, governing codes, standards and regulations.

G. No work called for by submittals shall be done until such submittals have been reviewed and approved in writing by the Owner.

H. Contractor's acceptance of delivery of any materials or equipment prior to receipt of Owner's Representative's written approval of all applicable Submittals shall be at Contractor's own risk.

1.03 INITIAL SUBMITTAL

A. Submit the following within 48 hours after receipt of Notice of Award.

- The construction schedule
- Names and addresses of pipe, valve, materials and equipment manufacturers and locations of the shops at which the manufacture will take place.
- A general description of the pipe, valves, materials and equipment proposed, including sizes and catalog numbers
- A statement as to whether the pipe, valves materials and equipment are already designed or in production.
- A list of installations in which the pipe, valves, materials and equipment comparable in size, capacity and rating with those required in the Contract Documents are now in regular operation.

1.04 SUBMITTALS ON OWNER'S REQUEST

A. **Detailed construction schedules** shall be submitted, when requested by the Owner's Representative, to describe the scheduling of any element of construction requiring the Owner's or Contractor's coordination with the public, or other private parties or public agencies.

B. **Certification of compliance** with any listed reference standards shall be submitted by manufacturers on Owner's request. When requested, the certification shall be filed with the Owner's Representative before delivery of material or equipment to the jobsite. Failure of the Owner to request certification of compliance shall not serve as a waiver of Contractor's duty to comply with reference standards.

C. **Written transcripts of results of acceptance tests** performed at point of manufacture of products furnished shall be submitted by manufacturers on Owner's request.

D. When it is doubtful that a manufacturer's product conforms to the specifications, the Owner reserves the right to require submittal of more complete information before approval.

E. **Names and addresses of nearest local service representatives** that maintain technical service representatives and a complete inventory of spare parts and accessories.

1.05 PROGRESS SCHEDULE

A. **Construction schedule** shall show all work, including work to be done by subcontractors. The schedule shall be in enough detail to assure the Owner that the Contractor understands the work to be performed, that it can be accomplished within the specified contract time period, and that the sequence of activities is appropriate.

B. Include a schedule of estimated submittal dates in the construction schedule.

C. Verify delivery times of equipment and materials from manufacturers and suppliers when developing construction schedule.

D. Schedule, prepare and submit all submittals in accordance with a time-table that will allow suppliers and manufacturers sufficient time to fabricate, manufacture, inspect, test and deliver their respective products in a timely manner so as not to delay the complete performance of the work.

E. Construction schedules shall indicate the start and completion times of each major phase of the project, and such intermediate phases as will serve for well defined control points. It shall also indicate the anticipated date of receipt of major items of equipment as well as materials and equipment whose receipt and installation are critical to the scheduled progress of the project.

1.06 PROGRESS REPORTS

A. **Daily log** shall be submitted by the Contractor's superintendent on a form provided by the Owner. These logs shall be detailed with the activities that took place during the course of the day. Submit these logs daily to the Owner's Representative.

B. **Schedule updates** shall be submitted with monthly pay requests. If work falls behind schedule, monthly pay requests shall include supplementary schedules to demonstrate how the Contractor intends to bring work back on schedule.

C. **Record Drawings** consisting of one set of annotated blueline plans showing installed locations of all improvements and all changes made during construction shall be available to the Owner's Representative for inspection throughout the project. Keep one record copy of all Contract Documents, addenda, supplementary drawings, working drawings, change orders and clarifications at the site and in good order. Report all changes and deviations promptly to the Owner's Representative.

D. **Partial payment requests** may be withheld if daily logs, schedule updates or record drawings are not kept current.

1.07 SURVEY DATA

A. **"As-built" drawings** shall be prepared from survey notes and record drawings and submitted on original plan mylars bearing the seal of the registered land surveyor who performed the survey for the "as-built" drawings.

B. **Monument survey** showing the as-built locations of any monuments or benchmarks disturbed and reset by the Contractor shall be stamped by a registered Arizona surveyor and submitted to the Owner.

1.08 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

A. The following definitions apply:

1. **Shop Drawings:** Detailed plans, elevations, diagrams and nameplate data as required to adequately control work where details are not specifically included in plans furnished by Owner. Shop drawings shall clearly show dimensions, clearances, floor space requirements, tolerances, conduit, anchor bolt sizes and embedments, finishes, performance characteristics, and weight and type of materials or equipment. Shop drawings shall indicate the location at which the equipment or materials are to be installed, how equipment will be mounted, how it relates to adjacent structures or materials, and how connection will be made between work under this contract and work under other contracts. Shop drawings shall show parts lists and details of all appurtenances to be furnished with the specified items, along with references to appropriate ASTM, Federal Specifications and other reference standards.

2. **Catalog Data:** Manufacturer's printed literature describing a product or service. Clearly indicate applicable items when several products are covered on one page. Using black ink, indicate on submitted catalog data the specification section or plan reference being satisfied.

3. **Engineering Calculations:** Calculations signed and sealed by a registered engineer licensed in the state in which the product is to be installed. Calculations shall be clearly legible, and shall be sufficient to demonstrate compliance with state and local codes, applicable standards, and the contract requirements.

1.09 NOTIFICATION OF AFFECTED RESIDENCES AND BUSINESSES

A. Provide written notification to residences and businesses 72 hours in advance of construction which will affect these properties. Door-hangers or other means of notification shall be submitted to and approved in advance by the Owner's Representative.

PART 2 PRODUCTS

not used

PART 3 EXECUTION

3.01 CONTRACT CLOSEOUT

A. Contractor's and Subcontractors' books, records, correspondence, accounting procedures and practices, and any other supporting evidence relating to this contract shall be open to inspection and subject to audit and/or reproduction during normal working hours by the Owner or his representative, to the extent necessary to adequately permit evaluation and verification of any invoices, payments or claims based on Contractor's or Subcontractor's actual costs including direct and indirect costs and overhead allocations incurred, or units expended directly in the performance of work under this contract. For the purpose of evaluating or verifying such actual or claimed costs or units expended, the Owner or his representative shall have access to said records from the effective date of this contract for the duration of the work and until 3 years after the date of final payment by the Owner to Contractor pursuant to this contract.

B. The Owner or his representative shall have access during normal working hours to all necessary Contractor and Subcontractor facilities, and shall be provided adequate and appropriate work space to conduct audits in compliance with the provisions of this article. The Owner shall give Contractor or Subcontractor reasonable advance notice of intended audits.

C. Contractor shall require Subcontractors to comply with the provisions of this article by insertion of the requirements herein in any subcontract pursuant to this contract.

END OF SECTION

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SECTION 107

LOCAL RELATIONS AND RESPONSIBILITY TO PUBLIC

PART 1 GENERAL

1.01 WORK INCLUDED

A. This section adds to the requirements of the MAG Standard Specifications governing coordination between the Contractor and other parties.

1.02 PERMITS

A. Obtain, pay for, and comply with all required permits, licenses and other authorizations from appropriate agencies, including an Excavation and Dirt Moving Permit from the Maricopa County Health Department, and any permits which may be required by the City of Phoenix, the Maricopa County Highway Department, the Flood Control District of Maricopa County and the Arizona Department of Transportation before start of construction.

1.03 RESPONSIBILITY FOR PRIVILEGE (SALES) TAXES

A. The Contractor shall pay all State and local transaction privelage (sales) taxes due to construction income, whether or not such taxes are specifically separated in the bid amount.

1.04 COORDINATION WITH OWNER

A. The Contractor shall meet with the Owner's representative for a preconstruction conference before commencing work.

B. At the preconstruction conference, the Contractor may present any variations in procedures that he feels may improve the workability of the project, reduce cost, or reduce inconvenience to the public.

C. The notice to proceed will not be issued until the Contractor's construction schedule has been approved by the Owner's Representative.

D. Notify the Owner's Representative at least 72 hours before the start of construction.

E. Inspection will be provided by the Owner. Inspection shall not be considered as direct control of the individual workman and his work.

1.05 COORDINATION WITH CITY OF PHOENIX

A. The Contractor shall contact the City of Phoenix Engineering Department 72 hours before the start of construction.

B. The notice to proceed will not be issued until the Contractor's traffic control plans have been reviewed and approved by the City.

C. Notify the Engineering Department of the City at least 72 hours before any shutdown of City water, sewer or drainage facilities.

D. Coordinate all draining and filling of water lines, and all operation of existing valves with the City.

E. Coordinate with the City regarding the time of day that system tie-ins are constructed.

1.06 COORDINATION WITH CITY TRAFFIC ENGINEER

A. All traffic affected by this construction shall be regulated in accordance with the "City of Phoenix - Traffic Barricade Manual". Statements referring to the City of Phoenix in the Traffic Barricade Manual shall be referred to the City Traffic Engineer for interpretation.

B. The following traffic regulations are a minimum requirement throughout the project duration:

1. Submit a written proposal at the preconstruction conference outlining plans for traffic control and maintaining continuous access to residences and businesses near the project.

2. "Major streets" shall be considered to include all major (section line), minor (mid-section line), arterial and collector (quarter section line) streets so classified by the City Street Standards.

3. All traffic control devices required for this project shall be furnished, maintained and removed by the Contractor. Place advance warnings and signs in accordance with the Traffic Barricade Manual. All devices shall remain in place for 24 hours after the completion of construction operations in any area to allow time for sweeping up surplus aggregate and replacing pavement markings.

4. Equipment used and/or directed by the Contractor shall travel with traffic at all times. Supply trucks shall travel with traffic except when being spotted. Provide a flagman or officer to assist with this operation.

5. The assembly and turnaround of construction equipment shall be done using adjacent local streets when possible.

C. Use care when excavating near intersections with traffic signal underground cable. Notify the Traffic Engineer 24 hours in advance of any work at such intersections. Install and maintain temporary overhead traffic signal cable as specified by the Traffic Engineer when underground conduit is to be severed by excavations at intersections. Provide an off-duty uniformed police officer to direct traffic while the traffic signal is turned off and the wiring is transferred. Repair and restore all damaged or modified traffic signal overhead and underground items to the Traffic Engineer's satisfaction. Do not splice magnetic detector loops.

1.07 COORDINATION WITH UTILITIES

A. Call the Blue Stake service (263-1100) and notify all utilities at least 2 working days before excavating. Contractor shall be responsible for any damage done to public or private property shown on plans or blue staked. Utility companies and other interested parties will be provided with construction plans and the construction schedule for this project.

B. Electrical utility companies may maintain energized aerial electrical power lines in the immediate vicinity of this project. Do not consider these lines to be insulated. Construction personnel working near these lines are exposed to an extreme hazard from electrical shock. Contractors, their employees and all other construction personnel working on this project must be warned of the danger and instructed to take adequate protective measures, including maintaining a minimum of 10 feet clearance between the lines and all construction equipment and personnel. (See OSHA Std. 1926.550(A)15). As an additional safety precaution, call the electrical utility company to arrange, if possible, to have these lines deenergized or relocated when the work reaches their immediate vicinity. The cost of such temporary arrangements shall be borne by the Contractor.

C. Electrical utility companies may maintain energized underground electrical power lines in the immediate vicinity of this project. These power lines represent an extreme hazard from electrical shock to any construction personnel or equipment coming in contact with them. Arizona law requires all parties planning excavations in public right of way to contact all utility firms for locations of their underground facilities. Contractors, their employees, and all other personnel working near any underground power lines must be warned to take adequate protective measures. (See: OSHA Std. 1926-651(A)). Notify the electrical utility company to arrange, if possible, to have these lines deenergized when the work reaches their immediate vicinity. The cost of such temporary arrangements shall be borne by the Contractor.

1.08 COORDINATION BETWEEN CONTRACTORS

A. Coordinate with other contractors to make necessary interfaces at the minimum cost and time delay for all involved.

1.09 COORDINATION WITH PARADISE SHADOWS MOBILE HOME PARK

A. Submit detailed construction schedule for all work to be done within Paradise Shadows Mobile Home Park showing how work can be completed within the specified time window for construction in this area.

B. Work within Paradise Shadows Mobile Home Park shall be completed within the following general sequence of work.

- Relocate utilities.
- Construct new K Street while leaving existing K Street open to traffic so that all residents of Paradise Shadows have continuous access to their property.
- Install permanent perimeter fencing (except at B Street).
- Complete demolition.
- Complete rough excavation of channel within one week.
- Within the one week rough excavation period construct temporary walkway following B Street alignment with decomposed granite and drainage culvert to provide a pedestrian crossing of the channel. The pedestrian crossing shall have gates and a maximum slope of 12 to 1 continuously maintained.
- Construct new B Street and box structure.
- Open new B Street. Remove pedestrian walkway.
- Install permanent fencing.
- Finish grading.
- Complete construction.

C. The construction area shall be secured and fully fenced at the end of each work day.

D. Channel right-of-way within mobile home park shall not be used as a staging area. Remove all equipment from mobile home park vicinity at end of each work day.

1.10 COORDINATION WITH PROPERTY OWNERS

A. The Flood Control District has purchased right-of-way as shown on the Plans.

B. The Flood Control District has also obtained temporary construction easements to allow reasonable room for Contractor's construction of permanent fencing along the edge of the purchased right-of-way.

C. Notify property owners adjacent to the purchased channel right-of-way 72 hours in advance of construction to allow them to make arrangements to secure or relocate domestic animals and other personal property.

D. Each property that is fenced in at the beginning of construction shall be fully fenced and secured at the end of each construction day.

E. Access for general contractor, fencing contractor and all subcontractors shall be through the channel right-of-way only and not through any property frontage.

1.11 COORDINATION WITH NURSERY OWNER ON UTOPIA ROAD

A. The Owner of the Desert Tree Farm on Utopia Road has indicated that water must be maintained to his property at all times during construction.

B. Notify the owner (John Augustine) of the Desert Tree Farm nursery 72 hours before any waterline shutdown for valve cut-ins.

C. Waterline shutdown for cutting in valves shall not exceed four hours.

D. Temperature during waterline shutdown shall not exceed 90° F.

1.12 SUBMITTALS

A. Progress schedule to be submitted to Owner at preconstruction conference shall show the order in which he proposes to carry out the work, the dates on which he shall start the several phases of work, and the expected date of completion of each phase.

B. Plans for traffic control and maintaining continuous access to residences and businesses in the project vicinity shall be submitted in writing at the preconstruction meeting.

C. Supplementary progress schedules may be submitted after the work is in progress. Schedule changes requiring an increase in the City's Engineering personnel on the project shall not be put into effect until the City has made arrangements for additional personnel.

D. Shop drawings of current transformer and metering equipment shall be submitted to servicing electric utility.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

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SECTION 109

MEASUREMENTS AND PAYMENTS

PART 1 GENERAL

1.01 WORK INCLUDED

A. Payment for the various items in the bid proposal shall include all compensation to be received by the Contractor for furnishing all excavation, backfilling, connections, materials, tools, equipment, supplies, appurtenances and manufactured articles, and for all labor, operations, testing and incidentals appurtenant to the items of work being described, as needed to provide a completely finished operational and serviceable project as described in the contract documents, and including all costs of complying with the regulations of public agencies having jurisdiction, including the Safety and Health Requirements of the Occupational Safety and Health Administration (OSHA) of the U.S. Department of Labor.

B. Unit prices shall be for the unit completely installed.

C. Measurements of the completed work will be made in place, with no allowance for waste.

D. Measurements of distances will be made in a horizontal plane, unless otherwise stated.

E. Measurements of areas will be made in a horizontal plane, unless otherwise stated. Widths of paved areas will be measured based on the neat dimensions shown on the plans, or as altered to fit field conditions.

F. Measurements of weights will be based on certified weighmaster's load slips, submitted to the Owner's Representative by the Contractor before materials are applied or installed.

G. No separate payment will be made for any item that is not specifically set forth in the bid proposal. All costs shall be included in the prices named in the bid proposal for the various appurtenant items of work.

H. Payment for construction, modification, maintenance, removal and restoration of all access and storage facilities shall be included in the price bid for items of work where access facilities are required.

I. Payment for shutdowns and/or tie-ins to existing facilities shall be included in the contract prices for the items of work to be connected to existing facilities.

J. Payment for potholing, excavation, protection or replacement of existing utilities and laterals, dewatering, bedding, importation of backfill, backfilling, compaction, grading, dust control, noise control and disposal of excess materials shall be included in the contract prices for items of work to which such earthwork is appurtenant.

K. Payment for repair or replacement of water and sewer pipelines and services, or other structures, landscaping materials, paving, utilities and laterals damaged as a result of the Contractor's negligence, or failure to pothole existing utilities shown on the plans, identified in the field, or evidenced by surface features, shall be included in the unit prices for items of work being constructed at the time when these facilities were damaged. These items of work shall be at the Contractor's expense whether the repair was completed by the Contractor, or whether the repair was completed by the Utility's own forces and billed to the Contractor or the Owner.

L. Payment for tees, taps, bends, caps, plugs, outlets, fittings, flanges, gaskets, nuts, bolts, washers, supports, pipe cuts, welding and other pipework items shall be included in the contract prices for the items of work for which pipework is appurtenant.

M. Payment for disinfection of potable water facilities shall be included in the contract prices for the items of work requiring disinfection.

N. Payment for painting and coating shall be included in the contract prices for the items of work requiring painting and coating.

O. Payment for water or power to be furnished by the Contractor shall be included in the appropriate bid items to which it is appurtenant.

P. Payment for testing as required in these Contract Documents shall be included in the contract prices for the items of work for which testing is specified.

Q. Payment for submittals, and operation and maintenance manual required in these Contract Documents shall be included in the contract prices for those items of work for which the submittals are required.

R. Payment may be withheld for work completed on any bid item if the finished product as installed fails to fulfil its intended purpose in a trouble-free and reliable manner.

S. Final payment will not be made until all work has been tested as a unit, demonstrating to the Owner's satisfaction that all structural, mechanical and electrical equipment functions successfully as a unit. Final acceptance will be made after this system demonstration has been completed.

1.02 SUBMITTALS

A. To justify partial payments on any lump sum bid items, furnish an itemized breakdown of the contract price of lump sum bid items for the Owner's Representative's approval. The breakdown shall include such milestones, quantities, unit prices, or other information in sufficient detail to be used by the Owner's Representative in preparing monthly progress estimates. Progress payments on lump sum bid items may be withheld until this breakdown is submitted by the Contractor and approved by the Owner's Representative.

B. Submit itemized monthly statements to the Owner in accordance with Section 109 of the MAG Standard Specifications.

1.03 UNIT PRICES

A. **The lump sum price bid for mobilization, demobilization** shall include full compensation for mobilizing and demobilizing Contractor's construction equipment and personnel, and shall include compensation for all of the temporary facilities required to complete the project including contractors storage yard, field offices, utility services and clean-up.

B. **The lump sum price bid for surveying and staking** shall include full compensation for the cost of verifying the depth, location and size of buried utilities, house services and sewer laterals and other work identified by blue staking, evident from surface features, or shown on the plans. The lump sum price bid for surveying and staking shall also include full compensation for establishing and staking lines and grades for construction, for resetting any monuments, corners or benchmarks disturbed during construction, and for preparing and sealing as-built drawings.

C. **The lump sum price bid for verification of field dimensions and utility locations** shall include full compensation for the cost of verifying the depth, location and size of buried utilities and other work shown on the Plans.

D. **The lump sum price bid for shoring and bracing** shall include full compensation for the cost of furnishing, installing and removing shoring for excavations as specified herein, as required by law, and as directed by the Owner's Representative.

E. **The lump sum price bid for clearing and grubbing** shall include full compensation for removal of all vegetation required to be removed under this contract and for preserving any vegetation designated for preservation in place.

F. **The unit price per cubic yard bid for roadway excavation** shall include full compensation for excavating, sloping, rounding tops and ends of excavations, loading, depositing, conditioning, spreading and compacting the material complete in place and disposal of surplus material. Measurement will be based on computed volume of excavation based on survey cross sections before and after construction.

G. **The unit price per cubic yard bid for fill construction** shall include full compensation for removal of unsuitable material, importing suitable material, placing, grading and compaction of fill, and all appurtenant work. Measurement shall be on the basis of computed volume of excavation based on survey cross sections before and after construction.

H. **The unit price per cubic yard bid for earthwork for open channels** shall include full compensation for clearing, stripping, excavation, fill, backfill, compaction, grading, hauling, removal and disposal of excess and unsuitable material and debris, and all appurtenant work. Measurement will be based on computed volume of excavation based on survey cross sections before and after construction.

I. **The unit price per ton bid for riprap** shall include full compensation for preparation of ground surfaces and trenching, installation of filter fabric, installation of sand blanket, and furnishing and placing riprap, and all appurtenant work. Measurement will based on load slips for the weight of the riprap furnished.

J. **The stipulated lump sum price allowed for watering** is provided to compensate the Contractor for the water used for dust control and other incidental uses. To simplify measurement and payment, incidental water uses such as for water consolidation by jetting or pipeline testing and disinfection need not be metered separately, except that if water consolidation by flooding is authorized. If flooding is authorized, the terms of reimbursement for compaction water will need to be defined by change order. Payment for water will be made at the exact invoice amount for the Contractor's water bill, notwithstanding the stipulated lump sum price.

K. **The unit price per square yard bid for subgrade preparation** shall include full compensation for grading under pavement within the lip of each gutter, including stripping, excavating, hauling, filling, compacting, disposing of excess or unsuitable materials, and all appurtenant work. Measurement will be made between the lip of each gutter or edge of pavement along the length of the project.

L. **The unit price per ton bid for untreated base** shall include full compensation for aggregate base. Measurement will be computed based on load slips for the weight of the aggregate furnished.

M. **The unit price per ton bid for cement treated base - portland cement** shall include full compensation for furnishing, installing and curing portland cement. Measurement will be computed based on load slips, for the quantity of portland cement complete in place.

N. **The unit price per ton bid for cement treated base - aggregate** shall include full compensation for furnishing, mixing, spreading and compacting aggregate for use in constructing cement treated base. Measurement will be computed based on load slips, for the quantity of aggregate complete in place.

O. **The unit price per ton bid for asphalt concrete pavement** shall include full compensation for asphalt paving. Measurement will include the required quantities of mineral aggregates, filler material, asphalt cement and sand needed to construct the paved areas shown on the plans. Measurement will be based on load slips, except that no payment will be made for any overrun in quantity of asphalt concrete in excess of 10% based on actual field measurements of area paved, design thickness, and a unit weight of 145 pounds per cubic foot. Reductions in payment for deficient work will be computed as specified in MAG Section 321.6.

P. **The unit price per ton bid for tack coat** shall include full compensation for preparing existing surfaces, and for mixing, spreading and applying tack coat. Measurement will be based on load slips for the tack coat material diluted as specified.

Q. **The unit price per lineal foot bid for each type of concrete curb and gutter** shall include full compensation for excavation, surface preparation, formwork, concrete, reinforcement, finishing, and all appurtenant work. Measurement will be made along the gutter flow line through inlets, catch basins, etc, for each type of curb and gutter.

R. **The unit price per square foot bid for concrete sidewalk, driveway, valley gutters and aprons** shall include full compensation for excavation, surface preparation, formwork, concrete, steel reinforcement, finishing, and all appurtenant work.

S. **The unit price per bid for drainage scuppers** shall include full compensation for excavation, surface preparation, formwork, concrete, steel reinforcement, finishing, and all appurtenant work.

T. **The unit price bid for adjusting frames** shall include full compensation for all work necessary to adjust manhole, cleanout vault cover, and catch basin frames to match finished pavement.

U. **The unit price bid for adjusting valve boxes** shall include full compensation for all work necessary to adjust valve boxes to match finished pavement.

V. **The lump sum price bid for removing existing improvements** shall include full compensation for removal of all structures, concrete pads and supports, foundations, pavement, and all other right of way obstructions, while preserving or salvaging those items tagged for preservation or salvage.

W. **The unit price per lineal foot bid for removing existing curb and gutter** shall include full compensation for removal of curb and gutter, including sawcutting, removal and disposal of the removed concrete.

X. **The lump sum price bid for detours and traffic control** shall include full compensation for preparation and execution of traffic control plans, barricading, signing, obliteration of existing traffic stripes where required for temporary restriping, temporary restriping, sandblast removal of temporary striping, flagmen, temporary modifications to traffic signals, providing uniformed policemen at disabled traffic signals, removal of detours, and site restoration following construction.

Y. **The unit price per hour bid for a uniformed off-duty police officer** for traffic control shall include full compensation for uniformed officers, including any vehicles or equipment which may be required to ensure traffic control and public safety. When an officer is used less than 3 hours, a minimum of 3 hours will be charged. Anything over 3 hours will be measured by the hour. If the officer is utilized more than 40 hours in any calendar week, or 8 hours in any calendar day, payment will be at the rate of 1.5 times the contract bid price for hours worked exceeding these time periods.

Z. **The unit price bid for monuments** shall include full compensation for surveying, excavation, constructing monuments, asphalt seal, backfill, and all appurtenant work.

AA. **The unit price per lineal foot bid for flexible metal guardrail** shall include full compensation for excavation, posts, guardrails, fasteners, painting, and all appurtenant work.

AB. **The unit price per lineal foot bid for chain link fence** shall include full compensation for clearing the line of the fence, disposing of resulting material, excavating high points in existing ground between posts, excavating and furnishing concrete footings, connecting new fences to structures, connecting existing fencing to new fencing, and all appurtenant work.

AC. **The unit price bid for each size and type of chain link fence gate** shall include full compensation for gates, gate posts and foundations, fittings, hardware, and all appurtenant work. Double gates will be paid for as one gate, and the unit price bid shall cover both leaves.

AD. **The unit price per cubic yard bid for cement slurry backfill** shall include full compensation for furnishing and placing the cement slurry. Measurement shall be based on load slips.

AE. **The lump sum price bid for each concrete structure**, including box culverts, drop structures, and retaining walls, and other concrete structures which may be identified in the bid schedule shall include full compensation for all work required to construct the bid item structure, including but not limited to structural excavation and backfill, imported aggregate and backfill, formwork, concrete, steel reinforcement, adjacent riprap, miscellaneous metal work, trash racks, handrails, and all appurtenant work.

AF. **The unit price per cubic yard bid for reinforced concrete** for pads, pipe and valve supports, vaults, overflow boxes, wall foundations, gutters and driveway entrances shall include full compensation for all excavation and concrete work required, including but not limited to the cost of excavation, sawcutting existing concrete, formwork, reinforcing steel, and concrete work. Measurement shall be based on load slips.

AG. **The unit price per cubic yard bid for reinforced concrete encasement and pipe supports** shall include full compensation for excavation and furnishing and placing the concrete encasement and/or pipe supports. Measurement shall be based on load slips.

AH. **The unit price per lineal foot bid for masonry block wall** shall include full compensation for installing concrete masonry block wall according to the Contract Documents, including but not limited to the cost of excavation, steel reinforcement, masonry work, joining new masonry to existing fencing or structures, and all other appurtenant work. Measurement will be made along the top centerline of the wall.

AI. **The unit price bid per lineal foot to cut and plug existing waterline** shall include full compensation for excavation, shoring and bracing, pipe cutting, installing plug, thrust restraint, backfill, and all appurtenant work.

AJ. **The unit price per lineal foot bid for each type and size of pipe** shall include full compensation for furnishing and installing the pipe, including but not limited to transporting all tools, equipment, personnel, and materials to and from the worksite; excavation, shoring and bracing, furnishing and installing pipe, fittings, nozzles, reducers plugs and blind flanges; thrust restraint; bonding on steel pipe or polyethylene encasement on ductile iron pipe, testing, disinfection, backfill and pavement replacement and all appurtenant work. Measurement will be made along the centerline of the pipe.

AK. **The unit price per pound bid for cast iron fittings** shall include full compensation for fittings not shown on the plans. Measurement will be computed based on manufacturer's published literature showing the theoretical weights of the fittings furnished.

AL. **The unit price bid to cut and plug existing sewer or manhole outlet** shall include full compensation for excavation, installing concrete sewer plugs, backfill, and all appurtenant work.

AM. **The unit price per lineal foot bid for each size of sewer pipe and fittings** shall include full compensation for sewer line construction including excavation, removal of obstructions, shoring and bracing, bedding, pipe, fittings, backfill, water settling, compaction, testing, and all appurtenant work. Measurement will be made along the centerline of pipe, through manholes, beginning and ending at the centerlines of manholes and cleanouts at each end of the project.

AN. **The unit price bid for sanitary sewer service taps** shall include full compensation for excavation, removal of obstructions, shoring and bracing, pipe, fittings, backfilling, compaction, testing, pavement replacement, and all appurtenant work. Measurement will be made along the centerline of the pipe.

AO. **The unit price bid for sanitary sewer cleanouts** shall include full compensation for pipe, fittings, frame and cover, pavement replacement, adjusting frame and cover to grade, and all appurtenant work.

AP. **The unit price per lineal foot bid for each size of concrete storm drain pipe** shall include full compensation for storm drain construction including excavation, removal of obstructions, shoring and bracing, bedding, pipe, fittings, backfill, water settling, compaction, testing, pavement replacement, and all appurtenant work. Measurement will be made along the centerline of the pipe.

AQ. **The unit price bid for manholes** shall include full compensation for installing manholes including excavation, base, concrete foundation, formed invert, manhole, grade rings, frame, cover, ladder or steps, cast iron frame and cover, backfill, pavement replacement in excess of applicable pay widths, adjustment of cover to match existing grade, and all appurtenant work.

AR. **The unit price bid for tie-ins to existing manholes** shall include full compensation for excavation, handling existing sewage during construction, tapping manholes, concrete, grout, pipe, rechanneling inverts, backfill, and all appurtenant work.

AS. **The unit price bid for drop sewer connections** shall include full compensation for excavation, vitrified clay pipe sanitary sewer drop connections, concrete encasement, backfilling, water settling, compaction, shoring and bracing, removal of obstructions, testing, pavement replacement in excess of applicable pay widths, and all appurtenant work.

AT. **The unit price bid for each size and type of buried line valve** shall include full compensation for valves, fittings, bolts, nuts and gaskets, thrust restraint, valve boxes, risers, valve supports or concrete pads, valve stem extensions, and all appurtenant work.

AU. **The unit price bid for tapping valves and tie-ins to existing lines** shall include full compensation for excavation, wet-tapping into existing lines, tapping sleeve, tapping valve, valve box, cover and extension, reducers, flanges, adaptors, concrete thrust blocks and all appurtenant work.

AV. **The unit price per lineal foot bid for temporary concrete construction barrier** shall include full compensation for furnishing, placing, dismantling and removing barriers, connection devices and all appurtenant work as shown on the plans or required by the Owner's Representative and traffic control plan. Should it be necessary to dismantle, pick up, and relocate any portion of the barrier to a new location more than 12 feet away from the prior location, the relocated barrier will be paid for as a new installation. Barrier movements less than 12 feet will be considered to be adjustments or realignments and will be paid for. Replacement of sections damaged after installation will be paid for at the contract unit price. Measurement will be made along the centerline of the uppermost surface of the barriers.

PART 2 PRODUCTS
not used

PART 3 EXECUTION
not used

END OF SECTION

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SECTION 02000

SITEWORK

PART 1 GENERAL

1.01 WORK INCLUDED

A. This section supplements and is added to the MAG Standard Specifications.

PART 2 PRODUCTS

not used

PART 3 EXECUTION

3.01 SCHEDULES

A. **Section 201 - Clearing and Grubbing**

Material to be Removed	Trees, shrubs, cacti, and all other obstructions, within right of way limits, not tagged for preservation or salvage
Material to be Preserved	Trees, shrubs, and cacti to be preserved will be tagged in field

B. **Section 205 - Roadway Excavation**

Material Disposal	Location outside right of way to be determined by Contractor

C. **Section 206 - Structure Excavation and Backfill**

Material Disposal	Location outside right of way to be determined by Contractor
Compaction under Structures	MAG Table 601-2 Type I
Compaction under Streets	MAG Table 601-2 Type i

D. **Section 211 - Fill Construction**

Compaction of Fill	90% in 8-inch maximum lifts
	95% in 8-inch maximum lifts within 2 horizontal feet of roadways or roadway appurtenances

E. **Section 215 - Earthwork for Open Channels**

Compaction of Fill	95% in 8-inch maximum lifts
Scarification Depth	Scarify to 8 inches below finish grade or below soft or unsuitable material limits
Channel Lining	Use clay soil having minimum plasticity index of 20%

F. **Section 220 - Riprap Construction**

Filter Fabric	Required - Mirafi Type 700X or equal
Minimum Filter Fabric Overlap	12-inch overlap
Fabric Cover	Use sand blanket to protect filtercloth from puncture

	Type of Riprap	Plain - not grouted
	Riprap Material	Stone per MAG Spec 703 Use sand blanket to protect filtercloth from puncture
G.	**Section 301 - Subgrade Preparation**	
	Compaction of Street Subgrade	95% under mile and half-mile streets 90% under all other streets 90% under detours 85% under curbs gutters and sidewalks
H.	**Section 310 - Untreated Base**	
	Aggregate Material	"Aggregate base" per MAG Table 702
	Base Course Thickness	See plans
	Maximum Lift Thickness	6 inch maximum lifts
I.	**Section 311 - Soil Cement Base Course**	
	Base Course Thickness	See Plans
	Composition of Mixture	1 1/2 sacks Portland cement per cubic yard
	Compaction of Mixture	95% in 8-inch maximum lifts
J.	**Section 321 - Asphalt Concrete Pavement**	
	Leveling Course	Required at discretion of Owner's Representative
	Leveling Course Composition	MAG Type C-3/4
	Asphalt Base Course Thickness	See plans
	Asphalt Base Course Composition	MAG Type C-3/4
	Asphalt Base Course Placement	4-inch maximum lifts
	Asphalt Surface Course Thickness	See plans
	Asphalt Surface Course Composition	MAG Type C-3/4
	Asphalt Surface Course Placement	2-inch maximum lifts
	Specific Gravity	95% of ASTM D-1559 75 blow method
K.	**Section 329 - Tack Coat**	
	Tack Coat Composition	SS-1h per MAG Sec 713 diluted 50% water to 50% emulsion
	Tack Coat Application Rate	0.05-0.10 gal diluted material per square yard
L.	**Section 336 - Pavement Matching and Surface Replacement**	
	Pavement Cuts	Sawcut only
	Pavement Replacement Type	Type A MAG Std Detail 200 for parallel trenching Type B T-Top MAG Std Detail 200 for transverse
	Seal Coat Required	None
M.	**Section 340 - Concrete Curb, Gutter, Sidewalk, Driveways and Alley Entrances**	
	Compacted Subgrade Thickness	6 inches
	Concrete Materials	Type B (2500 psi f'c) concrete Type II Portland cement The new sidewalk along K Street shall match the existing 3 ft. 0-inch ribbon curb
N.	**Section 350 - Removal of Existing Improvements**	
	Items to be Removed	Concrete, structures, fencing, and all other obstructions not tagged for preservation or salvage

Items to be Preserved	Items to be preserved will be tagged in field.
Items to be Salvaged	Salvage and restore fencing disturbed outside right of way limits.

O. **Section 401 - Traffic Control**

Devices Required to Channelize Traffic	Traffic cones, reflective striping, raised pavement markers
Type	MAG Det 120 Type B

P. **Section 410 - Precast Safety Curbs**

Q. **Section 415 - Flexible Metal Guardrail**

Rail Material	AASHTO M-180 glavanized steel
Bolting Material	Galvanized steel
Posts	Douglas fir, pressure treated
Painting - Metal Surfaces	One zinc chromate prime coat two coats white enamel
Painting - Wood Surfaces	One coat wood primer two coats finish paint - color as directed by Owner

R. **Section 420 - Chain Link Fence**

Fencing Material	6-ft high chain link fence
Fencing Finish	Galvanized steel
Post Rail and Bracing Type	Type C high strength steel pipe per MAG Spec 772
Gate Dimensions	

S. **Section 505 - Concrete Structures**

Location	See plans
Dimensions	See plans
Concrete Materials	Type A (3,000 psi f'c) concrete
Portland Cement	Type II Portland cement
Steel Reinforcement	Grade 40

T. **Section 510 - Concrete Block Masonry**

Mortar Type	
Percent Solid	
Masonry Units	Make reasonable efforts to match existing private walls to satisfaction of Owner's Representative
Compressive Strength	
Reinforcing Steel Grade	40
Special Inspection	No
Drainage Knockout	
Color and Finish	Match existing fence block of private owners

U. **Section 520 - Steel and Aluminum Handrails**

Location	Railings on headwalls and wingwalls on culverts
Height	See plans
Number of Bars	See plans
Materials	2-inch galvanized steel schedule 40 pipe
Paint	1 coat primer 2 coats beige water based enamel

V. **Section 601 - Trench Excavation, Backfilling and Compaction**

Pavement Cuts	Sawcut only
Trench Backfill Type	MAG Table 601-1 Type I
Maximum Backfill Lift	4 foot maximum
Water Consolidation	OK

W. **Section 610 - Water Line Construction**

X. **Section 618 - Storm Drain Construction with Concrete Pipe**

Y. **Section 625 - Manhole Construction and Drop Sewer Connections**

Diameter	48 inches
Manhole Cover	24-inch diameter, non-vented
Agency Identification	City of Phoenix Sewer

Z. **Section 630 - Tapping Sleeves, Valves and Valve Boxes on Water Lines**

Resilient Wedge Gate Valves	
Location	Waterline relocation
Quantity	See plans
Size	6-inch and 12-inch
Pressure Class	150 psi
Materials	Standard
End Style	Match adjacent pipe
Valve Position	Horizontal flow (buried valve)
Valve Operation	2" AWWA nut manually opening to left
RequiStem	Nonrising
Type of Stem Seal	O-ring
Hydrostatic Test	No
Accessories	
Valve Box	MAG Std. Detail 391 Type A
Lining and Coating	Epoxy
Exterior Coating Thickness	12 mils
Interior Lining Thickness	6 mils

AA. **Section 710 - Asphalt Concrete**

Asphalt Concrete Composition	MAG Type C-3/4
Viscosity Grade of Asphalt	AC-40

AB. **Section 711 - Paving Asphalt**

Viscosity Grade of Asphalt	AC-40

AC. **Section 712 - Liquid Asphalt**

Liquid Asphalt Material	AC-40
Viscosity Grade of Asphalt	

AD. **Section 713 - Emulsified Asphalt**

Grade of Emulsified Asphalt	SS1-h

AE. **Section 735 - Reinforced Concrete Pipe**

Location	Beardsley Road Culvert
Diameter	48-inch
D Load	

Strength Class	
Type of Pipe	
Cement	Type II Portland cement

AF. **Section 743 - Vitrified Clay Pipe**

Location	K Street
Diameter	8-inch
Class	Extra strength
Minimum Wall Thickness	1-inch
Joints	Non mitered
Allowable Infiltration	1.26 gph/100 ft.
Location	Beardsley Road
Diameter	10-inch
Class	Extra strength
Minimum Wall Thickness	1.25-inch
Joints	Non mitered
Allowable Infiltration	1.57 gph/100 ft.

AG. **Section 750 - Iron Water Pipe and Fittings**

Location	Beardsley Road, Utopia Road, Siesta Lane waterlines
Diameter	6-inch
Class	Class 50 Ductile Iron Pipe
Minimum Wall Thickness	0.25-inch
Coating	Polyethylene wrap
Polywrap Diameter	20-inch tube
Lining	0.125-inch cement mortar
Joints	Push-on (Some joint restraint (Megalug or equal) required)
Corrosion Protection	Polyethylene wrap or letter from DIPRA
Tie Bars	2 @ 0.625-inch diameter
Location	Union Hills Drive Waterline
Diameter	12-inch
Class	Class 50 Ductile Iron Pipe
Minimum Wall Thickness	0.31-inch
Coating	Polyethylene wrap
Polywrap Diameter	30-inch tube
Lining	0.125-inch cement mortar
Joints	Push-on (Some joint restraint (Megalug or equal) required)
Corrosion Protection	Polyethylene wrap or letter from DIPRA
Tie Bars	2 @ 0.875-inch diameter

AH. **Section 750 - Iron Sewer Pipe and Fittings**

Location	Utopia Road Sewer
Diameter	8-inch
Class	Class 50 Ductile iron pipe
Minimum Wall Thickness	0.29 inch
Coating	Polyethylene wrap
Polywrap Diameter	27-inch

Lining	Epoxy
Joints	Push-on
Corrosion Protection	Polyethylene wrap or letter from DIPRA
Allowable Infiltration	1.57 gph/100 ft.

Location	Siesta Lane, sewer easement crossing channel
Diameter	10-inch
Class	Class 50 Ductile iron pipe
Minimum Wall Thickness	0.29-inch
Coating	Polyethylene wrap
Polywrap Diameter	27-inch
Lining	Epoxy
Joints	Push-on
Corrosion Protection	Polyethylene wrap or letter from DIPRA
Allowable Infiltration	1.57 gph/100 ft.

AI. **Section 752 - Asbestos Cement Water Pipe and Fittings**

Location	K Street waterline
Diameter	6-inch
Class	150
Pipe Type	I

AJ. **Section 800 - Temporary Concrete Construction Barriers**

Concrete Materials	Precast MAG Class A (3000 psi f'c) concrete
Reinforcing Steel	Grade 40
Barrier Connections	Conform to ASTM A325.
Construction Requirements	Fasten sections of temporary barrier together to form a continuous chain. After placement, move each unit longitudinally to remove slack in the joints between the units. Where directed by the Owner's Representative, flare back the ends of the barrier. Do not use units which, in the opinion of the Owner's Representative have been excessively damaged before or during installation. Replace any unit damaged after installation with an undamaged unit.

END OF SECTION

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