L-48

DRAINAGE IMPROVEMENTS

FOR

MIDWAY ROAD

FROM GREENHILL DRIVE TO TU RIGHT-OF-WAY

TOWN OF
ADDISON

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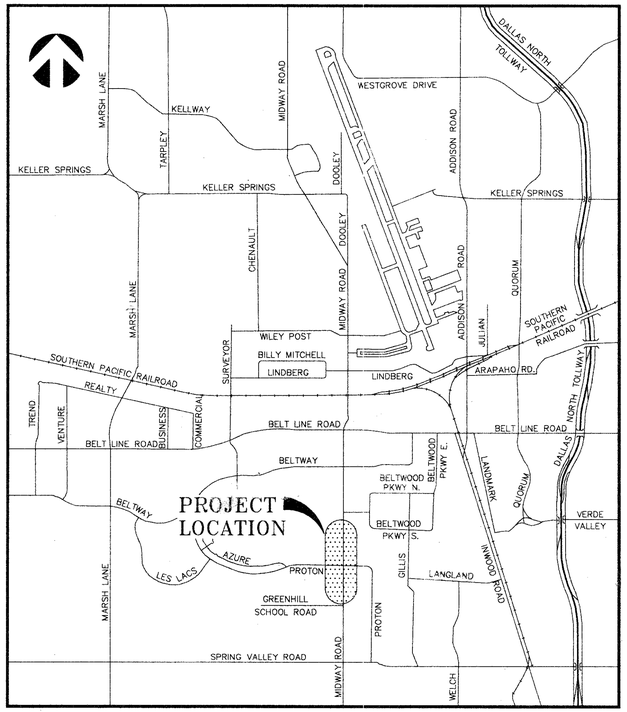

LOCATION MAP

N.T.S.

TOWN OF ADDISON ENGINEER	JOHN BAUMGARTNER, P.E.
EH&A PROJECT MANAGER	BRUCE GRANTHAM, P.E.

Espey, Huston & Associates, Inc.
Engineering & Environmental Consultants
13800 Montfort Drive, Suite 230
Dallas, Texas 75240 (214) 387-0771

7/24/95

CONSTRUCTION SET
ISSUED BY
TOWN OF ADDISON
PUBLIC WORKS DEPARTMENT
NAME: David Nghiemya DATE: 9/19/95

E.H. & A. JOB NO. 16285
JULY, 1995

HORNET to TXU EASEMENT
MIDWAY DRAINAGE IMP. 9/95

B4-7

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	QUANTITY
1.	Mobilization and Bonds	L.S.	1
2.	Clearing and Grubbing	AC.	0.7
3.	Sawed Breakout Groove	L.F.	1850
⚠1 4.	Remove Concrete Pavement and Curb	S.Y.	1865
5.	Remove Storm Sewer (all sizes)	L.F.	103
6.	Remove 12" Water Line	L.F.	230
7.	Remove 8" Sanitary Sewer	L.F.	64
8.	Remove and replace Brick Pavers	S.F.	2100
9.	Remove and replace Greenhill School Sign	L.S.	1
10.	Remove and replace Harvey Hotel Sign	EA.	2
11.	Support or remove and replace Brick Wall	L.S.	1
12.	Remove and replace Marriott Sign	L.S.	1
13.	Remove Guard Rail	L.F.	30
14.	Remove Concrete Flume	S.F.	170
15.	Remove Sidewalk	S.F.	1060
16.	Plug Storm Sewers (all sizes)	EA.	9
17.	Construction Barricading/Signing/Traffic Control	L.S.	1
18.	6"–3600 psi Reinforced Concrete Pavement	S.Y.	1050
19.	6"–3000 psi (48 hrs) Early Strength Reinforced Concrete Pavement	S.Y.	400
20.	8"–3000 psi (48 hrs) Early Strength Reinforced Concrete Pavement	S.Y.	420
21.	6"–3600 psi Integral Concrete Curb	L.F.	1180
⚠1 22.	4"–3000 psi Reinforced Concrete Sidewalk	S.F.	820
23.	5' Standard Curb Inlet	EA.	1
24.	10' Standard Curb Inlet	EA.	3
25.	14' Standard Curb Inlet	EA.	1
26.	10' Recessed Curb Inlet	EA.	2
27.	2–10' Recessed Curb Inlet	EA.	6
28.	4' Standard 'Y' Inlet	EA.	1
29.	21" RCP Class III	L.F.	12
30.	24" RCP Class III	L.F.	166
31.	27" RCP Class III	L.F.	220
32.	36" RCP Class III	L.F.	15
33.	39" RCP Class III	L.F.	35
34.	45°–24" RCP Bend	EA.	1
35.	45°–36" RCP Bend	EA.	2
36.	45°–39" RCP Bend	EA.	1
37.	8'x4' Precast RCB (ASTM C–789)	L.F.	398
38.	8'x4' Precast RCB (ASTM C–850)	L.F.	16
39.	9'x5' Precast RCB (ASTM C–789)	L.F.	895
40.	9'x5' Precast RCB (ASTM C–850)	L.F.	30
41.	8'x4' to 9'x5' RCB Transition	L.F.	10
42.	12"–SDR14 PVC Water Line	L.F.	245
43.	12" Valve	EA.	2
44.	Cut in 12" Valve	EA.	1
45.	Cut and Plug 6" Water Line	EA.	1
46.	8"x6" Tapping Sleeve and Valve	EA.	1
47.	6" Fire Hydrant Lead	EA.	1
48.	Relocate Fire Hydrant	EA.	1
49.	10"–SDR35 PVC Sewer Line	L.F.	69

ITEM NO.	DESCRIPTION	UNIT	QUANTITY
50.	Sanitary Sewer Manhole	EA.	1
51.	Sanitary Sewer Manhole over existing sewer	EA.	1
52.	2500 psi Concrete Encasement	C.Y.	3
53.	Adjust Telephone Conduit	EA.	2
54.	Temporary Safety Fence	L.F.	300
55.	Temporary Harvey Hotel Signs	EA.	2
56.	Temporary Marriott Sign	EA.	1
57.	Traffic Signalization (Temporary and Permanent)	L.S.	1
58.	Remove, relocate or replace Irrigation System	L.S.	1
59.	Install Multi–trunked (10') Female Yaupon	EA.	1
60.	Install Multi–trunked (10') Crape Myrtle	EA.	3
61.	Install 10" Dia. Cedar Elm	EA.	1
62.	Install 7" Dia. Red Oak	EA.	2
63.	Install 8" Dia. Red Oak	EA.	1
64.	Install 11" Dia. Live Oak	EA.	3
65.	Install 12" Dia. Live Oak	EA.	1
66.	Install Dwarf Burford Holly	EA.	32
67.	Install Asiatic Jasmine	S.F.	1000
68.	Install Annual Cover (4")	EA.	500
69.	Install Gulf Stream Nandina	EA.	7
70.	Install Juniper Ground Cover	EA.	5
71.	Install Holly Bushes at Greenhill School	EA.	4
72.	Block Sod (Bermuda or St. Augustine)	S.F.	2000
73.	Bermuda Hydromulch	S.F.	3150
74.	Remove and replace Marriott entrance landscaping	L.S.	1
⚠1 75.	4" White Paint Stripe	L.F.	820
76.	Red Fire Lane Striping	L.F.	710
77.	Directional Pavement Marking	EA.	1
78.	4" Type P–7W White Non–reflective Lane Line Buttons	EA.	20
79.	4" Type P–15W White Reflective Lane Line Buttons	EA.	30
80.	4" Type P–117Y Yellow Double Reflective Center Line Buttons	EA.	20
81.	Remove and Replace Permanent Traffic Signs	EA.	3
82.	White Painted "Stop" Marking	EA.	1
83.	12" White Painted Stop Bar	EA.	1
84.	24" White Thermoplastic Stop Bar	EA.	1
⚠1 85.	Trench Safety	L.F.	2111
⚠1 86.	Form Equalization hole in the Ex. 3–7"x8" BC	L.S.	1

LEGEND

- (T) SOUTHWESTERN BELL MANHOLE
- GM GAS METER
- TREES
- SHRUBS
- SIGN
- FIRE HYDRANT
- WATER VALVE
- SPRINKLER VALVE
- LANDSCAPE LIGHTING
- BRICK PAVING
- (S) SANITARY SEWER MANHOLE
- STREET LIGHT
- WM WATER METER
- TRAFFIC SIGNAL
- POWER POLE
- GUY ANCHOR
- (D) STORM DRAINAGE MANHOLE
- EDGE OF ASPHALT

NO.	REVISION	BY	DATE
⚠1	ADDENDUM NO .1	BRG	8–3–95

DESIGNED BY: J WALDBAUER
DRAWN BY: EH&A
CHECKED BY: B GRANTHAM
SCALE: N.T.S.
DATE: JULY 1995
FILE: \MIDWAY\MIDQUANT

STATE OF TEXAS — BRIAN R. GRANTHAM — 87555 — LICENSED PROFESSIONAL ENGINEER — 9/18/95

Espey, Huston & Associates, Inc.
Engineering & Environmental Consultants
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QUANTITY SUMMARY/GENERAL NOTES

MIDWAY ROAD DRAINAGE IMPROVEMENTS
FROM GREENHILL DRIVE TO TU RIGHT–OF–WAY
for
THE TOWN OF ADDISON

SHEET NO. 2A
OF 20 SHEETS
JOB NO. 16285

GENERAL NOTES

1. All materials and workmanship shall conform to the Town of Addison Standards and Specifications and the North Central Texas Council of Government (N.T.C.O.G.) Standards and Specifications, except as noted. In the event of a conflict, the Town of Addison Standards and Specifications shall govern.

2. All locations of underground utility lines are approximate. CONTRACTOR shall notify all applicable utility companies 48 hours prior to construction so that underground lines can be marked.

TOWN OF ADDISON	450-2871
CITY OF FARMERS BRANCH	919-2588
LONE STAR GAS	422-7073
TCI CABLEVISION	288-7550
TU ELECTRIC	888-1313
SOUTHWESTERN BELL	234-7085

3. The CONTRACTOR shall be responsible for public safety during construction and will provide the necessary traffic barricades and warning signage to protect the construction site. Construction barricades shall be in conformance with the Texas Manual on Uniform Traffic Control Devices (TMUTCD). All barricades should include high intensity reflective sheeting and sufficient barricades shall be lighted as directed by the Town of Addison.

4. All concrete shall have a minimum compressive strength of 3,600 psi at 28 days (minimum 6 sacks of cement per cubic yard) unless otherwise noted. All concrete at the following locations shall be early strength concrete designed to achieve 3000 psi in 48 hours: Midway Road, Proton Drive, Greenhill Drive, HUIE Addison Addition driveways, Proton Joint Venture property driveway. The CONTRACTOR shall submit mix designs to the Town of Addison for approval. No fly ash will be allowed. All reinforcing steel and dowel bars in pavement shall be supported and maintained at the correct clearances by the use of bar chairs or other approved support.

5. The CONTRACTOR is responsible for keeping streets, parking areas, sidewalks, etc., adjacent to the project free of mud and debris from construction.

6. The CONTRACTOR shall assume responsibility for protection of public utilities in the construction of this project. All manholes, valve boxes, fire hydrants, etc., must be adjusted to proper line and grade by the CONTRACTOR prior to and/or after placing of permanent paving. The CONTRACTOR shall also be responsible for support of existing utility poles, street signs, etc., when excavating in the vicinity of such poles.

7. The Town of Addison Public Works Department is to be notified 48 hours (2 working days) prior to any construction.

8. All disturbed earth areas are to be finish graded to original or proposed contours and block sodded unless hydromulch is called for on the plans. Sodding and hydromulch shall be performed in accordance with NCTCOG specifications immediately after construction. Backfill behind new curb is to be select material free of rock and other debris. CONTRACTOR shall thoroughly water the grass cover immediately after placement. The CONTRACTOR shall also be responsible for continued maintenance and watering of the newly grassed areas until the entire project is completed and accepted by the Town of Addison. Fertilizing and watering of the hydromulch shall be done in a manner and quantity so that a complete ground cover is established. (No separate pay item for fertilizing and watering.)

9. Arrangements for construction water shall be made through the Town of Addison. The CONTRACTOR shall obtain a meter from Town of Addison (deposit required), and pay for all water used for construction. (No separate pay item.)

10. The CONTRACTOR shall maintain adequate sanitary facilities for use by workers throughout construction.

11. The CONTRACTOR shall reinstall the brick pavers at the HUIE Addison Addition driveways. If brick pavers are damaged, they shall be replaced at the CONTRACTOR'S expense with Dickey clay brick, Lehigh, Iowa plant (red and brown to match existing pattern) or approved equal. Brick pavers shall be installed on a one inch (±) deep sand/cement bed over replaced concrete pavement in accordance with the project specifications and details.

12. All existing foundations shall be removed below level of pavement subgrade.

13. Any temporary asphalt to be placed to facilitate traffic movements during construction shall not be paid for separately but shall be considered incidental to other items of work.

14. Pay items provided are intended to be all inclucsive of the work required on this project. Work required by the plans or specification but not provided with a specific pay item, including but not limited to excavation and backfill, shall be considered incidental to other items of work.

15. The CONTRACTOR shall demonstrate that the water and sanitary sewer systems meet the proper pressure, bacteria, and mandrel tests. In addition, the owner shall provide a VHS format video tape of the sanitary sewer.

16. The CONTRACTOR shall dispose of all excess excavation and cleared material off site, including broken concrete, rock, trees and vegetation. Materials hauled off site may not be disposed of within the Town of Addison without written permission from the affected property owner.

17. Where street name signs will be relocated by the CONTRACTOR, the CONTRACTOR will be required to give 5 days notice in advance of the time a street sign must be relocated to clear construction operations.

18. The CONTRACTOR shall obtain all necessary permits at least 48 hours prior to start of any construction.

19. The CONTRACTOR shall conform to the Occupational Safety and Health Administration's (OSHA) standards for trench safety that are in effect during the period of construction.

20. The CONTRACTOR shall construct barrier-free ramps at all intersections and adjacent to all driveways. (No separate pay item.)

⚠1 21. The CONTRACTOR shall submit to the Town of Addison a trench safety plan for the installation of utilities greater than five feet in depth.

22. All water mains shall be AWWA C-900 Class 200 PVC water pipe (SDR-14), except as noted. Tapping saddles shall be used for all PVC service taps.

23. All water mains shall have minimum cover as follows: 6", 8" and 12" – 4' below finished street grade or 5' depth of cover in unimproved streets or as required to clear other utilities.

24. The CONTRACTOR shall use the drainage easement and public right-of-way for access to the job site unless approval is obtained from the property owner.

25. The CONTRACTOR shall keep excavated trenches free of groundwater during construction. If necessary, the CONTRACTOR shall utilize dewatering procedures in order to control groundwater during construction such that it does not affect his construction work. (No seperate pay item)

26. The CONTRACTOR shall provide means for adequately controlling and avoiding soil erosion during construction. The CONTRACTOR shall not store spoils on private property during construction without the property owner's permission.

27. It is the CONTRACTOR's responsibility to maintain neat and accurate plans of record.

28. The CONTRACTOR is responsible for maintaining adequate site drainage throughout the duration of this project.

29. Access to abutting property during the construction of this project must be maintained for emergency and local traffic.

30. All streets within the scope of this contract shall be kept accessible to fire trucks, ambulances and other emergency vehicles.

31. All bends and fitting installed of water mains shall be restrained type fittings Compact fittings are not allowed on PVC mains. All fittings including tees and bends, along with concrete blocking, shall be considered incidental to other items of work.

32. The CONTRACTOR shall confirm all sawcut locations with Town of Addison inspector prior to executing the work. Sawcuts shall be made at the face of the curb unless otherwise noted on the plans.

33. The CONTRACTOR shall replace existing concrete pavement with new pavement of the same thickness unless otherwise shown on the plans.

34. The CONTRACTOR shall submit a Schedule to the Town of Addison of all proposed shutdowns of Addison water mains before starting work on this project. All shutdowns of water mains which impact businesses or restaurants shall be completed at night outside business or restaurant working hours.

35. All wye, pipe-to-pipe, pipe-to-box culvert or culvert-to-culvert connections shall be considered incidental to other items of work.

36. The CONTRACTOR shall backfill all trenches in Midway Road with flowable backfill in accordance with NCTCOG Item 6.2.10(g). In addition, flowable backfill shall be placed between the top of the RCB and the Proton Drive pavement. Flowable backfill shall be incidental of other pay items.

37. The CONTRACTOR shall provide flagmen, as required, to direct traffic. (No separate pay item.)

38. All the PVC pipe installed shall be tested for deflection. The deflection test shall be used to determine adequacy of pipe, bedding, backfill, and installation. The test shall consist of hand pulling a mandrel sized at 95% of the inside diameter of the pipe from manhole at least 30 days after backfilling.

39. The CONTRACTOR shall verify the elevations of all crossing utilities prior to beginning construction on the proposed box culvert, storm sewer, sanitary sewer or water lines.

40. PVC pipe shall be manufactured from a low filler PVC component capable of meeting the highest performance standards of the ASTM specifications.

41. The CONTRACTOR shall cast the RCB transition with reinforcement and wall thickness to match the 9'X5' precast RCB ASTM C-850.

42. The CONTRACTOR shall install 2 temporary signs for the Harvey Hotel and 1 temporary sign for the Marriott. All temporary signs shall be 6'X4' plywood, secured by 2-4'x4' wood posts and a 2'x4' horizontal support. Signs shall be painted white with black letters as directed by the property owners.

43. For new standard inlets to be constructed adjacent to existing inlets, no sidewall shall be required for the new inlet against the side of the existing inlet. The CONTRACTOR shall form an 18" (wide) x 24" (deep) hole in the side wall of the existing inlet at the flowline to provide a connection to the new inlet. The back, front, top and base of the new inlet shall be tied to the existing inlet walls by doweling and epoxying #4 bars (18" long) at 12" centers into the existing inlet walls to a depth of 9". Concrete bonding agent shall be applied on the existing inlet walls prior to pouring new inlet walls.

44. For new 2-10' inlets, a single wall shall be formed at the middle of the inlet with an 18" (wide) x 24" (deep) hole formed at the flow line in the center of the wall. Mortar finish in the inlet base shall direct flow to the outgoing pipe. The outgoing pipe shall be installed adjacent to the middle wall on the upstream side. Reinforcement from both 10' inlets shall be tied into the middle wall.

45. Connections to existing water and sewer lines or manholes shall be considered incidental to other items of work.

46. The lump sum pay items for traffic signals shall be all inclusive of the temporary and permanent traffic signal improvements shown on Sheets 18 and 19, in the standard details, and in the project specifications.

47. Removal of trees and shrubs shall be included in the pay item for clearing and grubbing.

⚠1 48. The CONTRACTOR shall form equalization holes in the existing 3 – 7' x 8' box culverts as shown in the plans.

⚠1 49. The CONTRACTOR shall uncover the foundation for the existing Marriott sign and provide a detail for the required replacement work to the Engineer for review and approval. The cost for furnishing the detail shall be included in the lump sum bid item for removal and replacement of the Marriott sign.

⚠1 50. Payment for all curb removal shall be included in Bid Item No. 4 – Remove concrete pavement and curb. Measurement for curb removal shall be per square yard of curb removed.

⚠1 51. Density tests shall be taken at a minimum spacing of 300 feet along all utility trenches. A separate test shall be performed on each lift of backfill.

⚠2 52. The CONTRACTOR shall install the following plant sizes for bid items 66 through 70 inclusive:

Items No. 66-5 gallon Dwarf Burford Holly
Items No. 67-4" pot Asian Jasmine at 1 square foot centers
Items No. 68-4" pot Annual cover
Items No. 69-5 gallon Gulf Stream Nandina
Items No. 70-5 gallon Juniper ground cover

⚠2 53. The CONTRACTOR shall remove and replace lighting facilities located at all signs impacted by the construction. Payment shall be included in the respective bid items for removal and replacement of the signs.

⚠2 54. The CONTRACTOR shall install a detour sign at the west end of the Marriott Hotel driveway, prior to the first parking stall. The detour sign shall be installed when the Marriott driveway to Midway Road is closed. The CONTRACTOR shall attach a plywood sign to the detour sign which reads "Please detour to Proton Road". Payment for the Detour sign shall be included in Bid Item No. 17 -Construction barricading, signing, traffic control.

⚠2 55. The CONTRACTOR shall remove the top of the existing storm sewer manhole at Station 2+94 (20' Right) and fill the manhole in accordance with the backfill requirements for water lines. Care should be taken to avoid damage to the existing water line that runs through this manhole. The work desribed in this note shall be considered incidental to other bid items, (No sperate pay).

⚠2 56. The CONTRACTOR may elect to install a 4 foot long precast RCB transition in place of the 10 foot long RCB transition described in Bid Item No. 41. If the CONTRACTOR elects to do so, the 8'x4' precast RCB (ASTM C-850) shall be extended by 6 feet. The CONTRACTOR shall include this 6 foot extension, along with the 4 foot precast RCB transition, in Bid Item No. 41.

LANDSCAPE AND IRRIGATION NOTES

1. No existing trees shall be removed without approval of the Town of Addison unless noted on the plans. CONTRACTOR shall retain a licensed landscape contractor who shall be responsible for employing the necessary measures to preserve trees that are located adjacent to the construction zone, including but not limited to pruning, fertilizing and watering. (No separate pay). Prior approval of tree preservation measures shall be obtained from the Town of Addison. Any trees not identified for removal that are damaged beyond repair shall be replaced at the CONTRACTOR's expense.

2. Any existing landscape improvements that must be removed and replaced to facilitate construction, including but not limited to walls, signs, shrubs, treees and irrigation systems, shall be replaced to a condition equal to or exceeding the condition prior to construction unless otherwise noted on the Plans.

3. The CONTRACTOR shall retain a licensed irrigator to remove, relocate or replace all existing sprinkler systems affected by construction. Existing irrigation facilities are not shown on these plans. Field verification of location and type of existing spinkler systems is required prior to bidding. All irrigation work shall be directed by the Town of Addison and the affected property owner.

4. Power will be temporarily disconnected to a Town of Addison irrigation controller when the power pole is relocated on the northwest corner of Greenhill Drive and Midway Road. The CONTRACTOR shall reconnect power to the irrigation system and ensure that adequate irrigation water is maintained during the relocation process, as needed.

5. Standard Town of Addison specifications for landscape and irrigation have been provided for the CONTRACTOR'S information. If the requirements of the property owners for improvements that they own and maintain differ from these specifications, the property owner's requirements shall govern. The Town of Addison shall retain the right to approve all plant material on delivery.

NO.	REVISION	BY	DATE
⚠1	ADDENDUM NO .1	BRG	8-3-95
⚠2	ADDENDUM NO .2	BRG	8-8-95

DESIGNED BY: J. WALDBAUER
DRAWN BY: EH&A
CHECKED BY: B. GRANTHAM
SCALE: N.T.S.
DATE: JULY 1995
FILE: \MIDWAY\MIDGNOTE

Espey, Huston & Associates, Inc.
Engineering & Environmental Consultants
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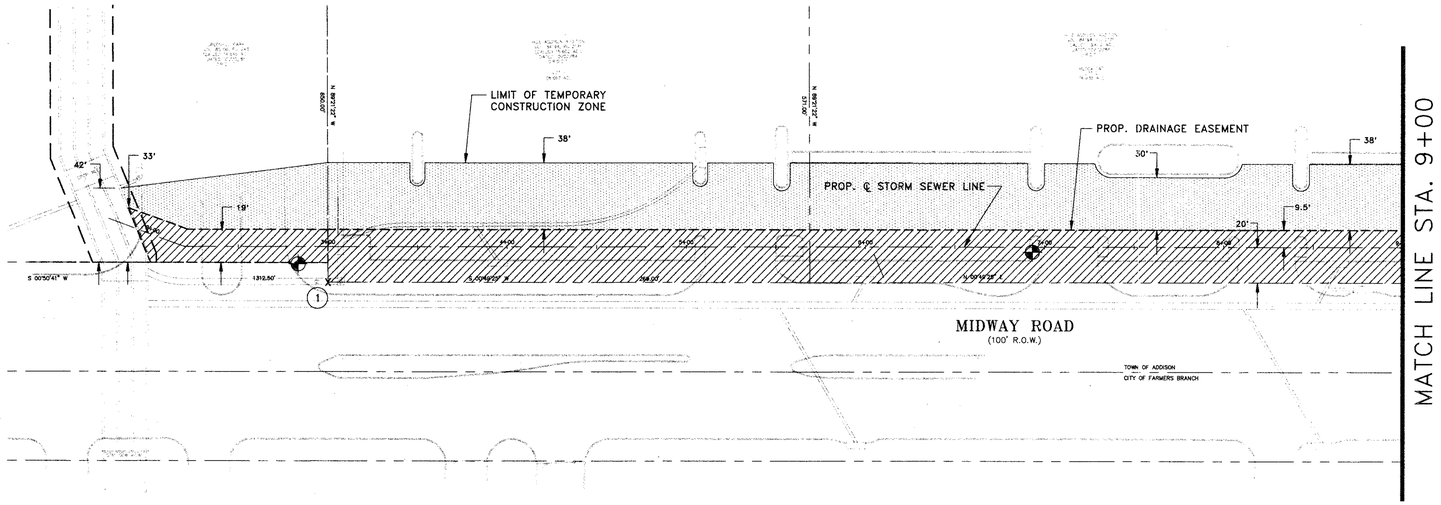
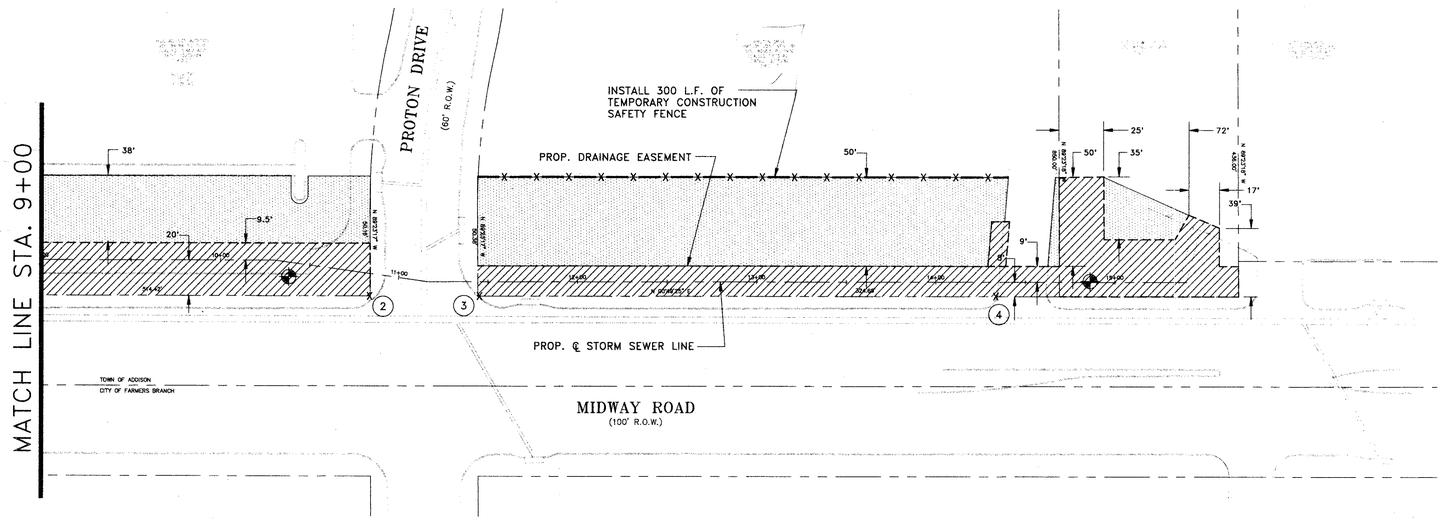
GENERAL NOTES

MIDWAY ROAD DRAINAGE IMPROVEMENTS
FROM GREENHILL DRIVE TO TU RIGHT-OF-WAY
for
THE TOWN OF ADDISON

SHEET NO. 2B
OF 20 SHEETS
JOB NO. 16285





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scale 1" = 40' feet

LEGEND

- TEMPORARY CONSTRUCTION ZONE
- DRAINAGE EASEMENTS
- ① HORIZONTAL CONTROL POINT
- —x—x—x— TEMPORARY CONSTRUCTION SAFETY FENCE
- SOIL BORING

HORIZONTAL CONTROL

CONTROL POINT	TYPE	CENTERLINE STATION & OFFSET	TIE TO CENTERLINE PI
①	FOUND "X" CUT IN PVMT.	STA. 3+00.06 20.04' RIGHT	TIE TO STA. 2+20 N 14° 52' 33" E, 82.53'
②	FOUND "X" CUT IN PVMT.	STA. 10+85.46 12.50' RIGHT	TIE TO STA. 10+30 N 21° 31' 32" E, 56.86'
③	FOUND "X" CUT IN PVMT.	STA. 11+45.32 8.03' RIGHT	TIE TO STA. 11+16.22 N 16° 14' 34" E, 30.18'
④	FOUND "X" CUT IN PVMT.	STA. 14+33.52 7.93' RIGHT	TIE TO STA. 15+40 S 03° 26' 01" E, 106.77'

NOTES:

1. The CONTRACTOR shall not work (or store equipment) outside the Temporary Construction Zone or Drainage Easement limits shown on private property unless prior permission is obtained from the affected property owner.
2. The CONTRACTOR shall install a temporary construction safety fence as shown prior to working in the vicinity of the Proton Joint Venture Property. The fence shall be removed at the end of construction. (No separate pay for removal)
3. All grass disturbed south of the northern R.O.W. line for Proton Road shall be replaced with block sod. All grass disturbed north of the northern R.O.W. line for Proton Road shall be replaced with hydromulch seed.
4. No payment shall be made for the replacement of disturbed grass beyond the limits shown for the Temporary Construction Zones and Drainage Easements with the exception of grass disturbed in public R.O.W. at culvert or lateral crossings.

BENCHMARKS

BM#1 FLOWLINE OF A 4'x7' BOX CULVERT, THE MOST SOUTHERLY BOX ON THE EAST SIDE OF MIDWAY ROAD AND ±45' SOUTH OF GREENHILL SCHOOL. ELEV. 587.33

BM#2 SET "□" CUT ON THE SOUTH END, TOP OF CONCRETE HEADWALL, ON THE EAST SIDE OF MIDWAY ROAD AND ±45' SOUTH OF GREENHILL SCHOOL RD. ELEV. 592.97

BM#3 SET "□" CUT AT WEST CORNER OF CONCRETE HEADWALL OF BOX CULVERT, SOUTH SIDE OF PROTON STREET AND ±350' EAST OF MIDWAY AND PROTON INTERSECTION. ELEV. 598.37

NO.	REVISION	BY	DATE

DESIGNED BY: J WALDBAUER
DRAWN BY: EH&A
CHECKED BY: B GRANTHAM
SCALE: 1" = 40'
DATE: JULY, 1995
FILE: \MIDWAY\MIDGEO

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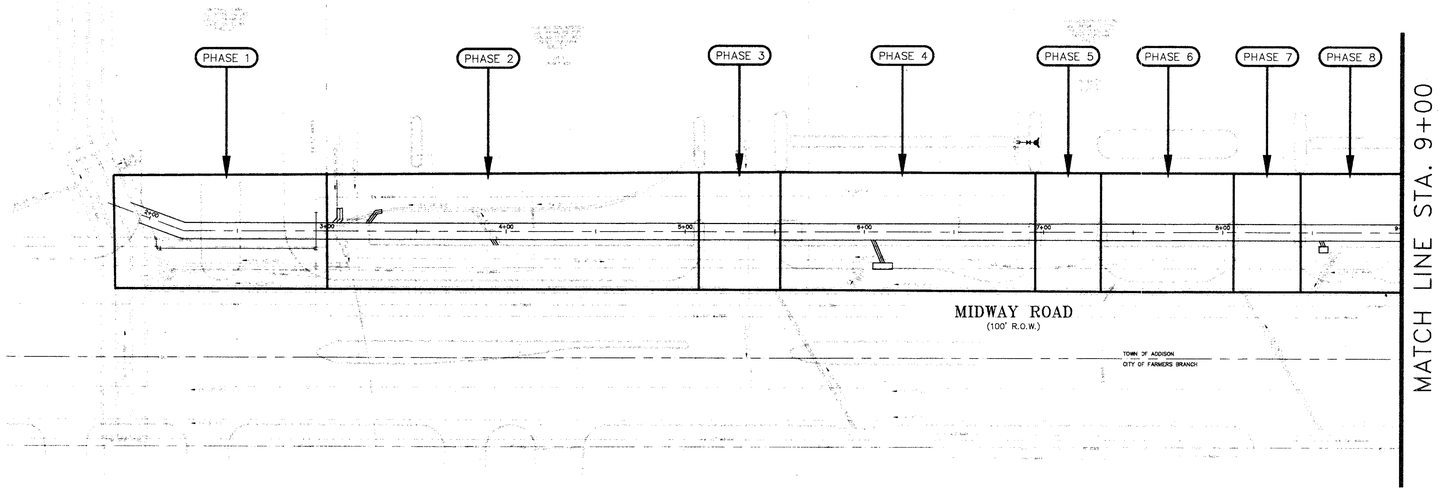
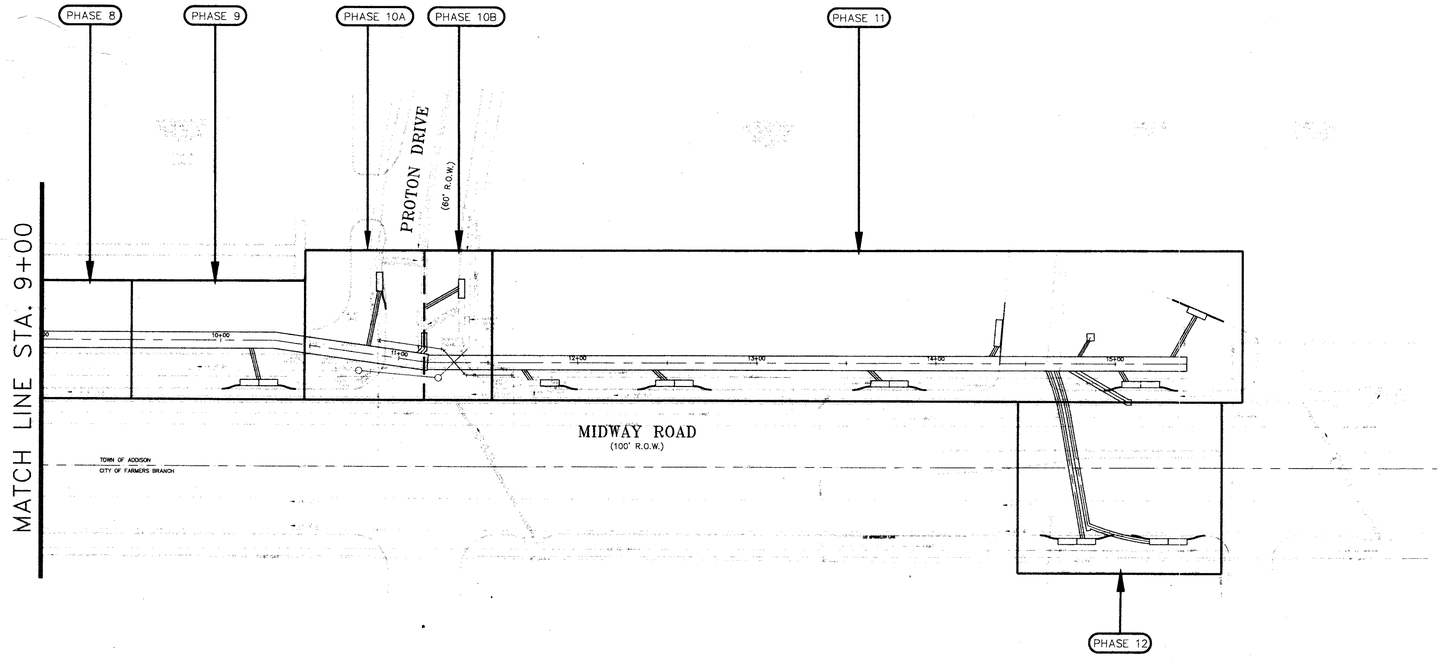
HORIZONTAL & VERTICAL CONTROL

MIDWAY ROAD DRAINAGE IMPROVEMENTS
FROM GREENHILL DRIVE TO TU RIGHT-OF-WAY
for
THE TOWN OF ADDISON

SHEET NO. 3
OF 20 SHEETS
JOB NO. 16285





40 0 40 80
scale 1" = 40' feet

SUGGESTED CONSTRUCTION SEQUENCE

The suggested construction sequence shown on this plan contains 12 phases of work as generally described below:

Phase 1: Greenhill Drive crossing
Phase 2: HUIE Addition Lot 1 parking area
Phase 3: HUIE Addition Lot 1 driveway
Phase 4: HUIE Addition Lot 2 south parking area
Phase 5: HUIE Addition Lot 2 south driveway
Phase 6: HUIE Addition Lot 2 center parking area
Phase 7: HUIE Addition Lot 2 north driveway
Phase 8: HUIE Addition Lot 2 north parking area (Section 1)
Phase 9: HUIE Addition Lot 2 north parking area (Section 2)
Phase 10: Proton Drive crossing
Phase 11: Proton Joint Venture and D.P.L.R.O.W. areas
Phase 12: Midway Road crossing

These phases of work have been identified to meet the following conditions of the Town of Addison and the affected property owners:

1. Lane closures on Midway Road shall only be allowed between the hours of 10:00 p.m. and 6:00 a.m., from 10:00 p.m. Sunday through 6:00 a.m. Friday inclusive. No lane closures shall be allowed on Midway Road at any other time, including but not limited to, 6:00 a.m. Friday through 10:00 p.m. Sunday.
2. One lane of traffic on Midway Road must remain open at all times in each direction.
3. Work on Greenhill Drive (Phase 1) shall only be permitted between 6 p.m., Friday and 6 a.m. the following Monday; however, for two additional contiguous days, the CONTRACTOR may close two of the three eastbound exit lanes. Closure of the Huie Property driveways (Phase 3, Phase 5, and Phase 7) shall only be permitted for a continuous 60 hour period beginning at 6:00 p.m. on a mid-week or weekend evening, if the CONTRACTOR elects not to replace the concrete driveway immediately following the RCB installation. For example, between 6:00 p.m. on Friday and 6:00 a.m. the following Monday. In this event, cold mix asphalt must be placed in the driveway to allow it to be reopened. If the CONTRACTOR elects to replace the concrete driveway immediately following the RCB installation, the driveway may be closed for five consecutive days.
4. Two way traffic shall be maintained on Proton Drive during construction unless prior approval is obtained from the Town of Addison. When one way traffic is approved, the CONTRACTOR shall provide two flagmen to control traffic at the intersection with Midway Road. (No separate pay item for flagmen).
5. Only one driveway into the HUIE Addition properties (Lots 1 and 2) may be closed at any one time (Phase 3, Phase 5 and Phase 7).
6. The CONTRACTOR must replace the parking pavement in one phase before removing parking pavement from another phase, for Phases 2,4,6,8 and 9. Pavement shall be considered replaced when it has been placed and finished, prior to curing.
7. The CONTRACTOR shall maintain postitive drainage for storm water throughout the construction period, including, but not limited to, surface drainage and flow in existing storm sewers that will be reconnected to the proposed box culvert. (Note that the construction corridor is subject to flooding during heavy rains.)
8. The CONTRACTOR may store equipment by closing up to 8 parking spaces in Phase 4 prior to completing work in Phase 2 and Phase 3. Similarly, 8 parking spaces may be closed in Phase 6 prior to completing work in Phase 4 and Phase 5; 8 parking spaces may be closed in Phase 8 parking spaces may be closed in Phase 8 prior to completing work in Phase 6 and Phase 7; and 8 parking spaces may be closed in Phase 9 prior to completing work in Phase 8.

Other than construction in Midway Road, all other work shall be performed between the hours of 8 A.M. and 7 P.M., Monday through Friday; and 9 A.M. and 7 P.M. on weekends.
The CONTRACTOR may submit an alternate construction sequence, subject to the approval of the Town of Addison, provided the aforementioned conditions are met.

GENERAL TRAFFIC CONTROL NOTES

1. All temporary signs, markings, cones, channelizing devices, warning lights and barricades shall be in accordance with the current State of Texas Manual on Uniform Traffic Control Devices (MUTCD).
2. The suggested construction sequence is not intended to relieve the CONTRACTOR of the responsibility of adhering to the requirements of the MUTCD.
3. Type "A" warning lights shall be placed on all advance warning signs. In addition, flags shall be placed on all advance warning signs that detour traffic.
4. Advance warning signs shall not be displayed more than forty-eight (48) hours before physical construction begins. Signs may be erected up to one week before needed, if the sign face is fully covered.
5. Reduced speed warning signage should be placed on the affected streets prior to and at regular intervals within the construction zone.
6. As part of the bid item, "Construction Barricading/Signing/Traffic Control," the CONTRACTOR is required to submit a traffic control plan for each phase of construction a minimum of 3 days prior to changes in traffic handling or movement. These plans are to be reviewed and approved by the Town of Addison prior to construction of that phase. This bid item shall be considered inclusive of all traffic handling measures required for the construction.
7. The CONTRACTOR shall place temporary pavement (hot mix-cold laid asphaltic concrete pavement: TxDOT item 334 Type C) where necessary to maintain traffic as dictated by the approved construction sequencing plan. All temporary pavement shall be considered incidental to other items of work (no separate pay).
8. Plates for trench covering must be on-site before the CONTRACTOR begins removal of pavement.

NO.	REVISION	BY	DATE
1	ADDENDOM NO. 1	BRG	8-3-95
2	ADDENDOM NO. 2	BRG	8-8-95

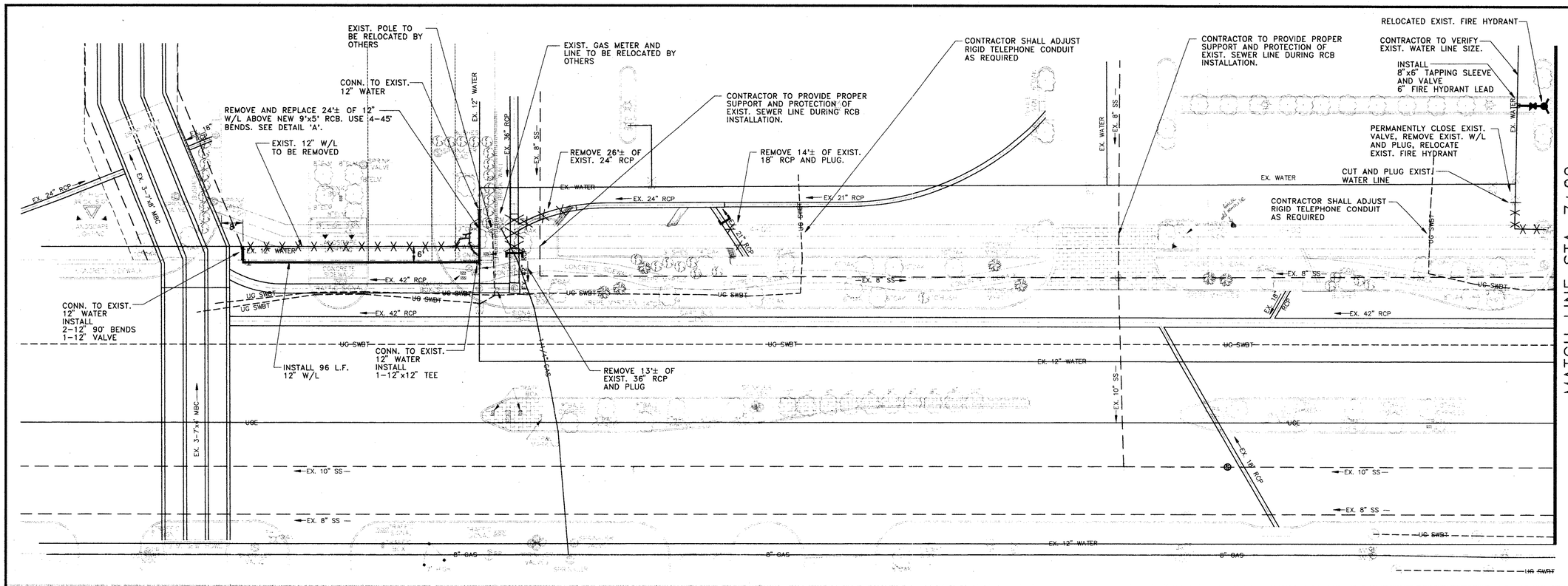
DESIGNED BY: J WALDBAUER
DRAWN BY: EH&A
CHECKED BY: B GRANTHAM
SCALE: 1" = 40'
DATE: JULY, 1995
FILE: \MIDWAY\MIDSEQ

EH&A Espey, Huston & Associates, Inc.
Engineering & Environmental Consultants
13800 Montfort Drive, Suite 230
Dallas, Texas 75240 (214) 387-0771

SUGGESTED CONSTRUCTION SEQUENCE

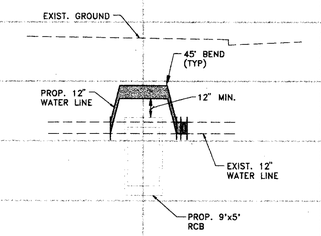
MIDWAY ROAD DRAINAGE IMPROVEMENTS
FROM GREENHILL DRIVE TO TU RIGHT-OF-WAY
for
THE TOWN OF ADDISON

SHEET NO. 4
OF 20 SHEETS
JOB NO. 16285



NOTES:

1. COORDINATE SHUTDOWNS OF EXISTING WATER LINES WITH TOWN OF ADDISON AND PROPERTY OWNERS.
2. REMOVAL OF ALL EXISTING FACILITIES IMPACTED BY CONSTRUCTION SHALL BE CONSIDERED INCIDENTAL TO OTHER ITEMS OF WORK UNLESS A PAY ITEM IS PROVIDED.



DETAIL "A"

NO.	REVISION	BY	DATE

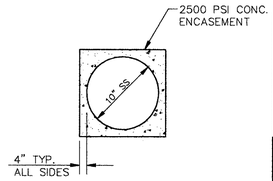
DESIGNED BY: J. WALDBAUER
DRAWN BY: EH&A
CHECKED BY: B GRANTHAM
SCALE: 1" = 20'
DATE: JULY, 1995
FILE: \MIDWAY\MIDUC01

Espey, Huston & Associates, Inc.
Engineering & Environmental Consultants
13800 Montfort Drive, Suite 230
Dallas, Texas 75240 (214) 387-0771

UTILITY COMPOSITE
STA. 1+75.04 TO STA. 7+00

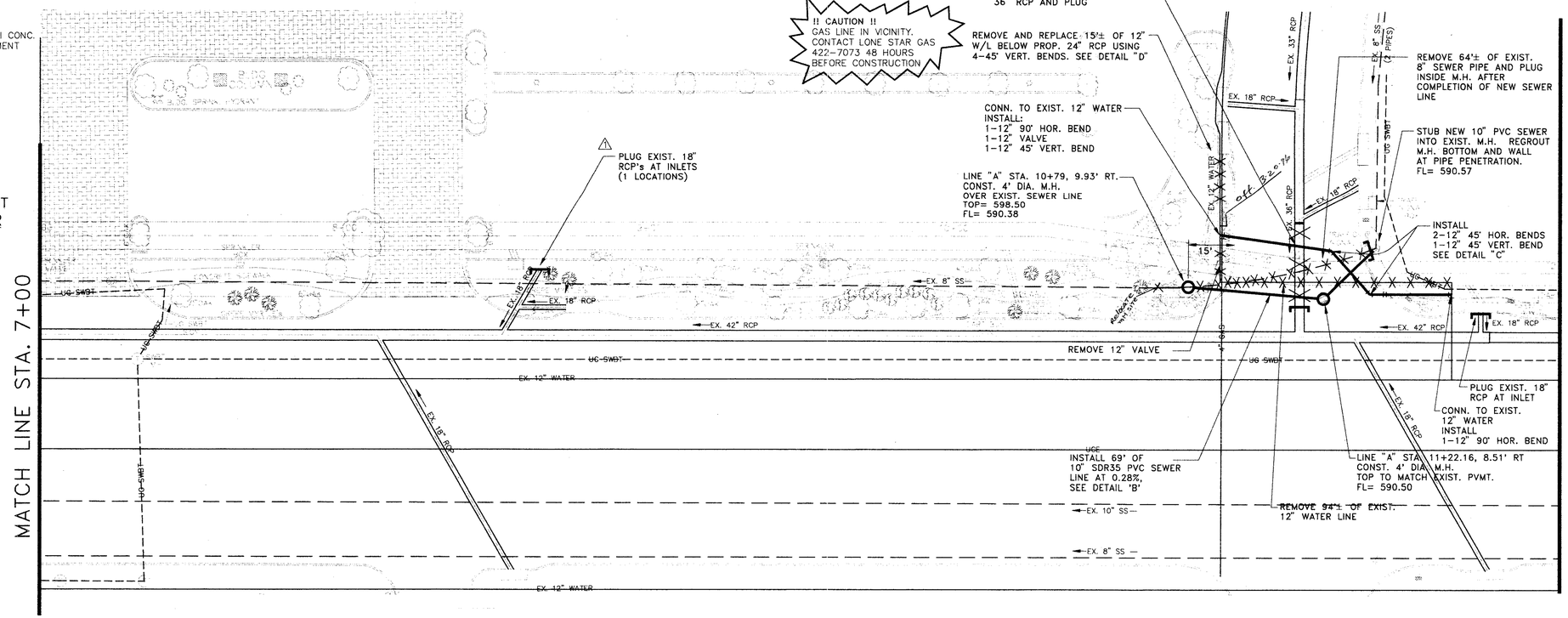
MIDWAY ROAD DRAINAGE IMPROVEMENTS
FROM GREENHILL DRIVE TO TU RIGHT-OF-WAY
for
THE TOWN OF ADDISON

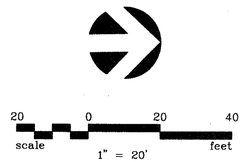
SHEET NO. 5
OF 20 SHEETS
JOB NO. 16285



CONCRETE ENCASEMENT
FOR SANITARY SEWER

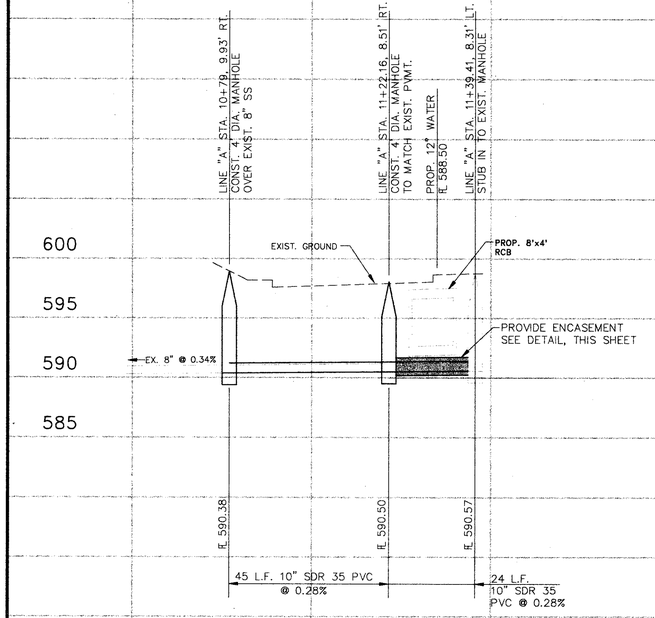
N.T.S.



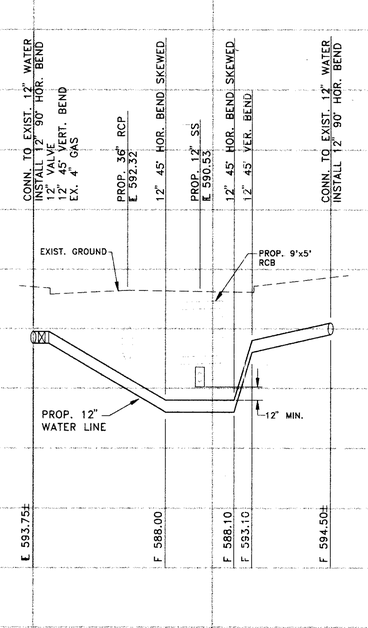


NOTES:

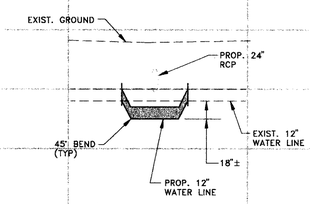
1. COORDINATE SHUTDOWNS OF EXISTING WATER LINES WITH TOWN OF ADDISON AND PROPERTY OWNERS.
2. REMOVAL OF ALL EXISTING FACILITIES IMPACTED BY CONSTRUCTION SHALL BE CONSIDERED INCIDENTAL TO OTHER ITEMS OF WORK UNLESS A PAY ITEM IS PROVIDED.



DETAIL "B"



DETAIL "C"



DETAIL "D"

NO.	REVISION	BY	DATE
1	ADDENDUM NO .1	BRG	8-3-95

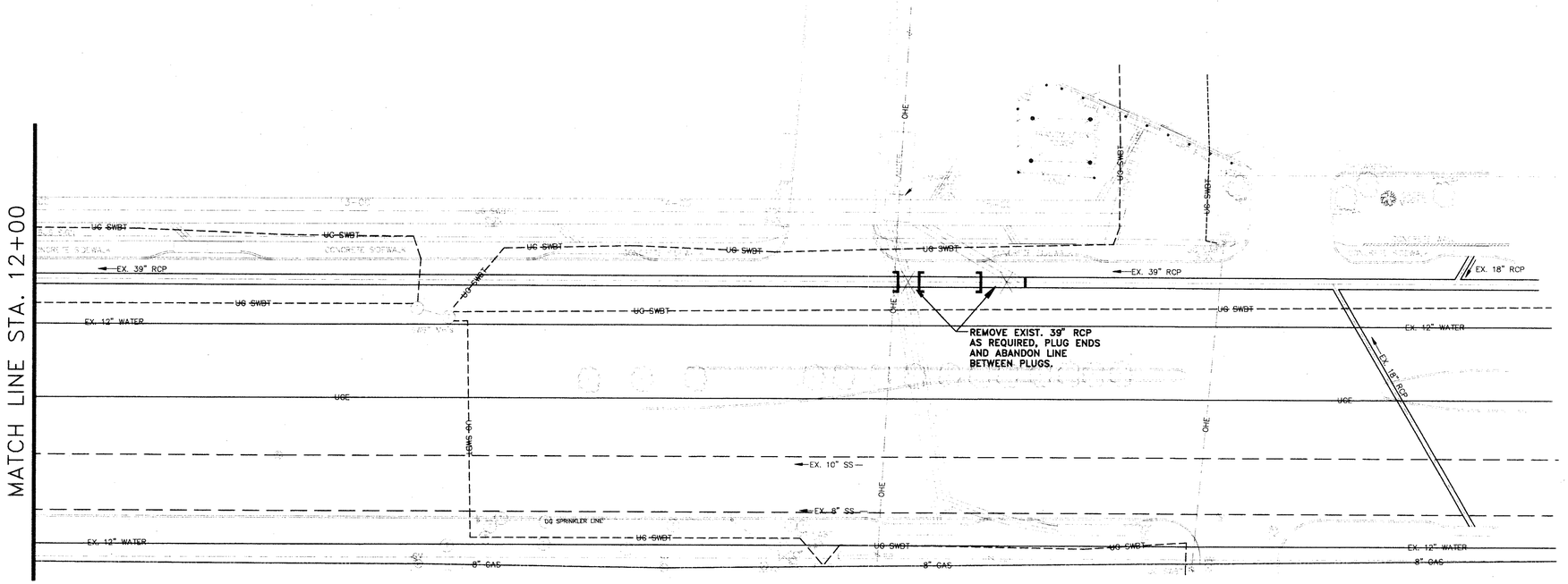
DESIGNED BY: J WALDBAUER
DRAWN BY: EH&A
CHECKED BY: B GRANTHAM
SCALE: 1" = 20'
DATE: JULY, 1995
FILE: \MIDWAY\MIDUC02

Espey, Huston & Associates, Inc.
Engineering & Environmental Consultants
13800 Montfort Drive, Suite 230
Dallas, Texas 75240 (214) 387-0771

UTILITY COMPOSITE
STA. 7+00 TO STA. 12+00

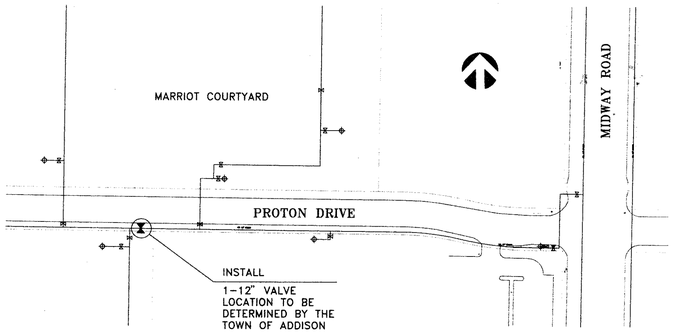
MIDWAY ROAD DRAINAGE IMPROVEMENTS
FROM GREENHILL DRIVE TO TU RIGHT-OF-WAY
for
THE TOWN OF ADDISON

SHEET NO. 6
OF 20 SHEETS
JOB NO. 16285



20 0 20 40
scale 1" = 20' feet

NOTES:
1. COORDINATE SHUTDOWNS OF EXISTING WATER LINES WITH TOWN OF ADDISON AND PROPERTY OWNERS.
2. REMOVAL OF ALL EXISTING FACILITIES IMPACTED BY CONSTRUCTION SHALL BE CONSIDERED INCIDENTAL TO OTHER ITEMS OF WORK UNLESS A PAY ITEM IS PROVIDED.



WATER VALVE LOCATION DETAIL
1"=100'

NOTE:
CONTRACTOR SHALL CUT IN 12" VALVE AS SHOWN PRIOR TO SHUTTING DOWN WATER LINE IN PROTON DRIVE.

NO.	REVISION	BY	DATE

DESIGNED BY: J WALDBAUER
DRAWN BY: EH&A
CHECKED BY: B GRANTHAM
SCALE: 1" = 20'
DATE: JULY, 1995
FILE: \MIDWAY\MIDUC03

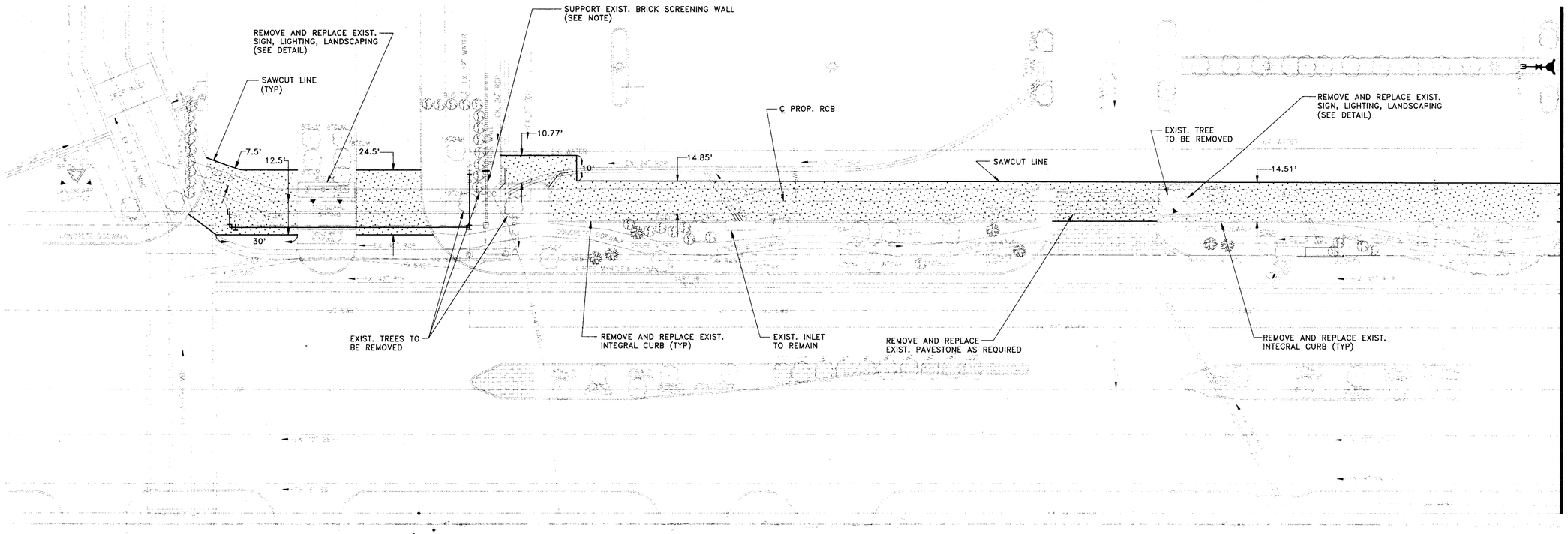
7/21/95

Espey, Huston & Associates, Inc.
Engineering & Environmental Consultants
13800 Montfort Drive, Suite 230
Dallas, Texas 75240 (214) 387-0771

UTILITY COMPOSITE
STA. 12+00 TO STA. 15+55

MIDWAY ROAD DRAINAGE IMPROVEMENTS
FROM GREENHILL DRIVE TO TU RIGHT-OF-WAY
for
THE TOWN OF ADDISON

SHEET NO. 7
OF 20 SHEETS
JOB NO. 16285



20 0 20 40
scale 1" = 20' feet

NOTES:

1. ALL EXISTING ABOVE GROUND FEATURES ARE TO BE RETURNED TO THEIR ORIGINAL CONDITION INCLUDING BUT NOT LIMITED TO PAVEMENT, CURBS, SIDEWALKS, SIGNS, LANDSCAPING (EXCEPT FOR NOTED TREES), PAVESTONE, IRRIGATION SYSTEMS, AND LIGHTING FIXTURES.
2. ALL EXISTING GRASSED AREAS TO BE DISTURBED ARE TO BE GRADED TO ORIGINAL ELEVATIONS AND COVERED WITH BLOCK SODDING TO MATCH EXISTING GROUNDCOVER EXCEPT WHERE NOTED FOR HYDROMULCH.
3. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
4. FOR ALL SAWCUT OF CONCRETE PAVEMENT DRILL AND EPOXY ANCHOR 24" LONG #4 BARS 12" INTO CENTER OF EXIST. PAVEMENT @ 24" CENTERS.

NEW SIDEWALK CONSTRUCTION

PAVEMENT AREAS TO BE REMOVED AND REPLACED

NOTE:

CONTRACTOR SHALL CAREFULLY EXCAVATE AROUND WALL FOUNDATION AND TEMPORARILY SUPPORT IT DURING ADDITIONAL REQUIRED EXCAVATION AND CONSTRUCTION ACTIVITIES. TEMPORARY SUPPORT SHALL BE REMOVED AT THE END OF CONSTRUCTION IN THE WALL AREA. AS AN ALTERNATE, THE CONTRACTOR MAY ELECT TO DEMOLISH PART OF THE WALL REQUIRED TO COMPLETE CONSTRUCTION WORK. THE WALL SHALL BE REPLACED TO MATCH AND TIE INTO THE EXISTING WALL. DETAILS FOR THIS OPTION SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.

NO.	REVISION	BY	DATE

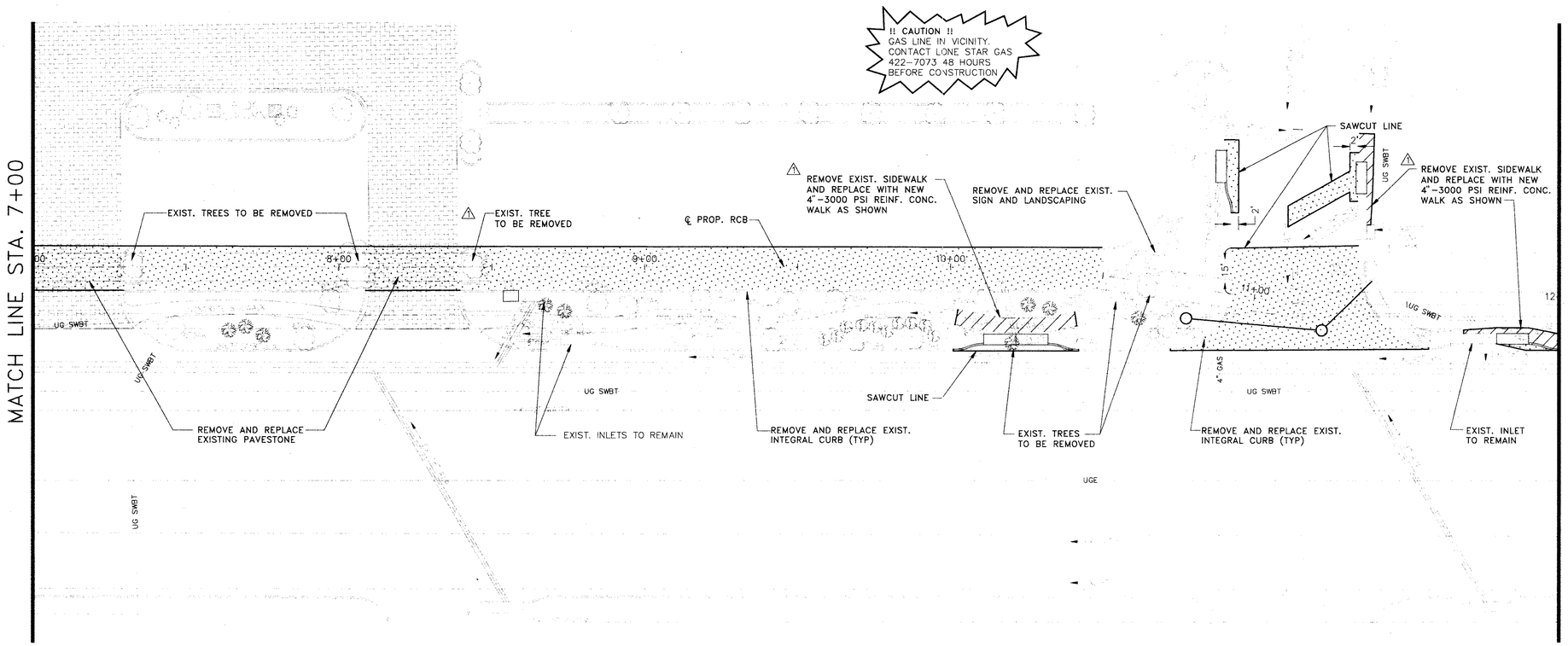
DESIGNED BY: J. WALDBAUER
DRAWN BY: EH&A
CHECKED BY: B GRANTHAM
SCALE: 1" = 20'
DATE: JULY, 1995
FILE: \MIDWAY\MIDDEM01

Espey, Huston & Associates, Inc.
Engineering & Environmental Consultants
13800 Montfort Drive, Suite 230
Dallas, Texas 75240 (214) 387-0771

DEMOLITION PLAN
STA. 1+75.04 TO STA. 7+00

MIDWAY ROAD DRAINAGE IMPROVEMENTS
FROM GREENHILL DRIVE TO TU RIGHT-OF-WAY
for
THE TOWN OF ADDISON

SHEET NO. 8
OF 20 SHEETS
JOB NO. 16285



20 0 20 40
scale 1" = 20' feet

NOTES:

1. ALL EXISTING ABOVE GROUND FEATURES ARE TO BE RETURNED TO THEIR ORIGINAL CONDITION INCLUDING BUT NOT LIMITED TO PAVEMENT, CURBS, SIDEWALKS, SIGNS, LANDSCAPING (EXCEPT FOR NOTED TREES), PAVESTONE, IRRIGATION SYSTEMS, AND LIGHTING FIXTURES.
2. ALL EXISTING GRASSED AREAS TO BE DISTURBED ARE TO BE GRADED TO ORIGINAL ELEVATIONS AND COVERED WITH BLOCK SODDING TO MATCH EXISTING GROUNDCOVER EXCEPT WHERE NOTED FOR HYDROMULCH.
3. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
4. FOR ALL SAWCUT OF CONCRETE PAVEMENT DRILL AND EPOXY ANCHOR 24" LONG #4 BARS 12" INTO CENTER OF EXIST. PAVEMENT @ 24" CENTERS.

NEW SIDEWALK CONSTRUCTION

PAVEMENT AREAS TO BE REMOVED AND REPLACED

NO.	REVISION	BY	DATE
1	ADDENDUM NO .1	BRG	8-3-95

DESIGNED BY: J WALDBAUER
DRAWN BY: EH&A
CHECKED BY: B GRANTHAM
SCALE: 1" = 20'
DATE: JULY, 1995
FILE: \MIDWAY\MIDDEM02

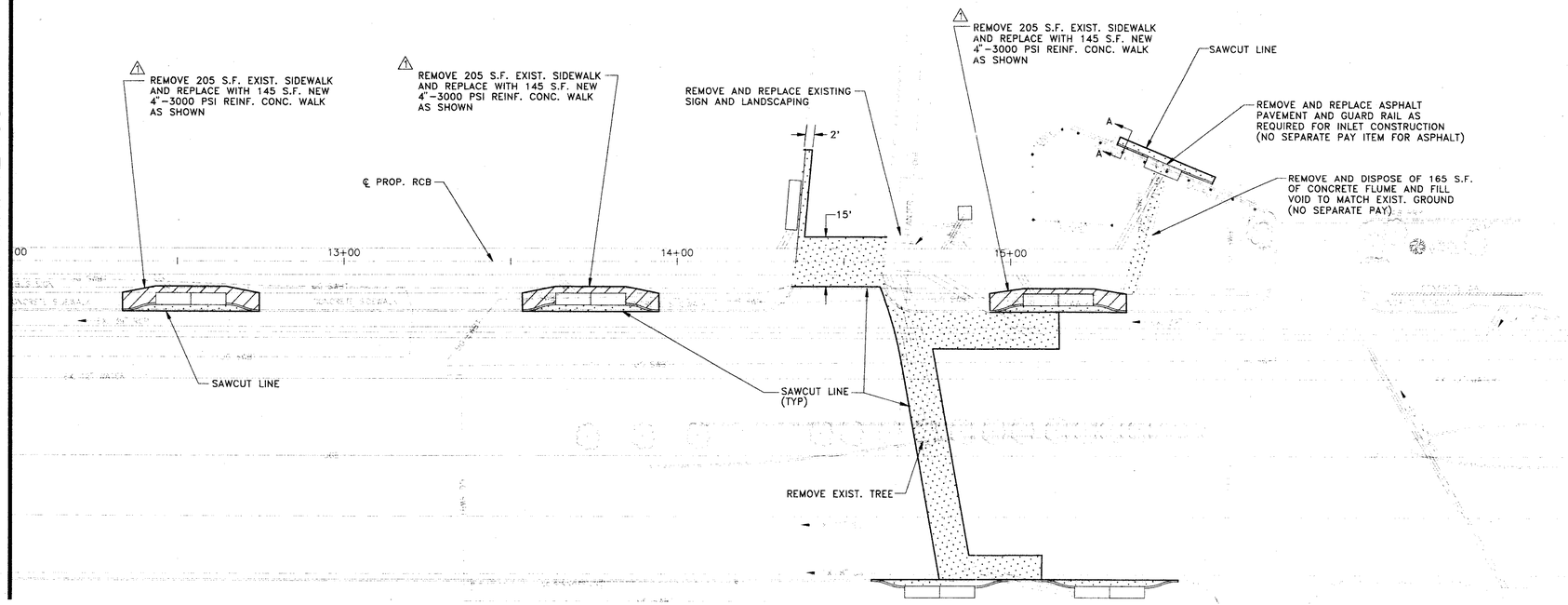
Espey, Huston & Associates, Inc.
Engineering & Environmental Consultants
13800 Montfort Drive, Suite 230
Dallas, Texas 75240 (214) 387-0771

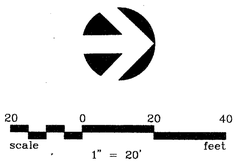
DEMOLITION PLAN
STA. 7+00 TO STA. 12+00

MIDWAY ROAD DRAINAGE IMPROVEMENTS
FROM GREENHILL DRIVE TO TU RIGHT-OF-WAY
for
THE TOWN OF ADDISON

SHEET NO. 9
OF 20 SHEETS
JOB NO. 16285

MATCH LINE STA. 12+00



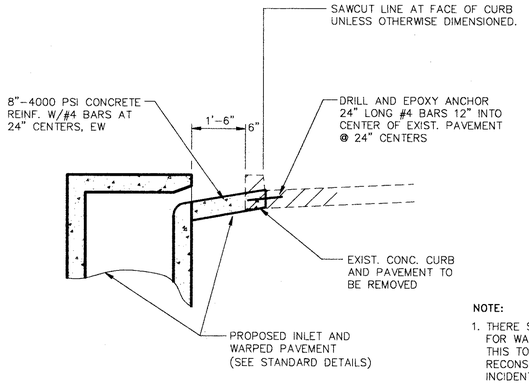


NOTES:

1. ALL EXISTING ABOVE GROUND FEATURES ARE TO BE RETURNED TO THEIR ORIGINAL CONDITION INCLUDING BUT NOT LIMITED TO PAVEMENT, CURBS, SIDEWALKS, SIGNS, LANDSCAPING (EXCEPT FOR NOTED TREES), PAVESTONE, IRRIGATION SYSTEMS, AND LIGHTING FIXTURES.
2. ALL EXISTING GRASSED AREAS TO BE DISTURBED ARE TO BE GRADED TO ORIGINAL ELEVATIONS AND COVERED WITH BLOCK SODDING TO MATCH EXISTING GROUNDCOVER EXCEPT WHERE NOTED FOR HYDROMULCH.
3. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
4. FOR ALL SAWCUT OF CONCRETE PAVEMENT DRILL AND EPOXY ANCHOR 24" LONG #4 BARS 12" INTO CENTER OF EXIST. PAVEMENT @ 24" CENTERS.

NEW SIDEWALK CONSTRUCTION

PAVEMENT AREAS TO BE REMOVED AND REPLACED

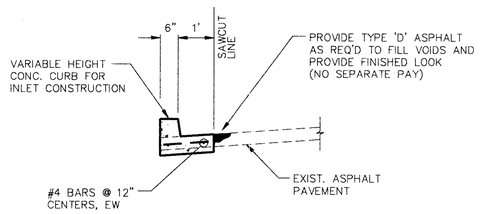


NOTE:

1. THERE SHALL BE NO SEPARATE PAY FOR WARPED PAVEMENT CONSTRUCTION. THIS TOTAL AREA OF PAVEMENT RECONSTRUCTION SHALL BE CONSIDERED INCIDENTAL TO INLET CONSTRUCTION.
2. SAWCUT LINE AT FACE OF CURB SHALL BE LOCATED SUCH THAT ALL ROUNDING AT THE BASE OF THE CURB IS REMOVED.

TYPICAL RECESSED INLET CONSTRUCTION

N.T.S.



SECTION A-A

N.T.S.

NO.	REVISION	BY	DATE
⚠	ADDENDUM NO .1	BRG	8-3-95

DESIGNED BY: J WALDBAUER
DRAWN BY: EH&A
CHECKED BY: B GRANTHAM
SCALE: 1" = 20'
DATE: JULY, 1995
FILE: \MIDWAY\MIDDEM03

STATE OF TEXAS · BRUCE T. GRANTHAM · 72939 · REGISTERED PROFESSIONAL ENGINEER

9/18/95

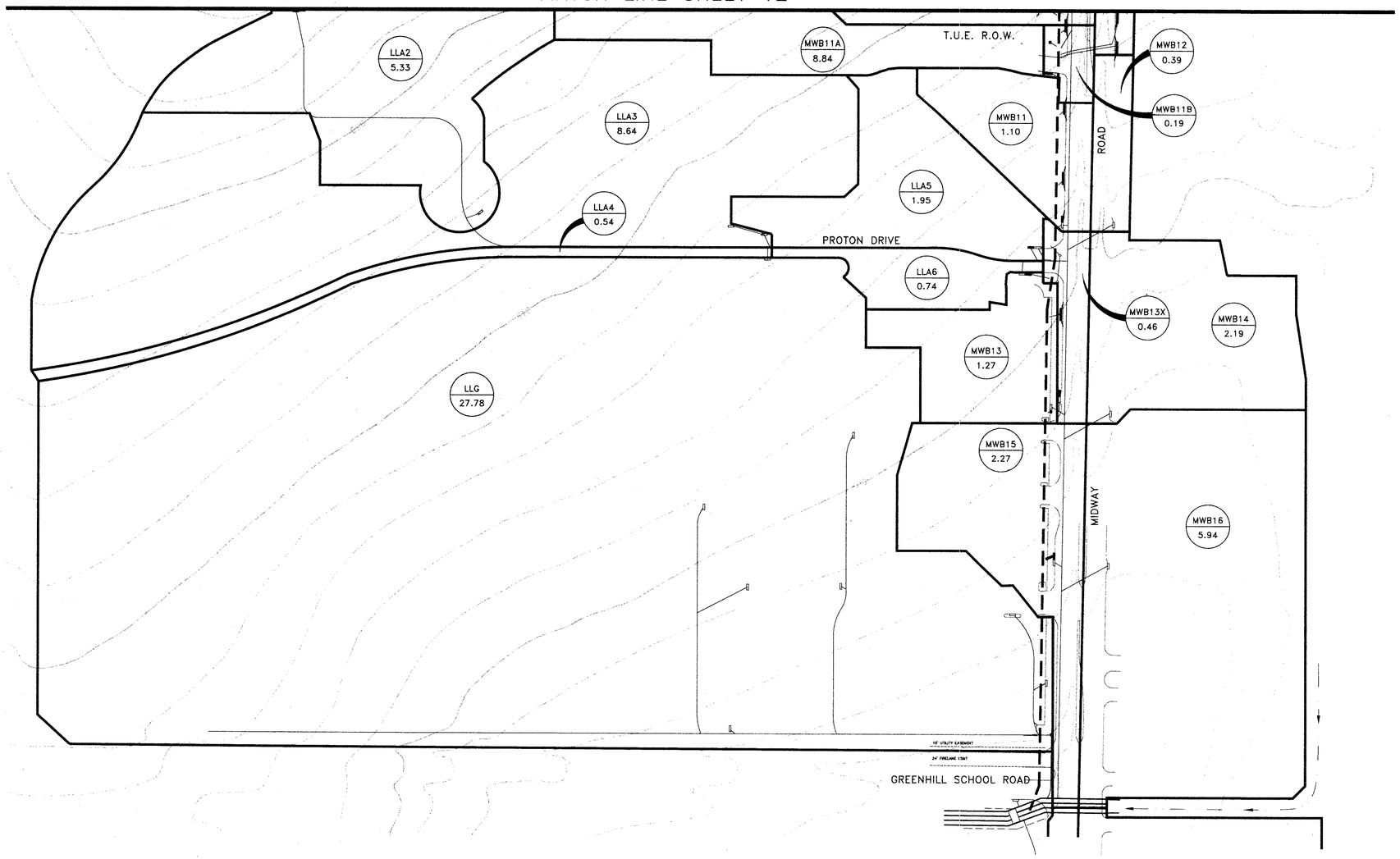
EH&A Espey, Huston & Associates, Inc.
Engineering & Environmental Consultants
13800 Montfort Drive, Suite 230
Dallas, Texas 75240 (214) 387-0771

DEMOLITION PLAN
STA. 12+00 TO STA. 15+55

MIDWAY ROAD DRAINAGE IMPROVEMENTS
FROM GREENHILL DRIVE TO TU RIGHT-OF-WAY
for
THE TOWN OF ADDISON

SHEET NO. 10
OF 20 SHEETS
JOB NO. 16285

MATCH LINE SHEET 12



100 0 100 200
scale feet
1" = 100'

LEGEND

- DRAINAGE DIVIDE
- PROPOSED STORM SEWER
- EXISTING STORM SEWER
- MWB9 / 0.89 — DRAINAGE AREA NUMBER / DRAINAGE AREA (ACRES)

NO.	REVISION	BY	DATE

DESIGNED BY: J WALDBAUER
DRAWN BY: EH&A
CHECKED BY: B GRANTHAM
SCALE: 1" = 40'
DATE: JULY, 1995
FILE: \MIDWAY\MIDDA1

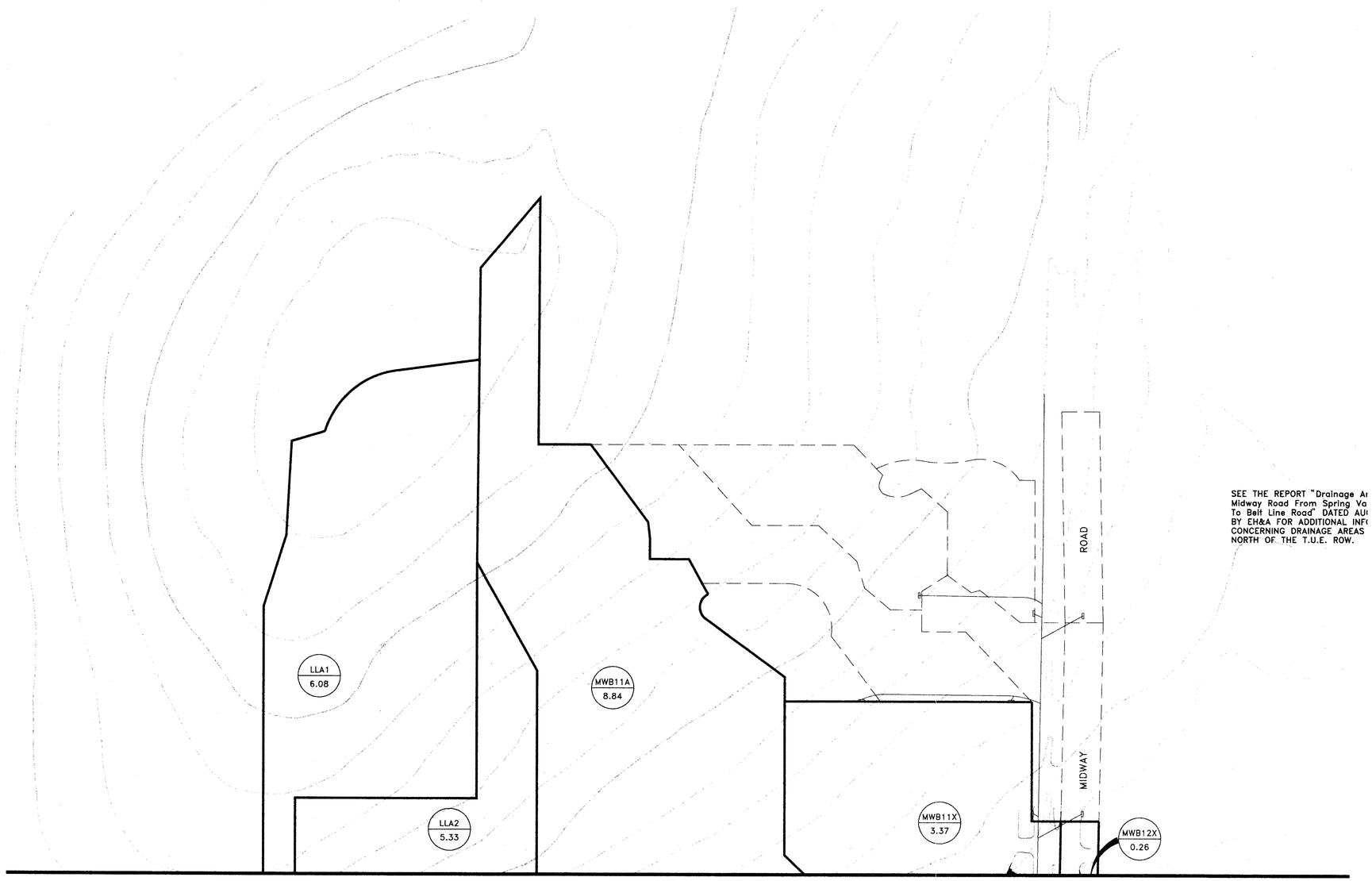
7-27-95

Espey, Huston & Associates, Inc.
Engineering & Environmental Consultants
13800 Montfort Drive, Suite 230
Dallas, Texas 75240 (214) 387-0771

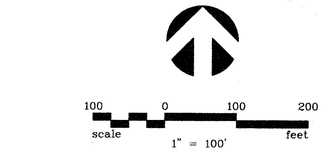
DRAINAGE AREA MAP

MIDWAY ROAD DRAINAGE IMPROVEMENTS
FROM GREENHILL DRIVE TO TU RIGHT-OF-WAY
for
THE TOWN OF ADDISON

SHEET NO. 11
OF 20 SHEETS
JOB NO. 16285



MATCH LINE SHEET 11



LEGEND

- DRAINAGE DIVIDE
- PROPOSED STORM SEWER
- EXISTING STORM SEWER
- MWB9 / 0.89 — DRAINAGE AREA NUMBER / DRAINAGE AREA (ACRES)

SEE THE REPORT "Drainage Ar
Midway Road From Spring Va
To Belt Line Road" DATED AU
BY EH&A FOR ADDITIONAL INF
CONCERNING DRAINAGE AREAS
NORTH OF THE T.U.E. ROW.

NO.	REVISION	BY	DATE

DESIGNED BY: J. WALDBAUER
DRAWN BY: EH&A
CHECKED BY: B. GRANTHAM
SCALE: 1" = 100'
DATE: JULYY 1995
FILE: \MIDWAY\MIDDA2

Espey, Huston & Associates, Inc.
Engineering & Environmental Consultants
13800 Montfort Drive, Suite 230
Dallas, Texas 75240 (214) 387-0771

DRAINAGE AREA MAP

MIDWAY ROAD DRAINAGE IMPROVEMENTS
FROM GREENHILL DRIVE TO TU RIGHT-OF-WAY
for
THE TOWN OF ADDISON

SHEET NO. 12
OF 20 SHEETS
JOB NO. 16285

INLET CALCULATIONS

DRAINAGE AREA NO.	DESIGN STORM FREQUENCY (yrs.)	AREA RUNOFF Q = CIA					CARRY-OVER FROM UPSTREAM INLET (C.F.S.)	TOTAL GUTTER FLOW (C.F.S)	DEPTH OF FLOW (FT.)	GUTTER CAPACITY (C.F.S.)	GUTTER SLOPE (FT./100FT.)	CROWN TYPE	INLET CAPACITY (C.F.S.)	SELECTED INLET		CARRY-OVER TO DOWNSTREAM INLET (C.F.S.)
		TIME OF CONC. (min.)	INTENSITY I (in./hr)	RUNOFF COEFF. "C"	AREA (AC.)	"Q" (C.F.S.)								LENGTH "LI" (feet)	TYPE	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
MWB11X	100	10	8.74	0.90	3.37	26.5	31.2 (1)	57.7	0.62	32.0	1.66	1/4"/FT.	47.7	3 NEW 10' NEW 4' Y	REC STD	10.0 TO MWB11B
MWB11A	100	10	8.74	0.80	8.84	61.8	0	61.8	0.65	30.5	1.50	1/4"/FT.	22.3	NEW 14'	STD	39.5 TO MWB11B
MWB11B	100	5	10.49	0.90	0.19	1.8	49.5	51.3	0.60	32.0	1.66	1/4"/FT.	47.4 (5)	4 NEW 10'	REC.	3.9 TO MWB11
MWB11	100	10	8.74	0.90	1.10	8.7	3.9	12.6	0.37	32.0	1.66	1/4"/FT.	13.2	EX. 10' & NEW 10'	REC.	0
MWB12X	100	5	10.49	0.90	0.26	2.5	66.2 (1)	68.7	0.71	27.0	1.17	1/4"/FT.	63.6	4 NEW 10'	REC.	5.1 TO MWB12
MWB12	100	5	10.49	0.90	0.39	3.7	5.1	8.8	0.31	32.0	1.66	1/4"/FT.	6.0	EX. 10'	REC.	2.8 TO MWB14
LLA1	100	10	8.74	0.70	6.08	37.2	0	37.2	–	N/A	SAG	PARA.	37.2 (4)	EX. 10'	STD	N/A
LLA2	100	10	8.74	0.70	5.33	32.6	0	32.6	–	N/A	SAG	PARA.	32.6 (4)	EX. 10'	STD	N/A
LLA3	100	10	8.74	0.70	8.64	52.8	0	28.7 (6)	0.53	6.5 (2)	1.50	PARA.	22.3	EX. 14'	STD	6.4 TO LLA5
LLA4	100	5	10.49	0.80	0.54	4.5	0	28.6 (6)	0.53	6.5 (2)	1.50	PARA.	22.3	EX. 14'	STD	6.3 TO LLA6
LLA5	100	10	8.74	0.80	1.95	13.6	6.4	20.0	0.41	18.0 (3)	1.50	PARA.	16.8	EX. 14' & NEW 10'	STD	3.2 TO MWB13X
LLA6	100	10	8.74	0.80	0.74	5.2	6.3	11.5	0.35	18.0 (3)	1.50	PARA.	12.8	EX. 10' & NEW 10'	REC.	0
MWB13	100	10	8.74	0.90	1.27	10.0	0	10.0	0.32	32.0	1.66	1/4"/FT.	9.0	EX. 10' & NEW 5'	STD	1.0 TO MWB15
MWB13X	100	10	8.74	0.90	0.46	3.6	3.2	6.8	0.32	32.0	1.66	1/4"/FT.	24.0	EX. 10' & 3 NEW 10'	REC.	0
MWB14	100	10	8.74	0.90	2.19	17.2	2.8	20.0	0.42	32.0	1.66	1/4"/FT.	7.0	EX. 10'	REC.	13.0 TO MWB16
MWB15	100	10	8.74	0.90	2.27	17.9	1.0	18.9	–	N/A	SAG	1/4"/FT.	42.0	EX. 10' & NEW 10'	STD	N/A
MWB16	100	10	8.74	0.90	5.94	46.7	13.0	59.7	–	N/A	SAG	1/4"/FT.	21.0	EX. 10' (7)	REC.	N/A

(1) SEE REPORT "DRAINAGE ANALYSIS FOR MIDWAY ROAD FROM SPRING VALLEY TO BELT LINE ROAD."

(2) GUTTER CAPACITY OF 6.5 CFS BASED ON 1/2 OF PROTON ROAD (13.5') AT 0.28' DEPTH.

(3) GUTTER CAPACITY OF 18.0 CFS BASED ON 1/2 OF PROTON ROAD (20') AT 0.41' DEPTH.

(4) ASSUMES ALL FLOW ENTERS INLET AT THESE DEVELOPED LOCATIONS.

(5) 2 NEW 10' INLETS AT 15.9 CFS EACH PLUS 2 NEW 10' INLETS AT 7.8 CFS EACH EQUALS 47.4 CFS.

(6) GUTTER FLOW EQUAL TO LLA3 AND LLA4 DIVIDED BY 2.

(7) THIS SYSTEM IS SEVERELY UNDERSIZED. HOWEVER, NO IMPROVEMENTS TO THE EAST SIDE OF MIDWAY AT THIS SAG LOCATION ARE PROPOSED WITH THIS PROJECT. SEE NOTE (1).

DRAINAGE CALCULATIONS

MANHOLE INLET OR JUNCTION		DISTANCE BETWEEN POINTS	DRAINAGE AREA "A"			COEFFICENT OF RUNOFF	INCREMENTAL "CA"	ACCUMULATIVE "CA"	TIME OF CONCENTRATION			I (100) INTENSITY	Q (100) RUNOFF QUANTITY	PIPE SIZE	"S" FRICTIONAL GRADIENT	VELOCITY	$V^2/2g$	REMARKS
FROM	TO		INCREMENTAL AREA		ACCUM. AREA				INLET TIME	FLOW TIME IN STORM DRAIN (3÷17)÷60	ACCUM. TIME							
DESIGN POINT	DOWN STREAM	FT.	NO.	ACRES	ACRES	"C"			MIN.	MIN.	MIN.	IN/HR	CFS	IN.	FT/FT	FPS	FT.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	21
LINE 'Y'	15+32					0.9	0.40		10			8.74	3.5	–	–	–	–	NO LATERAL
I-H1	J-H2	40			0.44			0.40		–	10.0	8.74	3.5	18	0.0004	1.46	0.03	
I-H2	J-H2		H-2	3.69		0.5	1.84		15			7.52	13.8	21	0.0065	9.77	1.48	
J-H2	J-H3	278			4.13			2.24		–	15.0	7.52	16.8	21	0.0096	12.40	2.39	
I-H3	J-H3		H-3	0.36		0.9	0.32		10			8.74	2.8	18	0.0003	11.93	2.21	
J-H3	LINE J				4.49			2.56		(278/12.40)/60 = 0.4	15.4	7.42	19.0	21	0.0123	15.58	3.77	CONNECT TO LINE J
	LINE I-1																	
OVERLAND	I-I1		I-1	3.10		0.6	1.86		15			7.52	14.0	–	–	–	–	NO LATERAL
I-I1	J-I2	39			3.10			1.86		–	15.0	7.52	14.0	21	0.0067	12.30	2.35	
I-I2	J-I2		I-2	1.21		0.9	1.09		10			8.74	9.5	21	0.0031	8.81	1.21	
J-I2	J-I3	266			4.31			2.95		(39/8.81)/60 = 0.1	15.1	7.50	22.1	24	0.0081	13.78	2.95	
I-I3	J-I3		I-3	0.54		0.9	0.49		10			8.74	4.3	18	0.0014	11.82	2.17	
J-I3	J-I4	40			4.85			3.44		(266/13.78)/60 = 0.3	15.4	7.42	25.5	24	0.0108	12.92	2.59	
I-I4	J-I4		I-4	0.38		0.9	0.34		10			8.74	3.0	18	0.0007	6.60	0.68	
J-I4	LINE J				5.23			3.78		(40/12.92)/60 = 0.1	15.5	7.40	28.0	24	0.0131	13.17	2.69	

NO.	REVISION	BY	DATE

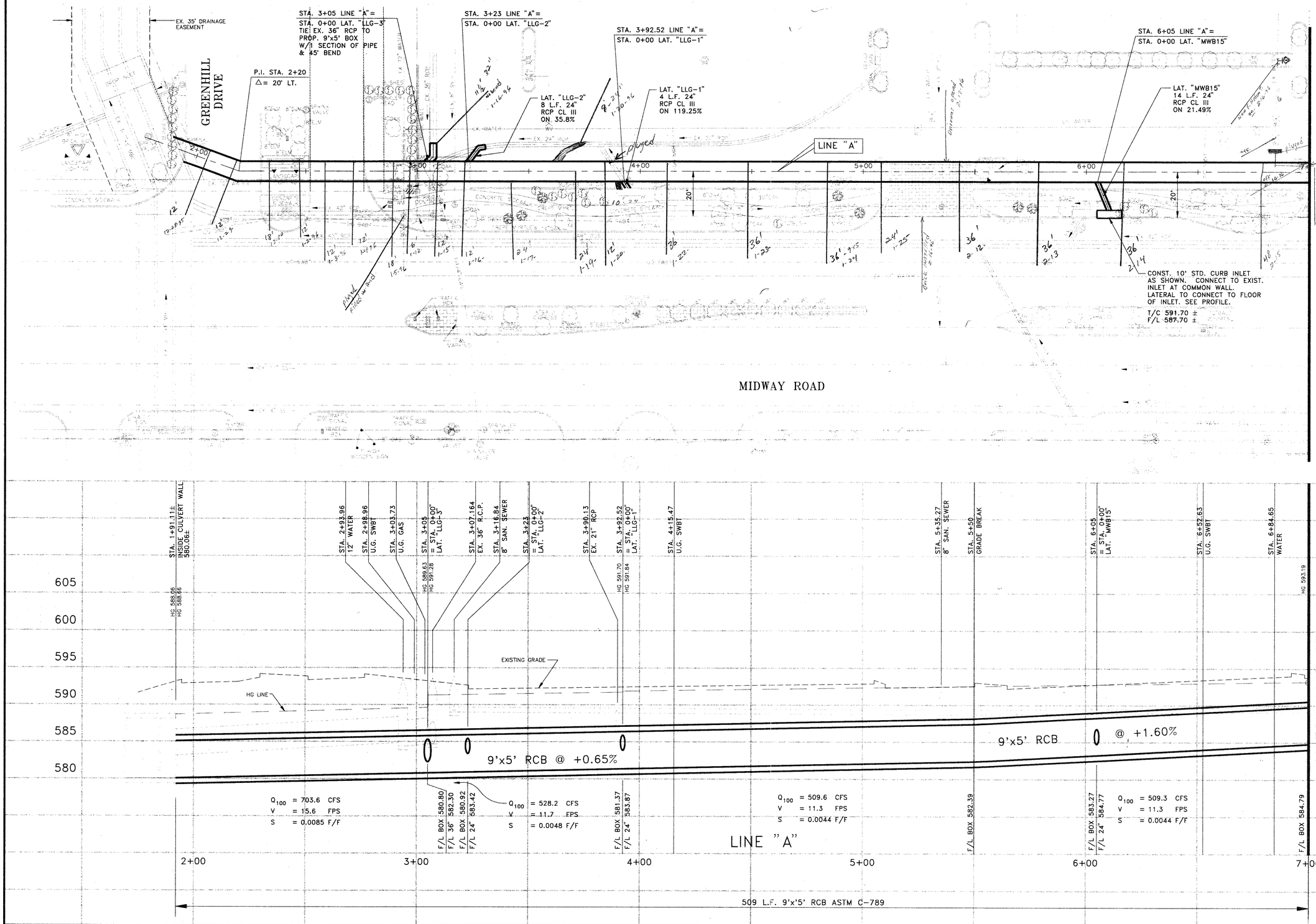
DESIGNED BY: J WALDBAUER
DRAWN BY: EH&A
CHECKED BY: B GRANTHAM
SCALE: NOT TO SCALE
DATE: JULY, 1995
FILE: \MIDWAY\MIDCALC

Espey, Huston & Associates, Inc.
Engineering & Environmental Consultants
13800 Montfort Drive, Suite 230
Dallas, Texas 75240 (214) 387-0771

DRAINAGE CALCULATIONS

MIDWAY ROAD DRAINAGE IMPROVEMENTS
FROM GREENHILL DRIVE TO TU RIGHT-OF-WAY
for
THE TOWN OF ADDISON

SHEET NO. 13
OF 20 SHEETS
JOB NO. 16285



BENCHMARKS

BM#1 FLOWLINE OF A 4'x7' BOX CULVERT, THE MOST SOUTHERLY BOX ON THE EAST SIDE OF MIDWAY ROAD AND ±45° SOUTH OF GREENHILL DRIVE. ELEV. 587.33

BM#2 SET "D" CUT ON THE SOUTH END, TOP OF CONCRETE HEADWALL, ON THE EAST SIDE OF MIDWAY ROAD AND ±45° SOUTH OF GREENHILL DRIVE. ELEV. 592.97

BM#3 SET "D" CUT AT WEST CORNER OF CONCRETE HEADWALL OF BOX CULVERT, SOUTH SIDE OF PROTON DRIVE, AND ±350' EAST OF MIDWAY AND PROTON INTERSECTION. ELEV. 598.37

NO.	REVISION	BY	DATE

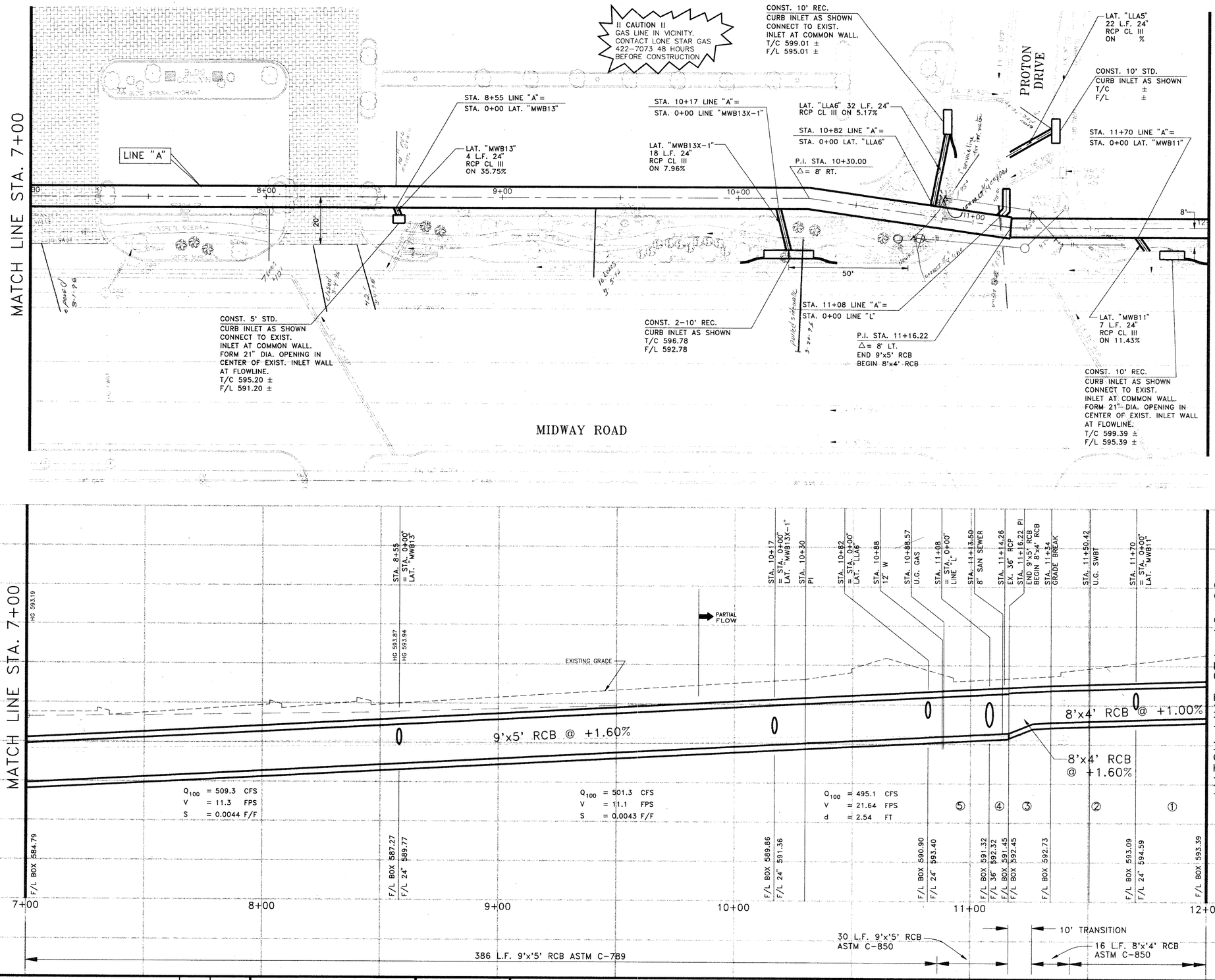
DESIGNED BY: J WALDBAUER
DRAWN BY: EH&A
CHECKED BY: B GRANTHAM
SCALE: 1" = 20'
DATE: JULY, 1995
FILE: \MIDWAY\MIDDR01

Espey, Huston & Associates, Inc.
Engineering & Environmental Consultants
13800 Montfort Drive, Suite 230
Dallas, Texas 75240 (214) 387-0771

DRAINAGE PLAN & PROFILE
STA. 1+75.04 TO STA. 7+00

MIDWAY ROAD DRAINAGE IMPROVEMENTS
FROM GREENHILL DRIVE TO TU RIGHT-OF-WAY
for
THE TOWN OF ADDISON

SHEET NO. 14
OF 20 SHEETS
JOB NO. 16285



NO.	REVISION	BY	DATE

DESIGNED BY: J WALDBAUER
DRAWN BY: EH&A
CHECKED BY: B GRANTHAM
SCALE: 1" = 20'
DATE: JULY, 1995
FILE: \MIDWAY\MIDDR02

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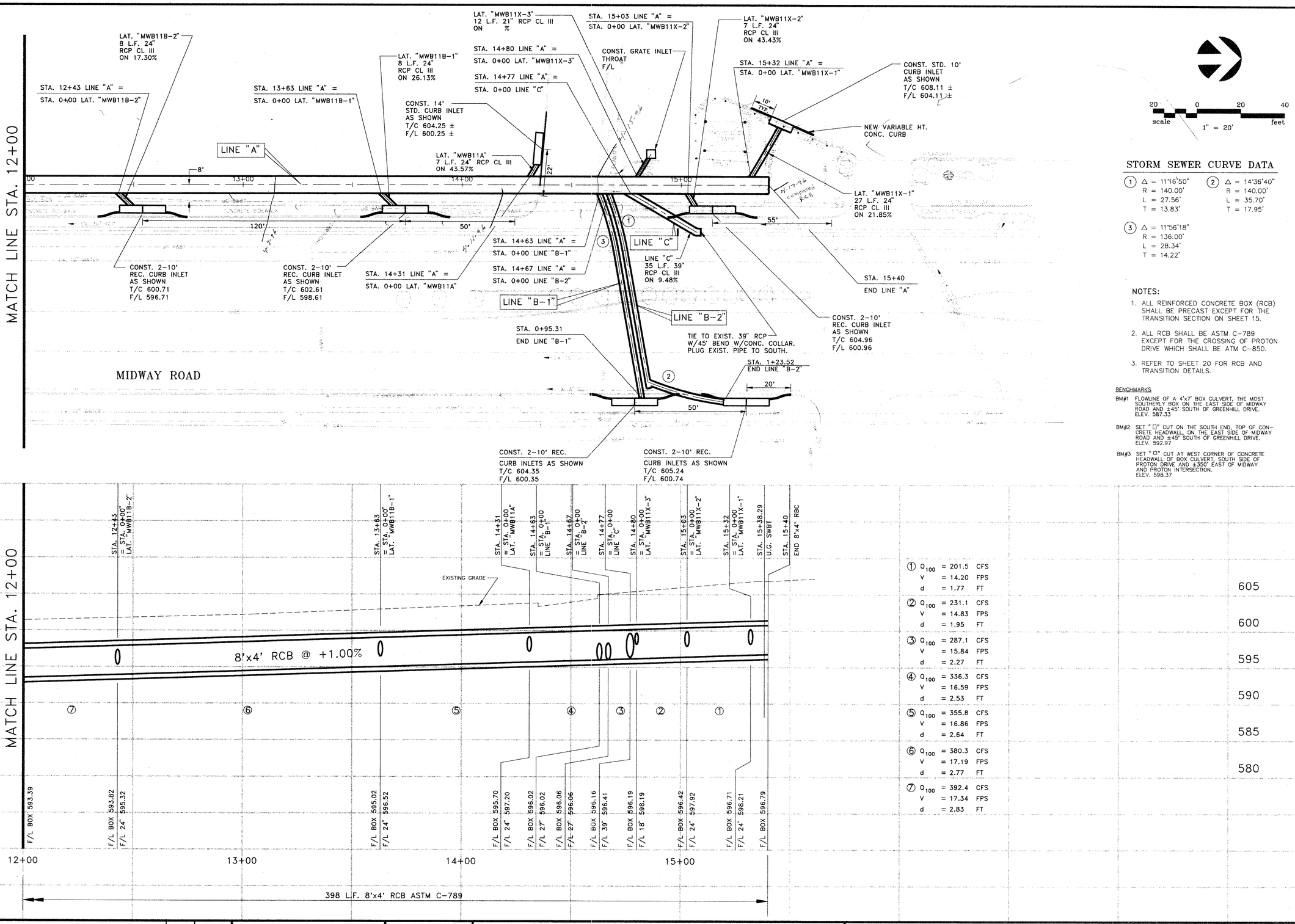
13800 Montfort Drive, Suite 230
Dallas, Texas 75240 (214) 387-0771

DRAINAGE PLAN & PROFILE
STA. 7+00 TO STA. 12+00

MIDWAY ROAD DRAINAGE IMPROVEMENTS
FROM GREENHILL DRIVE TO TU RIGHT-OF-WAY
for
THE TOWN OF ADDISON

SHEET NO. 15
OF 20 SHEETS
JOB NO. 16285



STORM SEWER CURVE DATA

① Δ = 11°16'50"
R = 140.00'
L = 27.56'
T = 13.83'

② Δ = 14°36'40"
R = 140.00'
L = 35.70'
T = 17.95'

③ Δ = 11°56'18"
R = 136.00'
L = 28.34'
T = 14.22'

NOTES:

1. ALL REINFORCED CONCRETE BOX (RCB) SHALL BE PRECAST EXCEPT FOR THE TRANSITION SECTION ON SHEET 15.
2. ALL RCB SHALL BE ASTM C-789 EXCEPT FOR THE CROSSING OF PROTON DRIVE WHICH SHALL BE ATM C-850.
3. REFER TO SHEET 20 FOR RCB AND TRANSITION DETAILS.

BENCHMARKS

BM#1 FLOWLINE OF A 4'x7' BOX CULVERT, THE MOST SOUTHERLY BOX ON THE EAST SIDE OF MIDWAY ROAD AND ±45' SOUTH OF GREENHILL DRIVE. ELEV. 587.33

BM#2 SET "□" CUT ON THE SOUTH END, TOP OF CONCRETE HEADWALL, ON THE EAST SIDE OF MIDWAY ROAD AND ±45' SOUTH OF GREENHILL DRIVE. ELEV. 592.97

BM#3 SET "□" CUT AT WEST CORNER OF CONCRETE HEADWALL OF BOX CULVERT, SOUTH SIDE OF PROTON DRIVE AND ±350' EAST OF MIDWAY AND PROTON INTERSECTION. ELEV. 598.37

① Q_{100} = 201.5 CFS
V = 14.20 FPS
d = 1.77 FT

② Q_{100} = 231.1 CFS
V = 14.83 FPS
d = 1.95 FT

③ Q_{100} = 287.1 CFS
V = 15.84 FPS
d = 2.27 FT

④ Q_{100} = 336.3 CFS
V = 16.59 FPS
d = 2.53 FT

⑤ Q_{100} = 355.8 CFS
V = 16.86 FPS
d = 2.64 FT

⑥ Q_{100} = 380.3 CFS
V = 17.19 FPS
d = 2.77 FT

⑦ Q_{100} = 392.4 CFS
V = 17.34 FPS
d = 2.83 FT

NO.	REVISION	BY	DATE

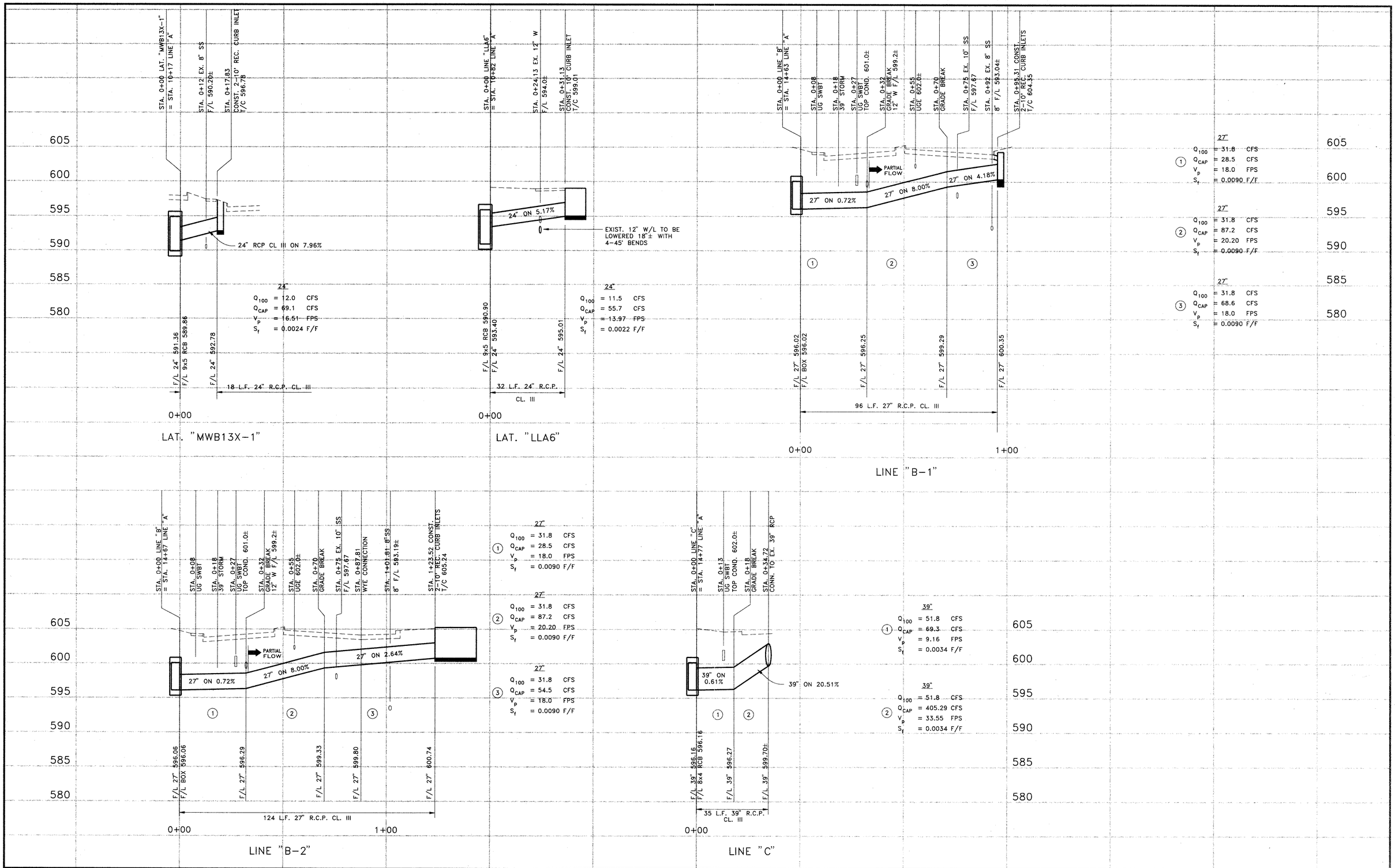
DESIGNED BY: J WALDBAUER
DRAWN BY: EH&A
CHECKED BY: B GRANTHAM
SCALE: 1" = 20'
DATE: JULY, 1995
FILE: \MIDWAY\MIDDR03

Espey, Huston & Associates, Inc.
Engineering & Environmental Consultants
13800 Montfort Drive, Suite 230
Dallas, Texas 75240 (214) 387-0771

DRAINAGE PLAN & PROFILE
STA. 12+00 TO STA. 15+55

MIDWAY ROAD DRAINAGE IMPROVEMENTS
FROM GREENHILL DRIVE TO TU RIGHT-OF-WAY
for
THE TOWN OF ADDISON

SHEET NO. 16
OF 20 SHEETS
JOB NO. 16285



NO.	REVISION	BY	DATE

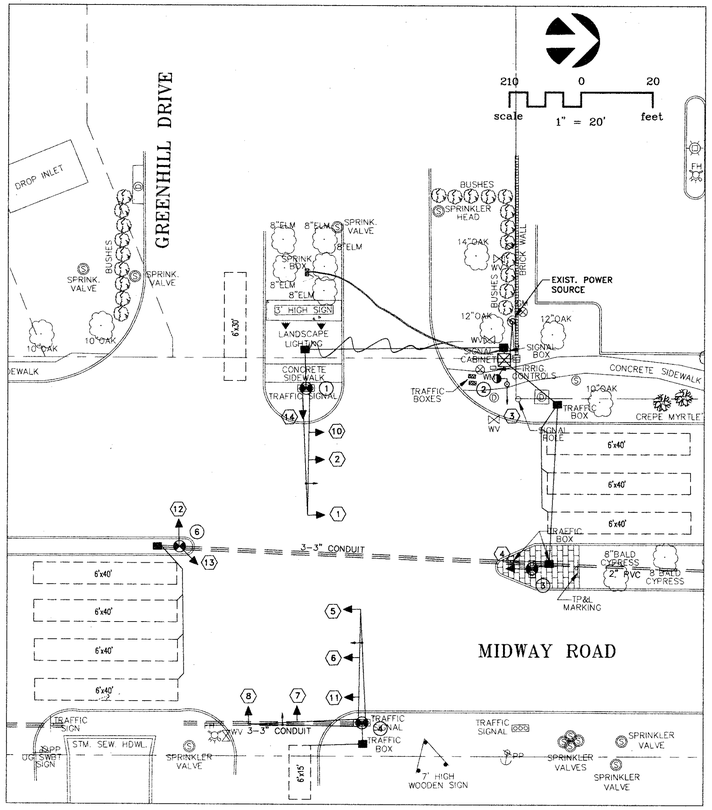
DESIGNED BY: J WALDBAUER
DRAWN BY: EH&A
CHECKED BY: B GRANTHAM
SCALE: 1"=6'V;1"=20'H
DATE: JULY, 1995
FILE: \MIDWAY\MIDPROF

Espey, Huston & Associates, Inc.
Engineering & Environmental Consultants
13800 Montfort Drive, Suite 230
Dallas, Texas 75240 (214) 387-0771

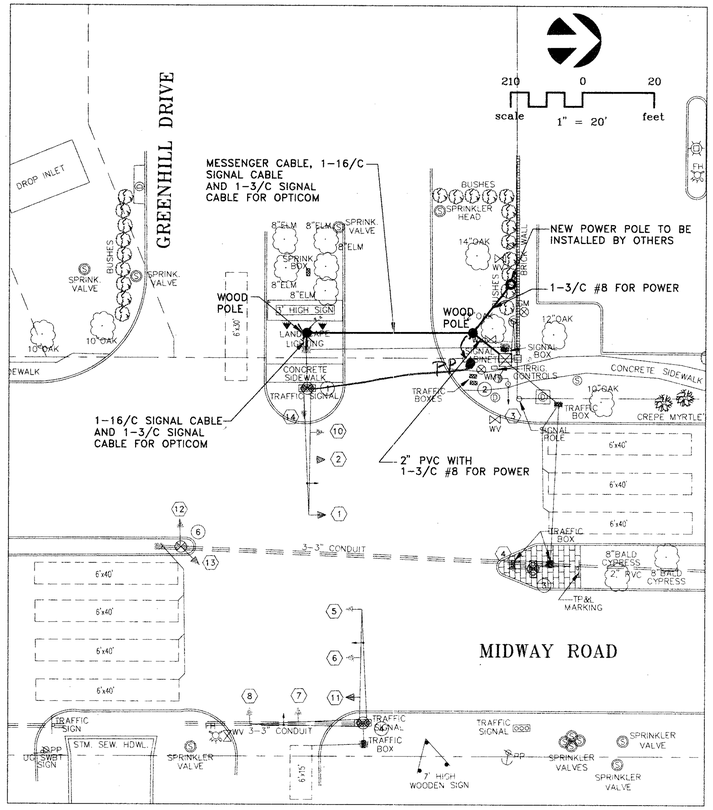
STORM DRAIN PROFILES

MIDWAY ROAD DRAINAGE IMPROVEMENTS
FROM GREENHILL DRIVE TO TU RIGHT-OF-WAY
for
THE TOWN OF ADDISON

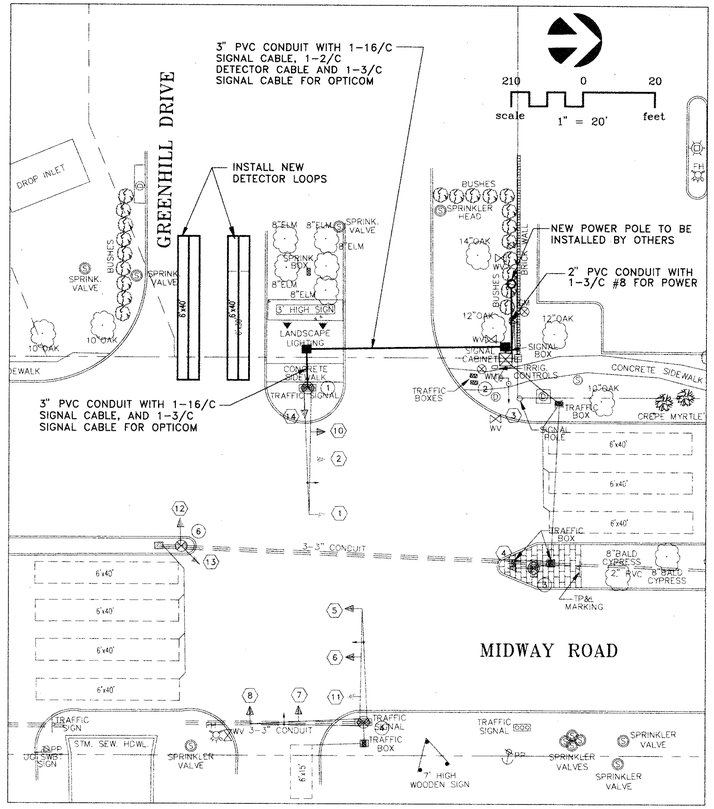
SHEET NO. 17
OF 20 SHEETS
JOB NO. 16285



EXISTING CONDITIONS



TEMPORARY TRAFFIC SIGNALS



PERMANENT TRAFFIC SIGNALS

LEGEND

- PULLBOX
- WOOD POLE
- MESSENGER AND OTHER CABLE (EXIST.)
- MESSENGER AND OTHER CABLE (PROP.)
- CONDUIT AND CABLE
- 6'x40' DETECTOR LOOP (EXIST.) AND SIZE
- 6'x40' DETECTOR LOOP (PROP.) AND SIZE
- MAST-ARM POLE AND NO., SIGNAL HEAD AND NO.

NOTES:

1. CONTRACTOR SHALL INSTALL AND MAINTAIN TEMPORARY WOOD POLES, MESSENGER AND TRAFFIC SIGNAL CABLE AND POWER CABLE IN ACCORDANCE WITH THESE PLANS AND TOWN OF ADDISON SPECIFICATIONS.
2. CONTRACTOR SHALL MAINTAIN TRAFFIC SIGNALS IN OPERATION AT ALL TIMES. ANY SHUT-DOWN OF TRAFFIC SIGNALS SHALL BE APPROVED BY AND COORDINATED WITH THE TOWN OF ADDISON PUBLIC WORKS DEPARTMENT.

CABLE TERMINATION CHART

CNDR COLOR	CABLE 1 FROM P1 TO CNTRL. 16 CNDR.
BLACK	SPARE
WHITE	COMMON
RED	SH1,2,10R
GREEN	SH1,2,10G
ORANGE	SH1,2,10Y
BLUE	SPARE
WHITE/BLACK	SPARE
RED/BLACK	SH14 R
GREEN/BLACK	SH14 G
ORANGE/BLACK	SH14 Y
BLUE/BLACK	SPARE
BLACK/WHITE	SPARE
RED/WHITE	SPARE
GREEN/WHITE	SPARE
BLUE/WHITE	SPARE
BLACK/RED	SPARE

NOTES:

1. INSTALL NEW PULLBOXES, CONDUIT, SIGNAL CABLE AND LOOP VEHICLE DETECTOR IN ACCORDANCE WITH THESE PLANS AND TOWN OF ADDISON SPECIFICATIONS.
2. CONTRACTOR SHALL MAINTAIN TRAFFIC SIGNALS IN OPERATION AT ALL TIMES. ANY SHUT-DOWN OF TRAFFIC SIGNALS SHALL BE APPROVED BY AND COORDINATED WITH THE TOWN OF ADDISON PUBLIC WORKS DEPARTMENT.

CABLE TERMINATION CHART

CNDR COLOR	CABLE 1 FROM P1 TO CNTRL. 16 CNDR.
BLACK	SPARE
WHITE	COMMON
RED	SH1,2,10R
GREEN	SH1,2,10G
ORANGE	SH1,2,10Y
BLUE	SPARE
WHITE/BLACK	SPARE
RED/BLACK	SH14 R
GREEN/BLACK	SH14 G
ORANGE/BLACK	SH14 Y
BLUE/BLACK	SPARE
BLACK/WHITE	SPARE
RED/WHITE	SPARE
GREEN/WHITE	SPARE
BLUE/WHITE	SPARE
BLACK/RED	SPARE

NO.	REVISION	BY	DATE

DESIGNED BY: JACK HATCHELL
DRAWN BY: EH&A
CHECKED BY: B GRANTHAM
SCALE: 1" = 20'
DATE: JULY 1995
FILE: \MIDWAY\MIDSIG

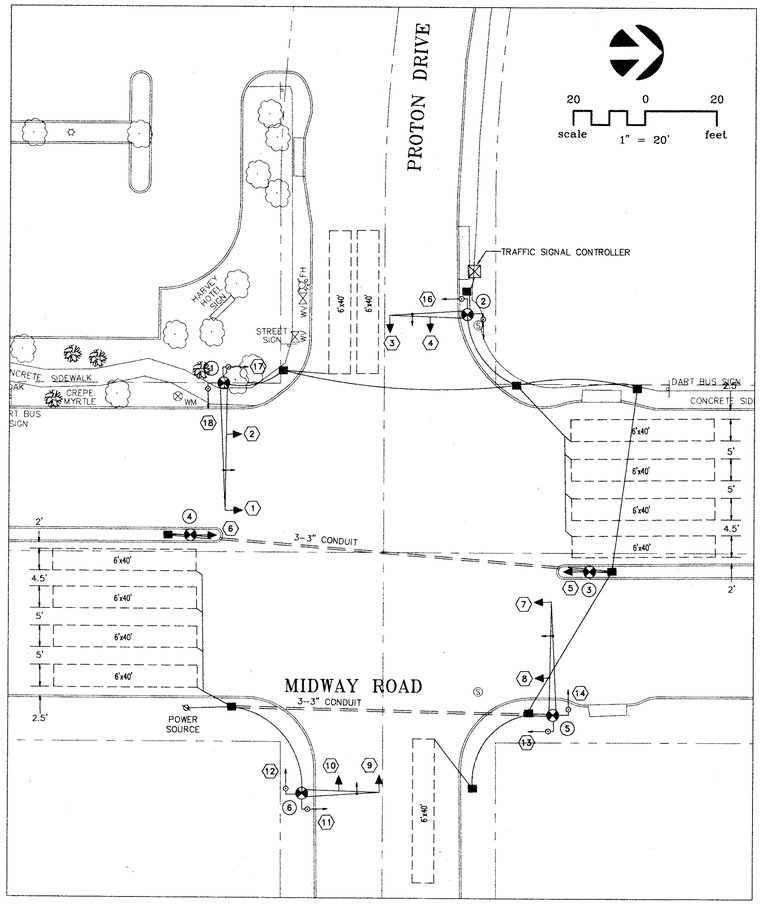
4/12/95

Espey, Huston & Associates, Inc.
Engineering & Environmental Consultants
13800 Montfort Drive, Suite 230
Dallas, Texas 75240 (214) 387-0771

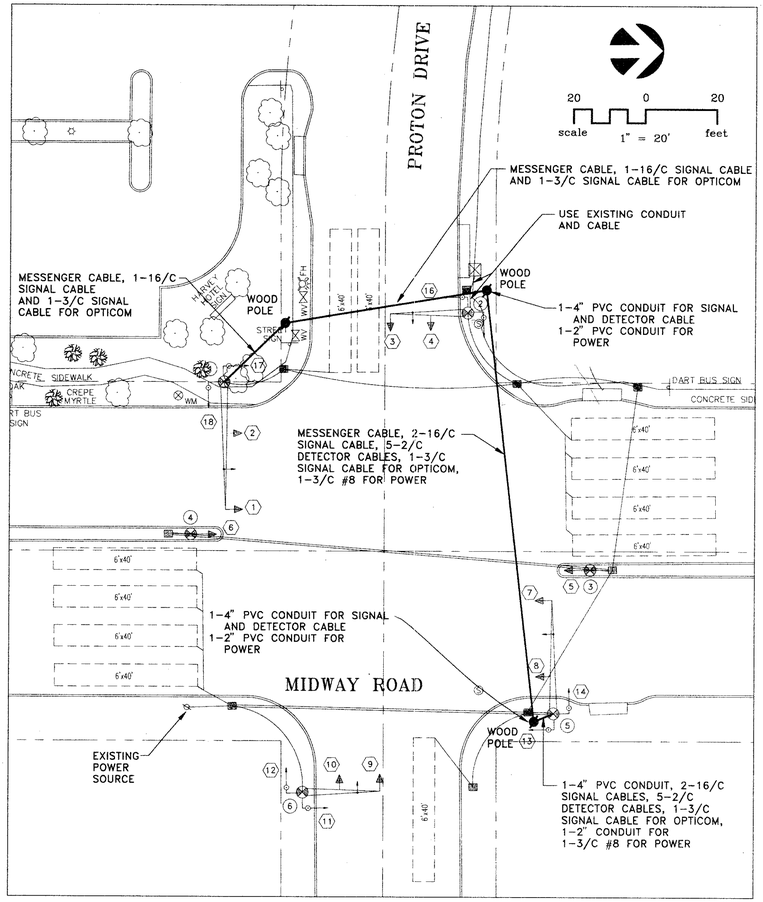
TRAFFIC SIGNALIZATION
MIDWAY ROAD AT GREENHILL DRIVE

MIDWAY ROAD DRAINAGE IMPROVEMENTS
GREENHILL DRIVE TO TU RIGHT-OF-WAY
for
THE TOWN OF ADDISON

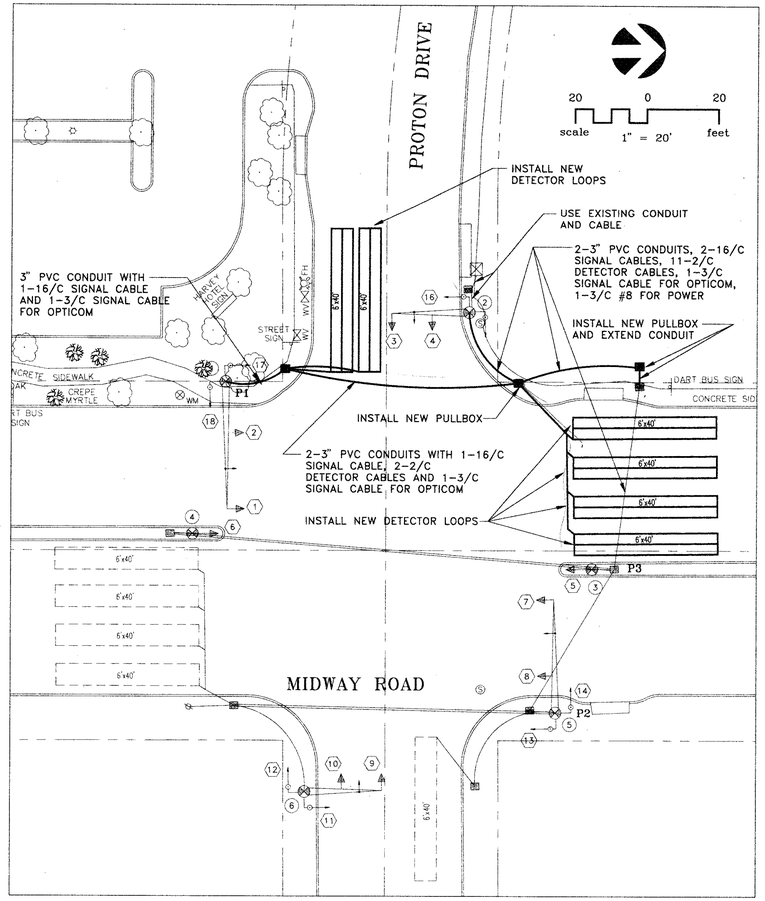
SHEET NO. 18
OF 20 SHEETS
JOB NO. 16285



EXISTING CONDITIONS



TEMPORARY TRAFFIC SIGNALS



PERMANENT TRAFFIC SIGNALS

LEGEND

- PULLBOX
- WOOD POLE
- MESSENGER AND OTHER CABLE (EXIST.)
- MESSENGER AND OTHER CABLE (PROP.)
- CONDUIT AND CABLE
- 6'x40' DETECTOR LOOP (EXIST.) AND SIZE
- 6'x40' DETECTOR LOOP (PROP.) AND SIZE
- MAST-ARM POLE AND NO., SIGNAL HEAD AND NO.

NOTES:

1. CONTRACTOR SHALL INSTALL AND MAINTAIN TEMPORARY WOOD POLES, MESSENGER AND TRAFFIC SIGNAL CABLE AND POWER CABLE IN ACCORDANCE WITH THESE PLANS AND TOWN OF ADDISON SPECIFICATIONS.
2. CONTRACTOR SHALL MAINTAIN TRAFFIC SIGNALS IN OPERATION AT ALL TIMES. ANY SHUT-DOWN OF TRAFFIC SIGNALS SHALL BE APPROVED BY AND COORDINATED WITH THE TOWN OF ADDISON PUBLIC WORKS DEPARTMENT.
3. CONTRACTOR SHALL MAINTAIN MINIMUM OF 20 FEET OF CLEARANCE FROM BOTTOM OF MESSENGER CABLE TO STREET SURFACE.
4. CONTRACTOR SHALL INSTALL TEMPORARY CABLE ON EXISTING MAST ARM POLES BY ENTERING TOP OF MAST ARM POLE. CONTRACTOR SHALL INSTALL AND MAINTAIN PROTECTION FOR CABLE TO PREVENT IT FROM RUBBING AGAINST MAST ARM POLE AND BECOMING DAMAGED.

ESTIMATED QUANTITIES

ITEM	QUANTITY
Wood Pole with Down-guys	3
Messenger Cable	225'
16/C Signal Cable	475'
3/C Signal Cable	285'
3/C #8 Power Cable	190'
Detector Cable	950'
4" PVC Conduit	80'
2" PVC Conduit	100'

NOTES:

1. INSTALL NEW PULLBOXES, CONDUIT, SIGNAL CABLE AND LOOP VEHICLE DETECTOR IN ACCORDANCE WITH THESE PLANS AND TOWN OF ADDISON SPECIFICATIONS.
2. CONTRACTOR SHALL MAINTAIN TRAFFIC SIGNALS IN OPERATION AT ALL TIMES. ANY SHUT-DOWN OF TRAFFIC SIGNALS SHALL BE APPROVED BY AND COORDINATED WITH THE TOWN OF ADDISON PUBLIC WORKS DEPARTMENT.

ESTIMATED QUANTITIES

ITEM	QUANTITY
16/C Signal Cable	370'
3/C Signal Cable	230'
3/C #8 Power Cable	145'
Detector Cable	1,270'
Pullbox	3
3" PVC Conduit	305'
6'X40' Loop Detectors	6

CABLE TERMINATION CHART

CNDR COLOR	CABLE 1 FROM P1 TO CNTRL. 16 CNDR.	CABLE 2 FROM P2, P3 TO CNTRL. 16 CNDR.
BLACK	SPARE	SPARE
WHITE	COMMON	COMMON
RED	SH1,2 R	SH5,7,8 R
GREEN	SH1,2 G	SH5,7,8 G
ORANGE	SH1,2 Y	SH5,7,8 Y
BLUE	SH17 W	SH5 → X
WHITE/BLACK	SH17 DW	SH5 → G
RED/BLACK	SPARE	SPARE
GREEN/BLACK	SPARE	SH13 W
ORANGE/BLACK	SPARE	SH13 DW
BLUE/BLACK	SH18 W	SH14 W
BLACK/WHITE	SH18 DW	SH14 DW
RED/WHITE	PED CALL	PED CALL
GREEN/WHITE	SPARE	SPARE
BLUE/WHITE	SPARE	SPARE
BLACK/RED	PED CALL	PED CALL

NO.	REVISION	BY	DATE

DESIGNED BY: JACK HATCHELL
DRAWN BY: EH&A
CHECKED BY: B GRANTHAM
SCALE: 1" = 20'
DATE: JULY 1995
FILE: \MIDWAY\MIDSIG2

9/12/95

Espey, Huston & Associates, Inc.
Engineering & Environmental Consultants
13800 Montfort Drive, Suite 230
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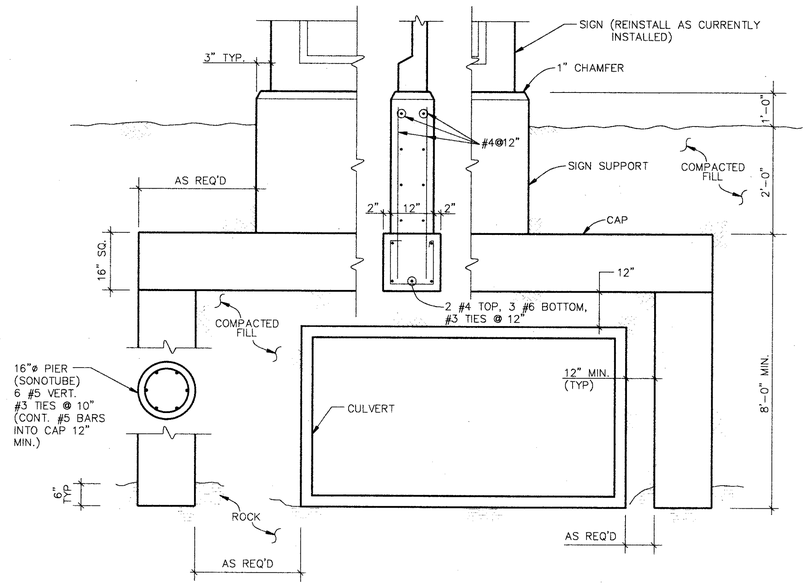
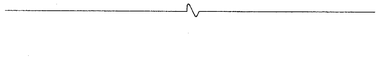
TRAFFIC SIGNALIZATION
MIDWAY ROAD AT PROTON DRIVE

MIDWAY ROAD DRAINAGE IMPROVEMENTS
GREENHILL DRIVE TO TU RIGHT-OF-WAY
for
THE TOWN OF ADDISON

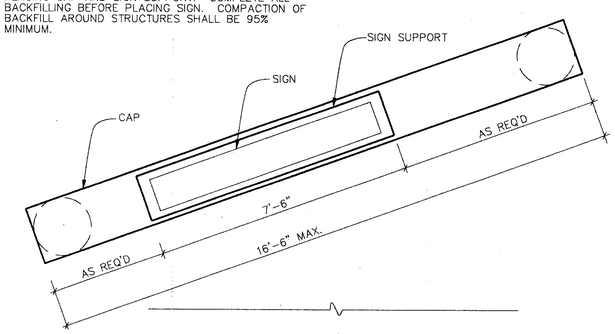
SHEET NO. 19
OF 20 SHEETS
JOB NO. 16285



PLAN



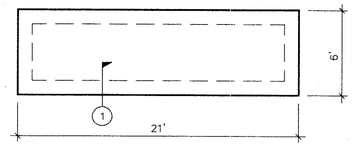
NOTE:
BACKFILL AROUND PIERS AND CULVERT BEFORE PLACING CAP AND SIGN SUPPORT. COMPLETE ALL BACKFILLING BEFORE PLACING SIGN. COMPACTION OF BACKFILL AROUND STRUCTURES SHALL BE 95% MINIMUM.



SECTION

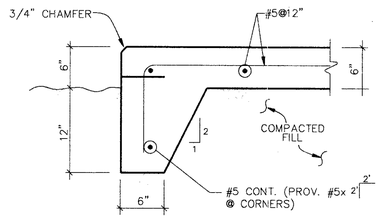
HARVEY HOTEL SIGN REINSTALLATION

N.T.S.



NOTES:
1. CENTER SIGN ON FOUNDATION
2. AS AN ALTERNATE, CONTRACTOR MAY OPT TO CONSTRUCT AN 18" THICK SLAB WITH #4@12" EACH WAY, TOP AND BOTTOM.

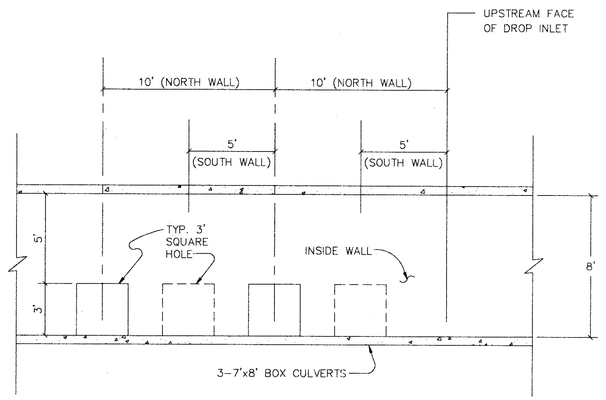
PLAN



SECTION

GREENHILL SCHOOL SIGN REINSTALLATION

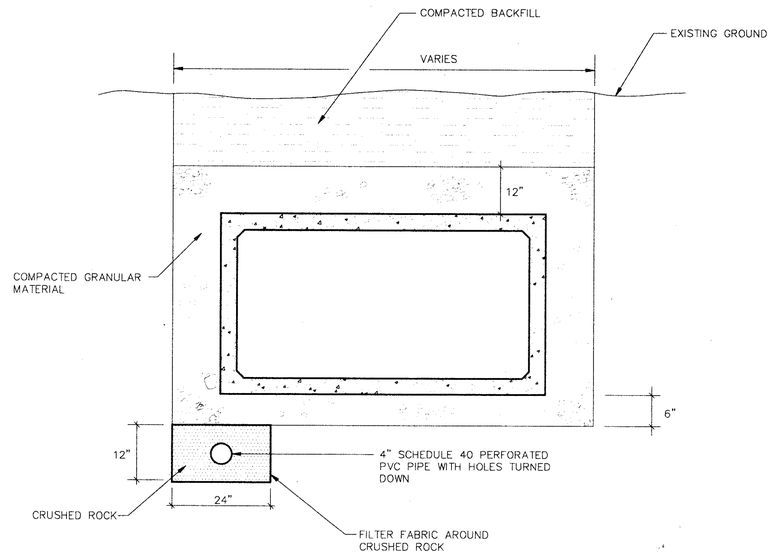
N.T.S.



⚠ EQUALIZER DETAIL

N.T.S.

NOTE:
THE CONTRACTOR SHALL BREAK OUT 3' SQUARE HOLES IN THE TWO INSIDE WALLS OF THE EXISTING 3-7'x8' BOX CULVERTS. A SMOOTH FINISHED EDGE SHALL BE PROVIDED TO THE EQUALIZATION HOLES.



CULVERT BACKFILL DETAIL

N.T.S.

NOTES:
1. WHERE ROCK IS ENCOUNTERED AT THE BOX CULVERT FOUNDATION, THE ROCK SHALL BE EXCAVATED OR OVEREXCAVATED, IF NECESSARY, SO A UNIFORM FOUNDATION FREE OF PROTRUDING ROCKS IS PROVIDED. (NO SEPARATE PAY ITEM).
2. PRECAST CULVERTS SHALL NOT BE LAID IN THE PRESENCE OF WATER UNLESS APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL DEWATER THE EXCAVATION AREA, IF NECESSARY, IN ACCORDANCE WITH NCTCOG ITEM 6.2.8(e). DEWATERING SHALL BE CONSIDERED INCIDENTAL TO OTHER ITEMS OF WORK.
3. COMPACTED GRANULAR FILL SHALL MEET THE REQUIREMENTS OF NCTCOG ITEM 2.1.8(f).
4. CRUSHED ROCK SHALL MEET THE REQUIREMENTS OF NCTCOG ITEM 2.1.8(a); STANDARD CRUSHED ROCK-AGGREGATE GRADE 4.
5. ALL BACKFILL SHALL BE COMPACTED TO 95% OF STANDARD PROCTOR DENSITY.
6. THE TRENCH WIDTH SHALL BE LIMITED TO 15 FEET IN WIDTH BETWEEN STATION 3+00 AND STATION 11+50.
7. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY SHEETING AND SHORING IN ACCORDANCE WITH NCTCOG ITEM 6.2.8(c)(4).
8. THE 4" PERFORATED PVC PIPE SHALL BE TERMINATED IN THE MIDDLE OF THE 12" CRUSHED ROCK LAYER UNDERNEATH THE TRIPLE 7'x8' BOX CULVERTS (STATION 1+91±).
9. THE FILTER FABRIC SHALL BE MIRAFI 140 OR APPROVED EQUAL.
10. ALL ITEMS OF WORK REQUIRED FOR THE INSTALLATION OF THE BOX CULVERT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE BOX CULVERT.

NO.	REVISION	BY	DATE
⚠	ADDENDUM NO .1	BRG	8-3-95

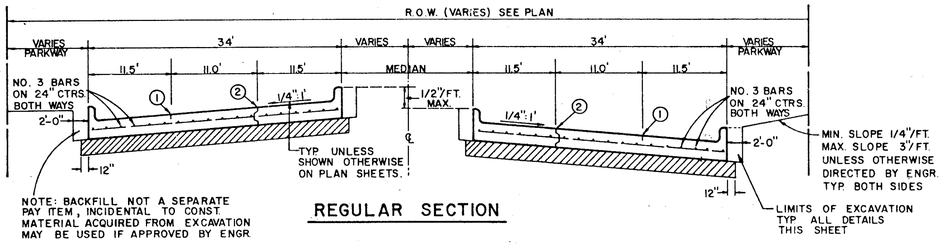
DESIGNED BY: BRUCE GRANTHAM
DRAWN BY: EH&A
CHECKED BY: J WALDBAUER
SCALE: NOT TO SCALE
DATE: JULY 1995
FILE: \MIDWAY\MIDDET1

Espey, Huston & Associates, Inc.
Engineering & Environmental Consultants
13800 Montfort Drive, Suite 230
Dallas, Texas 75240 (214) 387-0771

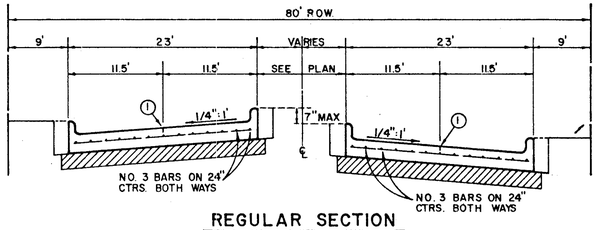
DETAILS

MIDWAY ROAD DRAINAGE IMPROVEMENTS
GREENHILL DRIVE TO TU RIGHT-OF-WAY
for
THE TOWN OF ADDISON

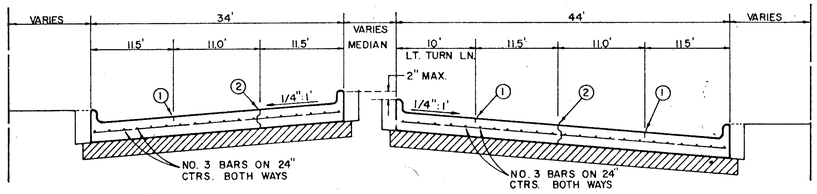
SHEET NO. 20
OF 20 SHEETS
JOB NO. 16285



REGULAR SECTION

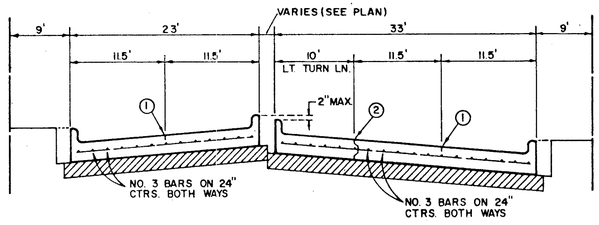


REGULAR SECTION



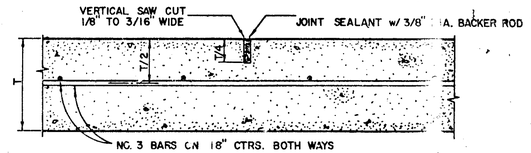
LEFT TURN SECTION

MAJOR ARTERIAL

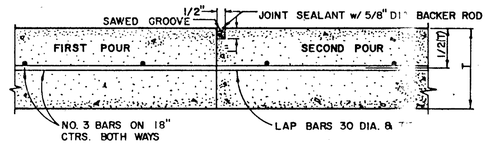


LEFT TURN SECTION

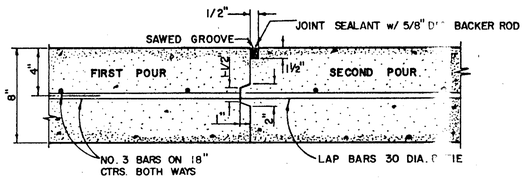
MINOR ARTERIAL



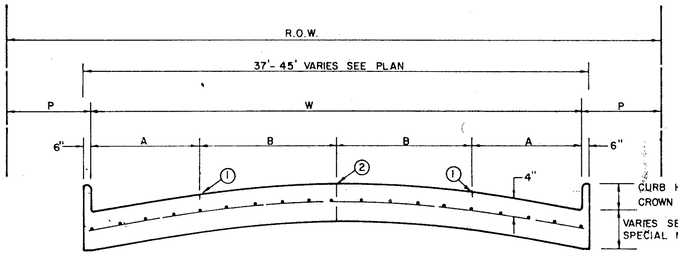
SAWED DUMMY JOINT



CONSTRUCTION JOINT FOR 6 INCH PAVEMENT



CONSTRUCTION JOINT FOR 8 INCH PAVEMENT



FOUR MOVING LANES OR TWO MOVING LANES/TWO PARKING LANES

STREET TYPE	STREET WIDTH (W)	A	B	R.O.W. WIDTH	P
COLLECTOR	36'	8'	10'	60'	11.5'
COLLECTOR	40'	8' OR 10'	10' OR 12	60'	9.5'
COLLECTOR	44'	11'	11'	65'	10.0'

* FULL WIDTH PAVEMENT OF 36' WIDTH STREETS IS ALLOWED WHERE APPROVED BY THE ENGINEER.

COLLECTOR STREET

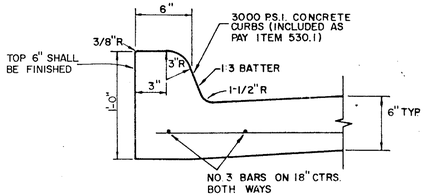
REINFORCED CONCRETE PAVEMENT

ALL REINFORCING BARS SHALL BE NO.3 TRANSVERSE BARS TO BE SPACED ON 1'-6" CENTERS; LONGITUDINAL BARS TO BE SPACED ON 1'-6" EXCEPT WHERE NOTED.
UNDIVIDED STREETS-PROVIDE 4" DBL.-REF YELLOW ℄ BUTTON P-117-Y PATTERNS TO BE ESTABLISHED BY ENGINEER. SEE DETAIL SHEET

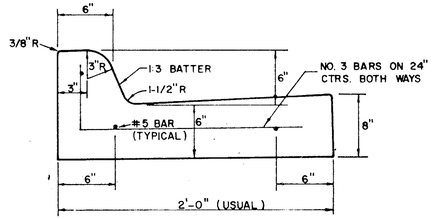
① SAWED LONGITUDINAL DUMMY JOINT.

② CONSTRUCTION JOINT (FULL WIDTH PVM'T IS ALLOWED WHERE APPROVED BY ENGINEER.

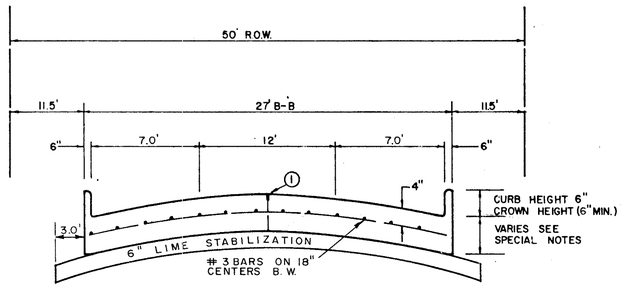
③ FINISH SHALL BE TRANSVERSE WITH TRAFFIC LANES AND SHALL BE STEEL TINED BROOM FINISH.



STANDARD CURB

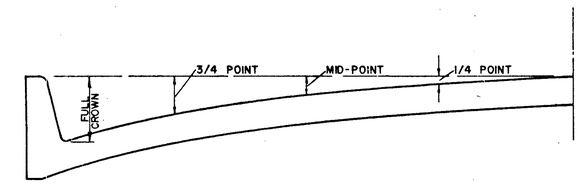


SEPARATE CURB AND GUTTER



ONE MOVING LANE / TWO PARKING LANES

LOCAL STREET



ROADWAY WIDTH (W)	TOTAL CROWN HEIGHT	3/4 POINT	MID-POINT	1/4 POINT
26'	6"	3-3/8"	1-1/2"	3/8"
36'	6"	3-3/8"	1-1/2"	3/8"
44'	6"	3-3/8"	1-1/2"	3/8"
48'	6"	3-3/8"	1-1/2"	3/8"

TABLE OF CROWN HEIGHTS AND ORDINATES FOR VARIOUS PARABOLIC SECTIONS

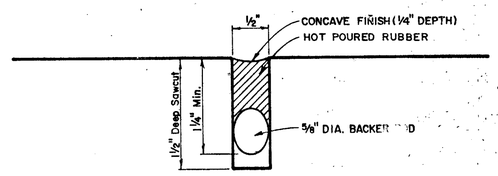
GENERAL NOTES

A. GENERAL
PAVEMENT THICKNESS FOR STREETS SHALL BE AS SPECIFIED BELOW IN SPECIAL NOTES.

STANDARD SPECIFICATIONS

B. REINFORCED CONCRETE PAVEMENTS
1. ALL CURBS SHALL BE PLACED INTEGRAL WITH PAVEMENT
2. CURBS SHALL MEET THE SAME COMPRESSIVE TRENGTH AS SPECIFIED FOR THE CONCRETE PAVEMENT.
3. DETAIL AND ARRANGEMENT OF JOINTS, ALL TYPES, SHALL BE AS SHOWN ON THE STANDARD CONSTRUCTION DETAILS, OR AS APPROVED BY ENGINEER.
4. BAR LAPS SHALL BE 30 DIAMETERS.

C. BAR CHAIRS OR AN APPROVED SUPPORTING DEVICE SHALL BE FURNISHED.



TYPICAL JOINT DETAIL

TOWN OF ADDISON, TEXAS
DEPARTMENT OF ENGINEERING

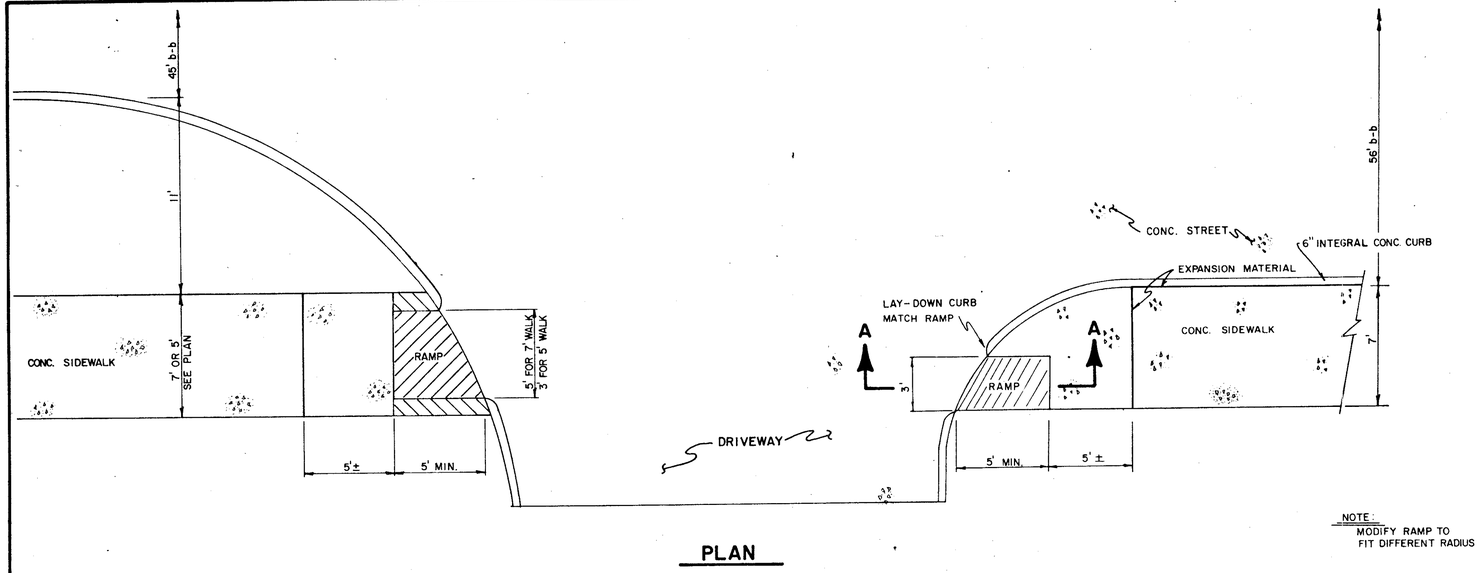
STANDARD CONSTRUCTION DETAILS PAVING

STREET CROWNS & JOINTS

Designed -	Drawn -	Date - AUGUST, 1991	Job No. - 90025-5
Approved -	Checked -	Scale -	Sheet D-1 Of

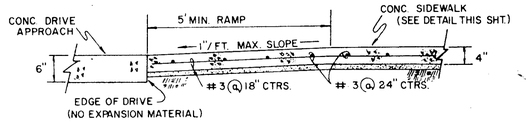
A

FISCO 30584

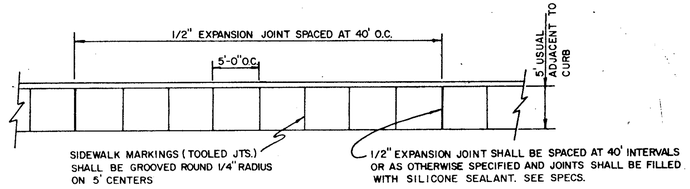


PLAN

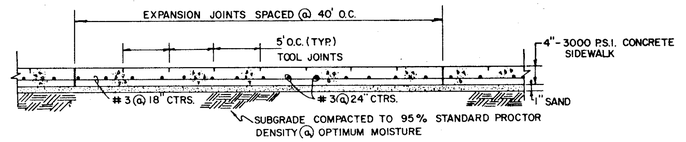
NOTE:
MODIFY RAMP TO FIT DIFFERENT RADIUS



SECTION A-A

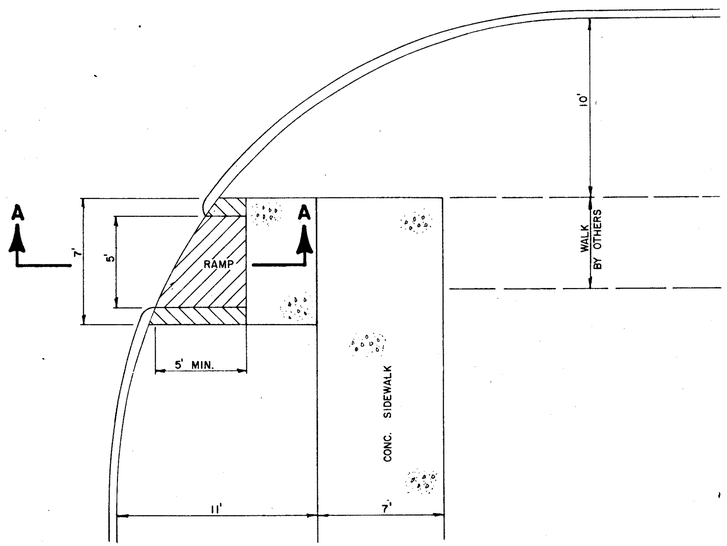


PLAN

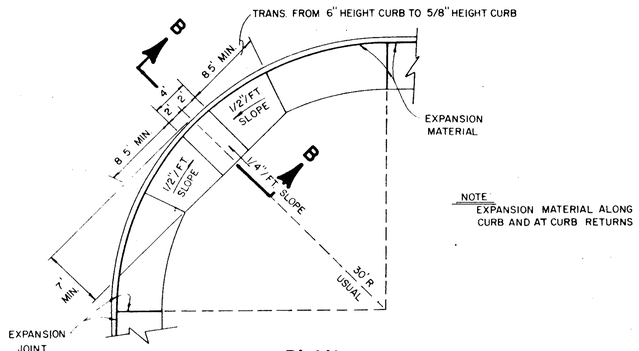


SIDE ELEVATION

BARRIER FREE RAMP DETAIL WITH WALK ADJACENT TO CURB

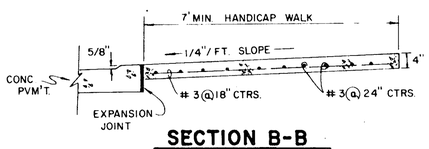


BARRIER FREE RAMP DETAIL WITH WALK SEPARATE FROM CURB



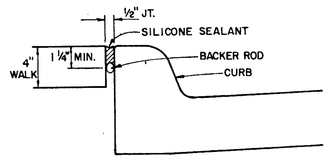
NOTE
EXPANSION MATERIAL ALONG CURB AND AT CURB RETURNS

PLAN

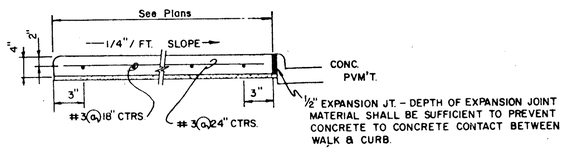


SECTION B-B

HANDICAP ROLL-DOWN CURB DETAIL



EXPANSION JOINT DETAIL



SECTION

CONCRETE SIDEWALK DETAIL

GENERAL NOTES

1. Reinforced concrete sidewalk shall be 5 or 7 feet wide, a minimum of four (4) inches thick and shall be 3000 psi at 28 days (5 sack mix). Unless noted otherwise.
2. Chamfer all exposed edges of concrete (1/4) inch.
3. All bar dimensions are given as center to center of bars and are located as shown.
4. All reinforcing steel shall be No. 3 on 18 inch centers logitudinally, 24 inch centers transversely and shall conform to the requirements of ASTM A-615, Grade 60.
5. 1" thick min. fine, washed sand cushion shall be free from organic materials or clays and shall be used for grade adjustment.
6. Subgrade shall be compacted to a density not less than 95% at optimum moisture.
7. Tooled joints (contraction joints) shall be on five (5) foot centers and shall be round one-fourth (1/4) inch radius.
8. A one-half (1/2) inch expansion joint shall be placed every eight (8) tooled joints, and where works abut old work, or where new work is constructed adjacent to other concrete, a one-half inch expansion joint shall be used where sidewalk is adjacent to curb, the expansion joint shall be made of pre-molded bituminous expansion joint filler or redwood with silicone sealant. See Specs.
9. Sidewalks shall be finished by lightly brooming surface transversely to direction of main traffic or where adjacent sidewalks differ from this standard, new sidewalks shall conform to adjacent sidewalk (e.g. exposed aggregate).
10. Cross slope walk one-fourth (1/4) inch per foot towards curb or as shown on the drawings to provide drainage.

NO.	REVISION	BY	DATE

TOWN OF ADDISON, TEXAS
DEPARTMENT OF ENGINEERING

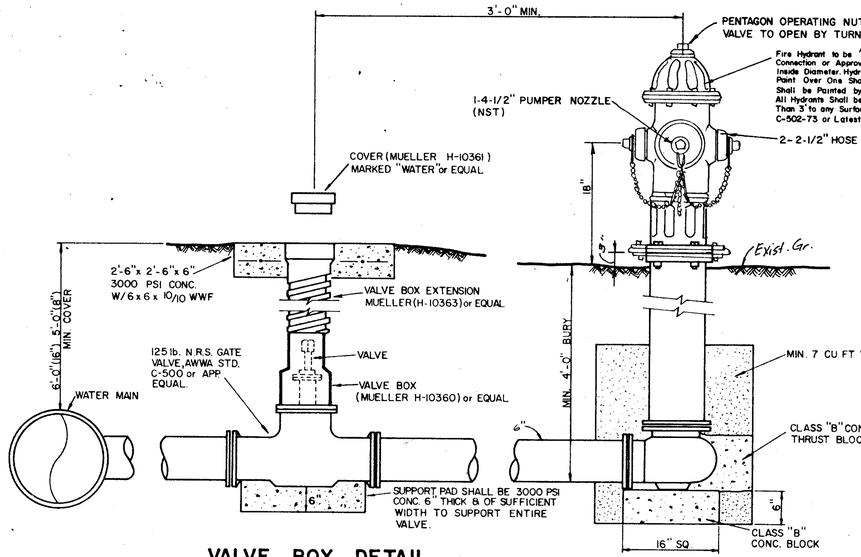
STANDARD CONSTRUCTION DETAILS
PAVING

SIDEWALKS & RAMPS

APPROVED _____

DATE AUGUST, 1991 | SHEET D-3

90025-5
B



VALVE BOX DETAIL

(SEE PLANS FOR "MAIN SIZE")

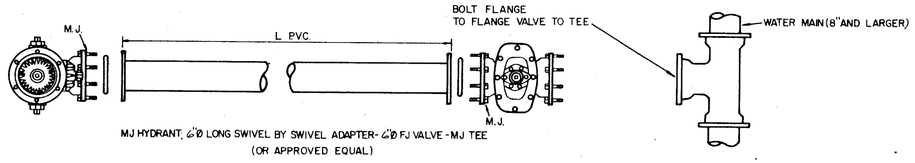
FIRE HYDRANT INSTALLATION

(INCLUDES 6" VALVE)

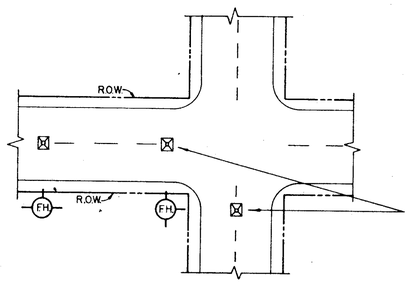
No Scale

GATE VALVES AND VALVE BOXES.

1. GATE VALVES SHALL BE IRON BODY, BRONZE OR BRASS MOUNTED, NON-RISING STEM, PARALLEL SEAT TYPE. VALVES SHALL BE OF EQUAL OR GREATER PRESSURE CLASS THAN THE PIPING IN WHICH THEY ARE TO BE INSTALLED.
2. VALVE BOXES SHALL BE CAST IRON AND SHALL BE OF SUFFICIENT LENGTH AND DIAMETER TO OPERATE ALL VALVES BURIED IN THE GROUND. COVERS SHALL BE MARKED "WATER." THE BOXES SHALL REST ON THE VALVE AND BE ADJUSTED SO THAT THE COVER MAY BE SET FLUSH WITH THE FINISHED GRADE.

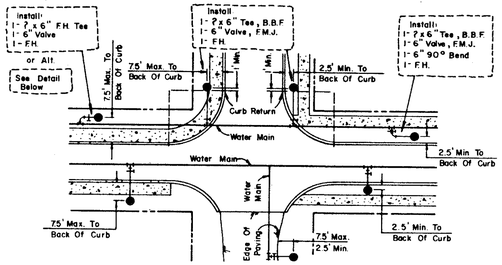


TYPICAL FIRE HYDRANT INSTALLATION

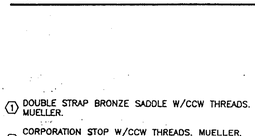


A BLUE STIMSONITE FIRE-LITE REFLECTOR (OR APPROVED EQUAL) TO BE PLACED IN THE CENTER OF STREET OPPOSITE FIRE HYDRANTS. THE INSTALLATION OF THIS REFLECTOR SHALL BE AS PRESCRIBED BY THE MANUFACTURER.

TYPICAL FIRE HYDRANT REFLECTOR INSTALLATION



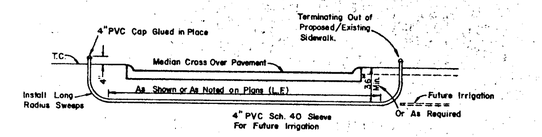
ELEVATION VIEW OF FIRE HYDRANT



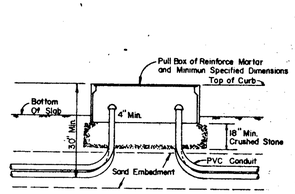
When No Curb Or Gutter Exists, Set F.H. On Front Slope Of Ditch With ℄ Of Nozzle Equal To The Crown Of The Road.

GENERAL NOTES

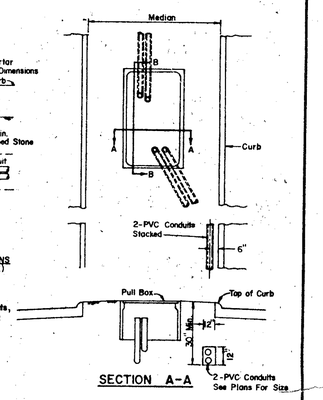
1. ℄ Of F.H. Barrel Shall Be Not Less Than 6.0' Or More Than 9.0' From Back Of Curb Or Edge Of Pavement.
2. Do Not Set F.H. In An Existing Or Proposed Sidewalk, Unless Otherwise Noted.
3. All F.H. Tees Shall Be M.J. With Anchoring On The Branch With M.J., M.J. 6" Valve.
4. Set F.H. On The Lot Line Extended When Possible.
5. On Private Contracts, The Developer's Engineer Will Stake Location & Grade.
6. Never Place F.H. Where Fire Truck Could Not Park Beside It.



PVC SLEEVE FOR FUTURE IRRIGATION



SECTION B-B



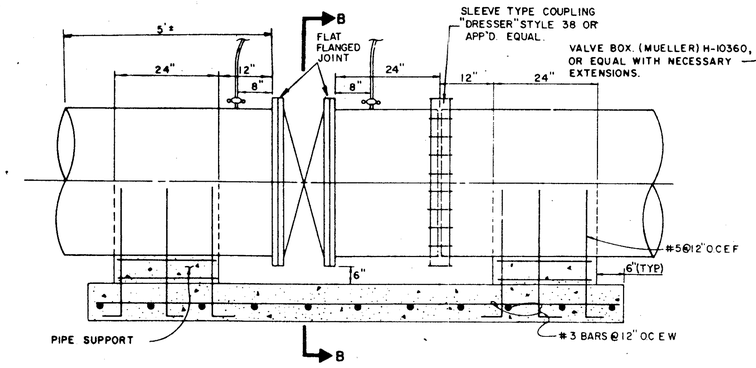
SECTION A-A

LOCATION OF CONDUIT PLACEMENT IN MEDIANS
Street Directions:
North/South - West Side
East/West - South Side

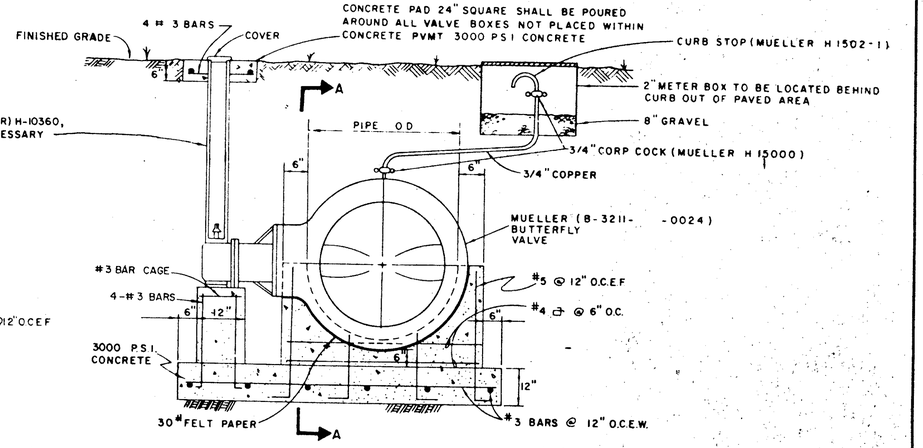
PULL BOX DIMENSIONS (MINIMUM INSIDE)
12" Depth
14" Width
24" Length
2-3 "X,Y" Knockouts, One On Each End

9 Galvanized Pull Wire or Approved Equal.

PULL BOX & CONDUIT DETAIL

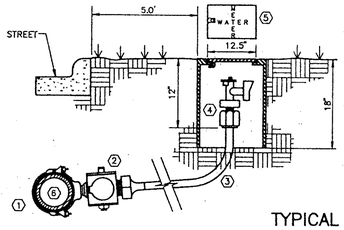


SECTION A-A



SECTION B-B

BUTTERFLY VALVE DETAIL



1. DOUBLE STRAP BRONZE SADDLE W/CCW THREADS. MUELLER.
2. CORPORATION STOP W/CCW THREADS. MUELLER. H-15008 COMPRESSION OR H-15000 FLARED.
3. 3/4" TYPE "K" SOFT COPPER W/NO SPLICES
4. ANGLE STOP W/LOCK WING. MUELLER H-14258 COMPRESSION OR H-14255 FLARED.
5. WATER METER BOX (RECTANGULAR SHAPE ONLY) CONCRETE OR METAL SHELL CONSTRUCTION
6. WATER MAIN PVC AWWA C900 SDR 14/18 INTEGRAL WALL BELL

TYPICAL WATER SERVICE DETAIL

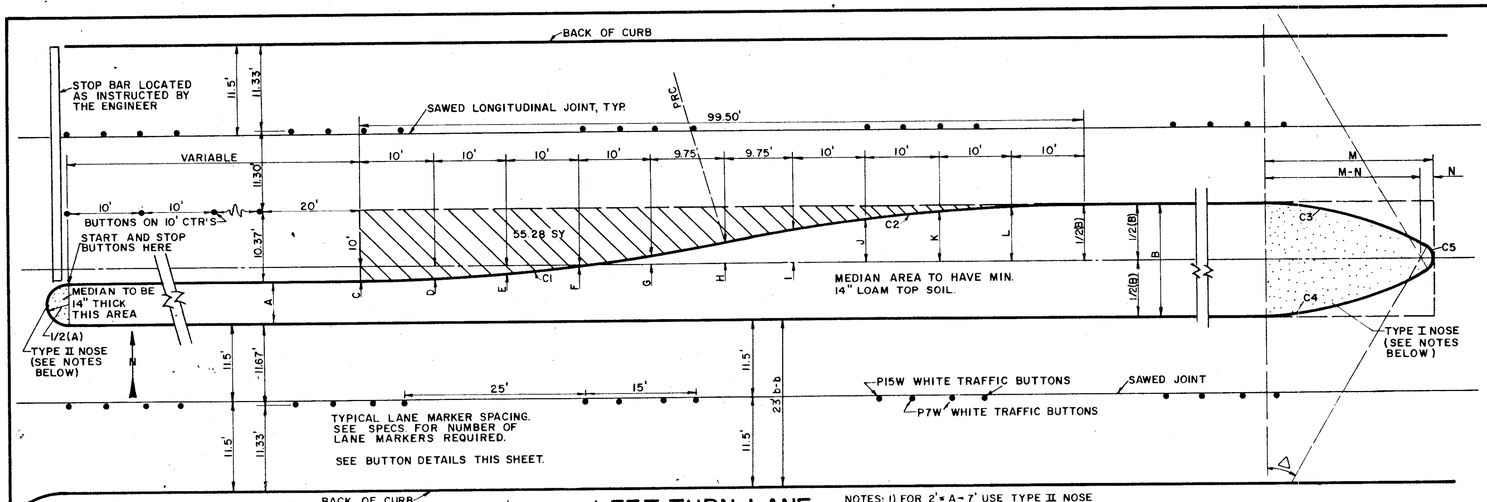
TOWN OF ADDISON, TEXAS
DEPARTMENT OF ENGINEERING

STANDARD CONSTRUCTION DETAILS
WATER

FIRE HYDRANTS, PULL BOXES AND VALVES

Designed -	Drawn -	Date - AUGUST, 1991	Job No. - 90025-5
Approved -	Checked -	Scale -	Sheet D-8 Of

FISCO 36556



LEFT TURN LANE

(AS APPLICABLE)

NOTES: 1) FOR 2'≤ A ≤ 7' USE TYPE II NOSE
2) FOR 7'≤ A ≤ 14' USE TYPE I NOSE
3) FOR 12'≤ B ≤ 24' USE TYPE I NOSE

MEDIAN DIMENSION CHART

B	C	D	E	F	G	H	I	J	K	L	M	N
12'	4.00'S	3.80'S	3.20'S	2.19'S	0.78'S	1.00'N	2.78'N	4.19'N	5.20'N	5.80'N	22.56'	1.00'
13'	3.50'S	3.30'S	2.70'S	1.69'S	0.28'S	1.50'N	3.28'N	4.69'N	5.70'N	6.30'N	23.56'	1.00'
14'	3.00'S	2.80'S	2.20'S	1.19'S	0.22'N	2.00'N	3.78'N	5.19'N	6.20'N	6.80'N	22.68'	2.50'
15'	2.50'S	2.30'S	1.70'S	0.69'S	0.72'N	2.50'N	4.28'N	5.69'N	6.70'N	7.30'N	23.71'	2.50'
16'	2.00'S	1.80'S	1.20'S	0.19'S	1.22'N	3.00'N	4.78'N	6.19'N	7.20'N	7.80'N	23.46'	3.50'
17'	1.50'S	1.30'S	0.70'S	0.31'N	1.72'N	3.50'N	5.28'N	6.69'N	7.70'N	8.30'N	24.48'	3.50'
18'	1.00'S	0.80'S	0.20'S	0.81'N	2.22'N	4.00'N	5.78'N	7.19'N	8.20'N	8.80'N	25.44'	3.50'
19'	0.50'S	0.30'S	0.30'N	1.31'N	2.72'N	4.50'N	6.28'N	7.69'N	8.70'N	9.30'N	26.34'	3.50'
20'	0.00'	0.20'N	0.80'N	1.81'N	3.22'N	5.00'N	6.78'N	8.19'N	9.20'N	9.80'N	26.72'	4.00'
21'	0.50'N	0.70'N	1.30'N	2.31'N	3.72'N	5.50'N	7.28'N	8.69'N	9.70'N	10.30'N	27.57'	4.00'
22'	1.00'N	1.20'N	1.80'N	2.81'N	4.22'N	6.00'N	7.78'N	9.19'N	10.20'N	10.80'N	28.39'	4.00'
23'	1.50'N	1.70'N	2.30'N	3.31'N	4.72'N	6.50'N	8.28'N	9.69'N	10.70'N	11.30'N	29.17'	4.00'
24'	2.00'N	2.30'N	2.80'N	3.81'N	5.22'N	7.00'N	8.78'N	10.19'N	11.20'N	11.80'N	29.92'	4.00'

N = NORTH OF CENTERLINE
S = SOUTH OF CENTERLINE

CURVE DATA C3 & C4 FOR 7'≤ A ≤ 14'

A	△	R	T	L	M	N
7'	18°22'52"	50'	8.09'	16.04'	16.45'	1.00'
8'	20°09'11"		8.89'	17.59'	17.88'	1.00'
9'	21°47'12"		9.62'	19.01'	19.19'	1.00'
10'	23°18'41"		10.31'	20.34'	20.39'	1.00'
11'	24°44'50"		10.97'	21.60'	21.51'	1.00'
12'	26°06'32"		11.59'	22.78'	22.56'	1.00'
13'	27°24'27"		12.19'	23.92'	23.56'	1.00'
14'	25°08'28"		11.15'	21.94'	22.68'	2.50'

CURVE DATA C1
C2
△ = 11°28'40"
R = 250'
T = 25.13'
L = 50.08'

CURVE DATA C3 & C4 FOR 12'≤ B ≤ 24'

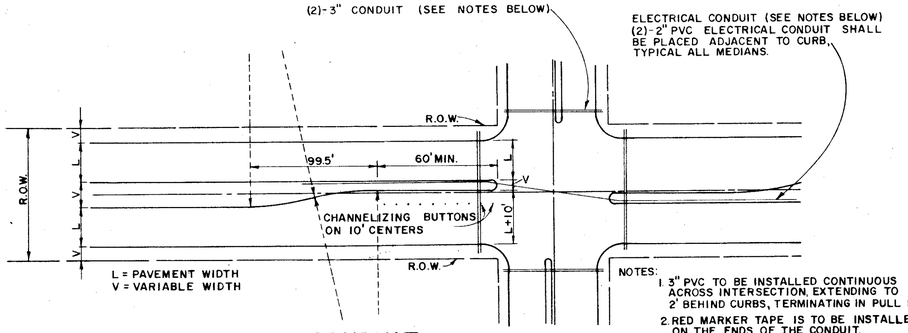
B	△	R	T	L
12'	26°06'32"	50.00'	11.59'	22.78'
13'	27°24'27"		12.19'	23.92'
14'	25°08'28"		11.15'	21.94'
15'	26°31'32"		11.79'	23.15'
16'	25°24'53"		11.27'	22.18'
17'	26°48'51"		11.92'	23.40'
18'	28°08'58"		12.54'	24.57'
19'	29°25'43"		13.13'	25.68'
20'	29°35'30"		13.21'	25.82'
21'	30°49'46"		13.79'	26.90'
22'	32°01'26"		14.35'	27.95'
23'	33°10'48"		14.90'	28.96'
24'	34°18'05"		15.43'	29.93'

CURVE DATA C5 FOR 12'≤ B ≤ 24'

B	△	R	T	L
12'	127°47'32"	1.00'	2.04'	2.23'
13'	125°12'46"	1.00'	1.93'	2.19'
14'	129°43'08"	2.50'	5.33'	5.66'
15'	126°57'31"	2.50'	5.01'	5.54'
16'	129°09'33"	3.50'	7.36'	7.89'
17'	126°21'44"	3.50'	6.92'	7.72'
18'	123°41'38"	3.50'	6.54'	7.56'
19'	120°52'03"	3.50'	6.17'	7.38'
20'	120°48'56"	4.00'	7.04'	8.43'
21'	118°21'08"	4.00'	6.70'	8.26'
22'	115°57'07"	4.00'	6.40'	8.10'
23'	113°38'22"	4.00'	6.12'	7.93'
24'	111°23'48"	4.00'	5.86'	7.78'

CURVE DATA C5 FOR 7'≤ A ≤ 14'

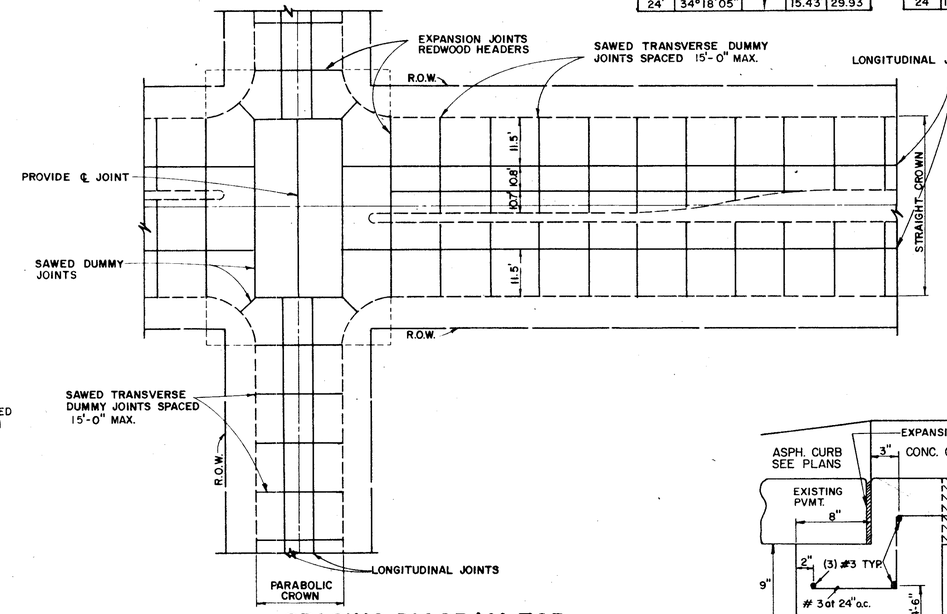
A	△	R	T	L
7'	143°14'15"	1.00'	3.01'	2.50'
8'	139°41'38"	1.00'	2.72'	2.44'
9'	136°25'35"	1.00'	2.50'	2.38'
10'	133°22'38"	1.00'	2.32'	2.33'
11'	130°30'20"	1.00'	2.17'	2.28'
12'	127°47'32"	1.00'	2.04'	2.23'
13'	125°12'46"	1.00'	1.93'	2.19'
14'	129°43'08"	2.50'	5.33'	5.66'



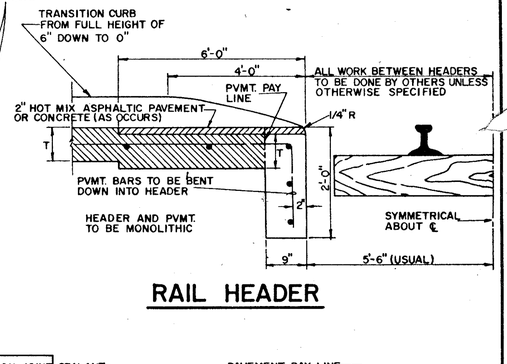
CONDUIT

FOR EXACT LOCATIONS, THIS PROJECT-SEE PLANS

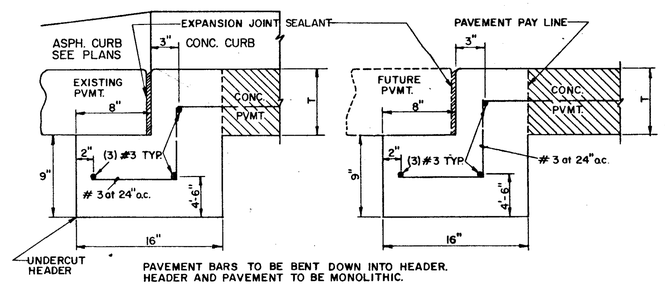
NOTES:
1. 3" PVC TO BE INSTALLED CONTINUOUS ACROSS INTERSECTION, EXTENDING TO 2' BEHIND CURBS, TERMINATING IN PULL BOX.
2. RED MARKER TAPE IS TO BE INSTALLED ON THE ENDS OF THE CONDUIT.
3. THE EXACT LOCATIONS WHERE THE CONDUIT CROSSES UNDER THE PAVING ARE TO BE CHISELED WITH AN "X" AND PAINTED WITH RED PAINT, ON THE CURB OR PAVING.
4. A NYLON CORD SHALL BE PLACED IN ALL CONDUIT UNDER PAVEMENT. THIS CORD SHALL EXTEND A MINIMUM OF 1' FROM THE END OF THE CONDUIT.



SPACING DIAGRAM FOR TRANSVERSE JOINTS

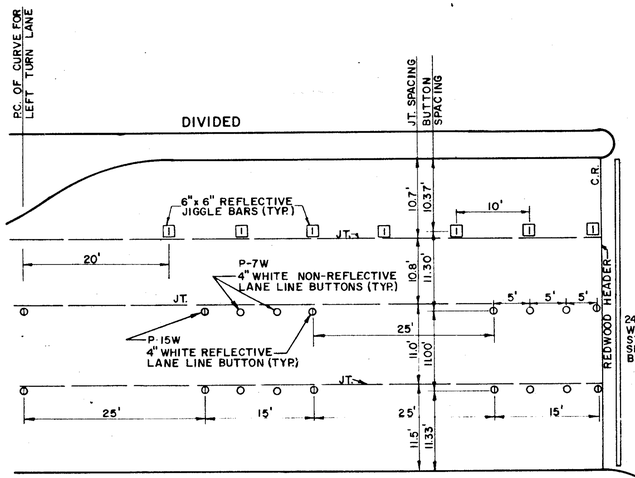


RAIL HEADER



PAVEMENT BARS TO BE BENT DOWN INTO HEADER. HEADER AND PAVEMENT TO BE MONOLITHIC.

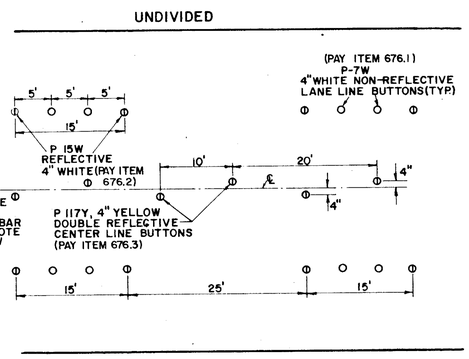
STREET HEADER



STANDARD BUTTON LAYOUT
APPROACH TO DIVIDED ROADWAY INTERSECTION

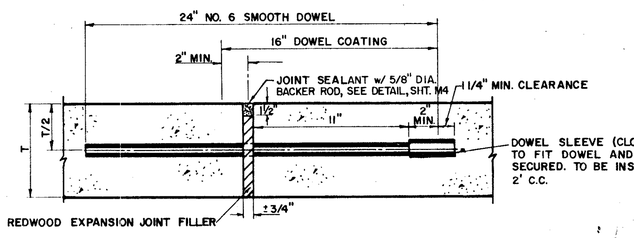
NOTE: BUTTONS TO BE INSTALLED OFF OF JOINTS, WITH MACHINE IMPLEMENTED 2 PART COMPONENT EPOXY

NOTE: STOP-BAR TO BE STAMARK 3M BRAND NO. N360



STANDARD BUTTON LAYOUT
TWO WAY UNDIVIDED ROADWAY w/ DOUBLE YELLOW CENTER LINE

BUTTON DETAILS



TRANSVERSE EXPANSION JOINT

(SPACED 600 FT. MAXIMUM; LOCATE AT INTERSECTIONS)

NOTE: DOWELS AND REINFORCING BARS SHALL BE SUPPORTED BY AN APPROVED DEVICE.

TOWN OF ADDISON, TEXAS
DEPARTMENT OF ENGINEERING

STANDARD CONSTRUCTION DETAILS
PAVING

TURN LANES & JOINTS

Designed -	Drawn -	Date - AUGUST, 1991	Job No. - 90025-5
Approved -	Checked -	Scale -	Sheet D 10 Of

D

CONSTRUCTION SIGN NOTES

1. ALL SIGNS, SIGN COLOR, SIGN LETTERING AND SIGN REFLECTORIZATION SHALL CONFORM WITH THE TEXAS MANUAL ON TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS. THE CONTRACTOR SHALL MAINTAIN EACH SIGN IN A CLEAN AND GOOD CONDITION.

2. CONSTRUCTION SIGNS SHALL BE MADE FROM WOOD OR METAL. THE DESIGNATION OF METAL AND WOOD AS PRIMARY MATERIALS FOR SIGNS SHALL NOT BE INTERPRETED TO EXCLUDE OTHER SUITABLE RIGID MATERIALS NOW OR HEREAFTER AVAILABLE.

3. SIGNS SHALL BE REMOVED UPON COMPLETION OF THE WORK. INDIVIDUAL WARNING SIGNS SHALL BE REMOVED, TURNED AWAY FROM THE VIEW OF TRAFFIC, OR COVERED WHENEVER THE SPECIFIC DANGER OF WHICH THE PARTICULAR SIGN WARNS HAS CEASED TO EXIST, EITHER PERMANENTLY OR TEMPORARILY. THE SIGN MUST BE PROMPTLY REPLACED, TURNED INTO VIEW, OR UNCOVERED WHEN THE SITUATION AGAIN BECOMES A POTENTIAL DANGER.

4. SIGNS ERECTED ON PORTABLE SUPPORTS FOR USE ON CONSTRUCTION PROJECTS NORMALLY MEAN SIGNS WHICH ARE USED DURING THE DAY TO WARN OR GUIDE TRAFFIC THROUGH AND OR AROUND THE ACTUAL CONSTRUCTION AREA, BUT AT THE END OF THE WORKDAY SUCH SIGNS ARE EITHER REMOVED OR TURNED AWAY FROM THE VIEW OF TRAFFIC. PORTABLE SUPPORTS SHALL BE AS SHOWN OR AS APPROVED BY THE ENGINEER. THE BOTTOM OF THE SIGN SHALL BE A MINIMUM OF ONE (1) FOOT ABOVE THE PAVEMENT EDGE. SIGNS REQUIRED FOR NIGHTTIME USAGE SHOULD NOT NORMALLY BE MOUNTED ON PORTABLE SUPPORTS EXCEPT WHEN APPROVED BY THE ENGINEER.

5. SIGNS ERECTED ON FIXED SUPPORTS FOR USE ON CONSTRUCTION PROJECTS NORMALLY MEAN SIGNS THAT ARE TO REMAIN IN PLACE FOR BOTH DAY AND NIGHT USAGE TO REGULATE, WARN AND GUIDE TRAFFIC IN ADVANCE OF AND WITHIN THE LIMITS OF THE PROJECT INCLUDING THE CROSSROAD APPROACHES. HOWEVER, UNDER CERTAIN CONDITIONS, SUCH AS WHERE A SIGN MAY BE REQUIRED FOR A FEW DAYS' DURATION AND THEN IS NO LONGER NEEDED, OR WHERE A SIGN IS MOVED FROM LOCATION TO LOCATION EVERY FEW DAYS OR WHERE IT IS NOT PRACTICAL OR DESIRABLE TO PROVIDE A FIXED MOUNTING, SUCH SIGNS MAY BE ERECTED ON A TEMPORARY TYPE OF SUPPORT. TEMPORARY SUPPORTS SHALL BE AS SHOWN OR AS APPROVED BY THE ENGINEER. SIGNS ERECTED ON TEMPORARY SUPPORTS SHOULD BE AT A MINIMUM HEIGHT OF 3 FEET. SIGNS ERECTED ON FIXED SUPPORTS SHOULD BE AT A MINIMUM OF SEVEN (7) FEET, REGARDLESS OF THE TYPE OF SUPPORT USED, REGULATORY

   SIGNS SHOULD NOT BE ERECTED AT HEIGHT LESS THAN 7-FOOT MINIMUM SPECIFIED ABOVE UNLESS A LOWER HEIGHT IS APPROVED BY THE ENGINEER. POSTS FOR FIXED SUPPORTS SHOULD BE SET IN THE GROUND WITHOUT CONCRETE FOOTINGS.

6. WHERE PORTABLE OR TEMPORARY SUPPORTS REQUIRE THE USE OF WEIGHTS TO KEEP A SIGN OR BARRICADE FROM TURNING OVER, THE USE OF SOME TYPE OF SANDBAG IS RECOMMENDED. THE USE OF PIECES OF CONCRETE, ROCKS, IRON, STEEL OR OTHER SOLID OBJECTS WILL NOT BE PERMITTED.

CONSTRUCTION PAVEMENT MARKINGS

1. WHEN REQUIRED ELSEWHERE IN THE PLANS, THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTAINING PAVEMENT MARKINGS ON ALL ROADWAYS THAT ARE OPEN TO TRAFFIC WITHIN THE LIMITS OF THE PROJECT. ON PROJECTS INVOLVING ROADWAY SURFACING WHICH WILL REQUIRE PAVEMENT MARKING FOR CONTROL OF TRAFFIC DURING CONSTRUCTION, THE MARKINGS MAY INCLUDE BOTH STANDARD AND ABBREVIATED MARKINGS AS DEFINED BELOW:

   A. STANDARD PAVEMENT MARKINGS – STANDARD MARKINGS PLACED IN CONFORMANCE WITH THE REQUIREMENTS OF THE TEXAS MUTCD. SUCH MARKINGS SHOULD BE PLACED ON ALL ROADWAYS OPEN TO TRAFFIC DURING CONSTRUCTION, INCLUDING NEW PAVEMENT, RESURFACING, DETOURS OR OTHER ROADWAYS WHERE CONSTRUCTION ACTIVITIES MAY HAVE COVERED OR OBLITERATED EXISTING MARKINGS. STANDARD MARKINGS SHOULD BE PLACED AS SOON AS POSSIBLE AND PRACTICAL. WHEN IT IS NOT PRACTICAL OR POSSIBLE TO PLACE STANDARD MARKINGS AT THE END OF EACH DAYS WORK, ABBREVIATED MARKINGS MAY BE UTILIZED FOR SHORT PERIODS UNTIL STANDARD MARKINGS CAN BE PLACED.

   B. ABBREVIATED PAVEMENT MARKINGS – ABBREVIATED PAVEMENT MARKINGS ARE SHORTER IN LENGTH THAN STANDARD MARKINGS. ABBREVIATED PAVEMENT MARKINGS MAY BE USED TO DELINEATE LANE CONTINUITY ONLY UNTIL SUCH TIME AS STANDARD MARKINGS CAN BE PLACED. THEY ARE NOT INTENDED TO SUBSTITUTE FOR STANDARD MARKINGS FOR PERIODS GREATER THAN TWO (2) WEEKS, TO SEPARATE TRAFFIC FLOWS IN OPPOSING DIRECTIONS, THE PAVEMENT MARKINGS SHALL BE YELLOW. WHITE PAVEMENT MARKINGS SHALL BE USED TO DELINEATE THE SEPARATION OF TRAFFIC FLOWS IN THE SAME DIRECTION.

   C. PAVEMENT MARKINGS, MATERIALS – TEMPORARY PAVEMENT MARKING MAY BE ACCOMPLISHED BY USE OF STANDARD TRAFFIC PAINT, MARKING PAINT OR BY PAVEMENT MARKING TAPE (SCOTCHLANE OR STAMARK BRAND OR AS APPROVED BY THE ENGINEER). TEMPORARY PAVEMENT MARKINGS SHALL BE REMOVED IMMEDIATELY WHEN NO LONGER APPLICABLE.

2. WHEN ABBREVIATED PAVEMENT MARKINGS ARE USED, A DO NOT PASS SIGN SHALL BE USED TO MARK THE BEGINNING OF THE SECTION WHERE PASSING IS TO BE PROHIBITED AND A PASS WITH CARE SIGN SHALL BE USED TO MARK THE BEGINNING OF A SECTION WHERE PASSING IS PERMITTED.

REMOVAL OF PAVEMENT MARKINGS

1. REMOVAL OF PAVEMENT MARKINGS -- INCLUDES CENTERLINE, BARRIER LINES, LANE LINES, EDGE LINES, AND RAISED PAVEMENT MARKINGS.

2. IMMEDIATELY UPON OPENING A DETOUR TO TRAFFIC, ANY PAVEMENT MARKINGS ON THE EXISTING ORIGINAL ROADWAY IN THE DETOUR TRANSITION AREA THAT ARE NO LONGER APPLICABLE AND WHICH MAY CREATE CONFUSION OR DIRECT A MOTORIST TOWARD OR INTO THE CLOSED PORTION OF THE ROADWAY, SHALL BE REMOVED OR OBLITERATED . IN ADDITION, WHEN A DETOUR IS TO BE DISCONTINUED, ANY PAVEMENT MARKINGS USED TO TRANSITION TRAFFIC INTO THE DETOUR WHICH MAY CREATE CONFUSION OR DIRECT A MOTORIST INTO THE DISCONTINUED DETOUR SHALL LIKEWISE BE REMOVED OR OBLITERATED. THE ABOVE SHALL NOT APPLY TO DETOURS OF A SHORT TIME DURATION OF A FEW HOURS WHERE FLAGMEN OR SUFFICIENT CHANNELIZING DEVICES ARE USED TO OUTLINE THE DETOUR ROUTE AND THE DETOUR IS NOT TO BE MAINTAINED OVERNIGHT.

3. THE REMOVAL OF PAVEMENT MARKINGS SHALL BE AN INTEGRAL PART OF ESTABLISHING THE DETOUR. DETOURS SHALL BE PLANNED AND SCHEDULED WELL ENOUGH IN ADVANCE TO ALLOW ADEQUATE TIME TO COMPLETE ALL PHASES OF THE OPERATION PRIOR TO DARKNESS. IF INCLEMENT WEATHER OR DARKNESS BECOMES A FACTOR, IT WILL BE THE CONTRACTORS DECISION TO CONTINUE WITH THE DETOUR OPERATION OR RETAIN THE EXISTING TRAVELWAY OPEN TO TRAFFIC WHEN ANY OR ALL OF THE REQUIREMENTS OF THE DETOUR CANNOT BE ACCOMPLISHED.

4. PAVEMENT MARKINGS SHALL BE REMOVED TO THE FULLEST EXTENT POSSIBLE, SO AS NOT TO LEAVE A DISCERNIBLE MARKING, BY ANY METHOD THAT DOES NOT MATERIALLY DAMAGE THE SURFACE OR TEXTURE OF THE PAVEMENT, SUBJECT TO THE APPROVAL OF THE ENGINEER. ANY METHOD THAT PROVES TO BE SUCCESSFUL ON A PARTICULAR TYPE PAVEMENT MAY BE USED. OVERPAINTING OF THE MARKING WILL NOT BE PERMITTED. REMOVAL OF RAISED PAVEMENT MARKINGS SHALL BE AS DIRECTED BY THE ENGINEER.

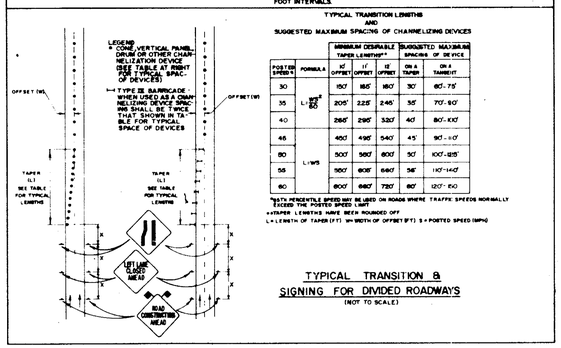
5. WHERE MECHANICAL MEANS OF MARKING REMOVAL HAVE BEEN EMPLOYED TO COMPLETELY REMOVE THE MARKING AND ITS REFLECTIVITY, PAINT OF A COLOR MATCHING THE PAVEMENT SURFACE OR USED CRANKCASE OIL MAY BE EMPLOYED IF NECESSARY AS A MEANS OF COVERING CONTRASTING PAVEMENT TEXTURE. NIGHTTIME INSPECTIONS ARE NEEDED TO VERIFY THE CONTINUED EFFECTIVENESS OF THE CHANGE.

6. PAVEMENT MARKINGS TO BE REMOVED SHALL BE AS SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER. REMOVAL OF PAVEMENT MARKINGS WILL BE CONSIDERED SUBSIDIARY TO THE ITEM BARRICADES, SIGNS AND TRAFFIC HANDLING.

MINIMUM CONSTRUCTION WARNING SIGN SPACING

POSTED SPEED OR 85TH PERCENTILE SPEED	30	35	40	45	50	55
X MINIMUM DISTANCE (FT.)	80	120	160	240	320	500

* FOR ROADS WITH A 55 MPH POSTED SPEED LIMIT, ADVANCE WARNING SIGNS SHOULD BE PLACED APPROXIMATELY 1,500 FEET IN ADVANCE OF THE CONDITION TO WHICH THEY ARE CALLING ATTENTION. WHERE A SERIES OF ADVANCE WARNING SIGNS ARE USED, THE WARNING SIGN NEAREST THE WORK SITE SHOULD BE PLACED APPROXIMATELY 500 FEET FROM THE POINT OF RESTRICTION WITH THE ADDITIONAL SIGNS AT APPROXIMATELY 500-1000 FOOT INTERVALS.



TYPICAL TRANSITION LENGTHS AND SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES

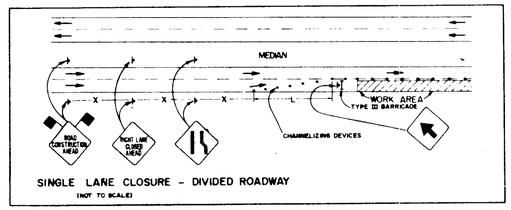
POSTED SPEED	FORMULA	MINIMUM DESIRABLE TAPER LENGTHS* 10' OFFSET	11' OFFSET	12' OFFSET	SUGGESTED MAXIMUM SPACING OF DEVICE ON A TAPER	ON A TANGENT
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'-75'
35		205'	225'	245'	35'	70'-90'
40		266'	295'	320'	40'	80'-100'
45		450'	495'	540'	45'	90'-110'
50	L=WS	500'	550'	600'	50'	100'-125'
55		550'	605'	660'	55'	110'-140'
60		600'	660'	720'	60'	120'-150'

*80% PERCENTILE SPEED MAY BE USED ON ROADS WHERE TRAFFIC SPEEDS NORMALLY EXCEED THE POSTED SPEED LIMIT

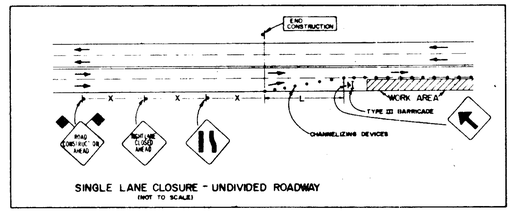
* UPPER LIMITS HAVE BEEN ROUNDED OFF

L = LENGTH OF TAPER (FT) W= WIDTH OF OFFSET (FT) S = POSTED SPEED (MPH)

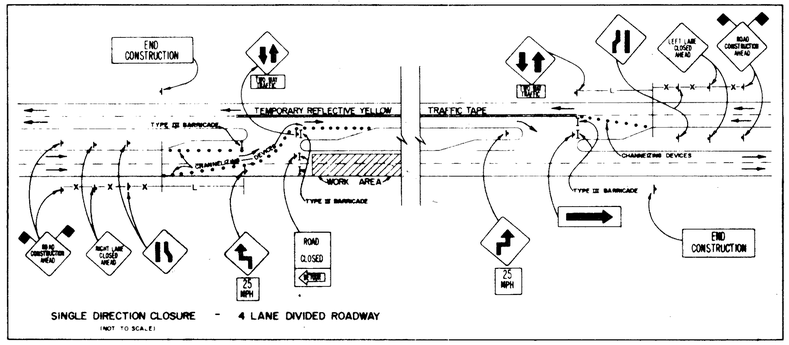
TYPICAL TRANSITION & SIGNING FOR DIVIDED ROADWAYS
(NOT TO SCALE)



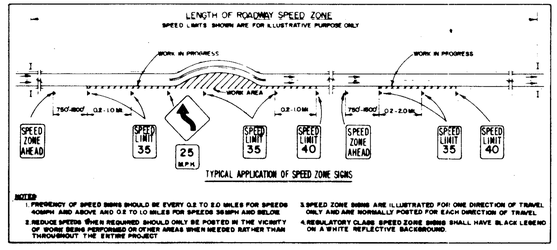
SINGLE LANE CLOSURE - DIVIDED ROADWAY
(NOT TO SCALE)



SINGLE LANE CLOSURE - UNDIVIDED ROADWAY
(NOT TO SCALE)

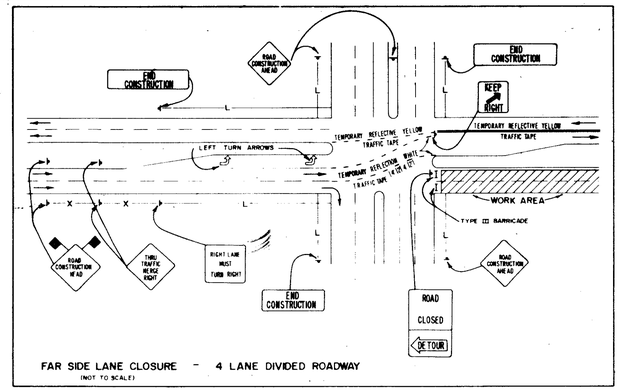


SINGLE DIRECTION CLOSURE - 4 LANE DIVIDED ROADWAY
(NOT TO SCALE)

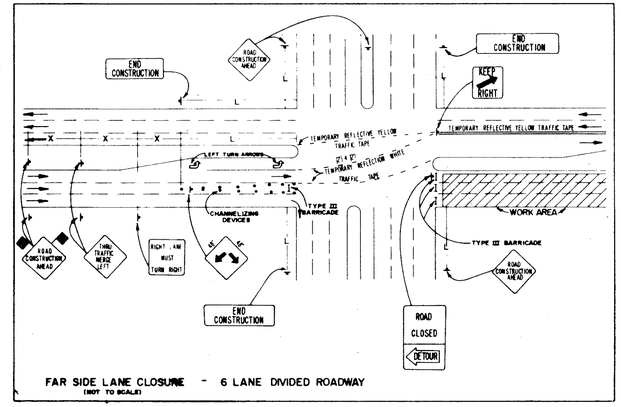


TYPICAL APPLICATION OF SPEED ZONE SIGNS

NOTES:
1. FREQUENCY OF SPEED SIGNS SHOULD BE EVERY 0.2 TO 0.5 MILES FOR SPEEDS 40MPH AND ABOVE AND 0.2 TO 1.0 MILES FOR SPEEDS 30 MPH AND BELOW.
2. REDUCE SPEED WHEN REQUIRED SHOULD ONLY BE POSTED IN THE VICINITY OF WORK BEING PERFORMED OR OTHER AREAS WHEN NEEDED RATHER THAN THROUGHOUT THE ENTIRE PROJECT.
3. SPEED ZONE SIGNS ARE ILLUSTRATED FOR ONE DIRECTION OF TRAVEL ONLY AND ARE NORMALLY POSTED FOR EACH DIRECTION OF TRAVEL.
4. REGULATORY CLASS SPEED ZONE SIGNS SHALL HAVE BLACK LEGEND ON A WHITE REFLECTIVE BACKGROUND.



FAR SIDE LANE CLOSURE - 4 LANE DIVIDED ROADWAY
(NOT TO SCALE)



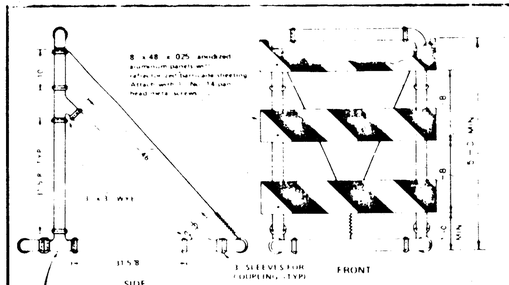
FAR SIDE LANE CLOSURE - 6 LANE DIVIDED ROADWAY
(NOT TO SCALE)

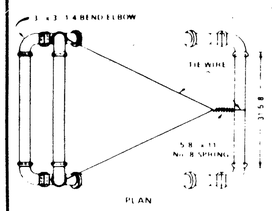
THE TOWN OF ADDISON

CONSTRUCTION SIGNING AND BARRICADING DETAILS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
D.H.?	A.R.H.	8/80	None			

E





OPTIONAL
TYPE III PVC BARRICADES
TYPICAL DESIGN DETAILS

May be used at the option of the Contractor

NOTES

1. All pipe shall be polyvinyl Chloride (PVC) pressure rated pipe SDR 21 or SDR 26 ASTM D2241
2. Joint fittings may be PVC ASTM D2665 or Acrylonitrile Butadiene Styrene (ABS) ASTM D2661 (Drainage Waste and Vent)
3. All pipe and fittings shall be white
4. All joints shall be free to separate upon vehicle impact
5. Shaded conduit to be tied together with rope threaded into pipe interior. Use 3/16 No. 6 solid braided nylon or equivalent
6. A fixed frangible pavement connection is preferred. Sand Bags may be substituted

STRIPING FOR BARRICADE

Where a barricade extends entirely across a roadway, it is desirable that the stripes slope downward in the direction toward which traffic must turn in detouring. When both right and left turns are provided for, the chevron striping may slope downward in both directions from the center of the barricade.

Striping should cover the full width of the rail. Striping of rails, panels and gates for the right side of the roadway is shown above. For the left side of the roadway, striping should slope downward to the right.

For all types of barricades with rails less than 3' 0" long, stripes 4" wide shall be used.

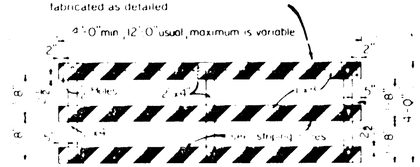
The 8" rail width is a nominal dimension for rails made of lumber.

Identification markings may be shown only on back side of barricade rails.

BARRICADE DETAILS

All lumber sizes are nominal dimensions.
Fabrication Details ± 1/2"

When Wood Barricades are used and when orange and white stripes are required on the backside a 2" x 8" rail may be used in lieu of the 1" x 8" rail and 2" x 4" Stiffener. Otherwise the rail should be fabricated as detailed.



TYPE III BARRICADE

For Type III Barricades, the three (3) rails shall be reflective orange. Use [illegible] and reflective white stripes on one side, facing traffic in one direction only, and on both sides, facing traffic in two directions. See Barricade Layouts on Sheet BC(2).

PANEL FOR TYPE III BARRICADE

BARRICADE NOTES

Channelizing devices other than barricades should normally be used for channelization purposes.

Barricades should normally be placed perpendicular to the traffic flow. Other channelizing devices, such as drums, vertical panels or portable barriers, should be used where needed to separate traffic from the work area. In all cases, the barricades should be so located as to most advantageously warn and direct traffic.

Barricades may be designed and constructed from wood, PVC pipe or any other suitable material in a manner approved by the Engineer. The construction details shown hereon are typical and are suggested details for wood and PVC pipe support systems for barricades. The details of rail width and striping, number and spacing of rails, minimum length and height (above pavement) of rails must be adhered to when alternate designs are used.

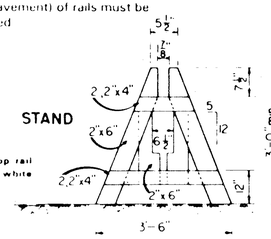
When signs are placed on barricades, a maximum number of 2 signs should be visable to the motorist.

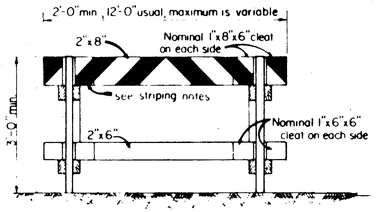
Barricades are to be constructed in a first class workmanship manner of clean sound material. All surfaces above ground, which are not striped, shall be white except the unpainted galvanized metal or aluminum components may be used. Components made of lumber shall be painted with a minimum of two coats of an approved brand of white paint to secure thorough coverage and a uniform white color.

The Contractor shall maintain each barricade in a clean and good condition.
Barricades shall be removed upon completion of the work and/or the elimination of the hazard on any section.

TYPE I BARRICADE

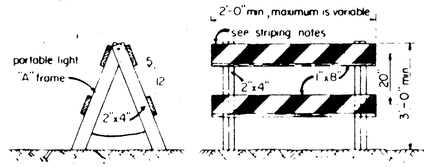
For Type I Barricades, both sides of the top rail shall have reflective orange and reflective white striping.

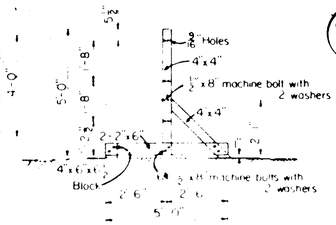




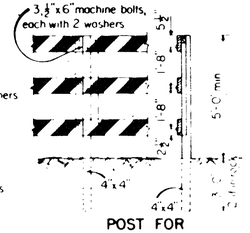
TYPE II BARRICADE

For Type II Barricades, all four (4) rail faces shall have reflective orange and reflective white striping.

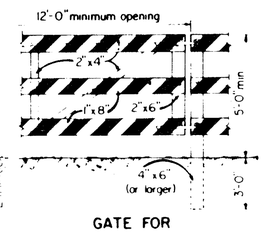




STAND FOR TYPE III BARRICADE



POST FOR TYPE III BARRICADE



GATE FOR TYPE III BARRICADE

GENERAL NOTES

REFLECTORIZATION

The reflectorized white and reflectorized orange stripes for barricades, drums and vertical panels shall be constructed of retroreflective sheeting in conformance with project specifications and shall be maintained to meet the appearance, color, and reflectivity requirements of those specifications.

WARNING LIGHTS

Warning lights are portable lens directed, enclosed lights. The color of the light emitted shall be yellow. The lights should be mounted at a minimum height of 36 inches to the bottom of the lens.

Type A Low Intensity Flashing Warning Lights are commonly mounted on barricades, other channelization devices or advance warning signs and are intended to warn the driver that he is approaching a hazardous area. Their use shall be as specified elsewhere in the plans, on Sheets BC(1) and BC(2), or as directed by the Engineer.

Type B High Intensity Flashing Warning Lights are normally used at/or approaching extremely hazardous site conditions within the construction area. They may be mounted on barricades, signs or other supports. As these lights are effective in daylight as well as dark, they are designed to operate 24 hours per day. Their use should be specified elsewhere in the plans or as directed by the Engineer. Flashing warning lights shall not be used in a series.

Type C Steady Burn Lights are intended to be used in a series for delineation to supplement other traffic control devices used to delineate the edge of the traveled way on detour curves, lane changes, lane closures, shoulder drop-offs and other similar conditions or hazards. The series of Steady Burn Lights should have a Type B High Intensity Flashing Warning Light at the beginning and end of the series to mark the hazard. Where Steady Burn Lights are to be used for delineation, the contractor may at his option, utilize delineators.

Contractors shall furnish a copy of a certification from the manufacturer of the lights that the warning lights meet the requirements of the ITE Standard For Flashing and Steady Burn Warning Lights as contained in the latest edition of the "Texas Manual on Uniform Traffic Control Devices for Streets and Highways".

DELINEATORS

Delineators are normally used to indicate roadway alignment where improved nighttime visibility is needed but other roadway features are sufficient for daytime alignment. They should generally be used on high fills and horizontal and vertical curves where only nighttime delineation is needed. Delineators, when required for temporary use to control traffic through construction areas, will be considered subsidiary to the item BARRICADES, SIGNS AND TRAFFIC HANDLING.
Delineators shall meet the material requirements of the project specifications. When used, delineators on the right side of the roadway facing traffic shall be white. The color of delineators used along the left edge of divided streets and highways and one way roadways shall be yellow.

SPACING OF DELINEATORS

Spacing of Delineators on curves should be according to the Table below. Spacing of delineators on tangent sections should normally be between 100 and 200 feet with the closer spacing for lower speeds and greater spacing for higher speeds.

RADIUS OF CURVE (FEET)	50	150	200	250	300	400	500	600	700	800	900	1000
APPROX SPACING ON CURVE (FEET)	20	30	35	40	50	55	65	70	75	80	85	90

CONES

Traffic cones and tubular markers shall be a minimum of 18 inches in height with a broadened base and may be made of various materials to withstand impact without damage to themselves or to vehicles. Larger sizes should be used on freeways and other roadways where speeds are relatively high or wherever more conspicuous guidance is needed. Orange shall be the predominant color on cones and tubular markers. They should be kept clean and bright for maximum target value. For nighttime use they shall be reflectorized or equipped with lighting devices for maximum visibility. Reflectorized material shall have a smooth sealed outer surface which will display the same approximate color day and night.

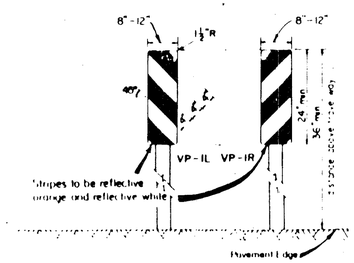
Reflectorization of tubular markers shall be a minimum of two three inch bands placed a maximum of 2" from the top with a maximum of 6" between the bands. Reflectorization of cones shall be provided by a minimum 6" band placed a maximum of 4" from the top.

Cones or tubular markers are generally only suitable for temporary usage (up to 8 hours) with other channelization devices, such as vertical panels or barricades, preferred for longer term usage. Care should be taken to insure that they remain in their proper location and remain upright position.

DRUMS

Drums, set on end, and used for traffic warning or channelization shall be approximately 36" in height and minimum of 18" in diameter. The contractor at his option may use drums made from steel barrels or black polyethylene plastic drum liners weighing approximately eight pounds each. The markings on drums shall be horizontal circumferential reflectorized orange and reflectorized white stripes, 4" to 8" inches wide. The first reflectorized stripe should start within two (2) inches of the top of the drum. There shall be at least two orange and two white stripes on each drum. If there are more reflectorized spaces between the horizontal orange and white stripes, they shall be no more than 2" inches wide. Metal drums shall be painted black or orange before reflectorized stripes are added. All drums on a project will be the same color. When drums are placed on the roadway, appropriate warning signs should be used. During hours of darkness, a flashing warning light should be placed on drums used singly as a warning device. Steady burn devices for lights or delineators should be placed on drums used in series for traffic channelization. Drums should not be weighted with sand, water or other material to the extent that it would make the drums dangerous to motorists.

CW1.8 CHEVRON signs, CW1.6A ARROW signs or VP-1 Vertical Panels mounted above drums may be used as supplements to drum delineation.

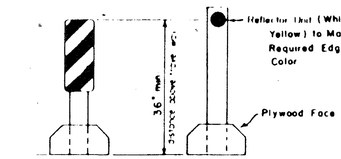


VERTICAL PANELS (VP)

Vertical Panels are normally used as channelizing devices to indicate tangent or nearly tangent roadway alignment where good target value of a device is needed in daytime as well as the nighttime. In addition, vertical panels should be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive day and night delineation may be required. Vertical panels should be mounted back to back if used at the edge of cuts adjacent to two way two lane roadways. Stripes should always slope downward toward the traveled way.

CHANNELIZING DEVICES

The Type or Types of Channelizing Devices used are to be as specified by the Engineer.



TYPICAL PORTABLE VERTICAL PANEL OR DELINEATOR

Other similar supports may be used when approved or directed by the Engineer

STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

BARRICADE AND CONSTRUCTION STANDARDS

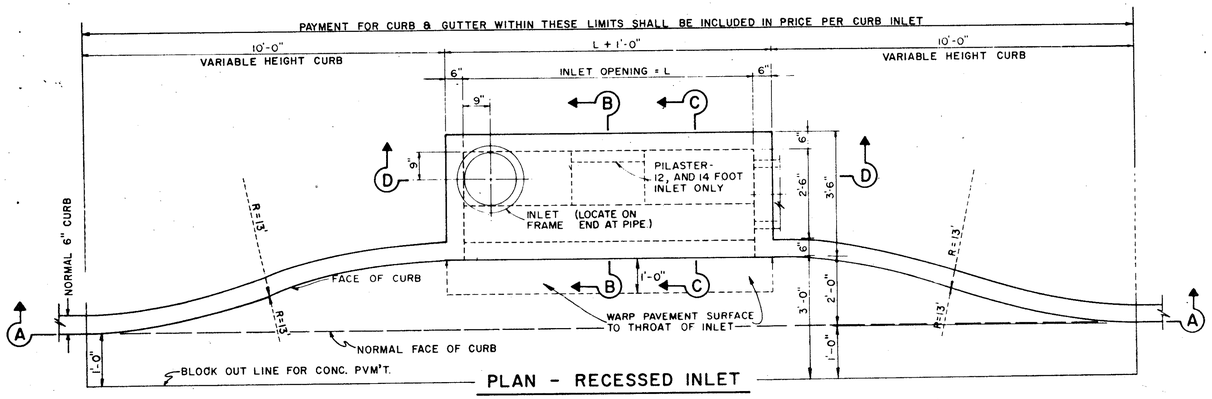
BARRICADE DETAILS
DELINEATORS & VERTICAL PANELS
DRUMS & CONES
REFLECTORIZATION
WARNING LIGHTS

BC(3)-82

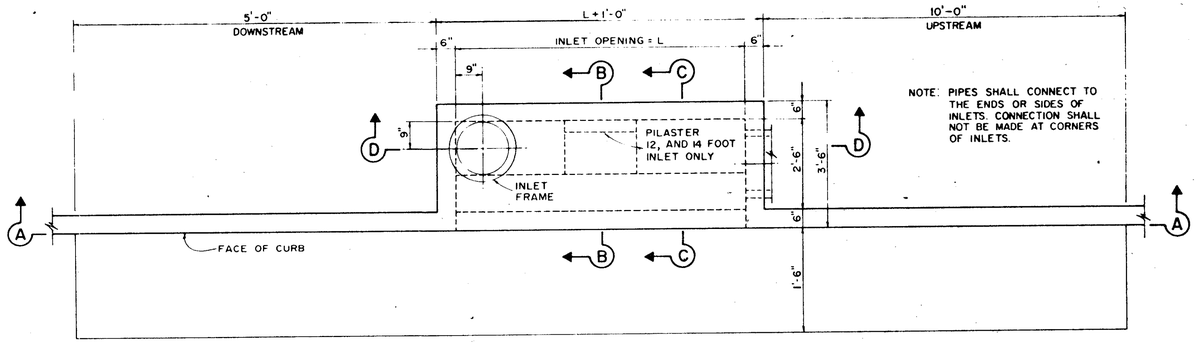
ORIGINAL DRAWING DATE 5-80	STATE (ESTIMATE)	FEDERAL AID PROJECT	SHEET
REVISIONS 2-82			
	COUNTY	CONTROL SECTION JOB	HIGHWAY

104

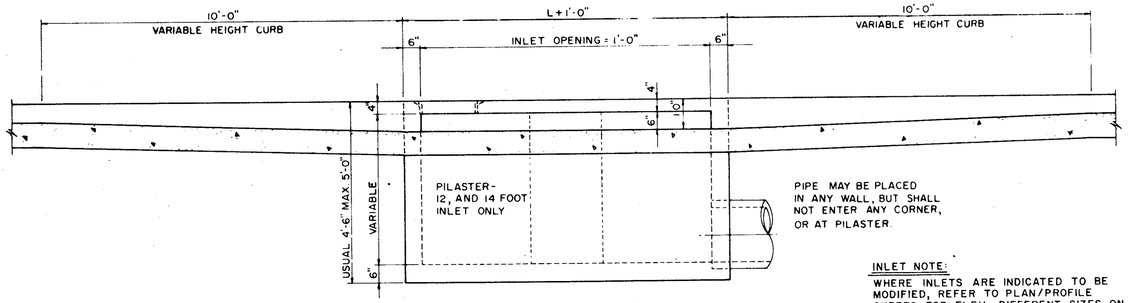
F



PLAN - RECESSED INLET



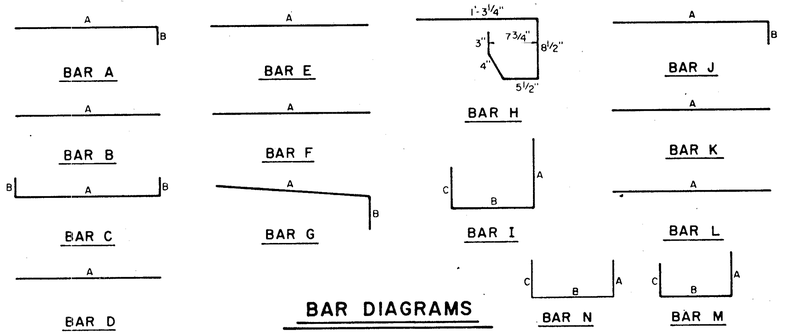
PLAN - STANDARD INLET



SECTION A-A-RECESSED AND STANDARD INLETS

4, 6, 8, 10, 12, AND 14 FOOT INLETS

INLET NOTE:
WHERE INLETS ARE INDICATED TO BE MODIFIED, REFER TO PLAN/PROFILE SHEETS FOR ELEV., DIFFERENT SIZES ON MODIFICATIONS. ALL OTHER ITEMS SHALL REMAIN AS SHOWN ON THIS STANDARD DETAIL SHEET.



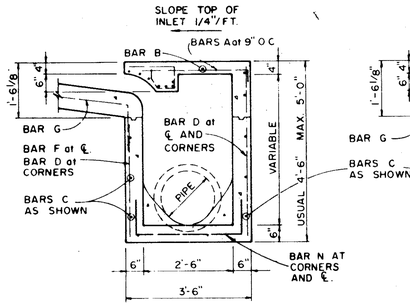
BAR DIAGRAMS

REINFORCING STEEL SCHEDULE

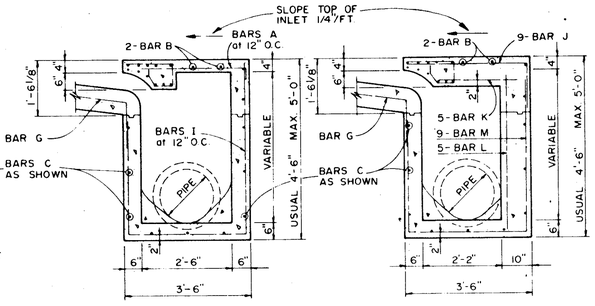
DIMENSIONS SHOWN ARE FOR MAXIMUM SIZE INLETS

INLET LENGTH	BAR TYPE	BAR DIA. (1/8 IN)	NO. REQ'D	BAR DIMENSIONS A	B	C
4	A	3	6	3'-2"	0'-3"	–
	B	3	1	2'-10"	–	–
	C	4	15	4'-8"	0'-6"	–
	D	4	5	4'-8"	–	–
	F	4	1	3'-2"	–	–
	G	3	5	2'-0"	1'-3"	–
	H	3	4	*	*	*
	N	3	3	3'-2"	3'-2"	3'-2"
6	A	3	9	3'-2"	0'-3"	–
	B	3	1	4'-10"	–	–
	C	4	15	6'-8"	0'-6"	–
	D	4	5	4'-8"	–	–
	F	4	1	3'-2"	–	–
	G	3	5	2'-0"	1'-3"	–
	H	3	6	*	*	*
	N	3	3	3'-2"	3'-2"	3'-2"
8	A	3	12	3'-2"	0'-3"	–
	B	3	1	6'-10"	–	–
	C	4	15	8'-8"	0'-6"	–
	D	4	5	4'-8"	–	–
	F	4	1	3'-2"	–	–
	G	3	5	2'-0"	1'-3"	–
	H	3	8	*	*	*
	N	3	3	3'-2"	3'-2"	3'-2"
10	A	3	10	3'-2"	0'-3"	–
	B	3	2	8'-10"	–	–
	C	4	16	10'-8"	0'-6"	–
	D	4	4	4'-8"	–	–
	E	5	6	10'-8"	–	–
	G	3	5	2'-0"	1'-3"	–
	H	3	15	*	*	*
	I	4	8	4'-8"	3'-2"	3'-2"
	L	4	5	4'-3"		–
12	A	3	12	3'-2"	0'-3"	–
	B	3	2	10'-10"	–	–
	C	4	16	12'-8"	0'-6"	–
	D	4	4	4'-8"	–	–
	E	5	6	12'-8"	–	–
	G	3	5	2'-0"	1'-3"	–
	H	3	18	*	*	*
	I	4	10	4'-8"	3'-2"	3'-2"
	J	5	9	3'-2"	1'-3"	–
	K	4	5	2'-3"	–	–
	L	4	5	4'-3"	–	–
	M	5	9	4'-3"	3'-2"	3'-9"
14	A	3	14	3'-2"	0'-3"	–
	B	3	2	10'-10"	–	–
	C	4	16	14'-8"	0'-6"	–
	D	4	4	4'-8"	–	–
	E	5	6	14'-8"	–	–
	G	3	5	2'-0"	1'-3"	–
	H	3	21	*	*	*
	I	4	12	4'-8"	3'-2"	3'-2"
	J	5	9	3'-2"	1'-3"	–
	K	4	5	2'-3"	–	–
	L	4	5	4'-3"	–	–
	M	5	9	4'-3"	3'-2"	3'-9"

* SEE DIAGRAM FOR DIMENSIONS



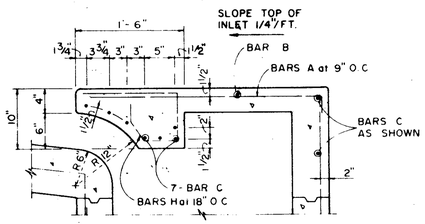
SECTION B-B



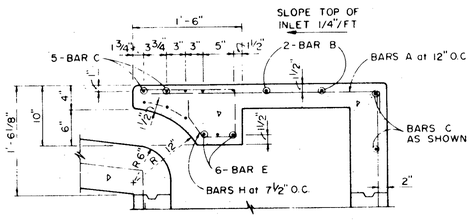
SECTION C-C

SECTION B-B

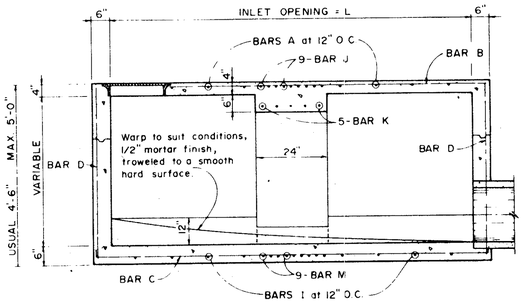
4, 6, AND 8 FOOT INLETS



SECTION C-C

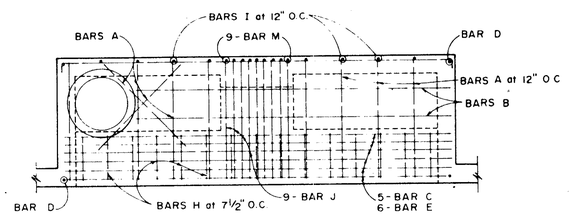


SECTION C-C

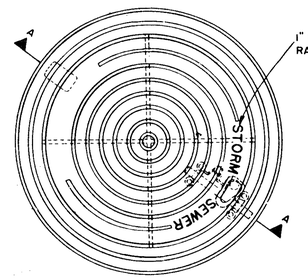


SECTION D-D
FOR 12' & 14' ONLY

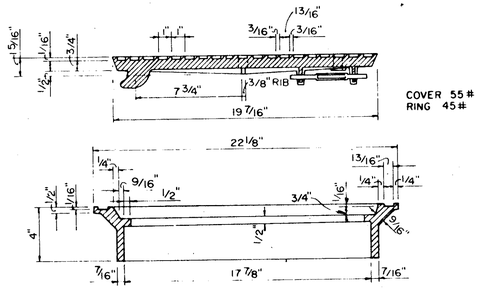
10, 12, AND 14 FOOT INLETS



PLAN



PLAN OF FRAME



SECTION OF FRAME AND COVER

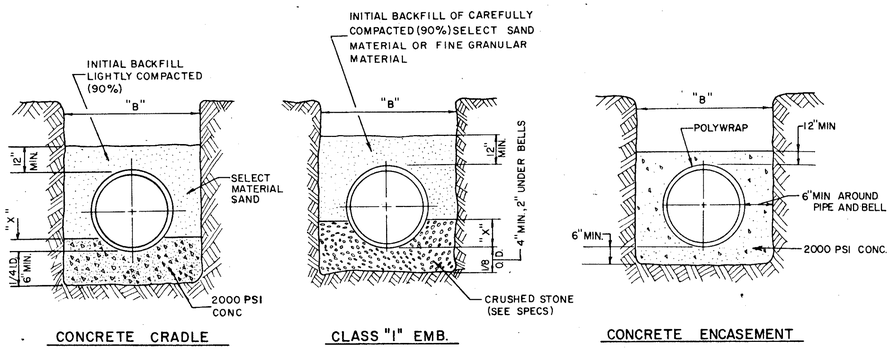
INLET FRAME AND COVER

TOWN OF ADDISON, TEXAS
DEPARTMENT OF ENGINEERING

STANDARD CONSTRUCTION DETAILS
STORM DRAINAGE

CURB INLETS

Designed –	Drawn –	Date – AUGUST, 1991	Job No. – 90025-5
Approved –	Checked –	Scale –	Sheet D-4 Of

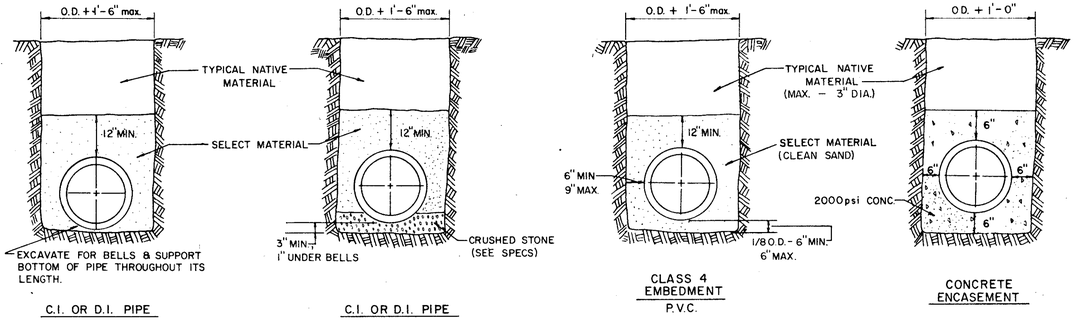


CONCRETE CRADLE | CLASS "I" EMB. | CONCRETE ENCASEMENT

EMBEDMENT DETAILS FOR RCCP WATERLINE

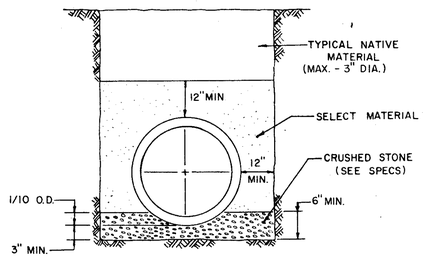
TABLE OF QUANTITIES OF MATERIALS IN CUBIC YARDS PER 100 LINEAR FEET

INSIDE DIAMETER OF PIPE	APPROX. OUTSIDE DIAMETER OF PIPE	"X" IS A MINIMUM DEPTH	"B" TRENCH WIDTH FOR COMPUTATION OF QUANTITIES	CONCRETE FOR EMBEDMENT	CONCRETE FOR ENCASEMENT	CRUSHED STONE FOR CL"I" EMBEDMENT
REINFORCED CONCRETE CYLINDER PIPE						
14"	17.25"	2.53"	3.4"	6.91	16.07	5.16
16"	19.38"	2.84"	3.6"	7.50	17.76	5.64
18"	21.78"	3.19"	3.8"	8.11	19.52	6.16
24"	27.75"	4.06"	4.4"	9.97	24.90	9.28

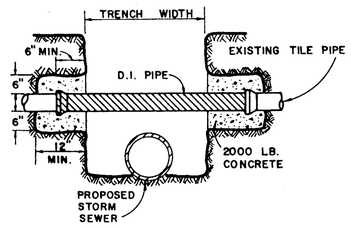


C.I. OR D.I. PIPE | C.I. OR D.I. PIPE | CLASS 4 EMBEDMENT P.V.C. | CONCRETE ENCASEMENT

EMBEDMENT DETAILS FOR WATER MAIN

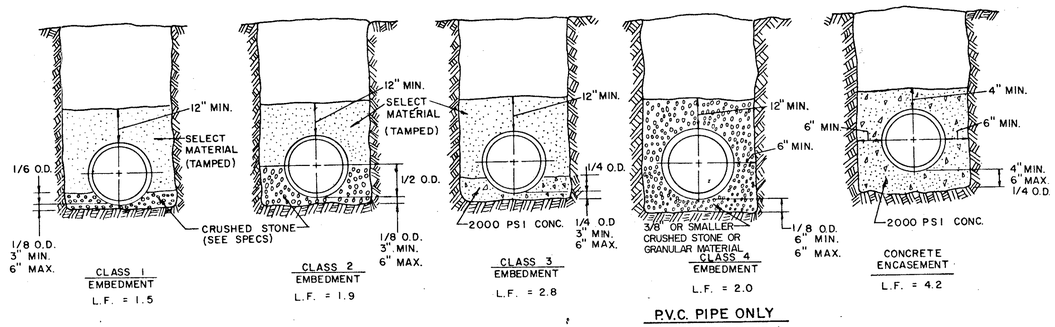


EMBEDMENT DETAIL FOR STORM SEWER



DETAIL OF UTILITY SUPPORT

TYPICAL NATIVE MATERIAL COMPACTED TO:
95% OPTIMUM MOISTURE 0 TO +3% UNDER PAVEMENT
95% OPTIMUM MOISTURE 0 TO +3% OUTSIDE CURB LINES
JETTING IS NOT ALLOWED
BACKFILL TO BE COMPACTED IN 6"± LIFTS
TYPICAL NATIVE MATERIAL (MAX. 3" DIA.)



P.V.C. PIPE ONLY
SDR 35 (GREEN PIPE)

EMBEDMENT DETAILS FOR SANITARY SEWER

TABLE OF QUANTITIES OF 2000 PSI CONCRETE, GRAVEL OR CRUSHED STONE IN CUBIC YARDS PER 100 LINEAR FEET FOR EACH CLASS EMBEDMENT

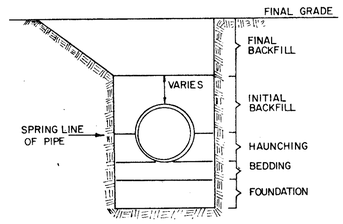
TABLE OF QUANTITIES PER 100 LINEAR FEET REINFORCED CONCRETE PIPE

SIZE OF PIPE IN INCHES I.D.	O.D. OF PIPE IN INCHES	TRENCH WIDTH IN INCHES	TRENCH WIDTH IN FEET	CLASS 1 EMBEDMENT CRUSHED STONE	CLASS 2 EMBEDMENT CRUSHED STONE	CLASS 3 EMBEDMENT CONCRETE	CONCRETE ENCASEMENT
12	16.00	32	2.67	4.1	6.5	4.8	15.8
15	19.50	36	3.00	4.8	7.8	6.4	19.2
18	23.00	39	3.25	5.7	9.2	8.2	21.2
21	26.50	43	3.58	6.9	11.0	10.2	24.9
24	30.00	46	3.83	8.3	13.1	12.4	28.7
27	33.50	51	4.25	10.3	16.1	14.4	32.8
30	37.00	57	4.75	12.7	20.1	17.0	34.8
33	40.50	62	5.17	15.1	23.8	19.3	39.2
36	44.00	67	5.58	18.0	28.6	22.1	43.8

TABLE OF QUANTITIES PER 100 LINEAR FEET-PVC PIPE (IN CUBIC YARDS)

SIZE OF PIPE IN INCHES	O.D. OF PIPE IN INCHES	TRENCH WIDTH IN INCHES	TRENCH WIDTH IN FEET	CLASS 4 EMBEDMENT CRUSHED STONE	CONCRETE ENCASEMENT
6	6.28	24	2.00	8.0	11.7
8	8.16	24	2.00	8.7	12.4
10	10.20	26	2.18	10.2	14.2
12	12.24	28	2.35	11.7	15.9
16	15.30	31	2.61	14.0	18.8
24		36	3.0		
30		42	3.5		

NOTE: ALL SANITARY SEWER LINES THIS PROJECT SHALL HAVE CLASS 4 EMBEDMENT UNLESS OTHERWIS NOTED.



EMBEDMENT ZONES

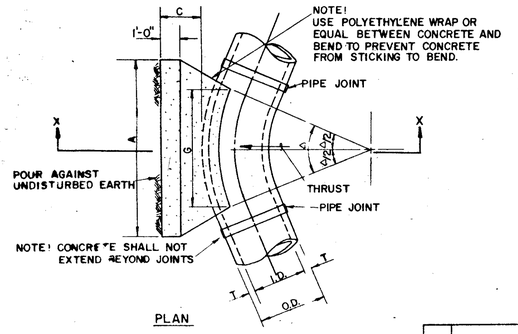
TOWN OF ADDISON, TEXAS
DEPARTMENT OF ENGINEERING

STANDARD CONSTRUCTION DETAILS

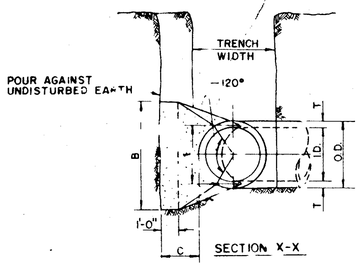
EMBEDMENT DETAILS

Designed -	Drawn -	Date - AUGUST, 1991	Job No. - 90025-5
Approved -	Checked -	Scale -	Sheet D-5 Of

FISCO 25584



PLAN



SECTION X-X

I.D. (IN.)	T IN.	C 11.25° FT.	C 22.50°+ FT.	E FT.
4,6,8	0.4	1.5	1.5	0.9
10,12	0.5	1.5	1.5	1.2
16,18	0.6	1.5	1.5	1.6
20	0.7	1.5	1.5	1.8
24	0.9	1.5	1.5	2.1
30	2.9	1.5	1.9	2.6
36	4.5	1.5	2.3	3.3
42	5.0	1.8	2.6	3.8
48	5.5	2.0	3.0	4.3
54	6.0	2.3	3.4	4.8
60	6.5	2.5	3.8	5.3
66	6.8	2.8	4.1	5.7
72	7.5	3.0	4.5	6.3
78	7.5	3.3	4.9	6.7
84	8.0	3.5	5.3	7.2
90	8.5	3.8	5.6	7.7
96	9.0	4.0	6.0	8.2

I.D. (IN.)	Δ • 11.25° G FT.	THRUST TONS	EARTH A FT.	EARTH B FT.	EARTH VOL. C.Y.	ROCK A FT.	ROCK B FT.	ROCK VOL. C.Y.
4,6,8	0.4	1.0	1.0	1.5	0.1	1.0	1.0	0.1
10,12	0.6	2.2	1.5	1.5	0.1	1.0	1.5	0.1
16,18	0.8	5.0	2.0	2.5	0.3	1.5	2.0	0.2
20	0.9	6.2	2.0	3.5	0.4	1.5	3.0	0.3
24	1.1	8.9	3.0	3.0	0.5	1.5	3.0	0.3
30	1.4	10.4	3.0	3.5	0.6	2.0	3.5	0.4
36	1.7	15.0	3.5	4.5	0.9	2.0	4.0	0.5
42	1.9	20.4	4.5	5.0	1.5	2.5	5.0	0.8
48	2.2	26.6	4.5	6.0	2.0	2.5	6.0	1.1
54	2.5	33.7	6.0	6.0	3.0	3.0	6.0	1.4
60	2.7	41.6	6.0	7.0	3.8	3.0	7.0	1.8
66	3.0	50.3	6.5	8.0	5.1	3.5	8.0	2.7
72	3.3	59.9	7.5	8.0	6.3	4.0	8.0	6.3
78	3.6	70.2	8.0	9.0	8.1	4.0	9.0	3.9
84	3.8	81.5	8.5	10.0	10.3	4.5	10.0	5.3
90	4.1	93.5	9.5	10.0	12.2	5.0	10.0	6.3
96	4.4	106.4	10.0	11.0	15.0	5.0	11.0	7.4

I.D. (IN.)	Δ • 22.50° G FT.	THRUST TONS	EARTH A FT.	EARTH B FT.	EARTH VOL. C.Y.	ROCK A FT.	ROCK B FT.	ROCK VOL. C.Y.
4,6,8	0.8	2.0	1.5	1.5	0.1	1.0	1.0	0.1
10,12	1.1	4.4	2.0	2.5	0.3	1.5	1.5	0.1
16,18	1.6	9.9	3.0	3.5	0.6	2.0	2.5	0.3
20	1.8	12.3	3.5	3.5	0.7	2.0	3.5	0.4
24	2.2	17.7	4.0	4.5	1.0	3.0	3.0	0.5
30	2.7	20.7	5.0	4.5	1.5	3.0	4.0	0.8
36	3.3	29.8	5.5	5.5	2.3	4.0	4.0	1.3
42	3.8	40.5	7.0	6.0	3.9	4.5	5.0	2.1
48	4.4	52.9	8.0	7.0	5.7	4.5	6.0	2.8
54	4.9	67.0	9.0	8.0	8.0	6.0	6.0	4.1
60	5.5	82.7	9.5	9.0	10.6	6.0	7.0	5.3
66	6.0	100.1	10.5	10.0	14.1	6.5	8.0	7.2
72	6.6	119.1	11.0	11.0	17.6	7.5	8.0	9.1
78	7.1	139.8	12.0	12.0	22.5	8.0	9.0	11.7
84	7.6	162.1	13.0	12.5	27.2	8.5	10.0	14.8
90	8.2	186.1	14.0	13.5	33.7	9.5	10.0	17.7
96	8.7	211.7	15.0	14.5	41.2	10.0	11.0	21.8

I.D. (IN.)	Δ • 30° G FT.	THRUST TONS	EARTH A FT.	EARTH B FT.	EARTH VOL. C.Y.	ROCK A FT.	ROCK B FT.	ROCK VOL. C.Y.
4,6,8	1.0	2.6	2.0	1.5	0.2	1.0	1.5	0.1
10,12	1.5	5.9	2.5	2.5	0.3	2.0	1.5	0.2
16,18	2.2	13.2	3.5	4.0	0.8	2.5	3.0	0.8
20	2.4	16.3	4.5	4.0	1.0	3.0	3.0	0.5
24	2.9	23.4	6.0	4.0	1.4	3.5	3.5	0.7
30	3.6	27.5	5.5	5.0	1.9	3.5	4.0	0.9
36	4.4	39.5	7.0	6.0	3.4	4.5	4.5	1.6
42	5.1	53.8	8.0	7.0	5.1	5.5	5.0	2.5
48	5.8	70.3	9.0	8.0	7.4	6.0	6.0	3.7
54	6.5	89.0	10.0	9.0	10.3	7.0	6.5	5.3
60	7.3	110.0	11.0	10.0	13.9	7.5	7.5	7.3
66	8.0	132.9	12.5	11.0	18.9	8.5	8.0	9.6
72	8.7	158.2	13.5	12.0	24.0	9.0	9.0	12.3
78	9.4	185.6	14.5	13.0	30.0	10.0	9.5	15.6
84	10.1	215.3	15.5	14.0	37.1	10.5	10.5	19.5
90	10.9	247.1	16.5	15.0	45.0	11.5	11.0	23.9
96	11.6	281.2	18.0	16.0	55.5	12.5	11.5	28.9

I.D. (IN.)	Δ • 45° G FT.	THRUST TONS	EARTH A FT.	EARTH B FT.	EARTH VOL. C.Y.	ROCK A FT.	ROCK B FT.	ROCK VOL. C.Y.
4,6,8	1.5	3.9	2.0	2.0	0.2	1.5	1.5	0.1
10,12	2.2	8.7	3.5	2.5	0.5	2.0	2.5	0.3
16,18	3.2	19.5	4.5	4.5	1.2	3.0	3.5	0.6
20	3.6	24.1	5.5	4.5	1.5	3.5	3.5	0.7
24	4.3	34.6	8.0	4.5	2.3	4.5	4.0	1.1
30	5.4	40.6	8.5	5.0	3.2	5.5	4.0	1.6
36	6.5	58.5	10.0	6.0	5.3	6.5	4.5	2.6
42	7.5	79.6	11.5	7.0	8.1	8.0	5.0	4.2
48	8.6	104.0	13.0	8.0	11.9	9.0	6.0	6.3
54	9.7	131.5	15.0	9.0	17.1	10.5	6.5	8.9
60	10.7	162.4	16.5	10.0	23.1	11.0	7.5	12.0
66	11.8	196.5	18.0	11.0	30.1	12.0	8.5	16.2
72	12.9	233.9	19.5	12.0	38.6	14.0	8.5	20.7
78	13.9	274.5	21.5	13.0	49.8	14.5	9.5	25.9
84	15.0	318.4	23.0	14.0	61.2	15.5	10.5	32.6
90	16.1	365.5	24.5	15.0	74.5	17.5	10.5	39.6
96	17.1	415.6	26.0	16.0	89.5	18.5	11.5	48.5

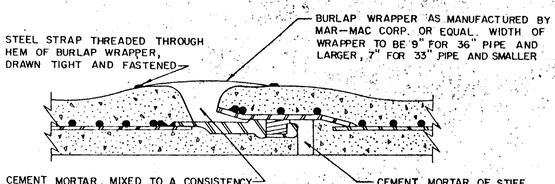
I.D. (IN.)	Δ • 67.50° G FT.	THRUST TONS	EARTH A FT.	EARTH B FT.	EARTH VOL. C.Y.	ROCK A FT.	ROCK B FT.	ROCK VOL. C.Y.
4,6,8	2.1	5.6	3.0	2.0	0.3	2.0	1.5	0.2
10,12	3.1	12.6	5.5	2.5	0.8	3.5	2.0	0.4
16,18	4.7	28.3	7.5	4.0	1.9	5.0	3.0	0.9
20	5.2	34.9	9.0	4.0	2.3	5.5	3.5	1.2
24	6.2	50.3	11.5	4.5	3.5	6.5	4.0	1.6
30	7.8	58.9	12.0	5.0	4.8	7.5	4.0	2.2
36	9.4	84.9	14.5	6.0	8.2	9.5	4.5	3.8
42	10.9	115.5	17.0	7.0	12.8	11.0	5.5	6.3
48	12.5	150.9	19.0	8.0	18.4	13.0	6.0	9.2
54	14.0	191.0	21.5	9.0	26.0	15.0	6.5	12.9
60	15.6	235.8	24.0	10.0	36.6	16.0	7.5	17.6
66	17.1	285.3	26.0	11.0	46.0	18.0	8.0	23.0
72	18.7	339.5	28.5	12.0	57.8	19.0	9.0	28.4
78	20.2	398.5	31.0	13.0	75.7	21.0	9.5	37.4
84	21.8	462.1	33.5	14.0	94.7	22.0	10.5	46.5
90	23.3	530.5	35.5	15.0	114.4	24.5	11.0	58.2
96	24.9	603.6	38.0	16.0	138.9	25.5	12.0	70.0

I.D. (IN.)	Δ • 90° G FT.	THRUST TONS	EARTH A FT.	EARTH B FT.	EARTH VOL. C.Y.	ROCK A FT.	ROCK B FT.	ROCK VOL. C.Y.
4,6,8	2.7	7.1	5.0	1.5	0.4	2.0	2.0	0.2
10,12	4.0	16.0	6.5	2.5	1.0	3.0	2.5	0.5
16,18	6.0	36.0	9.0	4.0	2.4	4.0	4.0	1.0
20	6.6	44.4	10.0	4.5	3.1	6.0	4.0	1.5
24	7.9	64.0	14.5	4.5	5.0	8.0	4.0	2.1
30	9.9	75.0	15.0	5.0	6.7	10.0	4.0	3.3
36	11.9	108.0	18.0	6.0	11.4	12.0	4.5	5.3
42	13.9	147.0	21.0	7.0	17.8	14.0	5.5	8.7
48	15.9	192.0	24.0	8.0	26.2	16.0	6.0	12.4
54	17.9	243.0	27.0	9.0	36.9	18.0	7.0	18.1
60	19.9	299.8	30.0	10.0	50.3	20.0	7.5	24.0
66	21.8	362.8	33.0	11.0	66.2	22.0	8.5	32.5
72	23.8	431.8	36.0	12.0	85.6	24.0	9.0	41.0
78	25.7	506.7	39.0	13.0	108.2	26.0	10.0	53.2
84	27.7	587.7	42.0	14.0	134.4	28.0	10.5	64.8
90	29.6	674.6	45.0	15.0	164.9	30.0	11.5	81.2
96	31.6	767.5	48.0	16.0	199.0	32.0	12.0	95.1

HORIZONTAL BEND THRUST BLOCK

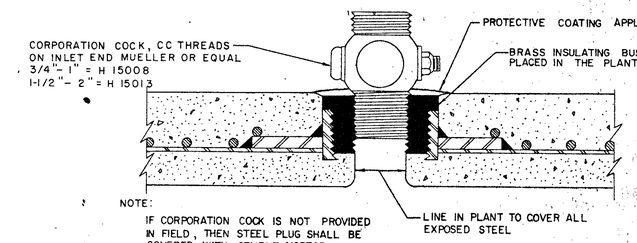
NOTE:

PROVIDE 1" MINIMUM THICKNESS CONCRETE OR CEMENT MORTAR COATING IN THE FIELD FOR THE PROTECTION OF ALL EXPOSED STEEL SUCH AS FLANGES, CAULKED-JOINTS, THREADED OUTLETS, CLOSURES, ETC. THE CEMENT MORTAR USED SHALL CONSIST OF ONE PART PORTLAND CEMENT TO TWO AND ONE-HALF PARTS OF FINE, SHARP (PLASTER) SAND. WHERE SHOWN, COATING IS TO BE REINFORCED WITH WIRE MESH.

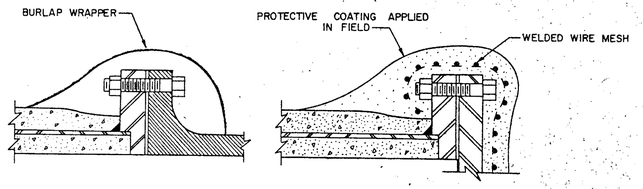


STANDARD RUBBER GASKET JOINT

NOTE: ALL CLOSURE SECTIONS SHALL BE FABRICATED WITH HAND HOLES TO ALLOW WIPING INSIDE OF JOINTS AFTER CLOSURE IS IN PLACE

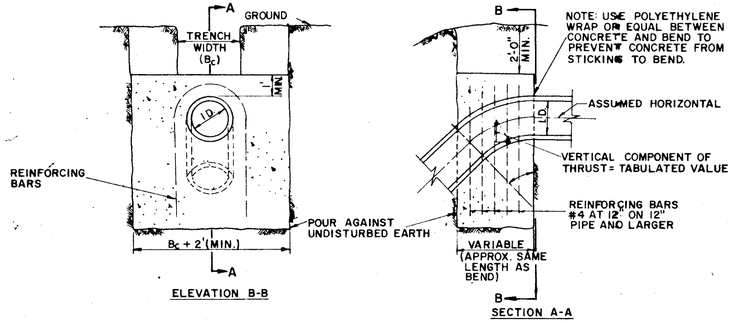


THREADED CONNECTION



FLANGED CONNECTIONS

REINFORCED CONCRETE CYLINDER PIPE DETAILS

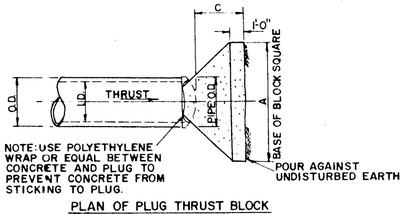


Δ	11.25° I.D. (IN.)	11.25° THRUST TONS	11.25° VOL. C.Y.	22.50° THRUST TONS	22.50° VOL. C.Y.	30° THRUST TONS	30° VOL. C.Y.	45° THRUST TONS	45° VOL. C.Y.	67.50° THRUST TONS	67.50° VOL. C.Y.	90° THRUST TONS	90° VOL. C.Y.	Δ I.D. (IN.)
	4,6,8	1.0	0.5	2.0	1.0	2.9	1.3	3.6	1.8	4.6	2.3	5.0	2.5	4,6,8
	10,12	2.2	1.1	4.3	2.2	5.7	2.8	8.0	4.0	10.5	5.2	11.3	5.7	10,12
	16,18	5.0	2.5	9.7	4.9	12.7	6.4	18.0	9.0	23.5	11.8	25.5	12.7	16,18
	20	6.1	3.1	12.0	6.0	15.7	7.9	22.2	11.1	29.2	14.5	31.4	15.7	20
	24	8.2	4.4	17.3	8.7	22.6	11.3	32.0	16.0	41.8	20.9	45.2	22.6	24
	30	10.5	5.2	20.3	10.1	26.5	13.3	37.5	18.8	49.0	24.5	53.1	26.5	30
	36	14.9	7.5	29.2	14.6	38.2	19.1	54.0	27.0	70.5	35.3	76.4	38.2	36
	42	20.3	10.1	39.8	19.9	52.0	26.0	73.5	36.7	96.0	48.0	104.0	52.0	42
	48	26.5	13.2	51.9	26.0	67.9	33.9	96.0	48.0	126.0	62.7	136.0	67.9	48
	54	33.5	16.8	65.7	32.9	85.9	42.9	122.0	60.7	159.0	79.4	172.0	85.9	54
	60	41.4	20.7	81.2	40.6	106.0	53.0	150.0	75.0	196.0	98.0	212.0	106.0	60
	66	50.1	25.0	98.2	49.1	128.0	64.2	182.0	90.7	237.0	119.0	257.0	128.0	66
	72	59.6	29.8	117.0	58.4	153.0	76.3	216.0	108.0	282.0	141.0	305.0	153.0	72
	78	69.9	35.0	137.0	68.6	179.0	90.0	254.0	127.0	331.0	166.0	358.0	179.0	78
	84	81.1	40.5	159.0	79.5	208.0	104.0	294.0	147.0	384.0	192.0	416.0	208.0	84
	90	93.1	46.5	183.0	91.3	239.0	119.0	337.0	169.0	441.0	221.0	477.0	239.0	90
	96	106.0	53.0	208.0	104.0	272.0	136.0	384.0	192.0	502.0	251.0	543.0	272.0	96

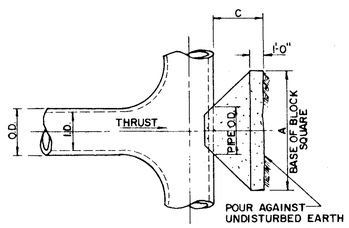
GENERAL NOTES- FOR ALL THRUST BLOCKS

1. All Calculations Are Based On Internal Pressure Of 200 P.S.I. For 24" I.D. Pipe And Smaller And 150 P.S.I. On 30" I.D. And Larger.
2. Volumes Of Vertical Bend Thrust Blocks Are Net Volumes Of Concrete To Be Furnished. The Corresponding Weight Of The Concrete (Class F) Is Equal To Or Greater Than The Vertical Component Of Thrust On The Vertical Bend.
3. Wall Thickness (T) Assumed Here For Estimating Purposes Only.
4. Concrete For Blocking Shall Be Class B Concrete.
5. Dimensions May Be Varied As Required By Field Conditions Where And As Directed By The Engineer. The Volume Of Concrete Blocking Shall Not Be Less Than Shown Here.

VERTICAL BEND THRUST BLOCK



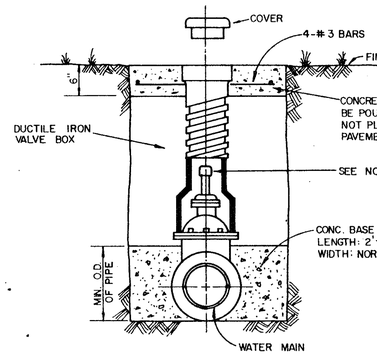
PLAN OF PLUG THRUST BLOCK



PLAN OF TEE THRUST BLOCK

I.D. (IN.)	THRUST TONS	C FT.	EARTH A FT.	EARTH VOL. C.Y.	ROCK A FT.	ROCK VOL. C.Y.
4,6,8	5.1	1.5	2.5	0.3	2.0	0.2
10,12	11.3	1.5	3.5	0.6	2.5	0.3
16,18	25.5	2.0	5.5	1.6	4.0	0.9
20	31.5	2.0	6.0	1.9	4.0	0.9
24	45.2	2.5	7.0	3.1	5.0	1.7
30	53.0	3.0	7.5	4.1	5.5	2.4
36	76.3	4.0	9.0	7.3	6.5	4.2
42	104.0	4.5	10.5	11.0	7.5	6.2
48	136.0	5.0	12.0	15.6	8.5	8.7
54	172.0	5.5	13.5	21.4	9.5	11.9
60	212.0	6.0	15.0	28.4	10.5	15.7
66	257.0	6.5	16.5	36.8	11.5	20.5
72	305.0	7.5	17.5	47.2	12.5	27.2
78	358.0	8.0	19.0	58.9	13.5	33.7
84	416.0	8.5	20.5	72.3	14.5	41.2
90	477.0	9.0	22.0	87.7	15.5	49.7
96	543.0	9.5	23.5	104.8	16.5	61.0

PLUG & TEE THRUST BLOCK



NOTE:

1. GATE VALVES SHALL BE IN ACCORDANCE WITH AWWA STANDARD C-509-80 OR LATEST THEREOF. ALL VALVES SHALL BE *"MUELLER"* OR APPROVED EQUAL.
2. A PERMANENTLY ATTACHED VALVE EXTENSION STEM SHALL BE REQUIRED FOR ANY VALVE THATS OPERATING NUT IS LOCATED IN EXCESS OF 4 FEET BELOW THE TOP OF VALVE BOX. THIS EXTENSION SHALL BE OF SUFFICIENT LENGTH TO INSURE THAT ITS TOP IS WITHIN 4' OF VALVE BOX LID. MANUFACTURED VALVE STACK DUCTILE IRON PIPE TO BE USED FOR EXTENSION GREATER THAN 4'-0. BELL END OF STACK TO BE FITTED OVER VALVE. VALVE AND VALVE STACK IS TO BE POLY WRAPED.
3. VALVES SHALL BE OF DUCTILE IRON W/RUBBER ENCAPSULATED DISK. BODY BOLTS SHALL BE STAINLESS STEEL OF SAME SIZE ON EACH VALVE.

TYPICAL VALVE SETTING AND BOX

TOWN OF ADDISON, TEXAS
DEPARTMENT OF ENGINEERING

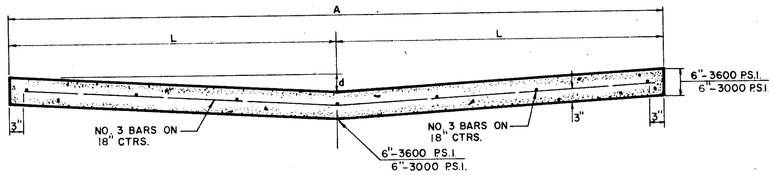
STANDARD CONSTRUCTION DETAILS WATER

THRUST BLOCKS

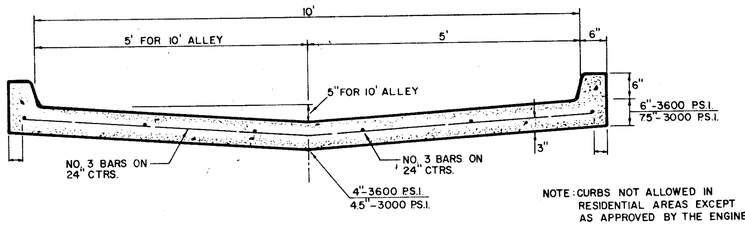
Designed -	Drawn -	Date - AUGUST, 1991	Job No. - 90025-5
Approved -	Checked -	Scale -	Sheet D-9 Of

FISCO 225504

ALLEY WIDTH (A)	HALF SECTION WIDTH (L)	INVERT DEPTH (d)
10'	5'	4"
12'	6'	6"
16'	8'	6"
20'	10'	6"

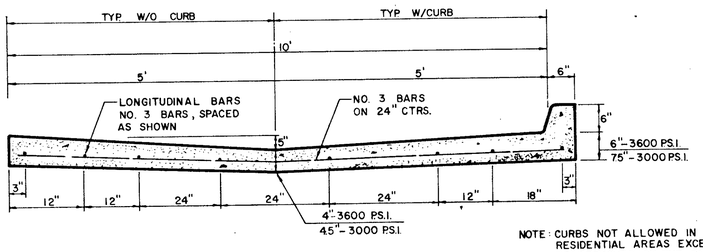


STANDARD 10', 12', 16', & 20' ALLEY SECTION



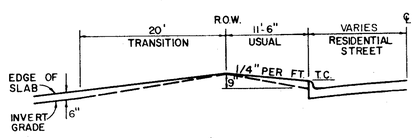
NOTE: CURBS NOT ALLOWED IN RESIDENTIAL AREAS EXCEPT AS APPROVED BY THE ENGINEER.

STANDARD ALLEY SECTION WITH CURBS

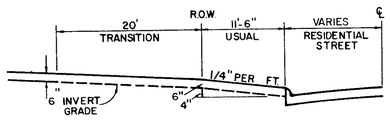


NOTE: CURBS NOT ALLOWED IN RESIDENTIAL AREAS EXCEPT AS APPROVED BY THE ENGINEER

ALTERNATE 10' ALLEY SECTION / CURB

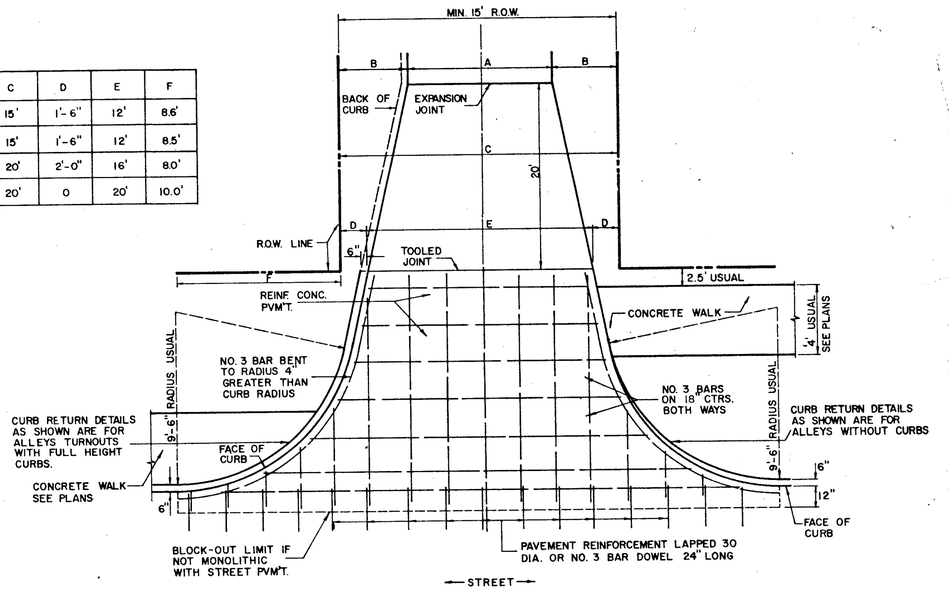


TYPE I ALLEY ENTRANCE



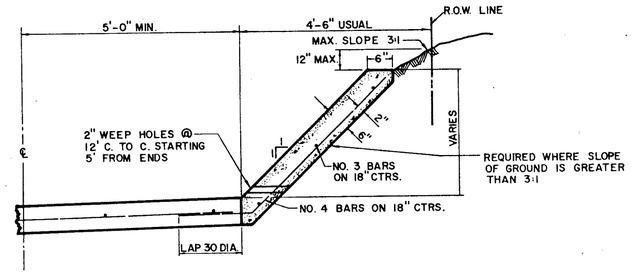
TYPE II ALLEY ENTRANCE

ALLEY WIDTH	A	B	C	D	E	F
10'	10'	2'-6"	15'	1'-6"	12'	8.6'
12'	12'	1'-6"	15'	1'-6"	12'	8.5'
16'	16'	2'-0"	20'	2'-0"	16'	8.0'
20'	20'	0	20'	0	20'	10.0'

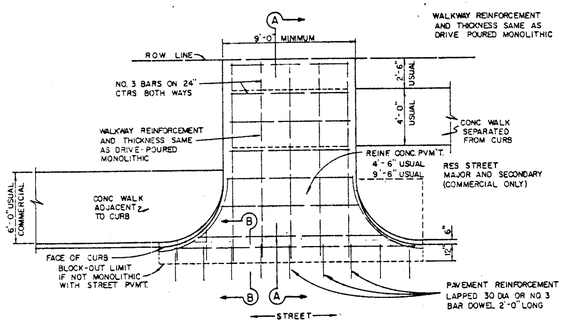


ALLEY RETURN DETAILS

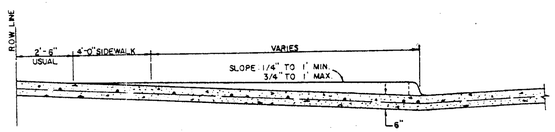
FOR DETAILS ONLY - SEE PLAN FOR DIMENSIONS



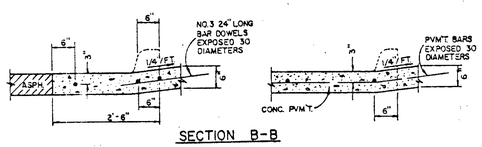
ALLEY SLOPE PROTECTION



DRIVEWAY RETURN TO STREET



SECTION A-A



SECTION B-B

DRIVEWAY RETURN DETAILS

GENERAL NOTES FOR ALLEYS AND DRIVEWAYS

1. CONCRETE FOR ALLEY RETURNS AND DRIVEWAYS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS IDENTICAL TO THAT SPECIFIED FOR THE STREET PAVEMENT OR BASE WHEN BUILT AS COMPONENTS OF A CONCRETE PAVING PROJECT. WHEN BUILT SEPARATELY, THE STRENGTH SHALL BE AS SPECIFIED ON THE CONSTRUCTION PLANS.
2. CONCRETE FOR ALLEY PAVEMENT SHALL BE OF THE STRENGTH SPECIFIED ON THE CONSTRUCTION PLANS. (3000 P.S.I. OR 3600 P.S.I. MINIMUM COMPRESSIVE)
3. SPACING AND CONSTRUCTION OF JOINTS SHALL CONFORM TO STREET PAVEMENT DETAILS.

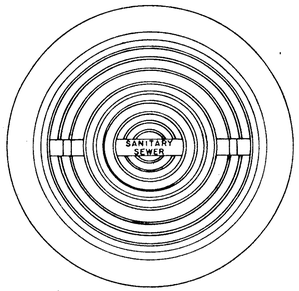
TOWN OF ADDISON, TEXAS
DEPARTMENT OF ENGINEERING

STANDARD CONSTRUCTION DETAILS
PAVING

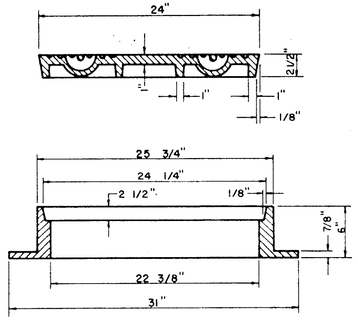
ALLEY & DRIVEWAY RETURNS

Designed -	Drawn -	Date - AUGUST, 1991	Job No. -
Approved -	Checked -	Scale -	Sheet D-2 Of

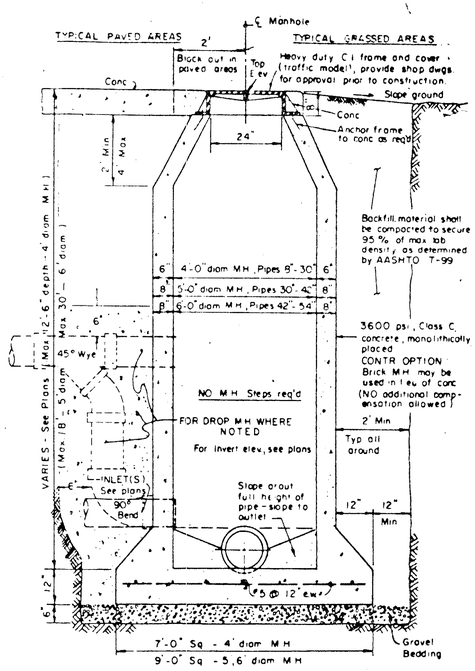
FRCO 303564



APPROX.
WEIGHT
RING AND COVER
385 LBS.

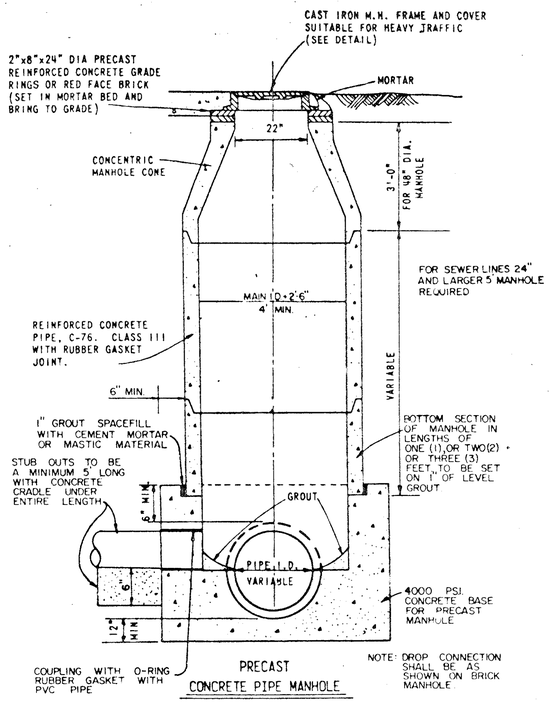


CAST IRON GRATE AND FRAME DETAIL



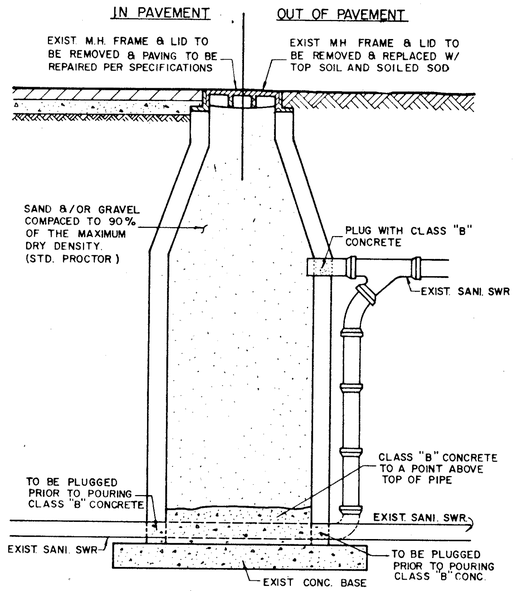
CAST IN PLACE MANHOLE

WHERE DROP M.H. IS REQUIRED, USE INSIDE DROP CONNECTION AS PER TOWN OF ADDISON STANDARDS.

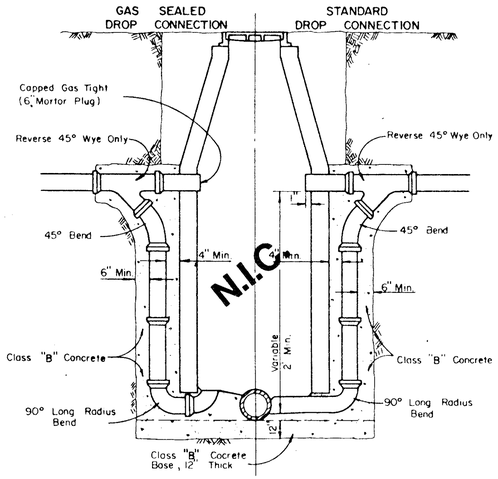


PRECAST
CONCRETE PIPE MANHOLE

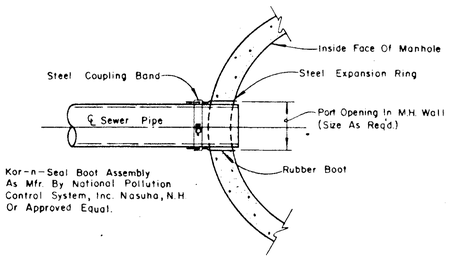
PRECAST MANHOLE

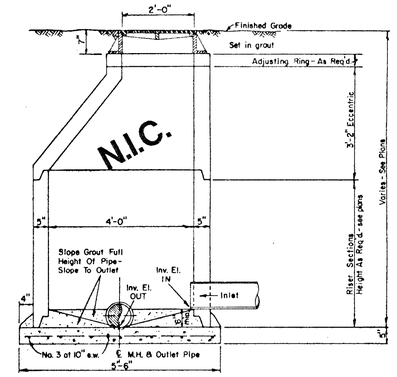


ABANDONMENT OF EXISTING MANHOLE IN AND OUT OF PAVEMENT



DROP CONNECTIONS FOR SANITARY SEWER MANHOLES





NOTE:
Contractor To Install Kor-n-Seal Boot Assembly Per Mfr. Recommendations In A Neat And Workman-Like Manner

TYPICAL SEWER CONNECTION AT MANHOLE

ECCENTRIC MANHOLE DETAIL

CLASS B Conc. - 2000psi at 28 days (Compressive)

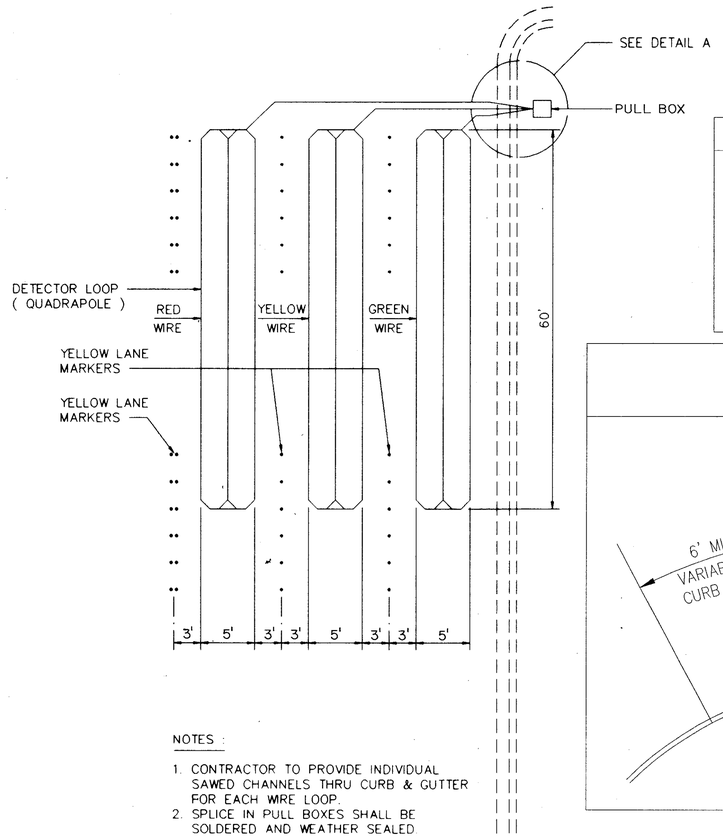
TOWN OF ADDISON, TEXAS
DEPARTMENT OF ENGINEERING

STANDARD CONSTRUCTION DETAILS SANITARY SEWER

MANHOLES AND CONNECTIONS

Designed -	Drawn -	Date - AUGUST, 1991	Job No. - 90025.6
Approved -	Checked -	Scale -	Sheet D-6 Of

ISCO 303566

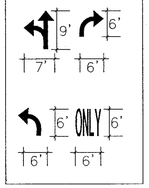


NOTES :

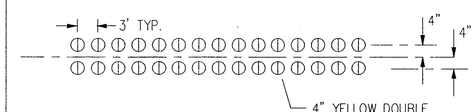
1. CONTRACTOR TO PROVIDE INDIVIDUAL SAWED CHANNELS THRU CURB & GUTTER FOR EACH WIRE LOOP.
2. SPLICE IN PULL BOXES SHALL BE SOLDERED AND WEATHER SEALED.

PLAN

DETAIL I

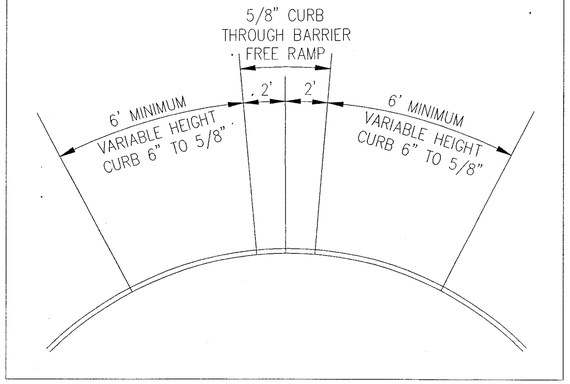


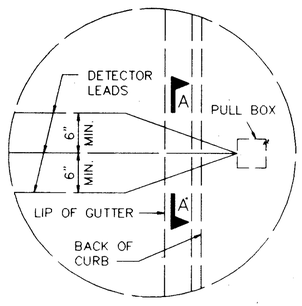
DETAIL II



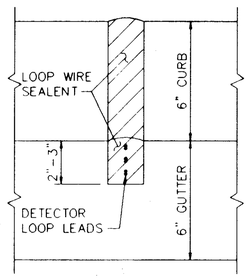
TWO-WAY DIVIDE LINE

DETAIL III





DETAIL A



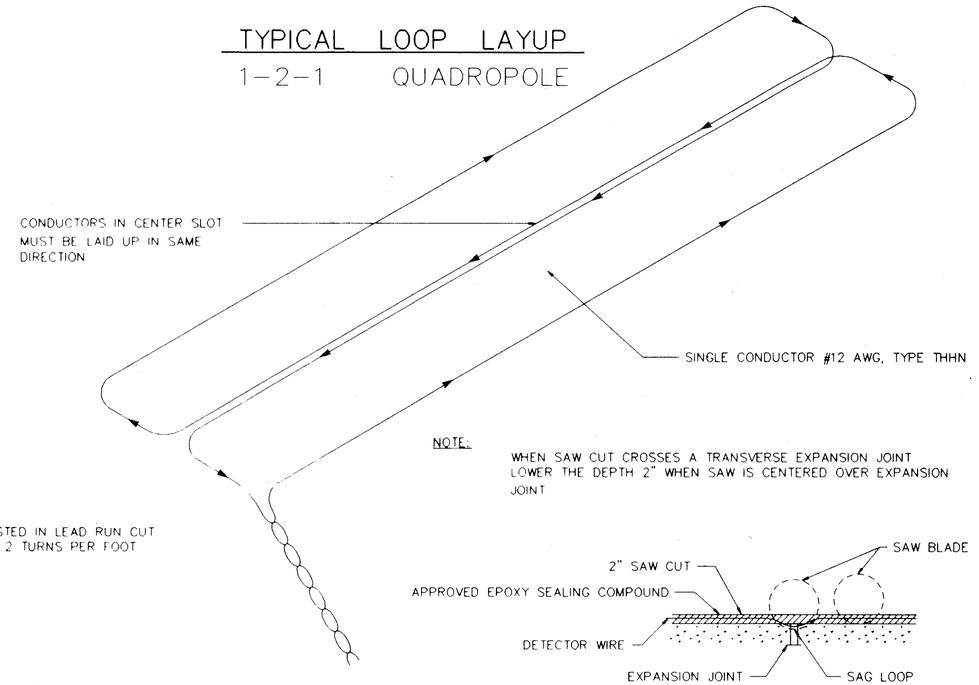
SECTION A-A

VEHICLE LOOP DETECTOR LAYOUT

1. INSTALLATION OF WIRE LOOPS IS TO BE MADE IN THE SHORTEST TIME PRACTICAL, NOT TO EXCEED A 4 HR. MAX. AND SCHEDULED DURING OFF PEAK HOURS TO MINIMIZE DELAY TO VEHICLE TRAFFIC.
2. THE PAVEMENT CUT IS TO BE CUT WITH A CONCRETE SAW TO NEAT LINES AND LOOSE MATERIAL REMOVED. THE CUT SHOULD BE CLEAN AND DRY WHEN THE SEALING COMPOUND IS PLACED.
3. THE LEAD-IN WIRES ARE TO BE TWISTED A MINIMUM OF TWO TURNS PER FOOT AND REMAIN UNDISTURBED AFTER THE LOOP HAS BEEN TUNED.
4. EACH LOOP IS TO BE RETURNED TO CONTROLLER VIA ONE PAIR OF UNSPLICED SHIELDED LEAD-IN WIRES. MULTIPLE, TWISTED LEADS TO MORE THAN ONE LOOP IN SINGLE LEAD RUN SAW SLOT ARE NOT PERMISSIBLE.
5. ALL LOOPS TO PENETRATE CURB IN A SEPERATE CONDUIT.

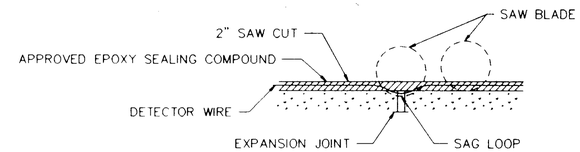
TYPICAL LOOP LAYUP

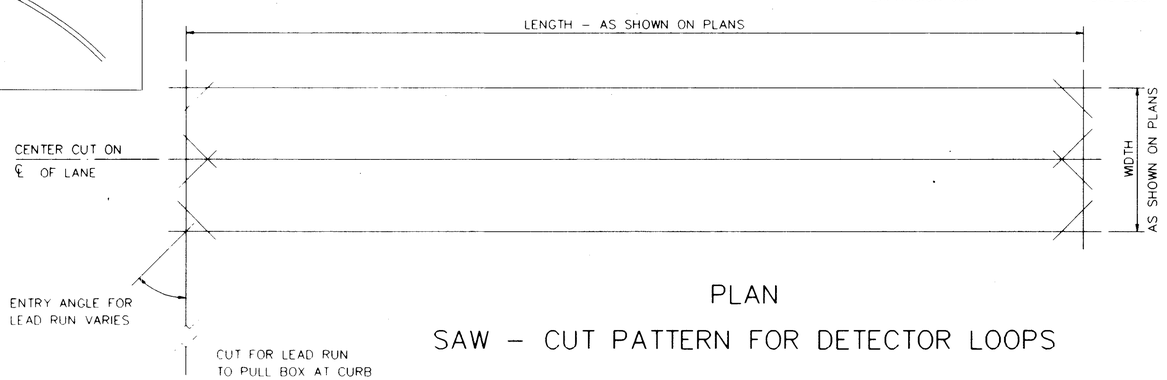
1-2-1 QUADROPOLE



NOTE:

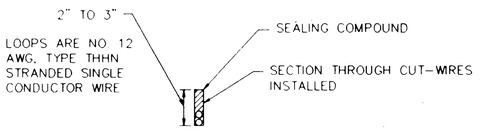
WHEN SAW CUT CROSSES A TRANSVERSE EXPANSION JOINT LOWER THE DEPTH 2" WHEN SAW IS CENTERED OVER EXPANSION JOINT





PLAN

SAW - CUT PATTERN FOR DETECTOR LOOPS



NO.	REVISION	BY	DATE

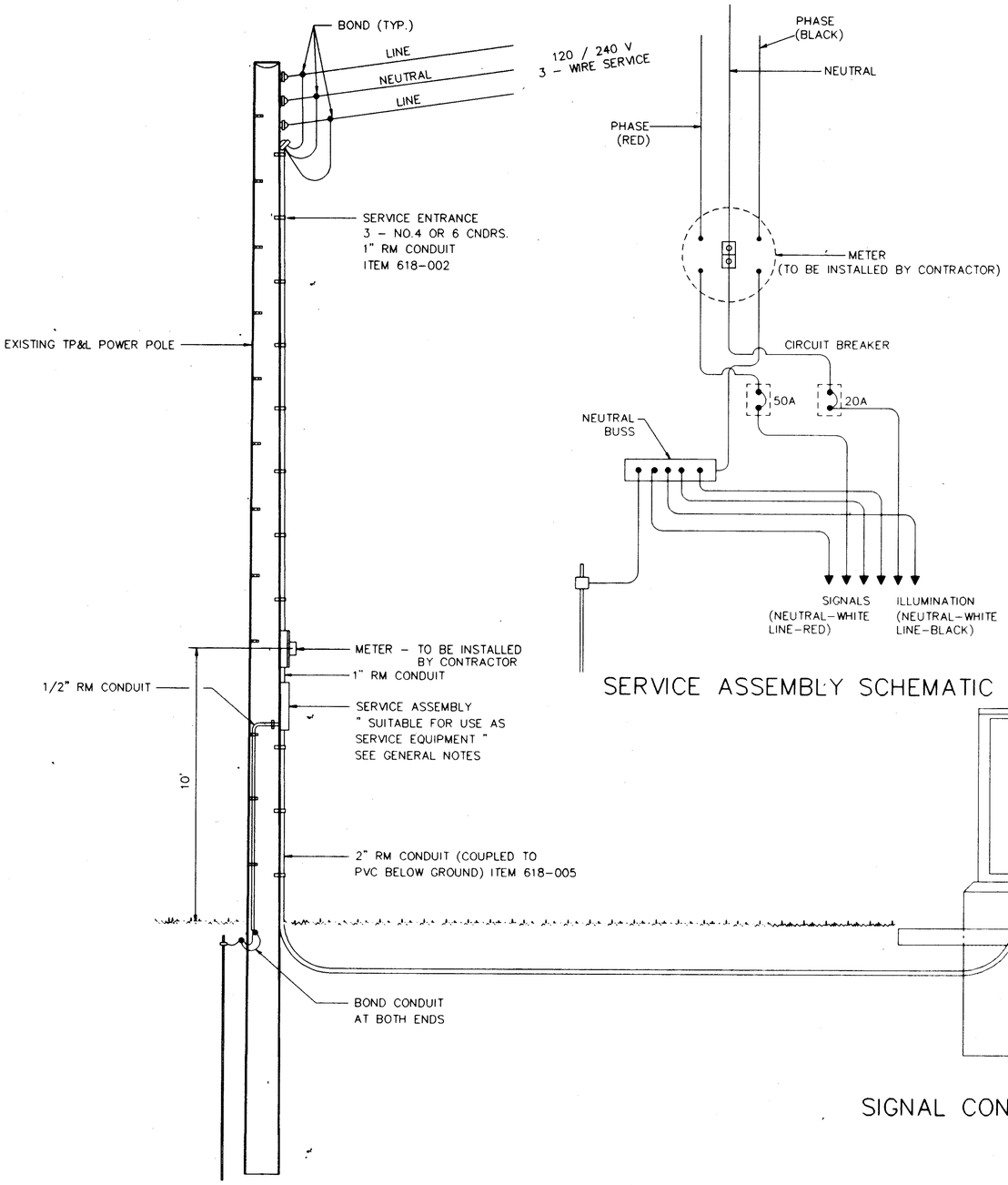
DESIGNED BY:
DRAWN BY: EH&A
CHECKED BY:
SCALE: AS SHOWN
DATE: JULY, 1995
FILE:

Espey, Huston & Associates, Inc.
Engineering & Environmental Consultants
13800 Montfort Drive, Suite 230
Dallas, Texas 75240 (214) 387-0771

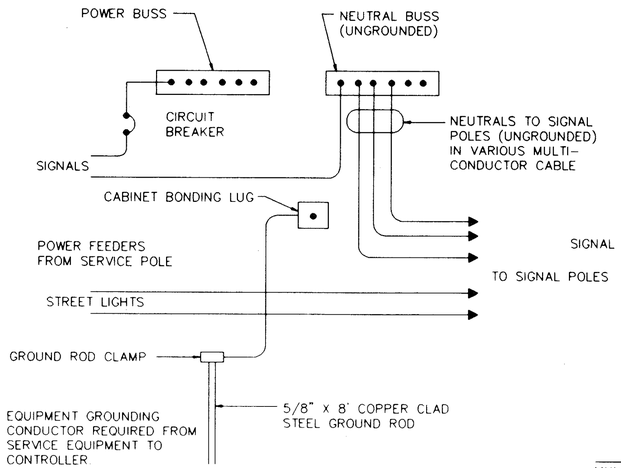
TRAFFIC SIGNAL DETAILS

MIDWAY ROAD DRAINAGE IMPROVEMENTS
GREENHILL DRIVE TO TU RIGHT-OF-WAY
for
THE TOWN OF ADDISON

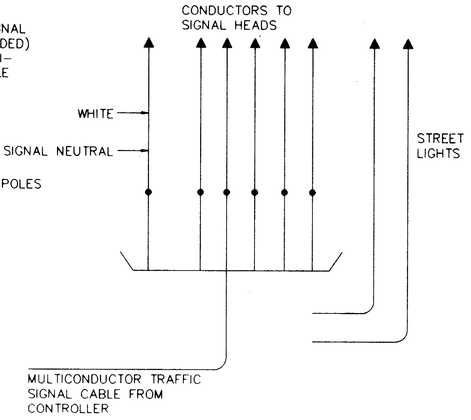
SHEET NO.
OF SHEETS
JOB NO. 16285



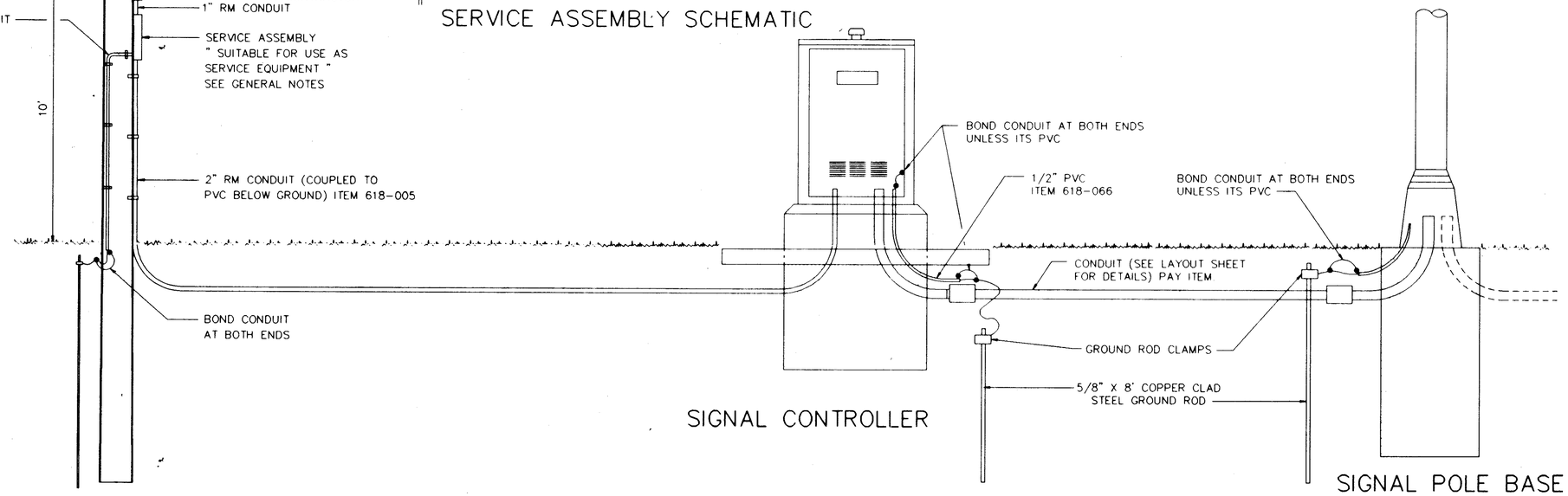
SERVICE ASSEMBLY SCHEMATIC



CONNECTIONS AT SIGNAL CONTROLLERS



CONNECTIONS AT POLE BASE



SIGNAL CONTROLLER

SIGNAL POLE BASE

NO.	REVISION	BY	DATE

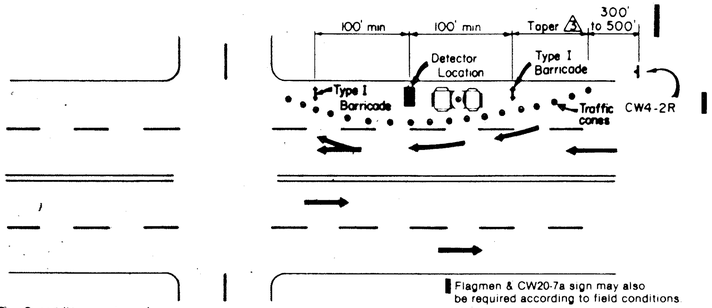
DESIGNED BY:
DRAWN BY: EH&A
CHECKED BY:
SCALE: AS SHOWN
DATE: JULY, 1995
FILE:

Espey, Huston & Associates, Inc.
Engineering & Environmental Consultants
13800 Montfort Drive, Suite 230
Dallas, Texas 75240 (214) 387-0771

SERVICE POLE & GROUNDING DETAILS

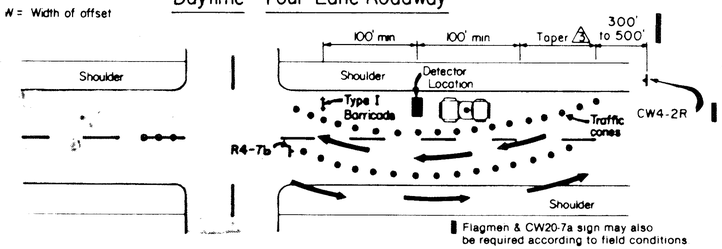
MIDWAY ROAD DRAINAGE IMPROVEMENTS
GREENHILL DRIVE TO TU RIGHT-OF-WAY
for
THE TOWN OF ADDISON

SHEET NO.
OF SHEETS
JOB NO. 16285



S = Speed (Numerical value)
W = Width of offset

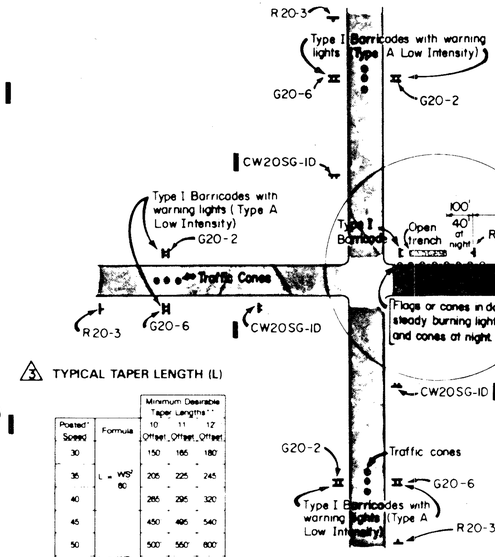
Daytime - Four Lane Roadway



Daytime - Two Lane Roadway

TYPICAL DETECTOR INSTALLATION

At Night—1. Steady burn lamps for delineation instead of cones.
2. Flashers on barricades.



NOTE For several closely adjoining intersections on the same project, advance signing may not be required in advance of each intersection, but only in advance of the intersections at the project limits. If this is the case, see details elsewhere in the plans for advance signing requirements.

* Distance varies with speed of traffic. Distance can be less than shown in urban areas.

** Change to Type I Barricades with arrows at night.

⚠4 Typical advance signing

SIGNING IN ADVANCE OF CONSTRUCTION AND POSSIBLE SIGNING NEAR WORK AREA

⚠3 TYPICAL TAPER LENGTH (L)

Posted* Speed	Formula	Minimum Desirable Taper Lengths** 10' Offset	11' Offset	12' Offset
30		150	165	180
35	L = WS²/60	205	225	245
40		265	295	320
45		450	495	540
50		500	550	600
55	L = WS	550	605	660
60		600	660	720

* 85TH PERCENTILE SPEED MAY BE USED ON ROADS WHERE TRAFFIC SPEEDS NORMALLY EXCEED THE POSTED SPEED LIMIT

** TAPER LENGTHS HAVE BEEN ROUNDED OFF

L = TAPER LENGTH IN FEET
W = OFFSET IN FEET
S = SPEED IN MPH

GENERAL NOTES

Reflectorized signs shall be constructed of retro-reflective sheeting in conformance with project specifications and shall be maintained to meet the appearance, color and reflectivity requirements of those specifications. Paints and coloration of signs shall be equal to the Department's standards. Signs shall comply with the general requirements specified in the "Standard Specifications for Construction of Highways, Streets and Bridges" in effect at the time of contract award.

All traffic control devices shall conform with the "Texas Manual on Uniform Traffic Control Devices for Streets and Highways." Contractors shall furnish a copy of a certification from the manufacturer of the lights that the warning lights meet the requirements of the ITE Standard for Flashing and Steady Burn Warning Lights as contained in the lastest edition of the "Texas Manual on Uniform Traffic Control Devices for Streets and Highways."

All signs shown have black letters and borders on a reflective orange background except the R20-3, R4-7b, R4-8b, and G20-6 signs which have a reflective white background.

Signs erected on portable supports for use on construction projects normally mean signs which are used during the day to warn or guide traffic through and/or around the actual construction area, but at the end of the workday such signs are either removed or turned away from the view of traffic. Portable supports shall be as shown on this sheet or as approved by the Engineer. The bottom of the sign shall be a minimum of one (1) foot above the pavement sign. Signs required for nighttime usage should not normally be mounted on temporary supports, except when approved by the Engineer.

Signs erected on fixed supports for use on construction projects normally mean signs that are to remain in place for both day and night usage to regulate, warn and guide traffic in advance of and within the limits of the project including the crossroad approaches. However, under certain conditions, such as where a sign may be required for a few days' duration and then is no longer needed or where a sign is moved from location to location every few days or where it is not practical or desirable to provide a fixed mounting, such signs may be erected on a temporary type of support. Temporary supports shall be as shown on this sheet or as approved by the Engineer. Signs erected on temporary supports should be at a minimum height of three (3) feet. Signs erected on fixed supports should be at a minimum height of five (5) feet in rural areas and seven (7) feet in urban areas and other rural locations where sight distance obstructions are present. Regardless of the type of support used, regulatory signs should not be erected at height less than the 5- or 7-foot minimum specified above unless a lower height is approved by the Engineer. Posts for fixed supports should be set in the ground without concrete footings.

Where portable or temporary supports require the use of weights to keep a sign or barricade from turning over, the use of some type of sandbag is recommended. The use of pieces of concrete, rocks, iron, steel or other solid objects will not be permitted.

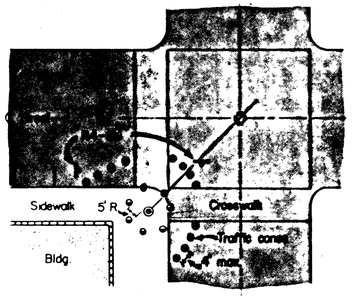
For additional information and guidelines on barricades and construction signs see the Texas Manual on Uniform Traffic Control Devices.

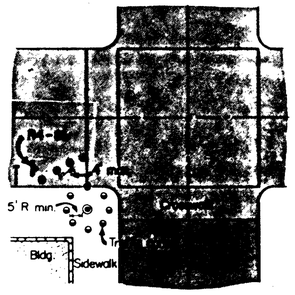
Signing shown is typical and may be adjusted to fit field conditions by the Engineer.

No more than two signs shall be placed on a barricade.

⚠1 Where a sign is to be mounted on a barricade, the barricade length should not be less than the horizontal dimension of the sign. If lights are also to be mounted on the barricade, the barricade should not be less than the sign width plus about 12" for each light to be attached. Barricades of a greater length than the above will be satisfactory.

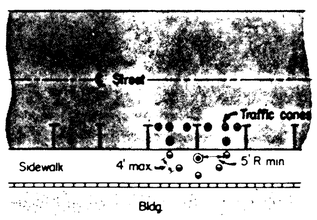
⚠2 The advance signs and barricades shall be in place when signal construction operations are in progress. The contractor may remove the advance signs and barricades when there are no construction operations underway. If permitted elsewhere in the plans. Any obstructions or hazards at the work area shall be clearly marked and delineated at all times.



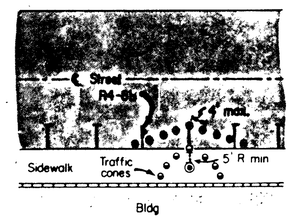


TYPICAL RESTRICTED PEDESTRIAN MOVEMENTS

Where pedestrian movements are anticipated at night, all holes, trenches or other hazardous areas shall be adequately protected by use of barricades, lights or other protective devices.



If cones are within limits of a parking space the R4-7b or R4-8b sign need not be placed.



Eliminate parking by placing cones when spaces exist.

TYPICAL HANGING SIGNAL INSTALLATIONS

NOTES
1. Flagmen & CW20-7a sign may also be required according to field conditions.
2 Use vehicle equipped with yellow rotating beacon or strobe

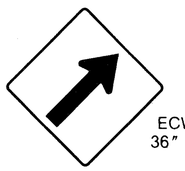
R4-7b
24" × 30"

R4-8b
24" × 30"

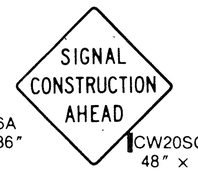
R20-3
48" × 42"

G20-6
Variable × 42"
(48" min.)

G20-2
60" × 24"



ECWI-6A
36" × 36"



CW20SG-1D
48" × 48"

CW20-7a
48" × 48"

TYPICAL SIGNS USED IN TRAFFIC SIGNAL CONSTRUCTION AREAS

For Type I Barricades, both sides of the top rail shall have reflective orange and reflective white striping.

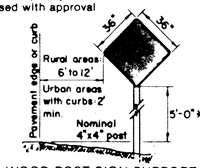
TYPE I BARRICADES

TYPICAL SIGN SUPPORTS

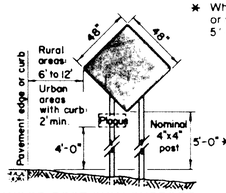
⚠ Other type of portable or temporary sign supports may be used with approval of the ENGINEER.

* Where sight distance obstructions are present, or where signs are erected in urban areas, the 5'-0" height should be increased to 7'-0".

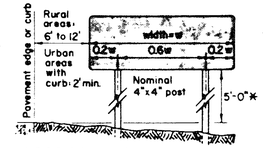
FIXED SUPPORTS



WOOD POST SIGN SUPPORT: for 36" × 36" and smaller warning signs, and other signs having an area not exceeding 9 sq. ft.

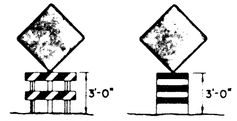


WOOD POST SIGN SUPPORT: for 48" × 48" warning signs.



WOOD POST SIGN SUPPORT: for rectangular regulatory signs, guide signs.

TEMPORARY SUPPORTS ⚠



TYPE II BARRICADE SIGN SUPPORT

DRUM SIGN SUPPORT

PORTABLE SUPPORTS ⚠

TYPE I BARRICADE SIGN SUPPORT
Barricade Types I, II or III may be used.

NO.	REVISION	BY	DATE

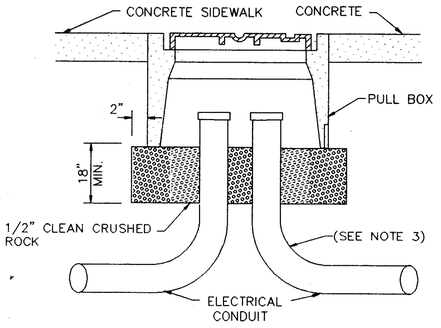
DESIGNED BY:
DRAWN BY: EH&A
CHECKED BY:
SCALE: AS SHOWN
DATE: JULY, 1995
FILE:

Espey, Huston & Associates, Inc.
Engineering & Environmental Consultants
13800 Montfort Drive, Suite 230
Dallas, Texas 75240 (214) 387-0771

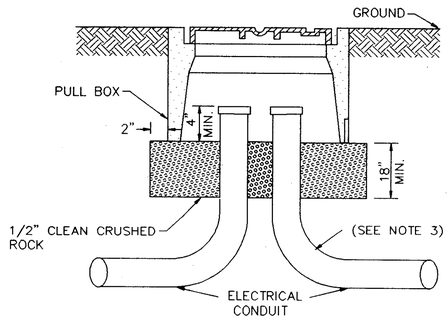
BARRICADES, CONSTRUCTION SIGNS AND TYPICAL CONSTRUCTION LAYOUTS FOR TRAFFIC SIGNAL INSTALLATIONS

MIDWAY ROAD DRAINAGE IMPROVEMENTS
GREENHILL DRIVE TO TU RIGHT-OF-WAY
for
THE TOWN OF ADDISON

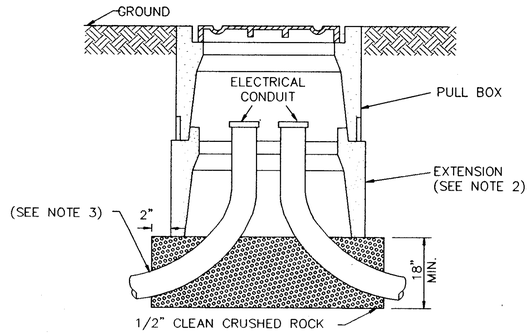
SHEET NO.
OF SHEETS
JOB NO. 16285



TYPICAL PULL BOX AND CONDUIT DETAILS IN EXISTING SIDEWALK



TYPICAL PULL BOX AND CONDUIT DETAILS PLACED IN GROUND



TYPICAL PULL BOX AND CONDUIT DETAILS WITH EXTENSION

NOTES :

(1) IF SPECIFIED IN THE PLANS, A 1/2" X 8'-0" GROUND ROD SHALL BE INSTALLED INSIDE THE PULL BOX. THE COST AND INSTALLATION OF THIS ROD SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PULL BOX.

(2) IF SPECIFIED, THE PULL BOX EXTENSION SHALL BE INSTALLED AT THE LOCATIONS SHOWN IN THE PLANS. THE COST AND INSTALLATION OF THE PULL BOX EXTENSION SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PULL BOX.

(3) CONDUIT BENDS AS SHOWN ARE DIAGRAMMATIC AND SHALL CONFORM TO NATIONAL ELECTRICAL CODE.

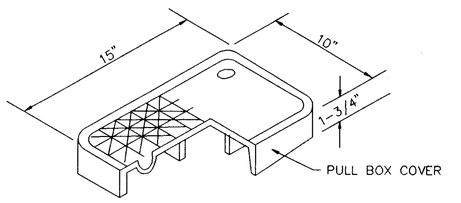
(4) SEE NORTH CENTRAL TEXAS STANDARD CONSTRUCTION SPECIFICATIONS FOR ADDITIONAL INFORMATION CONCERNING THE MATERIALS AND INSTALLATION OF THE PULL BOX, EXTENSIONS AND CONDUITS.

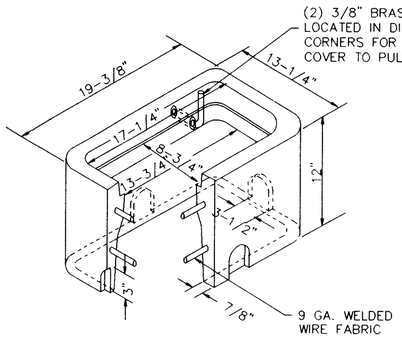
(5) WHEN A PULL BOX IS INSTALLED BY THE GRADING OR SURFACING CONTRACTOR, THE PULL BOX COVER LEGEND SHALL BE "TRAFFIC SIGNALS", UNLESS OTHERWISE SPECIFIED IN THE PLANS.

(6) THE COMPLETE PULL BOX INSTALLATION SHOULD BE BUILT TO FIT EXISTING FIELD CONDITIONS. THE PULL BOX SHOULD BE PLACED A MIN. OF 2'-0" BEHIND CURB AND SHALL PRESENT A NEAT, WORKMAN LIKE APPEARANCE. THE COST FOR THE REPLACEMENT OF EXISTING SIDEWALK MATERIAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR STRUCTURAL CONCRETE.

(7) COVERS FOR PULL BOX SHALL BE CAST IRON WITH TEXT.

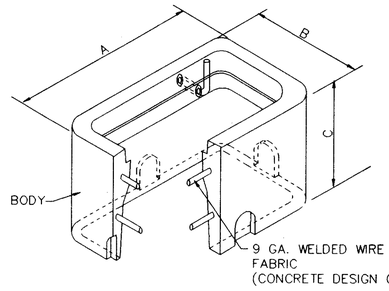
(8) ALL PULL BOXES SHALL BE CONSTRUCTED OF CAST IRON MATERIALS.

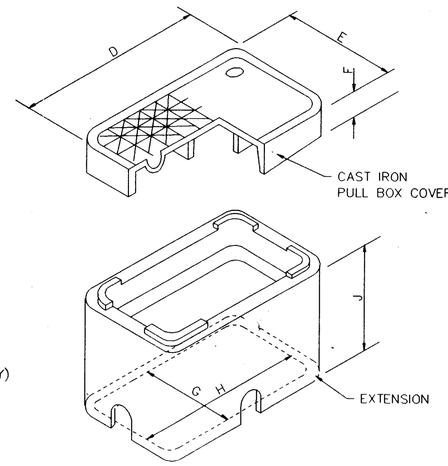




TYPICAL
PULL BOX SIZE I
CONCRETE DESIGN

(DIMENSIONS ARE NOMINAL)





TYPICAL
PULL BOX SIZE II

NOMINAL PULL BOX SIZE II DIMENSIONS

PULL BOX CONSTRUCTION MATERIAL	PULL BOX DIMENSIONS			CAST IRON PULL BOX LID DIMENSIONS			PULL BOX EXTENSION DIMENSIONS		
	A	B	C	D	E	F	G	H	J
CONCRETE	25"	15"	12"	21 3/4"	11 3/4"	2"	12 1/4"	22 1/4"	10 1/4"

THE DIMENSIONS SHOWN IN THE SCHEDULE ABOVE MAY VARY SLIGHTLY BY MANUFACTURER'S DESIGNS

TYPICAL
PULL BOX COVERS

NO.	REVISION	BY	DATE

DESIGNED BY: _____
DRAWN BY: _____
CHECKED BY: _____
SCALE: _____
DATE: _____

ESPEY, HUSTON & ASSOCIATES, INC.
Engineering & Environmental Consultants
13800 Montfort Drive Suite 230 Dallas, Texas 75240
(214) 387-0771

PULL BOX DETAILS

SHEET NO. L
OF SHEETS
JOB NO.

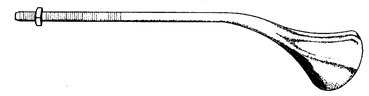
TELEPHONE POLE HASTN

COMPRESSION FITTING

SOURCES:
RELIABLE ELECTRIC NO. 5264
FARGO NO. OR EQUAL

LUMINAIRE ARM

SOURCES:
CROUSE HINDS NO. 106-R82
JOSLYN NO. J75100B OR EQUAL

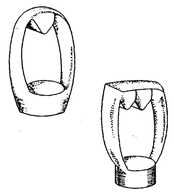


THIMBLEYE BOLT (Angle Type)

SOURCES:
JOSLYN NO. J80 SERIES
McGRAW EDISON DG4F OR EQUAL

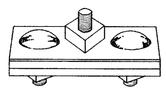
LIFT PLATE

SOURCES:
JOSLYN J7886
McGRAW EDISON DG4M-2 OR EQUAL



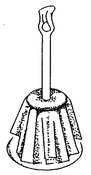
EYE NUTS (Twineye & tripleye)

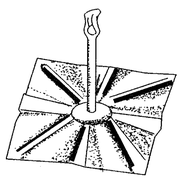
SOURCES:
JOSLYN NO. J12593
McGRAW EDISON DGISE OR EQUAL



GUY CLAMP (3-Bolt)

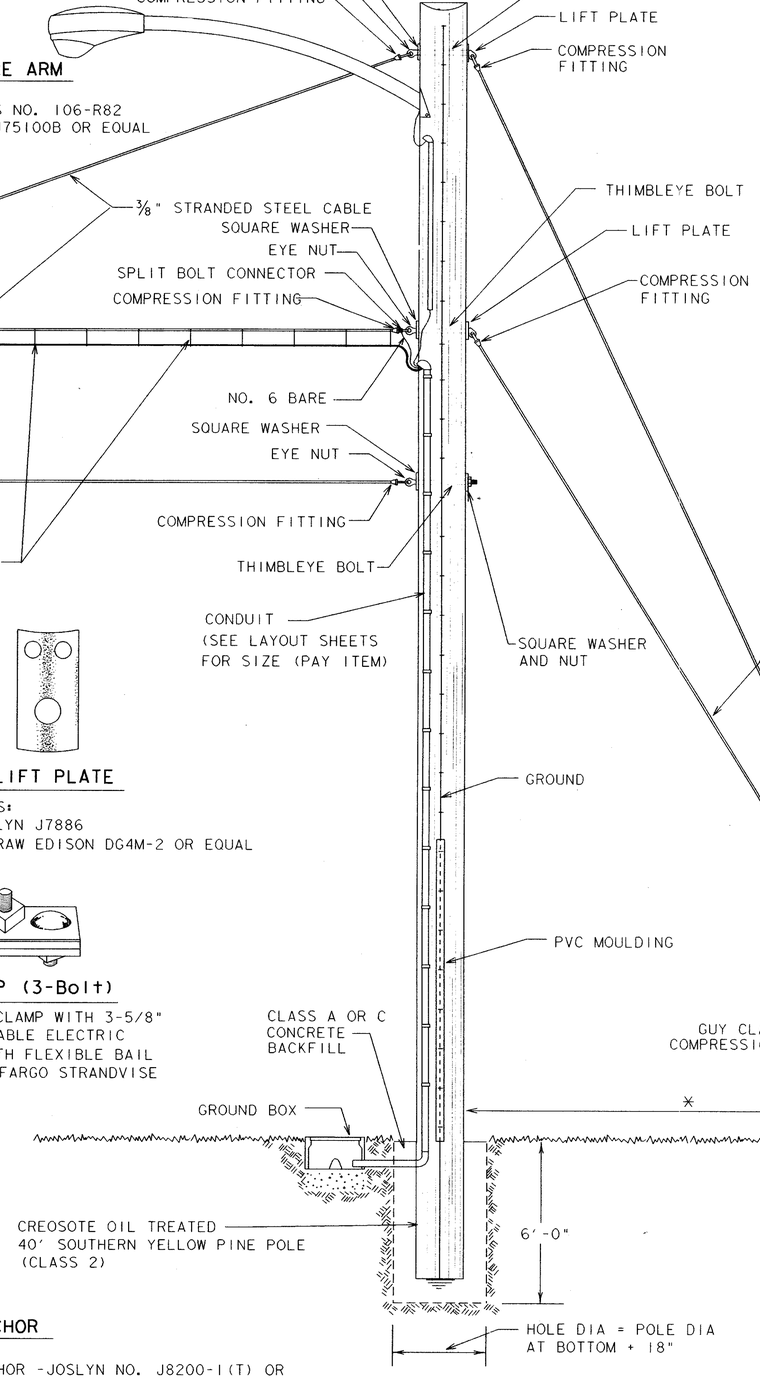
6" HEAVY GUY CLAMP WITH 3-5/8" BOLTS OR RELIABLE ELECTRIC STRANDVISE WITH FLEXIBLE BAIL (NO. 5264) OR FARGO STRANDVISE OR EQUAL

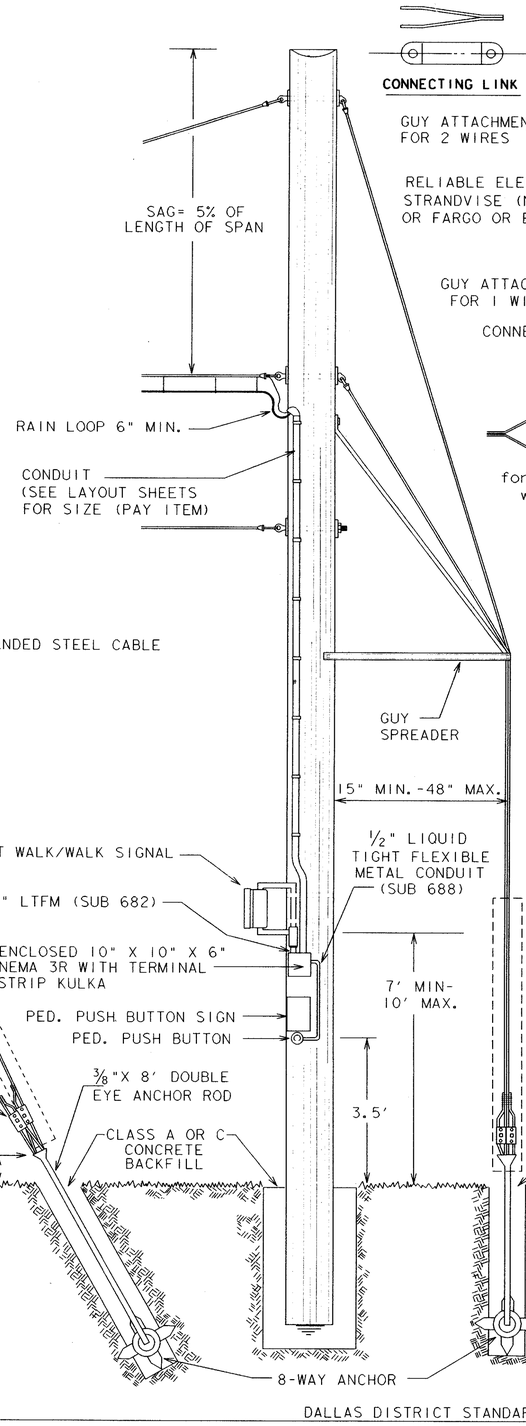


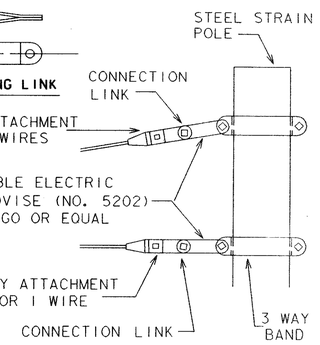


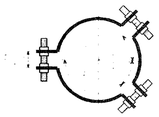
8-WAY ANCHOR

SOURCES:
8-WAY ANCHOR -JOSLYN NO. J8200-1(T) OR
6-WAY ANCHOR-McGRAW EDISON DA6EI OR EQUAL









3-WAY BAND

SPAN CABLE ATTACHMENT DETAILS FOR STEEL STRAIN POLES

* ANCHORS SHOULD BE LOCATED SO THAT THE DISTANCE BETWEEN THE ANCHOR AND THE POLE BUTT IS EQUAL TO THE DISTANCE FROM THE GROUND TO THE POINT OF GUY ATTACHMENT. IN NO CASE SHOULD THE DISTANCE FROM THE ANCHOR TO THE POLE BUTT BE LESS THAN 1/3 OF THE DISTANCE FROM THE GROUND TO THE POINT OF GUY ATTACHMENT.

DALLAS DISTRICT STANDARD

CONSTRUCTION DETAILS FOR SPAN WIRE MOUNTED SIGNALS

6
TEXAS DALLAS

238L