SECTION 3
MIDLAND DRAW MASTER PLAN

3.1 GENERAL

The Midland Draw watershed extends from U.S. Highway 80 northwestward to the location of the future Holiday Hill Road extension, then continues upstream to a point approximately 25 miles northwest of the future Holiday Hill Road extension. This same upstream point corresponds to a distance of 13.5 miles north and 5.5 miles west of the intersection of Texas State Highway 158 and U.S. Highway 385. Because of significant watershed storage in the furthest upstream areas of the Midland Draw watershed, these furthest areas are considered non-contributing. Consequently, the contributing Midland Draw watershed has an upstream limit located approximately 15 miles northwest of the future Holiday Hill Road extension. This location is approximately 5 miles north of Texas State Highway 158 at U.S. Highway 385. The majority of the Midland Draw watershed lies west of the detailed Geographic Information System (GIS) coverage and detailed study area of this Master Drainage Plan.

Figure 3-1 illustrates the area of detailed study on Midland Draw and the position of Midland Draw relative to the City. The confluence of Jal Draw with Midland Draw is located at the eastern edge of Midland Airpark. The Scharbauer Channel discharges into Midland Draw at Scharbauer Drive southwest of Martin Luther King Park. The confluence of the Mulberry Channel with Midland Draw is located at a point approximately 1450 feet upstream of U.S. Highway 80. The Industrial Channel discharges into Midland Draw just south of the Texas & Pacific Railroad crossing. Therefore, Midland Draw receives the discharges from all of the other watersheds in this Master Drainage Plan

3.2 HYDROGRAPHS

Hydrographs were plotted for the six locations shown on Figure 3-1 for three hydrologic conditions each: 1) existing land use hydrologic conditions, 2) future land use hydrologic conditions and assuming zero stormwater runoff mitigation efforts and 3) future land use hydrologic conditions with all recommended drainage improvements installed.

The first hydrograph plot shown in Figure 3-2 is for Midland Draw at the future Holiday Hill Road extension and illustrates the three conditions listed above. Note that the hydrographs for each condition have three to four distinct peaks. The peaks which occur in the earlier hours are from the watershed subareas nearest to, and within, the detailed study area, and are referred to as the "in-town" peaks. The large peak which occurs after the 31-hour time, referred to as the "out-of-town" peak, is from the major portion of the watershed west of the detailed study area. The comparative plots of the hydrographs illustrate the effectiveness of the proposed improvements in the mitigation of stormwater runoff.

The remaining five hydrograph plots, Figure 3-3 for Midland Draw at Mockingbird Lane, Figure 3-4 for the Midland Draw and Jal Draw confluence, Figure 3-5 for the Midland Draw and Scharbauer Channel confluence, Figure 3-6 for the Midland Draw and Mulberry Channel confluence, and Figure 3-7 for Midland Draw at U.S. Highway 80, show the importance of the in-town hydrograph peak magnitudes. If urban development were to proceed without stormwater runoff controls, then the frequency and magnitude for potential downstream flood damage would also increase.

3.3 LAND USE

Two land use conditions were analyzed in the development of the Master Drainage Plan: existing conditions as of June 1993 and future conditions based on the City's Year 2020 Land Use Plan. The existing condition analysis provided a base line of comparison for evaluation of the effectiveness of various stormwater runoff mitigation measures.

3.3.1 Existing Land Use

As noted earlier in Section 1, the Midland Draw watershed consists of approximately 155 square miles of drainage area. The vast majority of this area lies north and west of the City of Midland and is primarily native range land. Native range land was assigned a reduced curve number based on a dryer than average antecedent moisture condition (referred to as AMC I.4) and natural basin storage, while the urban areas were assigned higher curve numbers based on an average antecedent moisture condition (referred to as AMC II).

Drainage subareas outside of the detailed study area were generally maintained in a consistent manner with the Corps of Engineers 1991 Flood Insurance Study for the City of Midland. However, drainage subareas within the detailed Master Drainage Plan study area were greatly refined over those of the Flood Insurance Study because the City's GIS mapping was available for master planning purposes. For example, the Flood Insurance Study defined the Jal Draw watershed, discussed in Section 2, Jal Draw, by dividing the watershed into 17 subareas. With the GIS maps available for the Master Drainage Plan, the same watershed was refined to include 50 subareas.

The Midland Draw watershed subareas and existing condition characteristics are listed in Table 3-1. Those subareas which lie outside of the detailed master planning area, and thus are not shown in this plan's section maps, are noted appropriately. The times of concentration listed with each subarea were determined using procedures contained in the City of Midland Storm Drainage Design Manual.

3.3.2 Future Land Use

Future land use conditions were based on the City of Midland's Comprehensive Plan and current zoning. The section maps in Figure 3-8 through Figure 3-26 show only the future land use condition. The future condition characteristics for the Midland Draw watershed subareas are listed in Table 3-1. Direct comparisons of the curve numbers and times of concentration in Table 3-1 show which subareas are expected to experience the greatest land use change. For example, subarea MI7 is expected to experience massive land use change with a curve number transition from 58 to 86 and a time of concentration reduction from 1.34 hours to 0.67 hours. In contrast, subarea MI17 has an existing condition curve number of 75 and a future condition curve number of 78. The time of concentration, 1.17 hours, is the same for both existing and future conditions. The increase of only three curve number units for the future condition is a result of near fully developed existing land use conditions in subarea MI17. Similar comparisons such as these examples for MI7 and MI17 can also be made for the remaining listed subareas. Certain subareas have a reduced curve number in order to reflect the impact of existing playa lakes within the subarea for which no routing method was used. Table 3-2 compares the existing and proposed peak flows for selected points along the main channel. Playa lake hydrology and hydraulic characteristics are summarized in Table 3-3.

3.4 CHANNELS AND ASSOCIATED ROADWAY DRAINAGE IMPROVEMENTS

Recommended improvements to the Midland Draw channel and associated roadway drainage structures are presented in order from the downstream to upstream direction. Table 3-4(a), Table 3-4(b), and Table 3-5 summarize the proposed improvements. Included in Table 3-4(a), Table 3-4(b), and Table 3-5 are the table numbers for the detailed preliminary budget opinions of cost and figure numbers corresponding to drawings that illustrate channel and drainage structure improvements. It is important to note that right-of-way costs are not included in the opinions of cost because of the fluctuating nature of land prices.

3.4.1 U.S. Highway 80 to Golf Course Road Channel Improvements

The first reach in which improvements are planned on Midland Draw is the reach extending from U.S. Highway 80 upstream to Golf Course Road. This reach corresponds to channel stations from 592+90 to 638+88. Proposed improvements include widening the existing channel to a 185-foot bottom width with a channel grade of 0.12 percent.

3.4.2 Golf Course Road Drainage Structure

A new roadway drainage structure is planned at Golf Course Road. The location for this drainage structure is at Station 638+88. The proposed structure consists of eleven 10-foot by 6-foot (span by height) concrete box culverts.

3.4.3 Golf Course Road to Fairgrounds Road Channel Improvements

Excavation of the existing channel is proposed from Golf Course Road upstream to Fairgrounds Road, Station 638+88 to Station 655+33. A 185-foot bottom width channel at a grade of approximately 0.17 percent is planned.

3.4.4 Fairgrounds Road Drainage Structure

Multiple box culverts added to the existing structure are planned for the crossing at Fairgrounds Road (Station 655+33). The existing structure consists of nine 9-foot by 4.6-foot concrete boxes (span by height). It is planned that five 9-foot by 4.6-foot concrete box culverts be added to increase the capacity of the crossing.

3.4.5 Fairgrounds Road to Benton Street Channel Improvements

Excavation of the existing channel is proposed from Fairgrounds Road (Station 655+33) to Benton Street (Station 672+00). It is planned to widen the bottom of the channel to 135 feet at Fairgrounds road with a transition to a bottom width of 75-feet at Benton Street. A channel grade of 0.14 percent will be maintained and a post and cable fence installed. In order to make the planned improvements in this reach, the acquisition of as much as 75 feet of additional right-of-way on the north side of the channel will be required.

3.4.6 Benton Street to Upstream of Jackson Street Channel Improvements

In the reach from Benton Street (Station 672+00) to upstream of Jackson Street (approximate Station 694+40), the existing channel bottom will be widened to 75 feet. The channel grade to be maintained for this reach is approximately 0.16 percent. In addition, a post and cable fence will be installed.

3.4.7 Jackson Street Drainage Structure

A new crossing is proposed for Jackson Street (Station 687+10). The planned crossing is a multiple barrel culvert consisting of ten 10-foot by 6.5-foot (span by height) concrete box culverts.

3.4.8 Upstream of Jackson Street to Scharbauer Drive Channel Improvements

Proposed improvements from Station 694+00 to Station 701+30 will require the acquisition of approximately 100 feet of right-of-way. Excavation of the channel bottom to a width of 150 feet with a channel grade of approximately 0.24 percent is planned. Installation of a post and cable fence is also proposed.

3.4.9 Scharbauer Drive North Drainage Structure

The existing drainage structure on the north lanes of Scharbauer Drive consists of six 10-foot by 6-foot (span by height) multiple concrete box culverts. Replacement of one box on the north lanes with one 10-foot by 6.5-foot (span by height) box is proposed in order to allow deepening of the channel upstream to Oak Street.

3.4.10 Scharbauer Drive to Magnolia Avenue Channel Improvements

Acquisition of approximately 80 feet of right-of-way is proposed from Scharbauer Drive to Magnolia Avenue (Station 701+30 to Station 708+30). With the additional right-of-way, the bottom width of the channel will be increased to 120 feet at Scharbauer Drive with a transition to approximately 40 feet at Magnolia Avenue. The channel grade for the reach will be approximately 0.15 percent. In addition to the proposed channel improvements, a post and cable fence will be installed.

3.4.11 Magnolia Avenue to Oak Avenue Channel Improvements

Slight deepening of the channel on a channel grade of approximately 0.15 percent is planned from Station 708+30 to Station 715+70. A bottom width ranging from 20 feet to 40 feet will be maintained throughout the reach. The installation of a post and cable fence is also proposed.

3.4.12 Oak Avenue Drainage Structure

The existing crossing at Oak Avenue (Station 715+70) consists of six 10-foot by 5.3-foot (span by height) concrete box culverts. It is proposed for one of the existing boxes to be replaced with one 10-foot by 8-foot (span by height) concrete box culvert. Replacing the existing box allows the channel to be deepened upstream to Lamesa Road.

3.4.13 Oak Avenue to Pecan Avenue Channel Improvements

From Station 715+70 at Oak Avenue to Station 719+95 at Pecan Avenue, a transition to a 170-foot right-of-way is proposed. This will require the acquisition of as much as 50 feet of right of way on the east side of the channel. It is planned that the channel will be deepened in this reach with a 0.15 percent channel grade and a 20-foot bottom width. Additionally, installation of a post and cable fence is proposed.

3.4.14 Pecan Avenue to Dormard Avenue Channel Improvements

In the reach from Pecan Avenue to Dormard Avenue (Station 719+95 to Station 729+40), excavation to widen the bottom of the channel to 60 feet and to deepen the channel is planned. The proposed

channel grade for this reach is approximately 0.15 percent. Installation of a post and cable fence is also planned.

3.4.15 Dormard Avenue to Lamesa Road Channel Improvements

Acquisition of approximately 50 feet of right-of-way is proposed from Dormard Avenue (Station 729+40) to Lamesa Road (Station 744+60). With the additional right-of-way, the existing channel will be deepened, and the channel bottom will be widened to 60 feet. A channel grade of approximately 0.16 percent and installation of a post and cable fence are proposed.

3.4.16 Wadley Avenue Drainage Structure

A new multiple barrel culvert is planned for the channel crossing at Wadley Avenue. The proposed crossing will consist of eight 10-foot by 8-foot (span by height) concrete box culverts.

3.4.17 Wadley Avenue to Big Spring Street Channel Improvements

The acquisition of as much as 70 feet of right-of-way east of the existing channel is proposed from Wadley Avenue (Station 748+45) to the south end of the Fairway Park Subdivision (approximate Station 775+30). It is also planned to obtain an access agreement for approximately 20 feet of right-of-way west of the channel from the south end of the Fairway Park Subdivision to Big Spring Street (Station 797+80). By acquiring the appropriate right-of-way and access agreement, the channel in the reach from Wadley Avenue to Big Spring Street can be deepened and the bottom widened to a width of 40 feet. The proposed channel grade for the reach is approximately 0.15 percent. These channel improvements remove the Fairway Park Subdivision from the 100-year floodplain.

3.4.18 Big Spring Street to Loop 250 Channel Improvements

Proposed improvements to the channel reach extending from Big Spring Street (Station 797+80) upstream to the Jal Draw confluence include a 20-foot bottom width low flow channel on a grade of 0.12 percent. From the Jal Draw confluence to Loop 250 (Station 814+75) a 20-foot bottom width low flow channel is also proposed. The channel grade for this second reach, however, is approximately 0.90 percent. Acquisition of between 20 feet and 40 feet of additional right-of-way is recommended for the entire reach from Big Spring Street to Loop 250. The additional right-of-way will allow flexibility in future improvement options.

3.4.19 Loop 250 to Solomon Lane Channel Improvements

A 90-foot bottom width channel beginning at Loop 250 (Station 814+75) with a transition to a 60-foot bottom width channel at Station 824+00 is proposed. The 60-foot bottom width channel will be maintained from Station 824+00 to Station 833+40. Right-of-way acquisition of approximately 40 feet is required from Station 824+00 to Station 833+40. The channel grade for the entire reach is approximately 0.21 percent.

From Station 833+40 to Solomon Lane (Station 842+50), there is currently no right-of-way. However, a 28-foot bottom width channel on a grade of approximately 0.16 percent is proposed for this reach. This will require a minimum right-of-way acquisition of 100-feet. The purpose of the channel is to reduce the tailwater effects upstream of Solomon Lane.

3.4.20 Solomon Lane Drainage Structure

A new drainage structure is planned at Solomon Lane (Station 842+50). The structure will consist of two 9-foot by 7-foot (span by height) concrete box culverts.

3.4.21 Solomon Lane to North "A" Street Channel Improvements

From Solomon Lane (Station 842+50) to North "A" Street (Station 869+00), improvements are planned for the existing channel. The bottom width will be 150-feet, with a channel grade of 0.16 percent. The existing 300-foot right-of-way should be sufficient for the proposed improvements.

3.4.22 North "A" Street Drainage Structure

A new multiple barrel concrete box culvert is proposed at North "A" Street. The structure, located at Station 869+00, will consist of seven 8-foot by 5-foot (span by height) boxes.

3.4.23 Mockingbird Lane Drainage Structure

Once excavation of the Midland Draw Channel occurs upstream of Mockingbird Lane, a drainage structure will be required at Mockingbird Lane. The proposed structure will consist of six 7-foot by 5-foot (span by height) multiple concrete box culverts.

3.4.24 Mockingbird Lane to North "T" Street Extension Channel Improvements

Upstream of Mockingbird Lane the Midland Draw is in its natural state. It is proposed that

the natural channel be excavated and used for in-line detention. The purpose of the in-line detention is to reduce the need for off-line detention basins. It is important to note that the alignment of the proposed channel upstream of the North "I" Street extension differs from the natural alignment, and all stations provided upstream of Mockingbird Lane are based on the new alignment. The proposed alignment helps to alleviate some of the problem areas where the natural channel crosses major features such as roads and pipelines in several places. As a result of the realignment, some surrounding land areas may require fill in order to be developed.

The first reach upstream from Mockingbird Lane in which excavation will be required is from Mockingbird Lane to the future extension of North "I" Street, Station 878+60 to Station 902+23. Proposed drainage improvements for this reach include a 300-foot bottom width channel on an approximate 0.17 percent channel grade. The proposed improvements will require approximately 400 feet to 450 feet of right-of-way.

3.4.25 North "I" Street Drainage Structure

A culvert drainage structure is planned for the extension of North "I" Street at Station 902+23. The structure will consist of three 9-foot by 6-foot (span by height) concrete box culverts. It should be noted that all culvert bridge road crossings of this nature serve as outlet works and discharge controls for the next upstream channel reach.

3.4.26 North "I" Street Extension to Garfield Street Extension Channel Improvements

In-line detention is planned from North "I" Street (Station 902+23) to Garfield Street (Station 931+84). To provide the in-line detention, a 300-foot bottom width channel is proposed with a channel slope of 0.17 percent. The right-of-way required for the proposed channel is approximately 400 feet to 450 feet.

3.4.27 Garfield Street Drainage Structure

A culvert drainage structure is planned for Garfield Street (Station 931+84) once it is extended north across the Midland Draw Channel. The proposed multiple barrel culvert will consist of five 8-foot by 5-foot (span by height) concrete boxes.

3.4.28 Garfield Street Extension to Whitman Drive Channel Improvements

Proposed drainage improvements between Garfield Street and Whitman Drive (Station 931+84 to Station 964+24) include a 300-foot bottom width channel in order to provide in-line detention. The channel slope for this reach is approximately 0.16 percent. Approximately 400 feet to 430 feet of right-of-way will be required to accomplish the improvements.

3.4.29 Whitman Drive Drainage Structure

A drainage structure is proposed for Whitman Drive at Station 964+24. The planned structure will be a multiple barrel concrete culvert consisting of three 8-foot by 5-foot (span by height) boxes.

3.4.30 Whitman Drive to Greentree Blvd. / Midkiff Road Intersection Channel Improvements

In-line detention is planned for the reach between Whitman Drive and the proposed intersection of the future extension of Greentree Boulevard with the future extension of Midkiff Road. This reach corresponds to channel stations 964+24 to 993+41. The proposed channel in this reach will have a 300-foot bottom width and a channel slope of approximately 0.18 percent. These improvements will require approximately 400 feet to 430 feet of right-of-way.

3.4.31 Greentree Boulevard and Midkiff Road Drainage Structure

Currently, a single drainage structure is planned for the intersection of Greentree Boulevard with Midkiff Road. The proposed structure, located at Station 993+41, will be a multiple barrel culvert installation with five 9-foot by 6-foot (span by height) concrete boxes.

3.4.32 Greentree Blvd. / Midkiff Road Intersection to Downstream Crossing on Montana Band Tract

Proposed drainage improvements in the reach from the Greentree Boulevard and Midkiff Road intersection upstream to the the first of two crossings located on land owned by the Montana Band Indians include a 300-foot bottom width channel with a 0.18 percent channel grade. These improvements will allow in-line detention in this reach. This reach encompasses the channel length from Station 993+41 to Station 1013+97. Right-of-way required for the improvements will be approximately 400 feet to 430 feet.

3.4.33 Downstream Drainage Structure on Montana Band Tract

A road crossing of the Midland Draw Channel is proposed at approximate Station 1013+97. The drainage structure planned for the crossing is a multiple barrel concrete culvert comprised of three 8-foot by 6-foot (span by height) boxes.

3.4.34 Downstream Crossing to Upstream Crossing on Montana Band Tract

In the reach from the downstream crossing to a second proposed crossing located on the Montana Band Tract, channel excavation is planned. It is proposed that the excavated channel will have a 300-foot bottom width, and a channel slope of approximately 0.17 percent. Approximately 400 feet to 430 feet of right-of-way will be required to make the proposed improvements. This reach is from Station 1013+97 to Station 1041+55.

3.4.35 Upstream Drainage Structure on Montana Band Tract

A second road crossing of the Midland Draw Channel located on the Montana Band Tract is proposed for approximate Station 1041+55. The drainage structure planned for the crossing will consist of a concrete culvert with three 8-foot by 6-foot (span by height) boxes.

3.4.36 Upstream Crossing on Montana Band Tract to Midland Drive Extension

Channel excavation is planned for the reach extending from the upstream crossing on the Montana Band Tract (Station 1041+55) to the future extension of Midland Drive (Station 1059+51). The proposed channel will have a 300-foot bottom width and a channel slope of approximately 0.17 percent. To accomplish the improvements, approximately 400 feet to 430 feet of right-of-way will be required.

3.4.37 Midland Drive Drainage Structure

It is planned to extend Midland Drive across the Midland Draw Channel at approximate Station 1059+51. A multiple barrel concrete drainage structure is planned for the Midland Drive channel crossing. The proposed structure will have four 9-foot by 6-foot (span by height) box culverts.

3.4.38 Midland Drive Extension to Charles Drive Extension Channel Improvements

In the reach from Midland Drive to Charles Drive (Station 1059+51 to Station 1087+71), a 300-foot bottom width channel is planned for the purpose of providing in-line detention. The channel slope will be approximately 0.16 percent, and will require approximately 400 feet to 420 feet of right-of-way to make the improvements.

3.4.39 Charles Drive Drainage Structure

A drainage structure is proposed at approximate Station 1087+71. The planned structure is located approximately 0.5 miles west of Midland Drive, where Charles Drive currently dead-ends at the north boundary of the Greentree subdivision, and will consist of four 8-foot by 5-foot (span by height) concrete box culverts.

3.4.40 Charles Drive Extension to Holiday Hill Road Extension Channel Improvements

Excavation of the Midland Draw Channel is planned for the reach extending from Charles Drive (Station 1087+71) to Holiday Hill Road (Station 1114+97) in order to provide in-line detention. The proposed channel will have a 300-foot bottom width, and a channel slope of approximately 0.16 percent. The right-of-way required to accomplish the improvements is estimated at between 400 feet and 420 feet.

3.4.41 Holiday Hill Road Drainage Structure

A concrete multiple barrel box structure is planned for the future extension of Holiday Hill Road at Station 1114+97. The structure will consist of five 8-foot by 6-foot (span by height) boxes.

3.4.42 MI4FT Channel (Branch of Midland Draw)

A branch of Midland Draw extends approximately 1.5 miles northwest of the main Midland Draw Channel through Subarea MI4FT of the Midland Draw Watershed. The confluence of the branch with the main channel is located at approximately Midland Draw Station 1124+44. It is proposed that the branch be excavated to provide in-line regional detention instead of off-line detention for Subarea MI4FT. The proposed channel will have a 300-foot bottom width and a channel grade of approximately 0.15 percent. Right-of-way requirements for the channel will be approximately 390 feet to 420 feet.

Two channel crossings are planned along the MI4FT branch of Midland Draw. The proposed crossings will be located approximately 0.5 miles and approximately 1.0 miles, respectively, upstream of the confluence with the main channel. The drainage structure associated with the 0.5 mile crossing will consist of two 8-foot by 5-foot (span by height) concrete box culverts. The 1.0 mile drainage structure will be comprised of four 7-foot by 4-foot (span by height) concrete boxes.

3.4.43 Holiday Hill Road Extension to 0.5 Mile West of Holiday Hill Road Channel Improvements

Channel excavation is planned for Midland Draw from Holiday Hill Road (Station 1114+97) to a point approximately 0.5 miles upstream of Holiday Hill Road at Station 1144+84. The proposed channel

will have a bottom width of 300 feet and a channel slope of 0.17 percent. Proposed improvements will require approximately 400 feet to 450 feet of right-of-way.

3.4.44 Roadway Drainage Structure 0.5 Mile West of Holiday Hill Road

A road crossing of Midland Draw is planned approximately 0.5 miles west of Holiday Hill Road. The proposed drainage structure at the road crossing will consist of four 5-foot by 5-foot (span by height) concrete box culverts.

3.4.45 Channel Improvements from 0.5 Mile to 1.0 Mile West of Holiday Hill Road

Excavation of the Midland Draw Channel from Station 1144+84 to Station 1169+94 is planned to provide in-line detention. The planned improvements will consist of a 300-foot bottom width channel on a 0.16 percent slope and will require approximately 400 feet to 430 feet of right-of-way.

3.4.46 Roadway Drainage Structure 1.0 Mile West of Holiday Hill Road

A drainage structure is planned for a future roadway that will cross the Midland Draw Channel approximately 1.0 mile west of Holiday Hill Road. The crossing will be located at approximate Station 1169+94. The proposed structure will be a multiple barrel concrete culvert with four 8-foot by 6-foot (span by height) boxes.

3.4.47 Channel Improvements from 1.0 Mile to 1.5 Miles West of Holiday Hill Road

Continuation of the in-line detention scheme is planned for the reach from 1.0 mile to 1.5 miles west of Holiday Hill Road. This reach corresponds to channel stations from 1169+94 to 1204+84. A 300-foot bottom width channel is proposed to provide the in-line detention storage. The channel will have a slope of approximately 0.17 percent. Right-of-way required to make the proposed improvements will be approximately 400 feet to 420 feet.

3.4.48 Roadway Drainage Structure 1.5 Miles West of Holiday Hill Road

A future road is planned for approximately 1.5 miles west of Holiday Hill Road at Station 1204+84. In order to cross the Midland Draw Channel, a drainage structure consisting of four 7-foot by 4-foot concrete box culverts is proposed.

3.4.49 Channel Improvements from 1.5 Miles to 2.0 Miles West of Holiday Hill Road

The final Master Drainage Plan reach for the Midland Draw Channel is from 1.5 miles to 2.0 miles west of Holiday Hill Road, Station 1204+84 to Station 1229+44. The proposed channel in this reach will have a 300-foot bottom width and a channel slope of approximately 0.16 percent. Improvements will require approximately 400 feet to 420 feet of right-of-way.

3.5 PLAYA LAKES

The Midland Draw playa lakes and their watershed subareas are shown in plan view on Figure 3-8 through Figure 3-26. The blue shading covering each playa location is the approximate surface area of the lake at the base flood elevation (BFE) listed with the playa. Other information listed with each playa (Qex, Vex, etc.) is explained in the Legend Sheet of Figure 1-2 in Section 1 of this Master Drainage Plan. The tabulated information for each playa lake is repeated in Table 3-3 for easy reference. Each playa lake carries the same designation as its subarea identification. Improvements planned for each playa lake are listed in Table 3-6.

3.6 DETENTION BASINS

Under the future development assumptions made for this drainage master plan, no man-made off-line regional detention basins other than playa lake improvements were proposed for the Midland Draw watershed. However, one retention basin located in Subarea MI37 was already planned from a plat prepared while the master plan was being developed. Its approximate location is shown on Figure 3-17. No information regarding the size of this basin was available at the time of publication, and its impact was not evaluated as part of this drainage master plan. It is important to note that if future development differs significantly from the predicted development scheme used in this master plan, man-made off-line regional detention basins may become necessary.

3.7 ZERO MODIFICATION SUBAREAS

There are several Midland Draw watershed subareas in which no playa lakes or natural channels exist that could provide a means to mitigate the impact of future runoff from these areas. Because the Midland Draw Channel is designed for regional detention storage, no runoff mitigation concepts (such as regional subarea detention basins) were proposed for these areas. These subareas are MI15, MI16, MI17, and MI25.

END

TABLE 3-1

Midland Draw Master Plan
Watershed Subarea Characteristics

SUBAREA I.D.	AREA (ACRES)	AREA (SQ. MI.)	EXISTING CONDITION JUNE 1993		FUTURE CONDITION YEAR 2020		NOTES
			CN	Tc HOURS	CN	Tc HOURS	
300C*	8,761.6	13.69	47	19.30	47	19.30	Upstream of detailed study area.
300D*	3,238.4	5.06	35	10.16	35	10.16	Upstream of detailed study area.
301*	14,124.8	22.07	55	12.03	55	12.03	Upstream of detailed study area.
302*	10,099.2	15.78	59	23.83	59	23.83	Upstream of detailed study area.
303A*	4,204.8	6.57	37	10.57	37	10.57	Upstream of detailed study area.
303B*	4,864.0	7.60	46	10.26	46	10.26	Upstream of detailed study area.
MI1	58.7	0.09	69	0.80	69	0.80	Upstream of detailed study area.
MI1A	23.0	0.04	69	0.41	69	0.41	Upstream of detailed study area.
MI2FT	1,451.5	2.27	51	6.26	86	3.05	In detailed study area.
MI2XG*	3,537.6	5.53	51	5.50	51	5.50	Upstream of detailed study area.
MI3FT	390.0	0.61	65	1.28	87	0.40	In detailed study area.
MI3XG*	281.1	0.44	65	1.22	65	1.22	Upstream of detailed study area.
MI4FT	747.7	1.17	55	6.22	85	2.93	In detailed study area.
MI4XG*	10,905.3	17.04	55	8.88	55	8.88	Upstream of detailed study area.
MI5	88.2	0.14	69	0.86	69	0.86	Outside of detailed study area.
MI6	135.2	0.21	69	1.05	69	1.05	Outside of detailed study area.
MI7	259.8	0.41	58	1.34	86	0.67	In detailed study area.
MI8	31.1	0.05	58	0.28	91	0.14	In detailed study area.
MI9	127.7	0.20	58	1.41	85	0.66	In detailed study area.
MI10	50.2	0.08	59	0.29	85	0.14	In detailed study area.
MI11	75.8	0.12	59	0.35	85	0.17	In detailed study area.
MI12	25.3	0.04	65	0.24	67	0.24	In detailed study area.
MI13	215.1	0.34	66	0.86	90	0.43	In detailed study area.
MI14FT	1,710.7	2.67	57	3.97	85	1.90	In detailed study area.
MI14XG*	282.2	0.44	57	1.23	57	1.23	Outside of detailed study area.
MI15	79.6	0.12	58	0.45	85	0.23	In detailed study area.
MI16	387.1	0.60	74	1.89	78	1.42	In detailed study area.
MI17	131.5	0.21	75	1.17	78	1.17	In detailed study area.
MI18	601.9	0.94	58	1.26	85	0.77	In detailed study area.
MI19	627.5	0.98	69	1.90	69	1.90	In detailed study area.
MI20	252.1	0.39	69	0.63	69	0.63	Outside of detailed study area.
MI21FT	1,006.8	1.57	56	2.43	87	1.17	In detailed study area.
MI21XG*	7,773.1	12.15	56	7.66	56	7.66	Outside of detailed study area.
MI22	117.8	0.18	58	1.14	85	0.53	In detailed study area.
MI23	73.8	0.12	62	0.61	83	0.31	In detailed study area.
MI24	938.1	1.47	59	2.06	86	1.36	In detailed study area.
MI25	518.5	0.81	66	5.48	79	1.35	In detailed study area.
MI26	145.6	0.23	69	1.03	69	1.03	Outside of detailed study area.
MI27FT	1,195.4	1.87	59	5.04	87	2.42	In detailed study area.
MI27XG*	885.9	1.38	59	3.02	59	3.02	Outside of detailed study area.
MI28	534.6	0.84	61	1.88	83	1.03	In detailed study area.
MI29	1,337.7	2.09	69	2.94	69	2.94	Outside of detailed study area.
MI30	599.9	0.94	69	1.99	69	1.99	Outside of detailed study area.
MI31	232.9	0.36	66	0.58	88	0.29	In detailed study area.
MI32	217.3	0.34	52	2.16	89	1.08	Ir detailed study area.
MI33FT	639.9	1.00	65	2.98	88	1.41	In detailed study area.
MI33XG*	309.6	0.48	65	2.16	65	2.16	Outside of detailed study area.
MI34FT	1,160.5	1.81	63	3.41	86	1.60	In detailed study area.
MI34XG*	473.7	0.74	63	2.79	63	2.79	Outside of detailed study area.
MI35	706.6	1.10	65	1.95	76	1.28	In detailed study area.
MI36	121.5	0.19	76	0.53	85	0.41	In detailed study area.
MI37	729.3	1.14	80	1.46	83	1.13	In detailed study area.
MI38	58.76	0.09	58	0.25	85	0.12	In detailed study area.
MI39	256.3	0.40	66	1.19	85	1.02	In detailed study area.
MI40	140.9	0.22	67	0.55	67	0.55	In detailed study area.
MI41	178.3	0.28	60	1.45	85	0.76	In detailed study area.
MI42	295.5	0.46	69	3.08	87	1.54	In detailed study area.
MI43	561.0	0.88	62	2.21	80	1.10	In detailed study area.
MI44	494.6	0.77	62	1.16	86	0.73	In detailed study area.
MI45	849.0	1.33	74	2.11	80	2.11	In detailed study area.
MI46	59.9	0.09	66	0.41	74	0.25	In detailed study area.
MI47	480.1	0.75	75	1.39	75	1.39	In detailed study area.
MI48	552.9	0.86	74	0.84	80	0.84	In detailed study area.
MI49	46.2	0.07	58	0.58	85	0.29	In detailed study area.
MI50	261.1	0.41	62	1.04	82	0.52	In detailed study area.
MI51	544.3	0.85	70	1.29	84	0.71	In detailed study area.
MI52	1,249.5	1.95	75	2.88	76	2.88	In detailed study area.
Z15A*	5,875.2	9.18	44	5.98	44	5.98	Outside of detailed study area.

* Curve numbers in these subareas are reduced in order to reflect the impact of existing playa lakes for which no routing method is used.

TABLE 3-2

Channel Subarea Hydrologic Characteristics
Based on 100-Year 24-Hour Event

SUBAREA I.D.	DESIGNATED LOCATION	EXISTING DISCHARGE		FUTURE DISCHARGE	
		Peak (cfs)	Peak Time (hrs)	Peak (cfs)	Peak Time (hrs)
MI2FT	Just Upstream of Future Extension of Holiday Hill Road	3,971	32.25	3,818	32.00
MI14FT	Future Extension of Midland Drive	3,910	33.50	3,799	32.50
MI18	Future Extension of Greentree Boulevard	3,987	34.25	3,789	32.75
MI24	Future Extension of Garfield Street	3,965	35.25	3,838	18.25
MI28	Mockingbird Lane	3,948	35.75	3,950	18.75
MI35	Solomon Lane	3,925	36.00	3,968	19.00
MI36	Loop 250	3,922	36.25	3,952	19.00
MI39 Upper End	Prior to Confluence with Jal Draw	3,918	36.25	4,029	19.25
MI39 Upper End	After Confluence with Jal Draw	6,237	37.00	6,201	19.25
MI39 Lower End	Big Spring Street	6,236	37.25	6,225	19.50
MI45	Lamesa Road	6,224	38.00	6,289	19.75
MI47	Scharbauer Drive North Lanes Prior to Confluence with Scharbauer Channel	6,210	38.50	6,346	20.00
MI48 Upper End	After Confluence with Scharbauer Channel	8,404	14.25	9,499	14.25
MI48 Lower End	Fairgrounds Road	8,418	14.75	9,549	14.75
MI51	Prior to Confluence with Mulberry Channel	8,476	15.00	9,723	15.00
MI52 Upper End	After Confluence with Mulberry Channel	9,398	15.00	11,071	14.75
MI52 Lower End	U.S. Highway 80	10,074	15.00	11,843	14.75

TABLE 3-3

Playa Lake Hydrologic and Hydraulic Characteristics
Based on 100-Year 24-Hour Event

SUBAREA I.D.	EXISTING INFLOW		FUTURE INFLOW		LAKE ELEVATION-VOLUME			OVERFLOW CHARACTERISTICS			
	Peak (cfs)	Volume (Ac. Ft.)	Peak (cfs)	Volume (Ac. Ft.)	Base Flood Elevation (msl)	Existing Lake* Volume (Ac. Ft.)	Future Lake Volume (Ac. Ft.)	Existing Overflow Volume (Ac. Ft.)	Future Overflow Volume (Ac. Ft.)	Existing Overflow Peak (cfs)	Future Overflow Peak (cfs)
MI7	242	49.6	842	112.6	2851.7	18.8	81.8	30.8	30.8	98	74
MI8	62	5.9	173	14.9	2848.3	14.8	16.3	0.0	0.0	0	0
MI9	136	24.4	402	54.2	2846.4	60.6	85.6	0.0	0.0	0	0
MI10	100	10.0	248	21.3	2844.6	4.6	15.9	5.4	5.4	31	15
MI11	130	15.1	378	32.1	2858.5	12.9	29.9	2.2	2.2	6	5
MI21	1,864	1,543.8	2,315	1,813.1	2826.3	1,006.4	1,344.6	537.4	468.6	375	359
MI22	375	537.4	359	468.6	2825.2	11.0	22.0	526.4	446.6	375	359
MI23	132	16.5	314	30.0	2825.7	22.0	32.0	0.0	0.0	0	0
MI25**	242	132.7	N/A	N/A	2809.1	26.3	0.0	106.3	N/A	186	N/A
MI27	644	402.0	1,781	706.4	2812.1	301.5	605.9	100.5	100.5	183	35
MI31	471	59.6	1,018	105.4	2811.7	49.2	105.4	10.4	0.0	67	0
MI32	102	31.7	411	100.3	2808.8	16.9	100.3	14.8	0.0	22	0
MI33	466	235.0	1,391	366.2	2807.0	138.3	404.6	0.0	0.0	0	0
MI34	676	378.6	2,230	612.6	2807.0	385.0	612.6	0.0	0.0	0	0
MI38	118	11.2	285	24.9	2798.5	44.8	44.8	0.0	0.0	0	0
MI40	308	37.2	308	37.2	2806.6	43.2	43.2	0.0	0.0	0	0
MI41	163	35.5	528	75.6	2804.8	130.9	130.9	0.0	0.0	0	0
MI42	233	83.2	600	131.0	2806.0	9.8	70.7	73.4	60.3	228	228
MI43	435	125.3	1,211	212.2	2800.1	166.5	239.7	0.0	0.0	37	37
MI44	567	110.5	1,473	214.3	2788.4	43.0	147.0	67.5	67.3	292	213
MI46	126	15.3	210	19.5	2803.2	27.4	27.4	0.0	0.0	0	0
MI49	67	8.8	197	19.6	2783.2	5.3	16.1	3.5	3.5	14	6
MI50	334	58.3	853	103.3	2782.9	16.4	61.4	41.9	41.9	199	167

* Estimated from City's 2-foot GIS contours.
** Playa expected to be filled in the future.

TABLE 3-4(a)

Planned Channel Improvements Summary
U.S. Highway 80 to Loop 250

SUBAREA I.D.	FIGURE NUMBER	REACH LOCATION	STATION RANGE	PROPOSED RIGHT-OF-WAY (ft)	BOTTOM WIDTH (ft)	SIDE SLOPES (Left Bank, Right Bank)	BOTTOM SLOPE (%)	PRELIMINARY BUDGET OPINION OF COST TABLE NUMBER	OPINION OF COST (TOTALS)
MI52	3-26, 3-28, 3-37	U.S. Highway 80 to Mulberry Channel Confluence	592+00 to 608+50	300	185	5:1, 5:1	0.12	3-7	$709,780
MI51	3-26, 3-28, 3-37	Mulberry Channel Confluence to Golf Course Road	608+50 to 638+88	300	185	4:1 to 5:1, 4:1 to 5:1	0.12		
MI51	3-24, 3-26, 3-28, 3-39	Golf Course Road to Fairgrounds Road	638+88 to 655+33	300	185	5:1, 5:1	0.17	3-9	$229,480
MI48	3-23, 3-24, 3-28, 3-41	Fairgrounds Road to Benton Street	655+33 to 672+00	225	135	3:1, 3:1	0.14	3-11	$286,040
MI48	3-23, 3-28, 3-29, 3-42	Benton Street to Upstream of Jackson Street	672+00 to 694+40	150	75	3:1, 3:1	0.16	3-12	$140,100
MI48	3-23, 3-29, 3-44	Upstream of Jackson Street to Scharbauer Drive	694+40 to 701+30	250	150	3:1, 3:1	0.24	3-14	$213,880
MI47	3-23, 3-29, 3-47	Scharbauer Drive to Magnolia Avenue	701+30 to 708+30	200	120	3:1, 3:1	0.15	3-16	$96,100
MI 47	3-23, 3-29, 3-48	Magnolia Avenue to Oak Avenue	708+30 to 715+70	120	20 to 40	3:1, 3:1	0.15	3-17	$54,500
MI47	3-23, 3-29, 3-50	Oak Avenue to Pecan Avenue	715+70 to 719+95	170	20	3:1, 3:1	0.15	3-19	$38,900
MI47	3-23, 3-29, 3-51	Pecan Avenue to Dormard Avenue	719+95 to 729+40	170	60	3:1, 3:1	0.15	3-20	$150,500
MI47	3-23, 3-29, 3-52, 3-54	Dormard Avenue to Wadley Avenue	729+40 to 748+45	170	60	3.5:1, 3.5:1	0.16	3-21	$224,280
MI45	3-21, 3-23, 3-29, 3-56	Wadley Avenue to Fairway Park Subdivision	748+45 to 775+30	190	40	5:1, 3:1 to 5:1	0.15	3-23	$278,240
MI45	3-21, 3-29, 3-57	Fairway Park Subdivision to Big Spring Street	775+30 to 797+80	180	40	4:1 to 5:1, 4:1 to 5:1	0.14		
MI39	3-21, 3-29, 3-59	Big Spring Street to Jal Draw Confluence	797+80 to 808+50	180	20	5:1, 5:1	0.12	3-24	$29,680
MI39	3-21, 3-29, 3-59	Jal Draw Confluence to Loop 250	808+50 to 814+75	170	20	5:1, 5:1	0.90		

Note: Side slopes for left bank and right bank looking downstream.

TABLE 3-4(b)

Planned Channel Improvements Summary
Loop 250 to 2.0 Miles West of Holiday Hill Road Extension

SUBAREA I.D.	FIGURE NUMBER	REACH LOCATION	STATION RANGE	PROPOSED RIGHT-OF-WAY (ft)	BOTTOM WIDTH (ft)	SIDE SLOPES (Left Bank, Right Bank)	BOTTOM SLOPE (%)	PRELIMINARY BUDGET OPINION OF COST TABLE NUMBER	OPINION OF COST (TOTALS)
MI36	3-18, 3-29, 3-61	Loop 250 to Approximately 910 feet Downstream of Solomon Lane	814+75 to 833+40	165 to 250	60 to 90	3:1 to 5:1, 2.3:1 to 5:1	0.21	3-25	$373,800
MI36	3-18, 3-29, 3-62	Approximately 910 feet Downstream of Solomon Lane to Solomon Lane	833+40 to 842+50	100 (minimum)	28	2:1, 2:1	0.16		
MI35	3-18, 3-29, 3-64	Solomon Lane to North "A" Street	842+50 to 869+00	300	150	6:1, 6:1	0.16	3-27	$792,780
MI28	3-14, 3-29, 3-68	Mockingbird Lane to North "I" Street Extension	878+60 to 902+23	400 to 450	300	4:1, 4:1	0.17	3-30	$1,016,840
MI28	3-14, 3-29, 3-30, 3-70	North "I" Street Extension to Garfield Street Extension	902+23 to 931+84	400 to 450	300	4:1, 4:1	0.17	3-32	$580,530
MI24	3-14, 3-30, 3-72	Garfield Street Extension to Whitman Drive	931+84 to 964+24	400 to 430	300	4:1, 4:1	0.16	3-34	$1,412,740
MI24	3-14, 3-30, 3-74	Whitman Drive to Greentree Blvd. / Midkiff Road Extension	964+24 to 993+41	400 to 430	300	4:1, 4:1	0.18	3-36	$788,550
MI18	3-9, 3-14, 3-30, 3-76	Greentree Blvd. / Midkiff Road Extension to Downstream Crossing on Montana Band Tract	993+41 to 1013+97	400 to 430	300	4:1, 4:1	0.18	3-38	$486,050
MI18	3-9, 3-30, 3-78	Downstream Crossing to Upstream Crossing on Montana Band Tract	1013+97 to 1041+55	400 to 430	300	4:1, 4:1	0.17	3-40	$197,950
MI18	3-9, 3-30, 3-80	Upstream Crossing on Montana Band Tract to Midland Drive Extension	1041+55 to 1059+51	400 to 430	300	4:1, 4:1	0.17	3-42	$604,470
MI14FT	3-9, 3-30, 3-82	Midland Drive Extension to Charles Drive Extension	1059+51 to 1087+71	400 to 420	300	4:1, 4:1	0.16	3-44	$1,094,850
MI14FT	3-8, 3-9, 3-30, 3-84	Charles Drive Extension to Holiday Hill Road Extension	1087+71 to 1114+97	400 to 420	300	4:1, 4:1	0.16	3-46	$819,000
MI4FT*	3-8, 3-93, 3-94	Confluence with Midland Draw Main Channel to Crossing 0.5 Miles Upstream of Confluence	0+00 to 25+50	400 to 420	300	4:1, 4:1	0.15	3-48	$707,610
MI4FT*	3-93, 3-96	0.5 Mile Crossing to 1.0 Mile Crossing Upstream of Midland Draw Confluence	25+50 to 65+50	400 to 420	300	4:1, 4:1	0.15	3-50	$1,483,710
MI4FT*	3-93, 3-98	1.0 Mile Crossing to Approximately 1.5 Miles Upstream of Midland Draw Confluence	65+50 to 90+00	390 to 400	300	4:1, 4:1	0.15	3-52	$797,980
MI2FT	3-8, 3-30, 3-86	Holiday Hill Road Extension to 0.5 Mile Crossing West of Holiday Hill Road	1114+97 to 1144+84	400 to 450	300	4:1, 4:1	0.17	3-53	$711,520
MI2FT	3-8, 3-30, 3-31, 3-88	0.5 Mile Crossing to 1.0 Mile Crossing West of Holiday Hill Road Extension	1144+84 to 1169+94	400 to 430	300	4:1, 4:1	0.16	3-55	$584,420
MI2FT	3-31, 3-90	1.0 Mile Crossing to 1.5 Mile Crossing West of Holiday Hill Road Extension	1169+94 to 1204+84	400 to 420	300	4:1, 4:1	0.17	3-57	$705,020
MI2FT	3-31, 3-92	1.5 Mile Crossing to 2.0 Miles West of Holiday Hill Road Extension	1204+84 to 1229+44	400 to 420	300	4:1, 4:1	0.16	3-59	$731,890

* Information provided is for the branch of Midland Draw extending through MI4FT.

Note: Side slopes for left bank and right bank looking downstream.

TABLE 3-5

Planned Channel Crossing Improvements Summary

STREET CROSSING	FIGURE NUMBER	PROPOSED STRUCTURE	PRELIMINARY BUDGET OPINION OF COST TABLE NUMBER	OPINION OF COST (TOTALS)
Midland Draw at:				
Golf Course Road	3-24, 3-28, 3-38	11 - 10 ft x 6 ft CBC	3-8	$779,185
Fairgrounds Road	3-24, 3-28, 3-40	14 - 9 ft x 4.6 ft CBC	3-10	$160,665
Jackson Street	3-23, 3-29, 3-43	10 - 10 ft x 6.5 ft CBC	3-13	$249,465
Scharbauer Drive North Lanes	3-23, 3-29, 3-46	5 - 10 ft x 6 ft CBC and 1 - 10 ft x 6.5 ft CBC	3-15	$19,416
Oak Avenue	3-23, 3-29, 3-49	5 - 10 ft x 5.3 ft CBC and 1 - 10 ft x 8 ft CBC	3-18	$21,691
Wadley Avenue	3-21, 3-29, 3-55	8 - 10 ft x 8 ft CBC	3-22	$399,470
Solomon Lane	3-18, 3-29, 3-63	2 - 9 ft x 7 ft CBC	3-26	$111,490
North "A" Street	3-18, 3-29, 3-65	7 - 8 ft x 5 ft CBC	3-28	$242,470
Mockingbird Lane	3-14, 3-29, 3-67	6 - 7 ft x 5 ft CBC	3-29	$286,005
North "I" Street Extension	3-14, 3-29, 3-69	3 - 9 ft x 6 ft CBC	3-31	$273,810
Garfield Street Extension	3-14, 3-30, 3-71	5 - 8 ft x 5 ft CBC	3-33	$337,515
Whitman Drive	3-14, 3-30, 3-73	3 - 8 ft x 5 ft CBC	3-35	$285,240
Greentree Boulevard and Midkiff Road Extensions	3-14, 3-30, 3-75	5 - 9 ft x 6 ft CBC	3-37	$1,166,120
Downstream Montana Band Tract	3-9, 3-30, 3-77	3 - 8 ft x 6 ft CBC	3-39	$262,585
Upstream Montana Band Tract	3-9, 3-30, 3-80	3 - 8 ft x 6 ft CBC	3-41	$262,585
Midland Drive Extension	3-9, 3-30, 3-81	4 - 9 ft x 6 ft CBC	3-43	$332,965
Charles Drive Extension	3-9, 3-30, 3-83	4 - 8 ft x 5 ft CBC	3-45	$278,460
Holiday Hill Road Extension	3-8, 3-30, 3-85	5 - 8 ft x 6 ft CBC	3-47	$342,065
0.5 Miles West of Holiday Hill Road Extension	3-8, 3-30, 3-87	4 - 5 ft x 5 ft CBC	3-54	$248,960
1.0 Miles West of Holiday Hill Road Extension	3-8, 3-31, 3-89	4 - 8 ft x 6 ft CBC	3-56	$317,090
1.5 Miles West of Holiday Hill Road Extension	3-31, 3-91	4 - 7 ft x 4 ft CBC	3-58	$257,935
MI4FT Branch of Midland Draw at:				
0.5 Miles Upstream of Midland Draw Confluence	3-93, 3-95	2 - 8 ft x 5 ft CBC	3-49	$235,285
1.0 Miles Upstream of Midland Draw Confluence	3-93, 3-97	4 - 7 ft x 4 ft CBC	3-51	$285,240

Note: CBC = Concrete Box Culvert. Sizes are span by height for one barrel.

TABLE 3-6

Playa Lake Planned Improvements Summary

SUBAREA I.D.	FIGURE NUMBER	LAKE CREST ELEVATION (msl)	REQUIRED EXCAVATION BELOW CREST ELEVATION (CY)	DRAWDOWN STORM DRAIN	OVERFLOW PATH	OTHER IMPROVEMENTS AND NOTES	PRELIMINARY BUDGET OPINION OF COST TABLE NUMBER	OPINION OF COST (TOTALS)
MI7	3-8, 3-12	2851.5	101,600	1,600 ft of 24 in	To MI9		3-60	$604,260
MI8	3-8	2849.5	2,400	800 ft of 24 in	To MI9		3-61	$50,820
MI9	3-8	2847.5	40,300	800 ft of 24 in	To MI10		3-62	$247,680
MI10	3-8, 3-12	2844.5	18,200	2,000 ft of 24 in	To Midland Draw Channel	Ties into storm drain from MI11.	3-63	$190,580
MI11	3-12	2858.5	27,400	6,000 ft of 24 in	To Mildnad Draw Channel		3-64	$456,430
MI21FT	3-9, 3-10	2825.3	545,600	800 ft of 24 in	To MI22		3-65	$2,871,200
MI22	3-10	2824.5	17,700	3,300 ft of 24 in	To Midland Draw Channel		3-66	$250,610
MI23	3-13, 3-16	2826.3	16,100	5,000 ft of 24 in	To Midland Draw Channel		3-67	$323,740
MI27FT	3-10, 3-14	2811.9	491,100	3,800 ft of 24 in	To Midland Draw Channel		3-68	$2,732,200
MI31	3-10	2809.0	90,700	800 ft of 24 in	To MI33FT	Upper and lower basins treated as single basin	3-69	$509,340
MI32	3-11	2808.5	134,600	1,000 ft of 24 in	To MI33FT		3-70	$746,620
MI33FT	3-10, 3-11, 3-14	2806.5	429,600	4,600 ft of 24 in	To Midland Draw Channel		3-71	$2,475,300
MI34FT	3-11, 3-15	2807.0	367,200	4,800 ft of 24 in	To Midland Draw Channel		3-72	$2,137,040
MI38	3-18	2800.7	None Planned	1,200 ft of 24 in	To MI43		3-73	$57,640
MI40	3-15	2807.0	None Planned	400 ft of 24 in	To MI42		3-74	$19,180
MI41	3-11, 3-15	2807.8	None Planned	2,000 ft of 24 in	To MI42		3-75	$96,100
MI42	3-15	2805.4	98,300	4,400 ft of 24 in	To MI43		3-76	$721,480
MI43	3-15, 3-18	2799.9	118,100	4,800 ft of 24 in	To MI44		3-77	$843,700
MI44	3-18, 3-21	2788.2	167,800	6,000 ft of 24 in	To Midland Draw Channel		3-78	$1,178,850
MI46	3-21	2805.0	None Planned	None Planned	To Midland Draw Channel	No storm drain planned - Assume that Hogan Park Golf Course will pump the water onto the course.	NONE	NONE
MI49	3-24	2783.2	17,400	800 ft of 24 in	To Midland Draw Channel	Ties into storm drain from MI50	3-79	$128,720
MI50	3-22, 3-24	2782.5	72,600	5,400 ft of 24 in	To Midland Draw Channel		3-80	$636,220

TABLE 3-7
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

DRAINAGE IMPROVEMENTS FROM U.S. HIGHWAY 80 TO GOLF COURSE ROAD

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 CHANNEL EXCAVATION	C.Y.	$4.00	128,600	$514,400
2 SOIL PREPARATION, SEEDING & FERTILIZING	ACRE	$1,200.00	27	$32,400
3 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$54,680
4 ENGINEERING				$42,100
5 SURVEYING, TESTING & RPR				$66,200
TOTAL IMPROVEMENTS FROM U.S. HIGHWAY 80 TO GOLF COURSE ROAD				$709,780

TABLE 3-8
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

GOLF COURSE ROAD CROSSING

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 ROADWAY GRADING & SUBGRADE PREPARATION	S.Y.	$4.00	9,000	$36,000
2 8" FLEXIBLE BASE	S.Y.	$3.00	9,000	$27,000
3 PRIME COAT	S.Y.	$0.30	9,000	$2,700
4 1-3/4" ASPHALTIC CONCRETE PAVEMENT	S.Y.	$3.00	9,000	$27,000
5 24" CURB AND GUTTER	L.F.	$6.50	1,100	$7,150
6 STRUCTURAL CONCRETE	C.Y.	$350.00	1,240	$434,000
7 MISCELLANEOUS CONCRETE	S.Y.	$30.00	550	$16,500
8 PEDESTRIAN AND MBGF RAILING	L.F.	$100.00	490	$49,000
9 TRAFFIC CONTROL	L.S.	$1,000.00	1	$1,000
10 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$60,035
11 ENGINEERING				$46,200
12 SURVEYING, TESTING & RPR				$72,600
TOTAL FOR GOLF COURSE ROAD CROSSING				$779,185

TABLE 3-9
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

DRAINAGE IMPROVEMENTS FROM GOLF COURSE ROAD TO FAIRGROUNDS ROAD

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 CHANNEL EXCAVATION	C.Y.	$4.00	41,500	$166,000
2 SOIL PREPARATION, SEEDING & FERTILIZING	ACRE	$1,200.00	9	$10,800
3 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$17,680
4 ENGINEERING				$13,600
5 SURVEYING, TESTING & RPR				$21,400
TOTAL IMPROVEMENTS FROM GOLF COURSE ROAD TO FAIRGROUNDS ROAD				$229,480

TABLE 3-10
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

FAIRGROUNDS ROAD CROSSING

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 ROADWAY GRADING & SUBGRADE PREPARATION	S.Y.	$4.00	450	$1,800
2 8" FLEXIBLE BASE	S.Y.	$3.00	450	$1,350
3 PRIME COAT	S.Y.	$0.30	450	$135
4 1-3/4" ASPHALTIC CONCRETE PAVEMENT	S.Y.	$3.00	450	$1,350
5 24" CURB AND GUTTER	L.F.	$6.50	100	$650
6 STRUCTURAL CONCRETE	C.Y.	$350.00	280	$98,000
7 MISCELLANEOUS CONCRETE	S.Y.	$30.00	150	$4,500
8 PEDESTRIAN AND MBGF RAILING	L.F.	$100.00	140	$14,000
9 TRAFFIC CONTROL	L.S.	$2,000.00	1	$2,000
10 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$12,380
11 ENGINEERING				$9,500
12 SURVEYING, TESTING & RPR				$15,000
TOTAL FOR FAIRGROUNDS ROAD CROSSING				$160,665

TABLE 3-11
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

DRAINAGE IMPROVEMENTS FROM FAIRGROUNDS ROAD TO BENTON STREET

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	CHANNEL EXCAVATION	C.Y.	$4.00	36,500	$146,000
2	POST & CABLE FENCE	L.F.	$20.00	3,300	$66,000
3	SOIL PREPARATION, SEEDING & FERTILIZING	ACRE	$1,200.00	7	$8,400
4	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$22,040
5	ENGINEERING				$17,000
6	SURVEYING, TESTING & RPR				$26,600
	TOTAL IMPROVEMENTS FROM FAIRGROUNDS ROAD TO BENTON STREET				$286,040

TABLE 3-12
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

DRAINAGE IMPROVEMENTS FROM BENTON STREET TO JACKSON STREET

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	CHANNEL EXCAVATION	C.Y.	$4.00	10,200	$40,800
2	POST & CABLE FENCE	L.F.	$20.00	3,000	$60,000
3	SOIL PREPARATION, SEEDING & FERTILIZING	ACRE	$1,200.00	6	$7,200
4	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$10,800
5	ENGINEERING				$8,300
6	SURVEYING, TESTING & RPR				$13,000
	TOTAL IMPROVEMENTS FROM BENTON STREET TO JACKSON STREET				$140,100

TABLE 3-13
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

JACKSON STREET CROSSING

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	ROADWAY GRADING & SUBGRADE PREPARATION	S.Y.	$4.00	700	$2,800
2	8" FLEXIBLE BASE	S.Y.	$3.00	700	$2,100
3	PRIME COAT	S.Y.	$0.30	700	$210
4	1–3/4" ASPHALTIC CONCRETE PAVEMENT	S.Y.	$3.00	700	$2,100
5	24" CURB AND GUTTER	L.F.	$6.50	220	$1,430
6	STRUCTURAL CONCRETE	C.Y.	$350.00	400	$140,000
7	MISCELLANEOUS CONCRETE	S.Y.	$30.00	320	$9,600
8	PEDESTRIAN AND MBGF RAILING	L.F.	$100.00	290	$29,000
9	REMOVE EXISTING STRUCTURE	L.S.	$4,000.00	1	$4,000
10	TRAFFIC CONTROL	L.S.	$1,000.00	1	$1,000
11	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$19,225
12	ENGINEERING				$14,800
13	SURVEYING, TESTING & RPR				$23,200
	TOTAL FOR JACKSON STREET CROSSING				$249,465

TABLE 3-14
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

DRAINAGE IMPROVEMENTS FROM JACKSON STREET TO SCHARBAUER DRIVE

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	CHANNEL EXCAVATION	C.Y.	$4.00	26,800	$107,200
2	POST & CABLE FENCE	L.F.	$20.00	2,700	$54,000
3	SOIL PREPARATION, SEEDING & FERTILIZING	ACRE	$1,200.00	3	$3,600
4	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$16,480
5	ENGINEERING				$12,700
6	SURVEYING, TESTING & RPR				$19,900
	TOTAL IMPROVEMENTS FROM JACKSON STREET TO SCHARBAUER DRIVE				$213,880

TABLE 3-15
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

SCHARBAUER DRIVE NORTH CROSSING

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 ROADWAY GRADING & SUBGRADE PREPARATION	S.Y.	$4.00	70	$280
2 8" FLEXIBLE BASE	S.Y.	$3.00	70	$210
3 PRIME COAT	S.Y.	$0.30	70	$21
4 1-3/4" ASPHALTIC CONCRETE PAVEMENT	S.Y.	$3.00	70	$210
5 STRUCTURAL CONCRETE	C.Y.	$350.00	35	$12,250
6 REMOVE EXISTING STRUCTURE	L.S.	$1,000.00	1	$1,000
7 TRAFFIC CONTROL	L.S.	$1,000.00	1	$1,000
8 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$1,495
9 ENGINEERING				$1,150
10 SURVEYING, TESTING & RPR				$1,800
TOTAL FOR SCHARBAUER DRIVE NORTH CROSSING				$19,416

TABLE 3-16
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

DRAINAGE IMPROVEMENTS FROM SCHARBAUER DRIVE TO MAGNOLIA AVENUE

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 CHANNEL EXCAVATION	C.Y.	$4.00	11,600	$46,400
2 POST & CABLE FENCE	L.F.	$20.00	1,200	$24,000
3 SOIL PREPARATION, SEEDING & FERTILIZING	ACRE	$1,200.00	3	$3,600
4 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$7,400
5 ENGINEERING				$5,700
6 SURVEYING, TESTING & RPR				$9,000
TOTAL IMPROVEMENTS FROM SCHARBAUER DRIVE TO MAGNOLIA AVENUE				$96,100

TABLE 3-17
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

DRAINAGE IMPROVEMENTS FROM MAGNOLIA AVENUE TO OAK AVENUE

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	CHANNEL EXCAVATION	C.Y.	$4.00	2,900	$11,600
2	POST & CABLE FENCE	L.F.	$20.00	1,400	$28,000
3	SOIL PREPARATION, SEEDING & FERTILIZING	ACRE	$1,200.00	2	$2,400
4	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$4,200
5	ENGINEERING				$3,200
6	SURVEYING, TESTING & RPR				$5,100
	TOTAL IMPROVEMENTS FROM MAGNOLIA AVENUE TO OAK AVENUE				$54,500

TABLE 3-18
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

OAK AVENUE CROSSING

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	ROADWAY GRADING & SUBGRADE PREPARATION	S.Y.	$4.00	70	$280
2	8" FLEXIBLE BASE	S.Y.	$3.00	70	$210
3	PRIME COAT	S.Y.	$0.30	70	$21
4	1–3/4" ASPHALTIC CONCRETE PAVEMENT	S.Y.	$3.00	70	$210
5	STRUCTURAL CONCRETE	C.Y.	$350.00	40	$14,000
6	REMOVE EXISTING STRUCTURE	L.S.	$1,000.00	1	$1,000
7	TRAFFIC CONTROL	L.S.	$1,000.00	1	$1,000
8	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$1,670
9	ENGINEERING				$1,300
10	SURVEYING, TESTING & RPR				$2,000
	TOTAL FOR OAK AVENUE CROSSING				$21,691

TABLE 3-19
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

DRAINAGE IMPROVEMENTS FROM OAK AVENUE TO PECAN AVENUE

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 CHANNEL EXCAVATION	C.Y.	$4.00	3,200	$12,800
2 POST & CABLE FENCE	L.F.	$20.00	800	$16,000
3 SOIL PREPARATION, SEEDING & FERTILIZING	ACRE	$1,200.00	1	$1,200
4 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$3,000
5 ENGINEERING				$2,300
6 SURVEYING, TESTING & RPR				$3,600
TOTAL IMPROVEMENTS FROM OAK AVENUE TO PECAN AVENUE				$38,900

TABLE 3-20
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

DRAINAGE IMPROVEMENTS FROM PECAN AVENUE TO DORMARD AVENUE

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 CHANNEL EXCAVATION	C.Y.	$4.00	19,100	$76,400
2 POST & CABLE FENCE	L.F.	$20.00	1,800	$36,000
3 SOIL PREPARATION, SEEDING & FERTILIZING	ACRE	$1,200.00	3	$3,600
4 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$11,600
5 ENGINEERING				$8,900
6 SURVEYING, TESTING & RPR				$14,000
TOTAL IMPROVEMENTS FROM PECAN AVENUE TO DORMARD AVENUE				$150,500

TABLE 3-21
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

DRAINAGE IMPROVEMENTS FROM DORMARD AVENUE TO WADLEY AVENUE

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	CHANNEL EXCAVATION	C.Y.	$4.00	25,500	$102,000
2	POST & CABLE FENCE	L.F.	$20.00	3,300	$66,000
3	SOIL PREPARATION, SEEDING & FERTILIZING	ACRE	$1,200.00	4	$4,800
4	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$17,280
5	ENGINEERING				$13,300
6	SURVEYING, TESTING & RPR				$20,900
	TOTAL IMPROVEMENTS FROM DORMARD AVENUE TO WADLEY AVENUE				$224,280

TABLE 3-22
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

WADLEY AVENUE CROSSING

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	ROADWAY GRADING & SUBGRADE PREPARATION	S.Y.	$4.00	1,200	$4,800
2	8" FLEXIBLE BASE	S.Y.	$3.00	1,200	$3,600
3	PRIME COAT	S.Y.	$0.30	1,200	$360
4	1-3/4" ASPHALTIC CONCRETE PAVEMENT	S.Y.	$3.00	1,200	$3,600
5	24" CURB AND GUTTER	L.F.	$6.50	220	$1,430
6	STRUCTURAL CONCRETE	C.Y.	$350.00	700	$245,000
7	MISCELLANEOUS CONCRETE	S.Y.	$30.00	300	$9,000
8	PEDESTRIAN AND MBGF RAILING	L.F.	$100.00	300	$30,000
9	REMOVE EXISTING STRUCTURE	L.S.	$5,000.00	1	$5,000
10	TRAFFIC CONTROL	L.S.	$5,000.00	1	$5,000
11	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$30,780
12	ENGINEERING				$23,700
13	SURVEYING, TESTING & RPR				$37,200
	TOTAL FOR WADLEY AVENUE CROSSING				$399,470

TABLE 3-23

MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

DRAINAGE IMPROVEMENTS FROM
WADLEY AVENUE TO BIG SPRING STREET

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 CHANNEL EXCAVATION	C.Y.	$4.00	48,800	$195,200
2 SOIL PREPARATION, SEEDING & FERTILIZING	ACRE	$1,200.00	16	$19,200
3 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$21,440
4 ENGINEERING				$16,500
5 SURVEYING, TESTING & RPR				$25,900
TOTAL IMPROVEMENTS FROM WADLEY AVENUE TO BIG SPRING STREET				$278,240

TABLE 3-24

MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

DRAINAGE IMPROVEMENTS FROM
BIG SPRING STREET TO LOOP 250

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 CHANNEL EXCAVATION	C.Y.	$4.00	4,200	$16,800
2 SOIL PREPARATION, SEEDING & FERTILIZING	ACRE	$1,200.00	5	$6,000
3 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$2,280
4 ENGINEERING				$1,800
5 SURVEYING, TESTING & RPR				$2,800
TOTAL IMPROVEMENTS FROM BIG SPRING STREET TO LOOP 250				$29,680

TABLE 3-25
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

DRAINAGE IMPROVEMENTS FROM LOOP 250 TO SOLOMON LANE

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	CHANNEL EXCAVATION	C.Y.	$4.00	69,600	$278,400
2	SOIL PREPARATION, SEEDING & FERTILIZING	ACRE	$1,200.00	8	$9,600
3	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$28,800
4	ENGINEERING				$22,200
5	SURVEYING, TESTING & RPR				$34,800
	TOTAL IMPROVEMENTS FROM LOOP 250 TO SOLOMON LANE				$373,800

TABLE 3-26
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

SOLOMON LANE CROSSING

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	ROADWAY GRADING & SUBGRADE PREPARATION	S.Y.	$4.00	900	$3,600
2	8" FLEXIBLE BASE	S.Y.	$3.00	900	$2,700
3	PRIME COAT	S.Y.	$0.30	900	$270
4	1-3/4" ASPHALTIC CONCRETE PAVEMENT	S.Y.	$3.00	900	$2,700
5	24" CURB AND GUTTER	L.F.	$6.50	120	$780
6	STRUCTURAL CONCRETE	C.Y.	$350.00	150	$52,500
7	MISCELLANEOUS CONCRETE	S.Y.	$30.00	145	$4,350
8	PEDESTRIAN AND MBGF RAILING	L.F.	$100.00	140	$14,000
9	REMOVE EXISTING STRUCTURE	L.S.	$3,000.00	1	$3,000
10	TRAFFIC CONTROL	L.S.	$2,000.00	1	$2,000
11	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$8,590
12	ENGINEERING				$6,600
13	SURVEYING, TESTING & RPR				$10,400
	TOTAL FOR SOLOMON LANE CROSSING				$111,490

TABLE 3-27
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

DRAINAGE IMPROVEMENTS FROM SOLOMON LANE TO A STREET

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 CHANNEL EXCAVATION	C.Y.	$4.00	150,000	$600,000
2 SOIL PREPARATION, SEEDING & FERTILIZING	ACRE	$1,200.00	9	$10,800
3 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$61,080
4 ENGINEERING				$47,000
5 SURVEYING, TESTING & RPR				$73,900
TOTAL IMPROVEMENTS FROM SOLOMON LANE TO A STREET				$792,780

TABLE 3-28
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

A STREET CROSSING

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 ROADWAY GRADING & SUBGRADE PREPARATION	S.Y.	$4.00	700	$2,800
2 8" FLEXIBLE BASE	S.Y.	$3.00	700	$2,100
3 PRIME COAT	S.Y.	$0.30	700	$210
4 1-3/4" ASPHALTIC CONCRETE PAVEMENT	S.Y.	$3.00	700	$2,100
5 24" CURB AND GUTTER	L.F.	$6.50	120	$780
6 STRUCTURAL CONCRETE	C.Y.	$350.00	440	$154,000
7 MISCELLANEOUS CONCRETE	S.Y.	$30.00	160	$4,800
8 PEDESTRIAN AND MBGF RAILING	L.F.	$100.00	140	$14,000
9 REMOVE EXISTING STRUCTURE	L.S.	$3,000.00	1	$3,000
10 TRAFFIC CONTROL	L.S.	$3,000.00	1	$3,000
11 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$18,680
12 ENGINEERING				$14,400
13 SURVEYING, TESTING & RPR				$22,600
TOTAL FOR A STREET CROSSING				$242,470

TABLE 3-29
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

MOCKINGBIRD LANE CROSSING

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	ROADWAY GRADING & SUBGRADE PREPARATION	S.Y.	$4.00	4,450	$17,800
2	8" FLEXIBLE BASE	S.Y.	$3.00	4,450	$13,350
3	PRIME COAT	S.Y.	$0.30	4,450	$1,335
4	1–3/4" ASPHALTIC CONCRETE PAVEMENT	S.Y.	$3.00	4,450	$13,350
5	24" CURB AND GUTTER	L.F.	$6.50	460	$2,990
6	STRUCTURAL CONCRETE	C.Y.	$350.00	300	$105,000
7	MISCELLANEOUS CONCRETE	S.Y.	$30.00	515	$15,450
8	PEDESTRIAN AND MBGF RAILING	L.F.	$100.00	480	$48,000
9	TRAFFIC CONTROL	L.S.	$3,000.00	1	$3,000
10	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$22,030
11	ENGINEERING				$17,000
12	SURVEYING, TESTING & RPR				$26,700
	TOTAL FOR MOCKINGBIRD LANE CROSSING				$286,005

TABLE 3-30
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

DRAINAGE IMPROVEMENTS FROM MOCKINGBIRD LANE TO I STREET

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	CHANNEL EXCAVATION	C.Y.	$3.00	245,000	$735,000
2	CLEARING AND GRUBBING	ACRE	$1,000.00	22	$22,000
3	SOIL PREPARATION, SEEDING & FERTILIZING	ACRE	$1,200.00	22	$26,400
4	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$78,340
5	ENGINEERING				$60,300
6	SURVEYING, TESTING & RPR				$94,800
	TOTAL IMPROVEMENTS FROM MOCKINGBIRD LANE TO I STREET				$1,016,840

TABLE 3-31
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

I STREET CROSSING

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 ROADWAY GRADING & SUBGRADE PREPARATION	S.Y.	$4.00	3,600	$14,400
2 8" FLEXIBLE BASE	S.Y.	$3.00	3,600	$10,800
3 PRIME COAT	S.Y.	$0.30	3,600	$1,080
4 1-3/4" ASPHALTIC CONCRETE PAVEMENT	S.Y.	$3.00	3,600	$10,800
5 24" CURB AND GUTTER	L.F.	$6.50	720	$4,680
6 STRUCTURAL CONCRETE	C.Y.	$350.00	195	$68,250
7 MISCELLANEOUS CONCRETE	S.Y.	$30.00	800	$24,000
8 PEDESTRIAN AND MBGF RAILING	L.F.	$100.00	740	$74,000
9 TRAFFIC CONTROL	L.S.	$3,000.00	1	$3,000
10 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$21,100
11 ENGINEERING				$16,200
12 SURVEYING, TESTING & RPR				$25,500
TOTAL FOR I STREET CROSSING				$273,810

TABLE 3-32
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

DRAINAGE IMPROVEMENTS FROM I STREET TO GARFIELD STREET

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 CHANNEL EXCAVATION	C.Y.	$3.00	129,300	$387,900
2 CLEARING AND GRUBBING	ACRE	$1,000.00	27	$27,000
3 SOIL PREPARATION, SEEDING & FERTILIZING	ACRE	$1,200.00	27	$32,400
4 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$44,730
5 ENGINEERING				$34,400
6 SURVEYING, TESTING & RPR				$54,100
TOTAL IMPROVEMENTS FROM I STREET TO GARFIELD STREET				$580,530

TABLE 3-33
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

GARFIELD STREET CROSSING

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 ROADWAY GRADING & SUBGRADE PREPARATION	S.Y.	$4.00	4,450	$17,800
2 8" FLEXIBLE BASE	S.Y.	$3.00	4,450	$13,350
3 PRIME COAT	S.Y.	$0.30	4,450	$1,335
4 1-3/4" ASPHALTIC CONCRETE PAVEMENT	S.Y.	$3.00	4,450	$13,350
5 24" CURB AND GUTTER	L.F.	$6.50	720	$4,680
6 STRUCTURAL CONCRETE	C.Y.	$350.00	310	$108,500
7 MISCELLANEOUS CONCRETE	S.Y.	$30.00	800	$24,000
8 PEDESTRIAN AND MBGF RAILING	L.F.	$100.00	740	$74,000
9 TRAFFIC CONTROL	L.S.	$3,000.00	1	$3,000
10 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$26,000
11 ENGINEERING				$20,000
12 SURVEYING, TESTING & RPR				$31,500
TOTAL FOR GARFIELD STREET CROSSING				$337,515

TABLE 3-34
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

DRAINAGE IMPROVEMENTS FROM GARFIELD STREET TO WHITMAN DRIVE

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 CHANNEL EXCAVATION	C.Y.	$3.00	340,800	$1,022,400
2 CLEARING AND GRUBBING	ACRE	$1,000.00	30	$30,000
3 SOIL PREPARATION, SEEDING & FERTILIZING	ACRE	$1,200.00	30	$36,000
4 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$108,840
5 ENGINEERING				$83,800
6 SURVEYING, TESTING & RPR				$131,700
TOTAL IMPROVEMENTS FROM GARFIELD STREET TO WHITMAN DRIVE				$1,412,740

TABLE 3-35
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

WHITMAN DRIVE CROSSING

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	ROADWAY GRADING & SUBGRADE PREPARATION	S.Y.	$4.00	4,450	$17,800
2	8" FLEXIBLE BASE	S.Y.	$3.00	4,450	$13,350
3	PRIME COAT	S.Y.	$0.30	4,450	$1,335
4	1-3/4" ASPHALTIC CONCRETE PAVEMENT	S.Y.	$3.00	4,450	$13,350
5	24" CURB AND GUTTER	L.F.	$6.50	720	$4,680
6	STRUCTURAL CONCRETE	C.Y.	$350.00	195	$68,250
7	MISCELLANEOUS CONCRETE	S.Y.	$30.00	800	$24,000
8	PEDESTRIAN AND MBGF RAILING	L.F.	$100.00	740	$74,000
9	TRAFFIC CONTROL	L.S.	$3,000.00	1	$3,000
10	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$21,975
11	ENGINEERING				$16,900
12	SURVEYING, TESTING & RPR				$26,600
	TOTAL FOR WHITMAN DRIVE CROSSING				$285,240

TABLE 3-36
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

DRAINAGE IMPROVEMENTS FROM WHITMAN DRIVE TO GREENTREE BLVD. / MIDKIFF ROAD

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	CHANNEL EXCAVATION	C.Y.	$3.00	182,700	$548,100
2	CLEARING AND GRUBBING	ACRE	$1,000.00	27	$27,000
3	SOIL PREPARATION, SEEDING & FERTILIZING	ACRE	$1,200.00	27	$32,400
4	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$60,750
5	ENGINEERING				$46,800
6	SURVEYING, TESTING & RPR				$73,500
	TOTAL IMPROVEMENTS FROM WHITMAN DRIVE TO GREENTREE BLVD. / MIDKIFF ROAD				$788,550

TABLE 3-37
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

GREENTREE BLVD. / MIDKIFF ROAD CROSSING

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 ROADWAY GRADING & SUBGRADE PREPARATION	S.Y.	$4.00	9,000	$36,000
2 8" FLEXIBLE BASE	S.Y.	$3.00	9,000	$27,000
3 PRIME COAT	S.Y.	$0.30	9,000	$2,700
4 1-3/4" ASPHALTIC CONCRETE PAVEMENT	S.Y.	$3.00	9,000	$27,000
5 24" CURB AND GUTTER	L.F.	$6.50	720	$4,680
6 STRUCTURAL CONCRETE	C.Y.	$350.00	2,000	$700,000
7 MISCELLANEOUS CONCRETE	S.Y.	$30.00	800	$24,000
8 PEDESTRIAN AND MBGF RAILING	L.F.	$100.00	740	$74,000
9 TRAFFIC CONTROL	L.S.	$3,000.00	1	$3,000
10 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$89,840
11 ENGINEERING				$69,200
12 SURVEYING, TESTING & RPR				$108,700
TOTAL FOR GREENTREE BLVD. / MIDKIFF ROAD CROSSING				$1,166,120

TABLE 3-38
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

DRAINAGE IMPROVEMENTS FROM GREENTREE BLVD. / MIDKIFF ROAD TO MONTANA D/S CROSSING

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 CHANNEL EXCAVATION	C.Y.	$3.00	110,900	$332,700
2 CLEARING AND GRUBBING	ACRE	$1,000.00	19	$19,000
3 SOIL PREPARATION, SEEDING & FERTILIZING	ACRE	$1,200.00	19	$22,800
4 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$37,450
5 ENGINEERING				$28,800
6 SURVEYING, TESTING & RPR				$45,300
TOTAL IMPROVEMENTS FROM GREENTREE BLVD. / MIDKIFF ROAD TO MONTANA D/S CROSSING				$486,050

TABLE 3-39
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

DOWNSTREAM MONTANA CROSSING

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 ROADWAY GRADING & SUBGRADE PREPARATION	S.Y.	$4.00	3,600	$14,400
2 8" FLEXIBLE BASE	S.Y.	$3.00	3,600	$10,800
3 PRIME COAT	S.Y.	$0.30	3,600	$1,080
4 1-3/4" ASPHALTIC CONCRETE PAVEMENT	S.Y.	$3.00	3,600	$10,800
5 24" CURB AND GUTTER	L.F.	$6.50	720	$4,680
6 STRUCTURAL CONCRETE	C.Y.	$350.00	170	$59,500
7 MISCELLANEOUS CONCRETE	S.Y.	$30.00	800	$24,000
8 PEDESTRIAN AND MBGF RAILING	L.F.	$100.00	740	$74,000
9 TRAFFIC CONTROL	L.S.	$3,000.00	1	$3,000
10 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$20,225
11 ENGINEERING				$15,600
12 SURVEYING, TESTING & RPR				$24,500
TOTAL FOR DOWNSTREAM MONTANA CROSSING				$262,585

TABLE 3-40
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

DRAINAGE IMPROVEMENTS FROM MONTANA D/S CROSSING TO MONTANA U/S CROSSING

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 CHANNEL EXCAVATION	C.Y.	$3.00	32,500	$97,500
2 CLEARING AND GRUBBING	ACRE	$1,000.00	25	$25,000
3 SOIL PREPARATION, SEEDING & FERTILIZING	ACRE	$1,200.00	25	$30,000
4 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$15,250
5 ENGINEERING				$11,700
6 SURVEYING, TESTING & RPR				$18,500
TOTAL IMPROVEMENTS FROM MONTANA D/S CROSSING TO MONTANA U/S CROSSING				$197,950

TABLE 3-41
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

UPSTREAM MONTANA CROSSING

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	ROADWAY GRADING & SUBGRADE PREPARATION	S.Y.	$4.00	3,600	$14,400
2	8" FLEXIBLE BASE	S.Y.	$3.00	3,600	$10,800
3	PRIME COAT	S.Y.	$0.30	3,600	$1,080
4	1–3/4" ASPHALTIC CONCRETE PAVEMENT	S.Y.	$3.00	3,600	$10,800
5	24" CURB AND GUTTER	L.F.	$6.50	720	$4,680
6	STRUCTURAL CONCRETE	C.Y.	$350.00	170	$59,500
7	MISCELLANEOUS CONCRETE	S.Y.	$30.00	800	$24,000
8	PEDESTRIAN AND MBGF RAILING	L.F.	$100.00	740	$74,000
9	TRAFFIC CONTROL	L.S.	$3,000.00	1	$3,000
10	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$20,225
11	ENGINEERING				$15,600
12	SURVEYING, TESTING & RPR				$24,500
	TOTAL FOR UPSTREAM MONTANA CROSSING				$262,585

TABLE 3-42
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

DRAINAGE IMPROVEMENTS FROM MONTANA U/S CROSSING TO MIDLAND DRIVE

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	CHANNEL EXCAVATION	C.Y.	$3.00	143,500	$430,500
2	CLEARING AND GRUBBING	ACRE	$1,000.00	16	$16,000
3	SOIL PREPARATION, SEEDING & FERTILIZING	ACRE	$1,200.00	16	$19,200
4	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$46,570
5	ENGINEERING				$35,900
6	SURVEYING, TESTING & RPR				$56,300
	TOTAL IMPROVEMENTS FROM MONTANA U/S CROSSING TO MIDLAND DRIVE				$604,470

TABLE 3-43

MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

MIDLAND DRIVE CROSSING

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	ROADWAY GRADING & SUBGRADE PREPARATION	S.Y.	$4.00	4,450	$17,800
2	8" FLEXIBLE BASE	S.Y.	$3.00	4,450	$13,350
3	PRIME COAT	S.Y.	$0.30	4,450	$1,335
4	1–3/4" ASPHALTIC CONCRETE PAVEMENT	S.Y.	$3.00	4,450	$13,350
5	24" CURB AND GUTTER	L.F.	$6.50	720	$4,680
6	STRUCTURAL CONCRETE	C.Y.	$350.00	300	$105,000
7	MISCELLANEOUS CONCRETE	S.Y.	$30.00	800	$24,000
8	PEDESTRIAN AND MBGF RAILING	L.F.	$100.00	740	$74,000
9	TRAFFIC CONTROL	L.S.	$3,000.00	1	$3,000
10	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$25,650
11	ENGINEERING				$19,800
12	SURVEYING, TESTING & RPR				$31,000
	TOTAL FOR MIDLAND DRIVE CROSSING				$332,965

TABLE 3-44

MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

DRAINAGE IMPROVEMENTS FROM
MIDLAND DRIVE TO CHARLES DRIVE

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	CHANNEL EXCAVATION	C.Y.	$3.00	262,100	$786,300
2	CLEARING AND GRUBBING	ACRE	$1,000.00	26	$26,000
3	SOIL PREPARATION, SEEDING & FERTILIZING	ACRE	$1,200.00	26	$31,200
4	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$84,350
5	ENGINEERING				$64,900
6	SURVEYING, TESTING & RPR				$102,100
	TOTAL IMPROVEMENTS FROM MIDLAND DRIVE TO CHARLES DRIVE				$1,094,850

TABLE 3-45
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

CHARLES DRIVE CROSSING

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	ROADWAY GRADING & SUBGRADE PREPARATION	S.Y.	$4.00	3,600	$14,400
2	8" FLEXIBLE BASE	S.Y.	$3.00	3,600	$10,800
3	PRIME COAT	S.Y.	$0.30	3,600	$1,080
4	1-3/4" ASPHALTIC CONCRETE PAVEMENT	S.Y.	$3.00	3,600	$10,800
5	24" CURB AND GUTTER	L.F.	$6.50	720	$4,680
6	STRUCTURAL CONCRETE	C.Y.	$350.00	205	$71,750
7	MISCELLANEOUS CONCRETE	S.Y.	$30.00	800	$24,000
8	PEDESTRIAN AND MBGF RAILING	L.F.	$100.00	740	$74,000
9	TRAFFIC CONTROL	L.S.	$3,000.00	1	$3,000
10	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$21,450
11	ENGINEERING				$16,500
12	SURVEYING, TESTING & RPR				$26,000
	TOTAL FOR CHARLES DRIVE CROSSING				$278,460

TABLE 3-46
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

DRAINAGE IMPROVEMENTS FROM CHARLES DRIVE TO HOLIDAY HILL ROAD

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	CHANNEL EXCAVATION	C.Y.	$3.00	192,000	$576,000
2	CLEARING AND GRUBBING	ACRE	$1,000.00	25	$25,000
3	SOIL PREPARATION, SEEDING & FERTILIZING	ACRE	$1,200.00	25	$30,000
4	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$63,100
5	ENGINEERING				$48,600
6	SURVEYING, TESTING & RPR				$76,300
	TOTAL IMPROVEMENTS FROM CHARLES DRIVE TO HOLIDAY HILL ROAD				$819,000

TABLE 3-47
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

HOLIDAY HILL ROAD CROSSING

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	ROADWAY GRADING & SUBGRADE PREPARATION	S.Y.	$4.00	4,450	$17,800
2	8" FLEXIBLE BASE	S.Y.	$3.00	4,450	$13,350
3	PRIME COAT	S.Y.	$0.30	4,450	$1,335
4	1–3/4" ASPHALTIC CONCRETE PAVEMENT	S.Y.	$3.00	4,450	$13,350
5	24" CURB AND GUTTER	L.F.	$6.50	720	$4,680
6	STRUCTURAL CONCRETE	C.Y.	$350.00	320	$112,000
7	MISCELLANEOUS CONCRETE	S.Y.	$30.00	800	$24,000
8	PEDESTRIAN AND MBGF RAILING	L.F.	$100.00	740	$74,000
9	TRAFFIC CONTROL	L.S.	$3,000.00	1	$3,000
10	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$26,350
11	ENGINEERING				$20,300
12	SURVEYING, TESTING & RPR				$31,900
	TOTAL FOR HOLIDAY HILL ROAD CROSSING				$342,065

TABLE 3-48
MI4 BRANCH OF MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

DRAINAGE IMPROVEMENTS FROM CONFLUENCE WITH MIDLAND DRAW TO 0.5 MILE SUBAREA MI4 CROSSING

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	CHANNEL EXCAVATION	C.Y.	$3.00	164,100	$492,300
2	CLEARING AND GRUBBING	ACRE	$1,000.00	24	$24,000
3	SOIL PREPARATION, SEEDING & FERTILIZING	ACRE	$1,200.00	24	$28,800
4	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$54,510
5	ENGINEERING				$42,000
6	SURVEYING, TESTING & RPR				$66,000
	TOTAL IMPROVEMENTS FROM CONFLUENCE WITH MIDLAND DRAW TO 0.5 MILE MI4 CROSSING				$707,610

TABLE 3-49

MI4 BRANCH OF MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

SUBAREA MI4 0.5 MILE CROSSING

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	ROADWAY GRADING & SUBGRADE PREPARATION	S.Y.	$4.00	3,600	$14,400
2	8" FLEXIBLE BASE	S.Y.	$3.00	3,600	$10,800
3	PRIME COAT	S.Y.	$0.30	3,600	$1,080
4	1–3/4" ASPHALTIC CONCRETE PAVEMENT	S.Y.	$3.00	3,600	$10,800
5	24" CURB AND GUTTER	L.F.	$6.50	720	$4,680
6	STRUCTURAL CONCRETE	C.Y.	$350.00	110	$38,500
7	MISCELLANEOUS CONCRETE	S.Y.	$30.00	800	$24,000
8	PEDESTRIAN AND MBGF RAILING	L.F.	$100.00	740	$74,000
9	TRAFFIC CONTROL	L.S.	$3,000.00	1	$3,000
10	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$18,125
11	ENGINEERING				$14,000
12	SURVEYING, TESTING & RPR				$21,900
	TOTAL FOR SUBAREA MI4 0.5 MILE CROSSING				$235,285

TABLE 3-50

MI4 BRANCH OF MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

DRAINAGE IMPROVEMENTS FROM
SUBAREA MI4 0.5 MILE CROSSING TO 1.0 MILE CROSSING

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	CHANNEL EXCAVATION	C.Y.	$3.00	353,900	$1,061,700
2	CLEARING AND GRUBBING	ACRE	$1,000.00	37	$37,000
3	SOIL PREPARATION, SEEDING & FERTILIZING	ACRE	$1,200.00	37	$44,400
4	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$114,310
5	ENGINEERING				$88,000
6	SURVEYING, TESTING & RPR				$138,300
	TOTAL IMPROVEMENTS FROM SUBAREA MI4 0.5 MILE CROSSING TO 1.0 MILE CROSSING				$1,483,710

TABLE 3-51

MI4 BRANCH OF MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

SUBAREA MI4 1.0 MILE CROSSING

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 ROADWAY GRADING & SUBGRADE PREPARATION	S.Y.	$4.00	4,450	$17,800
2 8" FLEXIBLE BASE	S.Y.	$3.00	4,450	$13,350
3 PRIME COAT	S.Y.	$0.30	4,450	$1,335
4 1–3/4" ASPHALTIC CONCRETE PAVEMENT	S.Y.	$3.00	4,450	$13,350
5 24" CURB AND GUTTER	L.F.	$6.50	720	$4,680
6 STRUCTURAL CONCRETE	C.Y.	$350.00	195	$68,250
7 MISCELLANEOUS CONCRETE	S.Y.	$30.00	800	$24,000
8 PEDESTRIAN AND MBGF RAILING	L.F.	$100.00	740	$74,000
9 TRAFFIC CONTROL	L.S.	$3,000.00	1	$3,000
10 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$21,975
11 ENGINEERING				$16,900
12 SURVEYING, TESTING & RPR				$26,600
TOTAL FOR SUBAREA MI4 1.0 MILE CROSSING				$285,240

TABLE 3-52

MI4 BRANCH OF MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

DRAINAGE IMPROVEMENTS FROM
SUBAREA MI4 1.0 MILE CROSSING TO UPSTREAM END OF CHANNEL

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 CHANNEL EXCAVATION	C.Y.	$3.00	188,800	$566,400
2 CLEARING AND GRUBBING	ACRE	$1,000.00	22	$22,000
3 SOIL PREPARATION, SEEDING & FERTILIZING	ACRE	$1,200.00	22	$26,400
4 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$61,480
5 ENGINEERING				$47,300
6 SURVEYING, TESTING & RPR				$74,400
TOTAL IMPROVEMENTS FROM SUBAREA MI4 1.0 MILE CROSSING TO UPSTREAM END OF CHANNEL				$797,980

TABLE 3-53

MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

DRAINAGE IMPROVEMENTS FROM
HOLIDAY HILL ROAD TO 0.5 MILE WEST OF HOLIDAY HILL ROAD

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 CHANNEL EXCAVATION	C.Y.	$3.00	162,200	$486,600
2 CLEARING AND GRUBBING	ACRE	$1,000.00	28	$28,000
3 SOIL PREPARATION, SEEDING & FERTILIZING	ACRE	$1,200.00	28	$33,600
4 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$54,820
5 ENGINEERING				$42,200
6 SURVEYING, TESTING & RPR				$66,300
TOTAL IMPROVEMENTS FROM HOLIDAY HILL ROAD TO 0.5 MILE WEST OF HOLIDAY HILL ROAD				$711,520

TABLE 3-54

MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

0.5 MILE CROSSING WEST OF HOLIDAY HILL ROAD

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 ROADWAY GRADING & SUBGRADE PREPARATION	S.Y.	$4.00	3,600	$14,400
2 8" FLEXIBLE BASE	S.Y.	$3.00	3,600	$10,800
3 PRIME COAT	S.Y.	$0.30	3,600	$1,080
4 1-3/4" ASPHALTIC CONCRETE PAVEMENT	S.Y.	$3.00	3,600	$10,800
5 24" CURB AND GUTTER	L.F.	$6.50	720	$4,680
6 STRUCTURAL CONCRETE	C.Y.	$350.00	140	$49,000
7 MISCELLANEOUS CONCRETE	S.Y.	$30.00	800	$24,000
8 PEDESTRIAN AND MBGF RAILING	L.F.	$100.00	740	$74,000
9 TRAFFIC CONTROL	L.S.	$3,000.00	1	$3,000
10 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$19,200
11 ENGINEERING				$14,800
12 SURVEYING, TESTING & RPR				$23,200
TOTAL FOR 0.5 MILE CROSSING WEST OF HOLIDAY HILL ROAD				$248,960

TABLE 3-55

MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

DRAINAGE IMPROVEMENTS FROM
0.5 MILE TO 1.0 MILE WEST OF HOLIDAY HILL ROAD

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 CHANNEL EXCAVATION	C.Y.	$3.00	133,200	$399,600
2 CLEARING AND GRUBBING	ACRE	$1,000.00	23	$23,000
3 SOIL PREPARATION, SEEDING & FERTILIZING	ACRE	$1,200.00	23	$27,600
4 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$45,020
5 ENGINEERING				$34,700
6 SURVEYING, TESTING & RPR				$54,500
TOTAL IMPROVEMENTS FROM 0.5 MILE TO 1.0 MILE WEST OF HOLIDAY HILL ROAD				$584,420

TABLE 3-56

MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

1.0 MILE CROSSING WEST OF HOLIDAY HILL ROAD

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 ROADWAY GRADING & SUBGRADE PREPARATION	S.Y.	$4.00	4,450	$17,800
2 8" FLEXIBLE BASE	S.Y.	$3.00	4,450	$13,350
3 PRIME COAT	S.Y.	$0.30	4,450	$1,335
4 1-3/4" ASPHALTIC CONCRETE PAVEMENT	S.Y.	$3.00	4,450	$13,350
5 24" CURB AND GUTTER	L.F.	$6.50	720	$4,680
6 STRUCTURAL CONCRETE	C.Y.	$350.00	265	$92,750
7 MISCELLANEOUS CONCRETE	S.Y.	$30.00	800	$24,000
8 PEDESTRIAN AND MBGF RAILING	L.F.	$100.00	740	$74,000
9 TRAFFIC CONTROL	L.S.	$3,000.00	1	$3,000
10 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$24,425
11 ENGINEERING				$18,800
12 SURVEYING, TESTING & RPR				$29,600
TOTAL FOR 1.0 MILE CROSSING WEST OF HOLIDAY HILL ROAD				$317,090

TABLE 3-57

MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

DRAINAGE IMPROVEMENTS FROM
1.0 MILE TO 1.5 MILES WEST OF HOLIDAY HILL ROAD

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 CHANNEL EXCAVATION	C.Y.	$3.00	157,600	$472,800
2 CLEARING AND GRUBBING	ACRE	$1,000.00	32	$32,000
3 SOIL PREPARATION, SEEDING & FERTILIZING	ACRE	$1,200.00	32	$38,400
4 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$54,320
5 ENGINEERING				$41,800
6 SURVEYING, TESTING & RPR				$65,700
TOTAL IMPROVEMENTS FROM 1.0 MILE TO 1.5 MILES WEST OF HOLIDAY HILL ROAD				$705,020

TABLE 3-58

MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

1.5 MILE CROSSING WEST OF HOLIDAY HILL ROAD

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 ROADWAY GRADING & SUBGRADE PREPARATION	S.Y.	$4.00	3,600	$14,400
2 8" FLEXIBLE BASE	S.Y.	$3.00	3,600	$10,800
3 PRIME COAT	S.Y.	$0.30	3,600	$1,080
4 1-3/4" ASPHALTIC CONCRETE PAVEMENT	S.Y.	$3.00	3,600	$10,800
5 24" CURB AND GUTTER	L.F.	$6.50	720	$4,680
6 STRUCTURAL CONCRETE	C.Y.	$350.00	160	$56,000
7 MISCELLANEOUS CONCRETE	S.Y.	$30.00	800	$24,000
8 PEDESTRIAN AND MBGF RAILING	L.F.	$100.00	740	$74,000
9 TRAFFIC CONTROL	L.S.	$3,000.00	1	$3,000
10 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$19,875
11 ENGINEERING				$15,300
12 SURVEYING, TESTING & RPR				$24,000
TOTAL FOR 1.5 MILE CROSSING WEST OF HOLIDAY HILL ROAD				$257,935

TABLE 3-59

MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

DRAINAGE IMPROVEMENTS FROM
1.5 MILES TO 2.0 MILES WEST OF HOLIDAY HILL ROAD

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 CHANNEL EXCAVATION	C.Y.	$3.00	171,100	$513,300
2 CLEARING AND GRUBBING	ACRE	$1,000.00	23	$23,000
3 SOIL PREPARATION, SEEDING & FERTILIZING	ACRE	$1,200.00	23	$27,600
4 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$56,390
5 ENGINEERING				$43,400
6 SURVEYING, TESTING & RPR				$68,200
TOTAL IMPROVEMENTS FROM 1.5 MILES TO 2.0 MILES WEST OF HOLIDAY HILL ROAD				$731,890

TABLE 3-60

MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

PLAYA MI7 IMPROVEMENTS

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 PLAYA EXCAVATION	C.Y.	$4.00	101,600	$406,400
2 24" DRAWDOWN STORM DRAIN INCLUDING MATERIALS, EXCAVATION, AND BACKFILL	L.F.	$37.00	1,600	$59,200
3 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$46,560
4 ENGINEERING				$35,800
5 SURVEYING, TESTING & RPR				$56,300
TOTAL FOR PLAYA MI7 IMPROVEMENTS				$604,260

TABLE 3-61
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

PLAYA MI8 IMPROVEMENTS

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	PLAYA EXCAVATION	C.Y.	$4.00	2,400	$9,600
2	24" DRAWDOWN STORM DRAIN INCLUDING MATERIALS, EXCAVATION, AND BACKFILL	L.F.	$37.00	800	$29,600
3	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$3,920
4	ENGINEERING				$3,000
5	SURVEYING, TESTING & RPR				$4,700
	TOTAL FOR PLAYA MI8 IMPROVEMENTS				$50,820

TABLE 3-62
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

PLAYA MI9 IMPROVEMENTS

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	PLAYA EXCAVATION	C.Y.	$4.00	40,300	$161,200
2	24" DRAWDOWN STORM DRAIN INCLUDING MATERIALS, EXCAVATION, AND BACKFILL	L.F.	$37.00	800	$29,600
3	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$19,080
4	ENGINEERING				$14,700
5	SURVEYING, TESTING & RPR				$23,100
	TOTAL FOR PLAYA MI9 IMPROVEMENTS				$247,680

TABLE 3-63
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

PLAYA MI10 IMPROVEMENTS

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	PLAYA EXCAVATION	C.Y.	$4.00	18,200	$72,800
2	24" DRAWDOWN STORM DRAIN INCLUDING MATERIALS, EXCAVATION, AND BACKFILL	L.F.	$37.00	2,000	$74,000
3	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$14,680
4	ENGINEERING				$11,300
5	SURVEYING, TESTING & RPR				$17,800
	TOTAL FOR PLAYA MI10 IMPROVEMENTS				$190,580

TABLE 3-64
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

PLAYA MI11 IMPROVEMENTS

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	PLAYA EXCAVATION	C.Y.	$4.00	27,400	$109,600
2	24" DRAWDOWN STORM DRAIN INCLUDING MATERIALS, EXCAVATION, AND BACKFILL	L.F.	$37.00	6,000	$222,000
3	8" FLEXIBLE BASE	S.Y.	$3.00	2,550	$7,650
4	PRIME COAT	S.Y.	$0.30	2,550	$765
5	1-3/4" ASPHALTIC CONCRETE PAVEMENT	S.Y.	$3.00	2,550	$7,650
6	TRAFFIC CONTROL	L.S.	$4,000.00	1	$4,000
7	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$35,165
8	ENGINEERING				$27,000
9	SURVEYING, TESTING & RPR				$42,600
	TOTAL FOR PLAYA MI11 IMPROVEMENTS				$456,430

TABLE 3-65
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

PLAYA MI21 IMPROVEMENTS

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	PLAYA EXCAVATION	C.Y.	$4.00	545,600	$2,182,400
2	24" DRAWDOWN STORM DRAIN INCLUDING MATERIALS, EXCAVATION, AND BACKFILL	L.F.	$37.00	800	$29,600
3	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$221,200
4	ENGINEERING				$170,300
5	SURVEYING, TESTING & RPR				$267,700
	TOTAL FOR PLAYA MI21 IMPROVEMENTS				$2,871,200

TABLE 3-66
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

PLAYA MI22 IMPROVEMENTS

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	PLAYA EXCAVATION	C.Y.	$4.00	17,750	$71,000
2	24" DRAWDOWN STORM DRAIN INCLUDING MATERIALS, EXCAVATION, AND BACKFILL	L.F.	$37.00	3,300	$122,100
3	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$19,310
4	ENGINEERING				$14,800
5	SURVEYING, TESTING & RPR				$23,400
	TOTAL FOR PLAYA MI22 IMPROVEMENTS				$250,610

TABLE 3-67
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

PLAYA MI23 IMPROVEMENTS

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	PLAYA EXCAVATION	C.Y.	$4.00	16,100	$64,400
2	24" DRAWDOWN STORM DRAIN INCLUDING MATERIALS, EXCAVATION, AND BACKFILL	L.F.	$37.00	5,000	$185,000
3	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$24,940
4	ENGINEERING				$19,200
5	SURVEYING, TESTING & RPR				$30,200
	TOTAL FOR PLAYA MI23 IMPROVEMENTS				$323,740

TABLE 3-68
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

PLAYA MI27 IMPROVEMENTS

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	PLAYA EXCAVATION	C.Y.	$4.00	491,100	$1,964,400
2	24" DRAWDOWN STORM DRAIN INCLUDING MATERIALS, EXCAVATION, AND BACKFILL	L.F.	$37.00	3,800	$140,600
3	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$210,500
4	ENGINEERING				$162,000
5	SURVEYING, TESTING & RPR				$254,700
	TOTAL FOR PLAYA MI27 IMPROVEMENTS				$2,732,200

TABLE 3-69
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

PLAYA MI31 IMPROVEMENTS

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	PLAYA EXCAVATION	C.Y.	$4.00	90,700	$362,800
2	24" DRAWDOWN STORM DRAIN INCLUDING MATERIALS, EXCAVATION, AND BACKFILL	L.F.	$37.00	800	$29,600
3	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$39,240
4	ENGINEERING				$30,200
5	SURVEYING, TESTING & RPR				$47,500
	TOTAL FOR PLAYA MI31 IMPROVEMENTS				$509,340

TABLE 3-70
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

PLAYA MI32 IMPROVEMENTS

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	PLAYA EXCAVATION	C.Y.	$4.00	134,550	$538,200
2	24" DRAWDOWN STORM DRAIN INCLUDING MATERIALS, EXCAVATION, AND BACKFILL	L.F.	$37.00	1,000	$37,000
3	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$57,520
4	ENGINEERING				$44,300
5	SURVEYING, TESTING & RPR				$69,600
	TOTAL FOR PLAYA MI32 IMPROVEMENTS				$746,620

TABLE 3-71
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

PLAYA MI33 IMPROVEMENTS

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 PLAYA EXCAVATION	C.Y.	$4.00	429,600	$1,718,400
2 24" DRAWDOWN STORM DRAIN INCLUDING MATERIALS, EXCAVATION, AND BACKFILL	L.F.	$37.00	4,600	$170,200
3 8" FLEXIBLE BASE	S.Y.	$3.00	2,300	$6,900
4 PRIME COAT	S.Y.	$0.30	2,300	$690
5 1-3/4" ASPHALTIC CONCRETE PAVEMENT	S.Y.	$3.00	2,300	$6,900
6 TRAFFIC CONTROL	L.S.	$4,000.00	1	$4,000
7 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$190,710
8 ENGINEERING				$146,800
9 SURVEYING, TESTING & RPR				$230,700
TOTAL FOR PLAYA MI33 IMPROVEMENTS				$2,475,300

TABLE 3-72
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

PLAYA MI34 IMPROVEMENTS

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 PLAYA EXCAVATION	C.Y.	$4.00	367,200	$1,468,800
2 24" DRAWDOWN STORM DRAIN INCLUDING MATERIALS, EXCAVATION, AND BACKFILL	L.F.	$37.00	4,800	$177,600
3 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$164,640
4 ENGINEERING				$126,800
5 SURVEYING, TESTING & RPR				$199,200
TOTAL FOR PLAYA MI34 IMPROVEMENTS				$2,137,040

TABLE 3-73
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

PLAYA MI38 IMPROVEMENTS

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 24" DRAWDOWN STORM DRAIN INCLUDING MATERIALS, EXCAVATION, AND BACKFILL	L.F.	$37.00	1,200	$44,400
2 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$4,440
3 ENGINEERING				$3,400
4 SURVEYING, TESTING & RPR				$5,400
TOTAL FOR PLAYA MI38 IMPROVEMENTS				$57,640

TABLE 3-74
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

PLAYA MI40 IMPROVEMENTS

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 24" DRAWDOWN STORM DRAIN INCLUDING MATERIALS, EXCAVATION, AND BACKFILL	L.F.	$37.00	400	$14,800
2 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$1,480
3 ENGINEERING				$1,100
4 SURVEYING, TESTING & RPR				$1,800
TOTAL FOR PLAYA MI40 IMPROVEMENTS				$19,180

TABLE 3-75
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

PLAYA MI41 IMPROVEMENTS

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	24" DRAWDOWN STORM DRAIN INCLUDING MATERIALS, EXCAVATION, AND BACKFILL	L.F.	$37.00	2,000	$74,000
2	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$7,400
3	ENGINEERING				$5,700
4	SURVEYING, TESTING & RPR				$9,000
	TOTAL FOR PLAYA MI41 IMPROVEMENTS				$96,100

TABLE 3-76
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

PLAYA MI42 IMPROVEMENTS

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	PLAYA EXCAVATION	C.Y.	$4.00	98,250	$393,000
2	24" DRAWDOWN STORM DRAIN INCLUDING MATERIALS, EXCAVATION, AND BACKFILL	L.F.	$37.00	4,400	$162,800
3	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$55,580
4	ENGINEERING				$42,800
5	SURVEYING, TESTING & RPR				$67,300
	TOTAL FOR PLAYA MI42 IMPROVEMENTS				$721,480

TABLE 3-77
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

PLAYA MI43 IMPROVEMENTS

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	PLAYA EXCAVATION	C.Y.	$4.00	118,100	$472,400
2	24" DRAWDOWN STORM DRAIN INCLUDING MATERIALS, EXCAVATION, AND BACKFILL	L.F.	$37.00	4,800	$177,600
3	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$65,000
4	ENGINEERING				$50,000
5	SURVEYING, TESTING & RPR				$78,700
	TOTAL FOR PLAYA MI43 IMPROVEMENTS				$843,700

TABLE 3-78
MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

PLAYA MI44 IMPROVEMENTS

	ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1	PLAYA EXCAVATION	C.Y.	$4.00	167,800	$671,200
2	24" DRAWDOWN STORM DRAIN INCLUDING MATERIALS, EXCAVATION, AND BACKFILL	L.F.	$37.00	6,000	$222,000
3	8" FLEXIBLE BASE	S.Y.	$3.00	1,750	$5,250
4	PRIME COAT	S.Y.	$0.30	1,750	$525
5	1-3/4" ASPHALTIC CONCRETE PAVEMENT	S.Y.	$3.00	1,750	$5,250
6	TRAFFIC CONTROL	L.S.	$4,000.00	1	$4,000
7	CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$90,825
8	ENGINEERING				$69,900
9	SURVEYING, TESTING & RPR				$109,900
	TOTAL FOR PLAYA MI44 IMPROVEMENTS				$1,178,850

TABLE 3-79

MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

PLAYA MI49 IMPROVEMENTS

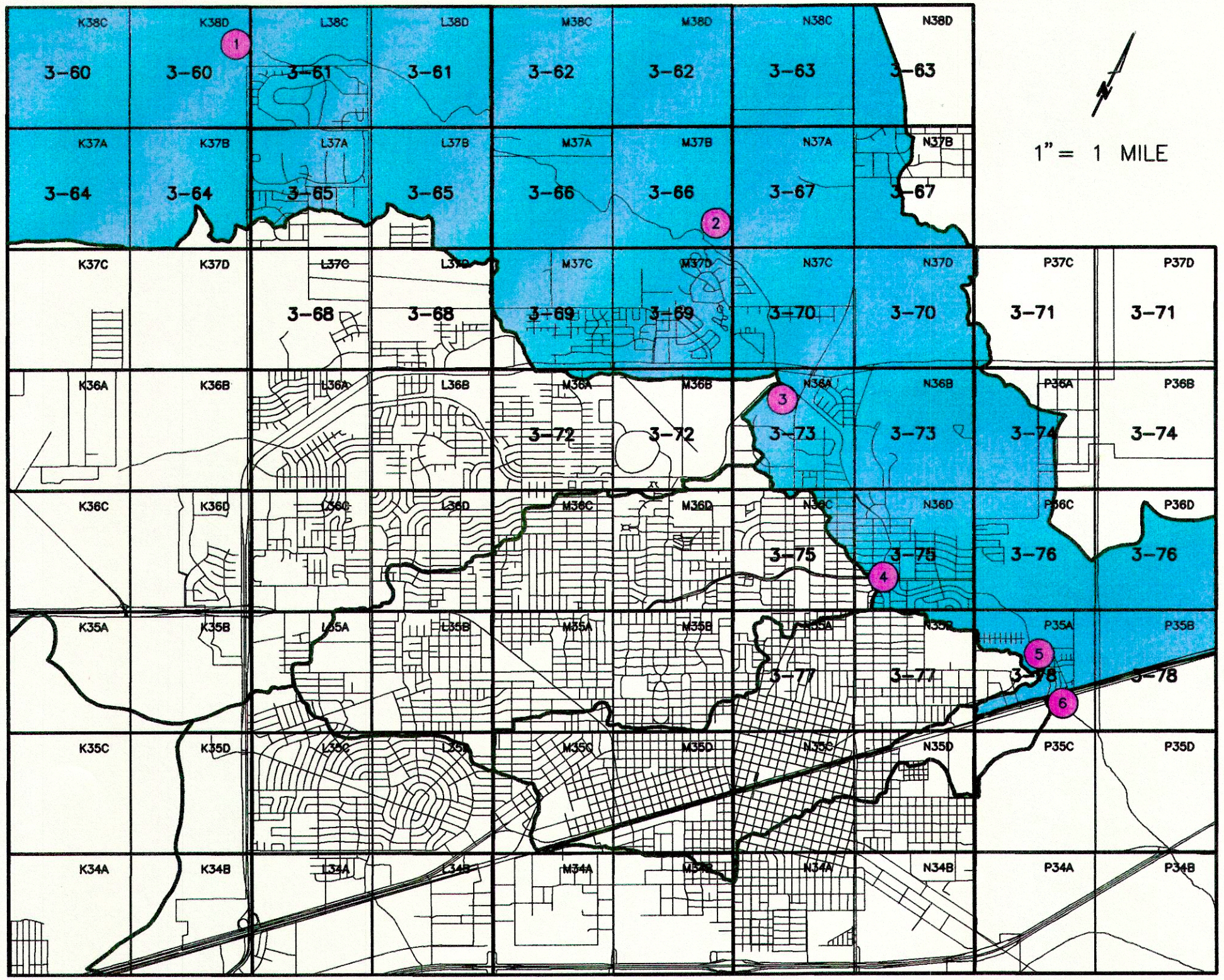
ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 PLAYA EXCAVATION	C.Y.	$4.00	17,400	$69,600
2 24" DRAWDOWN STORM DRAIN INCLUDING MATERIALS, EXCAVATION, AND BACKFILL	L.F.	$37.00	800	$29,600
3 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$9,920
4 ENGINEERING				$7,600
5 SURVEYING, TESTING & RPR				$12,000
TOTAL FOR PLAYA MI49 IMPROVEMENTS				$128,720

TABLE 3-80

MIDLAND DRAW
PRELIMINARY BUDGET OPINION OF COST
CITY OF MIDLAND, TEXAS

PLAYA MI50 IMPROVEMENTS

ITEM	UNIT	UNIT PRICE	QUANTITY	TOTAL
1 PLAYA EXCAVATION	C.Y.	$4.00	72,600	$290,400
2 24" DRAWDOWN STORM DRAIN INCLUDING MATERIALS, EXCAVATION, AND BACKFILL	L.F.	$37.00	5,400	$199,800
3 CONSTRUCTION CONTINGENCIES	L.S.	10%	1	$49,020
4 ENGINEERING				$37,700
5 SURVEYING, TESTING & RPR				$59,300
TOTAL FOR PLAYA MI50 IMPROVEMENTS				$636,220



1" = 1 MILE

LEGEND		PAGE
1	MIDLAND DRAW AT HOLIDAY HILL ROAD	3-54
2	MIDLAND DRAW AT MOCKINGBIRD LANE	3-55
3	MIDLAND DRAW AND JAL DRAW CONFLUENCE	3-56
4	MIDLAND DRAW AND SCHARBAUER CHANNEL CONFLUENCE	3-57
5	MIDLAND DRAW AND MULBERRY CHANNEL CONFLUENCE	3-58
6	MIDLAND DRAW AT U.S. HIGHWAY 80	3-59

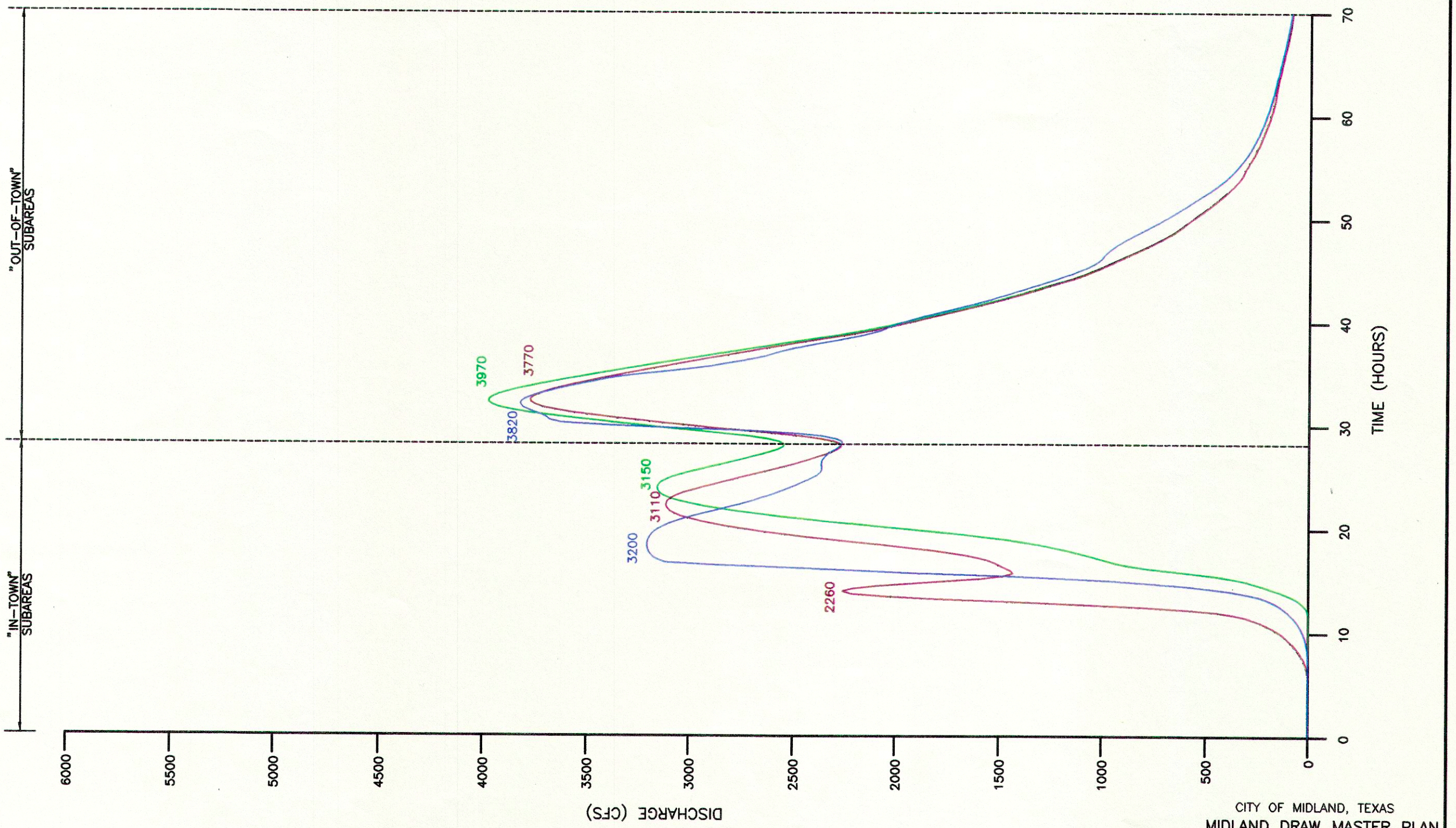
MIDLAND DRAW WATERSHED, INDEX TO SECTION MAPS

FIGURE 3-1

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
WATERSHED MAP INDEX

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MID-INDX 4/5/ 11.00 RSK



CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
HYDROGRAPH

LEGEND

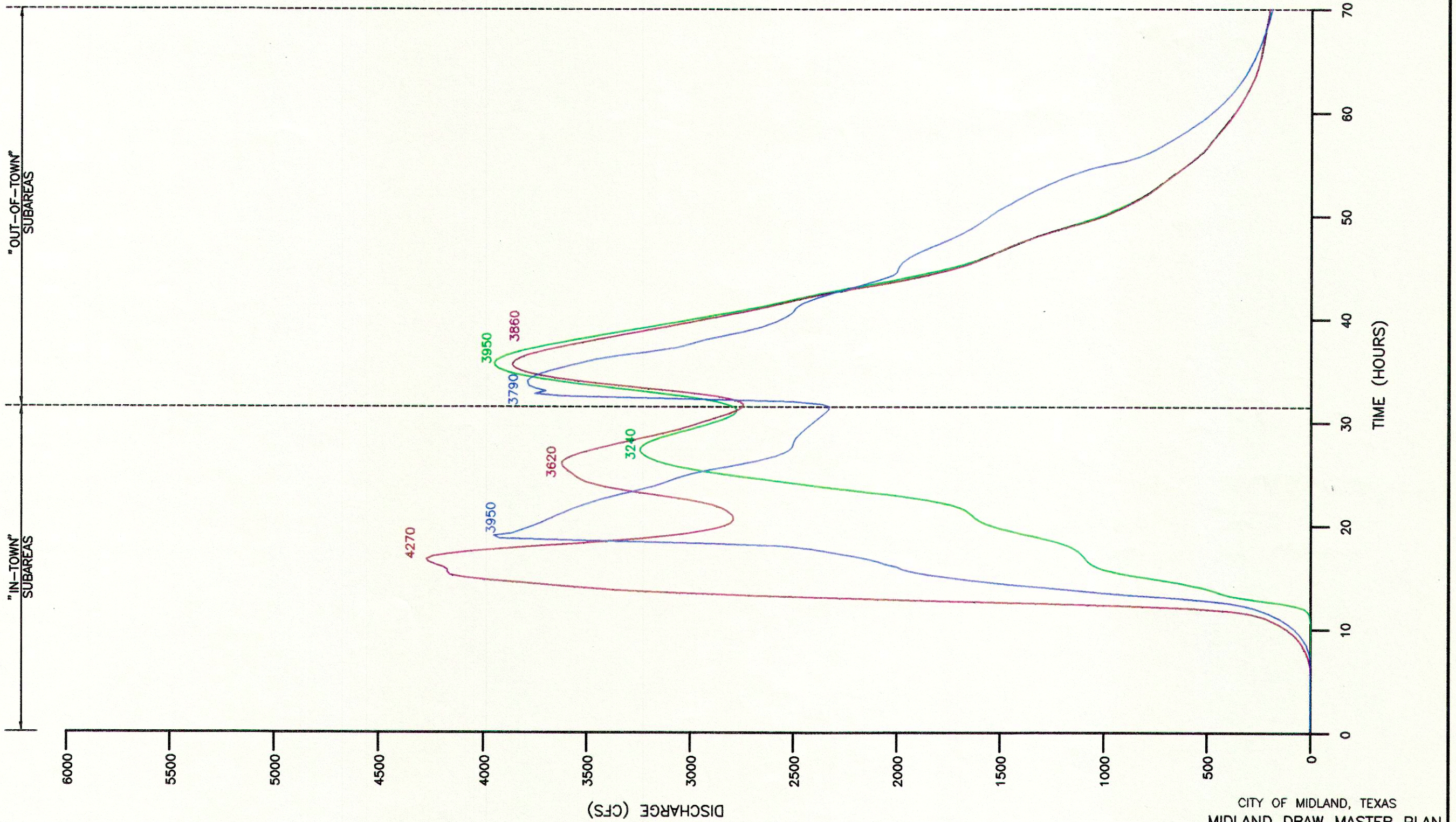
100-YEAR EXISTING, JUNE 1993 CONDITIONS
100-YEAR FUTURE, YEAR 2020 NO MODIFICATIONS
100-YEAR FUTURE, YEAR 2020 WITH MODIFICATIONS

MIDLAND DRAW AT HOLIDAY HILL ROAD EXTENSION

FIGURE 3-2

PSC Parkhill, Smith & Cooper, Inc.
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HH-RD-EX/10/ 2.00 RSK



LEGEND

100-YEAR EXISTING, JUNE 1993 CONDITIONS
100-YEAR FUTURE, YEAR 2020 NO MODIFICATIONS
100-YEAR FUTURE, YEAR 2020 WITH MODIFICATIONS

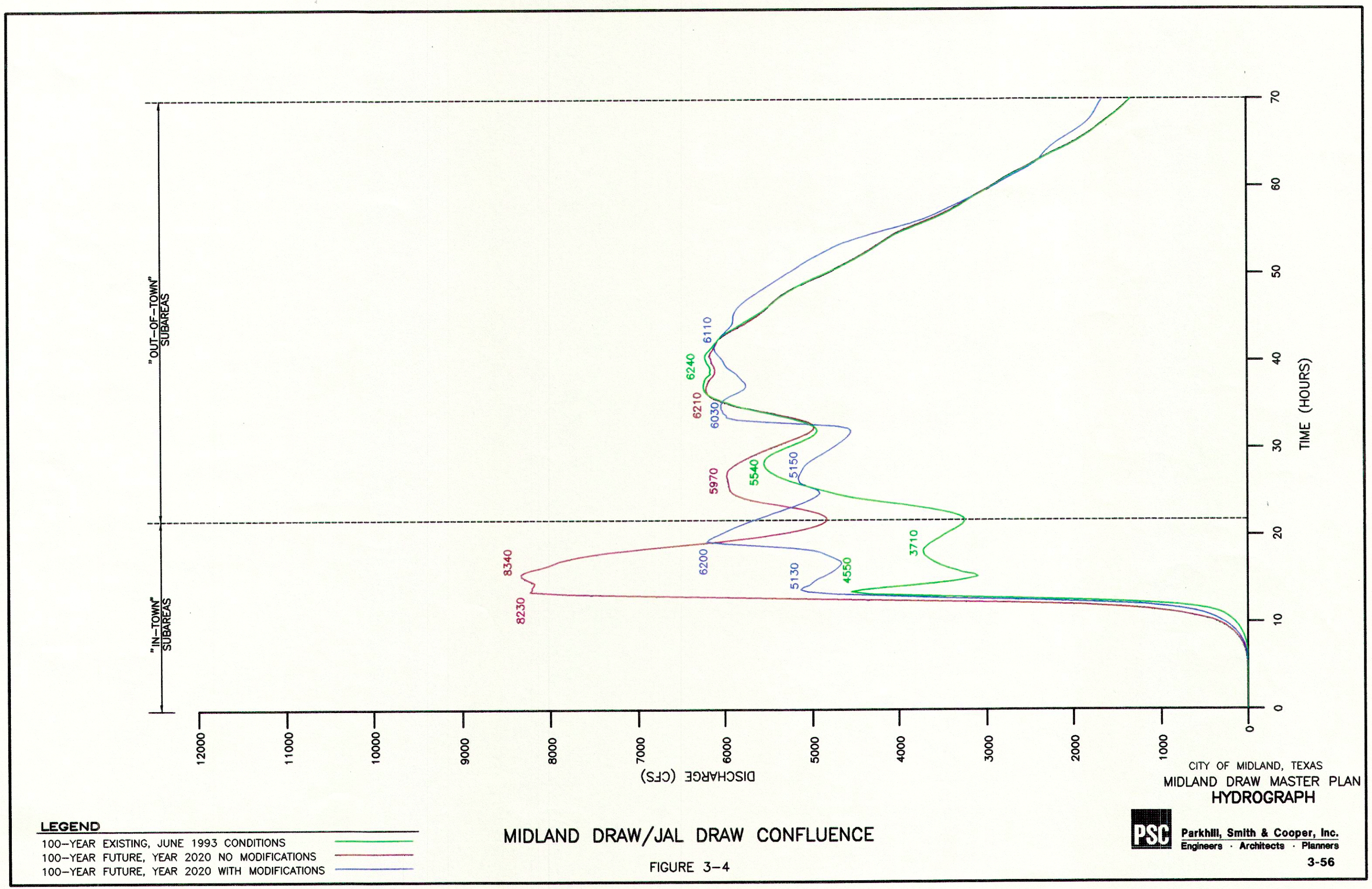
CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
HYDROGRAPH

MIDLAND DRAW AT MOCKINGBIRD LANE

FIGURE 3-3

PSC Parkhill, Smith & Cooper, Inc.
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MOCKLANE2/16/ 2.00 RSK

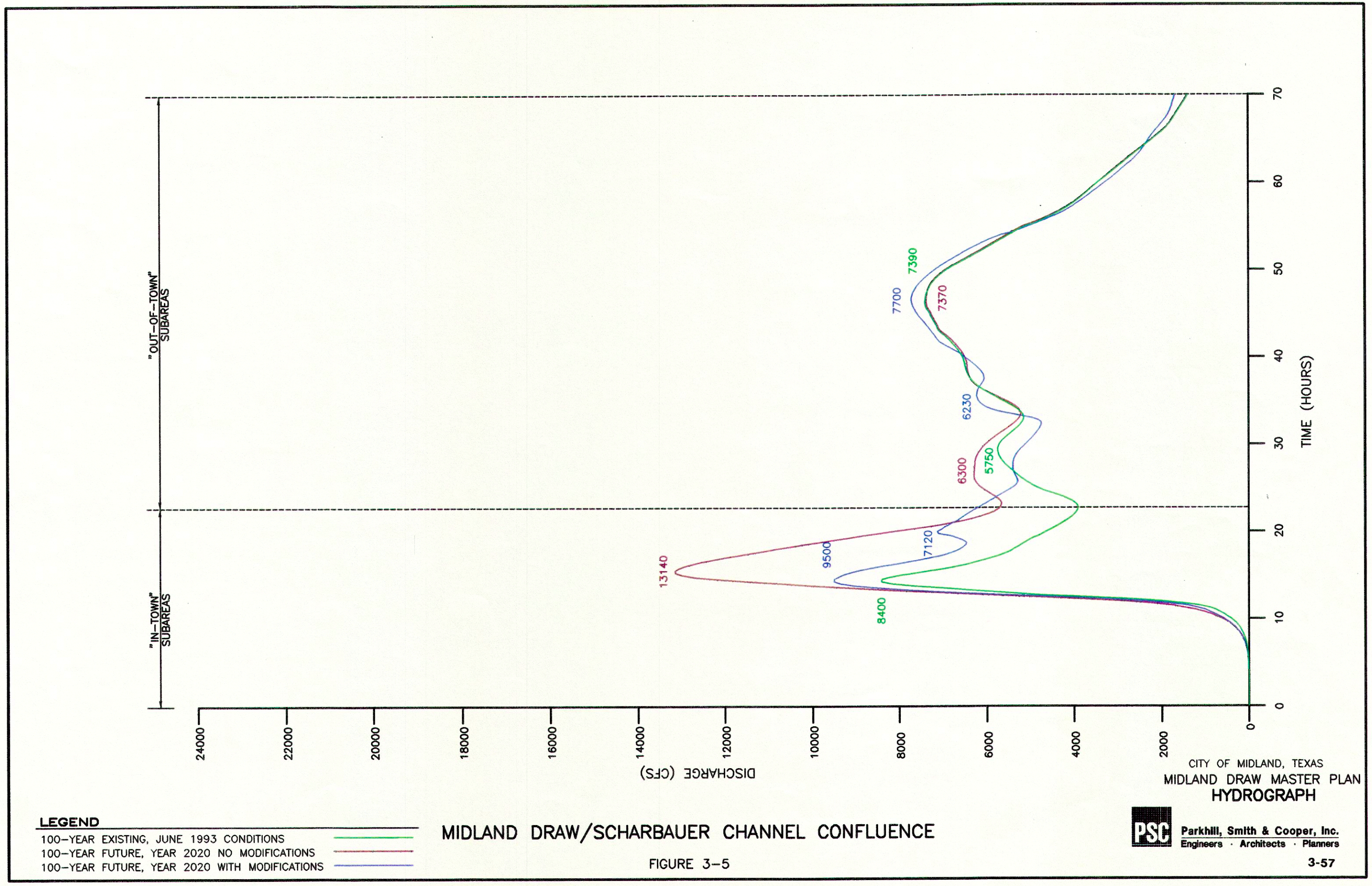


MIDLAND DRAW/JAL DRAW CONFLUENCE

FIGURE 3-4

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M:\DNF 2/16/.. 2.00 RSK



LEGEND

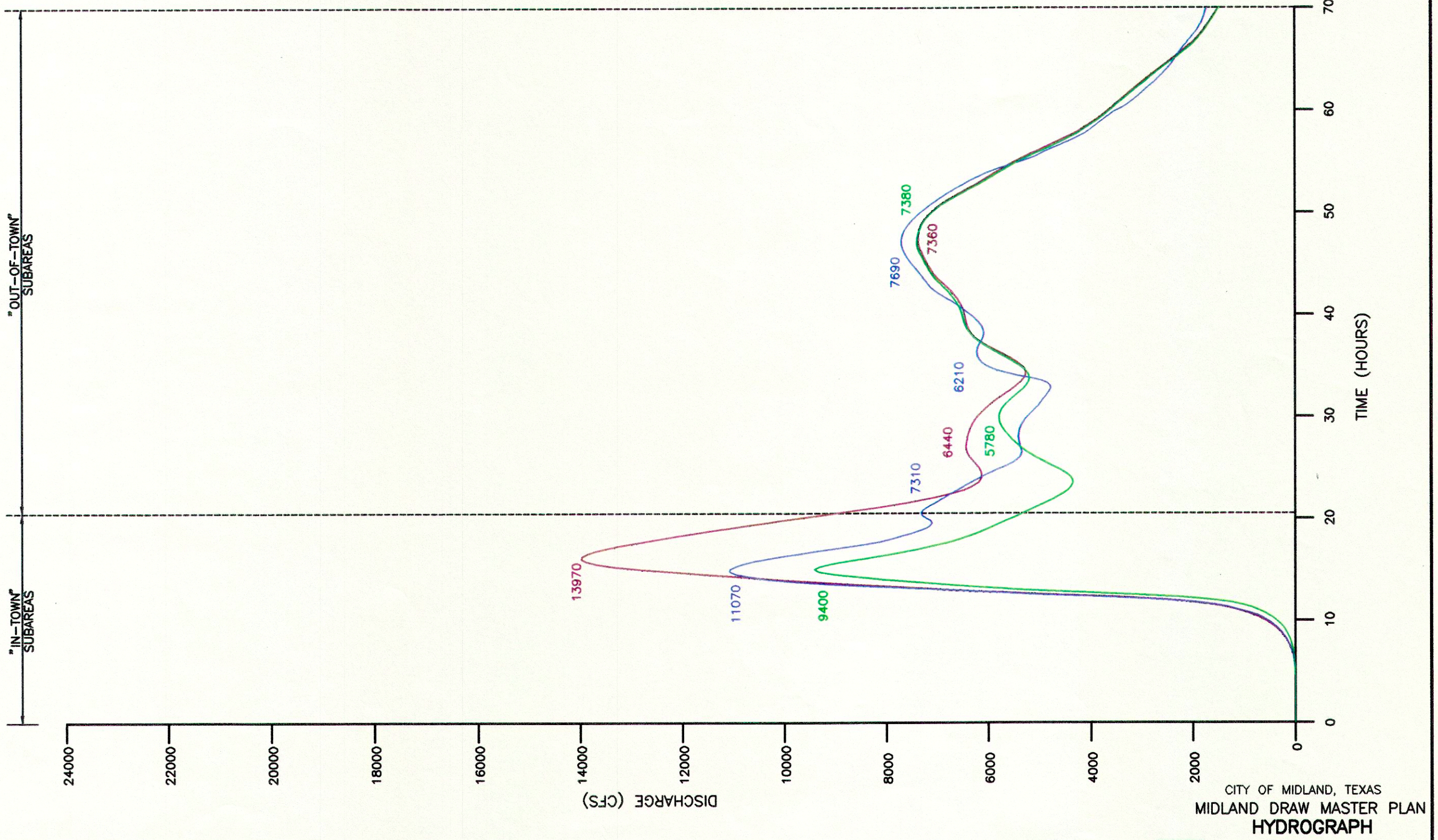
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100-YEAR FUTURE, YEAR 2020 NO MODIFICATIONS
100-YEAR FUTURE, YEAR 2020 WITH MODIFICATIONS

MIDLAND DRAW/SCHARBAUER CHANNEL CONFLUENCE

FIGURE 3-5

Parkhill, Smith & Cooper, Inc.
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CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
HYDROGRAPH

LEGEND

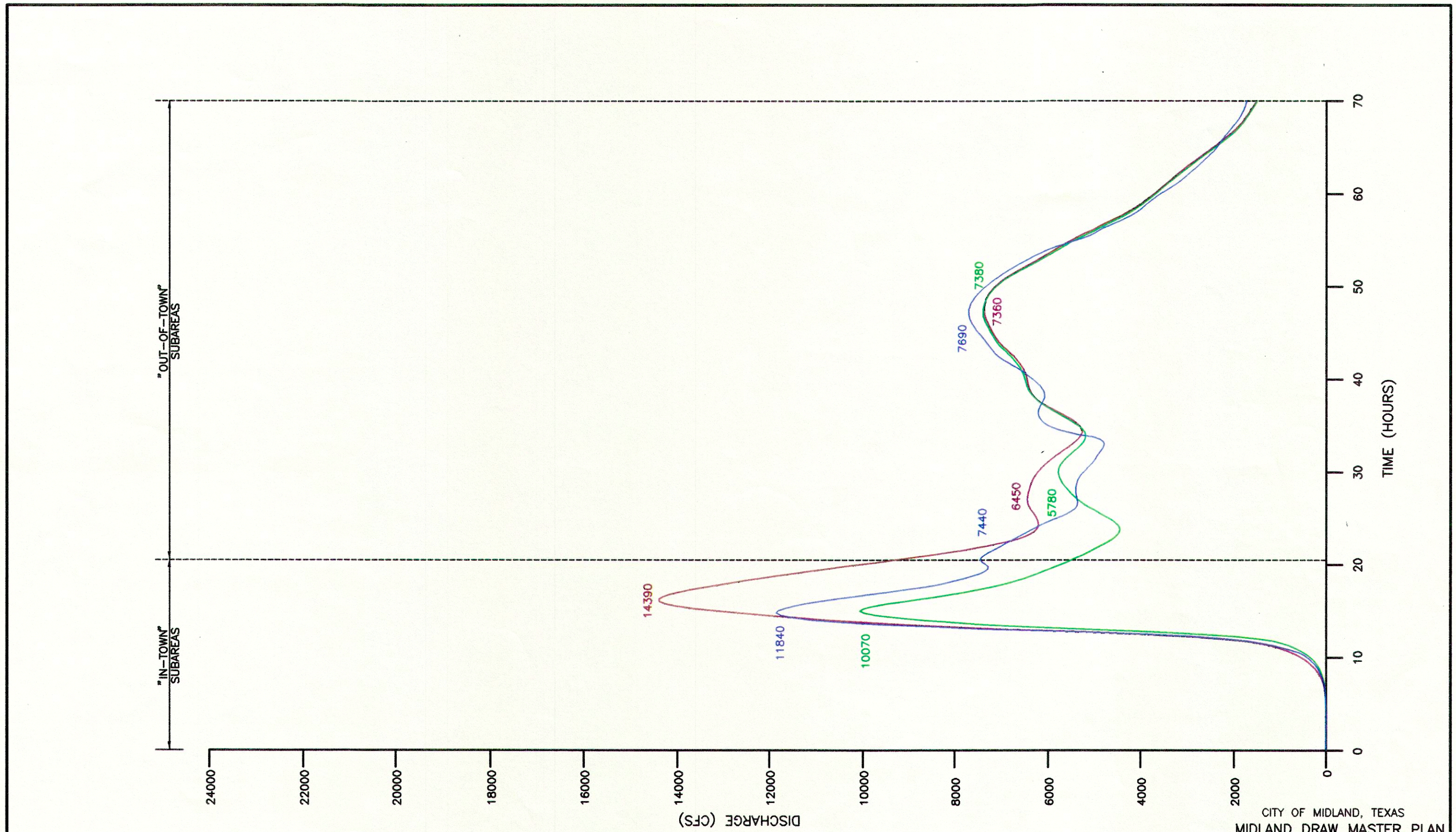
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100-YEAR FUTURE, YEAR 2020 NO MODIFICATIONS
100-YEAR FUTURE, YEAR 2020 WITH MODIFICATIONS

MIDLAND DRAW/MULBERRY CHANNEL CONFLUENCE

FIGURE 3-6

Parkhill, Smith & Cooper, Inc.
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CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
HYDROGRAPH

LEGEND

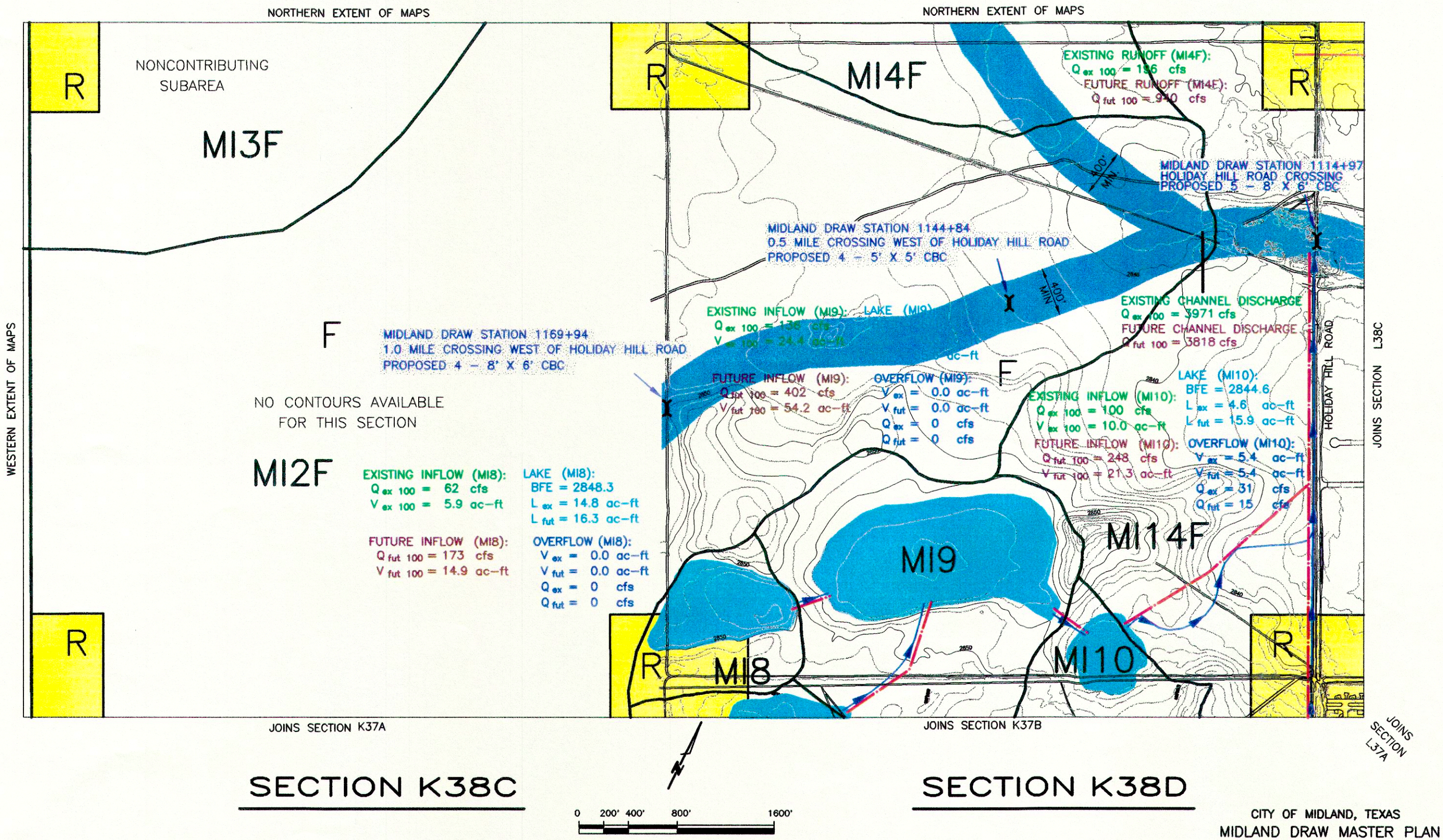
100-YEAR EXISTING, JUNE 1993 CONDITIONS
100-YEAR FUTURE, YEAR 2020 NO MODIFICATIONS
100-YEAR FUTURE, YEAR 2020 WITH MODIFICATIONS

MIDLAND DRAW AT U.S. HIGHWAY 80

FIGURE 3-7

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MD-80 2/19/ 8.00 RSK

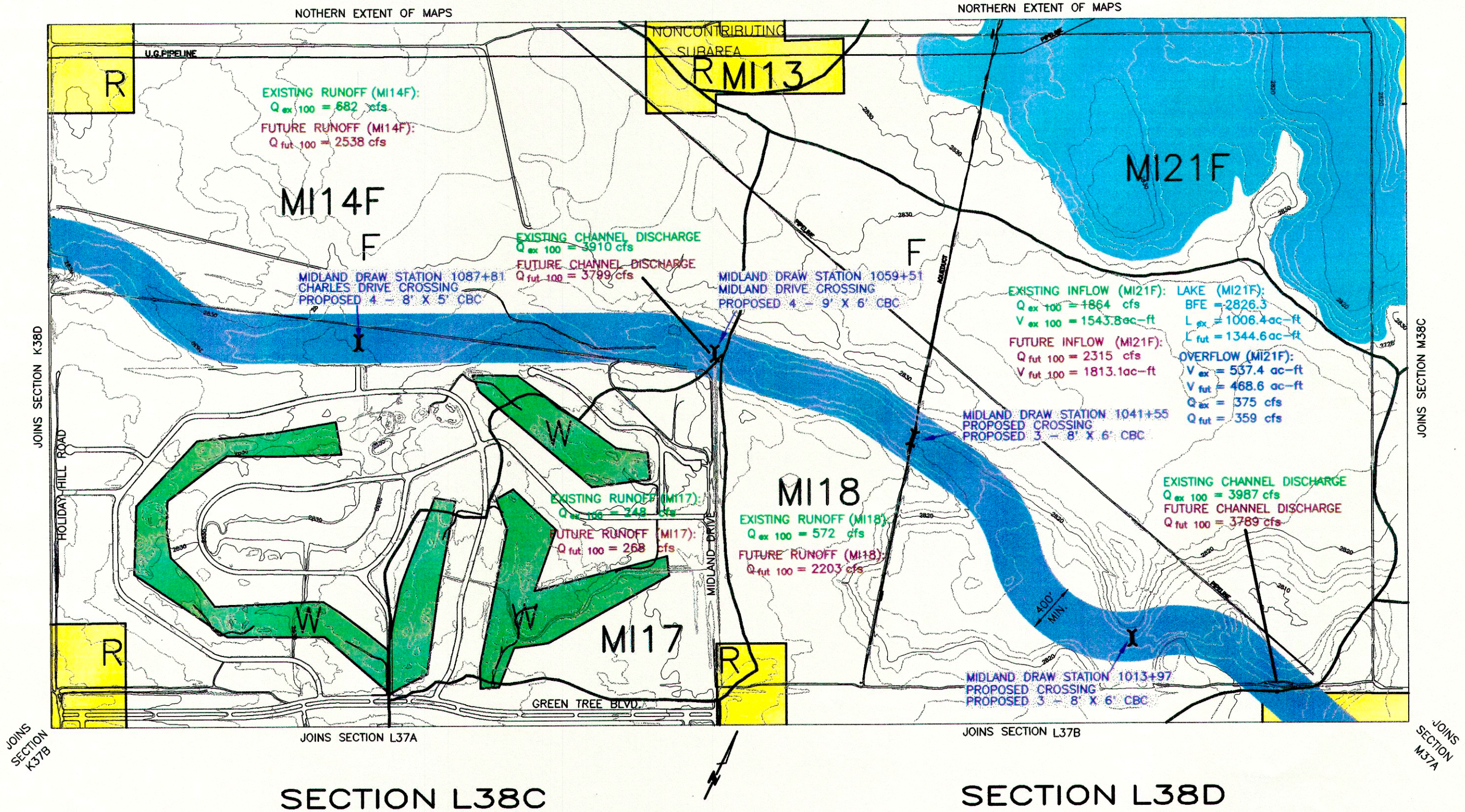


NOTE: REFER TO THE LEGEND SHEET AT THE FRONT OF THIS PUBLICATION FOR AN EXPLANATION OF ALL ABBREVIATIONS, LABELS, LINETYPES, COLORS AND SYMBOLS.

FIGURE 3-8

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
SECTION MAP

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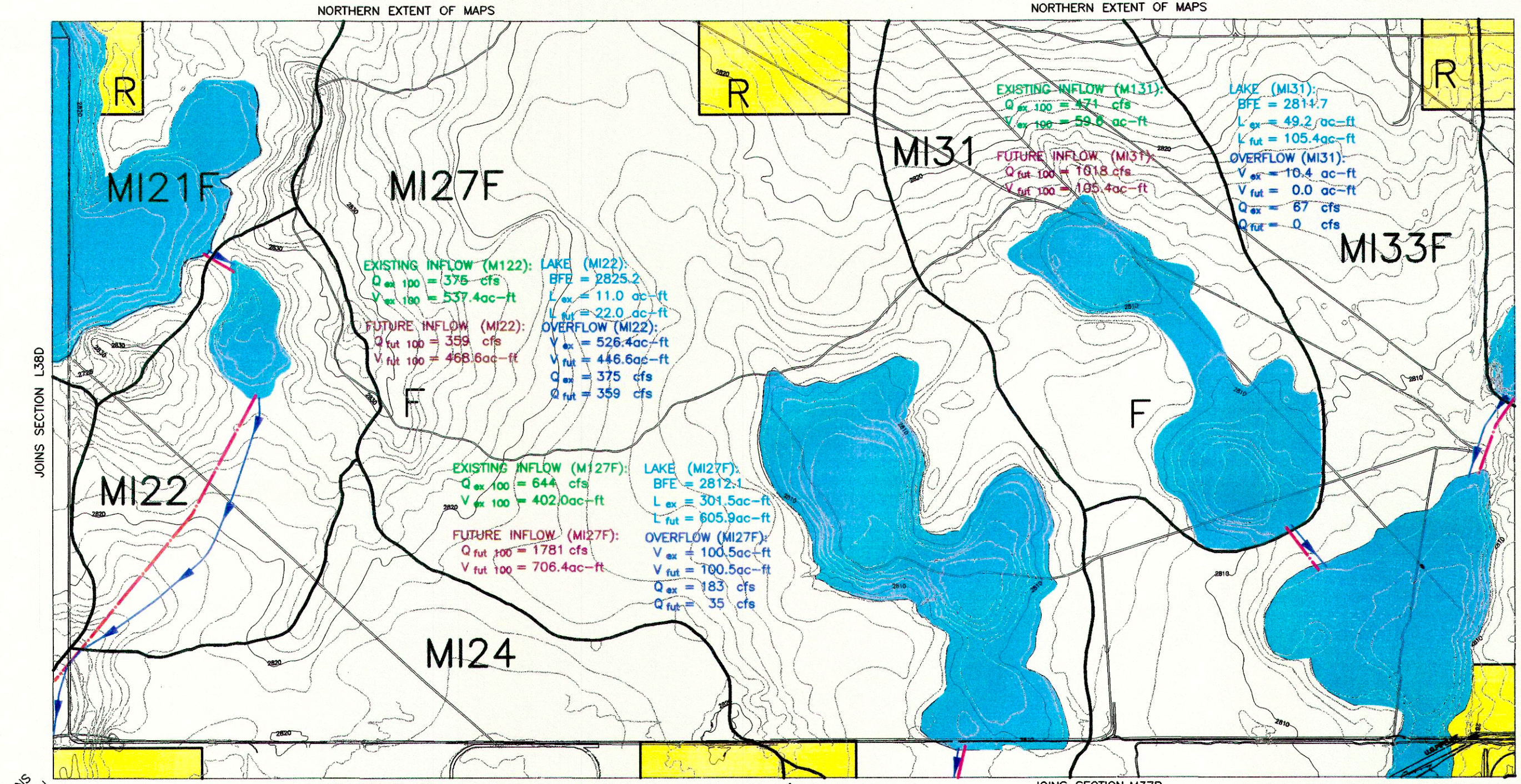
NOTE: REFER TO THE LEGEND SHEET AT THE FRONT OF THIS PUBLICATION FOR AN EXPLANATION OF ALL ABBREVIATIONS, LABELS, LINETYPES, COLORS AND SYMBOLS.

FIGURE 3-9

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
SECTION MAP

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L38CD 2/16/ 5 RSK



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FIGURE 3–10

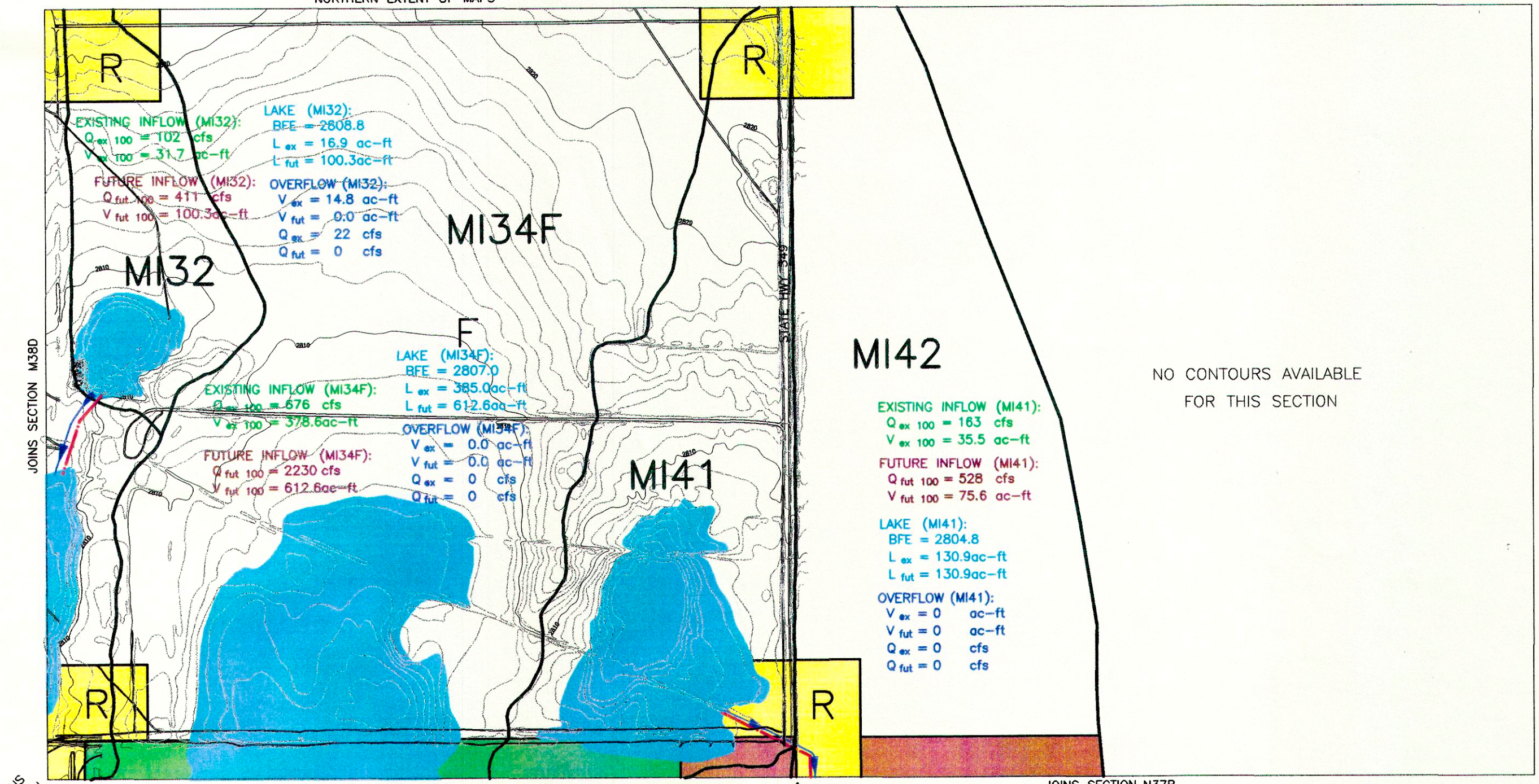
CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
SECTION MAP

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M38C1 8/15/ 30 RSK

NORTHERN EXTENT OF MAPS

NORTHERN EXTENT OF MAPS



SECTION N38C

SECTION N38D

0 200' 400' 800' 1600'

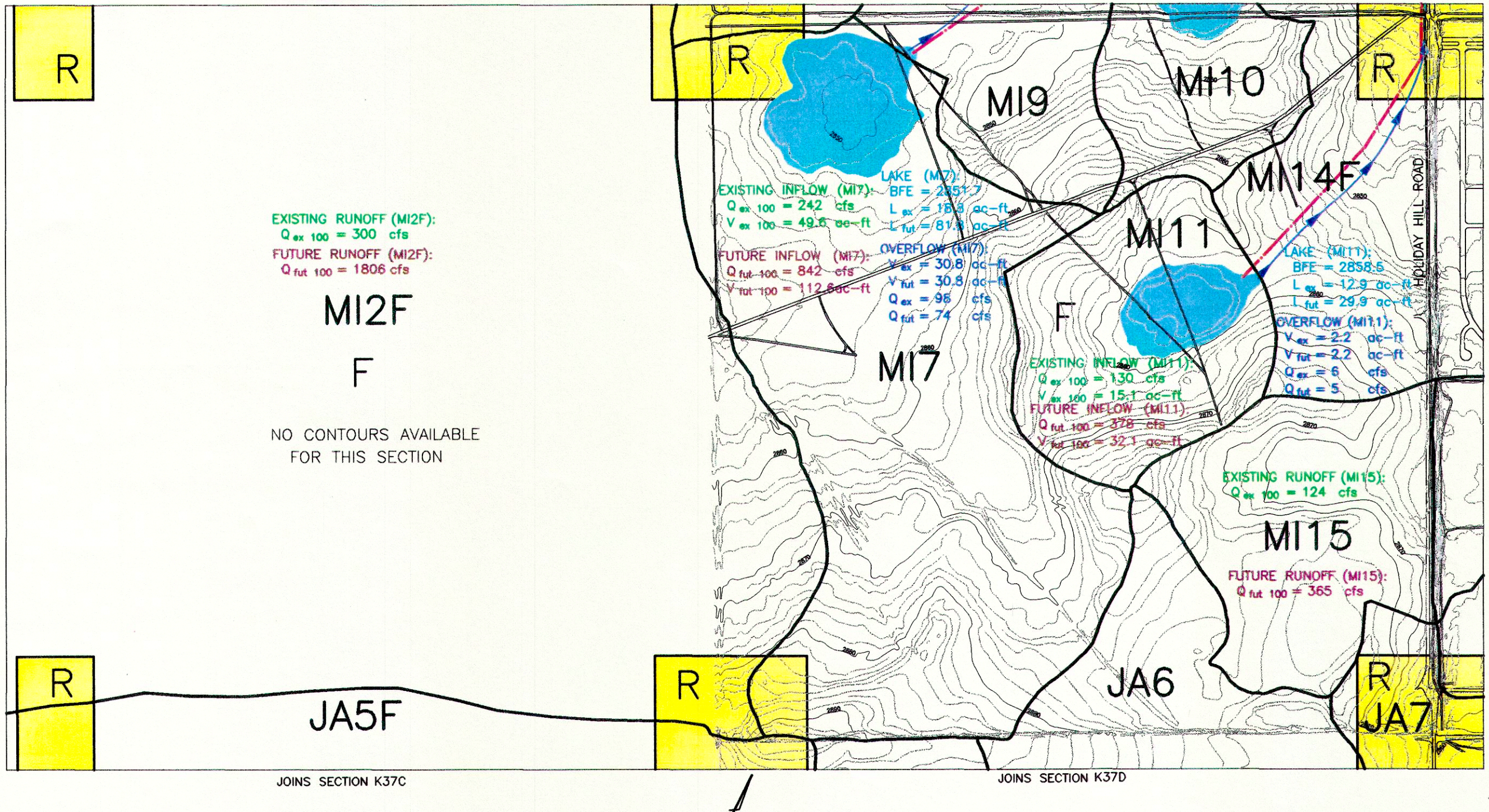
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FIGURE 3-11

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
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N38CD 8/15/ 30 RSK



SECTION K37A

SECTION K37B

0 200' 400' 800' 1600'

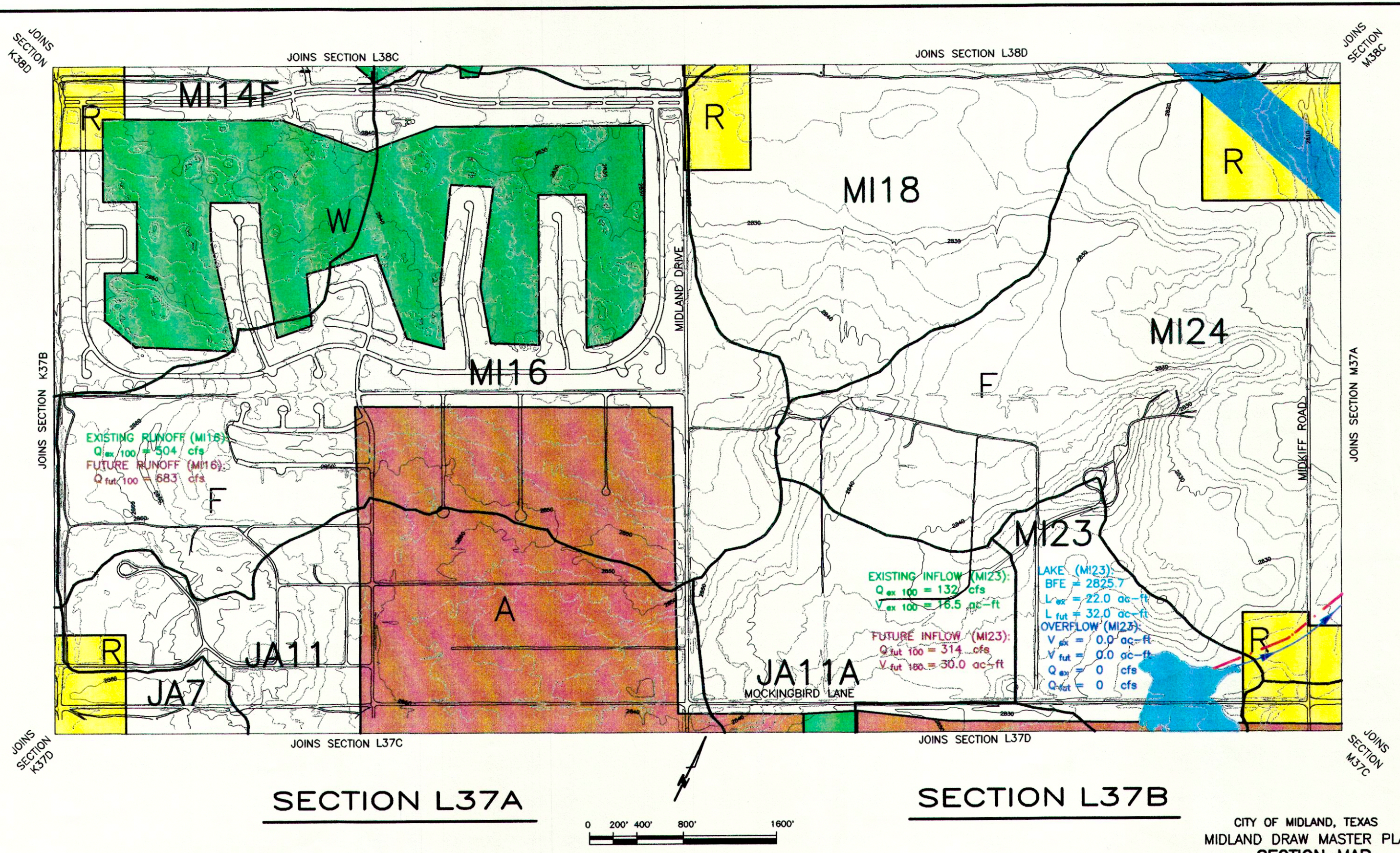
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FIGURE 3–12

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
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K37AB 6/21/ 0 RSK



SECTION L37A

SECTION L37B

0 200' 400' 800' 1600'

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CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
SECTION MAP

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FIGURE 3-13

JOINS SECTION L38D

JOINS SECTION M38C

JOINS SECTION M38D

JOINS SECTION N38C

JOINS SECTION L37B

JOINS SECTION N37A

MIDLAND DRAW STATION 993+41
GREENTREE BLVD AND MIDKIFF ROAD CROSSING
PROPOSED 5 - 9' X 6' CBC

MIDLAND DRAW STATION 964+24
WHITMAN DRIVE CROSSING
PROPOSED 3 - 8' X 5' CBC

EXISTING CHANNEL DISCHARGE
$Q_{ex\ 100}$ = 3965 cfs
FUTURE CHANNEL DISCHARGE
$Q_{fut\ 100}$ = 3838 cfs

MIDLAND DRAW STATION 931+84
GARFIELD STREET CROSSING
PROPOSED 5 - 8' X 5' CBC

MIDLAND DRAW STATION 902+23
"I" STREET CROSSING
PROPOSED 3 - 9' X 6' CBC

MIDLAND DRAW STATION 878+60
MOCKINGBIRD LANE CROSSING
PROPOSED 6 - 7' X 5' CBC

MI24

EXISTING RUNOFF (MI24):
$Q_{ex\ 100}$ = 672 cfs
FUTURE RUNOFF (MI24):
$Q_{fut\ 100}$ = 2784 cfs

MI25

EXISTING RUNOFF (MI25):
$Q_{ex\ 100}$ = 242 cfs
FUTURE RUNOFF (MI25):
$Q_{fut\ 100}$ = 969 cfs

MI27F

MI33F

EXISTING INFLOW (MI33F):
$Q_{ex\ 100}$ = 466 cfs
$V_{ex\ 100}$ = 235.0ac-ft

FUTURE INFLOW (MI33F):
$Q_{fut\ 100}$ = 1391 cfs
$V_{fut\ 100}$ = 366.2ac-ft

LAKE (MI33F):
BFE = 2807.0
L_{ex} = 138.3ac-ft
L_{fut} = 404.6ac-ft
OVERFLOW (MI33F):
V_{ex} = 0.0 ac-ft
V_{fut} = 0.0 ac-ft
Q_{ex} = 0 cfs
Q_{fut} = 0 cfs

MI28

EXISTING RUNOFF (MI28):
$Q_{ex\ 100}$ = 444 cfs
FUTURE RUNOFF (MI28):
$Q_{fut\ 100}$ = 1483 cfs

MI35

EXISTING CHANNEL DISCHARGE
$Q_{ex\ 100}$ = 3948 cfs
FUTURE CHANNEL DISCHARGE
$Q_{fut\ 100}$ = 3950 cfs

400' MIN

MIDKIFF ROAD

GARFIELD STREET

A STREET

U.S. PIPELINE

R

F

JOINS SECTION L37D

JOINS SECTION M37C

JOINS SECTION M37D

JOINS SECTION N37C

SECTION M37A

SECTION M37B

0 200' 400' 800' 1600'

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FIGURE 3-14

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
SECTION MAP

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JOINS SECTION M38D

JOINS SECTION N38C

JOINS SECTION N38D

JOINS SECTION M37B

A STREET

STATE HWY 349

EASTERN EXTENT OF MAPS

MI41

MI42

MI34F

MI40

MI35

MI43

C

A

A

R

W

F

R

R

EXISTING INFLOW (MI42):
$Q_{ex\ 100}$ = 233 cfs
$V_{ex\ 100}$ = 83.2 ac-ft

FUTURE INFLOW (MI42)
$Q_{fut\ 100}$ = 600 cfs
$V_{fut\ 100}$ = 131.0ac-ft

LAKE (MI42):
BFE = 2806.0
L_{ex} = 9.8 ac-ft
L_{fut} = 70.7 ac-ft

OVERFLOW (MI42):
V_{ex} = 73.4 ac-ft
V_{fut} = 60.3 ac-ft
Q_{ex} = 226 cfs
Q_{fut} = 228 cfs

EXISTING INFLOW (MI40):
$Q_{ex\ 100}$ = 308 cfs
$V_{ex\ 100}$ = 37.2 ac-ft

FUTURE INFLOW (MI40):
$Q_{fut\ 100}$ = 308 cfs
$V_{fut\ 100}$ = 37.2 ac-ft

LAKE (MI40):
BFE = 2809.6
L_{ex} = 43.1 ac-ft
L_{fut} = 43.2 ac-ft

OVERFLOW (MI40):
V_{ex} = 0.0 ac-ft
V_{fut} = 0.0 ac-ft
Q_{ex} = 0 cfs
Q_{fut} = 0 cfs

JOINS SECTION M37D

JOINS SECTION N37C

JOINS SECTION N37D

JOINS SECTION P37C

SECTION N37A

SECTION N37B

0 200' 400' 800' 1600'

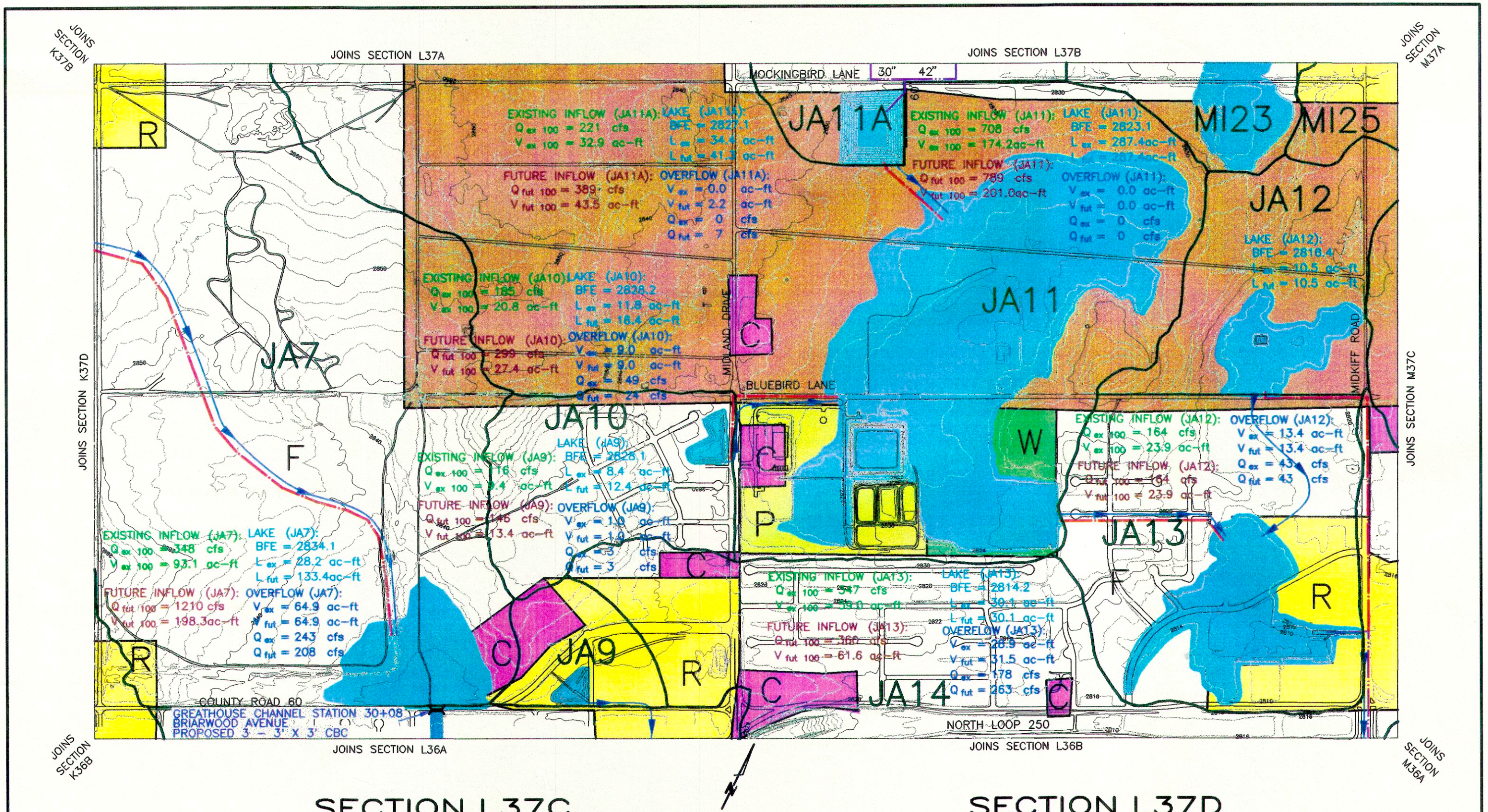
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CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
SECTION MAP

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FIGURE 3–15

N37/B 8/16/ 45 JLC



SECTION L37C

SECTION L37D

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FIGURE 3-16

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
SECTION MAP

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JOINS SECTION L37B

JOINS SECTION M37A

JOINS SECTION M37B

JOINS SECTION N37A

MOCKINGBIRD LANE

MI25

C

A

MI28

MI35

EXISTING RUNOFF (MI35):
$Q_{ex\ 100}$ = 665 cfs

FUTURE RUNOFF (MI35):
$Q_{fut\ 100}$ = 1248 cfs

GARFIELD STREET

NORTH "A" STREET

BLUEBIRD LANE

JOINS SECTION L37D

C

F

F

FUTURE RETENTION BASIN MI37

EXISTING RUNOFF (MI37):
$Q_{ex\ 100}$ = 1326 cfs

FUTURE RUNOFF (MI37):
$Q_{fut\ 100}$ = 7648 cfs

JA14

R

P

C

R

C

R

NORTH LOOP 250

JOINS SECTION N37C

JOINS SECTION L36B

JOINS SECTION M36A

JOINS SECTION M36B

JOINS SECTION N36A

SECTION M37C

SECTION M37D

0 200' 400' 800' 1600'

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CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
SECTION MAP

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FIGURE 3–17

M37CD 8/16/ RSK

JOINS SECTION M37B

JOINS SECTION N37A

JOINS SECTION N37B

JOINS SECTION M37D

"A" STREET

MIDLAND DRAW STATION 869+00
"A" STREET CROSSING
PROPOSED 7 - 8' X 5' CBC

EXISTING INFLOW (MI38):
$Q_{ex\ 100}$ = 118 cfs
$V_{ex\ 100}$ = 11.2 ac-ft

FUTURE INFLOW (MI38):
$Q_{fut\ 100}$ = 285 cfs
$V_{fut\ 100}$ = 24.9 ac-ft

LAKE (MI38):
BFE = 2798.5
L_{ex} = 44.8 ac-ft
L_{fut} = 44.8 ac-ft

MI35

MI38

MI43

300'

EXISTING CHANNEL DISCHARGE
$Q_{ex\ 100}$ = 3925 cfs
FUTURE CHANNEL DISCHARGE
$Q_{fut\ 100}$ = 3968 cfs

OVERFLOW (MI38):
V_{ex} = 0.0 ac-ft
V_{fut} = 0.0 ac-ft
Q_{ex} = 0 cfs
Q_{fut} = 0 cfs

STATE HWY 349

EXISTING INFLOW (MI43):
$Q_{ex\ 100}$ = 435 cfs
$V_{ex\ 100}$ = 125.3ac-ft

FUTURE INFLOW (MI43):
$Q_{fut\ 100}$ = 1211 cfs
$V_{fut\ 100}$ = 212.2ac-ft

LAKE (MI43):
BFE = 2800.1
L_{ex} = 166.5ac-ft
L_{fut} = 239.7ac-ft

OVERFLOW (MI43):
V_{ex} = 0.0 ac-ft
V_{fut} = 0.0 ac-ft
Q_{ex} = 37 cfs
Q_{fut} = 37 cfs

EXISTING RUNOFF (MI39):
$Q_{ex\ 100}$ = 345 cfs

FUTURE RUNOFF (MI39):
$Q_{fut\ 100}$ = 649 cfs

MIDLAND DRAW STATION 842+50
SOLOMON LANE CROSSING
PROPOSED 2 - 9' X 7' CBC

EXISTING RUNOFF (MI36):
$Q_{ex\ 100}$ = 347 cfs
FUTURE RUNOFF (MI36):
$Q_{fut\ 100}$ = 419 cfs

MI44

MI36

MI39

100'

165'

EXISTING INFLOW (MI44):
$Q_{ex\ 100}$ = 567 cfs
$V_{ex\ 100}$ = 110.5ac-ft

FUTURE INFLOW (MI44):
$Q_{fut\ 100}$ = 1473 cfs
$V_{fut\ 100}$ = 214.3ac-ft

LAKE (MI44):
BFE = 2788.4
L_{ex} = 43.0 ac-ft
L_{fut} = 147.0ac-ft

OVERFLOW (MI44):
V_{ex} = 67.5 ac-ft
V_{fut} = 67.3 ac-ft
Q_{ex} = 292 cfs
Q_{fut} = 213 cfs

EXISTING CHANNEL DISCHARGE
$Q_{ex\ 100}$ = 3922 cfs
FUTURE CHANNEL DISCHARGE
$Q_{fut\ 100}$ = 3952 cfs

MIDLAND DRAW STATION 814+75
LOOP 250 CROSSING
8 - 9' X 7' CBC (existing)

250'

NORTH LOOP 250

JOINS SECTION M36B

JOINS SECTION N36A

JOINS SECTION N36B

JOINS SECTION P36A

JOINS SECTION P37C

SECTION N37C

SECTION N37D

0 200' 400' 800' 1600'

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CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
SECTION MAP

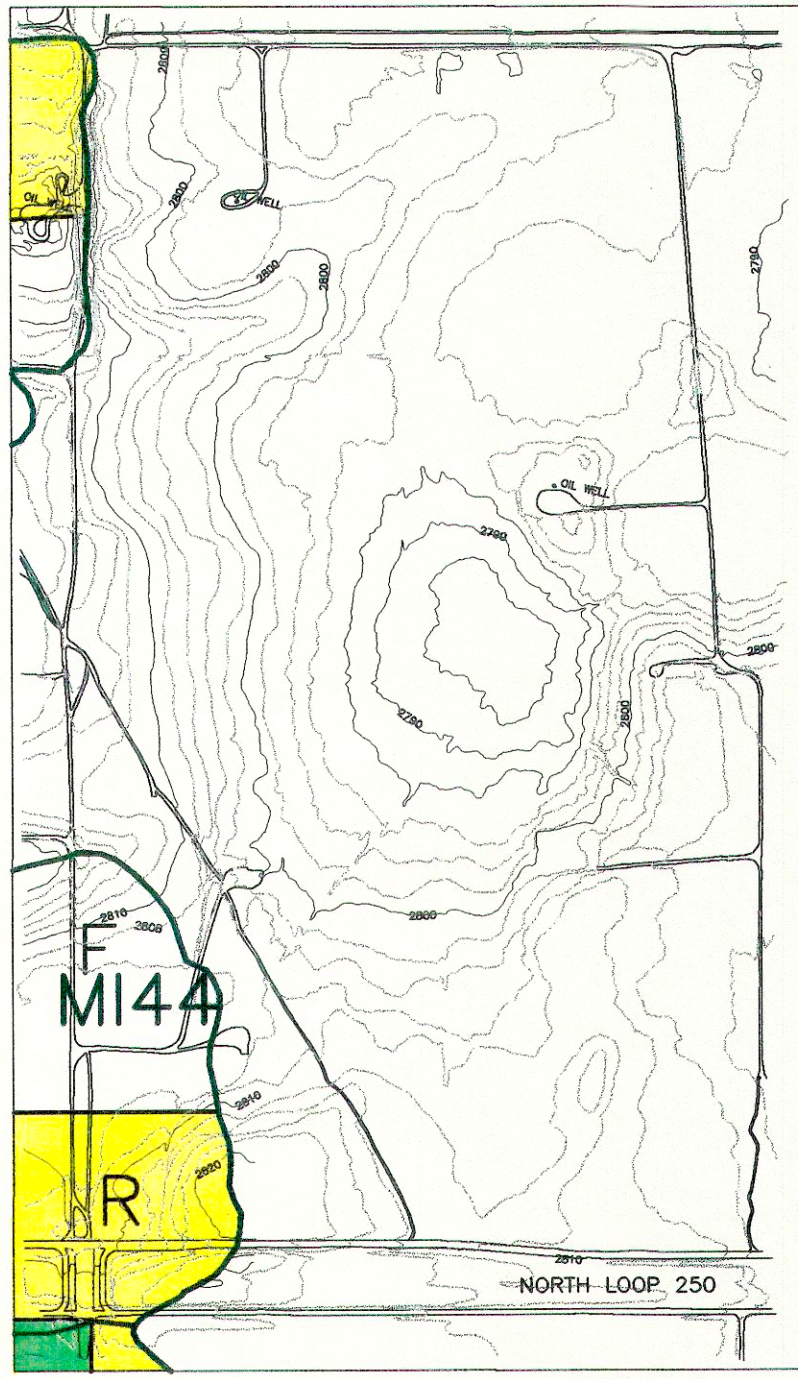
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FIGURE 3-18

RSK 2/16/9 N37D

JOINS SECTION N37B

NORTHERN EXTENT OF MAPS



JOINS SECTION N37D

JOINS SECTION N36B

JOINS SECTION P36A

NORTHERN EXTENT OF MAPS

NO CONTOURS AVAILABLE
FOR THIS SECTION

EASTERN EXTENT OF MAPS

JOINS SECTION P36B

SECTION P37C

SECTION P37D

0 200' 400' 800' 1600'

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CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
SECTION MAP

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FIGURE 3–19

P37D 8/16/00 RSK

JOINS SECTION L37D

JOINS SECTION M37C

JOINS SECTION M37D

JOINS SECTION N37C

NORTH LOOP 250

JA15

EXISTING INFLOW (JA15):
$Q_{ex\ 100}$ = 259 cfs
$V_{ex\ 100}$ = 28.1 ac-ft

LAKE (JA15):
BFE = 2809.6
L_{ex} = 12.3 ac-ft
L_{fut} = 12.3 ac-ft

FUTURE INFLOW (JA15):
$Q_{fut\ 100}$ = 259 cfs
$V_{fut\ 100}$ = 28.1 ac-ft

OVERFLOW (JA15):
V_{ex} = 15.8 ac-ft
V_{fut} = 15.8 ac-ft
Q_{ex} = 160 cfs
Q_{fut} = 160 cfs

30"

JA16

EXISTING RUNOFF (JA16):
$Q_{ex\ 100}$ = 571 cfs

FUTURE RUNOFF (JA16):
$Q_{fut\ 100}$ = 571 cfs

HAYNES DRIVE

WARD STREET

GARFIELD STREET

JA14

MIDKIFF ROAD

JAL DRAW STATION 147+85
MAXWELL DRIVE CROSSING
6 - 10' X 6.3' CBC (existing)

EXISTING CHANNEL DISCHARGE
$Q_{ex\ 100}$ = 5914 cfs
FUTURE CHANNEL DISCHARGE
$Q_{fut\ 100}$ = 5818 cfs

JA17

EXISTING RUNOFF (JA17):
$Q_{ex\ 100}$ = 543 cfs

FUTURE RUNOFF (JA17):
$Q_{fut\ 100}$ = 554 cfs

EXISTING CHANNEL DISCHARGE
$Q_{ex\ 100}$ = 3933 cfs
FUTURE CHANNEL DISCHARGE
$Q_{fut\ 100}$ = 3934 cfs

JA20

54"

WADLEY AVENUE

24"

JAL DRAW STATION 124+30
WARD STREET CROSSING
BRIDGE (existing)

JA21

30"

JAL DRAW STATION 97+48
GARFIELD STREET CROSSING
7 - 8' X 8.7' CBC (existing)

JA22

36"

JAL DRAW STATION 73+10
NORTH "I" STREET CROSSING
4 - 12" DIA CMP (existing)

M137

EXISTING INFLOW (JA23):
$Q_{ex\ 100}$ = 97 cfs
$V_{ex\ 100}$ = 11.2 ac-ft

FUTURE INFLOW (JA23):
$Q_{fut\ 100}$ = 238 cfs
$V_{fut\ 100}$ = 21.4 ac-ft

JA23

LAKE (JA23):
BFE = 2797.2
L_{ex} = 39.6 ac-ft
L_{fut} = 45.9 ac-ft

OVERFLOW (JA23):
V_{ex} = 0.0 ac-ft
V_{fut} = 0.0 ac-ft
Q_{ex} = 0 cfs
Q_{fut} = 0 cfs

EXISTING INFLOW (JA24):
$Q_{ex\ 100}$ = 527 cfs
$V_{ex\ 100}$ = 92.3 ac-ft

LAKE (JA24):

FUTURE INFLOW (JA24):
$Q_{fut\ 100}$ = 1108 cfs
$V_{fut\ 100}$ = 148.3ac-ft

OVERFLOW (JA24):
V_{ex} = 92.3 ac-ft
V_{fut} = 70.9 ac-ft
Q_{ex} = 527 cfs
Q_{fut} = 178 cfs

BASIN JA24

JAL DRAW STATION 31+40
AIR PARK ROAD CROSSING
REMOVE EXISTING STRUCTURE

JA18

EXISTING INFLOW (JA18):
$Q_{ex\ 100}$ = 209 cfs
$V_{ex\ 100}$ = 55.7 ac-ft

FUTURE INFLOW (JA18):
$Q_{fut\ 100}$ = 501 cfs
$V_{fut\ 100}$ = 86.8 ac-ft

BASIN JA18

LAKE (JA18):
BFE = 2793.8
L_{ex} = 0.0 ac-ft
L_{fut} = 39.5 ac-ft

OVERFLOW (JA18):
V_{ex} = 55.7 ac-ft
V_{fut} = 47.3 ac-ft
Q_{ex} = 209 cfs
Q_{fut} = 112 cfs

JA24

SC12

NORTH "A" STREET

JOINS SECTION L36B

JOINS SECTION N36A

JOINS SECTION L36D

JOINS SECTION M36C

JOINS SECTION M36D

JOINS SECTION N36C

SECTION M36A

SECTION M36B

0 200' 400' 800' 1600'

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CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
SECTION MAP

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FIGURE 3-20

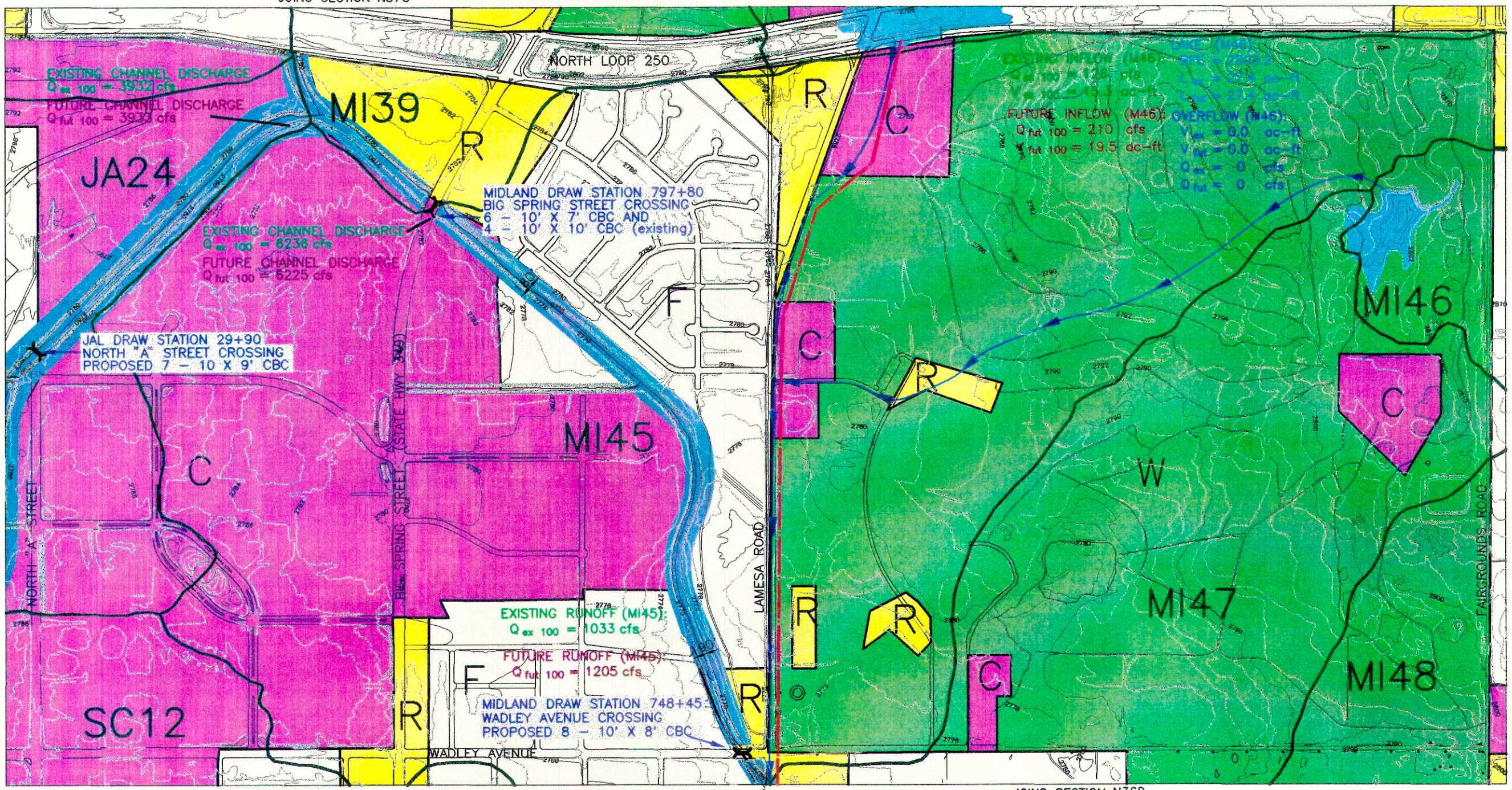
M36AB 2/16/9 RSK

JOINS SECTION M37D

JOINS SECTION N37C

JOINS SECTION N37D

JOINS SECTION P37C



JOINS SECTION M36B

JOINS SECTION P36A

JOINS SECTION M36D

JOINS SECTION N36C

JOINS SECTION N36D

JOINS SECTION P36C

SECTION N36A

SECTION N36B

0 200' 400' 800' 1600'

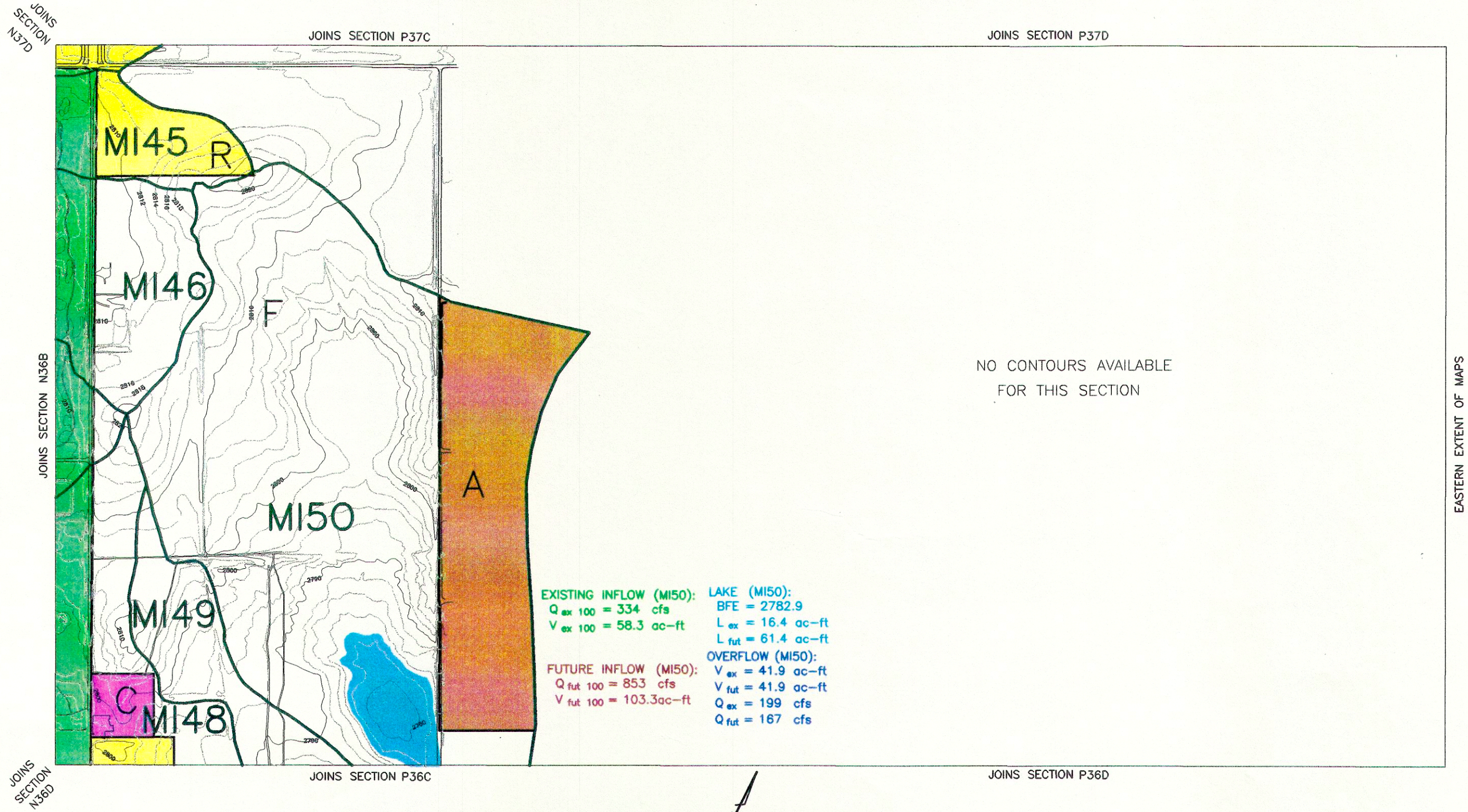
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CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
SECTION MAP

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FIGURE 3-21

N36AB 2/16/ 5 RSK



SECTION P36A

SECTION P36B

0 200' 400' 800' 1600'

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FIGURE 3-22

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
SECTION MAP

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P36AB 8/16/ 5 RSK

JOINS SECTION M36B

JOINS SECTION N36A

JOINS SECTION N36B

JOINS SECTION P36A

JOINS SECTION M36D

JOINS SECTION P36C

JOINS SECTION M35B

JOINS SECTION N35A

JOINS SECTION N35B

JOINS SECTION P35A

WADLEY AVE.

NEELY DRIVE

SCHARBAUER DRIVE

GOLF COURSE ROAD

BIG SPRING STREET

LAMESA ROAD

MAIN STREET

JACKSON STREET

FAIRGROUNDS ROAD

SC12

SC13

SC14

MI45

MI47

MI48

EXISTING CHANNEL DISCHARGE
$Q_{ex\ 100}$ = 6224 cfs

FUTURE CHANNEL DISCHARGE
$Q_{fut\ 100}$ = 6289 cfs

EXISTING RUNOFF (SC13):
$Q_{ex\ 100}$ = 586 cfs

FUTURE RUNOFF (SC13):
$Q_{fut\ 100}$ = 586 cfs

EXISTING RUNOFF (MI47):
$Q_{ex\ 100}$ = 800 cfs

FUTURE RUNOFF (MI47):
$Q_{fut\ 100}$ = 800 cfs

MIDLAND DRAW STATION 744+60
LAMESA ROAD CROSSING
8 – 10' X 7.9' CBC (existing)

MIDLAND DRAW STATION 715+70
OAK AVENUE CROSSING
PROPOSED 5 – 10' X 5.3' CBC
AND 1 – 10' X 8' CBC

EXISTING RUNOFF (MI48):
$Q_{ex\ 100}$ = 1161 cfs

FUTURE RUNOFF (MI48):
$Q_{fut\ 100}$ = 1338 cfs

SCHARBAUER CHANNEL STATION 39+25
BIG SPRING STREET CROSSING
5 – 8' X 8.2' CBC (existing)

SCHARBAUER CHANNEL STATION 31+90
MAIN STREET CROSSING
5 – 9' X 4.9' CBC (existing)

SCHARBAUER CHANNEL STATION 11+40
LAMESA ROAD CROSSING
5 – 9' X 4.6' CBC (existing)

MIDLAND DRAW STATION 701+70
SCHARBAUER DRIVE CROSSING (NORTH)
5 – 10' X 6' CBC AND
1 – 10' X 6.5' CBC

MIDLAND DRAW STATION 700+80
SCHARBAUER DRIVE CROSSING (SOUTH)
8 – 10' X 6' CBC (existing)

EXISTING RUNOFF (SC14):
$Q_{ex\ 100}$ = 1185 cfs

FUTURE RUNOFF (SC14):
$Q_{fut\ 100}$ = 1185 cfs

EXISTING CHANNEL DISCHARGE
$Q_{ex\ 100}$ = 8404 cfs

FUTURE CHANNEL DISCHARGE
$Q_{fut\ 100}$ = 9499 cfs

MIDLAND DRAW STATION 687+10
JACKSON STREET CROSSING
PROPOSED 10 – 10' X 6.5' CBC

SECTION N36C

SECTION N36D

0 200' 400' 800' 1600'

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CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
SECTION MAP

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FIGURE 3–23

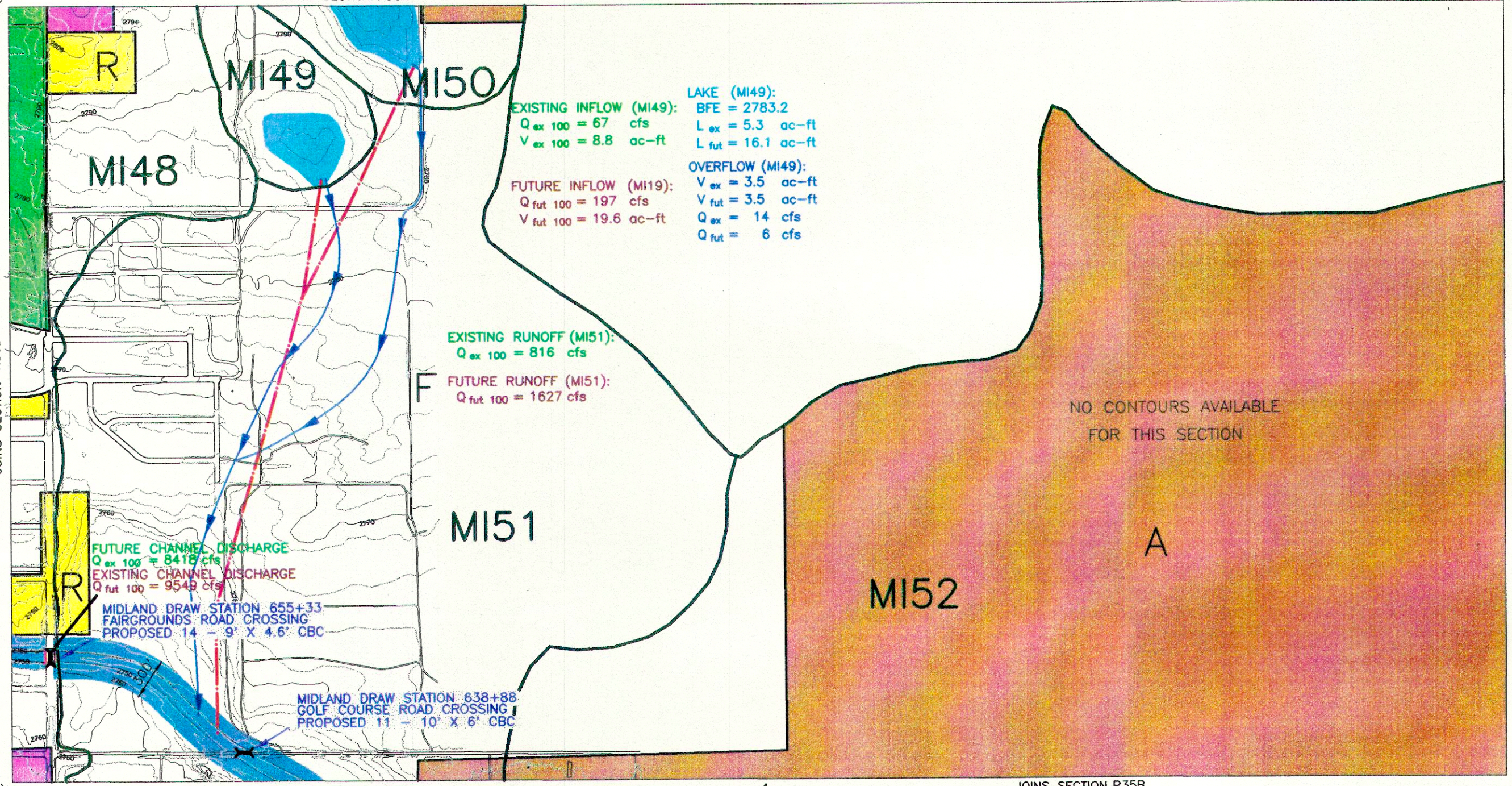
N36CD 2/16/9 0 RSK

JOINS SECTION N36B

JOINS SECTION P36A

JOINS SECTION P36B

JOINS SECTION N36D



JOINS SECTION N35B

JOINS SECTION P35A

JOINS SECTION P35B

SECTION P36C

SECTION P36D

0 200' 400' 800' 1600'

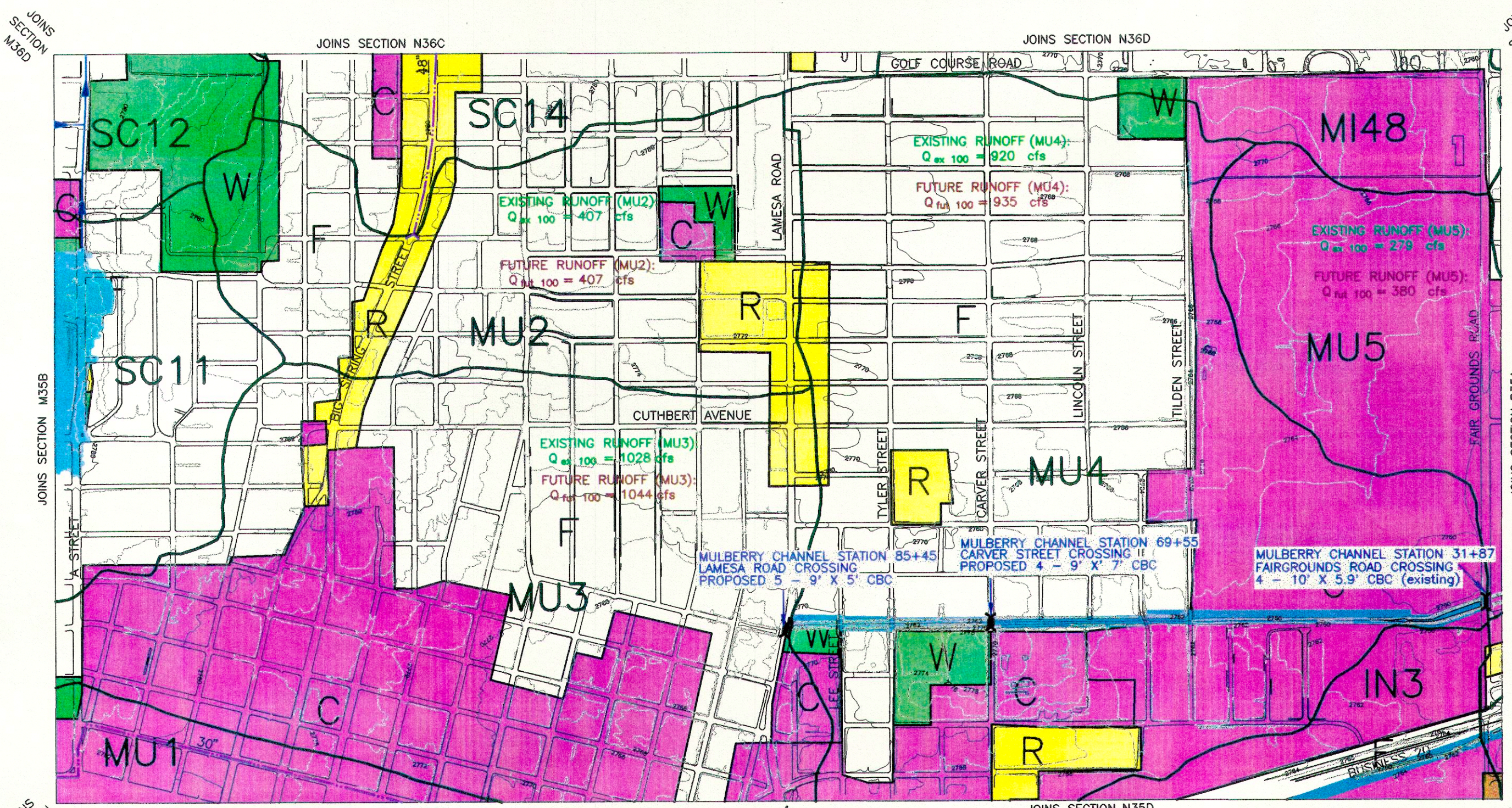
NOTE: REFER TO THE LEGEND SHEET AT THE FRONT OF THIS PUBLICATION FOR AN EXPLANATION OF ALL ABBREVIATIONS, LABELS, LINETYPES, COLORS AND SYMBOLS.

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
SECTION MAP

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

FIGURE 3-24

36CD 2/16/ 0 RSK



SECTION N35A

SECTION N35B

0 200' 400' 800' 1600'

NOTE: REFER TO THE LEGEND SHEET AT THE FRONT OF THIS PUBLICATION FOR AN EXPLANATION OF ALL ABBREVIATIONS, LABELS, LINETYPES, COLORS AND SYMBOLS.

FIGURE 3-25

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
SECTION MAP

Parkhill, Smith & Cooper, Inc.
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JOINS SECTION N36C

JOINS SECTION P36C

JOINS SECTION P36D

JOINS SECTION N35B

EASTERN EXTENT OF MAPS

MI51

F

A

MI52

A

EXISTING CHANNEL DISCHARGE
$Q_{ex\ 100}$ = 9398 cfs
FUTURE CHANNEL DISCHARGE
$Q_{fut\ 100}$ = 11,07 cfs

EXISTING RUNOFF (MI52):
$Q_{ex\ 100}$ = 1245 cfs
FUTURE RUNOFF (MI52):
$Q_{fut\ 100}$ = 1280 cfs

NO CONTOURS AVAILABLE
FOR THIS SECTION

300'

W

FAIRGROUNDS ROAD

CHUKAR LANE

F

MU5

C

EXISTING CHANNEL DISCHARGE
$Q_{ex\ 100}$ = 10,074 cfs
FUTURE CHANNEL DISCHARGE
$Q_{fut\ 100}$ = 11,843 cfs

S019

A

EXISTING RUNOFF (S019):
$Q_{ex\ 100}$ = 702 cfs
FUTURE RUNOFF (S019):
$Q_{fut\ 100}$ = 727 cfs

S018

COUONTY ROAD 1160

BUSINESS 20

R

EXISTING RUNOFF (IN4):
$Q_{ex\ 100}$ = 282 cfs
FUTURE RUNOFF (IN4):
$Q_{fut\ 100}$ = 317 cfs

C

IN4

INDUSTRIAL CHANNEL STATION 34+10
FAIRGROUNDS ROAD CROSSING
1 – 8.5' X 6' CBC (existing)

COUNTY ROAD 90

JOINS SECTION N35D

JOINS SECTION P35C

JOINS SECTION P35D

SECTION P35A

SECTION P35B

0 200' 400' 800' 1600'

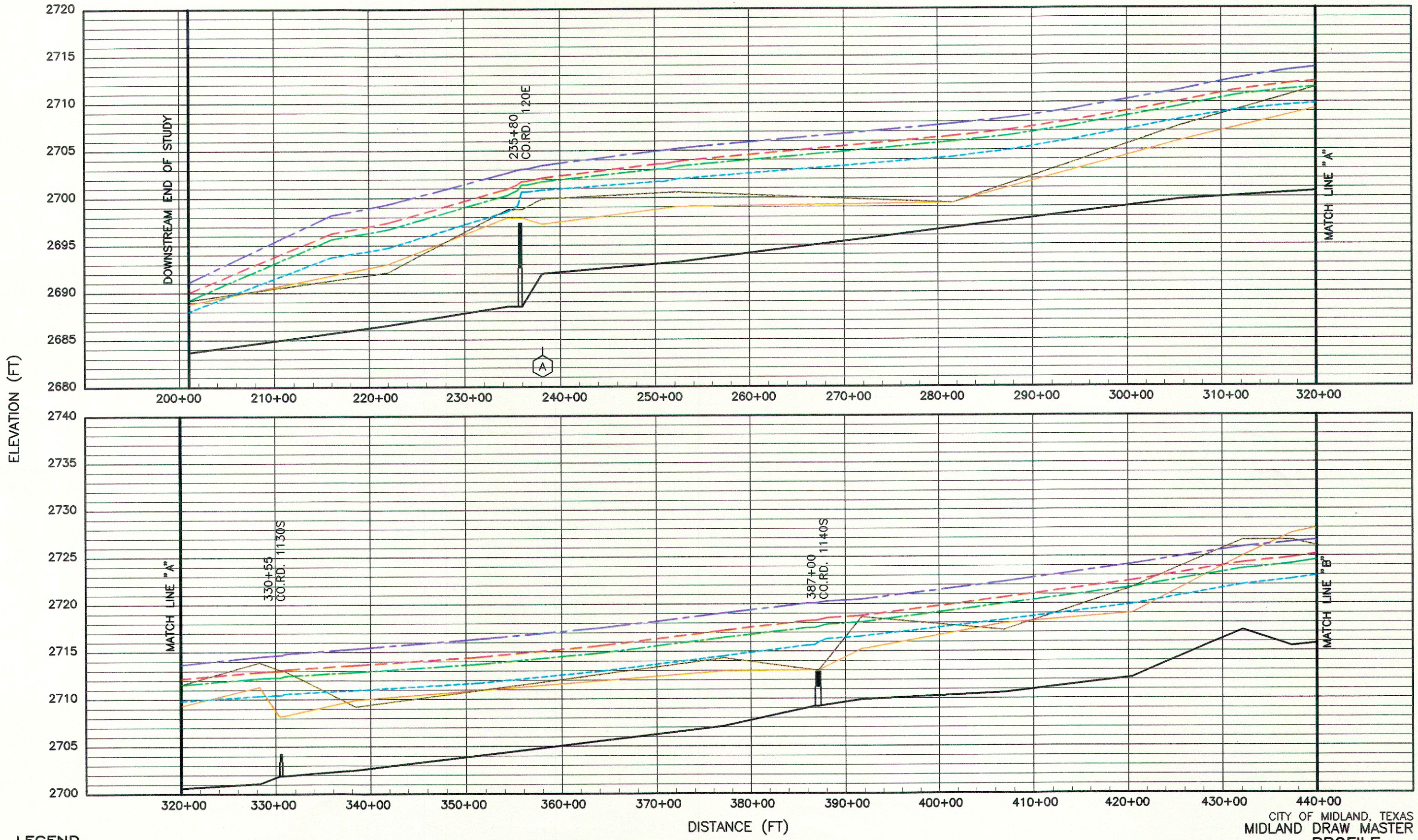
NOTE: REFER TO THE LEGEND SHEET AT THE FRONT OF THIS PUBLICATION FOR AN EXPLANATION OF ALL ABBREVIATIONS, LABELS, LINETYPES, COLORS AND SYMBOLS.

FIGURE 3–26

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
SECTION MAP

Parkhill, Smith & Cooper, Inc.
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P35AB 8/17/9 0 JLC



LEGEND

INVERT		10-YEAR	
LEFT BANK		50-YEAR	
RIGHT BANK		100-YEAR	
CROSS SECTION LOCATION	(A)	500-YEAR	

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
PROFILE

MIDLAND DRAW
STATION 200+00 TO STATION 440+00

FIGURE 3-27

SCALE:
V: 1" = 10'
H: 1" = 1000'

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MID-PRF 2/19/00 RSK

ELEVATION (FT)

2755
2750
2745
2740
2735
2730
2725
2720
2715

MATCH LINE "B" (SEE FIGURE 3-27)

466+05 CO.RD. 1150

502+65 INTERSTATE HIGHWAY 20 3 — 6'X4' CBC EXISTING

512+85 CO.RD. 90

MATCH LINE "C"

440+00 450+00 460+00 470+00 480+00 490+00 500+00 510+00 520+00 530+00 540+00 550+00 560+00

2770
2765
2760
2755
2750
2745
2740
2735
2730

MATCH LINE "C"

591+50 TEXAS & PACIFIC RR BRIDGE

592+90 U.S. HIGHWAY 80 12 — 8'X7' CBC (SOUTH LANES) EXISTING 8 — 8'X7' CBC & 6 — 6'X5' CBC (NORTH LANES) EXISTING

MULBERRY CHANNEL CONFLUENCE AT STATION 608+50

638+88 GOLF COURSE ROAD 11 — 10'X6' CBC PROPOSED

655+33 FAIRGROUNDS ROAD 14 — 9'X4.6' CBC PROPOSED

MATCH LINE "D"

560+00 570+00 580+00 590+00 600+00 610+00 620+00 630+00 640+00 650+00 660+00 670+00 680+00

DISTANCE (FT)

A B C D E F G H I J

CITY OF MIDLAND, TEXAS

MIDLAND DRAW MASTER PLAN
PROFILE

LEGEND

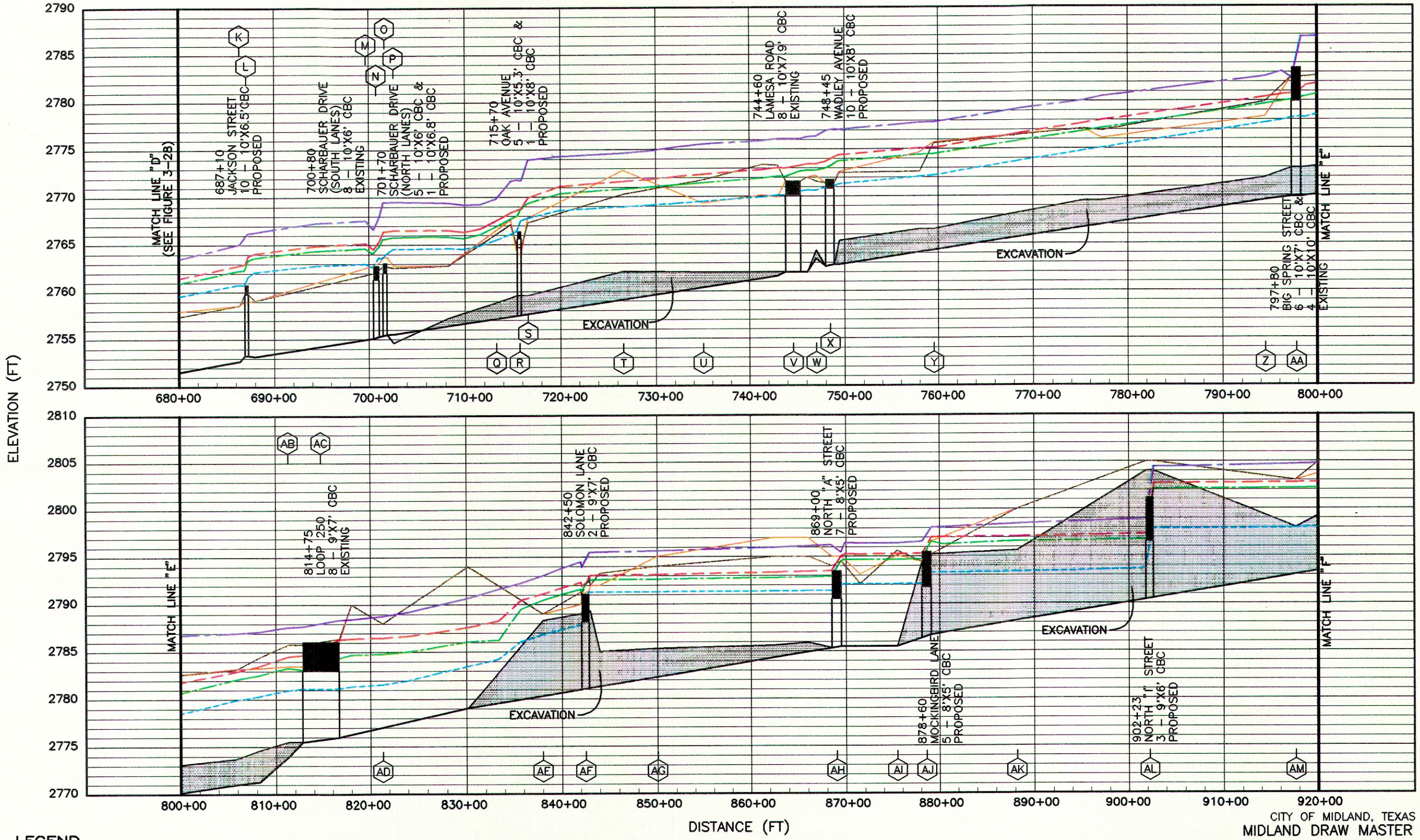
INVERT		10-YEAR	
LEFT BANK		50-YEAR	
RIGHT BANK		100-YEAR	
CROSS SECTION LOCATION	A	500-YEAR	

MIDLAND DRAW
STATION 440+00 TO STATION 680+00
FIGURE 3-28

SCALE:
V: 1" = 10'
H: 1" = 1000'

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MID-PRF 2/19/ 00 RSK



LEGEND

INVERT		10-YEAR	
LEFT BANK		50-YEAR	
RIGHT BANK		100-YEAR	
CROSS SECTION LOCATION	A	500-YEAR	

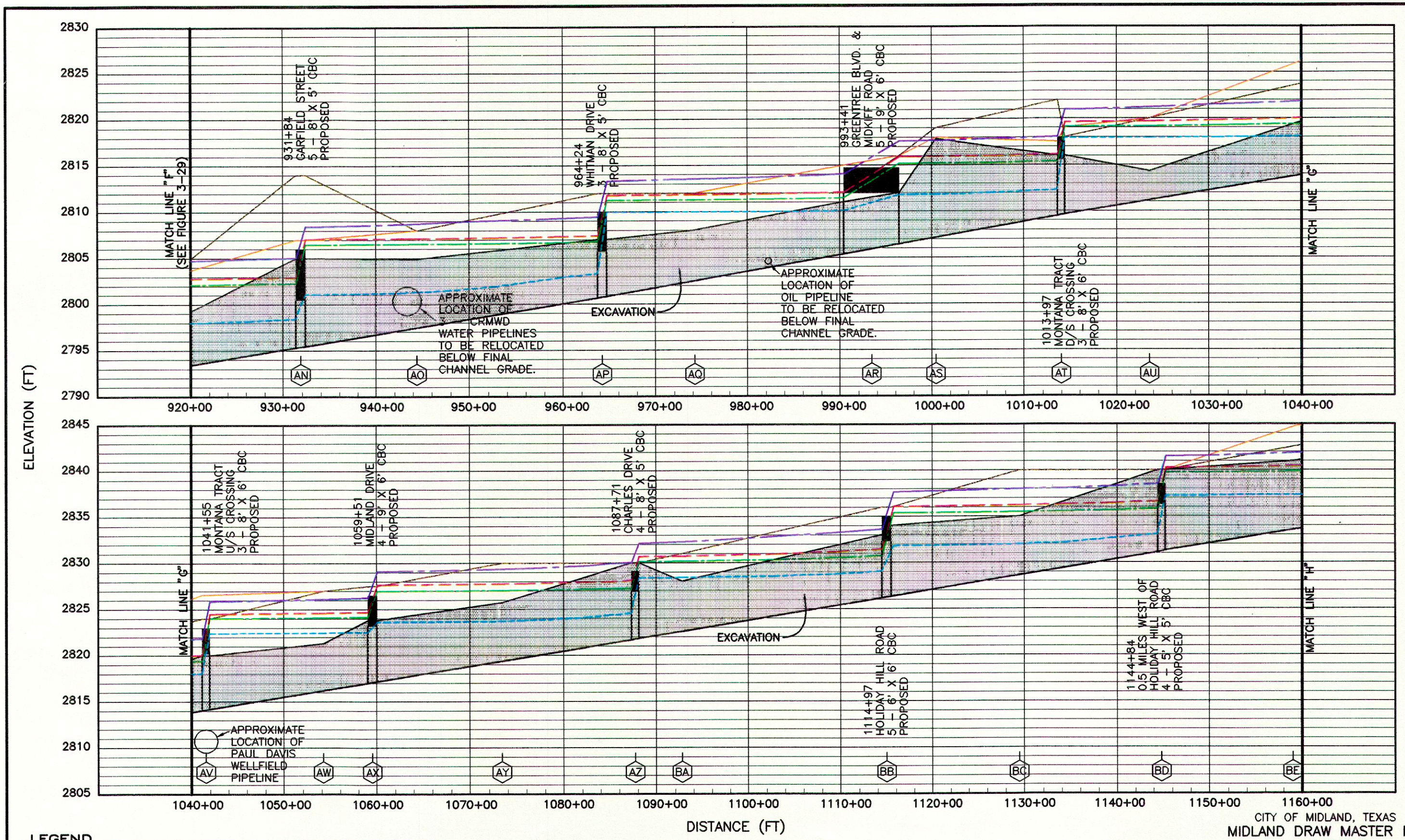
MIDLAND DRAW
STATION 680+00 TO STATION 920+00
FIGURE 3-29

SCALE:
V: 1" = 10'
H: 1" = 1000'

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
PROFILE

Parkhill, Smith & Cooper, Inc.
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MID-PRF 2/19/ RSK



LEGEND

INVERT		10-YEAR	
LEFT BANK		50-YEAR	
RIGHT BANK		100-YEAR	
CROSS SECTION LOCATION	A	500-YEAR	

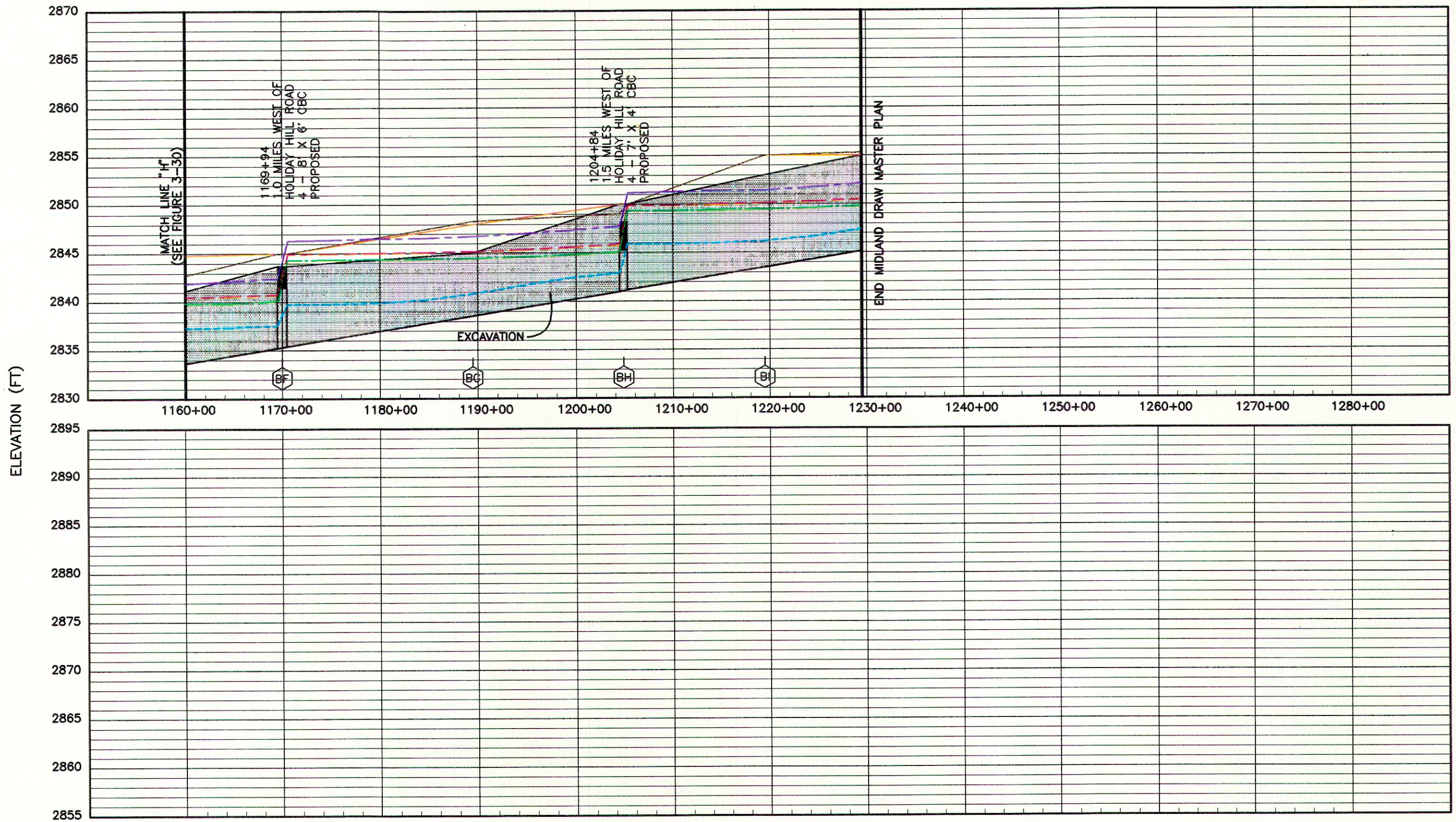
MIDLAND DRAW
STATION 920+00 TO STATION 1160+00
FIGURE 3-30

SCALE:
V: 1" = 10'
H: 1" = 1000'

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
PROFILE

Parkhill, Smith & Cooper, Inc.
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MID-PRF 2/16/00 RSK



LEGEND

INVERT	———	10-YEAR	- - - - -
LEFT BANK	———	50-YEAR	— · — · —
RIGHT BANK	———	100-YEAR	— — — —
CROSS SECTION LOCATION	(A)	500-YEAR	— - — - —

MIDLAND DRAW
STATION 1160+00 TO STATIOM 1229+44
FIGURE 3-31

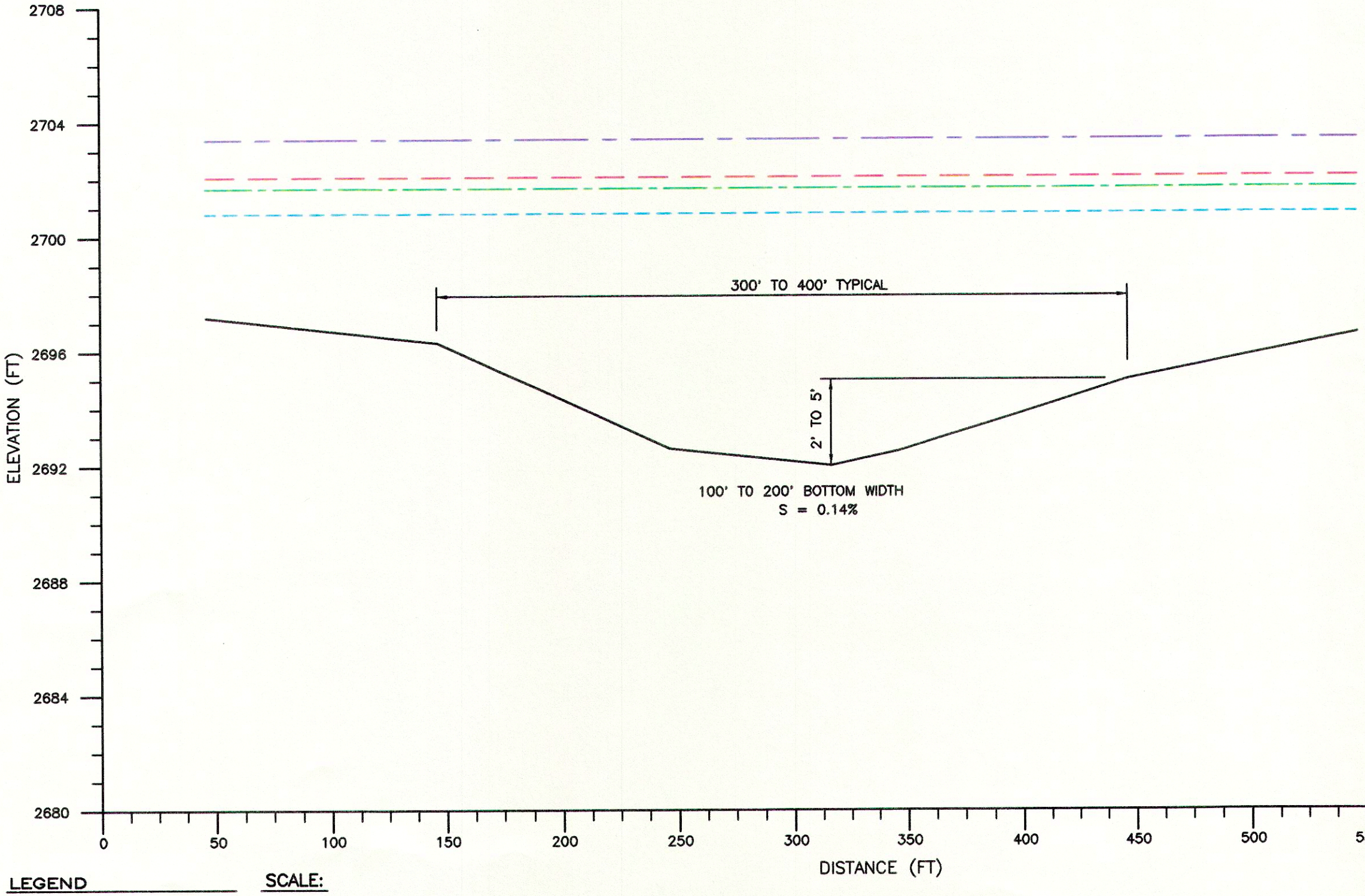
SCALE:
V: 1"= 10'
H: 1"= 1000'

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
PROFILE

PSC Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

MID-PRF 2/19/00 RSK

CROSS SECTION A
STATION 238+10



IMPROVEMENTS RECOMMENDED

1. NONE

FL ELEVATION AT 201+00 = 2683.70
FL ELEVATION AT 502+65 = 2725.30

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1"= 4'
H: 1"= 50'

DOWNSTREAM END OF STUDY TO INTERSTATE HIGHWAY 20
STATION 201+00 TO STATION 502+65

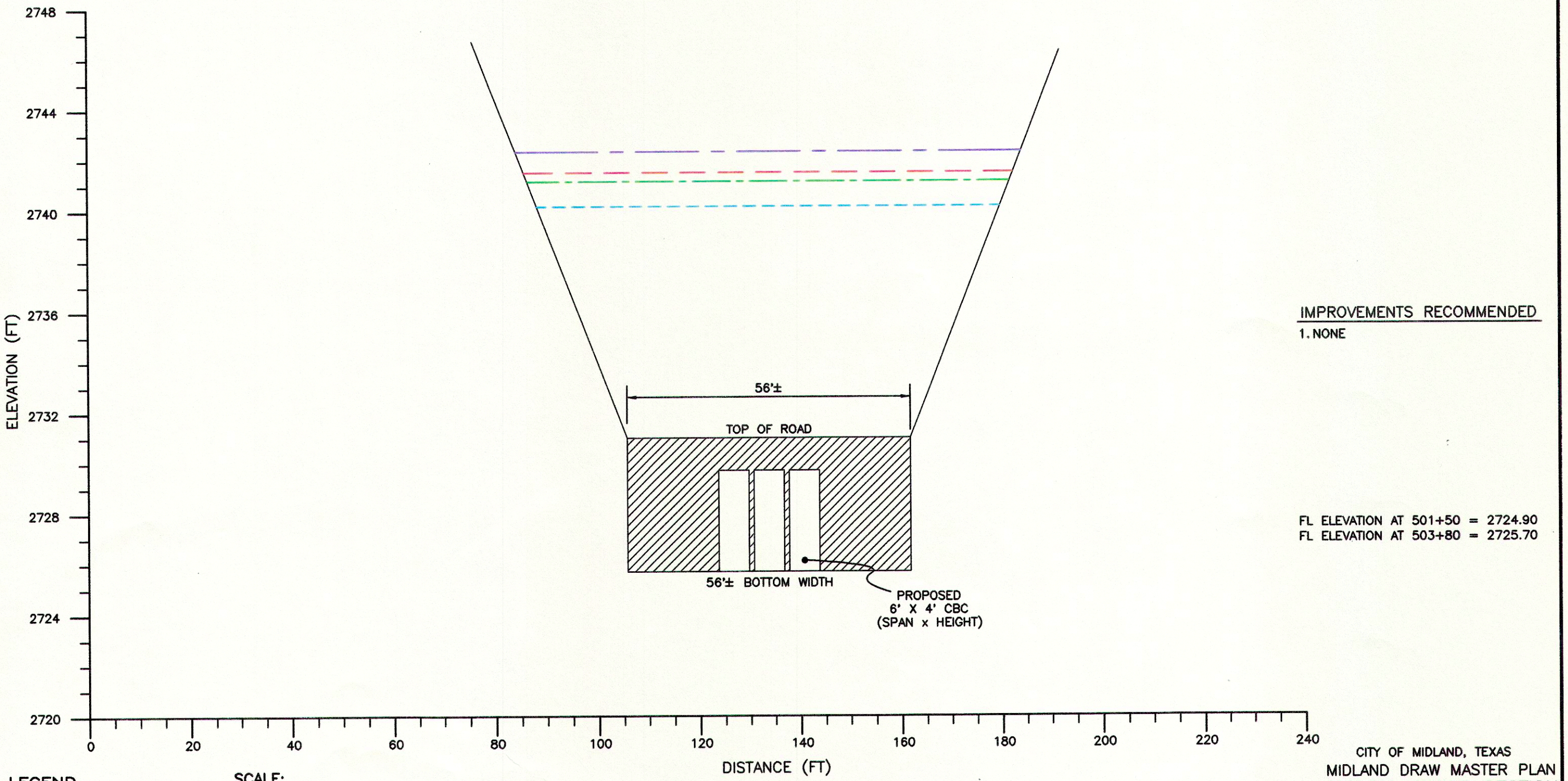
FIGURE 3-32

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

23810 3/22/[illegible] 8.00 RSK

CROSS SECTION B
STATION 502+65



IMPROVEMENTS RECOMMENDED

1. NONE

FL ELEVATION AT 501+50 = 2724.90
FL ELEVATION AT 503+80 = 2725.70

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 20'

INTERSTATE HIGHWAY 20 CROSSING

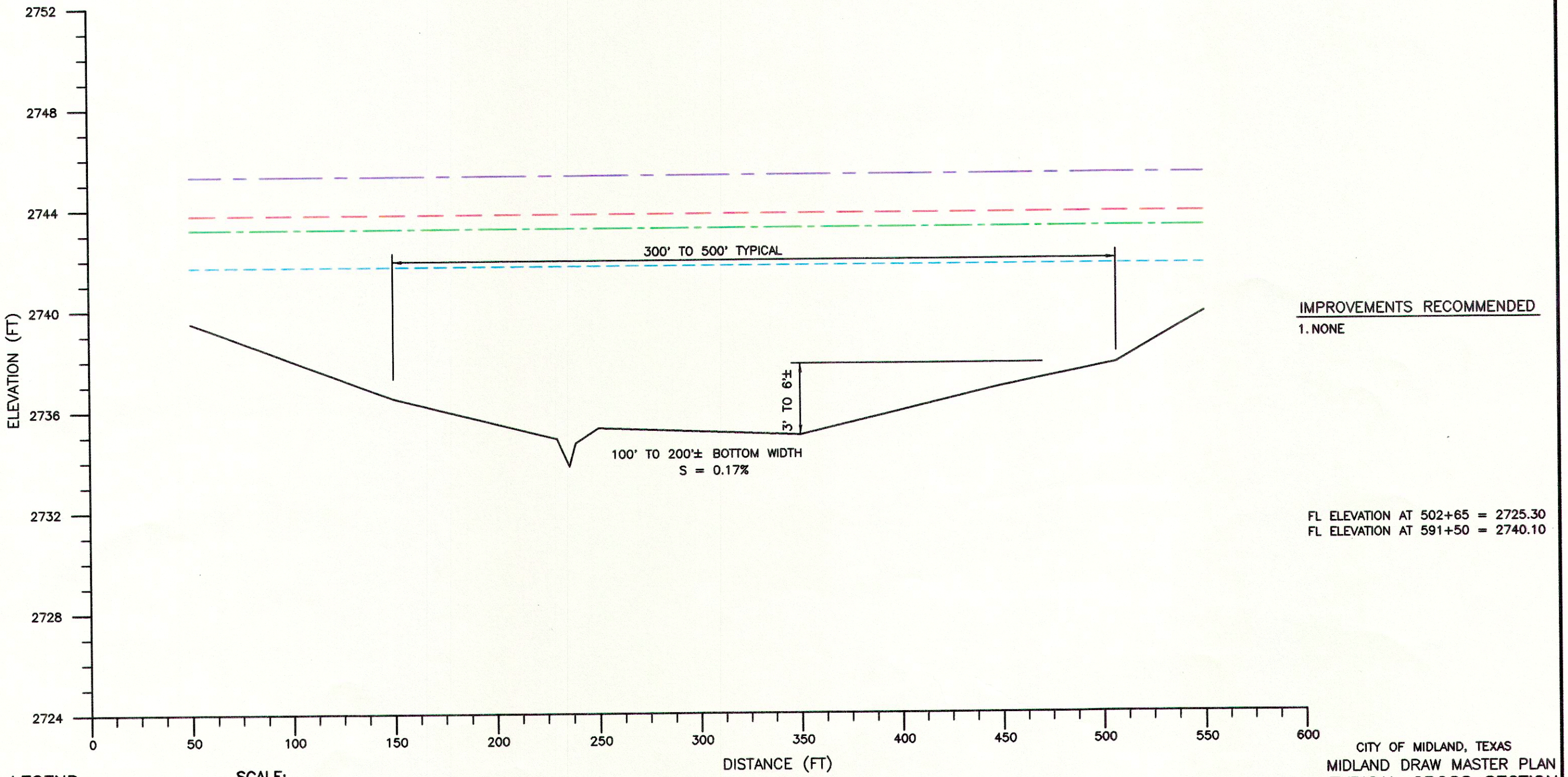
FIGURE 3-33

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

502+65 3/22/96 RSK 9.00

CROSS SECTION C
STATION 560+40



IMPROVEMENTS RECOMMENDED

1. NONE

FL ELEVATION AT 502+65 = 2725.30
FL ELEVATION AT 591+50 = 2740.10

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

INTERSTATE HIGHWAY 20 TO TEXAS & PACIFIC RAILROAD BRIDGE
STATION 502+65 TO STATION 591+50

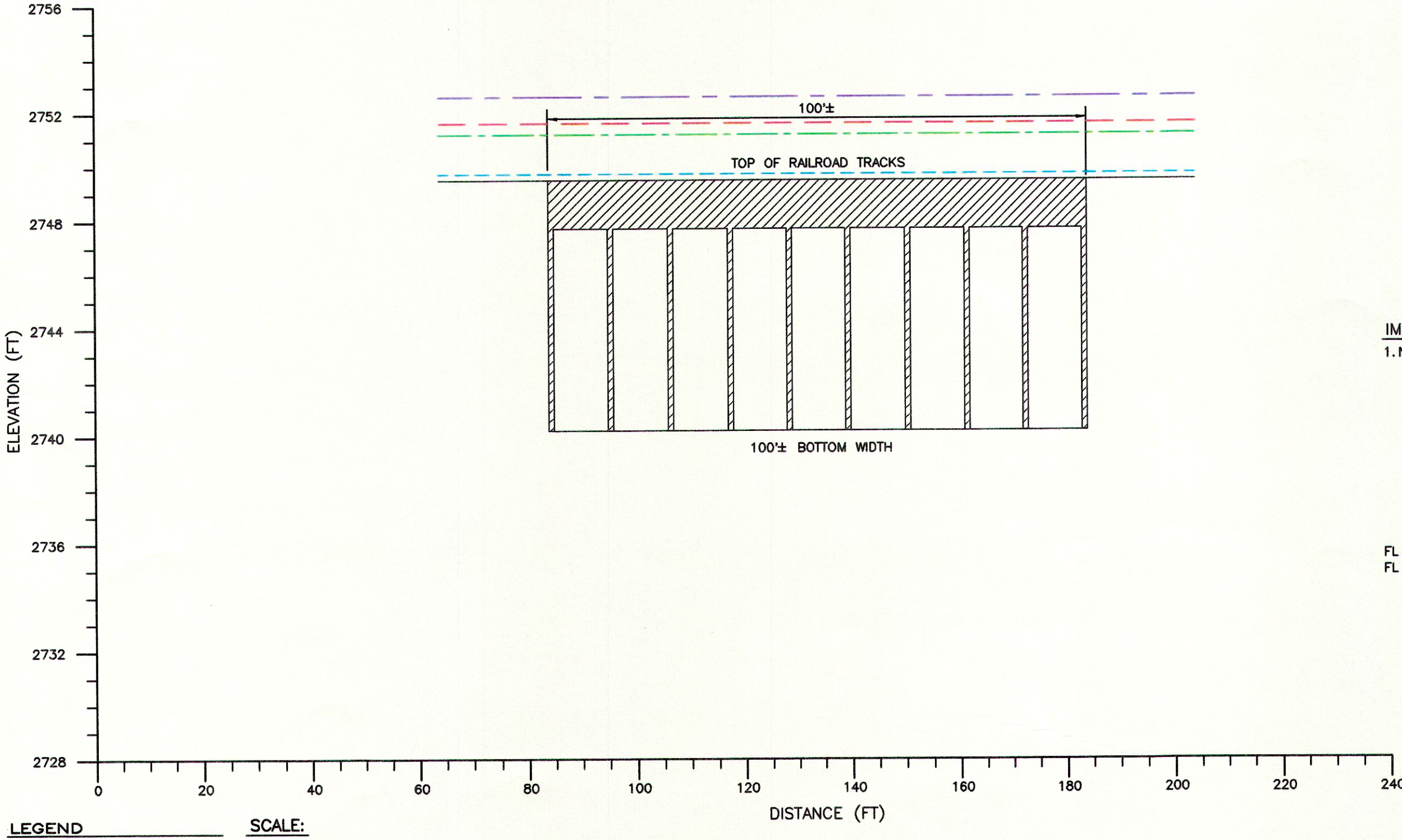
FIGURE 3-34

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

560+40 3/22/05 8.00 RSK

CROSS SECTION D
STATION 591+50



IMPROVEMENTS RECOMMENDED

1. NONE

FL ELEVATION AT 591+40 = 2740.00
FL ELEVATION AT 591+60 = 2740.20

LEGEND

- INVERT
- 10–YEAR
- 50–YEAR
- 100–YEAR
- 500–YEAR

SCALE:

V: 1" = 4'
H: 1" = 20'

TEXAS & PACIFIC RAILROAD BRIDGE

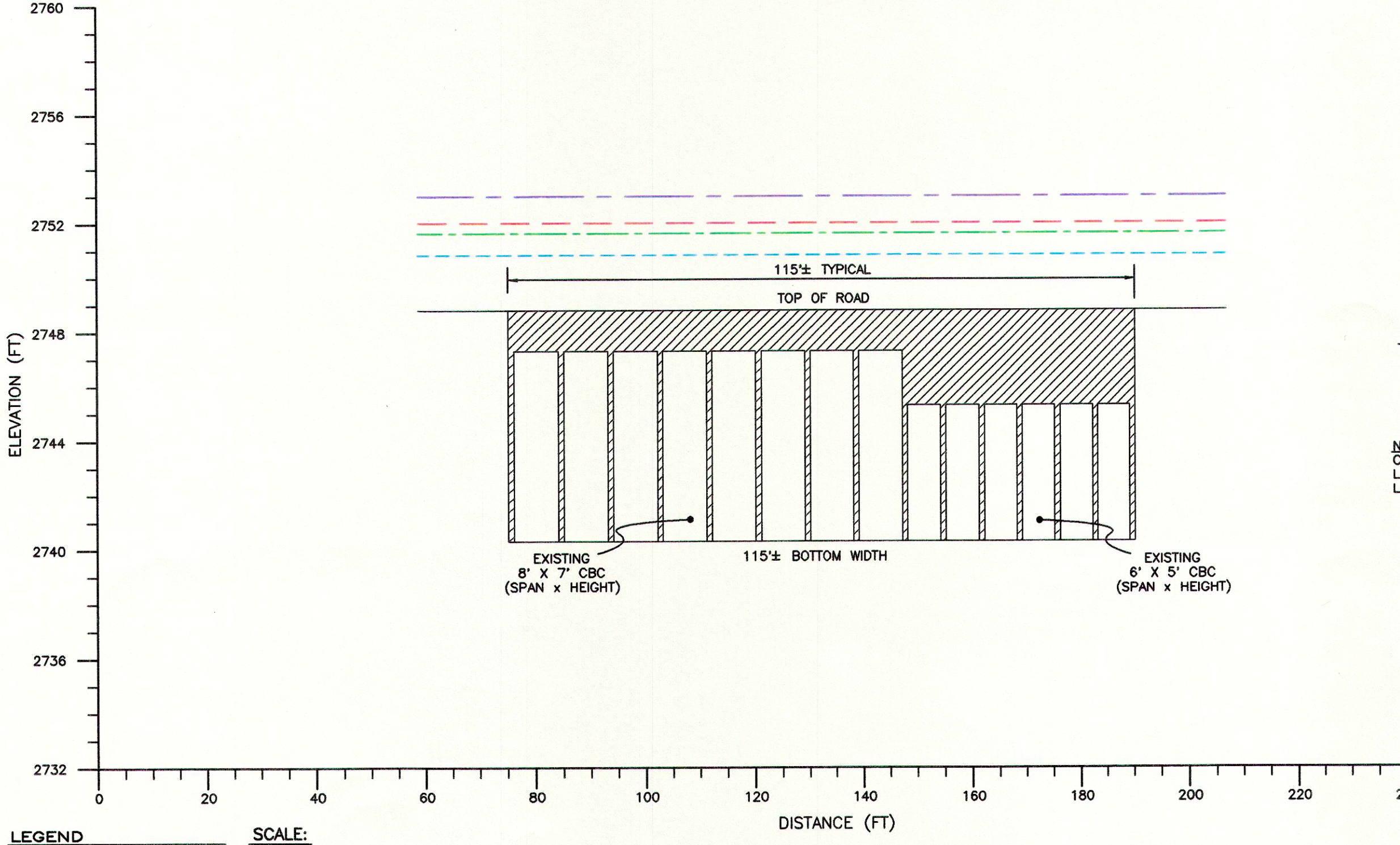
FIGURE 3–35

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

59150 3/21/06 8.00 RSK

CROSS SECTION E
STATION 592+90



IMPROVEMENTS RECOMMENDED

1. NONE

NOTE:
CROSSING SHOWN IS FOR NORTH TRAFFIC LANES. CROSSING FOR SOUTH TRAFFIC LANES HAS 12 – 8' X 7' CBC'S.

FL ELEVATION AT 592+50 = 2740.20
FL ELEVATION AT 593+30 = 2740.30

LEGEND

- INVERT
- 10–YEAR
- 50–YEAR
- 100–YEAR
- 500–YEAR

SCALE:

V: 1" = 4'
H: 1" = 20'

U.S. HIGHWAY 80 CROSSING

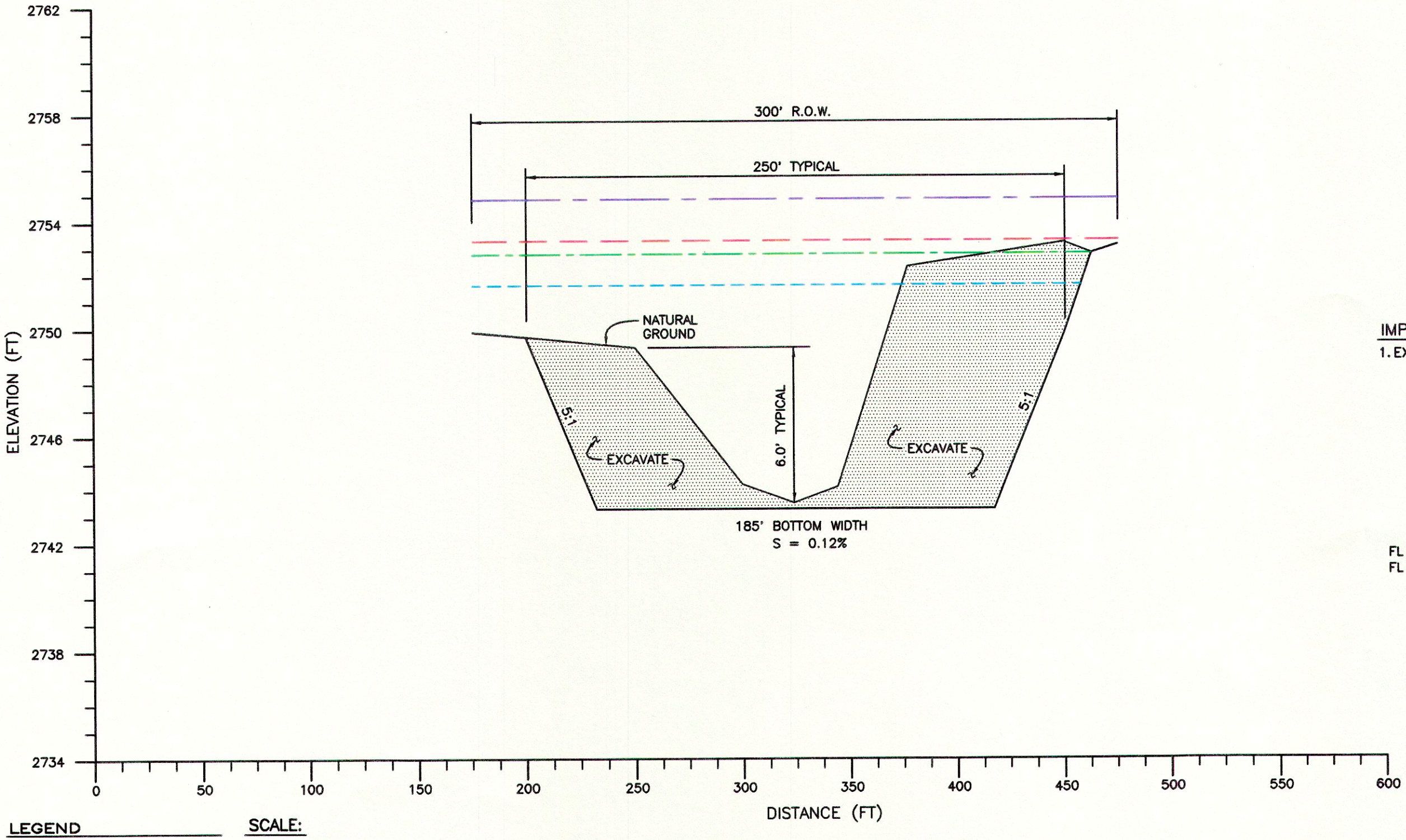
FIGURE 3–36

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

59290 3/22/05 8.00 RSK

CROSS SECTION F
STATION 618+60



IMPROVEMENTS RECOMMENDED

1. EXCAVATE CHANNEL

FL ELEVATION AT 592+90 = 2740.25
FL ELEVATION AT 638+88 = 2745.00

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

U.S. HIGHWAY 80 TO GOLF COURSE ROAD
STATION 592+90 TO STATION 638+88

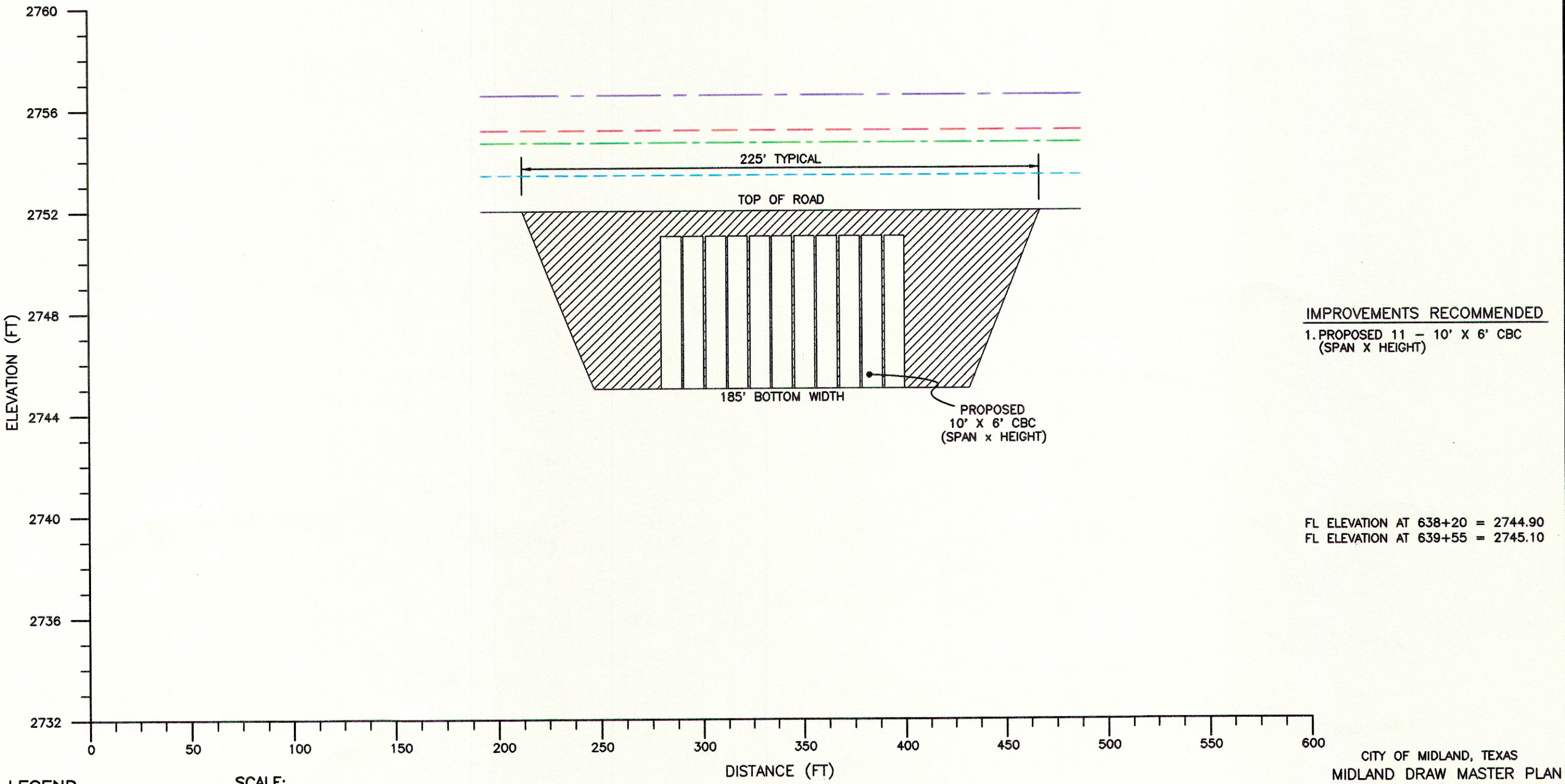
FIGURE 3-37

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

61590 2/20/96 11:30 RSK

CROSS SECTION G
STATION 638+88



IMPROVEMENTS RECOMMENDED

1. PROPOSED 11 – 10' X 6' CBC (SPAN X HEIGHT)

FL ELEVATION AT 638+20 = 2744.90
FL ELEVATION AT 639+55 = 2745.10

LEGEND

- INVERT
- 10–YEAR
- 50–YEAR
- 100–YEAR
- 500–YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

GOLF COURSE ROAD CROSSING

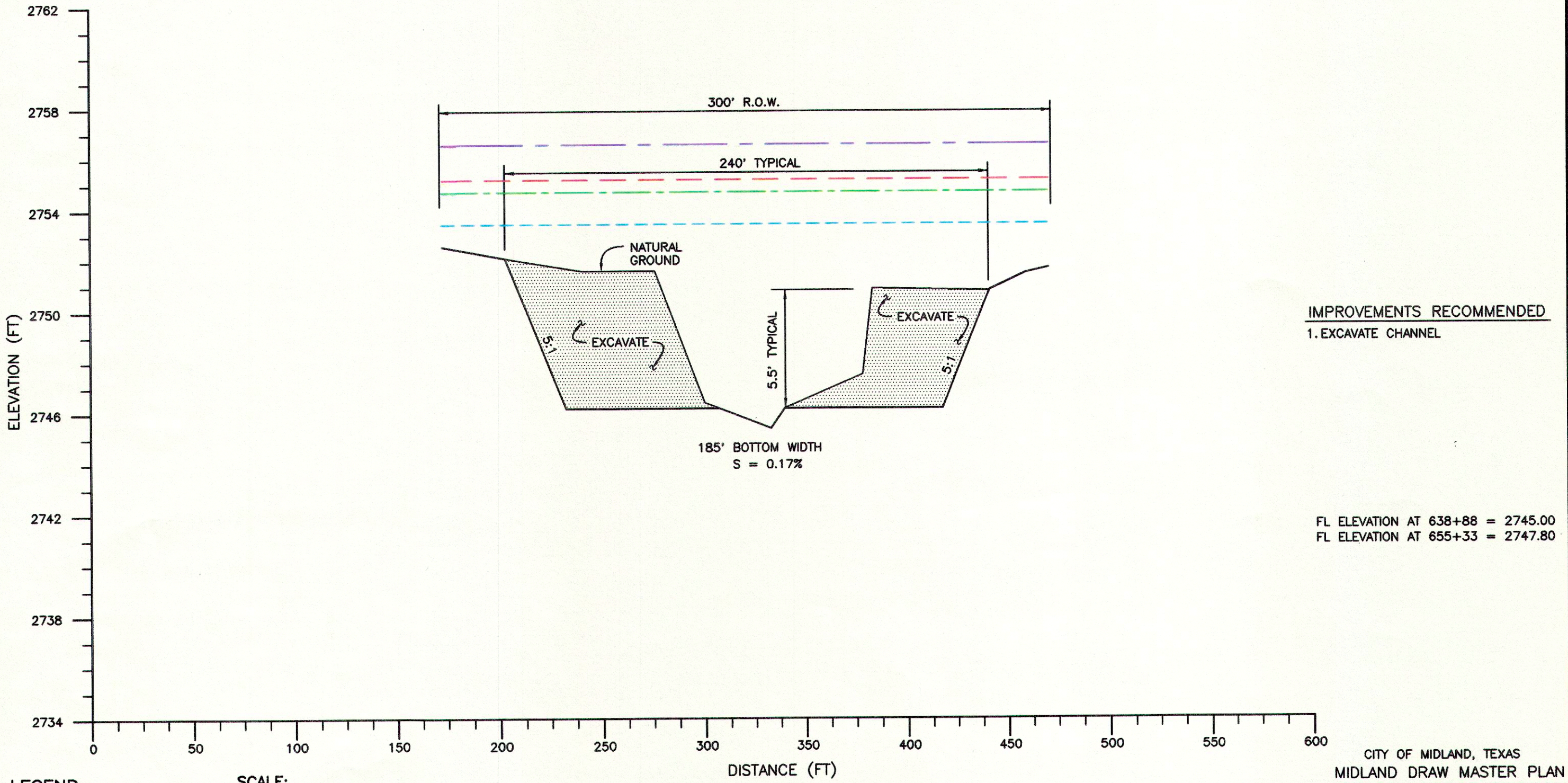
FIGURE 3–38

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

63888 3/22/95 8.30 RSK

CROSS SECTION H
STATION 642+70



IMPROVEMENTS RECOMMENDED

1. EXCAVATE CHANNEL

FL ELEVATION AT 638+88 = 2745.00
FL ELEVATION AT 655+33 = 2747.80

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

GOLF COURSE ROAD TO FAIRGROUNDS ROAD
STATION 638+88 TO STATION 655+33

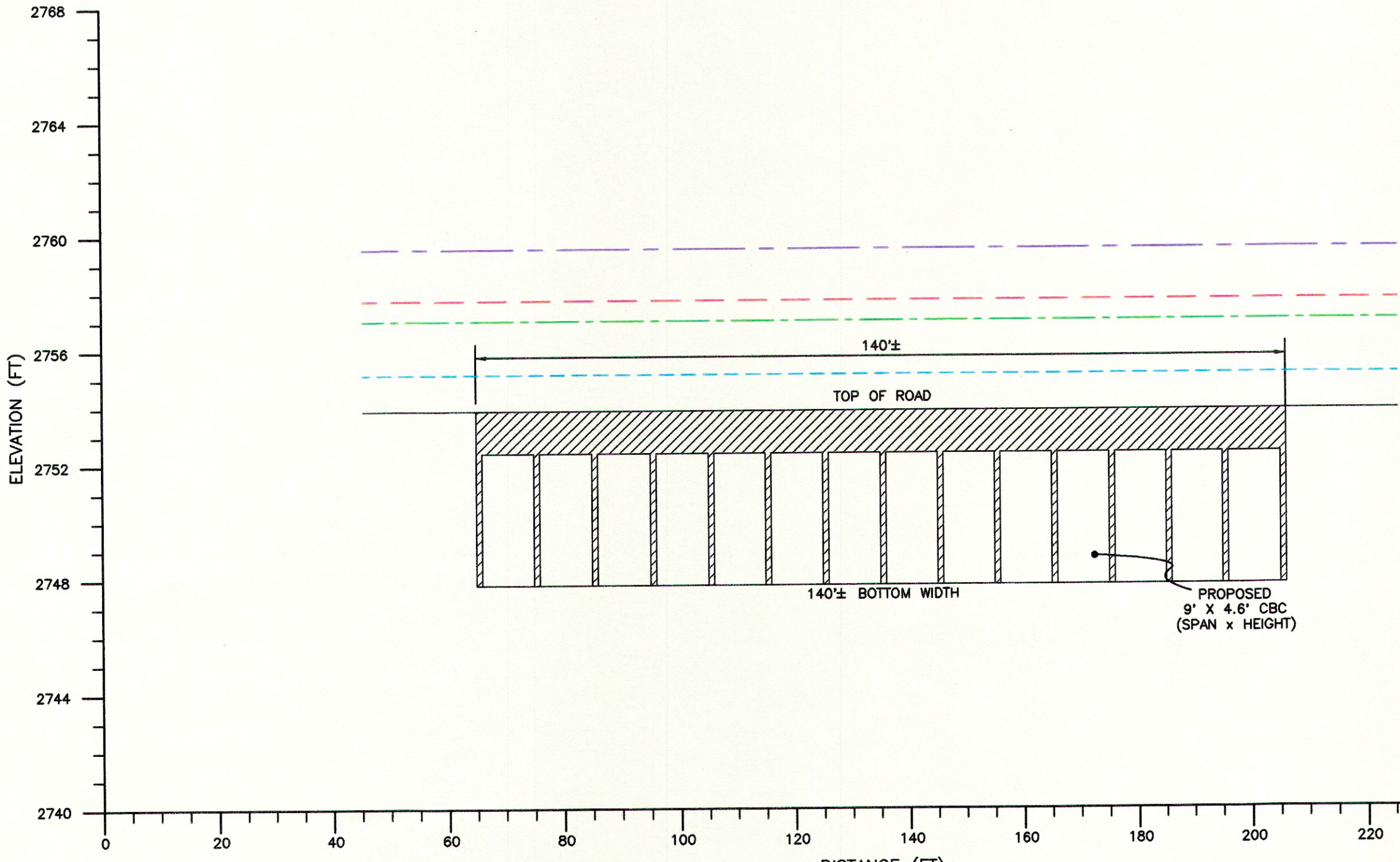
FIGURE 3-39

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

642'0 3/22/95 8.30 RSK

CROSS SECTION I
STATION 655+33



IMPROVEMENTS RECOMMENDED

1. PROPOSED 14 – 9' X 4.6' CBC (SPAN X HEIGHT)

FL ELEVATION AT 654+95 = 2747.80
FL ELEVATION AT 655+70 = 2747.80

LEGEND

- INVERT
- 10–YEAR
- 50–YEAR
- 100–YEAR
- 500–YEAR

SCALE:

V: 1" = 4'
H: 1" = 20'

FAIRGROUNDS ROAD CROSSING

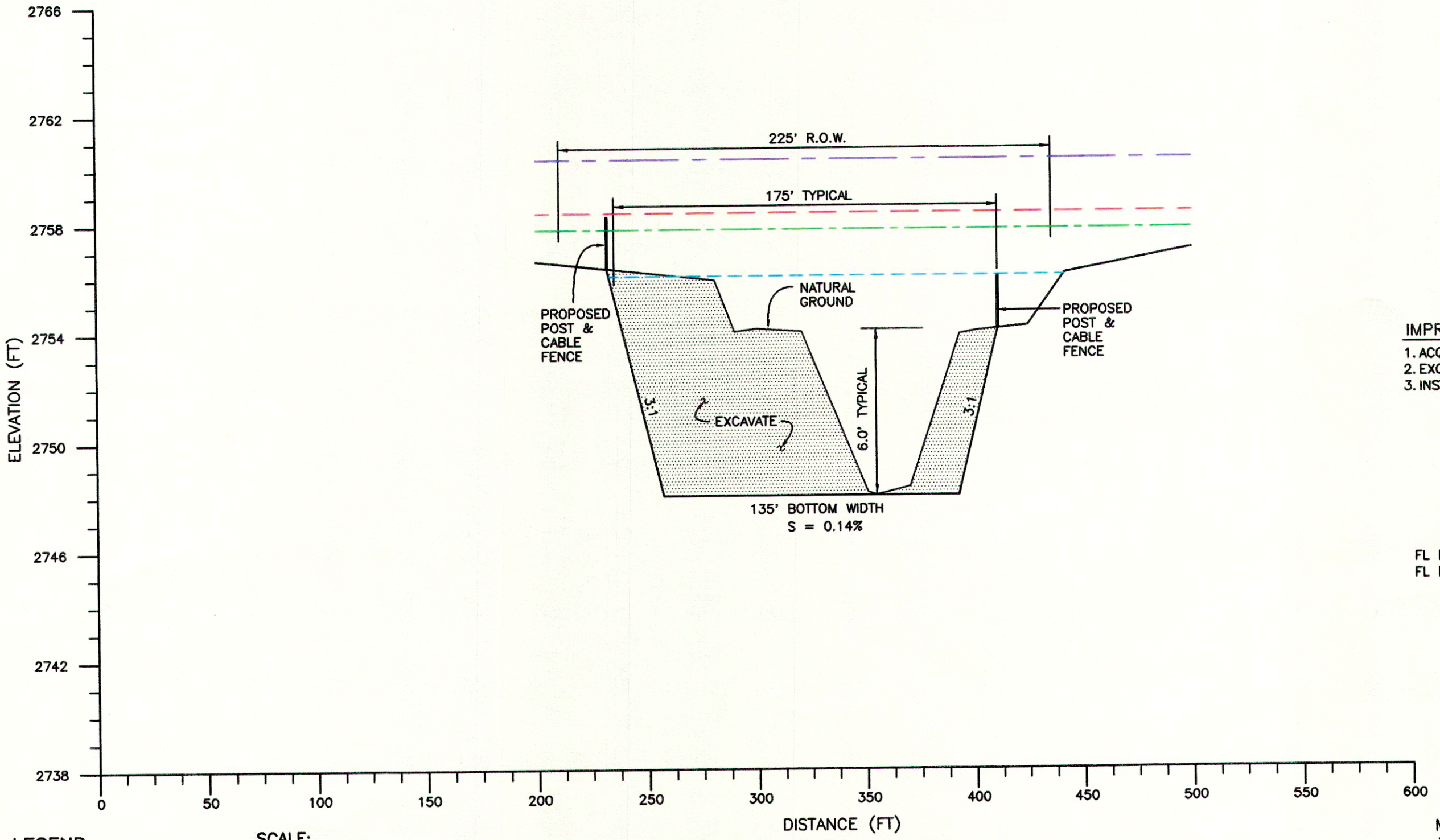
FIGURE 3–40

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

65513 2/20/98 2:00 RSK

CROSS SECTION J
STATION 660+40



IMPROVEMENTS RECOMMENDED

1. ACQUIRE ADDITIONAL RIGHT-OF-WAY
2. EXCAVATE CHANNEL
3. INSTALL POST & CABLE FENCE

FL ELEVATION AT 655+33 = 2747.80
FL ELEVATION AT 672+00 = 2750.10

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

FAIRGROUNDS ROAD TO BENTON STREET
STATION 655+33 TO STATION 672+00

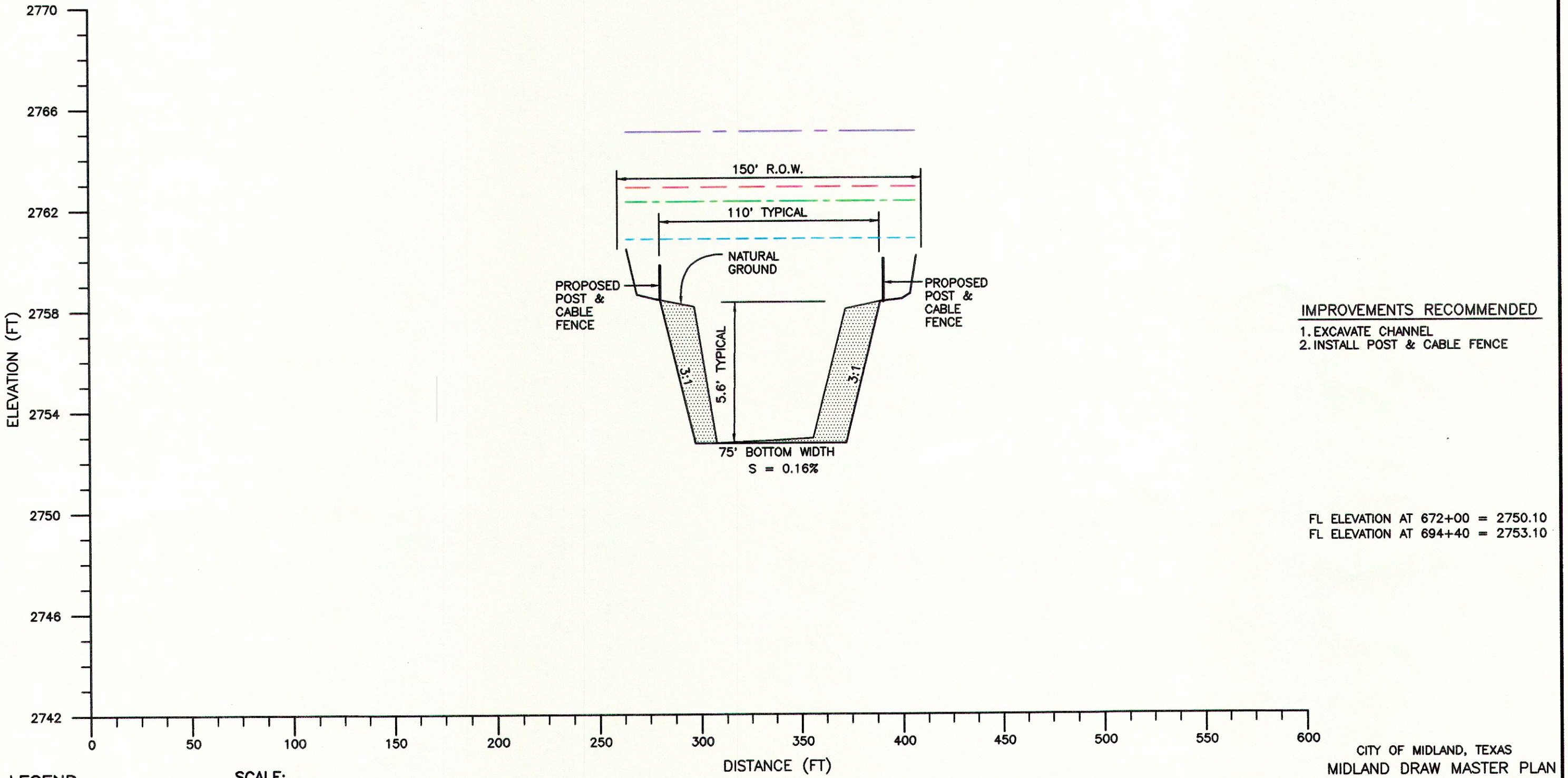
FIGURE 3-41

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

660/40 3/22/96 8.45 RSK

CROSS SECTION K
STATION 686+40



IMPROVEMENTS RECOMMENDED

1. EXCAVATE CHANNEL
2. INSTALL POST & CABLE FENCE

FL ELEVATION AT 672+00 = 2750.10
FL ELEVATION AT 694+40 = 2753.10

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

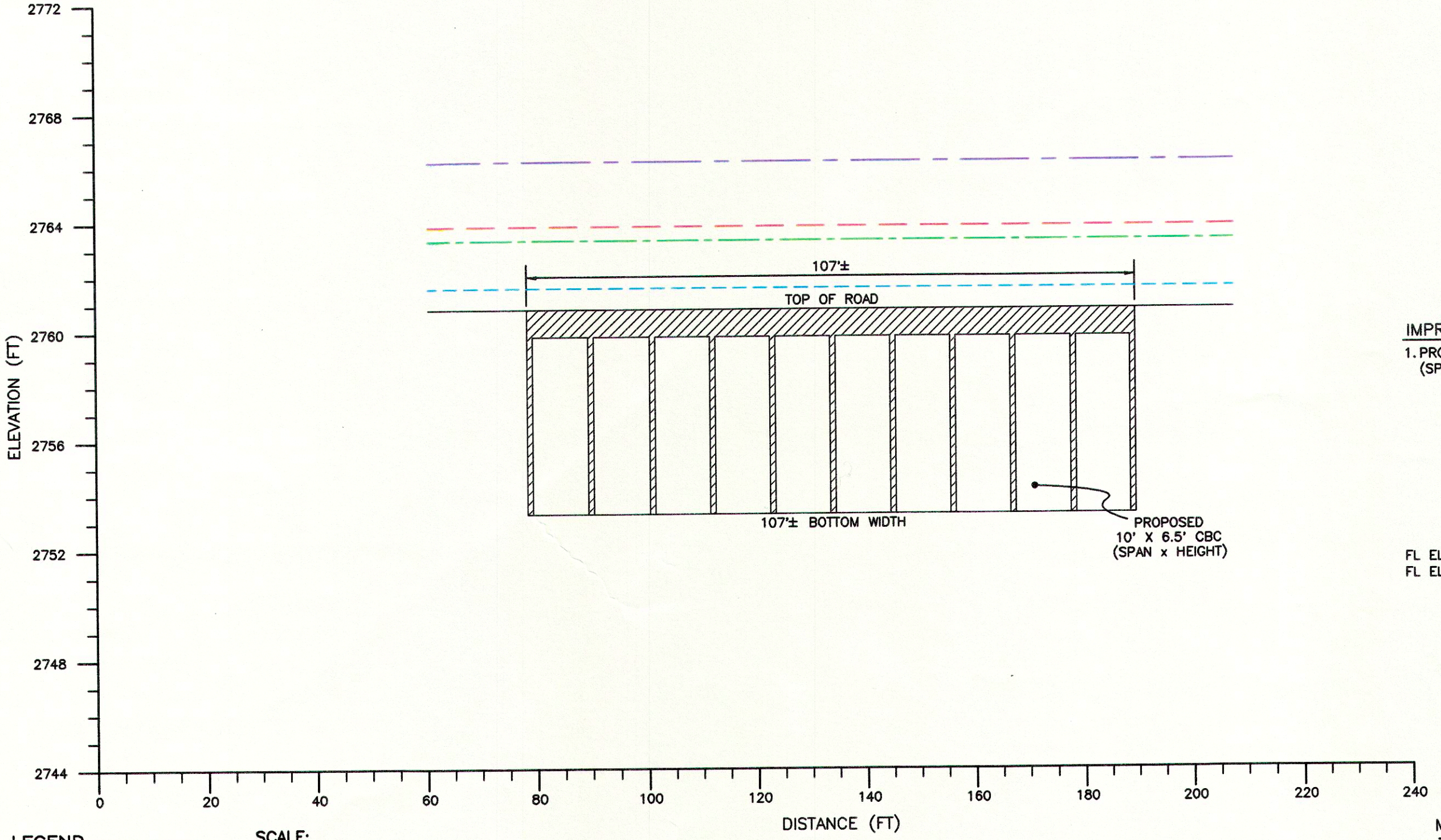
BENTON STREET TO UPSTREAM OF JACKSON STREET
STATION 672+00 TO STATION 694+40

FIGURE 3-42

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

PSC Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

CROSS SECTION L
STATION 687+10



IMPROVEMENTS RECOMMENDED

1. PROPOSED 10 – 10' X 6.5' CBC (SPAN X HEIGHT)

FL ELEVATION AT 686+90 = 2753.30
FL ELEVATION AT 687+30 = 2753.30

LEGEND

- INVERT
- 10–YEAR
- 50–YEAR
- 100–YEAR
- 500–YEAR

SCALE:

V: 1" = 4'
H: 1" = 20'

JACKSON STREET CROSSING

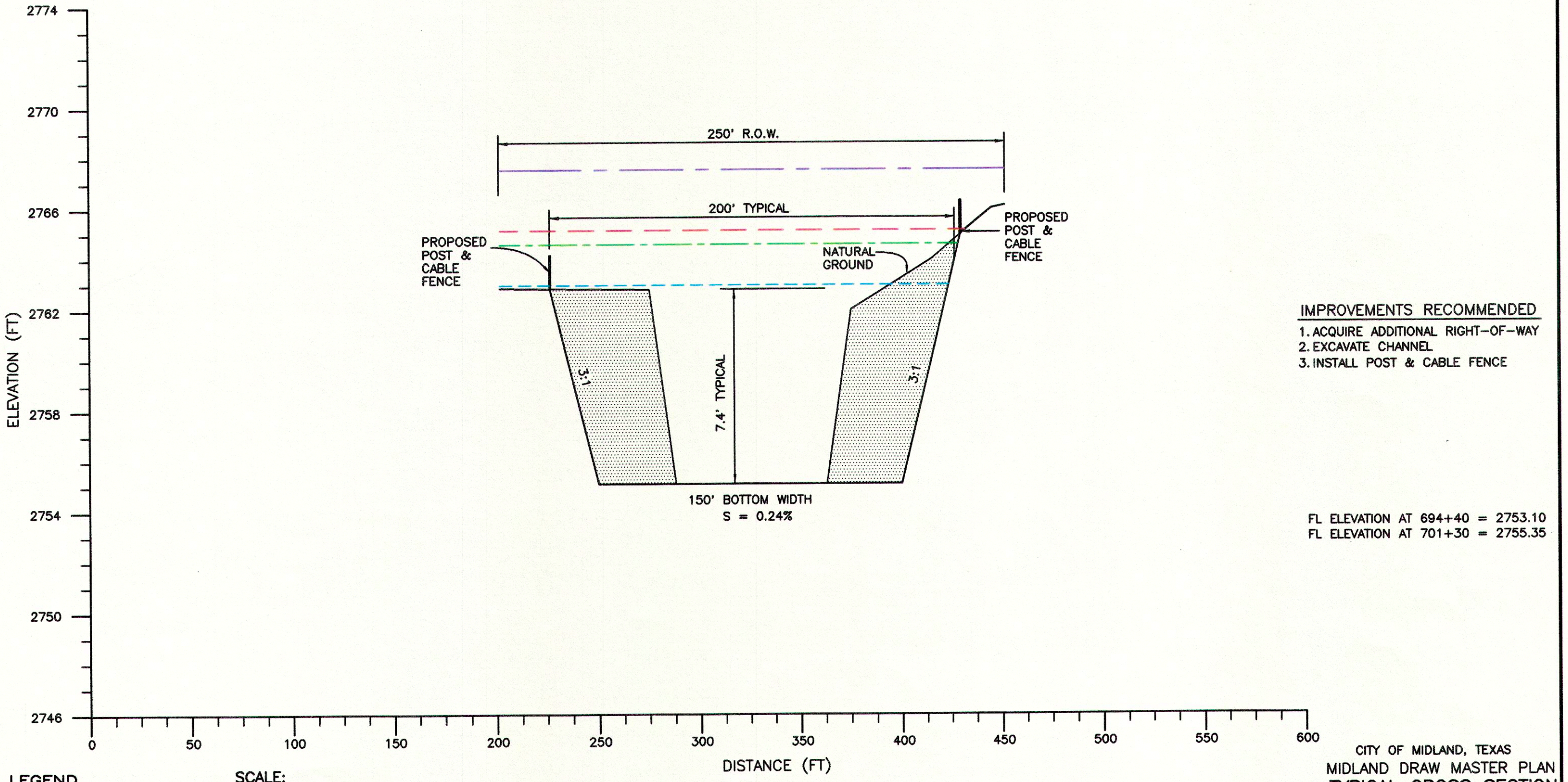
FIGURE 3–43

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

687 10 3/22/96 8.45 RSK

CROSS SECTION M
STATION 699+70



IMPROVEMENTS RECOMMENDED

1. ACQUIRE ADDITIONAL RIGHT-OF-WAY
2. EXCAVATE CHANNEL
3. INSTALL POST & CABLE FENCE

FL ELEVATION AT 694+40 = 2753.10
FL ELEVATION AT 701+30 = 2755.35

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

UPSTREAM OF JACKSON STREET TO SCHARBAUER DRIVE
STATION 694+40 TO STATION 701+30

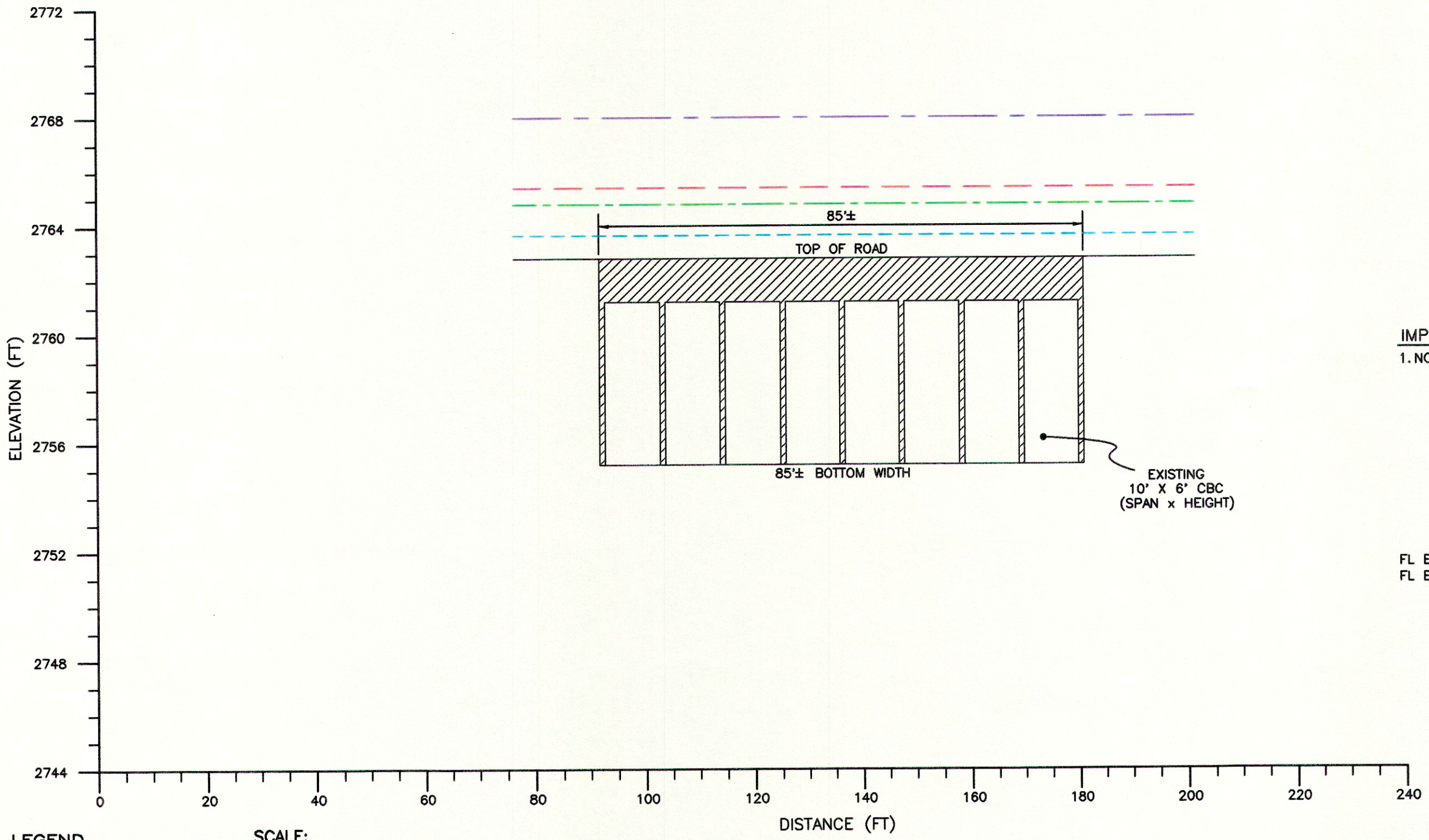
FIGURE 3-44

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

699/70 3/22/96 8:45 RSK

CROSS SECTION N
STATION 700+80



IMPROVEMENTS RECOMMENDED

1. NONE

FL ELEVATION AT 700+50 = 2755.10
FL ELEVATION AT 701+10 = 2755.30

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 20'

SCHARBAUER DRIVE SOUTH CROSSING

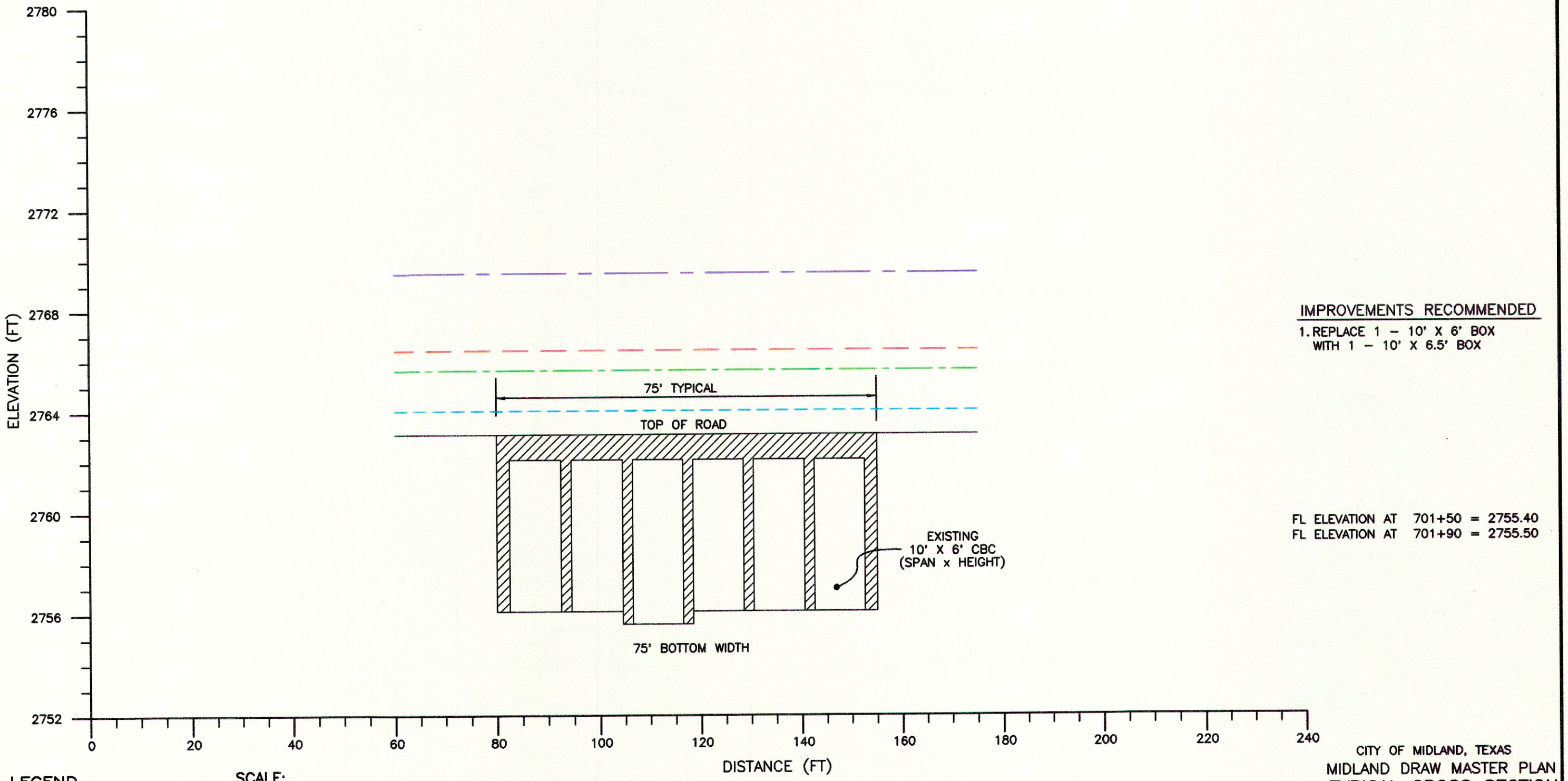
FIGURE 3-45

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

70180 3/22/98 9.15 RSK

CROSS SECTION O
STATION 701+70



IMPROVEMENTS RECOMMENDED

1. REPLACE 1 – 10' X 6' BOX WITH 1 – 10' X 6.5' BOX

FL ELEVATION AT 701+50 = 2755.40
FL ELEVATION AT 701+90 = 2755.50

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 20'

SCHARBAUER DRIVE NORTH CROSSING

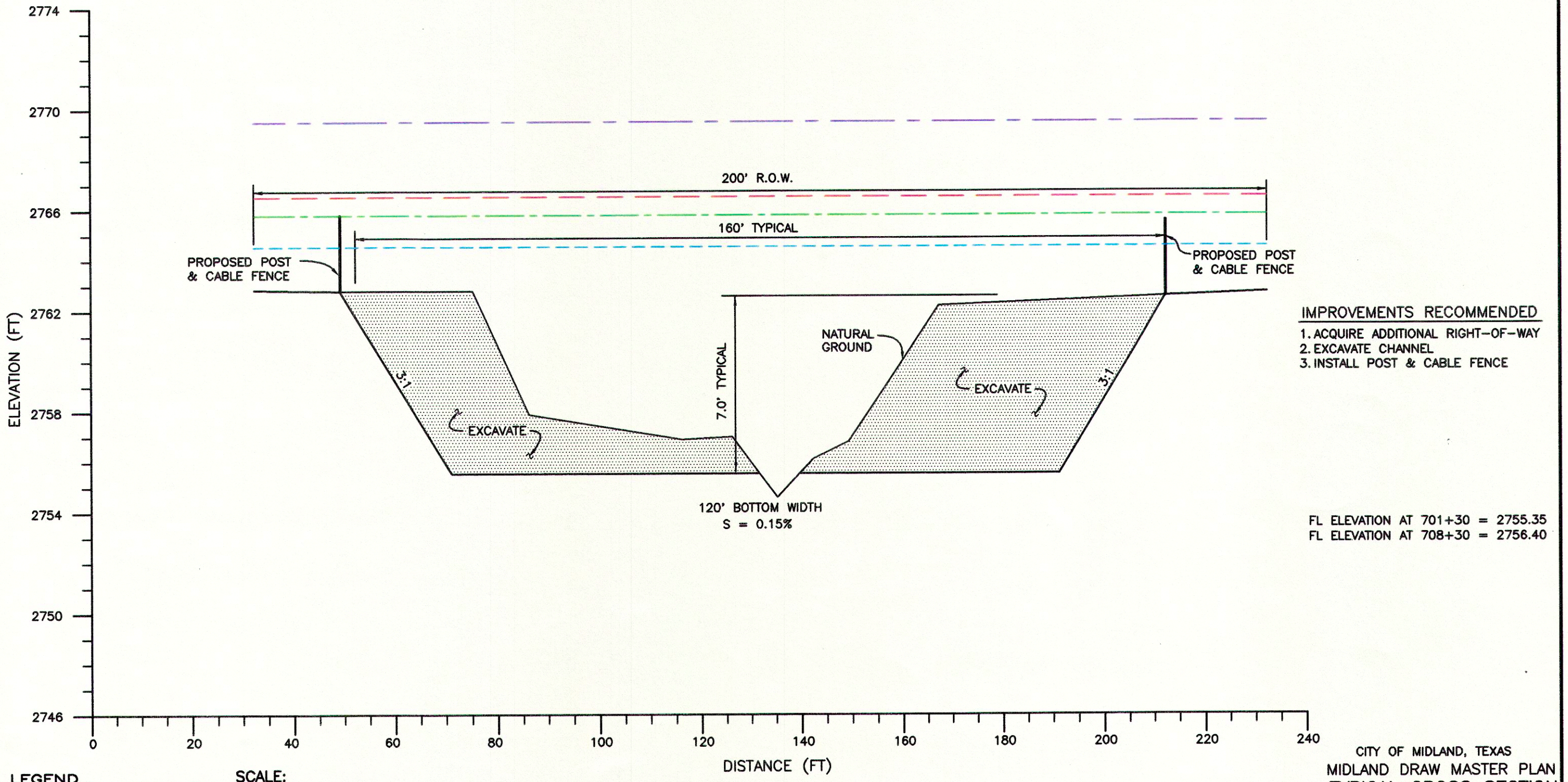
CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

FIGURE 3-46

701/0 2/20/96 11.00 RSK

CROSS SECTION P
STATION 702+60



IMPROVEMENTS RECOMMENDED

1. ACQUIRE ADDITIONAL RIGHT-OF-WAY
2. EXCAVATE CHANNEL
3. INSTALL POST & CABLE FENCE

FL ELEVATION AT 701+30 = 2755.35
FL ELEVATION AT 708+30 = 2756.40

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 20'

SCHARBAUER DRIVE TO MAGNOLIA AVENUE
STATION 701+30 TO STATION 708+30

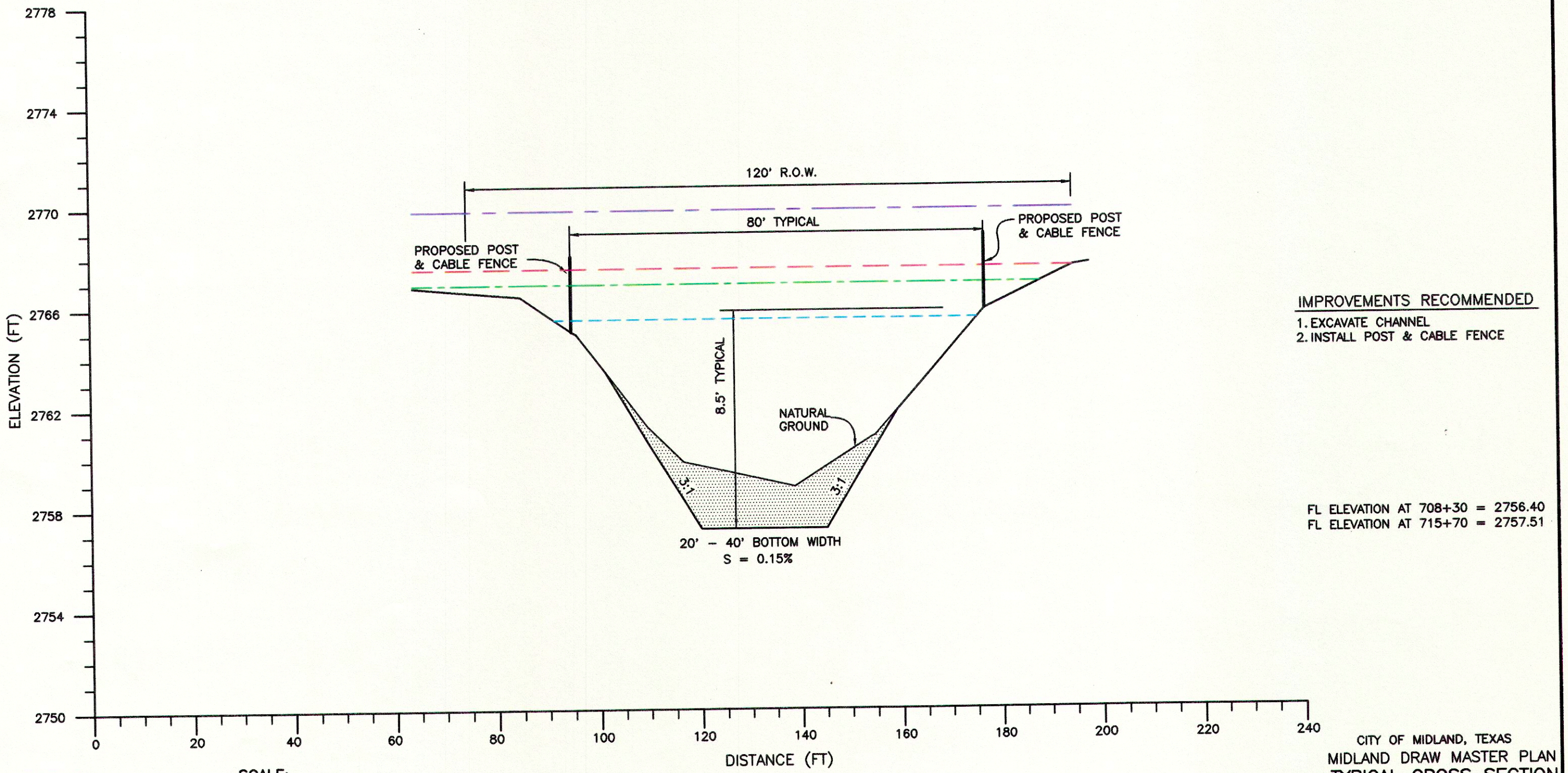
FIGURE 3-47

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

702h0 3/22/98 9.15 RSK

CROSS SECTION Q
STATION 713+25



IMPROVEMENTS RECOMMENDED

1. EXCAVATE CHANNEL
2. INSTALL POST & CABLE FENCE

FL ELEVATION AT 708+30 = 2756.40
FL ELEVATION AT 715+70 = 2757.51

LEGEND

- INVERT
- 10–YEAR
- 50–YEAR
- 100–YEAR
- 500–YEAR

SCALE:

V: 1" = 4'
H: 1" = 20'

MAGNOLIA AVENUE TO OAK AVENUE
STATION 708+30 TO STATION 715+70

FIGURE 3–48

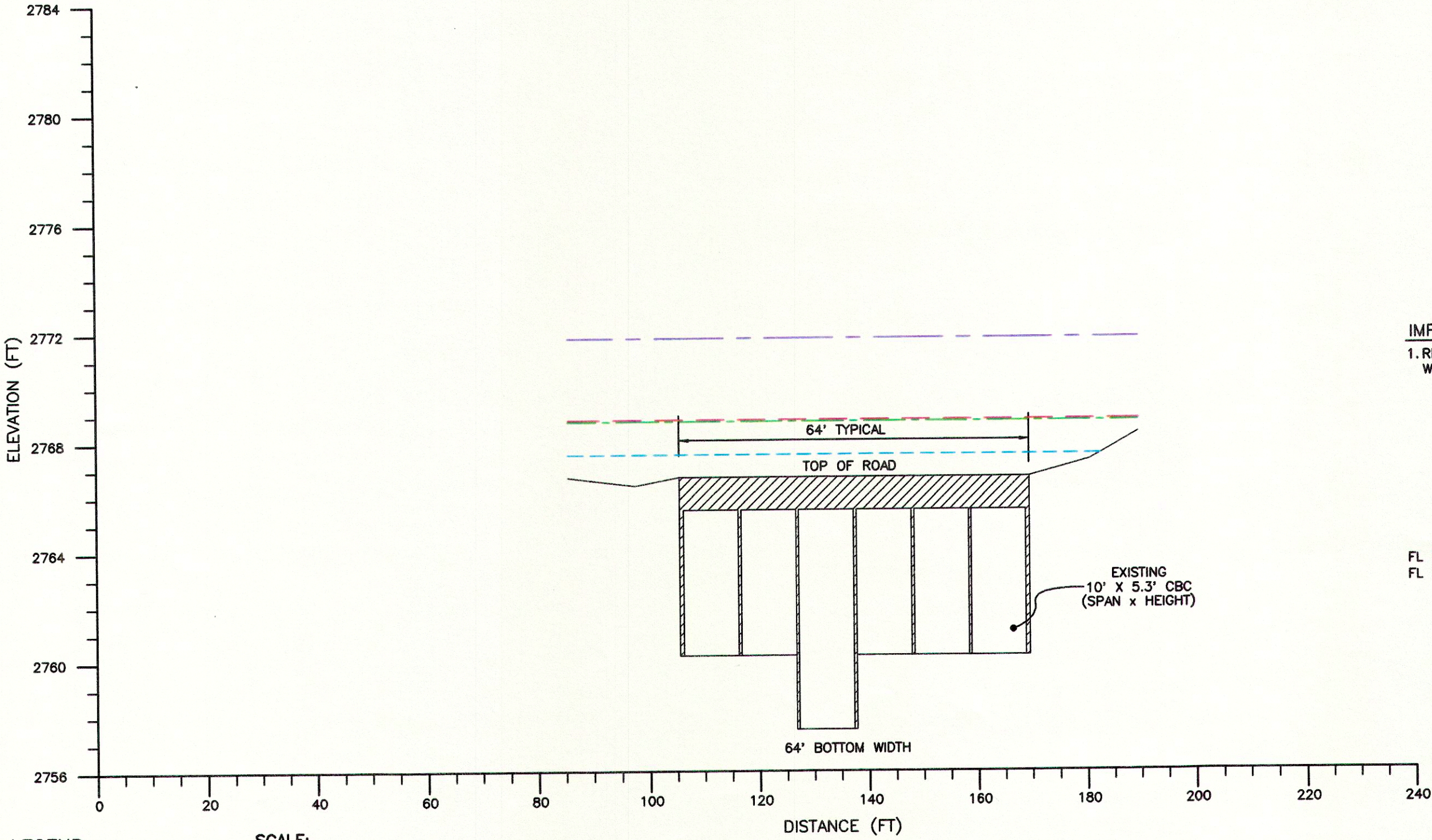
CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

3-100

71325 3/22/96 9.15 RSK

CROSS SECTION R
STATION 715+70



IMPROVEMENTS RECOMMENDED

1. REPLACE 1 – 10' X 5.3' BOX WITH 1 – 10' X 8' BOX

FL ELEVATION AT 715+50 = 2757.48
FL ELEVATION AT 715+90 = 2757.54

LEGEND

INVERT
10–YEAR
50–YEAR
100–YEAR
500–YEAR

SCALE:
V: 1" = 4'
H: 1" = 20'

OAK AVENUE CROSSING

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

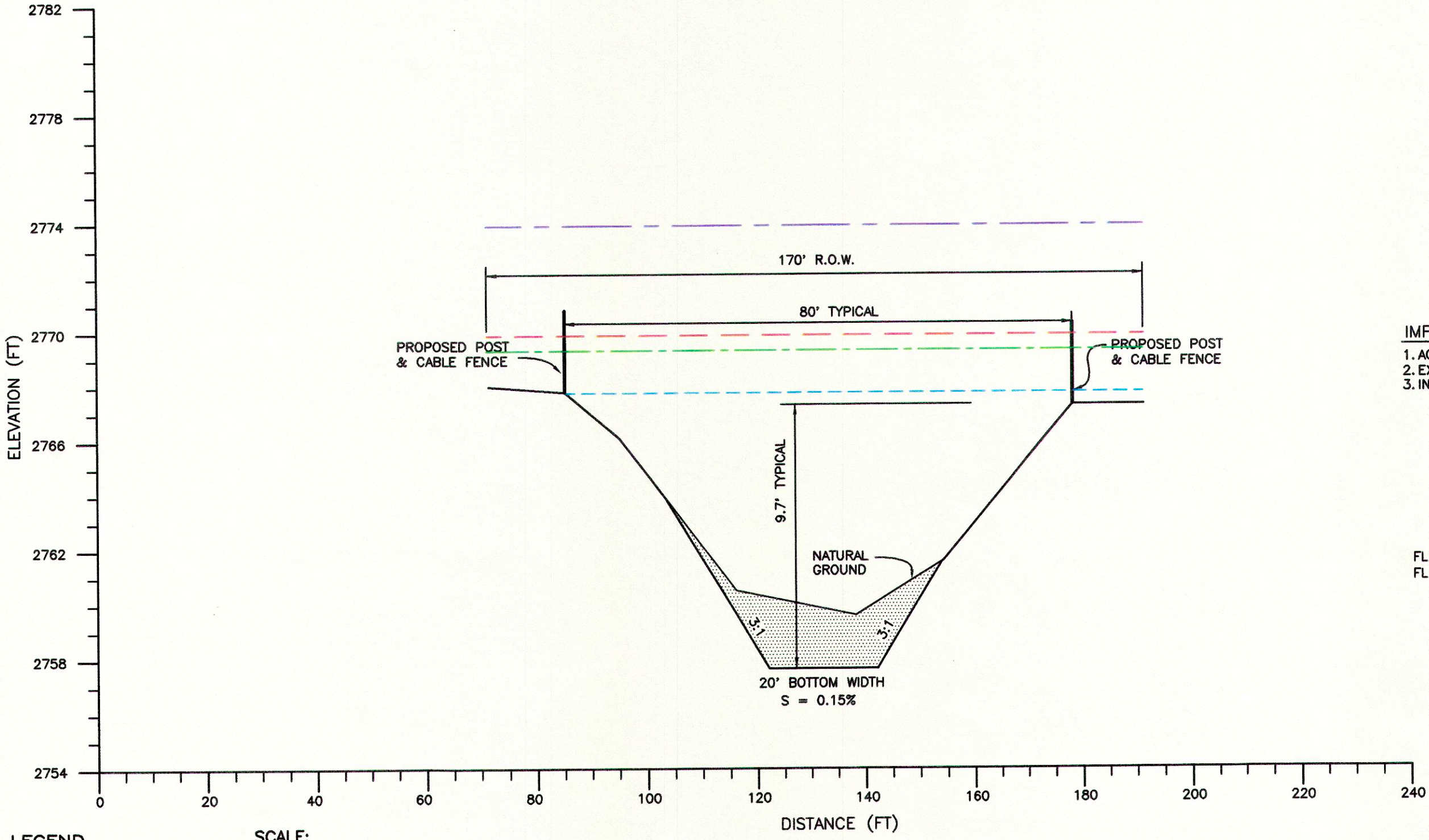
Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

3-101

FIGURE 3–49

71570 2/20/96 11:00 RSK

CROSS SECTION S
STATION 716+60



IMPROVEMENTS RECOMMENDED

1. ACQUIRE ADDITIONAL RIGHT-OF-WAY
2. EXCAVATE CHANNEL
3. INSTALL POST & CABLE FENCE

FL ELEVATION AT 715+70 = 2757.51
FL ELEVATION AT 719+95 = 2758.15

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 20'

OAK AVENUE TO PECAN AVENUE
STATION 715+70 TO STATION 719+95

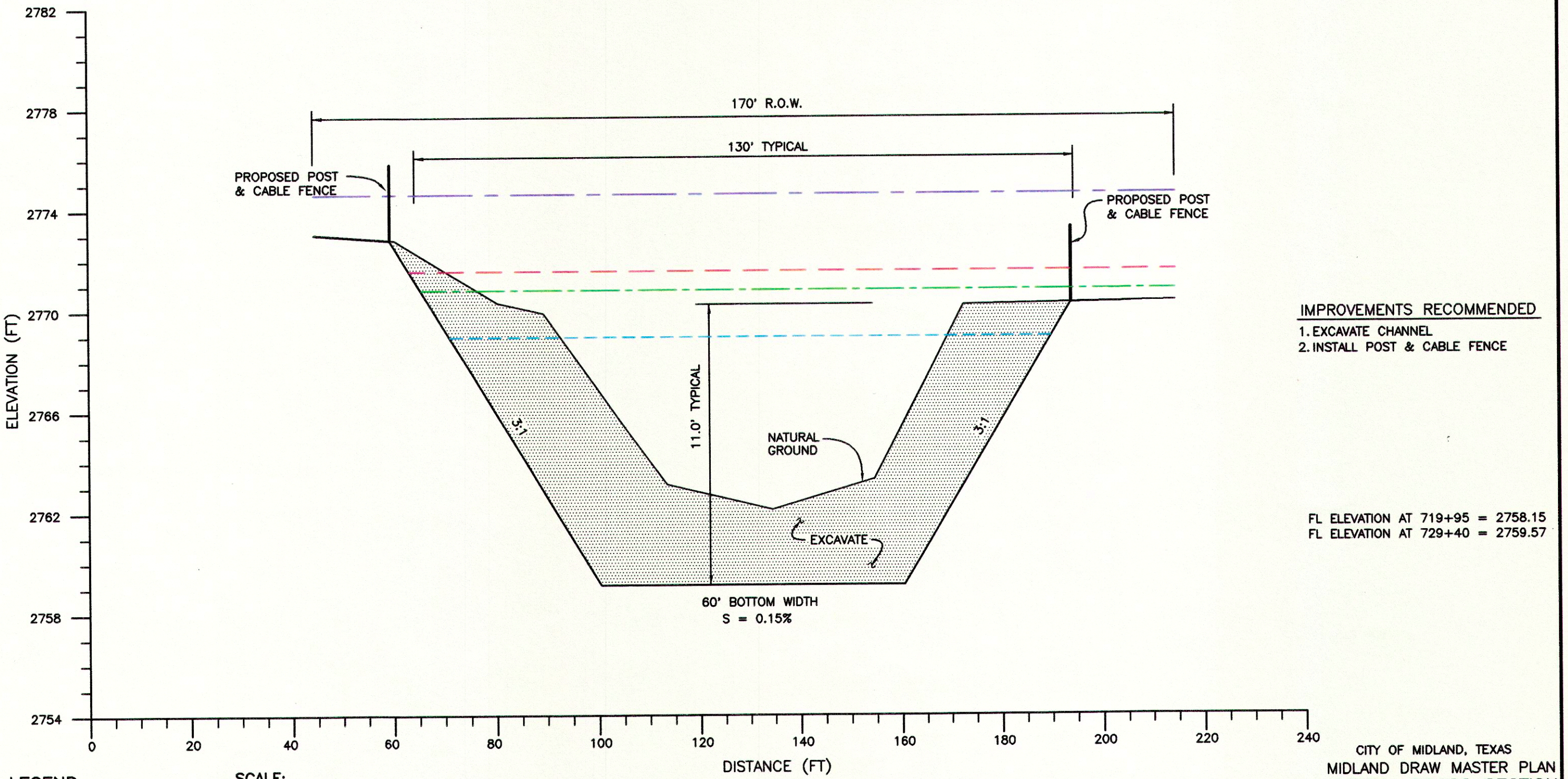
FIGURE 3-50

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

71650 3/22/[illegible] 9.15 RSK

CROSS SECTION T
STATION 726+60



IMPROVEMENTS RECOMMENDED

1. EXCAVATE CHANNEL
2. INSTALL POST & CABLE FENCE

FL ELEVATION AT 719+95 = 2758.15
FL ELEVATION AT 729+40 = 2759.57

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 20'

PECAN AVENUE TO DORMARD AVENUE
STATION 719+95 TO STATION 729+40

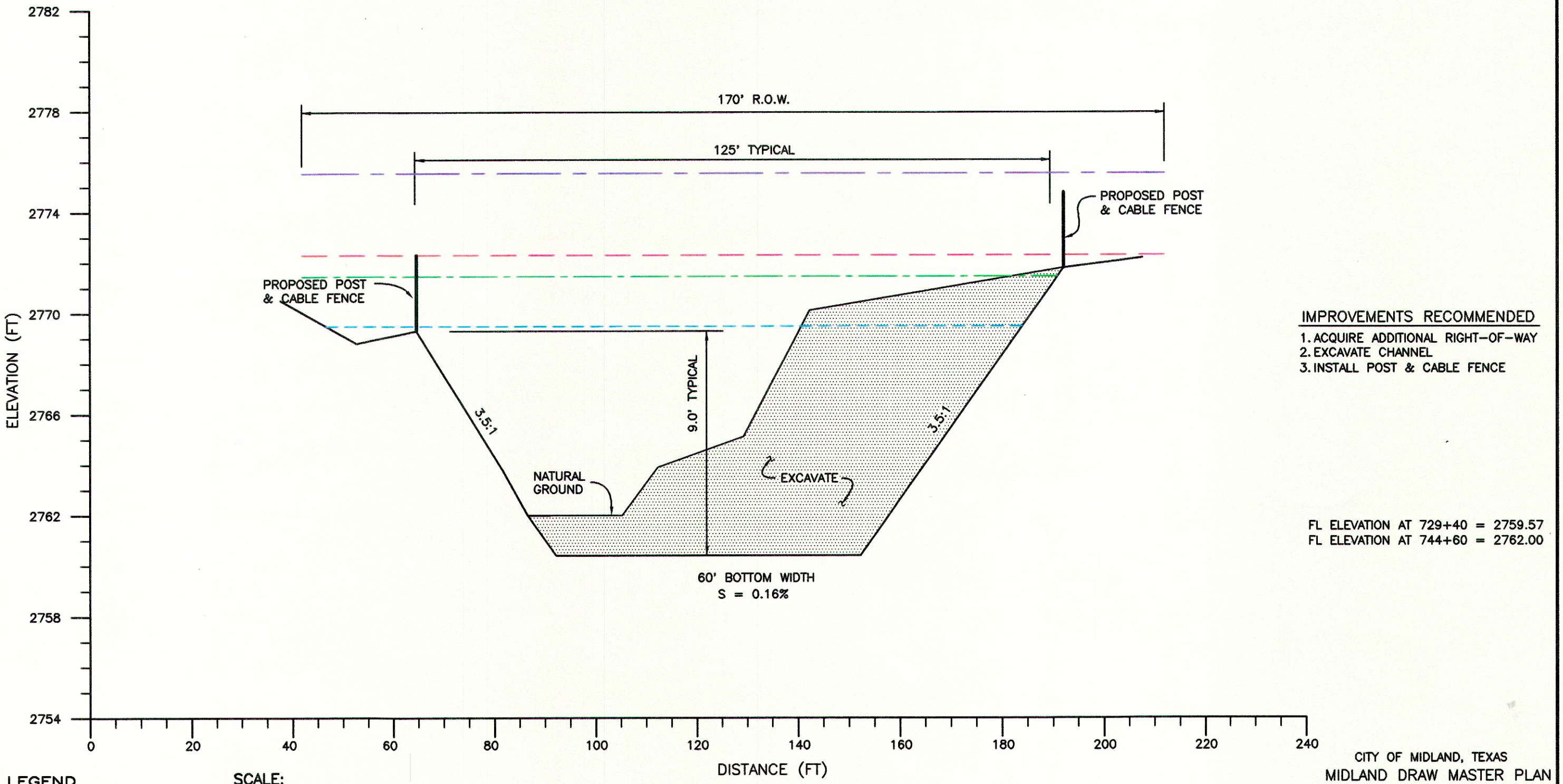
FIGURE 3-51

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

72860 3/22/96 9.15 RSK

CROSS SECTION U
STATION 735+00



IMPROVEMENTS RECOMMENDED

1. ACQUIRE ADDITIONAL RIGHT-OF-WAY
2. EXCAVATE CHANNEL
3. INSTALL POST & CABLE FENCE

FL ELEVATION AT 729+40 = 2759.57
FL ELEVATION AT 744+60 = 2762.00

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 20'

DORMARD AVENUE TO LAMESA ROAD
STATION 729+40 TO STATION 744+60

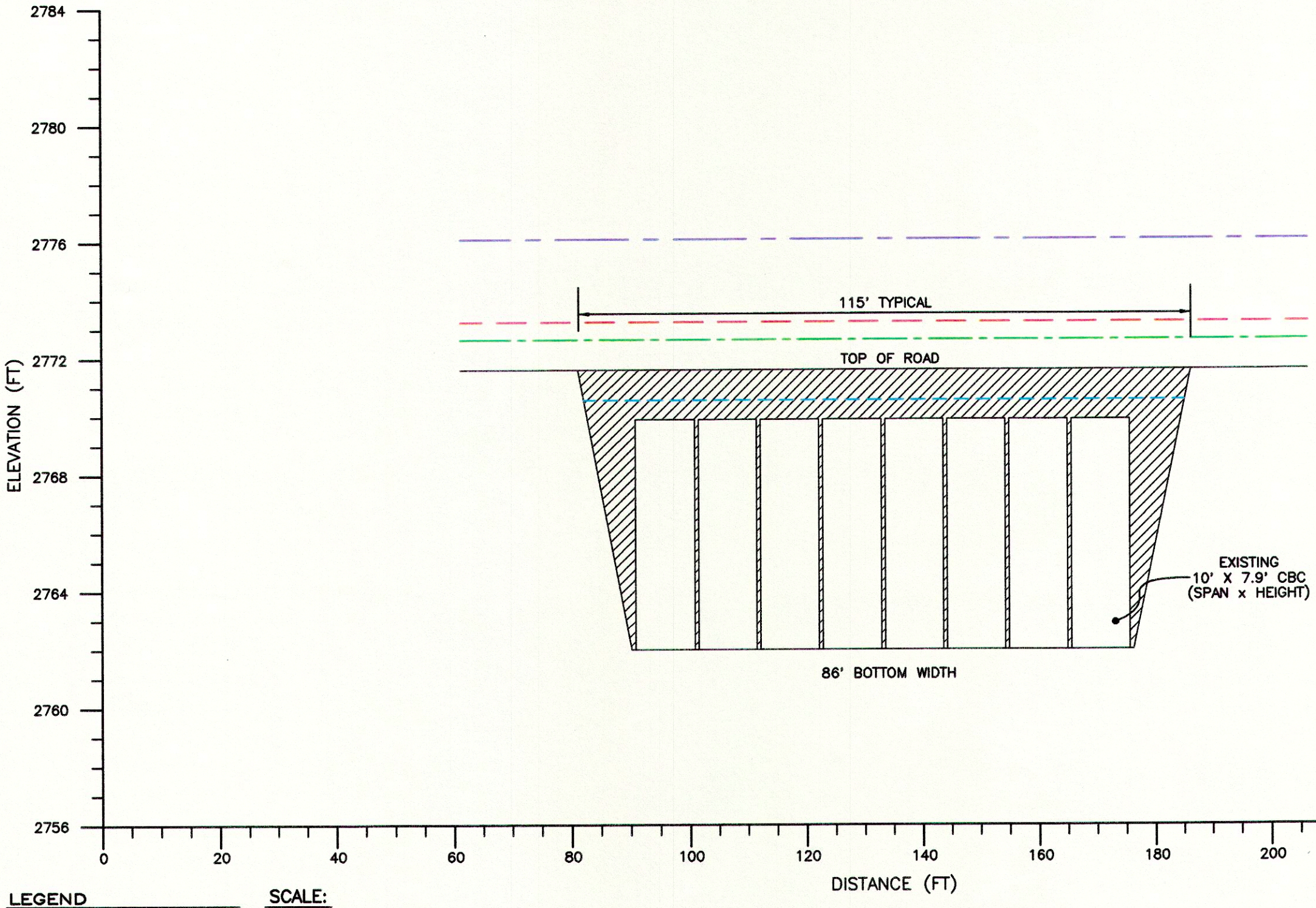
FIGURE 3-52

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

73500 3/22/96 9.15 RSK

CROSS SECTION V
STATION 744+60



IMPROVEMENTS RECOMMENDED

1. NONE

FL ELEVATION AT 743+80 = 2761.80
FL ELEVATION AT 745+40 = 2762.20

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 20'

LAMESA ROAD CROSSING

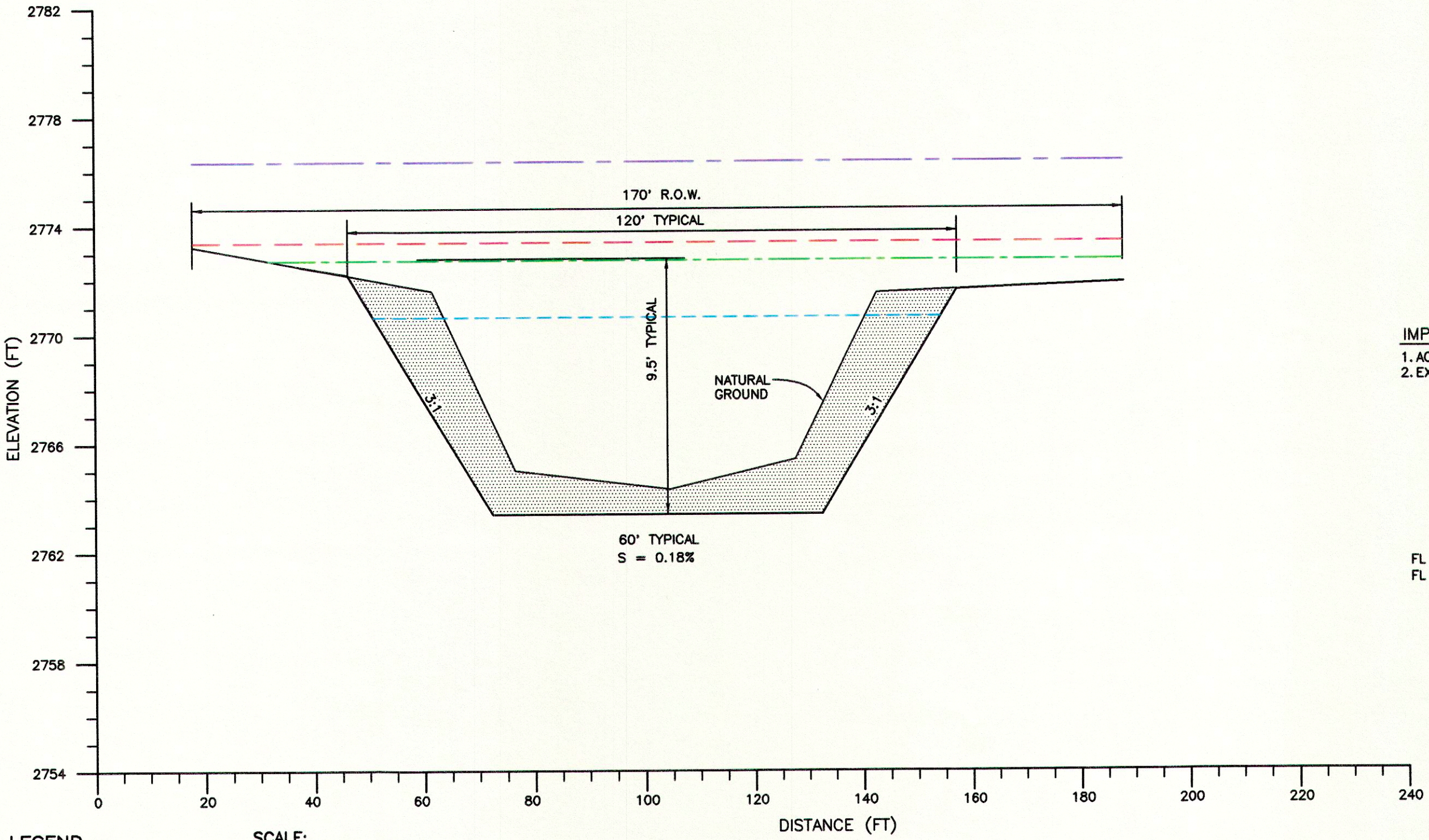
FIGURE 3-53

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

744/80 2/20/96 11.00 RSK

CROSS SECTION W
STATION 747+00



IMPROVEMENTS RECOMMENDED

1. ACQUIRE ADDITIONAL RIGHT-OF-WAY
2. EXCAVATE CHANNEL

FL ELEVATION AT 744+60 = 2762.00
FL ELEVATION AT 748+45 = 2762.70

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 20'

LAMESA ROAD TO WADLEY AVENUE
STATION 744+60 TO STATION 748+45

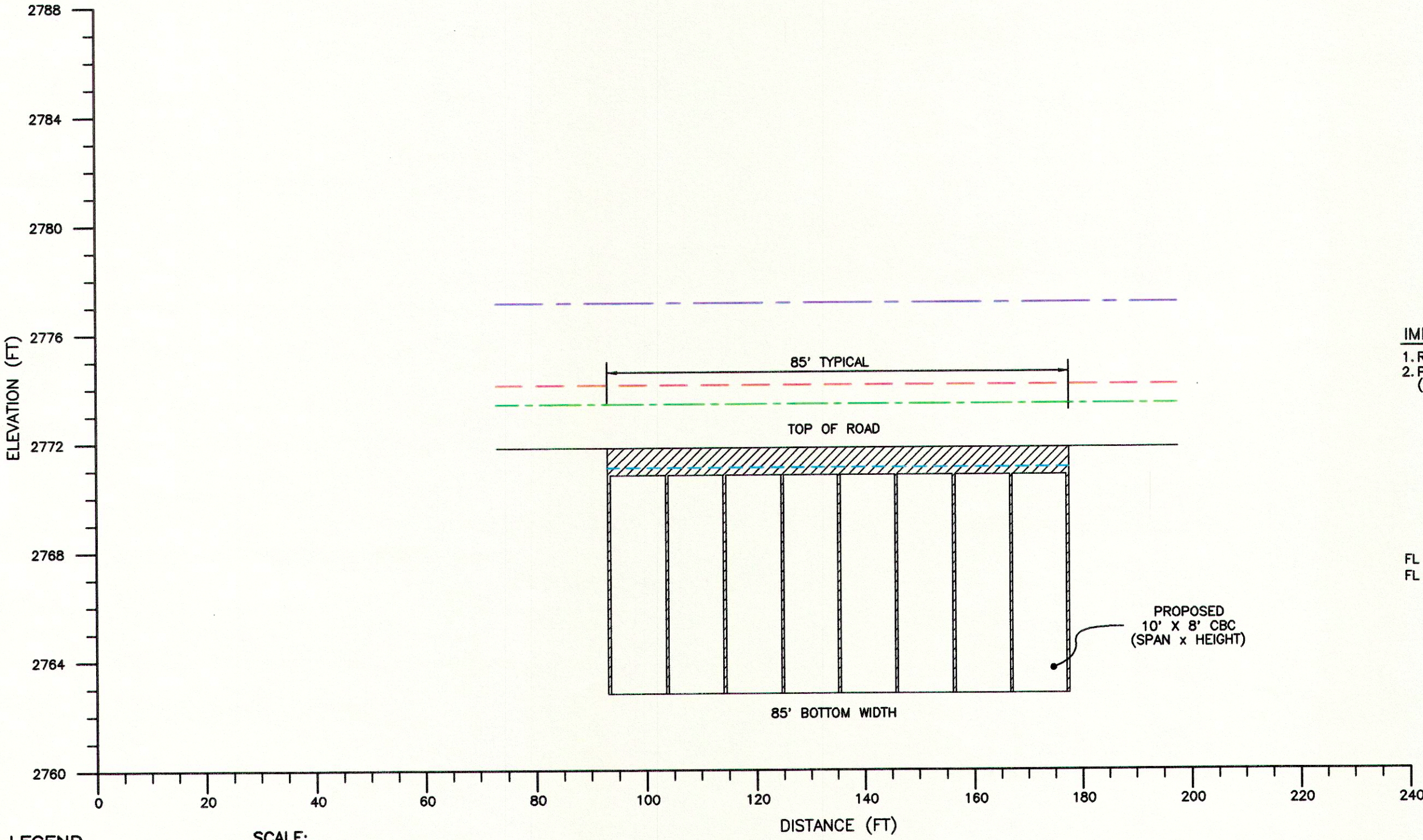
FIGURE 3-54

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

74710 3/22/95 10.00 RSK

CROSS SECTION X
STATION 748+45



IMPROVEMENTS RECOMMENDED

1. REMOVE EXISTING STRUCTURE
2. PROPOSED 8 – 10' X 8' CBC (SPAN X HEIGHT)

FL ELEVATION AT 748+00 = 2762.60
FL ELEVATION AT 748+90 = 2762.80

LEGEND

- INVERT
- 10–YEAR
- 50–YEAR
- 100–YEAR
- 500–YEAR

SCALE:

V: 1" = 4'
H: 1" = 20'

WADLEY AVENUE CROSSING

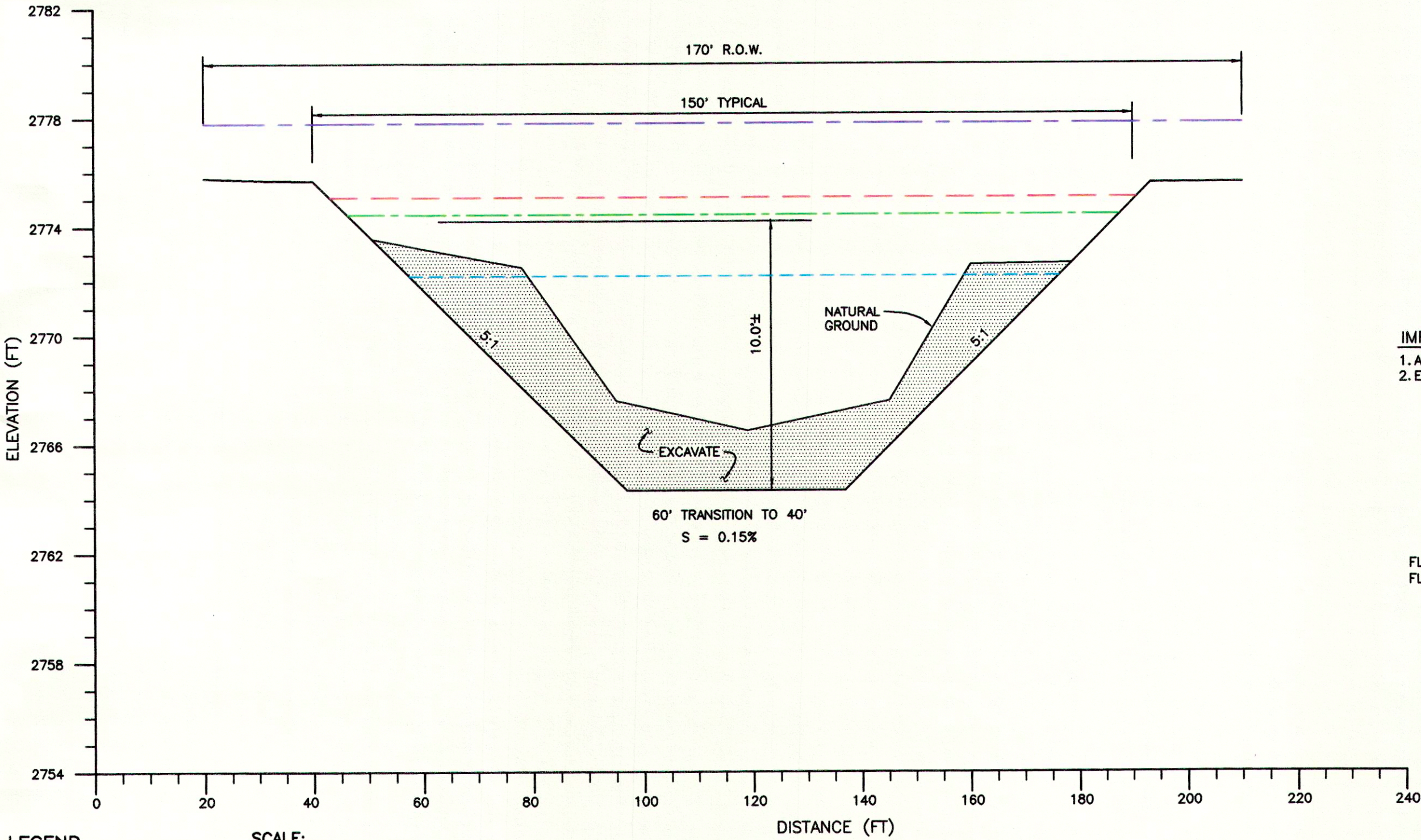
FIGURE 3–55

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

748-45 3/22/98 9.15 RSK

CROSS SECTION Y
STATION 759+50



IMPROVEMENTS RECOMMENDED

1. ACQUIRE ADDITIONAL RIGHT-OF-WAY
2. EXCAVATE CHANNEL

FL ELEVATION AT 748+45 = 2762.70
FL ELEVATION AT 775+30 = 2766.69

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 20'

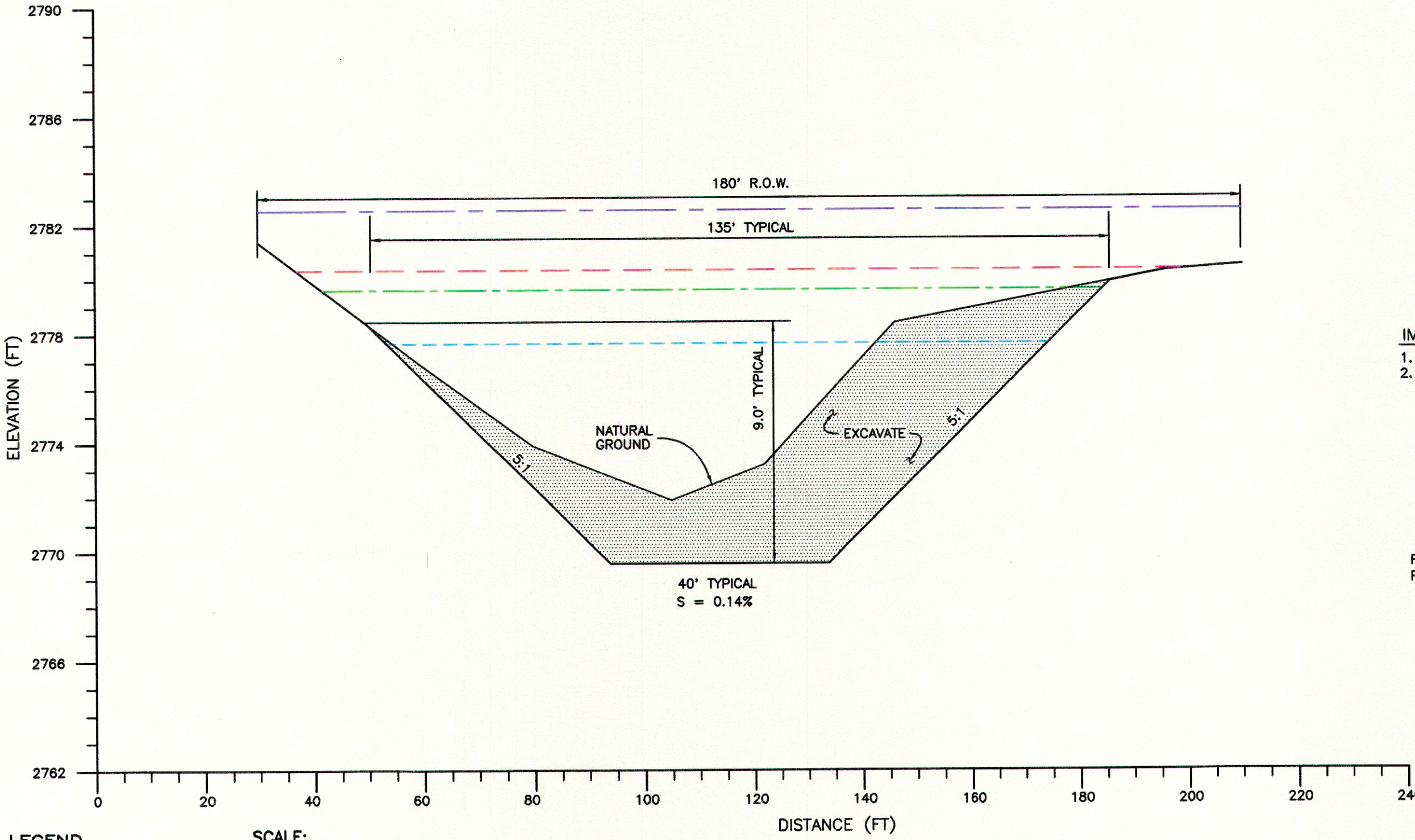
WADLEY AVENUE TO FAIRWAY PARK SUBDIVISION
STATION 748+45 TO STATION 775+30

FIGURE 3-56

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

CROSS SECTION Z
STATION 794+50



IMPROVEMENTS RECOMMENDED

1. ACQUIRE ADDITIONAL RIGHT-OF-WAY
2. EXCAVATE CHANNEL

FL ELEVATION AT 775+30 = 2766.69
FL ELEVATION AT 797+80 = 2769.90

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 20'

FAIRWAY PARK SUBDIVISION TO BIG SPRING STREET
STATION 775+30 TO STATION 797+80

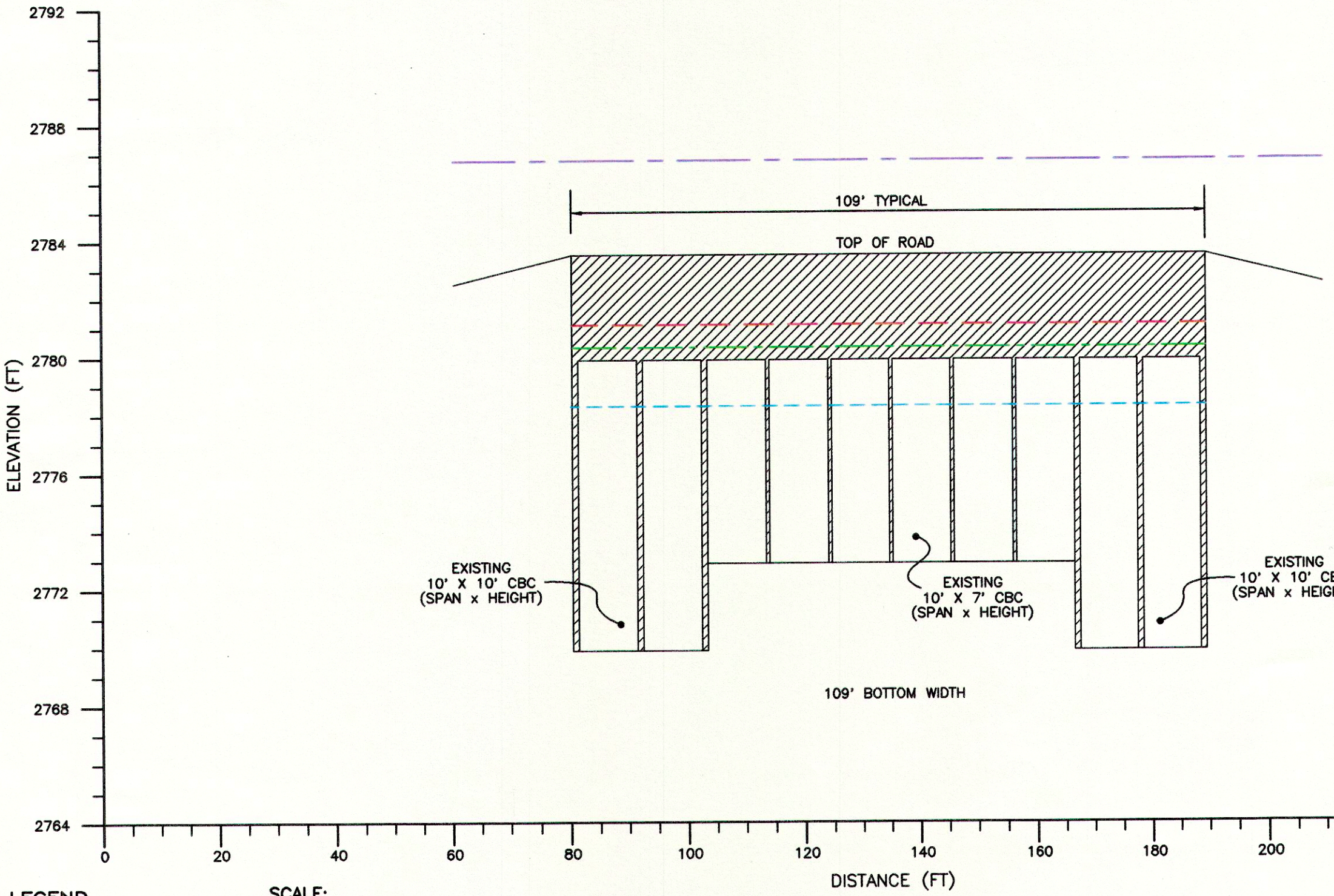
FIGURE 3-57

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

79150 3/22/96 9.30 RSK

CROSS SECTION AA
STATION 797+80



IMPROVEMENTS RECOMMENDED

1. NONE

FL ELEVATION AT 797+30 = 2769.90
FL ELEVATION AT 798+30 = 2769.90

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 20'

BIG SPRING STREET CROSSING

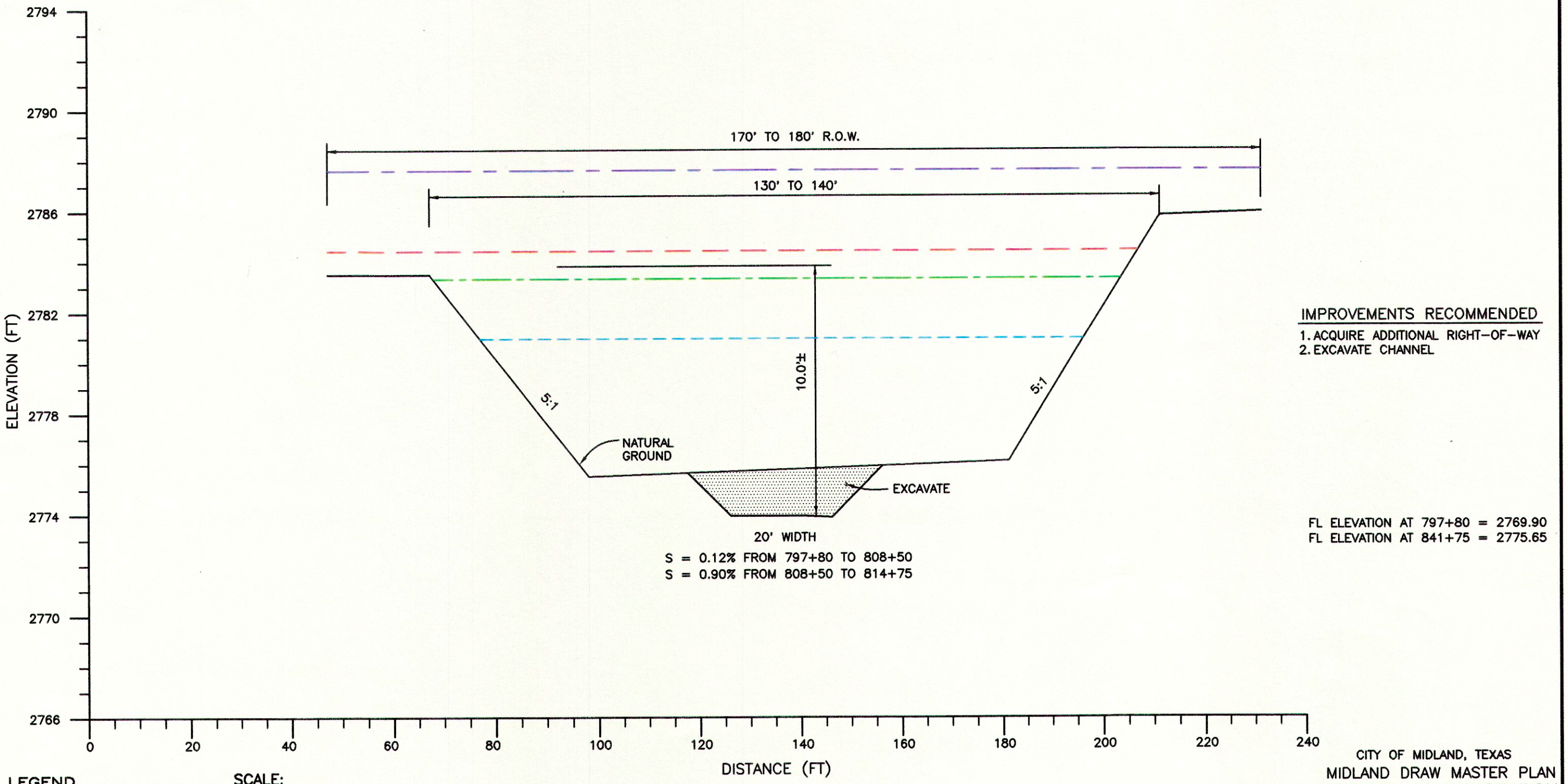
FIGURE 3-58

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

79790 11/29/95 11.00 RSK

CROSS SECTION AB
STATION 811+30



S = 0.12% FROM 797+80 TO 808+50
S = 0.90% FROM 808+50 TO 814+75

IMPROVEMENTS RECOMMENDED

1. ACQUIRE ADDITIONAL RIGHT-OF-WAY
2. EXCAVATE CHANNEL

FL ELEVATION AT 797+80 = 2769.90
FL ELEVATION AT 841+75 = 2775.65

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 20'

BIG SPRING STREET TO LOOP 250
STATION 797+80 TO STATION 814+75

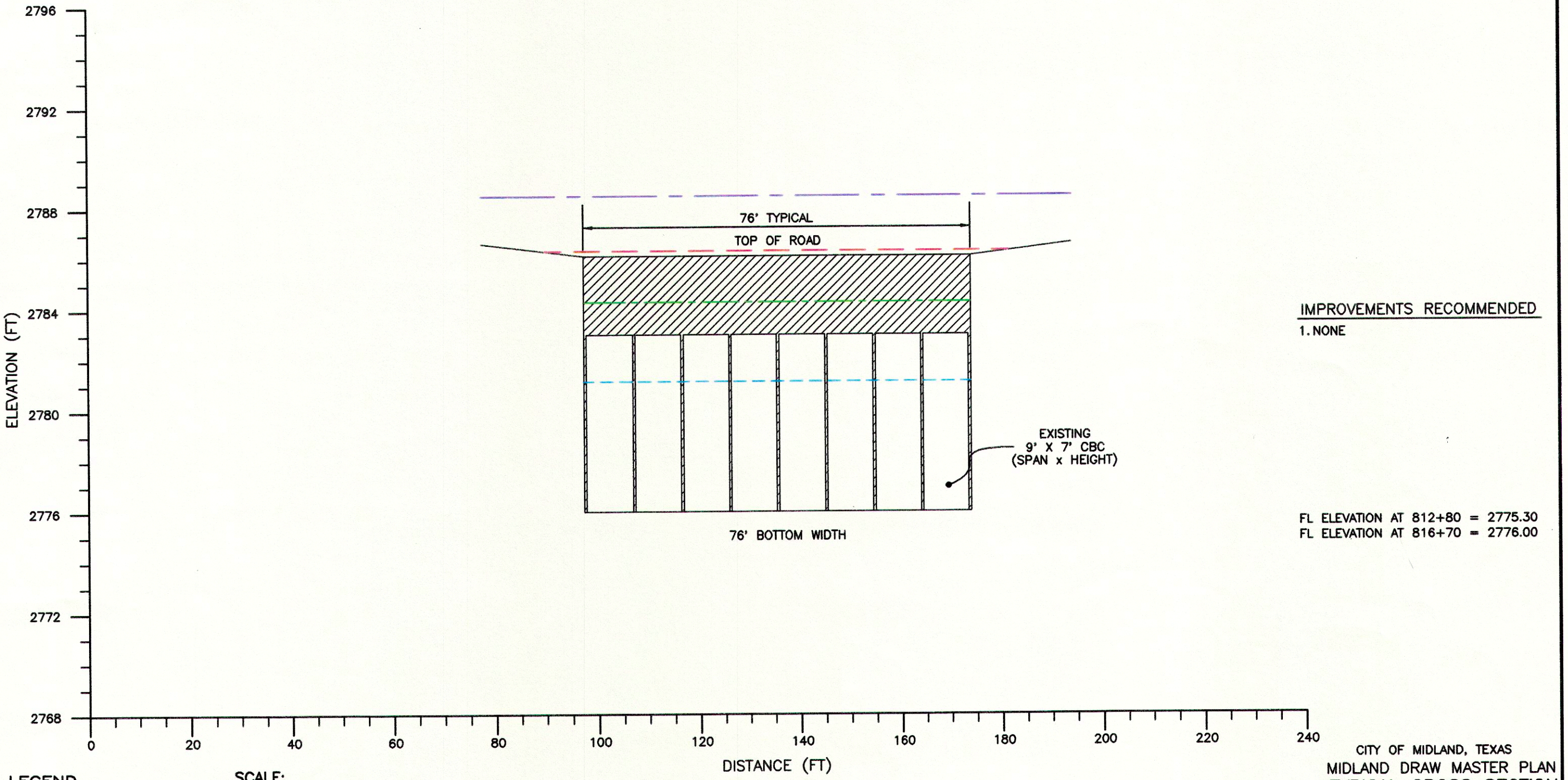
FIGURE 3-59

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

811-30 3/22/96 9.30 RSK

CROSS SECTION AC
STATION 814+75



IMPROVEMENTS RECOMMENDED

1. NONE

FL ELEVATION AT 812+80 = 2775.30
FL ELEVATION AT 816+70 = 2776.00

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 20'

LOOP 250 CROSSING

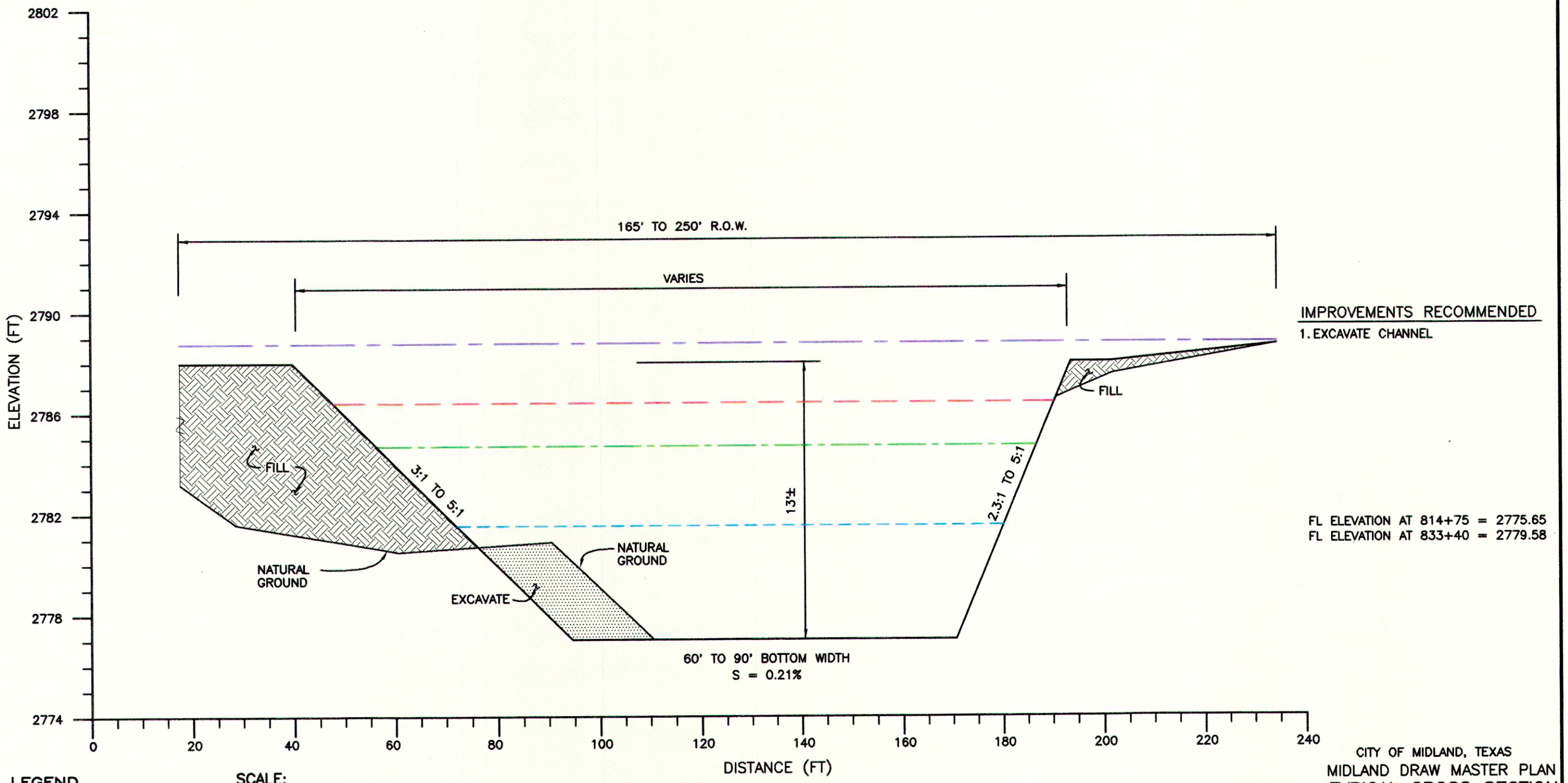
FIGURE 3-60

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

81475 11/30/95 4.00 RSK

CROSS SECTION AD
STATION 821+30



LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 20'

LOOP 250 TO 910' DOWNSTREAM OF SOLOMON LANE
STATION 814+75 TO STATION 833+40

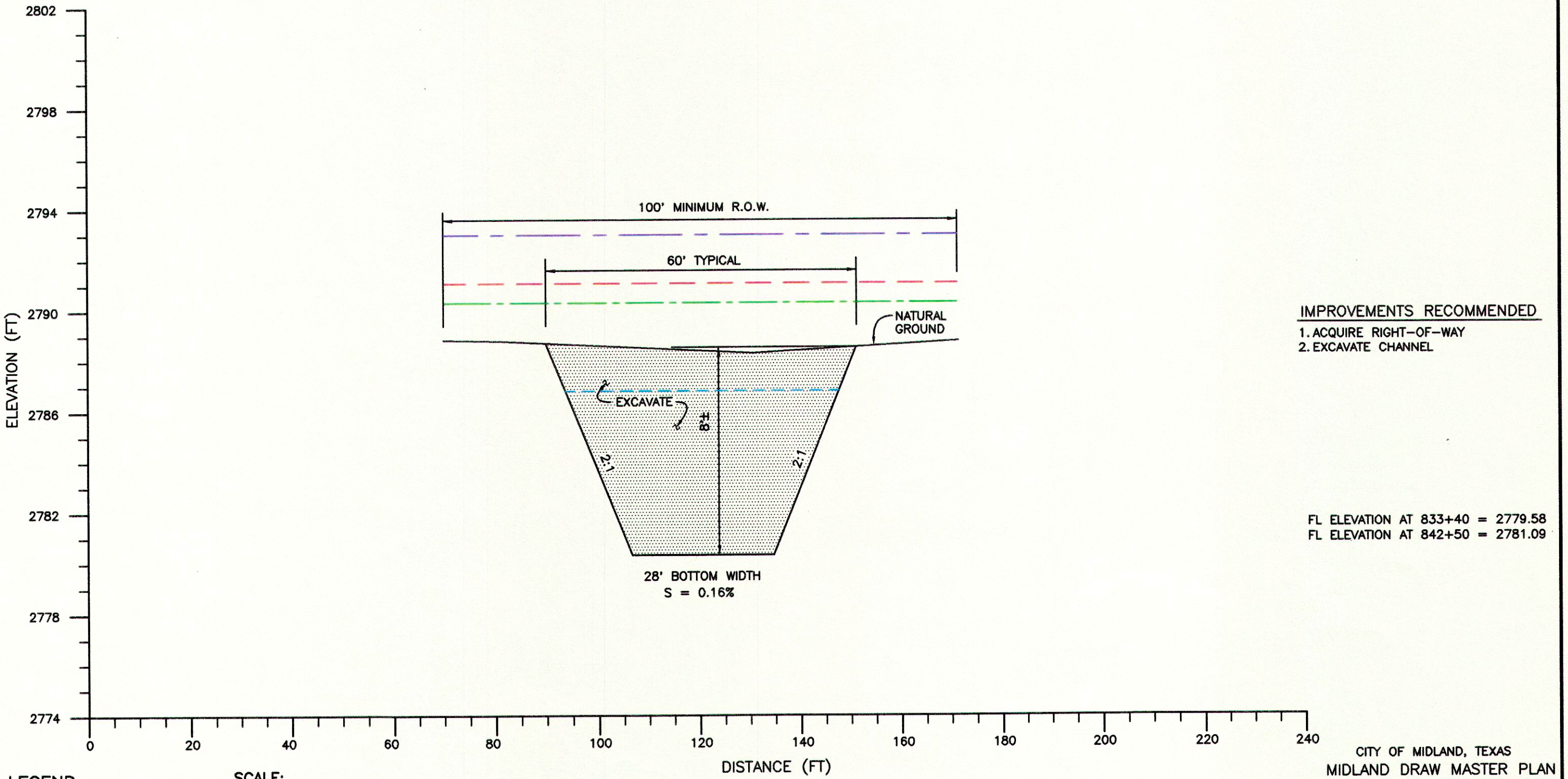
FIGURE 3-61

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

821\30 3/22/96 9.30 RSK

CROSS SECTION AE
STATION 838+00



IMPROVEMENTS RECOMMENDED

1. ACQUIRE RIGHT-OF-WAY
2. EXCAVATE CHANNEL

FL ELEVATION AT 833+40 = 2779.58
FL ELEVATION AT 842+50 = 2781.09

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 20'

910' DOWNSTREAM OF SOLOMON LANE TO SOLOMON LANE
STATION 833+40 TO STATION 842+50

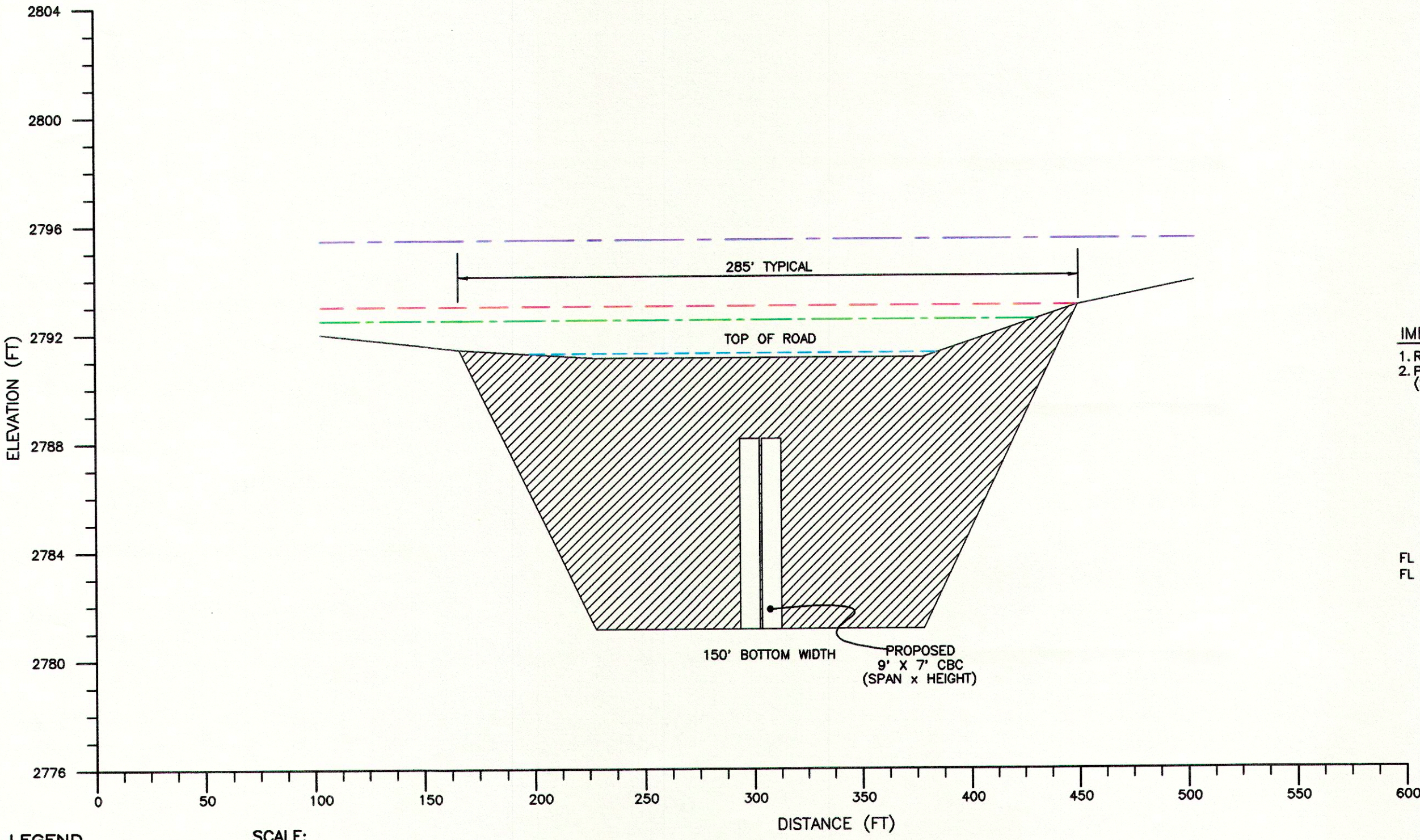
FIGURE 3-62

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

83600 3/22/96 9.30 RSK

CROSS SECTION AF
STATION 842+50



IMPROVEMENTS RECOMMENDED

1. REMOVE EXISTING STRUCTURE
2. PROPOSED 2 – 9' X' 7' CBC (SPAN X HEIGHT)

FL ELEVATION AT 842+10 = 2781.01
FL ELEVATION AT 842+90 = 2781.14

LEGEND

- INVERT
- 10–YEAR
- 50–YEAR
- 100–YEAR
- 500–YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

SOLOMON LANE CROSSING

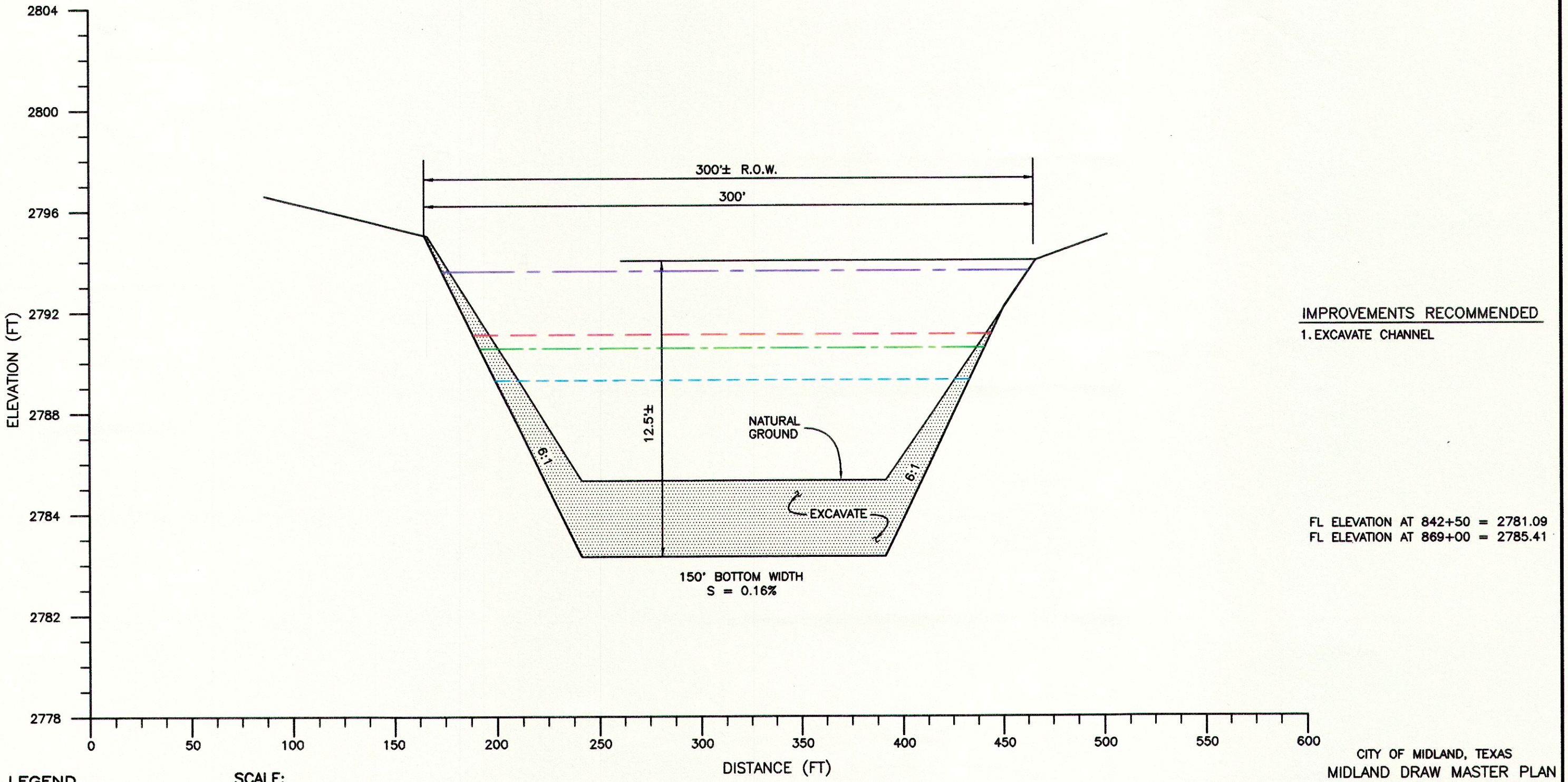
FIGURE 3–63

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

84250 11/30/95 4.00 RSK

CROSS SECTION AG
STATION 850+00



IMPROVEMENTS RECOMMENDED

1. EXCAVATE CHANNEL

FL ELEVATION AT 842+50 = 2781.09
FL ELEVATION AT 869+00 = 2785.41

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

SOLOMON LANE TO NORTH "A" STREET
STATION 842+50 TO STATION 869+00

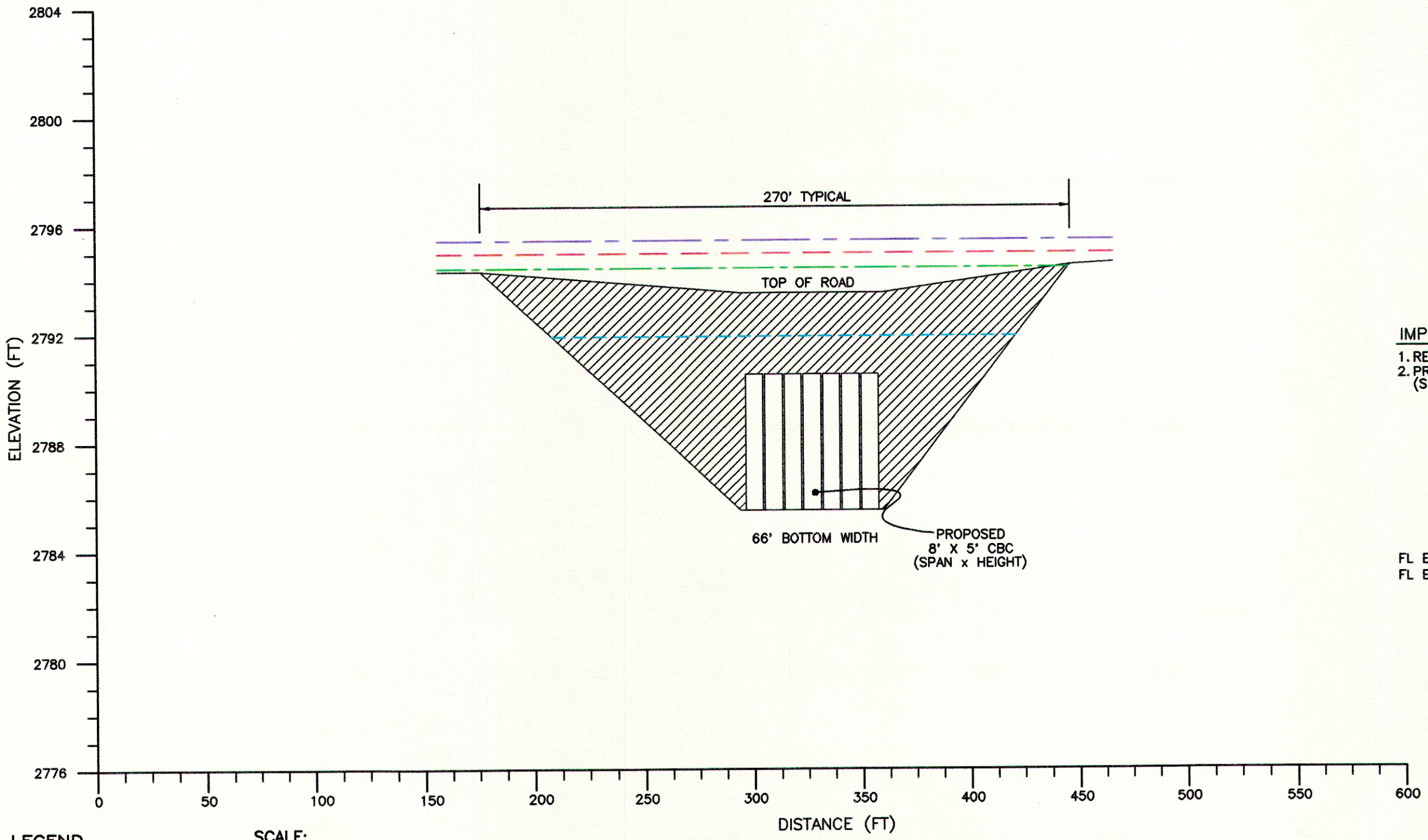
FIGURE 3-64

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

85000 3/22/96 10.00 RSK

CROSS SECTION AH
STATION 869+00



IMPROVEMENTS RECOMMENDED

1. REMOVE EXISTING STRUCTURE
2. PROPOSED 7 – 8' X' 5' CBC (SPAN X HEIGHT)

FL ELEVATION AT 868+50 = 2785.32
FL ELEVATION AT 869+50 = 2785.50

LEGEND

- INVERT
- 10–YEAR
- 50–YEAR
- 100–YEAR
- 500–YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

NORTH "A" STREET CROSSING

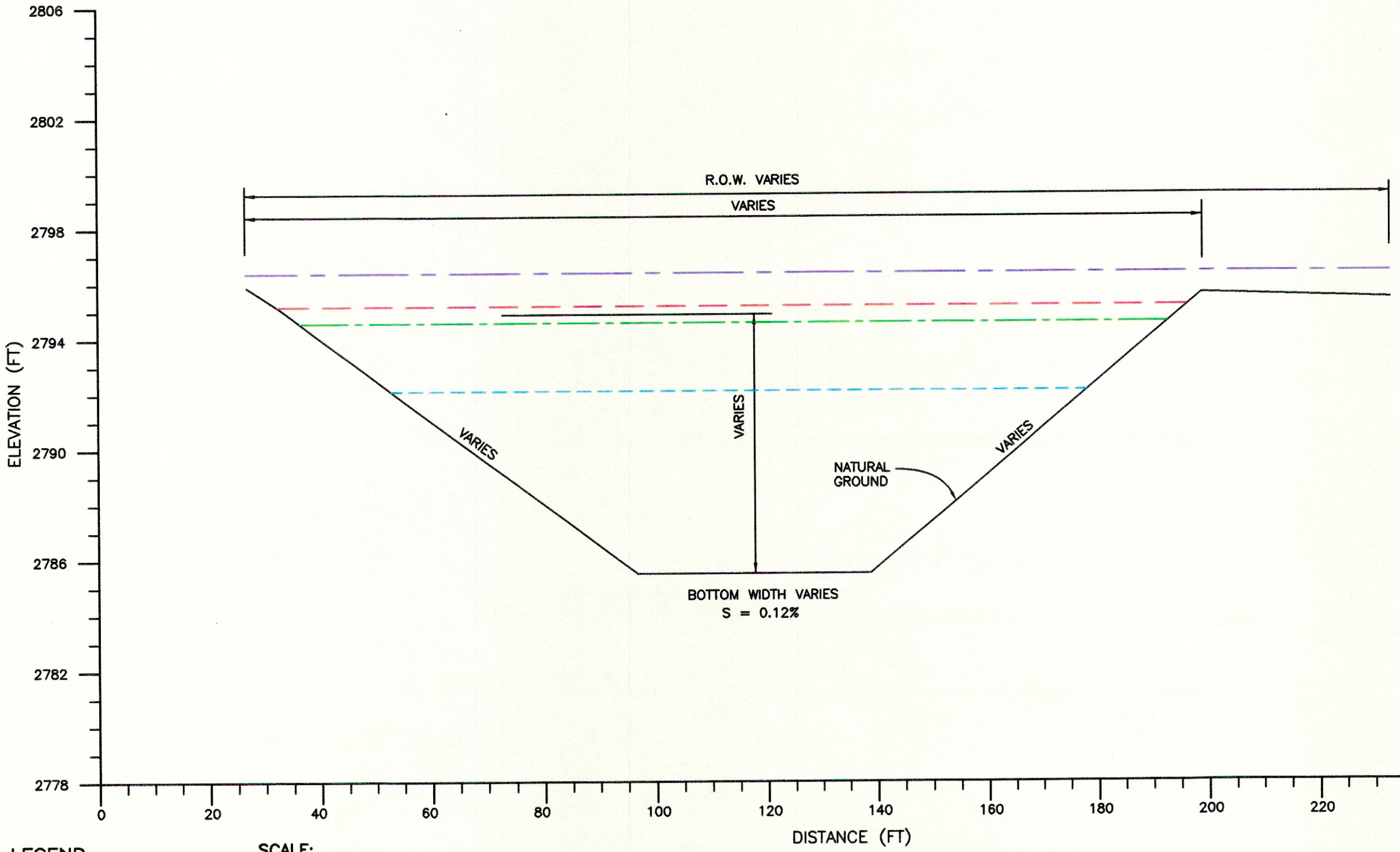
FIGURE 3–65

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

86900 2/20/ 11.00 RSK

CROSS SECTION AI
STATION 875+46



IMPROVEMENTS RECOMMENDED

1. NONE

FL ELEVATION AT 869+00 = 2785.41
FL ELEVATION AT 878+60 = 2786.54

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 20'

NORTH "A" STREET TO MOCKINGBIRD LANE
STATION 869+00 TO STATION 878+60

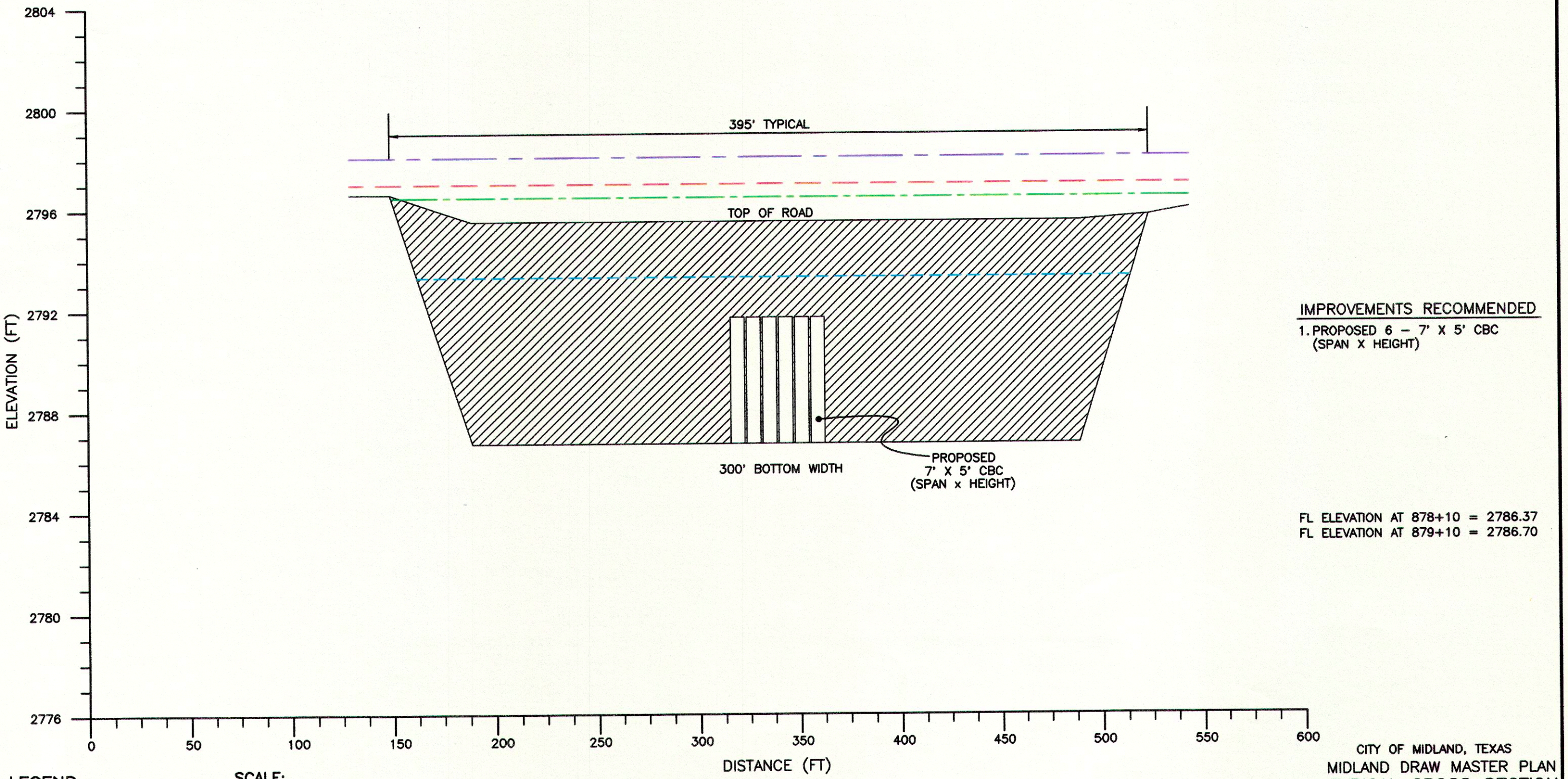
FIGURE 3-66

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

875+46 3/22/96 9:45 RSK

CROSS SECTION AJ
STATION 878+60



IMPROVEMENTS RECOMMENDED

1. PROPOSED 6 – 7' X 5' CBC (SPAN X HEIGHT)

FL ELEVATION AT 878+10 = 2786.37
FL ELEVATION AT 879+10 = 2786.70

LEGEND

- INVERT
- 10–YEAR
- 50–YEAR
- 100–YEAR
- 500–YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

MOCKINGBIRD LANE CROSSING

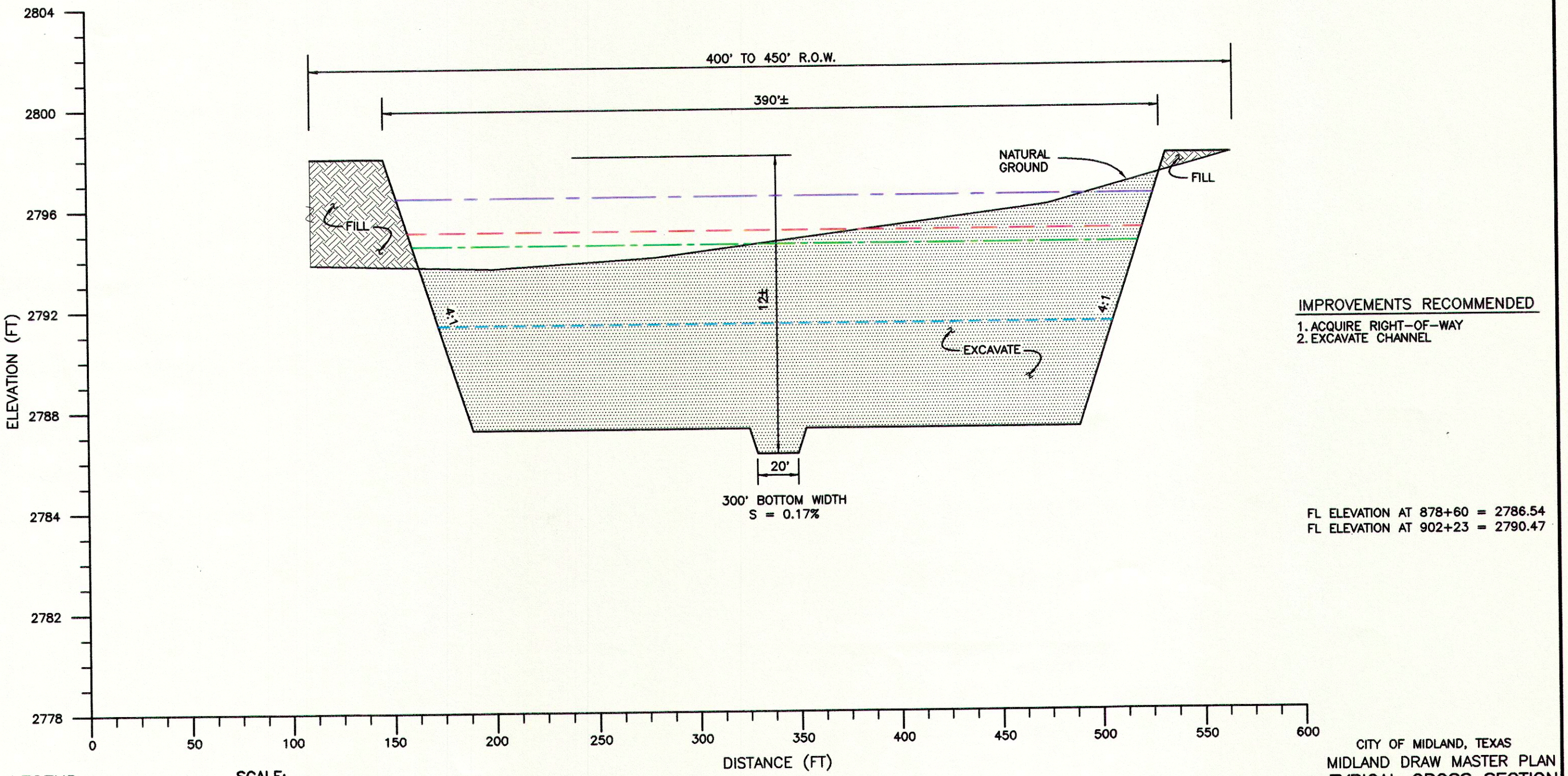
FIGURE 3–67

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

87820 2/20/98 11.00 RSK

CROSS SECTION AK
STATION 888+17



IMPROVEMENTS RECOMMENDED

1. ACQUIRE RIGHT-OF-WAY
2. EXCAVATE CHANNEL

FL ELEVATION AT 878+60 = 2786.54
FL ELEVATION AT 902+23 = 2790.47

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

MOCKINGBIRD LANE TO NORTH "I" STREET
STATION 878+60 TO STATION 902+23

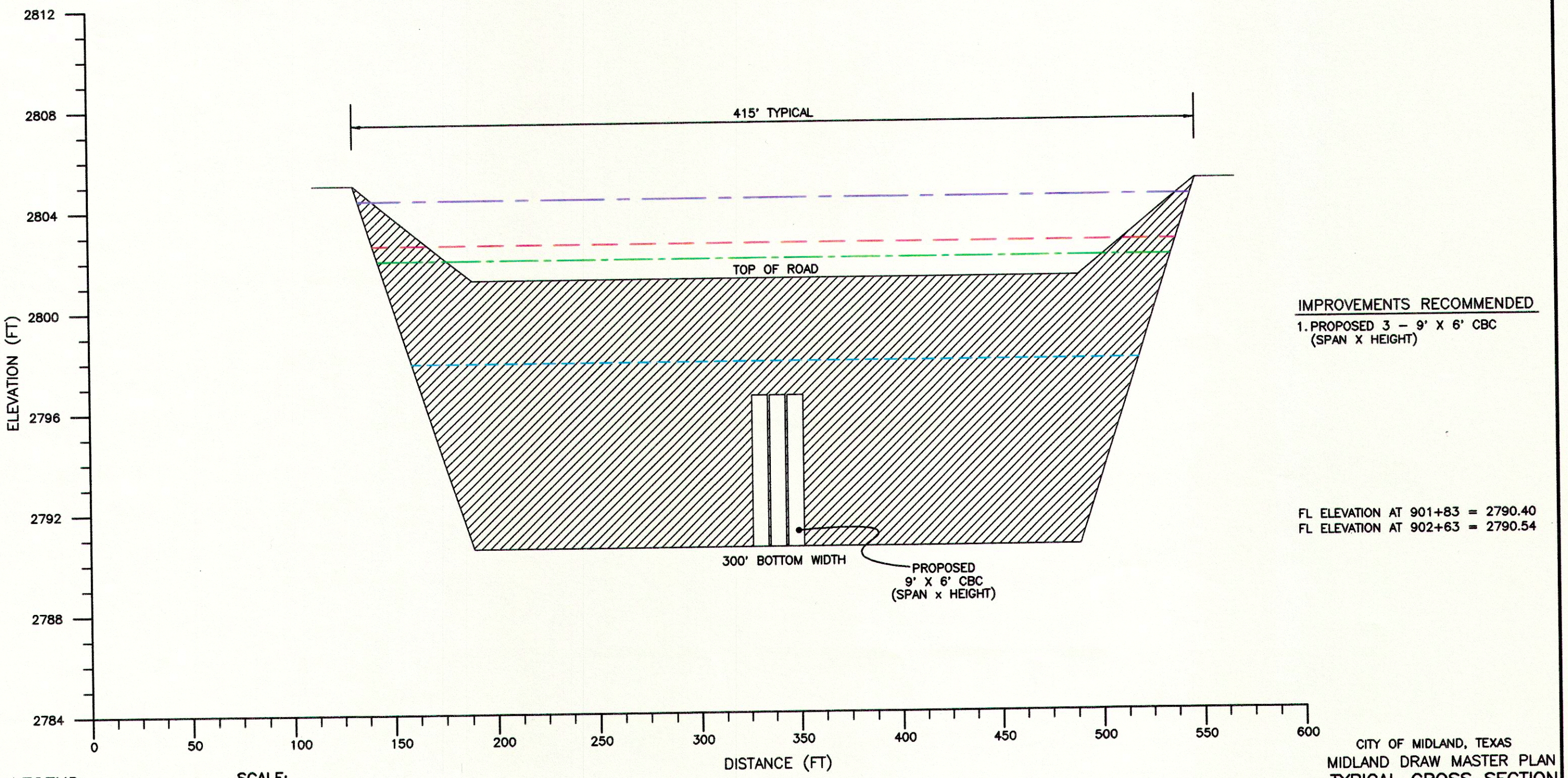
FIGURE 3-68

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

888+17 3/22/96 10.00 RSK

CROSS SECTION AL
STATION 902+23



IMPROVEMENTS RECOMMENDED

1. PROPOSED 3 – 9' X 6' CBC (SPAN X HEIGHT)

FL ELEVATION AT 901+83 = 2790.40
FL ELEVATION AT 902+63 = 2790.54

LEGEND

- INVERT
- 10–YEAR
- 50–YEAR
- 100–YEAR
- 500–YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

NORTH "I" STREET CROSSING

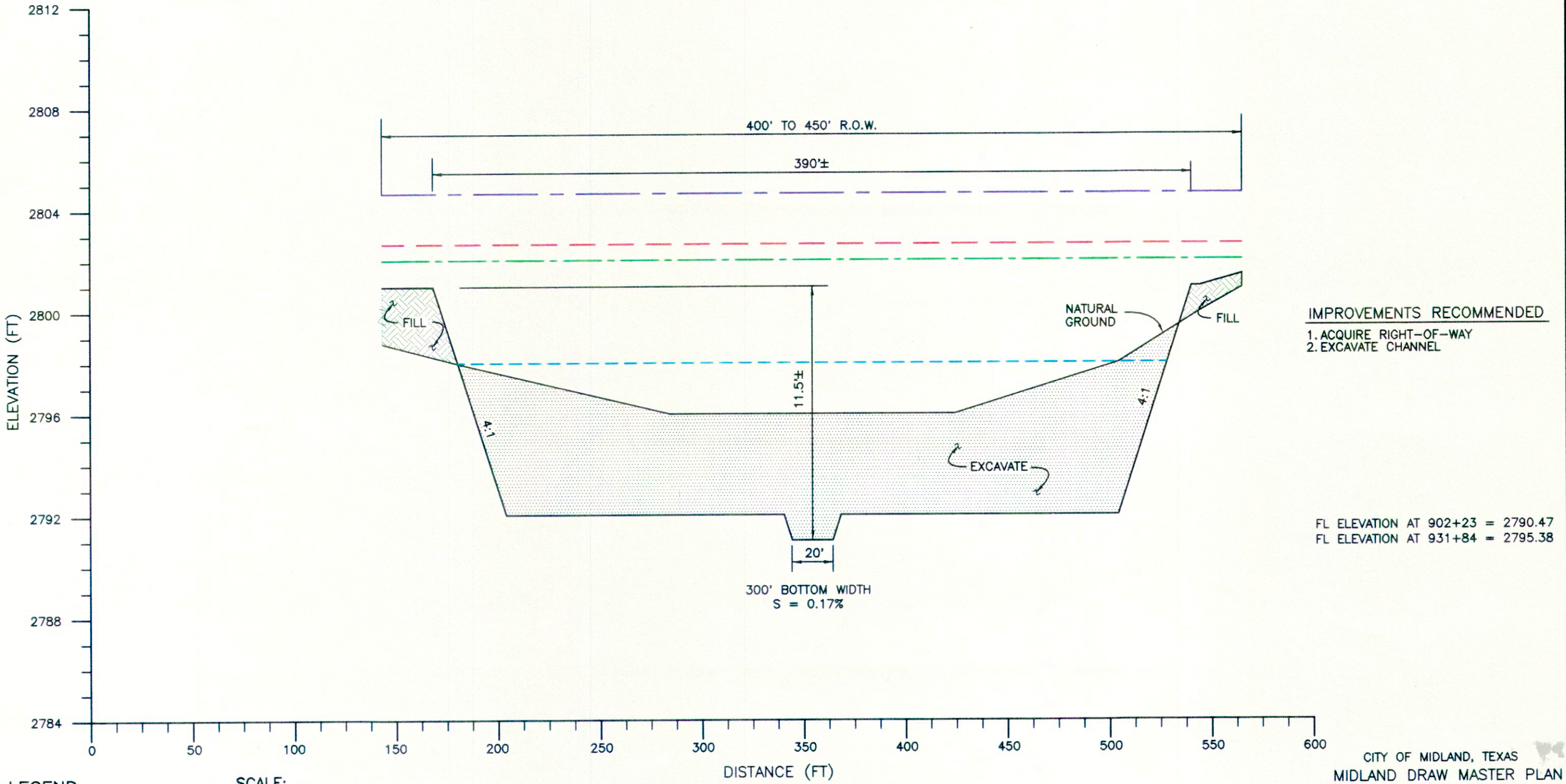
FIGURE 3–69

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

90223 12/1/95 2.00 RSK

CROSS SECTION AM
STATION 917+63



IMPROVEMENTS RECOMMENDED

1. ACQUIRE RIGHT-OF-WAY
2. EXCAVATE CHANNEL

FL ELEVATION AT 902+23 = 2790.47
FL ELEVATION AT 931+84 = 2795.38

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

NORTH "I" STREET TO GARFIELD STREET EXTENSION
STATION 902+23 TO STATION 931+84

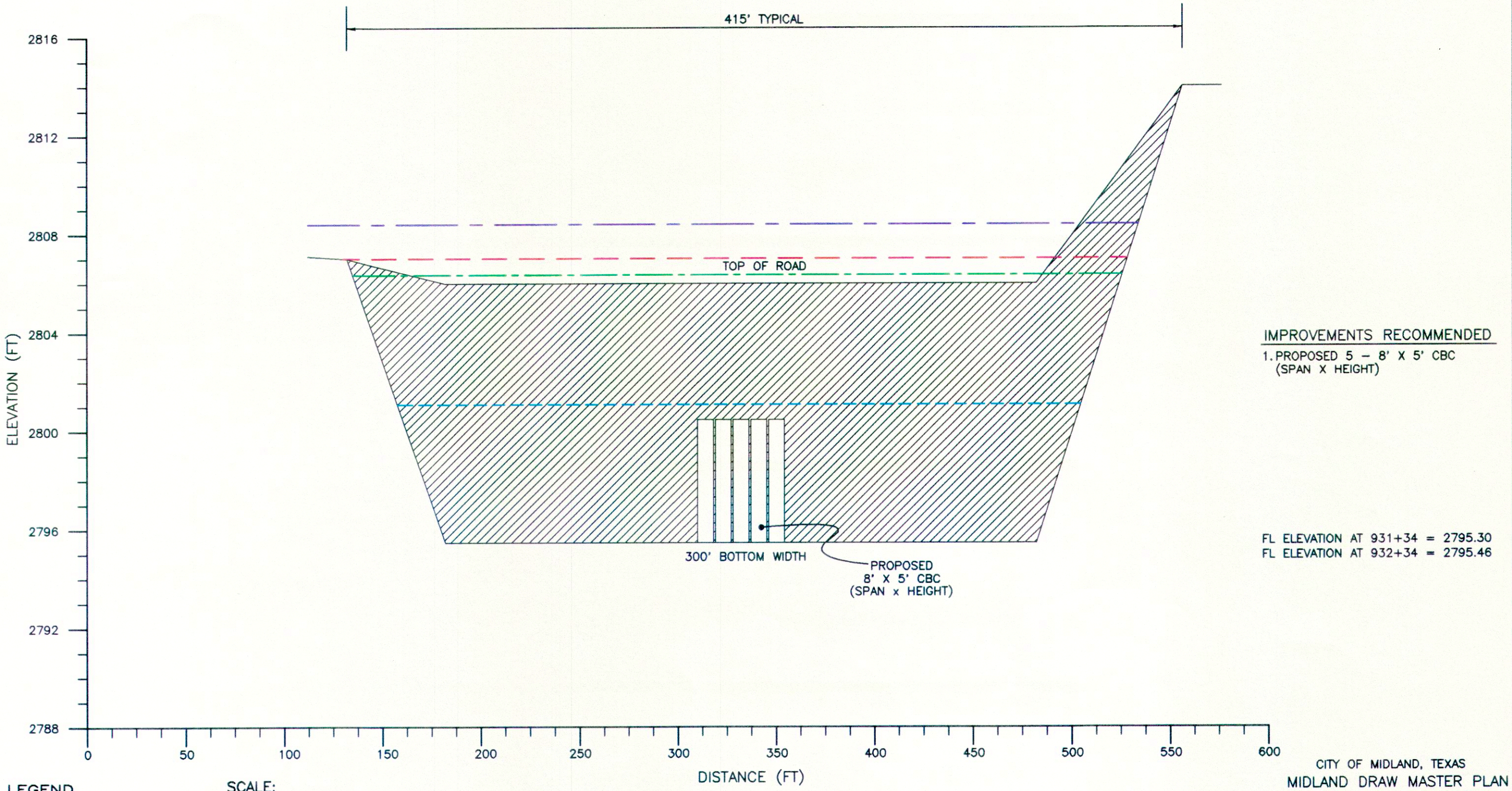
FIGURE 3-70

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

91763 3/22/96 10.00 RSK

CROSS SECTION AN
STATION 931+84



IMPROVEMENTS RECOMMENDED

1. PROPOSED 5 – 8' X 5' CBC (SPAN X HEIGHT)

FL ELEVATION AT 931+34 = 2795.30
FL ELEVATION AT 932+34 = 2795.46

LEGEND

- INVERT
- 10–YEAR
- 50–YEAR
- 100–YEAR
- 500–YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

GARFIELD STREET CROSSING

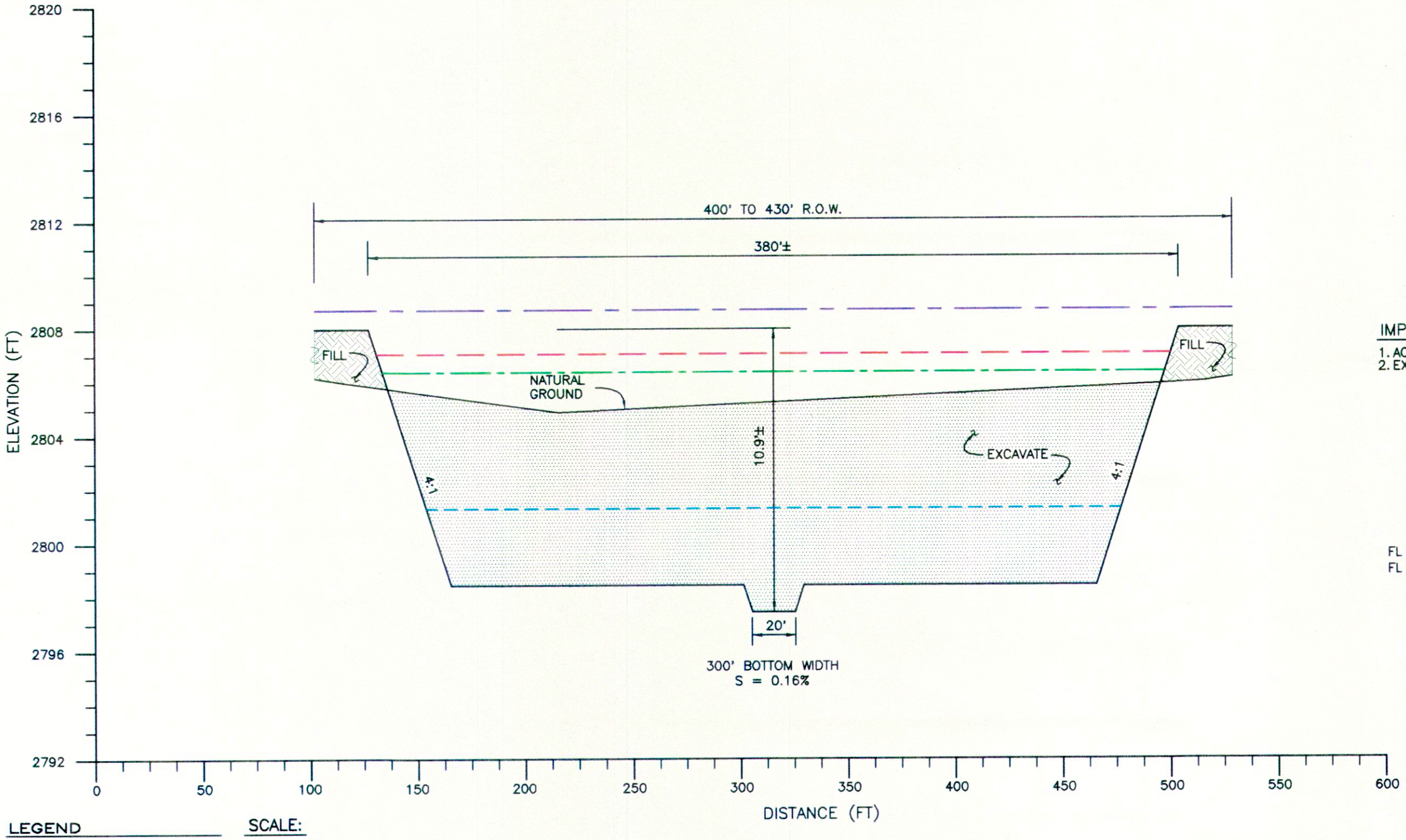
FIGURE 3–71

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

93184 12/1/95 2.00 RSK

CROSS SECTION AO
STATION 944+42



IMPROVEMENTS RECOMMENDED

1. ACQUIRE RIGHT-OF-WAY
2. EXCAVATE CHANNEL

FL ELEVATION AT 931+84 = 2795.38
FL ELEVATION AT 964+24 = 2800.73

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

GARFIELD STREET EXTENSION TO WHITMAN DRIVE
STATION 931+84 TO STATION 964+24

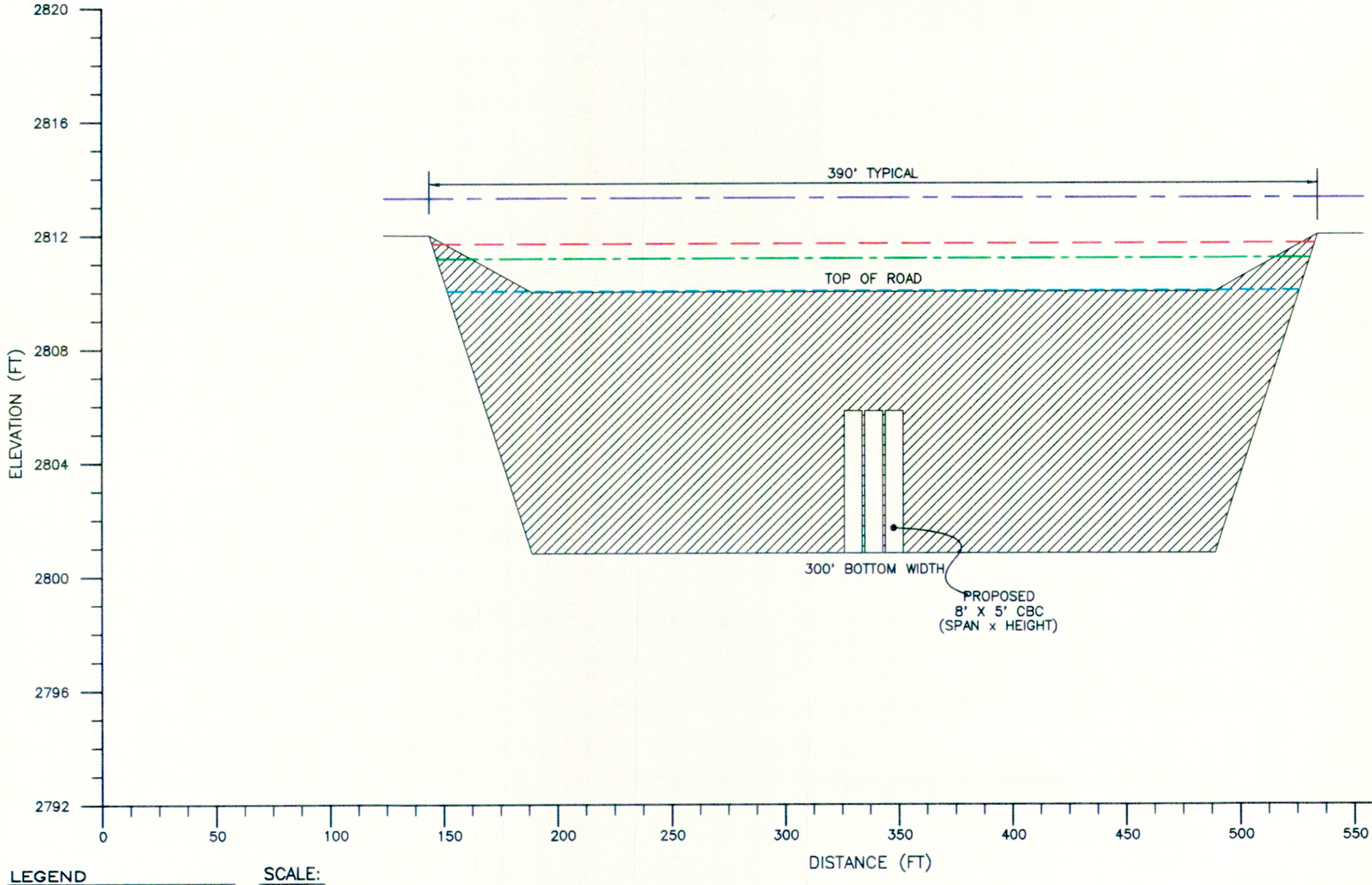
FIGURE 3-72

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

94442 3/22/ 10:00 RSK

CROSS SECTION AP
STATION 964+24



IMPROVEMENTS RECOMMENDED

1. PROPOSED 3 – 8' X 5' CBC (SPAN X HEIGHT)

FL ELEVATION AT 963+74 = 2800.64
FL ELEVATION AT 964+74 = 2800.81

LEGEND

- INVERT
- 10–YEAR
- 50–YEAR
- 100–YEAR
- 500–YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

WHITMAN DRIVE CROSSING

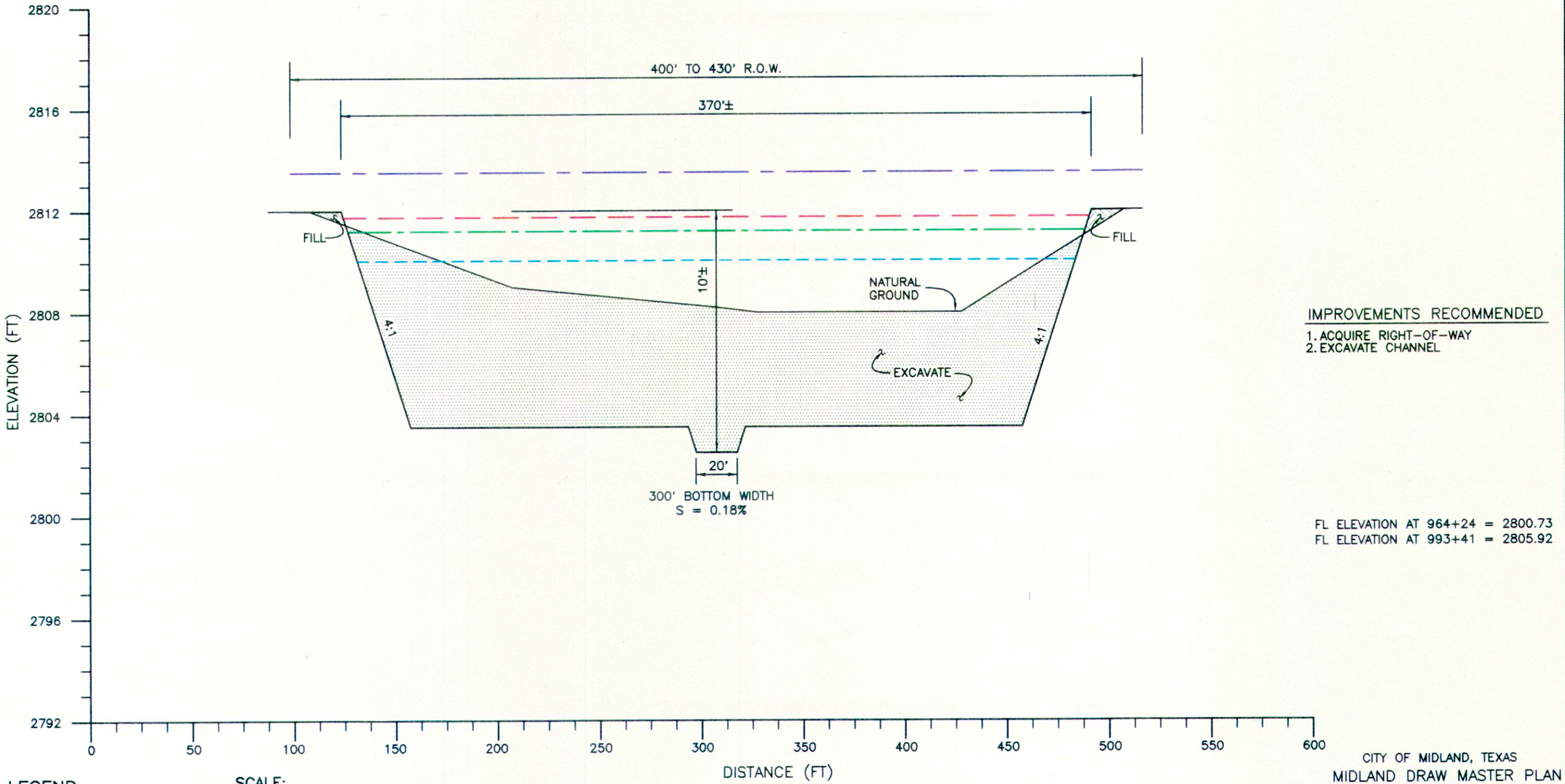
CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

FIGURE 3–73

96424 12/4/95 11.00 RSK

CROSS SECTION AQ
STATION 974+21



IMPROVEMENTS RECOMMENDED

1. ACQUIRE RIGHT-OF-WAY
2. EXCAVATE CHANNEL

FL ELEVATION AT 964+24 = 2800.73
FL ELEVATION AT 993+41 = 2805.92

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

WHITMAN DRIVE TO GREENTREE BLVD./MIDKIFF ROAD
STATION 964+24 TO STATION 993+41

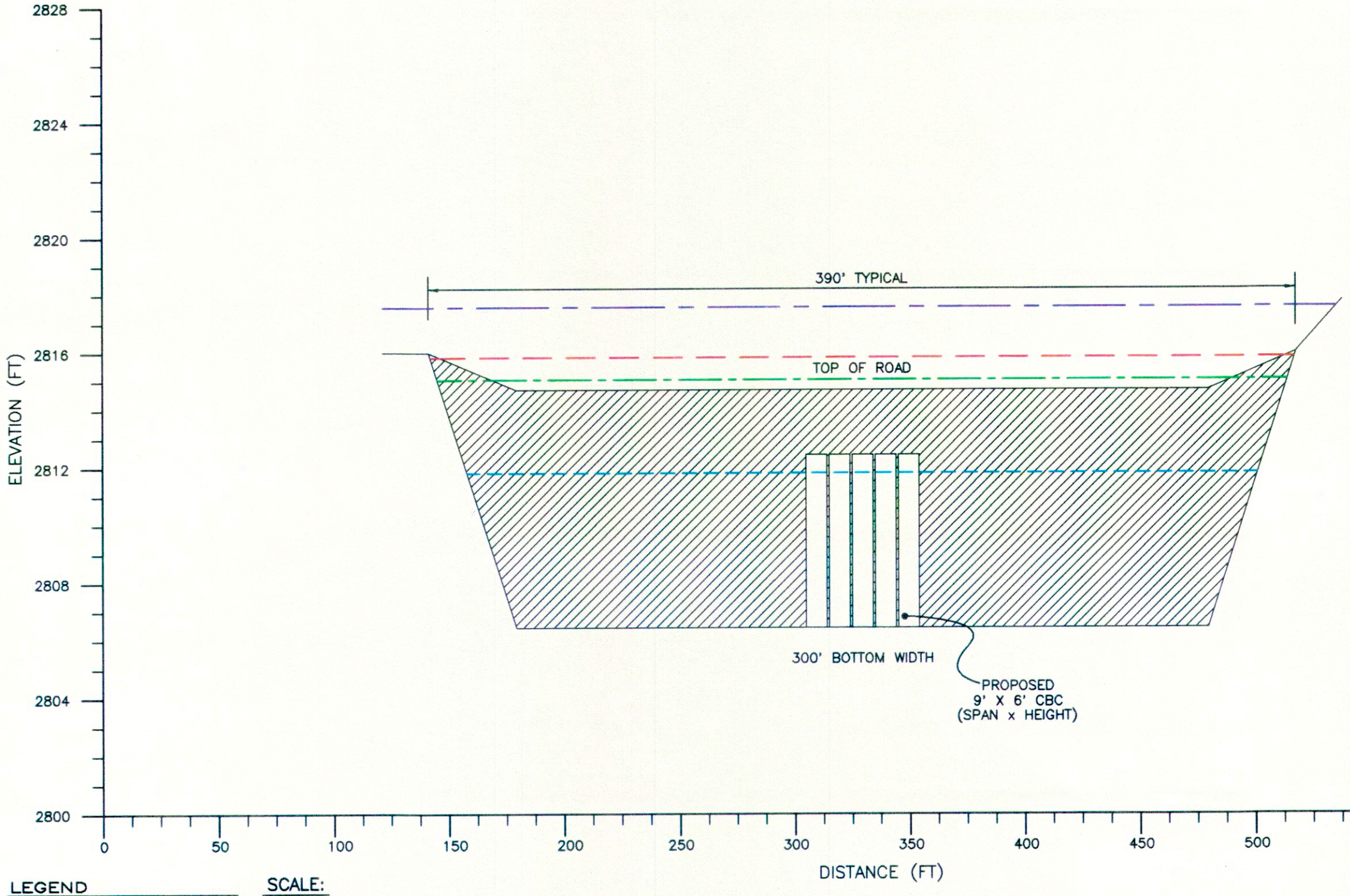
FIGURE 3-74

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

97421 3/22/96 10.00 RSK

CROSS SECTION AR
STATION 993+41



IMPROVEMENTS RECOMMENDED

1. PROPOSED 5 – 9' X 6' CBC (SPAN X HEIGHT)

FL ELEVATION AT 990+41 = 2805.38
FL ELEVATION AT 996+41 = 2806.45

LEGEND

- INVERT
- 10–YEAR
- 50–YEAR
- 100–YEAR
- 500–YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

GREENTREE BOULEVARD/MIDKIFF ROAD CROSSING

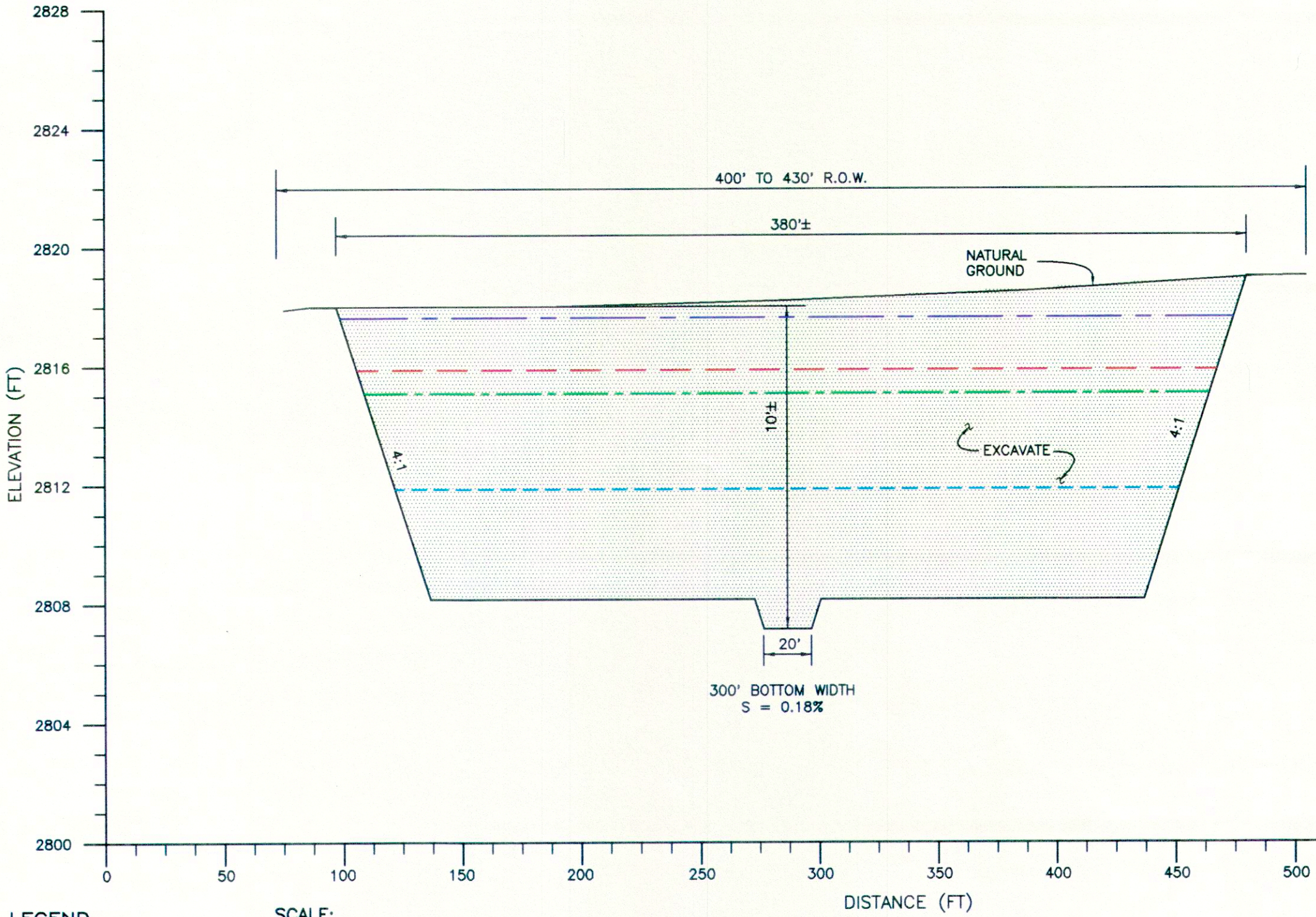
FIGURE 3–75

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

99341 12/4/95 11.00 RSK

CROSS SECTION AS STATION 1000+41



IMPROVEMENTS RECOMMENDED

1. ACQUIRE RIGHT-OF-WAY
2. EXCAVATE CHANNEL

FL ELEVATION AT 993.41 = 2805.92
FL ELEVATION AT 1013+97 = 2809.57

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

GREENTREE BLVD./MIDKIFF ROAD TO DOWNSTREAM CROSSING ON MONTANA BAND TRACT
STATION 993+41 TO STATION 1013+97

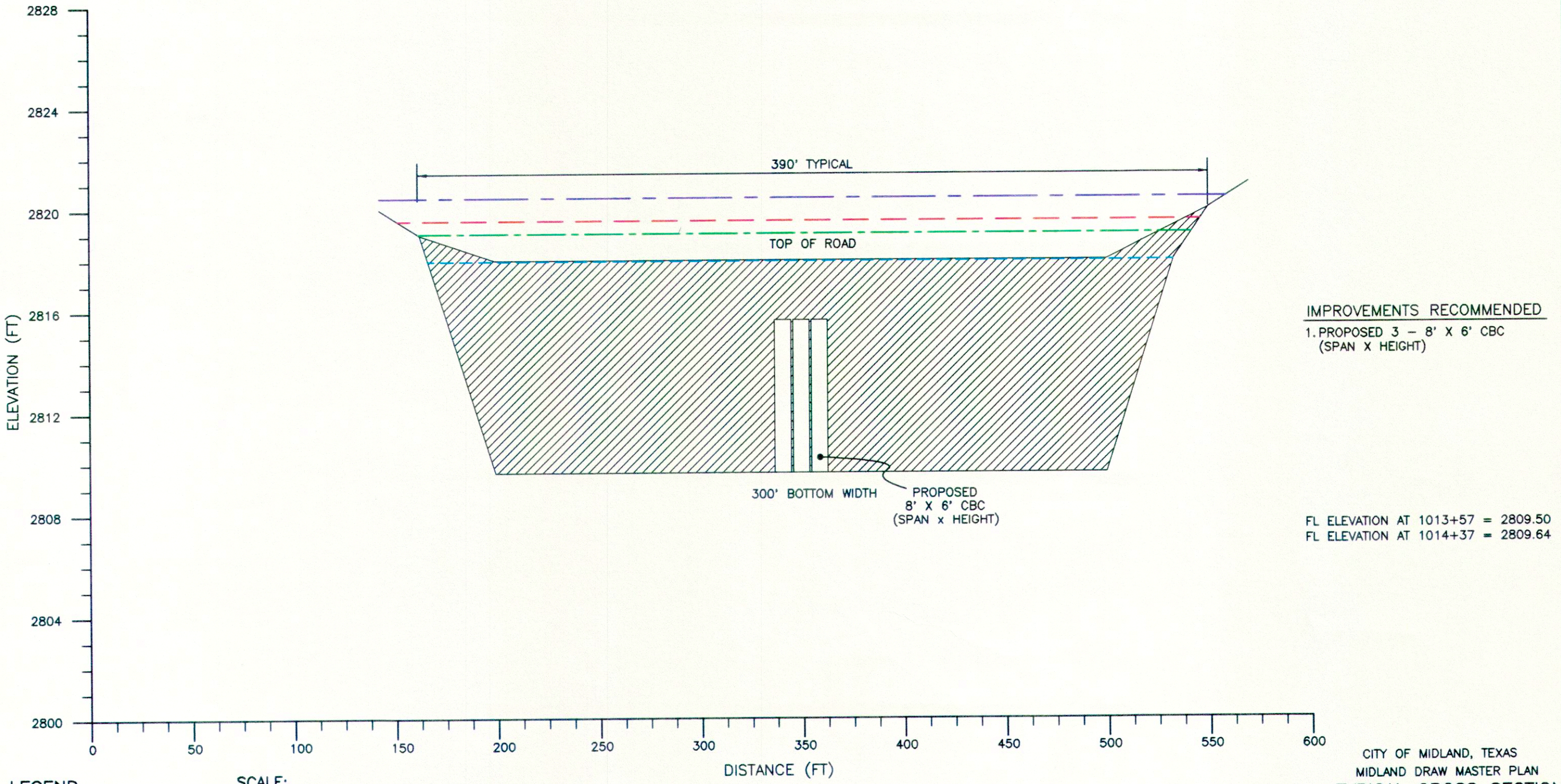
FIGURE 3-76

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

100041 3/22/96 10.00 RSK

CROSS SECTION AT STATION 1013+97



IMPROVEMENTS RECOMMENDED

1. PROPOSED 3 – 8' X 6' CBC (SPAN X HEIGHT)

FL ELEVATION AT 1013+57 = 2809.50
FL ELEVATION AT 1014+37 = 2809.64

LEGEND

- INVERT
- 10–YEAR
- 50–YEAR
- 100–YEAR
- 500–YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

DOWNSTREAM COSSSING ON MONTANA BAND TRACT

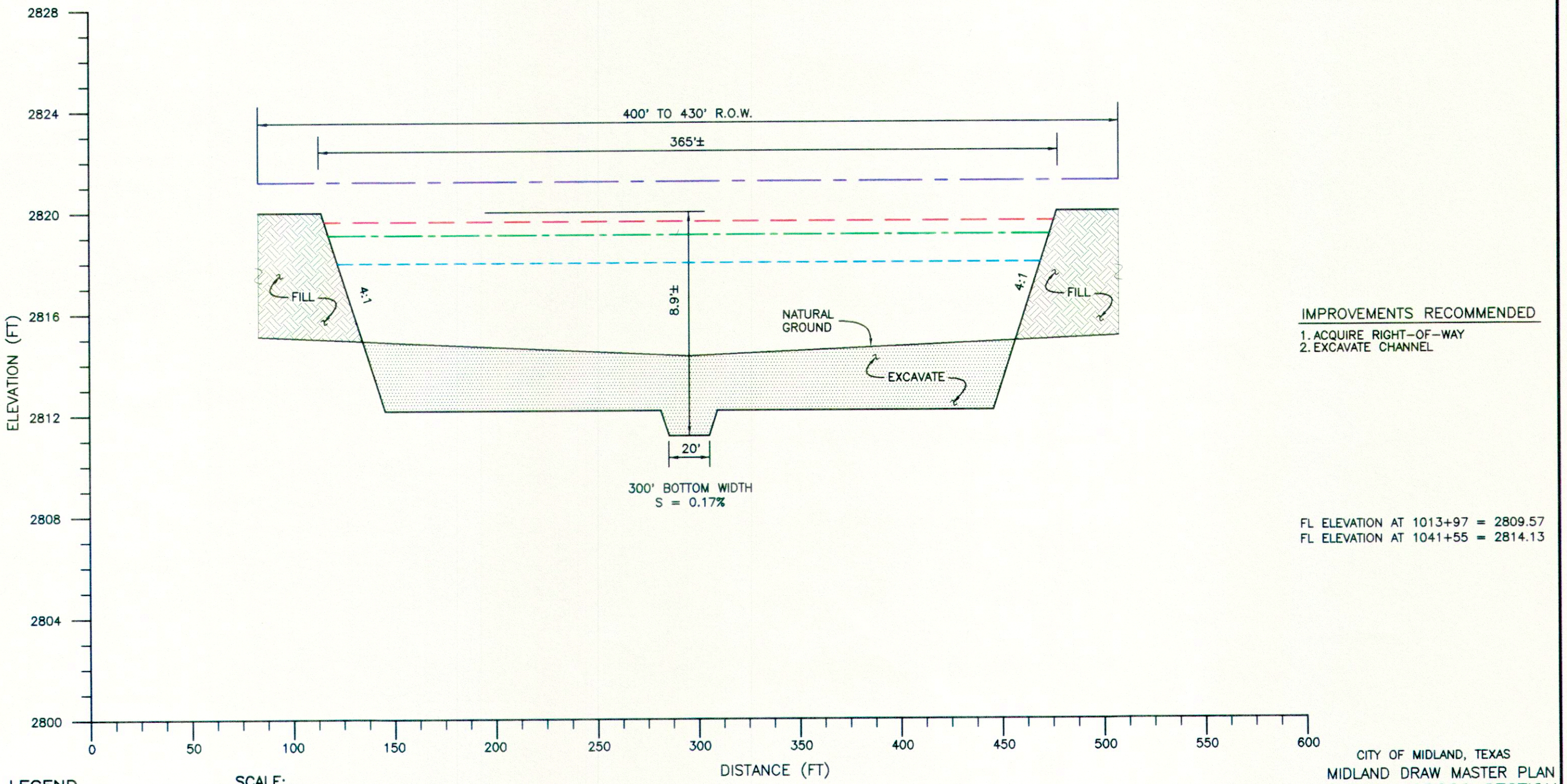
CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

FIGURE 3–77

101397 12/4/95 11.00 RSK

CROSS SECTION AU
STATION 1023+57



IMPROVEMENTS RECOMMENDED

1. ACQUIRE RIGHT-OF-WAY
2. EXCAVATE CHANNEL

FL ELEVATION AT 1013+97 = 2809.57
FL ELEVATION AT 1041+55 = 2814.13

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

DOWNSTREAM CROSSING TO UPSTREAM CROSSING ON MONTANA BAND TRACT
STATION 10113+97 TO STATION 1041+55

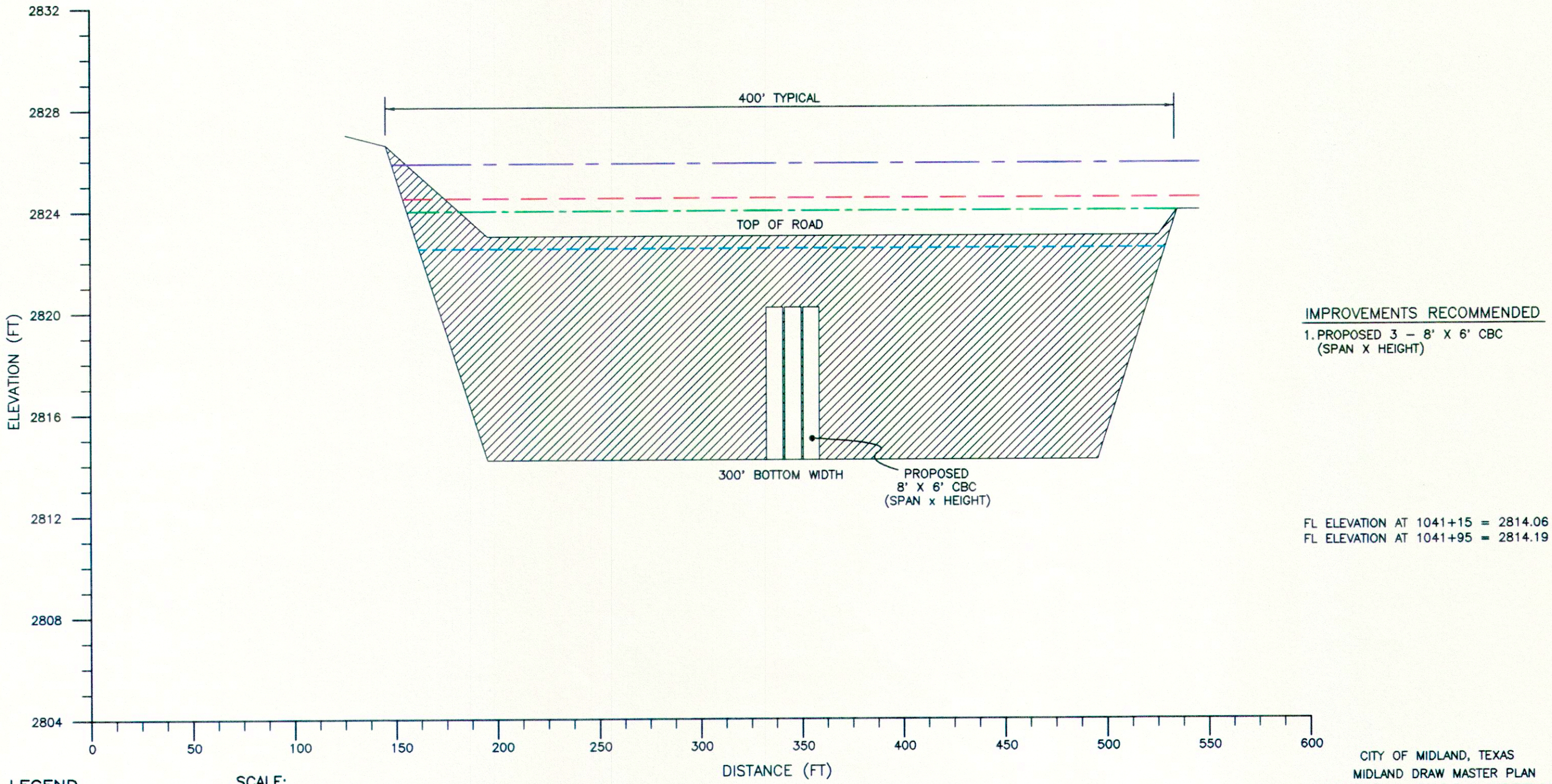
FIGURE 3-78

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

102357 3/22/ 0.30 RSK

CROSS SECTION AV
STATION 1041+55



IMPROVEMENTS RECOMMENDED

1. PROPOSED 3 – 8' X 6' CBC (SPAN X HEIGHT)

FL ELEVATION AT 1041+15 = 2814.06
FL ELEVATION AT 1041+95 = 2814.19

LEGEND

- INVERT
- 10–YEAR
- 50–YEAR
- 100–YEAR
- 500–YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

UPSTREAM COSSSING ON MONTANA BAND TRACT

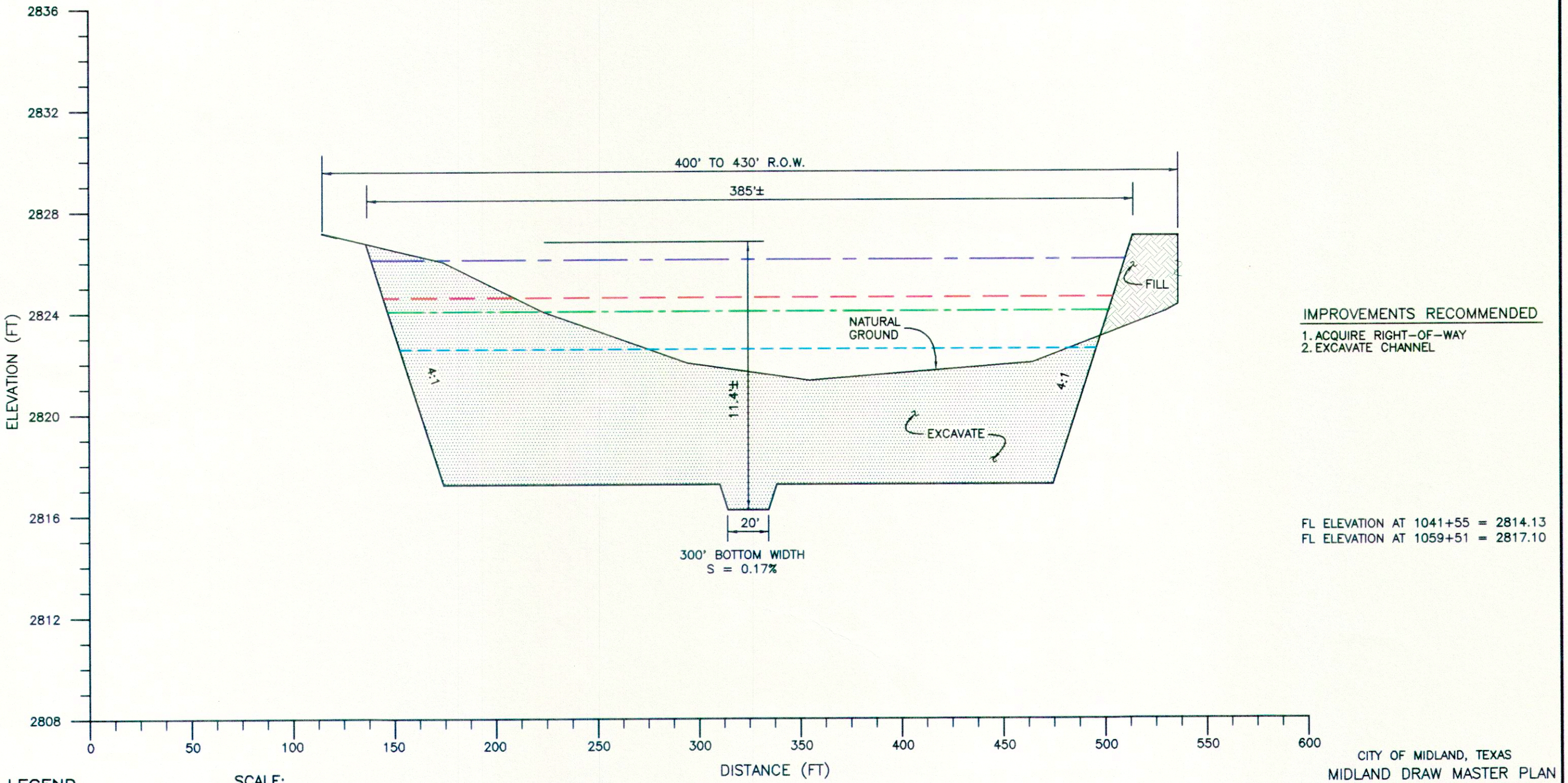
FIGURE 3–79

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

104155 12/4/95 11.00 RSK

CROSS SECTION AW
STATION 1054+17



IMPROVEMENTS RECOMMENDED

1. ACQUIRE RIGHT-OF-WAY
2. EXCAVATE CHANNEL

FL ELEVATION AT 1041+55 = 2814.13
FL ELEVATION AT 1059+51 = 2817.10

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

UPSTREAM CROSSING ON MONTANA BAND TRACT TO MIDLAND DRIVE EXTENSION
STATION 1041+55 TO STATION 1059+51

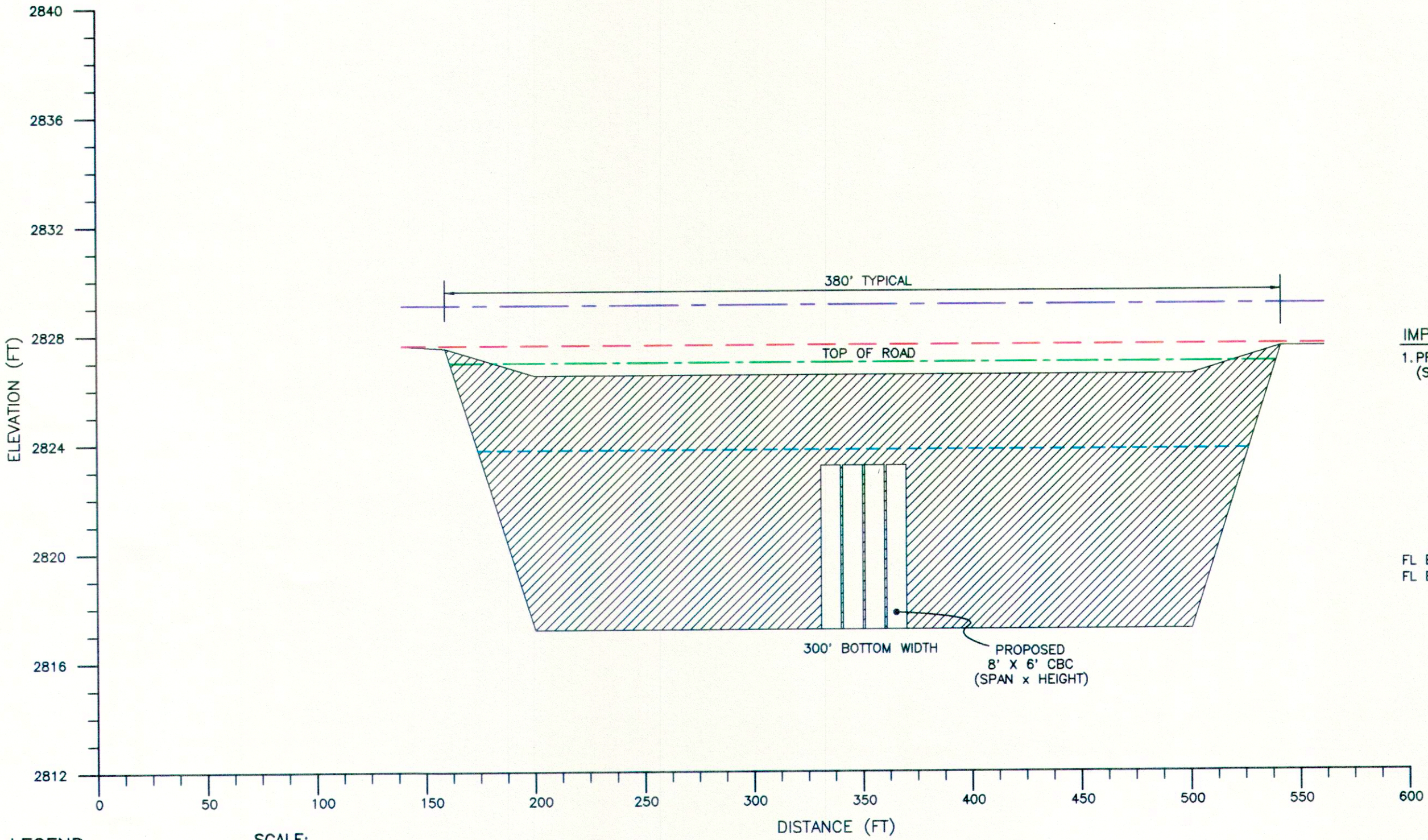
FIGURE 3-80

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

105417 3/22/96 10.30 RSK

CROSS SECTION AX
STATION 1059+51



IMPROVEMENTS RECOMMENDED

1. PROPOSED 4 – 9' X 6' CBC (SPAN X HEIGHT)

FL ELEVATION AT 1059+01 = 2817.01
FL ELEVATION AT 1060+01 = 2817.18

LEGEND

- INVERT
- 10–YEAR
- 50–YEAR
- 100–YEAR
- 500–YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

MIDLAND DRIVE CROSSING

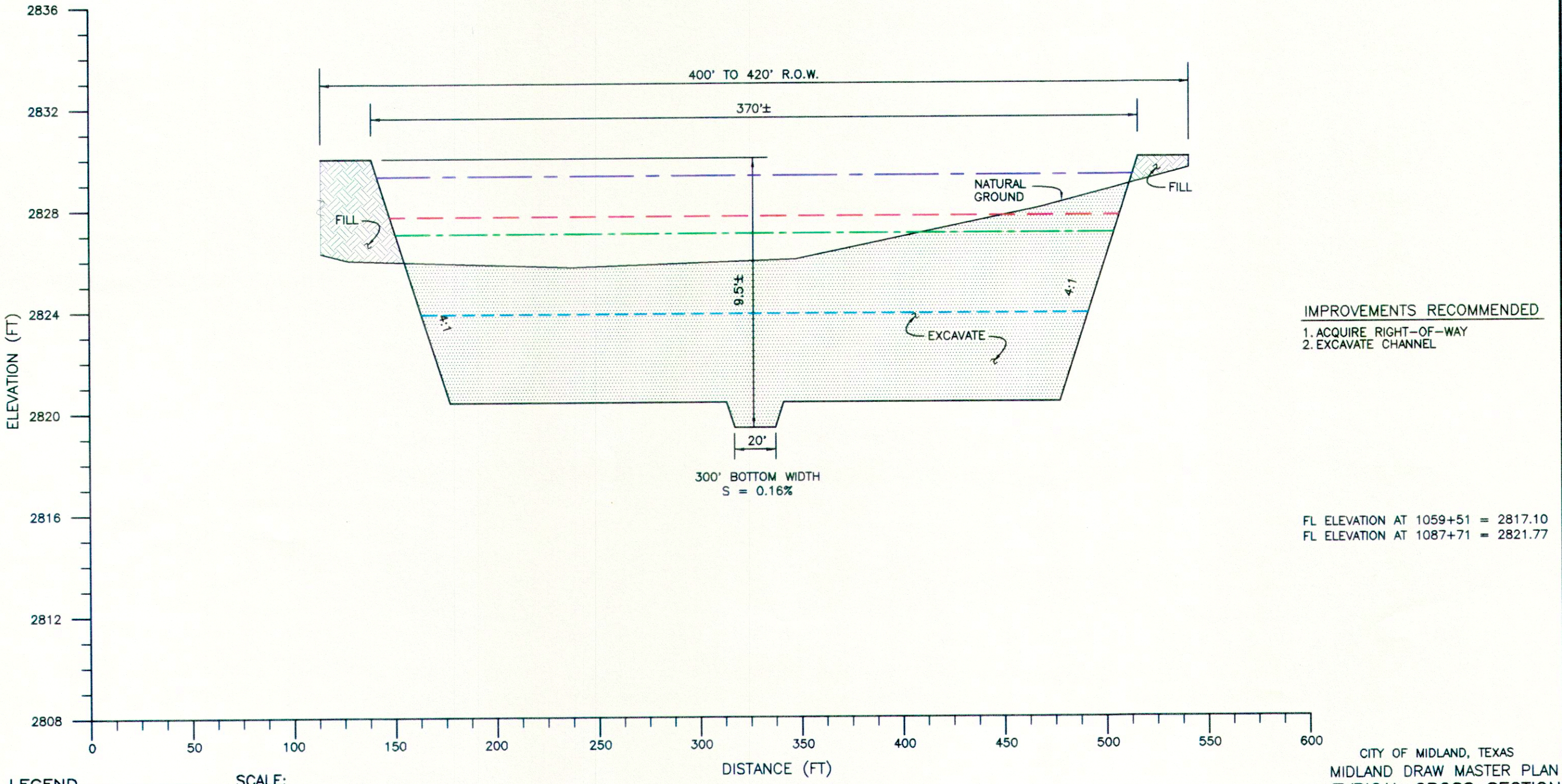
FIGURE 3–81

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

105951 12/4/97 11.00 RSK

CROSS SECTION AY
STATION 1073+39



IMPROVEMENTS RECOMMENDED

1. ACQUIRE RIGHT-OF-WAY
2. EXCAVATE CHANNEL

FL ELEVATION AT 1059+51 = 2817.10
FL ELEVATION AT 1087+71 = 2821.77

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

MIDLAND DRIVE EXTENSION TO CHARLES DRIVE EXTENSION
STATION 1056+51 TO STATION 1087+71

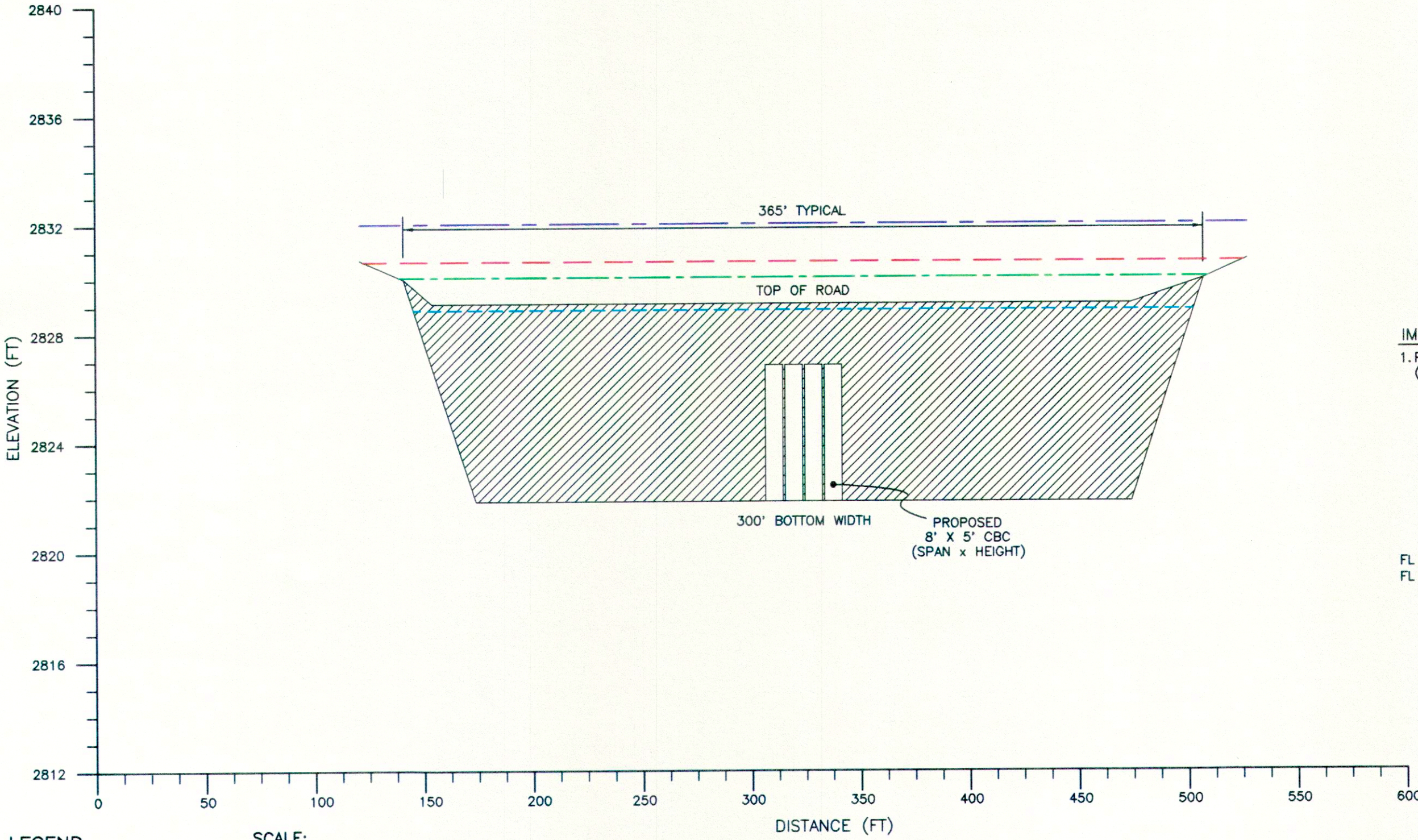
FIGURE 3-82

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

PSC Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

107339 3/22/95 10:30 RSK

CROSS SECTION AZ
STATION 1087+71



IMPROVEMENTS RECOMMENDED

1. PROPOSED 4 – 8' X 5' CBC (SPAN X HEIGHT)

FL ELEVATION AT 1087+30 = 2821.68
FL ELEVATION AT 1088+11 = 2821.85

LEGEND

- INVERT
- 10–YEAR
- 50–YEAR
- 100–YEAR
- 500–YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

CHARLES DRIVE CROSSING

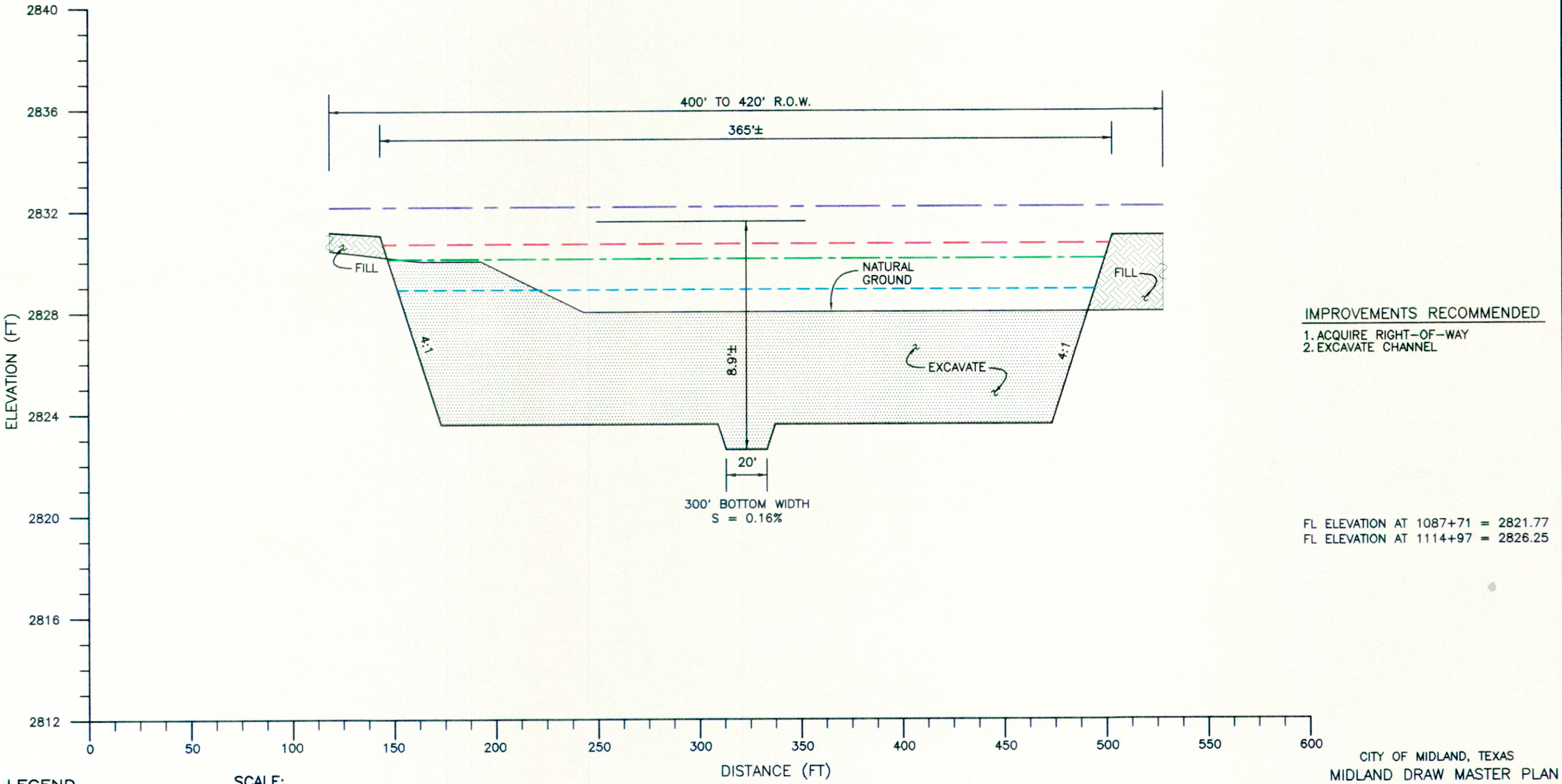
FIGURE 3–83

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

1087+71 12/4/95 11.00 RSK

CROSS SECTION BA
STATION 1092+74



IMPROVEMENTS RECOMMENDED

1. ACQUIRE RIGHT-OF-WAY
2. EXCAVATE CHANNEL

FL ELEVATION AT 1087+71 = 2821.77
FL ELEVATION AT 1114+97 = 2826.25

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

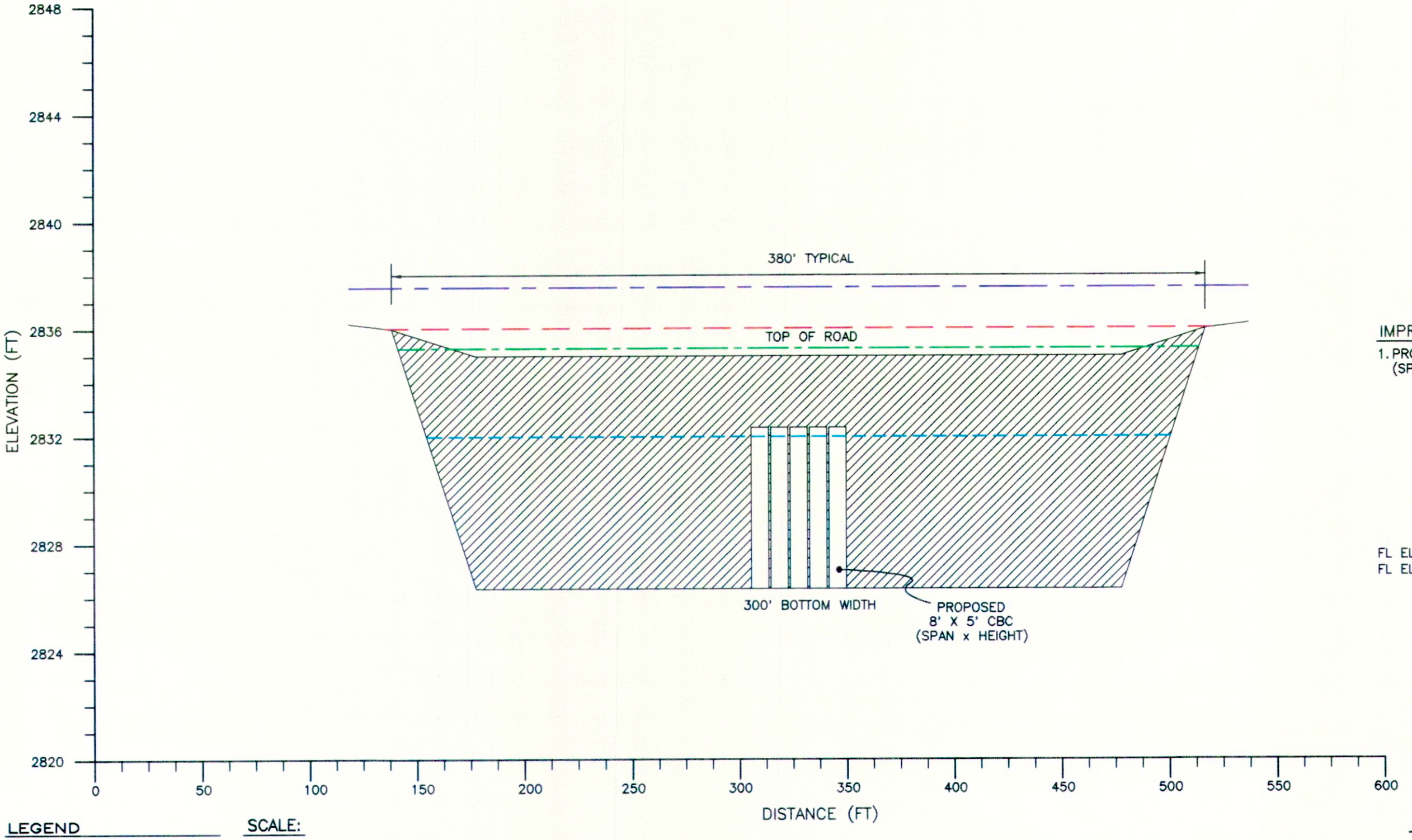
CHARLES DRIVE EXTENSION TO HOLIDAY HILL ROAD EXTENSION
STATION 1087+71 TO STATION 1114+97

FIGURE 3-84

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

109274 3/22/95 10.30 RSK

CROSS SECTION BB
STATION 1114+97



IMPROVEMENTS RECOMMENDED

1. PROPOSED 5 – 8' X 5' CBC (SPAN X HEIGHT)

FL ELEVATION AT 1114+47 = 2826.16
FL ELEVATION AT 1115+47 = 2826.33

LEGEND

- INVERT
- 10–YEAR
- 50–YEAR
- 100–YEAR
- 500–YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

HOLIDAY HILL ROAD CROSSING

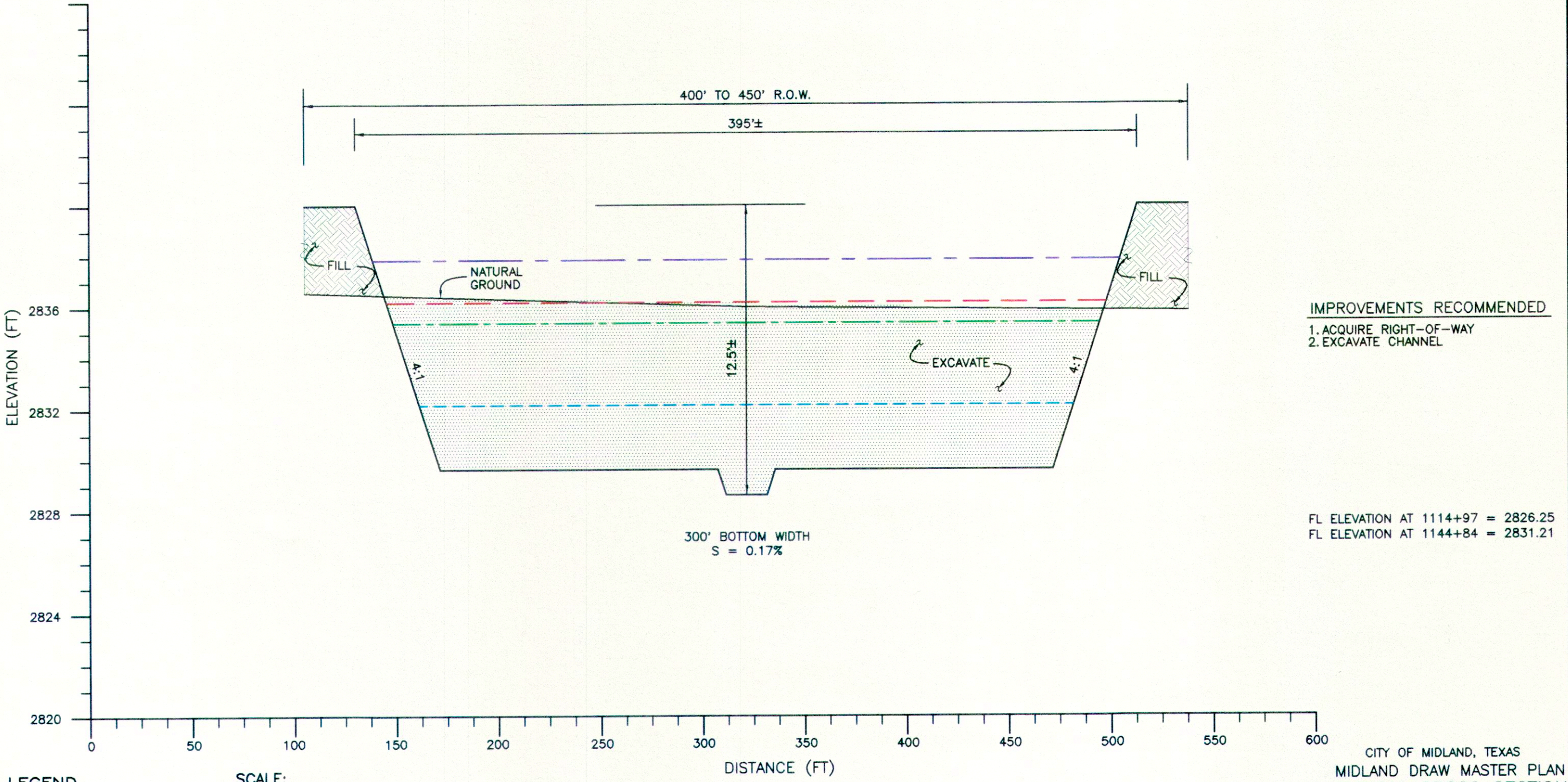
FIGURE 3–85

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

111497 12/4/95 11:00 RSK

CROSS SECTION BC
STATION 1129+44



IMPROVEMENTS RECOMMENDED

1. ACQUIRE RIGHT-OF-WAY
2. EXCAVATE CHANNEL

FL ELEVATION AT 1114+97 = 2826.25
FL ELEVATION AT 1144+84 = 2831.21

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

HOLIDAY HILL ROAD TO 0.5 MILES WEST OF HOLIDAY HILL ROAD CROSING
STATION 1114+97 TO STATION 1144+84

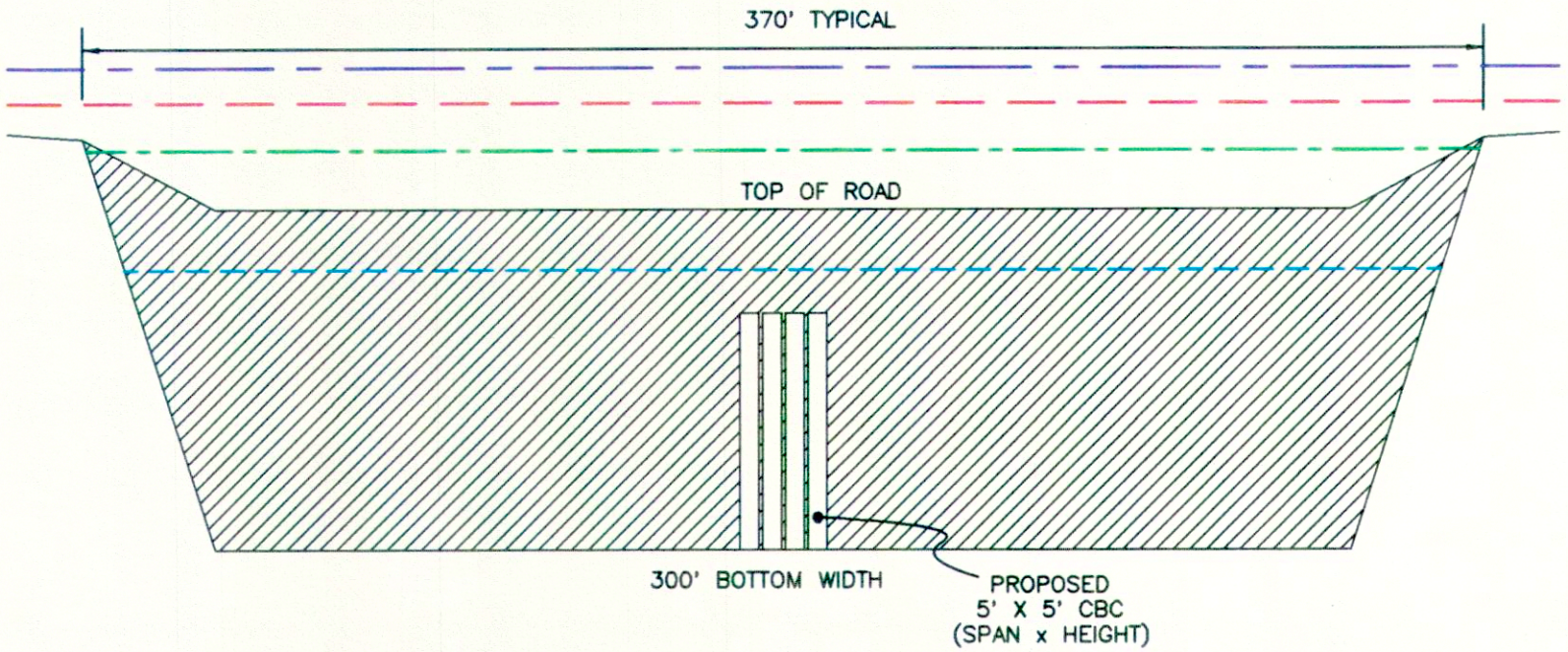
FIGURE 3-86

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

112944 3/22/96 11.00 RSK

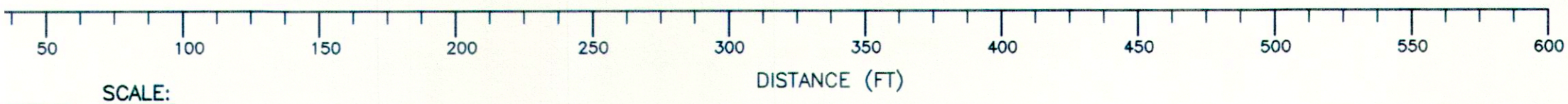
CROSS SECTION BD
STATION 1144+84



IMPROVEMENTS RECOMMENDED

1. PROPOSED 4 – 5' X 5' CBC (SPAN X HEIGHT)

FL ELEVATION AT 1144+44 = 2831.11
FL ELEVATION AT 1145+24 = 2831.31



SCALE:
V: 1" = 4'
H: 1" = 50'

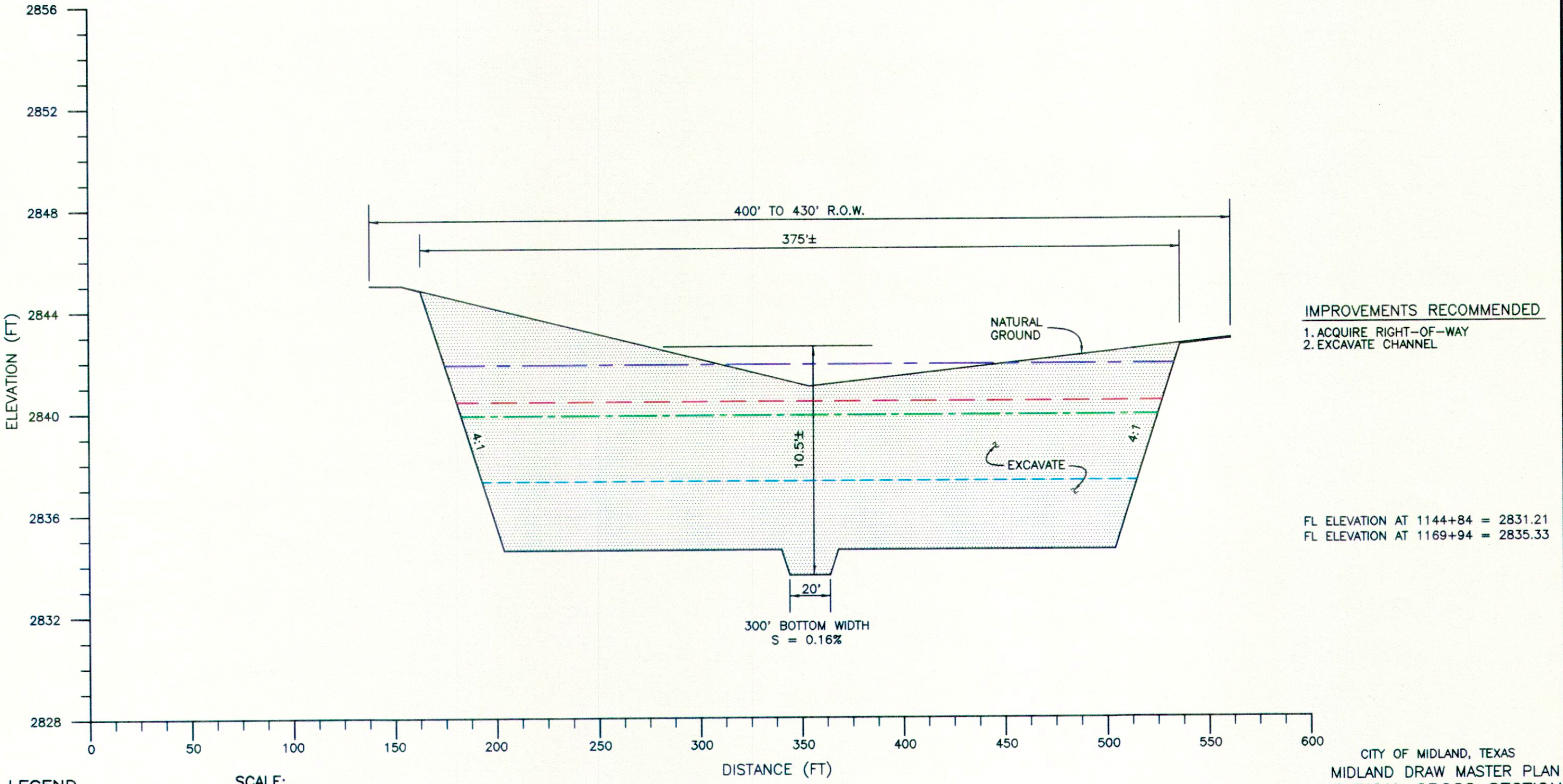
0.5 MILE CROSSING WEST OF HOLIDAY HILL ROAD

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

FIGURE 3-87

CROSS SECTION BE
STATION 1159+44



IMPROVEMENTS RECOMMENDED

1. ACQUIRE RIGHT-OF-WAY
2. EXCAVATE CHANNEL

FL ELEVATION AT 1144+84 = 2831.21
FL ELEVATION AT 1169+94 = 2835.33

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

0.5 MILE CROSSING TO 1.0 MILE CROSSING WEST OF HOLIDAY HILL ROAD
STATION 1144+84 TO STATION 1169+94

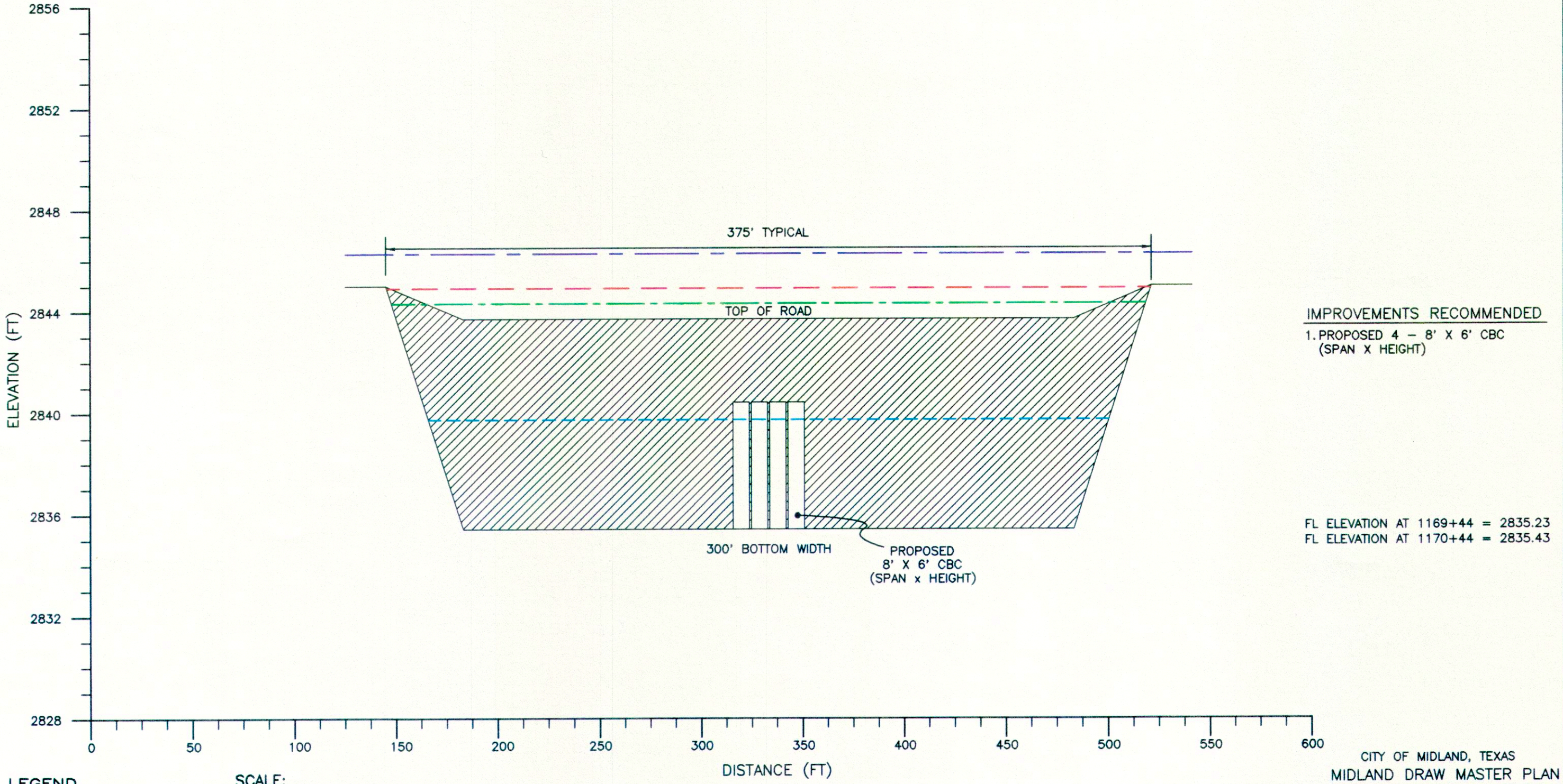
FIGURE 3-88

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

PSC Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

115944 3/22/96 11.00 RSK

CROSS SECTION BF
STATION 1169+94



IMPROVEMENTS RECOMMENDED

1. PROPOSED 4 – 8' X 6' CBC (SPAN X HEIGHT)

FL ELEVATION AT 1169+44 = 2835.23
FL ELEVATION AT 1170+44 = 2835.43

LEGEND

- INVERT
- 10–YEAR
- 50–YEAR
- 100–YEAR
- 500–YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

1.0 MILE CROSSING WEST OF HOLIDAY HILL ROAD

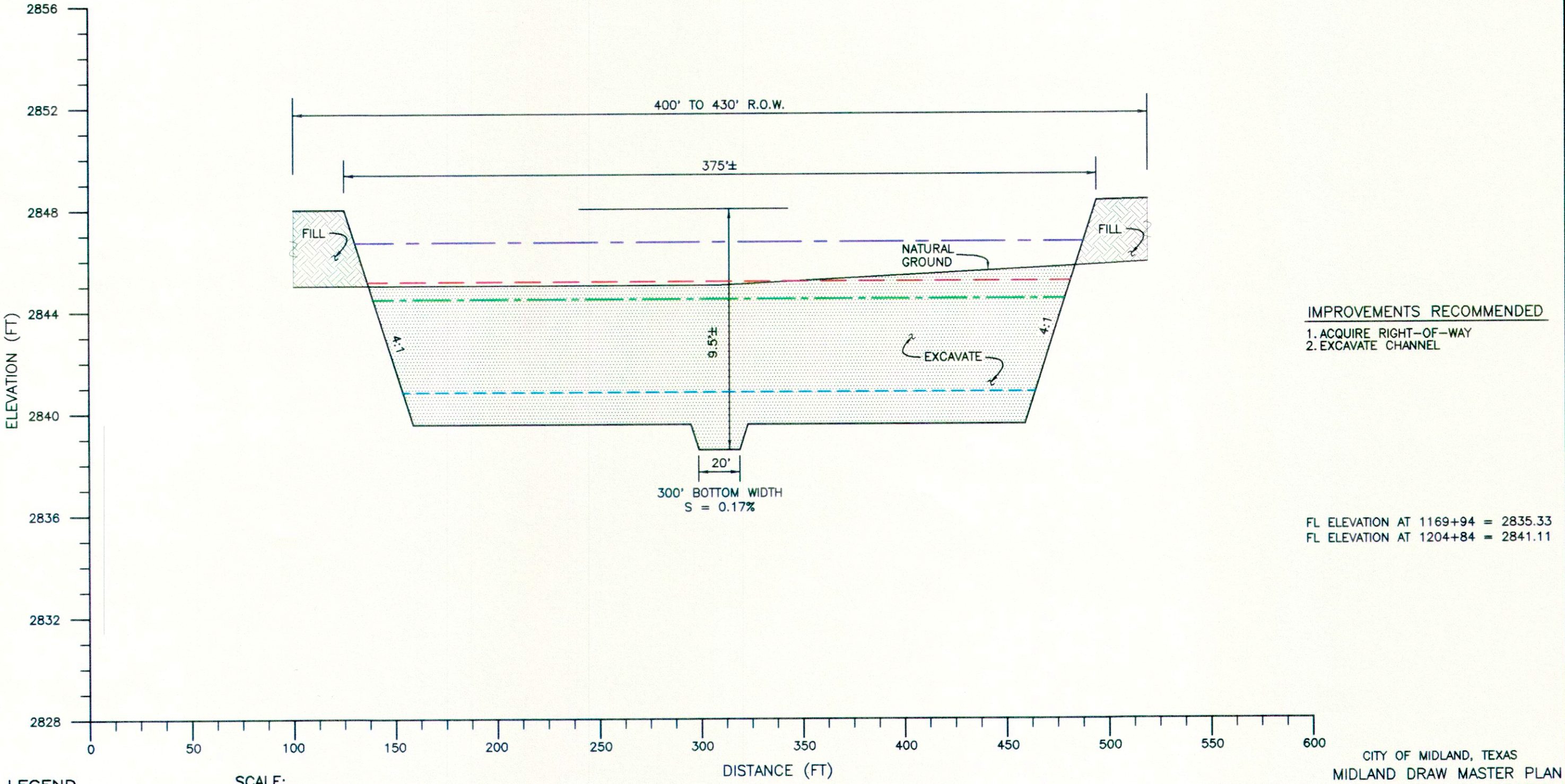
FIGURE 3–89

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

1169+94 2/20/96 11.00 RSK

CROSS SECTION BG
STATION 1189+44



IMPROVEMENTS RECOMMENDED

1. ACQUIRE RIGHT-OF-WAY
2. EXCAVATE CHANNEL

FL ELEVATION AT 1169+94 = 2835.33
FL ELEVATION AT 1204+84 = 2841.11

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

1.0 MILE CROSSING TO 1.5 MILE CROSSING WEST OF HOLIDAY HILL ROAD
STATION 1169+44 TO STATION 1204+84

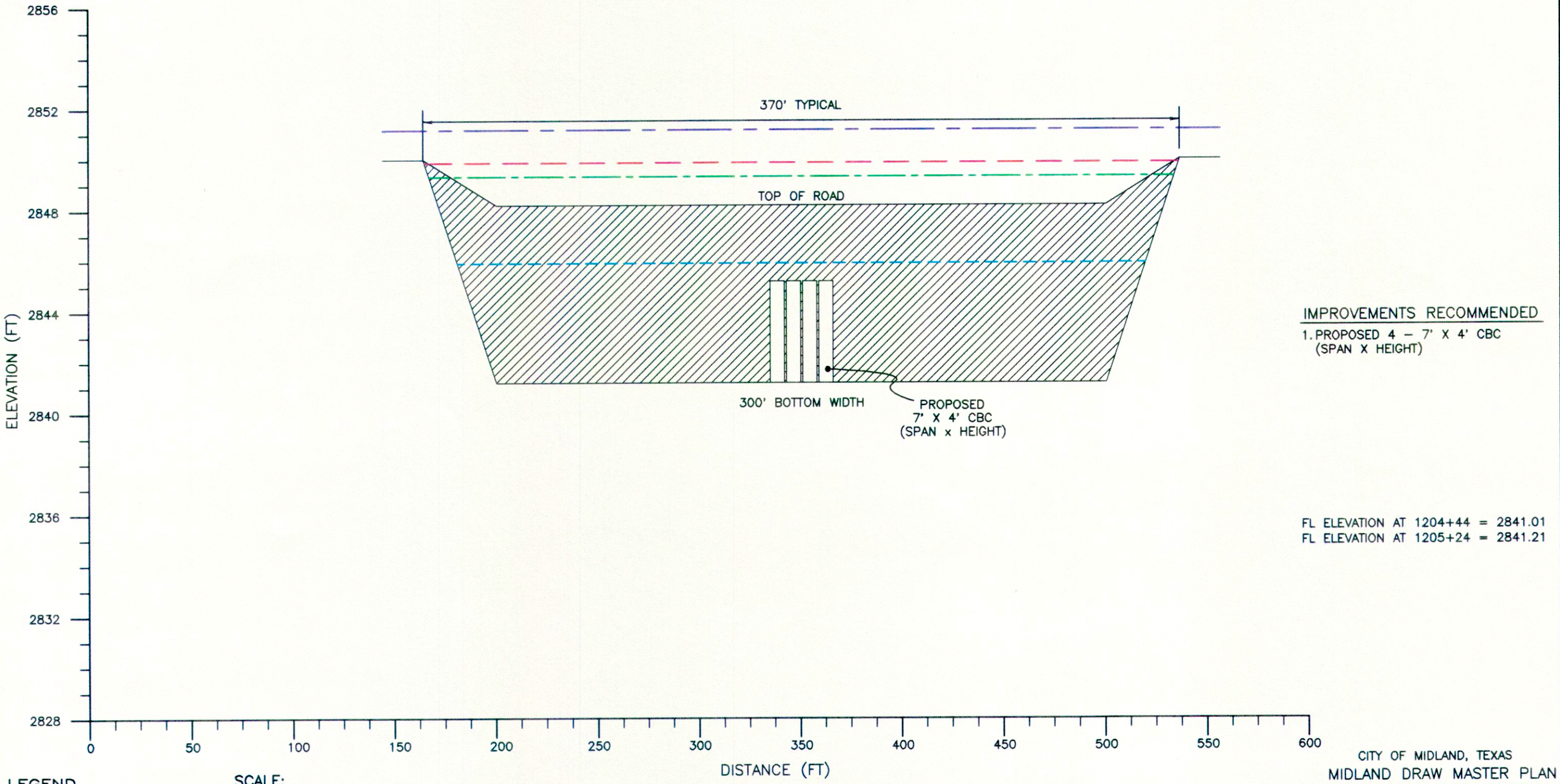
FIGURE 3-90

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

118944 4/4/96 9.00 RSK

CROSS SECTION BH
STATION 1204+84



IMPROVEMENTS RECOMMENDED

1. PROPOSED 4 – 7' X 4' CBC (SPAN X HEIGHT)

FL ELEVATION AT 1204+44 = 2841.01
FL ELEVATION AT 1205+24 = 2841.21

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

1.5 MILE CROSSING WEST OF HOLIDAY HILL ROAD

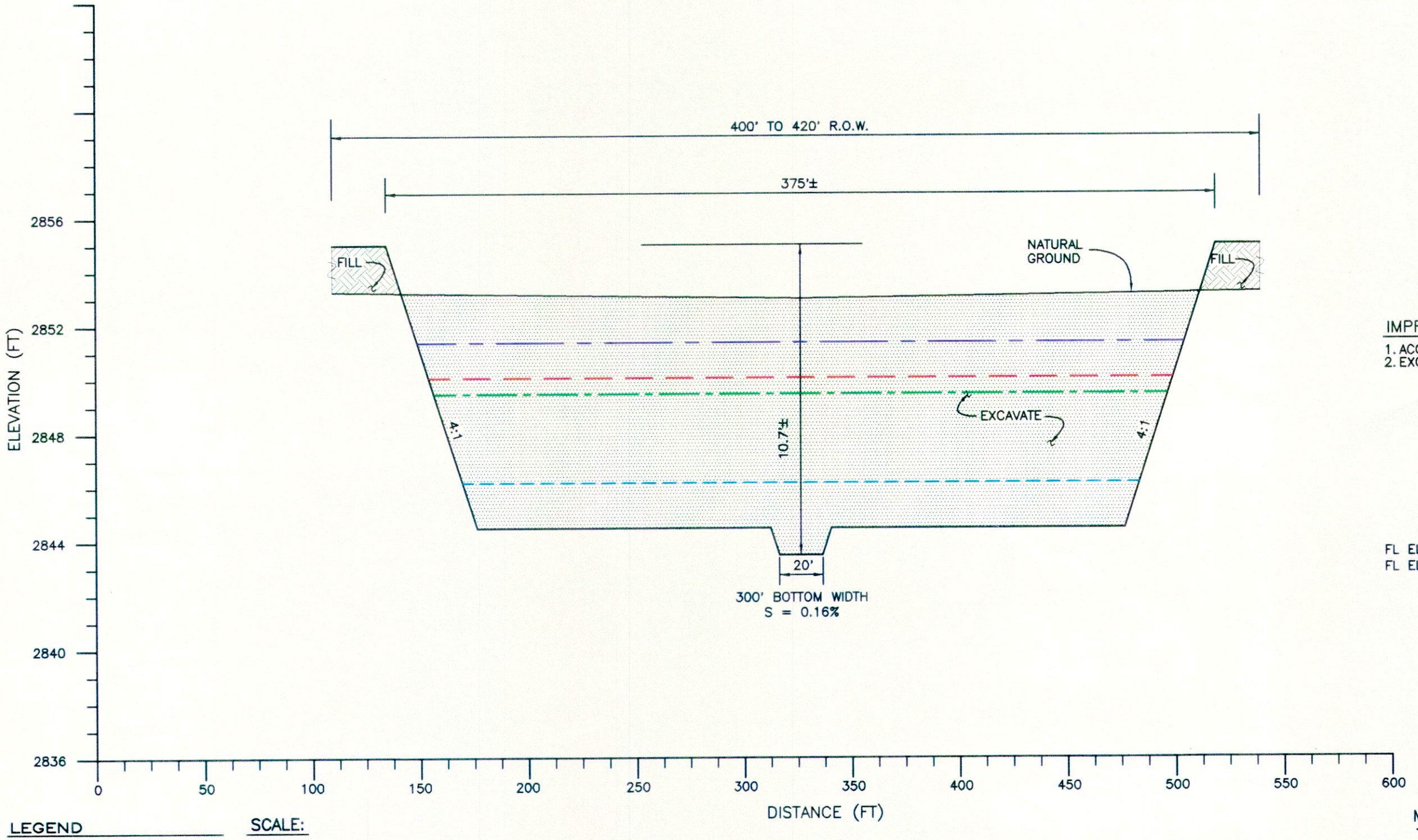
FIGURE 3-91

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

120484 2/20/96 11.00 RSK

CROSS SECTION BI
STATION 1219+44



IMPROVEMENTS RECOMMENDED

1. ACQUIRE RIGHT-OF-WAY
2. EXCAVATE CHANNEL

FL ELEVATION AT 1204+84 = 2841.11
FL ELEVATION AT 1229+44 = 2845.14

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

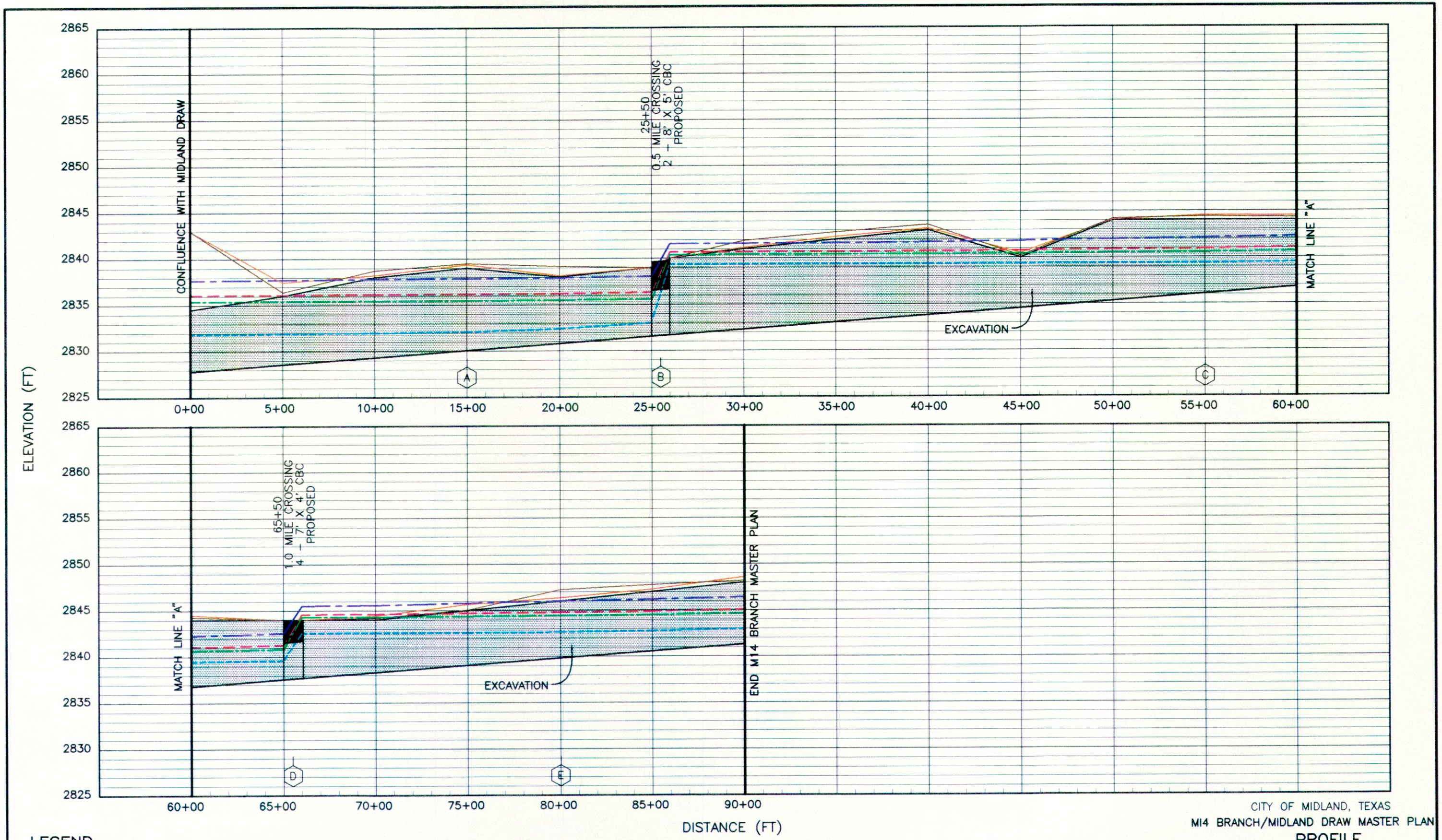
1.5 MILE CROSSING TO 2.0 MILE CROSSING WEST OF HOLIDAY HILL ROAD
STATION 1204+84 TO STATION 1229+44

FIGURE 3-92

CITY OF MIDLAND, TEXAS
MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

121944 3/22/96 10.30 RSK



LEGEND

INVERT		10-YEAR	
LEFT BANK		50-YEAR	
RIGHT BANK		100-YEAR	
CROSS SECTION LOCATION	A	500-YEAR	

MI4 BRANCH OF MIDLAND DRAW
STATION 0+00 TO STATION 90+00

FIGURE 3-93

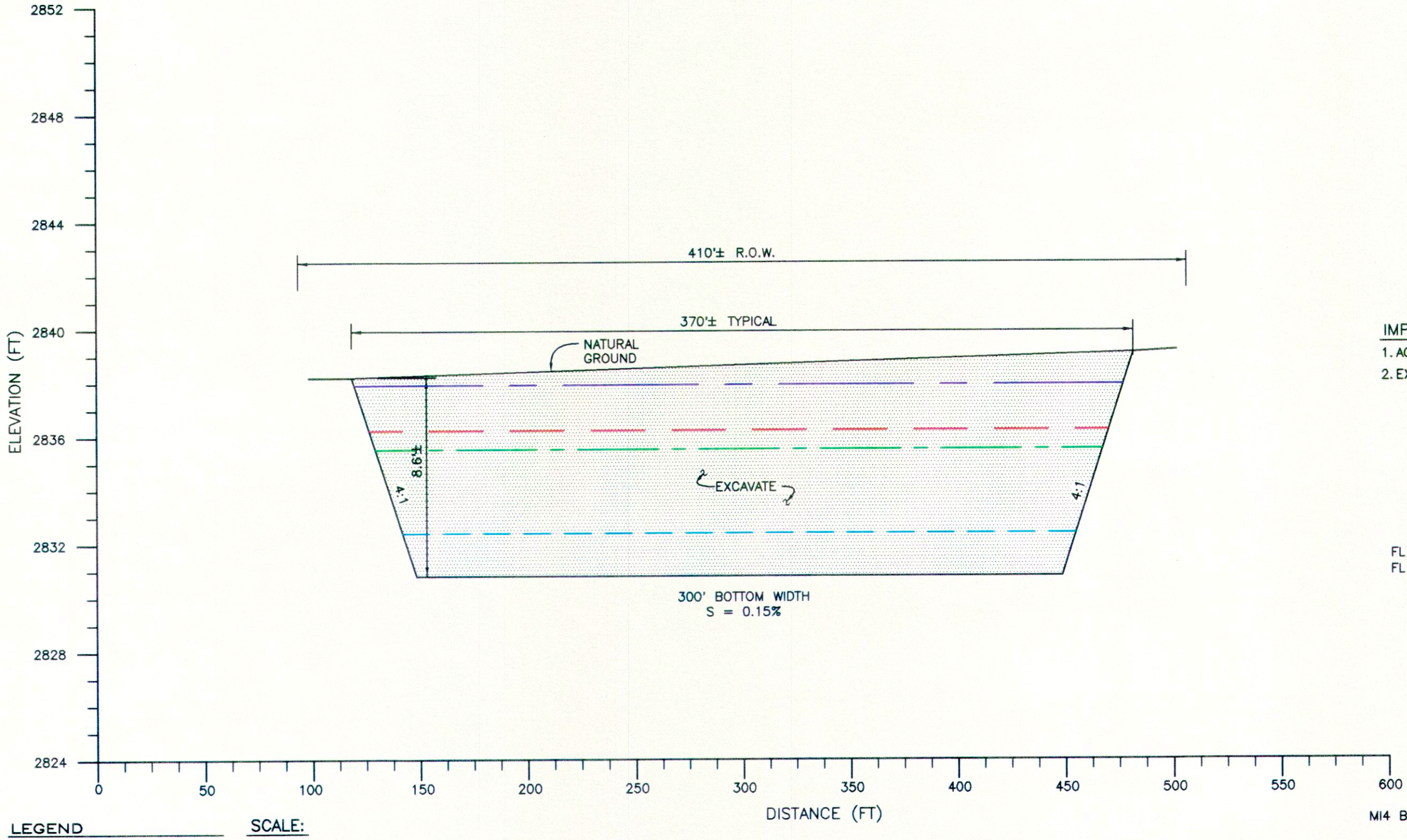
SCALE:
V: 1" = 10'
H: 1" = 500'

CITY OF MIDLAND, TEXAS
MI4 BRANCH/MIDLAND DRAW MASTER PLAN
PROFILE

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

MI4 1/12/20 RSK

CROSS SECTION A
STATION 20+00



IMPROVEMENTS RECOMMENDED

1. ACQUIRE RIGHT-OF-WAY
2. EXCAVATE CHANNEL

FL ELEVATION AT 0+00 = 2827.81
FL ELEVATION AT 25+50 = 2831.64

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

CONFLUENCE WITH MIDLAND DRAW TO SUBAREA MI4 – 0.5 MILE CROSSING
STATION 0+00 TO STATION 25+50

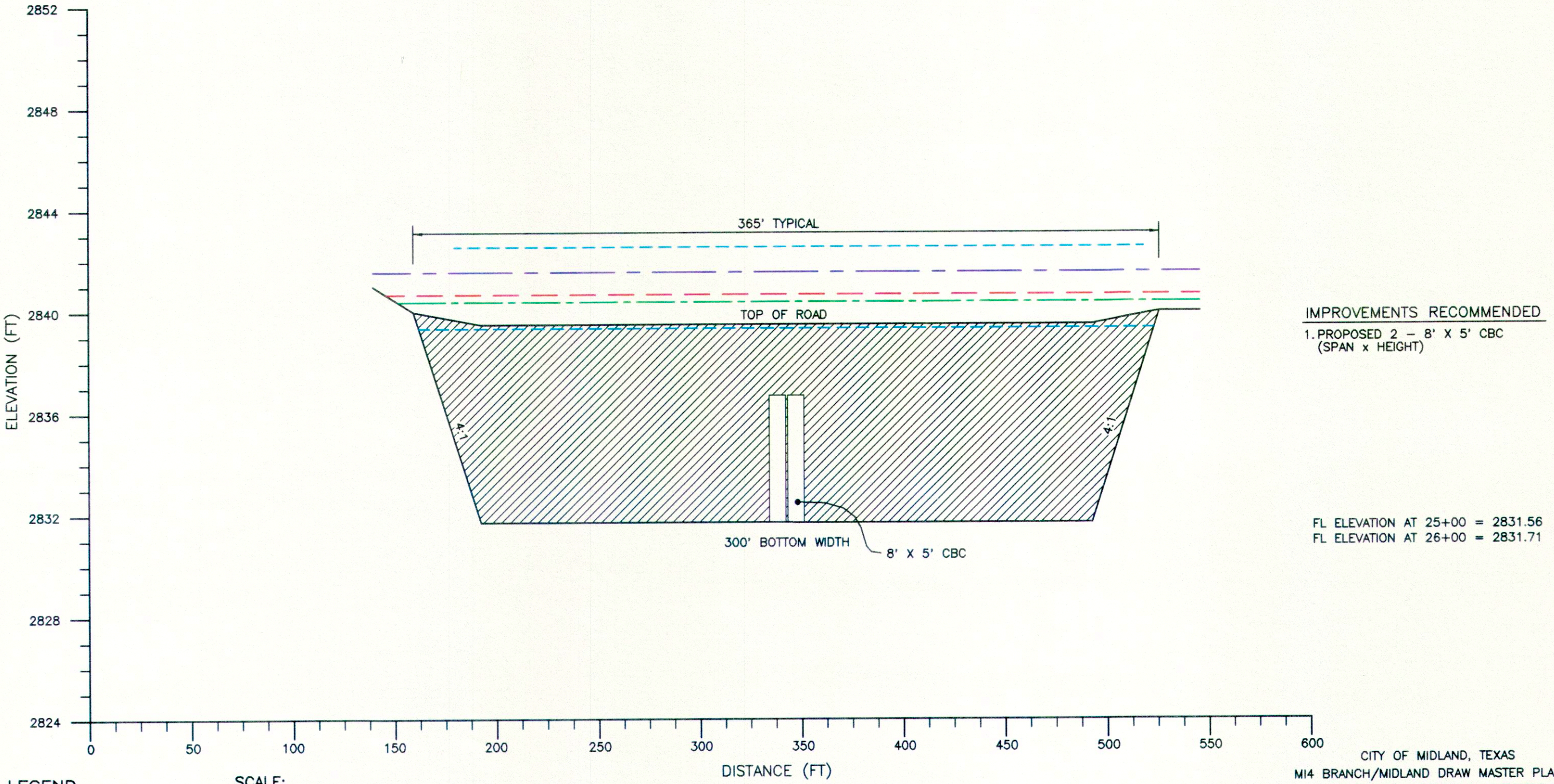
FIGURE 3-94

CITY OF MIDLAND, TEXAS
MI4 BRANCH/MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

2000 1/11/95 9:00 RSK

CROSS SECTION B
STATION 25+50



IMPROVEMENTS RECOMMENDED

1. PROPOSED 2 – 8' X 5' CBC (SPAN x HEIGHT)

FL ELEVATION AT 25+00 = 2831.56
FL ELEVATION AT 26+00 = 2831.71

LEGEND

- INVERT
- 10–YEAR
- 50–YEAR
- 100–YEAR
- 500–YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

SUBAREA MI4 – 0.5 MILE CROSSING

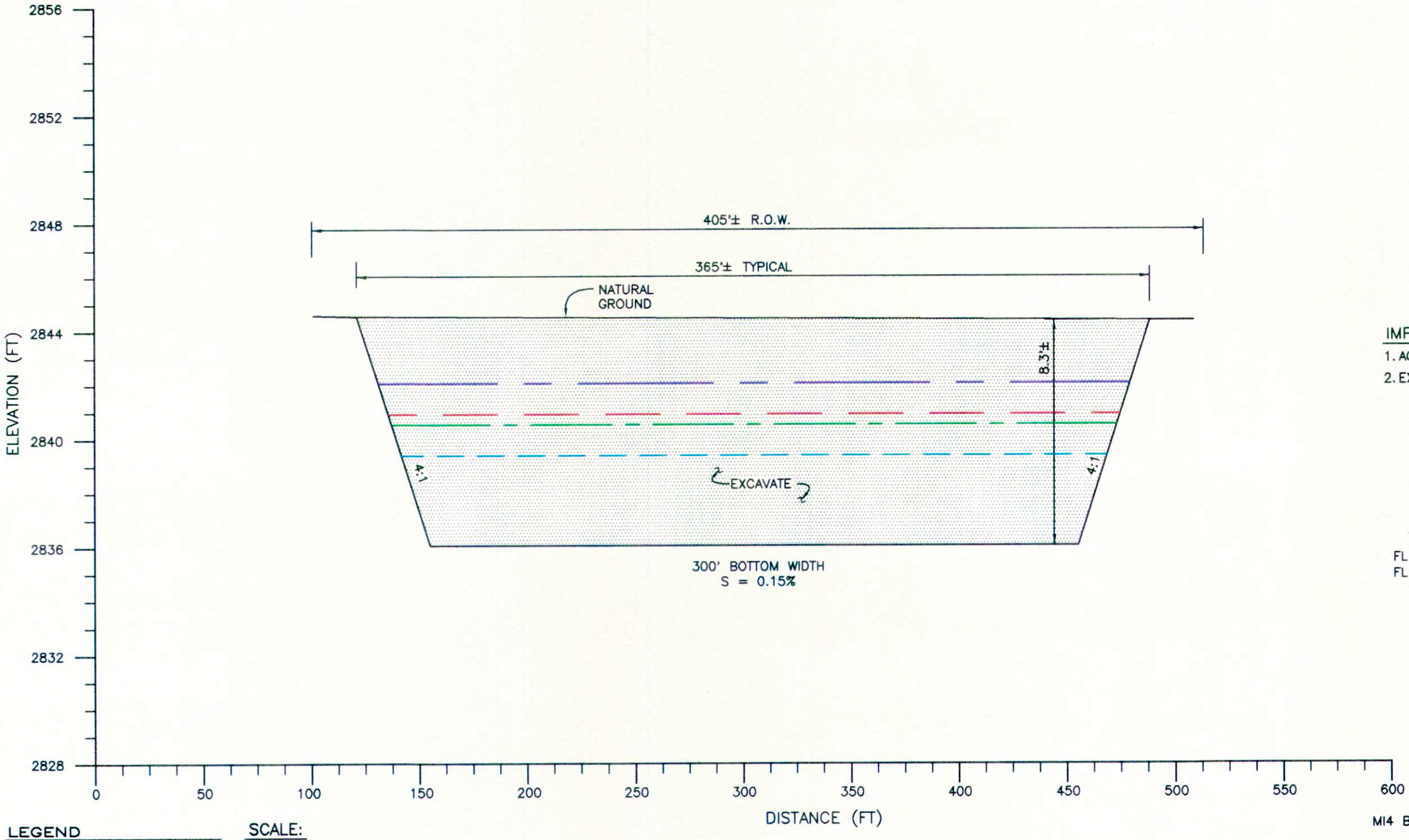
FIGURE 3–95

CITY OF MIDLAND, TEXAS
MI4 BRANCH/MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

2550 1/12/96 2.30 RSK

CROSS SECTION C
STATION 55+00



IMPROVEMENTS RECOMMENDED

1. ACQUIRE RIGHT-OF-WAY
2. EXCAVATE CHANNEL

FL ELEVATION AT 25+50 = 2831.64
FL ELEVATION AT 65+50 = 2837.64

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

SUBAREA MI4 – 0.5 MILE CROSSING TO SUBAREA M14 – 1.0 MILE CROSSING
STATION 25+50 TO STATION 65+50

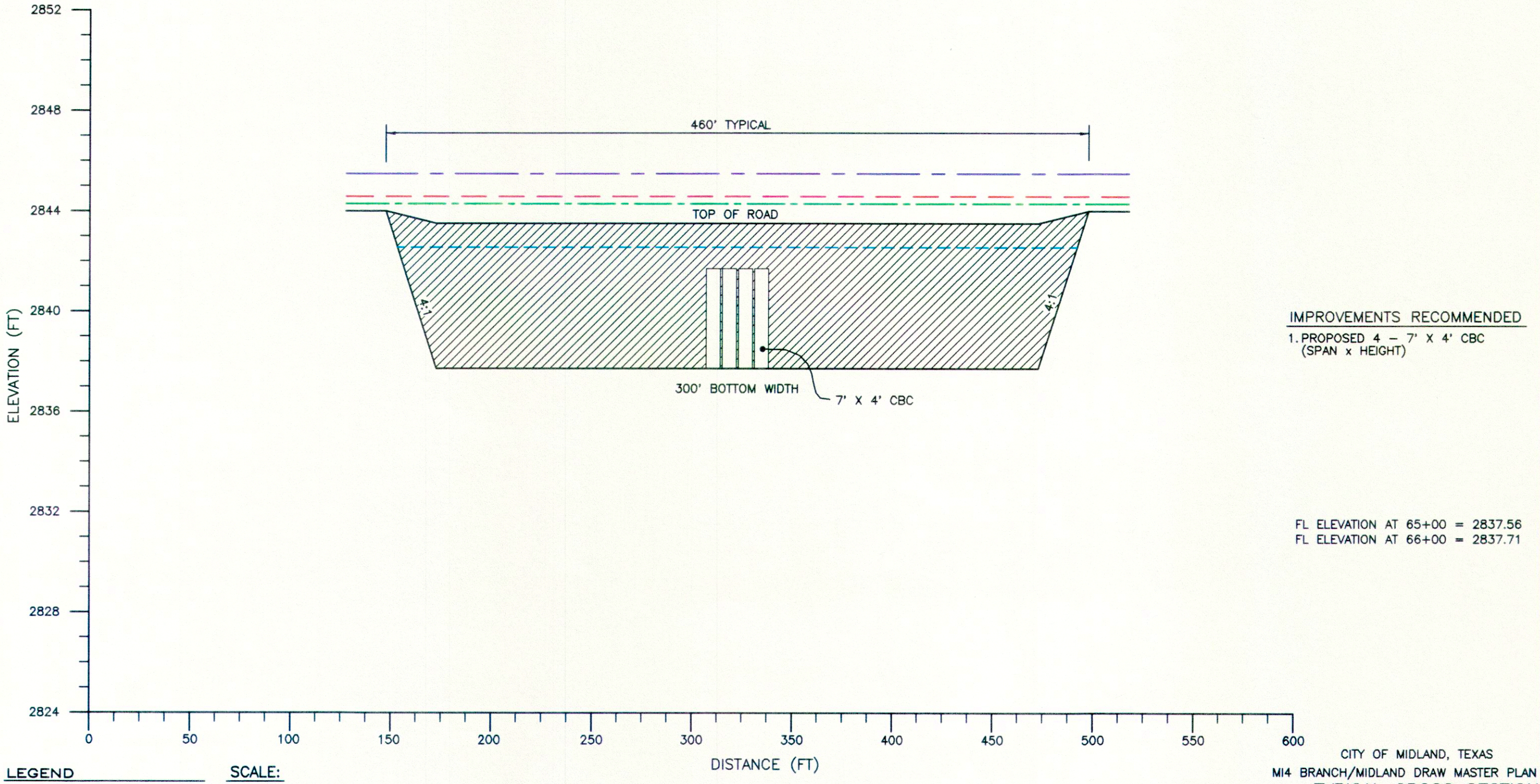
FIGURE 3-96

CITY OF MIDLAND, TEXAS
MI4 BRANCH/MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

PSC Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

5500 1/11/96 9.00 RSK

CROSS SECTION D
STATION 65+50



IMPROVEMENTS RECOMMENDED

1. PROPOSED 4 – 7' X 4' CBC (SPAN x HEIGHT)

FL ELEVATION AT 65+00 = 2837.56
FL ELEVATION AT 66+00 = 2837.71

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

SUBAREA MI4 – 1.0 MILE CROSSING

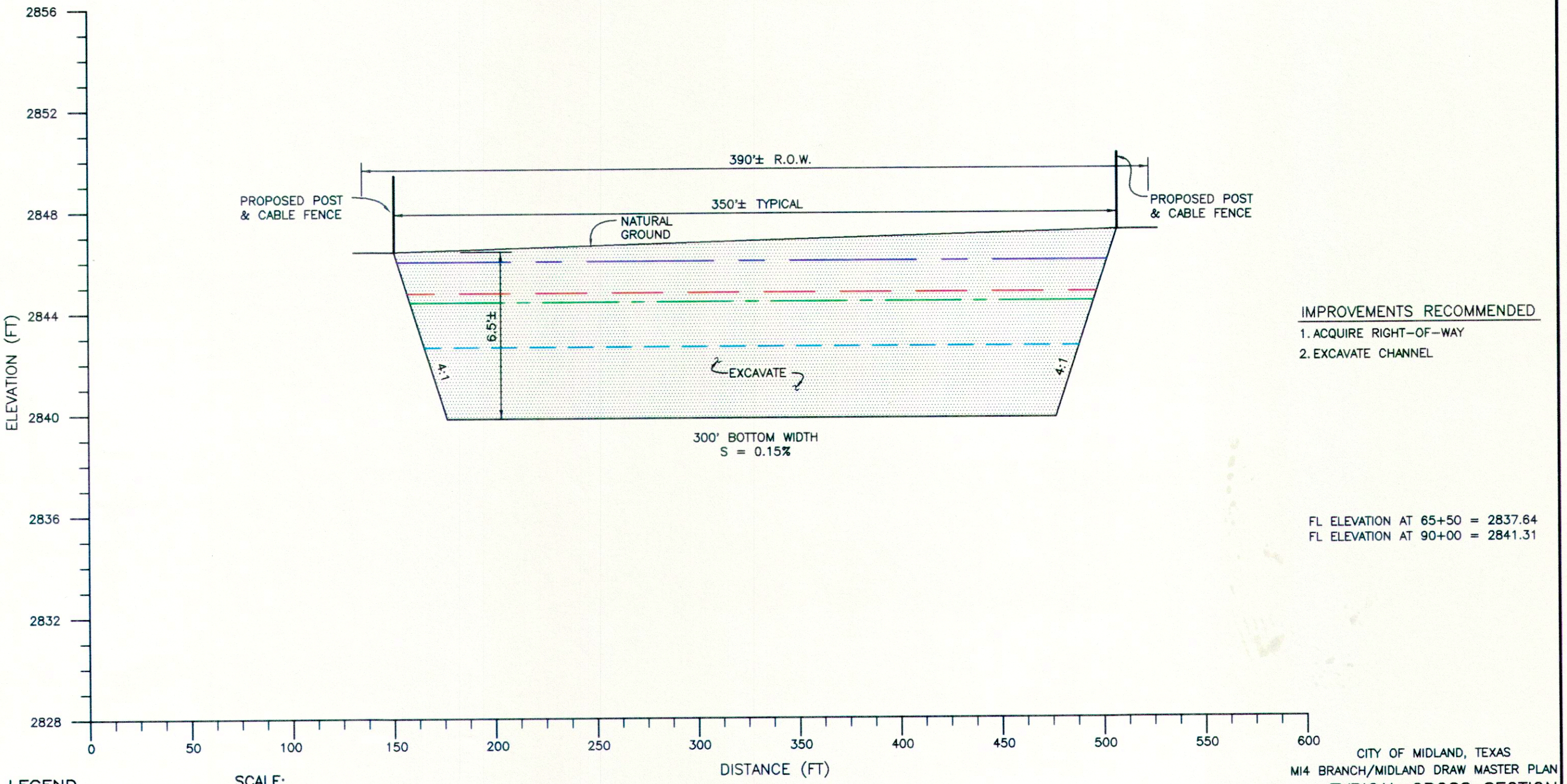
FIGURE 3-97

CITY OF MIDLAND, TEXAS
MI4 BRANCH/MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

6550 1/12/96 2.30 RSK

CROSS SECTION E
STATION 80+00



IMPROVEMENTS RECOMMENDED

1. ACQUIRE RIGHT-OF-WAY
2. EXCAVATE CHANNEL

FL ELEVATION AT 65+50 = 2837.64
FL ELEVATION AT 90+00 = 2841.31

LEGEND

- INVERT
- 10-YEAR
- 50-YEAR
- 100-YEAR
- 500-YEAR

SCALE:

V: 1" = 4'
H: 1" = 50'

SUBAREA MI4 – 1.0 MILE CROSSING TO UPSTREAM END OF CHANNEL
STATION 65+50 TO STATION 90+00

FIGURE 3-98

CITY OF MIDLAND, TEXAS
MI4 BRANCH/MIDLAND DRAW MASTER PLAN
TYPICAL CROSS SECTION

Parkhill, Smith & Cooper, Inc.
Engineers · Architects · Planners

8000 1/12/[illegible] 5:30 RSK